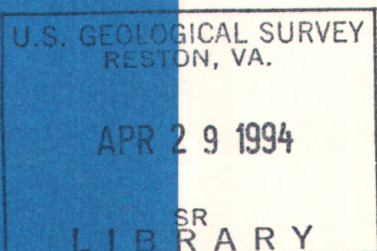
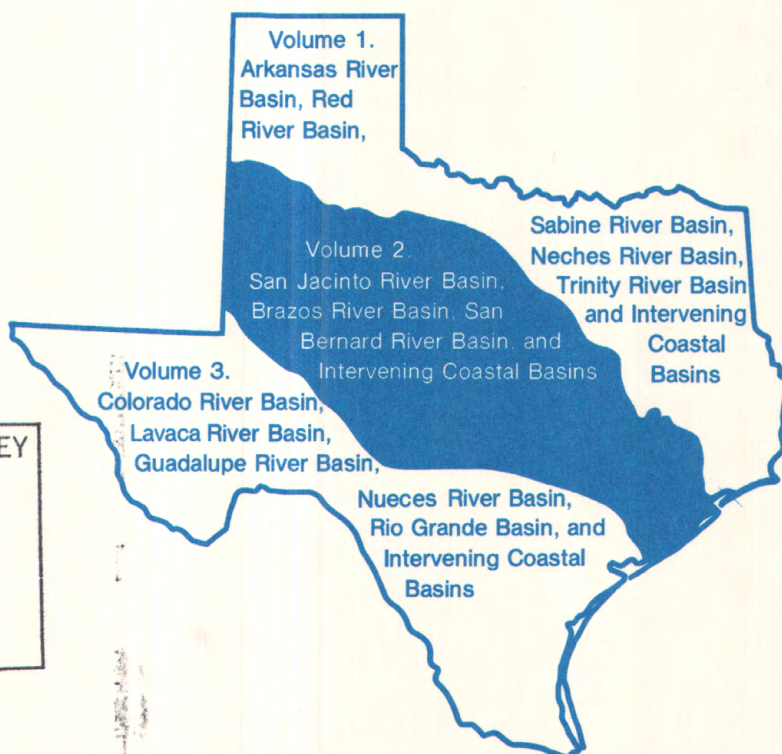




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# Water Resources Data Texas Water Year 1993

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-93-2  
Prepared in cooperation with the State of Texas  
and with other agencies



# CALENDAR FOR WATER YEAR 1993

1992

## 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		

1993

## JANUARY

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

## FEBRUARY

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28						

## MARCH

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

## APRIL

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
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18	19	20	21	22	23	24
25	26	27	28	29	30	

## MAY

S	M	T	W	T	F	S
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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
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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		

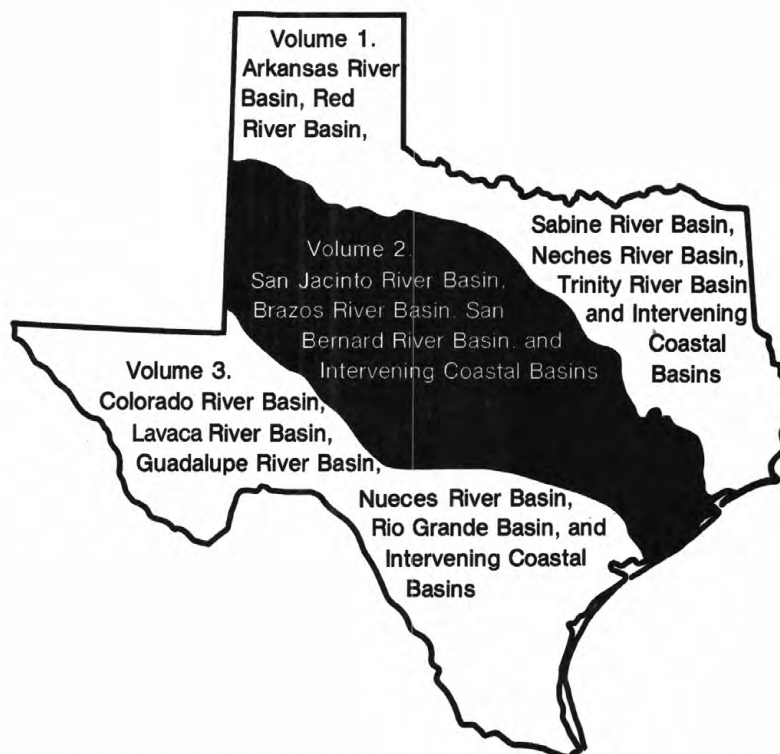




# Water Resources Data Texas Water Year 1993

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

by S.C. Gandara, E.M. McPherson, W. Gibbons, B.A. Hinds, and F.L. Andrews



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-93-2  
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**



## 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 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  
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

H.D. Buckner	Ruth E. Jones
Mike Dorsey	Joyce Stewart
	Phil Tovar

### San Antonio Subdistrict Office

James M. Briers	Olga H. Munoz
Allan K. Clark	M.E. Torres-Pastor
Robert J. Ferris	Jorge O. Pena
Allen L. Furlow	Brian L. Petri
Jon R. Gilhousen	Richard N. Slattery
C.A. Hartmann, Jr.	Michael W. Thomas
Joyce Knapick	John A. Tomlinson
Addis M. Miller	John F. Wojcik

### San Angelo Field Office

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

### Wichita Falls Field Office

Paul Bennett	Doris F. Tipps
W.C. Damschen	

### 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. Sal 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
H. Sue Butler	Darryl G. Pinion
Ben J. Carr	Timothy H. Raines
Martin J. Danz	Glenn A. Rivers
Judith H. Donohue	Jeffery T. Sandlin
Richard E. Faux	Clyde T. Schoultz
Philip W. Golden	J.M. Taylor
Vernon L. Hastings	David V. Tudor
Bradley L. Mansfield	Charles M. Wood

### Austin Field Office

Keith D. Ging	Raymond R. Salazar
Searcy M. Jacobs	Venezia Shearer
Milton M. Miller	Keith R. 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.



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<b>15. Supplementary Notes</b>  Prepared in cooperation with Federal, State, and local agencies.			
<b>16. Abstract (limit: 200 words)</b>  Water-resources data for the 1993 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 89 gaging stations; stage only at 9 gaging stations; stage and contents at 20 lakes and reservoirs; water quality at 48 gaging stations; and data for 29 partial-record and 14 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> 393
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GAGING STATIONS, IN DOWNSTREAM ORDER,  
FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

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

	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	25
West Fork San Jacinto River below Lake Conroe near Conroe (d) -----	08067650	32
West Fork San Jacinto River near Conroe (d) (c) (b) (s) -----	08068000	33
West Fork San Jacinto River above Lake Houston near Porter (d) (c) (b) -----	08068090	37
Spring Creek at Spring (d) (c) (b) -----	08068520	39
Cypress Creek at Katy-Hockley Road near Hockley (d) -----	08068720	42
Cypress Creek at House and Hahl Road near Cypress (d) -----	08068740	43
Little Cypress Creek near Cypress (d) -----	08068780	44
Cypress Creek at Grant Road near Cypress (d) -----	08068800	45
Cypress Creek at Stubner Airline Road near Westfield (d) -----	08068900	46
Cypress Creek near Westfield (d) (c) (b) -----	08069000	47
East Fork San Jacinto River near Cleveland (d) -----	08070000	50
East Fork San Jacinto River near New Caney (d) (c) (b) (t) -----	08070200	52
Caney Creek near Splendora (d) (c) (b) -----	08070500	54
San Jacinto River:		
Lake Houston:		
Luce Bayou above Lake Houston near Huffman (d) (c) (b) -----	08071280	62
Lake Houston near Sheldon (e) (c) (b) (t) -----	08072000	65
San Jacinto River near Sheldon (e) -----	08072050	76
Buffalo Bayou near Katy (d) -----	08072300	78
Barker Reservoir near Addicks (e) -----	08072500	79
South Mayde Creek:		
Bear Creek near Barker (d) -----	08072730	80
Langham Creek at West Little York Road near Addicks (d) -----	08072760	81
Addicks Reservoir near Addicks (e) -----	08073000	82
Buffalo Bayou near Addicks (d) -----	08073500	83
Buffalo Bayou at West Belt Drive, Houston (d) (c) (b) -----	08073600	84
Buffalo Bayou at Piney Point (d) -----	08073700	87
Buffalo Bayou at Houston (d) (c) (t) -----	08074000	88
Cole Creek at Deihl Road, Houston (d) -----	08074150	96
Brickhouse Gulley at Costa Rica Street, Houston (d) -----	08074250	97
Whiteoak Bayou at Houston (d) (c) (b) -----	08074500	98
Whiteoak Bayou at Main Street, Houston (e) (t) -----	08074598	101
Buffalo Bayou at Main Street, Houston (e) -----	08074600	110
Buffalo Bayou at McKee Street, Houston (e) (c) (t) -----	08074610	112
Buffalo Bayou at Turning Basin, Houston (e) (c) (t) -----	08074710	121
Keegans Bayou at Roark Road near Houston (d) -----	08074800	128
Brays Bayou at Houston (d) (c) (b) -----	08075000	129
Sims Bayou at Hiram Clarke Street, Houston (d) -----	08075400	131
Sims Bayou at Houston (d) (c) (b) -----	08075500	132
Berry Bayou at Forest Oaks Street, Houston (e) -----	08075650	134
Vince Bayou at Pasadena (d) -----	08075730	136
Hunting Bayou at Interstate Highway 610 at Houston (d) (c) (b) -----	08075770	137
Greens Bayou at U.S. Highway 75 near Houston (d) -----	08075900	139
Greens Bayou near Houston (d) (c) (b) -----	08076000	140
Garners Bayou near Humble (d) -----	08076180	142
Halls Bayou at Houston (d) -----	08076500	144
Greens Bayou at Ley Road, Houston (d) -----	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	147
<b>HIGHLAND BAYOU BASIN</b>		
Highland Bayou Diversion Channel:		
LaMarque Levee pump station near LaMarque (e) -----	08077740	149
<b>CHOCOLATE BAYOU BASIN</b>		
Chocolate Bayou near Alvin (d) -----	08078000	152



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

vii

**WESTERN GULF OF MEXICO BASINS—Continued**

**BRAZOS RIVER BASIN**

Double Mountain Fork Brazos River (head of Brazos River):

North Fork Double Mountain Fork Brazos River near Post (d) (c) (t) -----	08079575	154
Double Mountain Fork Brazos River at Justiceburg (d) (c) (t) -----	08079600	157
Double Mountain Fork Brazos River near Aspermont (d) (c) (b) (t) (s) -----	08080500	161

Salt Fork Brazos River:

Salt Fork Brazos River near Aspermont (d) (c) (b) (t) (s) -----	08082000	166
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Brazos River:

Brazos River at Seymour (d) (c) (t) -----	08082500	170
Millers Creek near Munday (d) -----	08082700	173
Millers Creek Reservoir near Bomarton (e) -----	08082800	174
Clear Fork Brazos River near Roby (d) -----	08083100	175
Clear Fork Brazos River at Nugent (d) -----	08084000	176

Paint Creek:

California Creek near Stamford (d) -----	08084800	178
Clear Fork Brazos River at Fort Griffin (d) -----	08085500	180

Hubbard Creek:

Hubbard Creek below Albany (d) (c) (t) -----	08086212	181
Big Sandy Creek above Breckenridge (d) (c) (t) -----	08086290	187
Hubbard Creek Reservoir near Breckenridge (e) (c) (t) -----	08086400	193

Brazos River near South Bend (d) -----	08088000	200
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Salt Creek:

Lake Graham near Graham (e) -----	08088400	202
Possum Kingdom Lake near Graford (e) (c) (t) -----	08088500	203
Brazos River at Morris Sheppard Dam near Graford (d) -----	08088600	212
Brazos River near Palo Pinto (d) -----	08089000	213
Brazos River near Dennis (d) (c) (t) -----	08090800	214
Lake Granbury near Granbury (e) (c) (t) -----	08090900	217
Brazos River near Glen Rose (d) -----	08091000	226

Paluxy River:

Paluxy River at Glen Rose (e) -----	08091500	228
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Squaw Creek:

Squaw Creek Reservoir near Glen Rose (e) -----	08091730	229
Squaw Creek near Glen Rose (d) -----	08091750	230

Nolan River at Blum (e) -----	08092000	231
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Lake Whitney near Whitney (e) -----	08092500	232
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Brazos River at Whitney Dam near Whitney (c) (t) -----	08092600	233
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Brazos River near Aquilla (d) -----	08093100	236
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Aquilla Lake above Aquilla (e) -----	08093350	237
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Aquilla Creek near Aquilla (d) -----	08093500	247
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North Fork Bosque River near Stephenville (c) (b) -----	08093675	249
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South Fork Bosque River near Stephenville (c) (b) -----	08093685	250
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North Bosque River above Stephenville (c) (b) -----	08093695	251
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North Bosque River below Stephenville (c) (b) -----	08093800	252
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North Bosque River at Hico (d) (c) -----	08094800	253
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North Bosque River near Clifton (d) -----	08095000	256
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North Bosque River at Valley Mills (d) -----	08095200	258
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South Bosque River:

Middle Bosque River near McGregor (e) -----	08095300	260
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Hog Creek near Crawford (e) -----	08095400	261
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Waco Lake near Waco (e) -----	08095550	262
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Brazos River at Waco (d) -----	08096500	263
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Brazos River near Highbank (d) (c) (b) (t) (s) -----	08098290	265
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Leon River near De Leon (e) (c) (b) -----	08099100	271
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Sabana River near De Leon (e) (c) (b) -----	08099300	274
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Proctor Lake near Proctor (e) (c) (b) (t) -----	08099400	277
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Leon River near Hasse (c) -----	08099500	294
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Leon River near Hamilton (d) -----	08100000	295
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Leon River at Gatesville (d) -----	08100500	297
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Cowhouse Creek at Pidcoke (d) -----	08101000	299
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Belton Lake near Belton (e) -----	08102000	301
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Leon River near Belton (d) -----	08102500	302
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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:		
Lampasas River:		
Lampasas River near Kempner (d) -----	08103800	304
Rocky Creek:		
South Fork Rocky Creek near Briggs (d) (c) (b) (s) -----	08103900	306
Stillhouse Hollow Lake near Belton (e) (c) (b) (t) -----	08104050	310
Little River near Little River (d) -----	08104500	330
San Gabriel River:		
Lake Georgetown near Georgetown (e) -----	08104650	332
North Fork San Gabriel River near Georgetown (d) -----	08104700	333
South Fork San Gabriel River at Georgetown (d) -----	08104900	335
San Gabriel:		
Berry Creek near Georgetown (d) -----	08105100	336
Granger Lake near Granger (e) -----	08105600	338
San Gabriel River at Laneport (d) -----	08105700	339
Little River near Rockdale (d) -----	08106350	341
Little River at Cameron (d) (c) (b) (t) (s) -----	08106500	342
Middle Yegua Creek (head of Yegua Creek) near Dime Box (d) -----	08109700	347
East Yegua Creek near Dime Box (d) -----	08109800	348
Somerville Lake near Somerville (e) -----	08109900	349
Davidson Creek near Lyons (d) -----	08110100	350
Brazos River at Washington (e) -----	08110200	351
Navasota River above Groesbeck (d) -----	08110325	352
Big Creek near Freestone (d) -----	08110430	353
Lake Limestone near Marquez (e) (c) (t) -----	08110470	354
Navasota River near Easterly (d) -----	08110500	359
Navasota River near Bryan (d) -----	08111000	361
Brazos River near Hempstead (d) -----	08111500	363
Mill Creek near Bellville (d) -----	08111700	364
Brazos River at Richmond (d) (c) (b) (t) (s) -----	08114000	366
Big Creek near Needville (d) -----	08115000	371
Brazos River near Rosharon (d) -----	08116650	372
<b>SAN BERNARD RIVER BASIN</b>		
San Bernard River near Boling (d) -----	08117500	373



## 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 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
Little Cypress Creek near Cypress (d)	08068780	41.0	1983-92
Cypress Creek at Grant Road near Houston (d)	08068800	214	1983-92
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

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record (water years)
Briar Creek near Graham (d)	08088300	24.20	1958-89
Big Cedar Creek near Ivan (d)	08088450	97	1964-89
Palo Pinto Lake near Santo (d)	08090300	461	1964-82
Palo Pinto Creek near Santo (d)	08090500	573	1925
			1951-76
Pat Cleburne Lake near Cleburne (d)	08091900	100	1965-85
Hackberry Creek at Hillsboro (d)	08093250	57.9	1979-92
Cobb Creek near Abbott (d)	08093400	12.40	1966-79
North Bosque River at Stephenville (d)	08093700	95.90	1958-73
Green Creek SWS #1 near Dublin (d)	08094000	4.19	1955-77
Green Creek near Alexander (d)	08094500	45.40	1958-73
South Bosque River near 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
San Gabriel River near Rockdale (d)	08106310	1,359	1974-92
Big Elm Creek near Temple (d)	08107000	74.70	1934-36
Big Elm Creek near Buckholts (d)	08107500	171	1934-36
North Elm Creek near Ben Arnold	08108000	32.20	1935-36
North Elm Creek near Cameron (d)	08108200	44.80	1963-73
Brazos River near Bryan (d)	08109000	29,949	1899-1902,
			1918-26,
			1926-92
Yegua Creek near Somerville (d)	08110000	1,009	1924-92
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

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The following stations were discontinued as continuous-record surface-water-quality stations prior to the 1992 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	1958-81
			S	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, 1993**

## **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 89 gaging stations; stage only at 9 gaging stations; stage and contents at 20 lakes and reservoirs; and water quality at 48 gaging stations. Also included are data for 29 partial-record and 14 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-93-2." 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 1993 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; Canadian River Municipal Water 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; 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 System; 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 Natural Resources Conservation Commission; Texas Water Development Board; Titus County Fresh Water Supply District No. 1; Trinity River Authority; Upper Guadalupe River Authority; Upper Neches River Municipal Water Authority; West Central Texas Municipal Water District; and Wichita County Water Improvement District No. 2.

## HYDROLOGIC CONDITIONS

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

Streamflow across the State during water year 1993 generally was normal at the beginning of the water year, becoming above normal from December through April, and then returning to normal for the remainder of the year.

Conservation storage in 77 selected reservoirs throughout the State, with a combined conservation capacity of 34,857,000 acre-feet, decreased from 90 percent at the end September 1992 to 84 percent at the end of September 1993. Records from these reservoirs indicate that storage increased in 7, decreased in 64, and remained the same in 6.

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 1.

### Streamflow

Streamflow was above normal in the San Jacinto River Basin and ranged from normal to above normal in the Brazos River Basins for water year 1993. Streamflow for water year 1993 and streamflow for the period of record at six selected stations (fig. 1), for which data are included in volume 2, is presented in table 1.

At the four long-term hydrologic index stations in the State, streamflow during water year 1993 ranged from normal to above normal. Monthly mean discharges for water year 1993 and the median of the long-term monthly means for water years 1951-80 for the four long-term hydrologic index stations in the State are shown in figure 2. Streamflow at the hydrologic index station North Bosque River near Clifton was above normal (discharges within the highest 25 percent of record) from December through March and normal for

the remaining 8 months. The Neches River near Rockland had above-normal streamflow during December, January, March, April, June and July, and normal streamflow for the remaining 6 months. The North Concho River near Carlsbad had above-normal streamflow from November through April and normal for the remaining 6 months. Streamflow for the Guadalupe River near Spring Branch was above-normal from November through March and normal for the remaining 7 months of water year 1993.

Conservation storage in 21 selected reservoirs in this area of the State, with a total combined conservation capacity of 3,893,000 acre-feet, decreased from 95 percent of capacity at the end of September 1992 to 87 percent of capacity at the end of September 1993. Records from these reservoirs indicate that storage increased in 2, decreased in 17, and remained the same in 2 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 1993 are compared with those for the water years 1989-93 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.

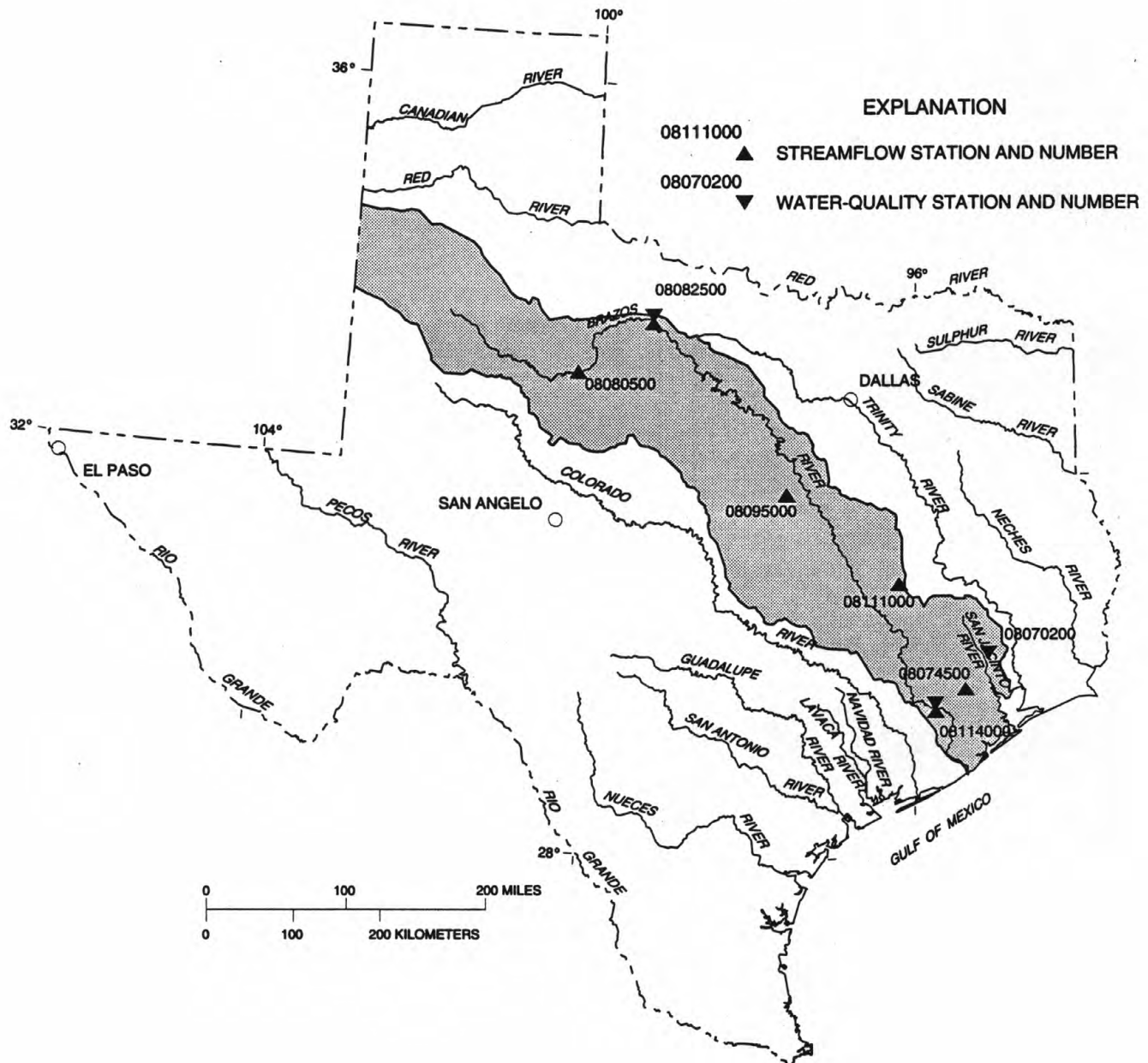
Table 1.—Streamflow at six selected stations for water year 1993

Station no. and name	Discharge during 1993 water year (cubic feet per second)			Discharge during period of record (cubic feet per second)		
	Max.	Min.	Mean	Max.	Min.	Mean
<b>San Jacinto River Basin</b>						
08074500 Whiteoak Bayou at Houston, Tex.	11,200	30	182	25,100	0.20	96 (1937-93)
<b>Brazos River Basin</b>						
08080500 Double Mountain Fork Brazos River near Aspermont, Tex. <sup>1/</sup>	2,870	0	31.6	91,400	0	158 (1925-34, 1941-93)
08082500 Brazos River at Seymour, Tex.	3,460	0	134	95,400	0	377 (1925-93)
08095000 North Bosque River near Clifton, Tex. <sup>2/</sup>	7,230	5	197	200,000	0	220 (1968-93)
08111000 Navasota River near Bryan, Tex.	11,200	.87	686	66,600	0	608 (1961-93)
08114000 Brazos River at Richmond, Tex. <sup>1/</sup>	60,100	997	9,733	119,000	55	7,598 (1941-93)

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

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





**Figure 1.** Area of Texas covered by volume 2 (shaded) and location of selected streamflow and water-quality stations in volume 2.

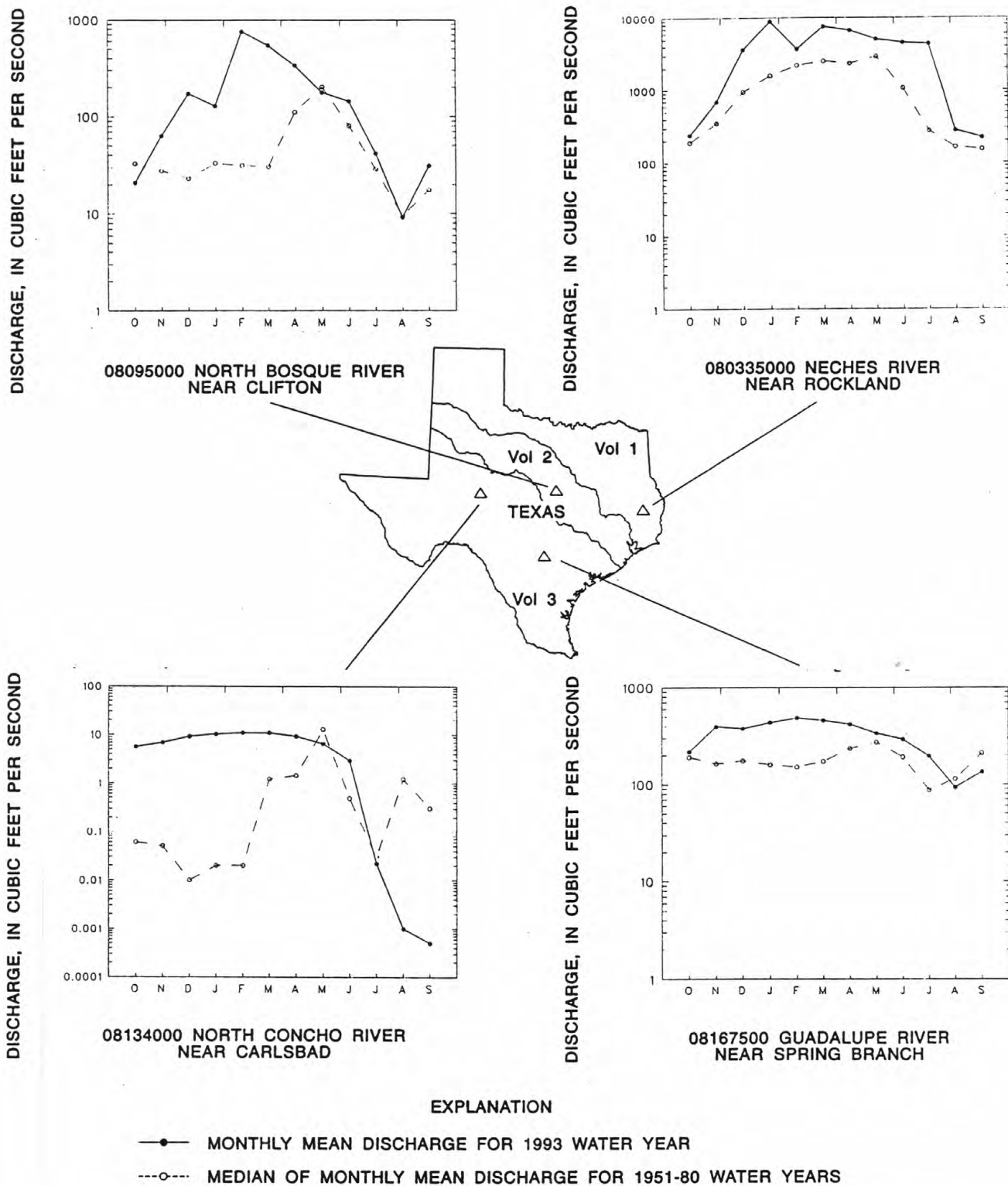


Figure 2.-- Monthly mean discharges at four long-term hydrologic index gaging stations during the 1993 water year and median of the monthly mean discharges for 1951-80 water years.

Table 2.—Comparison of records of discharge-weighted-average concentrations of dissolved solids for the 1993 and 1989-93 water years

Station no. and name	Mean discharge (cubic feet per second)		Discharge-weighted-average concentration of dissolved solids (milligrams per liter)	
	1993	1989-93	1993	1989-93
<b>San Jacinto River Basin</b>				
08070200 East Fork San Jacinto River near New Caney, Tex.	379	336	53	66
<b>Brazos River Basin</b>				
08082500 Brazos River at Seymour, Tex.	134	409	5,000	2,990
08114000 Brazos River at Richmond, Tex.	9,733	11,490	265	330

## 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.

National Water-Quality Assessment program (NAWQA) is a nationwide program that started full-scale implementation by the U.S. Geological Survey in 1991. The long-term goals of the NAWQA program are to describe the status and trends in the quality of a large, representative part of the Nation's surface-water, ground-water resources and to provide a sound, scientific understanding of the primary natural and human factors affecting the quality of these resources. The principle building blocks of the NAWQA program are the study-unit investigations on which national-level assessments are based. Study-unit investigations are comprehensive and include information on water, sediment, biota, and aquatic and terrestrial habitats within its boundaries. Of the 60 study-unit investigations that comprise the NAWQA program, one is located in Texas; the Trinity River basin. Some of the surface-water data collected for the basic and intensive network phase are included in this report.



## EXPLANATION OF THE RECORDS

The surface-water records published in this report are for the 1993 water year that began October 1, 1992, and ended September 30, 1993. 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 determined by methods given in "River Mileage Measurement," Bulletin 14, Revision of October 1968, prepared by the Water Resources Council or were provided by the U.S. Army Corps of Engineers.

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

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

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

**GAGE.**—The type of gage in current use, the datum of the current gage referred to 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 published 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:

<u>PRINTED OUTPUT</u>	<u>REMARK</u>
E	Estimated value
>	Actual value is known to be greater than the value shown
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptance range (non-ideal colony count)
L	Biological organism count less than 0.5 percent (organism may be observed rather than counted)
D	Biological organism count equal to or greater than 15 percent (dominant)
&	Biological organism estimated as dominant

**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 ( $\text{g/m}^3$ ), and periphyton and benthic organisms in grams per square meter ( $\text{g/m}^2$ ).

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

Organic mass or volatile mass of the living substance is the difference between the dry mass and ash mass and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.

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

Bottom material: See Bed material.

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

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

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 (CaCO<sub>3</sub>).

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 developmen-

tal 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 ( $\text{MG/L}$ ,  $\text{mg/L}$ ) 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  $\text{mg/L}$  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 adjusted to the number per area habitat, usually square meter ( $\text{m}^2$ ), acre, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliter ( $\text{mL}$ ) or liter ( $\text{L}$ ). 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 ( $\text{mm}$ ), 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 oxygen 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 [ $\text{mg O}/(\text{m}^3 \cdot \text{time})$ ] or phytoplankton are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

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

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

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

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

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 ( $\text{ft}^3/\text{s}$ ) 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 hardboard) for benthic organism collection, and plexiglass strips for periphyton collection.

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

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

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

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45  $\mu$ m 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."

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

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

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



## PUBLICATIONS OF TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

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

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

- 1-D1. **Water temperature-influential factors, field measurement, and data presentation**, by H.H. Stevens, Jr., J.F. Ficke, and G.F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 p.
- 1-D2. **Guidelines for collection and field analysis of ground-water samples for selected unstable constituents**, by W.W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 p.
- 2-D1. **Application of surface geophysics to ground-water investigations**, by A.A.R. Zohdy, G.P. Eaton, and D.R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 p.
- 2-D2. **Application of seismic-refraction techniques to hydrologic studies**, by F.P. Haeni: USGS--TWRI Book 2, Chapter D2. 1988. 86 p.
- 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.
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- 4-A1. **Some statistical tools in hydrology**, by H.C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 p.
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- 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.
- 6-A3. **A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 1: Model Description and User's Manual**, by L.J. Torak: USGS--TWRI Book 6, Chapter A3. 1993. 136 pages.
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- 6-A5. **A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 3: Design philosophy and programming details**, by L.J. Torak: USGS--TWRI Book 6, Chapter A5. 1993. 243 pages.
- 7-C1. **Finite difference model for aquifer simulation in two dimensions with results of numerical experiments**, by P.C. Trescott, G.F. Pinder, and S.P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 p.
- 7-C2. **Computer model of two-dimensional solute transport and dispersion in ground water**, by L.F. Konikow and J.D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 p.
- 7-C3. **A model for simulation of flow in singular and interconnected channels**, by R.W. Schaffranek, R.A. Baltzer, and D.E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1983. 110 p.
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- 8-A2. **Installation and service manual for U.S. Geological Survey manometers**, by J.D. Craig: USGS--TWRI Book 8, Chapter A2. 1983. 57 p.
- 8-B2. **Calibration and maintenance of vertical-axis type current meters**, by G.F. Smoot and C.E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 p.





## SAN JACINTO RIVER MAIN STEM

25

08067600 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>.

## LAKE-CONTENT 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. A small diversion is also made for cooling purposes at the Gulf State Utilities generating plant on Lewis Creek Reservoir near Conroe. During the current year, 1,540 acre-ft were 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, 463,100 acre-ft Jan. 22, time unknown (elevation, 202.52 ft); minimum, 401,500 acre-ft Oct. 27-28, 30 (elevation, 199.59 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 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	407800	406100	412900	431300	431500	432600	432600	432800	432800	434500	421600	414000
2	407400	406100	412500	430900	431800	432600	431500	434500	431100	432400	421000	413100
3	407200	405300	412300	430100	432000	433000	432600	434300	430900	432000	420400	413800
4	406800	405100	413600	432800	432800	433200	433500	433500	430900	431100	420200	413100
5	406500	404100	412500	434300	433200	432800	432000	437100	430900	430300	418900	412500
6	406100	403900	412500	435000	433000	432600	431100	438400	430700	430300	418700	412300
7	405500	403300	412500	436000	432800	432800	439400	437500	430300	430100	418500	412100
8	405900	402700	411900	436500	432600	432600	442600	435600	429800	430500	418100	411900
9	405500	402300	414400	439400	430700	432200	441600	433200	429800	429600	417900	411300
10	404700	402300	414400	441600	432800	432800	437700	433000	429800	429000	417500	410700
11	404700	404100	414200	442000	433000	432800	434500	435600	430100	428800	417300	410100
12	404300	404300	413800	440100	432800	433500	433000	437300	430100	428600	416900	409800
13	403700	404300	413800	436000	432600	431800	432200	435200	430100	428200	416400	409000
14	402700	404100	423700	433000	432800	430700	434500	433000	429800	427800	416400	410900
15	402700	404100	435200	430900	434100	432000	432400	432000	430100	427200	416400	409200
16	403700	403900	444600	430700	433900	432400	431500	432000	430100	427000	415400	408800
17	404300	403500	445800	430900	432600	433000	431100	431500	429600	426800	415000	408200
18	403900	403500	443700	432800	431500	433000	430900	435600	429800	426300	414400	408000
19	403300	407000	441400	442400	431100	435800	431500	435800	433900	425900	414200	407400
20	402500	408600	438200	456700	431300	440100	432200	433900	440300	425700	413800	407200
21	402500	410100	435200	463100	432200	438600	431500	432400	449000	425300	413800	406300
22	402500	411100	433000	460900	432400	439000	430500	432000	457100	424900	412900	406300
23	402300	411900	431800	457300	432000	440700	429800	434500	460700	424500	412300	406100
24	402300	413100	430700	451600	431500	440300	429600	434500	459600	423900	411500	405300
25	402100	413800	430500	445800	433500	437900	430900	434700	458200	422000	411300	405300
26	401900	414000	430500	440500	432400	433900	430700	434500	456500	421800	411300	406300
27	401500	413600	430500	435000	431800	432000	430500	434500	454000	422400	413400	405100
28	401500	413400	430500	431800	431800	431800	430300	434500	450500	421600	414200	405100
29	401700	413100	430300	431800	---	431800	432400	433700	445200	421400	414000	404300
30	401500	412900	430500	430900	---	432800	431800	434100	438800	421600	413800	403700
31	403300	---	430900	430900	---	432600	---	434500	---	421600	414000	---
MAX	407800	414000	445800	463100	434100	440700	442600	438400	460700	434500	421600	414000
MIN	401500	402300	411900	430100	430700	430700	429600	431500	429600	421400	411300	403700
(↑)	199.68	200.16	201.03	201.03	201.07	201.11	201.07	201.20	201.40	200.58	200.21	199.70
(Φ)	-5500	+9600	+18000	0	+900	+800	-800	+2700	+4300	-17200	-7600	-10300

CAL YR 1992 MAX 457800 MIN 401500 (Φ) -3800  
WTR YR 1993 MAX 463100 MIN 401500 (Φ) -5100

(↑) Elevation, in feet, at end of month.  
(Φ) Change in contents, in acre-feet.

## SAN JACINTO RIVER MAIN STEM

08067600 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 1992 TO SEPTEMBER 1993

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)	CALCIUM DIS- SOLVED (MG/L AS CA)	
FEB													
23...	1100	432000	1.00	175	7.5	14.0	2.40	10.0	97	64	3	23	
23...	1102	--	10.0	175	7.4	14.0	--	9.9	96	--	--	--	
23...	1104	--	20.0	175	7.3	13.5	--	9.1	87	--	--	--	
23...	1106	--	30.0	175	7.3	13.5	--	9.0	86	--	--	--	
23...	1108	--	40.0	175	7.2	13.5	--	8.8	84	--	--	--	
23...	1110	--	54.0	175	7.3	13.0	--	8.3	78	64	5	23	
JUL													
08...	1000	430000	1.00	175	7.7	28.5	1.30	6.2	81	62	6	22	
08...	1002	--	10.0	175	7.5	28.5	--	5.0	65	--	--	--	
08...	1004	--	20.0	175	7.4	28.0	--	2.7	35	--	--	--	
08...	1006	--	25.0	175	7.4	27.5	--	1.8	23	--	--	--	
08...	1008	--	30.0	175	7.5	27.0	--	0.2	3	--	--	--	
08...	1010	--	40.0	195	7.5	24.5	--	0.2	2	--	--	--	
08...	1012	--	52.0	220	7.6	22.5	--	0.3	4	70	0	25	
AUG													
24...	1130	412000	1.00	175	7.2	30.0	1.10	4.6	62	65	8	23	
24...	1132	--	10.0	175	7.1	30.0	--	2.8	37	--	--	--	
24...	1134	--	20.0	180	7.0	29.5	--	0.1	1	--	--	--	
24...	1136	--	30.0	180	6.9	28.0	--	0.1	1	--	--	--	
24...	1138	--	40.0	210	6.9	24.5	--	0.1	1	--	--	--	
24...	1140	--	51.0	240	6.9	23.0	--	0.1	1	81	0	29	
DATE		MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)
FEB													
23...	1.7	10	0.5	2.8	61	6.1	17	<0.10	2.7	101	0.210	0.210	
23...	--	--	--	--	--	--	--	--	--	--	--	--	
23...	--	--	--	--	--	--	--	--	--	--	--	--	
23...	--	--	--	--	--	--	--	--	--	--	0.220	0.220	
23...	1.7	10	0.5	2.7	59	6.0	16	<0.10	3.2	99	0.230	0.230	
JUL													
08...	1.7	9.7	0.5	2.7	56	5.6	15	0.10	3.0	93	--	--	
08...	--	--	--	--	--	--	--	--	--	--	--	--	
08...	--	--	--	--	--	--	--	--	--	--	--	--	
08...	--	--	--	--	--	--	--	--	--	--	--	--	
08...	--	--	--	--	--	--	--	--	--	--	--	--	
08...	1.9	10	0.5	3.1	85	1.4	15	0.10	11	129	--	--	
AUG													
24...	1.8	10	0.5	2.7	57	5.0	16	0.10	4.2	97	--	--	
24...	--	--	--	--	--	--	--	--	--	--	--	--	
24...	--	--	--	--	--	--	--	--	--	--	--	--	
24...	--	--	--	--	--	--	--	--	--	--	--	--	
24...	--	--	--	--	--	--	--	--	--	--	--	--	
24...	2.1	10	0.5	3.0	93	8.0	17	0.10	13	153	--	--	

## SAN JACINTO RIVER MAIN STEM

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08067600 LAKE CONROE NEAR CONROE, TX--Continued

302127095335501 - LAKE CONROE SITE AC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB											
23...	0.020	0.230	0.230	0.020	0.38	0.40	0.020	<0.010	--	11	1
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	0.010	0.230	0.230	0.030	0.27	0.30	<0.010	<0.010	--	20	<10
23...	--	--	--	--	--	--	--	--	--	--	--
23...	0.020	0.250	0.250	0.070	0.23	0.30	<0.010	0.010	0.03	21	11
JUL											
08...	<0.010	--	<0.050	0.030	0.37	0.40	0.020	<0.010	--	5	4
08...	--	--	--	--	--	--	--	--	--	--	--
08...	0.020	--	<0.050	0.050	0.45	0.50	0.050	0.010	0.03	10	20
08...	--	--	--	--	--	--	--	--	--	--	--
08...	0.010	--	<0.050	0.180	0.42	0.60	0.050	0.030	0.09	50	270
08...	--	--	--	--	--	--	--	--	--	--	--
08...	<0.010	--	<0.050	1.50	0.90	2.4	0.570	0.500	1.5	2600	4400
AUG											
24...	0.030	--	<0.050	0.080	0.32	0.40	0.020	<0.010	--	10	12
24...	--	--	--	--	--	--	--	--	--	--	--
24...	0.030	--	<0.050	0.530	0.27	0.80	0.070	0.060	0.18	130	750
24...	--	--	--	--	--	--	--	--	--	--	--
24...	0.030	--	<0.050	1.50	0.30	1.8	0.280	0.300	0.92	1900	3200
24...	0.030	--	<0.050	3.00	0.40	3.4	0.620	0.650	2.0	4000	4600

302132095333701 - LAKE CONROE SITE AL

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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								
23...	1130	1.00	175	8.4	14.0	2.50	9.8	95
23...	1132	10.0	175	8.4	14.0	--	9.6	93
23...	1134	20.0	175	8.3	13.5	--	9.0	86
23...	1136	30.0	175	8.2	13.5	--	8.8	84
23...	1138	40.0	175	8.1	13.5	--	8.3	79
23...	1140	50.0	175	8.1	13.5	--	8.0	76
23...	1142	60.0	175	8.1	13.5	--	7.7	74
23...	1144	68.0	175	8.1	13.0	--	7.2	68
JUL								
08...	1033	1.00	175	7.7	28.5	1.30	6.1	79
08...	1035	10.0	175	7.7	28.0	--	4.5	58
08...	1037	20.0	175	7.6	27.5	--	1.4	18
08...	1039	30.0	185	7.5	25.5	--	0.2	2
08...	1041	40.0	205	7.5	23.0	--	0.2	2
08...	1043	56.0	235	7.5	22.0	--	0.3	3
AUG								
24...	1200	1.00	180	7.2	30.0	1.10	4.6	61
24...	1202	10.0	180	7.0	30.0	--	2.6	35
24...	1204	20.0	180	7.0	29.5	--	0.3	4
24...	1206	30.0	185	6.9	28.0	--	0.3	4
24...	1208	40.0	210	6.8	24.5	--	0.1	1
24...	1210	50.0	240	6.8	23.0	--	0.1	1
24...	1212	62.0	250	6.8	29.5	--	0.1	1



SAN JACINTO RIVER MAIN STEM  
08067600 LAKE CONROE NEAR CONROE, TX--Continued

302245095365301 - LAKE CONROE SITE BC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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								
23...	1020	1.00	175	8.2	14.0	2.20	9.9	96
23...	1022	10.0	175	8.1	14.0	--	9.6	93
23...	1024	20.0	175	8.0	13.5	--	9.1	87
23...	1026	29.0	175	8.0	13.5	--	8.0	77
JUL								
08...	0940	1.00	175	7.8	29.0	0.90	6.4	84
08...	0942	10.0	175	7.5	28.5	--	4.6	60
08...	0944	20.0	175	7.5	28.0	--	3.2	41
08...	0946	30.0	175	7.4	28.0	--	0.9	12
AUG								
24...	1100	1.00	180	7.6	30.5	0.80	6.0	81
24...	1102	10.0	180	7.2	30.0	--	4.6	61
24...	1104	20.0	185	7.0	30.0	--	0.6	8
24...	1106	29.0	195	6.9	29.0	--	0.1	1

302323095341201 - LAKE CONROE SITE CC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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								
23...	1205	1.00	170	8.3	14.5	2.60	10.0	98
23...	1207	10.0	170	8.1	13.5	--	9.3	89
23...	1209	20.0	170	8.1	13.5	--	9.1	87
23...	1211	30.0	170	8.0	13.5	--	8.9	85
23...	1213	40.0	170	8.0	13.5	--	8.5	81
23...	1215	50.0	170	8.0	13.5	--	8.4	80
JUL								
08...	1100	1.00	170	7.8	29.0	1.30	6.5	85
08...	1102	10.0	170	7.6	28.5	--	5.8	76
08...	1104	20.0	170	7.4	27.5	--	1.7	22
08...	1106	30.0	200	7.5	26.0	--	0.3	4
08...	1108	40.0	200	7.5	24.0	--	0.3	4
08...	1110	52.0	210	7.5	24.0	--	0.3	4
AUG								
24...	1220	1.00	180	7.6	30.5	1.00	5.9	79
24...	1222	10.0	180	7.4	30.0	--	5.4	72
24...	1224	20.0	180	7.1	30.0	--	5.1	68
24...	1228	40.0	225	6.8	25.5	--	0.1	1
24...	1230	51.0	225	6.8	24.5	--	0.1	1

302320095334001 - LAKE CONROE SITE CL

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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								
23...	1230	1.00	170	8.2	14.0	3.00	9.6	93
23...	1232	10.0	170	8.1	13.5	--	9.3	89
23...	1234	20.0	170	8.0	13.5	--	9.1	87
23...	1236	30.0	170	8.0	13.5	--	9.0	86
23...	1238	45.0	170	8.0	13.5	--	8.9	85
JUL								
08...	1125	1.00	170	7.9	29.0	1.20	6.8	89
08...	1127	10.0	170	7.7	28.5	--	5.9	77
08...	1129	20.0	170	7.6	28.5	--	5.4	70
08...	1131	30.0	170	7.5	27.5	--	1.2	15
08...	1133	42.0	180	7.6	25.5	--	0.3	4
AUG								
24...	1245	1.00	180	7.6	30.5	1.00	6.4	86
24...	1247	10.0	180	7.4	30.0	--	5.4	72
24...	1249	20.0	180	7.2	30.0	--	4.2	56
24...	1251	30.0	185	7.0	29.5	--	1.1	15
24...	1253	42.0	205	7.0	27.0	--	0.1	1

## SAN JACINTO RIVER MAIN STEM

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08067600 LAKE CONROE NEAR CONROE, TX--Continued

302448095374101 - LAKE CONROE SITE DC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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								
23...	1255	1.00	165	8.1	15.0	2.10	9.9	98
23...	1257	10.0	165	8.0	14.0	--	9.2	89
23...	1259	20.0	165	7.9	14.0	--	8.6	83
23...	1301	28.0	165	7.9	14.0	--	8.4	81
JUL								
08...	1150	1.00	170	8.0	30.0	0.95	6.4	86
08...	1152	10.0	170	7.8	29.0	--	4.6	60
08...	1154	20.0	175	7.7	28.5	--	0.3	4
08...	1156	27.0	175	7.7	28.5	--	0.3	4
AUG								
24...	1310	1.00	180	7.9	31.5	0.80	6.8	93
24...	1312	10.0	180	7.4	30.5	--	4.4	59
24...	1314	20.0	185	7.3	30.0	--	2.2	29
24...	1316	28.0	190	7.3	30.0	--	0.2	3

302607095360901 - LAKE CONROE SITE EC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
FEB												
23...	1315	1.00	160	8.2	15.0	2.00	10.4	103	57	3	20	1.6
23...	1317	10.0	160	8.1	14.0	--	9.4	91	--	--	--	--
23...	1319	20.0	160	8.1	13.5	--	9.1	87	--	--	--	--
23...	1321	30.0	160	8.0	13.5	--	8.7	83	--	--	--	--
23...	1323	40.0	160	8.0	13.5	--	8.2	78	59	5	21	1.7
JUL												
08...	1220	1.00	170	8.2	29.5	1.00	6.6	88	59	3	21	1.7
08...	1222	10.0	170	8.1	29.0	--	6.3	83	--	--	--	--
08...	1224	20.0	170	8.0	29.0	--	6.0	79	--	--	--	--
08...	1226	30.0	170	8.0	29.0	--	6.0	79	--	--	--	--
08...	1228	39.0	170	8.0	29.0	--	5.9	78	59	4	21	1.7
AUG												
24...	1325	1.00	180	8.3	31.5	0.90	7.7	106	68	6	24	1.9
24...	1327	10.0	180	8.3	31.5	--	7.7	106	--	--	--	--
24...	1329	20.0	180	7.7	30.5	--	6.0	81	--	--	--	--
24...	1331	30.0	180	7.3	30.0	--	5.3	71	--	--	--	--
24...	1333	38.0	210	7.1	29.5	--	5.0	66	70	0	25	1.9

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)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)
FEB											
23...	9.4	0.5	2.6	54	6.2	17	<0.10	3.1	93	0.170	0.170
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	9.5	0.5	2.6	54	6.0	16	<0.10	3.5	94	0.180	0.180
JUL											
08...	9.4	0.5	2.7	56	5.1	14	0.10	3.3	91	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	9.3	0.5	2.7	55	5.6	15	0.10	3.2	92	--	--
AUG											
24...	9.8	0.5	2.7	62	5.1	14	0.10	4.6	100	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	10	0.5	2.8	71	3.4	14	0.10	5.7	109	--	--

## SAN JACINTO RIVER MAIN STEM

08067600 LAKE CONROE NEAR CONROE, TX--Continued

302607095360901 - LAKE CONROE SITE EC--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB											
23...	0.010	0.180	0.180	0.020	0.28	0.30	<0.010	<0.010	--	9	3
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	0.010	0.190	0.190	0.070	0.33	0.40	<0.010	<0.010	--	18	23
JUL											
08...	<0.010	--	<0.050	0.030	0.27	0.30	0.020	<0.010	--	9	3
08...	--	--	--	--	--	--	--	--	--	--	--
08...	<0.010	--	<0.050	0.030	0.47	0.50	0.040	0.010	0.03	<10	<10
08...	--	--	--	--	--	--	--	--	--	--	--
08...	<0.010	--	<0.050	0.030	0.67	0.70	0.090	<0.010	--	8	10
AUG											
24...	0.030	--	<0.050	0.030	0.37	0.40	0.010	<0.010	--	5	9
24...	--	--	--	--	--	--	--	--	--	--	--
24...	0.030	--	<0.050	0.080	0.32	0.40	0.020	0.020	0.06	<10	50
24...	--	--	--	--	--	--	--	--	--	--	--
24...	0.030	--	<0.050	1.10	0.30	1.4	0.090	0.080	0.25	460	1300

302714095372201 - LAKE CONROE SITE FC

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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								
23...	1350	1.00	155	8.1	15.0	1.60	9.5	94
23...	1352	10.0	155	8.0	14.0	--	8.5	82
23...	1354	25.0	155	8.0	13.5	--	7.2	69
JUL								
08...	1245	1.00	165	8.0	30.5	0.90	6.4	86
08...	1247	10.0	165	7.9	29.5	--	4.8	64
08...	1249	22.0	170	7.9	29.0	--	1.1	14
AUG								
24...	1355	1.00	180	8.1	31.5	0.70	7.2	99
24...	1357	10.0	180	7.9	30.5	--	4.7	63
24...	1359	22.0	180	7.9	30.0	--	4.7	63

303129095360501 - LAKE CONROE SITE GC

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
FEB												
23...	1425	1.00	155	7.7	16.0	1.00	8.6	87	49	9	17	1.7
23...	1427	10.0	165	7.7	14.5	--	8.1	79	--	--	--	--
23...	1429	20.0	165	7.4	14.5	--	8.0	78	--	--	--	--
23...	1431	31.0	165	7.7	14.5	--	8.0	78	55	14	19	1.8
JUL												
08...	1330	1.00	140	7.9	30.0	0.60	5.9	79	49	4	17	1.5
08...	1332	10.0	140	7.8	30.0	--	5.1	68	--	--	--	--
08...	1334	15.0	140	7.8	29.5	--	4.8	64	--	--	--	--
08...	1336	20.0	145	7.8	29.5	--	4.9	65	--	--	--	--
08...	1338	27.0	145	8.0	29.5	--	5.0	66	52	6	18	1.6
AUG												
24...	1425	1.00	180	8.4	31.5	0.60	7.8	107	65	8	23	1.8
24...	1427	10.0	185	7.6	30.5	--	4.4	59	--	--	--	--
24...	1429	20.0	185	7.6	30.5	--	4.4	59	--	--	--	--
24...	1431	26.0	185	7.7	30.5	--	4.4	59	68	11	24	2.0



## SAN JACINTO RIVER MAIN STEM

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08067600 LAKE CONROE NEAR CONROE, TX--Continued

303129095360501 - LAKE CONROE SITE GC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)
FEB											
23...	10	0.6	2.5	40	9.1	19	<0.10	11	95	0.130	0.130
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	12	0.7	2.7	41	10	22	0.10	13	106	0.140	0.140
JUL											
08...	8.0	0.5	2.7	45	4.3	12	0.10	8.5	81	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	8.1	0.5	2.7	46	4.5	13	0.10	7.2	83	--	--
AUG											
24...	10	0.5	2.9	57	5.2	18	0.10	8.0	103	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	11	0.6	3.0	57	5.1	20	0.10	8.2	108	--	--

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB											
23...	0.010	0.140	0.140	0.040	0.36	0.40	0.030	0.020	0.06	32	4
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	0.010	0.150	0.150	0.050	0.35	0.40	0.030	0.020	0.06	45	11
JUL											
08...	<0.010	--	<0.050	0.030	0.37	0.40	0.030	<0.010	--	71	6
08...	--	--	--	--	--	--	--	--	--	--	--
08...	<0.010	--	<0.050	0.040	0.66	0.70	0.070	0.010	0.03	80	<10
08...	--	--	--	--	--	--	--	--	--	--	--
08...	<0.010	--	<0.050	0.060	0.64	0.70	0.190	0.010	0.03	78	28
AUG											
24...	0.030	--	<0.050	0.030	0.37	0.40	0.020	<0.010	--	<3	2
24...	0.030	--	<0.050	0.040	0.36	0.40	0.020	<0.010	--	<10	20
24...	--	--	--	--	--	--	--	--	--	--	--
24...	0.030	--	<0.050	0.060	0.34	0.40	0.020	<0.010	--	7	68

## 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, 2,910 ft<sup>3</sup>/s Jan. 21 at 1600-1700 hours (gage height, 28.95 ft).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	e20	---	---	---	e260	---	.00	e580	2550	---	---
2	---	---	---	---	---	e100	---	e480	e50	1100	---	---
3	---	---	---	---	19	e40	51	e420	---	---	---	---
4	---	---	---	295	74	e18	181	e420	---	---	---	---
5	---	---	---	550	388	---	78	e1020	---	---	---	---
6	---	---	---	588	582	---	---	e1680	---	---	---	---
7	---	---	---	1350	529	---	427	e1680	---	---	---	---
8	---	---	---	1790	500	---	1320	e1680	---	---	---	---
9	---	---	23	1860	381	---	1910	e1680	---	---	---	---
10	---	---	---	2260	303	---	2090	e120	---	---	---	---
11	---	---	---	e2290	533	---	2010	e50	---	---	---	---
12	---	---	---	2300	321	e12	521	e90	---	---	---	---
13	---	---	---	2280	52	e160	325	e530	---	---	---	---
14	---	---	53	2260	76	---	108	e700	---	---	---	---
15	---	---	768	916	179	---	225	e100	---	---	---	---
16	---	---	1060	398	e260	---	155	---	---	---	---	---
17	---	---	1130	---	e850	---	---	---	---	---	---	---
18	---	---	1290	271	e460	---	---	e890	---	---	---	---
19	---	---	1870	1280	e60	19	---	e1680	78	---	---	---
20	---	41	1790	e2260	e30	1310	---	e1680	1410	---	---	---
21	---	17	1520	2900	---	1560	---	e280	1940	---	---	---
22	---	15	1440	2840	---	1580	---	e100	2340	---	---	---
23	---	---	944	2750	---	1590	---	e390	2290	---	---	---
24	---	---	631	2860	---	1650	---	e840	2290	---	---	---
25	---	---	411	2690	e140	2090	---	e840	2300	---	---	---
26	---	---	294	2670	e160	2100	---	e840	2300	---	---	---
27	---	---	280	2640	e50	1090	---	e840	2270	---	---	---
28	---	---	271	2100	e15	---	---	e840	2390	---	---	---
29	---	---	302	655	---	---	99	e780	2580	---	---	---
30	---	---	---	994	---	---	93	e170	2560	---	---	---
31	---	---	---	533	---	---	---	e840	---	---	---	---

e Estimated

## SAN JACINTO RIVER MAIN STEM

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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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	119	57	86	565	440	98	190	1290	2680	26	47
2	22	75	50	76	390	1300	81	1120	600	1980	26	36
3	22	45	45	72	258	367	73	1310	147	353	26	32
4	22	37	44	247	188	192	437	946	83	155	26	29
5	22	38	40	644	210	144	447	1620	60	113	25	28
6	22	33	40	721	530	114	122	3830	46	94	25	27
7	22	30	40	1590	527	92	348	4100	37	87	25	28
8	26	29	39	2640	527	81	2840	5230	32	76	23	28
9	25	29	129	2660	532	73	3070	4510	29	68	25	28
10	26	31	116	3380	356	67	3610	3250	26	60	33	27
11	25	35	77	3410	740	64	3490	983	34	54	32	27
12	24	52	72	3860	612	104	1770	476	31	50	27	26
13	24	46	64	3920	289	409	871	1800	31	48	26	30
14	23	39	89	2850	223	97	547	2090	26	44	26	41
15	24	34	1540	1770	165	68	921	627	24	42	25	46
16	27	33	2850	909	644	642	652	232	28	42	24	32
17	30	32	5870	297	1270	269	353	108	24	57	24	30
18	33	31	6510	242	1150	147	178	166	29	44	24	28
19	28	38	3740	1630	420	111	103	2000	87	39	23	29
20	26	349	2430	3680	238	2200	76	2030	2350	36	23	30
21	25	211	2130	4890	148	2980	60	1890	4590	35	29	30
22	25	256	1720	8760	119	3450	51	649	7470	35	28	31
23	25	203	1200	6400	99	3550	44	347	6580	33	27	29
24	24	272	756	3840	88	2720	38	1430	5500	31	26	28
25	23	233	523	3060	345	3250	34	1210	4750	30	25	27
26	24	118	350	2870	861	3530	32	1230	3740	29	36	26
27	24	149	319	2770	349	2360	29	1390	3280	30	31	26
28	23	176	300	2500	160	456	26	1360	3360	29	45	26
29	24	97	285	997	---	225	108	1220	3220	29	40	25
30	51	68	158	1740	---	154	400	868	2860	27	34	24
31	36	---	87	1250	---	119	---	926	---	27	32	---
TOTAL	800	2938	31670	73761	12003	29775	20909	49138	50364	6457	867	901
MEAN	25.8	97.9	1022	2379	429	960	697	1585	1679	208	28.0	30.0
MAX	51	349	6510	8760	1270	3550	3610	5230	7470	2680	45	47
MIN	22	29	39	72	88	64	26	108	24	27	23	24
AC-FT	1590	5830	62820	146300	23810	59060	41470	97470	99900	12810	1720	1790



## 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 - 1993#, BY WATER YEAR (WY)

MEAN	264	479	618	839	924	625	812	844	746	138	81.1	283
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 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1973 - 1993#

ANNUAL TOTAL	348428		279583		
ANNUAL MEAN	952		766		551
HIGHEST ANNUAL MEAN					1305
LOWEST ANNUAL MEAN					226
HIGHEST DAILY MEAN	9450	Feb 7	8760	Jan 22	29400
LOWEST DAILY MEAN	22	Sep 30	22	Oct 2	11
ANNUAL SEVEN-DAY MINIMUM	22	Sep 30	22	Oct 1	11
INSTANTANEOUS PEAK FLOW			9520	Jan 22	38500
INSTANTANEOUS PEAK STAGE			20.43	Jan 22	24.71
ANNUAL RUNOFF (AC-FT)	691100		554600		399400
10 PERCENT EXCEEDS	3620		2860		1550
50 PERCENT EXCEEDS	108		87		101
90 PERCENT EXCEEDS	27		25		25

# Period of regulated streamflow.

## SAN JACINTO RIVER MAIN STEM

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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 1992 TO SEPTEMBER 1993

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)
JAN 13...	1037	4040	146	7.5	11.0	27	10.8	97	1.8	1400	3100
JUN 07...	1215	36	314	7.5	25.0	17	6.6	80	1.5	88	170
AUG 17...	1357	22	656	7.5	28.0	1.8	7.0	89	1.3	130	140
SEP 09...	0812	28	525	7.4	25.5	5.7	6.2	76	0.9	550	330

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)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CAC03)	SULFATE DIS-SOLVED (MG/L AS SO4)
JAN 13...	50	4	17	1.7	8.6	0.5	3.0	0	56	46	4.7
JUN 07...	80	12	27	2.9	32	2	3.1	0	83	68	12
AUG 17...	92	9	30	4.1	90	4	6.4	0	101	82	31
SEP 09...	81	0	26	3.9	72	3	5.8	0	103	85	28

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, RESIDUE AT 180 DEG. C (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)
JAN 13...	13	0.10	7.1	105	85	0.210	0.210	0.020	0.230	0.230	0.060
JUN 07...	46	<0.10	20	196	191	1.30	--	<0.010	1.30	1.30	0.040
AUG 17...	130	0.40	22	382	392	5.48	5.48	0.020	5.50	5.50	0.050
SEP 09...	82	0.40	22	301	311	3.78	3.78	0.020	3.80	3.80	0.040

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	BARIUM, DIS-SOLVED (UG/L AS BA)
JAN 13...	0.64	0.70	0.130	0.130	0.120	0.37	103	1120	50	70	65
JUN 07...	0.56	0.60	0.370	0.270	0.250	0.77	37	3.6	56	<10	96
AUG 17...	0.45	0.50	1.00	1.00	0.990	3.0	13	0.77	95	20	80
SEP 09...	0.26	0.30	0.820	0.720	0.770	2.4	10	0.76	99	50	69

## 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 1992 TO SEPTEMBER 1993

DATE	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
JAN 13...	<3	110	<4	10	<10	<1	<1	<1.0	61	<6
JUN 07...	<3	270	6	96	<10	2	<1	<1.0	140	<6
AUG 17...	3	76	18	78	<10	<1	<1	<1.0	290	<6
SEP 09...	<3	97	11	62	<10	1	<1	<1.0	250	<6



## SAN JACINTO RIVER MAIN STEM

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08068090 WEST 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.--Records good, except those for estimated daily discharges, which are fair. 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 by the city of Conroe and by other smaller communities into the river upstream from station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	116	91	80	887	689	195	389	1480	3110	47	43
2	29	339	77	80	548	4080	162	2260	1210	2760	46	49
3	29	114	68	66	370	1430	159	2190	442	964	45	42
4	29	70	64	110	265	633	484	1480	235	342	45	38
5	29	53	59	536	216	360	758	1700	178	231	44	38
6	29	53	56	708	461	245	407	5870	148	176	43	37
7	29	47	55	1190	601	178	594	5470	119	145	42	36
8	31	43	54	2740	578	138	3980	6670	103	123	41	e34
9	34	41	108	2760	586	114	3780	6290	94	109	40	e32
10	33	42	313	3790	455	98	4200	5080	92	100	45	e30
11	33	44	160	3810	747	87	4370	2000	946	93	46	e28
12	31	61	113	3990	786	82	2770	705	237	87	44	e29
13	30	88	100	4600	438	322	1190	1470	144	83	41	39
14	29	66	97	3480	292	249	849	2440	112	79	40	45
15	29	53	703	2350	221	95	1680	1280	96	74	39	62
16	35	45	2740	1220	443	1060	1060	479	89	72	38	53
17	38	43	4470	601	1210	814	744	235	105	75	37	44
18	43	41	6770	285	1380	391	397	187	168	79	37	39
19	39	46	5080	1430	685	245	264	1760	189	69	36	38
20	36	559	2840	4770	363	2790	192	2370	4440	66	36	39
21	33	500	2190	5770	226	4120	153	2240	12200	63	36	43
22	33	381	1880	7620	170	4040	127	1290	21400	61	44	39
23	33	297	1450	8190	139	5110	111	685	12300	59	40	39
24	33	326	905	5390	118	3740	98	1930	8000	57	40	38
25	32	353	650	3690	290	3440	90	1850	7430	56	38	e36
26	31	235	426	3210	1340	4240	80	1800	5930	52	37	e33
27	31	163	342	3040	719	3350	72	1660	5190	52	49	e31
28	30	215	318	2950	288	1080	67	1700	4380	51	50	e29
29	30	194	304	1540	---	405	94	1510	4100	50	64	e26
30	38	119	260	1810	---	298	566	1320	3510	50	54	e24
31	99	---	114	1690	---	243	---	1090	---	49	46	---
TOTAL	1067	4747	32857	83496	14822	44166	29693	67400	95067	9437	1330	1133
MEAN	34.4	158	1060	2693	529	1425	990	2174	3169	304	42.9	37.8
MAX	99	559	6770	8190	1380	5110	4370	6670	21400	3110	64	62
MIN	29	41	54	66	118	82	67	187	89	49	36	24
AC-FT	2120	9420	65170	165600	29400	87600	58900	133700	188600	18720	2640	2250

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1993, BY WATER YEAR (WY)

	1985	1986	1987	1988	1989	1990	1991	1992	1993
MEAN	233	526	872	1247	1205	939	780	883	1149
MAX	1453	2259	1881	2726	3763	2041	2229	2174	3169
(WY)	1985	1986	1992	1992	1992	1992	1991	1993	1993
MIN	22.2	29.8	42.7	167	351	117	73.0	59.4	42.0
(WY)	1991	1991	1990	1986	1988	1986	1986	1988	1990

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	FOR 1994 WATER YEAR	FOR 1995 WATER YEAR
ANNUAL TOTAL	417179	385215		
ANNUAL MEAN	1140	1055		
HIGHEST ANNUAL MEAN			1205	1992
LOWEST ANNUAL MEAN			309	1988
HIGHEST DAILY MEAN	9450	Mar 5	21400	Jun 22 1993
LOWEST DAILY MEAN	23	Jul 17	24	Sep 30 1990
ANNUAL SEVEN-DAY MINIMUM	25	Jul 12	29	Oct 1 1990
INSTANTANEOUS PEAK FLOW			26300	Jun 22 1989
INSTANTANEOUS PEAK STAGE			28.25	Jun 22 1989
ANNUAL RUNOFF (AC-FT)	827500	764100		491800
10 PERCENT EXCEEDS	4150	3760		2110
50 PERCENT EXCEEDS	147	162		129
90 PERCENT EXCEEDS	33	36		34

## 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 1992 TO SEPTEMBER 1993

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, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CaCO3)	
JUN											
02...	0817	1420	192	7.1	23.5	7.2	85	190	150	66	
20...	0200	962	--	--	--	--	--	--	--	--	
21...	0200	10100	--	--	--	--	--	--	--	--	
22...	0600	26000	--	--	--	--	--	--	--	--	
23...	2200	9290	--	--	--	--	--	--	--	--	
JUL											
08...	0825	129	319	7.8	25.5	6.6	80	210	150	86	
AUG											
24...	0900	41	628	7.8	28.0	6.1	78	150	80	96	
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)
JUN											
02...	7	23	2.1	12	0.6	2.5	59	5.5	20	0.20	
20...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
JUL											
08...	17	29	3.4	31	1	3.5	69	14	46	0.20	
AUG											
24...	14	31	4.6	86	4	5.2	82	26	120	0.40	
DATE		SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	
JUN											
02...	5.6	107	0.160	--	<0.010	0.160	0.160	0.050	0.45	0.45	
20...	--	--	1.29	1.29	0.010	1.30	1.30	0.040	--	5.9	
21...	--	--	0.380	0.380	0.010	0.390	0.390	0.090	--	0.91	
22...	--	--	0.061	--	<0.010	0.061	0.061	0.070	--	0.83	
23...	--	--	0.075	--	<0.010	0.075	0.075	0.050	--	0.85	
JUL											
08...	19	191	0.670	0.670	0.020	0.690	0.690	0.060	0.54	0.54	
AUG											
24...	21	354	1.93	1.93	0.070	2.00	2.00	0.160	0.44	0.44	
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-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	IRON, DIS-SOLVED (UG/L AS Fe)	MANGA-NESE, DIS-SOLVED (UG/L AS Mn)	
JUN											
02...	0.50	0.50	0.060	0.050	0.030	0.09	13	160	9		
20...	5.9	--	--	0.150	0.140	0.43	--	--	--	--	
21...	1.0	--	--	0.080	0.060	0.18	--	--	--	--	
22...	0.90	--	--	<0.010	0.020	0.06	--	--	--	--	
23...	0.90	--	--	0.020	0.030	0.09	--	--	--	--	
JUL											
08...	0.60	0.60	0.260	0.130	0.110	0.34	9.1	160	92		
AUG											
24...	0.60	0.60	0.570	0.500	0.480	1.5	5.8	22	72		

## SAN JACINTO RIVER BASIN

39

## 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.

GAGE.--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 fair 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)
Mar. 23	0600	3,030	14.00	May 8	0600	9,610	22.92
Apr. 10	1000	3,140	14.25	June 22	1800	8,540	21.80

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	193	40	53	571	465	99	390	1600	173	45	45
2	25	176	38	51	281	e1420	89	1300	1290	137	43	34
3	20	81	36	48	181	1460	104	1520	672	112	39	32
4	17	68	34	266	141	e664	434	1490	246	97	38	30
5	16	43	33	223	125	327	303	2330	173	86	36	27
6	16	35	33	159	116	198	220	5300	144	79	34	26
7	21	30	33	468	111	146	e295	6640	124	74	33	25
8	25	28	32	741	111	120	1730	8860	110	70	33	25
9	24	27	192	870	98	102	2250	4470	101	65	38	24
10	24	30	172	1420	159	88	2920	1700	96	62	40	24
11	21	37	99	1230	274	77	1690	1060	100	60	36	24
12	20	131	64	993	434	86	572	1200	96	59	33	30
13	20	62	53	581	318	98	319	744	93	58	30	32
14	19	41	116	245	165	162	372	287	116	58	29	68
15	19	35	882	196	127	129	784	e208	184	57	28	63
16	34	33	916	161	215	550	970	e171	144	59	28	43
17	32	30	957	122	289	1150	724	e154	109	78	28	31
18	23	29	1170	98	345	993	318	303	109	66	28	26
19	21	86	604	377	215	438	266	787	257	54	28	24
20	21	763	201	1450	138	1360	203	368	1180	e53	28	23
21	21	481	136	1530	111	2010	183	270	3390	46	28	22
22	20	405	109	1680	97	2410	141	176	7850	46	28	23
23	20	168	100	1760	90	2870	99	367	6550	46	30	23
24	20	113	100	792	77	1910	87	1690	2960	45	28	22
25	19	104	81	333	188	1070	81	1550	2550	43	27	22
26	19	140	71	210	542	547	72	987	2000	42	26	21
27	19	78	64	162	746	314	68	619	1420	41	44	20
28	18	56	62	136	640	202	65	501	753	40	51	20
29	18	48	58	319	---	156	128	398	390	40	69	19
30	40	44	56	518	---	136	209	570	241	44	55	19
31	48	---	55	657	---	118	---	1360	---	46	42	---
TOTAL	696	3595	6597	17849	6905	21776	15795	47770	35048	2036	1103	867
MEAN	22.5	120	213	576	247	702	526	1541	1168	65.7	35.6	28.9
MAX	48	763	1170	1760	746	2870	2920	8860	7850	173	69	68
MIN	16	27	32	48	77	77	65	154	93	40	26	19
AC-11	1380	7130	13090	35400	13700	43190	31330	94750	69520	4040	2190	1720
CFSM	.05	.29	.51	1.37	.59	1.68	1.26	3.68	2.79	.16	.08	.07
IN.	.06	.32	.59	1.58	.61	1.93	1.40	4.24	3.11	.18	.10	.08

e Estimated



## SAN JACINTO RIVER BASIN

08068520 SPRING CREEK AT SPRING, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1993, BY WATER YEAR (WY)

MEAN	106	260	238	334	354	214	365	364	307	97.3	72.3	119
MAX	1205	2536	1949	1710	1932	936	2106	1541	1519	577	1208	1184
(WY)	1974	1941	1941	1979	1992	1941	1979	1993	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 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1940 - 1993	
ANNUAL TOTAL	206916		160037		235	
ANNUAL MEAN	565		438		819	
HIGHEST ANNUAL MEAN					13.4	
LOWEST ANNUAL MEAN					1941	
HIGHEST DAILY MEAN	6990	Feb 6	8860	May 8	31500	Nov 25 1940
LOWEST DAILY MEAN	16	Sep 30	16	Oct 1,5-6	1.1	Oct 23 1956
ANNUAL SEVEN-DAY MINIMUM	18	Sep 30	19	Oct 1	1.6	Oct 20 1956
INSTANTANEOUS PEAK FLOW			9610	May 8	42700	Nov 25 1940
INSTANTANEOUS PEAK STAGE			22.92	May 8	33.60	Nov 25 1940
ANNUAL RUNOFF (AC-FT)	410400		317400		170100	
ANNUAL RUNOFF (CFSM)	1.35		1.05		.56	
ANNUAL RUNOFF (INCHES)	18.37		14.21		7.61	
10 PERCENT EXCEEDS	1800		1290		418	
50 PERCENT EXCEEDS	104		100		42	
90 PERCENT EXCEEDS	24		24		10	

## SAN JACINTO RIVER BASIN

41

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 1992 TO SEPTEMBER 1993

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, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CaCO3)	
JUN											
01...	1113	1660	76	6.8	24.0	6.0	71	880	980	22	
20...	1900	1770	--	--	--	--	--	--	--	--	
21...	1900	4730	--	--	--	--	--	--	--	--	
22...	1900	8380	--	--	--	--	--	--	--	--	
24...	0700	3350	--	--	--	--	--	--	--	--	
JUL											
07...	0829	75	324	7.6	27.0	7.0	88	650	120	63	
AUG											
23...	1026	31	589	7.4	28.0	5.3	68	210	160	76	
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)
JUN											
01...	1	6.0	1.7	6.1	0.6	2.0	21	3.0	9.4	0.10	
20...	--	--	--	--	--	--	--	--	--	--	
21...	--	--	--	--	--	--	--	--	--	--	
22...	--	--	--	--	--	--	--	--	--	--	
24...	--	--	--	--	--	--	--	--	--	--	
JUL											
07...	0	19	3.8	40	2	3.1	64	9.5	51	0.20	
AUG											
23...	0	23	4.4	92	5	5.4	120	18	97	0.40	
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 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)
JUN											
01...	5.6	48	0.130	0.130	0.030	0.160	0.160	0.110	0.69	0.79	
20...	--	--	0.280	0.280	0.020	0.300	0.300	0.080	--	0.62	
21...	--	--	0.140	0.140	0.010	0.150	0.150	0.080	--	0.72	
22...	--	--	0.099	--	<0.010	0.099	0.099	0.070	--	0.83	
24...	--	--	0.087	0.087	0.010	0.097	0.097	0.060	--	0.94	
JUL											
07...	18	193	1.68	1.68	0.020	1.70	1.70	0.100	0.60	0.60	
AUG											
23...	17	349	4.24	4.24	0.060	4.30	4.30	0.080	0.12	0.52	
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-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	IRON, DIS-SOLVED (UG/L AS Fe)	MANGA-NESE, DIS-SOLVED (UG/L AS Mn)	
JUN											
01...	0.90	0.80	0.130	0.140	0.090	0.28	18	800	32		
20...	0.70	--	--	0.100	0.130	0.40	--	--	--		
21...	0.80	--	--	0.090	0.060	0.18	--	--	--		
22...	0.90	--	--	0.040	0.040	0.12	--	--	--		
24...	1.0	--	--	0.060	0.050	0.15	--	--	--		
JUL											
07...	0.70	0.70	0.500	0.360	0.320	0.98	11	1200	110		
AUG											
23...	0.60	0.20	1.10	0.920	0.940	2.9	2.7	94	56		

## 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.--No estimated daily discharges. Records good. 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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.62	.75	2.6	3.1	48	57	18	23	506	64	.23	4.3
2	.62	2.0	1.5	3.4	33	248	12	264	195	42	.15	2.6
3	.57	1.5	.92	3.9	25	163	32	355	76	27	1.0	.82
4	.50	.60	.64	4.2	19	82	321	154	34	11	.81	.29
5	.46	.33	.50	12	17	53	287	354	18	6.0	.46	.12
6	.51	1.0	.46	12	18	36	95	1110	8.8	3.6	.47	.06
7	1.3	1.2	.42	83	16	27	200	1260	5.8	3.0	.27	.01
8	1.5	.80	.34	310	12	20	700	1350	3.2	1.7	.17	.00
9	2.4	.56	5.8	253	8.3	15	807	1270	1.8	1.7	.09	.00
10	2.0	.42	9.6	395	72	12	770	1220	1.9	.63	1.1	.00
11	1.5	.44	6.7	485	255	10	385	1060	3.8	.59	2.7	.13
12	1.1	.67	2.9	228	114	19	126	847	5.8	.89	1.2	.36
13	.89	.62	2.0	73	44	21	59	427	5.7	.91	1.9	1.0
14	.56	.31	14	41	30	18	100	156	30	.89	.72	1.8
15	.42	.47	326	34	30	14	313	72	12	.78	.84	2.0
16	.39	1.8	401	31	66	35	185	49	1.7	.74	2.4	1.2
17	.35	3.0	267	21	75	75	54	35	3.4	.67	1.5	.56
18	.27	1.4	79	14	39	38	32	27	13	.62	.61	.22
19	.24	6.9	42	122	26	24	21	21	22	.56	.33	.10
20	.19	107	30	603	21	190	14	10	707	1.1	.21	.04
21	.18	81	26	717	18	398	9.6	15	1030	.60	.12	.00
22	.15	42	23	700	14	279	5.8	5.2	1220	.48	.06	.00
23	.10	29	18	400	12	809	4.4	28	1420	.62	.07	.00
24	.07	28	14	144	10	836	3.5	255	1430	.57	.09	.00
25	.06	48	11	74	40	615	3.0	358	1330	.54	.09	.00
26	.02	16	8.2	49	100	275	2.7	117	1150	.44	.06	.00
27	.01	8.8	6.4	38	67	121	2.3	42	903	3.1	.95	.05
28	.01	5.2	5.1	28	40	68	1.9	28	589	1.4	3.0	2.2
29	.00	3.5	4.3	80	---	47	5.7	62	293	.60	2.1	.72
30	.03	2.8	3.9	227	---	34	20	144	114	.43	1.5	.18
31	.09	---	3.5	97	---	26	---	584	---	.37	2.3	---
TOTAL	17.11	396.07	1316.78	5285.6	1269.3	4665	4589.9	11702.2	11133.9	177.53	27.50	18.76
MEAN	.55	13.2	42.5	171	45.3	150	153	377	371	5.73	.89	.63
MAX	2.4	107	401	717	255	836	807	1350	1430	64	3.0	4.3
MIN	.00	.31	.34	3.1	8.3	10	1.9	5.2	1.7	.37	.06	.00
AC-FT	34	786	2610	10480	2520	9250	9100	23210	22080	352	55	37

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 1993, BY WATER YEAR (WY)

	MEAN	25.3	59.2	82.1	116	97.4	44.4	72.4	101	112	19.7	3.72	34.2
MAX	186	229	257	508	534	196	344	377	375	98.7	10.7	358	
(WY)	1981	1986	1977	1979	1992	1992	1991	1993	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 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1976 - 1993

ANNUAL TOTAL	54978.73	40599.65	
ANNUAL MEAN	150	111	64.2
HIGHEST ANNUAL MEAN			186
LOWEST ANNUAL MEAN			5.01
HIGHEST DAILY MEAN	1360	1430	2240
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.03	.01	.00
INSTANTANEOUS PEAK FLOW		1460	2370
INSTANTANEOUS PEAK STAGE		60.34	61.05
ANNUAL RUNOFF (AC-FT)	109100	80530	46530
10 PERCENT EXCEEDS	652	354	130
50 PERCENT EXCEEDS	9.9	8.8	2.9
90 PERCENT EXCEEDS	.51	.18	.00



## SAN JACINTO RIVER BASIN

43

08068740 CYPRESS CREEK AT HOUSE AND MAHL 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 Mahl 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.--Records good except those for estimated daily discharges, which are fair. 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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.90	2.8	3.3	3.5	70	168	23	29	816	141	2.4	6.6
2	e.80	2.3	2.4	3.0	59	417	16	269	436	93	1.9	5.9
3	e.80	1.5	1.4	3.7	45	270	111	379	166	59	1.7	2.9
4	e.70	1.2	1.4	5.3	35	111	666	252	67	26	3.7	1.9
5	e.60	1.2	1.0	6.6	29	57	550	468	32	16	4.4	1.2
6	.50	1.3	1.0	8.2	25	37	245	1340	19	12	3.6	1.1
7	.47	2.7	.99	90	22	23	270	1610	14	10	2.6	1.0
8	1.3	2.1	.99	294	17	16	845	1600	11	8.3	6.2	.75
9	2.3	1.7	27	294	12	12	948	1610	8.5	7.3	6.7	1.7
10	2.3	1.6	10	362	64	8.8	923	1650	7.2	5.8	9.4	2.2
11	1.7	1.8	8.6	493	254	6.6	678	1520	9.0	4.9	12	1.9
12	1.2	6.3	4.9	342	166	22	214	1250	9.2	4.8	7.2	4.2
13	1.2	2.4	3.8	85	63	22	89	811	10	4.8	3.8	5.2
14	.92	1.7	13	45	34	16	98	322	25	4.4	3.5	9.3
15	.75	1.6	378	33	24	13	304	130	14	4.1	5.2	10
16	1.3	1.8	492	29	53	22	276	64	5.7	4.6	7.6	5.3
17	1.6	2.2	358	20	83	63	86	38	4.6	3.8	7.5	2.9
18	1.4	1.9	110	15	35	34	47	25	15	3.6	4.9	1.6
19	.82	25	49	106	19	17	25	20	45	3.4	2.0	1.1
20	.65	208	31	772	14	129	17	11	1450	3.9	1.2	.90
21	.55	142	24	860	12	385	15	14	2040	3.5	.75	.63
22	.49	56	18	840	9.4	339	10	7.4	2000	2.8	1.0	.62
23	.74	28	14	653	7.0	857	7.7	62	2140	2.9	1.7	.53
24	.41	26	11	210	6.0	994	5.5	333	2120	2.7	.93	.45
25	.48	43	8.7	93	32	882	5.0	408	2050	3.3	.90	.41
26	2.3	17	7.1	58	100	481	3.6	207	1900	3.5	.90	.48
27	5.3	8.0	5.7	42	68	185	3.1	56	1570	5.8	35	.69
28	5.7	5.6	4.9	31	37	104	2.1	26	988	5.8	20	.48
29	3.5	4.3	4.6	86	---	66	15	99	520	4.6	6.7	1.8
30	2.4	3.3	4.1	247	---	45	25	312	245	2.0	3.7	1.1
31	3.4	---	3.8	141	---	33	---	972	---	2.5	3.8	---
TOTAL	47.48	604.3	1603.68	6271.3	1394.4	5835.4	6523.0	15894.4	18737.2	460.1	172.88	74.84
MEAN	1.53	20.1	51.7	202	49.8	188	217	513	625	14.8	5.58	2.49
MAX	5.7	208	492	860	254	994	948	1650	2140	141	35	10
MIN	.41	1.2	.99	3.0	6.0	6.6	2.1	7.4	4.6	2.0	.75	.41
AC-FT	94	1200	3180	12440	2770	11570	12940	31530	37170	913	343	148

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 1993, BY WATER YEAR (WY)

	MEAN	34.2	71.5	107	139	123	54.1	97.4	132	155	30.8	17.8	54.4
MAX	226	254	336	685	649	224	463	513	625	120	214	537	
(WY)	1981	1986	1977	1979	1992	1992	1991	1993	1993	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 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1976 - 1993

ANNUAL TOTAL	63464.84	57618.98	
ANNUAL MEAN	173	158	84.2
HIGHEST ANNUAL MEAN			255
LOWEST ANNUAL MEAN			13.5
HIGHEST DAILY MEAN	1610	2140	2550
LOWEST DAILY MEAN	.41	.41	.00
ANNUAL SEVEN-DAY MINIMUM	.59	.52	.00
INSTANTANEOUS PEAK FLOW		2170	2590
INSTANTANEOUS PEAK STAGE		45.82	46.33
ANNUAL RUNOFF (AC-FT)	125900	114300	60980
10 PERCENT EXCEEDS	675	473	184
50 PERCENT EXCEEDS	11	11	5.5
90 PERCENT EXCEEDS	1.2	1.1	.23

## SAN JACINTO RIVER BASIN

08068780 LITTLE CYPRESS CREEK NEAR CYPRESS, TX  
(Flood-hydrograph Partial-record Station)

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 September 30, 1992 (daily discharges); October 1, 1992 to current year (peaks above base discharge, including annual maximum).

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. No known regulation or diversions. Station changed to Flood-hydrograph Partial-record on Oct. 1, 1992. 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.

AVERAGE DISCHARGE.--10 years (water years 1983-92) 24.0 ft<sup>3</sup>/s (17,370 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 3,400 ft<sup>3</sup>/s Nov. 25, 1987 (gage height 80.49 ft).

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)
Mar. 23	1000	665	74.76	May 31	0900	2,220	79.26
Apr. 8	1400	958	75.99	June 20	1900	2,180	79.22
May 6	0600	2,170	79.20				

## SAN JACINTO RIVER BASIN

45

08068800 CYPRESS CREEK AT GRANT ROAD NEAR CYPRESS, TX  
(Flood-hydrograph Partial-record Station)

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 Sept. 30, 1992 (daily discharge); Oct. 1, 1992 to current year (peaks above base discharge, including annual maximum).

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

REMARKS.--Records good. Station converted to Flood-hydrograph Partial-record on Oct. 1, 1992. 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.

AVERAGE DISCHARGE.--10 years (water years 1983-92) 116 ft<sup>3</sup>/s (83,910 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,550 ft<sup>3</sup>/s Nov. 26, 1987 (gage height 43.35ft).

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.

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)
May 7	0730	3,120	41.47	June 21	2330	3,470	42.60
June 1	0230	2,580	39.83				



## SAN JACINTO RIVER BASIN

08068900 CYPRESS CREEK AT STUEBNER-AIRLINE ROAD NEAR WESTFIELD, TX  
(Flood-hydrograph Partial-record Station)

LOCATION.--Lat 30°00'23", long 95°30'42", Harris County, Hydrologic Unit 12040102, on right bank at downstream side of bridge on Stuebner-Airline Road, 1.3 mi upstream from Spring Gulley, and 6.5 mi west of Westfield.

DRAINAGE AREA.--248 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1982 to May 1986 and February to September 1987 (gage heights and discharge measurements only). October 1987 to September 1989 (daily mean discharge). October 1989 to September 1992 (annual maximum gage height and discharge). October 1992 to current year (peaks above base discharge or annual maximum).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 70.00 ft above National Geodetic Vertical Datum of 1929, 1973 adjustment.

REMARKS.--Records fair. Low flow is sustained by sewage effluent from urbanized areas and drainage from irrigated farm land. Stage and rainfall radio-telemetry operated by Harris County Flood Control District at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,910 ft<sup>3</sup>/s Oct. 25, 1984 (gage height, 37.88 ft); maximum gage height, 39.15 ft, May 18, 1989.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges above 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)
Mar. 1	1900	3,000	31.27	June 1	0900	1,870	27.42
Apr. 4	0530	1,650	26.38	June 21	2300	2,750	30.59
Apr. 7	1630	1,940	27.74	June 26	1730	1,750	26.87
May 7	1230	2,360	29.37				

## SAN JACINTO RIVER BASIN

47

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.--Records good except those for estimated daily discharges, which are fair. 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. 20	0400	2,640	12.93	May 6	0500	3,460	15.12
Jan. 20	0300	2,960	13.81	May 23	2100	3,640	15.60
Mar. 1	2000	5,690	20.19	June 1	1000	2,650	12.96
Apr. 4	0600	2,740	13.22	June 21	1800	5,670	20.14
Apr. 7	1800	3,670	15.66	June 26	1700	2,850	13.52
May 1	1600	4,970	18.67				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	237	26	27	182	1980	66	1690	2530	311	e35	92
2	19	108	23	27	118	2670	54	1310	1360	214	e33	43
3	18	51	23	64	98	922	446	781	547	e138	e36	41
4	19	37	23	477	77	412	2250	568	278	e102	e35	35
5	21	29	22	112	79	205	1230	1850	167	e76	e34	31
6	20	26	21	60	70	128	631	3270	113	e61	e33	30
7	19	23	22	815	55	88	1470	3240	85	e54	e32	32
8	82	24	22	551	52	69	1850	2690	71	e47	e32	29
9	31	24	576	742	44	54	1690	1810	62	e42	e34	28
10	23	49	168	916	282	46	1190	2040	76	e36	e46	30
11	24	67	66	696	207	40	1010	1840	179	59	e70	29
12	25	174	47	589	300	100	610	1580	77	38	37	157
13	22	68	34	356	181	97	237	1310	64	40	32	90
14	20	39	187	153	93	79	357	785	88	37	29	163
15	20	33	1330	123	85	78	481	369	103	35	31	112
16	63	30	902	97	275	131	440	207	78	113	32	49
17	61	26	637	83	152	109	271	141	63	104	34	36
18	29	25	387	156	115	119	126	274	173	38	35	28
19	27	235	173	671	68	73	83	204	612	42	32	31
20	24	1700	122	2240	52	609	62	99	2700	53	29	38
21	22	592	98	1510	46	548	50	69	4240	66	32	29
22	23	603	77	1170	41	695	45	64	3980	38	39	26
23	23	152	108	967	35	1680	39	800	2870	38	67	26
24	21	96	85	639	35	1730	33	1210	2190	36	52	25
25	21	77	56	251	345	1340	47	779	2090	37	45	24
26	22	89	44	147	218	979	44	569	2490	42	42	50
27	22	54	39	106	170	455	28	319	2170	e37	567	29
28	22	39	37	82	108	225	26	208	1640	e42	540	21
29	27	32	34	452	---	146	225	215	1110	e50	192	20
30	46	31	32	307	---	111	129	576	584	e45	102	21
31	417	---	31	320	---	85	---	1950	---	e38	129	---
TOTAL	1251	4770	5452	14906	3583	16003	15220	32817	32790	2109	2518	1395
MEAN	40.4	159	176	481	128	516	507	1059	1093	68.0	81.2	46.5
MAX	417	1700	1330	2240	345	2670	2250	3270	4240	311	567	163
MIN	18	23	21	27	35	40	26	64	62	35	29	20
AC-FI	2480	9460	10810	29570	7110	31740	30190	65090	65040	4180	4990	2770

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 1993, BY WATER YEAR (WY)

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1945 - 1993	
ANNUAL TOTAL	161426		132814			
ANNUAL MEAN	441		364		174	
HIGHEST ANNUAL MEAN					510	
LOWEST ANNUAL MEAN					7.53	
HIGHEST DAILY MEAN	4850	Jun 2	4240	Jun 21	15600	Oct 8 1949
LOWEST DAILY MEAN	18	Sep 30	18	Oct 1	.00	Aug 3 1948
ANNUAL SEVEN-DAY MINIMUM	19	Sep 29	19	Oct 1	.00	Aug 3 1948
INSTANTANEOUS PEAK FLOW			5690	Mar 1	22100	Oct 8 1949
INSTANTANEOUS PEAK STAGE			20.19	Mar 1	33.44	Oct 8 1949
ANNUAL RUNOFF (AC-FT)	320200		263400		125800	
10 PERCENT EXCEEDS	1490		1260		399	
50 PERCENT EXCEEDS	81		77		24	
90 PERCENT EXCEEDS	23		25		1.3	

SAN JACINTO RIVER BASIN

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08069000 CYPRESS CREEK NEAR WESTFIELD, TX--Continued

WATER-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 1992 TO SEPTEMBER 1993

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)	
JUN 01...	1254	2630	52	7.0	26.0	6.0	74	650	510	15	
JUL 07...	1332	54	524	7.7	25.5	7.7	94	680	110	83	
AUG 23...	0855	79	776	8.1	29.0	4.3	56	730	580	120	
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)
JUN 01...		0	4.0	1.2	4.1	0.5	2.0	16	2.5	5.3	<0.10
JUL 07...		0	26	4.4	68	3	6.3	130	18	62	0.40
AUG 23...		0	39	6.0	110	4	8.8	200	23	100	0.60
DATE		SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)
JUN 01...		3.9	34	0.100	0.100	0.020	0.120	0.120	0.110	0.59	0.79
JUL 07...		16	299	3.74	3.74	0.060	3.80	3.80	0.050	0.95	0.95
AUG 23...		21	460	5.43	5.43	0.170	5.60	5.60	0.410	0.69	0.79
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-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)	
JUN 01...		0.90	0.70	0.170	0.160	0.120	0.37	17	570	26	
JUL 07...		1.0	1.0	1.50	1.40	1.30	4.0	11	370	26	
AUG 23...		1.2	1.1	3.10	2.60	2.50	7.7	7.8	67	9	



## SAN JACINTO RIVER BASIN

08070000 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.--No estimated daily discharges. Records good. 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)
Jan. 22	1500	5,150	16.47	June 23	2400	4,060	15.51
Apr. 10	2000	2,910	14.19	June 28	2300	2,790	14.02
May 6	0700	2,550	13.66				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	45	42	80	261	183	111	162	610	325	26	25
2	18	68	39	75	184	925	99	425	912	171	24	23
3	18	39	37	72	156	591	92	357	450	134	23	22
4	18	30	36	82	141	300	141	215	137	112	22	21
5	18	30	35	333	133	176	406	745	98	97	22	21
6	18	27	35	657	151	134	518	2320	81	86	21	20
7	20	26	34	703	257	112	604	1890	70	78	21	19
8	19	26	35	817	277	100	1660	1530	63	70	21	19
9	18	26	51	1070	178	93	1850	649	57	63	24	19
10	20	26	112	1340	153	87	2690	703	65	58	23	19
11	20	28	98	1500	162	83	2180	318	108	54	22	19
12	20	36	76	1510	181	84	397	244	123	50	21	19
13	19	42	61	1080	162	90	199	161	75	47	20	27
14	18	36	64	341	133	122	206	124	78	44	20	32
15	17	38	335	208	120	138	516	104	66	42	20	28
16	21	32	984	161	157	191	316	91	63	41	19	29
17	27	29	1340	138	335	197	209	82	67	40	19	24
18	27	27	1770	134	332	137	146	82	88	38	19	22
19	23	37	1350	319	182	121	122	331	229	37	19	22
20	21	103	255	1560	135	442	109	429	1130	38	19	27
21	21	199	149	2180	122	916	101	605	1630	38	20	24
22	21	133	133	4640	115	1110	89	321	2220	35	22	22
23	22	115	128	3820	108	1300	82	155	3530	36	20	21
24	22	135	120	1610	97	1350	78	327	3660	33	21	20
25	21	107	115	413	126	1550	75	168	2080	30	20	20
26	20	125	130	282	141	1650	73	209	743	28	21	19
27	20	152	114	214	110	502	69	169	1300	26	25	19
28	19	82	100	178	102	213	64	239	2450	26	64	19
29	19	56	92	195	---	159	75	259	2520	25	60	18
30	26	47	87	264	---	138	131	178	1360	25	39	17
31	46	---	83	329	---	125	---	164	---	24	29	---
TOTAL	656	1902	8040	26305	4711	13319	13408	13756	26063	1951	766	656
MEAN	21.2	63.4	259	849	168	430	447	444	869	62.9	24.7	21.9
MAX	46	199	1770	4640	335	1650	2690	2320	3660	325	64	32
MIN	17	26	34	72	97	83	64	82	57	24	19	17
AC-F T	1300	3770	15950	52180	9340	26420	26590	27290	51700	3870	1520	1300
CFSM	.07	.20	.80	2.61	.52	1.32	1.38	1.37	2.67	.19	.08	.07
IN.	.08	.22	.92	3.01	.54	1.52	1.53	1.57	2.98	.22	.09	.08

SAN JACINTO RIVER BASIN

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

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1993, BY WATER YEAR (WY)

MEAN	106	275	254	355	384	258	353	323	277	94.0	52.3	87.3
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 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1940 - 1993	
ANNUAL TOTAL	129099		111533		234	
ANNUAL MEAN	353		306		733	
HIGHEST ANNUAL MEAN					22.8	
LOWEST ANNUAL MEAN					1941	
HIGHEST DAILY MEAN	5500	Mar 6	4640	Jan 22	43200	Nov 25 1940
LOWEST DAILY MEAN	15	Aug 28	17	Oct 15	3.0	Aug 23 1956
ANNUAL SEVEN-DAY MINIMUM	15	Aug 27	18	Oct 1	3.2	Aug 19 1956
INSTANTANEOUS PEAK FLOW			5150	Jan 22	59000	Nov 24 1940
INSTANTANEOUS PEAK STAGE			16.47	Jan 22	24.10	Nov 24 1940
ANNUAL RUNOFF (AC-FT)	256100		221200		169300	
ANNUAL RUNOFF (CFSM)	1.09		.94		.72	
ANNUAL RUNOFF (INCHES)	14.78		12.77		9.77	
10 PERCENT EXCEEDS	988		949		486	
50 PERCENT EXCEEDS	78		90		49	
90 PERCENT EXCEEDS	20		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 benchmark).

REMARKS.--No estimated daily discharges. Records good. 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)
Jan. 23	1800	4,430	17.83	June 21	2300	5,630	19.31
Mar. 2	0200	2,760	14.93	June 25	0500	3,920	17.06

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	48	59	91	375	740	181	171	253	1440	31	39
2	22	56	53	87	289	2300	153	315	607	507	31	33
3	22	68	50	84	212	1530	147	546	809	293	30	30
4	22	48	47	82	176	858	342	415	467	212	29	27
5	23	38	45	90	160	493	342	588	184	165	28	25
6	23	36	45	322	151	340	531	2000	124	137	27	23
7	23	35	44	655	170	238	916	2400	99	116	27	23
8	23	34	43	799	269	184	2300	1850	81	101	27	22
9	23	33	55	831	266	153	2020	1480	70	89	26	21
10	23	33	77	1140	188	136	1810	868	66	79	28	22
11	23	32	108	1310	169	123	2190	803	73	73	32	21
12	23	35	107	1420	171	124	1920	459	343	68	26	21
13	23	46	86	1410	190	144	592	351	258	64	24	21
14	23	44	82	1020	167	130	346	244	141	60	24	27
15	23	45	390	364	141	168	401	178	108	57	23	42
16	22	43	525	231	134	409	584	140	137	54	23	36
17	25	41	854	177	179	440	405	118	113	52	23	36
18	28	37	1160	194	340	327	298	122	136	51	23	33
19	33	36	1460	630	320	225	212	146	406	49	22	29
20	29	73	1240	1230	193	749	169	392	1680	68	22	28
21	26	154	319	1950	148	860	145	479	3060	49	22	32
22	25	240	185	2100	134	1160	129	589	4320	48	23	34
23	25	151	158	3780	125	2030	114	397	2560	45	27	29
24	25	129	145	3470	118	1610	102	673	3040	43	23	27
25	25	143	134	1610	231	1470	96	508	3500	42	23	25
26	25	120	126	509	593	1540	91	310	2220	38	24	24
27	25	130	137	334	281	1510	86	313	1180	37	29	24
28	24	156	125	260	168	615	81	254	1460	35	32	22
29	23	99	111	282	---	342	78	321	2080	34	66	21
30	22	71	103	345	---	259	99	325	2120	31	76	21
31	33	---	97	349	---	214	---	237	---	30	53	---
TOTAL	757	2254	8170	27156	6058	21421	16880	17992	31695	4167	924	818
MEAN	24.4	75.1	264	876	216	691	563	580	1056	134	29.8	27.3
MAX	33	240	1460	3780	593	2300	2300	2400	4320	1440	76	42
MIN	22	32	43	82	118	123	78	118	66	30	22	21
AC-F I	1500	4470	16210	53860	12020	42490	33480	35690	62870	8270	1830	1620
CFSM	.06	.19	.68	2.26	.56	1.78	1.45	1.50	2.72	.35	.08	.07
IN.	.07	.22	.78	2.60	.58	2.05	1.62	1.73	3.04	.40	.09	.08

SAN JACINTO RIVER BASIN

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

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1993, BY WATER YEAR (WY)

MEAN	79.7	201	363	500	566	489	358	429	510	184	34.3	45.3
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 1992 CALENDAR YEAR			FOR 1993 WATER YEAR			WATER YEARS 1985 - 1993		
ANNUAL TOTAL	156492			138292					
ANNUAL MEAN	428			379					
HIGHEST ANNUAL MEAN							312		
LOWEST ANNUAL MEAN							471		
HIGHEST DAILY MEAN	5190			4320			139		
LOWEST DAILY MEAN	22			21			12800		
ANNUAL SEVEN-DAY MINIMUM	23			22			9.8		
INSTANTANEOUS PEAK FLOW				5630			10		
INSTANTANEOUS PEAK STAGE				19.31			16100		
INSTANTANEOUS LOW FLOW							24.67		
ANNUAL RUNOFF (AC-FT)	310400			274300			9.8		
ANNUAL RUNOFF (CFSM)	1.10			.98			225900		
ANNUAL RUNOFF (INCHES)	15.00			13.26			.80		
10 PERCENT EXCEEDS	1250			1270			10.92		
50 PERCENT EXCEEDS	107			124			899		
90 PERCENT EXCEEDS	26			23			88		



## SAN JACINTO RIVER BASIN

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 November 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, 362 microsiemens Nov. 26; minimum, 11 microsiemens Sept. 1.

WATER TEMPERATURE: Maximum, 29.0°C on several days during July and Aug; minimum, 8.5°C Nov. 28, 29.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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, FECA, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECA, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CaCO3)	
JUN											
02...	1011	586	144	6.9	23.0	7.5	88	190	170	44	
21...	1100	2300	--	--	--	--	--	--	--	--	
21...	2300	5420	--	--	--	--	--	--	--	--	
22...	1900	3280	--	--	--	--	--	--	--	--	
23...	1100	2420	--	--	--	--	--	--	--	--	
JUL											
07...	1105	117	217	7.0	26.5	6.4	79	190	140	52	
AUG											
24...	1043	23	201	6.4	28.0	4.2	54	72	130	41	
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)
JUN											
02...	10	15	1.7	11	0.7	1.7	34	3.2	22	0.10	
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
JUL											
07...	11	17	2.2	15	0.9	1.7	41	4.4	27	<0.10	
AUG											
24...	3	13	2.1	25	2	1.8	38	4.3	36	0.10	
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 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3, DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3, DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA, DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC, DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC, DIS-SOLVED (MG/L AS N)
JUN											
02...	11	88	0.200	0.200	0.010	0.210	0.210	0.070	0.63	0.63	
21...	--	--	--	--	<0.010	--	<0.050	0.050	--	0.75	
21...	--	--	--	--	<0.010	--	<0.050	0.040	--	0.56	
22...	--	--	0.043	0.043	0.020	0.063	0.063	0.050	--	0.65	
23...	--	--	0.052	--	<0.010	0.052	0.052	0.060	--	0.74	
JUL											
07...	17	111	0.230	--	<0.010	0.230	0.230	0.050	0.55	0.35	
AUG											
24...	14	120	0.180	--	<0.010	0.180	0.180	0.020	0.28	--	

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

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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- 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)
JUN 02...	0.70	0.70	0.080	0.070	0.040	0.12	17	340	11
21...	0.80	--	--	0.040	0.020	0.06	--	--	--
21...	0.60	--	--	0.020	0.010	0.03	--	--	--
22...	0.70	--	--	0.030	0.010	0.03	--	--	--
23...	0.80	--	--	<0.010	0.020	0.06	--	--	--
JUL 07...	0.40	0.60	0.120	0.050	0.030	0.09	10	840	85
AUG 24...	<0.20	0.30	0.070	0.040	0.040	0.12	4.0	380	67
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. 1992	757	243	137	280	47	96	6.3	13	51
NOV. 1992	2254	209	121	735	39	235	8.0	49	46
DEC. 1992	8170	97	62	1360	14	316	8.6	190	26
JAN. 1993	27156	64	43	3120	7.8	573	7.7	567	19
FEB. 1993	6058	160	97	1590	26	430	10	171	40
MAR. 1993	21421	66	44	2570	8.0	465	8.1	471	20
APR. 1993	16880	50	34	1550	5.7	261	6.6	300	16
MAY 1993	17992	95	62	2990	13	643	9.5	463	27
JUNE 1993	31695	73	48	4140	9.5	815	8.2	703	22
JULY 1993	4167	145	90	1010	23	258	11	121	37
AUG. 1993	924	157	96	239	26	65	10	26	39
SEPT 1993	818	60	41	89	7.4	16	7.4	16	18
TOTAL	138292	**	**	19700	**	4170	**	3090	**
WTD.AVG.	379	81	53	**	11	**	8.3	**	23

## SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	195	190	192	255	208	234	199	191	196	257	229	242
2	198	193	196	209	190	200	215	199	209	260	238	256
3	199	193	196	227	187	216	220	214	216	238	152	191
4	199	191	196	219	189	199	240	220	231	175	146	155
5	201	194	197	189	148	165	249	239	244	178	168	173
6	208	197	202	175	150	155	262	249	256	169	106	139
7	221	207	213	154	150	152	267	262	265	106	84	92
8	246	221	233	150	148	149	277	267	272	102	87	95
9	235	228	231	162	149	154	277	219	240	103	70	88
10	233	223	227	168	162	165	274	220	252	70	55	63
11	262	233	255	170	162	164	253	207	227	55	48	51
12	260	228	243	189	170	180	207	191	195	51	47	49
13	245	227	236	191	184	187	192	181	184	58	51	55
14	248	242	245	199	190	195	181	96	173	59	54	56
15	246	238	240	216	198	211	120	75	87	59	54	57
16	297	239	272	234	215	221	104	87	95	64	56	59
17	306	291	298	241	231	234	99	58	75	76	64	71
18	312	304	308	255	241	248	59	50	53	79	75	76
19	311	269	295	289	255	262	58	48	51	86	79	83
20	269	181	220	299	215	275	71	58	65	86	73	79
21	265	238	256	255	119	213	86	71	79	75	64	69
22	260	252	255	143	106	122	104	86	94	64	49	58
23	264	254	257	190	137	173	123	104	113	63	50	59
24	268	258	263	195	166	172	161	121	149	63	38	55
25	262	239	250	275	195	244	204	161	185	38	33	34
26	258	235	247	362	275	331	199	150	173	43	33	38
27	264	255	258	347	264	315	150	128	135	49	41	45
28	261	246	254	264	195	222	188	136	159	55	48	52
29	248	236	242	221	195	212	190	186	188	60	54	56
30	251	243	247	210	192	199	225	190	209	60	51	55
31	256	251	254	---	---	---	229	222	225	68	52	60
MONTH	312	181	241	362	106	206	277	48	171	260	33	87

## SAN JACINTO RIVER BASIN

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

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	89	66	75	148	49	114	84	75	80	87	84	86
2	102	85	95	55	48	52	83	79	81	84	68	80
3	115	97	107	63	54	58	84	79	81	98	64	82
4	126	114	121	77	63	69	81	62	71	112	82	92
5	137	126	131	93	77	86	68	61	64	131	55	102
6	147	137	142	97	88	93	71	65	67	56	42	47
7	157	147	152	103	88	95	73	60	70	62	41	51
8	167	153	158	105	100	103	60	34	42	97	62	78
9	210	167	191	104	99	101	41	36	38	107	97	105
10	222	210	217	106	100	103	42	38	40	113	105	108
11	221	202	213	107	105	106	45	39	41	109	72	81
12	206	182	192	106	102	104	44	39	41	122	83	102
13	185	176	179	102	90	97	51	39	43	156	122	143
14	214	185	203	93	89	91	54	48	51	154	150	152
15	219	213	218	97	91	93	55	51	53	166	153	160
16	215	212	214	94	83	92	54	44	47	182	166	176
17	217	204	212	83	75	78	55	46	51	192	181	187
18	228	182	202	87	80	85	62	55	58	196	159	184
19	210	199	205	88	84	86	71	62	66	187	170	179
20	220	204	213	89	55	68	77	70	74	189	104	150
21	217	200	208	63	55	59	77	73	76	173	103	136
22	200	195	198	69	63	67	73	69	71	142	132	134
23	197	194	196	71	55	63	75	71	72	139	70	126
24	203	195	199	65	53	59	80	74	77	86	66	80
25	208	113	189	61	51	55	84	79	82	102	79	87
26	113	75	89	59	49	55	91	83	87	158	102	128
27	130	91	113	52	44	48	95	90	92	186	158	171
28	139	130	135	62	46	55	98	94	95	255	186	222
29	---	---	---	72	56	65	95	87	91	273	250	261
30	---	---	---	75	67	72	87	84	85	281	255	265
31	---	---	---	78	72	75	---	---	---	325	281	311
MONTH	228	66	170	148	44	79	98	34	66	325	41	138
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	311	297	303	98	88	92	217	212	214	31	11	17
2	306	217	252	124	98	108	214	209	211	24	14	20
3	248	151	194	140	124	134	209	206	208	34	23	27
4	195	167	185	163	140	151	207	202	204	42	31	34
5	199	161	182	193	163	179	205	201	203	---	---	e36
6	162	127	138	206	193	200	202	197	199	---	---	e41
7	174	137	155	206	187	198	200	198	199	---	---	e46
8	209	174	192	190	184	186	200	197	198	---	---	e51
9	238	209	224	199	189	193	198	193	195	---	---	e56
10	261	238	250	209	199	204	195	191	192	---	---	e62
11	277	261	269	215	208	211	195	191	192	---	---	e67
12	293	264	284	213	201	206	195	188	191	---	---	e72
13	264	238	245	214	206	211	191	185	188	---	---	e77
14	256	242	250	212	210	211	194	187	190	---	---	e82
15	255	243	250	212	210	211	194	188	191	91	86	88
16	282	243	264	211	209	209	195	189	193	90	81	84
17	292	282	288	213	208	210	197	188	191	94	75	84
18	290	275	282	215	211	213	188	180	183	82	74	78
19	276	53	240	217	214	216	187	178	183	88	75	82
20	54	30	43	217	214	215	192	184	188	194	74	116
21	33	18	26	214	204	210	194	188	192	154	60	110
22	44	24	33	204	200	201	195	188	192	65	57	60
23	74	44	59	205	201	203	---	---	e153	75	65	69
24	73	67	70	207	203	205	---	---	e133	80	65	76
25	75	70	72	208	202	206	---	---	e113	---	---	e38
26	86	75	81	203	195	198	112	75	94	---	---	e40
27	98	86	92	202	196	199	117	111	114	---	---	e40
28	99	81	88	206	201	203	132	85	105	---	---	e40
29	81	77	78	210	204	207	88	81	85	---	---	e40
30	88	79	84	213	207	210	90	69	80	---	---	e40
31	---	---	---	215	211	213	69	31	55	---	---	---
MONTH	311	18	172	217	88	194	217	31	169	194	11	59
YEAR	362	11	146									

e Estimated

## SAN JACINTO RIVER BASIN

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

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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

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





## SAN JACINTO RIVER BASIN

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## 08070500 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. 16	1900	1,720	12.78	Apr. 9	0300	1,670	12.61
Jan. 21	1200	1,900	13.30	June 21	2000	4,590	18.72

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	37	28	36	77	169	52	116	731	66	30	20
2	20	45	27	35	66	398	50	261	93	57	25	18
3	20	27	26	34	60	133	49	133	63	52	23	17
4	43	22	26	37	57	81	75	69	52	48	23	17
5	23	22	27	545	55	65	110	237	46	47	23	17
6	21	20	27	148	69	57	70	444	43	44	22	17
7	20	20	27	113	74	53	126	188	41	42	21	16
8	20	19	27	576	60	51	888	99	41	41	21	16
9	21	20	40	225	54	48	826	71	40	39	21	16
10	20	20	88	560	60	48	135	188	148	38	22	16
11	20	22	50	310	96	46	93	83	290	37	21	16
12	19	26	37	108	75	48	78	59	75	35	23	17
13	17	32	33	80	57	53	68	53	55	34	22	22
14	17	26	35	65	51	50	96	48	48	33	21	23
15	17	23	377	58	51	49	166	44	45	32	21	27
16	18	21	1390	54	76	119	90	42	44	30	21	24
17	22	21	341	51	85	84	66	43	42	30	21	20
18	23	21	90	68	61	63	58	56	49	31	20	18
19	19	24	70	165	52	56	54	328	85	30	19	20
20	20	123	61	844	50	488	52	273	730	30	19	20
21	17	152	57	1430	50	861	50	77	2940	31	19	19
22	17	106	54	220	49	175	48	56	2890	29	20	18
23	17	91	52	128	47	431	46	61	1310	28	21	16
24	16	45	50	100	46	278	45	160	256	27	18	16
25	17	57	60	83	101	123	46	99	608	26	18	17
26	16	54	50	72	88	91	45	114	364	26	19	17
27	15	36	46	64	59	72	43	80	368	25	21	16
28	14	31	44	60	50	63	41	68	237	24	51	15
29	13	30	43	82	---	58	46	55	107	24	37	18
30	22	29	43	173	---	55	62	52	81	23	25	18
31	28	---	38	105	---	54	---	324	---	26	21	---
TOTAL	612	1222	3364	6629	1776	4420	3674	3981	11922	1085	709	547
MEAN	19.7	40.7	109	214	63.4	143	122	128	397	35.0	22.9	18.2
MAX	43	152	1390	1430	101	861	888	444	2940	66	51	27
MIN	13	19	26	34	46	46	41	42	40	23	18	15
AC-F I	1210	2420	6670	13150	3520	8770	7290	7900	23650	2150	1410	1080
CFSM	.19	.39	1.03	2.04	.60	1.36	1.17	1.22	3.78	.33	.22	.17
IN.	.22	.43	1.19	2.35	.63	1.57	1.30	1.41	4.22	.38	.25	.19

## SAN JACINTO RIVER BASIN

08070500 CANEY CREEK NEAR SPLENDORA, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 1993, BY WATER YEAR (WY)

MEAN	48.6	75.3	81.7	113	118	82.9	112	104	99.4	40.1	27.5	38.3
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 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1945 - 1993

ANNUAL TOTAL	47237			39941								
ANNUAL MEAN	129			109						78.1		
HIGHEST ANNUAL MEAN										190		1973
LOWEST ANNUAL MEAN										15.9		1971
HIGHEST DAILY MEAN	2580	Mar 5		2940	Jun 21					11100	Jun 14	1973
LOWEST DAILY MEAN	13	Oct 29		13	Oct 29					5.4	Sep 21	1956
ANNUAL SEVEN-DAY MINIMUM	15	Oct 23		15	Oct 23					5.5	Sep 21	1956
INSTANTANEOUS PEAK FLOW				4590	Jun 21					35000	Jun 14	1973
INSTANTANEOUS PEAK STAGE				18.72	Jun 21					26.30	Jun 14	1973
INSTANTANEOUS LOW FLOW				12	Oct 28					4.1	Oct 26	1956
ANNUAL RUNOFF (AC-FT)	93690			79220						56600		
ANNUAL RUNOFF (CFSM)	1.23			1.04						.74		
ANNUAL RUNOFF (INCHES)	16.74			14.15						10.11		
10 PERCENT EXCEEDS	219			188						112		
50 PERCENT EXCEEDS	46			47						26		
90 PERCENT EXCEEDS	21			19						11		

## SAN JACINTO RIVER BASIN

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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 1992 TO SEPTEMBER 1993

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, FECA, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECA, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CaCO3)	
JUN 02...	1321	87	126	6.8	24.0	7.7	92	140	280	47	
JUL 08...	1238	41	113	8.1	25.5	7.4	90	140	170	35	
AUG 23...	1225	22	83	6.4	27.0	6.9	86	150	210	21	
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)
JUN 02...	4	16	1.7	6.5	0.4	1.9	43	3.2	11	0.10	
JUL 08...	4	11	1.8	8.7	0.6	1.2	31	3.4	14	<0.10	
AUG 23...	2	5.9	1.5	9.3	0.9	1.2	19	2.4	13	0.10	
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 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)
JUN 02...	12	80	0.190	--	<0.010	0.190	0.190	0.070	0.33	0.43	
JUL 08...	16	78	0.370	0.370	0.010	0.380	0.380	0.050	0.55	0.25	
AUG 23...	13	60	0.310	--	<0.010	0.310	0.310	0.020	0.68	--	
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- 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)	
JUN 02...	0.50	0.40	0.040	0.040	0.020	0.06	11	600	66		
JUL 08...	0.30	0.60	0.080	0.050	0.030	0.09	5.5	1200	66		
AUG 23...	<0.20	0.70	1.10	0.020	0.020	0.06	6.3	590	30		



## 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.--Records fair, including those days of estimated daily discharges. 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)
Jan. 22	1600	2,260	22.50	Apr. 4	1000	1,270	20.55
Mar. 2	1600	4,940	25.19	June 22	unknown	8,610	27.75
Mar. 23	1900	2,490	22.80				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	2.6	3.7	8.1	145	708	46	11	68	1020	2.6	8.0
2	.04	1.7	3.0	6.5	119	4380	26	56	73	739	1.7	3.4
3	.04	2.5	2.4	5.5	102	4080	167	96	62	288	1.2	1.5
4	.04	13	2.0	5.2	88	3360	1180	144	23	116	.91	.76
5	.04	7.3	1.7	7.5	77	2160	817	194	6.7	91	.93	.40
6	.04	3.4	1.6	12	74	1150	505	279	2.5	65	1.2	.21
7	.03	2.0	1.5	72	66	513	491	336	1.2	32	1.0	.11
8	.02	1.4	1.3	242	45	137	1330	434	.71	18	.81	.05
9	.00	1.1	33	381	30	76	e1390	544	.49	12	.73	.04
10	.00	.83	39	584	25	61	e1160	559	4.8	8.4	.66	.03
11	.00	.88	38	514	31	47	e1210	366	10	6.5	.68	.03
12	.00	1.2	60	376	40	43	e1240	254	38	5.2	.66	.02
13	.00	1.5	25	242	34	50	e864	280	71	4.3	.91	.02
14	.00	1.3	16	152	25	39	e465	156	89	3.7	2.2	.02
15	.00	4.4	376	124	19	24	e316	81	92	3.6	2.8	.02
16	.00	6.9	543	108	20	30	e305	59	106	3.3	3.4	.02
17	.00	3.8	578	93	25	106	e196	28	1160	3.2	1.5	.02
18	.00	2.5	592	116	53	146	e99	36	e6070	2.8	.89	.05
19	.00	2.3	390	598	64	104	e55	54	e6320	4.7	.66	.05
20	.00	56	124	1140	35	278	e33	32	e6250	18	1.3	.04
21	.00	99	81	1650	21	491	e21	20	e7850	7.6	1.1	.03
22	.00	222	42	2090	15	617	e13	46	e7820	4.2	.45	.03
23	.00	183	83	1880	11	2050	e7.5	57	e5650	2.9	.16	.03
24	.00	122	88	1270	7.8	2260	e4.6	156	e3650	2.0	.08	.05
25	.00	88	85	863	49	1940	e2.9	119	3100	1.7	.18	.04
26	.00	49	53	401	240	1250	e1.8	108	2710	1.5	.32	.04
27	.00	31	31	146	420	672	e1.4	98	2890	1.3	.09	.04
28	.00	14	19	112	536	225	e1.3	80	2200	1.2	1.9	.03
29	.00	8.4	14	150	---	92	2.1	64	1480	1.2	3.9	.03
30	.00	5.4	12	228	---	72	3.8	45	1160	1.3	24	.06
31	.00	---	12	189	---	60	---	87	---	1.5	28	---
TOTAL	0.29	938.41	3351.2	13765.8	2416.8	27221	11954.4	4879	58958.40	2471.1	86.92	15.17
MEAN	.009	31.3	108	444	86.3	878	398	157	1965	79.7	2.80	.51
MAX	.04	222	592	2090	536	4380	1390	559	7850	1020	.28	8.0
MIN	.00	.83	1.3	5.2	7.8	24	1.3	11	.49	1.2	.08	.02
AC-FT	.6	1860	6650	27300	4790	53990	23710	9680	116900	4900	172	30
CFSM	.00	.14	.50	2.04	.40	4.03	1.83	.72	9.02	.37	.01	.00
IN.	.00	.16	.57	2.35	.41	4.65	2.04	.83	10.06	.42	.01	.00

e Estimated

SAN JACINTO RIVER BASIN

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

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1993, BY WATER YEAR (WY)

MEAN	33.8	121	264	262	363	378	219	367	621	84.8	5.01	9.97
MAX	131	490	831	826	980	878	1047	2443	1965	334	11.1	58.0
(WY)	1985	1987	1987	1992	1992	1993	1991	1989	1993	1987	1987	1986
MIN	.009	.17	1.43	6.22	8.36	25.0	3.06	2.95	2.24	2.09	1.09	.034
(WY)	1993	1989	1989	1989	1989	1986	1987	1988	1990	1988	1992	1992

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1985 - 1993
ANNUAL TOTAL	101826.70	126058.49	
ANNUAL MEAN	278	345	226
HIGHEST ANNUAL MEAN			350
LOWEST ANNUAL MEAN			62.7
HIGHEST DAILY MEAN	5190 Mar 6	7850 Jun 21	19600 May 19 1989
LOWEST DAILY MEAN	.00 Sep 7	.00 Oct 9	.00 Nov 14 1987
ANNUAL SEVEN-DAY MINIMUM	.00 Sep 7	.00 Oct 9	.00 Aug 26 1988
INSTANTANEOUS PEAK FLOW		8610 Jun 22	21400 May 19 1989
INSTANTANEOUS PEAK STAGE		27.75 Jun 22	33.45 May 19 1989
INSTANTANEOUS LOW FLOW		.00 Oct 9	.00 at times
ANNUAL RUNOFF (AC-FT)	202000	250000	163800
ANNUAL RUNOFF (CFSM)	1.28	1.58	1.04
ANNUAL RUNOFF (INCHES)	17.38	21.51	14.09
10 PERCENT EXCEEDS	889	863	515
50 PERCENT EXCEEDS	18	24	12
90 PERCENT EXCEEDS	.02	.03	.29

## 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 1992 TO SEPTEMBER 1993

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-TOCOCCHI, FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)	
JUN 02...	1124	75	72	6.4	24.0	6.6	79	120	150	20	
JUL 08...	1024	15	98	7.8	26.0	3.8	47	190	250	31	
AUG 24...	1156	0.09	250	6.6	30.0	4.0	53	44	520	73	
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)
JUN 02...	7	6.2	1.2	6.0	0.6	1.0	13	3.0	12	0.10	
JUL 08...	6	9.0	2.0	7.6	0.6	1.7	25	2.4	14	0.10	
AUG 24...	0	24	3.2	21	1	1.8	75	2.7	28	0.20	
DATE		SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)
JUN 02...	4.5	44	0.230	0.230	0.030	0.260	0.260	0.090	0.81	0.81	
JUL 08...	8.6	65	0.380	0.380	0.020	0.400	0.400	0.090	1.0	1.0	
AUG 24...	8.9	136	--	--	<0.010	--	<0.050	0.030	0.37	0.37	
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-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)	
JUN 02...	0.90	0.90	0.080	0.080	0.050	0.15	21	650	56		
JUL 08...	1.1	1.1	0.160	0.110	0.060	0.18	30	1900	140		
AUG 24...	0.40	0.40	0.030	0.020	0.010	0.03	8.8	510	510		

## 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>.

## LAKE-CONTENT 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, 190,100 acre-ft June 22 from 1500 to 1900 hours (gage height, 47.72 ft); minimum, 131,700 acre-ft Oct. 15-16 (gage height, 43.22 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 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	137100	136600	148300	153500	154600	168100	149700	159000	161100	155400	150900	151600
2	136600	137800	147400	153200	152300	172900	149600	161700	161100	160600	150600	151400
3	136400	139800	146400	153300	150700	166700	158000	159700	159000	159400	150600	151400
4	136100	138300	146100	154700	152000	161600	162100	157200	157400	157600	150300	151100
5	135800	138100	145100	154800	153900	158900	158600	161200	155200	156900	149800	150700
6	135600	137900	143700	156100	154100	158200	155900	172900	154600	156400	149500	150700
7	135100	137700	143300	158700	154700	157200	162600	172900	153900	156100	149200	150600
8	135100	137500	143100	159100	155200	156000	169300	172900	153400	155500	149000	150500
9	134700	137300	147500	161000	155800	155200	167800	170000	153400	155400	149000	150200
10	134800	137700	149600	162300	156300	155100	166600	163700	155000	155000	148600	150200
11	134600	138100	150500	161200	156300	155000	165600	158600	157600	155000	148100	149600
12	134200	139700	151300	159700	157200	150900	161300	153700	157800	154600	147900	149500
13	133900	139900	151600	159100	156400	146900	156700	150600	156400	154500	147500	149000
14	132800	140100	156300	160300	155800	148100	154600	158000	155800	154200	146700	150700
15	131700	140200	161600	157300	156100	149600	152700	158100	155200	154500	146200	150200
16	134000	140100	163400	155900	155900	155000	156400	156800	154600	154300	145300	150000
17	133900	140100	164500	155900	156400	158100	157700	155600	155800	154300	145100	149700
18	133500	140100	164100	156700	155600	158400	156900	157400	155000	154300	144800	149500
19	132900	142400	161200	160300	153700	157400	155800	158700	152300	154300	144200	149500
20	132700	151700	157200	168200	150500	163700	155600	159700	163300	153900	144400	149600
21	132200	156900	153300	168200	148800	165500	154200	159100	181100	153400	144500	149600
22	132800	156900	153300	167100	149800	167100	153200	158500	189200	153300	144600	149400
23	132700	155900	156900	168500	150500	169200	152800	159800	180300	153200	144200	149200
24	132600	154800	156500	165200	150900	166300	153700	160700	171900	152800	144400	149000
25	132600	153800	155900	160400	156100	163400	154600	158200	169100	152400	144500	148800
26	132500	152000	155500	157100	158900	162300	154200	155900	166700	152300	144500	149000
27	132500	151100	155400	155800	158700	160300	153700	153700	164100	151900	145000	148000
28	132200	150600	155400	156800	157800	155600	153700	154200	161500	151800	149500	147500
29	132000	150000	155200	156800	---	151200	154800	157700	159000	151600	150600	147200
30	132100	149400	153900	155800	---	147300	155600	159000	155800	151600	151100	146300
31	132700	---	155000	156000	---	148500	---	159800	---	151200	151200	---
MAX	137100	156900	164500	168500	158900	172900	169300	172900	189200	160600	151200	151600
MIN	131700	136600	143100	153200	148800	146900	149600	150600	152300	151200	144200	146300
(+)	43.31	44.71	45.16	45.24	45.38	44.64	45.21	45.53	45.22	44.86	44.86	44.46
(Φ)	-4900	+16700	+5600	+1000	+1800	-9300	+7100	+4200	-4000	-4600	0	-4900
(++)	13490	10850	8780	10580	9620	9020	13420	12010	12920	11990	13780	11250

CAL YR 1992 MAX 179600 MIN 131700 (Φ) -3600 (++) 121930  
WTR YR 1993 MAX 189200 MIN 131700 (Φ) +8700 (++) 137710

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

(Φ) Change in contents, in acre-feet.

(++) Diversions, in acre-feet, for the 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 1992 TO SEPTEMBER 1993

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											
22...	0930	150000	1.00	140	8.5	14.5	0.90	8.8	86	44	72
22...	0932	--	10.0	135	8.7	14.5	--	8.8	86	--	--
22...	0934	--	20.0	135	8.8	14.5	--	8.8	86	--	--
22...	0936	--	30.0	135	8.6	14.5	--	8.7	85	--	--
22...	0938	--	43.0	130	8.5	14.5	--	8.5	83	--	--
JUN											
01...	0915	161000	1.00	125	8.2	25.5	--	6.1	75	K4	K2
01...	0917	--	10.0	125	8.2	25.0	--	5.8	71	--	--
01...	0919	--	20.0	125	8.2	24.5	--	4.5	54	--	--
01...	0921	--	30.0	125	8.3	24.0	--	4.0	48	--	--
01...	0923	--	40.0	125	8.6	24.0	--	3.5	42	--	--
01...	0925	--	46.0	135	8.7	23.5	--	3.4	40	--	--
JUL											
07...	0930	156000	1.00	100	6.9	29.0	0.40	5.2	67	52	36
07...	0932	--	10.0	100	6.9	29.0	--	4.8	62	--	--
07...	0934	--	20.0	100	6.9	28.5	--	3.1	40	--	--
07...	0936	--	30.0	95	6.8	27.0	--	0.8	10	--	--
07...	0938	--	45.0	90	7.2	27.0	--	0.4	5	--	--
AUG											
23...	0955	144000	1.00	140	7.2	30.0	0.30	4.6	61	K2	K1
23...	0957	--	10.0	140	7.1	30.0	--	4.3	57	--	--
23...	0959	--	20.0	140	7.1	29.5	--	3.2	42	--	--
23...	1001	--	30.0	140	7.1	29.5	--	2.2	29	--	--
23...	1003	--	42.0	140	7.1	29.5	--	1.8	24	--	--

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
FEB											
22...	42	5	14	1.7	11	0.7	2.4	37	6.4	15	<0.10
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	42	6	14	1.6	9.9	0.7	2.5	36	6.3	15	<0.10
JUN											
01...	39	6	13	1.7	9.6	0.7	2.3	33	4.8	15	0.10
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--
01...	42	7	14	1.8	11	0.7	2.1	35	5.2	17	0.10
JUL											
07...	34	5	11	1.5	5.4	0.4	2.2	29	3.4	10	<0.10
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	31	3	10	1.5	4.7	0.4	1.9	28	2.9	9.0	0.10
AUG											
23...	48	4	16	2.0	9.4	0.6	2.4	44	4.5	14	0.10
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	48	5	16	2.0	9.0	0.6	2.3	43	4.3	14	0.10

## SAN JACINTO RIVER BASIN

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08072000 LAKE HOUSTON NEAR SHELDON, TX--Continued

295516095080801 - LAKE HOUSTON SITE AC--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)
FEB											
22...	7.3	82	0.260	0.260	0.020	0.280	0.280	0.050	0.65	0.35	0.40
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	7.0	80	0.250	0.250	0.020	0.270	0.270	0.060	0.64	0.44	0.50
JUN											
01...	7.0	75	0.290	0.290	0.010	0.300	0.300	0.040	0.66	0.46	0.50
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	0.290	0.290	0.020	0.310	0.310	0.070	0.53	0.43	0.50
01...	--	--	--	--	--	--	--	--	--	--	--
01...	7.4	82	0.300	0.300	0.040	0.340	0.340	0.080	0.62	0.42	0.50
JUL											
07...	6.5	58	0.095	--	<0.010	0.095	0.095	0.080	0.62	0.52	0.60
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	0.120	--	<0.010	0.120	0.120	0.120	0.48	0.58	0.70
07...	--	--	--	--	--	--	--	--	--	--	--
07...	6.7	56	0.093	--	<0.010	0.093	0.093	0.200	0.70	0.60	0.80
AUG											
23...	10	86	0.050	0.050	0.030	0.080	0.080	0.030	0.67	0.37	0.40
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	0.080	0.080	0.030	0.110	0.110	0.030	0.67	0.37	0.40
23...	10	85	0.080	0.080	0.030	0.110	0.110	0.070	0.73	0.43	0.50

DATE	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	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)
FEB										
22...	0.70	0.130	0.060	0.050	0.15	14	11	1.90	0.100	65
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	0.70	0.120	0.070	0.060	0.18	14	10	--	--	250
JUN										
01...	0.70	0.120	0.090	0.060	0.18	15	15	2.20	0.100	43
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	0.60	0.140	0.080	0.060	0.18	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	0.70	0.150	0.090	0.070	0.21	14	14	--	--	140
JUL										
07...	0.70	0.090	0.060	0.040	0.12	20	15	1.70	0.200	150
07...	--	--	--	--	--	--	--	--	--	--
07...	0.60	0.060	0.090	0.050	0.15	--	--	--	--	270
07...	--	--	--	--	--	--	--	--	--	--
07...	0.90	0.200	0.120	0.110	0.34	21	14	--	--	490
AUG										
23...	0.70	0.200	0.100	0.090	0.28	13	11	1.30	0.100	51
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	0.70	0.210	0.110	0.100	0.31	--	--	--	--	100
23...	0.80	0.220	0.130	0.120	0.37	14	11	--	--	100

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

[illegible]

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

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295516095080801 - LAKE HOUSTON SITE AC--Continued  
WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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										
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
JUN										
01...	<0.01	<0.01	<0.1	<0.01	<0.01	<1	<0.01	<0.01	<0.01	<0.01
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
JUL										
07...	<0.01	<0.01	<0.1	<0.01	<0.01	<1	<0.01	0.03	<0.01	<0.01
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
AUG										
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--

295702095091401 - LAKE HOUSTON SITE BC  
WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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								
22...	1015	1.00	150	8.1	14.5	0.70	8.7	85
22...	1017	10.0	150	8.1	14.5	--	8.7	85
22...	1019	20.0	150	8.1	14.5	--	8.7	85
22...	1021	30.0	150	8.2	14.5	--	8.6	84
22...	1023	38.0	150	8.2	14.5	--	8.7	85
JUN								
01...	1000	1.00	135	7.9	25.0	--	5.4	66
01...	1002	10.0	135	7.9	25.0	--	5.4	66
01...	1004	20.0	135	7.9	25.0	--	5.3	65
01...	1006	30.0	135	7.9	24.5	--	4.3	52
01...	1008	38.0	135	7.9	24.5	--	3.8	46
JUL								
07...	1015	1.00	105	6.8	29.0	0.35	4.9	64
07...	1017	10.0	105	6.8	29.0	--	4.9	64
07...	1019	20.0	105	6.7	29.0	--	4.8	63
07...	1021	35.0	95	6.6	27.5	--	1.0	13
AUG								
23...	1030	1.00	145	7.1	30.0	0.25	4.1	54
23...	1032	10.0	145	7.1	30.0	--	4.1	54
23...	1034	20.0	145	7.1	30.0	--	3.8	50
23...	1036	36.0	145	7.1	30.0	--	2.7	36



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

295902095074201 - LAKE HOUSTON SITE CC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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										
22...	1044	1.00	180	7.9	15.5	0.80	8.8	88	K12	110
22...	1046	10.0	180	7.9	15.0	--	8.7	86	--	--
22...	1048	20.0	180	7.9	15.0	--	8.7	86	--	--
22...	1050	30.0	180	7.9	14.5	--	8.2	80	--	--
JUN										
01...	1025	1.00	150	7.8	25.0	--	5.6	68	32	28
01...	1027	10.0	160	7.7	25.0	--	5.2	63	--	--
01...	1029	20.0	135	7.6	24.0	--	3.6	43	--	--
01...	1031	30.0	135	7.6	24.0	--	2.9	35	--	--
JUL										
07...	1040	1.00	125	6.9	29.5	0.25	5.0	66	K8	K4
07...	1042	10.0	125	6.9	29.5	--	5.0	66	--	--
07...	1044	20.0	125	6.8	29.0	--	4.7	62	--	--
07...	1046	29.0	125	6.8	29.0	--	4.6	60	--	--
AUG										
23...	1050	1.00	165	7.2	30.5	0.44	4.8	64	K4	K4
23...	1052	10.0	160	7.2	30.5	--	4.7	63	--	--
23...	1054	20.0	160	7.2	30.5	--	4.5	60	--	--
23...	1056	28.0	160	7.2	30.5	--	4.5	60	--	--

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)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
FEB										
22...	51	8	17	2.1	15	0.9	2.5	43	10	23
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	51	8	17	2.1	16	1	2.5	43	8.4	23
JUN										
01...	45	7	15	1.9	12	0.8	2.3	38	5.6	18
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	39	6	13	1.7	10	0.7	2.2	33	5.2	16
JUL										
07...	42	4	14	1.8	7.0	0.5	2.4	38	4.0	12
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	42	5	14	1.8	6.9	0.5	2.3	37	4.0	13
AUG										
23...	52	7	17	2.2	14	0.8	2.5	45	5.5	21
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	49	5	16	2.2	14	0.9	2.7	44	5.4	20

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)
FEB										
22...	0.10	9.4	107	0.400	0.400	0.020	0.420	0.420	0.060	0.54
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	<0.10	9.6	107	0.390	0.390	0.020	0.410	0.410	0.060	0.44
JUN										
01...	0.10	7.1	87	0.300	0.300	0.020	0.320	0.320	0.040	0.36
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	0.10	7.2	77	0.290	0.290	0.030	0.320	0.320	0.090	0.31
JUL										
07...	0.10	7.4	72	0.088	--	<0.010	0.088	0.088	0.110	0.59
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	0.10	7.0	72	0.083	--	<0.010	0.083	0.083	0.110	0.39
AUG										
23...	0.10	12	102	0.060	0.060	0.030	0.090	0.090	0.060	0.64
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	0.10	11	99	0.064	0.064	0.030	0.094	0.094	0.030	0.37

## SAN JACINTO RIVER BASIN

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08072000 LAKE HOUSTON NEAR SHELDON, TX--Continued

295902095074201 - LAKE HOUSTON SITE CC--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	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										
22...	0.60	0.130	0.100	0.31	14	11	33.0	8.10	110	3
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	0.50	0.100	0.080	0.25	14	10	--	--	56	10
JUN										
01...	0.40	0.080	0.070	0.21	13	13	4.80	0.400	65	8
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	0.40	0.080	0.070	0.21	14	14	--	--	180	70
JUL										
07...	0.70	0.090	0.060	0.18	19	14	3.20	0.300	180	16
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	0.50	0.050	0.040	0.12	17	14	--	--	110	100
AUG										
23...	0.70	0.200	0.120	0.37	13	10	0.800	<0.100	51	8
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	0.40	0.100	0.100	0.31	13	10	--	--	51	580

300016095073401 - LAKE HOUSTON SITE DC

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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								
22...	1120	1.00	190	7.8	15.5	0.80	8.7	87
22...	1122	10.0	190	7.8	15.0	--	8.6	85
22...	1124	23.0	190	7.8	15.0	--	8.5	84
JUN								
01...	1100	1.00	130	7.9	25.0	--	5.2	64
01...	1102	10.0	130	7.8	24.5	--	4.6	56
01...	1104	23.0	130	7.6	23.5	--	2.4	29
JUL								
07...	1110	1.00	125	6.9	29.5	0.30	5.1	68
07...	1112	10.0	125	6.9	29.5	--	5.0	66
07...	1114	25.0	125	6.9	29.0	--	4.8	63
AUG								
23...	1120	1.00	180	7.3	30.5	0.20	5.0	67
23...	1122	10.0	170	7.2	30.5	--	4.8	64
23...	1124	20.0	170	7.2	30.5	--	4.8	64

300158095074601 - LAKE HOUSTON SITE EC

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)
FEB												
22...	1240	1.00	165	7.7	16.5	1.20	9.1	93	28	96	46	12
22...	1242	10.0	170	7.7	15.5	--	8.7	87	--	--	--	--
22...	1244	21.0	175	7.7	15.5	--	8.5	85	--	--	46	9
JUN												
01...	1220	1.00	105	7.5	26.0	--	5.9	73	28	36	31	7
01...	1222	10.0	105	7.3	25.0	--	4.8	59	--	--	--	--
01...	1224	22.0	100	7.2	23.5	--	1.8	21	--	--	28	5
JUL												
07...	1215	1.00	110	6.8	29.5	0.25	4.8	63	K1	K1	37	5
07...	1217	10.0	110	6.8	29.5	--	4.6	61	--	--	--	--
07...	1219	20.0	110	6.7	29.5	--	2.3	30	--	--	35	3
AUG												
23...	1228	1.00	190	7.9	30.5	0.20	4.8	64	K4	K1	52	7
23...	1230	10.0	185	7.8	30.5	--	4.6	62	--	--	--	--
23...	1232	20.0	185	7.7	30.5	--	4.4	59	--	--	52	8

## SAN JACINTO RIVER BASIN

08072000 LAKE HOUSTON NEAR SHELDON, TX--Continued

300158095074601 - LAKE HOUSTON SITE EC--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)
FEB												
22...	15	2.0	14	0.9	1.7	34	7.4	26	<0.10	12	99	0.150
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	15	2.1	15	1	1.9	37	7.9	26	<0.10	12	104	0.320
JUN												
01...	10	1.5	8.1	0.6	1.5	24	4.0	15	0.10	7.8	63	0.120
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	9.0	1.4	6.4	0.5	1.2	23	3.5	11	<0.10	7.1	55	0.100
JUL												
07...	12	1.8	6.4	0.5	2.0	32	3.3	12	<0.10	8.8	66	0.065
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	11	1.9	6.1	0.4	1.9	32	2.0	12	0.10	10	66	0.090
AUG												
23...	17	2.3	17	1	2.4	45	6.1	25	0.20	13	111	0.016
23...	--	--	--	--	--	--	--	--	--	--	--	--
23...	17	2.3	18	1	2.3	44	6.3	27	0.10	13	113	0.010
DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)
FEB												
22...	0.150	0.010	0.160	0.160	0.020	0.58	0.38	0.40	0.60	0.090	0.050	0.030
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	0.320	0.010	0.330	0.330	0.020	0.48	0.48	0.50	0.50	0.110	0.130	0.090
JUN												
01...	0.120	0.010	0.130	0.130	0.060	0.54	0.64	0.70	0.60	0.060	0.050	0.020
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	0.100	0.010	0.110	0.110	0.260	0.64	0.44	0.70	0.90	0.100	0.050	0.030
JUL												
07...	--	<0.010	0.065	0.065	0.130	0.77	0.77	0.90	0.90	0.130	0.140	0.030
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	0.090	0.010	0.100	0.100	0.170	0.93	0.83	1.0	1.1	0.100	0.060	0.030
AUG												
23...	0.016	0.040	0.056	0.056	0.040	0.56	0.36	0.40	0.60	0.170	0.080	0.070
23...	--	--	--	--	--	--	--	--	--	--	--	--
23...	0.010	0.040	0.050	0.050	0.040	0.66	0.46	0.50	0.70	0.150	0.080	0.060
DATE	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	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)	PCB, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)
FEB												
22...	0.09	12	9.7	20.0	1.70	100	7	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	0.28	11	9.9	--	--	180	7	--	--	--	--	--
JUN												
01...	0.06	16	13	5.50	0.400	250	23	<0.1	<0.10	<0.010	<0.1	<0.010
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	0.09	18	16	--	--	280	400	--	--	--	--	--
JUL												
07...	0.09	20	16	1.90	0.200	290	53	<0.1	<0.10	<0.010	<0.1	<0.010
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	0.09	24	19	--	--	690	190	--	--	--	--	--
AUG												
23...	0.21	11	8.9	1.50	0.200	16	14	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
23...	0.18	11	8.8	--	--	87	35	--	--	--	--	--

## SAM JACINTO RIVER BASIN

73

08072000 LAKE HOUSTON NEAR SHELTON, TX--Continued

300158095074601 - LAKE HOUSTON SITE EC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINOM, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	DI- SYSTON TOTAL (UG/L)	ENDO- SULFAM, TOTAL (UG/L)	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)
FEB												
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
01...	<0.010	<0.010	0.04	<0.010	<0.01	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
07...	<0.010	<0.010	<0.01	<0.010	<0.01	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
23...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
DATE	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	PHORATE TOTAL (UG/L)	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												
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
01...	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<1	<0.01	<0.01	<0.01	<0.01
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
07...	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<1	<0.01	<0.01	<0.01	<0.01
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
23...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--

300209095091201 - LAKE HOUSTON SITE FC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)
FEB												
22...	1200	1.00	235	7.8	17.0	0.80	9.0	93	140	48	65	3
22...	1202	12.0	220	7.7	15.0	--	7.7	76	--	--	62	8
JUN												
01...	1140	1.00	95	7.5	25.0	--	5.4	66	680	220	30	2
01...	1142	12.5	95	7.5	24.5	--	5.3	64	--	--	31	2
JUL												
07...	1135	1.00	185	7.1	30.0	0.20	5.6	75	140	60	59	4
07...	1137	5.00	185	7.1	30.0	--	5.4	72	--	--	--	--
07...	1139	12.0	180	7.0	30.0	--	4.6	62	--	--	59	5
AUG												
23...	1150	1.00	385	8.3	31.0	0.20	5.3	72	K1	K1	79	0
23...	1152	11.0	355	7.8	30.5	--	4.7	63	--	--	73	0



08072000 LAKE HOUSTON NEAR SHELDON, TX--Continued

300209095091201 - LAKE HOUSTON SITE FC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRA- TOTAL (MG/L AS N)
FEB												
22...	22	2.5	21	1	7.0	62	9.2	33	0.40	9.7	145	0.570
22...	21	2.4	19	1	2.8	54	9.8	29	<0.10	9.0	128	0.530
JUN												
01...	9.9	1.4	7.1	0.6	1.9	28	3.5	10	0.10	5.6	58	0.200
01...	10	1.4	7.2	0.6	1.9	29	3.4	9.7	0.10	5.5	58	0.210
JUL												
07...	20	2.3	14	0.8	3.0	55	6.6	20	0.10	7.9	108	0.120
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	20	2.3	13	0.7	2.9	54	6.4	18	0.10	8.0	104	0.120
AUG												
23...	26	3.3	49	2	4.2	89	13	56	0.30	15	222	0.120
23...	24	3.2	42	2	3.7	82	12	52	0.20	15	202	--

DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO. DIS- SOLVED (MG/L AS P)
FEB												
22...	0.570	0.020	0.590	0.590	0.020	0.88	0.88	0.90	0.90	0.230	0.230	0.230
22...	0.530	0.020	0.550	0.550	0.070	0.63	0.43	0.50	0.70	0.230	0.130	0.120
JUN												
01...	0.200	0.010	0.210	0.210	0.070	0.53	0.53	0.60	0.60	0.100	0.110	0.080
01...	0.210	0.010	0.220	0.220	0.100	0.70	0.40	0.50	0.80	0.140	0.100	0.080
JUL												
07...	--	<0.010	0.120	0.120	0.050	0.75	0.45	0.50	0.80	0.180	0.070	0.060
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	<0.010	0.120	0.120	0.090	0.91	0.91	1.0	1.0	0.240	0.170	0.060
AUG												
23...	0.120	0.030	0.150	0.150	0.030	1.2	0.37	0.40	1.2	0.520	0.330	0.340
23...	--	0.030	--	<0.050	0.040	0.96	0.36	0.40	1.0	0.440	0.270	0.270

DATE	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)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	PCB, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDO, TOTAL (UG/L)
FEB												
22...	0.71	13	9.9	13.0	1.10	130	11	--	--	--	--	--
22...	0.37	13	9.7	--	--	67	39	--	--	--	--	--
JUN												
01...	0.25	16	12	1.40	0.200	190	25	<0.1	<0.10	<0.010	<0.1	<0.010
01...	0.25	16	12	--	--	110	24	--	--	--	--	--
JUL												
07...	0.18	13	9.5	6.00	0.600	15	6	<0.1	<0.10	<0.010	<0.1	<0.010
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	0.18	14	9.5	--	--	32	26	--	--	--	--	--
AUG												
23...	1.0	13	8.2	11.0	1.10	3	5	--	--	--	--	--
23...	0.83	12	8.3	--	--	20	18	--	--	--	--	--

[illegible]

## 75

300209095091201 - LAKE HOUSTON SITE FC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

[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 measurements, May 19, 1989 and June 24, 1993.

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

Pesticide analyses: May 1971 to September 1972.

GAGE.--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 good. 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).

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, 14.80 ft June 22 at 2300 hours; minimum recorded, minus 2.42 ft Mar. 13.

## GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	3.28	1.69	3.76	1.28	2.02	1.26	1.59	.23	2.39	.68	6.55	1.88
2	3.59	2.20	2.72	1.28	2.41	.86	2.48	.61	2.57	.82	8.73	6.55
3	4.00	2.41	3.27	1.13	2.48	1.56	3.08	1.42	2.82	1.21	8.22	4.51
4	3.89	2.18	1.13	-.73	2.64	1.35	2.75	1.02	3.01	.89	4.51	2.25
5	3.55	1.62	1.42	-.05	2.18	.80	2.16	.11	3.08	.91	2.55	.41
6	2.87	1.48	2.34	.87	2.74	1.04	2.53	.45	2.20	.03	1.98	.20
7	3.53	1.20	3.01	1.29	2.67	.56	3.68	1.88	2.01	.15	1.82	.19
8	2.33	.75	3.45	1.67	2.87	.64	3.65	1.54	2.13	.33	1.90	.40
9	3.04	1.84	3.45	1.80	3.66	1.21	3.74	2.23	2.65	1.08	2.23	.55
10	3.14	1.71	3.87	1.44	2.97	.02	3.74	1.80	2.95	1.63	2.39	.74
11	2.95	.77	3.81	1.70	2.10	.05	3.19	2.44	2.76	1.12	3.14	.29
12	2.80	1.20	3.43	-.07	2.83	.86	3.35	2.26	2.04	.12	2.83	.02
13	2.85	1.39	2.14	.13	3.62	1.66	3.10	2.02	2.33	.40	.02	-2.42
14	3.07	1.73	2.65	.77	3.64	1.29	2.95	1.33	2.96	.70	2.01	-1.47
15	3.14	1.56	2.49	.82	2.98	1.55	3.21	1.65	3.44	2.18	3.63	1.19
16	3.36	.96	2.61	.70	2.89	2.08	3.01	1.31	2.95	.26	4.07	1.88
17	3.02	.98	2.93	1.62	2.88	1.93	2.73	.86	2.09	.42	2.11	.17
18	2.83	.79	3.21	1.86	4.23	2.46	2.90	.99	2.17	.52	2.98	1.33
19	2.85	.92	3.41	1.96	4.22	3.17	3.08	.72	3.08	1.41	3.08	2.01
20	3.27	1.47	3.52	1.83	3.92	1.84	4.95	2.94	2.83	1.02	3.53	1.90
21	3.13	1.86	3.89	1.77	2.71	.90	5.16	4.73	2.82	.95	4.05	2.42
22	3.51	1.78	2.94	.46	2.68	.78	5.19	4.37	2.33	.88	5.35	3.12
23	3.36	1.98	3.39	1.03	2.63	.78	5.51	4.84	2.86	1.61	6.09	5.35
24	2.91	.98	3.96	1.66	2.52	.23	5.82	3.71	3.56	1.66	5.50	4.47
25	2.85	.92	3.02	.22	3.03	1.17	4.02	2.69	3.75	2.06	4.47	3.37
26	2.82	.95	2.03	-.32	2.60	.29	2.86	1.24	2.06	1.00	3.37	2.61
27	2.74	.69	1.58	-.40	2.91	1.14	2.80	1.43	2.69	1.15	3.29	2.26
28	2.73	.71	2.05	.67	2.58	1.13	2.80	1.70	3.05	1.48	3.03	1.93
29	2.84	1.33	2.28	.99	2.68	1.46	2.58	1.81	---	---	3.03	1.16
30	2.97	1.08	2.40	.41	2.66	1.57	2.32	1.26	---	---	2.96	1.22
31	2.94	1.35	---	---	2.20	1.22	2.39	.95	---	---	2.21	.18
MONIH	4.00	.69	3.96	-.73	4.23	.02	5.82	.11	3.75	.03	8.73	-2.42

## 77

[illegible]



## 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.--Records good. Stage-discharge relationship affected by seasonal vegetation 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)
Mar. 1	2100	1,310	31.98	May 6	0400	1,660	33.18
Apr. 4	0600	2,470	35.59	June 20	0100	1,690	32.26

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	15	2.5	2.3	29	408	4.4	6.9	185	64	16	20
2	2.5	15	2.0	2.2	22	560	2.4	27	93	39	15	14
3	2.2	12	1.7	2.5	16	228	446	26	53	28	5.7	7.2
4	2.1	8.2	2.0	2.4	12	119	2040	12	34	22	6.0	3.9
5	3.0	5.1	2.1	2.4	14	69	909	234	22	20	8.4	2.5
6	5.2	5.9	1.4	2.4	17	47	419	1340	14	16	16	1.8
7	7.5	11	1.6	e161	15	39	403	719	9.2	12	8.4	1.8
8	4.6	14	1.5	e204	9.2	29	601	393	5.7	12	9.2	1.4
9	4.2	12	43	e237	6.4	22	293	229	4.1	10	21	1.2
10	3.2	16	20	e295	243	17	149	351	102	9.4	18	1.1
11	2.4	16	7.9	e125	160	13	74	199	325	9.0	18	25
12	1.8	35	3.4	e84	63	23	49	107	134	7.6	23	16
13	1.6	24	2.2	56	36	23	33	59	102	8.5	24	10
14	2.3	13	34	41	25	15	69	37	162	7.2	8.4	26
15	3.4	7.3	517	49	21	13	93	22	81	9.7	4.5	15
16	2.9	4.2	269	42	90	21	44	13	42	9.8	2.9	8.7
17	2.2	2.4	102	30	43	23	26	8.7	28	9.4	6.5	6.5
18	1.4	5.8	52	e43	24	17	17	6.5	169	9.2	11	4.4
19	1.3	97	34	e82	14	12	12	9.4	625	13	7.6	3.4
20	2.0	381	27	291	9.3	44	8.8	7.7	1500	12	4.3	2.6
21	2.7	178	24	231	7.3	33	7.6	4.8	1110	14	9.0	3.3
22	2.3	183	18	136	4.9	174	5.3	4.2	753	16	3.1	2.7
23	2.3	67	15	75	3.0	629	7.2	43	667	9.9	2.6	1.9
24	2.5	41	14	60	2.3	265	5.5	119	496	8.8	5.9	1.6
25	8.9	28	9.9	41	120	134	5.3	54	498	9.5	2.6	1.4
26	6.6	19	7.5	31	167	68	5.3	61	586	7.5	2.9	2.6
27	4.9	12	5.3	26	60	39	4.7	205	377	6.8	89	1.7
28	6.7	8.4	4.5	23	30	25	3.9	303	300	6.6	34	1.2
29	5.4	5.4	3.7	104	---	16	14	135	165	21	13	1.0
30	4.3	3.7	2.9	87	---	13	15	227	110	20	6.9	1.1
31	3.2	---	2.7	42	---	8.5	---	406	---	20	11	---
TOTAL	107.5	1245.4	1233.8	2610.2	1263.4	3146.5	5766.4	5369.2	8752.0	467.9	413.9	191.0
MEAN	3.47	41.5	39.8	84.2	45.1	101	192	173	292	15.1	13.4	6.37
MAX	8.9	381	517	295	243	629	2040	1340	1500	64	89	26
MIN	1.3	2.4	1.4	2.2	2.3	8.5	2.4	4.2	4.1	6.6	2.6	1.0
AC-FT	213	2470	2450	5180	2510	6240	11440	10650	17360	928	821	379

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1993, BY WATER YEAR (WY)

	30.7	55.7	69.6	75.5	74.9	34.5	54.7	63.8	79.2	30.8	26.7	53.7
MAX	99.4	223	376	224	356	129	330	173	292	136	76.7	320
(WY)	1985	1983	1992	1979	1992	1992	1991	1993	1993	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 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1978 - 1993

ANNUAL TOTAL	38430.25	30567.2	53.9
ANNUAL MEAN	105	83.7	137
HIGHEST ANNUAL MEAN			12.4
LOWEST ANNUAL MEAN			1992
HIGHEST DAILY MEAN	1470	2040	2560
LOWEST DAILY MEAN	.96	1.0	.30
ANNUAL SEVEN-DAY MINIMUM	1.0	1.5	.34
INSTANTANEOUS PEAK FLOW		2470	2920
INSTANTANEOUS PEAK STAGE		35.59	38.31
INSTANTANEOUS LOW FLOW		.97	
ANNUAL RUNOFF (AC-FT)	76230	60630	39060
10 PERCENT EXCEEDS	329	232	111
50 PERCENT EXCEEDS	14	15	7.3
90 PERCENT EXCEEDS	1.8	2.4	1.5

## SAN JACINTO RIVER BASIN

79

## 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 releveing 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, 35,050 acre-ft June 28 from 0815 hours to 1500 hours (elevation, 92.92 ft); minimum, 0.11 acre-ft Dec. 5 (elevation, 73.65 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 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.13	1.38	.15	.17	.48	1190	285	225	6600	28550	.27	.25
2	.13	.32	.15	.16	.35	7700	.25	442	5340	26420	.19	.21
3	.13	.23	.15	.42	.29	10100	46.7	.23	3760	24410	.17	.19
4	.13	.19	.14	6.77	.25	10330	6340	.23	1960	22400	.17	.16
5	.13	.17	.13	.37	.30	9420	11650	24.7	94.4	20370	.16	.15
6	.13	.16	.13	.26	.28	8030	14860	3360	.20	19720	.18	.14
7	.14	.16	.13	126	.26	6600	17800	6670	.22	18340	.17	.14
8	.16	.18	.12	842	.23	4850	19940	8260	.19	16940	.16	.14
9	.15	.19	17.3	1980	.21	2900	19620	9480	.17	15800	.16	.14
10	.14	.33	.44	4890	258	1110	17850	10990	22.2	14900	.24	.14
11	.14	.29	.36	6000	870	334	15710	10560	1870	13640	.23	.14
12	.14	5.91	.25	5910	213	575	13760	9790	3620	11830	.21	.23
13	.13	1.00	.22	4870	.61	343	12540	8350	4500	9790	.23	.21
14	.13	.27	3.18	3490	1.71	.88	12980	6510	4390	8050	.19	.24
15	.13	.20	650	1850	.80	16.4	12000	4610	3360	6390	.16	.25
16	.15	.17	2250	95.5	8.06	173	10200	2670	3020	4730	.15	.20
17	.17	.16	2400	.28	4.13	320	8350	1430	2040	3080	.14	.18
18	.15	.15	1530	.28	.70	317	6430	1020	2230	1380	.15	.16
19	.14	3.55	253	6.64	.44	287	5130	575	4540	12.6	.16	.16
20	.13	1860	.47	387	.32	678	4400	328	13510	2.74	.16	.16
21	.13	3760	.41	589	.27	640	2550	30.5	19670	.31	.15	.15
22	.14	4300	.34	353	.24	890	272	.25	24410	.27	.16	.15
23	.14	4170	.30	383	.21	6480	.25	26.7	27620	.24	.15	.15
24	.13	4070	.28	500	.19	8370	.21	890	28870	.23	.14	.14
25	.14	2590	.25	.55	209	8780	.19	919	30910	.21	.14	.14
26	.16	1080	.22	.34	944	8860	.17	997	33150	.15	.14	.14
27	.15	.47	.20	.28	570	7350	.16	1260	34680	.16	1.35	.14
28	.15	.26	.19	.24	100	5560	.15	2030	34680	.18	18.4	.14
29	.15	.22	.18	21.9	---	4460	17.8	2910	32970	.16	.34	.14
30	.18	.17	.18	154	---	4330	114	4420	30820	.20	.22	.13
31	.15	---	.17	98.9	---	2690	---	6700	---	.37	.34	---
MAX	.18	4300	2400	6000	944	10330	19940	10990	34680	28550	18.4	.25
MIN	.13	.15	.12	.16	.19	.88	.15	.23	.17	.15	.14	.13
CAL YR 1992	MAX	66780	MIN	.11								
WTR YR 1993	MAX	34680	MIN	.12								

## 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.--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. Maximum gage height for period of record occurred prior to channel rectification. Gage-height telemeter at station.

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)
Mar. 1	1900	596	9.74	May 30	2300	533	9.25
Mar. 22	2400	436	8.43	June 20	0800	684	10.37
Apr. 4	0530	613	9.87				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.25	11	.20	.30	15	209	2.8	.99	176	41	1.4	4.8
2	e.24	12	.11	.17	9.1	316	1.9	2.6	93	19	.81	.85
3	e.23	9.2	.08	3.2	6.7	132	99	2.2	45	4.8	7.5	.19
4	e.23	5.5	.06	18	4.2	85	528	.38	20	.60	25	.07
5	e.23	3.2	.05	4.1	2.9	59	274	66	6.2	.07	12	.03
6	e.23	2.2	.05	1.0	2.6	41	159	265	1.2	.04	5.4	.01
7	.25	1.4	e.04	63	1.8	30	181	195	.20	.04	1.1	.01
8	.46	.92	e.04	58	1.0	19	233	136	.06	.03	.21	.00
9	.73	.45	41	80	.56	10	128	90	.03	.03	.07	.00
10	.90	.92	14	102	52	5.1	81	176	3.8	.03	.03	.00
11	2.4	2.7	7.0	45	40	3.2	51	165	5.2	e.02	.00	.00
12	2.1	9.0	3.3	28	20	19	32	126	.25	e.02	.00	.00
13	1.4	10	1.5	19	9.7	25	18	86	.06	e.02	.00	.00
14	1.0	4.4	14	12	4.3	13	18	54	.05	e.02	.00	.04
15	.90	1.6	135	14	2.0	6.0	37	33	.03	e.02	.00	.38
16	1.7	.59	93	7.2	5.5	7.3	18	19	.03	.07	.00	.60
17	2.7	.28	50	3.9	3.3	6.7	5.3	10	.04	.13	.00	.52
18	2.9	.16	36	4.9	1.3	4.0	1.9	4.8	.22	.11	.00	.86
19	1.9	40	23	17	.50	2.6	.97	2.6	44	.15	.00	4.5
20	1.3	171	19	152	.27	5.6	.58	1.3	569	.21	.00	1.7
21	.81	96	14	109	.19	5.4	.43	.58	332	1.2	.00	.78
22	.72	78	11	60	.14	52	.37	.30	202	2.0	.01	.96
23	1.3	31	9.7	43	.11	259	.25	22	180	.70	.71	.34
24	1.4	16	7.5	35	.09	117	.19	53	131	.28	.56	.12
25	1.1	11	4.1	24	48	78	.19	19	154	.13	.16	.05
26	.81	6.8	2.4	18	60	53	.17	27	196	.12	.04	.03
27	.64	3.8	1.5	11	32	34	e.20	15	231	.08	2.4	.01
28	.51	1.8	1.2	6.0	18	19	e.21	18	169	.06	14	.01
29	.39	.83	.93	49	---	9.2	3.4	14	116	.06	15	.00
30	2.7	.38	.82	41	---	5.2	3.4	157	74	2.8	14	.00
31	5.4	---	.62	24	---	4.2	---	373	---	3.2	8.4	---
TOTAL	37.83	532.13	491.20	1052.77	341.26	1634.5	1879.26	2134.75	2749.37	77.04	108.80	16.86
MEAN	1.22	17.7	15.8	34.0	12.2	52.7	62.6	68.9	91.6	2.49	3.51	.56
MAX	5.4	171	135	152	60	316	528	373	569	41	25	4.8
MIN	.23	.16	.04	.17	.09	2.6	.17	.30	.03	.02	.00	.00
AC-FT	75	1060	974	2090	677	3240	3730	4230	5450	153	216	33

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1993, BY WATER YEAR (WY)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MEAN	13.8	24.1	24.2	26.9	25.3	12.9	18.6	28.2	33.0	12.6	11.2	20.8				
MAX	73.1	98.2	131	91.0	120	52.7	119	89.5	106	45.3	53.1	128				
(WY)	1985	1983	1992	1979	1992	1993	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 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1978 - 1993
ANNUAL TOTAL	13320.38	11055.77	
ANNUAL MEAN	36.4	30.3	20.9
HIGHEST ANNUAL MEAN			48.4
LOWEST ANNUAL MEAN			4.45
HIGHEST DAILY MEAN	423 Jun 2	569 Jun 20	1120 Aug 31 1981
LOWEST DAILY MEAN	.04 Dec 7	.00 Aug 11	.00 Nov 20 1977
ANNUAL SEVEN-DAY MINIMUM	.06 Dec 2	.00 Aug 11	.00 Mar 16 1978
INSTANTANEOUS PEAK FLOW		684 Jun 20	2060 Aug 31 1981
INSTANTANEOUS PEAK STAGE		10.37 Jun 20	16.72 Sep 20 1979
ANNUAL RUNOFF (AC-FT)	26420	21930	15150
10 PERCENT EXCEEDS	118	97	50
50 PERCENT EXCEEDS	4.9	2.8	1.8
90 PERCENT EXCEEDS	.43	.03	.03

## SAN JACINTO RIVER BASIN

81

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 (daily mean discharge). October 1980 to September 1982 (peak discharges greater than base discharge and annual maximum), October 1982 to September 1989 (annual maximum). October 1989 to current year (peak discharges greater than base discharge or annual maximum).

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

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

EXTREMS FOR PERIOD OF RECORD.--Maximum discharge, 1,790 ft<sup>3</sup>/s June 19, 1993 (gage height 22.65 ft); maximum gage height 24.42 ft Sept. 19, 1979; 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. 20	0130	540	17.90	Apr. 7	1800	581	18.14
Nov. 21	1800	526	17.82	May 5	1400	511	17.73
Jan. 20	0530	483	17.56	May 30	2000	859	19.55
Mar. 1	1800	992	20.12	June 19	2400	1,790	22.65
Mar. 22	2130	768	19.12	June 20	0630	1,580	22.04
Apr. 3	2130	925	19.85				

## SAN JACINTO RIVER BASIN

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, 31,310 acre-ft June 28 at 1000 to 1930 hours (elevation, 96.88 ft); minimum, 0.27 acre-ft Oct. 8 (elevation, 71.53 ft).

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

71.1	0	77.5	65	82.5	493	87.5	2,720	92.5	11,360	97.5	35,180
71.9	0.5	78.0	85	83.0	598	88.0	3,190	93.0	12,980	98.0	38,460
72.4	1	78.5	108	83.6	753	88.5	3,720	93.5	14,770	98.5	41,900
73.6	2	79.0	134	84.0	870	89.0	4,300	94.0	16,700	99.0	45,500
74.6	4	79.5	165	84.5	1,030	89.5	4,960	94.5	18,810	99.5	49,260
75.1	8	80.0	202	85.0	1,220	90.0	5,710	95.0	21,120	100.0	53,180
75.5	13	80.5	245	85.5	1,430	90.5	6,560	95.5	23,610	100.5	57,280
76.0	21	81.0	295	86.0	1,680	91.0	7,540	96.0	26,260	101.0	61,570
76.5	33	81.5	351	86.5	1,970	91.5	8,660	96.5	29,070		
77.0	47	82.0	414	87.0	2,320	92.0	9,930	97.0	32,040		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.32	4.1	.38	.42	.80	1530	929	363	5410	28030	.53	.44
2	.32	.86	.38	.42	.90	9250	40	519	4890	26640	.44	.41
3	.32	.58	.38	52	.80	10480	378	65	3840	25010	.50	.39
4	.31	.50	.38	287	.72	9850	7020	e.60	2480	23400	.68	.39
5	.28	.44	.37	1.0	.87	8800	10280	e394	1070	22040	.52	.37
6	.34	.40	.38	.80	.67	7560	12220	3820	190	21120	.50	.38
7	.31	.37	.38	533	.56	6240	14320	6240	e165	19120	.48	.39
8	.46	.39	.38	1260	.49	4870	16870	6680	e7.0	17190	.46	.37
9	.33	.40	162	2360	.50	3340	17150	7060	.59	15710	.54	.37
10	.33	1.0	1.6	4870	457	1730	16500	7590	199	14840	.49	.37
11	.32	.68	.93	5290	364	901	15250	7780	861	13670	.44	.39
12	.36	10	.54	4860	7.3	1090	13920	7300	1060	12150	.44	.37
13	.34	.86	.48	3730	1.0	736	13220	6550	1110	10710	.43	.39
14	.34	.58	13	2290	.78	115	13570	5440	753	9070	.43	.57
15	.33	.46	1020	1200	1.3	75	13330	4060	301	7380	.43	.43
16	.37	.42	1680	388	1.6	203	12150	2590	e21	5690	.43	.37
17	.44	.41	1480	1.0	.98	287	10800	1600	.43	4000	.43	.37
18	.36	.41	920	1.1	.66	344	9450	1240	190	2250	.43	.43
19	.36	100	306	32	.54	388	8630	825	1160	688	.44	1.1
20	.36	1950	1.0	901	.49	392	7860	567	15250	e73	.43	.49
21	.36	3000	.96	1390	.47	242	6370	330	20730	.76	.44	.39
22	.36	3470	.80	644	.46	541	4900	e245	23760	.66	.57	.37
23	.34	3430	.99	246	.43	5010	2460	e493	25540	.56	.45	.37
24	.34	3250	.62	121	.42	6210	41	1450	26470	.56	.44	.38
25	.34	2320	.50	1.2	682	6400	.41	1590	27630	.50	.44	.39
26	.36	1390	.46	.96	1390	6040	.47	1770	29180	.54	.44	.39
27	.35	569	.46	.79	657	4970	.42	1990	30770	.41	.82	.39
28	.42	44	.46	.65	129	3930	.41	1970	31190	.43	1.3	.36
29	.38	.46	.44	306	---	3270	119	1910	30350	.45	1.6	.36
30	.45	.41	.44	471	---	3160	302	2250	29300	.43	.53	.37
31	.67	---	.43	296	---	2330	---	4570	---	.53	.44	---
MAX	.67	3470	1680	5290	1390	10480	17150	7780	31190	28030	82	1.1
MIN	.28	.37	.37	.42	.42	75	.41	.60	.43	.41	.43	.36

CAI YR 1992 MAX 57870 MIN .27  
WTR YR 1993 MAX 31190 MIN .28

e Estimated



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.

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.

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.--No estimated daily discharges. Records fair. 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.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	302	61	52	560	1380	1470	26	1080	1760	124	117
2	37	254	52	45	216	1010	800	58	1480	1740	90	86
3	36	123	46	286	162	843	331	513	1530	1690	65	67
4	33	87	43	522	134	1420	458	188	1470	1670	78	57
5	34	65	39	574	141	1520	670	317	1350	1620	80	44
6	36	48	40	206	143	1560	120	214	767	632	63	40
7	44	44	40	536	120	1500	365	547	174	1620	68	38
8	40	52	41	616	106	1520	644	827	63	1640	57	33
9	60	58	464	666	89	1620	1390	324	52	1400	72	31
10	44	93	680	520	588	1530	1790	669	410	853	110	32
11	44	149	320	710	915	823	1860	1420	250	1100	82	40
12	48	179	135	949	1080	229	1820	1320	107	1570	74	53
13	44	189	89	1310	628	411	1130	1350	62	1670	68	74
14	41	125	226	1470	292	630	173	1470	438	1660	71	71
15	40	55	806	1350	233	177	722	1560	833	1660	55	106
16	56	57	1100	1180	576	28	1490	1490	413	1630	45	72
17	80	43	1190	589	533	28	1560	1020	515	1580	42	50
18	68	48	1210	181	366	65	1520	425	315	1500	37	42
19	57	331	1100	235	232	68	1130	326	565	1430	45	133
20	41	741	683	542	161	270	595	304	2340	716	45	102
21	43	490	255	930	131	437	1460	239	608	120	45	55
22	44	648	186	1290	108	750	1540	291	317	81	52	40
23	44	1190	145	888	88	789	1340	277	222	69	59	37
24	41	437	138	431	77	987	1220	273	544	60	45	34
25	43	1190	104	544	439	1060	235	547	757	53	41	34
26	50	1140	82	217	538	636	77	218	147	52	38	34
27	50	967	69	157	1140	1480	50	279	111	57	123	38
28	54	473	63	126	895	1390	45	179	629	69	377	33
29	56	139	61	473	---	984	85	340	1640	77	222	30
30	116	74	58	612	---	236	28	360	1790	205	132	29
31	76	---	56	595	---	837	---	288	---	105	81	---
TOTAL	1538	9791	9582	18802	10691	26218	26118	17659	20979	30089	2586	1652
MEAN	49.6	326	309	607	382	846	871	570	699	971	83.4	55.1
MAX	116	1190	1210	1470	1140	1620	1860	1560	2340	1760	377	133
MIN	33	43	39	45	77	28	28	26	52	52	37	29
AC-FT	3050	19420	19010	37290	21210	52000	51810	35030	41610	59680	5130	3280

MEAN	201	238	245	269	318	174	208	296	304	195	124	211
MAX	1044	1790	884	1107	1508	1563	1438	1599	1135	971	664	1186
(WY)	1958	1947	1977	1992	1992	1992	1992	1968	1992	1993	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

ANNUAL TOTAL	268180		175705				
ANNUAL MEAN	733		481			231	
HIGHEST ANNUAL MEAN						784	1992
LOWEST ANNUAL MEAN						23.3	1951
HIGHEST DAILY MEAN	3190	Mar 4	2340	Jun 20	6790		Jun 28 1960
LOWEST DAILY MEAN	33	Oct 4	26	May 1		.00	Jun 22 1948
ANNUAL SEVEN-DAY MINIMUM	35	Sep 29	33	Sep 24		.00	Jun 22 1948
INSTANTANEOUS PEAK FLOW			3350	Jun 20	11200		Aug 29 1945
INSTANTANEOUS PEAK STAGE			66.00	Jun 20		81.23	Aug 29 1945
ANNUAL RUNOFF (AC-FT)	531900		348500			167600	
10 PERCENT EXCEEDS	1830		1470			744	
50 PERCENT EXCEEDS	518		217			45	
90 PERCENT EXCEEDS	44		41			4.8	

## SAN JACINTO RIVER BASIN

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 good. 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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	440	85	77	605	1640	1500	96	1070	1660	144	114
2	47	297	81	72	239	1510	978	172	1470	1640	110	88
3	44	142	70	338	174	793	610	497	1540	1600	76	75
4	42	91	65	614	141	1410	868	291	1490	1580	75	71
5	43	78	61	623	173	1480	711	467	1410	1580	79	63
6	44	66	61	268	153	1530	212	375	915	663	66	62
7	50	59	60	827	123	1490	659	535	254	1520	66	64
8	45	60	61	680	105	1470	721	958	89	1560	59	61
9	63	65	628	884	87	1550	1370	415	79	1440	65	60
10	52	142	697	670	689	1530	1710	690	622	892	96	61
11	51	184	391	733	914	969	1760	1460	603	1040	76	67
12	53	435	175	956	1150	344	1800	1400	189	1490	70	75
13	52	348	107	1260	714	402	1300	1400	98	1590	67	87
14	49	169	345	1440	314	728	349	1480	437	1600	69	109
15	50	92	983	1360	258	287	652	1570	939	1600	62	108
16	89	72	1070	1230	699	55	1480	1530	515	1590	60	84
17	82	63	1170	720	569	42	1570	1190	657	1550	59	70
18	69	58	1220	237	381	81	1540	574	500	1490	56	64
19	60	439	1140	282	256	84	1300	330	834	1470	59	132
20	52	1520	809	648	177	299	567	416	2930	888	55	117
21	51	1080	303	907	141	463	1420	235	909	185	55	75
22	49	907	226	1340	116	880	1520	379	408	112	58	63
23	51	1140	186	1040	93	1190	1380	482	315	91	64	61
24	49	435	173	451	82	973	1310	392	565	73	56	60
25	48	1160	131	542	711	1190	364	668	879	64	52	73
26	53	1130	101	254	489	541	116	263	315	61	51	60
27	56	1030	91	171	1200	1480	70	446	215	62	113	61
28	58	536	88	130	990	1430	63	203	435	67	374	57
29	60	206	86	596	---	1140	185	401	1490	67	246	55
30	236	98	82	637	---	304	52	471	1660	269	136	55
31	92	---	81	623	---	730	---	320	---	155	92	---
TOTAL	1887	12542	10827	20610	11743	28015	28137	20106	23832	29649	2766	2252
MEAN	60.9	418	349	665	419	904	938	649	794	956	89.2	75.1
MAX	236	1520	1220	1440	1200	1640	1800	1570	2930	1660	374	132
MIN	42	58	60	72	82	42	52	96	79	61	51	55
AC-11	3740	24880	21480	40880	23290	55570	55810	39880	47270	58810	5490	4470

SAN JACINTO RIVER BASIN

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

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 1993, BY WATER YEAR (WY)

MEAN	255	330	352	408	432	288	314	387	459	296	195	330
MAX	757	1012	961	1133	1619	1701	1639	965	1129	956	784	1278
(WY)	1974	1975	1977	1992	1992	1992	1992	1992	1973	1993	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

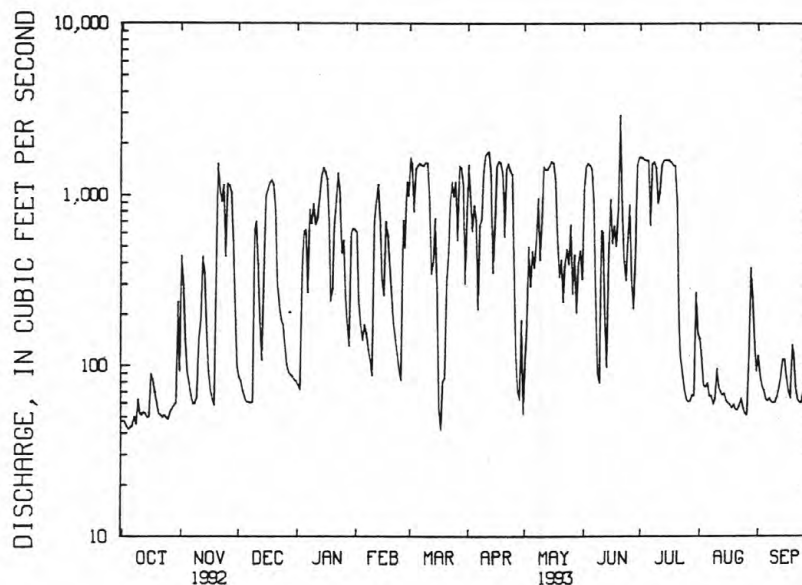
SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1972 - 1993

ANNUAL TOTAL	294678			192366								
ANNUAL MEAN	805			527						336		
HIGHEST ANNUAL MEAN										854		1992
LOWEST ANNUAL MEAN										142		1988
HIGHEST DAILY MEAN	3580	Mar 5		2930	Jun 20					3820	Aug 31	1981
LOWEST DAILY MEAN	36	May 15		42	Oct 4					20	Apr 20	1990
ANNUAL SEVEN-DAY MINIMUM	44	Sep 29		45	Oct 2					27	Nov 13	1971
INSTANTANEOUS PEAK FLOW				3680	Jun 20					7290	Mar 4	1992
INSTANTANEOUS PEAK STAGE				60.09	Jun 20					68.30	Mar 4	1992
ANNUAL RUNOFF (AC-FT)	584500			381600						243500		
10 PERCENT EXCEEDS	1890			1480						991		
50 PERCENT EXCEEDS	649			287						109		
90 PERCENT EXCEEDS	58			58						47		



08073600 BUFFALO BAYOU AT WEST BELT DRIVE AT HOUSTON, TX  
MEAN DAILY DISCHARGE (CFS)

## SAN JACINTO RIVER BASIN

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 1992 TO SEPTEMBER 1993

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)
JAN 12...	0842	859	130	7.1	12.5	400	110	9.8	92	2.2
MAY 26...	1140	182	424	7.8	24.0	65	61	6.1	72	5.0
AUG 17...	0935	53	772	7.9	28.0	22	17	5.8	74	3.9
SEP 09...	1305	61	800	7.8	25.5	24	26	6.1	75	1.6
DATE	BOD OXYGEN DEMAND, BIOCHEM CARBON, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	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 END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)
JAN 12...	2.0	36	0	11	2.1	13	0.9	3.3	39	6.6
MAY 26...	3.4	110	0	33	5.5	43	2	4.2	110	24
AUG 17...	2.2	150	0	46	8.0	100	4	7.8	190	30
SEP 09...	1.0	130	0	40	7.5	110	4	8.5	190	34
DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)
JAN 12...	14	0.10	6.9	84	90	39	51	0.490	0.490	0.030
MAY 26...	46	0.30	11	245	93	27	66	2.56	2.56	0.140
AUG 17...	91	0.40	19	443	38	18	20	4.42	4.42	0.180
SEP 09...	99	0.50	21	466	31	2	29	6.21	6.21	0.090
DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	
JAN 12...	0.520	0.520	0.090	1.1	1.2	0.280	0.270	0.83	15	
MAY 26...	2.70	2.70	0.580	0.52	1.1	0.440	0.400	1.2	11	
AUG 17...	4.60	4.60	0.390	0.61	1.0	1.30	1.30	4.0	6.4	
SEP 09...	6.30	6.30	0.090	0.71	0.80	1.50	1.30	4.0	6.2	

## 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, including those for estimated daily discharges. 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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57	591	85	91	693	1950	1600	147	1160	1800	159	118
2	57	291	81	85	280	2070	1130	204	1480	1780	147	95
3	54	150	74	290	199	e810	736	413	1580	1740	87	82
4	53	101	72	672	164	e1450	1170	366	1530	1710	88	78
5	52	90	72	641	198	1540	680	509	1440	1700	96	70
6	53	80	71	288	174	1610	314	443	958	757	79	66
7	61	75	70	989	147	1560	840	456	290	1580	80	68
8	55	74	69	712	132	1540	799	989	106	1650	74	65
9	70	82	680	986	114	1630	1400	446	92	1570	83	63
10	61	157	654	768	735	1640	1830	609	586	958	120	64
11	58	181	390	703	938	1100	1900	1480	827	1030	101	72
12	61	472	165	957	1220	426	1990	1430	218	1540	93	79
13	60	334	112	1330	805	367	1440	1430	125	1680	85	92
14	56	176	364	1590	335	759	458	1540	369	1680	87	121
15	57	103	1110	1510	261	368	580	1660	911	1700	78	113
16	110	83	1110	1350	755	106	1530	1620	525	1690	70	92
17	92	74	1240	815	574	76	1660	1300	658	1640	67	76
18	77	69	1310	246	388	107	1620	624	546	1570	63	70
19	66	428	1230	280	254	110	1440	290	904	1560	67	122
20	59	1980	909	682	182	299	539	461	3970	1050	65	137
21	59	1140	291	893	152	469	1450	201	1240	231	64	84
22	57	894	217	1430	131	1060	1600	384	448	125	83	69
23	58	1200	188	1180	113	1640	1460	517	327	106	78	66
24	55	371	175	468	104	972	1380	466	545	93	69	65
25	54	1140	141	575	842	1300	466	653	928	84	65	76
26	58	1160	117	304	451	532	150	296	561	79	66	68
27	62	1040	105	198	1200	1570	98	464	331	78	105	67
28	63	524	100	165	1040	1520	87	197	494	83	367	62
29	67	204	99	684	---	1290	242	522	1570	83	246	57
30	324	97	95	688	---	351	83	628	1790	236	141	54
31	141	---	95	685	---	662	---	455	---	265	135	---
TOTAL	2267	13361	11491	22255	12581	30884	30672	21200	26509	31848	3208	2411
MEAN	73.1	445	371	718	449	996	1022	684	884	1027	103	80.4
MAX	324	1980	1310	1590	1220	2070	1990	1660	3970	1800	367	137
MIN	52	69	69	85	104	76	83	147	92	78	63	54
AC-FI	4500	26500	22790	44140	24950	61260	60840	42050	52580	63170	6360	4780

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1993, BY WATER YEAR (WY)

	190	373	391	484	509	524	488	521	568	291	219	166
MEAN	190	373	391	484	509	524	488	521	568	291	219	166
MAX	472	942	945	1156	1673	1804	1708	1032	1295	1027	534	474
(WY)	1985	1985	1986	1992	1992	1992	1992	1992	1992	1993	1989	1991
MIN	64.2	69.6	75.0	88.5	71.8	93.5	63.9	107	82.2	91.1	103	70.5
(WY)	1989	1989	1990	1986	1988	1986	1987	1985	1990	1988	1993	1988

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1985 - 1993
ANNUAL TOTAL	314537	208687	
ANNUAL MEAN	859	572	393
HIGHEST ANNUAL MEAN			907
LOWEST ANNUAL MEAN			162
HIGHEST DAILY MEAN	4740	3970	4740
LOWEST DAILY MEAN	50	52	24
ANNUAL SEVEN-DAY MINIMUM	54	55	39
INSTANTANEOUS PEAK FLOW		4550	7500
INSTANTANEOUS PEAK STAGE		53.01	61.23
ANNUAL RUNOFF (AC-FI)	623900	413900	284900
10 PERCENT EXCEEDS	1980	1560	1170
50 PERCENT EXCEEDS	675	299	127
90 PERCENT EXCEEDS	66	66	57



## SAN JACINTO RIVER BASIN

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, 6,710 ft<sup>3</sup>/s Mar. 1 at 2300 hours (gage height, 23.07 ft); minimum discharges not determined (affected by tides).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	1230	---	---	---	3270	---	---	---	2040	---	---
2	---	---	---	---	---	4380	---	---	---	2010	---	---
3	---	---	---	---	---	---	---	---	---	1970	---	---
4	---	---	---	---	---	---	2980	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	1790	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	1780	---	---	---	---	---
9	---	---	1910	1430	---	---	---	---	---	---	---	---
10	---	---	---	1620	---	---	2000	---	540	---	---	---
11	---	---	---	---	---	---	2170	---	1730	---	---	---
12	---	---	---	---	---	---	2290	---	---	---	---	---
13	---	---	---	---	---	---	1970	---	---	---	---	---
14	---	---	1910	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	1940	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	1080	---	---	---
20	---	3180	---	---	---	---	---	---	5940	---	---	---
21	---	1670	---	---	---	---	---	---	e2960	---	---	---
22	---	1260	---	---	---	1450	---	---	---	---	---	---
23	---	---	---	---	---	3990	---	---	---	---	---	---
24	---	---	---	---	---	---	---	1080	---	---	---	---
25	---	---	---	---	1140	---	---	---	1100	---	---	---
26	---	---	---	---	919	---	---	---	1340	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	2000	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

e Estimated

SAN JACINTO RIVER BASIN

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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. In addition to the data collected by the three-parameter water-quality monitor; samples were collected on three storm related events, in May and June for chemical, biochemical, and pesticide analyses.

EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum, >1020 microsiemens Oct. 16, 1987, Mar. 14, 1988; minimum, 67 microsiemens April 27, 1990.  
WATER TEMPERATURE: Maximum, 31.5°C on several summer days during 1988-91, 93; 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, 878 microsiemens Aug. 21; minimum, 76 microsiemens Nov. 19.  
WATER TEMPERATURE: Maximum, 31.5°C Aug. 16; minimum, 10.5°C Nov. 27-29.  
DISSOLVED OXYGEN: Maximum, 9.6 mg/L Mar. 14; minimum, 1.2 mg/L Jul. 29.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH WATER FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TURBIDITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON, 5 DAY (MG/L)
MAY										
05...	1120	476	355	7.4	22.0	63	6.7	76	5.7	5.5
05...	1335	925	373	7.9	22.5	120	6.4	74	6.9	6.8
05...	1522	1100	256	7.8	22.5	130	6.6	76	7.5	7.0
05...	2310	1290	252	7.5	22.5	100	6.1	70	7.7	7.4
06...	0110	1200	220	8.0	22.0	84	6.6	75	8.0	7.8
06...	1347	806	193	7.9	22.5	92	6.5	75	6.4	6.2
23...	1245	325	182	8.1	23.0	52	6.7	78	7.1	6.3
23...	1355	482	345	6.9	23.5	50	6.5	76	5.8	4.5
23...	1844	656	253	6.5	22.5	47	6.7	77	7.2	5.2
24...	0700	1690	329	6.3	22.0	80	6.6	75	5.1	2.9
24...	0846	1450	164	6.3	22.0	82	6.3	72	6.1	3.7
24...	1035	1090	200	6.2	22.5	65	6.3	73	6.0	4.1
JUN										
19...	1148	260	121	7.2	25.5	67	7.2	88	3.3	2.3
20...	0255	5280	115	6.0	25.0	79	6.9	83	3.9	2.7
20...	0600	5760	93	7.8	25.0	70	6.9	83	3.2	2.3
21...	0835	4160	117	7.2	26.0	52	6.1	75	2.5	1.8
21...	1420	2160	138	7.2	26.5	64	5.7	71	3.1	2.0
21...	1906	1270	166	7.4	26.0	95	5.6	69	5.3	3.0

DATE	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS TOTAL (MG/L AS CaCO3)	HARDNESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY, WAT DIS FIX END FIELD CaCO3 (MG/L)
MAY										
05...	6700	18000	86	0	28	4.0	32	1	4.8	93
05...	8700	19000	93	0	30	4.3	35	2	4.4	98
05...	9300	25000	67	0	22	2.9	21	1	3.4	71
05...	23000	K30000	64	0	21	2.8	23	1	3.3	71
06...	20000	27000	58	0	19	2.5	18	1	3.4	62
06...	9300	20000	57	0	19	2.2	15	0.9	3.5	59
23...	2900	39000	48	0	16	2.0	16	1	2.8	52
23...	3300	7700	84	0	27	4.1	35	2	4.1	95
23...	10000	15000	66	0	22	2.8	21	1	3.1	69
24...	25000	41000	78	0	25	3.8	31	2	4.0	93
24...	34000	25000	41	0	14	1.5	11	0.7	2.4	43
24...	12000	24000	45	0	15	1.8	14	0.9	2.7	49
JUN										
19...	7000	35000	42	0	14	1.6	7.9	0.5	2.3	43
20...	16000	41000	41	0	14	1.5	6.8	0.5	2.3	42
20...	29000	65000	35	0	12	1.2	4.9	0.4	2.1	37
21...	1000	7000	42	0	14	1.8	6.4	0.4	2.3	43
21...	8000	3800	52	0	17	2.3	7.6	0.5	2.4	56
21...	11000	3100	61	0	20	2.6	9.4	0.5	3.4	64

## SAN JACINTO RIVER BASIN

08074000 BUFFALO BAYOU AT HOUSTON, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L)	RESIDUE VOLA- TILE, SUS- PENDE (MG/L)	RESIDUE FIXED NOW FILTER- ABLE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)
MAY										
05...	16	39	0.20	7.9	197	156	80	76	1.72	1.72
05...	19	41	0.20	8.7	211	296	80	216	1.82	1.82
05...	13	24	0.30	6.1	142	400	84	316	1.24	1.24
05...	11	24	0.20	6.4	141	336	96	240	1.23	1.23
06...	10	19	0.20	5.8	122	276	96	180	1.14	1.14
06...	8.8	14	0.20	6.1	109	112	64	48	0.860	0.860
23...	8.2	14	0.20	5.0	105	118	38	80	1.74	1.74
23...	14	39	0.10	9.1	198	108	30	78	1.55	1.55
23...	11	25	<0.10	6.4	139	150	38	112	1.15	1.15
24...	13	36	0.10	8.8	182	228	46	182	0.770	0.770
24...	6.5	11	0.10	3.7	81	226	54	172	0.890	0.890
24...	7.6	14	0.10	4.5	95	200	52	148	0.930	0.930
JUN										
19...	5.2	7.3	0.10	5.4	72	634	22	612	0.420	0.420
20...	4.8	6.1	0.10	5.4	69	726	24	702	0.410	0.410
20...	4.1	5.0	0.10	4.3	58	564	21	543	0.320	0.320
21...	4.3	5.7	0.10	6.6	68	403	14	389	--	--
21...	4.7	7.0	0.10	7.6	83	434	17	417	--	--
21...	5.2	8.8	0.10	8.0	97	487	18	469	--	--
DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)
MAY										
05...	0.080	1.80	1.80	0.270	0.63	0.90	0.400	0.380	1.2	13
05...	0.080	1.90	1.90	0.300	0.70	1.0	0.420	0.400	1.2	18
05...	0.060	1.30	1.30	0.380	0.52	0.90	0.270	0.250	0.77	19
05...	0.070	1.30	1.30	0.250	0.55	0.80	0.330	0.310	0.95	16
06...	0.060	1.20	1.20	0.280	1.9	2.2	0.300	0.290	0.89	18
06...	0.060	0.920	0.920	0.190	0.71	0.90	0.310	0.300	0.92	14
23...	0.060	1.80	1.80	0.200	0.80	1.0	0.420	0.400	1.2	15
23...	0.050	1.60	1.60	0.170	1.0	1.2	0.400	0.370	1.1	14
23...	0.050	1.20	1.20	0.240	0.56	0.80	0.270	0.240	0.74	17
24...	0.040	0.810	0.810	0.220	0.58	0.80	0.270	0.260	0.80	13
24...	0.050	0.940	0.940	0.200	0.60	0.80	0.290	0.270	0.83	13
24...	0.060	0.990	0.990	0.220	0.48	0.70	0.300	0.290	0.89	12
JUN										
19...	0.010	0.430	0.430	0.090	1.2	1.3	0.230	0.230	0.71	12
20...	0.010	0.420	0.420	0.110	0.49	0.60	0.220	0.220	0.67	12
20...	0.010	0.330	0.330	0.090	0.61	0.70	0.210	0.220	0.67	10
21...	0.030	--	--	0.070	1.1	1.2	0.180	0.190	0.58	9.2
21...	0.040	--	--	0.080	1.2	1.3	0.180	0.170	0.52	12
21...	0.040	--	--	0.180	1.3	1.5	0.170	0.170	0.52	15

## SAN JACINTO RIVER BASIN

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08074000 BUFFALO BAYOU AT HOUSTON, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	818	794	808	383	149	230	623	539	602	741	713	723
2	827	805	816	439	219	325	691	623	655	759	730	741
3	829	817	824	485	359	428	728	678	691	766	728	745
4	842	824	831	603	485	544	736	700	718	743	209	366
5	842	832	838	677	603	633	779	722	736	283	238	256
6	840	820	831	712	673	696	757	727	744	328	227	268
7	840	827	833	716	694	699	757	729	750	328	145	215
8	844	826	838	740	716	730	769	727	752	238	175	214
9	829	814	823	780	722	760	751	137	320	223	112	182
10	826	800	815	759	439	666	336	112	249	221	130	173
11	814	781	795	511	305	439	264	211	236	221	184	194
12	810	787	799	572	200	337	380	264	329	186	152	159
13	808	796	802	382	239	307	497	378	429	163	138	146
14	841	778	809	417	322	371	519	159	409	146	137	140
15	833	805	817	550	417	478	221	168	186	159	144	150
16	827	307	569	608	550	574	216	154	174	177	156	164
17	566	403	504	680	608	652	163	143	149	239	177	198
18	742	537	640	759	679	707	158	145	151	374	239	302
19	754	706	739	764	76	628	169	153	157	426	352	389
20	763	711	741	193	120	148	219	169	184	370	233	270
21	783	741	763	164	83	140	330	219	280	241	172	206
22	794	763	781	184	83	133	401	330	370	172	134	145
23	807	787	800	169	143	148	444	378	415	172	139	148
24	823	788	812	214	153	190	481	433	457	252	172	231
25	826	810	819	310	148	187	543	471	505	283	245	266
26	816	796	809	171	155	158	570	515	531	362	230	277
27	828	780	806	189	171	175	597	561	573	443	362	411
28	833	809	824	244	189	215	645	584	616	507	443	478
29	836	816	827	324	243	285	669	624	650	490	210	290
30	835	274	764	539	324	413	695	659	677	302	206	244
31	321	217	251	---	---	---	729	693	708	207	188	196
MONTH	844	217	765	780	76	413	779	112	465	766	112	287
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	243	204	225	245	101	163	231	154	165	525	339	472
2	393	225	302	150	104	121	257	181	217	512	183	298
3	466	389	433	207	150	188	368	141	267	549	287	367
4	525	453	484	194	116	128	194	126	152	657	386	418
5	525	467	492	126	118	123	360	183	264	473	148	343
6	539	458	495	125	116	121	279	121	176	258	187	213
7	583	529	558	127	119	123	392	92	277	417	258	366
8	588	548	573	132	123	127	269	117	187	316	137	159
9	621	587	597	137	123	127	250	116	136	201	145	175
10	589	228	357	161	129	143	117	107	111	261	158	218
11	301	170	212	205	161	181	117	112	114	368	117	152
12	175	157	163	327	205	253	116	108	111	136	121	126
13	214	175	183	467	259	317	136	116	124	139	127	133
14	296	214	260	473	247	280	342	136	198	145	135	139
15	390	294	355	307	256	280	395	248	306	143	130	136
16	320	196	245	428	297	365	264	118	131	145	135	137
17	320	211	239	637	428	520	123	114	117	184	145	155
18	263	221	241	817	615	723	128	119	122	214	143	186
19	346	263	312	831	539	723	146	128	133	365	146	291
20	443	341	401	576	370	445	244	146	210	476	228	284
21	534	443	498	573	312	391	253	151	180	393	279	333
22	594	527	551	323	96	265	169	157	161	477	393	430
23	646	592	613	222	88	137	195	158	185	460	406	433
24	694	637	663	217	147	178	195	150	170	459	416	440
25	765	104	432	147	131	137	305	195	237	441	418	426
26	387	150	253	382	143	220	524	235	421	471	441	454
27	389	162	200	396	128	166	713	511	594	492	297	456
28	194	168	179	144	133	136	757	671	723	297	224	250
29	---	---	---	151	140	145	772	160	518	327	272	298
30	---	---	---	269	151	231	484	354	419	361	327	347
31	---	---	---	399	231	339	---	---	---	334	273	289
MONTH	765	104	376	831	88	251	772	92	238	657	117	288

## SAN JACINTO RIVER BASIN

08074000 BUFFALO BAYOU AT HOUSTON, TX--Continued

## SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	313	175	229	138	130	135	622	392	519	484	397	442
2	224	188	207	139	132	135	630	479	596	528	484	513
3	247	216	228	139	129	134	544	465	522	583	528	557
4	255	148	167	139	131	134	645	493	584	615	583	600
5	182	161	168	140	133	136	746	645	687	653	615	633
6	220	182	200	261	138	179	733	682	712	673	653	666
7	293	220	252	360	136	173	735	702	721	692	672	681
8	569	293	396	145	136	140	760	735	749	709	690	700
9	670	569	628	153	138	142	789	758	770	721	709	715
10	719	123	596	196	153	174	804	709	784	733	711	723
11	290	130	184	189	162	175	757	689	720	711	640	659
12	310	180	252	166	142	150	727	655	688	689	652	666
13	419	310	357	153	144	148	737	693	709	722	689	699
14	527	419	453	158	151	153	794	737	758	729	626	700
15	512	203	231	172	148	154	794	778	785	626	558	591
16	300	203	230	175	159	164	806	788	796	645	561	601
17	382	222	258	187	168	176	805	791	799	662	623	641
18	309	223	261	210	186	193	808	797	801	707	662	686
19	270	127	219	287	210	238	827	797	812	713	689	704
20	127	95	104	292	225	250	861	827	843	730	432	576
21	200	107	144	434	289	348	878	828	856	550	351	475
22	272	200	236	562	434	504	876	828	857	679	508	586
23	351	267	310	640	560	598	877	722	789	740	660	689
24	359	236	309	683	640	663	817	744	790	765	731	745
25	240	187	206	719	681	703	844	817	831	775	744	759
26	259	119	199	742	719	730	855	844	850	799	713	778
27	367	146	244	761	724	742	853	392	656	713	579	623
28	417	269	344	775	534	700	446	328	403	---	---	---
29	413	138	166	688	499	596	328	320	323	806	788	795
30	140	129	134	739	688	723	344	320	329	803	797	800
31	---	---	---	742	262	423	548	344	525	---	---	---
MONTH	719	95	264	775	129	323	878	320	696	806	351	655
YEAR	878	76	418									

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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



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WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	14.0	13.0	13.5	18.0	14.0	15.5	21.0	19.5	20.5	23.5	22.0	22.5
2	15.5	13.5	14.5	18.5	17.5	18.0	20.0	19.0	19.5	23.5	20.0	21.5
3	16.0	14.5	15.0	18.5	17.5	17.5	19.5	17.5	19.0	23.0	20.0	21.5
4	17.0	15.5	16.0	17.5	17.0	17.5	18.0	17.5	17.5	24.0	21.5	23.0
5	17.0	15.5	16.0	17.0	16.5	17.0	18.5	17.0	17.5	23.5	22.5	22.5
6	15.5	15.0	15.0	17.0	16.5	16.5	18.5	17.0	17.5	23.0	22.0	22.5
7	15.0	13.5	14.5	17.0	16.5	16.5	19.0	18.0	18.5	25.5	22.5	23.5
8	15.5	13.5	14.5	17.5	16.5	17.0	19.5	18.5	19.0	24.5	23.5	23.5
9	16.5	14.5	15.5	18.0	17.0	17.5	19.0	18.0	18.0	25.0	23.5	24.0
10	17.0	16.0	16.5	19.0	17.5	18.5	19.0	18.0	18.5	24.0	23.0	23.5
11	17.5	16.0	17.0	19.5	18.5	19.0	19.0	18.5	19.0	24.0	22.5	23.5
12	17.0	15.5	16.5	18.5	14.0	16.0	20.0	19.0	19.5	24.5	23.5	24.0
13	15.5	15.0	15.5	14.0	12.0	13.0	20.0	19.5	20.0	24.0	23.5	24.0
14	16.0	15.0	15.5	13.0	11.5	12.0	20.5	19.5	20.0	24.5	23.5	24.0
15	17.5	15.5	16.5	14.0	11.5	13.0	20.5	18.5	19.5	24.5	23.5	24.0
16	17.5	16.5	17.5	17.5	14.0	16.0	19.5	18.5	19.0	25.0	24.0	24.5
17	16.5	14.5	15.5	20.0	17.0	18.5	19.5	18.5	19.0	25.5	24.0	24.5
18	14.5	13.0	14.0	19.0	18.0	18.5	20.0	19.0	19.5	25.5	24.5	25.0
19	14.0	12.5	13.5	19.5	18.0	18.5	20.5	20.0	20.0	25.5	24.0	24.5
20	16.0	13.5	14.5	19.0	18.5	18.5	21.5	20.0	20.5	25.5	23.5	24.5
21	19.0	16.0	17.0	19.0	18.0	18.5	21.0	20.0	20.5	25.0	23.0	24.0
22	19.0	17.0	18.0	19.0	18.0	18.5	20.5	20.0	20.5	25.5	23.5	24.5
23	18.5	17.0	18.0	18.5	18.0	18.0	20.5	20.0	20.0	25.0	23.0	24.0
24	18.5	17.5	18.0	18.0	17.5	17.5	20.5	20.0	20.5	23.0	22.5	23.0
25	19.0	18.0	18.5	18.5	18.0	18.5	22.5	20.5	21.5	23.0	22.0	22.5
26	18.5	17.0	18.0	20.5	18.5	19.5	24.0	22.0	23.0	24.5	22.5	23.5
27	17.0	15.0	16.0	20.5	19.0	19.5	24.0	22.5	23.0	24.5	23.0	23.5
28	15.0	14.0	14.5	19.5	19.0	19.5	23.5	22.0	22.5	25.0	23.5	24.0
29	---	---	---	20.5	19.5	20.0	23.0	20.5	22.0	25.0	24.0	24.5
30	---	---	---	21.5	20.5	21.0	23.5	21.0	22.0	25.0	24.0	24.5
31	---	---	---	22.0	20.5	21.0	---	---	---	26.0	24.5	25.0
MONTH	19.0	12.5	16.0	22.0	11.5	17.5	24.0	17.0	20.0	26.0	20.0	23.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	26.0	25.0	25.5	28.0	27.0	27.5	30.5	28.5	29.5	29.5	27.0	28.5
2	25.5	25.0	25.0	28.0	27.5	27.5	31.0	29.0	30.0	30.0	27.5	28.5
3	26.0	25.0	25.5	28.0	27.5	28.0	30.5	29.0	29.5	30.0	28.0	29.0
4	26.5	25.5	26.0	28.0	27.5	27.5	31.0	28.5	29.5	29.5	28.0	28.5
5	27.5	26.0	27.0	28.5	27.5	28.0	31.0	29.0	30.0	29.0	26.5	28.0
6	28.0	27.0	27.5	29.0	27.5	28.5	31.0	28.5	29.5	28.5	26.5	27.5
7	29.0	27.5	28.0	29.0	27.5	28.0	31.0	28.5	30.0	29.0	26.5	27.5
8	28.5	27.0	27.5	28.5	28.0	28.0	31.0	29.0	30.0	29.0	26.5	27.5
9	29.0	27.0	27.5	29.0	28.0	28.5	30.5	29.0	30.0	28.0	27.0	27.5
10	28.0	24.5	27.0	29.0	28.0	28.5	30.5	29.0	29.5	29.0	26.5	27.5
11	25.5	23.0	24.5	29.0	28.0	28.5	30.5	28.5	29.5	29.0	27.0	28.0
12	26.5	25.0	25.5	29.0	28.0	28.5	31.0	28.5	30.0	28.5	27.0	28.0
13	27.5	25.5	26.5	29.5	28.5	29.0	31.0	29.0	30.0	28.5	27.5	28.0
14	28.0	26.5	27.5	29.5	28.5	29.0	31.0	29.0	30.0	28.5	26.0	27.5
15	27.5	26.0	27.0	29.0	28.5	28.5	31.0	29.0	30.0	26.0	24.5	25.0
16	28.5	27.0	27.5	29.0	28.5	28.5	31.5	29.0	30.0	25.0	23.0	24.0
17	28.0	27.0	27.5	29.0	28.5	28.5	31.0	28.5	30.0	25.5	23.0	24.5
18	27.5	26.5	27.0	29.0	28.5	28.5	31.0	29.0	30.0	26.5	24.0	25.0
19	27.0	25.5	26.0	29.5	28.5	29.0	31.0	29.0	30.0	27.5	26.0	26.5
20	25.5	25.0	25.5	29.0	28.5	28.5	31.0	29.0	30.0	28.0	26.5	27.0
21	26.5	25.5	26.0	30.5	28.0	29.5	31.0	28.5	30.0	29.0	27.0	27.5
22	27.5	26.5	27.0	30.5	28.5	29.5	30.5	29.0	29.5	29.0	27.5	28.5
23	28.5	26.5	27.5	30.5	28.5	29.5	31.0	28.5	29.5	29.5	28.0	28.5
24	29.0	27.5	28.0	31.0	29.0	30.0	30.5	28.5	29.5	30.0	28.0	28.5
25	27.5	26.5	27.0	31.0	29.0	30.0	30.5	28.5	29.5	29.0	27.5	28.5
26	27.5	25.5	26.5	31.0	29.0	30.0	30.0	28.5	29.0	29.0	27.5	28.0
27	28.0	26.0	27.0	31.0	29.0	30.0	29.5	28.0	28.5	28.0	25.5	26.0
28	28.5	26.5	27.5	30.5	29.0	30.0	28.0	26.0	27.0	---	---	---
29	28.0	26.5	27.0	30.5	29.0	29.5	27.5	26.0	26.5	25.0	22.5	23.5
30	28.0	27.0	27.5	31.0	29.0	30.0	28.5	26.5	27.5	25.5	24.5	25.0
31	---	---	---	30.0	28.0	29.0	28.5	27.0	28.0	---	---	---
MONTH	29.0	23.0	26.5	31.0	27.0	29.0	31.5	26.0	29.5	30.0	22.5	27.0
YEAR	31.5	10.5	21.5									

SAN JACINTO RIVER BASIN  
08074000 BUFFALO BAYOU AT HOUSTON, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	7.9	6.5	7.0	7.2	4.7	6.0	---	---	---	---	---	---
2	7.9	6.5	7.1	6.0	5.6	5.8	---	---	---	---	---	---
3	7.7	6.5	7.0	7.2	5.9	6.1	---	---	---	---	---	---
4	7.6	6.6	7.0	6.9	6.2	6.6	---	---	---	---	---	---
5	7.4	6.3	6.8	7.5	6.8	7.2	---	---	---	---	---	---
6	7.3	6.0	6.7	7.8	7.5	7.6	---	---	---	---	---	---
7	6.8	5.8	6.3	8.0	7.6	7.8	---	---	---	---	---	---
8	7.1	5.6	6.3	7.8	7.4	7.6	---	---	---	---	---	---
9	7.3	6.1	6.6	7.5	7.1	7.3	---	---	---	---	---	---
10	6.8	6.0	6.4	8.9	5.3	6.9	---	---	---	---	---	---
11	6.9	6.0	6.4	5.9	4.7	5.2	---	---	---	---	---	---
12	6.6	5.7	6.3	7.1	5.3	6.3	---	---	---	---	---	---
13	6.8	6.0	6.3	7.4	6.7	7.0	---	---	---	---	---	---
14	6.4	5.4	6.0	7.6	7.3	7.5	---	---	---	---	---	---
15	6.2	5.3	5.7	7.8	7.5	7.7	---	---	---	---	---	---
16	7.4	3.6	5.4	7.8	7.2	7.5	---	---	---	---	---	---
17	3.9	2.5	3.3	7.3	6.8	7.1	---	---	---	---	---	---
18	5.9	3.6	4.7	6.9	6.4	6.7	---	---	---	---	---	---
19	6.3	5.4	5.8	9.1	6.3	6.7	---	---	---	---	---	---
20	6.3	5.5	5.9	7.4	6.6	7.0	---	---	---	---	---	---
21	6.1	5.5	5.8	7.5	6.6	6.9	---	---	---	---	---	---
22	6.2	5.5	5.8	7.6	6.7	6.9	---	---	---	---	---	---
23	6.4	5.6	6.0	7.6	7.2	7.3	---	---	---	---	---	---
24	6.8	5.9	6.4	7.7	7.0	7.3	---	---	---	---	---	---
25	6.8	6.0	6.4	7.8	7.3	7.6	---	---	---	---	---	---
26	6.9	6.0	6.4	7.9	7.6	7.8	---	---	---	9.4	9.0	9.2
27	6.8	5.8	6.3	8.6	7.9	8.2	---	---	---	9.3	9.1	9.2
28	6.9	6.0	6.4	8.7	8.4	8.6	---	---	---	9.3	8.9	9.2
29	6.7	5.7	6.2	8.8	8.3	8.6	---	---	---	9.3	8.8	8.9
30	6.3	4.0	5.7	8.3	7.8	8.1	---	---	---	9.3	8.8	9.1
31	5.0	4.0	4.8	---	---	---	---	---	---	9.4	9.3	9.3
MONTH	7.9	2.5	6.1	9.1	4.7	7.2	---	---	---	9.4	8.8	9.1
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	9.4	9.1	9.2	9.3	8.0	8.5	---	---	---	---	---	---
2	9.1	8.5	8.8	8.0	7.1	7.5	---	---	---	---	---	---
3	8.7	8.1	8.4	7.5	7.1	7.2	---	---	---	---	---	---
4	8.3	7.8	8.1	7.9	7.5	7.8	---	---	---	---	---	---
5	8.1	7.5	7.8	8.1	7.8	8.0	---	---	---	---	---	---
6	8.2	7.5	7.8	8.1	7.9	8.0	---	---	---	---	---	---
7	8.6	8.2	8.4	8.0	7.8	7.9	---	---	---	---	---	---
8	8.7	8.2	8.4	8.0	7.7	7.9	---	---	---	---	---	---
9	8.3	8.0	8.1	7.9	7.7	7.7	---	---	---	---	---	---
10	8.4	7.4	8.0	7.7	7.4	7.5	---	---	---	---	---	---
11	8.2	8.0	8.1	7.4	7.1	7.2	5.2	5.1	5.2	---	---	---
12	8.2	7.7	7.9	7.7	6.7	7.2	5.2	5.1	5.1	---	---	---
13	8.5	8.2	8.3	7.7	7.1	7.4	6.1	5.1	5.2	---	---	---
14	8.5	8.2	8.3	9.6	7.7	9.2	5.4	5.1	5.2	---	---	---
15	8.3	7.8	8.1	9.5	8.4	9.0	---	---	---	---	---	---
16	8.1	7.0	7.4	8.4	5.8	7.0	---	---	---	---	---	---
17	8.6	7.8	8.2	6.1	5.7	5.9	---	---	---	---	---	---
18	8.9	8.6	8.7	6.6	5.8	6.0	---	---	---	---	---	---
19	9.0	8.7	8.9	6.9	6.3	6.5	---	---	---	5.2	3.6	4.3
20	8.8	8.2	8.5	7.0	5.1	6.2	---	---	---	5.9	3.6	5.6
21	8.2	7.2	7.8	7.2	5.3	6.8	---	---	---	5.6	4.7	5.1
22	7.5	7.1	7.4	8.8	7.2	7.5	---	---	---	6.1	4.9	5.7
23	7.4	7.1	7.3	---	---	---	---	---	---	5.6	5.2	5.4
24	7.6	7.2	7.3	---	---	---	---	---	---	5.7	5.0	5.4
25	9.3	6.8	7.4	---	---	---	---	---	---	5.2	4.5	4.7
26	7.1	6.5	6.7	---	---	---	---	---	---	5.3	4.8	4.9
27	8.2	7.1	7.8	---	---	---	---	---	---	6.0	4.5	5.0
28	8.6	8.2	8.4	---	---	---	---	---	---	4.8	4.4	4.5
29	---	---	---	---	---	---	---	---	---	5.7	4.5	4.8
30	---	---	---	---	---	---	---	---	---	5.0	4.5	4.7
31	---	---	---	---	---	---	---	---	---	5.4	4.8	5.0
MONTH	9.4	6.5	8.1	9.6	5.1	7.4	6.1	5.1	5.2	6.1	3.6	5.0

## 95

[illegible]

## SAN JACINTO RIVER BASIN

08074150 COLE CREEK AT DEIHL ROAD, HOUSTON, TX  
(Flood-hydrograph Partial-record Station)

LOCATION.--Lat 29°51'04", long 95°29'16", Harris County, Hydrologic Unit 12040104, on downstream side of bridge at Deihl Road in northwest Houston and 1.8 mi upstream from mouth.

DRAINAGE AREA.--7.50 mi<sup>2</sup>. Prior to Oct. 1, 1976, 8.05 mi<sup>2</sup>. Prior to Oct. 1, 1979, 7.33 mi<sup>2</sup>. Drainage area changes are the result of drainage ditch relocations and extensions.

PERIOD OF RECORD.--April 1964 to September 1986 (daily mean discharges). October 1986 to September 1992 (annual maximum discharge). October 1992 to current (peak discharges greater than base discharge or maximum).

REVISED RECORDS.--WDR TX-74-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is National Geodetic Vertical Datum of 1929, 1957 adjustment; unadjusted for land-surface subsidence.

REMARKS.--Records good. Recording rain gage located at station. Telemetry owned and operated by Harris County Flood Control District located at station.

AVERAGE DISCHARGE.--22 years, (water years 1965-86) 8.08 ft<sup>3</sup>/s, (5,850 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,780 ft<sup>3</sup>/s Mar. 4, 1992 (elevation, 80.73 ft); no flow at times.

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)	Elevation (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Elevation (ft)
Feb. 25	1200	417	73.71	June 10	unknown	666	75.25
Mar. 1	1830	954	76.50	June 20	1500	732	75.58
Apr. 7	1500	620	75.00	June 26	0130	447	73.93

SAN JACINTO RIVER BASIN

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08074250 BRICKHOUSE GULLEY AT COSTA RICA STREET, HOUSTON, TX  
(Flood-hydrograph partial-record station)

LOCATION.--Lat 29°49'40", long 95°28'09", Harris County, Hydrologic Unit 12040104, at downstream side of bridge at Costa Rica Street in northwest Houston and 1.0 mi upstream from Whiteoak Bayou.

DRAINAGE AREA.--11.4 mi<sup>2</sup>. Prior to Oct. 1, 1973, 11.6 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1964 to September 1981 (daily discharge); October 1981 to September 1982 (water quality only); October 1982 to September 1983 (peaks above base discharge or annual maximum); October 1983 to September 1992 (annual maximum); October 1992 to current year (peaks above base discharge or annual maximum).

REVISED RECORDS.--WDR TX-74-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Low-water concrete control since Dec. 9, 1970. Datum of gage is National Geodetic Vertical Datum of 1929, 1957 adjustment; unadjusted for land-surface subsidence.

REMARKS.--Records fair. Low flow is partially sustained by sewage effluent. No known diversion above station. Recording rain gage at station. Stage and rainfall telemeter owned and operated by Harris County Flood Control District at station.

AVERAGE DISCHARGE.--17 years (1965-1981), 14.0 ft<sup>3</sup>/s, 10,140 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,580 ft<sup>3</sup>/s Mar. 04, 1992, elevation, 71.26 ft; no flow at times.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges above base discharge of 1,600 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)
Feb. 25	1200	1,680	61.70	Mar. 23	0100	2,450	63.58
Mar. 01	1500	2,550	63.78	Apr. 07	1815	3,320	65.35
Mar. 01	1900	3,320	65.35	June 20	0015	1,930	62.35



## SAN JACINTO RIVER BASIN

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.--Records good except those for estimated daily discharges, which are poor. 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)
Mar. 1	2030	11,200	36.49	Apr. 3	2200	4,600	27.58
Mar. 22	2100	9,180	34.00	Apr. 7	1730	7,300	31.56

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	571	34	33	57	4150	46	361	93	62	39	73
2	44	91	32	33	50	2030	45	543	61	55	38	43
3	39	41	32	51	49	418	1330	154	54	51	40	41
4	38	33	33	335	48	211	2240	64	52	47	38	40
5	37	32	35	82	108	144	482	772	48	43	38	36
6	35	31	36	45	69	97	217	969	46	44	39	35
7	35	31	33	907	53	79	1750	303	46	47	62	36
8	65	32	35	258	49	68	888	126	49	45	74	35
9	45	33	371	725	54	60	266	72	47	53	48	35
10	37	129	97	549	e600	58	142	773	375	45	48	52
11	34	128	42	147	171	57	93	193	483	42	41	307
12	37	414	37	99	82	300	74	103	160	41	39	278
13	34	74	36	66	55	133	63	70	67	41	47	95
14	33	41	406	56	52	69	225	59	53	40	40	184
15	32	38	869	70	83	e130	224	54	52	50	53	87
16	106	37	194	55	374	e120	71	52	47	43	41	37
17	42	37	73	46	79	80	57	50	212	41	41	35
18	35	36	49	95	51	70	53	182	427	41	39	35
19	33	698	42	200	45	63	54	64	1050	170	38	97
20	33	1380	53	e1000	51	299	54	47	3460	77	40	97
21	33	501	47	229	51	99	51	45	1170	105	63	38
22	31	287	38	135	49	1900	49	46	676	45	58	39
23	31	72	38	85	48	1580	48	636	233	43	58	37
24	31	49	37	89	50	290	46	631	133	40	41	34
25	32	41	35	60	e1200	133	160	258	252	39	36	38
26	33	37	33	50	360	92	155	195	784	40	45	39
27	34	34	34	45	122	65	50	174	364	40	133	36
28	32	35	35	44	82	54	46	145	200	41	240	33
29	30	33	36	594	---	52	455	71	102	41	75	33
30	60	35	36	151	---	54	190	192	71	40	51	33
31	128	---	36	76	---	49	---	330	---	43	117	---
TOTAL	1311	5031	2944	6410	4142	13004	9624	7734	10867	1595	1800	2038
MEAN	42.3	168	95.0	207	148	419	321	249	362	51.5	58.1	67.9
MAX	128	1380	869	1000	1200	4150	2240	969	3460	170	240	307
MIN	30	31	32	33	45	49	45	45	46	39	36	33
AC-FI	2600	9980	5840	12710	8220	25790	19090	15340	21550	3160	3570	4040

e Estimated

SAN JACINTO RIVER BASIN

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08074500 WHITEOAK BAYOU AT HOUSTON, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1937 - 1993, BY WATER YEAR (WY)

MEAN	79.1	106	94.8	112	111	87.3	86.9	122	118	80.3	68.8	88.6
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

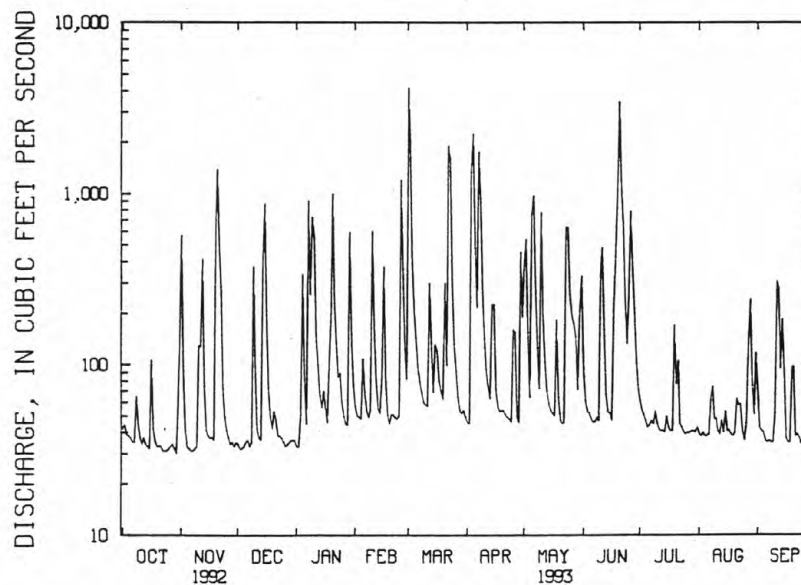
SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1937 - 1993

ANNUAL TOTAL	87036			66500								
ANNUAL MEAN	238			182						96.0		
HIGHEST ANNUAL MEAN										267		1992
LOWEST ANNUAL MEAN										10.9		1951
HIGHEST DAILY MEAN	9620	Mar 4		4150	Mar 1					10700	May 18	1989
LOWEST DAILY MEAN	30	Oct 29		30	Oct 29					.20	Aug 7	1940
ANNUAL SEVEN-DAY MINIMUM	32	Oct 23		32	Oct 23					.26	Aug 12	1951
INSTANTANEOUS PEAK FLOW				11200	Mar 1					25100	Mar 4	1992
INSTANTANEOUS PEAK STAGE				36.49	Mar 1					50.43	Mar 4	1992
ANNUAL RUNOFF (AC-FT)	172600			131900						69570		
10 PERCENT EXCEEDS	568			416						198		
50 PERCENT EXCEEDS	68			53						24		
90 PERCENT EXCEEDS	35			35						2.2		



08074500 WHITEOAK BAYOU AT HOUSTON, TX  
MEAN DAILY DISCHARGE (CFS)

## SAN JACINTO RIVER BASIN

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 1992 TO SEPTEMBER 1993

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 08...	1306	51	840	8.6	18.5	10	7.0	18.0	191	2.0	1.6	2700	
JUN 02...	1225	59	710	8.6	27.0	30	15	16.2	204	2.8	2.4	3700	
AUG 23...	1247	69	828	8.3	31.0	24	31	11.6	155	4.8	4.3	4100	
DATE		SIREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
FEB 08...	48	210	0	65	11	100	3	6.1	240	35	97	0.40	
JUN 02...	190	190	0	58	9.7	83	3	4.3	220	27	78	0.40	
AUG 23...	620	170	0	53	8.8	110	4	7.6	210	40	120	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, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)
FEB 08...	17	508	16	4	12	5.37	5.37	0.130	5.50	5.50	0.120	0.98	
JUN 02...	18	423	14	18	0	2.23	2.23	0.070	2.30	2.30	0.160	0.64	
AUG 23...	23	518	11	5	6	5.49	5.49	0.210	5.70	5.70	0.110	0.69	
DATE		NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	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)
FEB 08...	1.1	1.60	1.70	5.2	5.8	8	210	<0.5	<1.0	<5	<3	<10	
JUN 02...	0.80	1.30	1.20	3.7	7.2	8	210	<0.5	<1.0	<5	<3	<10	
AUG 23...	0.80	1.60	1.60	4.9	7.5	8	190	<0.5	<1.0	<5	<3	<10	
DATE		IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	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 08...	7	<10	18	16	<0.1	<10	<10	<10	1	<1.0	410	<6	83
JUN 02...	26	<10	16	21	<0.1	<10	<10	<10	<1	<1.0	340	<6	23
AUG 23...	160	<10	23	38	<0.1	<10	<10	<10	1	2.0	380	7	17
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 08...	<0.10	<0.1	<0.20	<0.5	<0.20	<0.10	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10	
JUN 02...	<0.10	0.2	<0.20	<0.5	<0.20	<0.10	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10	
AUG 23...	<0.10	<0.1	<0.20	<0.5	<0.20	<0.10	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10	

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LOCATION.--Lat 29°45'59", long 95°21'30", Harris County, Hydrologic Unit 12040104, on right bank at Main street bridge, 3 miles downstream from station 08074500, and 700 ft. upstream from Buffalo Bayou.

### WATER-STAGE RECORDS

EXTREMES FOR CURRENT YEAR.--Maximum elevation 19.22 ft. Mar. 1 at 2130 hrs.; minimum, minus 1.11 ft. Mar. 13, 1993 at 1045 hrs.

[illegible]

## SAN JACINTO RIVER BASIN

08074598 WHITEOAK BAYOU AT MAIN STREET, HOUSTON, TX--Continued

DAY	GAGE HEIGHT, FEET, WATER YEAR		OCTOBER 1992		TO SEPTEMBER 1993							
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	3.25	1.82	5.38	3.14	4.34	2.22	4.97	3.29	4.09	1.98	4.11	2.60
2	3.90	2.10	5.55	3.04	4.89	2.88	4.94	3.10	4.25	2.19	4.35	3.05
3	11.68	3.23	4.26	2.71	4.90	3.19	4.74	3.21	4.30	2.62	4.26	2.88
4	10.84	3.92	4.36	2.60	4.91	3.07	5.14	3.16	3.87	2.55	4.12	2.51
5	3.92	2.03	7.35	3.16	4.88	2.94	5.21	3.50	3.88	2.57	4.28	3.24
6	4.77	2.80	5.98	3.95	4.98	2.93	4.86	3.53	3.99	2.98	4.46	2.76
7	14.02	3.29	5.20	3.15	5.03	3.10	4.84	3.14	3.79	2.96	4.34	2.66
8	8.95	3.32	5.70	3.46	5.48	3.33	4.59	3.38	4.00	2.71	4.41	2.77
9	4.18	2.73	5.66	3.78	5.32	3.69	4.86	3.32	3.93	2.54	4.37	2.63
10	4.86	2.25	5.43	3.19	---	3.42	4.11	3.18	3.82	2.41	4.24	2.40
11	5.08	3.43	4.45	2.67	---	3.58	4.06	2.95	3.89	2.24	4.30	2.34
12	5.11	3.42	4.10	2.94	4.38	3.16	4.24	3.13	3.98	2.28	5.40	2.79
13	4.98	3.26	3.57	2.32	4.30	2.86	4.64	3.23	4.02	2.28	5.84	3.38
14	5.75	3.32	3.98	2.71	4.00	2.62	4.66	3.06	4.07	2.15	5.82	3.16
15	3.32	1.50	4.51	3.33	3.96	2.53	4.87	3.06	3.90	2.15	4.14	2.53
16	4.28	2.11	4.39	3.32	4.67	2.73	4.68	2.98	3.85	1.82	4.81	2.62
17	4.56	3.44	4.32	3.12	5.62	3.29	4.56	2.90	3.70	1.86	4.86	3.20
18	4.52	3.56	6.85	3.05	6.56	4.24	4.63	2.80	3.86	1.94	4.99	3.54
19	4.83	3.61	3.63	2.45	10.78	4.04	6.02	2.71	4.10	2.35	5.23	3.76
20	4.44	2.59	4.42	2.12	13.69	10.78	4.18	2.82	4.10	2.58	5.28	3.35
21	3.79	2.00	4.57	2.43	11.08	5.01	3.77	2.25	3.94	2.68	5.21	3.58
22	4.26	2.39	5.34	3.12	5.69	4.38	3.84	2.22	4.08	2.34	5.14	3.42
23	5.03	3.03	8.33	3.60	5.32	3.55	3.89	2.52	4.16	2.40	5.11	3.20
24	5.60	3.62	7.10	3.87	5.23	3.44	3.86	2.55	4.09	2.33	4.82	3.18
25	6.06	3.21	6.21	2.60	5.16	3.58	3.75	2.18	4.12	2.34	4.81	3.18
26	4.91	2.15	4.31	2.75	10.93	4.26	3.68	2.04	5.00	2.39	4.90	3.08
27	4.91	2.58	5.28	2.84	5.02	3.26	3.99	2.14	5.13	3.02	4.06	2.32
28	5.05	3.11	5.00	3.29	4.82	3.22	4.43	2.28	5.09	2.55	4.81	2.70
29	5.91	3.27	5.01	3.54	5.16	3.13	3.96	2.22	4.39	2.58	4.80	3.30
30	4.96	2.52	4.97	3.56	5.06	3.55	4.00	1.94	4.29	2.77	4.82	3.39
31	---	---	4.62	2.52	---	---	4.00	1.98	4.14	2.70	---	---
MONTH	14.02	1.50	8.33	2.12	---	2.22	6.02	1.94	5.13	1.82	5.84	2.32



08074598 WHITEOAK BAYOU AT MAIN STREET, HOUSTON, TX--Continued

## WATER QUALITY RECORDS

LOCATION.--Lat. 29°45'59", Long. 95°21'30", Harris County, Hydrologic Unit 12040104, on right bank, at Main street bridge, 3 miles downstream from station 08074500, 700 ft upstream from Buffalo Bayou.

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.

INSTRUMENTATION.--Since May 1992, 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. 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. In addition to the data collected by the three-parameter water-quality monitor, samples were collected on three storm related events; in May and June for chemical, biochemical and pesticide analyses.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum 1,490 microsiemens on October 4, 1992; minimum, 84 microsiemens March 1, 1993.

WATER TEMPERATURE: Maximum, 34.0°C on August 10, 1993; minimum, 11.0°C March 13, 1993.

DISSOLVED OXYGEN: Maximum, 9.5 mg/L July 31, 1992; minimum, 0.3 mg/L, August 5, 1993.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum 1,490 microsiemens on October 4; minimum, 84 microsiemens March 1.

WATER TEMPERATURE: Maximum 34.0°C on August 10, 1993; minimum, 11.0°C March 13.

DISSOLVED OXYGEN: Maximum, 8.4 mg/L January 7; minimum 0.3 mg/L August 5.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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)	BOD OXYGEN DEMAND, BIOCHEM CARBON, 5 DAY (MG/L)	
MAY											
05...	1105	500	678	7.7	22.0	25	5.1	58	6.1	5.7	
05...	1212	520	427	7.2	22.0	78	6.4	73	7.6	6.9	
05...	1452	1950	132	7.6	20.5	54	8.4	93	7.6	7.4	
05...	1712	1870	186	7.5	20.5	88	7.5	83	7.4	7.0	
05...	2018	1300	200	7.8	22.5	140	7.5	87	7.6	7.5	
06...	0003	1000	173	7.7	20.0	83	7.1	78	7.7	7.3	
23...	1310	600	816	8.1	24.5	10	4.4	53	3.1	2.9	
23...	1446	610	365	8.0	23.0	74	8.0	94	8.7	8.5	
23...	1912	1820	292	7.9	23.0	150	7.8	91	8.4	7.1	
23...	2130	2300	148	7.5	22.0	58	7.6	87	7.3	6.1	
23...	2250	1820	165	7.9	20.0	91	7.9	87	8.2	6.3	
24...	0030	1550	164	7.4	20.5	120	7.0	78	7.4	5.3	
JUN											
19...	2355	4700	130	7.4	24.0	86	7.0	83	5.1	3.7	
20...	0335	5200	133	7.3	25.0	100	6.7	81	5.0	3.3	
20...	0914	5100	118	7.5	25.0	81	7.2	87	3.8	2.5	
20...	1122	5400	121	7.7	24.0	110	7.0	83	4.0	2.7	
21...	0957	1650	163	7.3	25.0	53	6.8	83	3.7	2.4	
21...	1735	1620	203	7.4	27.0	39	6.3	79	4.7	3.6	
DATE		COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCEI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS 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)
MAY											
05...	700	2800	170	0	53	9.6	65	2	4.3	210	
05...	6000	50000	120	3	37	6.3	37	1	3.0	120	
05...	17000	60000	42	0	14	1.6	8.9	0.6	2.3	43	
05...	31000	62000	58	0	19	2.5	16	0.9	2.9	61	
05...	38000	84000	57	0	19	2.4	15	0.9	3.8	62	
06...	26000	35000	54	0	18	2.2	12	0.7	3.4	58	
23...	2100	9300	190	0	58	11	94	3	4.5	250	
23...	25000	34000	89	0	28	4.6	36	2	2.9	100	
23...	39000	41000	77	0	24	4.2	32	2	3.0	87	
23...	55000	52000	44	0	15	1.7	11	0.7	2.7	48	
23...	29000	40000	48	0	16	1.9	13	0.8	2.9	51	
24...	31000	42000	48	0	16	2.0	12	0.8	3.1	51	
JUN											
19...	1000	21000	47	0	16	1.8	8.3	0.5	2.5	49	
20...	4400	25000	48	0	16	1.9	7.4	0.5	2.5	49	
20...	8300	20000	45	0	15	1.8	6.5	0.4	2.3	46	
20...	15000	32000	48	2	16	1.9	6.5	0.4	2.4	46	
21...	3600	9300	61	0	20	2.6	9.4	0.5	2.6	62	
21...	5400	11000	70	0	23	3.1	13	0.7	2.9	75	

## SAN JACINTO RIVER BASIN

08074598 WHITEOAK BAYOU AT MAIN STREET, HOUSTON, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L)	RESIDUE VOLATILE, TILE, SUS- PENDE (MG/L)	RESIDUE FIXED NON FILTER- ABLE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)
MAY										
05...	28	64	0.40	16	378	146	62	84	1.79	1.79
05...	19	39	0.30	10	226	518	106	412	0.910	0.910
05...	6.7	8.9	0.10	3.8	76	248	88	160	0.550	0.550
05...	8.0	14	0.20	5.8	110	298	60	238	0.680	0.680
05...	9.5	15	0.20	6.3	113	1040	74	966	0.600	0.600
06...	7.5	12	0.20	6.0	101	196	52	144	0.740	0.740
23...	32	90	0.30	15	459	30	11	19	0.950	0.950
23...	17	38	0.10	7.7	204	464	92	372	1.14	1.14
23...	14	29	<0.10	6.7	175	452	64	388	1.92	1.92
23...	7.8	11	0.10	4.0	86	264	56	208	0.660	0.660
23...	9.1	13	0.10	4.9	96	308	52	256	0.680	0.680
24...	9.7	12	0.10	5.0	95	392	8	384	0.570	0.570
JUN										
19...	4.5	6.9	0.10	6.5	78	506	16	490	0.270	0.270
20...	3.7	6.7	0.10	7.2	77	825	28	797	0.270	0.270
20...	7.1	5.8	0.10	6.4	74	498	25	473	0.180	0.180
20...	4.5	7.0	0.10	6.5	74	914	31	883	0.170	0.170
21...	5.8	8.4	0.10	8.4	96	420	18	402	0.200	0.200
21...	5.5	11	0.10	9.7	116	66	5	61	0.280	0.280
DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)
MAY										
05...	0.110	1.90	1.90	0.310	0.59	0.90	0.700	0.740	2.3	9.0
05...	0.090	1.00	1.00	0.370	0.53	0.90	0.350	0.330	1.0	21
05...	0.030	0.580	0.580	0.380	0.52	0.90	0.230	0.220	0.67	18
05...	0.050	0.730	0.730	0.360	0.74	1.1	0.350	0.340	1.0	19
05...	0.040	0.640	0.640	0.290	0.61	0.90	0.320	0.320	0.98	16
06...	0.050	0.790	0.790	0.420	0.68	1.1	0.450	0.440	1.3	13
23...	0.050	1.00	1.00	0.240	0.66	0.90	0.320	0.290	0.89	5.4
23...	0.060	1.20	1.20	0.330	0.77	1.1	0.330	0.280	0.86	34
23...	0.080	2.00	2.00	0.140	0.56	0.70	0.440	0.390	1.2	14
23...	0.030	0.690	0.690	0.280	0.52	0.80	0.280	0.240	0.74	11
23...	0.030	0.710	0.710	0.330	0.87	1.2	0.430	0.380	1.2	13
24...	0.030	0.600	0.600	0.320	2.1	2.4	0.390	0.340	1.0	12
JUN										
19...	0.020	0.290	0.290	0.150	0.65	0.80	0.270	0.260	0.80	13
20...	0.020	0.290	0.290	0.160	0.74	0.90	0.420	0.350	1.1	13
20...	0.010	0.190	0.190	0.080	0.82	0.90	0.250	0.240	0.74	11
20...	0.020	0.190	0.190	0.100	0.70	0.80	0.250	0.240	0.74	12
21...	0.020	0.220	0.220	0.130	0.67	0.80	0.240	0.220	0.67	13
21...	0.020	0.300	0.300	0.150	0.75	0.90	0.320	0.320	0.98	10

## SAN JACINTO RIVER BASIN

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08074598 WHITEOAK BAYOU AT MAIN STREET, HOUSTON, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	868	859	864	---	---	---	977	838	864	961	856	881
2	1040	864	921	---	---	---	955	839	868	996	864	894
3	1420	895	1170	---	---	---	968	851	874	990	864	901
4	1490	1100	1340	---	---	---	960	855	884	886	582	592
5	1470	1150	1360	853	736	808	975	848	876	577	483	511
6	1420	1080	1330	902	763	803	925	793	842	683	632	652
7	1330	989	1140	---	---	---	976	823	862	684	136	289
8	1310	809	993	936	791	842	993	840	879	418	212	307
9	1020	767	826	985	839	887	859	125	338	515	119	352
10	1290	793	910	983	401	784	470	212	344	286	149	202
11	1240	898	1030	632	311	473	662	424	541	483	281	385
12	1280	908	965	540	116	291	737	618	659	640	462	545
13	1280	914	990	555	295	429	---	---	---	770	592	655
14	1340	919	1140	695	494	566	901	133	601	846	684	732
15	1180	915	1040	771	607	692	199	122	161	835	668	756
16	1150	241	618	873	699	769	374	193	289	774	662	706
17	853	309	598	917	763	811	626	374	471	834	729	781
18	938	708	802	941	717	835	782	534	612	875	335	704
19	946	713	800	949	109	718	655	648	648	733	371	555
20	955	775	832	285	108	160	859	683	793	420	155	195
21	984	789	863	383	95	258	834	697	753	407	231	326
22	1040	226	769	314	176	241	901	764	797	607	401	500
23	892	847	871	512	314	427	911	781	818	696	553	624
24	875	864	871	692	509	584	906	787	821	722	623	669
25	899	867	882	796	623	699	922	817	852	804	681	725
26	1190	884	930	865	393	744	965	834	859	881	730	795
27	990	855	918	923	773	799	959	834	870	907	792	833
28	1080	870	924	936	777	804	957	851	875	922	838	863
29	1190	927	997	937	787	831	962	856	881	853	221	334
30	---	---	---	936	812	850	985	860	890	547	278	386
31	796	225	580	---	---	---	971	851	876	660	481	572
MONTH	1490	225	942	985	95	644	993	122	723	996	119	588

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	775	634	708	772	84	350	1400	865	968	942	275	521
2	848	730	797	416	97	185	1360	853	966	573	218	327
3	917	789	842	535	234	321	1300	136	648	971	342	508
4	927	811	855	884	357	504	673	141	301	1150	565	698
5	901	643	721	980	516	659	586	245	329	1200	203	545
6	798	644	714	1090	632	755	873	359	498	534	188	268
7	832	717	752	1140	742	850	1040	100	474	803	287	408
8	886	761	816	1180	801	897	481	198	259	1050	430	609
9	924	821	846	1270	829	934	703	286	430	1330	605	772
10	846	237	374	1240	867	945	1080	473	616	734	222	340
11	498	290	439	1320	862	948	1160	622	765	988	278	476
12	702	604	623	1280	255	736	1220	741	864	1280	511	716
13	861	652	733	788	244	494	1230	824	916	1390	681	843
14	977	755	837	1000	106	604	1290	489	843	1400	767	913
15	1030	571	869	1120	500	788	852	435	553	1430	839	972
16	571	241	395	910	456	627	1240	537	708	1460	872	997
17	660	423	545	---	---	---	1320	704	841	1450	881	998
18	886	597	708	---	---	---	1270	807	912	1370	143	773
19	914	737	802	1160	838	853	1400	853	966	870	356	614
20	965	829	876	1090	503	630	1330	889	1000	913	182	685
21	1030	799	906	1060	604	702	1400	914	994	979	771	848
22	1070	879	926	1110	711	729	1390	921	1010	983	823	864
23	1050	884	929	432	237	263	1350	886	981	987	204	613
24	1050	895	945	660	306	418	1340	924	1010	360	182	250
25	1040	153	552	855	453	585	1370	376	973	610	166	407
26	495	212	314	1110	614	735	900	228	542	526	273	413
27	607	401	491	1220	714	833	1110	615	791	695	263	451
28	799	562	646	1370	789	908	1240	789	881	651	430	502
29	---	---	---	1240	837	931	1350	274	618	803	547	652
30	---	---	---	1320	868	973	951	334	490	933	309	612
31	---	---	---	1420	871	973	---	---	---	475	262	331
MONTH	1070	153	713	1420	84	694	1400	100	738	1460	143	611

## 08074598 WHITEOAK BAYOU AT MAIN STREET, HOUSTON, TX--Continued

## SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	695	410	522	990	793	847	1020	886	915	640	421	532
2	818	602	683	1030	834	888	1050	895	926	917	637	734
3	899	726	782	1040	868	912	1080	882	934	1040	737	818
4	955	756	839	1010	868	914	1010	793	902	1010	790	855
5	999	821	879	1040	874	919	1040	885	931	988	826	861
6	994	776	881	1040	888	928	1060	897	940	1090	829	877
7	1010	522	834	1030	884	940	1060	899	939	1210	830	891
8	1010	793	880	1050	866	919	899	451	661	1040	853	910
9	1010	853	910	1080	436	860	1000	748	842	1150	846	919
10	1010	870	922	1040	525	835	1000	798	864	1130	700	922
11	364	225	266	1040	703	871	970	793	846	738	313	465
12	567	289	408	1060	866	908	1050	804	853	580	234	324
13	728	504	589	1050	875	923	1050	308	801	621	437	499
14	834	664	733	1090	883	925	842	377	600	883	300	522
15	918	766	814	1040	508	831	958	768	829	640	355	490
16	927	794	838	913	570	744	857	720	760	884	521	638
17	912	167	752	976	832	875	920	775	827	1040	617	728
18	536	169	320	1020	820	893	988	845	889	1030	662	795
19	403	133	282	931	192	649	977	856	886	1250	363	745
20	179	116	138	748	371	543	1050	854	897	763	412	531
21	280	149	211	789	426	555	984	370	790	886	537	682
22	319	191	247	852	586	735	996	429	737	1150	637	752
23	481	282	376	949	754	836	968	604	799	1090	684	787
24	660	437	537	975	810	859	1040	812	855	1360	760	847
25	758	314	552	1020	847	893	1070	810	860	1240	804	876
26	353	122	260	1040	851	896	952	805	846	1100	754	852
27	454	278	354	1040	856	920	945	260	683	1150	730	809
28	579	394	467	1030	627	859	620	215	411	1070	771	868
29	809	556	642	992	763	885	645	344	480	1070	817	904
30	924	701	775	1040	883	917	817	627	678	1390	838	1010
31	---	---	---	971	777	860	897	284	635	---	---	---
MONTH	1010	116	590	1090	192	850	1080	215	801	1390	234	748
YEAR	1490	84	721									

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	25.0	23.0	24.0	---	---	---	18.0	16.0	17.0	23.0	16.5	18.0
2	25.5	23.5	24.5	---	---	---	18.5	16.5	17.5	17.5	16.0	16.5
3	26.5	23.5	25.0	---	---	---	18.0	15.5	16.5	21.0	17.5	18.5
4	27.0	24.0	26.0	---	---	---	20.0	17.5	18.5	21.0	20.5	20.5
5	27.0	24.5	25.5	18.5	16.0	17.0	20.0	15.0	16.5	15.5	14.0	15.0
6	26.5	24.5	25.5	18.5	---	17.0	15.0	13.5	14.0	16.5	14.5	15.0
7	27.0	24.5	26.0	---	---	---	17.0	14.5	15.5	16.5	13.0	14.0
8	25.5	22.0	24.0	18.0	17.0	17.5	17.5	14.5	15.5	16.0	13.5	15.0
9	24.5	21.5	22.5	20.0	18.0	19.0	16.0	14.5	15.0	17.0	15.5	16.0
10	25.0	23.0	24.0	22.0	21.0	21.5	18.5	14.0	16.0	16.5	13.0	14.5
11	26.0	24.5	25.0	24.5	21.5	22.5	17.0	15.0	16.0	13.5	12.5	13.0
12	25.5	23.0	24.0	23.5	19.0	21.0	17.0	15.5	16.5	17.5	13.5	15.0
13	25.0	23.0	24.0	20.5	17.0	18.5	---	---	---	16.5	15.0	15.5
14	25.0	24.0	24.5	20.0	17.0	18.5	20.5	13.0	18.0	15.5	14.5	14.5
15	25.5	24.5	25.0	19.5	17.5	18.5	13.0	11.5	12.0	16.0	14.0	15.0
16	26.0	21.5	24.0	20.0	18.0	19.0	14.5	11.5	12.5	17.5	14.0	15.0
17	25.0	23.0	23.5	20.5	18.5	19.5	16.5	12.5	14.0	18.5	15.5	16.5
18	25.5	23.5	24.5	21.0	19.5	20.5	16.0	14.0	14.5	21.0	18.0	19.0
19	25.5	22.5	23.5	21.5	19.0	20.5	16.0	16.0	16.0	19.5	16.5	18.0
20	24.5	22.5	23.0	19.0	18.5	18.5	19.5	17.5	19.0	16.5	13.5	14.5
21	24.5	23.0	24.0	20.5	18.0	19.0	18.0	16.5	17.0	18.5	13.5	15.5
22	25.0	23.0	24.0	19.0	16.5	17.5	21.0	18.0	19.0	20.0	14.5	17.0
23	24.5	23.5	24.0	17.5	15.5	16.5	22.0	20.5	21.0	21.0	16.5	18.5
24	25.0	23.0	24.0	18.5	17.0	17.5	22.0	18.5	19.5	20.5	15.0	17.5
25	25.5	23.5	24.5	18.5	15.5	16.5	19.5	17.5	18.5	16.5	14.5	15.5
26	26.0	24.0	25.0	16.5	14.0	15.0	18.0	16.0	16.5	16.0	13.0	14.5
27	26.5	24.0	25.0	15.0	12.5	13.5	17.0	16.0	16.0	15.5	13.0	14.0
28	26.0	24.0	25.0	15.5	12.5	14.0	20.0	17.0	18.0	16.5	14.0	15.0
29	26.0	24.0	25.0	16.5	13.5	15.0	21.5	20.0	20.5	16.5	14.5	15.0
30	---	---	---	17.5	15.5	16.5	22.0	21.0	21.5	17.5	13.5	15.0
31	---	---	---	---	---	---	23.0	21.0	21.5	18.0	13.5	15.0
MONTH	27.0	21.5	24.5	24.5	12.5	18.0	23.0	11.5	17.0	23.0	12.5	16.0

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WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	18.5	15.0	16.5	18.5	16.0	17.0	24.0	19.5	21.5	25.0	22.5	23.5
2	19.0	16.0	17.0	18.5	17.0	18.0	23.5	18.0	20.5	23.0	19.5	21.5
3	18.5	16.5	17.5	21.0	17.0	18.5	23.0	18.0	19.5	27.0	20.0	23.0
4	19.5	17.0	17.5	21.5	16.0	18.5	19.0	17.5	18.0	27.0	22.5	24.0
5	19.5	16.0	17.0	20.0	15.5	17.5	20.5	17.0	18.5	26.5	22.0	23.0
6	17.5	14.5	16.0	20.5	15.5	17.5	21.5	17.5	19.0	25.0	22.0	23.0
7	19.0	14.5	16.5	21.5	17.0	19.0	20.5	18.0	19.0	28.0	24.0	25.5
8	19.5	15.0	17.0	22.5	17.0	19.5	21.0	18.0	19.0	27.0	24.0	25.0
9	19.0	16.5	17.5	24.0	18.5	20.5	23.5	18.0	20.0	28.0	24.5	25.5
10	19.0	16.5	17.5	24.0	19.5	21.5	25.5	18.0	21.0	27.5	21.5	23.0
11	17.5	17.0	17.5	24.0	19.5	21.0	25.0	20.0	22.0	28.0	21.5	24.0
12	19.5	16.5	17.5	19.5	11.5	15.0	26.5	21.5	23.5	27.5	22.5	24.5
13	19.0	15.5	17.0	14.5	11.0	12.0	26.5	23.0	24.0	28.5	22.5	25.0
14	19.0	17.5	18.0	17.0	11.5	13.5	25.0	20.5	23.0	28.5	23.5	26.0
15	20.0	17.5	18.5	17.0	14.5	15.5	23.0	17.5	20.0	29.0	24.5	26.5
16	19.5	16.5	18.0	22.0	16.0	18.0	23.5	17.5	20.0	29.5	25.0	27.0
17	18.5	14.0	16.0	21.0	20.0	20.0	23.5	19.5	21.0	29.5	25.5	27.0
18	17.5	14.5	16.0	---	---	---	25.5	20.5	22.5	29.5	24.5	26.0
19	17.5	14.5	15.0	21.0	20.0	20.0	25.5	22.0	23.5	28.0	23.5	25.0
20	20.0	16.0	17.5	21.0	19.0	20.0	25.0	23.0	24.0	28.0	24.0	25.5
21	23.0	18.5	20.5	19.5	18.5	18.5	24.5	20.5	22.5	28.0	24.5	25.5
22	22.5	18.5	20.0	19.0	19.0	19.0	24.0	20.0	21.5	27.5	24.5	25.5
23	21.5	17.5	19.0	18.5	18.0	18.0	24.0	20.5	21.5	27.5	22.5	24.5
24	20.5	18.5	19.0	20.5	17.5	19.0	23.5	22.0	22.5	24.5	21.5	22.5
25	19.5	18.5	19.0	25.0	19.5	21.0	25.0	22.0	23.0	24.5	22.5	23.5
26	20.0	16.0	18.0	25.5	20.0	22.5	27.5	22.0	24.0	27.5	23.0	25.0
27	17.0	14.5	15.5	24.5	19.5	21.5	27.0	22.5	24.0	25.5	24.0	24.5
28	17.5	15.0	15.5	23.5	20.0	21.0	25.5	23.0	23.5	28.0	23.5	25.5
29	---	---	---	24.5	21.0	22.0	24.5	21.0	22.5	29.0	25.0	26.0
30	---	---	---	26.0	22.5	24.0	27.0	20.5	23.0	27.5	25.5	26.5
31	---	---	---	25.5	20.5	23.0	---	---	---	30.0	24.5	27.0
MONTH	23.0	14.0	17.5	26.0	11.0	19.0	27.5	17.0	21.5	30.0	19.5	25.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	30.0	24.5	27.0	32.0	28.5	30.0	33.5	29.5	30.5	32.5	28.0	30.0
2	30.0	25.5	27.0	32.0	28.0	29.5	33.5	29.5	30.5	32.5	28.5	30.0
3	30.5	26.5	27.5	32.0	28.0	29.5	33.0	29.5	31.0	32.5	28.5	30.5
4	30.5	26.5	28.0	32.0	28.0	29.5	32.5	29.0	30.5	31.5	28.5	30.0
5	31.0	27.0	28.5	31.5	28.0	29.0	32.5	29.5	31.0	31.0	27.5	29.0
6	31.0	28.0	29.0	31.5	28.5	29.5	32.5	29.0	30.5	30.5	28.0	29.0
7	31.0	28.0	29.0	32.0	28.0	29.5	33.0	29.0	31.0	31.5	28.0	29.5
8	30.0	27.5	28.5	32.0	28.5	30.0	33.5	29.5	31.0	31.0	28.0	29.5
9	30.0	27.0	28.5	32.5	28.0	30.0	33.0	29.5	31.0	31.0	28.0	29.0
10	30.0	27.5	28.0	33.0	28.5	30.0	34.0	29.5	31.5	31.5	27.5	29.0
11	28.0	24.5	26.0	32.5	28.5	30.5	33.0	30.0	31.0	31.0	26.0	28.5
12	29.5	26.0	27.5	32.5	29.0	30.5	33.0	29.0	30.5	29.5	26.5	28.0
13	30.5	27.0	28.0	32.5	29.0	30.5	32.5	29.5	30.5	30.0	27.0	28.0
14	31.5	27.5	29.0	32.5	29.0	30.5	33.0	29.0	30.0	30.0	24.5	28.0
15	32.5	27.5	29.5	32.5	28.0	29.5	33.5	29.5	31.0	26.5	22.0	24.0
16	31.5	28.0	29.5	30.5	27.5	28.5	32.5	29.5	30.5	26.5	23.5	25.0
17	31.5	27.5	29.0	32.0	28.0	29.0	33.0	29.0	30.5	27.0	24.5	25.5
18	28.0	27.0	27.5	32.0	28.5	30.0	33.0	29.0	30.5	28.0	25.5	27.0
19	27.5	26.0	26.5	31.5	29.0	29.5	33.0	29.5	31.0	31.0	27.0	28.5
20	26.5	25.5	26.0	32.5	28.5	30.0	32.5	29.5	31.0	29.5	27.5	28.5
21	28.0	26.0	27.0	32.5	28.0	30.0	33.0	29.0	30.5	30.5	28.0	29.0
22	28.5	26.5	27.5	32.5	28.5	30.5	33.5	29.0	30.5	31.5	28.5	30.0
23	31.0	27.0	28.5	33.0	28.5	30.5	33.0	29.0	31.0	31.5	28.5	30.0
24	32.0	27.5	29.0	33.5	29.0	31.0	32.5	28.5	30.5	31.5	28.5	30.0
25	30.0	27.5	28.5	33.0	28.5	31.0	32.0	29.0	30.5	31.0	28.0	29.5
26	28.0	25.0	26.5	33.5	29.0	31.0	31.5	28.5	29.5	31.0	28.0	29.0
27	30.5	27.0	28.0	33.0	29.0	31.0	31.0	29.0	30.0	30.0	25.5	26.5
28	31.5	27.0	29.0	32.5	29.5	31.0	29.0	27.0	27.5	27.0	23.5	24.5
29	32.5	27.5	29.5	33.0	29.5	30.5	30.5	26.5	28.0	26.5	23.5	25.0
30	32.5	28.0	29.5	33.5	30.0	31.0	31.5	28.0	29.0	27.0	25.0	26.0
31	---	---	---	32.5	30.0	31.0	32.0	28.0	29.5	---	---	---
MONTH	32.5	24.5	28.0	33.5	27.5	30.0	34.0	26.5	30.5	32.5	22.0	28.0
YEAR	34.0	11.0	23.0									



## SAN JACINTO RIVER BASIN

08074598 WHITEOAK BAYOU AT MAIN STREET, HOUSTON, TX--Continued

## OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	8.4	8.0	8.1
8	---	---	---	---	---	---	---	---	---	8.2	8.0	8.1
9	---	---	---	---	---	---	---	---	---	8.3	8.0	8.1
10	---	---	---	---	---	---	---	---	---	8.1	8.0	8.0
11	---	---	---	---	---	---	---	---	---	8.2	8.0	8.1
12	---	---	---	---	---	---	---	---	---	8.1	7.8	8.0
13	---	---	---	---	---	---	---	---	---	8.0	7.8	7.9
14	---	---	---	---	---	---	---	---	---	8.1	7.8	8.0
15	---	---	---	---	---	---	---	---	---	8.1	7.8	8.0
16	---	---	---	---	---	---	---	---	---	8.0	7.8	7.9
17	---	---	---	---	---	---	---	---	---	7.9	7.7	7.8
18	---	---	---	---	---	---	---	---	---	7.8	7.6	7.7
19	---	---	---	---	---	---	---	---	---	7.9	7.6	7.7
20	---	---	---	---	---	---	---	---	---	8.0	7.7	7.8
21	---	---	---	---	---	---	---	---	---	8.0	7.6	7.8
22	---	---	---	---	---	---	---	---	---	7.9	7.6	7.8
23	---	---	---	---	---	---	---	---	---	7.8	7.4	7.6
24	---	---	---	---	---	---	---	---	---	7.7	7.4	7.6
25	---	---	---	---	---	---	---	---	---	7.8	7.6	7.8
26	---	---	---	---	---	---	---	---	---	7.9	7.7	7.8
27	---	---	---	---	---	---	---	---	---	7.9	7.7	7.8
28	---	---	---	---	---	---	---	---	---	7.9	7.7	7.7
29	---	---	---	---	---	---	---	---	---	7.8	7.5	7.6
30	---	---	---	---	---	---	---	---	---	7.8	7.6	7.7
31	---	---	---	---	---	---	---	---	---	7.8	7.6	7.7
MONTH	---	---	---	---	---	---	---	---	---	8.4	7.4	7.8

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	7.7	7.6	7.6	7.4	7.3	7.4	4.6	4.2	4.4	4.7	4.2	4.4
2	7.6	7.5	7.6	7.4	7.2	7.3	4.6	4.3	4.5	5.1	4.4	4.6
3	7.6	7.4	7.5	7.3	4.3	6.0	4.6	4.4	4.5	4.5	3.8	4.3
4	7.5	7.3	7.4	4.5	4.3	4.4	4.6	4.6	4.6	4.3	3.7	4.1
5	7.6	7.4	7.5	4.5	4.3	4.4	4.6	4.6	4.6	4.7	4.0	4.3
6	7.6	7.5	7.6	7.2	6.9	7.1	4.6	4.6	4.6	4.8	3.9	4.3
7	7.7	7.5	7.6	4.4	4.2	4.3	4.9	4.6	4.7	4.3	3.8	4.1
8	7.6	7.5	7.6	4.5	4.2	4.3	4.9	4.8	4.8	4.2	3.6	3.9
9	7.7	7.5	7.6	4.4	4.1	4.3	4.8	4.7	4.7	4.6	3.4	3.8
10	7.6	7.4	7.5	4.4	4.1	4.2	4.8	4.4	4.6	4.6	4.0	4.2
11	7.6	7.5	7.5	4.4	4.2	4.3	4.7	4.5	4.6	4.3	3.4	3.9
12	7.6	7.4	7.6	4.6	4.4	4.5	4.6	4.4	4.5	4.7	3.4	4.1
13	7.7	7.4	7.6	5.1	4.5	4.7	4.6	4.2	4.4	4.5	4.2	4.4
14	7.6	7.2	7.4	4.8	4.5	4.6	4.5	4.2	4.4	4.5	4.0	4.3
15	7.5	7.3	7.4	4.6	4.5	4.5	4.6	4.4	4.5	4.4	3.8	4.1
16	7.5	7.3	7.4	4.5	4.3	4.4	4.6	4.4	4.5	4.4	3.6	4.1
17	7.7	7.5	7.6	---	---	---	4.5	4.3	4.5	4.4	3.8	4.1
18	7.7	7.4	7.5	---	---	---	4.6	4.1	4.4	5.1	4.1	4.5
19	7.7	7.4	7.7	---	---	---	4.6	4.2	4.4	5.0	4.4	4.7
20	7.7	7.4	7.5	---	---	---	4.6	4.3	4.5	5.5	4.6	5.0
21	7.5	7.0	7.3	---	---	7.1	4.6	4.4	4.5	5.1	4.7	4.9
22	7.5	7.1	7.3	---	---	---	4.6	4.3	4.4	5.1	4.7	4.9
23	7.4	7.1	7.3	7.2	7.1	---	4.4	4.1	4.3	5.2	4.7	5.0
24	7.4	7.1	7.2	4.5	4.3	4.4	4.4	4.1	4.2	5.3	5.0	5.1
25	7.4	7.2	7.3	4.4	4.2	4.3	4.4	3.9	4.1	5.3	4.7	5.1
26	7.4	7.1	7.3	4.4	4.2	4.4	4.4	4.3	4.3	5.2	4.8	5.1
27	7.6	7.3	7.5	4.5	4.2	4.4	4.4	4.2	4.3	5.1	4.8	5.0
28	7.5	7.2	7.4	4.5	4.3	4.4	4.4	3.8	4.1	5.3	4.8	5.0
29	---	---	---	4.4	4.3	4.4	5.1	4.1	4.6	5.2	4.8	5.0
30	---	---	---	4.5	4.2	4.3	5.1	4.0	4.5	5.3	4.9	5.1
31	---	---	---	4.5	4.2	4.4	---	---	---	5.6	4.6	5.2
MONTH	7.7	7.0	7.5	7.4	4.1	4.9	5.1	3.8	4.5	5.6	3.4	4.5

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OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

[illegible]

## SAN JACINTO RIVER BASIN

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).

Water-quality records: A three-parameter water quality monitor continuously recorded specific conductance, water temperature, and dissolved oxygen at this station, April 1986 to May 1992.

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. 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, minus 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, 18.3 ft Mar. 1 at 2145 hours; minimum, 0.6 ft Mar. 14.

DAY	GAGE HEIGHT, FEET, WATER YEAR		OCTOBER 1992 TO SEPTEMBER 1993									
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	3.3	2.7	7.5	3.1	3.7	2.8	3.3	1.9	3.6	---	18.3	3.7
2	3.7	3.0	4.2	3.1	3.9	2.3	4.1	2.2	4.1	2.2	16.5	4.7
3	3.8	3.1	4.9	2.7	4.1	3.0	4.3	3.9	4.4	2.7	4.7	2.6
4	3.8	3.1	2.8	1.0	4.2	2.9	4.0	4.0	4.6	2.5	4.0	2.5
5	3.5	2.8	3.1	1.8	3.8	2.4	4.0	4.0	4.7	2.6	3.6	1.9
6	3.3	2.8	4.0	2.6	4.3	2.5	4.0	4.0	3.7	1.6	3.8	2.2
7	3.7	2.7	4.6	2.9	4.2	2.2	6.9	4.0	3.5	1.7	3.6	2.2
8	3.2	2.1	5.2	3.3	4.6	2.2	5.5	2.6	3.7	1.8	3.8	2.5
9	4.7	2.4	5.1	3.5	8.1	3.6	3.7	3.7	4.1	2.7	4.0	2.7
10	4.8	3.3	5.6	3.3	4.6	1.9	6.6	2.2	4.8	3.5	4.2	2.9
11	4.6	2.6	5.7	3.4	3.7	1.8	4.2	2.5	4.3	2.8	4.9	2.5
12	4.4	---	5.3	2.0	4.6	2.6	4.2	2.9	3.6	2.1	4.7	.8
13	4.5	3.1	3.9	1.9	5.2	3.2	4.2	2.9	4.0	2.2	1.1	---
14	4.7	3.4	4.3	2.4	6.5	4.2	3.1	3.1	4.6	2.4	3.7	.6
15	4.8	3.3	4.1	2.4	6.6	3.6	3.1	3.1	5.3	3.6	5.3	2.8
16	5.7	2.5	4.2	2.4	4.5	3.4	3.1	3.1	5.3	2.2	6.5	3.3
17	4.8	2.7	4.5	3.4	4.2	3.0	3.1	3.1	3.8	2.1	3.8	1.5
18	4.7	2.5	4.7	3.5	4.8	3.3	3.1	3.1	3.7	1.8	4.6	2.8
19	4.7	2.8	9.5	4.0	5.1	3.6	4.7	2.1	4.5	2.7	4.7	3.3
20	4.9	3.4	10.1	4.7	4.7	2.8	5.3	3.2	4.1	2.5	5.2	2.9
21	4.8	3.7	8.8	3.5	4.1	2.1	4.2	2.5	4.4	2.6	3.9	2.8
22	5.2	3.6	5.4	2.1	4.2	2.3	4.5	2.8	3.9	2.5	17.9	3.1
23	5.0	3.7	5.2	3.0	4.2	2.4	4.5	3.2	4.4	3.3	16.2	3.6
24	4.5	2.8	5.5	3.3	4.1	1.8	4.3	1.7	5.1	3.3	4.1	2.9
25	4.5	2.6	4.3	2.1	4.6	2.7	4.2	2.9	8.9	4.1	4.4	2.9
26	4.4	2.6	3.7	1.6	4.1	1.9	3.9	2.2	4.8	2.9	3.8	2.5
27	4.3	2.5	3.4	1.6	4.4	2.7	---	---	4.5	2.8	4.4	2.7
28	4.4	2.4	3.7	2.3	4.1	2.8	4.1	---	4.9	3.2	4.6	3.0
29	4.5	2.9	3.9	2.5	4.2	3.0	4.6	3.6	---	---	4.8	2.9
30	4.6	2.7	3.9	2.0	4.2	3.1	3.9	2.7	---	---	4.5	2.6
31	4.6	3.1	---	---	3.7	2.8	---	2.4	---	---	3.7	1.7
MONTH	5.7	---	10.1	1.0	8.1	1.8	---	---	8.9	---	18.3	---

## SAN JACINTO RIVER BASIN

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08074600 BUFFALO BAYOU AT MAIN STREET, HOUSTON, TX--Continued

DAY	GAGE HEIGHT, FEET, WATER YEAR		OCTOBER 1992		TO SEPTEMBER 1993							
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	3.2	1.7	5.3	3.1	4.3	2.2	4.9	3.2	4.0	1.9	---	---
2	3.9	2.0	5.2	3.0	4.8	2.8	4.9	3.0	4.1	2.2	---	---
3	11.0	3.3	4.3	2.8	4.8	3.1	4.7	3.1	4.2	2.6	---	---
4	10.5	3.8	4.4	2.6	4.8	3.0	5.1	3.1	3.8	2.5	---	---
5	3.8	2.1	6.5	3.2	4.8	2.8	5.2	3.4	3.9	2.6	---	---
6	4.8	2.8	5.9	3.9	4.9	2.8	4.9	3.5	4.0	3.0	---	---
7	12.9	3.3	5.2	3.2	4.9	3.1	4.8	3.2	3.8	2.9	---	---
8	8.6	3.3	5.7	3.5	5.4	3.3	4.6	3.4	3.8	2.5	---	---
9	4.1	2.7	5.7	3.8	5.2	3.6	4.8	3.3	3.7	2.3	4.1	2.3
10	4.8	2.2	5.0	3.1	5.7	3.4	4.1	3.2	3.8	2.4	3.9	2.2
11	5.0	3.3	4.4	2.7	5.4	3.5	4.1	3.0	3.9	2.3	4.0	2.1
12	5.1	3.3	4.1	2.9	4.3	3.1	4.2	3.2	4.0	2.3	5.2	2.3
13	4.9	3.2	3.5	2.3	4.2	2.8	4.6	3.2	4.1	2.3	5.7	3.2
14	5.7	3.3	3.9	2.7	3.9	2.5	4.6	3.0	3.9	2.0	5.7	3.0
15	3.3	1.5	4.5	3.3	3.8	2.4	4.8	3.0	3.7	2.0	4.0	2.4
16	4.2	2.1	4.4	3.3	4.5	2.6	4.6	3.0	3.7	1.7	4.6	2.4
17	4.5	3.4	4.3	3.1	5.5	3.2	4.4	2.7	3.7	1.9	4.6	2.9
18	4.5	3.5	6.3	3.1	6.4	4.1	4.4	2.6	3.9	2.0	4.7	3.2
19	4.8	3.6	3.6	2.4	10.1	3.9	5.6	2.7	4.1	2.4	4.9	3.4
20	4.5	2.6	4.4	2.1	13.0	10.1	4.2	2.8	4.1	2.7	5.0	3.0
21	3.7	2.1	4.6	2.4	10.3	4.5	3.8	2.3	3.9	2.7	4.9	3.3
22	4.2	2.3	5.4	3.2	5.4	3.9	3.9	2.3	3.8	2.2	4.9	3.1
23	5.0	3.0	7.7	3.6	5.0	3.3	3.8	2.5	3.9	2.3	4.8	2.9
24	5.6	3.6	6.8	3.9	5.2	3.5	3.8	2.5	3.8	2.2	4.5	2.9
25	5.2	3.2	6.1	2.6	5.1	3.6	3.7	2.2	3.9	2.2	4.5	2.9
26	4.3	2.2	4.3	2.7	9.8	4.0	3.6	2.1	4.7	2.2	4.7	2.9
27	4.9	2.6	5.2	2.8	4.6	2.9	4.0	2.2	4.9	2.8	4.0	2.2
28	5.1	3.1	4.9	3.3	4.5	2.9	4.4	2.2	4.9	2.4	4.5	2.7
29	5.6	3.3	5.0	3.5	4.9	3.0	3.9	2.2	4.1	2.4	4.7	3.2
30	5.0	2.5	5.0	3.5	5.0	3.4	3.9	1.9	3.9	2.6	4.7	3.3
31	---	---	4.6	2.5	---	---	3.7	1.8	---	---	---	---
MONTH	12.9	1.5	7.7	2.1	13.0	2.2	5.6	1.8	---	---	---	---

## 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. Elevation telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 13.60 ft Mar. 1 1993 at 2200 hours; minimum, minus 1.89 ft Mar. 13, 1993 at 0400 hours.

EXTREMES FOR CURRENT YEAR.-- Maximum elevation, 13.60 ft Mar. 1 at 2200 hours; minimum recorded, minus 1.89 ft Mar. 13 at 0400 hours.

DAY	ELEVATION, FEET		OCTOBER 1992		TO SEPTEMBER 1993							
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	3.47	1.85	5.08	1.56	2.24	1.46	1.59	.13	2.11	.29	13.60	1.73
2	3.91	2.47	2.92	1.58	2.40	.87	2.33	.49	2.39	.44	11.58	2.55
3	4.23	2.75	3.36	.97	2.58	1.58	2.78	1.34	2.69	.96	2.57	.84
4	4.11	2.49	.97	-.55	2.64	1.39	2.66	.98	2.89	.84	2.27	.59
5	3.78	1.89	1.43	.12	2.29	.90	2.25	.05	3.00	.88	1.48	-.37
6	3.11	1.80	2.40	1.03	2.86	1.01	2.54	.34	1.95	.03	1.68	-.02
7	3.78	1.60	2.99	1.33	2.72	.78	3.90	2.41	1.84	.04	1.47	.06
8	2.63	1.22	3.57	1.70	3.16	.75	3.40	.76	1.96	.13	1.67	.37
9	3.31	2.12	3.49	1.94	5.32	1.76	4.56	1.42	2.49	1.00	1.91	.49
10	3.37	2.00	3.89	1.63	3.06	.27	4.24	.27	3.01	1.77	2.11	.73
11	3.13	1.15	4.07	1.78	2.15	.22	2.42	.71	2.61	1.08	2.90	.37
12	2.97	1.50	3.34	.21	2.95	1.01	2.42	1.17	1.77	.11	2.75	-1.33
13	3.03	1.63	2.26	.29	3.58	1.69	2.39	.99	2.21	.34	-.97	-1.89
14	3.27	1.93	2.68	.78	3.75	2.10	2.73	.92	2.91	.57	1.73	-1.52
15	3.38	1.79	2.49	.97	3.91	1.50	2.90	1.41	3.38	1.84	3.29	.89
16	3.86	.97	2.63	.85	2.65	1.59	2.81	1.16	3.15	.18	4.34	1.54
17	3.21	1.16	2.91	1.79	2.42	1.13	2.64	.81	1.92	.26	1.91	-.43
18	3.09	.95	3.14	1.93	2.93	1.43	2.75	.88	1.88	-.05	2.80	1.01
19	3.10	1.27	6.15	2.41	3.28	1.70	2.85	.39	2.66	.89	2.86	1.52
20	3.31	1.78	6.48	3.03	2.86	1.02	2.98	.99	2.37	.68	3.27	1.12
21	3.19	2.08	5.95	1.96	2.33	.33	2.38	.74	2.57	.80	2.06	.91
22	3.60	1.93	3.50	.61	2.47	.63	2.54	.90	2.01	.71	12.54	1.29
23	3.50	2.26	3.68	1.39	2.48	.64	2.61	1.31	2.52	1.36	11.56	1.58
24	3.05	1.22	4.05	1.86	2.31	.01	2.44	-.15	3.21	1.51	2.14	.94
25	2.98	1.04	2.97	.53	2.76	.91	2.40	1.10	5.49	2.25	2.49	.86
26	2.86	1.06	2.16	-.10	2.25	.18	2.06	.39	2.33	.72	1.87	.61
27	2.82	.87	1.79	-.04	2.70	1.03	2.40	.75	2.51	.75	2.49	.68
28	2.89	.88	2.26	.82	2.39	.98	2.37	1.24	2.85	1.19	2.61	1.06
29	3.03	1.36	2.46	1.14	2.41	1.23	2.48	1.67	---	---	2.82	.90
30	3.02	1.14	2.48	.60	2.43	1.31	2.01	.87	---	---	2.62	.73
31	3.10	1.64	---	---	1.96	1.05	2.10	.56	---	---	1.84	-.09
MONTH	4.23	.87	6.48	-.55	5.32	.01	4.56	-.15	5.49	-.05	13.60	-1.89



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[illegible]

08074610 BUFFALO BAYOU AT MCKEE STREET, HOUSTON, TX--Continued

## WATER QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: February 1992 to current year.

WATER TEMPERATURE: February 1992 to current year.

DISSOLVED OXYGEN: February 1992 to current year.

INSTRUMENTATION.-- Since February 1992 a three-parameter water-quality monitor continuously records specific conductance, water temperature, and dissolved oxygen at this station.

REMARKS.-- Interruption in the record was due to malfunctions of the instrumentation. Due to tidal effects, probe location, channel morphology, the water quality data collected at this location may not be representative of the entire flow through the cross-section. In addition to the data collected by the three-parameter water-quality monitor, samples were collected on three storm related events; in May and June for chemical, biochemical and pesticide analyses.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 2000 microsiemens Oct. 11, 1992 and Sept. 7, 1993; minimum, 58 microsiemens March 4, 1992.

WATER TEMPERATURE: Maximum 32.0°C on several days in Aug., 1992; minimum, 10.0°C on Nov. 28, 1992.

DISSOLVED OXYGEN: Maximum, 10.8 mg/L Nov. 29, 1992; minimum, 0.8 mg/L Sept. 4, 1992

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 2000 microsiemens Oct. 11, Sept. 7; minimum, 80 microsiemens Mar. 22.

WATER TEMPERATURE: Maximum, 32.0°C on several days in Aug.; minimum, 10.0°C Nov. 28.

DISSOLVED OXYGEN: Maximum, 10.8 mg/L Nov. 29; minimum, 1.0 mg/L Oct. 17-18, Jul. 22, 29, 30, Aug. 6-7.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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)	BOD OXYGEN DEMAND, BIOCHEM. CARBON, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	
MAY													
05...	1126	1800	443	7.8	26.0	44	3.3	41	5.9	5.7	920	2200	
05...	1149	2500	219	7.8	23.5	92	6.1	72	8.2	7.7	19000	25000	
05...	1322	3850	390	7.7	23.0	94	5.2	60	8.1	7.8	55000	46000	
05...	1616	4400	198	8.5	22.0	96	6.9	79	8.1	7.9	35000	32000	
05...	2017	3400	247	7.8	22.0	130	6.0	69	8.3	8.2	26000	54000	
06...	0229	1880	213	7.6	22.0	83	6.0	69	7.9	7.6	13000	41000	
23...	1316	2350	413	8.4	25.0	37	5.2	63	4.7	3.9	3100	2600	
23...	1515	1950	612	8.4	24.0	32	4.8	57	5.6	4.9	30000	11000	
23...	1852	3500	310	7.8	23.0	34	5.8	67	5.1	4.6	41000	30000	
23...	2106	5900	197	7.7	23.0	82	6.4	74	8.2	7.3	52000	40000	
23...	2323	5300	224	8.4	22.5	98	6.4	74	8.2	6.4	31000	36000	
24...	0123	2800	203	7.8	22.0	130	5.4	62	8.1	6.4	25000	31000	
JUN													
20...	0055	11500	135	7.2	25.0	84	6.4	77	5.1	3.3	3900	38000	
20...	0448	10700	131	8.2	25.5	120	6.2	76	5.4	3.6	11000	120000	
20...	0738	12400	114	8.2	29.0	91	6.6	86	2.3	1.9	14000	48000	
20...	1003	13000	113	7.2	29.0	76	6.6	86	3.4	1.8	26000	44000	
21...	1028	5000	138	7.6	25.0	51	6.0	72	3.2	2.0	2000	9000	
21...	1740	2480	165	7.6	26.0	49	5.9	73	3.7	2.3	5800	9700	
DATE		HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
MAY													
05...	120	0	38	6.1	49	2	5.0	130	22	49	0.30	11	
05...	60	0	20	2.5	18	1	3.5	67	9.4	17	0.20	6.2	
05...	120	0	38	6.2	42	2	3.6	130	19	37	0.30	10	
05...	57	0	19	2.3	16	0.9	2.9	61	9.0	15	0.20	5.2	
05...	76	0	25	3.2	21	1	3.6	79	12	20	0.20	7.5	
06...	60	0	20	2.5	17	1	3.5	66	9.8	17	0.20	6.2	
23...	110	0	34	5.4	41	2	4.0	120	15	46	0.30	9.7	
23...	160	0	48	8.6	67	2	4.2	180	23	68	0.40	13	
23...	79	0	25	4.0	30	1	3.1	90	13	31	0.10	7.4	
23...	54	0	18	2.3	16	0.9	2.7	57	9.3	16	0.20	5.1	
23...	63	0	21	2.6	17	0.9	2.7	67	9.8	17	0.20	5.8	
24...	57	0	19	2.3	16	0.9	3.0	61	9.8	17	0.20	5.6	
JUN													
20...	44	0	15	1.6	7.8	0.5	2.4	48	5.4	6.5	0.10	6.3	
20...	47	0	16	1.8	7.7	0.5	2.6	49	5.1	6.4	0.10	6.6	
20...	41	0	14	1.4	6.0	0.4	2.4	43	4.5	5.3	0.10	5.5	
20...	41	0	14	1.5	6.0	0.4	2.2	42	4.0	6.0	0.10	5.8	
21...	48	0	16	2.0	7.5	0.5	2.4	52	4.9	6.8	0.10	7.1	
21...	57	0	19	2.4	9.4	0.5	2.5	62	5.4	7.7	0.10	7.5	

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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, NITRATE, DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DISC. (MG/L AS N)
MAY												
05...	268	47	25	22	1.60	1.60	0.100	1.70	1.70	0.210	0.59	0.80
05...	124	242	68	174	1.13	1.13	0.070	1.20	1.20	0.270	0.53	0.80
05...	241	368	88	280	1.03	1.03	0.070	1.10	1.10	0.330	1.7	2.0
05...	111	250	64	186	0.850	0.850	0.050	0.900	0.900	0.320	2.2	2.5
05...	146	310	70	240	0.920	0.920	0.060	0.980	0.980	0.350	1.3	1.7
06...	121	188	64	124	0.940	0.940	0.060	1.00	1.00	0.270	2.1	2.4
23...	233	60	26	34	1.43	1.43	0.070	1.50	1.50	0.130	0.87	1.0
23...	349	56	30	26	1.62	1.62	0.080	1.70	1.70	0.150	0.75	0.90
23...	174	78	24	54	1.15	1.15	0.050	1.20	1.20	0.200	0.50	0.70
23...	109	344	56	288	0.900	0.900	0.040	0.940	0.940	0.260	1.0	1.3
23...	122	238	44	194	0.820	0.820	0.040	0.860	0.860	0.260	0.74	1.0
24...	114	430	46	384	0.750	0.750	0.040	0.790	0.790	0.260	0.74	1.0
JUN												
20...	75	548	22	526	--	--	0.040	--	--	0.130	0.87	1.0
20...	77	913	30	883	--	--	0.030	--	--	0.140	0.66	0.80
20...	66	655	33	622	--	--	0.030	--	--	0.090	--	<0.20
20...	66	455	15	440	--	--	0.040	--	--	0.100	0.70	0.80
21...	79	416	14	402	--	--	0.040	--	--	0.120	1.7	1.8
21...	92	115	14	101	--	--	0.050	--	--	0.080	0.92	1.0

[illegible][illegible]

## SAN JACINTO RIVER BASIN

08074610 BUFFALO BAYOU AT MCKEE STREET, HOUSTON, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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)
MAY											
05...	<0.10	1.3	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10
05...	---	---	---	---	---	---	---	---	---	---	---
05...	<0.10	0.4	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10
05...	---	---	---	---	---	---	---	---	---	---	---
05...	<0.10	1.3	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	0.10	<0.10
06...	---	---	---	---	---	---	---	---	---	---	---
23...	<0.10	0.4	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10
23...	<0.10	0.3	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	0.10	<0.10
23...	---	---	---	---	---	---	---	---	---	---	---
23...	<0.10	0.5	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	0.30	<0.10
24...	---	---	---	---	---	---	---	---	---	---	---
JUN											
20...	<0.10	0.1	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10
20...	<0.10	0.2	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10
20...	---	---	---	---	---	---	---	---	---	---	---
20...	<0.10	0.2	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10
21...	---	---	---	---	---	---	---	---	---	---	---
21...	---	---	---	---	---	---	---	---	---	---	---

## SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	886	548	689	326	131	236	627	490	555	975	787	867
2	827	652	738	489	227	337	706	294	613	1370	820	899
3	925	765	850	487	333	407	809	673	734	946	821	862
4	981	801	892	---	---	---	922	758	817	880	230	438
5	968	789	875	662	556	611	1030	904	955	365	271	319
6	1750	811	1300	725	201	659	1070	946	998	393	278	302
7	1820	1510	1690	---	---	---	1170	960	1060	420	146	220
8	1980	1100	1830	785	751	754	1460	934	1140	253	164	217
9	1850	1470	1620	811	739	785	1460	165	497	257	118	202
10	1790	1240	1420	897	485	734	312	169	255	221	128	165
11	2000	1560	1760	623	411	503	302	172	231	360	212	237
12	1890	1460	1660	425	159	286	408	268	338	256	174	205
13	1680	1180	1490	439	246	324	507	383	438	233	155	179
14	1700	1210	1490	438	312	371	580	148	419	198	138	165
15	1780	1230	1440	516	396	459	248	148	208	196	159	181
16	1600	358	881	614	481	553	283	169	193	198	169	185
17	598	213	402	750	591	655	338	160	180	251	194	213
18	852	496	586	847	682	727	246	155	174	459	251	328
19	816	618	701	916	151	716	314	170	305	484	295	420
20	1050	816	933	211	111	142	263	211	221	408	187	228
21	1070	826	935	204	101	163	423	233	318	304	210	245
22	1210	920	1040	247	134	171	527	325	428	277	153	182
23	1200	989	1070	216	143	173	623	237	472	214	161	175
24	1310	919	1100	306	158	219	615	512	540	437	132	279
25	1320	946	1180	312	154	257	680	536	573	426	296	333
26	1420	1050	1260	228	151	177	715	578	632	526	277	337
27	1610	1100	1350	290	157	197	700	626	646	665	374	457
28	1610	1160	1350	304	180	250	767	646	680	667	489	555
29	1660	1150	1410	388	251	324	831	662	729	564	221	309
30	1990	1170	1550	524	368	444	877	711	751	458	223	311
31	1700	284	522	---	---	---	843	744	771	400	226	281
MONTH	2000	213	1160	916	101	415	1460	148	544	1370	118	332

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08074610 BUFFALO BAYOU AT MCKEE STREET, HOUSTON, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	451	147	275	274	87	177	438	181	225	541	299	398
2	576	265	345	156	93	123	285	208	240	378	192	265
3	625	359	483	252	156	211	456	131	266	413	251	337
4	733	508	567	391	153	200	170	122	140	585	362	439
5	619	516	564	248	144	171	372	170	262	617	187	365
6	722	524	588	213	117	158	304	158	221	230	175	204
7	725	541	619	213	138	162	403	105	266	397	230	295
8	786	585	674	207	141	162	244	112	170	401	164	231
9	758	620	650	183	134	159	270	149	184	335	170	219
10	655	236	387	185	141	169	189	129	147	296	188	222
11	302	195	247	232	182	203	152	124	142	320	138	182
12	304	176	208	422	150	277	150	121	139	159	133	150
13	376	183	223	---	---	---	172	131	152	175	148	163
14	489	231	318	448	134	232	526	166	253	174	151	164
15	633	334	399	441	292	335	483	193	358	179	142	163
16	416	135	268	496	322	385	377	137	182	186	144	164
17	421	238	309	591	268	507	160	128	144	209	154	179
18	335	250	296	672	556	589	165	130	149	339	158	222
19	467	292	355	861	595	706	184	139	158	454	206	295
20	613	344	466	770	426	533	340	178	247	488	258	336
21	636	505	552	545	375	451	394	164	242	554	319	379
22	750	585	627	379	80	305	274	171	198	582	399	452
23	826	619	659	200	105	137	228	185	207	599	174	381
24	831	666	708	238	200	221	241	160	196	217	147	181
25	811	170	457	207	163	178	425	203	261	466	159	274
26	295	169	234	414	183	251	483	183	363	419	194	252
27	368	175	236	413	148	221	608	451	526	502	234	311
28	225	180	201	187	149	169	799	573	631	491	223	304
29	---	---	---	195	155	176	874	231	509	502	319	389
30	---	---	---	392	195	272	622	297	398	400	217	328
31	---	---	---	593	373	452	---	---	---	289	213	249
MONTH	831	135	426	861	80	276	874	105	253	617	133	274
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	363	210	282	253	229	245	436	383	414	1900	884	1380
2	216	167	185	256	234	246	485	436	461	---	---	---
3	196	149	175	256	237	248	526	485	508	---	---	---
4	203	162	185	253	230	243	548	526	539	---	---	---
5	221	175	199	240	219	230	849	547	655	---	---	---
6	271	201	230	346	220	254	872	736	780	1990	1870	1960
7	397	261	305	345	225	275	939	753	802	2000	1640	1780
8	672	363	461	245	229	235	844	616	721	1370	1120	1200
9	886	458	573	265	229	240	998	675	760	1710	1300	1480
10	945	249	627	294	237	261	949	768	795	1690	1290	1450
11	276	203	233	295	284	290	955	773	806	1860	534	1040
12	428	271	310	288	256	262	866	742	774	863	309	517
13	694	369	459	260	240	248	931	314	730	893	599	712
14	807	458	548	266	251	259	697	346	536	1310	437	788
15	534	305	379	279	249	261	809	697	758	850	474	551
16	397	278	320	302	279	291	893	741	786	899	517	579
17	414	296	372	308	293	299	967	745	781	946	530	653
18	350	290	326	321	308	313	974	785	821	907	676	742
19	528	254	332	337	321	329	919	829	873	895	565	787
20	254	195	211	364	330	347	---	---	---	824	556	696
21	276	196	227	399	364	383	---	---	---	719	513	597
22	326	275	296	439	399	420	---	---	---	1190	592	715
23	497	326	367	483	439	462	---	---	---	1140	705	815
24	529	377	408	521	483	504	---	---	---	1270	898	1060
25	390	291	328	557	521	540	---	---	---	1410	1070	1200
26	308	203	266	586	557	573	1630	929	1160	1740	1080	1380
27	349	274	299	613	586	600	1880	362	984	1940	1170	1510
28	474	349	384	632	610	619	1490	364	590	1980	1130	1440
29	416	252	304	619	606	614	1890	322	700	1780	1200	1430
30	254	232	244	621	606	613	1930	419	882	1920	1250	1650
31	---	---	---	632	381	529	1960	733	1320	---	---	---
MONTH	945	149	328	632	219	362	1960	314	757	2000	309	1080
YEAR	2000	80	509									



08074610 BUFFALO BAYOU AT MCKEE STREET, HOUSTON, TX--Continued

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	14.0	13.0	13.5	18.0	14.0	15.5	22.0	20.0	20.5	24.0	22.5	23.0
2	15.0	13.0	14.0	18.0	17.5	17.5	20.0	19.0	19.5	23.0	21.0	22.0
3	15.5	14.5	15.0	19.0	17.0	18.0	19.5	17.5	18.5	23.0	20.5	21.5
4	16.5	15.0	16.0	18.0	16.5	17.0	18.0	17.0	17.5	24.0	21.5	22.5
5	16.5	15.5	16.0	17.5	16.0	16.5	19.0	16.0	17.5	24.0	22.0	23.0
6	15.5	11.5	14.5	17.0	16.0	16.5	19.0	17.0	17.5	23.5	22.0	22.5
7	18.0	12.0	15.0	17.0	16.0	16.5	19.0	18.0	18.5	25.5	23.0	24.0
8	17.5	14.5	15.5	17.5	16.0	17.0	20.0	18.0	18.5	25.0	23.5	24.0
9	15.5	14.5	15.5	18.0	16.5	17.5	19.5	17.5	18.5	25.0	23.5	24.0
10	17.0	15.5	16.5	19.0	17.5	18.0	19.0	17.5	18.5	25.0	22.0	23.0
11	17.5	16.0	16.5	19.5	18.5	19.0	19.5	18.5	19.0	24.0	22.0	23.5
12	17.0	16.0	16.5	19.0	14.5	16.5	20.0	19.0	19.5	24.5	23.5	24.0
13	16.0	15.0	15.5	---	---	---	20.5	19.5	20.0	24.5	22.0	23.5
14	16.0	14.5	15.0	---	---	---	21.0	20.0	20.5	24.5	23.0	24.0
15	17.5	16.0	16.5	14.5	14.5	14.5	20.5	17.0	19.0	24.5	23.5	24.0
16	18.0	17.0	17.5	17.5	14.5	15.5	19.5	17.0	18.5	25.0	23.5	24.5
17	17.0	15.0	15.5	19.0	17.5	18.0	19.0	18.5	19.0	25.5	24.0	24.5
18	15.0	14.0	14.0	20.0	18.0	19.0	20.0	19.0	19.5	25.5	24.0	24.5
19	14.5	13.0	13.5	19.0	18.0	18.5	20.5	19.5	20.0	25.0	24.0	24.5
20	15.5	13.0	14.5	19.0	18.0	18.5	21.5	20.0	21.0	25.0	23.5	24.5
21	18.0	15.5	17.0	19.0	18.0	18.5	21.5	20.0	20.5	27.0	24.5	25.0
22	18.5	17.5	18.0	19.0	18.0	18.0	21.0	20.0	20.5	25.0	24.0	24.5
23	19.0	17.5	18.0	18.0	17.5	18.0	20.5	19.5	20.0	25.0	22.5	24.5
24	18.5	17.5	18.0	18.5	17.5	18.0	20.5	20.0	20.5	23.5	22.0	22.5
25	18.5	18.0	18.5	19.0	18.0	18.5	22.0	20.5	21.0	23.5	22.5	23.0
26	18.5	17.0	17.5	21.5	18.0	19.5	25.0	22.0	23.0	25.0	22.5	23.5
27	18.0	15.0	16.0	21.5	19.0	19.5	25.0	23.5	24.0	25.0	23.5	24.0
28	15.0	14.0	14.5	19.5	19.0	19.5	24.5	23.0	23.5	25.5	23.5	24.0
29	---	---	---	20.5	19.5	20.0	23.0	21.0	22.0	25.5	24.5	25.0
30	---	---	---	22.0	20.5	21.0	23.0	21.0	22.0	25.5	24.5	25.0
31	---	---	---	22.0	20.5	21.5	---	---	---	27.0	24.5	25.5
MONTH	19.0	11.5	16.0	22.0	14.0	18.0	25.0	16.0	20.0	27.0	20.5	24.0

## SAN JACINTO RIVER BASIN

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08074610 BUFFALO BAYOU AT MCKEE STREET, HOUSTON, TX--Continued

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	27.0	25.0	25.5	28.0	27.0	27.5	30.0	29.0	29.5	29.5	28.0	28.5
2	26.0	24.5	25.0	28.0	27.0	27.5	31.0	29.5	30.0	30.5	28.5	29.5
3	26.5	25.0	25.5	28.0	27.5	27.5	31.5	29.5	30.5	30.5	29.0	29.5
4	26.5	25.5	26.0	28.0	27.5	27.5	31.5	29.5	30.0	30.5	29.0	29.5
5	27.5	26.0	26.5	28.0	27.0	27.5	31.5	29.5	30.5	29.5	28.5	29.0
6	28.5	27.0	27.5	28.5	27.5	28.0	31.5	30.0	30.5	29.0	28.0	28.5
7	28.0	27.0	28.0	29.0	27.0	28.0	32.0	30.0	30.5	29.0	28.0	28.5
8	29.0	28.0	28.5	28.5	27.5	28.0	31.5	30.0	30.5	29.0	28.0	28.5
9	29.0	27.5	28.0	29.0	27.5	28.0	31.0	30.0	30.5	28.5	28.0	28.0
10	29.0	24.5	27.5	29.0	28.0	28.5	31.0	30.0	30.5	29.0	27.5	28.0
11	25.0	24.0	24.5	29.0	28.0	28.5	31.5	30.0	30.5	29.0	27.0	28.0
12	27.0	25.0	25.5	29.0	28.0	28.5	31.5	30.0	30.0	29.0	26.5	27.5
13	27.5	26.5	27.0	29.0	28.5	28.5	32.0	29.5	30.5	28.5	27.5	28.0
14	28.5	27.0	27.5	29.5	28.5	29.0	31.5	29.5	30.0	28.5	26.0	27.5
15	28.0	26.0	27.0	29.0	28.0	28.5	31.5	30.0	30.5	26.0	24.5	25.0
16	28.0	26.5	27.5	28.5	28.0	28.5	32.0	30.0	31.0	25.5	24.5	25.0
17	28.0	27.0	27.5	29.0	28.0	28.5	32.0	30.0	30.5	26.0	24.5	25.0
18	27.5	27.0	27.0	29.0	28.0	28.5	31.5	30.0	30.5	26.5	25.0	25.5
19	27.0	25.5	26.0	29.5	28.5	28.5	31.5	30.0	30.5	29.0	25.5	26.5
20	26.0	25.0	25.5	29.0	28.0	28.5	31.5	30.0	30.5	28.5	27.5	27.5
21	27.0	25.5	26.0	29.5	28.0	28.5	31.5	30.0	30.5	28.5	27.0	27.5
22	28.0	26.0	27.0	31.0	29.5	30.0	31.0	30.0	30.5	28.5	27.5	28.5
23	29.0	27.0	27.5	31.0	29.5	30.0	31.0	30.0	30.5	30.0	28.5	29.0
24	29.0	27.5	28.0	31.5	29.5	30.0	31.5	29.5	30.0	30.0	28.5	29.0
25	29.0	26.5	27.5	31.5	29.5	30.5	31.0	29.5	30.0	30.0	28.5	29.0
26	27.0	25.0	26.0	31.5	29.5	30.5	30.5	29.5	29.5	29.0	28.0	28.5
27	28.5	26.0	27.0	31.5	30.0	30.0	29.5	28.5	29.0	28.5	26.0	27.5
28	29.0	27.0	27.5	31.0	30.0	30.5	28.5	26.5	27.5	26.5	25.0	26.0
29	28.5	26.5	27.5	31.5	30.0	30.0	27.0	26.0	26.5	25.5	24.5	25.0
30	28.0	27.0	27.5	31.0	30.0	30.5	29.0	27.0	27.5	26.0	24.0	25.0
31	---	---	---	31.0	29.0	29.5	29.0	27.5	28.5	---	---	---
MONTH	29.0	24.0	27.0	31.5	27.0	29.0	32.0	26.0	30.0	30.5	24.0	27.5
YEAR	32.0	10.0	22.0									

## OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	6.8	4.4	5.3	6.9	3.5	5.8	9.6	7.1	8.3	6.2	3.5	5.7
2	5.8	4.2	5.1	6.6	2.8	4.6	9.3	6.9	8.1	6.5	3.5	5.4
3	8.7	4.3	5.9	5.5	2.1	3.8	8.6	6.7	7.7	7.2	5.2	6.1
4	8.4	4.8	6.4	---	---	---	9.0	6.6	7.2	8.2	5.5	6.8
5	8.8	5.9	7.0	6.0	4.4	4.8	---	6.5	7.0	8.6	5.9	7.4
6	9.5	5.7	7.3	7.4	4.7	5.9	7.6	6.4	6.9	---	---	---
7	9.7	3.7	7.5	---	---	---	8.0	6.6	7.1	---	---	---
8	6.7	3.7	5.9	5.9	4.6	4.8	8.5	6.6	7.4	---	---	---
9	8.2	5.0	6.5	6.3	4.0	5.1	9.6	6.6	8.2	---	---	---
10	6.9	5.7	6.1	5.9	2.7	4.8	8.3	7.1	7.7	---	---	---
11	6.3	5.0	5.5	5.3	2.9	4.0	8.4	7.7	8.0	---	---	---
12	5.9	3.9	4.9	7.3	2.7	5.2	8.2	6.7	7.6	---	---	---
13	6.2	4.3	5.4	6.9	3.4	4.8	8.1	6.3	7.3	---	---	---
14	7.5	5.1	6.0	7.1	4.3	5.6	9.8	6.4	7.4	---	---	---
15	6.9	4.7	5.7	7.7	3.4	5.8	10.4	8.1	9.4	---	---	---
16	5.5	3.5	4.8	8.3	4.2	6.4	10.2	7.4	8.6	---	---	---
17	3.7	1.0	1.6	8.0	4.1	6.4	9.8	8.6	9.1	---	---	---
18	2.1	1.0	1.5	7.6	3.4	5.3	9.6	8.6	9.0	---	---	---
19	9.7	1.4	3.1	8.9	2.5	5.3	8.7	8.5	8.7	---	---	---
20	7.1	2.9	4.5	8.9	7.2	8.2	8.3	7.0	7.9	---	---	---
21	7.5	3.1	5.3	8.7	7.2	7.8	8.1	5.5	6.7	---	---	---
22	6.8	3.6	5.2	8.3	7.6	7.9	7.2	4.3	5.8	---	---	---
23	6.3	3.7	5.1	8.7	8.2	8.4	5.9	4.4	5.1	---	---	---
24	5.9	3.9	5.1	8.4	7.7	8.0	6.4	4.3	5.7	---	---	---
25	6.7	4.4	5.7	9.1	8.1	8.5	8.5	4.2	5.6	---	---	---
26	6.8	2.2	4.6	9.3	9.0	9.1	7.5	4.8	6.6	9.2	8.4	8.8
27	5.6	2.0	4.5	9.6	9.1	9.6	6.1	3.9	5.3	9.4	7.8	8.4
28	6.1	3.4	4.8	10.1	9.9	9.9	6.1	3.9	4.8	9.5	7.8	8.4
29	6.5	3.4	5.1	10.8	9.5	10.0	5.9	3.8	4.9	9.7	8.0	8.7
30	7.5	3.5	5.1	10.0	8.2	9.1	6.0	3.5	4.9	9.0	8.0	8.4
31	6.5	3.0	4.3	---	---	---	5.7	3.3	4.5	9.3	8.3	8.7
MONTH	9.7	1.0	5.2	10.8	2.1	6.6	10.4	3.3	7.0	9.7	3.5	7.5

08074610 BUFFALO BAYOU AT MCKEE STREET, HOUSTON, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	9.3	7.9	8.7	8.8	7.9	8.2	7.0	6.6	6.7	5.7	2.6	3.9
2	9.3	7.4	8.3	7.9	7.1	7.4	7.1	6.5	6.8	7.1	4.7	6.0
3	9.1	6.9	7.8	7.4	7.1	7.2	7.8	5.9	7.0	6.6	5.1	5.5
4	8.8	6.5	7.5	7.9	7.1	7.6	7.6	6.9	7.3	6.2	5.1	5.7
5	9.0	6.2	7.2	8.1	7.6	7.9	6.9	6.4	6.7	7.0	5.4	6.1
6	7.8	6.4	6.8	8.3	7.8	8.0	7.0	6.4	6.7	6.5	5.8	6.1
7	8.8	6.8	7.8	8.1	7.6	7.8	8.0	4.5	6.3	5.8	5.3	5.5
8	9.9	6.8	8.2	8.1	7.6	7.8	7.4	6.7	7.0	6.4	5.2	5.8
9	8.9	6.7	7.8	8.1	7.4	7.6	7.6	6.7	7.3	6.4	5.4	5.9
10	9.4	7.1	7.8	7.8	7.1	7.4	7.5	7.3	7.4	6.7	5.5	6.1
11	8.1	7.5	7.7	7.6	6.8	7.0	7.5	7.1	7.3	6.3	5.3	6.0
12	8.0	7.3	7.6	7.4	6.5	7.0	7.3	7.0	7.1	6.5	6.1	6.2
13	8.4	7.6	7.9	---	---	---	7.2	6.6	6.8	6.5	6.1	6.3
14	8.5	7.0	7.7	9.6	9.1	9.2	7.1	5.6	6.4	6.5	6.1	6.3
15	8.0	6.9	7.5	9.7	7.8	8.9	8.9	5.3	5.9	6.5	6.1	6.3
16	8.0	5.8	6.5	8.0	6.2	7.1	8.9	6.9	7.2	6.5	6.0	6.2
17	7.7	5.9	6.6	9.6	4.4	6.8	7.4	6.9	7.1	6.4	5.8	6.1
18	7.9	6.6	7.3	8.6	4.1	5.9	7.2	6.7	6.9	7.7	5.0	5.9
19	8.2	6.1	7.6	6.6	4.1	5.8	7.0	6.3	6.5	5.2	3.5	4.1
20	8.2	5.2	6.9	7.8	5.4	6.0	6.7	5.4	6.1	6.4	3.7	5.1
21	7.9	4.3	6.8	6.7	4.4	5.8	8.2	6.4	6.8	6.6	4.5	5.9
22	8.3	4.7	6.3	8.6	6.6	7.1	6.9	6.4	6.6	5.8	4.5	5.3
23	7.9	5.0	6.6	7.9	6.5	7.1	6.8	6.0	6.4	6.8	4.6	6.0
24	8.2	4.4	6.7	7.3	6.5	7.0	6.4	5.7	6.2	6.2	5.5	5.9
25	7.8	4.3	6.4	7.3	7.1	7.2	6.8	4.4	5.7	7.4	4.9	5.7
26	6.8	6.4	6.6	7.7	6.4	6.8	6.6	2.7	3.8	6.3	5.5	5.8
27	7.9	6.4	7.3	7.3	6.0	6.9	3.7	1.9	2.9	6.6	4.8	5.5
28	8.6	7.9	8.2	7.3	6.9	7.0	6.2	1.9	3.7	5.8	4.8	5.3
29	---	---	---	7.3	6.7	6.9	7.0	3.0	5.1	5.8	3.8	4.6
30	---	---	---	7.1	5.7	6.2	5.3	3.4	4.4	6.3	5.5	5.9
31	---	---	---	7.5	5.0	6.2	---	---	---	6.0	5.4	5.7
MONTH	9.9	4.3	7.4	9.7	4.1	7.2	8.9	1.9	6.3	7.7	2.6	5.7
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	6.3	4.5	5.4	5.5	5.2	5.3	---	---	---	---	---	---
2	6.2	5.6	5.9	5.4	5.0	5.2	---	---	---	---	---	---
3	6.1	5.7	5.9	5.3	4.9	5.0	---	---	---	---	---	---
4	6.1	5.6	5.8	5.1	4.6	4.8	---	---	---	---	---	---
5	6.0	5.5	5.7	4.8	4.3	4.4	4.9	1.1	2.0	---	---	---
6	5.9	5.1	5.4	4.6	3.8	4.0	4.2	1.0	1.9	---	---	---
7	5.3	4.7	5.0	5.1	3.5	4.1	4.3	1.0	1.8	---	---	---
8	5.9	3.4	5.0	4.3	3.7	3.9	---	---	---	---	---	---
9	5.2	3.0	4.1	4.5	3.2	3.8	---	---	---	6.4	6.1	6.2
10	6.0	2.8	4.4	4.0	3.0	3.3	---	---	---	6.3	6.1	6.2
11	5.9	4.6	5.1	4.0	2.8	3.5	---	---	---	6.3	4.9	6.0
12	4.8	4.0	4.5	3.9	3.3	3.5	---	---	---	6.3	6.0	6.2
13	4.8	2.6	3.8	3.7	3.4	3.5	---	---	---	6.4	6.1	6.2
14	4.7	2.2	3.0	4.0	3.5	3.6	---	---	---	6.5	6.2	6.3
15	5.5	2.2	4.9	4.1	3.2	3.6	---	---	---	6.3	6.2	6.3
16	5.7	4.4	5.3	4.0	3.2	3.5	---	---	---	6.3	6.1	6.2
17	5.5	4.2	5.2	4.2	3.8	3.9	---	---	---	6.4	6.2	6.3
18	5.8	4.4	5.0	4.5	3.9	4.1	---	---	---	6.3	6.2	6.3
19	6.4	4.0	5.0	5.2	3.7	4.2	---	---	---	6.3	6.2	6.3
20	6.6	6.0	6.4	3.7	2.9	3.2	---	---	---	6.3	6.1	6.2
21	6.1	5.0	5.5	3.2	2.2	2.7	---	---	---	6.3	6.1	6.2
22	5.7	4.8	5.2	3.1	1.0	1.9	---	---	---	6.2	6.0	6.1
23	4.8	3.7	4.5	3.2	1.1	1.9	---	---	---	6.1	6.0	6.1
24	4.6	3.7	4.0	3.7	1.3	2.4	---	---	---	6.3	6.0	6.2
25	5.8	4.6	5.2	4.9	1.5	3.0	---	---	---	6.3	6.1	6.2
26	6.9	5.3	5.8	5.2	1.9	3.7	---	---	---	6.4	6.1	6.3
27	5.3	4.9	5.1	5.9	2.8	4.1	---	---	---	6.3	6.2	6.3
28	5.6	4.5	4.9	5.6	3.4	4.3	---	---	---	6.4	6.2	6.3
29	5.6	4.7	5.3	3.7	1.0	1.6	---	---	---	6.4	6.3	6.3
30	5.5	5.3	5.4	2.7	1.0	1.7	---	---	---	6.4	6.2	6.4
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	6.9	2.2	5.1	5.9	1.0	3.6	4.9	1.0	1.9	6.5	4.9	6.2
YEAR	10.8	1.0	6.0									

## SAN JACINTO RIVER BASIN

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08074710 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.

GAGE.--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, including those for estimated elevation. Only very large storms or hurricane surge produces elevations above normal tidal fluctuations. Elevation telemeter at station.

EXTREMS FOR PERIOD OF RECORD.--Maximum elevation, 9.1 ft June 26, 1989; minimum, minus 3.1 ft Mar. 6, 1989.

EXTREMS FOR CURRENT YEAR.--Maximum elevation, 5.6 ft June 19 at 1900 hours; minimum, minus 2.1 ft Mar. 14.

DAY	ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993											
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	2.9	1.3	2.2	3.5	.8	2.1	1.6	.8	1.0	2.0	.6	1.3
2	3.1	1.8	2.7	2.0	1.0	1.5	1.8	.3	1.0	2.8	1.0	1.9
3	3.5	2.0	3.0	2.8	.5	2.2	1.9	.9	1.5	3.3	1.9	2.7
4	3.4	1.8	2.8	.5	-1.0	-.2	2.0	.8	1.4	3.1	1.5	2.2
5	3.1	1.2	2.3	.9	-.3	.4	1.7	.3	.9	2.7	.6	1.6
6	2.4	1.0	1.8	e1.8	.5	e.7	2.2	.5	1.4	3.0	1.0	2.1
7	3.0	.8	2.1	e2.4	e.9	e1.4	2.1	.2	1.2	3.6	1.7	2.7
8	1.9	.5	1.3	3.0	e1.1	e1.7	2.5	.2	1.3	3.5	1.3	2.6
9	2.5	1.4	2.0	3.0	1.4	2.0	3.5	.8	2.1	3.4	1.8	2.9
10	2.6	1.3	2.0	3.4	1.1	2.3	2.4	-.4	.9	3.3	.6	1.9
11	2.4	.4	1.5	3.4	1.3	2.4	1.6	-.4	.6	2.7	1.0	1.9
12	2.3	.8	1.4	2.8	-.4	1.1	2.4	.5	1.4	2.7	1.4	2.1
13	2.4	.9	1.7	1.8	-.2	.8	3.0	1.2	2.1	2.6	1.1	1.6
14	2.6	1.3	2.1	2.1	.3	1.4	3.1	.9	2.1	2.7	1.0	2.1
15	2.7	1.1	2.0	2.0	.4	1.3	2.5	.7	1.6	2.9	1.3	2.2
16	2.9	.4	2.0	2.1	.3	1.3	2.1	1.1	1.5	2.8	1.1	2.0
17	2.5	.6	1.8	2.4	1.3	1.8	1.9	.7	1.3	2.6	.7	1.8
18	2.4	.4	1.6	2.6	1.5	2.1	2.6	1.0	1.9	2.7	.9	2.0
19	2.5	.7	1.9	3.2	1.9	2.5	e2.8	e1.4	e2.1	2.7	.3	1.5
20	2.8	1.3	2.3	2.9	1.5	2.4	e2.5	.7	e1.6	2.6	.3	1.7
21	2.6	1.5	2.2	3.6	1.3	2.2	2.2	.2	1.2	2.1	.4	1.5
22	3.0	1.4	2.5	2.4	-.2	.9	2.4	.6	1.7	2.1	.4	1.5
23	2.9	1.6	2.3	2.9	.5	1.6	2.4	.6	1.7	2.2	.8	1.7
24	2.4	.7	1.6	3.3	1.1	2.3	2.4	.1	1.3	2.1	-.5	.7
25	2.3	.5	1.6	2.3	-.2	.9	2.9	1.1	2.1	2.1	.8	1.5
26	2.2	.5	1.5	1.4	-.9	.2	2.5	.4	1.4	1.6	.1	.8
27	2.2	.3	1.4	1.0	-.9	.1	2.8	1.2	2.1	2.1	.4	1.3
28	2.2	.3	1.4	1.6	.1	1.0	2.6	1.3	2.0	2.0	.9	1.4
29	2.4	.8	1.7	1.8	.4	1.2	2.7	1.5	2.1	1.9	.9	1.4
30	2.4	.7	1.6	1.8	.0	.9	2.8	1.7	2.1	1.6	.5	1.2
31	2.4	1.0	1.9	---	---	---	2.3	1.4	1.8	1.7	.2	1.0
MONTH	3.5	.3	1.9	3.6	-1.0	1.4	3.5	-.4	1.6	3.6	-.5	1.8

e t s t i m a t e d

## SAN JACINTO RIVER BASIN

08074710 BUFFALO BAYOU AT TURNING BASIN, HOUSTON, TX--Continued

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	1.7	-.1	.9	4.3	1.5	2.9	.9	-1.0	.0	2.9	1.3	2.2
2	2.0	.1	1.1	3.5	1.4	2.2	1.6	-.6	.4	2.3	.8	1.7
3	2.3	.6	1.6	2.1	.4	1.4	3.5	1.2	2.2	2.1	.7	1.4
4	2.5	.4	1.7	1.7	-.1	.8	2.7	1.0	1.8	2.2	.5	1.6
5	2.5	.5	1.6	1.1	-.9	.1	1.2	-.1	.5	3.1	1.2	2.3
6	1.5	-.4	.7	1.1	-.5	.4	2.6	.4	1.7	3.2	1.3	2.4
7	1.4	-.4	.6	1.1	-.5	.5	3.8	1.4	2.4	3.1	1.1	2.3
8	1.5	-.2	.8	1.3	-.1	.6	2.6	.8	1.7	3.4	1.3	2.7
9	2.0	.6	1.3	1.6	.1	.9	1.8	.3	.9	3.5	1.7	2.8
10	2.3	1.2	1.6	1.7	.3	1.0	2.3	-.6	.9	2.4	.8	1.5
11	2.1	.6	1.4	2.6	-.1	1.3	2.5	.7	1.7	2.0	.2	1.2
12	1.3	-.4	.5	2.5	-1.4	1.0	2.5	.6	1.6	1.6	.5	1.1
13	1.8	-.2	.9	-1.2	-2.1	-1.9	2.5	.6	1.7	1.1	-.1	.5
14	2.5	.2	1.3	1.5	-1.8	-.3	3.5	1.1	2.4	1.5	.2	.7
15	2.9	1.6	2.2	3.0	.7	1.8	1.1	-.5	.3	2.0	1.0	1.4
16	2.5	-.3	.9	3.8	1.3	2.2	1.8	-.2	.7	1.9	1.0	1.5
17	1.6	.0	.8	1.6	-.5	.7	2.1	.9	1.3	1.9	.7	1.5
18	1.6	-.3	.7	2.5	.7	1.7	2.0	1.0	1.5	2.8	.9	1.9
19	2.4	.7	1.6	2.5	1.4	2.0	2.4	1.1	1.9	1.5	.4	1.0
20	2.0	.4	1.3	2.9	.8	1.6	2.2	.5	1.4	2.1	.1	1.5
21	2.2	.6	1.4	1.8	.7	1.3	1.3	-.1	.7	2.4	.5	1.8
22	1.7	.5	1.2	2.9	1.0	1.6	1.7	-.2	1.0	3.2	1.1	2.4
23	2.3	1.2	1.7	2.0	.9	1.4	2.6	.5	1.8	3.9	1.6	2.9
24	3.0	1.3	2.1	1.8	.6	1.3	3.2	1.3	2.3	3.3	1.2	2.3
25	3.7	1.5	2.4	2.1	.5	1.3	2.4	.9	1.7	2.9	.6	1.6
26	1.5	.4	1.0	1.6	.2	1.1	2.1	.1	1.1	2.2	.6	1.5
27	2.1	.5	1.4	2.1	.3	1.3	2.7	.6	1.8	2.9	.7	1.9
28	2.6	.9	1.8	2.1	.5	1.5	2.9	1.1	2.1	2.8	1.2	2.0
29	---	---	---	2.4	.4	1.5	3.2	1.3	2.1	e2.8	e1.5	e1.9
30	---	---	---	2.4	.5	1.5	2.7	.6	1.6	e2.6	e1.5	e1.8
31	---	---	---	1.6	-.3	.6	---	---	---	e2.9	e.3	e2.0
MONTH	3.7	-.4	1.3	4.3	-2.1	1.1	3.8	-1.0	1.4	3.9	-.1	1.8
e Estimated												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	2.1	e.2	e1.5	2.2	.4	1.5	1.7	-.2	1.0	1.5	.3	.9
2	2.4	.5	1.7	2.2	.2	1.5	1.9	.0	1.1	1.8	.6	1.1
3	2.4	.6	1.7	2.1	.4	1.4	1.8	.4	1.3	1.8	.6	1.0
4	2.4	.5	1.6	2.6	.4	1.7	1.5	.4	1.1	1.5	.2	.8
5	2.4	.3	1.6	2.6	.8	1.9	1.6	.4	1.1	1.7	.8	1.3
6	2.5	.4	1.7	2.5	.9	1.8	1.7	.8	1.3	1.9	.5	1.3
7	2.8	.9	2.0	2.3	.7	1.5	1.5	.8	1.2	1.8	.4	1.3
8	3.2	1.3	2.4	2.0	.7	1.3	1.6	.6	1.2	1.9	.6	1.4
9	3.0	1.6	2.3	1.9	.6	1.3	1.5	.4	1.1	1.7	.4	1.3
10	2.7	1.4	2.1	1.7	.9	1.3	1.5	.3	1.1	1.7	.3	1.2
11	2.5	1.2	1.7	1.7	.6	1.3	1.6	.2	1.2	1.7	.2	1.3
12	2.1	1.1	1.6	1.8	.6	1.3	1.7	.2	1.3	2.1	.4	1.7
13	2.0	1.1	1.6	2.0	.6	1.5	1.7	.3	e1.3	3.5	1.2	2.7
14	1.8	.5	1.3	2.1	.3	1.4	1.6	.1	e1.1	3.5	.9	2.6
15	1.6	.3	1.1	2.0	.3	1.3	1.6	.1	1.1	1.8	.3	1.0
16	2.3	.5	1.7	2.0	.2	1.4	1.5	-.2	.9	2.2	.6	1.3
17	3.2	1.1	2.4	2.0	.2	1.3	1.3	-.2	.8	2.4	.8	1.6
18	3.6	1.8	2.7	2.1	.1	1.3	1.6	-.1	.8	2.5	1.1	1.9
19	5.6	1.8	3.6	2.0	.0	1.2	1.8	.3	1.1	2.7	1.4	2.2
20	5.0	3.5	4.3	1.7	.0	1.1	1.8	.7	1.1	2.7	1.1	2.2
21	3.7	2.2	2.9	1.6	.1	1.0	1.6	.7	1.0	2.7	1.3	2.2
22	3.1	1.5	2.3	1.6	.2	1.0	1.5	.4	1.1	2.7	1.1	2.2
23	2.8	1.3	2.2	1.5	.4	1.0	1.6	.3	1.3	2.6	.9	2.1
24	3.0	1.3	2.2	1.5	.4	1.0	1.5	.3	1.2	2.0	.9	1.7
25	2.7	1.4	2.0	1.4	.1	1.0	1.6	.2	1.0	2.4	.9	1.9
26	2.5	1.3	1.8	1.4	.0	.9	2.2	.2	1.5	2.2	.9	1.7
27	2.1	.9	1.7	1.7	.0	1.2	2.4	.7	1.7	1.7	.5	1.0
28	2.4	.9	1.8	1.9	.1	1.3	2.0	.4	1.3	2.3	.6	1.6
29	2.4	.7	1.8	1.6	.0	1.0	1.8	.3	1.3	2.5	1.3	1.7
30	2.4	.7	1.7	1.6	-.2	1.0	1.6	.5	1.3	2.5	1.3	2.0
31	---	---	---	1.6	-.2	1.0	1.5	.4	1.1	---	---	---
MONTH	5.6	.2	2.0	2.6	-.2	1.3	2.4	-.2	1.2	3.5	.2	1.6
e Estimated												



## SAN JACINTO RIVER BASIN

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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.--Since 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 corrected 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, 19,000 microsiemens Aug. 15, Oct. 9; minimum, 127 microsiemens Mar. 2, Jun. 21.  
 WATER TEMPERATURE: Maximum, 34.0°C Jul. 26, 30, Aug. 10, 13, 17-19; minimum, 12.5°C Nov. 28-29, Dec. 15-18, Jan. 16.  
 DISSOLVED OXYGEN: Maximum, 10.8 mg/L Dec. 10; minimum, 0.7 mg/L Apr. 27, Jun. 11-13, 18.

## SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	14200	7300	10900	6980	762	3100	6320	3150	4980	6560	2670	3770
2	13300	7980	10300	1220	786	1010	6700	3220	5300	6560	3060	4450
3	12700	7740	9990	9410	840	2100	7870	4580	6050	9300	4540	5900
4	9920	7560	9060	6620	2470	4840	8130	3750	6160	8090	2120	4020
5	12700	7630	9180	9620	4270	6420	8270	4350	5880	4070	1410	2500
6	16700	8020	9910	8140	4020	6230	8270	4080	5820	4340	1490	2310
7	14500	8500	11300	---	---	---	10100	4360	6620	3590	274	1510
8	13900	10800	12200	7600	6020	6360	10100	4860	7700	947	269	453
9	19000	9250	12200	7700	5290	5810	10100	796	4090	611	205	399
10	11400	6310	9630	6000	4150	5040	1860	874	1340	366	195	249
11	12100	6980	8660	4570	2300	3590	2170	943	1420	630	239	371
12	11700	6280	8480	5380	1220	2840	2050	943	1310	635	347	405
13	12200	7750	9500	3390	1310	2110	2320	1460	1730	537	283	359
14	18000	7920	11000	3300	1340	2250	3330	694	1750	454	259	327
15	15700	7840	9440	6670	1180	3740	1030	298	542	801	259	349
16	10800	6380	9120	7300	2750	4330	576	274	369	728	244	353
17	7150	2440	4470	8990	4500	6560	796	337	542	703	288	371
18	6620	3830	4890	6280	4500	5570	923	322	536	825	342	459
19	7290	4270	5900	7770	1390	6260	630	405	421	1200	435	674
20	6980	4330	5520	1660	283	627	1250	615	767	1040	313	662
21	8860	5280	7160	737	317	430	2040	698	1070	777	303	428
22	8940	5850	7490	659	259	438	2610	825	1590	723	342	525
23	9010	5930	7630	781	322	568	1800	816	1320	835	244	348
24	8070	4790	6320	1880	298	607	2830	1010	1720	747	288	375
25	7520	4930	6120	1880	1020	1410	4250	1010	2080	781	435	517
26	11900	4820	6310	2510	1230	1680	3480	1640	2430	615	454	513
27	10100	6960	8390	2200	835	1730	7040	3140	4440	825	508	625
28	12700	7140	9460	1880	850	1460	5350	2660	3400	825	523	605
29	10900	4370	8560	2420	821	1360	6310	3310	3980	811	352	574
30	10200	6050	8420	5020	1520	2710	4990	3200	4020	767	332	433
31	16300	4450	6640	---	---	---	4630	1930	3130	772	386	550
MONTH	19000	2440	8520	9620	259	3140	10100	274	2980	9300	195	1140

## 08074710 BUFFALO BAYOU AT TURNING BASIN, HOUSTON, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY												
MARCH												
APRIL												
MAY												
1	742	352	596	645	147	414	537	259	387	972	542	675
2	806	449	642	464	127	183	547	259	324	694	347	447
3	2490	591	881	488	151	233	469	161	315	674	337	445
4	1230	645	865	440	269	303	313	151	205	703	317	381
5	1550	850	1080	440	225	268	449	181	253	562	347	419
6	1550	845	1060	322	210	245	371	254	305	435	239	303
7	1430	1010	1180	361	205	241	420	225	353	381	259	293
8	2360	1170	1570	327	200	237	396	142	229	440	288	347
9	3820	1890	2790	503	215	258	454	234	302	440	327	379
10	3200	518	1450	645	234	282	542	220	276	376	283	316
11	1450	479	792	410	186	300	249	190	218	855	283	328
12	1560	552	897	869	274	389	361	190	246	400	200	249
13	899	303	622	1170	654	869	317	171	220	503	215	252
14	1290	425	846	669	537	606	537	205	254	571	225	282
15	2740	825	1400	713	415	618	523	244	318	757	234	286
16	2040	405	667	742	176	566	659	342	458	317	215	238
17	1000	459	717	1440	620	1090	664	210	337	698	225	332
18	1440	635	950	2570	1440	2250	459	200	280	689	278	448
19	1580	816	1160	3150	1610	1980	435	205	245	1040	371	573
20	2480	1010	1330	2510	864	1450	830	225	363	1080	650	868
21	3370	1360	2110	2170	1030	1400	845	391	499	1740	611	1050
22	3700	1550	2100	1780	625	1170	703	259	391	4380	713	1590
23	5100	1830	3010	625	156	229	444	269	337	1400	625	894
24	5000	2620	3570	391	171	243	459	259	297	1230	269	595
25	4660	376	2330	781	244	301	547	259	347	596	288	444
26	762	283	416	508	254	306	850	337	530	1900	322	722
27	708	361	530	669	293	378	991	542	666	962	381	500
28	811	357	629	615	244	333	806	244	662	938	381	562
29	---	---	---	933	230	316	889	503	666	---	---	---
30	---	---	---	464	234	311	816	474	677	---	---	---
31	---	---	---	503	293	337	---	---	---	---	---	---
MONTH	5100	283	1290	3150	127	584	991	142	365	4380	200	508
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE												
JULY												
AUGUST												
SEPTEMBER												
1	703	230	500	391	190	257	8490	2040	3930	10400	4070	7390
2	777	215	509	308	166	242	6180	2030	4160	12200	7110	9110
3	679	317	403	425	195	255	6170	3560	4660	12200	8600	10400
4	488	259	333	518	220	256	7140	3850	5060	12800	8220	9930
5	547	254	338	601	210	243	6880	3970	5400	15000	8410	10700
6	571	259	326	288	210	235	7270	4150	5450	16000	9320	11200
7	469	283	361	508	230	273	9160	3800	5110	17400	8900	12000
8	737	396	512	459	239	286	5140	3560	4180	12500	8010	10600
9	708	552	615	259	220	236	6470	3810	4670	14400	8010	11100
10	781	532	623	269	220	242	8770	5620	6670	15200	9600	13000
11	737	386	586	425	239	272	10500	6070	7690	13200	6800	9320
12	410	308	340	322	259	286	7990	5330	6530	11500	5030	7280
13	376	332	354	366	249	268	8160	5290	6570	10800	5040	7410
14	454	352	387	664	225	267	7640	4660	6370	9280	6070	7530
15	474	396	429	244	225	233	7600	5060	6160	10300	5640	7830
16	464	381	442	274	230	247	11200	5470	8410	10300	4780	6620
17	542	361	399	249	225	241	11600	6950	9350	10300	5020	7400
18	410	352	368	430	239	314	12800	7780	10000	10600	6240	7220
19	444	352	402	449	352	415	12400	8300	10100	11400	7090	9070
20	352	137	183	654	430	500	11500	8740	9780	10500	5290	6920
21	156	127	143	1090	440	706	12100	8370	9690	7920	5240	6620
22	288	230	251	3740	601	1440	11500	8230	9790	11400	4700	6400
23	576	254	334	3600	1390	2090	9970	5940	8610	11800	4250	8060
24	781	293	414	3620	1350	2460	12700	7580	8920	9810	6270	7770
25	767	386	464	2210	1380	1780	10400	7360	9210	9070	4990	6520
26	698	215	303	5990	2040	2430	10000	7210	8920	11900	5590	7760
27	571	274	365	5560	2380	3060	9450	5310	7540	14600	7570	10300
28	537	313	380	9200	2400	3080	6680	2610	4070	13300	8480	10400
29	581	283	404	3500	1930	2470	4560	1720	2980	14400	7690	9870
30	498	269	350	4130	1880	2970	3650	2130	2800	14300	7580	10600
31	---	---	---	3250	1800	2440	6610	1880	3710	---	---	---
MONTH	781	127	394	9200	166	984	12800	1720	6660	17400	4070	8880
YEAK	19000	127	2990									

## SAN JACINTO RIVER BASIN

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08074710 BUFFALO BAYOU AT TURNING BASIN, HOUSTON, TX--Continued

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	28.0	25.5	26.5	26.0	22.5	24.0	17.5	15.0	16.5	20.0	17.0	18.0
2	27.5	25.5	26.5	23.5	22.0	22.5	17.5	15.5	16.5	18.0	17.0	17.5
3	27.5	25.5	26.5	24.5	22.5	23.5	19.0	16.0	17.0	20.0	17.0	19.0
4	27.5	25.5	26.5	23.0	21.5	22.0	19.0	17.5	18.0	20.5	18.5	19.0
5	28.0	25.5	27.0	23.0	21.0	22.0	17.5	15.5	16.5	19.0	18.5	18.5
6	28.0	26.0	27.0	23.0	21.0	22.0	18.0	14.5	16.0	18.5	17.0	17.5
7	27.5	25.5	27.0	---	---	---	17.0	15.5	16.5	19.0	13.5	15.5
8	27.0	25.0	26.0	21.0	20.5	21.0	18.0	15.0	16.0	14.5	14.0	14.0
9	26.5	24.0	25.5	23.0	20.5	22.0	16.0	15.0	15.5	16.5	14.5	15.5
10	27.0	26.0	26.5	23.5	21.0	22.5	16.5	15.0	15.5	16.5	15.5	16.0
11	27.0	25.0	26.0	23.0	21.0	22.0	16.0	15.0	15.5	16.0	15.5	16.0
12	27.0	25.0	26.5	23.5	20.5	22.0	17.5	15.5	17.0	16.0	15.0	15.5
13	27.0	25.5	26.0	21.5	19.5	20.5	18.5	16.0	17.5	15.0	14.0	14.5
14	27.0	25.5	26.5	21.0	19.5	20.0	19.0	16.0	17.5	14.0	13.5	14.0
15	27.0	26.0	26.5	21.5	19.0	20.0	16.0	12.5	13.5	13.5	13.0	13.5
16	27.0	25.5	26.0	21.0	19.5	20.0	13.0	12.5	13.0	14.0	12.5	13.0
17	25.5	24.0	24.5	22.0	19.5	21.0	13.5	12.5	13.0	14.5	13.5	13.5
18	26.0	24.0	25.0	22.0	20.5	21.5	13.5	12.5	13.0	17.0	14.5	15.5
19	26.5	22.5	25.0	22.5	19.5	21.5	13.5	13.0	13.0	17.5	15.5	16.5
20	27.0	23.5	25.5	19.5	19.0	19.0	15.5	14.0	14.5	17.5	15.0	16.5
21	26.0	24.5	25.0	20.5	18.5	19.0	16.5	15.5	15.5	16.0	15.0	15.5
22	26.5	24.5	25.5	20.0	18.5	19.0	18.0	16.5	17.0	16.0	15.0	15.5
23	26.0	24.5	25.5	19.0	16.5	18.0	19.5	17.5	18.5	16.5	15.0	15.5
24	26.0	24.5	25.5	17.5	17.0	17.0	19.0	17.0	18.0	16.5	16.0	16.0
25	26.5	24.5	25.5	18.0	16.5	17.0	18.5	17.0	18.0	17.0	15.5	16.5
26	27.0	25.0	26.0	16.5	14.5	15.5	18.5	16.5	17.0	16.0	15.0	15.5
27	26.5	25.5	26.0	15.0	13.5	14.0	18.5	16.0	17.5	16.5	15.0	15.5
28	26.5	25.5	26.0	14.0	12.5	13.0	19.0	17.5	18.5	16.5	15.0	16.0
29	26.5	25.0	26.0	15.0	12.5	14.0	21.5	18.5	19.5	16.5	15.0	15.5
30	27.0	25.5	26.0	15.5	14.5	15.0	20.0	18.5	19.5	16.0	15.0	15.0
31	26.5	25.5	26.0	---	---	---	21.0	19.5	20.5	16.0	14.5	15.0
MONTH	28.0	22.5	26.0	26.0	12.5	19.5	21.5	12.5	16.5	20.5	12.5	16.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	16.0	15.0	15.5	18.0	15.5	16.5	22.5	21.5	21.5	23.5	23.0	23.0
2	16.0	14.5	15.5	18.5	18.0	18.0	22.5	20.5	21.0	23.5	22.5	23.0
3	17.5	15.5	16.5	19.0	18.0	18.5	21.0	19.5	20.5	24.0	22.0	23.0
4	18.5	16.5	17.0	18.5	18.0	18.5	19.5	18.0	18.5	25.0	22.5	23.5
5	18.0	16.0	17.0	18.5	17.5	18.0	19.5	18.0	18.5	24.0	23.5	23.5
6	17.5	16.5	17.0	18.5	17.5	17.5	20.0	18.5	19.0	24.0	23.0	23.5
7	18.0	16.5	17.0	18.0	17.0	17.5	19.5	19.0	19.0	25.5	23.0	24.0
8	18.0	16.5	17.0	18.0	17.5	18.0	19.5	18.5	19.0	25.5	24.0	25.0
9	17.5	16.0	17.0	18.5	17.5	18.0	21.0	19.0	19.5	26.0	25.0	25.5
10	18.0	16.5	17.5	20.0	18.5	19.0	20.5	19.0	19.5	25.5	24.0	24.5
11	18.0	17.0	17.5	19.5	19.0	19.0	20.5	19.5	20.0	24.5	23.5	24.0
12	17.5	16.5	17.0	19.0	17.5	18.5	22.5	20.0	21.0	25.0	24.0	24.5
13	18.0	16.5	17.0	18.0	15.0	16.5	22.0	20.5	21.0	25.5	24.0	24.5
14	17.5	16.5	17.0	17.5	15.0	16.0	21.5	21.0	21.0	26.0	24.5	25.0
15	18.5	16.5	17.5	16.0	14.5	15.0	21.5	20.5	21.0	26.5	24.5	25.5
16	18.5	17.0	18.0	17.0	15.0	15.5	23.0	20.5	21.0	27.0	25.0	25.5
17	18.0	17.0	17.5	19.0	16.5	17.5	21.0	20.0	20.5	26.5	25.0	25.5
18	17.5	16.0	16.5	18.5	17.0	17.5	22.0	20.0	20.5	27.0	25.0	26.0
19	17.0	16.0	16.5	20.0	17.0	19.0	21.5	20.5	21.0	27.0	25.0	25.5
20	17.5	16.5	17.0	20.0	18.5	19.0	23.0	21.0	21.5	28.0	25.0	26.0
21	19.5	17.0	18.0	19.5	19.0	19.0	22.0	21.0	21.5	27.0	25.0	26.0
22	20.0	17.0	18.0	21.0	18.5	19.5	24.0	21.0	21.5	27.0	25.5	26.0
23	20.5	17.5	18.5	18.5	18.0	18.5	21.5	21.0	21.5	26.0	25.0	25.5
24	19.0	18.0	18.5	19.0	18.0	18.5	21.5	21.0	21.0	25.0	23.0	23.5
25	19.5	18.0	19.0	20.0	18.5	19.0	23.5	21.0	22.0	24.0	23.0	23.5
26	19.5	18.5	19.0	22.0	19.0	20.0	25.0	22.0	23.5	24.5	23.5	24.0
27	18.5	17.5	18.0	22.0	20.0	21.0	24.0	22.5	23.5	24.5	24.0	24.5
28	17.5	16.5	17.0	21.0	20.0	20.5	24.0	23.5	23.5	25.5	24.5	25.0
29	---	---	---	22.0	20.0	21.0	24.0	23.5	23.5	---	---	---
30	---	---	---	23.0	21.0	21.5	24.5	22.0	23.0	---	---	---
31	---	---	---	23.0	21.5	22.0	---	---	---	---	---	---
MONTH	20.5	14.5	17.5	23.0	14.5	18.5	25.0	18.0	21.0	28.0	22.0	24.5

## SAN JACINTO RIVER BASIN

08074710 BUFFALO BAYOU AT TURNING BASIN, HOUSTON, TX--Continued

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	27.5	25.5	26.0	29.5	28.5	29.0	33.5	30.5	31.5	32.0	29.0	30.0
2	28.0	25.5	26.5	30.0	28.5	29.0	33.0	30.0	31.5	32.5	29.5	31.0
3	27.5	26.0	26.5	30.0	28.5	29.0	32.5	30.5	31.5	32.0	30.0	31.0
4	27.5	26.0	26.5	29.5	28.5	29.0	33.0	30.5	31.5	32.0	29.5	30.5
5	30.0	27.0	28.0	30.0	28.5	29.0	32.5	30.5	31.5	32.0	29.0	30.5
6	29.0	27.5	28.0	30.0	28.5	29.0	33.0	30.5	31.5	31.5	29.5	30.5
7	29.5	28.0	28.5	30.5	29.0	29.5	33.5	31.0	32.0	32.0	29.5	30.5
8	29.0	28.5	28.5	30.5	29.0	29.5	33.5	31.0	32.0	32.5	29.5	30.5
9	29.5	28.5	29.0	31.0	29.0	29.5	32.5	31.0	32.0	31.5	30.0	30.5
10	30.0	28.5	29.0	32.0	29.0	30.0	34.0	31.0	32.0	32.0	30.0	31.0
11	29.0	26.5	28.0	32.0	29.5	30.5	33.0	31.0	32.0	32.0	30.0	30.5
12	27.5	26.0	27.0	31.5	29.5	30.5	33.5	30.5	32.0	30.5	29.5	30.0
13	28.5	26.5	27.5	32.0	29.5	30.5	34.0	31.0	32.5	30.5	28.5	29.5
14	30.5	27.0	28.5	31.5	29.5	30.5	33.5	31.0	32.0	30.0	28.0	29.0
15	30.5	28.0	29.0	30.0	29.0	29.5	34.0	30.5	32.0	29.5	26.5	28.0
16	30.0	28.0	29.0	30.5	29.0	29.5	33.5	31.0	32.0	29.0	26.0	27.5
17	28.5	28.0	28.5	31.5	29.0	29.5	34.0	31.0	32.0	29.5	26.0	28.0
18	28.5	28.0	28.0	31.5	29.5	30.0	34.0	31.0	32.0	29.0	27.0	28.5
19	28.0	27.0	27.5	31.0	29.5	30.0	34.0	31.0	32.0	30.0	28.0	29.0
20	27.0	25.5	26.0	31.5	29.5	30.0	33.5	31.0	32.0	29.0	28.0	28.5
21	27.0	26.0	26.5	31.5	29.0	30.0	33.0	31.0	32.0	30.5	28.5	29.0
22	28.0	27.0	27.5	32.0	29.5	30.5	33.0	31.0	32.0	30.5	28.5	29.5
23	30.0	27.0	28.5	32.0	30.0	30.5	33.0	31.0	32.0	31.0	29.0	30.0
24	30.0	28.0	28.5	32.0	30.0	31.0	33.0	31.0	31.5	32.0	29.0	30.5
25	30.5	28.5	29.0	33.0	30.5	31.5	33.0	30.5	32.0	31.0	29.0	30.0
26	29.0	26.0	27.0	34.0	30.5	32.0	32.5	30.5	31.5	31.5	29.0	30.0
27	28.5	26.5	27.5	33.5	30.5	32.0	31.5	30.5	31.0	29.5	27.5	28.5
28	30.0	27.5	28.5	33.0	31.0	31.5	30.5	29.0	30.0	29.5	26.0	28.0
29	30.0	28.5	29.0	33.0	30.5	31.5	30.0	28.0	29.0	29.5	27.0	28.0
30	30.0	28.5	29.0	34.0	30.5	32.0	31.0	28.0	29.5	30.0	27.5	28.5
31	---	---	---	32.5	30.5	31.5	30.5	28.5	29.5	---	---	---
MONTH	30.5	25.5	28.0	34.0	28.5	30.0	34.0	28.0	31.5	32.5	26.0	29.5
YEAR	34.0	12.5	23.0									

## OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	7.9	3.9	6.1	---	---	---	---	---	---	5.5	4.6	5.1
2	6.7	4.6	5.4	---	---	---	7.0	5.3	6.5	6.0	4.6	5.1
3	6.0	3.4	4.2	---	---	---	6.6	5.9	6.3	5.9	4.7	5.4
4	6.5	3.7	4.5	---	---	---	6.3	5.9	6.0	5.6	4.2	4.9
5	8.2	4.7	6.3	---	---	---	10.0	9.3	9.5	5.1	4.3	4.7
6	7.9	4.9	6.4	---	---	---	10.3	8.7	9.5	6.1	4.3	5.3
7	9.2	2.7	5.3	---	---	---	6.3	5.9	6.0	8.5	5.8	7.2
8	5.1	3.1	4.5	---	---	---	6.4	5.8	6.2	8.5	7.8	8.2
9	---	---	---	---	---	---	8.6	5.3	7.3	8.2	7.3	7.8
10	7.5	4.1	5.2	---	---	---	10.8	6.6	8.1	7.8	7.2	7.5
11	8.7	3.5	5.0	---	---	---	9.0	7.6	8.3	7.8	6.1	6.8
12	7.5	3.1	5.3	---	---	---	10.2	7.8	9.8	6.4	5.9	6.1
13	5.8	3.4	4.6	---	---	---	7.8	6.8	7.2	7.5	6.2	6.8
14	---	---	---	---	---	---	7.9	5.7	7.0	8.2	7.4	7.8
15	---	---	---	---	---	---	8.9	6.7	8.4	8.1	7.2	7.8
16	---	---	---	---	---	---	8.8	7.5	8.2	8.2	7.5	7.9
17	---	---	---	---	---	---	8.7	7.7	8.3	8.2	7.3	7.7
18	---	---	---	---	---	---	9.3	8.4	8.9	8.2	7.4	7.7
19	---	---	---	---	---	---	8.9	8.7	8.9	7.5	6.1	6.8
20	---	---	---	---	---	---	8.0	7.5	7.8	8.0	5.1	6.1
21	---	---	---	---	---	---	7.8	6.3	7.1	7.7	7.0	7.4
22	---	---	---	---	---	---	6.7	5.4	5.9	9.2	6.9	7.5
23	---	---	---	---	---	---	6.2	4.4	5.2	7.8	7.3	7.5
24	---	---	---	---	---	---	5.4	4.4	4.8	7.4	6.9	7.2
25	---	---	---	---	---	---	5.7	4.7	5.1	8.5	6.1	6.9
26	---	---	---	---	---	---	5.6	4.9	5.2	6.8	5.9	6.3
27	---	---	---	---	---	---	6.3	4.5	5.4	6.6	5.4	6.2
28	---	---	---	---	---	---	6.1	5.4	5.8	6.8	5.6	6.5
29	---	---	---	---	---	---	6.5	5.4	5.9	7.5	6.4	7.1
30	---	---	---	---	---	---	5.7	5.2	5.5	7.5	7.1	7.3
31	---	---	---	---	---	---	5.7	4.5	5.3	8.0	7.1	7.5
MONTH	9.2	2.7	5.2	---	---	---	10.8	4.4	7.0	9.2	4.2	6.8

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OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	8.1	7.2	7.6	---	---	---	5.8	2.4	4.2	5.3	1.7	3.7
2	7.8	5.1	6.0	5.7	4.7	5.0	5.8	4.6	5.2	4.4	2.5	3.5
3	5.7	5.1	5.4	8.9	4.7	5.5	5.6	4.4	5.0	6.5	2.4	3.9
4	5.6	2.8	4.6	5.4	4.8	5.1	6.3	5.2	5.8	6.8	3.6	4.5
5	5.8	4.0	5.2	5.5	4.8	5.0	6.3	5.2	5.9	4.5	2.9	3.4
6	6.0	4.7	5.6	6.9	4.3	5.2	5.7	4.6	5.0	5.4	3.3	4.0
7	5.5	4.8	5.1	6.9	4.6	5.3	5.8	4.3	5.2	5.7	3.3	4.4
8	5.7	4.8	5.4	5.4	4.5	5.0	6.3	5.6	5.9	6.2	3.2	4.0
9	8.0	5.0	5.7	7.0	4.9	5.4	5.9	4.6	5.4	5.7	3.2	4.1
10	5.8	4.3	5.0	9.6	4.4	5.5	6.3	4.6	5.3	5.3	3.0	3.9
11	6.0	4.4	4.7	7.1	4.8	5.3	6.3	5.3	5.7	6.8	3.3	4.9
12	4.9	4.5	4.7	5.5	4.5	5.1	6.4	5.5	5.8	5.8	3.3	4.9
13	7.3	4.5	5.3	4.9	3.9	4.3	6.0	5.5	5.8	4.8	3.7	4.5
14	6.3	5.6	6.0	4.5	3.7	4.1	6.1	5.1	5.5	6.6	3.9	5.0
15	7.3	6.2	6.5	6.7	3.3	4.8	5.4	3.2	4.3	6.6	3.9	4.8
16	6.6	6.1	6.3	6.3	4.7	5.7	4.9	2.6	3.4	5.1	4.0	4.5
17	7.5	4.9	5.8	5.6	4.3	5.0	6.1	2.8	4.5	6.4	3.8	4.7
18	6.7	5.3	5.6	5.0	4.4	4.6	6.1	4.7	5.4	4.7	3.9	4.4
19	6.1	5.3	5.7	6.6	4.4	5.3	6.0	5.0	5.6	4.3	2.1	2.9
20	5.6	5.0	5.3	5.3	4.2	4.7	5.7	4.9	5.3	3.5	1.3	2.2
21	5.8	4.5	5.0	---	---	---	5.3	4.5	5.0	3.7	1.3	2.4
22	5.3	4.5	4.9	5.3	3.7	4.2	5.9	4.9	5.5	5.9	1.7	3.6
23	---	---	---	6.3	4.8	5.4	5.8	4.8	5.3	3.5	2.7	3.2
24	9.9	4.7	5.4	5.6	4.9	5.3	6.1	4.8	5.3	6.2	2.5	3.9
25	5.7	4.4	5.0	6.9	4.1	5.5	5.9	4.4	5.3	4.4	2.3	3.0
26	5.3	4.2	4.8	6.7	4.7	5.7	4.6	1.5	3.3	4.9	2.3	3.5
27	5.2	3.2	4.0	5.7	4.0	4.7	2.1	.7	1.4	3.6	2.4	3.0
28	5.5	3.3	4.2	5.0	3.3	4.2	3.2	.9	2.6	3.3	2.1	2.6
29	---	---	---	3.7	2.8	3.2	5.3	1.9	3.4	---	---	---
30	---	---	---	4.2	2.5	2.8	4.8	1.7	2.8	---	---	---
31	---	---	---	3.3	2.3	2.6	---	---	---	---	---	---
MONTH	9.9	2.8	5.4	9.6	2.3	4.8	6.4	.7	4.8	6.8	1.3	3.8
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	3.6	2.6	3.1	5.9	2.8	3.9	4.4	.9	1.8	3.4	1.1	2.1
2	4.7	1.9	3.2	3.9	2.9	3.4	4.8	.8	2.2	4.9	2.6	3.5
3	5.8	3.5	4.2	4.2	3.5	3.9	5.7	1.8	3.8	4.5	2.9	3.5
4	6.1	4.3	5.1	5.2	3.5	4.0	4.6	1.5	2.9	4.9	3.0	4.1
5	5.4	3.2	3.8	5.2	3.3	4.1	5.3	1.9	3.7	5.7	2.9	4.4
6	4.6	3.7	4.2	4.6	3.1	3.8	5.8	3.1	4.3	6.6	4.1	5.2
7	5.5	3.8	4.6	5.7	2.7	3.5	5.8	4.2	5.1	6.3	4.2	5.1
8	5.0	3.5	4.0	3.3	2.1	2.7	5.3	2.4	4.5	7.6	3.1	5.1
9	4.9	3.3	4.3	4.0	2.3	3.3	5.5	3.8	4.9	---	---	---
10	5.8	3.1	4.4	4.8	2.1	2.9	7.7	2.8	4.9	6.0	2.1	4.0
11	2.6	.7	1.3	6.2	1.8	3.1	7.2	3.2	5.2	4.5	2.2	3.1
12	2.4	.7	1.5	4.1	2.4	3.2	8.6	3.5	5.4	3.5	2.1	2.7
13	2.7	.7	1.8	5.0	2.4	3.4	6.3	4.5	5.3	4.9	2.1	3.0
14	3.5	1.2	1.7	5.8	2.3	3.0	6.8	2.7	4.9	3.4	2.0	2.8
15	4.5	.8	1.9	3.2	1.8	2.3	6.5	3.6	5.0	3.0	1.7	2.1
16	3.6	1.5	2.3	3.9	1.4	2.4	6.7	3.3	4.8	4.1	1.9	2.7
17	2.4	.8	1.5	4.4	2.1	3.0	6.9	4.2	5.7	4.5	2.3	3.2
18	2.8	.7	1.7	4.0	2.0	3.2	6.9	3.8	5.2	4.1	2.6	3.3
19	2.4	.9	1.6	4.7	1.8	2.7	5.9	3.7	4.9	3.6	2.1	2.8
20	4.9	2.3	4.2	4.2	1.4	2.8	6.5	3.4	4.8	4.1	2.0	2.4
21	4.7	4.1	4.3	3.8	2.0	2.7	6.7	3.4	5.0	2.8	1.8	2.3
22	4.4	2.5	3.8	4.0	1.9	2.9	8.8	3.2	5.1	3.8	2.3	3.0
23	5.6	2.5	3.7	4.8	1.4	2.8	6.9	3.7	5.1	4.4	1.2	2.7
24	5.7	2.7	3.4	4.2	1.7	2.9	5.7	3.9	4.6	4.6	1.8	2.8
25	5.2	1.7	3.3	5.9	2.1	3.5	7.0	4.2	5.6	4.6	2.4	3.2
26	5.4	1.7	4.1	9.0	1.8	4.5	6.9	4.0	5.1	3.6	1.9	2.5
27	4.3	3.2	3.8	7.0	2.4	4.0	5.3	2.0	3.6	3.0	1.6	2.2
28	3.9	2.2	3.2	4.2	1.8	2.9	2.9	.9	1.8	4.5	1.6	2.4
29	5.0	1.8	3.2	4.4	.8	1.7	3.0	1.3	2.0	4.2	2.0	3.1
30	3.7	2.9	3.2	3.8	.8	2.2	3.3	1.8	2.4	4.2	1.4	2.7
31	---	---	---	4.9	.9	2.2	3.4	1.8	2.6	---	---	---
MONTH	6.1	.7	3.2	9.0	.8	3.1	8.8	.8	4.3	7.6	1.1	3.2
YEAR	10.8	.7	4.7									



## SAN JACINTO RIVER BASIN

08074800 KEEGANS BAYOU AT ROARK ROAD NEAR HOUSTON, TX  
(Flood-hydrograph Partial-record Station)

LOCATION.--Lat 29°39'23", long 95°33'43", Harris County, Hydrologic Unit 12040104, on right bank at upstream side of bridge on Roark Road in southwest Houston.

DRAINAGE AREA.--12.7 mi<sup>2</sup>. Oct. 1, 1976, to Dec. 31, 1977, 12.0 mi<sup>2</sup>; August 1964 to Sept. 30, 1976, 11.6 mi<sup>2</sup>. Drainage area changes were the result of ditch relocations or extensions.

PERIOD OF RECORD.--August 1964 to September 1981 (daily mean discharges). October 1981 to September 1992 (annual maximum discharge). October 1992 to current year (peak discharges greater than base discharge or annual maximum).

REVISED RECORDS.--WDR TX-74-1: Drainage area. WDR-77-2: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is National Geodetic Vertical Datum of 1929, 1957 adjustment; unadjusted for land-surface subsidence.

REMARKS.--Records good. Recording rain gage at station. Elevation telemeter at station.

AVERAGE DISCHARGE.--17 years, (water years 1965-81) 12.3 ft<sup>3</sup>/s, (8,910 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,880 ft<sup>3</sup>/s Mar. 4, 1992, elevation, 75.91 ft; no flow for many days.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges above 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)
Nov. 20	0015	1,160	69.57	May 31	0315	1,070	69.65
Feb. 25	1230	1,320	70.20	June 10	1530	1,110	69.74
Mar. 1	1915	3,000	73.16	June 20	0500	1,670	70.88

## 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. 21	1700	7,920	37.62	Apr. 07	1700	9,680	39.27
Jan. 09	1730	7,770	37.47	June 10	1730	9,060	38.71
Mar. 01	2030	14,000	42.76	June 19	2330	16,000	44.21
Mar. 22	2200	8,450	38.13				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	105	1430	111	103	149	5560	109	184	182	145	131	143
2	103	195	106	106	132	2330	107	701	127	137	123	120
3	103	120	107	266	124	406	1140	171	116	130	182	113
4	105	112	107	580	121	222	3030	109	108	122	130	148
5	109	109	112	168	324	160	410	618	114	121	114	104
6	114	109	118	123	177	135	204	842	110	122	116	106
7	111	108	118	2910	135	128	2230	173	111	121	111	106
8	104	106	111	527	128	123	867	121	107	117	114	105
9	104	111	1470	1880	134	125	254	114	108	117	120	103
10	106	338	192	813	1000	117	161	693	1740	115	136	102
11	105	256	130	271	257	116	131	152	1360	144	111	191
12	106	767	119	184	164	474	133	118	557	119	109	116
13	106	160	110	149	135	178	122	108	167	113	111	111
14	104	110	1100	129	126	123	207	107	137	115	110	283
15	104	105	1770	124	212	372	179	107	133	183	111	144
16	294	105	341	121	1280	363	116	104	152	127	116	114
17	170	106	186	118	240	144	110	113	183	118	114	109
18	116	105	146	254	162	120	108	403	511	119	110	111
19	117	1210	134	263	141	118	108	173	3750	122	114	149
20	111	2580	160	967	139	523	109	106	7250	128	119	340
21	110	1600	139	268	133	156	107	102	962	117	121	226
22	109	537	118	169	137	1480	104	103	498	115	155	115
23	110	181	136	146	128	1600	103	1010	463	116	140	105
24	108	134	121	169	120	314	105	565	378	113	120	105
25	109	118	106	132	2400	198	229	574	502	117	111	103
26	110	115	103	117	499	151	209	294	1870	117	112	106
27	107	112	106	116	216	128	107	178	884	114	967	99
28	105	110	108	114	165	121	106	208	502	173	365	105
29	105	115	108	1040	---	121	476	134	236	124	148	105
30	263	123	109	303	---	127	190	816	163	181	128	96
31	178	---	109	172	---	114	---	975	---	390	379	---
TOTAL	3811	11387	8011	12802	9078	16347	11571	10176	23481	4212	5148	3983
MEAN	123	380	258	413	324	527	386	328	783	136	166	133
MAX	294	2580	1770	2910	2400	5560	3030	1010	7250	390	967	340
MIN	103	105	103	103	120	114	103	102	107	113	109	96
AC-FT	7560	22590	15890	25390	18010	32420	22950	20180	46570	8350	10210	7900

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1937 - 1993, BY WATER YEAR (WY)

	MEAN	128	154	143	175	170	122	136	172	197	125	124	157
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 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1937 - 1993

ANNUAL TOTAL	144607	120007	
ANNUAL MEAN	395	329	150
HIGHEST ANNUAL MEAN			430
LOWEST ANNUAL MEAN			15.1
HIGHEST DAILY MEAN	8890	Mar 4	7250 Jun 20
LOWEST DAILY MEAN	98	Jul 10	96 Sep 30
ANNUAL SEVEN-DAY MINIMUM	100	Jul 6	103 Sep 24
INSTANTANEOUS PEAK FLOW			16000 Jun 19
INSTANTANEOUS PEAK STAGE			44.21 Jun 19
ANNUAL RUNOFF (AC-FT)	286800	238000	29000
10 PERCENT EXCEEDS	937	727	52.13
50 PERCENT EXCEEDS	131	126	108700
90 PERCENT EXCEEDS	106	106	265
			50
			5.2

SAN JACINTO RIVER BASIN  
08075000 BRAYS 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 1992 TO SEPTEMBER 1993

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, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	
FEB 09...	1208	136	790	8.7	20.0	15	5.8	14.8	162	1.0	0.9	K1	
JUN 03...	1025	115	779	8.2	26.0	20	11	10.4	129	0.4	0.3	K8	
AUG 24...	1104	102	737	8.4	30.0	17	39	10.1	134	1.2	1.0	44	
DATE		STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
FEB 09...	K1	170	0	52	10	97	3	7.6	200	48	93		0.50
JUN 03...	K4	170	0	51	10	97	3	5.9	210	48	85		0.60
AUG 24...	92	140	0	42	8.5	98	4	7.2	180	45	91		0.60
DATE		SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)
FEB 09...	20		481	14	5	9	6.32	6.32	0.180	6.50	6.50	0.580	0.82
JUN 03...	20		469	17	21	0	5.35	5.35	0.150	5.50	5.50	0.750	0.65
AUG 24...	21		454	95	15	80	6.10	6.10	0.100	6.20	6.20	0.380	0.52
DATE		NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	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)
FEB 09...	1.4	1.20	1.30	4.0	6.9	3	90	<0.5	<1.0	<5	<3	<10	
JUN 03...	1.4	0.970	0.950	2.9	6.5	3	97	<0.5	<1.0	<5	<3	10	
AUG 24...	0.90	0.960	1.00	3.1	6.9	3	87	<0.5	1.0	<5	<3	<10	
DATE		IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	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 09...	13	20	16	19	<0.1	10	<10	1	<1.0	430	<6	30	
JUN 03...	22	<10	18	19	<0.1	10	<10	1	<1.0	410	<6	24	
AUG 24...	14	<10	19	5	<0.1	10	<10	1	2.0	390	8	15	
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 09...	<0.10	0.1	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	0.30	<0.10		
JUN 03...	<0.10	0.1	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	0.10	<0.10		
AUG 24...	<0.10	<0.1	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	0.10	<0.10		

## SAN JACINTO RIVER BASIN

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08075400 SIMS BAYOU AT HIRAM CLARKE STREET, HOUSTON, TX  
(Flood-hydrograph partial-record station)

LOCATION.--Lat 29°37'07", long 95°26'45", Harris County, Hydrologic Unit 12040104, on right bank at downstream side of bridge on Hiram Clarke in southwest Houston, 12.7 mi upstream from gage Sims Bayou at Houston, and 19.7 mi upstream from mouth.

DRAINAGE AREA.--20.2 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1965 to September 1978 and October 1980 to September 1991 (daily mean discharge). Dec. 6, 1978 to Aug. 31, 1979 (discharge measurements and supplemental peak discharges only). October 1991 to September 1992 (annual maximum). October 1992 to current year (peak discharges greater than base discharge or annual maximum).

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.

REMARKS.--Records fair. Elevation telemeter at station.

AVERAGE DISCHARGE.--24 years (water years 1966-78, 1981-91), 30.3 ft<sup>3</sup>/s (21,950 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,290 ft<sup>3</sup>/s Feb. 22, 1992 (elevation, 53.08 ft.); maximum elevation, 57.12 ft June 15, 1976, occurred prior to 1978 channel rectification; minimum daily discharge, 1.5 ft<sup>3</sup>/s July 26, 1965.

EXTREMES 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)
Nov. 21	1600	1,400	43.83	Apr. 07	1800	1,400	43.62
Jan. 07	1115	1,930	45.37	June 19	2000	4,440	50.28
Jan. 09	1745	2,880	47.47	June 20	0300	4,540	50.45
Mar. 01	2100	2,710	47.01	June 26	1700	2,110	45.60
Apr. 04	0045	2,440	46.41				

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.--Records good, including those for estimated daily discharges. 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)
Jan. 01	1430	2,810	21.76	Apr. 04	0830	3,230	22.68
Mar. 01	2300	3,620	23.49	June 20	0330	4,180	24.59

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	523	41	40	65	1450	47	58	116	74	45	59
2	29	116	40	39	60	1960	47	559	56	60	45	47
3	27	41	41	43	55	381	187	139	43	55	51	46
4	28	38	40	75	51	131	2370	51	44	51	63	41
5	29	33	41	57	130	79	530	129	42	47	49	43
6	28	28	36	45	120	66	146	784	41	50	46	40
7	26	31	39	1580	68	53	582	223	40	51	42	44
8	28	34	41	666	50	47	970	69	43	51	45	47
9	27	35	566	766	47	48	198	48	39	48	49	54
10	28	68	163	1040	281	45	91	593	72	47	47	49
11	28	91	66	237	140	41	63	116	460	45	46	47
12	28	229	47	120	77	130	54	54	284	46	47	75
13	e28	71	44	81	59	95	52	43	115	46	47	51
14	e29	40	365	60	48	45	48	41	66	45	45	169
15	30	39	1380	52	52	54	47	43	45	166	49	107
16	70	38	410	48	414	110	46	42	43	103	46	48
17	54	39	141	45	104	64	45	41	89	57	49	45
18	39	36	80	100	60	50	43	48	237	49	51	46
19	36	160	61	174	51	47	43	48	989	121	46	56
20	34	1290	60	537	49	181	42	39	3610	91	46	53
21	36	876	62	345	49	70	41	38	1450	53	65	52
22	28	809	53	128	41	230	37	38	729	48	47	49
23	33	136	54	81	42	1210	38	208	341	46	47	49
24	30	71	65	103	42	294	38	409	149	46	48	47
25	31	53	48	68	479	130	71	88	89	42	47	45
26	29	44	44	54	428	85	220	72	1220	40	47	45
27	33	41	41	46	83	64	47	58	905	46	71	45
28	34	39	40	49	65	55	40	91	458	50	145	42
29	36	39	43	570	---	52	116	58	172	51	72	41
30	38	40	42	264	---	54	81	115	91	49	48	44
31	34	---	40	105	---	52	---	545	---	48	51	---
TOTAL	1016	5128	4234	7618	3210	7373	6380	4888	12078	1822	1642	1626
MEAN	32.8	171	137	246	115	238	213	158	403	58.8	53.0	54.2
MAX	70	1290	1380	1580	479	1960	2370	784	3610	166	145	169
MIN	26	28	36	39	41	41	37	38	39	40	42	40
AC-FT	2020	10170	8400	15110	6370	14620	12650	9700	23960	3610	3260	3230

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 1993, BY WATER YEAR (WY)

	70.6	84.3	88.5	114	126	76.6	87.3	108	148	71.0	72.9	91.6
MEAN	70.6	84.3	88.5	114	126	76.6	87.3	108	148	71.0	72.9	91.6
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 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1953 - 1993

ANNUAL TOTAL	66983	57015	
ANNUAL MEAN	183	156	
HIGHEST ANNUAL MEAN			94.6
LOWEST ANNUAL MEAN			200
HIGHEST DAILY MEAN	2730	3610	8290
LOWEST DAILY MEAN	26	26	9.26
ANNUAL SEVEN-DAY MINIMUM	28	28	1.7
INSTANTANEOUS PEAK FLOW		4180	11400
INSTANTANEOUS PEAK STAGE		24.59	33.23
ANNUAL RUNOFF (AC-FT)	132900	113100	68550
10 PERCENT EXCEEDS	535	392	144
50 PERCENT EXCEEDS	56	50	37
90 PERCENT EXCEEDS	31	38	8.0



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 1992 TO SEPTEMBER 1993

		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, FECAI, 0.7 UM-MF (COLS./100 ML)
FEB 09...	0910	56	1130	7.9	17.0	40	31	6.9	71	4.5	2.4	4100
JUN 03...	0828	44	962	7.8	27.0	30	27	5.1	64	1.9	1.7	20
AUG 24...	0922	49	1020	7.9	30.5	22	22	4.6	62	4.9	1.8	6000
DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
FEB 09...	150	210	0	59	14	160	5	5.9	210	200	110	0.40
JUN 03...	300	190	13	55	12	130	4	5.2	170	150	97	0.40
AUG 24...	230	160	0	48	9.1	150	5	8.2	160	140	130	0.60
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, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)
FEB 09...	15	715	75	14	61	4.70	4.70	0.200	4.90	4.90	0.660	1.7
JUN 03...	15	590	44	23	21	4.01	4.01	0.090	4.10	4.10	0.200	0.70
AUG 24...	16	637	56	10	46	6.50	6.50	0.500	7.00	7.00	0.660	0.64
DATE	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	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)
FEB 09...	2.4	0.880	0.840	2.6	9.7	3	130	<0.5	<1.0	<5	<3	<10
JUN 03...	0.90	0.460	0.410	1.3	9.9	3	150	<0.5	1.0	<5	<3	320
AUG 24...	1.3	0.750	0.710	2.2	7.2	3	97	<0.5	<1.0	<5	<3	<10
DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	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 09...	17	<10	12	160	<0.1	<10	<10	<1	<1.0	410	<6	16
JUN 03...	11	<10	12	170	<0.1	<10	<10	<1	<1.0	390	<6	13
AUG 24...	11	<10	15	70	<0.1	<10	<10	<1	<1.0	360	<6	14
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 09...	<0.10	0.1	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10	
JUN 03...	<0.10	<0.1	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10	
AUG 24...	<0.10	0.1	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10	

## SAN JACINTO RIVER BASIN

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.--April 1964 to September 1966, daily mean discharge. October 1967 to September 1982, daily mean discharges greater than base discharge or flood-hydrograph partial-record station. October 1982 to current year, stages only.

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. June 1964 to January 1965, auxiliary nonrecording gage 0.8 mi downstream at same datum. January 1965 to September 1982, auxiliary water-stage recorder 0.8 mi downstream at same datum.

REMARKS.--Records good. Low stages are affected by tides. Rises are occasionally 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, 12.97 ft Mar. 1 at 1400 hours; minimum, 3.64 ft Jan. 1.

## GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	6.31	4.55	9.70	4.43	---	---	4.30	3.64	5.01	3.76	12.97	4.64
2	6.54	5.08	5.40	4.35	---	---	5.25	3.65	4.64	3.82	8.50	5.15
3	6.92	5.31	6.15	3.95	---	---	5.66	4.15	5.65	3.85	5.45	4.06
4	6.76	5.16	3.92	3.78	---	---	5.44	4.01	5.30	---	4.93	3.87
5	6.45	4.50	4.30	3.74	---	---	5.06	3.82	5.91	4.11	4.35	3.74
6	5.84	4.35	5.23	3.91	---	---	5.35	3.74	4.55	3.85	4.59	3.71
7	6.35	4.15	5.82	4.17	---	---	12.73	5.30	4.65	3.75	4.41	3.70
8	5.30	3.90	6.30	4.47	---	---	6.18	4.21	4.80	3.75	4.65	3.71
9	5.95	4.70	6.37	4.66	---	---	8.70	4.30	5.20	3.81	4.85	3.72
10	5.93	4.52	6.74	4.45	---	---	6.80	4.19	5.85	4.43	4.95	3.70
11	5.68	3.77	6.79	4.55	---	---	5.20	3.97	5.40	3.94	5.90	3.68
12	5.61	4.10	6.00	4.15	---	---	5.15	3.98	4.45	3.74	5.79	3.97
13	5.64	4.19	5.20	3.87	---	---	5.23	3.85	5.05	3.69	3.95	3.75
14	5.98	4.55	5.53	3.85	---	---	5.60	3.75	5.76	3.66	4.80	3.69
15	6.03	4.30	5.37	3.85	---	---	5.65	4.02	6.19	4.58	6.36	3.90
16	6.51	4.24	5.44	3.92	5.60	4.40	5.50	3.89	5.87	4.06	7.41	4.53
17	5.96	3.99	5.68	4.60	5.20	3.98	5.50	3.72	4.90	3.78	4.85	3.72
18	5.91	3.84	5.90	4.67	5.75	4.13	5.55	3.77	4.81	3.73	5.78	3.95
19	5.89	4.03	8.72	5.20	6.10	4.43	5.65	3.83	5.65	3.90	5.85	4.47
20	6.28	4.59	10.84	6.49	5.43	3.90	6.95	4.75	5.10	3.77	6.30	4.16
21	6.11	4.94	10.55	4.55	5.15	3.80	5.23	4.02	5.50	3.90	5.08	3.97
22	6.57	4.85	8.15	4.07	5.22	3.80	5.35	3.87	4.90	3.80	9.23	4.16
23	6.33	5.00	6.25	3.96	5.42	3.75	5.40	4.00	5.55	4.45	7.50	4.41
24	5.79	4.13	6.70	4.53	5.24	3.83	5.30	3.95	6.26	4.44	5.16	4.05
25	5.58	3.75	5.53	3.76	5.85	4.00	5.25	4.01	7.88	4.85	5.41	3.91
26	5.45	3.80	---	4.64	5.15	3.73	4.75	3.74	4.70	4.05	4.93	3.76
27	5.45	3.70	---	4.64	5.66	3.98	5.26	3.72	5.48	3.79	5.35	3.74
28	5.55	3.74	---	4.64	5.26	3.93	5.24	4.10	5.85	4.11	5.45	3.80
29	5.70	4.08	---	4.64	5.33	4.08	7.10	4.75	---	---	5.73	3.73
30	5.76	3.86	---	4.64	5.31	4.24	4.98	4.10	---	---	5.68	3.80
31	5.73	4.20	---	---	4.86	3.94	4.96	3.82	---	---	4.89	3.70
MONTH	6.92	3.70	---	3.74	---	---	12.73	3.64	7.88	---	12.97	3.68

SAN JACINTO RIVER BASIN

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08075650 BERRY BAYOU AT FOREST OAKS STREET, HOUSTON, TX--Continued

DAY	GAGE HEIGHT, FEET, WATER YEAR		OCTOBER 1992		TO SEPTEMBER 1993							
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	3.93	3.68	6.30	4.53	5.49	3.89	---	---	5.60	4.12	5.29	3.97
2	4.85	3.70	---	---	5.77	3.87	---	---	5.66	4.10	5.44	4.14
3	9.55	4.27	---	---	5.85	3.90	---	---	5.60	4.15	5.39	4.03
4	8.94	4.55	5.60	3.89	5.81	3.81	---	---	5.37	4.12	5.17	4.00
5	4.53	4.05	6.53	4.44	5.75	3.78	---	---	5.38	4.13	5.38	4.30
6	6.08	3.90	6.65	4.95	5.86	3.78	---	---	5.52	4.38	5.51	3.99
7	12.68	4.55	6.40	4.36	6.20	4.25	---	---	5.34	4.46	5.43	3.95
8	6.45	4.50	6.80	4.57	6.60	4.57	---	---	5.35	4.31	5.52	3.99
9	5.27	3.93	6.93	4.95	6.43	4.87	---	---	5.31	4.13	5.56	3.98
10	5.65	3.82	6.90	4.36	6.15	4.67	---	---	5.40	4.15	5.39	3.98
11	5.92	3.99	5.37	3.92	5.98	4.47	---	---	5.40	4.11	5.40	3.98
12	5.86	3.92	5.05	3.85	5.50	4.43	---	---	5.52	4.11	6.33	3.97
13	5.94	3.91	4.43	3.75	5.35	4.02	---	---	5.52	4.08	7.10	4.63
14	6.79	4.15	4.92	3.75	5.26	3.95	---	---	5.51	4.07	7.05	4.53
15	4.35	3.76	5.37	4.14	5.03	3.90	---	---	5.43	4.07	5.41	4.11
16	5.15	3.75	5.30	3.96	5.78	3.90	6.06	4.32	5.19	4.10	6.01	4.00
17	5.45	4.25	5.30	3.91	6.67	4.43	5.78	4.34	5.13	4.05	6.03	4.31
18	5.45	4.26	6.49	4.07	7.85	5.10	5.83	4.26	5.27	4.02	6.12	4.59
19	5.75	4.37	4.90	3.88	7.50	5.17	9.65	4.22	5.50	4.01	6.30	4.76
20	5.53	3.91	5.50	3.83	11.86	---	5.55	4.60	5.36	4.09	6.27	4.45
21	4.81	3.77	5.82	3.84	---	---	5.43	4.22	5.29	4.20	6.21	4.65
22	5.19	3.75	6.53	4.32	---	---	5.49	4.18	5.33	4.05	6.22	4.40
23	5.99	3.81	8.21	4.84	---	---	5.30	4.18	5.39	4.00	6.05	4.12
24	6.65	4.51	6.67	4.57	---	---	5.38	4.24	5.22	4.03	5.79	4.13
25	5.87	4.17	6.91	3.89	---	---	5.27	4.18	5.31	4.00	5.78	4.14
26	5.48	3.99	5.53	4.05	---	---	5.28	4.18	6.03	4.10	5.79	4.07
27	6.14	3.94	6.36	4.09	---	---	5.55	4.18	6.14	4.21	5.18	3.74
28	6.25	4.43	6.16	4.46	5.83	4.52	5.69	4.19	5.81	4.07	5.63	3.81
29	6.11	4.60	6.21	4.73	6.27	4.50	5.54	4.18	5.44	4.03	5.79	4.39
30	6.35	3.95	5.90	4.39	6.25	4.50	5.46	4.15	5.41	4.03	5.94	4.40
31	---	---	5.71	3.91	---	---	5.41	4.14	5.27	4.02	---	---
MONTH	12.68	3.68	---	---	---	---	---	---	6.14	4.00	7.10	3.74

## SAN JACINTO RIVER BASIN

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 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)
Mar. 1	1245	1,750	14.37	July 19	1345	1,610	14.12
Apr. 7	1530	1,420	13.78				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	151	2.2	1.2	1.7	486	2.1	11	2.4	5.9	1.8	4.3
2	1.7	3.8	2.2	.92	2.0	83	2.3	105	2.6	5.5	2.0	3.9
3	1.2	6.1	1.6	3.6	3.1	11	109	3.8	1.6	4.8	3.7	3.3
4	1.2	2.5	1.1	29	1.8	3.9	188	3.1	2.1	4.3	4.0	5.8
5	1.2	.82	1.7	4.1	17	3.3	9.6	11	2.6	4.4	4.0	8.4
6	1.4	1.6	1.0	5.9	3.7	e3.0	5.7	33	2.7	e4.2	3.1	7.8
7	1.9	.70	.63	369	2.0	e2.7	214	3.8	2.5	e4.0	2.9	7.1
8	1.7	.57	3.8	25	2.5	e2.6	36	2.5	2.5	e4.5	12	6.3
9	1.3	.43	113	118	2.8	e3.5	7.1	e2.3	3.4	e4.2	6.1	6.0
10	1.3	25	6.7	32	38	e3.0	3.6	88	3.5	e4.1	4.2	5.6
11	1.8	6.8	3.0	5.7	3.7	e2.7	2.7	6.9	10	e3.9	3.0	6.5
12	1.1	45	2.3	7.2	3.1	18	2.7	3.4	14	e3.7	2.7	23
13	1.8	2.3	1.9	1.8	3.4	2.5	2.4	2.5	3.8	e3.5	2.7	7.7
14	1.9	2.8	137	1.8	2.1	e2.3	3.8	1.9	3.5	e3.0	2.9	56
15	1.6	.56	142	.97	8.4	8.0	3.6	e1.5	4.3	25	3.1	6.1
16	32	.20	13	1.6	49	7.4	3.3	e1.4	3.7	12	3.0	2.9
17	4.0	1.1	6.7	.61	3.8	e2.5	3.1	e1.5	85	9.6	2.4	2.7
18	1.6	.63	3.1	14	2.7	e2.3	3.0	25	28	2.6	2.1	2.6
19	.71	80	2.6	5.2	2.6	3.1	2.9	5.2	126	174	2.4	2.5
20	.58	232	3.9	100	2.5	26	3.8	2.6	120	6.3	2.6	2.5
21	.77	166	3.4	14	2.6	e2.2	5.2	1.7	52	1.8	17	2.7
22	1.1	13	3.2	2.3	2.5	99	4.6	1.5	16	1.6	2.8	2.6
23	.85	3.8	2.9	1.5	3.4	50	4.4	35	5.9	1.7	2.6	2.0
24	.72	5.1	2.7	13	2.6	5.3	4.4	14	4.9	2.1	2.9	2.0
25	.49	2.9	2.1	2.0	57	3.3	11	57	6.3	2.3	6.4	2.2
26	.29	1.4	1.3	1.9	7.1	1.8	8.1	6.7	205	2.1	7.1	2.9
27	1.3	.94	2.7	1.7	2.7	2.2	4.9	1.8	24	1.7	6.3	2.4
28	.91	2.5	1.7	1.9	3.1	1.8	5.1	1.5	14	26	5.8	1.8
29	.68	.65	2.0	124	---	1.9	32	1.5	5.6	2.6	4.7	1.9
30	1.2	1.3	2.3	13	---	2.2	19	83	5.5	1.3	3.6	2.0
31	1.3	---	2.2	2.4	---	2.0	---	13	---	1.6	4.2	---
TOTAL	71.00	761.50	475.93	905.30	236.9	848.5	707.4	532.1	763.4	334.3	134.1	193.5
MEAN	2.29	25.4	15.4	29.2	8.46	27.4	23.6	17.2	25.4	10.8	4.33	6.45
MAX	32	232	142	369	57	486	214	105	205	174	17	56
MIN	.29	.20	.63	.61	1.7	1.8	2.1	1.4	1.6	1.3	1.8	1.8
AC-FT	141	1510	944	1800	470	1680	1400	1060	1510	663	266	384

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 1993, BY WATER YEAR (WY)

	11.3	16.2	12.9	19.5	13.7	11.4	12.6	18.2	29.5	16.0	14.1	18.7
MEAN	11.3	16.2	12.9	19.5	13.7	11.4	12.6	18.2	29.5	16.0	14.1	18.7
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 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1972 - 1993
ANNUAL TOTAL	7218.85	5963.93	
ANNUAL MEAN	19.7	16.3	16.2
HIGHEST ANNUAL MEAN			32.1
LOWEST ANNUAL MEAN			4.97
HIGHEST DAILY MEAN	356 Jan 18	486 Mar 1	1610 Jun 26 1989
LOWEST DAILY MEAN	.20 Nov 16	.20 Nov 16	.00 Aug 5 1972
ANNUAL SEVEN-DAY MINIMUM	.69 Oct 20	.69 Oct 20	.04 Jul 27 1986
INSTANTANEOUS PEAK FLOW		1750 Mar 1	4720 May 3 1981
INSTANTANEOUS PEAK STAGE		14.37 Mar 1	18.30 May 3 1981
INSTANTANEOUS LOW FLOW			.00 Aug 5 1972
ANNUAL RUNOFF (AC-FT)	14320	11830	11700
10 PERCENT EXCEEDS	54	32	27
50 PERCENT EXCEEDS	3.5	3.1	2.2
90 PERCENT EXCEEDS	1.1	1.3	.45

## 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.--No estimated daily discharges. Records good. 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)
Mar. 1	2100	1,810	34.40	Mar. 22	2400	2,900	38.19

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	168	4.7	6.1	15	813	12	45	13	12	5.7	5.4
2	2.7	16	4.9	6.0	12	467	11	149	11	11	5.3	5.3
3	2.7	6.8	4.6	6.0	11	45	96	29	10	10	5.0	4.9
4	2.8	5.3	4.8	14	10	21	379	16	9.7	10	4.6	4.7
5	2.6	4.2	4.9	8.3	25	15	50	45	9.5	9.7	4.5	4.7
6	2.5	3.8	4.9	6.7	16	12	22	165	9.1	9.2	4.6	4.7
7	2.4	3.6	4.8	419	12	11	283	32	8.7	8.9	8.0	4.5
8	2.5	3.6	4.6	86	10	10	183	19	8.5	8.8	5.7	4.4
9	3.2	3.7	155	139	10	9.7	30	15	8.4	8.5	4.3	4.5
10	4.4	12	17	111	30	9.6	19	43	13	8.6	4.1	4.8
11	2.9	12	9.9	30	14	9.3	16	16	20	9.2	4.3	8.0
12	2.5	64	7.8	17	11	23	15	12	15	8.3	4.0	6.7
13	2.9	10	7.4	13	9.8	12	14	12	10	7.7	3.9	6.5
14	2.6	6.0	143	12	9.2	9.7	15	12	8.8	7.4	6.1	35
15	2.4	5.1	391	10	12	20	15	11	8.2	21	4.2	11
16	95	4.5	43	9.5	64	26	12	9.8	8.0	14	3.9	5.8
17	13	4.0	17	9.0	16	12	12	9.0	25	8.5	6.2	4.9
18	7.3	4.1	12	75	12	10	11	225	28	10	3.4	4.5
19	4.9	58	11	47	10	9.7	11	90	125	17	3.3	11
20	4.2	508	17	186	10	67	11	17	184	12	3.4	8.9
21	4.7	211	14	46	9.6	16	11	12	86	9.4	3.6	5.1
22	3.8	133	10	22	9.0	506	11	10	64	7.4	3.6	4.9
23	3.5	22	9.2	16	8.2	1180	11	110	25	6.8	4.3	4.6
24	3.3	10	8.7	22	7.8	68	10	94	21	6.6	3.8	4.4
25	3.3	8.3	8.1	14	233	31	11	55	29	6.7	3.8	4.6
26	3.7	7.0	7.7	12	56	22	29	40	234	6.6	4.9	4.5
27	3.6	7.0	7.4	11	19	18	11	18	62	6.3	4.3	4.3
28	4.5	5.8	7.1	10	15	16	10	16	31	5.8	152	4.1
29	3.0	5.6	6.9	133	---	14	63	13	20	7.3	20	4.4
30	2.7	5.2	6.6	31	---	14	22	36	14	6.9	7.7	4.2
31	2.8	---	6.5	17	---	13	---	31	---	6.7	6.0	---
TOTAL	205.1	1317.6	961.5	1544.6	676.6	3510.0	1406	1406.8	1118.9	288.3	308.5	195.3
MEAN	6.62	43.9	31.0	49.8	24.2	113	46.9	45.4	37.3	9.30	9.95	6.51
MAX	95	508	391	419	233	1180	379	225	234	21	152	35
MIN	2.4	3.6	4.6	6.0	7.8	9.3	10	9.0	8.0	5.8	3.3	4.1
AC-FT	407	2610	1910	3060	1340	6960	2790	2790	2220	572	612	387

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1993, 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	1993
MEAN	20.6	19.7	21.0	28.7	25.9	25.1	22.2	30.9	37.3	18.7	18.8	28.0																	
MAX	111	51.1	68.0	99.4	107	113	83.0	91.1	136	83.4	121	194																	
(WY)	1971	1987	1987	1991	1992	1993	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 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1965 - 1993

ANNUAL TOTAL	15583.8	12939.2	
ANNUAL MEAN	42.6	35.4	
HIGHEST ANNUAL MEAN			24.7
LOWEST ANNUAL MEAN			45.2
HIGHEST DAILY MEAN	1120	Mar 4	1979
LOWEST DAILY MEAN	2.4	Oct 7	1965
ANNUAL SEVEN-DAY MINIMUM	2.6	Oct 2	1965
INSTANTANEOUS PEAK FLOW			1930
INSTANTANEOUS PEAK STAGE			Aug 18 1983
ANNUAL RUNOFF (AC-FT)	30910	25660	17910
10 PERCENT EXCEEDS	106	67	40
50 PERCENT EXCEEDS	11	10	7.0
90 PERCENT EXCEEDS	3.7	4.0	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 1992 TO SEPTEMBER 1993

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. 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	
FEB 08...	1103	14	827	7.9	15.5	20	7.2	10.0	100	1.3	1.0	44	
JUN 02...	1030	10	766	7.9	25.0	20	18	7.4	90	2.8	2.2	4000	
AUG 23...	0950	7.5	716	7.9	28.5	14	28	7.6	97	5.9	4.4	1000	
DATE		STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
FEB 08...	K12	250	0	75	16	77	2	3.5	270	68	62	0.70	
JUN 02...	130	250	0	74	15	74	2	3.4	260	63	55	0.60	
AUG 23...	210	160	14	48	9.0	85	3	6.6	140	72	79	1.0	
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, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)
FEB 08...	14	491	15	9	6	2.53	2.53	0.070	2.60	2.60	0.180	1.6	
JUN 02...	14	467	41	20	21	2.74	2.74	0.060	2.80	2.80	0.160	0.54	
AUG 23...	14	435	72	11	61	7.01	7.01	0.090	7.10	7.10	0.110	0.79	
DATE		NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	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)
FEB 08...	1.8	0.420	0.380	1.2	7.4	3	140	<0.5	<1.0	<5	<3	<10	
JUN 02...	0.70	0.340	0.330	1.0	7.1	4	150	<0.5	1.0	<5	<3	<10	
AUG 23...	0.90	1.10	0.980	3.0	9.4	5	93	<0.5	<1.0	<5	<3	<10	
DATE		IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	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 08...	<3	<10	11	110	<0.1	<10	<10	<10	<1	<1.0	430	<6	31
JUN 02...	8	<10	11	98	<0.1	10	<10	<10	<1	<1.0	420	<6	28
AUG 23...	49	<10	13	63	<0.1	<10	<10	<10	<1	<1.0	320	<6	31
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 08...	<0.10	0.1	<0.20	<0.5	<0.20	<0.10	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10	
JUN 02...	<0.10	0.1	<0.20	<0.5	<0.20	<0.10	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10	
AUG 23...	<0.10	0.1	<0.20	<0.5	<0.20	<0.10	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10	

## SAN JACINTO RIVER BASIN

139

08075900 GREENS BAYOU NEAR U.S. HIGHWAY 75 NEAR HOUSTON, TX  
(Flood-hydrograph Partial-record Station)

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), Oct. 1, 1992 to current year (peaks above base discharge or annual maximum discharge). 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 good. Stage and rainfall radio-telemetry were operated by Harris County Flood Control District at station.

AVERAGE DISCHARGE.--26 years (water year 1966-80, 1982-1992), 40.5 ft<sup>3</sup>/s (29,370 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,000 ft<sup>3</sup>/s June 26, 1989 (elevation, 90.20 ft. from peak mark at former site); maximum elevation, 91.09 ft Feb. 21, 1969 at former site, occurred prior to 1980-81 channel rectification; minimum daily discharge, 0.16 ft<sup>3</sup>/s Oct. 21, 22, 1969.

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)
Mar. 1	1930	5,500	83.42	Apr. 7	1600	2,890	79.82
Mar. 22	2400	2,440	79.07	May 23	2100	3,020	80.03
Apr. 3	2200	2,510	79.19				



## SAN JACINTO RIVER BASIN

141

08076000 GREENS BAYOU NEAR 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 1992 TO SEPTEMBER 1993

		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-CHE-MICAL, 5 DAY (MG/L)	BOD OXYGEN DEMAND, BIOCHEM CARBON, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	
FEB 08...	0838	69	741	8.2	13.0	20	11	8.6	81	1.6	1.1	2800	
JUN 02...	0830	98	568	8.0	25.0	55	29	6.8	83	3.0	2.2	550	
AUG 23...	0830	35	718	7.8	27.0	27	12	2.5	31	6.9	5.9	2800	
DATE	TIME	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD 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 08...	1000	190	0	60	8.7	82	3	5.8	210	31	83	0.40	
JUN 02...	250	160	0	50	7.2	62	2	3.9	180	20	57	0.30	
AUG 23...	200	150	0	48	6.5	92	3	7.2	160	49	98	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, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)
FEB 08...	18	437	19	4	15	4.06	4.06	0.140	4.20	4.20	0.160	0.94	
JUN 02...	18	341	97	43	54	2.61	2.61	0.090	2.70	2.70	0.110	0.49	
AUG 23...	22	439	29	18	11	2.85	2.85	0.150	3.00	3.00	0.240	0.86	
DATE	TIME	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	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)
FEB 08...	1.1	1.60	1.60	4.9	5.9	5	250	<0.5	<1.0	<5	<3	<10	
JUN 02...	0.60	1.10	1.00	3.1	9.1	5	250	<0.5	<1.0	<5	<3	<10	
AUG 23...	1.1	1.70	1.60	4.9	23	7	260	<0.5	<1.0	<5	<3	<10	
DATE	TIME	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	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 08...	14	<10	13	24	<0.1	<10	<10	<1	1.0	340	<6	130	
JUN 02...	26	<10	11	24	<0.1	10	<10	<1	<1.0	280	<6	14	
AUG 23...	97	<10	18	63	<0.1	<10	<10	<1	<1.0	330	6	20	
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 08...		<0.10	<0.1	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10	
JUN 02...		<0.10	0.2	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10	
AUG 23...		<0.10	<0.1	<0.20	<0.5	<0.20	<0.10	<0.10	<0.5	<0.5	<0.10	<0.10	

## SAN JACINTO RIVER BASIN

08076180 GARNERS BAYOU NR HUMBLE, TX

LOCATION.--LAT 29°56'03", long 95°14'02", 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 :

Date	Time	Discharge (ft <sup>3</sup> /s)	Elevation (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Elevation (ft)
Mar. 1	2300	2,930	54.51	May 17	2400	1,270	48.02
Mar. 22	2300	2,080	52.63	June 19	2100	1,740	50.84
Apr. 3	1700	1,830	51.32	June 20	2000	2,890	54.46
Apr. 7	1200	2,010	52.29	June 21	2000	3,900	55.10
Apr. 30	2400	1,420	48.95				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e7.2	233	7.2	17	23	1060	17	765	19	18	7.3	9.7
2	e7.1	31	6.8	17	21	1440	17	175	16	12	7.3	9.1
3	e7.0	9.6	6.3	17	20	297	826	49	15	9.9	11	8.8
4	e7.0	8.2	6.3	22	19	78	883	268	15	8.6	10	8.5
5	e7.0	7.7	6.3	19	22	36	200	783	14	8.5	7.6	8.7
6	e6.9	7.6	6.8	17	21	25	78	419	14	8.5	7.2	8.5
7	e6.9	7.4	6.7	398	19	22	1080	90	14	8.1	7.4	8.8
8	14	7.5	6.5	166	18	20	393	38	14	7.9	9.9	8.5
9	8.4	7.6	371	213	18	18	100	215	14	7.9	8.9	8.4
10	7.4	8.8	35	337	32	19	44	52	347	9.8	8.1	8.4
11	7.0	16	9.5	63	20	18	27	27	192	15	7.8	8.4
12	6.9	150	7.6	30	18	26	21	19	202	7.8	8.4	8.6
13	6.7	13	8.1	23	17	20	19	17	38	7.6	8.2	9.1
14	e6.7	7.9	205	21	16	18	47	16	21	7.5	7.9	40
15	e6.7	7.5	580	28	19	21	19	16	19	7.7	8.0	22
16	33	7.5	147	21	139	27	17	15	30	8.8	8.2	8.9
17	19	7.1	34	20	23	19	16	154	296	8.2	7.9	8.3
18	8.2	7.6	24	67	18	18	16	499	405	7.7	8.1	8.3
19	7.5	69	21	186	17	18	15	67	762	7.4	7.9	8.5
20	7.2	677	21	564	18	101	16	23	1730	7.6	8.1	21
21	6.9	225	21	207	17	26	15	17	2050	7.1	7.8	28
22	7.1	247	19	63	17	510	14	17	1140	7.2	11	9.0
23	7.1	16	20	31	16	892	15	314	271	7.3	11	8.2
24	6.8	10	20	25	16	163	15	80	141	7.2	8.3	7.9
25	e6.7	7.0	17	22	316	52	19	42	288	7.8	7.8	8.0
26	e6.6	e7.0	17	21	142	31	16	26	678	7.4	8.3	8.2
27	e6.4	e7.6	17	20	32	24	15	36	317	6.5	39	9.0
28	e6.2	e6.7	17	20	24	20	67	21	120	6.2	227	7.9
29	e6.1	e7.2	18	234	---	22	47	87	83	7.7	50	7.4
30	e6.0	e7.2	19	61	---	19	245	80	34	7.1	14	7.6
31	e5.8	---	18	27	---	18	---	38	---	7.5	11	---
TOTAL	259.5	1831.7	1719.1	2977	1098	5078	4319	4465	9299	263.5	560.4	331.7
MEAN	8.37	61.1	55.5	96.0	39.2	164	144	144	310	8.50	18.1	11.1
MAX	33	677	580	564	316	1440	1080	783	2050	18	227	40
MIN	5.8	6.7	6.3	17	16	18	14	15	14	6.2	7.2	7.4
AC-FT	515	3630	3410	5900	2180	10070	8570	8860	18440	523	1110	658

e Estimated



SAN JACINTO RIVER BASIN

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08076180 GARNERS BAYOU NR HUMBLE, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1993, BY WATER YEAR (WY)

MEAN	15.5	39.9	61.2	70.1	59.1	86.1	58.4	86.5	151	32.1	17.4	14.4
MAX	45.5	89.7	187	158	174	238	144	265	319	113	26.9	23.4
(WY)	1987	1987	1992	1992	1992	1992	1993	1989	1989	1987	1988	1991
MIN	5.00	5.37	7.28	24.4	8.44	14.5	7.94	10.5	8.82	8.50	5.13	6.74
(WY)	1988	1989	1989	1989	1989	1987	1987	1988	1990	1993	1990	1988

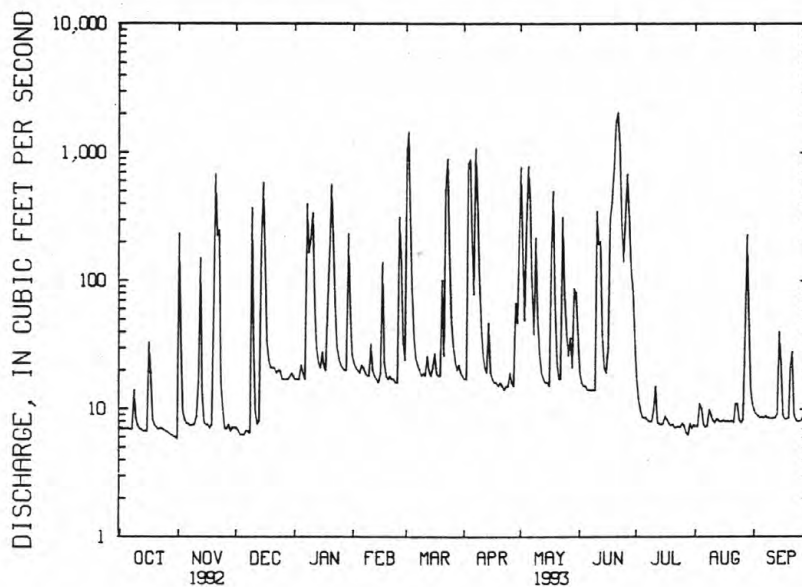
SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1987 - 1993

ANNUAL TOTAL	30508.7			32201.9								
ANNUAL MEAN	83.4			88.2						57.6		
HIGHEST ANNUAL MEAN										96.5		1992
LOWEST ANNUAL MEAN										20.7		1990
HIGHEST DAILY MEAN	3720	Mar 4		2050	Jun 21					5510	May 18	1989
LOWEST DAILY MEAN	5.8	Oct 31		5.8	Oct 31					3.0	Sep 28	1990
ANNUAL SEVEN-DAY MINIMUM	6.3	Oct 25		6.3	Oct 25					3.1	Sep 25	1990
INSTANTANEOUS PEAK FLOW				3900	Jun 21					9980	Mar 4	1992
INSTANTANEOUS PEAK STAGE				55.10	Jun 21					57.27	Mar 4	1992
INSTANTANEOUS LOW FLOW				5.7	Jul 27							
ANNUAL RUNOFF (AC-FT)	60510			63870						41690		
10 PERCENT EXCEEDS	206			233						95		
50 PERCENT EXCEEDS	16			17						10		
90 PERCENT EXCEEDS	7.2			7.1						5.9		



08076180 GARNERS BAYOU NR HUMBLE, TX  
MEAN DAILY DISCHARGE (CFS)

## 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.

REVISID 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 fair. 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)
Mar. 1	2130	2,560	59.48	Apr. 3	2230	1,470	56.79
Mar. 22	2200	2,650	59.66	Apr. 7	1800	1,940	58.07

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.8	137	9.2	13	32	935	16	268	24	23	e10	28
2	8.2	21	8.8	12	30	689	13	415	19	21	9.9	47
3	7.5	6.6	8.9	12	28	144	363	96	18	20	e9.9	26
4	7.8	5.3	9.4	17	25	62	654	43	17	19	e9.6	10
5	8.8	4.8	9.6	14	34	42	124	252	17	18	e9.5	10
6	9.0	4.7	11	13	30	32	45	338	16	18	e9.5	10
7	7.8	4.2	10	272	23	25	535	134	16	17	e9.5	11
8	12	4.6	9.8	71	22	24	312	51	16	e16	e9.2	9.8
9	9.4	5.4	189	184	21	22	73	39	16	e15	e9.1	13
10	8.3	10	27	162	77	18	41	245	35	32	e9.1	10
11	8.2	18	16	44	39	18	30	58	42	21	e9.1	20
12	8.4	76	13	33	26	42	25	33	112	18	e9.1	14
13	8.5	15	13	26	22	24	23	25	28	e17	26	16
14	7.3	6.6	139	22	20	17	39	21	25	e16	13	30
15	7.0	5.9	344	27	22	25	32	20	17	24	e9.5	17
16	28	5.9	53	22	94	33	21	19	16	19	20	11
17	9.0	5.5	27	20	32	20	19	18	22	e17	14	9.6
18	5.7	5.5	21	26	23	15	19	79	66	e18	e9.3	8.8
19	6.4	31	19	59	23	13	19	39	234	92	e8.4	12
20	5.7	378	20	314	23	137	18	20	484	32	7.4	22
21	6.0	117	20	88	23	28	17	18	323	e14	e7.2	14
22	6.2	114	18	46	21	493	19	17	154	e16	e7.0	8.8
23	6.9	19	23	35	19	639	19	113	60	e13	e6.8	7.7
24	5.2	14	23	34	18	95	18	184	40	e11	e6.7	6.6
25	5.9	11	16	26	249	51	41	38	114	e11	7.6	7.1
26	7.4	10	14	22	125	38	89	28	478	e10	8.6	7.4
27	7.1	9.5	14	20	46	28	21	34	187	e10	14	6.9
28	5.9	9.3	15	21	33	24	19	38	73	e9.9	78	5.4
29	6.1	9.5	14	179	---	21	112	24	38	e9.7	34	5.5
30	8.8	9.7	15	64	---	20	44	32	27	16	20	5.3
31	9.5	---	14	37	---	19	---	62	---	e13	20	---
TOTAL	255.8	1074.0	1143.7	1935	1180	3793	2820	2801	2734	606.6	431.0	409.9
MEAN	8.25	35.8	36.9	62.4	42.1	122	94.0	90.4	91.1	19.6	13.9	13.7
MAX	28	378	344	314	249	935	654	415	484	92	78	47
MIN	5.2	4.2	8.8	12	18	13	13	17	16	9.7	6.7	5.3
AC-FT	507	2130	2270	3840	2340	7520	5590	5560	5420	1200	855	813

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 1993, BY WATER YEAR (WY)

MEAN	23.6	27.7	29.5	35.8	40.7	29.8	31.3	43.5	41.8	24.0	20.7	30.5
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 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

## WATER YEARS 1953 - 1993

ANNUAL TOTAL	22776.6		19184.0			
ANNUAL MEAN	62.2		52.6		31.5	
HIGHEST ANNUAL MEAN					71.0	1992
LOWEST ANNUAL MEAN					2.99	1956
HIGHEST DAILY MEAN	2100	Mar 4	935	Mar 1	2800	May 18 1989
LOWEST DAILY MEAN	4.2	Nov 7	4.2	Nov 7	.00	Oct 1 1952
ANNUAL SEVEN-DAY MINIMUM	5.1	Nov 3	5.1	Nov 3	.00	Oct 1 1952
INSTANTANEOUS PEAK FLOW			2650	Mar 22	5000	Jun 27 1989
INSTANTANEOUS PEAK STAGE			59.66	Mar 22	62.86	Jun 27 1989
INSTANTANEOUS LOW FLOW			3.6	Nov 7		
ANNUAL RUNOFF (AC-FT)	45180		38050		22820	
10 PERCENT EXCEEDS	135		120		50	
50 PERCENT EXCEEDS	18		19		9.0	
90 PERCENT EXCEEDS	8.0		7.4		1.0	

## SAN JACINTO RIVER BASIN

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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 current year (highwater records only).  
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 good except those for estimated daily discharges, which are fair. Discharge is computed for all storms that produce peak discharges above 2,000 ft<sup>3</sup>/s. 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. Stage and rainfall radio-telemetry at station is operated by Harris County Flood Control District.

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 tide).

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base of 4,200 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)
Mar. 2	0200	13,700	31.73	June 20	2400	7,280	24.58
Apr. 7	2300	8,350	26.12	June 22	0100	7,260	24.55
May 1	2400	4,440	19.36				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	3950	---	1660	---	e170	---	---
2	---	---	---	---	---	8840	e100	3260	---	---	---	---
3	---	---	---	---	---	1510	e1100	1010	---	---	---	---
4	---	---	---	---	---	617	e3000	545	---	---	---	---
5	---	---	---	---	---	e200	e1100	1520	---	---	---	---
6	---	---	---	e100	---	---	e300	3100	---	---	---	---
7	---	---	---	1800	---	---	2690	1640	---	---	---	---
8	---	---	e150	1140	---	---	4390	764	---	---	---	---
9	---	---	1390	977	---	---	873	642	---	---	---	---
10	---	---	587	1890	---	---	e250	1640	---	---	---	---
11	---	---	e220	610	---	---	---	656	---	---	---	---
12	---	---	e100	e170	---	---	---	e230	---	---	---	---
13	---	---	e80	---	---	---	---	e170	---	---	---	---
14	---	---	847	---	---	---	---	e160	---	---	---	---
15	---	---	3030	---	---	---	---	e150	---	---	---	---
16	---	---	891	---	---	---	---	e140	e350	---	---	---
17	---	---	e200	---	---	---	---	e145	676	---	---	---
18	---	e150	---	e180	---	---	---	928	1130	---	---	---
19	---	588	---	629	---	---	---	1250	1810	---	---	---
20	---	2800	---	2570	---	---	---	e350	5330	---	---	---
21	---	1100	---	1030	---	e150	---	e220	5650	---	---	---
22	---	e500	---	e550	---	e1200	---	e180	4810	---	---	---
23	---	e150	---	e300	---	e1600	---	767	1180	---	---	---
24	---	---	---	e180	e150	e700	---	2350	887	---	---	---
25	---	---	---	---	1530	e250	---	657	1100	---	---	---
26	---	---	---	---	1180	---	---	e600	3210	---	---	---
27	---	---	---	---	e500	---	---	e450	1970	---	---	---
28	---	---	---	---	e250	---	---	---	784	---	---	---
29	---	---	---	---	---	---	---	---	612	---	---	---
30	---	---	---	---	---	---	e200	---	e300	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	---
MAX	---	---	---	---	---	---	---	---	---	---	---	---
MIN	---	---	---	---	---	---	---	---	---	---	---	---

e Estimated

## CLEAR CREEK BASIN

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 September 1992. October 1992 to current year (daily mean discharges 20 ft<sup>3</sup>/s or greater and peaks above base discharge).

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 poor. Daily mean discharges below 20 ft<sup>3</sup>/s are not published.

AVERAGE DISCHARGE.--41 years (water years 1948-59, 1964-1992), 37.2 ft<sup>3</sup>/s (26,960 acre-ft/yr).

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)
June 20	unknown	1,130	16.62	June 26	1900	747	13.12

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	106	---	---	35	e342	---	---	---	---	---	---
2	---	54	---	---	22	e677	---	62	---	---	---	---
3	---	21	---	---	---	458	29	25	---	---	---	---
4	---	---	---	---	---	188	437	---	---	---	---	---
5	---	---	---	---	36	70	374	---	---	---	---	---
6	---	---	---	---	56	39	161	46	---	---	---	---
7	---	---	---	e460	36	26	189	48	---	---	---	---
8	---	---	---	562	23	23	413	28	---	---	---	---
9	---	---	103	329	21	20	220	---	---	---	---	---
10	---	---	67	469	83	20	74	93	---	---	---	---
11	---	---	27	256	89	20	34	26	---	---	---	---
12	---	25	---	108	41	25	24	---	22	---	---	---
13	---	---	---	54	24	30	---	---	---	---	---	---
14	---	---	60	34	---	21	---	---	---	---	---	---
15	---	---	394	25	---	---	---	---	---	---	---	21
16	---	---	325	22	41	27	---	---	---	26	---	---
17	---	---	145	20	30	26	---	---	---	23	---	---
18	---	---	57	21	20	20	---	---	---	---	---	---
19	---	---	34	22	---	---	---	---	171	27	---	---
20	---	362	29	122	---	31	---	---	e942	43	---	---
21	---	274	26	134	---	24	---	---	e626	29	---	---
22	---	336	22	65	---	20	---	---	e488	21	---	---
23	---	125	20	40	---	303	---	---	568	---	---	---
24	---	44	25	64	---	196	---	---	241	---	---	---
25	---	23	23	46	57	89	---	---	75	---	---	---
26	---	---	---	36	62	45	---	---	619	---	---	---
27	---	---	---	28	28	26	---	---	463	---	---	---
28	---	---	---	23	---	20	---	---	194	---	22	---
29	---	---	---	192	---	---	---	---	78	---	21	---
30	---	---	---	174	---	---	---	---	37	---	---	---
31	---	---	---	67	---	---	---	---	---	---	---	---
MAX	---	362	394	562	89	677	437	93	942	43	22	21

e Estimated

## COASTAL BASIN

147

## 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. Elevation and rainfall telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation (Moses Lake), 4.4 ft Sept. 20, 1979; minimum, minus 4.2 ft Feb. 28, 1983. Maximum elevation (Galveston Bay), about 10.0 ft (Hurricane Alicia) Aug. 18, 1983; minimum, about minus 4.2 ft Feb. 28, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum elevation (Moses Lake), 3.2 ft June 19 at 0200 hours; minimum recorded, minus 2.3 ft Mar. 13 at 1600 hours and Mar. 14 at 0500 hours. Maximum elevation (Galveston Bay), 3.5 ft June 20 at 1145 hours; minimum, minus 3.1 Mar. 13 at 0530 hours.

## 08077650 MOSES LAKE-GALVESTON BAY NEAR TEXAS CITY, TX

## ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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	1.9	2.1	.9	1.7	2.3	.4	.4	.7	.1	.5	.6	-.4
2	2.5	2.6	1.3	.6	1.2	.3	.7	.8	-.4	.8	1.0	-.2
3	---	2.8	1.6	1.2	1.7	.9	1.0	1.1	.4	1.1	1.3	.4
4	---	2.8	1.5	.7	.9	-.4	1.0	1.1	.3	1.2	1.3	.1
5	2.1	2.3	.8	-.2	.3	-.3	.8	1.1	-.2	.7	.9	-.8
6	1.2	1.5	.4	.6	.9	.2	1.0	1.3	.1	.7	1.0	-.5
7	1.3	1.8	.4	1.2	1.5	.5	1.1	1.3	-.4	---	1.1	-.1
8	1.0	1.5	.4	1.4	2.1	.7	.9	1.4	-.2	---	---	---
9	1.1	1.6	1.0	1.7	2.2	.9	1.5	1.7	.3	---	---	---
10	1.1	1.8	1.1	1.5	2.0	.7	1.2	1.3	-.9	---	---	---
11	1.1	1.8	.2	1.9	2.5	.9	.3	.5	-1.0	---	---	---
12	.7	1.4	.4	1.3	1.9	-.4	.8	1.0	-.3	---	---	---
13	1.0	1.5	.3	.3	.9	-.5	1.4	1.7	.5	---	---	---
14	1.2	1.8	.7	.8	1.4	.0	1.6	1.8	.6	1.2	---	---
15	1.4	1.9	.5	.7	1.2	.0	1.4	1.5	-.1	1.5	1.4	.2
16	1.4	2.2	.1	.7	1.2	-.1	.8	.9	.5	1.5	1.3	-.1
17	1.2	1.8	.3	.9	1.4	.7	.9	1.0	.2	1.1	1.2	-.3
18	1.2	1.8	.2	1.2	1.6	1.2	1.3	1.5	.2	1.3	1.3	-.1
19	1.2	1.6	.6	1.5	2.0	1.3	1.5	1.7	.7	1.4	1.3	-.4
20	1.9	2.1	1.0	1.7	2.0	1.1	1.6	1.7	.0	1.3	1.3	-.3
21	1.3	1.8	1.1	1.6	2.0	.8	.7	1.0	-.5	1.1	1.1	-.4
22	1.5	2.0	1.3	1.5	1.5	-.5	.8	1.1	-.3	1.1	1.0	-.3
23	1.5	1.9	1.3	1.4	1.9	.0	.9	1.2	-.2	1.2	1.1	.0
24	1.4	1.7	.4	2.3	2.3	.7	.8	.9	-.6	1.2	1.3	-1.0
25	1.0	1.5	.2	1.7	1.6	-.7	1.7	1.5	.3	1.3	1.2	.5
26	1.0	1.5	.0	.6	.5	-1.2	1.2	1.0	-.6	1.0	.9	-.3
27	1.0	1.5	.0	.1	.1	-1.3	.9	1.2	-.6	1.0	.9	.1
28	1.0	1.5	.0	.4	.5	-.4	.9	1.0	.1	1.0	1.0	.3
29	1.1	1.7	.0	.7	.8	-.2	.8	.9	.3	1.0	.9	.4
30	1.0	1.5	-.1	.6	.8	-.6	.8	.9	.4	.9	.8	.1
31	1.1	1.6	.2	---	---	---	.6	.7	.0	.8	.9	-.4
MONTH	---	2.8	-.1	2.3	2.5	-1.3	1.7	1.8	-1.0	---	---	---



## 08077650 MOSES LAKE-GALVESTON BAY NEAR TEXAS CITY, TX--Continued

## 08077650 MOSES LAKE-GALVESTON BAY NEAR TEXAS CITY, TX - Continued

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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	.9	.8	-.6	2.1	2.1	.6	.3	.1	-1.2	1.7	1.7	.6
2	.8	1.1	-.5	2.1	2.1	.5	.2	.5	-1.0	1.5	1.6	.2
3	1.2	1.3	.0	1.2	1.2	-.1	1.8	1.8	.3	1.0	1.0	-.2
4	1.5	1.7	.1	1.2	1.1	.7	1.8	1.5	.1	1.1	1.1	-.2
5	1.7	1.7	.1	.3	.2	-1.3	.7	.2	-.5	1.8	1.8	.3
6	1.1	1.0	-.7	.1	.2	-1.1	1.2	1.2	-.4	1.8	1.9	.4
7	.2	.2	-.7	.3	.3	-.7	1.8	1.9	.4	1.7	1.8	.2
8	.4	.4	-.7	.0	.0	-.5	1.6	1.5	.4	2.0	2.1	.3
9	.8	.8	.2	.3	.3	-.3	1.0	.6	-.6	2.1	2.2	.8
10	1.0	1.0	.5	.5	.5	-.4	.8	.9	-1.3	1.8	1.4	.5
11	1.1	1.1	.2	1.4	1.5	-.5	1.2	1.2	.0	.8	.8	-.3
12	.6	.3	-.7	1.9	1.9	-1.2	1.1	1.1	-.1	.7	.8	.1
13	.8	.9	-.7	.0	-1.4	-3.1	1.3	1.3	-.1	.5	.2	-.6
14	1.1	1.3	-.2	.0	.2	-2.4	1.8	2.1	.7	.4	.4	-.3
15	1.6	1.7	.4	1.4	1.5	-.4	1.4	.9	-.7	.6	.5	.3
16	1.6	1.8	-.3	1.6	1.6	.9	.5	.6	-.6	.8	.8	.0
17	.8	1.0	-.4	1.2	.9	-.8	.7	.8	.0	.8	.8	.0
18	.9	1.0	-.7	1.3	1.3	.2	.8	.8	.2	1.2	1.5	.1
19	1.1	1.2	-.1	1.5	1.4	.5	1.0	1.0	.2	.7	.7	-.2
20	1.2	1.2	-.2	1.4	1.4	.4	1.1	1.1	-.3	1.2	1.2	-.3
21	1.1	1.2	.2	.8	.7	.3	.5	.5	-.4	1.4	1.4	-.1
22	.7	.7	.1	.9	.9	.4	.6	.6	-.5	1.8	1.8	.2
23	1.1	1.0	.6	.9	.9	.2	1.2	1.2	-.3	2.3	2.3	.6
24	1.6	1.6	.8	.7	.7	.1	1.4	1.5	.1	2.0	2.2	.7
25	1.8	1.9	.6	1.0	1.0	.0	1.3	1.3	.2	1.4	1.4	.1
26	1.0	.6	.2	.8	.8	-.2	1.0	1.1	-.2	1.3	1.3	.0
27	1.3	1.3	-.1	.9	.9	-.2	1.6	1.6	.1	1.5	1.6	.4
28	1.6	1.5	.4	1.1	1.0	-.2	1.7	1.6	.5	1.4	1.5	.6
29	---	---	---	1.3	1.3	-.1	1.7	1.7	.6	1.4	1.5	1.0
30	---	---	---	1.2	1.2	.1	1.5	1.3	.2	1.3	1.3	.5
31	---	---	---	1.1	.9	-.4	---	---	---	1.2	1.2	.1
MONTH	1.8	1.9	-.7	2.1	2.1	-3.1	1.8	2.1	-1.3	2.3	2.3	-.6
DAY	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	1.1	1.2	.1	1.1	1.1	-.5	.7	.7	-.7	.4	.5	-.2
2	1.3	1.3	-.1	1.1	1.1	-.5	.8	.8	-.5	.5	.6	.2
3	1.0	1.1	-.5	1.0	1.0	-.4	.8	.8	-.1	.6	.6	.0
4	1.1	1.1	-.5	1.2	1.2	-.4	.6	.6	-.2	.5	.6	-.3
5	1.2	1.2	-.4	1.3	1.3	-.2	.5	.5	-.1	.6	.8	.2
6	1.2	1.6	-.4	1.2	1.2	.1	.6	.6	.1	1.1	1.1	-.1
7	1.4	1.4	-.1	1.0	1.0	.0	.6	.6	.0	1.0	1.0	-.1
8	1.7	1.7	.2	.7	.7	.0	.8	.8	-.2	1.1	1.2	-.1
9	1.6	1.7	.6	.9	.9	.1	.8	.8	-.2	1.0	1.1	-.2
10	1.3	1.3	.7	.7	.7	.1	.8	.8	-.3	.9	1.0	-.6
11	1.1	1.1	.6	.7	.7	.0	.8	.8	-.4	.9	1.0	-.3
12	1.0	1.0	.6	.9	.9	-.2	.9	.9	-.3	1.2	1.4	-.2
13	1.0	1.0	.1	1.1	1.1	-.2	1.0	1.0	-.4	1.9	2.0	.4
14	1.0	1.0	-.2	1.0	1.0	-.4	.9	.9	-.5	2.1	2.3	.6
15	.7	.8	-.2	1.0	1.0	-.5	.8	.8	-.6	1.2	1.0	.2
16	1.4	1.4	.0	1.1	1.1	-.4	.5	.6	-.7	1.0	1.1	.2
17	2.0	2.1	.4	1.0	1.0	-.5	.3	.4	-.7	1.1	1.3	.4
18	2.3	2.3	1.0	1.1	1.1	-.5	.4	.5	-.5	1.4	1.5	.5
19	3.2	3.3	1.0	.9	.9	-.5	.5	.6	-.1	1.9	2.0	.6
20	3.1	3.5	1.9	.6	.7	-.5	.5	.6	-.1	2.0	2.0	.6
21	2.5	2.4	1.0	.6	.5	-.5	.4	.6	-.4	1.9	2.0	.6
22	1.7	1.9	.4	.5	.5	-.4	.5	.5	-.5	1.8	1.9	.4
23	1.6	1.7	.4	.4	.4	-.1	.7	.8	-.5	1.7	1.8	.3
24	1.5	1.7	.4	.4	.4	-.3	.7	.8	-.6	1.4	1.5	.2
25	1.4	1.5	.7	.5	.5	-.5	.6	.7	-.7	1.4	1.4	.3
26	1.2	1.4	.6	.6	.6	-.6	1.3	1.4	.0	1.2	1.3	.2
27	1.2	1.3	.3	.9	.9	-.5	1.4	1.5	-.4	.8	.9	.1
28	1.4	1.4	.1	1.0	1.1	-.6	.9	1.0	-.4	1.2	1.3	.2
29	1.3	1.4	.0	.8	.8	-.7	.8	.9	-.3	1.4	1.5	.7
30	1.2	1.3	-.3	.7	.8	-.8	.7	.7	.0	1.4	1.5	.9
31	---	---	---	.7	.7	-.7	.6	.7	-.2	---	---	---
MONTH	3.2	3.5	-.5	1.3	1.3	-.8	1.4	1.5	-.7	2.1	2.3	-.6

## 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.

GAUGE. 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 to 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 minus 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), minus 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), minus .5 ft Jan. 7 at 0730 hours and Mar. 16 at 0515 hrs; maximum elevation (seaward), 3.5 June 20 at 1130 hours; minimum (seaward), minus 1.5 ft Mar. 14 1200 hours. Supplementary gage: Maximum elevation (landward), 0.0 ft Jan. 7 at 1100 hours; minimum not determined.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993												
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	---	2.3	1.2	---	-2.3	1.9	.7	---	---	.9	.4	---
2	---	2.6	1.7	---	---	1.2	.4	---	---	1.0	.2	---
3	---	3.0	1.9	---	---	1.7	.6	---	---	1.4	.6	---
4	---	2.7	1.6	---	---	.7	-2	---	---	1.5	.7	---
5	---	2.2	1.0	---	---	.5	-.4	---	---	1.3	.2	---
6	---	1.5	.6	---	---	1.0	.1	---	---	1.6	.6	---
7	---	1.9	.6	---	---	1.5	.7	---	---	1.5	.1	---
8	---	1.5	.7	---	---	2.1	1.0	---	---	1.8	.3	---
9	---	1.6	1.0	---	---	2.2	1.2	---	---	2.2	.8	---
10	---	1.7	1.2	---	---	2.2	.9	---	---	1.5	-.2	---
11	---	1.5	.4	---	---	2.5	1.2	---	---	.9	-.3	---
12	---	1.4	.5	---	---	1.9	.0	---	---	1.4	.3	---
13	---	1.5	.6	---	---	.9	-.1	---	---	2.0	1.0	---
14	---	1.8	.9	---	---	1.4	.2	---	---	2.2	1.1	---
15	---	1.9	.8	---	---	1.2	.2	---	-2.5	1.9	.6	---
16	---	1.8	.6	---	---	1.2	.1	---	---	1.3	.7	---
17	---	1.8	.6	---	---	1.5	.7	---	---	1.3	.5	---
18	---	1.7	.3	---	---	1.7	1.2	---	---	1.8	.5	---
19	---	1.6	.7	---	-2.4	1.9	1.4	---	---	1.9	1.0	---
20	---	2.0	1.1	---	-1.5	2.1	1.3	---	---	1.7	.3	---
21	---	1.8	1.2	---	---	1.9	.8	---	---	1.2	.0	---
22	---	2.1	1.3	---	---	1.6	-.1	---	---	1.4	.2	---
23	---	2.0	1.4	---	---	1.9	.2	---	---	1.5	.3	---
24	---	1.6	.6	---	---	2.3	1.2	---	---	1.3	-.1	---
25	---	1.4	.5	---	---	1.8	-.1	---	---	1.7	.8	---
26	---	1.4	.4	---	---	.8	-.5	---	---	1.2	.0	---
27	---	1.4	.2	---	---	.5	-.7	---	---	1.6	.7	---
28	---	1.3	.3	---	---	.8	.0	---	---	1.2	.5	---
29	---	1.6	.5	---	---	1.0	.2	---	---	1.2	.6	---
30	---	1.4	.4	---	---	1.1	-.1	---	---	1.2	.6	---
31	---	1.5	.5	---	---	---	---	---	---	1.0	.5	---
MONTH	---	3.0	.2	---	---	2.5	-.7	---	---	2.2	-.3	---

## HIGHLAND BAYOU BASIN

08077740 LAMARQUE LEVEE PUMP STATION NEAR LAMARQUE, TX--Continued

08077740 LAMARQUE LEVEE PUMP STATION NEAR LAMARQUE, TX - Continued

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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	---	.9	-.1	---	---	.9	-.1	---	---	2.1	.9	---
2	---	1.4	.2	---	---	1.2	-.1	---	---	1.9	.7	---
3	---	1.6	.8	---	---	1.5	.5	---	---	1.1	.1	---
4	---	1.6	.6	---	---	1.8	.6	---	---	1.0	-.2	---
5	---	1.3	-.1	---	---	1.9	.7	---	---	.2	-.8	---
6	---	1.3	.1	---	---	1.2	.0	---	---	.2	-.7	---
7	-.5	2.0	1.3	.0	---	.5	-.2	---	-2.9	.3	-.6	---
8	---	2.0	.5	---	---	.6	-.2	---	-2.8	.1	-.5	---
9	-2.1	2.0	.9	-.8	---	1.0	.2	---	---	.3	-.4	---
10	-2.7	1.8	.3	-1.3	-2.3	1.5	.7	---	---	.5	-.2	---
11	---	1.3	.4	---	-2.8	1.3	.6	---	---	1.4	-.4	---
12	---	1.3	.6	---	---	.7	-.1	---	---	1.4	.0	---
13	---	1.0	.3	---	---	1.0	-.3	---	---	.0	-1.5	---
14	---	1.5	.5	---	-3.0	1.5	.1	---	---	.2	-1.5	---
15	---	1.7	.4	---	-2.8	1.8	1.0	---	---	1.7	.0	---
16	---	1.7	.6	---	---	1.6	.1	---	-.5	1.7	1.0	---
17	---	1.5	.3	---	---	1.1	.0	---	---	1.0	-.3	---
18	-3.0	1.5	.5	---	---	1.1	-.1	---	---	1.3	.5	---
19	-3.0	1.5	.2	---	---	1.4	.5	---	---	1.5	.8	---
20	-2.9	1.5	.7	---	---	1.3	.4	---	---	1.6	.4	---
21	---	1.3	.3	---	-2.8	1.2	.4	---	---	.7	.3	---
22	---	1.3	.2	---	-2.7	.9	.3	---	---	.9	.4	---
23	---	1.4	.6	---	---	1.2	.6	---	---	.8	.2	---
24	-2.7	1.3	-.1	---	---	1.9	.9	---	---	.7	.1	---
25	-2.6	1.4	1.0	---	---	2.1	1.0	---	---	.9	.2	---
26	---	1.2	.2	---	---	1.0	.4	---	---	.9	-.1	---
27	---	1.2	.3	---	---	1.4	.1	---	---	.9	.0	---
28	---	1.2	.7	---	---	1.5	.6	---	---	1.1	.2	---
29	-2.8	1.1	.8	---	---	---	---	---	---	1.2	.1	---
30	---	1.1	.5	---	---	---	---	---	---	1.2	.3	---
31	---	1.0	.1	---	---	---	---	---	---	.9	-.1	---
MONTH	---	2.0	-.1	---	---	2.1	-.3	---	---	2.1	-1.5	---

DAY	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
	MAX	MAX	MIN	MAX	MAX	MAX	MIN	MAX	MAX	MAX	MIN	MAX
1	---	.1	-.9	---	---	s1.5	s1.0	---	---	s1.2	s.5	---
2	---	.4	-.6	---	---	s1.3	s.8	---	---	s1.4	s.6	---
3	---	1.5	.4	---	---	s1.1	s.4	---	---	s1.2	s.4	---
4	-2.8	1.5	.4	---	---	s1.1	s.4	---	---	s1.1	s.3	---
5	---	.4	-.3	---	---	s1.6	s.7	---	---	s1.2	s.3	---
6	---	1.3	-.3	---	---	s1.7	s.8	---	---	s1.2	s.4	---
7	-.6	2.2	.7	---	---	s1.5	s.7	---	---	s1.4	s.6	---
8	---	1.7	.8	---	---	s1.8	s.7	---	---	s1.6	s.8	---
9	---	.8	-.3	---	---	s1.9	s1.0	---	---	1.6	.9	---
10	---	1.0	-.7	---	---	s1.4	s.7	---	---	1.4	.8	-2.0
11	---	1.2	.2	---	---	s.9	s.3	---	---	1.1	.6	---
12	---	1.1	.2	---	---	s.8	s.3	---	---	1.0	.6	---
13	---	1.4	.2	---	---	s.4	s-.1	---	---	1.0	.3	---
14	---	1.9	1.0	---	---	s.5	s.0	---	-3.0	.9	.1	---
15	---	1.0	-.5	---	---	s.7	s.5	---	-3.0	.7	.1	---
16	---	.5	-.5	---	---	s.8	s.3	---	---	1.4	.1	---
17	---	.7	.3	---	---	s.8	s.3	---	---	2.1	.6	---
18	---	.8	.4	---	---	s1.1	s.4	---	---	2.3	1.2	---
19	---	1.1	.4	---	---	s.7	s.3	---	---	3.5	1.4	---
20	---	1.1	.1	---	---	s1.2	s.3	---	---	3.5	2.3	---
21	---	.6	.0	---	---	s1.4	s.5	---	---	2.3	1.3	---
22	---	.7	-.1	---	---	s1.7	s.7	---	---	1.7	.8	---
23	---	1.3	.1	---	---	2.4	1.0	---	---	1.6	.7	---
24	---	1.6	.7	---	---	2.0	1.0	---	---	1.6	.8	---
25	---	1.3	.5	---	---	1.4	.5	---	---	1.4	.8	---
26	---	---	---	---	---	1.3	.3	---	---	1.2	.6	---
27	---	---	---	---	---	1.7	.6	---	---	1.2	.5	---
28	---	s1.5	s.8	---	---	1.5	.8	---	---	1.4	.3	---
29	---	s1.4	s.9	---	---	1.5	1.0	---	---	1.3	.3	---
30	---	s1.2	s.6	---	---	1.4	.6	---	---	1.3	.1	---
31	---	---	---	---	---	1.1	.3	---	---	---	---	---
MONTH	---	---	---	---	---	2.4	-.1	---	---	3.5	.1	---

## HIGHLAND BAYOU BASIN

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08077740 LAMARQUE LEVEE PUMP STATION NEAR LAMARQUE, TX--Continued

08077740 LAMARQUE LEVEE PUMP STATION NEAR LAMARQUE, TX - Continued

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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	---	1.1	.1	---	---	.7	-.3	---	---	.5	.0	---
2	---	1.1	-.1	---	---	.9	-.2	---	---	.7	.0	---
3	---	1.0	.0	---	---	.7	.0	---	---	.5	.0	---
4	---	1.3	.1	---	---	.6	-.1	---	---	.4	-.3	---
5	---	1.3	.3	---	---	.5	-.1	---	---	.8	.3	---
6	---	1.2	.4	---	---	.6	.2	---	---	1.0	.1	---
7	---	1.1	.3	---	---	.6	.1	---	---	.9	.0	---
8	---	.7	.3	---	---	.6	.0	---	---	1.0	.1	---
9	---	.8	.2	---	---	.6	-.1	---	---	.9	.0	---
10	---	.8	.3	---	---	.6	-.1	---	---	.8	-.2	---
11	---	.7	.2	---	---	.7	-.2	---	---	.8	-.1	---
12	---	.8	.2	---	---	.8	-.1	---	---	1.3	.0	---
13	---	1.0	.2	---	---	.9	-.1	---	---	2.0	.6	---
14	---	1.0	.0	---	---	.8	-.1	---	---	2.1	.7	---
15	---	1.0	.0	---	---	.7	-.2	---	---	.8	.3	---
16	---	1.0	.0	---	---	.6	-.4	---	---	1.1	.3	---
17	---	.9	.0	---	---	.4	-.4	---	---	1.3	.4	---
18	---	1.0	-.2	---	---	.5	-.5	---	---	1.5	.6	---
19	---	.9	-.2	---	---	.6	-.1	---	---	1.8	.8	---
20	---	.6	-.2	---	---	.5	.1	---	---	1.8	.8	---
21	---	.5	-.3	---	---	.5	.0	---	---	1.9	.7	---
22	---	.4	-.2	---	---	.5	-.3	---	---	1.8	.6	---
23	---	.5	-.1	---	---	.8	-.2	---	---	1.6	.4	---
24	---	.5	-.2	---	---	.6	-.3	---	---	1.4	.4	---
25	---	.5	-.3	---	---	.5	-.4	---	---	1.4	.4	---
26	---	.5	-.4	---	---	1.3	-.3	---	---	1.2	.3	---
27	---	.8	-.2	---	---	1.5	.0	---	-3.0	.8	.2	---
28	---	1.0	-.1	---	---	.9	.0	---	---	1.2	.3	---
29	---	.7	-.2	---	---	.9	-.1	---	---	1.4	.7	---
30	---	.7	-.3	---	---	.8	.0	---	---	1.4	.8	---
31	---	.7	-.3	---	---	.6	-.1	---	---	---	---	---
MONIH	---	1.3	-.4	---	---	1.5	-.5	---	---	2.1	-.3	---

s From supplementary station.

## CHOCOLATE BAYOU MAIN STEM

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.

WRAINAGE 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); March 1959 to current year.

Water-quality records.--Chemical and biochemical analyses: May 1971 to September 1985.  
Pesticide analyses: May 1971 to September 1981.

GAUGE.--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.--No estimated daily discharges. Records good. Stage-discharge relationship is affected by seasonal vegetation 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)
Nov. 20	2000	1,650	24.15	Mar. 2	1400	2,040	26.10
Dec. 15	1900	1,380	22.55	Apr. 4	2000	1,850	25.18
Jan. 8	0700	2,080	26.22	Apr. 8	1500	2,250	26.91
Jan. 10	1300	2,020	26.01	June 21	1900	3,120	29.03

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.0	82	3.0	9.4	121	412	6.2	39	52	45	94	72
2	6.7	118	2.6	6.6	65	1930	4.9	96	24	36	92	65
3	7.2	41	2.1	5.5	42	1340	20	134	14	37	87	59
4	3.7	17	2.5	7.2	29	352	1460	40	12	42	109	47
5	3.1	7.6	2.4	16	124	132	1290	15	16	44	96	55
6	3.1	4.6	2.0	9.1	311	62	336	422	24	35	88	57
7	3.4	3.5	1.9	1190	157	34	541	458	21	35	72	43
8	3.8	3.0	1.9	1930	75	20	2130	143	24	36	70	38
9	2.5	2.8	554	1050	43	12	1360	53	29	31	71	34
10	2.0	7.6	616	1930	304	8.1	294	410	35	40	72	31
11	1.4	66	168	1140	417	6.0	111	285	185	37	71	30
12	.85	135	65	348	167	100	55	79	400	39	75	29
13	1.4	83	35	175	73	208	33	31	198	39	75	29
14	2.3	31	95	90	40	73	21	18	90	35	80	30
15	3.0	17	1190	53	28	41	14	11	52	34	71	45
16	3.2	10	1000	36	231	281	9.5	9.1	28	55	75	35
17	3.3	7.2	390	25	162	178	6.6	11	20	54	68	23
18	1.9	6.2	171	20	67	69	5.4	14	36	56	57	14
19	.90	17	92	15	34	35	4.4	15	446	59	45	15
20	.45	1290	101	212	24	436	4.5	7.4	2020	69	43	20
21	.29	1150	101	504	19	300	3.9	9.4	2940	86	47	30
22	.21	1050	67	216	14	267	2.9	24	2860	105	54	25
23	.18	431	53	98	9.1	1100	2.6	39	1890	82	50	20
24	.19	168	158	152	6.9	594	2.8	443	569	71	48	11
25	.19	73	105	115	13	241	3.1	205	145	57	40	8.0
26	.17	33	58	52	53	109	2.9	269	300	60	49	9.0
27	.13	14	35	28	38	50	2.3	157	631	57	61	64
28	.13	7.4	24	18	21	27	2.5	256	353	65	141	26
29	.14	4.7	19	503	---	17	4.2	87	145	71	135	8.5
30	.19	3.5	16	697	---	13	14	45	70	104	125	5.1
31	.12	---	15	276	---	9.5	---	63	---	104	84	---
TOTAL	64.14	4884.1	5146.4	10926.8	2688.0	8456.6	7747.7	3887.9	13629	1720	2345	977.6
MEAN	2.07	163	166	352	96.0	273	258	125	454	55.5	75.6	32.6
MAX	8.0	1290	1190	1930	417	1930	2130	458	2940	105	141	72
MIN	.12	2.8	1.9	5.5	6.9	6.0	2.3	7.4	12	31	40	5.1
AC-F-I	127	9690	10210	21670	5330	16770	15370	7710	27030	3410	4650	1940



## CHOCOLATE BAYOU MAIN STEM

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08078000 CHOCOLATE BAYOU NEAR ALVIN, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1993, BY WATER YEAR (WY)

MEAN	55.0	82.7	96.8	131	114	65.8	92.5	144	225	165	98.4	139
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 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1960 - 1993

ANNUAL TOTAL	80926.14	62473.24	
ANNUAL MEAN	221	171	
HIGHEST ANNUAL MEAN			117
LOWEST ANNUAL MEAN			340
HIGHEST DAILY MEAN	3570	2940	39.6
LOWEST DAILY MEAN	.12 May 29	.12 Jun 21	15700
ANNUAL SEVEN-DAY MINIMUM	.15 Oct 31	.15 Oct 31	.03 Jul 26 1979
INSTANTANEOUS PEAK FLOW	.15 Oct 25	.15 Oct 25	.08 Dec 17 1975
INSTANTANEOUS PEAK STAGE		3120 Jun 21	21500 Jul 26 1979
ANNUAL RUNOFF (AC-FT)	160500	29.03 Jun 21	33.88 Jul 26 1979
10 PERCENT EXCEEDS	634	123900	84950
50 PERCENT EXCEEDS	58	419	200
90 PERCENT EXCEEDS	3.5	43	32
		3.0	3.6

## BRAZOS RIVER BASIN

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 September 1993 (discontinued).

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)
July 3	0400	1,410	6.65	No peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	6.3	14	21	23	21	9.0	14	6.3	42	.01	.44
2	2.2	7.1	12	30	21	24	9.0	14	5.0	289	.02	.13
3	2.6	9.0	11	34	19	24	8.0	14	3.4	900	.00	.01
4	3.0	7.1	12	34	18	18	8.0	10	2.2	295	.04	.00
5	2.6	7.1	14	32	16	18	9.0	7.1	1.9	122	.06	.00
6	2.6	6.3	15	30	18	18	8.0	6.3	1.8	82	4.5	.00
7	2.6	7.1	15	28	18	18	7.1	5.6	.93	47	13	.00
8	2.6	6.3	15	28	16	14	6.3	6.3	.36	24	30	.77
9	3.4	6.3	15	28	14	12	5.6	19	.28	21	16	.11
10	3.4	6.3	18	28	16	11	5.6	17	.59	18	10	.00
11	3.4	6.3	21	24	19	11	5.6	6.3	5.9	7.2	7.7	.00
12	2.6	6.3	18	21	23	14	6.3	5.0	.68	5.6	2.3	.00
13	2.2	9.0	15	21	23	14	6.3	5.0	.36	16	1.4	.00
14	1.6	9.0	15	23	21	15	8.0	4.4	.10	26	1.1	.00
15	1.4	8.0	16	21	38	16	11	4.4	.07	53	.53	.00
16	1.4	6.3	18	19	32	15	64	4.4	.04	32	.12	.00
17	2.2	6.3	24	18	30	14	48	6.5	.00	21	.07	.00
18	2.6	9.0	24	18	24	14	30	46	.00	19	.01	.00
19	2.6	10	23	19	23	15	23	21	.00	18	.00	.00
20	2.2	12	18	21	23	16	24	42	.00	16	.00	.00
21	3.0	55	14	21	23	16	23	37	.10	12	.00	.00
22	3.4	30	11	23	23	16	18	32	.55	6.2	.00	.00
23	3.9	65	11	26	23	15	11	30	13	4.8	.00	.00
24	4.4	31	11	28	19	14	10	30	29	3.9	.00	.00
25	5.0	36	12	26	18	14	8.0	28	46	3.8	.00	.00
26	5.6	33	15	23	16	14	7.1	24	29	2.7	.00	.00
27	6.3	e26	15	19	19	14	7.1	18	22	1.4	.00	.00
28	6.3	e19	14	19	19	14	7.5	12	14	.82	.00	.00
29	5.6	15	14	21	---	11	17	12	.98	.48	.00	.00
30	6.3	16	11	23	---	10	14	21	.00	.23	84	.00
31	7.1	---	16	23	---	9.0	---	11	---	.07	13	---
TOTAL	106.0	477.1	477	750	595	469.0	424.5	513.3	184.54	2090.20	183.86	1.46
MEAN	3.42	15.9	15.4	24.2	21.2	15.1	14.1	16.6	6.15	67.4	5.93	.049
MAX	7.1	65	24	34	38	24	64	46	46	900	84	.77
MIN	1.4	6.3	11	18	14	9.0	5.6	4.4	.00	.07	.00	.00
AC-FT	210	946	946	1490	1180	930	842	1020	366	4150	365	2.9

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1993, BY WATER YEAR (WY)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MEAN	58.2	17.8	15.7	15.3	24.1	17.0	23.5	44.2	50.1	42.1
MAX	213	44.9	29.5	28.1	40.1	29.3	58.5	216	138	21.1
(WY)	1984	1987	1992	1992	1992	1992	1984	1992	1992	1987
MIN	1.98	3.44	7.52	3.74	9.57	5.85	1.65	2.11	6.15	.029
(WY)	1990	1990	1989	1984	1991	1991	1991	1984	1993	1989

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1984 - 1993

ANNUAL TOTAL	17533.4	6271.96	
ANNUAL MEAN	47.9	17.2	
HIGHEST ANNUAL MEAN			31.0
LOWEST ANNUAL MEAN			51.0
HIGHEST DAILY MEAN	1950	May 23	1992
LOWEST DAILY MEAN	1.4	Oct 15	1983
ANNUAL SEVEN-DAY MINIMUM	2.0	Oct 12	1984
INSTANTANEOUS PEAK FLOW			4500
INSTANTANEOUS PEAK STAGE			9.10
INSTANTANEOUS LOW FLOW			.00
ANNUAL RUNOFF (AC-FT)	34780	12440	22430
10 PERCENT EXCEEDS	66	29	47
50 PERCENT EXCEEDS	19	11	12
90 PERCENT EXCEEDS	3.3	.00	.21

08079575 NORTH FORK DOUBLE MOUNTAIN FORK BRAZOS RIVER NEAR POST, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1983 to September 1993 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1983 to September 1993 (discontinued).

WATER TEMPERATURES: October 1983 to September 1993 (discontinued).

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, 37.0°C July 25, 1993; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 3,970 microsiemens June 21; minimum daily, 1,010 microsiemens Sept. 8.

WATER TEMPERATURES: Maximum daily, 37.0°C July 25; minimum daily, 0.0°C Jan. 10, Mar. 13.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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 21...	0945	3.0	3170	18.5	580	250	68	100	480
DEC 17...	0950	24	2170	1.0	530	230	69	86	280
FEB 17...	1300	30	2360	0.5	590	250	77	97	300
APR 06...	1740	8.0	3000	21.0	620	290	67	110	430
JUN 02...	1750	5.0	3120	30.5	610	280	64	110	480
JUL 21...	0815	12	2190	25.5	520	260	60	89	280

DATE	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 CONSTITUENTS, DIS- SOLVED (MG/L)
OCT 21...	9	18	330	460	580	4.2	16	1930
DEC 17...	5	17	300	310	380	3.3	26	1350
FEB 17...	5	19	340	320	390	3.2	27	1440
APR 06...	8	23	330	500	510	4.9	12	1850
JUN 02...	8	24	330	480	560	4.5	24	1940
JUL 21...	5	7.9	260	320	360	3.3	25	1300

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. 1992	106.0	2800	1730	495	490	139	430	124	600
NOV. 1992	477.1	2150	1300	1680	360	462	310	401	480
DEC. 1992	477	2270	1370	1770	380	489	330	426	500
JAN. 1993	750	2290	1390	2810	380	779	340	679	510
FEB. 1993	595	2440	1490	2390	410	664	360	583	530
MAR. 1993	469.0	2630	1610	2040	450	570	400	505	570
APR. 1993	424.5	2690	1650	1890	460	530	410	472	580
MAY 1993	513.3	2550	1560	2160	430	603	380	533	550
JUNE 1993	184.54	2770	1710	851	480	239	430	213	590
JULY 1993	2090.20	2240	1360	7650	370	2110	330	1840	490
AUG. 1993	183.86	1770	1050	522	290	142	240	121	400
SEPT 1993	1.46	1470	871	3.4	240	0.9	200	0.8	330
TOTAL	6271.96	**	**	24300	**	6730	**	5900	**
WTD.AVG.	17	2360	1430	**	400	**	350	**	520

## BRAZOS RIVER BASIN

08079575 NORTH FORK DOUBLE MOUNTAIN FORK BRAZOS RIVER NEAR POST, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3090	2480	2410	2200	2450	2550	2800	2680	2970	1680	3130	2070
2	3090	2450	2400	2210	2450	2560	2830	2700	3110	2480	3160	2300
3	3070	2420	2400	2200	2500	2540	2870	2630	3300	2200	---	e2600
4	3050	2510	2390	2140	2490	2540	3000	2780	3390	2170	3160	---
5	3040	2580	2330	2130	2510	2570	2990	2920	3260	2150	2800	---
6	3030	2670	2270	2170	2520	2570	3010	3060	e3300	2200	2500	---
7	3010	2710	2290	2180	2520	2580	3130	3130	e3500	2280	2130	---
8	2930	2740	2280	2190	2560	2630	3210	3060	e3600	2400	1760	1010
9	2860	2690	2310	2180	2550	2670	3210	2750	e3700	2410	1950	e1200
10	2810	2630	2250	2190	2460	2680	3250	2600	e3500	2360	1980	---
11	2880	2600	2140	2240	2480	2670	3270	2900	e3000	2450	2010	---
12	2980	2650	2150	2310	2370	2670	3170	3120	e3400	2660	2150	---
13	3080	2410	2190	2330	2360	2730	3150	3120	e3600	2750	2330	---
14	3150	2380	2150	2330	2430	2680	2950	3210	e3800	2470	2390	---
15	3180	2420	2140	2370	1990	2670	2900	3240	e3900	2220	2550	---
16	3190	2500	2210	2390	2430	2680	2520	3330	e3950	e2150	2700	---
17	3190	2460	2160	2440	2370	2650	2340	2940	---	2100	2740	---
18	3220	2310	2120	2450	2390	2610	2390	2080	---	2120	e2800	---
19	3220	2440	2110	2370	2430	2610	2510	2290	---	2080	---	---
20	3200	2400	2150	2390	2420	2590	2480	2470	---	2160	---	---
21	3150	1750	2270	2360	2460	2560	2450	2410	3970	2240	---	---
22	3020	2270	2330	2290	2410	2550	2650	2430	3570	2330	---	---
23	2870	1920	2360	2280	2500	2580	2830	2420	2940	2390	---	---
24	2700	1960	2340	2290	2560	2630	2860	2440	2630	2570	---	---
25	2590	1950	2330	2300	2630	2650	2880	2460	2560	2620	---	---
26	2490	e2000	2320	2340	2590	2660	3010	2550	2580	2680	---	---
27	2450	e2050	2350	2500	2560	2640	2990	2680	2670	2850	---	---
28	2450	e2100	2400	2480	2530	2670	3000	2790	3160	2950	---	---
29	2470	2180	2410	2440	---	2760	2700	2750	3370	3010	---	---
30	2460	2340	2480	2440	---	2800	2760	2340	---	3100	e1600	---
31	2430	---	2400	2450	---	2840	---	2530	---	3120	1450	---
MEAN	2910	2370	2290	2310	2460	2640	2870	2740	3310	2430	2380	1840

e Estimated

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.5	11.0	10.0	4.0	13.0	13.5	18.0	18.0	23.0	30.0	27.0	27.0
2	25.0	14.0	7.0	5.0	12.0	7.0	17.0	14.0	28.0	27.0	28.0	30.0
3	15.0	9.0	10.0	10.0	11.0	15.0	16.0	26.0	25.0	24.0	---	---
4	17.0	11.0	4.0	8.0	11.0	14.0	10.5	25.0	27.0	24.0	29.0	---
5	20.0	10.0	2.0	7.0	6.0	15.0	18.5	22.0	18.0	29.0	25.0	---
6	20.0	15.0	3.0	9.5	6.0	12.0	19.0	23.0	---	31.0	25.0	---
7	14.0	9.0	7.0	13.0	8.0	9.0	20.0	27.0	---	28.0	30.5	---
8	18.5	15.0	10.0	7.0	11.0	18.0	14.0	21.5	---	29.0	31.0	24.0
9	21.0	15.5	8.0	6.0	13.0	18.0	16.0	19.5	---	30.0	31.0	---
10	13.0	18.5	9.0	.0	11.0	15.0	13.0	20.0	---	26.0	32.0	---
11	15.0	12.0	10.0	4.0	8.0	11.0	20.0	18.0	---	27.5	31.0	---
12	20.0	11.0	13.0	7.0	11.0	7.0	23.5	21.0	---	27.0	33.5	---
13	23.5	11.0	9.0	4.0	11.0	.0	25.0	24.0	---	30.5	30.5	---
14	23.0	6.0	3.0	8.0	7.0	8.0	12.0	27.5	---	28.0	30.0	---
15	19.0	12.0	5.5	8.0	4.0	11.0	19.5	24.0	---	32.0	32.0	---
16	16.0	14.5	5.5	5.0	5.0	17.0	17.0	19.5	---	---	30.0	---
17	9.0	17.0	6.0	9.0	1.5	11.0	14.5	22.0	---	23.0	32.0	---
18	15.0	14.0	9.0	5.0	3.0	16.0	17.0	24.0	---	26.0	---	---
19	20.0	10.0	9.5	4.0	12.0	12.0	19.0	24.0	---	28.0	---	---
20	23.0	11.5	4.5	10.0	12.0	8.0	20.0	27.0	---	32.0	---	---
21	21.0	9.5	9.0	12.0	10.5	13.0	12.0	25.0	29.5	28.0	---	---
22	22.0	8.0	9.0	12.0	13.0	17.0	23.0	21.0	29.0	31.0	---	---
23	22.0	10.0	11.5	13.0	11.0	17.0	17.5	21.5	27.0	33.0	---	---
24	19.0	5.0	6.0	5.0	8.0	22.0	14.0	27.5	31.0	30.0	---	---
25	25.0	2.5	7.0	9.0	13.0	20.0	16.5	28.0	30.0	37.0	---	---
26	18.0	---	5.5	10.0	13.0	17.0	22.0	28.0	25.0	34.0	---	---
27	20.0	---	7.0	11.0	5.0	13.0	19.0	28.0	25.0	29.0	---	---
28	18.0	---	11.0	9.0	5.0	16.0	22.0	28.0	28.0	30.5	---	---
29	17.5	11.0	15.0	6.0	---	18.0	24.5	23.0	30.5	29.0	---	---
30	18.0	9.0	15.0	8.0	---	17.0	25.0	25.5	---	34.0	---	---
31	15.0	---	5.5	5.0	---	18.0	---	22.0	---	30.0	20.0	---
MEAN	19.0	11.2	8.0	7.5	9.1	13.7	18.2	23.4	26.9	29.2	29.3	27.0

## BRAZOS RIVER MAIN STEM

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## 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)
June 11	0700	2,210	a8.00	No other peak greater than base discharge.			
a From floodmark.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.30	e.30	.44	114	.00	.18	.01	.00	.00	1.1
2	.00	.00	.23	.55	.44	13	.00	42	.00	.00	.00	.01
3	.00	.00	.30	.62	.44	2.2	.00	5.4	.00	e.32	.00	.00
4	.00	.00	.30	.30	.36	.86	.00	1.9	.00	e.42	.00	.00
5	.00	.00	.18	.30	.44	.44	.00	8.1	.00	.00	.00	.00
6	.00	.00	e.18	.30	.36	.30	.00	30	.00	.00	.00	.00
7	.00	.00	.23	.36	e.36	e.18	.00	1.6	.00	.00	.00	.00
8	.00	.00	.30	.30	.36	.13	.00	.73	.00	.00	.00	.00
9	.00	.00	.36	.30	.36	.07	.00	e.36	e.09	.00	.00	.00
10	.00	.00	.30	e.30	.44	.07	.00	.23	.23	.00	.00	.00
11	.00	.00	.23	e.30	.30	.07	.00	.10	541	.00	.00	.00
12	.00	.00	.23	.40	.30	.07	.00	.05	13	.00	.00	.00
13	.00	.00	e.23	.30	.30	.10	e.01	.02	2.9	.00	.00	1.0
14	.00	.00	1.3	.30	e.30	e.07	.17	.01	1.6	.00	.00	.00
15	.00	.00	.51	.23	359	.03	.05	.01	.98	13	.00	.00
16	.00	.00	5.4	.13	68	.01	.02	.00	1.1	.02	.00	.00
17	.00	.00	1.0	e.13	6.1	.00	.01	e11	3.1	.00	.00	.00
18	.00	.00	.73	e.10	3.8	e.01	.00	375	3.8	.00	.00	.00
19	e.01	.00	.62	e.10	3.5	.07	.00	15	.53	e2.3	.00	.00
20	e.02	.00	e.62	8.0	3.2	.07	.00	3.8	e.10	.43	.00	.00
21	.03	211	.53	1.3	e1.8	e.10	.00	1.4	.00	.00	.00	.00
22	e.02	53	.44	.53	.86	.10	.00	.62	.00	.00	.00	.00
23	e.02	4.8	.44	.44	.62	.05	.00	.73	.00	.00	.00	.00
24	e.01	.98	.36	e.53	.62	.02	.00	.73	.00	.00	e.47	.00
25	.00	.44	e.30	.53	.44	.01	.00	.23	.00	.00	28	.00
26	.00	e.36	.30	.44	.30	.00	.00	.07	.00	.00	.14	.00
27	.00	.30	e.30	.44	.30	.00	.00	.03	.00	.00	.00	.00
28	.00	.30	.30	.53	e.23	.00	e11	.01	.00	.00	.00	.00
29	.00	e.30	.30	.62	---	.00	492	e1.7	.00	.00	.00	.00
30	.00	.30	.36	.44	---	.00	6.1	7.0	.00	.00	e1.7	.00
31	.00	---	.30	e.44	---	.00	---	.05	---	.00	58	---
TOTAL	0.11	271.78	17.48	19.86	453.97	132.03	509.36	508.06	568.44	16.49	88.31	2.11
MEAN	.004	9.06	.56	.64	16.2	4.26	17.0	16.4	18.9	.53	2.85	.070
MAX	.03	211	5.4	8.0	359	114	492	375	541	13	58	1.1
MIN	.00	.00	.18	.10	.23	.00	.00	.00	.00	.00	.00	.00
AC-FI	.2	539	35	39	900	262	1010	1010	1130	33	175	4.2
CFSM	.00	.04	.00	.00	.07	.02	.07	.07	.08	.00	.01	.00
IN.	.00	.04	.00	.00	.07	.02	.08	.08	.09	.00	.01	.00

e Estimated



## BRAZOS RIVER MAIN STEM

08079600 DOUBLE MOUNTAIN FORK BRAZOS RIVER AT JUSTICEBURG, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1993, BY WATER YEAR (WY)

MEAN	34.5	6.42	5.09	2.53	5.26	7.78	11.6	56.7	75.6	31.4	37.6	56.0
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 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1962 - 1993

ANNUAL TOTAL	16048.16	2588.00	27.1
ANNUAL MEAN	43.8	7.09	69.8
HIGHEST ANNUAL MEAN			1.65
LOWEST ANNUAL MEAN			9920
HIGHEST DAILY MEAN	3650 May 23	541 Jun 11	.00 Aug 13
LOWEST DAILY MEAN	.00 May 1	.00 Oct 1	.00 Feb 17
ANNUAL SEVEN-DAY MINIMUM	.00 May 1	.00 Oct 1	.00 Mar 3
INSTANTANEOUS PEAK FLOW		2210 Jun 11	49600 May 6
INSTANTANEOUS PEAK STAGE		a/8.00 Jun 11	19.80 May 6
INSTANTANEOUS LOW FLOW		.00 *	.00 *
ANNUAL RUNOFF (AC-FT)	31830	5130	19610
ANNUAL RUNOFF (CFSM)	.18	.029	.11
ANNUAL RUNOFF (INCHES)	2.45	.39	1.51
10 PERCENT EXCEEDS	38	1.8	11
50 PERCENT EXCEEDS	.86	.02	.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, 23,300 microsiemens Dec. 28; minimum daily, 1,050 microsiemens Aug. 31.  
WATER TEMPERATURE: Maximum daily, 31.0°C May 30; minimum daily, 0.0°C Dec. 5, 15, Feb. 17, 18, Mar. 13.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT 21...	1155	0.03	20800	20.5	1600	1400	360	170	4300
DEC 17...	1235	1.4	5930	5.5	490	270	120	45	1100
FEB 17...	1505	6.8	3230	0.0	360	180	80	38	530
MAY 02...	0900	27	1860	10.0	210	61	54	18	300
JUL 15...	0645	48	1220	23.0	41	0	12	2.7	260

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS 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)
OCT 21...	47	18	180	920	6900	--	9.0	12800
DEC 17...	22	6.5	210	310	1700	1.1	9.5	3420
FEB 17...	12	6.5	170	300	730	1.4	9.6	1800
MAY 02...	9	6.2	150	230	360	1.4	12	1070
JUL 15...	18	2.8	210	85	200	0.80	11	700

MONTH YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TUNS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TUNS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TUNS)	HARDNESS (CA,MG) (MG/L)
OCT. 1992	0.11	20900	12900	3.8	6900	2.1	810	0.2	*
NOV. 1992	271.78	1540	920	6/5	480	349	80	59	120
DEC. 1992	17.48	9400	5710	269	3000	142	420	20	680
JAN. 1993	19.86	7790	4710	253	2500	133	370	20	580
FEB. 1993	453.97	3860	2320	2840	1200	1470	190	238	300
MAR. 1993	132.03	3760	2260	805	1200	418	190	68	290
APR. 1993	509.36	2360	1420	1950	730	1010	120	168	180
MAY 1993	508.06	1920	1150	1580	590	815	99	135	150
JUNE 1993	568.44	2960	1780	2730	920	1410	150	233	230
JULY 1993	16.49	2280	1370	61	710	32	110	5.1	180
AUG. 1993	88.31	1170	701	167	360	86	61	15	92
SEPT 1993	2.11	3300	1980	11	1000	5.8	170	1.0	260
TOTAL	2588.00	**	**	11300	**	5880	**	960	**
WTD.AVG.	7.1	2700	1620	**	840	**	140	**	210

## BRAZOS RIVER MAIN STEM

08079600 DOUBLE MOUNTAIN FORK BRAZOS RIVER AT JUSTICEBURG, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	11000	e18000	10600	3700	---	3780	14700	---	---	3500
2	---	---	12200	11000	10800	2870	---	1980	---	---	---	10500
3	---	---	11900	10800	11000	4900	---	2820	---	e14000	---	---
4	---	---	11700	10900	12000	7320	---	5910	---	e13000	---	---
5	---	---	13700	10400	11500	8900	---	6750	---	---	---	---
6	---	---	e13000	10200	12900	9390	---	1680	---	---	---	---
7	---	---	12300	10300	e13000	e9350	---	3570	---	---	---	---
8	---	---	11400	10600	13100	9330	---	7190	---	---	---	---
9	---	---	10000	10100	14100	10400	---	e7150	e12000	---	---	---
10	---	---	12200	e10400	14200	11800	---	7130	7300	---	---	---
11	---	---	12400	e10800	14500	12200	---	10200	2900	---	---	---
12	---	---	13400	11000	15000	13200	---	13600	1500	---	---	---
13	---	---	e13500	11800	14700	11700	e14000	16000	4300	---	---	3000
14	---	---	11300	10300	e14600	e12000	13600	16200	7450	---	---	---
15	---	---	7900	10600	4100	13900	12500	17600	10400	1700	---	---
16	---	---	2870	11400	1470	13600	16200	---	12000	e3000	---	---
17	---	---	5790	e12000	3100	---	17200	e6000	6500	---	---	---
18	---	---	8960	e14000	5500	e12000	---	1500	4250	---	---	---
19	e21000	---	10400	e15000	4740	10800	---	2320	12800	e2000	---	---
20	e20900	---	e10400	4500	4740	10100	---	3800	e13000	2200	---	---
21	20800	1400	10400	4710	e6000	e10500	---	4640	---	---	---	---
22	e20800	1470	11000	7640	7330	10900	---	5810	---	---	---	---
23	e21000	3590	12200	9180	8080	10600	---	7020	---	---	---	---
24	e21500	6750	17800	e9700	8710	13900	---	6530	---	---	e3000	---
25	---	9330	e19500	10200	9840	14000	---	e7500	---	---	1080	---
26	---	e9900	21600	10400	9740	---	---	8700	---	---	5400	---
27	---	10400	e22500	10400	9880	---	---	10800	---	---	---	---
28	---	10500	23300	11300	e10000	---	e5000	14700	---	---	---	---
29	---	e10600	14700	10400	---	---	---	2300	e10000	---	---	---
30	---	10700	15700	10300	---	---	2160	3240	---	---	e6000	---
31	---	---	20100	e10500	---	---	---	10500	---	---	1050	---
MEAN	21000	7460	13100	10600	9830	10300	10400	7490	8390	5980	3310	5670
e Estimated												

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	2.5	---	3.0	7.0	---	15.0	17.5	---	---	18.5
2	---	---	2.0	3.5	6.0	6.0	---	10.0	---	---	---	20.0
3	---	---	5.0	10.0	6.0	5.0	---	10.0	---	---	---	---
4	---	---	2.0	5.0	5.0	4.5	---	14.5	---	---	---	---
5	---	---	.0	5.0	3.5	3.5	---	19.0	---	---	---	---
6	---	---	---	7.0	2.5	4.0	---	17.0	---	---	---	---
7	---	---	1.0	10.0	---	---	---	19.0	---	---	---	---
8	---	---	4.0	6.0	3.5	6.0	---	18.0	---	---	---	---
9	---	---	6.0	6.0	9.0	8.0	---	---	---	---	---	---
10	---	---	5.0	---	7.0	8.0	---	12.0	16.5	---	---	---
11	---	---	3.5	---	3.0	5.0	---	10.5	18.0	---	---	---
12	---	---	8.0	5.5	2.0	3.5	---	12.5	20.0	---	---	---
13	---	---	---	1.5	3.5	.0	---	13.5	23.0	---	---	20.0
14	---	---	1.0	3.5	---	---	10.0	14.0	19.5	---	---	---
15	---	---	.0	6.5	3.0	8.0	6.5	15.0	20.0	23.0	---	---
16	---	---	1.5	1.5	2.0	7.0	9.0	---	21.0	---	---	---
17	---	---	.5	---	.0	---	11.5	---	21.0	---	---	---
18	---	---	3.0	---	.0	---	---	16.0	21.0	---	---	---
19	---	---	8.5	---	2.5	11.5	---	14.5	21.0	---	---	---
20	---	---	---	7.0	8.0	7.0	---	16.0	---	21.5	---	---
21	20.5	8.0	6.0	8.5	---	---	---	17.0	---	---	---	---
22	---	11.0	6.0	7.5	4.0	11.0	---	18.0	---	---	---	---
23	---	10.0	4.0	9.0	4.0	6.0	---	20.5	---	---	---	---
24	---	7.0	2.5	---	4.0	11.5	---	17.0	---	---	---	---
25	---	2.0	---	3.0	5.0	10.5	---	18.0	---	---	20.0	---
26	---	---	3.0	1.5	.5	---	---	17.0	---	---	21.0	---
27	---	1.0	---	4.0	3.0	---	---	17.0	---	---	---	---
28	---	2.0	8.0	5.0	---	---	---	17.0	---	---	---	---
29	---	---	12.0	2.5	---	---	15.0	---	---	---	---	---
30	---	2.5	14.5	2.5	---	---	16.0	31.0	---	---	---	---
31	---	---	6.5	---	---	---	---	19.0	---	---	19.0	---
MEAN	20.5	5.4	4.5	5.3	3.7	6.6	11.3	16.2	19.9	22.2	20.0	19.5

## BRAZOS RIVER MAIN STEM

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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). WDR 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)
June 10	0930	2,870	5.90	No peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	e.50	41	22	27	57	17	6.9	18	1.1	.04	300
2	2.2	.38	38	24	26	56	15	17	13	.56	.03	129
3	e2.0	.38	38	24	26	51	13	35	10	e.44	.07	45
4	e1.5	.44	35	23	27	48	12	48	8.1	e.38	.02	19
5	1.4	.38	32	21	26	57	10	56	6.4	e.28	.00	16
6	1.2	e.33	30	21	24	55	10	59	5.6	.20	.00	10
7	1.2	e.28	28	22	22	51	10	47	4.1	.07	.00	6.1
8	.90	e.24	26	24	21	47	8.8	36	2.9	.07	.00	5.4
9	.72	.20	29	27	21	42	7.7	51	90	6.1	.00	2.9
10	e.72	.20	28	25	39	38	6.3	43	1990	e5.3	.00	1.3
11	e.80	e.20	25	31	48	35	4.8	26	570	e3.8	.00	.77
12	e.90	.20	22	30	28	34	4.4	26	194	2.6	.00	1.2
13	.90	.20	23	27	23	33	4.2	25	99	1.5	.00	3.9
14	.72	e.20	33	27	22	31	12	21	61	19	.00	25
15	.56	e.24	33	26	143	28	17	15	43	20	.00	9.7
16	.56	.28	29	26	85	26	13	11	53	2.6	.00	3.7
17	e.72	.20	27	28	66	24	12	7.7	47	e1.5	.00	1.4
18	e.90	2.6	27	30	103	23	9.5	23	39	e.90	.00	.68
19	1.2	47	27	32	101	24	6.7	12	31	e.44	.00	.55
20	1.4	9.4	28	34	79	25	4.9	5.8	25	.20	.00	.42
21	1.1	18	30	36	64	24	3.9	12	21	.20	.00	.36
22	1.1	58	28	34	55	28	3.1	546	19	.15	.00	.24
23	1.1	28	27	34	49	26	2.4	136	13	.08	.00	.19
24	e.80	27	27	35	45	24	2.0	104	10	.04	.00	.13
25	e.72	48	26	34	42	22	2.5	85	8.8	.02	85	.31
26	.56	48	25	30	38	19	2.3	79	e5.9	7.9	135	.31
27	.50	41	24	27	34	18	2.2	65	e4.7	29	34	.16
28	.44	39	23	27	35	18	2.2	47	3.6	16	15	.07
29	.64	40	22	27	---	23	4.4	38	3.0	1.7	7.0	.05
30	.90	40	21	26	---	32	4.3	40	1.4	.45	3.4	.03
31	.72	---	22	27	---	22	---	24	---	.11	607	---
TOTAL	31.28	450.85	874	861	1319	1041	227.6	1747.4	3400.5	122.69	886.56	583.87
MEAN	1.01	15.0	28.2	27.8	47.1	33.6	7.59	56.4	113	3.96	28.6	19.5
MAX	2.2	.58	41	36	143	57	17	546	1990	29	607	300
MIN	.44	.20	21	21	21	18	2.0	5.8	1.4	.02	.00	.03
AC-FI	62	894	1730	1710	2620	2060	451	3470	6740	243	1760	1160
CFSM	.00	.01	.02	.01	.03	.02	.00	.03	.06	.00	.02	.01
IN.	.00	.01	.02	.02	.03	.02	.00	.03	.07	.00	.02	.01

e Estimated

## BRAZOS RIVER MAIN STEM

08080500 DOUBLE MOUNTAIN FORK BRAZOS RIVER NEAR ASPERMONT, TX--Continued  
(National stream-quality accounting network)

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 1993<sup>®</sup>, BY WATER YEAR (WY)

MEAN	264	42.5	34.8	15.8	30.2	31.0	112	380	323	193	179	273
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 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

WATER YEARS 1925 - 1993<sup>®</sup>

ANNUAL TOTAL	86811.73	11545.75	158	1941
ANNUAL MEAN	237	31.6	525	1964
HIGHEST ANNUAL MEAN			18.8	1964
LOWEST ANNUAL MEAN				
HIGHEST DAILY MEAN	5400 May 24	1990 Jun 10	55600 Sep 26	1955
LOWEST DAILY MEAN	.20 Nov 9	.00 Aug 5	.00 Oct 4	1924
ANNUAL SEVEN-DAY MINIMUM	.21 Nov 8	.00 Aug 5	.00 Oct 21	1924
INSTANTANEOUS PEAK FLOW		2870 Jun 10	91400 Sep 26	1955
INSTANTANEOUS PEAK STAGE		5.90 Jun 10	29.50 Sep 26	1955
INSTANTANEOUS LOW FLOW		.00 several days	.00	*
ANNUAL RUNOFF (AC-FT)	172200	22900	114300	
ANNUAL RUNOFF (CFSM)	.13	.017	.085	
ANNUAL RUNOFF (INCHES)	1.73	.23	1.15	
10 PERCENT EXCEEDS	576	50	213	
50 PERCENT EXCEEDS	64	17	6.6	
90 PERCENT EXCEEDS	1.0	.18	.00	

<sup>®</sup> See PERIOD OF RECORD paragraph in manuscript.

\* No flow at times most years.



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 September 1993 (discontinued). Sediment analyses: September 1944 to November 1951, and June 1978 to September 1993 (discontinued). 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.--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, 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, 9,080 microsiemens Apr. 19; minimum daily, 1,490 microsiemens June 11.

WATER TEMPERATURE: Maximum daily, 30.5°C July 13, 29; minimum daily, 0.5°C Jan. 19, Feb. 18.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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 KF AGAR (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)
NOV 04...	1330	0.50	7780	7.9	13.5	0.70	10.8	112	1.1	32	54	2800
JAN 20...	1445	35	4880	8.3	12.0	26	11.6	118	1.0	25	79	1200
MAR 04...	1125	49	4710	8.2	9.0	78	13.4	125	1.5	56	48	1200
MAY 05...	1505	58	3510	8.2	26.5	1100	7.9	107	3.2	740	560	740
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 (MG/L AS CAC03)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
NOV 04...	2700	820	190	830	7	12	0	185	152	2000	1700	
JAN 20...	1100	300	110	670	8	10	0	185	151	940	1100	
MAR 04...	1000	280	110	660	8	10	0	167	137	1000	970	
MAY 05...	610	180	68	490	8	11	0	156	128	770	660	
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 DIS-SOLVED TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED TOTAL (MG/L AS N)	
NOV 04...	0.60	11	5790	5660	--	--	<0.010	0.010	<0.050	<0.050	0.120	
JAN 20...	1.2	12	3310	3240	0.300	0.300	--	0.020	0.320	0.320	--	
MAR 04...	1.2	9.7	3110	3120	0.160	0.160	--	0.010	0.170	0.170	--	
MAY 05...	1.5	9.1	2360	2270	0.250	--	--	<0.010	0.250	0.250	--	
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 04...	0.110	--	<0.20	<0.010	<0.010	<0.010	<0.010	12	0.02	67	20	
JAN 20...	0.030	0.37	0.40	0.020	<0.010	<0.010	--	57	5.4	96	10	
MAR 04...	<0.010	0.60	0.60	0.100	<0.010	<0.010	--	148	20	99	--	
MAY 05...	0.010	2.2	2.2	1.20	0.020	<0.010	--	2210	346	99	10	

## BRAZOS RIVER MAIN STEM

08080500 DOUBLE MOUNTAIN FORK BRAZOS RIVER NEAR ASPERMONT, TX--Continued  
(National stream-quality accounting network)

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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 04...		<100	<1	<10	180	340	2	1	1	<1.0	9600	17
JAN 20...		<100	<1	<10	140	30	7	1	2	<1.0	5600	33
MAR 04...		--	--	--	--	--	--	--	--	--	--	--
MAY 05...		<100	<1	10	120	20	8	2	<1	<1.0	4800	28
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)		
OCT. 1992		31.28	7160	4860	410	1600	134	1600	132	1800		
NOV. 1992		450.85	4990	3330	4050	1000	1260	1100	1330	1200		
DEC. 1992		874	5000	3330	7870	1000	2430	1100	2590	1200		
JAN. 1993		861	5110	3410	7930	1100	2460	1100	2610	1200		
FEB. 1993		1319	4280	2840	10100	860	3080	940	3350	1000		
MAR. 1993		1041	5300	3540	9960	1100	3110	1200	3260	1300		
APR. 1993		227.6	7460	5080	3120	1700	1030	1600	999	1800		
MAY 1993		1747.4	3390	2230	10500	670	3170	740	3510	820		
JUNE 1993		3400.5	3020	1980	18200	590	5400	670	6110	730		
JULY 1993		122.69	4620	3080	1020	950	316	1000	336	1100		
AUG. 1993		886.56	3440	2260	5420	670	1610	760	1810	830		
SEPT 1993		583.87	2470	1610	2540	470	739	550	861	600		
TOTAL		11545.75	**	**	81200	**	24700	**	26900	**		
WTD.AVG.		32	3930	2600	**	790	**	860	**	960		

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6860	e7400	3860	e5800	5280	4550	6590	e8500	5230	7690	e7000	2000
2	6850	7560	3910	e5600	5220	4720	6680	e8400	5860	7800	7430	2250
3	e6900	7590	4090	e5700	5270	5100	e6800	7840	6360	e7900	6520	2720
4	e6950	7710	4240	5800	5330	4760	e6900	4740	6880	e8000	e7000	e3000
5	6970	7560	e4600	5860	5330	4560	7030	3440	e7000	e8100	---	e3500
6	7020	7570	4920	5710	e5450	e4400	7110	4130	e7200	8200	---	e4000
7	7090	e7500	e5000	5660	e5600	e4300	7330	3950	7280	8360	---	4570
8	7150	e7420	5120	5580	5710	4150	7550	e3800	7300	8520	---	4780
9	7200	7340	5110	e5200	5820	4400	7670	e3700	6580	7650	---	5260
10	e7210	7340	5500	e5400	4900	4750	e7700	3570	3020	e5000	---	5740
11	e7220	e7370	5500	4820	4960	5030	e7800	5540	1490	e5500	---	e5900
12	e7220	7400	e5600	4660	5290	5190	7880	5700	e1950	5800	---	e6000
13	7250	7430	e5600	4760	e5500	e5350	7870	5470	e2400	6270	---	5800
14	7280	e7450	5250	4930	e5700	e5600	6920	5290	2850	5750	---	3600
15	7380	e7400	5330	4930	e3500	5730	6990	e5500	3490	2950	---	3020
16	7500	7360	5570	e4950	4210	5940	7790	e5700	4280	3920	---	e4500
17	e7400	7350	5610	e4900	5440	6200	e8000	e6000	4860	e5000	---	6140
18	e7300	6400	5390	e4800	3930	6280	e8500	5500	4500	e6000	---	5000
19	7270	3800	e5400	4740	3020	6180	9080	4730	e4800	e7000	---	e6000
20	7250	4240	e5400	4790	e3100	e6150	8720	6640	e5100	7380	---	7140
21	7240	e4500	4800	5110	e3200	e6100	8260	6950	5370	7720	---	7220
22	7250	e5000	4580	5190	3360	6080	e8200	e1900	5580	7660	---	7420
23	7260	5560	4690	e5200	3680	6150	8120	e2600	5970	6210	---	7530
24	e7300	7860	4800	e4700	4130	6240	e8300	2970	6370	e7000	---	7760
25	e7400	5800	e4950	4530	4410	6250	e8500	3250	6580	e7500	5500	e7600
26	7520	e5500	e5100	4580	4740	6330	8700	3540	e6700	6400	3500	e7400
27	7440	e5000	e5200	5230	e4900	e6400	8700	3610	e6800	e4000	e3900	7520
28	7400	e4500	5340	5100	e4700	e5500	8360	3580	6970	e3000	e3850	7970
29	7350	e4000	5490	5200	---	6490	7950	e3800	7220	4190	e3850	7980
30	7310	3910	5620	e5250	---	6280	7130	e4000	7710	5370	3840	8140
31	e7350	---	5760	e5250	---	6600	---	e4700	---	e6000	3100	---
MEAN	7230	6430	5080	5160	4700	5570	7770	4810	5460	6380	5040	5580

e = estimated

BRAZOS RIVER MAIN STEM

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08080500 DOUBLE MOUNTAIN FORK BRAZOS RIVER NEAR ASPERMONT, TX--Continued  
(National stream-quality accounting network)

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.0	---	5.0	---	7.5	8.5	15.5	---	20.5	29.5	---	20.5
2	20.0	20.0	5.0	---	9.5	10.5	10.5	---	24.5	27.5	29.5	24.5
3	---	15.0	5.0	---	10.5	10.5	---	18.5	24.5	---	25.5	29.5
4	---	16.0	5.0	7.5	7.5	9.5	---	21.5	24.5	---	25.5	---
5	20.0	13.0	---	4.5	7.5	8.5	21.5	22.5	---	---	---	---
6	20.0	15.0	5.0	7.5	---	---	16.5	20.5	---	28.5	---	---
7	20.0	---	---	11.5	---	---	15.5	25.5	24.5	27.5	---	23.5
8	15.0	---	6.5	7.5	6.5	19.5	14.5	---	28.5	27.5	---	23.5
9	15.0	20.0	9.0	---	10.5	13.5	12.5	---	24.5	27.5	---	21.5
10	---	20.0	7.0	---	12.5	12.5	---	20.5	20.5	---	---	23.5
11	---	---	6.5	4.5	6.5	10.5	---	18.5	23.5	---	---	---
12	---	15.0	---	5.5	5.5	5.5	19.5	19.5	---	29.5	---	---
13	20.0	10.0	---	2.5	---	---	28.5	20.5	---	30.5	---	24.5
14	20.0	---	3.5	4.5	---	---	13.5	21.5	25.5	29.5	---	16.5
15	20.0	---	9.5	5.5	---	10.5	11.5	---	25.5	27.5	---	16.5
16	15.0	15.0	4.5	---	6.5	14.5	23.5	---	25.5	28.5	---	---
17	---	20.0	2.5	---	1.5	8.5	---	---	25.5	---	---	21.5
18	---	15.0	4.5	---	1.5	12.5	---	22.5	25.5	---	---	18.5
19	20.0	15.0	---	1.5	4.5	12.5	28.5	20.5	---	---	---	---
20	20.0	15.0	---	5.5	---	---	15.5	22.5	---	27.5	---	24.5
21	20.0	---	7.5	5.5	---	---	15.5	23.5	25.5	27.5	---	24.5
22	20.0	---	9.5	7.5	9.5	10.5	---	---	28.5	29.5	---	24.5
23	20.0	15.0	7.5	---	8.5	13.5	18.5	---	28.5	30.0	---	25.5
24	---	10.0	3.5	---	7.5	16.5	---	23.5	26.5	---	---	28.5
25	---	5.0	---	5.5	10.5	18.5	---	23.5	28.5	---	25.5	---
26	20.0	---	---	5.5	5.5	20.5	28.5	23.5	---	28.5	26.5	---
27	20.0	---	---	7.5	---	---	18.5	23.5	---	---	---	20.5
28	20.0	---	9.5	8.5	---	---	20.5	23.5	28.5	---	---	20.5
29	20.0	---	14.5	3.5	---	19.5	21.5	---	27.5	30.5	---	20.5
30	15.0	10.0	14.5	---	---	15.5	28.5	---	28.5	29.5	25.5	20.5
31	---	---	5.5	---	---	22.5	---	---	---	---	20.5	---
MEAN	19.0	14.7	6.8	5.8	7.3	13.2	19.0	21.9	25.7	28.7	25.5	22.5

## BRAZOS RIVER BASIN

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)
June 11	0800	501	4.13	No peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.35	e1.8	20	e16	11	132	24	e12	9.2	.21	.54	88
2	.35	1.6	20	e18	10	120	23	99	7.8	.18	.41	26
3	e.35	1.8	20	e19	10	73	e20	38	e7.1	e.18	.40	12
4	e.41	4.4	20	20	10	63	e19	31	e6.5	e.18	.19	5.0
5	.65	30	e20	20	10	61	18	27	e5.4	e.18	.38	2.6
6	.35	11	e20	20	e10	e58	20	27	e4.9	.21	.26	1.2
7	.35	e4.9	20	20	e10	e56	16	27	e4.4	.21	.25	.68
8	.35	e3.6	20	20	10	52	14	e26	10	.21	.49	2.6
9	.35	2.9	20	e20	10	46	12	e23	8.5	.21	.69	7.0
10	e.35	2.9	20	e20	16	36	e13	151	16	e.21	.69	1.6
11	e.41	e2.9	20	20	20	31	e14	106	226	e.21	.64	.63
12	e.48	2.9	e22	20	15	31	14	77	e29	.21	.62	.64
13	.76	2.9	e24	20	e11	e32	14	58	e13	.21	.67	2.1
14	.76	e4.9	29	20	e14	e32	100	56	13	.21	.69	9.8
15	.76	e7.1	31	20	274	34	103	e50	11	.25	.78	3.3
16	.76	7.8	29	e20	158	31	63	e44	9.2	.25	.89	1.0
17	e1.2	7.8	22	e20	107	29	e34	e36	7.8	e.15	.88	.57
18	e2.0	7.8	20	e20	93	31	e29	31	4.9	e.06	.84	.34
19	2.6	22	e20	20	95	31	23	26	e3.6	e.04	.88	.26
20	2.9	20	e20	46	e76	e32	18	23	e2.9	.03	.96	.26
21	2.9	182	20	e38	e66	e34	15	23	2.3	.02	.95	.30
22	2.3	185	18	32	58	34	e13	e22	2.2	.06	1.0	.31
23	1.8	127	16	e26	52	31	12	e20	2.0	.09	1.1	.31
24	e2.0	86	13	e22	48	29	e10	151	1.8	.15	2.3	.30
25	e2.6	48	e11	20	46	27	e8.5	51	1.8	.19	149	.35
26	3.6	e34	e11	20	44	24	9.2	5.6	e.65	8.5	4.9	.44
27	3.2	e29	e13	20	e52	e22	12	3.2	e.21	.77	.87	.31
28	2.9	e26	15	20	83	e18	11	e2.9	.09	.50	.50	.29
29	2.9	e23	15	20	---	21	11	12	.06	.51	.50	.30
30	2.9	20	15	e19	---	64	11	57	.06	.49	2.2	.30
31	e2.3	---	15	e15	---	30	---	14	---	.52	88	---
TOTAL	45.89	911.0	599	671	1419	1345	703.7	1329.7	411.37	15.40	263.47	168.79
MEAN	1.48	30.4	19.3	21.6	50.7	43.4	23.5	42.9	13.7	.50	8.50	5.63
MAX	3.6	185	31	46	274	132	103	151	226	8.5	149	88
MIN	.35	1.6	11	15	10	18	8.5	2.9	.06	.02	.19	.26
AC-FT	91	1810	1190	1330	2810	2670	1400	2640	816	31	523	335

e Estimated

BRAZOS RIVER BASIN

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08082000 SALT FORK BRAZOS RIVER NEAR ASPERMONT, TX--Continued  
(National stream-quality accounting network)

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 1993<sup>0</sup>, BY WATER YEAR (WY)

MEAN	205	32.2	21.3	13.2	18.0	21.1	76.2	259	268	95.5	112	151
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 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1924 - 1993 <sup>0</sup>
ANNUAL TOTAL	53622.89	7883.32	
ANNUAL MEAN	147	21.6	106
HIGHEST ANNUAL MEAN			463
LOWEST ANNUAL MEAN			13.8
HIGHEST DAILY MEAN	3120 Jun 10	274 Feb 15	23300 Sep 26 1955
LOWEST DAILY MEAN	.35 Sep 30	.02 Jul 21	.00 Apr 22 1924
ANNUAL SEVEN-DAY MINIMUM	.38 Oct 6	.06 Jul 17	.00 Jun 11 1924
INSTANTANEOUS PEAK FLOW		501 Jun 11	52200 Sep 25 1955
INSTANTANEOUS PEAK STAGE		4.13 Jun 11	14.92 Sep 25 1955
INSTANTANEOUS LOW FLOW		.02 Jul 21	.00 at times
ANNUAL RUNOFF (AC-FT)	106400	15640	76560
10 PERCENT EXCEEDS	336	54	132
50 PERCENT EXCEEDS	50	12	6.0
90 PERCENT EXCEEDS	2.9	.30	.15

<sup>0</sup> See PERIOD OF RECORD paragraph in manuscript.



## BRAZOS RIVER BASIN

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 1992 TO SEPTEMBER 1993

		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 04...	0940	4.4	48200	7.8	7.0	0.50	12.4	131	1.0	K13	34	3400	
JAN 20...	0945	52	84900	7.7	3.0	43	9.2	110	1.0	52	200	3800	
MAY 05...	1025	27	28400	8.1	24.0	3.9	9.1	128	0.9	40	68	2600	
AUG 10...	1520	1.0	72000	7.9	35.5	1.3	6.3	128	1.2	K11	24	5100	
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 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 CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV 04...	3300	880	300	12000		89	37	0	152	125	2800	18000	2.6
JAN 20...	3700	920	350	22000		160	58	0	112	92	2100	34000	3.2
MAY 05...	2500	670	230	6500		55	23	0	147	121	2600	10000	2.2
AUG 10...	5000	1400	390	19000		120	52	0	136	111	3700	29000	<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, 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 04...	4.2		35600	34100	0.730	0.740	0.020	0.030	0.770	0.770	0.130	0.130	
JAN 20...	5.8		64100	59500	0.450	0.450	--	0.020	0.470	0.470	--	0.930	
MAY 05...	6.9		20700	20100	0.072	--	--	<0.010	0.072	0.072	--	0.050	
AUG 10...	11		55600	53600	--	--	--	<0.010	--	<0.050	--	0.280	
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)	
NOV 04...	0.17	0.30	<0.010	<0.010	<0.010	<0.010	<0.010	--	7	0.08	86	20	
JAN 20...	0.0	0.80	<0.010	<0.010	<0.010	<0.010	--	--	151	21	94	100	
MAY 05...	0.25	0.30	0.030	<0.010	<0.010	<0.010	--	--	21	1.5	94	10	
AUG 10...	0.0	0.20	<0.010	<0.010	0.010	0.010	--	0.03	13	0.03	98	60	

BRAZOS RIVER BASIN

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08082000 SALT FORK BRAZOS RIVER NEAR ASPERMONT, TX--Continued  
(National stream-quality accounting network)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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 04...	<100	<1	20	140	140	2	<1	12	<1.0	14000	390
JAN 20...	<100	<2	70	110	200	4	<1	3	<1.0	16000	330
MAY 05...	<100	<1	<10	110	60	4	1	4	<1.0	10000	42
AUG 10...	200	1	70	140	120	2	<2	<1	<4.0	24000	190



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, 22,700 microsiemens May 28; minimum daily, 1,780 microsiemens Mar. 1.

WATER TEMPERATURE: Maximum daily, 35.0° C July 24 July 24; minimum 2.0° C Dec. 5.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT 05...	1105	29	10700	18.0	1500	1400	380	140	1900
JAN 20...	1520	113	11800	7.0	1500	1300	390	130	2100
MAR 02...	1640	1180	1930	12.0	200	190	54	17	270
APR 15...	1645	140	7220	18.0	950	840	230	92	1400
DATE		SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 05...		21	12	120	1700	2700	1.0	6.3	6910
JAN 20...		24	11	200	1300	3100	1.1	8.4	7160
MAR 02...		8	6.5	15	220	440	0.30	2.7	1020
APR 15...		20	8.8	120	860	1900	0.50	2.5	4560
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. 1992	776	10200	6360	13300	2800	5790	1200	2550	*
NOV. 1992	3176	10000	6290	54000	2700	23600	1200	10200	*
DEC. 1992	3451	11000	6950	64700	3100	28400	1300	12000	*
JAN. 1993	2897	13500	8680	67900	3900	30200	1500	12000	*
FEB. 1993	8975	6660	4060	98500	1700	42000	820	19900	910
MAR. 1993	8953	6910	4300	104000	1900	45100	830	20000	930
APR. 1993	2883	13600	8780	68300	3900	30600	1500	11900	*
MAY 1993	4818	10300	6560	85400	2900	37600	1200	15600	*
JUNE 1993	9537	4340	2590	66600	1100	27800	550	14300	610
JULY 1993	698.38	7130	4360	8220	1900	3510	880	1660	980
AUG. 1993	506.12	8290	5140	7020	2200	3030	1000	1370	1100
SEPT 1993	2137.6	6180	3710	21400	1600	9020	780	4490	860
TOTAL	48808.10	**	**	659000	**	287000	**	126000	**
WTD.AVG.	134	8010	5000	**	2200	**	960	**	1100

## BRAZOS RIVER MAIN STEM

08082500 BRAZOS RIVER AT SEYMOUR, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10900	e10800	e10700	12400	12400	1780	11100	13800	e4200	10000	9670	3490
2	11000	11100	11000	13200	e12500	2200	11200	e11100	4400	e10200	9100	e4150
3	10700	11100	10500	12400	12700	2890	e12100	8630	e6170	10400	e7770	4930
4	e10700	e11300	e10800	e12900	12800	e5500	e13000	8830	7940	e10800	6440	e6450
5	10600	11500	11000	13300	12900	8340	14000	14600	e8440	11100	e5910	8050
6	10700	11600	11300	e13600	13100	12100	17200	e15500	e8800	11300	5370	e6860
7	e10800	e11700	11600	13800	e13100	e10700	14700	16300	e9150	11600	7420	5660
8	11000	11700	11800	13800	13200	9400	13400	15600	9530	e11600	e7460	e5520
9	e10900	11500	11200	e13700	13300	9910	13400	e10000	3000	e11500	7510	5390
10	10900	e11600	11100	e13600	e11600	10700	e13400	4560	3090	11400	e8070	6150
11	10900	11600	12100	e13500	9890	e10700	13500	e5500	1890	e11500	e8630	7500
12	e10900	e11600	12300	e13400	10600	10800	13800	6530	3450	11700	9180	7540
13	10800	11600	e7800	13300	11400	10700	e13600	10100	1960	11600	9460	e6450
14	e10800	11700	3310	e13300	e8500	e11100	e9000	20400	7210	9650	9670	5310
15	e10900	11900	7270	13200	e4900	11400	5300	12800	e6180	8050	e9670	e6640
16	10900	12300	10500	13400	2580	11500	11200	e11500	e5250	e3000	9670	7900
17	10900	12500	11600	13400	e6300	e11800	e13500	10400	4420	3410	9680	7900
18	10600	e11400	11600	13000	10000	12200	e16200	10300	5270	e6500	8400	8400
19	10600	10300	11600	e12400	5370	e12200	19400	10300	e6210	9560	8410	e7650
20	10800	8270	e14300	11800	6620	12200	16800	e11000	e7150	6570	8390	6900
21	6330	e7500	18000	11300	e7650	e12000	16800	11800	8100	e6840	7850	6720
22	7100	e6700	14900	11500	8680	11700	16200	11800	8480	7110	e8250	e7340
23	9850	6000	13400	11600	8590	12500	15600	e12300	8560	7120	e8600	7900
24	10100	9050	12900	12300	8670	e13500	e15500	12800	e8480	8600	9030	8350
25	10200	16400	e12600	e16500	4540	14400	e15400	e9200	8400	8650	9050	e8760
26	e10200	e13800	12400	20800	6490	14800	15300	6720	8390	e8580	8760	e9170
27	e10300	11400	e12300	e17500	e3850	8350	14900	8030	e8970	8520	8700	9580
28	10300	11400	e12200	14100	e2500	14200	14700	22700	9550	8820	10100	9780
29	10400	10000	12100	e13200	---	14700	e14400	15600	8220	e9040	e11000	9750
30	10400	e10300	e12200	12300	---	13900	e14000	e9300	9070	9260	12900	9750
31	10400	---	12200	e12300	---	14000	---	4010	---	9620	e3500	---
MEAN	10400	11000	11600	13400	9100	10700	14000	11400	6660	9150	8500	7200
MAX	11000	16400	18000	20800	13300	14800	19400	22700	9550	11700	12900	9780
MIN	6330	6000	3310	11300	2500	1780	5300	4010	1890	3000	3500	3490

WTR YR 1993 MEAN 10300 MAX 22700 MIN 1780

e Estimated

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.0	e18.0	e7.0	6.0	16.0	8.0	15.0	27.0	e29.0	30.0	25.0	22.0
2	23.0	18.0	10.0	12.0	e15.5	11.0	14.0	e21.0	30.0	e28.0	24.0	e26.0
3	15.0	13.0	9.0	15.0	15.0	13.0	e14.0	15.0	e28.0	25.0	e24.0	29.0
4	e21.0	e13.5	e5.5	e12.0	14.0	e10.5	e15.0	26.0	26.0	e28.0	25.0	e26.0
5	27.0	14.0	2.0	8.0	12.0	8.0	15.0	24.0	e25.0	30.0	e24.0	22.0
6	26.0	16.0	10.0	e8.0	13.0	8.0	20.0	e24.0	e25.0	33.0	23.0	e23.0
7	e24.0	e14.0	9.0	8.0	e14.0	e14.0	21.0	25.0	e24.0	32.0	22.0	25.0
8	22.0	12.0	8.0	9.0	15.0	20.0	20.0	21.0	23.0	e28.0	e24.0	e25.0
9	e18.0	18.0	13.0	e9.0	8.0	18.0	13.0	e22.0	24.0	e28.0	26.0	24.0
10	14.0	e17.0	8.0	e8.0	e8.0	16.0	e15.0	23.0	25.0	25.0	e25.0	20.0
11	23.0	16.5	15.0	e8.0	8.0	e11.0	17.0	e21.0	24.0	e28.0	e24.0	22.0
12	e25.0	e16.0	10.0	e7.5	14.0	6.0	25.0	20.0	24.0	33.0	23.0	22.0
13	27.0	16.0	e7.5	7.0	7.0	6.0	e22.5	26.0	24.0	33.0	23.0	e21.0
14	e24.0	16.0	5.0	e7.5	e6.0	e13.0	e20.0	26.0	29.0	32.0	23.0	20.0
15	e22.0	16.0	9.0	8.0	e5.0	20.0	14.0	27.0	e29.0	24.0	e23.0	e19.0
16	19.0	19.0	7.0	6.0	5.0	15.0	14.0	e24.0	e29.0	e24.0	23.0	18.0
17	12.0	13.0	10.0	7.0	e5.0	e14.0	e18.0	20.0	30.0	24.0	23.0	17.0
18	18.0	e14.0	9.0	6.0	5.0	12.0	e22.0	21.0	29.0	e28.0	23.0	18.0
19	22.0	14.5	9.0	e7.0	10.0	e11.0	25.0	19.0	e29.0	30.0	23.0	e21.0
20	28.0	13.0	e10.0	8.0	9.0	10.0	17.0	e22.0	e30.0	26.0	28.0	23.0
21	22.0	e13.0	11.0	12.0	e11.0	e12.5	14.0	26.0	30.0	e28.0	24.0	28.0
22	27.0	e12.5	8.0	11.0	13.0	15.0	22.0	20.0	31.0	32.0	e25.0	e29.0
23	27.0	12.0	11.0	11.0	12.0	21.0	21.0	e20.0	24.0	25.0	e27.0	30.0
24	20.0	e8.0	8.0	10.0	6.0	e21.0	e23.0	21.0	e27.0	35.0	28.0	27.0
25	19.0	5.0	e8.0	e13.0	11.0	22.0	e25.0	e21.0	30.0	34.0	28.0	e24.0
26	e21.0	e4.5	8.0	15.0	9.0	16.0	27.0	22.0	25.0	e32.0	24.0	e22.0
27	e22.0	4.0	e9.0	e15.5	e9.0	8.0	24.0	29.0	e28.0	30.0	24.0	20.0
28	24.0	4.0	e11.0	16.0	e8.0	12.0	18.0	29.0	32.0	25.0	24.0	18.0
29	18.0	6.0	12.0	e14.5	---	26.0	e19.0	28.0	34.0	e25.0	e24.0	18.0
30	19.0	e7.0	e9.0	13.0	---	20.0	e22.0	27.0	27.0	25.0	24.0	18.0
31	18.0	---	6.0	e14.5	---	20.0	---	27.0	---	25.0	e23.0	---
MEAN	21.4	12.8	8.8	10.1	10.1	14.1	19.0	23.4	27.5	28.5	24.3	22.6
MAX	28.0	19.0	15.0	16.0	16.0	26.0	27.0	29.0	34.0	35.0	28.0	30.0
MIN	12.0	4.0	2.0	6.0	5.0	6.0	13.0	15.0	23.0	24.0	22.0	17.0

WTR YR 1993 MEAN 18.6 MAX 35.0 MIN 2.0

e Estimated



## 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.

GAGL.--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.

EXTREMS 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. 16	2210	163	4.31	No peak greater than base discharge during year.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	18	.08	.29	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	27	.07	.88	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	16	.05	e.12	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	8.9	.05	e.09	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	5.4	.05	e.03	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	3.2	.06	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	2.1	.05	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	1.4	.02	.00	1.3	.00	.00	.00
9	.00	.00	.00	.00	.00	.86	.02	3.0	3.8	.00	.00	.00
10	.00	.00	.00	.00	.05	.51	.00	1.1	6.1	.00	.00	.00
11	.00	.00	.00	.00	.05	.37	.00	1.4	5.9	.00	.00	.00
12	.00	.00	.00	.00	.05	.29	.00	.50	4.8	.00	.00	.00
13	.00	.00	3.2	.00	.04	.23	.00	e.37	1.3	.00	.00	.02
14	.00	.00	22	.00	1.2	.17	.13	e.32	e.80	.00	.00	.32
15	.00	.00	10	.00	63	.15	.22	e.17	e.37	.00	.00	.00
16	.00	.00	3.9	.00	129	.15	1.7	e.10	e.23	.00	.00	.00
17	.00	.00	.72	.00	103	.14	.59	e.05	e.08	.00	.00	.00
18	.00	.00	.15	.00	23	.14	.25	.00	e.02	.00	.00	.00
19	.00	.00	.05	.58	11	.14	.12	.00	.00	.00	.00	.00
20	.00	.00	.00	1.9	7.0	.15	.07	.00	.00	.00	.00	.00
21	.00	.76	.00	.73	4.7	.18	.02	.00	.00	.00	.00	.00
22	.00	17	.00	.19	3.1	.24	.00	.00	.00	.00	.00	.00
23	.00	31	.00	.10	2.7	.23	.00	.00	.00	.00	.00	.00
24	.00	18	.00	.05	2.5	.21	.00	.00	.00	.00	.00	.00
25	.00	7.7	.00	.05	2.3	.18	.00	.00	.00	.00	.00	.00
26	.00	2.2	.00	.02	2.1	.17	.00	.00	.00	.00	.00	.00
27	.00	.61	.00	.02	1.9	.18	.00	.00	.00	.00	.00	.00
28	.00	.17	.00	.00	2.3	.13	.00	.00	.00	.00	.00	.00
29	.00	.04	.00	.00	---	.12	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.12	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.11	---	.00	---	.00	.00	---
TOTAL	0.00	77.48	40.02	3.64	358.99	87.17	3.55	8.42	24.70	0.00	0.00	0.34
MEAN	.000	2.58	1.29	.12	12.8	2.81	.12	.27	.82	.000	.000	.011
MAX	.00	31	22	1.9	129	27	1.7	3.0	6.1	.00	.00	.32
MIN	.00	.00	.00	.00	.00	.11	.00	.00	.00	.00	.00	.00
AC-FI	.00	154	79	7.2	712	173	7.0	17	49	.00	.00	.7
CFSM	.00	.02	.01	.00	.12	.03	.00	.00	.01	.00	.00	.00
IN.	.00	.03	.01	.00	.13	.03	.00	.00	.01	.00	.00	.00

e estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1993, BY WATER YEAR (WY)

	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	
MEAN	4.77	1.75	.85	2.04	5.78	2.87	6.42	15.7	32.2	2.16	18.4	7.05																			
MAX	92.7	37.7	13.1	34.8	94.5	25.8	128	182	420	43.4	403	72.1																			
(WY)	1967	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 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1964 - 1993

ANNUAL TOTAL	10680.28	604.31	
ANNUAL MEAN	29.2	1.66	
HIGHEST ANNUAL MEAN			8.31
LOWEST ANNUAL MEAN			50.7
HIGHEST DAILY MEAN	2340	129	8730
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW		163	34600
INSTANTANEOUS PEAK STAGE		4.31	17.53
INSTANTANEOUS LOW FLOW		.00	.00
ANNUAL RUNOFF (AC-FT)	21180	1200	6020
ANNUAL RUNOFF (CFSM)	.28	.016	.080
ANNUAL RUNOFF (INCHES)	3.82	.22	1.09
10 PERCENT EXCEEDS	23	1.8	1.3
50 PERCENT EXCEEDS	.23	.00	.00
90 PERCENT EXCEEDS	.00	.00	.00

## 08082800 MILLERS CREEK RESERVOIR NEAR BOWARTON, 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 Bowarton, 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 benchmark).

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, 29,720 acre-ft Mar. 7 at 1400 hours (elevation, 1,333.34 ft); minimum, 23,970 acre-feet Sept. 30 (elevation, 1,330.55 ft).

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

1,330.0	22,950	1,334.0	31,240	1,338.0	42,170
1,332.0	26,800	1,336.0	36,340	1,340.0	48,730

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28840	e27760	27780	27970	27990	29480	29350	28760	28140	27690	25940	24740
2	28780	e27610	27780	27990	27990	29620	29280	28740	28140	27650	25920	24690
3	28740	27550	27740	28040	27950	29670	29300	28740	28140	27500	25940	24880
4	28720	27500	27630	27990	27950	29690	29230	28650	27990	27420	25880	24760
5	28630	27460	27650	27990	27950	29690	29230	28670	27950	27350	25780	24540
6	28570	27440	27690	27990	27930	29670	29180	28670	27860	27290	25760	24490
7	28460	27330	27670	27950	27930	29690	29140	28440	27840	27230	25740	24490
8	28440	27310	27690	28010	27890	29690	29140	28610	28400	27120	25700	24470
9	e28350	27350	27720	e27990	27890	e29670	29090	28870	28440	27030	25640	24430
10	e28290	27380	27720	e27990	27970	e29620	29020	28870	28630	26990	25600	24410
11	e28250	27380	27690	e28010	27930	e29600	29020	28840	28630	26910	25540	24360
12	e28230	27310	27670	e28010	27930	e29580	29000	28820	28670	26800	25480	24390
13	e28140	27310	27840	e27990	27930	e29560	28980	28800	28610	26760	25400	24580
14	e28100	27290	28060	e27990	28080	e29530	29090	28780	28610	26700	25360	24560
15	e28080	27270	28140	e28010	28500	29510	29140	28760	28590	26640	25300	24520
16	e27970	27200	28140	e28010	28760	29460	29090	28670	28460	26600	25220	24500
17	e27910	27200	28080	e28010	29050	29460	29020	28650	28440	26540	25160	24470
18	e27890	27420	28140	e28030	29210	29480	29020	28630	28380	26500	25100	24410
19	e27840	27200	28100	28060	29250	29460	28980	28610	28350	26460	25060	24410
20	e27860	27350	28100	28060	29280	29480	28910	28550	28330	26400	25000	24390
21	e27840	27690	28120	28080	29210	29510	28890	28530	28310	26540	24900	24370
22	e27800	27740	28100	28060	29230	29550	28800	28480	28250	26540	24820	24320
23	e27780	27720	28040	28040	29160	29550	28800	28480	28180	26480	24800	24320
24	e27780	27910	28080	28060	29250	29550	28670	28460	28160	26360	24710	24280
25	e27780	27860	28040	28060	29160	29530	28700	28420	28040	26340	24710	24240
26	e27760	27840	28040	28060	29180	29510	28670	28380	28060	26240	24670	24170
27	e27760	27840	28040	28060	29180	29510	28630	28350	28040	26160	24630	24130
28	e27760	27820	28040	28060	29250	29510	28650	28290	27950	26140	24560	24100
29	e27740	27820	28080	27950	---	29480	28630	28250	27890	26080	24490	24080
30	e27720	27800	28080	27990	---	29420	28630	28250	27820	26020	24630	23970
31	e27700	---	27950	27990	---	29390	---	28210	---	25980	24730	---
MAX	28840	27910	28140	28080	29280	29690	29350	28870	28670	27690	25940	24880
MIN	27700	27200	27630	27950	27890	29390	28630	28210	27820	25980	24490	23970
(+)	1332.42	1332.47	1332.54	1332.56	1333.14	1333.20	1332.86	1332.66	1332.48	1331.59	1330.96	1330.55
(Φ)	-1170	+100	+150	+40	+1260	+140	-760	-420	-390	-1840	-1250	-760
(++)	101	102	86.9	88.6	76.1	82.9	100	113	125	176	145	106
CAI YR 1992	MIN	50410	MIN	27200	(Φ)	-2570	(++)	1330				
WTR YR 1993	MAX	29690	MIN	23970	(Φ)	-4900	(++)	1302				

(+) 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.

e Estimated

## 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)
June 10	1130	1,170	13.42	No other peaks greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	3.5	4.0	4.4	4.7	5.0	3.8	3.2	2.2	2.3	1.5	5.1
2	3.5	3.4	4.0	4.4	4.8	4.9	3.7	3.3	2.2	2.3	1.4	2.2
3	3.5	3.5	4.0	4.5	4.8	4.9	3.7	3.6	2.1	2.3	1.5	1.8
4	3.5	3.5	4.0	4.5	4.8	4.9	3.6	3.5	2.0	2.2	1.4	1.6
5	3.5	3.5	4.0	4.5	4.8	4.7	3.6	3.6	2.0	2.2	1.3	1.6
6	3.5	3.5	4.0	4.5	4.7	4.6	3.7	3.3	2.1	2.2	1.4	1.5
7	3.5	3.5	4.0	4.5	4.8	4.6	3.6	3.2	2.1	2.1	1.5	1.5
8	3.5	3.6	4.1	4.5	4.9	4.6	3.5	3.1	2.1	2.1	1.6	1.5
9	3.5	3.7	4.3	4.6	5.0	4.6	3.5	3.0	1.6	2.0	1.6	1.4
10	3.6	3.7	4.2	4.6	5.1	4.5	3.5	2.9	719	1.7	1.4	1.3
11	3.7	3.7	4.2	4.6	5.0	4.4	3.5	2.9	118	2.0	1.4	1.4
12	3.7	3.7	4.1	4.6	4.9	4.4	3.6	2.8	26	2.0	1.5	1.7
13	3.7	3.7	4.3	4.5	4.9	4.5	3.5	2.8	8.2	1.9	1.3	2.1
14	3.7	3.7	4.5	4.5	4.9	4.5	3.7	2.8	5.4	2.0	1.4	3.0
15	3.7	3.8	4.3	4.5	6.0	4.8	3.7	2.7	4.5	1.9	1.4	2.8
16	3.5	3.8	4.3	4.6	5.6	4.8	3.7	2.6	3.9	1.8	1.4	2.2
17	3.6	3.8	4.3	4.6	5.3	4.6	3.7	2.6	3.7	1.7	1.4	2.0
18	3.7	4.0	4.3	4.7	5.2	4.6	3.7	2.5	3.4	1.8	1.2	1.9
19	3.7	4.1	4.3	4.8	5.0	4.5	3.6	2.4	3.3	1.9	1.1	1.9
20	3.6	4.0	4.3	4.8	4.9	4.3	3.3	2.4	3.2	2.3	1.2	1.9
21	3.5	4.2	4.3	4.7	4.9	4.2	3.3	2.4	3.1	1.9	1.4	1.9
22	3.5	4.3	4.3	4.8	4.8	4.2	3.3	2.5	3.0	1.8	1.2	1.9
23	3.5	4.2	4.3	4.8	4.7	4.1	3.3	2.5	3.0	1.3	1.3	1.6
24	3.6	4.1	4.3	4.8	4.7	3.9	3.3	2.6	2.8	1.5	1.4	1.6
25	3.6	4.0	4.3	4.7	4.8	3.8	3.3	2.4	2.8	1.2	3.2	1.8
26	3.4	3.9	4.3	4.7	4.5	3.6	3.3	2.4	2.7	2.5	1.8	1.9
27	3.4	3.9	4.3	4.7	4.5	13	3.2	2.3	2.6	1.6	1.6	1.9
28	3.4	3.9	4.3	4.8	4.6	31	3.2	2.3	2.6	1.6	1.4	1.9
29	3.5	4.0	4.4	4.9	---	5.9	3.2	2.2	2.4	1.4	1.3	1.8
30	3.5	3.9	4.4	4.9	---	4.1	3.2	2.3	2.4	1.4	1.4	1.7
31	3.5	---	4.4	4.7	---	3.8	---	2.2	---	1.4	1.8	---
TOTAL	110.1	114.1	131.1	143.7	137.6	174.3	104.8	85.3	958.8	58.3	61.9	58.4
MEAN	3.55	3.80	4.23	4.64	4.91	5.62	3.49	2.75	32.0	1.88	2.00	1.95
MAX	3.7	4.3	4.5	4.9	6.0	31	3.8	3.6	719	2.5	1.8	5.1
MIN	3.4	3.4	4.0	4.4	4.5	3.6	3.2	2.2	2.0	1.2	1.1	1.3
AC-FI	218	226	260	285	273	346	208	169	1900	116	123	116
CFSM	.02	.02	.02	.02	.02	.02	.02	.01	.14	.01	.01	.01
IN.	.02	.02	.02	.02	.02	.03	.02	.01	.16	.01	.01	.01

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1993, BY WATER YEAR (WY)

MEAN	12.1	2.87	3.09	3.05	3.92	3.91	6.99	29.8	15.2	6.74	10.5	22.1
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	1.10		.17	.18	.060
(WY)	1980	1965	1990	1965	1990	1965	1965	1984	.	1964	1989	1965

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1963 - 1993

ANNUAL TOTAL	3416.4	2138.4	
ANNUAL MEAN	9.33	5.86	
HIGHEST ANNUAL MEAN			10.0
LOWEST ANNUAL MEAN			29.6
HIGHEST DAILY MEAN	117	719	3860
LOWEST DAILY MEAN	3.4	1.1	.00
ANNUAL SEVEN-DAY MINIMUM	3.5	1.3	.00
INSTANTANEOUS PEAK FLOW		1170	7050
INSTANTANEOUS PEAK STAGE		13.42	21.52
INSTANTANEOUS LOW FLOW		1.1	.00
ANNUAL RUNOFF (AC-FT)	6780	4240	7270
ANNUAL RUNOFF (CFSM)	.041	.026	.044
ANNUAL RUNOFF (INCHES)	.56	.35	.60
10 PERCENT EXCEEDS	15	4.8	7.6
50 PERCENT EXCEEDS	5.2	3.6	1.9
90 PERCENT EXCEEDS	3.6	1.5	.40

## BRAZOS RIVER BASIN

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 except those for June 10 to July 14, which are fair, due to float tape being out of splines. 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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	26	30	36	42	64	57	40	66	12	5.7	9.8
2	26	23	29	36	42	73	47	42	32	10	6.2	36
3	26	22	29	40	42	56	43	40	22	8.5	5.4	21
4	26	22	30	39	42	50	40	38	17	25	6.8	19
5	26	23	29	38	42	46	39	35	15	23	7.0	11
6	26	23	29	38	41	43	38	33	15	21	6.0	7.4
7	26	24	30	38	41	42	37	31	14	19	6.2	6.3
8	25	25	30	38	42	41	36	31	14	17	6.9	6.4
9	25	26	31	40	42	41	36	37	18	16	5.9	5.9
10	24	28	31	39	48	40	35	37	242	15	5.5	6.0
11	24	28	31	39	50	39	33	33	1040	15	5.4	5.4
12	25	27	32	39	54	39	34	30	1180	14	5.0	5.4
13	26	27	33	39	57	39	34	28	816	12	4.3	9.6
14	24	27	44	39	51	39	49	27	245	11	3.6	47
15	25	26	43	38	67	39	125	26	122	11	3.1	91
16	24	26	41	38	71	39	72	25	62	10	3.6	50
17	23	27	39	38	60	39	49	24	45	10	3.1	28
18	24	30	37	38	57	39	41	23	36	11	3.5	17
19	23	56	36	41	51	40	38	23	30	11	3.4	12
20	25	65	37	45	50	42	35	22	27	11	3.4	10
21	25	50	36	45	49	42	33	21	23	11	3.8	9.3
22	26	59	34	46	47	43	31	23	22	17	3.9	8.3
23	25	60	33	44	46	41	30	42	19	12	3.5	7.7
24	24	54	34	43	46	41	30	94	19	10	4.0	7.3
25	24	43	34	42	96	40	30	36	15	13	4.3	7.9
26	25	35	34	42	67	40	29	30	11	23	3.3	9.4
27	23	33	34	41	55	40	29	27	8.9	13	3.8	11
28	22	31	35	41	50	66	29	24	7.4	9.2	5.1	11
29	24	31	35	41	---	245	33	22	8.4	7.3	5.2	11
30	23	30	36	40	---	96	34	40	13	6.0	3.8	9.2
31	25	---	35	40	---	73	---	149	---	5.9	7.7	---
TOTAL	765	1007	1051	1241	1448	1657	1226	1133	4204.7	409.9	148.4	496.3
MEAN	24.7	33.6	33.9	40.0	51.7	53.5	40.9	36.5	140	13.2	4.79	16.5
MAX	26	65	44	46	96	245	125	149	1180	25	7.7	91
MIN	22	22	29	36	41	39	29	21	7.4	5.9	3.1	5.4
AC-FT	1520	2000	2080	2460	2870	3290	2430	2250	8340	813	294	984

BRAZOS RIVER BASIN

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08084000 CLEAR FORK BRAZOS RIVER AT NUGENT, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1993#, BY WATER YEAR (WY)

MEAN	132	35.7	37.7	23.9	62.5	39.0	71.5	250	156	74.1	53.7	104
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 1992 CALENDAR YEAR FOR 1993 WATER YEAR WATER YEARS 1939 - 1993#

ANNUAL TOTAL	94253		14787.3			
ANNUAL MEAN	258		40.5			
HIGHEST ANNUAL MEAN					86.8	
LOWEST ANNUAL MEAN					662	1957
HIGHEST DAILY MEAN	6360	Feb 26	1180	Jun 12	9.31	1964
LOWEST DAILY MEAN	22	Oct 28	3.1	Aug 15	18800	May 26 1957
ANNUAL SEVEN-DAY MINIMUM	23	Nov 2	3.4	Aug 14	.00	Aug 10 1946
INSTANTANEOUS PEAK FLOW			1280	Jun 13	.00	Aug 10 1946
INSTANTANEOUS PEAK STAGE			6.38	Jun 13	19500	May 26 1957
INSTANTANEOUS LOW FLOW			3.0	*	24.17	May 26 1957
ANNUAL RUNOFF (AC-FT)	187000		29330		.00	at times
10 PERCENT EXCEEDS	535		51		62890	
50 PERCENT EXCEEDS	105		30		119	
90 PERCENT EXCEEDS	26		6.9		12	
					.60	

# Period of regulated streamflow.

\* Aug. 15, 18, 20, 23, 26, 27



## BRAZOS RIVER BASIN

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)
Apr. 14	1230	822	13.72	June 11	1820	759	13.29

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e3.7	3.5	5.0	6.2	6.6	15	8.2	19	e9.0	2.5	.37	1.7
2	e3.7	3.2	4.8	6.6	6.8	14	8.6	155	24	2.1	.84	1.3
3	e3.7	3.2	4.6	6.6	6.8	17	8.1	82	26	2.0	1.4	1.1
4	e3.6	3.3	4.6	6.6	6.6	16	7.1	32	12	1.9	2.0	.82
5	3.8	3.6	4.6	6.3	6.4	13	6.5	16	7.3	1.9	1.3	.45
6	3.7	3.8	4.5	6.3	5.9	11	6.2	18	5.6	1.9	.50	.41
7	4.4	4.0	4.5	6.6	5.6	10	6.0	96	4.7	1.9	.60	.54
8	4.5	4.6	4.7	6.6	6.0	9.5	6.2	12	4.0	1.7	.84	.96
9	4.5	5.2	5.2	7.2	6.2	8.9	5.9	170	18	1.5	.78	.73
10	4.8	5.4	5.3	7.1	7.1	8.6	5.3	69	362	1.3	.71	.57
11	4.8	5.9	5.3	7.2	6.9	8.2	5.2	36	484	1.3	.61	.50
12	4.8	5.9	5.4	7.7	7.4	8.7	5.0	20	464	1.2	.50	.46
13	4.7	6.2	6.5	7.6	9.8	8.4	6.2	15	204	1.2	.44	9.3
14	4.8	5.9	13	7.4	8.1	7.9	430	12	72	1.0	.46	37
15	4.5	6.2	12	7.4	11	7.8	359	11	38	.85	.35	32
16	4.7	6.6	14	7.5	12	8.3	104	9.9	21	.85	.34	37
17	4.4	6.9	13	7.6	36	7.7	45	9.2	14	.85	.37	15
18	4.3	9.8	10	7.4	24	8.5	32	8.1	11	.67	.42	7.8
19	4.3	15	8.8	8.3	16	8.5	22	7.3	9.6	.60	.41	5.1
20	4.5	6.4	7.8	9.0	13	8.1	17	6.2	8.4	.60	.41	3.9
21	4.6	25	6.9	9.1	12	8.2	10	6.1	7.5	.56	.41	3.1
22	3.9	110	6.6	11	11	10	8.0	10	7.1	.52	.41	2.4
23	4.0	57	6.4	12	10	8.9	7.3	15	24	.50	.41	1.8
24	3.9	29	6.0	10	9.6	9.1	10	17	7.9	.58	.44	1.3
25	4.3	18	6.0	8.8	11	9.1	7.8	9.7	5.2	.60	.70	1.7
26	3.8	11	6.0	8.0	11	9.0	5.9	7.7	4.4	.53	.77	2.9
27	3.7	8.3	6.0	7.5	15	8.6	4.8	7.8	3.9	.50	2.5	1.7
28	3.8	6.6	5.9	7.3	13	7.7	4.4	9.2	3.4	.50	1.5	.96
29	4.3	5.7	5.9	7.4	---	7.4	5.7	11	3.0	.73	2.1	.87
30	4.6	5.2	6.1	7.0	---	7.3	5.2	32	2.7	.62	2.7	.85
31	4.0	---	6.2	6.6	---	8.4	---	e22	---	.48	3.1	---
TOTAL	131.1	390.4	211.6	237.9	300.8	298.8	1162.6	951.2	1867.7	33.94	28.69	174.22
MEAN	4.23	13.0	6.83	7.67	10.7	9.64	38.8	30.7	62.3	1.09	.93	5.81
MAX	4.8	110	14	12	36	17	430	170	484	2.5	3.1	.37
MIN	3.6	3.2	4.5	6.2	5.6	7.3	4.4	6.1	2.7	.48	.34	.41
AC-F1	260	774	420	472	597	593	2310	1890	3700	67	57	346
CFSM	.01	.03	.01	.02	.02	.02	.08	.06	.13	.00	.00	.01
IN.	.01	.03	.02	.02	.02	.02	.09	.07	.15	.00	.00	.01

e Estimated

BRAZOS RIVER BASIN

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08084800 CALIFORNIA CREEK NEAR STAMFORD, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1993, BY WATER YEAR (WY)

MEAN	38.9	16.7	13.6	12.6	40.2	15.6	23.6	86.4	74.2	22.4	68.0	56.3
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 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1963 - 1993	
ANNUAL TOTAL	50323.5		5788.95		39.0	
ANNUAL MEAN	137		15.9		156	
HIGHEST ANNUAL MEAN					1.95	
LOWEST ANNUAL MEAN					20400	
HIGHEST DAILY MEAN	3660	Feb 26	484	Jun 11		Aug 4 1978
LOWEST DAILY MEAN	3.2	Nov 2	.34	Aug 16		Sep 11 1963
ANNUAL SEVEN-DAY MINIMUM	3.5	Oct 31	.39	Aug 15		May 17 1964
INSTANTANEOUS PEAK FLOW			822	Apr 14	40000	Aug 4 1978
INSTANTANEOUS PEAK STAGE			13.72	Apr 14	31.00	Aug 4 1978
INSTANTANEOUS LOW FLOW			.34	Aug 1	.00	at times
ANNUAL RUNOFF (AC-FT)	99820		11480		28240	
ANNUAL RUNOFF (CFSM)	.29		.033		.082	
ANNUAL RUNOFF (INCHES)	3.92		.45		1.11	
10 PERCENT EXCEEDS	245		18		31	
50 PERCENT EXCEEDS	22		6.2		2.7	
90 PERCENT EXCEEDS	4.5		.69		.10	

## 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.

Water-quality records: Chemical analysis: November 1949 to September 1951, November 1967 to September 1979.

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)
June 12	1200	2,720	9.86	No peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	51	76	81	62	249	112	111	88	50	20	11
2	58	48	73	79	63	221	89	149	163	45	16	13
3	58	48	71	79	62	241	74	568	152	40	15	13
4	55	47	71	80	61	238	63	274	101	37	24	11
5	54	46	68	80	61	180	59	199	79	38	20	21
6	54	46	68	80	59	155	55	167	77	33	16	49
7	56	43	66	82	58	141	55	141	67	31	19	39
8	52	38	69	82	58	131	54	166	61	28	16	40
9	51	36	70	83	57	125	51	233	61	25	16	35
10	50	46	70	80	60	119	53	259	81	23	17	28
11	45	54	71	83	59	114	48	270	282	16	15	24
12	47	54	71	84	59	117	47	188	2100	18	14	24
13	49	54	74	85	74	117	49	155	1680	18	15	26
14	49	54	137	82	70	109	170	134	1260	18	14	49
15	48	54	116	81	105	108	451	113	454	18	12	52
16	48	52	119	80	106	107	510	97	320	17	9.9	46
17	46	52	128	77	115	103	403	93	203	15	8.5	85
18	45	60	113	75	133	100	257	86	154	13	7.5	110
19	44	104	106	77	115	96	207	81	128	12	6.6	95
20	46	106	102	83	108	101	171	79	111	10	5.9	76
21	47	174	97	81	98	99	149	74	100	12	5.4	63
22	48	212	93	83	91	221	134	73	94	14	5.4	51
23	49	208	91	83	86	180	128	100	86	14	5.3	38
24	44	277	88	80	85	127	118	310	89	12	5.2	33
25	42	189	85	79	108	113	113	392	152	12	5.1	34
26	48	144	79	74	111	97	105	234	114	18	5.0	31
27	42	118	80	72	157	89	103	161	86	18	5.9	28
28	46	100	80	69	163	85	102	131	72	18	6.1	28
29	48	91	80	67	---	79	108	106	62	17	6.1	27
30	50	81	81	65	---	82	102	98	56	17	8.8	27
31	53	---	82	60	---	219	---	89	---	23	11	---
TOTAL	1532	2687	2675	2426	2444	4263	4140	5331	8533	680	356.7	1207
MEAN	49.4	89.6	86.3	78.3	87.3	138	138	172	284	21.9	11.5	40.2
MAX	60	277	137	85	163	249	510	568	2100	50	24	110
MIN	42	36	66	60	57	79	47	73	56	10	5.0	11
AC-FT	3040	5330	5310	4810	4850	8460	8210	10570	16930	1350	708	2390

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 1993, BY WATER YEAR (WY)

	MEAN	275	79.5	91.2	58.2	150	93.6	188	644	472	213	191	356
MAX	2866	1010	1593	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 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1924 - 1993

ANNUAL TOTAL	291971	36274.7	235
ANNUAL MEAN	798	99.4	1177
HIGHEST ANNUAL MEAN			8.78
LOWEST ANNUAL MEAN			1957
HIGHEST DAILY MEAN	15900	Feb 27	72800
LOWEST DAILY MEAN	36	Nov 9	.00
ANNUAL SEVEN-DAY MINIMUM	43	Nov 4	.00
INSTANTANEOUS PEAK FLOW			149000
INSTANTANEOUS PEAK STAGE			38.88
INSTANTANEOUS LOW FLOW			.00
ANNUAL RUNOFF (AC-FT)	579100	71950	170600
10 PERCENT EXCEEDS	1810	170	328
50 PERCENT EXCEEDS	253	73	23
90 PERCENT EXCEEDS	54	16	.00

## BRAZOS RIVER BASIN

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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.--Records good except those for estimated daily discharges, which are fair.

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)
June 11	0000	1,230	8.31	No peak above base discharge during year.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	7.0	10	12	11	47	16	13	3.8	4.3	e.00	.00
2	5.6	7.4	9.8	12	11	82	14	16	3.7	3.2	e.00	.00
3	5.4	7.4	9.2	11	11	71	13	20	3.5	2.8	e.00	.00
4	5.3	6.2	8.8	11	11	50	12	17	3.2	2.3	e.00	.00
5	5.2	5.6	9.0	11	11	39	12	13	3.8	1.7	e.00	.00
6	4.9	5.3	9.0	11	11	32	12	11	2.9	1.3	e.00	.00
7	4.0	5.1	9.0	11	10	28	11	9.8	2.3	.94	e.00	.00
8	4.0	4.9	9.0	11	10	25	11	8.9	2.1	.90	e.00	.00
9	4.0	5.3	9.0	12	10	23	11	8.7	2.3	.87	e.00	.00
10	3.9	5.6	8.8	13	11	21	10	26	7.4	.83	e.00	.00
11	3.9	6.1	8.7	13	11	19	9.6	30	310	.82	e.00	.00
12	3.8	7.3	8.5	13	11	18	9.0	17	86	.81	e.00	.00
13	3.6	6.1	8.8	12	11	17	8.2	12	38	.62	e.00	.00
14	3.4	5.6	81	12	10	17	8.6	10	21	e.61	e.00	.00
15	3.3	5.6	118	11	10	16	12	8.6	14	e.61	e.00	.00
16	3.3	5.6	64	11	34	16	12	7.9	9.7	e.41	e.00	.00
17	3.3	5.2	41	11	34	16	11	6.2	7.5	e.22	e.00	.00
18	3.3	6.4	30	11	21	16	11	5.5	7.3	e.03	e.00	.00
19	3.5	47	25	11	17	16	9.8	5.2	6.4	e.00	e.00	.00
20	3.6	66	21	13	15	16	9.0	5.1	6.1	e.00	e.00	.00
21	3.4	30	19	13	14	16	8.6	4.8	5.6	e.00	e.00	.00
22	3.3	45	17	13	14	16	8.3	4.3	5.1	e.00	e.00	.00
23	3.1	32	16	12	13	16	7.8	4.1	19	e.00	e.00	.00
24	4.5	24	15	11	12	16	7.7	4.1	21	e.00	e.00	.00
25	4.6	18	14	11	36	16	7.7	4.1	11	e.00	e.00	.00
26	4.3	15	13	11	46	15	7.1	4.0	57	e.00	e.00	.00
27	4.4	13	13	11	39	14	6.9	3.7	18	e.00	e.00	.00
28	4.4	12	12	11	30	14	6.9	3.9	8.5	e.00	e.00	.00
29	5.2	11	12	11	---	13	14	4.1	5.9	e.00	e.00	.00
30	5.4	10	12	11	---	13	19	3.9	5.2	e.00	e.00	.00
31	5.8	---	12	11	---	15	---	4.0	---	e.00	e.00	---
TOTAL	131.3	430.7	652.6	359	485	749	316.2	295.9	697.3	23.27	0.00	0.00
MEAN	4.24	14.4	21.1	11.6	17.3	24.2	10.5	9.55	23.2	.75	.000	.000
MAX	5.8	66	118	13	46	82	19	30	310	4.3	.00	.00
MIN	3.1	4.9	8.5	11	10	13	6.9	3.7	2.1	.00	.00	.00
AC-FT	260	854	1290	712	962	1490	627	587	1380	46	.00	.00
CFSM	.01	.02	.03	.02	.03	.04	.02	.02	.04	.00	.00	.00
IN.	.01	.03	.04	.02	.03	.05	.02	.02	.04	.00	.00	.00

e Estimated

## BRAZOS RIVER BASIN

08086212 HUBBARD CREEK BELOW ALBANY, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1993, BY WATER YEAR (WY)

MEAN	109	14.5	56.4	71.3	80.8	42.4	59.6	142	50.7	6.66	135	61.0
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
MIN	.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

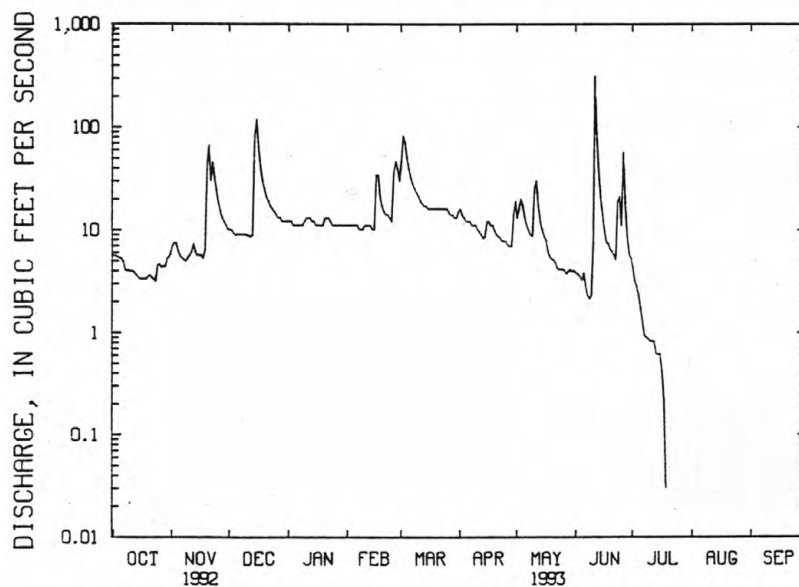
## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1967 - 1993

ANNUAL TOTAL	72157.3	4140.27	69.2
ANNUAL MEAN	197	11.3	303
HIGHEST ANNUAL MEAN			.49
LOWEST ANNUAL MEAN			1992
HIGHEST DAILY MEAN	15900 Feb 25	310 Jun 11	94700 Aug 4 1978
LOWEST DAILY MEAN	2.8 Aug 30	.00 Jul 19	.00 Apr 5 1967
ANNUAL SEVEN-DAY MINIMUM	3.4 Oct 17	.00 Jul 19	.00 Apr 24 1967
INSTANTANEOUS PEAK FLOW		1230 Jun 11	330000 Aug 4 1978
INSTANTANEOUS PEAK STAGE		8.31 Jun 11	41.41 Aug 4 1978
INSTANTANEOUS LOW FLOW		.00 many days	.00 at times
ANNUAL RUNOFF (AC-FT)	143100	8210	50120
ANNUAL RUNOFF (CFSM)	.32	.019	.11
ANNUAL RUNOFF (INCHES)	4.38	.25	1.53
10 PERCENT EXCEEDS	225	21	48
50 PERCENT EXCEEDS	30	8.3	1.3
90 PERCENT EXCEEDS	5.0	.00	.00



08086212 HUBBARD CREEK BELOW ALBANY, TX  
MEAN DAILY DISCHARGE (CFS)



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 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, 5,010 microsiemens May 24; minimum, 1160 microsiemens June 26.

WATER TEMPERATURE: Maximum, 32.5°C June 25; minimum, 4.0°C Dec. 6.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT 06...	0857	5.2	2470	18.5	600	410	150	54	280
JAN 12...	1051	13	2620	6.0	680	460	170	62	290
MAR 03...	1015	73	3200	10.5	900	700	210	92	380
APR 27...	1032	6.9	3760	20.0	900	710	210	90	450
JUN 22...	1737	5.4	2740	29.0	600	470	140	60	340

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS 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)
OCT 06...	5	5.7	190	260	520	0.30	8.6	1390
JAN 12...	5	5.4	220	300	580	0.30	6.1	1540
MAR 03...	6	4.2	210	390	800	0.30	4.7	2000
APR 27...	7	4.5	180	430	870	0.40	3.8	2170
JUN 22...	6	5.7	130	270	650	0.40	9.4	1550

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. 1992	131.3	2750	1520	540	700	248	180	63	600
NOV. 1992	430.7	3520	1960	2270	930	1080	220	256	730
DEC. 1992	652.6	2670	1480	2600	680	1190	170	305	580
JAN. 1993	359	2860	1580	1530	730	709	180	178	620
FEB. 1993	485	3140	1740	2280	810	1070	200	262	670
MAR. 1993	749	2710	1500	3020	680	1380	180	355	590
APR. 1993	316.2	3310	1840	1570	870	739	210	179	700
MAY 1993	295.9	3940	2190	1750	1100	851	240	193	800
JUNE 1993	697.3	2740	1510	2850	700	1320	180	332	590
JULY 1993	23.27	3310	1840	116	870	55	210	13	700
AUG. 1993	0.00	*	*	0.00	*	0.00	*	0.00	*
SEPT. 1993	0.00	*	*	0.00	*	0.00	*	0.00	*
TOTAL	4140.27	**	**	18500	**	8640	**	2140	**
WTD. AVG.	11	2990	1660	**	770	**	190	**	640

## BRAZOS RIVER BASIN

08086212 HUBBARD CREEK BELOW ALBANY, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	2450	2290	2370	3040	2950	3000	---	---	3480	2470	2330	2430
2	2480	2410	2440	3030	2980	3020	---	---	e3500	2330	2250	2280
3	2480	2430	2450	3030	3000	3010	---	---	e3500	2370	2250	2290
4	2480	2420	2460	3020	2990	3000	---	---	3480	2490	2370	2430
5	2560	2440	2500	3050	2990	3020	---	---	3460	2510	2430	2490
6	2590	2470	2500	3050	3020	3040	---	---	e3400	2430	2390	2410
7	2630	2530	2570	3050	3020	3040	---	---	3350	2450	2410	2440
8	2660	2610	2630	3050	3010	3030	---	---	3290	2580	2450	2510
9	2700	2650	2670	3040	3000	3020	---	---	3210	2580	2540	2560
10	2720	2670	2690	3030	3000	3010	---	---	3200	2600	2560	2580
11	2740	2710	2720	3140	3010	3050	---	---	3210	2620	2580	2600
12	2760	2710	2740	3160	3120	3140	---	---	3220	2620	2600	2610
13	2770	2730	2750	3180	3130	3160	---	---	3130	---	---	e2600
14	2800	2770	2790	3230	3120	3180	---	---	2720	---	---	e2700
15	2840	2790	2820	3200	3120	3160	2870	2500	2660	---	---	e2800
16	2830	2810	2820	3300	3190	3260	2820	2420	2600	---	---	e2800
17	2870	2810	2840	3290	3250	3270	2500	2400	2450	---	---	e2900
18	2890	2850	2860	3270	2830	3200	2560	2480	2520	---	---	e3000
19	2890	2850	2870	3190	2950	3110	2620	2520	2560	---	---	e3100
20	2910	2870	2890	3810	3030	3560	2560	2380	2480	---	---	e3100
21	2930	2910	2910	4520	3410	3870	2380	2300	2320	---	---	e3200
22	2950	2910	2920	4540	3610	4040	2340	2280	2310	---	---	e3200
23	2970	2930	2940	3890	3390	3680	2420	2280	2350	---	---	e3300
24	2950	2930	2940	4410	3490	3990	2380	2240	2330	---	---	e3300
25	2970	2910	2940	4330	3770	4090	2460	2240	2320	---	---	e3300
26	2970	2930	2950	4070	3520	3910	2400	2180	2310	---	---	e3300
27	2970	2930	2950	3660	3320	3460	2220	2160	2190	---	---	e3300
28	3040	2950	2980	---	---	e3450	2270	2210	2230	---	---	e3300
29	3020	2960	2980	---	---	3430	2410	2270	2340	---	---	e3300
30	2980	2940	2960	---	---	3470	2410	2270	2350	---	---	e3300
31	3070	2960	2980	---	---	---	2430	2330	2360	---	---	e3300
MONTH	3070	2290	2770	4540	2830	3320	2870	2160	2800	2620	2250	2860

e t s t i m a t e d

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	e3200	---	---	e2800	2970	2930	2940	3610	3290	3500
2	---	---	e3200	---	---	e2600	2990	2950	2970	3670	3470	3580
3	---	---	e3300	---	---	2980	3030	2990	2990	3610	3330	3460
4	---	---	e3500	3000	2710	2850	3030	3000	3020	3470	3310	3400
5	---	---	e3500	2770	2590	2680	3050	3020	3030	3570	3370	3450
6	---	---	e3400	2890	2630	2780	3060	3040	3050	3610	3490	3550
7	---	---	e3300	2700	2600	2640	3100	3040	3060	3620	3490	3540
8	---	---	e3400	2640	2600	2610	3160	3100	3120	3660	3580	3620
9	---	---	e3400	2640	2620	2630	3180	3140	3150	3900	3560	3690
10	---	---	e3400	2670	2610	2630	3240	3160	3210	3900	3660	3810
11	---	---	e3500	2630	2510	2590	3300	3220	3260	4120	3800	4000
12	---	---	e3500	2630	2570	2610	3320	3220	3270	4250	4040	4170
13	---	---	e3500	2600	2520	2570	3360	3300	3340	4510	3860	4150
14	---	---	e3600	2600	2500	2550	3390	3240	3350	4390	3990	4150
15	---	---	e3600	2580	2540	2550	3420	3330	3380	4210	3990	4110
16	---	---	e3000	2590	2470	2530	3400	3300	3360	4470	4210	4300
17	---	---	e2800	2610	2510	2560	3470	3370	3400	4600	4310	4520
18	---	---	e3000	2620	2580	2600	3450	3350	3400	4860	4480	4690
19	---	---	e3100	2620	2580	2610	3560	3420	3460	4840	4200	4630
20	---	---	e3200	2650	2620	2640	3590	3480	3550	4520	4160	4380
21	---	---	e3200	2670	2630	2640	3590	3470	3530	4520	4380	4450
22	---	---	e3300	2670	2610	2650	3570	3490	3530	4460	4240	4390
23	---	---	e3300	2700	2660	2670	3570	3530	3550	4690	4460	4510
24	---	---	e3400	2730	2640	2680	3630	3530	3580	5010	4350	4660
25	---	---	e3000	2710	2670	2690	3820	3540	3680	4990	4410	4640
26	---	---	e2800	2760	2710	2730	3800	3630	3700	4790	4350	4550
27	---	---	e2900	2760	2740	2750	3820	3730	3780	4370	4210	4320
28	---	---	e3000	2830	2720	2780	3780	3740	3760	4290	4170	4230
29	---	---	---	2850	2810	2830	3860	3440	3660	4390	4270	4330
30	---	---	---	2880	2830	2860	3420	3220	3350	4800	4310	4490
31	---	---	---	2930	2880	2900	---	---	---	4780	4400	4630
MONTH	---	---	3260	3000	2470	2680	3860	2930	3350	5010	3290	4130

e t s t i m a t e d

## 08086212 HUBBARD CREEK BELOW ALBANY, TX--Continued

## SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	4760	4440	4570	2980	2840	2890	---	---	---	---	---	---
2	4520	4380	4450	3100	2960	3030	---	---	---	---	---	---
3	4560	4400	4480	3170	3040	3100	---	---	---	---	---	---
4	4750	4280	4470	3210	3130	3160	---	---	---	---	---	---
5	4830	4690	4760	3280	3210	3240	---	---	---	---	---	---
6	4750	4590	4680	3320	3240	3300	---	---	---	---	---	---
7	4660	4520	4630	3480	3320	3420	---	---	---	---	---	---
8	4660	4600	4640	3630	3450	3560	---	---	---	---	---	---
9	4670	4150	4550	3750	3580	3650	---	---	---	---	---	---
10	4510	4010	4260	3780	3640	3700	---	---	---	---	---	---
11	4580	1290	3060	3860	3720	3770	---	---	---	---	---	---
12	2400	1590	1910	3990	3770	3860	---	---	---	---	---	---
13	2610	2350	2430	4100	3910	3990	---	---	---	---	---	---
14	2730	2570	2690	4160	3920	4070	---	---	---	---	---	---
15	2760	2620	2690	4320	4080	4200	---	---	---	---	---	---
16	2980	2760	2910	4440	4140	4270	---	---	---	---	---	---
17	2930	2820	2910	4500	4220	4360	---	---	---	---	---	---
18	2870	2630	2820	4640	4300	4460	---	---	---	---	---	---
19	3270	2570	2970	---	---	---	---	---	---	---	---	---
20	3400	3020	3180	---	---	---	---	---	---	---	---	---
21	3360	2910	3130	---	---	---	---	---	---	---	---	---
22	3050	2700	2900	---	---	---	---	---	---	---	---	---
23	3030	2230	2630	---	---	---	---	---	---	---	---	---
24	2810	2560	2680	---	---	---	---	---	---	---	---	---
25	3110	2400	2930	---	---	---	---	---	---	---	---	---
26	3040	1160	1750	---	---	---	---	---	---	---	---	---
27	1590	1220	1450	---	---	---	---	---	---	---	---	---
28	2410	1550	2130	---	---	---	---	---	---	---	---	---
29	2560	2160	2340	---	---	---	---	---	---	---	---	---
30	2840	2540	2650	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	4830	1160	3250	4640	2840	3670	---	---	---	---	---	---
YEAR	5010	1160	3190									

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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

08086212 HUBBARD CREEK BELOW ALBANY, TX--Continued

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	10.0	6.5	8.0	10.0	9.5	9.5	20.0	17.0	18.0	23.5	21.0	22.0
2	10.0	7.5	9.0	11.0	9.5	10.5	20.0	16.0	17.5	22.0	19.5	21.0
3	11.0	9.0	10.0	11.5	10.5	11.0	19.0	16.0	17.5	22.0	19.0	20.5
4	9.5	9.0	9.0	12.5	11.0	11.5	17.5	14.5	16.0	23.0	20.0	21.5
5	9.5	8.5	9.0	12.0	10.0	11.0	17.0	14.0	15.0	22.5	21.5	22.0
6	11.0	7.5	9.0	12.5	11.0	11.5	17.5	14.5	16.0	23.0	20.5	21.5
7	11.0	8.0	9.0	13.0	10.5	12.0	20.0	15.5	17.0	23.5	21.5	22.5
8	12.0	8.5	10.0	15.0	11.5	13.0	18.0	15.0	16.5	24.5	22.0	23.0
9	11.0	9.5	10.0	15.5	13.0	14.0	20.5	14.5	17.5	25.0	22.0	23.0
10	14.0	10.5	12.0	15.0	13.0	14.0	21.0	16.0	18.5	23.5	21.0	22.5
11	12.0	9.5	11.0	14.5	13.0	13.5	22.0	16.5	19.0	22.5	21.5	22.0
12	11.5	8.5	10.0	13.0	10.0	11.5	24.5	18.5	21.5	22.5	20.5	21.5
13	13.0	8.5	10.5	12.0	9.0	10.0	25.0	21.0	23.0	23.5	20.0	21.5
14	10.0	9.0	10.0	11.5	8.5	10.0	23.0	16.5	19.5	25.0	20.5	22.5
15	11.5	9.0	9.5	13.0	9.5	11.0	20.0	15.5	17.0	25.0	22.0	23.5
16	9.0	8.0	8.5	14.5	11.0	12.5	20.5	15.5	17.5	26.5	22.5	24.0
17	7.5	6.0	7.0	13.5	11.0	12.0	22.0	16.5	19.0	25.5	23.5	24.5
18	7.5	6.0	6.5	13.5	12.0	12.5	22.5	17.0	19.5	25.0	23.0	24.0
19	8.5	5.5	7.0	13.5	13.0	13.0	23.5	18.5	20.5	27.0	21.0	23.5
20	10.5	7.5	9.0	13.0	12.5	12.5	21.5	18.0	19.5	26.5	22.5	24.5
21	11.5	9.0	10.0	14.0	12.0	13.0	22.0	17.0	19.0	25.0	22.5	24.0
22	13.0	8.5	10.5	15.0	13.0	13.5	21.0	17.0	19.0	23.5	22.5	23.0
23	12.5	9.5	11.0	18.0	12.5	15.0	20.0	17.0	18.5	25.0	22.0	23.0
24	10.5	9.5	10.0	19.0	14.0	16.5	23.0	18.0	20.5	26.0	22.0	24.0
25	12.0	10.0	11.0	18.5	16.0	17.0	23.0	19.5	21.0	26.5	22.5	24.5
26	11.5	10.0	10.5	19.5	15.5	17.0	23.5	18.0	20.5	26.5	23.0	25.0
27	10.5	9.5	10.0	18.0	16.0	17.0	21.5	19.0	20.5	26.5	23.5	25.0
28	10.0	9.5	9.5	21.0	16.5	18.5	22.0	20.0	21.0	26.0	23.5	24.5
29	---	---	---	21.5	18.0	19.5	23.0	20.5	21.5	27.0	23.5	25.0
30	---	---	---	21.5	17.5	19.0	23.0	21.0	22.0	29.0	24.0	26.0
31	---	---	---	20.0	17.0	18.5	---	---	---	28.0	24.5	26.5
MON III	14.0	5.5	9.5	21.5	8.5	13.5	25.0	14.0	19.0	29.0	19.0	23.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	26.5	24.0	25.5	30.5	27.5	29.0	---	---	---	---	---	---
2	28.0	23.5	25.5	30.0	27.0	28.5	---	---	---	---	---	---
3	29.5	24.0	26.5	28.5	26.5	27.5	---	---	---	---	---	---
4	29.0	25.0	27.0	28.0	24.5	26.5	---	---	---	---	---	---
5	27.5	24.0	26.0	28.5	25.0	27.0	---	---	---	---	---	---
6	27.5	25.5	26.5	29.5	26.0	27.5	---	---	---	---	---	---
7	27.0	24.5	26.0	29.5	26.5	28.0	---	---	---	---	---	---
8	28.0	25.0	26.5	30.0	26.0	27.5	---	---	---	---	---	---
9	26.5	23.5	25.5	29.0	25.0	27.5	---	---	---	---	---	---
10	28.0	22.5	25.0	30.0	26.0	28.0	---	---	---	---	---	---
11	26.0	21.5	24.0	30.0	26.0	28.0	---	---	---	---	---	---
12	26.0	23.5	24.5	30.5	26.5	28.5	---	---	---	---	---	---
13	27.5	25.0	26.5	29.5	26.0	28.0	---	---	---	---	---	---
14	29.5	26.0	27.5	30.0	26.0	28.0	---	---	---	---	---	---
15	30.0	26.5	28.5	30.0	27.0	28.5	---	---	---	---	---	---
16	29.5	27.0	28.5	29.5	26.5	28.0	---	---	---	---	---	---
17	29.5	27.0	28.0	30.0	26.5	28.5	---	---	---	---	---	---
18	30.0	27.0	28.0	30.0	27.0	29.0	---	---	---	---	---	---
19	29.5	27.0	28.0	---	---	---	---	---	---	---	---	---
20	30.0	27.0	28.0	---	---	---	---	---	---	---	---	---
21	31.0	27.0	28.5	---	---	---	---	---	---	---	---	---
22	30.0	27.5	28.5	---	---	---	---	---	---	---	---	---
23	30.0	26.5	28.0	---	---	---	---	---	---	---	---	---
24	30.5	27.5	29.0	---	---	---	---	---	---	---	---	---
25	32.5	27.5	29.5	---	---	---	---	---	---	---	---	---
26	28.5	25.5	27.0	---	---	---	---	---	---	---	---	---
27	31.0	26.0	28.5	---	---	---	---	---	---	---	---	---
28	31.0	27.0	29.0	---	---	---	---	---	---	---	---	---
29	30.5	27.0	29.0	---	---	---	---	---	---	---	---	---
30	30.5	27.0	29.0	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MON III	32.5	21.5	27.0	30.5	24.5	28.0	---	---	---	---	---	---
YEAR	32.5	4.0	16.5									

## BRAZOS RIVER BASIN

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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)
Sept. 14	1100	761	6.26	No peak greater than base discharge during year.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.34	.13	.62	.88	2.8	60	2.0	.88	e.11	e.29	.00	5.0
2	.30	.13	.59	.85	3.1	93	2.2	1.3	e.07	e.25	.00	.69
3	.29	.09	.58	.83	2.5	51	7.2	3.8	.04	e.21	.00	.18
4	.29	.10	.59	.81	2.3	27	12	4.0	.04	e.18	.52	.05
5	.29	.11	.58	.87	2.2	16	3.2	5.6	.04	e.14	.27	.02
6	.29	.11	.43	.88	2.0	11	2.5	4.1	.05	e.10	.09	.01
7	.25	.12	.33	.88	2.0	9.0	2.4	2.6	.05	e.08	.09	.00
8	.25	.12	.35	.81	2.0	6.7	2.2	2.0	.07	e.06	.07	.00
9	.25	.13	.72	1.8	2.0	5.0	2.1	44	.21	e.04	.05	.00
10	.25	.12	.72	1.7	1.9	4.3	1.8	59	11	e.02	.02	.00
11	.25	.15	.72	1.6	1.8	3.8	1.8	26	30	e.01	.01	.00
12	.25	.19	.60	1.6	3.0	3.8	1.8	e13	34	e.00	.00	.00
13	.21	.23	3.8	1.8	3.2	3.4	1.7	e10	7.5	.00	.00	1.2
14	.21	.19	101	1.8	5.8	3.4	1.8	e9.1	1.9	.00	.00	283
15	.21	.21	62	1.8	64	3.1	1.7	e8.0	.89	.00	.00	24
16	.21	.23	27	1.8	117	3.1	1.7	e6.9	.45	.00	.00	2.9
17	.21	.23	18	1.7	45	2.8	1.6	e5.9	.33	.00	.00	.55
18	.21	.45	11	1.6	22	2.5	1.6	e4.8	.25	.00	.00	.19
19	.21	3.0	7.0	1.7	13	2.5	1.5	e3.8	.18	.00	.00	.11
20	.18	.69	5.8	3.3	9.2	2.5	1.2	e3.1	.18	.00	.00	.07
21	.18	.52	4.8	3.8	7.3	2.5	.84	e2.5	.15	.00	.00	.04
22	.18	4.4	3.5	3.2	5.1	2.5	.88	e2.0	.13	.00	.00	.01
23	.18	2.5	2.7	2.8	4.0	2.5	.84	e1.6	.13	.00	.00	.00
24	.18	.69	2.4	2.5	3.8	2.5	.70	e1.2	.11	.00	.00	.00
25	.18	.34	2.0	2.3	49	2.8	.53	e.96	e2.2	.00	.00	.02
26	.16	.11	1.8	2.3	37	2.8	.42	e.74	e.75	.00	.00	.05
27	.16	.34	1.4	2.3	31	2.8	.43	e.56	e.60	.00	.00	.04
28	.16	.63	1.1	2.3	18	2.8	.45	e.42	e.52	.00	.00	.02
29	.13	.66	1.1	2.3	---	2.5	1.4	e.31	e.40	.00	.00	.01
30	.11	.68	1.0	2.3	---	2.3	.88	e.23	e.34	.00	.00	.01
31	.12	---	.99	2.0	---	2.1	---	e.16	---	.00	5.8	---
TOTAL	6.69	17.60	265.22	57.11	462.0	342.0	61.37	228.56	92.69	1.38	6.92	318.17
MEAN	.22	.59	8.56	1.84	16.5	11.0	2.05	7.37	3.09	.045	.22	10.6
MAX	.34	4.4	101	3.8	117	93	12	59	34	.29	5.8	283
MIN	.11	.09	.33	.81	1.8	2.1	.42	.16	.04	.00	.00	.00
AC-FT	13	35	526	113	916	678	122	453	184	2.7	14	631
CFSM	.00	.00	.03	.01	.06	.04	.01	.03	.01	.00	.00	.04
IN.	.00	.00	.04	.01	.06	.05	.01	.03	.01	.00	.00	.04

e Estimated



## BRAZOS RIVER BASIN

08086290 BIG SANDY CREEK ABOVE BRECKENRIDGE, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1993, BY WATER YEAR (WY)

MEAN	59.7	12.8	19.0	21.7	26.8	26.9	32.5	66.8	34.2	6.21	15.3	21.9
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 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1962 - 1993

ANNUAL TOTAL	30492.34	1859.71	
ANNUAL MEAN	83.3	5.10	28.7
HIGHEST ANNUAL MEAN			114
LOWEST ANNUAL MEAN			2.47
HIGHEST DAILY MEAN	5230 Feb 25	283 Sep 14	28100 Oct 13 1981
LOWEST DAILY MEAN	.09 Nov 3	.00 Jul 12	.00 Feb 1 1962
ANNUAL SEVEN-DAY MINIMUM	.11 Nov 2	.00 Jul 12	.00 Feb 1 1962
INSTANTANEOUS PEAK FLOW		761 Sep 14	*80000 Oct 13 1981
INSTANTANEOUS PEAK STAGE		6.26 Sep 14	a28.60 Oct 13 1981
INSTANTANEOUS LOW FLOW		.00 many days	.00 **
ANNUAL RUNOFF (AC-FT)	60480	3690	20760
ANNUAL RUNOFF (CFSM)	.30	.018	.10
ANNUAL RUNOFF (INCHES)	4.05	.25	1.39
10 PERCENT EXCEEDS	87	7.4	14
50 PERCENT EXCEEDS	8.0	.69	.07
90 PERCENT EXCEEDS	.23	.00	.00

\* From field determination, based on 2-section slope-area measurement of peak flow.

a From outside floodmark.

\*\* 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 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. 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, 14,600 microsiemens Aug. 4; minimum, 315 microsiemens Sept. 14, 15.

WATER TEMPERATURE: Maximum, 34.0°C July 11; minimum, 3.0°C Jan. 13.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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 06...	1044	0.29	6560	17.0	1200	1100	360	80	940
JAN 12...	1148	1.6	5360	6.5	990	790	290	64	740
MAR 03...	1243	50	1800	11.5	460	310	120	39	200
APR 27...	1340	0.46	6400	21.0	1300	1100	370	93	850
JUN 22...	1634	0.11	6580	29.5	1100	1000	320	78	930

DATE	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 06...	12	6.4	160	410	1900	0.40	4.3	3800
JAN 12...	10	5.6	190	360	1500	0.40	5.6	3080
MAR 03...	4	5.4	150	190	390	0.30	8.0	1050
APR 27...	10	6.0	180	480	1700	0.40	3.4	3610
JUN 22...	12	5.9	110	320	1900	0.40	8.1	3640

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. 1992	6.69	7320	4280	77	2200	39	440	8.0	1300
NOV. 1992	17.60	5530	3210	153	1600	76	340	16	950
DEC. 1992	265.22	2890	1640	1180	800	574	180	130	500
JAN. 1993	57.11	4500	2590	399	1300	197	280	43	780
FEB. 1993	462.0	3110	1770	2210	870	1080	200	244	540
MAR. 1993	342.0	2030	1150	1060	560	514	130	119	350
APR. 1993	61.37	4040	2320	384	1100	189	250	42	700
MAY 1993	228.56	3890	2220	1370	1100	677	240	149	670
JUNE 1993	92.69	4870	2810	702	1400	349	300	75	840
JULY 1993	1.38	9750	5790	22	3000	11	570	2.1	1700
AUG. 1993	6.92	8390	4940	92	2500	47	500	9.4	1400
SEPT 1993	318.17	874	491	422	240	203	56	48	150
TOTAL	1859.71	**	**	8100	**	3960	**	886	**
WTD.AVG.	5.1	2820	1610	**	790	**	180	**	490

## BRAZOS RIVER BASIN

08086290 BIG SANDY CREEK ABOVE BRECKENRIDGE, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	e5850	7710	7210	7440	4940	4530	4730	4500	4050	4280
2	---	---	e5950	8360	7610	8040	5380	4920	5050	4620	4320	4470
3	---	---	e6100	8250	7920	8040	5430	5120	5250	4520	4320	4400
4	---	---	e6200	8500	8210	8320	5960	5290	5600	4670	4380	4540
5	---	---	e6350	8940	8520	8710	6100	5110	5850	4880	4300	4470
6	6970	6390	6550	9050	8860	8960	6370	5700	5900	4880	4590	4730
7	7210	6930	7020	9410	8890	9060	6440	5830	6210	4780	4530	4660
8	7350	7070	7140	9480	9190	9330	6670	6000	6420	4980	4410	4670
9	7370	7150	7250	9250	8980	9140	6470	5720	6030	5250	4630	4860
10	7750	7290	7400	9470	8990	9210	6050	5680	5830	5250	4680	4900
11	7870	7670	7730	9580	9000	9360	6700	6110	6310	5480	5210	5360
12	7910	7700	7800	9810	9000	9350	6920	6330	6670	6060	5280	5570
13	7970	7720	7840	9900	9690	9810	7430	3900	6070	6100	5600	5850
14	7920	7760	7850	9740	9400	9560	4510	2110	3080	5880	5340	5690
15	7980	7750	7870	9970	9640	9730	2700	2030	2410	5260	4790	4940
16	8050	7690	7910	10100	9710	9910	2070	1830	1940	4970	4790	4880
17	8010	7690	7880	10300	9810	9970	2600	2110	2370	4950	4710	4850
18	8010	7740	7840	10300	7240	9850	3070	2640	2880	4710	4270	4390
19	8070	7680	7840	7790	5640	6450	3090	2910	3000	4290	3990	4190
20	7980	7800	7870	5750	3840	4590	2950	2870	2900	4190	3770	3940
21	---	---	7900	5170	3820	4200	3180	2950	3050	4310	3930	4100
22	---	---	e7950	5690	4230	4760	3420	3180	3270	4320	4150	4210
23	---	---	e8000	4610	3750	4020	3420	3240	3360	4260	4040	4160
24	---	---	e8000	3690	3490	3570	3380	3260	3330	4340	4160	4240
25	---	---	e8050	3530	3370	3450	3550	3320	3420	4340	4200	4270
26	---	---	e8100	3410	3150	3250	3610	3390	3460	4280	4020	4140
27	---	---	e8150	3700	3250	3420	3740	3430	3580	4180	3980	4080
28	---	---	8150	4020	3720	3850	3740	3530	3660	4290	4110	4180
29	7910	7460	7700	4310	4020	4140	3900	3660	3750	4350	4230	4290
30	7850	7370	7560	4650	4210	4390	4050	3760	3920	4350	4210	4280
31	7550	7330	7430	---	---	---	4390	4150	4250	4370	4110	4260
MONTH	8070	6390	7460	10300	3150	7130	7430	1830	4310	6100	3770	4580

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	5140	3990	4300	3020	1360	2330	4150	4020	4090	5840	5320	5560
2	4460	4170	4320	1840	1280	1540	4200	3910	4070	5760	5080	5380
3	4460	4340	4390	1820	1660	1760	4060	3300	3900	6020	5000	5320
4	4360	4180	4290	1740	1400	1560	3300	2560	2930	7380	5360	6400
5	4160	3960	4040	1460	1400	1420	3000	2580	2690	7180	5060	5480
6	4200	3940	4050	1580	1460	1520	3730	3040	3400	5040	4860	4920
7	4240	4080	4180	1780	1580	1660	4020	3700	3840	5200	4880	5010
8	4300	4140	4230	1940	1780	1850	4270	4030	4130	5640	5140	5430
9	4340	4180	4260	2140	1940	2030	4330	4150	4230	5700	1500	3890
10	4290	4170	4220	2260	2120	2190	4390	4050	4260	3620	2540	3210
11	4310	4170	4240	2420	2260	2340	4410	4230	4310	3960	3500	3770
12	4800	4130	4320	2540	2420	2480	4470	4250	4370	3560	3140	3290
13	4470	4210	4310	2780	2540	2640	4430	4210	4360	3560	3160	3340
14	4570	4430	4490	2960	2740	2800	4380	4230	4310	3560	3480	3530
15	4570	2300	3740	3080	2880	2960	4310	4200	4250	3560	3360	3460
16	8930	2480	3800	3180	2980	3090	4470	4320	4380	3880	3440	3560
17	2380	1910	2030	3240	3120	3160	4610	4400	4500	4240	3580	3730
18	2070	1970	2010	3380	3240	3280	4880	4520	4630	4440	3920	4060
19	2210	2070	2120	3440	3320	3390	5080	4780	4890	4280	3860	4040
20	2350	2210	2290	3500	3400	3450	5160	4960	5060	4860	4220	4450
21	2650	2370	2480	3520	3400	3460	5410	5000	5140	5120	4700	4880
22	2850	2550	2660	3540	3360	3440	5650	5270	5370	5400	5060	5210
23	3070	2770	2870	3760	3580	3630	5710	5440	5550	6600	5400	5750
24	3070	2990	3020	3780	3620	3700	6050	5640	5790	7340	6120	6690
25	3030	1610	2360	3680	3440	3500	6250	5940	6070	7500	6580	6980
26	2730	2170	2320	3600	3420	3520	6450	5940	6160	7840	7080	7330
27	3710	2730	3260	3780	3560	3650	6750	6140	6430	8040	7360	7650
28	3110	2970	3040	3860	3640	3750	6740	6260	6460	8520	7640	7960
29	---	---	---	3900	3780	3850	6420	5560	5970	8820	8200	8480
30	---	---	---	3960	3800	3880	5620	5240	5410	9420	8720	9010
31	---	---	---	4070	3880	3990	---	---	---	10100	9160	9520
MONTH	8930	1610	3490	4070	1280	2830	6750	2560	4700	10100	1500	5400

## BRAZOS RIVER BASIN

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08086290 BIG SANDY CREEK ABOVE BRECKENRIDGE, TX--Continued

## SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	9420	9080	9230	9420	8940	9170	---	---	---	5520	3340	4240
2	9340	8740	9080	9620	9220	9390	---	---	---	3340	3100	3210
3	9420	8880	9170	9780	9220	9530	---	---	---	3330	3100	3210
4	9720	9240	9430	9960	9580	9760	14600	7160	11100	3410	3270	3340
5	9880	9420	9590	10300	9790	10000	7320	5570	6250	3540	3370	3440
6	10200	9580	9880	10600	10000	10300	9220	6700	8490	3590	3460	3510
7	10500	10000	10300	10800	10200	10500	9010	8660	8810	---	---	---
8	10900	10300	10600	11000	10500	10800	8870	8630	8720	---	---	---
9	11000	9260	10600	11300	10800	11000	9040	8760	8870	---	---	---
10	10700	2920	4920	11500	10900	11200	9230	8850	9000	---	---	---
11	8460	2960	5440	11700	11100	11400	9100	9020	9060	---	---	---
12	4520	2960	3850	---	---	---	---	---	---	---	---	---
13	4680	4460	4520	---	---	---	---	---	---	3690	1280	2260
14	4760	4420	4540	---	---	---	---	---	---	2500	315	845
15	4720	4200	4490	---	---	---	---	---	---	463	315	396
16	4960	4520	4710	---	---	---	---	---	---	589	441	527
17	5280	4760	5080	---	---	---	---	---	---	737	589	641
18	5480	4880	5160	---	---	---	---	---	---	885	737	797
19	5820	5360	5570	---	---	---	---	---	---	1100	885	945
20	6380	5660	5960	---	---	---	---	---	---	1180	1050	1110
21	6540	6060	6280	---	---	---	---	---	---	1310	1140	1250
22	6720	6340	6510	---	---	---	---	---	---	1350	1270	1310
23	7180	6540	6800	---	---	---	---	---	---	---	---	---
24	7710	7070	7340	---	---	---	---	---	---	---	---	---
25	8230	7390	7690	---	---	---	---	---	---	1720	1550	1640
26	8860	7510	8040	---	---	---	---	---	---	2330	1700	1920
27	8680	8200	8440	---	---	---	---	---	---	2290	2080	2150
28	8780	8420	8590	---	---	---	---	---	---	2440	2170	2290
29	8980	8600	8770	---	---	---	---	---	---	2510	2320	2410
30	9160	8760	8940	---	---	---	---	---	---	2640	2450	2530
31	---	---	---	---	---	---	9200	4770	8230	---	---	---
MON III	11000	2920	7320	11700	8940	10300	14600	4770	8730	5520	315	2000
YEAR	14600	315	5300									

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	20.5	17.5	19.0	19.5	15.5	18.0	10.0	5.0	7.0	---	---	e9.5
2	20.0	17.0	18.5	16.0	12.5	14.5	9.0	5.5	7.0	---	---	e8.5
3	19.5	16.5	18.0	16.0	12.5	14.0	9.0	6.0	7.5	13.0	8.5	10.5
4	19.5	16.5	18.0	14.0	10.0	11.5	9.5	6.5	8.0	12.0	8.0	11.0
5	19.5	17.0	18.0	10.0	6.5	8.5	6.5	5.0	5.5	---	---	e9.5
6	20.5	17.0	19.0	12.0	9.0	10.5	8.5	5.0	6.5	---	---	---
7	20.5	18.0	19.0	12.5	7.5	10.0	9.0	5.5	7.5	---	---	---
8	18.0	15.5	17.0	13.5	11.0	12.0	9.0	7.5	8.5	---	---	---
9	18.5	14.5	16.5	17.0	13.5	15.0	11.5	8.5	9.5	---	---	---
10	19.5	17.0	18.5	18.5	17.0	17.5	12.0	7.0	8.5	---	---	---
11	18.5	16.0	17.5	21.0	17.5	19.0	10.0	6.0	8.0	---	---	---
12	19.5	16.0	17.5	17.5	12.5	15.0	11.0	8.0	9.5	---	---	8.0
13	20.5	18.0	19.5	12.5	9.0	10.5	12.0	9.5	11.0	7.0	3.0	5.5
14	20.5	18.5	20.0	12.0	8.0	10.0	9.0	6.5	7.5	6.0	4.0	5.5
15	22.5	20.0	21.0	12.0	8.0	10.0	8.0	6.5	7.0	10.0	5.0	7.0
16	22.0	19.0	20.0	14.5	10.5	12.5	7.5	6.0	6.5	9.5	7.0	8.0
17	19.5	17.5	18.5	17.0	13.0	15.0	7.0	5.0	6.0	8.5	6.5	7.5
18	19.5	17.5	18.5	17.5	15.0	16.0	8.0	5.0	6.5	8.0	6.0	7.0
19	19.0	17.0	18.0	16.5	14.5	15.5	10.0	8.0	8.5	6.0	4.5	5.5
20	20.5	18.5	19.5	15.0	12.5	13.5	8.5	7.0	8.0	9.0	4.5	6.5
21	---	---	20.0	14.0	10.0	12.5	10.0	7.5	8.5	10.5	6.0	8.0
22	---	---	e20.0	11.0	8.5	10.0	11.0	9.0	10.0	10.5	6.0	8.5
23	---	---	e19.5	12.0	9.5	10.5	11.5	9.0	10.0	13.0	8.5	10.5
24	---	---	e19.5	11.5	9.0	11.0	9.5	6.5	8.5	10.0	6.5	8.5
25	---	---	e20.0	10.0	7.0	8.0	11.0	8.5	9.0	9.0	4.5	7.0
26	---	---	e20.0	9.0	6.5	7.0	10.0	7.0	8.5	9.0	3.5	6.5
27	---	---	e19.0	8.5	5.0	6.5	10.0	6.5	8.5	9.5	5.0	7.5
28	---	---	18.5	8.0	4.5	6.0	12.0	9.5	10.5	9.5	7.5	8.5
29	20.5	17.5	19.0	9.5	5.0	7.0	16.5	12.5	14.5	9.0	6.0	7.5
30	19.5	16.5	18.0	8.0	5.5	6.5	17.0	14.5	15.5	8.0	5.5	6.5
31	20.5	17.0	18.5	---	---	---	15.5	8.0	12.0	9.0	5.5	7.0
MON III	22.5	14.5	19.0	21.0	4.5	12.0	17.0	5.0	8.5	13.0	3.0	8.0

e Estimated

08086290 BIG SANDY CREEK ABOVE BRECKENRIDGE, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	11.0	5.5	8.5	10.5	8.5	9.5	20.5	14.5	17.5	26.0	18.5	21.5
2	11.5	7.0	9.0	12.0	9.0	10.5	19.5	13.0	16.5	21.0	17.0	18.5
3	12.5	10.5	11.5	12.5	10.0	11.0	19.5	15.0	17.0	23.0	14.5	18.5
4	11.5	9.5	10.5	13.5	9.5	11.0	17.0	13.5	15.5	25.0	18.0	21.0
5	10.0	8.5	9.5	13.5	9.5	11.5	17.0	12.0	14.0	22.0	20.0	21.0
6	11.5	6.5	9.0	12.5	8.0	10.5	17.5	13.0	15.0	22.5	19.0	20.5
7	12.0	6.0	9.0	14.5	8.5	11.5	21.5	15.5	18.0	23.5	20.0	21.5
8	12.5	7.0	10.0	16.5	10.5	13.5	19.5	14.5	17.5	27.0	20.5	23.0
9	12.0	8.5	10.5	18.5	12.5	15.5	21.5	13.0	17.0	23.0	20.0	21.5
10	15.0	11.0	13.0	17.5	13.5	15.5	22.5	14.5	18.5	22.5	19.0	20.5
11	13.0	9.5	11.0	14.5	11.5	13.0	24.5	16.0	20.0	21.0	19.0	20.0
12	11.5	7.0	9.5	12.0	7.5	10.0	26.5	19.0	22.5	22.0	18.0	19.5
13	12.5	6.5	10.0	12.0	5.0	8.5	27.0	21.0	23.5	24.0	17.5	20.5
14	11.0	8.5	9.5	13.0	6.0	9.5	23.5	15.5	19.5	26.0	18.0	22.0
15	11.0	8.0	9.0	15.0	10.0	12.0	20.0	12.5	16.0	28.0	20.0	23.5
16	8.5	7.0	8.0	19.0	11.5	15.0	21.5	13.0	17.0	29.0	21.5	25.0
17	7.0	5.0	6.0	15.0	12.0	13.5	23.5	16.0	19.0	29.5	22.0	25.5
18	6.5	4.0	5.0	15.0	11.5	13.0	25.0	16.0	20.0	28.0	22.5	24.5
19	9.5	5.0	7.0	14.5	13.0	13.5	27.0	19.0	22.0	28.5	19.5	23.0
20	11.0	8.0	9.5	13.0	12.0	12.5	24.5	17.0	20.5	29.0	20.0	24.0
21	14.0	10.0	12.0	15.5	11.5	13.5	23.5	14.5	18.5	25.5	21.0	23.5
22	14.0	9.0	11.5	17.0	14.0	15.0	22.5	14.5	18.0	25.5	21.0	23.0
23	14.0	9.0	11.5	19.0	11.0	15.0	20.0	16.5	18.5	26.5	22.0	24.0
24	11.0	9.5	10.0	22.0	13.5	17.5	26.5	18.0	21.0	32.0	22.0	25.5
25	13.0	10.0	11.0	21.5	15.5	18.5	28.0	19.5	23.0	29.5	22.0	25.5
26	11.5	8.5	10.0	21.0	14.5	17.5	25.5	17.0	21.0	28.0	21.5	24.5
27	11.0	9.0	10.0	18.5	14.5	17.0	29.0	20.0	24.0	29.0	21.0	25.0
28	10.0	9.0	9.5	23.0	16.5	19.5	23.5	18.5	20.5	28.0	22.5	25.0
29	---	---	---	24.5	19.0	21.0	26.0	18.5	22.0	29.5	23.0	26.0
30	---	---	---	23.5	17.5	20.0	23.0	19.0	21.0	32.5	23.5	27.5
31	---	---	---	21.5	15.5	18.5	---	---	---	32.0	23.5	27.0
MONTH	15.0	4.0	9.5	24.5	5.0	14.0	29.0	12.0	19.0	32.5	14.5	23.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	30.0	23.0	26.0	32.5	27.0	29.5	---	---	---	26.0	22.5	23.5
2	31.5	22.5	26.5	32.0	27.0	29.0	---	---	---	29.0	23.0	25.5
3	31.0	24.0	27.5	31.0	26.5	28.5	---	---	---	30.0	24.0	26.5
4	31.0	25.5	28.0	29.5	25.5	27.0	30.0	26.5	28.0	28.5	22.0	25.0
5	29.0	24.5	26.5	30.5	25.5	27.5	32.0	26.0	28.5	27.5	22.0	24.5
6	29.0	25.0	27.0	32.0	26.5	29.0	29.5	27.0	28.0	24.5	22.0	23.0
7	28.0	25.5	26.5	32.5	27.0	29.5	27.0	25.5	26.5	---	---	---
8	30.0	25.0	27.5	32.0	27.0	29.5	31.0	25.0	27.5	---	---	---
9	28.0	23.5	26.5	33.0	26.5	29.5	32.0	26.5	29.0	---	---	---
10	27.0	21.0	24.0	33.5	27.0	30.0	33.0	27.0	29.5	---	---	---
11	28.0	23.5	25.5	34.0	27.5	30.5	30.0	27.5	28.5	---	---	---
12	28.5	24.0	26.0	---	---	---	---	---	---	---	---	---
13	30.0	24.5	27.0	---	---	---	---	---	---	24.5	22.0	23.0
14	32.5	24.5	28.5	---	---	---	---	---	---	22.0	19.5	20.5
15	31.5	25.0	28.0	---	---	---	---	---	---	21.5	17.5	19.5
16	31.0	25.5	28.0	---	---	---	---	---	---	23.0	17.0	20.0
17	31.5	25.0	28.0	---	---	---	---	---	---	24.5	18.0	20.5
18	31.0	25.5	27.5	---	---	---	---	---	---	24.5	19.5	22.0
19	29.5	26.0	27.5	---	---	---	---	---	---	27.0	22.0	24.0
20	30.5	25.0	27.0	---	---	---	---	---	---	28.0	23.0	25.5
21	31.5	25.5	28.0	---	---	---	---	---	---	28.5	24.0	26.0
22	30.5	26.0	27.5	---	---	---	---	---	---	28.0	24.5	25.0
23	31.5	24.0	27.0	---	---	---	---	---	---	---	---	---
24	31.0	26.0	28.0	---	---	---	---	---	---	---	---	---
25	32.0	26.0	28.5	---	---	---	---	---	---	24.5	22.5	23.5
26	32.0	24.0	27.5	---	---	---	---	---	---	26.5	21.5	23.5
27	31.0	25.5	28.0	---	---	---	---	---	---	24.0	19.0	21.5
28	31.5	26.0	28.5	---	---	---	---	---	---	24.0	18.5	21.0
29	32.5	26.5	29.0	---	---	---	---	---	---	24.0	18.5	21.0
30	32.0	26.5	29.0	---	---	---	---	---	---	23.0	18.5	20.5
31	---	---	---	---	---	---	24.5	23.0	23.5	---	---	---
MONTH	32.5	21.0	27.5	34.0	25.5	29.0	33.0	23.0	27.5	30.0	17.0	23.0
YEAR	34.0	3.0	17.0									



## 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>.

## RESERVOIR-CONTENT 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, 306,400 acre-ft Oct. 1, Mar. 8 (elevation, 1,182.24 ft); minimum, 264,200 acre-ft Sept. 30 (elevation, 1,179.26 ft).

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

1,179.0	260,700	1,182.0	302,800
1,180.0	274,200	1,183.0	317,800
1,181.0	288,300		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	305900	301100	299000	300500	301300	305200	299900	294800	291100	288000	275600	268100
2	306100	300600	298600	301100	301600	305600	299200	295000	290800	287600	275000	268100
3	306100	299700	298600	301500	301600	305600	298200	295000	290600	287500	275000	267700
4	305500	299000	297700	300900	301100	305600	296700	295100	290000	286300	274900	267400
5	305500	299000	297600	300900	300600	305600	296100	295000	289600	285900	274800	266900
6	305500	298600	298200	300900	300500	305900	296000	295300	289600	285600	274100	266900
7	304300	298300	298000	300900	301500	305900	296000	294900	289300	285200	273800	266600
8	304300	298200	298200	301000	301200	306400	296000	294700	288900	284800	273800	266100
9	304000	298400	298200	300800	301200	305900	296000	294800	290200	284400	273500	266100
10	303500	298400	297700	300900	301500	305600	295800	294800	290900	284100	273300	265800
11	303500	298200	297700	300900	301200	304700	295700	295000	292100	283800	272600	265800
12	303700	298200	298000	300800	300900	304700	295700	294500	292100	283200	272600	265400
13	303500	298000	298900	300800	301200	304700	295700	294500	292100	282800	272000	266500
14	303100	298000	300200	300800	300900	305000	295400	294000	292100	282400	271600	267200
15	302500	298000	300600	300800	301800	304900	295400	294000	291500	282200	271400	267200
16	302100	297600	300800	300800	301900	304700	295400	294000	291100	281800	271100	266900
17	301800	297600	300800	300800	301300	304300	295500	293500	291300	281200	270600	266500
18	301800	300200	301100	300500	301900	305000	295500	293200	291100	281200	270100	266600
19	301800	300200	300600	300900	302200	305200	295300	293200	291200	280800	269600	266600
20	301800	300000	300800	301500	302800	305200	294400	292800	290600	280400	269300	266400
21	301800	300000	301100	301500	302100	305200	294400	292800	290600	280000	268900	266400
22	301300	300600	301100	301500	302400	305300	294000	292400	290500	279700	268700	266100
23	301300	300800	300800	301100	301800	305800	293800	292400	290600	279400	268000	266100
24	301000	300000	300600	301100	302800	305800	294000	292400	290500	278700	267400	265700
25	300900	299600	300600	301100	303500	305800	293400	292100	289800	278300	267400	265700
26	300900	299300	300600	301600	303200	305600	293400	291800	290000	277700	267200	265300
27	300300	299200	300600	301200	303200	305500	293400	291800	290000	277300	266800	265300
28	300800	299200	301200	301200	303800	305600	293800	291300	289600	276900	266500	264700
29	300800	299000	301200	300500	---	304300	294700	291300	288900	276900	266400	264700
30	300500	298600	301500	300900	---	302800	294700	291800	288900	276500	267600	264200
31	300700	---	300000	301300	---	301500	---	291300	---	276000	268100	---
MAX	306100	301100	301500	301600	303800	306400	299900	295300	292100	288000	275600	268100
MIN	300300	297600	297600	300500	300500	301500	293400	291300	288900	276000	266400	264200
(+)	1181.86	1181.71	1181.81	1181.90	1182.07	1181.91	1181.44	1181.21	1181.04	1180.13	1179.55	1179.26
(φ)	-5700	-2100	+1400	+1300	+2500	-2300	-6800	-3400	-2400	-12900	-7900	-3900
CAL YR 1992	MAX 351800	MIN 297600	(φ)	-18700								
WTR YR 1993	MAX 306400	MIN 264200	(φ)	-42200								

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

## BRAZOS RIVER BASIN

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 1992 TO SEPTEMBER 1993

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)	CALCIUM DIS- SOLVED (MG/L AS CA)
JAN												
07...	0900	300900	1.00	953	8.0	8.5	0.80	10.1	90	260	140	71
07...	0902	--	10.0	953	8.0	8.5	--	10.1	90	--	--	--
07...	0904	--	20.0	952	8.0	8.5	--	10.0	89	--	--	--
07...	0906	--	30.0	952	8.0	8.5	--	10.1	90	--	--	--
07...	0908	--	40.0	953	8.0	8.5	--	10.1	90	--	--	--
07...	0910	--	50.0	953	8.0	8.5	--	10.1	90	--	--	--
07...	0912	--	60.0	953	8.1	8.5	--	10.1	90	--	--	--
07...	0914	--	66.0	954	8.1	8.5	--	10.1	90	260	140	71
AUG												
26...	0725	267200	1.00	1140	8.0	27.5	1.34	6.8	89	280	180	77
26...	0727	--	10.0	1140	8.0	27.5	--	6.7	87	--	--	--
26...	0729	--	20.0	1140	8.0	27.5	--	6.8	89	--	--	--
26...	0731	--	30.0	1140	7.8	27.5	--	5.1	67	--	--	--
26...	0733	--	40.0	1140	7.5	27.0	--	2.8	36	--	--	--
26...	0735	--	50.0	1140	7.2	26.5	--	0	0	--	--	--
26...	0737	--	59.0	1140	7.2	26.0	--	0	0	280	160	75

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD 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)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)
JAN												
07...	19	96	3	6.0	110	62	200	0.20	8.1	530	0.055	0.055
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--
07...	19	95	3	5.9	120	71	200	0.20	8.2	540	0.067	0.067
AUG												
26...	22	110	3	6.7	100	88	240	0.30	8.1	615	--	--
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	0.140	--
26...	--	--	--	--	--	--	--	--	--	--	0.059	--
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	22	110	3	6.6	120	74	230	0.30	9.8	603	--	--

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN											
07...	0.010	0.065	0.065	0.020	--	<0.20	<0.010	<0.010	--	<3	<1
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	0.020	0.087	0.087	0.030	0.17	0.20	<0.010	<0.010	--	5	6
AUG											
26...	<0.010	--	<0.050	0.020	0.18	0.20	<0.010	<0.010	--	<3	2
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	<0.010	0.140	0.140	0.020	0.28	0.30	0.020	<0.010	--	<10	30
26...	<0.010	0.059	0.059	0.020	0.18	0.20	<0.010	<0.010	--	<10	110
26...	--	--	--	--	--	--	--	--	--	--	--
26...	<0.010	--	<0.050	0.350	0.15	0.50	0.020	0.020	0.06	380	930

## BRAZOS RIVER BASIN

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08086400 HUBBARD CREEK RESERVOIR NEAR BRECKENRIDGE, TX--Continued

324649099000501 - HUBBARD CR RES SITE P09

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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)
JAN											
07...	0830	1.00	955	8.2	8.0	0.60	10.2	90	260	140	71
07...	0832	10.0	956	8.2	8.0	--	10.2	90	--	--	--
07...	0834	20.0	956	8.2	8.0	--	10.2	90	--	--	--
07...	0836	30.0	957	8.2	8.0	--	10.2	90	--	--	--
07...	0838	40.0	956	8.2	8.0	--	10.2	90	--	--	--
07...	0840	46.0	957	8.2	8.0	--	10.3	91	260	140	71
AUG											
26...	1020	1.00	1160	8.0	27.0	0.88	6.9	89	290	180	80
26...	1022	10.0	1160	8.0	27.0	--	6.7	87	--	--	--
26...	1024	20.0	1160	8.0	27.0	--	6.3	82	--	--	--
26...	1026	30.0	1160	8.0	27.0	--	6.2	80	290	180	80

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 CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)
JAN											
07...	19	96	3	6.2	110	74	210	0.10	8.4	553	0.064
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	19	96	3	6.1	110	79	200	0.20	8.1	548	0.082
AUG											
26...	22	110	3	6.8	110	81	240	0.30	8.6	616	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	22	110	3	6.9	110	82	240	0.30	8.9	617	--

DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN											
07...	0.064	0.020	0.084	0.084	0.010	--	<0.20	<0.010	<0.010	4	<1
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	0.082	0.010	0.092	0.092	0.010	--	<0.20	<0.010	<0.010	4	2
AUG											
26...	--	<0.010	--	<0.050	0.020	0.28	0.30	0.010	<0.010	<3	<1
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	<0.010	--	<0.050	0.020	0.18	0.20	<0.010	<0.010	<3	10

324606099000201 - HUBBARD CR RES SITE P10

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
07...	0800	1.00	956	8.2	8.0	10.2	90
07...	0802	10.0	956	8.2	8.0	10.3	91
07...	0804	20.0	956	8.2	8.0	10.2	90
07...	0806	30.0	956	8.1	8.0	10.3	91
07...	0808	38.0	957	8.1	8.0	10.3	91
AUG							
26...	1040	1.00	1150	8.0	27.0	6.5	84
26...	1042	10.0	1160	8.0	27.0	6.3	82
26...	1044	20.0	1160	7.9	26.5	6.1	78
26...	1046	33.0	1160	7.9	26.5	6.0	77

## BRAZOS RIVER BASIN

08086400 HUBBARD CREEK RESERVOIR NEAR BRECKENRIDGE, TX--Continued

324514099010201 - HUBBARD CR RES SITE P11

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
07...	1200	1.00	965	8.0	9.0	10.1	92
07...	1202	10.0	964	8.0	8.5	10.0	90
07...	1204	20.0	961	8.0	8.5	10.0	90
07...	1206	28.0	963	8.0	8.5	9.8	88
AUG							
26...	1055	1.00	1170	8.1	27.0	7.1	92
26...	1057	10.0	1170	8.0	27.0	6.4	83
26...	1059	24.0	1170	7.9	26.5	6.0	77

324301099001701 - HUBBARD CR RES SITE P12

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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)
JAN											
07...	1220	1.00	1110	7.8	9.0	0.40	9.7	88	290	170	83
07...	1222	14.0	1120	7.8	9.0	--	9.5	86	290	170	83
AUG											
26...	1107	1.00	1250	8.1	27.5	0.24	7.2	94	300	180	83
26...	1109	11.0	1240	8.0	26.5	--	6.2	80	310	190	87

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)
JAN											
07...	20	120	3	5.7	120	88	250	0.10	7.1	646	0.076
07...	20	120	3	5.7	120	90	250	0.10	6.8	647	0.069
AUG											
26...	23	120	3	7.0	120	86	260	0.40	7.9	660	--
26...	23	120	3	6.9	120	92	260	0.30	8.1	669	--

DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN											
07...	--	<0.010	0.076	0.076	0.020	0.28	0.30	<0.010	<0.010	4	2
07...	0.069	0.020	0.089	0.089	0.020	--	<0.20	<0.010	<0.010	6	4
AUG											
26...	--	<0.010	--	<0.050	0.020	0.28	0.30	<0.010	<0.010	<3	1
26...	--	<0.010	--	<0.050	0.020	0.28	0.30	<0.010	<0.010	<3	4

## BRAZOS RIVER BASIN

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08086400 HUBBARD CREEK RESERVOIR NEAR BRECKENRIDGE, TX--Continued

324949098594301 - HUBBARD CR RES SITE P13

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
07...	0940	1.00	954	8.1	8.5	10.1	90
07...	0942	10.0	953	8.0	8.5	10.1	90
07...	0944	20.0	953	8.0	8.5	10.1	90
07...	0946	30.0	955	8.0	8.5	10.1	90
07...	0948	40.0	956	8.0	8.5	10.1	90
07...	0950	50.0	958	8.0	8.5	10.1	90
07...	0952	62.0	958	8.0	8.5	10.0	89
AUG							
26...	0815	1.00	1140	8.0	27.5	6.7	87
26...	0817	10.0	1140	8.0	27.5	6.7	87
26...	0819	20.0	1140	8.0	27.5	6.7	87
26...	0821	30.0	1140	8.0	27.5	6.6	86
26...	0823	40.0	1140	7.9	27.5	6.2	81
26...	0825	50.0	1140	7.6	27.0	4.2	54
26...	0827	55.0	1140	7.2	26.5	0	0

324802099021601 - HUBBARD CR RES SITE P15

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
07...	1015	1.00	977	8.0	8.5	10.0	89
07...	1017	10.0	978	8.0	8.5	10.0	89
07...	1019	20.0	983	8.0	8.5	10.0	89
07...	1021	30.0	986	8.0	8.5	10.0	89
07...	1023	36.0	988	8.0	8.5	9.9	88
AUG							
26...	0840	1.00	1150	8.0	27.0	6.6	85
26...	0842	10.0	1150	8.0	27.0	6.5	84
26...	0844	20.0	1150	8.0	27.0	6.3	81
26...	0846	33.0	1150	7.9	27.0	6.0	78

324653099032401 - HUBBARD CR RES SITE P16

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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- 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)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
JAN												
07...	1040	1.00	981	8.0	8.5	0.40	9.9	88	260	150	73	20
07...	1042	10.0	980	8.0	8.5	--	9.9	88	--	--	--	--
07...	1044	23.0	1530	7.6	9.5	--	6.6	61	420	270	110	35
AUG												
26...	0857	1.00	1160	8.0	26.5	0.49	6.7	86	280	180	77	22
26...	0859	10.0	1160	8.0	26.5	--	6.4	82	--	--	--	--
26...	0901	19.0	1160	7.9	26.5	--	6.2	80	280	180	75	23

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)
JAN											
07...	99	3	6.0	120	80	210	0.10	8.0	566	0.080	0.080
07...	--	--	--	--	--	--	--	--	--	--	--
07...	160	3	5.9	150	170	350	0.10	6.8	928	0.350	0.350
AUG											
26...	110	3	6.8	110	83	240	0.30	8.3	612	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	120	3	6.9	110	85	240	0.30	9.2	623	--	--



## BRAZOS RIVER BASIN

08086400 HUBBARD CREEK RESERVOIR NEAR BRECKENRIDGE, TX--Continued

324653099032401 - HUBBARD CR RES SITE P16--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN											
07...	0.020	0.100	0.100	0.020	0.18	0.20	<0.010	<0.010	--	4	1
07...	--	--	--	--	--	--	--	--	--	--	--
07...	0.030	0.380	0.380	0.150	0.25	0.40	<0.010	<0.010	--	10	40
AUG											
26...	<0.010	--	<0.050	0.030	--	<0.20	<0.010	0.010	0.03	<3	2
26...	--	--	--	--	--	--	--	--	--	--	--
26...	<0.010	--	<0.050	0.020	0.18	0.20	<0.010	<0.010	--	<3	14

324608099042101 - HUBBARD CR RES SITE P17

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
07...	1105	1.00	1210	7.8	8.5	9.5	85
07...	1107	10.0	1320	7.9	8.5	9.1	82
07...	1109	20.0	1810	7.6	10.0	7.3	68
AUG							
26...	0917	1.00	1360	7.7	27.0	5.1	66
26...	0919	10.0	1360	7.5	27.0	3.7	48
26...	0921	16.0	1300	7.4	27.0	2.4	31

324541099053601 - HUBBARD CR RES SITE P18

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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 F.L.D. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)
JAN											
07...	1125	1.00	1640	8.0	9.0	0.70	9.1	83	460	310	120
07...	1127	10.0	1700	7.9	9.5	--	8.8	81	--	--	--
07...	1129	21.0	2180	7.8	10.0	--	7.7	72	570	380	140
AUG											
26...	0935	1.00	2000	7.7	28.0	0.52	5.4	71	450	330	110
26...	0937	10.0	2070	7.6	28.0	--	4.4	58	--	--	--
26...	0939	16.0	2160	7.3	27.5	--	1.8	24	500	380	120

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD 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)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)
JAN											
07...	39	180	4	5.5	150	180	390	0.10	6.5	1010	0.390
07...	--	--	--	--	--	--	--	--	--	--	--
07...	53	240	4	4.6	190	250	480	<0.10	7.3	1290	1.07
AUG											
26...	43	220	5	6.5	120	170	450	0.40	10	1080	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	48	250	5	6.4	120	190	490	0.30	11	1190	--

## BRAZOS RIVER BASIN

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08086400 HUBBARD CREEK RESERVOIR NEAR BRECKENRIDGE, TX--Continued

324541099053601 - HUBBARD CR RES SITE P18--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN											
07...	0.390	0.020	0.410	0.410	0.030	0.27	0.30	<0.010	<0.010	4	4
07...	--	--	--	--	--	--	--	--	--	--	--
07...	1.07	0.030	1.10	1.10	0.070	--	<0.20	<0.010	<0.010	<10	20
AUG											
26...	--	<0.010	--	<0.050	0.020	0.28	0.30	<0.010	<0.010	<10	120
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	<0.010	--	<0.050	0.070	0.23	0.30	<0.010	<0.010	<10	340

## BRAZOS RIVER MAIN STEM

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.

PERIOD OF RECORD.--September 1938 to current year.

Water-quality records: Chemical analyses: July 1941 to Mar. 1948; Biochemical analyses: Nov. 1977 to Sept. 1991; Pesticide analyses: Mar. 1968 to April 1982; Sediment analyses: May to Sept. 1962 and Nov. 1977 to Sept. 1991.

REVISED RECORDS.--WDR 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.--Records good except those for estimated daily discharges, which are fair. There are many small diversions upstream from station for municipal supply and 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)
Mar. 2	0000	6,190	12.59	No peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	140	121	542	388	357	1060	877	208	262	129	e23	27
2	134	108	527	396	338	4930	828	394	300	116	e22	53
3	129	98	512	393	333	2760	803	345	291	108	e21	70
4	124	95	482	385	328	1600	797	557	308	98	e20	73
5	121	95	468	382	327	1250	762	484	240	93	e19	118
6	115	96	468	380	324	986	608	380	203	89	e19	175
7	107	97	455	381	323	814	340	307	178	82	41	145
8	103	98	449	379	321	706	293	285	162	78	47	124
9	105	103	459	390	320	639	282	343	618	70	38	121
10	103	99	451	385	326	581	273	1240	1570	66	e36	118
11	102	97	449	391	313	551	253	1400	1030	61	e33	109
12	101	100	451	384	314	530	254	799	1710	58	e30	102
13	102	104	487	377	345	495	245	516	3190	56	e27	67
14	100	102	909	377	347	478	248	382	2640	51	e24	208
15	100	100	979	374	455	468	355	321	2000	48	e21	265
16	96	101	1090	369	2530	442	623	301	1150	44	e20	298
17	97	101	770	366	2200	422	687	261	809	42	e17	174
18	96	100	637	361	1370	416	585	233	571	82	e15	102
19	96	196	561	367	1150	402	449	219	429	81	e13	94
20	95	263	520	389	927	398	368	201	340	73	e11	132
21	95	213	511	392	786	403	312	192	286	65	9.7	123
22	96	569	496	405	666	426	281	189	254	54	8.3	85
23	97	1630	472	392	605	450	250	181	232	45	6.5	73
24	108	1380	452	392	577	605	229	180	212	40	5.1	78
25	103	1120	440	383	858	493	211	210	189	e36	5.3	70
26	98	976	430	377	1290	433	207	413	200	e34	4.0	64
27	94	826	423	378	1030	407	199	334	213	e32	3.3	59
28	94	701	418	371	692	379	194	300	181	e29	2.8	55
29	101	629	418	356	---	362	236	257	166	e27	2.6	49
30	99	571	414	354	---	1030	218	276	146	25	4.4	45
31	105	---	393	350	---	790	---	232	---	e24	27	---
TOTAL	3256	10889	16533	11764	19752	25706	12267	11940	20080	1936	576.0	3276
MEAN	105	363	533	379	705	829	409	385	669	62.5	18.6	109
MAX	140	1630	1090	405	2530	4930	877	1400	3190	129	47	298
MIN	94	95	393	350	313	362	194	180	146	24	2.6	27
AC-FT	6460	21600	32790	23330	39180	50990	24330	23680	39830	3840	1140	6500

e Estimated

BRAZOS RIVER MAIN STEM

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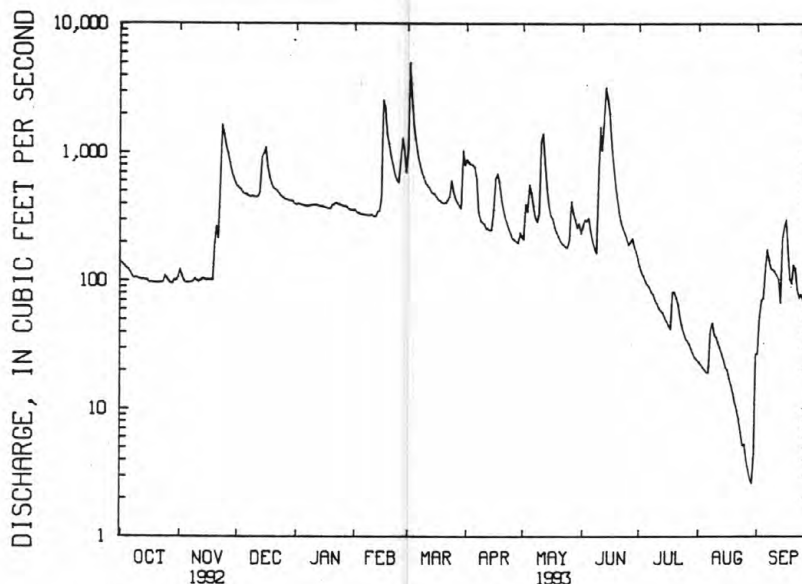
08088000 BRAZOS RIVER NEAR SOUTH BEND, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1993, BY WATER YEAR (WY)

MEAN	1306	372	302	208	423	342	773	2335	1845	729	654	1041
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 1992 CALENDAR YEAR FOR 1993 WATER YEAR WATER YEARS 1939 - 1993

ANNUAL TOTAL	874804			137975.0								
ANNUAL MEAN	2390			378								
HIGHEST ANNUAL MEAN										863		
LOWEST ANNUAL MEAN										3399		1957
HIGHEST DAILY MEAN	27900	Feb 27		4930	Mar 2					59.9		1952
LOWEST DAILY MEAN	94	Oct 27		2.6	Aug 29					84300	May 4	1941
ANNUAL SEVEN-DAY MINIMUM	96	Oct 16		3.9	Aug 24					.00	Oct 29	1938
INSTANTANEOUS PEAK FLOW				6190	Mar 2					.00	Oct 29	1938
INSTANTANEOUS PEAK STAGE				12.59	Mar 2					87400	May 4	1941
INSTANTANEOUS LOW FLOW				2.3	Aug 28					41.50	Aug 6	1978
ANNUAL RUNOFF (AC-FT)	1735000			273700						.00	at times	
10 PERCENT EXCEEDS	6390			805						624900		
50 PERCENT EXCEEDS	868			276						1520		
90 PERCENT EXCEEDS	104			37						118		
										6.4		



08088000 BRAZOS RIVER NR SOUTH BEND, TX  
MEAN DAILY DISCHARGE (CFS), FROM DCP

## BRAZOS RIVER BASIN

## 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 1963, 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, 54,960 acre-ft Mar. 3 at 0900 hours (gage height, 1,075.49 ft); minimum, 45,160 acre-ft Sept. 30 (gage height, 1,071.56 ft).

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

1,071.0	43,820	1,073.0	48,660	1,075.0	53,680
1,072.0	46,220	1,074.0	51,140	1,076.0	56,290

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50120	49060	49180	49950	49750	53300	53580	51700	51600	50970	47930	46050
2	50070	49030	49210	50000	49730	54910	53430	51700	51550	50870	48070	46000
3	50040	48870	49110	49950	49730	54910	53320	51670	51470	50690	48070	45860
4	50000	48720	49030	49950	49730	54750	53200	51620	51420	50570	48050	45840
5	49950	48680	49110	49950	49730	54620	53120	51600	51340	50500	47980	45740
6	49850	48590	49060	49900	49700	54520	53020	51600	51220	50400	47850	45670
7	49800	48540	49060	49900	49680	54440	52940	51500	51190	50300	47930	45600
8	49750	48460	49060	49900	49650	54380	52770	51550	51440	50170	47880	45570
9	49680	48410	49110	49850	49630	54310	52610	52230	51770	50070	47760	45570
10	49580	48390	49080	49880	49700	54230	52490	52490	51980	49970	47710	45500
11	49500	48510	49080	49880	49650	54200	52360	52490	52080	49900	47640	45400
12	49460	48610	49060	49900	49630	54120	52210	52460	52030	49800	47560	45330
13	49400	48370	49280	49900	49600	54070	52110	52440	52030	49700	47490	45550
14	49320	48370	49800	49880	49650	53990	52130	52360	52030	49630	47370	45880
15	49260	48300	50100	49880	50320	53970	52080	52360	51950	49500	47270	45980
16	49200	49280	50170	49880	50870	53970	52030	52280	52000	49430	47150	45910
17	49180	48220	50150	49880	50970	53910	52030	52230	51930	49300	47070	45860
18	49100	48290	50150	49800	50970	53890	51980	52210	51880	49230	46950	45810
19	49010	48420	50120	49920	50970	53890	52000	52160	51850	49160	46880	45760
20	49010	48420	50150	49920	50970	53890	51880	52080	51880	49080	46780	45740
21	49010	48810	50120	49920	50990	53860	51830	52000	51800	49030	46710	45720
22	48960	49130	50100	49920	50970	54070	51750	51880	51750	48880	46590	45640
23	49100	49380	50100	49920	50940	54050	51700	51950	51670	48780	46440	45600
24	49160	49400	50050	49900	51040	54050	51670	51900	51600	48660	46320	45520
25	49160	49380	50000	49880	51170	54050	51650	51850	51500	48590	46270	45570
26	49130	49300	50000	49850	51240	53970	51570	51800	51470	48440	46170	45450
27	49110	49300	50000	49830	51290	53910	51520	51720	51390	48320	46120	45450
28	48930	49260	50000	49830	51340	53890	51600	51670	51290	48250	46000	45360
29	49080	49210	50000	49780	---	53780	51620	51720	51190	48200	45960	45310
30	49060	49230	50000	49750	---	53860	51600	51720	51090	48100	45860	45190
31	49060	---	49950	49750	---	53730	---	51700	---	47980	46080	---
MAX	50120	49400	50170	50000	51340	54910	53580	52490	52080	50970	48070	46050
MIN	48930	48220	49030	49750	49600	53300	51520	51500	51090	47980	45860	45190
(+)	1073.16	1073.23	1073.52	1073.44	1074.08	1075.02	1074.18	1074.22	1073.98	1072.72	1071.94	1071.57
(-)	-1160	+170	+720	-200	+1590	+2390	-2130	+100	-610	-3110	-1900	-890
CAL YR 1992	MAX	57420	MIN	26290	(+)	-4380						
WTR YR 1993	MAX	54910	MIN	45190	(-)	-5030						

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

(-) Change in contents, in acre-feet.



## 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-CONTENT 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. 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, 543,600 acre-ft June 16 at 2400 hours (gage height, 998.45 ft); minimum, 453,400 acre-ft Sept. 30 (gage height, 992.53 ft).

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

992.0	446,100	995.0	488,800	998.0	536,000
993.0	459,900	996.0	504,000	999.0	552,800
994.0	474,100	997.0	519,800		

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	511000	499300	497800	501700	503200	533100	536800	532300	528900	524500	485300	462700
2	511000	498500	497800	502300	504000	539700	536200	533100	527400	522700	484500	461000
3	510600	498100	497900	502900	504200	544700	535000	533200	526600	521400	486000	461000
4	510600	497200	498200	502200	503800	545600	536000	531800	524300	520100	485700	460700
5	510600	496700	498100	502800	504200	545400	536300	532900	523700	518700	483700	460500
6	510000	495600	498500	502800	503800	544100	537000	531900	522600	516800	482500	460600
7	509500	495000	498700	502800	503400	543900	537700	531800	521900	516300	483100	460200
8	508700	494400	499700	502800	503800	542900	538200	530800	521400	514400	482200	460300
9	507900	494100	499000	502900	504200	540200	537600	531900	520900	513300	481400	459800
10	507200	493200	498700	502000	504800	537800	537000	531300	524000	512700	480900	459300
11	506800	492300	499400	502800	503700	537000	537200	532100	527400	511600	479800	458000
12	506700	490900	500000	502900	503500	534500	536700	534700	528700	510200	479200	456600
13	506500	490300	502200	502800	504200	533200	535700	536700	528700	508700	478700	456700
14	505700	490000	501700	502800	506700	532800	535700	536000	534400	507500	477800	459800
15	505700	489300	502200	503100	505900	532900	536200	534900	540700	506200	476900	459900
16	504000	489100	502900	503400	508700	533600	536500	533600	543600	504800	476300	459800
17	504000	488800	503700	503700	513000	533200	537300	533400	542700	504300	475100	460000
18	503800	487800	503800	502600	515100	533400	537700	533600	541500	503200	475100	460200
19	502600	488800	504500	502200	518200	533900	539400	532900	540200	501900	474500	459800
20	502200	487900	504600	503200	520300	532900	538000	532400	538900	500400	473500	459200
21	502300	489600	504200	504000	520600	533100	538900	531800	536300	499100	471400	458900
22	502200	488200	504600	504300	521100	533700	536300	531600	535200	497900	470100	458500
23	502500	490000	505300	504300	521400	534400	536700	533100	536000	497200	469300	458400
24	502200	492800	503700	503200	525100	534900	536200	532900	534500	496100	468300	457700
25	500700	494300	503700	503400	526300	535400	537700	532100	533700	494700	467800	457000
26	500700	495000	502300	502900	528400	535800	536500	531600	531900	492400	467000	458200
27	500400	495500	502800	503400	528900	536700	534900	531300	530500	491100	466000	456600
28	499900	496600	502900	503800	530500	537000	534700	529500	528700	489700	465400	455800
29	500200	497500	502500	503500	---	538000	534500	529500	527700	488400	464200	455300
30	500200	497500	502200	503500	---	538700	532600	529400	526300	487300	463900	453700
31	499300	---	501600	503200	---	538700	---	528100	---	486200	463900	---
MAX	511000	499300	505300	504300	530500	545600	539400	536700	543600	524500	486000	462700
MIN	499300	487800	497800	501700	503200	532800	532600	528100	520900	486200	463900	453700
(↑)	995.69	995.57	995.84	995.95	997.66	998.16	997.79	997.51	997.40	994.82	993.28	992.55
(Φ)	-11900	-1800	+4100	+1600	+27300	+8200	-6100	-4500	-1800	-40100	-22300	-10200

CAL YR 1992 MAX 560600 MIN 487800 (Φ) -34400  
WTR YR 1993 MAX 545600 MIN 453700 (Φ) -57500

(↑) 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--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 1992 TO SEPTEMBER 1993

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							
06...	1220	1.00	2250	8.1	10.0	8.7	80
06...	1222	10.0	2250	8.1	10.0	8.6	79
06...	1224	20.0	2260	8.1	10.0	8.6	79
06...	1226	30.0	2260	8.1	10.0	8.6	79
06...	1228	40.0	2260	8.1	10.0	8.3	76
06...	1230	50.0	2350	8.0	10.0	7.0	64
06...	1232	60.0	2570	7.9	9.5	5.9	53
APR							
22...	1415	1.00	2500	8.3	17.0	9.1	98
22...	1417	10.0	2500	8.3	17.0	9.2	99
22...	1419	20.0	2500	8.3	17.0	9.2	99
22...	1421	30.0	2500	8.3	17.0	9.1	98
22...	1423	40.0	2510	8.3	16.5	9.0	96
22...	1425	50.0	2330	8.0	12.5	7.5	73
22...	1427	60.0	2590	7.9	12.0	7.0	68
AUG							
25...	1430	1.00	3020	8.1	28.5	6.1	82
25...	1432	10.0	3010	8.1	28.5	6.1	82
25...	1434	20.0	3020	8.1	28.0	5.9	79
25...	1436	30.0	3010	8.1	28.0	5.4	72
25...	1438	40.0	2950	7.4	25.5	0	0
25...	1440	50.0	2820	7.4	21.0	0	0
25...	1442	55.0	2890	7.4	19.5	0	0

325218098254101 - POSSUM KINGDOM LK SITE AC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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)	CALCIUM DIS- SOLVED (MG/L AS CA)
JAN												
06...	1140	502800	1.00	2260	8.1	10.0	1.90	8.7	80	430	310	110
06...	1142	--	10.0	2260	8.1	10.0	--	8.7	80	--	--	--
06...	1144	--	20.0	2260	8.1	10.0	--	8.6	79	--	--	--
06...	1146	--	30.0	2260	8.1	10.0	--	8.6	79	--	--	--
06...	1148	--	40.0	2260	8.1	10.0	--	8.4	77	--	--	--
06...	1150	--	50.0	2390	8.0	10.0	--	6.7	61	--	--	--
06...	1152	--	60.0	2610	7.9	9.5	--	5.0	45	--	--	--
06...	1154	--	70.0	2800	7.9	9.5	--	4.9	44	--	--	--
06...	1156	--	80.0	3070	8.0	9.0	--	5.3	47	--	--	--
06...	1158	--	90.0	3310	8.0	9.0	--	4.3	39	--	--	--
06...	1200	--	97.0	3340	8.0	9.0	--	3.9	35	570	410	150
APR												
22...	1335	536300	--	1.00	2500	8.3	17.0	1.71	9.1	98	490	370
22...	1337	--	10.0	2500	8.4	17.0	--	9.0	97	--	--	--
22...	1339	--	20.0	2500	8.4	17.0	--	9.1	98	--	--	--
22...	1341	--	30.0	2510	8.4	17.0	--	9.0	97	--	--	--
22...	1343	--	40.0	2510	8.3	16.5	--	8.9	95	--	--	--
22...	1345	--	50.0	2520	8.0	12.5	--	7.4	72	--	--	--
22...	1347	--	60.0	2600	7.9	11.0	--	6.3	59	--	--	--
22...	1349	--	70.0	2720	7.8	11.0	--	5.0	47	--	--	--
22...	1351	--	80.0	2890	7.6	10.5	--	3.0	28	--	--	--
22...	1353	--	90.0	3150	7.5	10.5	--	1.5	14	--	--	--
22...	1355	--	100	3290	7.4	10.5	--	1.2	11	630	490	160
AUG												
25...	1340	467800	--	1.00	3020	8.1	28.5	3.35	6.0	80	580	460
25...	1342	--	10.0	3020	8.1	28.5	--	6.0	80	--	--	--
25...	1344	--	20.0	3010	8.1	28.0	--	5.8	77	--	--	--
25...	1346	--	30.0	3010	7.7	28.0	--	2.6	35	--	--	--
25...	1348	--	35.0	2990	7.4	27.0	--	0.3	4	--	--	--
25...	1350	--	40.0	2950	7.4	25.0	--	0	0	--	--	--
25...	1352	--	50.0	2820	7.4	21.0	--	0	0	--	--	--
25...	1354	--	60.0	2990	7.4	18.5	--	0	0	--	--	--
25...	1356	--	70.0	3060	7.4	17.0	--	0	0	--	--	--
25...	1358	--	80.0	3010	7.4	16.5	--	0	0	--	--	--
25...	1400	--	93.0	2980	7.3	15.5	--	0	0	570	410	140

## BRAZOS RIVER MAIN STEM

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08088500 POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

325218098254101 - POSSUM KINGDOM LK SITE AC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)
JAN												
06...	38	300	6	8.4	120	350	470	0.10	9.8	1360	0.230	0.230
06...	--	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	0.260	0.260
06...	--	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--	--
06...	47	470	9	8.6	160	540	720	0.20	8.6	2040	0.170	0.170
APR												
22...	41	330	6	8.4	120	370	510	0.80	8.0	1470	0.085	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	0.170	0.170
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	55	460	8	8.0	140	470	720	0.90	9.4	1970	0.470	0.470
AUG												
25...	55	420	8	3.8	120	460	670	0.50	7.0	1830	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--
25...	53	410	7	1.6	150	430	590	0.50	10	1730	--	--

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN											
06...	0.030	0.260	0.260	0.010	0.19	0.20	0.020	0.020	0.06	<10	<10
06...	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--
06...	0.030	0.290	0.290	<0.010	--	0.30	0.030	0.020	0.06	<10	<10
06...	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--
06...	0.060	0.230	0.230	0.230	0.27	0.50	0.030	0.030	0.09	<10	140
APR											
22...	<0.010	0.085	0.085	<0.010	--	0.30	<0.010	<0.010	--	<10	<10
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	0.010	0.180	0.180	0.030	0.27	0.30	<0.010	<0.010	--	<10	20
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	0.020	0.490	0.490	0.130	0.27	0.40	0.060	0.060	0.18	<10	600
AUG											
25...	<0.010	--	<0.050	0.020	0.28	0.30	<0.010	<0.010	--	<10	<10
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	<0.010	--	<0.050	0.020	0.18	0.20	<0.010	0.010	0.03	<10	20
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	<0.010	--	<0.050	0.730	0.17	0.90	0.180	0.180	0.55	70	630

## BRAZOS RIVER MAIN STEM

08088500 POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

325250098275301 - POSSUM KINGDOM LK SITE BR

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
06...	1110	1.00	2260	8.1	10.0	8.9	81
06...	1112	10.0	2260	8.1	10.0	8.9	81
06...	1114	20.0	2270	8.1	10.0	8.7	80
06...	1116	30.0	2270	8.1	10.0	8.7	80
06...	1118	40.0	2270	8.1	10.0	8.7	80
06...	1120	50.0	2270	8.1	10.0	8.7	80
06...	1122	60.0	2430	8.0	9.5	7.8	71
APR							
22...	1305	1.00	2500	8.3	17.0	9.2	99
22...	1307	10.0	2500	8.3	17.0	9.2	99
22...	1309	20.0	2500	8.3	17.0	9.2	99
22...	1311	30.0	2510	8.3	17.0	9.1	98
22...	1313	40.0	2510	8.3	16.5	8.9	95
22...	1315	50.0	2520	8.1	14.5	7.8	79
22...	1317	60.0	2630	7.8	12.5	6.5	63
AUG							
25...	1315	1.00	3020	8.2	29.0	6.4	87
25...	1317	10.0	3020	8.2	28.5	6.3	84
25...	1319	20.0	3020	8.1	28.5	6.1	82
25...	1321	30.0	3110	7.4	27.5	0.2	3
25...	1323	40.0	3080	7.3	25.5	0	0
25...	1325	50.0	3000	7.4	22.5	0	0

325256098275301 - POSSUM KINGDOM LK SITE BC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
06...	1040	1.00	2270	8.1	10.0	8.7	80
06...	1042	10.0	2270	8.1	10.0	8.7	80
06...	1044	20.0	2270	8.1	10.0	8.7	80
06...	1046	30.0	2270	8.1	10.0	8.7	80
06...	1048	40.0	2270	8.1	10.0	8.7	80
06...	1050	50.0	2270	8.1	10.0	8.6	79
06...	1052	60.0	2530	8.0	9.5	6.3	57
06...	1054	70.0	2780	8.1	9.0	7.1	64
06...	1056	80.0	3000	8.0	9.0	5.8	52
06...	1058	90.0	3210	8.0	9.0	4.1	37
APR							
22...	1230	1.00	2510	8.3	17.0	9.2	99
22...	1232	10.0	2510	8.3	17.0	9.2	99
22...	1234	20.0	2510	8.3	17.0	9.1	98
22...	1236	30.0	2510	8.3	16.5	9.0	96
22...	1238	40.0	2520	8.3	16.0	8.6	91
22...	1240	50.0	2520	8.1	14.0	7.5	76
22...	1242	60.0	2670	7.8	11.5	5.4	51
22...	1244	70.0	2770	7.7	11.5	4.4	42
22...	1246	80.0	2970	7.5	11.0	2.4	23
22...	1248	90.0	3110	7.4	10.5	1.2	11
AUG							
25...	1220	1.00	3030	8.2	29.0	6.3	85
25...	1222	10.0	3020	8.2	28.5	6.3	85
25...	1224	20.0	3030	8.1	28.5	5.9	79
25...	1226	25.0	3060	7.8	28.0	3.7	49
25...	1228	30.0	3100	7.4	27.0	0.3	4
25...	1230	40.0	3100	7.3	25.5	0	0
25...	1232	50.0	3080	7.4	21.0	0	0
25...	1234	60.0	3200	7.4	19.0	0	0
25...	1236	70.0	3190	7.4	17.5	0	0
25...	1238	80.0	3120	7.4	16.5	0	0
25...	1240	86.0	3060	7.3	16.5	0	0

## BRAZOS RIVER MAIN STEM

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08088500 POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

325129098311801 - POSSUM KINGDOM LK SITE CC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
06...	1010	1.00	2220	8.2	9.5	9.7	88
06...	1012	10.0	2220	8.2	9.5	9.7	88
06...	1014	20.0	2220	8.2	9.5	9.7	88
06...	1016	30.0	2220	8.2	9.5	9.6	87
06...	1018	40.0	2220	8.2	9.5	9.6	87
06...	1020	50.0	2280	8.2	9.5	9.1	82
06...	1022	60.0	2580	8.1	9.0	7.9	71
06...	1024	74.0	2800	8.0	9.0	6.2	55
APR							
22...	1130	1.00	2610	8.3	17.0	8.9	96
22...	1132	10.0	2620	8.3	17.0	8.8	94
22...	1134	20.0	2630	8.2	16.5	8.1	86
22...	1136	30.0	2620	8.1	16.0	7.6	80
22...	1138	40.0	2830	7.7	14.0	5.3	53
22...	1140	50.0	2940	7.6	13.5	4.0	40
22...	1142	60.0	3020	7.6	13.0	3.2	32
22...	1144	70.0	2960	7.5	12.5	2.6	25
22...	1146	78.0	2930	7.5	12.0	2.6	25
AUG							
25...	1125	1.00	3090	8.1	28.0	6.2	83
25...	1127	10.0	3100	8.1	28.0	6.1	81
25...	1129	20.0	3100	8.1	29.0	5.6	76
25...	1131	30.0	3120	7.8	27.5	4.1	54
25...	1133	40.0	3160	7.3	26.0	0	0
25...	1135	50.0	3310	7.3	21.5	0	0
25...	1137	60.0	3350	7.3	19.0	0	0
25...	1139	71.0	3310	7.2	18.0	0	0

325327098314001 - POSSUM KINGDOM LK SITE DC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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)	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)
JAN												
06...	0930	1.00	2230	8.2	9.0	1.70	9.8	87	440	310	110	39
06...	0932	10.0	2230	8.2	9.0	--	9.7	87	--	--	--	--
06...	0934	20.0	2230	8.2	9.0	--	9.7	87	--	--	--	--
06...	0936	30.0	2230	8.2	9.0	--	9.7	87	--	--	--	--
06...	0938	40.0	2230	8.2	9.0	--	9.7	87	--	--	--	--
06...	0940	50.0	2230	8.2	9.0	--	9.5	85	--	--	--	--
06...	0942	60.0	2590	8.1	9.0	--	7.6	68	--	--	--	--
06...	0944	68.0	2710	8.0	9.0	--	6.2	55	510	380	130	45
APR												
22...	0935	1.00	2680	8.4	17.5	1.68	8.9	96	540	420	140	47
22...	0937	10.0	2680	8.4	17.5	--	8.8	95	--	--	--	--
22...	0939	20.0	2680	8.4	17.0	--	8.6	92	--	--	--	--
22...	0941	30.0	2620	8.3	16.5	--	8.3	88	--	--	--	--
22...	0943	40.0	2680	8.2	15.5	--	7.1	74	--	--	--	--
22...	0945	50.0	2950	7.8	14.0	--	5.1	51	--	--	--	--
22...	0947	60.0	3120	7.6	13.5	--	2.9	29	--	--	--	--
22...	0949	70.0	3090	7.6	13.0	--	2.5	25	590	460	150	53
AUG												
25...	1000	1.00	3130	8.1	28.5	1.68	6.0	81	550	450	130	55
25...	1002	10.0	3140	8.1	28.5	--	5.8	78	--	--	--	--
25...	1004	20.0	3130	8.1	28.0	--	5.7	76	--	--	--	--
25...	1006	30.0	3140	8.0	28.0	--	5.2	69	--	--	--	--
25...	1008	40.0	3170	7.3	26.0	--	0	0	--	--	--	--
25...	1010	50.0	3380	7.3	20.0	--	0	0	--	--	--	--
25...	1012	64.0	3460	7.2	20.0	--	0	0	610	440	150	58



## BRAZOS RIVER MAIN STEM

08088500 POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

325327098314001 - POSSUM KINGDOM LK SITE DC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)
JAN											
06...	300	6	7.8	120	380	460	0.20	10	1380	0.160	0.160
06...	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	0.160	0.160
06...	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--
06...	380	7	7.5	130	420	560	0.20	9.4	1630	0.140	0.140
APR											
22...	370	7	8.3	120	390	560	0.80	7.1	1600	0.170	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	0.390	0.390
22...	--	--	--	--	--	--	--	--	--	--	--
22...	430	8	7.6	130	400	680	0.90	7.3	1810	0.570	--
AUG											
25...	450	8	1.6	100	470	590	0.50	7.3	1760	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	500	9	1.5	180	450	770	0.50	12	2050	--	--
DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN											
06...	0.020	0.180	0.180	0.040	0.26	0.30	0.010	0.010	0.03	<10	<10
06...	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--
06...	0.020	0.180	0.180	0.040	0.26	0.30	0.020	0.020	0.06	<10	<10
06...	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--
06...	0.030	0.170	0.170	0.260	0.24	0.50	0.010	0.020	0.06	<10	60
APR											
22...	<0.010	0.170	0.170	<0.010	--	0.30	<0.010	<0.010	--	<10	<10
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	0.010	0.400	0.400	0.020	0.28	0.30	0.020	<0.010	--	<10	10
22...	--	--	--	--	--	--	--	--	--	--	--
22...	<0.010	0.570	0.570	0.030	0.37	0.40	0.030	0.020	0.06	<10	120
AUG											
25...	<0.010	--	<0.050	0.020	0.28	0.30	<0.010	<0.010	--	<10	<10
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	<0.010	--	<0.050	0.020	0.28	0.30	0.010	<0.010	--	<10	20
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	<0.010	--	<0.050	1.70	0.20	1.9	0.390	0.390	1.2	100	840

## BRAZOS RIVER MAIN STEM

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08088500 POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

325347098265701 - POSSUM KINGDOM LK SITE EC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
06...	1530	1.00	2290	8.3	9.0	10.0	90
06...	1532	10.0	2290	8.3	9.0	10.0	90
06...	1534	20.0	2300	8.3	9.0	9.9	89
06...	1536	30.0	2340	8.3	9.0	9.7	87
06...	1538	40.0	2750	8.3	9.0	8.8	79
06...	1540	51.0	3030	8.2	9.0	7.9	71
APR							
22...	0910	1.00	2890	8.3	18.0	8.4	92
22...	0914	20.0	2900	8.2	17.5	7.7	83
22...	0916	30.0	2880	8.1	16.0	6.5	68
22...	0918	40.0	3200	7.7	15.5	4.0	42
22...	0920	51.0	3280	7.6	14.5	2.8	28
22...	1912	10.0	2900	8.3	18.0	8.3	91
AUG							
25...	0930	1.00	3210	7.8	28.5	4.4	59
25...	0932	10.0	3210	7.8	28.0	4.2	56
25...	0934	20.0	3210	7.8	28.0	4.2	56
25...	0936	30.0	3210	7.8	28.0	3.8	51
25...	0938	40.0	3310	7.3	26.0	0	0
25...	0940	47.0	3480	7.2	22.5	0	0

325557098264401 - POSSUM KINGDOM LK SITE FC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
06...	1500	1.00	2400	8.4	8.5	10.4	92
06...	1502	10.0	2410	8.4	8.5	10.3	91
06...	1504	20.0	2430	8.4	8.5	9.9	88
06...	1506	30.0	3190	8.4	8.5	9.4	84
06...	1508	36.0	3980	8.3	9.0	8.8	79
APR							
22...	0848	1.00	2980	8.2	17.5	7.9	85
22...	0850	10.0	3030	8.2	17.5	7.8	84
22...	0852	20.0	3070	8.2	17.5	7.5	81
22...	0854	30.0	3140	7.9	17.0	5.2	56
22...	0856	36.0	3150	7.9	16.5	5.0	53
AUG							
25...	0905	1.00	3270	8.1	28.5	5.8	78
25...	0907	10.0	3270	8.1	28.0	5.6	75
25...	0909	20.0	3260	8.1	28.0	5.5	73
25...	0911	31.0	3270	8.0	28.0	4.9	65

325715098250501 - POSSUM KINGDOM LK SITE GC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
JAN												
06...	1430	1.00	2570	8.5	8.5	0.80	10.5	93	480	350	120	43
06...	1432	10.0	2630	8.4	8.5	--	10.0	89	--	--	--	--
06...	1433	15.0	2760	8.4	8.5	--	10.0	89	--	--	--	--
06...	1435	20.0	3000	8.4	8.5	--	9.8	87	--	--	--	--
06...	1437	23.0	5120	8.4	8.5	--	10.7	96	780	630	190	74
APR												
22...	0830	1.00	3430	8.2	18.0	0.34	7.6	83	630	500	160	57
22...	0832	10.0	3420	8.2	18.0	--	7.4	81	--	--	--	--
22...	0833	15.0	3390	8.2	18.0	--	7.3	80	--	--	--	--
22...	0834	25.0	5130	7.9	18.5	--	4.8	53	850	700	210	78
AUG												
25...	0840	1.00	3440	7.8	28.5	0.27	4.6	62	600	510	140	60
25...	0842	10.0	3450	7.8	28.0	--	4.6	61	--	--	--	--
25...	0844	19.0	3470	7.8	28.0	--	4.9	65	600	510	140	61

## BRAZOS RIVER MAIN STEM

08088500 POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

325715098250501 - POSSUM KINGDOM LK SITE GC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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 CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)
JAN											
06...	350	7	8.2	130	420	540	0.20	9.2	1570	0.090	0.090
06...	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--
06...	800	12	9.1	150	740	1300	0.10	7.1	3170	0.270	0.270
APR											
22...	500	9	7.8	140	440	780	0.90	4.4	2030	0.170	0.170
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	810	12	8.7	150	630	1200	2.7	2.9	3070	--	--
AUG											
25...	500	9	1.7	88	520	750	0.50	8.7	2030	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	520	9	1.7	88	520	710	0.50	8.7	2010	--	--

DATE	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 DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN											
06...	0.020	0.110	0.110	0.050	0.25	0.30	<0.010	<0.010	--	10	10
06...	--	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--	--
06...	0.040	0.310	0.310	0.070	0.13	0.20	<0.010	<0.010	--	<10	30
APR											
22...	0.010	0.180	0.180	0.050	0.35	0.40	0.010	<0.010	--	<10	<10
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	<0.010	--	<0.050	0.130	0.27	0.40	0.010	0.010	0.03	<10	180
AUG											
25...	<0.010	--	<0.050	0.040	0.26	0.30	<0.010	<0.010	--	<10	10
25...	--	--	--	--	--	--	--	--	--	--	--
25...	<0.010	--	<0.050	0.040	0.36	0.40	0.010	<0.010	--	<10	<10

325047098291201 - POSSUM KINGDOM LK SITE P03

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
06...	1255	1.00	2220	8.2	9.5	9.3	84
06...	1257	10.0	2220	8.2	9.5	9.3	84
06...	1259	20.0	2220	8.2	9.5	9.3	84
06...	1301	30.0	2230	8.2	9.5	9.2	83
06...	1303	40.0	2240	8.1	9.5	9.0	81
06...	1305	50.0	2260	8.1	9.5	8.7	79
06...	1307	57.0	2490	8.0	9.5	7.2	65
APR							
22...	1205	1.00	2530	8.2	17.5	8.7	94
22...	1207	10.0	2540	8.2	17.5	8.6	93
22...	1209	20.0	2530	8.2	16.5	8.4	89
22...	1211	30.0	2530	8.2	15.0	8.0	82
22...	1213	40.0	2530	8.1	14.0	7.5	75
22...	1215	55.0	2670	7.7	12.0	5.1	49
AUG							
25...	1200	1.00	3080	8.0	28.0	5.5	73
25...	1202	10.0	3080	8.0	27.5	5.1	67
25...	1204	20.0	3080	7.9	27.5	4.7	62
25...	1206	30.0	3080	7.8	27.5	4.6	61
25...	1208	40.0	3100	7.3	25.5	0	0
25...	1210	52.0	3150	7.3	21.5	0	0

## BRAZOS RIVER MAIN STEM

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08088500 POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

325125098323701 - POSSUM KINGDOM LK SITE P05

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
06...	1330	1.00	2200	8.2	9.0	9.7	87
06...	1332	10.0	2200	8.2	9.0	9.7	87
06...	1334	24.0	2200	8.2	9.0	9.5	85
APR							
22...	1115	1.00	2610	8.2	17.0	8.8	94
22...	1117	10.0	2610	8.2	17.0	8.7	93
22...	1119	25.0	2600	8.1	17.0	7.7	83
AUG							
25...	1105	1.00	3120	7.9	27.5	5.1	67
25...	1107	10.0	3130	7.8	27.5	4.8	63
25...	1109	21.0	3120	7.7	27.0	4.2	55

325301098342901 - POSSUM KINGDOM LK SITE P07

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
06...	1350	1.00	2190	8.2	9.5	9.9	90
06...	1352	10.0	2190	8.2	9.5	9.8	89
06...	1354	20.0	2190	8.2	9.5	9.8	89
06...	1356	30.0	2210	8.2	9.5	9.4	85
06...	1358	40.0	2240	8.1	9.5	8.4	76
06...	1400	50.0	2270	8.0	9.5	7.5	68
06...	1402	58.0	2370	7.8	9.5	5.4	49
APR							
22...	1040	1.00	2620	8.3	17.0	9.1	98
22...	1042	10.0	2620	8.3	17.0	9.1	98
22...	1044	20.0	2610	8.3	17.0	9.0	97
22...	1046	30.0	2620	8.2	17.0	8.2	88
22...	1048	40.0	2670	7.8	15.0	5.7	59
22...	1050	50.0	2770	7.5	13.5	3.0	30
22...	1052	60.0	2810	7.4	13.0	1.8	18
AUG							
25...	1035	1.00	3100	8.1	28.5	6.1	82
25...	1037	10.0	3110	8.1	28.5	6.0	81
25...	1039	20.0	3100	8.0	28.0	5.8	77
25...	1041	30.0	3110	8.0	28.0	5.1	68
25...	1043	40.0	3060	7.3	25.0	0	0
25...	1045	54.0	3110	7.2	21.5	0	0

## BRAZOS RIVER MAIN STEM

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.--No estimated daily discharges. Records fair. Flow regulated by Possum Kingdom Lake (station 08088500).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	160	286	47	167	334	1790	533	678	684	508	838
2	64	515	48	47	164	1830	1680	492	923	683	73	297
3	62	67	48	47	165	1730	1660	616	882	565	76	38
4	60	592	48	267	168	1720	132	702	567	549	573	38
5	59	147	48	270	168	1740	791	89	701	577	671	41
6	182	578	47	271	223	1730	447	1370	695	536	75	42
7	53	579	46	272	221	1730	523	605	311	551	75	42
8	60	417	46	274	226	1720	509	544	99	555	444	40
9	65	411	185	49	227	1740	516	434	774	558	449	289
10	63	560	288	599	229	1790	466	622	101	573	456	293
11	62	633	45	48	230	1740	115	612	554	562	316	1290
12	388	196	45	50	232	1750	463	90	130	556	76	44
13	173	338	46	343	236	1000	113	620	583	557	74	40
14	171	539	675	144	238	751	310	625	1210	562	310	42
15	814	340	338	145	291	642	314	1210	898	558	361	40
16	55	59	519	55	201	369	306	91	1230	548	521	506
17	54	529	542	57	85	373	106	903	1240	39	34	281
18	53	448	267	575	350	464	106	92	1240	658	34	42
19	448	367	41	562	239	539	310	488	1230	881	32	572
20	34	594	537	67	153	710	108	95	1150	499	1130	448
21	34	54	356	155	122	370	644	96	839	501	316	43
22	34	430	41	156	218	514	491	97	832	125	296	472
23	31	53	42	66	192	382	485	99	834	578	435	177
24	637	54	903	438	370	385	102	663	833	654	49	725
25	31	54	45	358	95	295	115	654	834	651	341	39
26	30	96	1170	301	201	124	1070	699	849	580	286	434
27	30	53	45	302	693	124	1050	645	580	860	290	428
28	29	54	262	297	579	124	1140	92	870	495	592	435
29	29	51	425	308	---	129	770	407	861	560	432	462
30	29	48	528	76	---	148	895	806	874	427	579	137
31	487	---	45	452	---	1010	---	805	---	430	562	---
TOTAL	4394	9016	8007	7098	6683	28007	17527	15896	23402	17112	10466	8615
MEAN	142	301	258	229	239	903	584	513	780	552	338	287
MAX	814	633	1170	599	693	1830	1790	1370	1240	881	1130	1290
MIN	29	48	41	47	85	124	102	89	99	39	32	38
AC-FT	8720	17880	15880	14080	13260	55550	34760	31530	46420	33940	20760	17090

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1993#, BY WATER YEAR (WY)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
MEAN	681	345	2040	738	2377	2035	2528	2835	4984	677	721	919
MAX	1819	656	7172	2197	8659	4948	7952	8503	8024	1201	1126	1507
(WY)	1992	1992	1992	1992	1992	1992	1990	1990	1992	1992	1991	1991
MIN	142	120	258	115	105	562	339	513	780	251	338	287
(WY)	1993	1990	1993	1990	1990	1991	1991	1993	1993	1990	1993	1993

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1990 -1993#

ANNUAL TOTAL	883198	156223	1730
ANNUAL MEAN	2413	428	3170
HIGHEST ANNUAL MEAN			428
LOWEST ANNUAL MEAN			1992
HIGHEST DAILY MEAN	19900	Mar 1	43800
LOWEST DAILY MEAN	29	Oct 28	21
ANNUAL SEVEN-DAY MINIMUM	47	Dec 2	30
INSTANTANEOUS PEAK FLOW			48000
INSTANTANEOUS PEAK STAGE			89.79
INSTANTANEOUS LOW FLOW			3.5
ANNUAL RUNOFF (AC-FT)	1752000	309900	1253000
10 PERCENT EXCEEDS	7700	881	2820
50 PERCENT EXCEEDS	709	343	494
90 PERCENT EXCEEDS	54	46	39

# Period of regulated streamflow.



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.

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.

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.

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).

EXTREMS 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.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	120	422	121	95	332	1010	1340	863	763	871	382	622
2	82	160	186	68	197	735	1870	624	763	705	481	833
3	65	459	71	63	196	2130	1750	509	1020	683	100	345
4	59	88	60	64	200	1810	1160	626	955	566	68	90
5	56	522	58	241	201	1750	467	741	676	568	507	51
6	55	470	56	285	217	1730	653	295	788	603	640	41
7	173	551	57	287	257	1740	635	1060	787	547	79	40
8	79	205	58	295	307	1780	502	634	358	547	57	40
9	61	383	116	303	280	1730	514	576	132	552	365	39
10	70	408	250	274	311	1830	520	446	825	557	416	226
11	70	553	178	470	303	1790	591	639	142	571	420	335
12	68	628	71	97	299	1770	159	615	601	559	282	1140
13	378	226	65	183	285	1520	572	133	144	543	79	119
14	230	410	193	232	263	1150	158	587	617	555	54	132
15	224	514	813	161	641	762	347	647	1220	553	232	78
16	876	333	317	177	665	549	356	1080	927	549	335	46
17	107	193	410	96	204	399	355	160	1280	539	510	423
18	76	368	562	72	209	399	148	856	1260	72	72	264
19	73	486	296	565	459	497	117	134	1260	600	31	96
20	514	498	94	631	262	1030	320	447	1250	874	98	497
21	91	541	579	131	214	518	253	135	1150	549	916	428
22	62	117	373	165	162	434	608	104	905	542	332	85
23	57	409	92	193	246	604	505	116	943	161	281	456
24	54	119	411	105	241	412	498	162	891	558	429	202
25	682	80	592	641	1480	415	144	602	885	647	86	718
26	92	68	535	347	442	331	104	658	893	647	291	100
27	63	91	779	318	468	182	852	696	885	594	278	370
28	58	82	103	320	963	165	961	628	631	854	283	410
29	60	66	249	336	---	166	1050	134	877	485	599	442
30	59	63	448	219	---	169	818	391	868	526	457	504
31	56	---	583	250	---	176	---	748	---	386	625	---
TOTAL	4770	9513	8776	7684	10304	29683	18327	16046	24696	17563	9785	9172
MEAN	154	317	283	248	368	958	611	518	823	567	316	306
MAX	876	628	813	641	1480	2130	1870	1080	1280	874	916	1140
MIN	54	63	56	63	162	165	104	104	132	72	31	39
AC-F-T	9460	18870	17410	15240	20440	58880	36350	31830	48980	34840	19410	18190

MEAN	1452	536	486	450	548	524	919	2176	1915	922	756	1043
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

ANNUAL TOTAL	925912		166319			
ANNUAL MEAN	2530		456		979	
HIGHEST ANNUAL MEAN					4145	1957
LOWEST ANNUAL MEAN					98.5	1988
HIGHEST DAILY MEAN	21600	Mar 2	2130	Mar 3	81700	Apr 29 1957
LOWEST DAILY MEAN	54	Oct 24	31	Aug 19	3.4	Apr 15 1949
ANNUAL SEVEN-DAY MINIMUM	68	Dec 3	68	Dec 3	5.6	Nov 2 1940
INSTANTANEOUS PEAK FLOW			3130	Mar 3	85400	Apr 29 1957
INSTANTANEOUS PEAK STAGE			5.89	Mar 3	28.87	Apr 29 1957
INSTANTANEOUS LOW FLOW			27	Aug 19	3.2	Apr 14 1949
ANNUAL RUNOFF (AC-FT)	1837000		329900		709300	
10 PERCENT EXCEEDS	9160		909		1720	
50 PERCENT EXCEEDS	792		382		221	
90 PERCENT EXCEEDS	92		69		29	

# Period of regulated streamflow.

## 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. 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 at station.

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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	416	131	135	449	353	1260	232	862	387	815	531	438
2	520	122	127	545	251	1960	266	1300	615	803	453	501
3	309	176	117	335	410	1820	1340	1010	617	752	462	544
4	235	236	136	247	796	1860	1560	700	772	661	530	585
5	194	331	194	207	481	1790	1840	636	786	619	330	371
6	163	247	157	178	322	1700	943	718	629	586	233	274
7	142	295	131	169	284	1630	808	626	612	574	435	184
8	129	371	116	280	264	1630	775	724	634	568	549	128
9	122	450	119	353	258	1630	733	692	534	537	302	101
10	175	345	120	368	287	1560	577	841	444	539	194	87
11	185	317	114	385	342	1590	550	633	415	551	224	74
12	149	397	125	322	320	1630	562	522	551	553	384	68
13	125	482	362	474	294	1600	587	595	298	561	401	299
14	121	488	2060	321	291	1540	544	573	410	534	322	1190
15	187	305	1130	237	595	1150	632	337	292	541	263	964
16	280	359	546	273	1300	1040	406	495	744	544	181	370
17	394	449	768	260	1260	797	372	845	897	543	135	231
18	553	334	507	235	807	638	430	639	963	548	279	178
19	302	652	538	242	488	523	416	448	1140	523	402	179
20	209	754	570	240	365	522	329	553	1130	300	256	264
21	165	515	427	453	444	558	252	306	1140	607	166	250
22	283	519	334	575	414	1030	256	356	1110	616	138	282
23	267	506	427	355	291	769	305	299	895	541	474	369
24	189	298	486	256	380	604	513	239	888	513	359	257
25	153	311	323	241	2570	686	484	210	868	316	490	255
26	130	278	301	238	3560	537	480	209	1980	529	453	293
27	326	210	569	342	1740	485	317	455	1530	602	281	507
28	254	174	601	396	1010	428	287	546	921	591	203	286
29	216	147	630	372	---	376	955	575	743	665	272	238
30	163	136	342	399	---	294	1120	531	771	636	277	339
31	128	---	255	375	---	254	---	310	---	530	434	---
TOTAL	7184	10335	12767	10122	20177	33891	18871	17785	23716	17798	10413	10106
MEAN	232	344	412	327	721	1093	629	574	791	574	336	337
MAX	553	754	2060	575	3560	1960	1840	1300	1980	815	549	1190
MIN	121	122	114	169	251	254	232	209	292	300	135	68
AC-FT	14250	20500	25320	20080	40020	67220	37430	35280	47040	35300	20650	20050

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1993#, BY WATER YEAR (WY)

	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MEAN	1780	750	883	541	843	1058	1207	2104	2443	703	840	777													
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 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1969 - 1993#
ANNUAL TOTAL	1003731	193165	
ANNUAL MEAN	2742	529	1162
HIGHEST ANNUAL MEAN			4141
LOWEST ANNUAL MEAN			120
HIGHEST DAILY MEAN	23300	Jun 12	87700
LOWEST DAILY MEAN	114	Dec 11	1.2
ANNUAL SEVEN-DAY MINIMUM	126	Dec 6	3.0
INSTANTANEOUS PEAK FLOW			96600
INSTANTANEOUS PEAK STAGE			31.85
INSTANTANEOUS LOW FLOW			.87
ANNUAL RUNOFF (AC-FT)	1991000	383100	841500
10 PERCENT EXCEEDS	8340	1020	2170
50 PERCENT EXCEEDS	919	416	282
90 PERCENT EXCEEDS	194	172	46

# 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, 3,120 microsiemens Aug. 23; minimum daily, 660 microsiemens Dec. 14.

WATER TEMPERATURE: Maximum daily, 34.0°C July 30; minimum daily, 6.0°C Nov. 28 and Jan. 11.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

		DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CaCO3)	HARDNESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	
	DATE	TIME								
	JAN 28...	1025	390	2470	8.5	8.5	470	350	120	41
	FEB 17...	1530	1160	1880	8.3	7.5	350	240	91	31
	APR 05...	1321	2060	2360	7.4	12.0	470	340	120	42
	JUN 01...	1602	392	2410	8.5	28.5	480	330	120	43
	JUL 27...	1241	481	2940	8.6	30.0	530	410	130	49
	SEP 13...	1325	105	2810	9.4	27.0	470	370	120	42
	DATE	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY WAT DIS FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)
	JAN 28...	320	6	6.8	120	320	480	0.30	4.2	1370
	FEB 17...	350	8	6.1	120	260	360	0.30	5.9	1170
	APR 05...	300	6	7.3	130	310	470	0.30	7.9	1340
	JUN 01...	320	6	7.4	150	350	500	0.40	6.5	1430
	JUL 27...	420	8	7.6	120	430	560	0.50	5.8	1680
	SEP 13...	370	7	7.8	100	390	600	0.50	7.3	1600
MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (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/L)
OCT.	1992	7184	2170	1300	25200	470	9140	290	5710	390
NOV.	1992	10335	1960	1180	32800	420	11800	270	7470	360
DEC.	1992	12767	1480	890	30700	320	10900	200	7050	270
JAN.	1993	10122	2180	1300	35600	470	13000	300	8090	390
FEB.	1993	20177	1280	771	42000	270	14700	180	9700	240
MAR.	1993	33891	2210	1320	121000	490	44400	300	27300	400
APR.	1993	18871	2280	1360	69400	500	25400	310	15700	410
MAY	1993	17785	2400	1430	68700	530	25300	320	15500	430
JUNE	1993	23716	2430	1450	93000	540	34300	330	20900	430
JULY	1993	17798	2850	1690	81400	640	30600	380	18200	500
AUG.	1993	10413	2920	1730	48700	650	18400	390	10800	510
SEPT	1993	10106	2510	1490	40800	560	15200	340	9150	440
TOTAL		193165	**	**	689000	**	253000	**	156000	**
WTD.AVG.		529	2210	1320	**	490	**	300	**	400

## BRAZOS RIVER MAIN STEM

08090800 BRAZOS RIVER NEAR DENNIS, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2130	1960	1900	2170	2310	700	2110	2490	2410	2660	2900	2990
2	2200	1980	1880	2250	2200	960	1800	2020	2590	2710	2940	2950
3	2210	2010	1910	2210	1600	1200	1200	2020	e2520	2750	2850	2960
4	2170	2140	1910	2170	1500	1500	2600	2220	2660	2770	2820	2990
5	2150	2110	1900	2090	1520	2100	2360	2400	2690	2790	e2790	2960
6	2140	2180	1980	2050	1580	2380	2340	2400	2700	2770	2760	3000
7	2110	2200	1940	2010	1820	2490	2310	2380	2710	2810	2850	2940
8	2130	2280	1880	e2100	1980	2570	2080	2430	2700	2830	2850	2930
9	2100	2260	1820	2130	2020	2650	2310	2500	2690	2840	2850	2910
10	2100	2270	1830	2190	2120	2690	2420	e2410	2500	2820	2800	2910
11	2070	2200	1870	2210	2140	2720	2420	2320	2450	2850	2780	2890
12	2100	2140	1600	2230	2110	2700	2470	2420	2400	2850	2820	2700
13	e2080	2150	1000	2310	2190	2730	2200	2540	2510	2870	2930	2200
14	2060	2200	660	2310	1700	2720	1960	2500	2570	2880	2970	1600
15	2060	2180	700	2240	e1600	2700	2100	2450	e2580	2880	3010	1800
16	2200	2130	900	2220	1500	2650	2240	2500	2590	2880	2960	1860
17	2190	2160	1240	2360	1880	2610	2260	2530	2640	2890	2970	1900
18	2270	2100	1400	2270	1600	2530	2360	2580	2670	2890	2990	1720
19	2250	1400	1420	2290	1500	2440	2420	2500	2690	2890	3040	1920
20	2210	1200	1750	2100	1400	2340	2400	2560	2700	2860	3050	2300
21	2160	1700	1800	1720	1480	2300	2380	2500	2680	2860	3040	2580
22	2230	1760	1900	1900	1500	2200	2340	2530	2680	2890	3050	2690
23	2230	1920	1880	2160	1400	2210	2460	2510	2670	2900	3120	2800
24	2170	1890	2000	2230	1100	2040	2530	2360	2400	2910	3100	2750
25	2150	1900	1990	2130	700	2350	2480	2310	2100	2910	2980	2690
26	2100	2000	1940	2260	820	e2290	2570	2320	1600	e2930	2800	2820
27	2140	1950	2100	2300	700	2230	2570	2520	1680	2940	2720	2980
28	2180	1940	2030	2330	720	2180	2500	2550	2160	2950	2770	2970
29	2100	1930	2160	2250	---	2150	2480	2400	2480	2940	2830	2950
30	2080	1920	2140	2190	---	2150	2380	2460	2600	2930	3100	3020
31	2060	---	2100	2260	---	2110	---	2450	---	2930	3030	---
MEAN	2150	2010	1730	2180	1600	2240	2300	2420	2500	2860	2920	2620
MAX	2270	2280	2160	2360	2310	2730	2600	2580	2710	2950	3120	3020
MIN	2060	1200	660	1720	700	700	1200	2020	1600	2660	2720	1600

WTR YR 1993 MEAN 2300 MAX 3120 MIN 660

e Estimated

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.5	20.0	10.5	6.5	11.5	10.0	18.5	25.0	28.0	31.0	33.5	29.0
2	23.0	20.0	10.0	7.5	12.0	13.0	18.0	20.0	30.0	31.0	31.0	30.0
3	18.0	17.0	16.0	10.0	12.0	13.5	16.0	21.5	---	30.0	30.0	29.0
4	20.0	13.5	11.0	11.5	11.0	12.5	16.0	24.0	30.0	30.0	27.5	29.5
5	24.5	12.0	10.0	7.5	11.0	13.0	15.0	22.0	26.0	29.0	---	28.0
6	24.5	15.0	7.0	12.0	9.5	13.0	14.5	24.0	28.0	26.0	28.0	27.0
7	23.0	14.0	7.0	10.5	9.0	12.0	18.5	23.5	28.0	30.0	30.0	27.0
8	21.0	14.0	10.0	---	13.0	16.0	18.0	25.0	29.0	30.5	31.0	30.0
9	23.0	17.0	15.0	9.5	12.5	18.0	21.0	25.0	28.0	31.0	32.0	30.0
10	22.0	19.0	12.5	8.0	15.5	16.5	16.0	---	28.0	28.0	33.0	24.0
11	23.0	19.0	11.0	6.0	15.0	15.0	25.0	22.0	28.0	32.0	32.5	29.0
12	25.0	16.0	11.0	8.5	13.0	12.0	24.5	21.0	30.0	32.0	28.0	28.0
13	---	15.0	14.0	7.0	16.0	11.0	25.0	25.0	30.0	32.0	32.0	27.0
14	26.5	15.0	10.0	15.0	10.0	10.0	18.0	26.0	32.0	31.0	32.0	23.0
15	25.5	11.0	8.5	9.5	---	10.5	18.0	27.0	---	31.5	29.0	23.0
16	21.5	18.0	9.0	12.0	8.5	15.5	23.0	20.0	28.0	31.0	32.5	24.0
17	20.0	16.0	9.0	12.0	7.0	14.0	23.0	28.5	30.0	32.0	33.5	25.0
18	22.0	17.5	9.0	9.5	11.0	14.0	25.0	27.0	30.0	33.0	32.0	27.0
19	21.0	17.0	12.0	8.0	10.0	19.0	25.0	27.5	29.0	32.5	31.5	24.0
20	23.0	16.0	10.0	7.5	15.0	14.0	24.0	28.0	29.0	33.0	33.0	30.0
21	23.0	11.0	10.5	11.5	16.0	14.0	22.0	25.5	28.0	32.0	33.0	31.0
22	20.0	11.0	11.5	10.0	14.5	16.0	22.0	26.0	29.5	32.0	29.0	30.0
23	21.0	15.0	12.0	14.0	15.0	13.0	19.5	25.0	30.0	33.0	28.0	30.0
24	20.5	11.0	12.0	9.5	12.0	19.0	24.0	26.0	30.0	32.0	29.0	30.0
25	22.0	8.5	12.0	9.0	13.0	22.0	22.0	26.0	30.0	28.0	25.0	26.0
26	24.0	8.0	14.0	9.5	10.0	---	25.0	28.0	29.0	---	31.0	26.0
27	23.0	9.0	12.0	10.0	11.0	20.5	24.0	29.5	30.0	31.5	27.0	26.0
28	22.0	6.0	12.5	9.5	11.0	22.0	22.5	28.0	31.0	33.0	28.0	26.0
29	22.5	8.0	16.0	8.0	---	22.5	24.0	29.0	31.5	33.0	27.0	25.0
30	23.0	9.0	16.5	10.0	---	23.5	23.0	30.0	31.0	34.0	31.5	26.5
31	25.0	---	15.0	12.0	---	18.0	---	30.5	---	30.0	27.0	---
MEAN	22.5	13.9	11.5	9.7	12.0	15.4	21.0	25.5	29.3	31.2	30.2	27.3
MAX	26.5	20.0	16.5	15.0	16.0	23.5	25.0	30.5	32.0	34.0	33.5	31.0
MIN	18.0	6.0	7.0	6.0	7.0	10.0	14.5	20.0	26.0	26.0	25.0	23.0

WTR YR 1993 MEAN 21.0 MAX 34.0 MIN 6.0



## 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-CONTENT RECORDS

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

REVISED RECORDS.--WDR TX-76-2: 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 Keechi, 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:

	Gage height (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

COOPERATION.--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 (gage height, 693.60 ft); minimum since first filling in October 1969, 97,600 acre-ft Aug. 9, 1978 (gage height, 685.28 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 152,000 acre-ft Jan. 23 at 2000 hours (gage height, 692.84 ft); minimum, 143,500 acre-ft Mar. 1 (gage height, 691.82 ft).

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

691.0	136,900	693.0	153,500
692.0	145,000		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	148400	148700	149000	149000	148800	143800	147800	149300	147300	148600	149000	149700
2	149100	148100	148900	149000	148700	144500	147800	149500	148400	148800	149200	150000
3	149300	148300	149000	149000	149400	144200	149900	148800	148800	148900	149600	149600
4	149400	148300	149600	148900	149300	145100	149700	148100	149600	148000	149800	149500
5	149400	148300	149400	148600	148600	145900	149200	147300	149400	147700	149400	149200
6	149300	148600	149500	148500	148800	147100	148100	146600	149000	147500	148100	148900
7	149500	148800	149400	148300	149100	147900	148000	146100	148800	148200	147800	148800
8	148900	148900	148300	148700	149400	148900	147200	145400	148800	148600	148400	148600
9	148500	149800	148700	150000	149400	149300	147200	146100	149100	148800	148500	148100
10	148700	149300	148900	149700	149300	149300	147700	147400	148500	149200	148400	147800
11	148600	149800	148800	149900	149400	149800	148100	148800	147900	149400	148300	147200
12	148600	149400	148900	148900	149000	149100	148600	149100	148100	149500	148300	146600
13	148200	149400	150500	148300	149300	147500	147600	149400	147900	149300	148500	148600
14	148100	149800	148300	148500	149700	147700	147800	149400	148300	149200	148700	150100
15	148300	149900	148600	148700	150600	148800	147000	149200	148300	148800	148500	150300
16	148600	149600	148700	148800	149600	149200	147000	149200	148400	148600	148300	149700
17	148600	149400	148800	149000	149100	148500	147200	148800	148700	148300	148100	149900
18	149600	148300	148700	149100	148900	148600	146300	148900	148600	148100	148000	149800
19	148900	148800	148600	149700	148900	148900	147300	148200	149000	148300	148000	149700
20	148300	147800	148500	149500	149100	148100	147400	148400	149400	148500	148300	149900
21	148400	149400	148600	149400	149400	148000	147200	148000	149500	148700	147900	150000
22	148700	149100	148800	149700	149300	148400	147200	147700	149600	149400	147500	150000
23	149000	149700	149000	150100	149400	147200	147800	148000	148600	149400	147700	150000
24	149000	149300	148900	149100	149400	147700	148700	147700	148000	148900	148600	149900
25	149200	148300	148900	148800	149400	148300	149900	147800	147900	148300	148600	150000
26	149400	148000	148300	148800	149800	148400	149400	147800	150000	148000	149200	150000
27	149300	148000	148500	148800	147800	148100	148300	148400	149100	148500	149200	149900
28	149400	148100	148500	149300	144500	148400	146700	148800	147600	149200	149000	150100
29	149800	148700	149400	149100	---	148100	147100	147600	147100	149600	148800	150200
30	148800	148700	149400	148800	---	148100	147200	148000	147200	150000	149100	150000
31	149100	---	149400	148800	---	147700	---	147800	---	149100	149700	---
MAX	149800	149900	150500	150100	150600	149800	149900	149500	150000	150000	149800	150300
MIN	148100	147800	148300	148300	144500	143800	146300	145400	147100	147500	147500	146600
(↑)	692.49	692.44	692.52	692.45	691.94	692.33	692.27	692.34	692.27	692.49	692.56	692.60
(Φ)	+800	-400	+700	-600	-4300	+3200	-500	+600	-600	+1900	+600	+300

CAL YR 1992 MAX 150800 MIN 131700 (Φ) -1000  
WTR YR 1993 MAX 150600 MIN 143800 (Φ) +1700

(↑) Gage height, 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.

32227097412101 - LAKE GRANBURY SITE AC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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 FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)
FEB												
23...	1041	149000	1.00	1830	8.2	12.0	1.60	9.5	91	390	250	100
23...	1044	--	10.0	1820	8.2	11.5	--	9.4	89	--	--	--
23...	1047	--	20.0	1830	8.1	11.0	--	9.0	84	--	--	--
23...	1050	--	30.0	1830	8.0	11.0	--	8.8	82	--	--	--
23...	1053	--	40.0	1840	7.9	11.0	--	8.7	81	--	--	--
23...	1056	--	50.0	1840	7.8	11.0	--	8.1	76	--	--	--
23...	1100	--	60.0	1830	7.3	11.0	--	8.1	76	390	250	99
MAY												
27...	1253	148000	1.00	1770	8.3	25.5	2.10	6.8	86	380	260	100
27...	1258	--	10.0	1770	8.3	24.5	--	6.6	82	--	--	--
27...	1302	--	20.0	1760	7.9	23.0	--	4.2	50	--	--	--
27...	1306	--	30.0	1780	7.7	22.0	--	2.4	28	--	--	--
27...	1310	--	40.0	1790	7.5	21.5	--	1.4	16	--	--	--
27...	1313	--	50.0	1780	7.5	21.5	--	0.8	9	--	--	--
27...	1317	--	62.0	1770	7.3	20.5	--	0	0	380	210	100
JUL												
14...	1202	149000	1.00	2090	8.3	28.5	1.60	6.4	86	440	300	110
14...	1207	--	10.0	2090	8.3	28.0	--	6.3	84	--	--	--
14...	1211	--	20.0	2090	8.2	28.0	--	6.1	81	--	--	--
14...	1216	--	30.0	2090	8.1	27.5	--	5.1	67	--	--	--
14...	1220	--	40.0	2090	8.0	27.5	--	4.8	63	--	--	--
14...	1225	--	50.0	2090	7.5	26.5	--	0	0	--	--	--
14...	1230	--	63.0	2070	7.4	24.0	--	0	0	430	240	110
FEB												
23...	34	240	5	6.6	140	260	370	0.30	7.4	1100	0.026	0.026
23...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
23...	34	240	5	6.5	140	270	360	0.30	7.7	1100	0.031	0.031
MAY												
27...	32	220	5	5.8	120	250	340	0.40	6.3	1030	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	31	220	5	5.8	170	240	340	0.40	7.9	1050	0.100	0.100
JUL												
14...	39	260	5	7.0	130	300	450	0.40	6.9	1250	--	--
14...	--	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--	--
14...	37	260	5	6.6	190	260	420	0.40	11	1220	--	--

## BRAZOS RIVER MAIN STEM

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08090900 LAKE GRANBURY NEAR GRANBURY, TX--Continued

322227097412101 - LAKE GRANBURY SITE AC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB											
23...	0.030	0.056	0.056	0.010	0.19	0.20	0.010	<0.010	--	<3	18
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	0.030	0.061	0.061	0.090	0.21	0.30	<0.010	<0.010	--	3	280
MAY											
27...	<0.010	--	<0.050	0.030	0.47	0.50	0.070	<0.010	--	<3	5
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	0.030	0.130	0.130	0.300	0.40	0.70	0.060	0.030	0.09	22	1600
JUL											
14...	<0.010	--	<0.050	0.020	0.18	0.20	0.010	<0.010	--	<10	<10
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	<0.010	--	<0.050	0.020	0.28	0.30	0.020	<0.010	--	<10	30
14...	<0.010	--	<0.050	0.150	0.25	0.40	0.040	0.020	0.06	<10	160
14...	<0.010	--	<0.050	1.10	0.40	1.5	0.320	0.280	0.86	250	2100

322231097412001 - LAKE GRANBURY SITE AL

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
23...	1107	1.00	1830	8.3	12.0	9.5	91
23...	1109	10.0	1830	8.3	11.5	9.4	89
23...	1112	20.0	1830	8.2	11.5	9.2	87
23...	1114	30.0	1830	8.2	11.5	8.8	83
23...	1117	40.0	1820	8.2	11.0	8.6	80
23...	1120	53.0	1830	8.2	11.5	8.6	81
MAY							
27...	1327	1.00	1770	8.3	25.5	6.6	83
27...	1330	10.0	1760	8.3	24.0	6.4	78
27...	1334	20.0	1760	8.0	23.0	4.6	55
27...	1337	30.0	1780	7.7	22.0	2.5	29
27...	1341	40.0	1780	7.6	21.5	1.7	20
27...	1344	52.0	1770	7.6	21.5	1.0	12
JUL							
14...	1236	1.00	2090	8.3	28.5	6.3	84
14...	1238	10.0	2090	8.3	28.0	6.4	85
14...	1240	20.0	2090	8.2	28.0	6.0	80
14...	1243	30.0	2080	8.1	27.5	5.5	72
14...	1246	40.0	2080	8.0	27.5	4.4	58
14...	1249	52.0	2090	7.6	26.5	0	0

BRAZOS RIVER MAIN STEM  
08090900 LAKE GRANBURY NEAR GRANBURY, TX--Continued

322345097421901 - LAKE GRANBURY SITE BR

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
23...	1151	1.00	1800	8.4	12.5	9.7	94
23...	1154	10.0	1800	8.3	11.5	9.2	87
23...	1157	20.0	1800	8.2	11.5	8.9	84
23...	1200	30.0	1810	8.2	11.5	8.8	83
23...	1203	41.0	1820	8.2	11.5	8.5	80
MAY							
27...	1437	1.00	1770	8.4	25.5	6.8	86
27...	1440	10.0	1780	8.2	24.0	5.9	72
27...	1443	20.0	1790	8.1	23.5	5.1	62
27...	1446	30.0	1810	7.8	22.5	2.9	34
27...	1449	40.0	1850	7.6	21.5	1.2	14
27...	1451	51.0	1810	7.6	21.5	0.6	7
JUL							
14...	1327	1.00	2100	8.3	29.0	6.2	84
14...	1329	10.0	2100	8.3	29.0	6.0	81
14...	1331	20.0	2110	8.1	28.5	5.1	68
14...	1333	30.0	2140	7.7	28.0	2.3	31
14...	1335	42.0	2080	7.7	28.0	2.2	29

322341097420601 - LAKE GRANBURY SITE BC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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								
23...	1131	1.00	1800	8.3	12.5	1.40	9.7	94
23...	1133	10.0	1800	8.3	11.5	--	9.1	86
23...	1135	20.0	1810	8.2	11.5	--	8.9	84
23...	1137	30.0	1810	8.2	11.5	--	8.9	84
23...	1140	40.0	1840	8.2	11.0	--	8.7	81
23...	1143	50.0	1840	8.2	11.0	--	8.4	78
23...	1146	60.0	1830	8.1	11.5	--	8.0	76
MAY								
27...	1357	1.00	1780	8.3	25.5	1.90	6.8	86
27...	1402	10.0	1780	8.2	24.0	--	5.8	71
27...	1407	20.0	1780	8.1	23.5	--	5.1	62
27...	1412	30.0	1810	7.8	22.5	--	2.8	33
27...	1417	40.0	1820	7.6	21.5	--	1.2	14
27...	1423	50.0	1800	7.6	20.5	--	0	0
27...	1430	60.0	1790	7.6	20.0	--	0	0
JUL								
14...	1302	1.00	2100	8.3	29.0	1.71	6.2	84
14...	1305	10.0	2100	8.3	29.0	--	6.2	84
14...	1307	20.0	2110	8.1	28.5	--	5.2	70
14...	1310	30.0	2130	7.8	28.0	--	2.8	37
14...	1313	40.0	2080	7.7	27.5	--	2.4	32
14...	1316	50.0	2080	7.6	27.0	--	1.3	17
14...	1319	59.0	2080	7.5	24.5	--	0	0

322337097415401 - LAKE GRANBURY SITE BL

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
23...	1209	1.00	1800	8.4	12.0	9.6	92
23...	1211	10.0	1810	8.3	11.5	9.3	88
23...	1214	20.0	1820	8.3	11.5	9.0	85
23...	1217	30.0	1830	8.2	11.5	8.8	83
MAY							
27...	1456	1.00	1780	8.4	25.5	6.8	86
27...	1459	10.0	1780	8.2	24.0	5.9	72
27...	1502	20.0	1790	8.1	23.5	5.1	62
27...	1505	30.0	1780	7.8	23.5	2.6	32
JUL							
14...	1341	1.00	2100	8.3	29.0	6.1	82
14...	1344	10.0	2100	8.3	28.5	6.0	80
14...	1347	20.0	2100	8.2	28.5	5.4	72
14...	1349	30.0	2110	7.8	28.0	2.6	34

## BRAZOS RIVER MAIN STEM

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08090900 LAKE GRANBURY NEAR GRANBURY, TX--Continued

322537097414501 - LAKE GRANBURY SITE CC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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								
23...	1233	1.00	1650	8.3	12.5	1.20	9.9	96
23...	1236	5.00	1770	8.3	12.5	--	9.0	87
23...	1239	14.0	1780	8.1	12.5	--	7.6	73
MAY								
27...	1523	1.00	1810	8.3	27.0	1.70	6.3	81
27...	1526	5.00	1800	8.2	26.5	--	6.2	79
27...	1529	13.0	1740	8.1	25.5	--	5.3	67
JUL								
14...	1400	1.00	2100	8.4	30.0	1.20	6.8	93
14...	1402	5.00	2100	8.4	29.5	--	6.6	90
14...	1405	10.0	2100	8.3	29.0	--	6.4	86
14...	1408	15.0	2100	8.2	29.0	--	5.2	70

322422097423901 - LAKE GRANBURY SITE DC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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								
23...	1254	1.00	1770	8.3	16.5	1.40	9.1	96
23...	1257	10.0	1730	8.3	12.0	--	9.1	87
23...	1300	20.0	1730	8.2	11.5	--	8.4	79
23...	1303	30.0	1730	8.1	11.0	--	7.7	72
23...	1306	40.0	1730	8.1	11.0	--	7.4	69
23...	1309	52.0	1740	8.1	11.0	--	7.6	71
MAY								
27...	1544	1.00	1810	8.2	28.0	1.90	5.8	76
27...	1547	10.0	1850	8.0	24.5	--	4.4	54
27...	1550	20.0	1880	7.7	23.5	--	2.5	30
27...	1553	30.0	1840	7.7	22.5	--	2.3	27
27...	1556	40.0	1890	7.6	22.0	--	1.0	12
27...	1559	53.0	1880	7.6	21.5	--	0	0
JUL								
14...	1423	1.00	2110	8.2	31.0	1.52	5.8	81
14...	1425	10.0	2110	8.2	29.0	--	5.5	74
14...	1427	20.0	2200	7.9	28.5	--	3.4	46
14...	1430	30.0	2220	7.8	28.5	--	2.8	37
14...	1433	40.0	2240	7.8	28.0	--	2.4	32
14...	1436	53.0	2200	7.7	26.5	--	0	0

322437097423901 - LAKE GRANBURY SITE DL

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
23...	1318	1.00	1780	8.3	16.0	8.8	92
23...	1322	10.0	1740	8.3	12.5	8.7	84
23...	1326	18.0	1740	8.2	12.5	8.1	78
MAY							
27...	1607	1.00	1820	8.2	28.0	5.9	78
27...	1610	10.0	1860	8.0	25.0	4.3	54
27...	1614	19.0	1880	7.9	25.0	3.3	41
JUL							
14...	1442	1.00	2120	8.2	32.0	5.6	80
14...	1445	10.0	2110	8.2	29.0	5.5	74
14...	1448	19.0	2190	8.0	29.5	3.5	48

## BRAZOS RIVER MAIN STEM

08090900 LAKE GRANBURY NEAR GRANBURY, TX--Continued

## 322458097443101 - LAKE GRANBURY SITE EC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
23...	1335	1.00	1780	8.4	14.5	9.6	97
23...	1338	10.0	1740	8.3	12.0	9.6	92
23...	1340	20.0	1690	8.2	11.0	8.6	80
23...	1343	30.0	1680	8.2	11.0	8.4	78
23...	1347	40.0	1680	8.1	11.0	8.3	77
23...	1351	50.0	1680	8.1	11.0	8.2	76
MAY							
27...	1620	1.00	1820	8.3	27.5	6.6	86
27...	1623	10.0	1820	8.2	25.5	6.1	77
27...	1626	20.0	1890	7.9	24.0	3.9	48
27...	1628	30.0	1950	7.6	22.5	0.8	10
27...	1630	40.0	1930	7.5	22.5	0.6	7
27...	1633	52.0	1910	7.6	22.5	0	0
JUL							
14...	1501	1.00	2130	8.4	30.5	6.5	90
14...	1504	10.0	2130	8.4	30.0	6.4	88
14...	1506	20.0	2140	8.3	29.5	5.8	79
14...	1510	30.0	2200	8.0	28.5	3.7	50
14...	1514	40.0	2240	7.8	28.5	2.2	29
14...	1518	50.0	2260	7.7	28.5	0	0

## 322619097463301 - LAKE GRANBURY SITE FC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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 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)
FEB											
23...	1415	1.00	1700	8.3	12.5	9.7	94	390	230	100	33
23...	1420	10.0	1690	8.3	11.5	9.6	91	--	--	--	--
23...	1424	20.0	1710	8.2	10.5	8.8	81	--	--	--	--
23...	1428	30.0	1710	8.1	10.5	8.3	77	--	--	--	--
23...	1431	38.0	1720	8.1	10.5	8.0	74	390	230	100	33
MAY											
27...	1652	1.00	1870	8.4	26.5	7.0	90	420	260	110	35
27...	1656	10.0	1860	8.3	25.5	6.6	83	--	--	--	--
27...	1700	20.0	1960	8.0	24.5	4.3	53	--	--	--	--
27...	1705	30.0	2050	7.9	24.0	3.5	43	--	--	--	--
27...	1709	38.0	2050	7.8	24.0	3.0	37	430	270	110	38
JUL											
14...	1540	1.00	2170	8.4	29.5	6.9	94	440	310	110	40
14...	1544	10.0	2180	8.3	29.0	6.3	85	--	--	--	--
14...	1548	20.0	2200	8.2	28.5	5.6	75	--	--	--	--
14...	1552	30.0	2240	8.1	28.5	4.6	62	--	--	--	--
14...	1557	37.0	2280	7.8	28.5	2.8	38	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 CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)
FEB											
23...	220	5	6.0	150	250	330	0.20	5.3	1040	0.060	0.060
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	230	5	6.0	150	250	340	0.20	5.4	1060	0.046	0.046
MAY											
27...	250	5	6.1	160	260	360	0.40	5.6	1120	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	270	6	6.5	160	290	400	0.50	7.1	1220	--	--
JUL											
14...	300	6	7.4	120	310	480	0.50	6.7	1330	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	290	6	7.7	120	320	490	0.40	7.5	1340	--	--



## BRAZOS RIVER MAIN STEM

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08090900 LAKE GRANBURY NEAR GRANBURY, TX--Continued

322619097463301 - LAKE GRANBURY SITE FC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB											
23...	0.030	0.090	0.090	0.020	0.18	0.20	<0.010	<0.010	--	<3	2
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	0.020	0.066	0.066	0.050	0.15	0.20	<0.010	<0.010	--	<3	14
MAY											
27...	<0.010	--	<0.050	0.020	0.28	0.30	0.010	<0.010	--	7	15
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	<0.010	--	<0.050	0.180	0.52	0.70	0.070	0.010	0.03	<10	210
JUL											
14...	<0.010	--	<0.050	0.010	0.39	0.40	<0.010	<0.010	--	<10	<10
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	<0.010	--	<0.050	0.040	0.36	0.40	0.050	<0.010	--	<10	150

322703097451401 - LAKE GRANBURY SITE GC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
23...	1442	1.00	1700	8.3	11.0	9.6	90
23...	1445	10.0	1720	8.2	10.5	9.0	83
23...	1447	20.0	1730	8.1	10.5	8.0	74
23...	1450	25.0	1740	8.1	11.0	8.6	80
MAY							
27...	1720	1.00	1900	8.3	27.0	6.7	87
27...	1723	10.0	1920	8.2	24.5	6.1	75
27...	1726	23.0	1890	8.0	24.5	4.0	49
JUL							
14...	1612	1.00	2220	8.4	30.0	7.3	100
14...	1615	10.0	2220	8.4	29.5	7.4	101
14...	1618	15.0	2230	8.1	29.0	5.1	69
14...	1621	23.0	2240	8.1	29.0	4.0	54

322834097470801 - LAKE GRANBURY SITE HC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
23...	1508	1.00	1660	8.3	11.0	9.6	90
23...	1511	10.0	1710	8.2	10.0	9.2	84
23...	1514	20.0	1730	8.2	10.0	9.0	82
23...	1517	31.0	1730	8.1	10.5	8.4	77
MAY							
27...	1744	1.00	2100	8.3	25.5	6.4	81
27...	1747	10.0	2170	8.0	24.5	4.3	53
27...	1750	20.0	2170	7.9	24.0	3.7	45
27...	1754	31.0	2160	7.8	24.5	2.1	26
JUL							
14...	1635	1.00	2290	8.4	29.0	6.6	89
14...	1638	10.0	2360	8.3	28.5	5.2	70
14...	1641	20.0	2390	8.2	28.5	4.9	66
14...	1644	31.0	2380	7.8	28.5	1.6	21

## BRAZOS RIVER MAIN STEM

08090900 LAKE GRANBURY NEAR GRANBURY, TX--Continued

## 322819097483201 - LAKE GRANBURY SITE IC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
23...	1529	1.00	1580	8.2	12.5	9.8	95
23...	1532	5.00	1590	8.2	12.5	9.7	94
23...	1535	14.0	1650	8.1	10.5	9.1	84
MAY							
27...	1804	1.00	2000	8.3	26.5	7.0	90
27...	1807	5.00	2140	8.2	25.0	5.6	70
27...	1810	14.0	2150	7.8	25.0	2.7	34
JUL							
14...	1701	1.00	2390	8.3	28.5	6.2	83
14...	1704	5.00	2380	8.1	28.5	4.5	60
14...	1706	10.0	2360	8.1	28.0	4.3	57
14...	1709	15.0	2340	7.9	28.5	2.6	35

## 323318097480101 - LAKE GRANBURY SITE JC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
23...	1605	1.00	1410	8.2	12.0	10.2	97
23...	1609	10.0	1500	8.1	10.5	9.7	89
23...	1613	22.0	1730	8.0	9.5	8.6	77
MAY							
27...	1833	1.00	2390	8.3	27.0	7.2	93
27...	1836	10.0	2380	8.1	25.0	5.4	67
27...	1839	22.0	2390	7.6	24.5	1.0	12
JUL							
14...	1731	1.00	2800	8.3	30.0	6.6	91
14...	1735	10.0	2800	8.2	29.5	5.8	79
14...	1738	21.0	2780	7.8	28.5	2.9	39

## 323435097492001 - LAKE GRANBURY SITE KC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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 CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)
FEB										
23...	1630	1.00	1360	8.3	14.0	9.4	94	320	170	87
23...	1635	10.0	1350	8.1	12.5	8.7	84	--	--	--
23...	1640	17.0	1360	7.8	10.5	6.6	61	350	190	92
MAY										
27...	1851	1.00	2260	8.3	28.0	7.2	95	470	310	120
27...	1906	10.0	2260	7.8	25.5	4.1	52	--	--	--
27...	1915	17.0	2310	7.5	24.5	0	0	480	300	120
JUL										
14...	1756	1.00	2820	8.4	31.0	6.8	95	530	410	130
14...	1801	10.0	2820	8.2	30.0	5.0	69	--	--	--
14...	1806	17.0	2820	8.1	30.0	4.4	61	480	360	110

## BRAZOS RIVER MAIN STEM

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08090900 LAKE GRANBURY NEAR GRANBURY, TX--Continued

323435097492001 - LAKE GRANBURY SITE KC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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 SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
FEB										
23...	26	170	4	5.2	160	190	250	0.20	5.8	828
23...	--	--	--	--	--	--	--	--	--	--
23...	28	190	4	5.5	160	210	280	0.20	6.9	907
MAY										
27...	42	310	6	7.0	160	330	440	0.50	6.1	1350
27...	--	--	--	--	--	--	--	--	--	--
27...	43	310	6	6.9	170	340	460	0.50	9.1	1400
JUL										
14...	50	400	8	8.8	120	410	630	0.50	5.3	1710
14...	--	--	--	--	--	--	--	--	--	--
14...	50	390	8	8.5	120	410	650	0.50	5.7	1700
DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB										
23...	0.030	<0.050	0.020	0.18	0.20	<0.010	<0.010	--	3	5
23...	--	--	--	--	--	--	--	--	--	--
23...	0.020	<0.050	0.190	0.31	0.50	0.020	0.010	0.03	<3	28
MAY										
27...	<0.010	<0.050	0.020	0.48	0.50	0.020	<0.010	--	<10	80
27...	--	--	--	--	--	--	--	--	--	--
27...	<0.010	<0.050	0.320	0.28	0.60	0.020	<0.010	--	<10	1900
JUL										
14...	<0.010	<0.050	0.020	0.28	0.30	0.020	<0.010	--	<10	<10
14...	--	--	--	--	--	--	--	--	--	--
14...	<0.010	<0.050	0.040	0.26	0.30	<0.010	<0.010	--	<10	20

## 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 good except those for estimated daily discharge, which are poor. 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, 1,567 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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	179	255	76	469	453	2310	361	831	427	272	598	23
2	88	237	72	469	447	1770	281	888	193	85	295	30
3	57	176	71	477	387	2430	280	1540	72	365	158	134
4	47	90	71	477	895	2250	933	1470	160	602	86	400
5	51	68	72	460	1700	1310	2210	837	527	608	141	404
6	53	61	72	337	634	1280	1970	1570	561	608	380	279
7	52	54	73	274	314	1270	1310	846	558	367	567	215
8	51	52	203	267	299	1270	1280	812	559	98	225	168
9	52	52	1010	209	294	1310	1100	826	565	59	86	86
10	49	54	167	115	419	1660	494	794	595	173	50	54
11	38	1200	77	221	1020	1650	453	249	592	187	33	39
12	31	371	72	385	622	1800	451	90	587	184	26	34
13	24	170	73	1260	306	2490	442	179	383	310	21	34
14	21	294	4370	378	298	2000	1850	546	356	378	19	985
15	18	307	2880	257	325	800	1650	432	185	385	18	1160
16	16	310	1110	255	1310	662	522	404	e187	386	17	831
17	18	473	764	245	2260	1550	458	428	e439	389	17	276
18	21	790	727	243	1290	723	455	621	e736	393	17	99
19	21	977	721	244	1020	631	454	1060	e736	393	19	64
20	603	1700	721	299	591	1570	441	429	e732	209	20	48
21	319	1160	719	469	543	695	321	372	732	82	17	41
22	95	367	401	529	554	928	287	372	e950	48	17	37
23	55	143	299	524	521	2470	192	382	e1210	32	19	35
24	40	143	411	577	528	929	96	390	e1220	257	21	33
25	33	1280	478	613	2990	553	76	371	e1220	391	20	220
26	30	460	486	349	5450	652	77	192	e1100	399	23	258
27	24	302	497	261	3200	656	721	77	e2000	215	28	231
28	20	173	497	256	3190	742	796	50	e2800	81	25	177
29	44	100	497	492	---	775	1070	864	e1700	48	22	89
30	414	82	493	862	---	690	1740	535	787	31	18	56
31	386	---	477	502	---	655	---	440	---	476	22	---
TOTAL	2950	11901	18657	12775	31860	40481	22771	18897	22869	8511	3025	6540
MEAN	95.2	397	602	412	1138	1306	759	610	762	275	97.6	218
MAX	603	1700	4370	1260	5450	2490	2210	1570	2800	608	598	1160
MIN	16	52	71	115	294	553	76	50	72	31	17	23
AC-F	5850	23610	37010	25340	63190	80290	45170	37480	45360	16880	6000	12970

e Estimated

BRAZOS RIVER MAIN STEM--Continued

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08091000 BRAZOS RIVER NEAR GLEN ROSE, TX

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1993#, BY WATER YEAR (WY)

MEAN	1857	872	1074	600	1033	1228	1330	2215	2743	630	705	680
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 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1970 - 1993#	
ANNUAL TOTAL	1057544		201237		1247	
ANNUAL MEAN	2889		551		4605	
HIGHEST ANNUAL MEAN					115	
LOWEST ANNUAL MEAN					82100	
HIGHEST DAILY MEAN	26800	Feb 27	5450	Feb 26		1992
LOWEST DAILY MEAN	16	Oct 16	16	Oct 16		1988
ANNUAL SEVEN-DAY MINIMUM	20	Oct 13	18	Aug 16		1991
INSTANTANEOUS PEAK FLOW			7800	Dec 14		1984
INSTANTANEOUS PEAK STAGE			11.50	Dec 14		1991
INSTANTANEOUS LOW FLOW			16	Oct 15		1990
ANNUAL RUNOFF (AC-FT)	2098000		399200			1984
10 PERCENT EXCEEDS	9610		1300			
50 PERCENT EXCEEDS	935		380			
90 PERCENT EXCEEDS	72		33			

# Period of regulated streamflow.  
a/ Maximum stage since at least 1876.



## BRAZOS RIVER BASIN

## 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 (water year 1924 is not complete). 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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	30	23	37	56	272	207	198	41	46	16	12
2	17	25	23	38	54	329	191	205	39	44	15	9.8
3	17	21	23	39	80	280	184	207	37	41	17	10
4	17	19	23	40	164	242	206	153	35	39	33	10
5	17	19	22	39	146	216	235	130	33	37	27	9.7
6	17	19	22	39	115	201	209	123	32	36	23	9.2
7	17	19	23	39	94	192	209	113	31	35	23	8.4
8	16	19	23	39	85	184	204	104	30	33	25	8.2
9	15	21	25	44	79	178	189	115	30	32	23	7.9
10	16	21	25	43	100	169	178	106	40	31	21	7.2
11	16	22	23	45	106	163	169	93	40	31	18	7.2
12	15	23	23	45	94	193	161	86	44	30	16	7.2
13	15	23	31	43	83	198	156	80	39	29	15	9.3
14	16	21	610	41	79	180	601	74	39	28	14	241
15	16	21	316	41	97	172	487	70	36	27	12	183
16	16	21	164	41	139	171	240	66	37	26	12	70
17	16	21	103	40	122	163	220	61	39	26	11	46
18	17	22	74	40	100	155	196	58	37	25	11	37
19	17	48	63	44	93	174	171	54	37	24	10	32
20	19	94	54	81	90	280	146	52	39	24	9.7	29
21	19	49	49	81	88	249	127	49	40	23	9.1	27
22	19	37	45	71	81	247	117	48	41	22	8.4	25
23	19	30	42	63	76	251	112	55	62	22	8.3	24
24	18	32	40	56	77	227	109	54	45	21	7.1	22
25	19	30	38	51	966	208	104	49	59	20	7.9	26
26	18	26	37	49	551	193	96	46	88	19	8.9	43
27	17	24	36	47	324	183	90	44	69	17	9.6	32
28	17	24	35	48	269	247	88	48	70	17	12	27
29	18	24	36	54	---	367	237	49	56	17	13	25
30	21	24	36	57	---	285	321	45	51	17	11	23
31	20	---	36	59	---	235	---	42	---	16	12	---
TOTAL	534	829	2123	1494	4408	6804	5960	2677	1316	855	459.0	1028.1
MEAN	17.2	27.6	68.5	48.2	157	219	199	86.4	43.9	27.6	14.8	34.3
MAX	21	94	610	81	966	367	601	207	88	46	33	241
MIN	15	19	22	37	54	155	88	42	30	16	7.1	7.2
AC-FI	1060	1640	4210	2960	8740	13500	11820	5310	2610	1700	910	2040

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 1993, BY WATER YEAR (WY)

	MEAN	63.7	28.4	56.4	44.7	69.4	80.4	123	248	94.5	29.8	14.9	29.0
MAX	724	211	1382	380	933	487	827	1191	890	133	106	335	
(WY)	1960	1992	1992	1992	1992	1968	1990	1949	1989	1968	1968	1955	
MIN	.000	1.05	3.47	4.70	5.49	5.84	6.46	3.34	1.48	.000	.000	.000	
(WY)	1979	1984	1989	1984	1984	1956	1986	1988	1974	1978	1978	1984	

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1925 - 1993

ANNUAL TOTAL	73409		28487.1		73.8								
ANNUAL MEAN	201		78.0		361								
HIGHEST ANNUAL MEAN					6.24								1992
LOWEST ANNUAL MEAN													1984
HIGHEST DAILY MEAN	4550	Feb 4		966	Feb 25	26600	May 17	1949					
LOWEST DAILY MEAN	15	Oct 9		7.1	Aug 24	.00	Jul 13	1925					
ANNUAL SEVEN-DAY MINIMUM	16	Oct 8		7.9	Sep 6	.00	Jul 20	1925					
INSTANTANEOUS PEAK FLOW				1970	Feb 25	50000	Oct 4	1959					
INSTANTANEOUS PEAK STAGE				5.47	Feb 25	25.40	Oct 4	1959					
INSTANTANEOUS LOW FLOW				5.2	Aug 24								
ANNUAL RUNOFF (AC-FT)	145600			56500		53450							
10 PERCENT EXCEEDS	434			202		99							
50 PERCENT EXCEEDS	83			39		13							
90 PERCENT EXCEEDS	19			16		1.3							

## 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- X 6-foot slide gates and a 6- X 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, 151,400 acre-ft Mar. 30 at 0500 hours (elevation, 775.13 ft); minimum, 142,300 acre-ft Oct. 1 (elevation, 772.32 ft).

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

772.0	141,300	774.0	147,700	776.0	154,200
773.0	144,500	775.0	151,000		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	142400	144600	147400	148300	148200	150200	151100	150300	148600	147000	144500	144900
2	142400	144700	147300	148300	148300	150200	151000	150600	148500	146800	144500	144900
3	142500	144700	147200	148300	148700	150200	151000	150500	148400	146600	144500	144900
4	142500	144700	147200	148300	148800	150100	151000	150500	148300	146400	144600	144900
5	142600	144600	147200	148300	148800	150100	151000	150500	148200	146300	144600	145000
6	142600	144700	147100	148300	148700	150100	150900	150500	148000	146100	144600	145000
7	142600	144900	147000	148300	148700	150100	151000	150400	147900	146000	144600	145100
8	142500	145000	147000	148300	148700	150000	150900	150400	147700	145800	144700	145100
9	142500	145300	147000	148400	148800	150000	150900	150400	147700	145700	144700	145200
10	142600	145400	147100	148300	148900	149900	150800	150300	147800	145600	144700	145200
11	142600	145600	147000	148200	148800	150000	150800	150200	148000	145400	144700	145200
12	142700	145800	147000	148200	148800	150000	150800	150000	147900	145300	144700	145200
13	142700	146000	147400	148200	148800	149900	150700	150000	147900	145200	144700	145300
14	142800	146500	148100	148200	148800	149800	151100	149900	147800	145100	144700	145600
15	142900	146500	148400	148100	148900	149800	151000	149800	147700	145000	144700	145600
16	142900	146500	148400	148100	148900	149800	151000	149800	147700	144900	144700	145600
17	142900	146500	148400	148100	148800	149700	150900	149700	147600	144900	144700	145700
18	143000	146500	148400	148100	148700	149700	150900	149600	147500	144800	144700	145700
19	143100	146500	148400	148300	148700	150000	150900	149500	147400	144800	144700	145800
20	143100	146500	148400	148400	148700	150200	150700	149400	147300	144700	144700	145900
21	143200	146500	148400	148400	148600	150200	150600	149300	147300	144700	144700	146000
22	143300	146500	148400	148400	148600	150700	150500	149100	147300	144600	144700	146100
23	143400	146500	148400	148400	148600	150800	150400	149200	147200	144600	144600	146200
24	143500	146500	148300	148300	148700	150800	150400	149100	147200	144500	144600	146300
25	143700	146800	148300	148300	150000	150900	150300	149000	147600	144500	144700	146600
26	143700	147000	148200	148300	150000	150800	150200	148900	147600	144400	144700	146800
27	143800	147200	148200	148200	150000	150800	150100	148800	147500	144400	144800	146800
28	143800	147300	148200	148300	150100	151200	150100	148900	147400	144400	144800	146900
29	144000	147400	148300	148300	---	151300	150400	148900	147200	144400	144800	147000
30	144100	147400	148300	148300	---	151200	150400	148800	147200	144500	144900	147000
31	144400	---	148300	148300	---	151100	---	148700	---	144500	144800	---
MAX	144400	147400	148400	148400	150100	151300	151100	150600	148600	147000	144900	147000
MIN	142400	144600	147000	148100	148200	149700	150100	148700	147200	144400	144500	144900
(↑)	772.97	773.92	774.19	774.18	774.73	775.05	774.82	774.31	773.83	772.99	773.11	773.79
(Φ)	+2100	+3000	+900	0	+1800	+1000	-700	-1700	-1500	-2700	+300	+2200

CAL YR 1992 MAX 155600 MIN 141600 (Φ) -4200  
WTR YR 1993 MAX 151300 MIN 142400 (Φ) +4700

(↑) 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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	2.0	1.9	2.8	2.8	5.0	16	14	11	4.0	3.2	3.8
2	2.2	1.6	1.9	2.8	2.8	6.5	9.7	23	10	4.0	3.3	3.8
3	2.1	1.5	1.9	2.8	11	5.7	9.2	16	9.1	4.0	3.5	3.8
4	2.0	1.5	1.9	2.8	5.8	5.9	15	14	9.2	4.0	3.5	3.8
5	2.0	1.5	1.8	2.8	5.4	5.9	11	14	9.2	4.0	3.5	4.1
6	2.0	1.5	1.7	2.8	5.4	5.4	8.7	14	9.7	4.0	3.5	4.0
7	1.9	1.4	1.7	2.8	5.4	5.7	9.1	14	9.9	4.0	3.4	3.7
8	2.0	1.4	1.7	2.6	5.4	5.1	13	14	9.9	3.8	4.0	3.5
9	2.0	1.4	2.0	2.9	5.1	5.0	11	13	9.9	3.8	4.0	3.3
10	1.9	1.4	2.0	2.9	5.3	5.0	9.9	14	13	3.8	4.1	3.2
11	1.9	1.4	1.9	2.8	5.6	5.0	9.9	14	13	3.8	4.1	3.2
12	1.9	1.5	1.8	2.8	5.1	5.6	9.9	13	13	3.8	4.2	3.2
13	1.8	1.5	4.4	2.8	5.0	6.2	9.2	12	11	3.8	4.4	3.4
14	1.9	1.3	7.4	2.8	4.5	5.5	22	11	11	3.8	4.4	6.3
15	2.0	1.2	5.7	2.8	4.9	5.4	36	6.1	11	3.8	4.4	5.4
16	2.0	1.2	3.4	2.8	4.7	5.6	17	5.5	11	3.8	4.4	5.3
17	2.1	1.2	3.1	2.8	4.7	5.8	14	9.8	11	3.8	4.4	5.0
18	2.2	1.2	3.0	2.8	4.7	5.8	14	10	11	3.8	4.5	5.0
19	2.1	1.7	3.0	3.3	4.7	6.3	14	10	11	3.8	4.7	5.0
20	.99	2.8	3.0	3.1	4.7	6.9	15	9.9	11	3.8	4.7	5.0
21	.78	3.0	3.0	2.8	5.6	6.2	15	10	11	3.6	4.5	4.9
22	.74	3.7	3.0	2.8	5.2	6.8	15	11	11	3.5	4.4	4.6
23	.68	3.2	2.8	2.8	5.0	6.2	15	11	11	3.5	4.9	4.3
24	.68	3.2	2.8	2.8	5.1	6.2	14	11	11	3.5	5.0	4.0
25	.68	3.1	2.8	2.8	16	8.2	13	11	11	3.5	5.0	4.4
26	.64	2.9	2.8	2.8	5.6	9.2	13	11	26	3.5	5.0	3.9
27	.72	2.6	2.8	2.8	5.0	9.2	13	11	5.0	3.5	5.0	3.5
28	.77	2.4	2.8	2.8	5.0	18	13	11	4.7	3.3	5.0	3.5
29	.87	2.2	2.8	2.8	---	11	17	11	4.1	3.2	5.0	3.4
30	1.0	2.0	2.8	2.8	---	18	14	11	4.0	3.1	3.9	3.3
31	1.1	---	2.8	2.8	---	29	---	11	---	3.0	3.8	---
TOTAL	47.85	58.5	86.4	87.6	155.5	241.3	415.6	371.3	313.7	114.6	131.7	123.6
MEAN	1.54	1.95	2.79	2.83	5.55	7.78	13.9	12.0	10.5	3.70	4.25	4.12
MAX	2.2	3.7	7.4	3.3	16	29	36	23	26	4.0	5.0	6.3
MIN	.64	1.2	1.7	2.6	2.8	5.0	8.7	5.5	4.0	3.0	3.2	3.2
AC-FT	95	116	171	174	308	479	824	736	622	227	261	245

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1993#, BY WATER YEAR (WY)

	11.6	9.17	30.5	9.06	16.4	28.1	24.6	62.9	52.0	6.26	4.97	5.50
MEAN	11.6	9.17	30.5	9.06	16.4	28.1	24.6	62.9	52.0	6.26	4.97	5.50
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	1.54	1.95	2.36	2.56	2.46	1.61	1.78	2.39	1.28	1.59	1.47	2.20
(WY)	1993	1993	1978	1978	1978	1978	1978	1978	1978	1978	1992	1978

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1978 - 1993#

ANNUAL TOTAL	14339.63	2147.65	
ANNUAL MEAN	39.2	5.88	
HIGHEST ANNUAL MEAN			21.8
LOWEST ANNUAL MEAN			89.9
HIGHEST DAILY MEAN	488	36	4380
LOWEST DAILY MEAN	.64	.64	.64
ANNUAL SEVEN-DAY MINIMUM	.70	.70	.70
INSTANTANEOUS PEAK FLOW		71	8940
INSTANTANEOUS PEAK STAGE		3.03	11.85
INSTANTANEOUS LOW FLOW		.61	.61
ANNUAL RUNOFF (AC-FT)	28440	4260	15790
10 PERCENT EXCEEDS	109	13	23
50 PERCENT EXCEEDS	3.5	4.0	4.3
90 PERCENT EXCEEDS	1.4	1.9	2.4

# Period of regulated streamflow.

## BRAZOS RIVER BASIN

231

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. October 1985 to current year, (peaks above base discharge).

REVISED RECORDS.--WSP 1312: 1925(M). WDR 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)
Dec. 14	0630	1,370	5.17	Feb. 25	1715	3,760	7.92
Feb. 3	2245	2,160	6.15	Mar. 22	1630	1,430	5.26
Feb. 15	1330	1,880	5.81	June 26	0515	2,100	6.07



## 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 TX-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, 639,300 acre-ft Feb. 28, Mar. 1 (elevation, 533.51 ft); minimum daily, 486,900 acre-ft Sept. 30 (elevation, 526.43 ft).

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

525.0	461,200	544.0	925,700	556.0	1,342,000
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

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	566700	544700	537800	561400	565400	639300	614100	633900	617600	625000	579700	528000
2	565200	542800	535300	562300	565200	637900	613400	632900	615000	620600	580400	526000
3	565200	545100	535100	562500	572900	636500	614100	634400	611800	617600	579700	524900
4	565000	543000	535900	563000	577900	634800	614300	634400	611300	617100	579700	523500
5	563000	541800	534900	562700	581500	631100	616200	634800	609700	616400	575500	522700
6	561000	541300	534700	563000	583900	627300	617100	633600	608300	615900	576000	522000
7	561200	539700	533800	563000	585000	623100	621300	632700	608300	615300	574900	520600
8	560100	538400	531500	563200	585900	621100	621100	630400	607400	613900	573800	520400
9	559200	537600	533200	566900	585900	621300	619900	631800	609200	612500	572200	518800
10	559900	538600	533200	563400	587500	621300	618000	631800	611100	611100	570500	517100
11	559200	543200	532000	563800	589000	622900	615900	627100	612500	609900	568700	513000
12	557500	539900	532200	564500	589900	624800	613600	623600	611300	608500	566500	512200
13	555900	539000	535300	565200	588600	624800	612700	623800	611300	606700	564500	510400
14	554200	538200	540700	565600	587900	625000	620600	624100	610100	606200	562700	510400
15	551600	537400	550500	565600	595800	625500	623800	624100	609700	605500	560800	512000
16	552000	536900	554400	564300	594700	625000	625500	624500	609200	604100	558800	511200
17	551400	534900	555300	565200	599000	624500	625700	622400	608100	603400	557000	510800
18	551100	530900	555500	565200	600400	623400	625200	622900	608300	602500	555100	509600
19	549200	533600	557700	563600	602500	624300	629400	622700	609700	601300	552700	508300
20	547700	534200	555500	563400	603600	622700	625500	622200	611100	600200	550700	505700
21	547900	537600	555900	562500	606000	622400	620800	621800	611300	598600	548600	503900
22	546900	534900	557200	562500	606900	624100	621300	621500	612900	596700	546200	502000
23	545800	533800	557900	565800	607800	628500	620400	622400	614800	594500	543900	499100
24	543000	534200	556600	564500	609200	627300	619400	621800	616900	592200	543000	496900
25	542800	535500	558100	565200	625700	622900	620600	621500	619700	591500	540500	495800
26	543400	535900	555500	565200	636700	617300	619900	620800	626900	590200	538800	495200
27	542600	536100	556800	564100	638200	610800	619900	619900	628000	588100	536900	492600
28	542200	536100	557500	564700	639300	608500	620400	619900	630800	586300	534900	490700
29	542400	537400	558800	565200	---	608300	624800	618700	631800	584600	532800	489000
30	543000	536500	560100	565000	---	611500	628000	619000	628300	582600	530900	486900
31	542000	---	561400	565600	---	612900	---	618700	---	580800	530500	---
MAX	566700	545100	561400	566900	639300	639300	629400	634800	631800	625000	580400	528000
MIN	542000	530900	531500	561400	565200	608300	612700	618700	607400	580800	530500	486900
(+)	529.20	528.94	530.10	530.29	532.52	532.39	533.04	532.64	533.05	530.98	528.65	526.44
(Φ)	-25800	-5500	+24900	+4200	+73700	-26400	+15100	-9300	+9600	-47500	-50300	-43600

CAI YR 1992 MAX 1447000 MIN 530900 (Φ) -917600  
WTR YR 1993 MAX 639300 MIN 486900 (Φ) -809000

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



BRAZOS RIVER MAIN STEM

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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 TEMPERATURES: 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, 1,900 microsiemens Dec. 1; minimum daily, 1,490 microsiemens on several days during June to August.

WATER TEMPERATURE: Maximum daily, 27.0°C Sept. 1, 2, and 10; minimum daily, 8.5°C Jan. 30.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	
NOV 17...	1436	2000	1880	8.1	18.0	370	240	93	33	
JAN 13...	1435	25	1840	7.9	9.0	380	140	96	34	
MAR 02...	1340	4000	1820	8.0	11.5	360	230	92	32	
APR 02...	1600	2000	1670	7.9	14.0	330	74	86	29	
MAY 21...	1417	25	1570	8.6	23.0	340	210	91	28	
JUL 16...	1600	25	1510	7.5	28.0	340	200	88	28	
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 CONSTI- TUENTS, DIS- SOLVED (MG/L)
NOV 17...	240	5	6.3	120	260	380	0.30	8.0	1090	
JAN 13...	240	5	6.2	240	220	320	0.30	7.6	1070	
MAR 02...	230	5	6.0	130	240	340	0.30	7.5	1030	
APR 02...	280	7	5.5	260	220	320	0.30	6.4	1100	
MAY 21...	190	4	5.5	130	200	290	0.30	6.5	888	
JUL 16...	180	4	5.3	130	190	280	0.30	7.1	857	

## 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. 1992	12986	1890	1070	37600	390	13500	230	8120	350
NOV. 1992	16763	1880	1070	48500	390	17500	230	10500	350
DEC. 1992	12892	1890	1070	37300	390	13400	230	8070	350
JAN. 1993	15632	1880	1070	45100	380	16200	230	9740	350
FEB. 1993	27805	1830	1040	77900	370	28000	220	16900	350
MAR. 1993	93731	1760	999	253000	360	90400	220	54800	340
APR. 1993	35349	1640	925	88300	330	31400	200	19200	320
MAY 1993	35310	1580	889	84800	320	30000	190	18500	320
JUNE 1993	23112	1550	867	54100	310	19100	190	11800	310
JULY 1993	27551	1530	856	63700	300	22500	190	13900	310
AUG. 1993	24865	1510	843	56600	300	20000	180	12300	310
SEPT 1993	26866	1550	866	62800	310	22200	190	13700	310
TOTAL	352862	**	**	909000	**	324000	**	197000	**
WTD.AVG.	967	1690	955	**	340	**	210	**	330

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1870	1870	1900	1880	1880	1820	1670	1600	1560	1540	1540	1520
2	1880	1850	1890	1880	1870	1820	1670	1590	1550	1540	1510	1510
3	1880	1880	1890	1880	1870	1820	1690	1610	1550	1560	1490	1530
4	1880	1880	1890	1880	1860	1810	1700	1610	1560	1570	1490	1540
5	1880	1890	1890	1880	1860	1800	1650	1610	1590	1550	1490	1550
6	1880	1890	1890	1880	1860	1800	1650	1600	1590	1550	1520	1540
7	1880	1890	1890	1880	1850	1790	1660	1600	1550	1530	1540	1530
8	1880	1890	1890	1880	1850	1780	1650	1590	1550	1530	1540	1520
9	1880	1890	1890	1860	1840	1790	1640	1580	1540	1530	1510	1520
10	1880	1880	1890	1880	1850	1790	1690	1570	1520	1560	1490	1540
11	1880	1880	1890	1880	1850	1770	1700	1580	1540	1560	1490	1560
12	1880	1880	1890	1880	1840	1770	1650	1580	1560	1530	1490	1550
13	1880	1890	1890	1880	1850	1760	1620	1560	1580	1510	1510	1520
14	1880	1890	1890	1880	1820	1760	1570	1560	1550	1520	1540	1530
15	1890	1890	1890	1880	1750	1760	1600	1580	1540	1500	1540	1540
16	1890	1890	1890	1880	1800	1760	1620	1580	1540	1520	1510	1530
17	1890	1880	1880	1880	1830	1760	1640	1570	1540	1550	1490	1540
18	1890	1880	1880	1880	1830	1750	1650	1570	1560	1550	1490	1540
19	1890	1890	1880	1880	1830	1750	1620	1550	1570	1520	1490	1540
20	1890	1880	1880	1880	1830	1740	1620	1560	1560	1500	1510	1540
21	1890	1880	1880	1880	1830	1740	1610	1570	1550	1500	1540	1550
22	1890	1880	1880	1880	1830	1730	1610	1600	1540	1500	1540	1570
23	1890	1890	1880	1880	1830	1710	1610	1590	1540	1520	1510	1580
24	1890	1880	1880	1880	1810	1710	1630	1580	1540	1550	1490	1580
25	1890	1880	e1880	1880	1800	1720	1630	1560	1520	1520	1490	1550
26	1890	1880	1880	1880	1810	1710	1610	1560	1510	1500	1500	1560
27	1890	1880	1880	1880	1820	1740	1610	1560	1490	1500	1500	1550
28	1890	1890	1880	1880	1820	1740	1610	1560	1510	1500	e1500	1560
29	1890	1890	1880	1870	---	1710	1600	1590	1540	1490	e1500	1560
30	1890	1890	1880	1870	---	1720	1610	1600	1520	1520	1500	1560
31	1890	---	1880	1870	---	1700	---	1570	---	1540	1500	---
MEAN	1890	1880	1890	1880	1830	1760	1640	1580	1550	1530	1510	1540
MAX	1890	1890	1900	1880	1880	1820	1700	1610	1590	1570	1540	1580
MIN	1870	1850	1880	1860	1750	1700	1570	1550	1490	1490	1490	1510

WTR YK 1993 MEAN 1710 MAX 1900 MIN 1490

e Estimated

## BRAZOS RIVER MAIN STEM

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08092600 BRAZOS RIVER AT WHITNEY DAM NEAR WHITNEY, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.5	21.5	13.0	9.5	9.0	11.0	14.0	19.5	20.5	23.0	25.0	27.0
2	24.0	21.5	13.0	10.0	9.5	11.0	14.0	19.0	21.0	23.0	26.0	27.0
3	23.5	21.0	12.5	10.5	9.5	11.0	13.0	17.5	21.0	22.0	25.5	26.0
4	23.0	19.0	12.5	11.5	10.0	11.0	13.5	18.0	21.0	22.0	26.0	23.5
5	23.5	19.0	12.0	10.5	10.0	11.0	14.0	18.0	20.5	22.0	25.5	23.0
6	23.0	18.0	12.0	10.5	9.5	11.0	14.0	18.0	21.0	23.0	25.0	23.0
7	23.5	17.5	12.0	10.5	9.5	12.0	14.0	18.5	22.0	23.5	23.5	26.5
8	22.5	17.5	12.0	10.5	9.5	11.5	14.0	19.0	21.5	23.5	24.0	26.5
9	22.0	18.5	12.0	11.0	10.0	11.5	14.0	19.5	21.5	23.5	25.5	26.5
10	22.5	19.0	12.0	9.5	10.5	12.0	14.0	19.0	25.0	22.0	25.5	27.0
11	22.0	18.5	12.0	9.5	10.5	12.0	14.0	19.0	20.5	22.0	25.5	25.0
12	22.0	17.5	12.0	10.0	10.0	11.5	15.0	19.5	20.5	24.5	25.5	25.0
13	22.0	17.0	13.0	10.0	10.5	11.0	15.0	19.5	20.0	25.0	26.0	26.0
14	22.0	17.0	12.0	10.0	10.0	11.0	15.0	20.0	21.5	24.0	24.5	25.0
15	22.5	17.0	11.5	10.0	10.0	11.0	15.0	19.5	21.5	25.0	25.0	24.0
16	22.5	17.5	11.5	9.5	10.0	12.0	15.0	20.0	21.5	25.0	26.0	25.0
17	21.0	17.0	11.5	10.0	9.5	12.0	14.5	20.0	22.0	23.5	26.0	24.5
18	21.0	18.0	11.5	10.0	9.0	12.0	14.5	20.0	21.5	22.5	26.5	24.0
19	22.0	17.0	11.5	9.5	9.5	12.5	16.0	21.0	21.0	25.0	25.5	25.0
20	21.0	17.0	11.0	9.5	10.0	13.0	15.5	20.0	20.5	26.0	26.0	25.0
21	21.0	16.5	11.0	9.5	11.0	12.0	16.0	20.0	22.5	25.5	25.0	24.5
22	21.0	15.5	11.5	10.0	10.0	12.0	16.5	19.5	22.0	25.5	25.5	24.5
23	21.0	16.0	11.5	10.0	10.0	12.0	16.5	19.5	22.0	25.5	26.0	24.5
24	21.0	15.0	11.0	9.0	11.0	12.5	16.0	20.0	22.0	25.5	25.0	24.5
25	21.0	14.0	---	9.0	11.0	14.0	16.5	20.5	22.0	25.0	26.5	24.0
26	20.5	14.0	10.5	9.0	10.5	13.5	17.5	20.5	23.0	25.0	26.0	23.5
27	21.5	14.5	11.0	9.5	10.5	13.0	17.0	20.0	25.0	25.0	26.5	24.5
28	21.5	13.0	11.5	9.5	11.0	12.5	17.0	20.5	22.5	25.5	---	23.5
29	21.5	13.0	12.5	10.0	---	13.5	18.0	19.5	22.0	25.5	---	24.0
30	21.5	13.0	12.0	8.5	---	13.5	17.5	20.5	24.0	26.0	26.5	24.0
31	21.5	---	12.0	9.0	---	13.0	---	21.0	---	25.0	26.5	---
MEAN	22.0	17.0	11.8	9.8	10.0	12.0	15.2	19.5	21.7	24.2	25.6	24.9
MAX	24.0	21.5	13.0	11.5	11.0	14.0	18.0	21.0	25.0	26.0	26.5	27.0
MIN	20.5	13.0	10.5	8.5	9.0	11.0	13.0	17.5	20.0	22.0	23.5	23.0

WTR YR 1993 MEAN 18.0 MAX 27.0 MIN 8.5

## Brazos River Main Stem

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.

REVISID 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 good. 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).

EXTREMS 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).

EXTREMS 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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	770	356	270	89	625	4370	543	852	752	2250	900	1020
2	782	25	278	21	620	4370	607	536	1280	2370	311	1070
3	221	20	286	519	769	4340	1380	888	1620	1210	480	719
4	32	285	32	333	1170	4330	1400	1870	1160	755	1040	616
5	696	595	14	555	805	4320	1120	2040	906	799	774	612
6	999	288	14	447	576	4290	1490	2240	1020	797	219	619
7	290	592	330	500	392	4250	1550	2310	686	761	568	861
8	32	339	554	91	392	3210	2280	2300	804	764	821	474
9	25	543	576	128	552	2120	2240	2280	825	669	855	465
10	26	627	666	1230	805	2130	2250	2340	342	749	829	908
11	25	633	572	171	733	2130	2260	2110	631	609	782	1450
12	580	643	42	315	678	2290	2250	2290	1060	631	980	873
13	530	540	20	370	1450	2230	1670	560	786	672	857	767
14	588	509	982	430	455	2140	469	75	1280	680	797	676
15	1410	487	1450	434	1300	2160	710	210	695	665	788	395
16	612	398	496	630	1330	2190	627	860	647	679	822	717
17	29	1120	545	279	1250	2220	1160	1370	646	778	810	1080
18	22	2390	578	397	703	2190	480	1190	840	761	842	767
19	396	2060	300	1330	595	2530	446	969	403	799	944	916
20	473	490	1300	695	551	4220	2140	903	593	658	902	1300
21	673	1100	715	857	233	2250	3600	551	778	753	1030	1010
22	673	1210	35	490	425	2130	115	256	248	757	827	1000
23	752	599	22	261	338	1570	271	387	25	764	820	1450
24	1310	789	908	409	46	3070	660	980	19	827	824	1070
25	575	44	42	358	132	4500	654	673	19	775	962	1070
26	28	17	1310	525	2230	4510	568	618	451	767	913	984
27	19	16	237	700	4320	4560	564	600	716	991	821	1080
28	19	16	27	705	4330	4670	511	583	724	1290	921	1040
29	120	16	24	819	---	3600	735	658	866	859	829	987
30	28	16	23	980	---	483	599	996	2290	909	766	870
31	251	---	244	564	---	358	---	815	---	803	831	---
TOTAL	12986	16763	12892	15632	27805	93731	35349	35310	23112	27551	24865	26866
MEAN	419	559	416	504	993	3024	1178	1139	770	889	802	896
MAX	1410	2390	1450	1330	4330	4670	3600	2340	2290	2370	1040	1450
MIN	19	16	14	21	46	358	115	75	19	609	219	395
AC-FT	25760	33250	25570	31010	55150	185900	70110	70040	45840	54650	49320	53295

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 1993#, BY WATER YEAR (WY)

MEAN	1549	1033	837	1245	1063	1348	1294	3634	3665	1427	894	1020
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 1992 CALENDAR YEAR                      FOR 1993 WATER YEAR                      WATER YEARS 1952 - 1993

ANNUAL TOTAL	1954834		352862			
ANNUAL MEAN	5341		967		1586	
HIGHEST ANNUAL MEAN					6566	1992
LOWEST ANNUAL MEAN					141	1953
HIGHEST DAILY MEAN	23000	Jan 1	4670	Mar 28	55700	May 28 1957
LOWEST DAILY MEAN	14	Dec 5	14	Dec 5	.40	May 9 1953
ANNUAL SEVEN-DAY MINIMUM	56	Nov 25	56	Nov 25	.80	May 4 1953
INSTANTANEOUS PEAK FLOW			4850	Mar 28	58200	May 28 1957
INSTANTANEOUS PEAK STAGE			12.05	Mar 28	27.34	May 28 1957
INSTANTANEOUS LOW FLOW			13	Dec 5		
ANNUAL RUNOFF (AC-FT)	3877000		699900		1149000	
10 PERCENT EXCEEDS	20200		2230		3170	
50 PERCENT EXCEEDS	1820		733		598	
90 PERCENT EXCEEDS	107		83		40	

• Period of regulated streamflow.

## 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-CONTENT 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

COOPERATION.--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, 63,090 acre-ft Feb. 26 (elevation, 540.55 ft); minimum daily, 47,640 acre-ft Nov. 16-18 (elevation, 536.01 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 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49090	48160	48440	53220	53850	62040	55860	53820	53650	58260	52200	49500
2	49060	48010	48380	53120	53820	61780	55480	54320	53490	58020	52130	49530
3	49000	48010	48350	53090	55680	61300	55380	54260	53380	57880	52030	49440
4	48940	47920	48380	53120	60970	60640	55340	54020	53320	57310	51970	49310
5	48910	47820	48280	53020	61370	60060	55070	54020	53190	57070	51810	49250
6	48840	47760	48250	52990	61450	59410	54730	53890	52990	56440	51770	49190
7	48720	47700	48250	52920	61410	58760	55000	53890	52920	56480	51680	49120
8	48690	47670	48220	52890	61260	58410	54900	53850	52790	56200	51550	49060
9	48600	47670	48350	53250	60790	58160	54700	55650	52860	55960	51480	48970
10	48560	47730	48350	53250	60350	57630	54560	58260	53050	55680	51420	48910
11	48500	47850	48320	53220	59840	57350	54420	58370	53050	55410	51320	48780
12	48440	47820	48280	53220	59190	57310	54320	58090	53450	55140	51220	48660
13	48350	47760	48470	53190	58550	56960	54190	57770	53380	54800	51130	48750
14	48280	47730	50170	53120	57880	56620	55790	57450	53320	54560	51060	48840
15	48280	47700	53220	53090	60750	56440	56170	57070	53250	54360	50960	48720
16	48280	47640	53850	53050	61080	56270	56060	56720	53120	54220	50870	48630
17	48220	47640	53850	53020	60570	55990	55920	56370	53020	54090	50770	48560
18	48160	47640	53820	53020	59950	55680	55620	56200	52950	53990	50710	48500
19	48070	48440	53890	53050	59340	56580	55580	55920	52950	53850	50610	48440
20	48040	48440	53820	53090	58690	57880	55410	55680	53020	53720	50520	48440
21	48040	48630	53720	53150	58260	57880	55140	55380	52950	53550	50420	48380
22	48010	48600	53720	53090	57560	58760	54830	55100	52920	53380	50260	48320
23	47980	48530	53720	53020	57100	59010	54530	55000	52790	53220	50130	48250
24	47950	48690	53580	53150	56720	58800	54390	54800	52690	53050	50070	48190
25	47950	48630	53550	53120	61520	58410	54190	54590	52820	52920	50010	48160
26	47850	48560	53450	53050	63090	57840	53950	54320	57980	52760	49940	48160
27	47850	48500	53380	52990	62640	57240	53690	54120	58910	52590	49880	48040
28	47820	48470	53350	53120	62220	57170	53380	54060	58910	52530	49750	47950
29	47950	48440	53320	53650	---	57070	53920	53990	58800	52460	49660	47880
30	47950	48440	53320	53750	---	56650	53850	53920	58550	52360	49560	47790
31	47880	---	53320	53820	---	56170	---	53850	---	52260	49560	---
MAX	49090	48690	53890	53820	63090	62040	56170	58370	58910	58260	52200	49530
MIN	47820	47640	48220	52890	53820	55680	53380	53820	52690	52260	49560	47790
(↑)	536.09	536.27	537.79	537.94	540.32	538.63	537.95	537.95	539.31	537.47	536.63	536.06
(Φ)	-1310	+560	+4880	+500	+8400	-6050	-2320	0	+4700	-6290	-2700	-1700

CAI YR 1992 MAX 10/100 MIN 47640 (Φ) -54080  
WIK YR 1993 MAX 63090 MIN 47640 (Φ) -1400

(↑) 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.

REVISED RECORDS.--Due to a computation error discovered after publication of Phytoplankton analyses for the period October 1991 to September 1992, revised data for these analyses are included in this report.

08093350 AQUILLA LAKE NEAR AQUILLA, TX—Continued

## Aquila Lake Site AC (315358097122601)

## Phytoplankton Analyses October 1991 to September 1992

Date	1-24-92
Time	1005
<hr/>	
TOTAL CELLS/mL	6,180
NUMBER OF SPECIES	17
DEPTH COLLECTED (ft.)	0.8
<hr/>	

<u>Organisms</u>	<u>Cells/mL</u>
<b>BACILLARIOPHYTA</b>	
Order Centrales	
<i>Aulacoseira italic</i> var. <i>tenuissima</i>	23
<i>Cyclotella glomerata</i>	3
<i>Cyclotella meneghiniana</i>	10
<i>Cyclotella ocellata</i>	1
<i>Stephanodiscus astraia</i> var. <i>minutula</i>	2
Order Pennales	
<i>Epithemia sorex</i>	8
<i>Epithemia turgida</i>	8
<i>Nitzschia acicularis</i>	3
<i>Nitzschia palea</i>	5
<i>Synedra delicatissima</i>	16
<b>CHLOROPHYTA</b>	
<i>Chlamydomonas</i> sp.	156
<i>Tetradron minimum</i>	39
<b>CHRYSTOPHYTA</b>	
Unknown flagellate	235
<b>CYANOPHYTA</b>	
<i>Aphanocapsa delicatissima</i>	5,280
<i>Chroococcus</i> sp.	235
<b>CRYPTOPHYTA</b>	
<i>Cryptomonas erosa</i>	39
<i>Rhodomonas minuta</i>	117

## BRAZOS RIVER BASIN

08083350 AQUILLA LAKE NEAR AQUILLA, TX—Continued

Aquila Lake Site EC (315748097144901)

Phytoplankton Analyses October 1991 to September 1992

Date	1-24-92
Time	1320

TOTAL CELLS/mL	6,530
NUMBER OF SPECIES	16
DEPTH COLLECTED (ft.)	0.8

<u>Organisms</u>	<u>Cells/mL</u>
<b>BACILLARIOPHYTA</b>	
Order Centrales	
<i>Aulacoseira italic</i> var. <i>tenuissima</i>	25
<i>Cyclotella glomerata</i>	10
<i>Cyclotella meneghiniana</i>	2
<i>Stephanodiscus astraea</i> var. <i>minutula</i>	2
Order Pennales	
<i>Nitzschia palea</i>	10
<i>Synedra delicatissima</i>	29
<b>CHLOROPHYTA</b>	
<i>Chlamydomonas</i> sp.	117
<i>Chlorella ellipsoidea</i>	78
<i>Chlorococcum humicola</i>	117
<i>Oocystis pusilla</i>	78
<b>CHRYSTOPHYTA</b>	
Unknown flagellate	665
<b>CYANOPHYTA</b>	
<i>Aphanocapsa delicatissima</i>	4,928
<i>Chroococcus</i> sp.	352
<i>Dactylococcopsis fascicularis</i>	39
<b>CRYPTOPHYTA</b>	
<i>Cryptomonas erosa</i>	39
<i>Rhodomonas minuta</i>	39

## BRAZOS RIVER BASIN

241

08093350 AQUILLA LAKE NEAR AQUILLA, TX—Continued

Aquilla Lake Site AC (315358097122601)

Phytoplankton Analyses October 1991 to September 1992

Date	4-30-92
Time	1057

TOTAL CELLS/mL	10,832
NUMBER OF SPECIES	12
DEPTH COLLECTED (ft.)	1.0

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	1,190
<i>Melosira varians</i>	864
<i>Stephanodiscus astraea</i>	1,516
Order Pennales	
<i>Asterionella formosa</i>	357
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	179
<i>Chlamydomonas</i> sp.	30
<i>Scenedesmus quadricauda</i>	60
<i>Selenastrum Westii</i>	119
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	5,952
<i>Chroococcus limneticus</i>	119
EUGLENOPHYTA	
<i>Trachelomonas</i> sp.	89
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	357

## BRAZOS RIVER BASIN

08083350 AQUILLA LAKE NEAR AQUILLA, TX—Continued

Aquilla Lake Site CC (315649097103701)

Phytoplankton Analyses October 1991 to September 1992

Date	4-30-92
Time	1457

TOTAL CELLS/mL	7,143
NUMBER OF SPECIES	12
DEPTH COLLECTED (ft.)	0.5

<u>Organisms</u>	<u>Cells/mL</u>
<b>BACILLARIOPHYTA</b>	
Order Centrales	
<i>Cyclotella ocellata</i>	705
<i>Melosira varians</i>	377
<i>Stephanodiscus astraea</i>	168
<b>CHLOROPHYTA</b>	
<i>Actinastrum</i> sp.	30
<i>Ankistrodesmus falcatus</i>	268
<i>Pediastrum</i> sp.	30
<i>Scenedesmus arcuatis</i>	60
<i>Scenedesmus quadricauda</i>	30
<i>Selenastrum Westii</i>	119
<b>CYANOPHYTA</b>	
<i>Aphanocapsa delicatissima</i>	4,910
<i>Chroococcus minimus</i>	357
<b>CRYPTOPHYTA</b>	
<i>Cryptomonas erosa</i>	89



08083350 AQUILLA LAKE NEAR AQUILLA, TX—Continued

Aquilla Lake Site EC (315748097144901)

Phytoplankton Analyses October 1991 to September 1992

Date	4-30-92
Time	1313

TOTAL CELLS/mL	8,898
NUMBER OF SPECIES	15
DEPTH COLLECTED (ft.)	0.5

Organisms	Cells/mL
<b>BACILLARIOPHYTA</b>	
Order Centrales	
<i>Cyclotella ocellata</i>	1353
<i>Melosira varians</i>	315
<i>Stephanodiscus astraes</i>	236
Order Pennales	
<i>Cocconeis pediculus</i>	268
<b>CHLOROPHYTA</b>	
<i>Ankistrodesmus falcatus</i>	179
<i>Cosmarium</i> sp.	89
<i>Scenedesmus quadricauda</i>	30
<i>Selenastrum Westii</i>	119
<i>Ulothrix cylindricum</i>	179
<b>CYANOPHYTA</b>	
<i>Aphanocapsa delicatissima</i>	5,059
<i>Chroococcus limneticus</i>	238
<i>Chroococcus minimus</i>	476
<b>EUGLENOPHYTA</b>	
<i>Euglena</i> sp.	30
<i>Trachelomonas</i> sp.	238
<b>CRYPTOPHYTA</b>	
<i>Cryptomonas erosa</i>	89

## BRAZOS RIVER BASIN

08083350 AQUILLA LAKE NEAR AQUILLA, TX—Continued

Aquilla Lake Site AC (315358097122601)

Phytoplankton Analyses October 1991 to September 1992

Date	7-31-92
Time	1155
<hr/>	
TOTAL CELLS/mL	9,853
NUMBER OF SPECIES	18
DEPTH COLLECTED (ft.)	1.2
<hr/>	

<u>Organisms</u>	<u>Cells/mL</u>
<b>BACILLARIOPHYTA (Diatoms)</b>	
Order Centrales	
<i>Cyclotella ocellata</i>	48
<i>Melosira varians</i>	309
Order Pennales	
<i>Fragilaria crotonensis</i>	268
<i>Synedra ulna</i>	268
<b>CHLOROPHYTA (Green algae)</b>	
<i>Ankistrodesmus falcatus</i>	60
<i>Chlamydomonas</i> spp.	179
<i>Elakatothrix gelatinosa</i>	119
<i>Pediastrum</i> sp.	30
<i>Scenedesmus bijuga</i>	30
<i>Scenedesmus quadricauda</i>	89
Unknown filament	387
<b>CYANOPHYTA (Blue-green algae)</b>	
<i>Aphanocapsa delicatissima</i>	6,250
<i>Chroococcus limneticus</i>	60
<i>Merismopedia tenuissima</i>	1,309
<b>EUGLENOPHYTA (Euglenoids)</b>	
<i>Euglena</i> sp.	60
<i>Trachelomonas</i> spp.	238
<b>CRYPTOPHYTA (Cryptomonads)</b>	
<i>Cryptomonas erosa</i>	30
<i>Cryptomonas ovata</i>	119

08093350 AQUILLA LAKE NEAR AQUILLA, TX—Continued

## Aquilla Lake Site CC (315649097103701)

## Phytoplankton Analyses October 1991 to September 1992

Date	7-31-92
Time	1338

TOTAL CELLS/mL	13,006
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>	28
<i>Melosira varians</i>	1
Order Pennales	
<i>Fragilaria crotonensis</i>	434
<i>Synedra ulna</i>	72
<b>CHLOROPHYTA (Green algae)</b>	
<i>Ankistrodesmus falcatus</i>	30
<i>Chlamydomonas</i> spp.	119
<i>Cosmarium</i> sp.	30
<i>Pediastrum</i> sp.	30
<i>Scenedesmus bijuga</i>	60
<i>Scenedesmus quadricauda</i>	60
<i>Staurastrum</i> sp.	30
Unknown filament	119
<b>CYANOPHYTA (Blue-green algae)</b>	
<i>Aphanocapsa delicatissima</i>	5,952
<i>Chroococcus limneticus</i>	536
<i>Merismopedia tenuissima</i>	4,285
<i>Oscillatoria subbrevis</i>	893
<b>EUGLENOPHYTA (Euglenoids)</b>	
<i>Trachelomonas</i> spp.	208
<b>CRYPTOPHYTA (Cryptomonads)</b>	
<i>Cryptomonas erosa</i>	89
<i>Cryptomonas ovata</i>	30

## BRAZOS RIVER BASIN

08093350 AQUILLA LAKE NEAR AQUILLA, TX—Continued

Aquilla Lake Site EC (315748097144901)

Phytoplankton Analyses October 1991 to September 1992

Date	7-31-92
Time	1504

TOTAL CELLS/mL	11,340
NUMBER OF SPECIES	13
DEPTH COLLECTED (ft.)	0.6

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
<i>Cyclotella ocellata</i>	3
<i>Melosira varians</i>	86
CHLOROPHYTA (Green algae)	
<i>Ankistrodesmus falcatus</i>	30
<i>Chlamydomonas</i> sp.	60
<i>Pediastrum duplex</i>	30
<i>Scenedesmus bijuga</i>	60
<i>Scenedesmus quadricauda</i>	60
CYANOPHYTA (Blue-green algae)	
<i>Aphanocapsa delicatissima</i>	4,166
<i>Chroococcus limneticus</i>	1,250
<i>Merismopedia tenuissima</i>	4,940
EUGLENOPHYTA (Euglenoids)	
<i>Trachelomonas</i> spp.	446
PYRRHOPHYTA (Dinoflagellates)	
<i>Peridinium</i> sp.	30
CRYPTOPHYTA (Cryptomonads)	
<i>Cryptomonas erosa</i>	179

## BRAZOS RIVER BASIN

247

08093500 AQUILLA CREEK NEAR AQUILLA, TX

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; 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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.55	1.1	4.0	30	27	473	186	123	30	111	.28	.18
2	.52	.67	5.0	30	24	466	185	176	30	112	.32	.23
3	.48	.81	3.8	31	278	425	185	128	30	112	.44	.17
4	.47	.85	4.3	38	649	416	257	123	29	112	.49	.16
5	.51	.78	4.4	35	127	408	194	123	30	114	.72	.20
6	.51	.75	4.6	32	123	405	188	99	30	113	.60	.16
7	.47	.67	4.8	32	100	404	255	35	29	111	.42	.16
8	.38	.66	4.9	32	131	294	216	33	29	112	.30	.15
9	.27	.67	6.8	55	323	120	150	44	29	112	.28	.14
10	.25	.72	7.7	48	460	363	111	130	29	112	.26	.13
11	.24	.76	6.7	38	452	364	109	67	28	112	.25	.10
12	.24	.83	6.0	39	432	436	107	170	29	114	.26	.07
13	.19	.80	6.6	35	427	222	105	157	30	114	.26	.10
14	.12	.82	350	34	420	208	110	170	29	115	.25	.36
15	.12	.73	917	33	1080	203	124	166	30	74	.22	.25
16	.15	.75	84	33	478	207	119	165	29	31	.19	.18
17	.19	.73	34	31	412	198	128	164	29	30	.18	.16
18	.17	.84	44	32	401	197	128	130	29	31	.17	.17
19	.18	528	42	32	398	414	126	102	29	31	.17	.17
20	.16	146	42	36	397	473	125	102	29	31	.19	.18
21	.14	136	39	35	395	239	124	102	29	32	.19	.17
22	.14	27	39	33	390	271	124	103	29	32	.20	.17
23	.13	4.4	38	31	306	245	124	103	30	31	.18	.17
24	.11	5.2	35	31	198	269	124	103	29	32	.17	.16
25	.28	6.4	34	29	340	380	124	102	24	31	.16	.14
26	.54	6.5	34	30	283	375	124	104	6.0	31	.14	.14
27	.80	4.9	33	29	407	370	122	105	6.0	32	.12	.19
28	1.0	5.5	32	29	403	567	121	71	7.5	19	.11	.19
29	1.3	4.7	33	91	---	414	138	31	41	1.6	.11	.17
30	1.2	4.3	33	50	---	382	127	31	111	.26	.11	.17
31	.72	---	32	29	---	282	---	31	---	.31	.11	---
TOTAL	12.53	892.84	1964.6	1123	9861	10490	4360	3293	898.5	2046.17	7.85	5.09
MEAN	.40	29.8	63.4	36.2	352	338	145	106	29.9	66.0	.25	.17
MAX	1.3	528	917	91	1080	567	257	176	111	115	.72	.36
MIN	.11	.66	3.8	29	24	120	105	31	6.0	.26	.11	.07
AC-F I	25	1770	3900	2230	19560	20810	8650	6530	1780	4060	16	10



## BRAZOS RIVER BASIN

08093500 AQUILLA CREEK NEAR AQUILLA, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1993#, BY WATER YEAR (WY)

MEAN	33.3	48.6	131	161	159	219	74.3	155	229	29.4	9.58	6.37
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 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1983 - 1993#

ANNUAL TOTAL	113956.64	34954.58	104
ANNUAL MEAN	311	95.8	396
HIGHEST ANNUAL MEAN			2.24
LOWEST ANNUAL MEAN			3990
HIGHEST DAILY MEAN	2600 Feb 25	1080 Feb 15	Dec 21 1991
LOWEST DAILY MEAN	.11 Oct 24	.07 Sep 12	Oct 1 1982
ANNUAL SEVEN-DAY MINIMUM	.15 Oct 18	.12 Sep 7	Oct 1 1982
INSTANTANEOUS PEAK FLOW		2340 Feb 15	7250 Dec 21 1991
INSTANTANEOUS PEAK STAGE		16.82 Feb 15	27.31 Dec 21 1991
INSTANTANEOUS LOW FLOW		.05 Sep 13	.00 at times
ANNUAL RUNOFF (AC-FT)	226000	69330	75620
10 PERCENT EXCEEDS	1200	355	334
50 PERCENT EXCEEDS	25	31	4.4
90 PERCENT EXCEEDS	.55	.17	.00

# Period of regulated streamflow.

## BRAZOS RIVER BASIN

249

08093675 NORTH FORK NORTH BOSQUE RIVER NEAR STEPHENVILLE, TX

LOCATION.--Lat 32°18'25", long 98°16'03", Erath County, Hydrologic Unit 12060204, at center of bridge on an unnamed road, 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 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 1992 TO SEPTEMBER 1993

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)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)
DEC 14...	1206	89	458	8.4	7.5	11.2	96	140000	130000	0.200	0.200	0.080
FEB 25...	0915	22	569	7.9	12.0	--	--	3500	2700	1.52	1.52	0.080
MAR 01...	1200	4.8	1300	8.0	10.0	--	--	1300	900	0.240	--	<0.010
30...	0820	15	1400	8.0	17.0	8.0	86	2800	1000	--	--	<0.010

DATE	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)
DEC 14...	0.280	0.280	0.210	--	1.3	1.5	--	--	0.490	0.460	1.4
FEB 25...	1.60	1.60	0.890	1.8	--	--	2.7	0.920	0.670	--	--
MAR 01...	0.240	0.240	0.110	1.2	--	--	1.3	0.190	0.090	--	--
30...	--	<0.050	0.030	1.9	--	--	1.9	0.240	0.080	--	--

## BRAZOS RIVER BASIN

08093685 SOUTH FORK NORTH BOSQUE RIVER NEAR STEPHENVILLE, TX

LOCATION.--Lat 32°14'11", long 98°17'06", Erath County, Hydrologic Unit 12060204, at center of bridge on an unnamed road, 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 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 1992 TO SEPTEMBER 1993

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)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)
DEC 14...	1251	129	452	8.1	7.0	11.6	99	150000	200000	0.400	0.400	0.130
FEB 25...	0950	154	405	8.2	12.5	--	--	10000	10000	0.940	0.940	0.060
MAR 01...	1235	13	1100	8.3	9.5	--	--	2800	2200	1.25	1.25	0.050
30...	1000	13	1250	8.0	17.5	9.8	106	2700	K1300	0.300	0.300	0.020

DATE	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)
DEC 14...	0.530	0.530	0.840	--	1.6	2.4	--	--	0.650	0.450	1.4
FEB 25...	1.00	1.00	0.430	1.6	--	--	2.0	0.800	0.560	--	--
MAR 01...	1.30	1.30	0.330	1.2	--	--	1.5	0.380	0.240	--	--
30...	0.320	0.320	0.050	3.0	--	--	3.0	0.750	0.400	--	--

## BRAZOS RIVER BASIN

251

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 1992 TO SEPTEMBER 1993

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 SATUR- ATION	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)
DEC 14...	1358	390	458	8.3	7.5	11.4	98	20000	18000	0.390	0.390	0.110
FEB 25...	1020	600	464	8.1	12.5	--	--	14000	7700	0.540	0.540	0.030
MAR 01...	1420	80	1020	8.3	9.5	--	--	2100	2000	1.47	1.47	0.030
30...	1200	50	1180	8.1	19.5	12.2	137	11800	4400	0.670	0.670	0.020

DATE	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)
DEC 14...	0.500	0.500	0.620	--	1.3	1.9	--	--	0.620	0.600	1.8
FEB 25...	0.570	0.570	0.360	1.2	--	--	1.6	0.600	0.330	--	--
MAR 01...	1.50	1.50	0.110	1.1	--	--	1.2	0.270	0.190	--	--
30...	0.690	0.690	0.030	2.3	--	--	2.3	0.420	0.210	--	--

## BRAZOS RIVER BASIN

## 08093800 NORTH BOSQUE RIVER BELOW STEPHENVILLE

LOCATION.--lat 32°06'02", long 98°09'18", Erath County, Hydrologic Unit 12060204, at center of bridge, on an unnamed road, 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 1992 TO SEPTEMBER 1993

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)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)
DEC												
14...	1435	500	460	8.2	7.5	11.3	97	15000	29000	0.550	0.550	0.100
FEB												
12...	1430	60	1050	8.5	11.5	--	--	K250	K110	1.84	1.84	0.060
25...	1300	870	512	8.0	13.5	--	--	67000	70000	0.740	0.740	0.030
MAR												
01...	1505	170	975	8.1	11.0	--	--	3900	2400	1.68	1.68	0.020
29...	1335	200	975	8.3	20.0	9.0	102	K9800	K2500	0.870	0.870	0.030
30...	1240	120	1060	8.0	20.0	9.6	109	K3700	K700	1.36	1.36	0.040
DATE		NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, DIS- SOLVED (MG/L AS P)
DEC												
14...		0.650	0.650	0.250	--	1.2	1.4	--	--	0.810	0.590	1.8
FEB												
12...		1.90	1.90	0.040	1.4	--	--	1.4	0.390	0.200	--	--
25...		0.770	0.770	0.400	1.5	--	--	1.9	0.770	0.410	--	--
MAR												
01...		1.70	1.70	0.070	1.2	--	--	1.3	0.400	0.280	--	--
29...		0.900	0.900	0.150	1.2	--	--	1.4	0.440	0.240	--	--
30...		1.40	1.40	0.080	1.3	--	--	1.4	0.440	0.250	--	--



## BRAZOS RIVER BASIN

253

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 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, 1963-73).--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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.0	8.0	11	38	e78	344	122	118	18	53	3.3	3.5
2	4.4	20	11	48	e74	322	105	122	18	43	3.9	3.3
3	2.7	9.9	11	55	e1390	242	98	115	17	34	3.1	3.3
4	3.1	4.3	11	58	e744	190	110	86	16	28	5.5	3.0
5	3.4	3.3	11	60	e306	181	135	71	16	26	11	2.5
6	3.8	2.9	11	55	e177	165	109	67	18	24	6.9	3.2
7	4.2	2.4	10	57	e118	143	110	62	18	21	4.7	3.9
8	2.4	2.1	10	56	e89	134	157	58	18	19	4.2	3.9
9	2.7	2.5	11	123	e88	132	125	58	18	18	3.9	3.1
10	3.0	3.2	13	105	e164	114	105	71	26	17	3.9	2.6
11	2.9	3.3	12	81	e147	116	89	55	27	16	3.9	2.1
12	3.9	3.3	11	e74	128	177	78	48	33	15	3.5	1.7
13	5.0	7.6	16	e66	e118	149	74	44	24	14	2.7	10
14	6.4	7.6	1120	e57	e123	131	691	41	19	13	2.5	554
15	5.1	5.2	532	e55	e304	122	407	37	17	11	2.5	129
16	5.7	4.5	254	e56	206	123	203	33	16	11	1.9	42
17	4.5	4.2	147	e54	159	135	144	32	156	10	1.7	21
18	4.5	3.7	103	e53	135	122	120	32	54	9.9	1.7	14
19	4.5	543	81	e58	130	188	107	30	34	9.3	1.7	11
20	4.5	190	66	e85	124	419	85	28	26	10	1.8	7.6
21	4.5	71	59	e144	118	233	64	25	19	8.6	2.2	5.9
22	4.5	47	54	e111	113	191	57	24	19	7.1	1.6	4.5
23	4.5	28	48	e91	119	165	54	24	215	6.8	1.5	4.5
24	3.9	22	44	e80	123	136	65	27	107	6.0	1.7	3.9
25	2.6	22	42	e74	1740	125	57	26	75	5.3	1.4	4.6
26	2.0	19	35	e71	823	114	50	21	567	4.7	5.9	7.2
27	1.6	15	34	e70	470	106	45	19	411	3.9	11	5.5
28	1.6	13	34	e76	356	268	42	19	204	3.9	6.4	4.5
29	1.4	13	34	e94	---	376	193	21	117	3.9	6.1	3.9
30	14	12	34	e84	---	218	211	22	79	4.1	4.4	2.8
31	6.2	---	33	e80	---	154	---	20	---	3.3	4.4	---
TOTAL	128.5	1093.0	2903	2269	8664	5735	4012	1456	2402	459.8	120.9	872.0
MEAN	4.15	36.4	93.6	73.2	309	185	134	47.0	80.1	14.8	3.90	29.1
MAX	14	543	1120	144	1740	419	691	122	567	53	11	554
MIN	1.4	2.1	10	38	74	106	42	19	16	3.3	1.4	1.7
AC-Ft	255	2170	5760	4500	17190	11380	7960	2890	4760	912	240	1730

e Estimated

## BRAZOS RIVER BASIN

08094800 NORTH BOSQUE RIVER AT HICO, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 1993, BY WATER YEAR (WY)

MEAN	34.5	18.6	76.0	32.3	71.8	61.5	82.8	165	132	12.1	20.2	21.3
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 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1974 - 1993

ANNUAL TOTAL	58499.4	30115.2	60.6	
ANNUAL MEAN	160	82.5	303	1992
HIGHEST ANNUAL MEAN			3.42	1981
LOWEST ANNUAL MEAN			13500	Dec 20 1991
HIGHEST DAILY MEAN	3790	Feb 4	1740	Feb 25
LOWEST DAILY MEAN	1.4	Oct 29	1.4	Oct 29
ANNUAL SEVEN-DAY MINIMUM	2.5	Oct 23	1.7	Aug 19
INSTANTANEOUS PEAK FLOW			3040	Feb 25
INSTANTANEOUS PEAK STAGE			8.76	Feb 25
INSTANTANEOUS LOW FLOW			1.0	Oct 28
ANNUAL RUNOFF (AC-FT)	116000	59730	43870	
10 PERCENT EXCEEDS	368	179	97	
50 PERCENT EXCEEDS	58	27	4.8	
90 PERCENT EXCEEDS	4.5	3.2	.19	

## BRAZOS RIVER BASIN

255

08094800 NORTH BOSQUE RIVER AT HICO, TX--Continued

## WATER-QUALITY RECORDS

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 1992 TO SEPTEMBER 1993

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, KF AGAR (COLS. PER 100 ML)
OCT 29...	0745	1.7	780	8.6	25.0	8.2	103	1.0	K180	K170
DEC 31...	0915	42	803	7.2	15.5	9.8	102	--	--	--
FEB 12...	1340	124	795	8.3	11.5	--	--	--	K480	K250
MAR 29...	1245	370	847	8.3	20.0	11.0	125	--	8700	2400
SEP 2/...	1320	5.6	500	8.2	25.0	--	--	--	1200	K380

DATE	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (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 29...	270	0.080	--	0.020	--	0.100	--	0.020	--
DEC 31...	250	1.18	1.18	--	0.020	1.20	1.20	--	0.020
FEB 12...	260	0.870	0.870	--	0.040	0.910	0.910	--	0.090
MAR 29...	220	1.86	1.86	--	0.040	1.90	1.90	--	1.20
SEP 27...	190	--	--	--	<0.010	--	<0.050	--	0.090

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, TOTAL (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS P04)
OCT 29...	0.28	--	--	0.30	0.050	--	--	0.020	--
DEC 31...	--	0.38	0.40	--	--	0.190	0.170	--	0.52
FEB 12...	0.51	--	--	0.60	0.180	0.130	--	--	--
MAR 29...	1.2	--	--	2.4	0.490	0.270	--	--	--
SEP 27...	0.91	--	--	1.0	0.200	0.200	--	--	--

## BRAZOS RIVER BASIN

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, 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.--No estimated daily discharges. Records good. 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), 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 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. 4	0100	7,230	9.76	No peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	26	39	69	145	795	398	375	93	139	12	8.3
2	26	22	36	69	135	853	340	327	84	110	11	6.5
3	25	27	34	70	1210	713	313	337	77	90	13	6.0
4	24	23	33	70	2890	548	308	292	72	80	13	6.1
5	22	25	31	78	806	445	310	249	69	71	12	6.1
6	24	26	30	92	516	392	335	284	65	64	10	6.2
7	24	23	31	95	394	363	364	268	62	59	10	7.7
8	28	21	30	92	336	343	439	233	59	54	11	7.4
9	24	20	35	107	299	325	380	219	56	49	12	6.0
10	24	21	34	280	446	302	326	219	105	47	14	5.5
11	23	24	34	203	538	279	288	223	75	44	14	5.3
12	22	25	35	159	392	420	261	190	93	42	12	5.0
13	22	21	36	138	324	463	241	173	81	39	11	5.1
14	21	21	832	124	294	370	302	156	78	36	11	5.2
15	21	21	1430	115	1180	338	1070	145	71	32	10	321
16	20	20	724	109	1070	335	574	134	65	30	8.9	179
17	19	20	360	109	596	308	453	128	67	29	8.4	92
18	19	23	243	102	455	282	434	122	108	28	7.7	60
19	19	43	190	97	396	347	318	117	118	26	7.1	41
20	20	549	151	118	372	1400	296	111	100	26	6.7	31
21	19	253	131	224	351	868	254	108	93	25	6.3	23
22	19	141	116	203	311	642	218	104	81	21	5.8	18
23	18	100	106	166	281	541	203	100	71	21	5.6	15
24	17	85	93	147	267	450	197	105	169	21	5.8	11
25	17	69	85	131	2720	395	195	109	157	18	6.3	10
26	17	63	78	120	2420	357	179	106	463	18	6.6	8.3
27	17	56	76	115	1140	325	165	97	769	17	6.3	8.3
28	16	52	75	111	787	706	162	87	431	15	6.0	9.4
29	16	46	75	136	---	1570	260	100	267	13	6.0	11
30	22	41	73	155	---	801	467	130	184	12	6.0	10
31	18	---	71	151	---	538	---	111	---	12	7.1	---
TOTAL	649	1907	5347	3955	21071	16814	10050	5459	4283	1288	282.6	934.4
MEAN	20.9	63.6	172	128	753	542	335	176	143	41.5	9.12	31.1
MAX	28	549	1430	280	2890	1570	1070	375	769	139	14	321
MIN	16	20	30	69	135	279	162	87	56	12	5.6	5.0
AC-1-1	1290	3780	10610	7840	41790	33350	19930	10830	8500	2550	561	1850

BRAZOS RIVER BASIN

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08095000 NORTH BOSQUE RIVER NEAR CLIFTON, TX--Continued

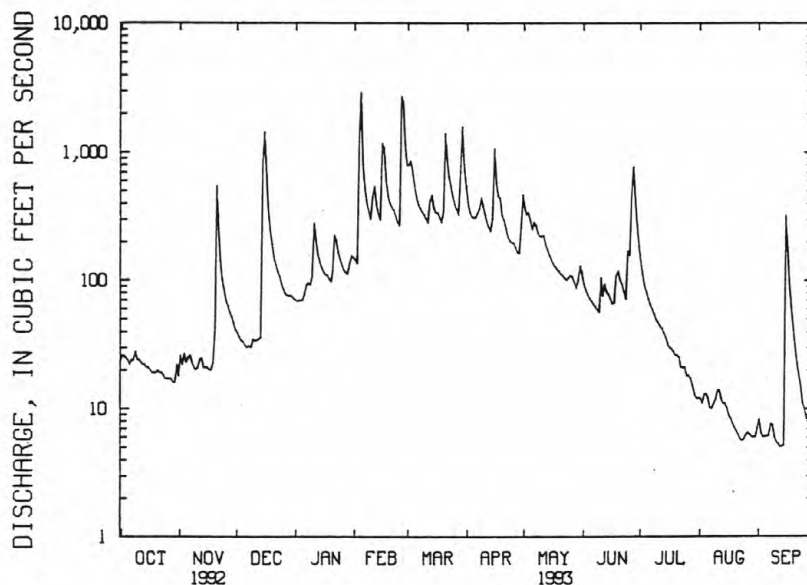
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1993, BY WATER YEAR (WY)

MEAN	124	49.6	359	159	291	309	366	493	321	78.3	36.7	55.2
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 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1968 - 1993	
ANNUAL TOTAL	243032		72040.0		220	
ANNUAL MEAN	664		197		1366	
HIGHEST ANNUAL MEAN					11.7	
LOWEST ANNUAL MEAN					1992	
HIGHEST DAILY MEAN	30200	Feb 25	2890	Feb 4	96800	Dec 21 1991
LOWEST DAILY MEAN	16	Oct 28	5.0	Sep 12	.01	Oct 28 1983
ANNUAL SEVEN-DAY MINIMUM	17	Oct 23	5.6	Sep 8	.03	Oct 28 1983
INSTANTANEOUS PEAK FLOW			7230	Feb 4	200000	Dec 20 1991
INSTANTANEOUS PEAK STAGE			9.76	Feb 4	a/ 38.3	Dec 20 1991
INSTANTANEOUS LOW FLOW			4.7	Sep 12		
ANNUAL RUNOFF (AC-FT)	482100		142900		159300	
10 PERCENT EXCEEDS	1370		451		342	
50 PERCENT EXCEEDS	168		85		25	
90 PERCENT EXCEEDS	23		10		2.7	

a/ From Floodmark.



08095000 NORTH BOSQUE RIVER NR CLIFTON, TX  
MEAN DAILY DISCHARGE (CFS), FROM THE DCP



## 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, 44.6 ft (from floodmark) on Dec. 21, 1991. Flood in May 1908, reached a stage of 43 ft, 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)
Feb. 4	0330	9,790	15.85	No other peaks greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	46	58	84	180	1010	559	486	144	174	28	21
2	34	43	55	84	164	1060	487	438	134	141	27	20
3	32	43	54	86	888	908	458	418	128	122	27	18
4	32	41	54	97	7860	719	485	374	121	111	28	16
5	30	37	54	104	e1400	620	457	331	118	106	28	35
6	31	42	53	107	e800	552	471	384	115	99	26	60
7	33	40	53	111	e500	512	559	354	108	89	23	57
8	36	37	52	108	e410	483	642	315	106	84	24	57
9	33	35	56	120	e370	458	536	300	105	80	24	57
10	32	37	56	258	e510	427	464	332	162	78	25	55
11	30	41	56	241	e590	403	410	300	130	71	28	53
12	29	44	56	180	e470	692	375	268	136	69	26	51
13	30	39	58	153	e390	644	359	251	124	66	25	52
14	28	38	544	139	e700	529	533	235	126	61	24	50
15	28	39	1870	128	e1300	476	1160	223	119	58	24	279
16	28	36	893	123	e1100	480	722	209	110	55	23	318
17	28	35	429	120	e960	436	521	199	108	52	22	170
18	27	38	284	117	622	406	648	189	129	51	21	121
19	27	116	225	112	541	514	428	181	160	49	21	103
20	26	525	176	125	510	1680	396	172	140	47	19	86
21	27	329	149	209	475	1120	353	163	155	48	18	71
22	27	172	134	232	424	1090	312	158	132	48	16	63
23	27	121	124	182	383	880	298	155	120	47	16	58
24	26	108	113	159	373	700	284	161	175	48	16	54
25	27	89	106	145	2670	630	279	167	202	46	16	50
26	27	81	101	135	3200	557	266	163	423	41	17	49
27	28	70	99	128	1420	507	251	155	756	41	18	45
28	28	67	97	126	995	654	245	146	493	39	18	47
29	31	64	96	191	---	1850	377	139	319	36	16	47
30	44	60	95	220	---	1010	525	180	232	32	15	48
31	37	---	88	187	---	695	---	166	---	29	22	---
TOTAL	937	2513	6338	4511	30205	22702	13860	7712	5530	2118	681	2211
MEAN	30.2	83.8	204	146	1079	732	462	249	184	68.3	22.0	73.7
MAX	44	525	1870	258	7860	1850	1160	486	756	174	28	318
MIN	26	35	52	84	164	403	245	139	105	29	15	16
AC-1	1860	4980	12570	8950	59910	45030	27490	15300	10970	4200	1350	4390

e Estimated

BRAZOS RIVER BASIN

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08095200 NORTH BOSQUE RIVER AT VALLEY MILLS, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1993, BY WATER YEAR (WY)

MEAN	145	68.9	381	195	384	397	409	592	398	94.3	47.8	66.8
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

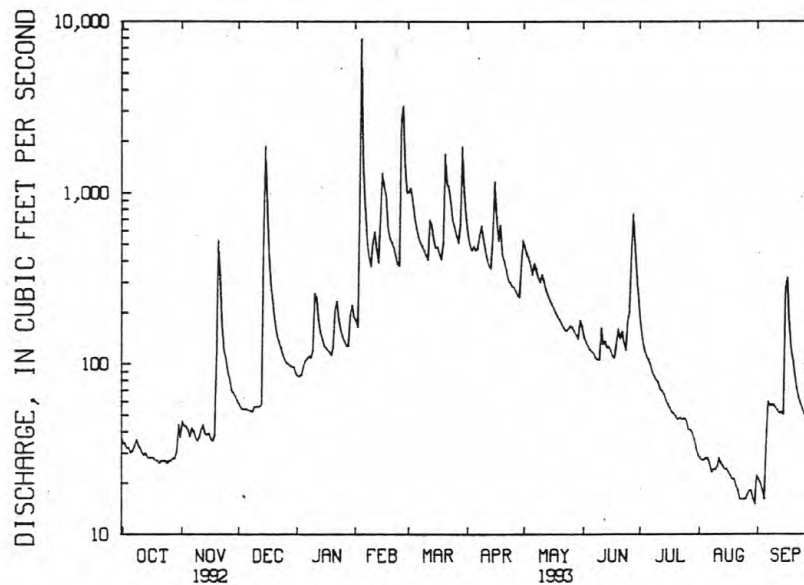
SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1968 - 1993 #	
ANNUAL TOTAL	343973		99318		264	
ANNUAL MEAN	940		272		1664	
HIGHEST ANNUAL MEAN					14.6	
LOWEST ANNUAL MEAN					1992	
HIGHEST DAILY MEAN	42700	Feb 25	7860	Feb 4	123000	Dec 21 1991
LOWEST DAILY MEAN	26	Oct 20	15	Aug 30	.00	Jun 1 1984
ANNUAL SEVEN-DAY MINIMUM	27	Oct 18	17	Aug 24	.00	Jun 17 1984
INSTANTANEOUS PEAK FLOW			9790	Feb 4	220000	Dec 21 1991
INSTANTANEOUS PEAK STAGE			15.85	Feb 4	a/b/ 44.60	Dec 21 1991
INSTANTANEOUS LOW FLOW			14	Sep 5	.00	*
ANNUAL RUNOFF (AC-FT)	682300		197000		191600	
10 PERCENT EXCEEDS	1870		621		428	
50 PERCENT EXCEEDS	258		120		38	
90 PERCENT EXCEEDS	38		27		6.0	

a/ From floodmark.

b/ Maximum stage since at least 1868.

# Period of regulated streamflow.

\* No flow for many days in water year 1984, and for period Oct. 1-5, 1984.



08095200 NORTH BOSQUE RIVER AT VALLEY MILLS, TX  
MEAN DAILY DISCHARGE (CFS)

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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.--Records good. No known diversions above station. Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--26 years (1960-1985), 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:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 19	1500	6,590	9.52	No peak greater than base discharge.			

BRAZOS RIVER BASIN

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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.--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)
Nov. 19	1130	1,920	5.71	No peak greater than base discharge.			

## BRAZOS RIVER BASIN

08095550 WACO LAKE NEAR WACO, TX

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, 168,900 acre-ft Mar. 23 (elevation, 457.66 ft); minimum daily, 132,200 acre-ft Sept. 12, 13 (elevation, 452.60 ft).

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

452.0	128,100	464.0	220,900	479.0	384,800
453.0	135,000	468.0	258,800	482.0	425,100
454.0	142,000	472.0	300,800	484.0	453,500
459.0	179,200	476.0	347,100	486.0	483,000

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	146200	143200	150300	150600	153500	155200	151800	152600	151600	149700	143700	134700
2	146000	143100	150300	150900	152500	153300	151400	154100	151700	149800	143400	134400
3	145900	142800	150400	151200	152300	152700	151400	154100	151700	149700	143200	134300
4	145800	142600	150400	151100	164900	151900	151700	153300	151700	149700	142900	134100
5	145600	142400	150400	150600	165300	151400	151100	153300	151700	149600	142500	133900
6	145400	142200	150500	150100	163000	150900	150400	152700	151400	149400	142300	133600
7	145600	142100	150500	150000	160200	150200	151700	151400	151100	149300	142100	133400
8	145400	142000	150600	150500	156900	150200	151800	150600	150900	149200	141800	133200
9	145200	142000	150900	151500	154400	150900	151400	150300	150600	149000	141500	132900
10	145000	142000	150500	152200	153300	151400	150600	149900	151000	149000	141300	132700
11	144900	142200	150300	152600	152200	152800	150400	150100	151200	148800	141000	132400
12	144700	142100	150000	152500	151300	156100	150800	150900	151100	148600	140600	132200
13	144500	142000	149900	152200	151200	156100	151200	151300	151100	148500	140300	132200
14	144400	141900	153400	151900	151400	155500	153200	151600	151000	148200	140000	133400
15	144300	141800	162400	151700	154800	154800	155500	151200	150900	148000	139700	133100
16	144200	141700	161800	151400	157200	153500	155200	150900	150600	147800	139400	133500
17	144000	141700	158400	151000	156300	151400	153900	150400	150400	147700	139100	133500
18	143900	141700	155400	150700	154600	150200	152900	150100	150300	147400	138800	133500
19	143700	148300	153600	150600	153100	153100	151700	150200	150300	147200	138600	133500
20	143500	149300	152200	150300	152200	160100	151100	150400	150300	147000	138200	133500
21	143400	150600	151300	150200	151000	162800	150600	150600	152100	146700	137900	133400
22	143300	150900	150800	150100	150500	167600	150300	150600	153100	146500	137400	133300
23	143300	151100	150600	150000	151100	168900	150200	150900	153400	146200	137200	133100
24	143200	151100	150600	149700	151200	167700	150300	151100	153600	145600	136900	133000
25	143000	150600	150800	149800	154900	165300	150300	151100	153600	145600	136500	132800
26	143000	150300	150900	150300	160200	162600	150300	151100	153100	145300	136300	134700
27	142800	150100	151100	150700	159100	159400	150100	151200	153300	145000	136000	134500
28	142700	150100	150900	151100	156900	156200	150000	151400	152800	144800	135700	134400
29	143100	150200	150600	153400	---	155500	150900	151400	151100	144500	135500	134100
30	143100	150300	150300	153800	---	154100	151400	151500	150000	144200	135100	134000
31	142800	---	150300	153800	---	152700	---	151600	---	143900	134900	---
MEAN	144300	145400	151900	151200	155200	156000	151500	151400	151600	147500	139300	133500
MAX	146200	151100	162400	153800	165300	168900	155500	154100	153600	149800	143700	134700
MIN	142700	141700	149900	149700	150500	150200	150000	149900	150000	143900	134900	132200
(↑)	454.11	455.15	455.15	455.63	456.06	455.48	455.31	455.33	455.11	454.27	452.99	452.85
(φ)	-3600	+7500	0	+3500	+3100	-4200	-1300	+200	-1600	-6100	-9000	-900
CAI YR 1992	MEAN	188100	MAX	461000	MIN	141700	(φ)	-322500				
WTR YR 1993	MEAN	148200	MAX	168900	MIN	132200	(φ)	-12400				

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

(φ) Change in contents, in acre-feet.



## BRAZOS RIVER MAIN STEM

263

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. 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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	772	54	79	319	1580	7510	1720	1450	863	2580	706	532
2	682	132	249	188	1790	7550	1670	2010	858	2350	863	834
3	462	88	208	181	2170	6500	1760	1590	1590	2300	197	478
4	143	27	243	800	5720	6020	2540	2100	1620	1020	511	436
5	343	411	89	1060	4520	5610	2350	2450	1170	958	874	383
6	453	560	51	947	3960	5600	2280	3370	1160	999	672	365
7	856	146	71	803	3540	5490	3110	3640	1230	982	99	358
8	450	497	326	426	3460	4820	3620	3370	875	946	649	558
9	96	425	713	428	3100	2630	3310	3000	1130	928	923	222
10	23	582	815	649	3200	2680	3090	3180	1070	849	648	385
11	16	665	671	1310	3250	3120	2840	2830	657	926	639	449
12	170	696	556	543	2870	5170	2390	2280	1580	774	619	1210
13	459	492	330	847	2090	4190	1960	2650	1260	867	815	352
14	436	552	2090	890	2320	3790	2230	768	1080	851	384	949
15	541	351	6560	902	4540	3700	1620	37	1440	859	582	358
16	1200	e320	4780	850	5850	3980	1980	174	959	817	706	250
17	209	e740	3680	1220	4510	4070	2160	1210	924	756	560	722
18	102	1590	3050	589	3320	3680	2520	2140	966	902	740	529
19	91	5400	2160	1370	3260	3520	1640	1240	1090	1030	459	424
20	388	3580	1770	1680	2410	6990	1590	1070	687	867	587	584
21	586	1180	2240	1030	2590	3990	4390	1060	974	550	583	988
22	512	1730	1080	1330	1760	5580	1840	913	986	798	673	665
23	648	997	581	957	1250	5810	751	543	332	800	559	669
24	682	807	693	591	1140	4750	1020	1600	222	825	554	1080
25	1220	808	781	679	2680	7200	1960	802	659	851	534	682
26	1550	333	422	563	3150	7090	2390	660	958	799	708	1430
27	15	238	1330	669	6520	6990	1420	920	1420	804	499	848
28	6.2	57	474	934	7280	7140	1360	937	1580	1150	503	1050
29	8.9	79	563	1620	---	7250	1520	829	1910	946	603	998
30	6.6	80	566	2410	---	4180	1550	936	1930	828	504	994
31	3.9	---	360	1630	---	2380	---	1240	---	822	447	---
TOTAL	13130.6	23617	37581	28415	93830	158980	64581	50999	33180	31734	18400	19782
MEAN	424	787	1212	917	3351	5128	2153	1645	1106	1024	594	659
MAX	1550	5400	6560	2410	7280	7550	4390	3640	1930	2580	923	1430
MIN	3.9	27	51	181	1140	2380	751	37	222	550	99	222
AC-FT	26040	46840	74540	56360	186100	315300	128100	101200	65810	62940	36500	39240

e Estimated

## BRAZOS RIVER MAIN STEM

08096500 BRAZOS RIVER AT WACO, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 1993, BY WATER YEAR (WY)

MEAN	2084	1483	1441	1869	2034	2213	2836	5651	4549	1751	1026	1259
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 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1941 - 1993#

ANNUAL TOTAL	2799917.6		574229.6									
ANNUAL MEAN	7650		1573									
HIGHEST ANNUAL MEAN										2350		1992
LOWEST ANNUAL MEAN										9611		1984
HIGHEST DAILY MEAN	36400	Jan 2	7550	Mar 2						322		1984
LOWEST DAILY MEAN	3.9	Oct 31	3.9	Oct 31						121000		Apr 22 1945
ANNUAL SEVEN-DAY MINIMUM	32	Oct 27	32	Oct 27						.12		Aug 7 1988
INSTANTANEOUS PEAK FLOW			11600	Apr 25						4.4		May 13 1988
INSTANTANEOUS PEAK STAGE			12.88	Apr 25						144000		Apr 22 1945
INSTANTANEOUS LOW FLOW			3.5	Oct 31						36.70		Apr 22 1945
ANNUAL RUNOFF (AC-FT)	5554000		1139000							.12		Aug 7 1988
10 PERCENT EXCEEDS	26600		3740							1702000		
50 PERCENT EXCEEDS	2470		928							4760		
90 PERCENT EXCEEDS	248		247							824		
										138		

# Period of regulated streamflow.

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. 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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1230	157	269	796	2730	8450	3510	3070	1370	2310	842	772
2	966	185	259	633	2280	9210	2910	4240	1070	2660	771	793
3	868	270	321	579	2390	8750	2800	4380	973	2360	903	1160
4	616	261	426	483	6920	7670	4200	3510	1640	2150	481	895
5	443	209	437	871	9800	6830	4450	3410	1640	1060	403	743
6	398	232	320	1270	7630	6450	4030	4950	1250	953	908	661
7	485	590	247	1310	5930	6390	4770	5960	1180	1020	758	658
8	1020	460	208	1180	4890	6320	7400	5500	1240	1040	492	649
9	736	526	408	953	4490	5140	6900	5360	927	1000	494	843
10	342	461	703	921	4070	3370	5600	8320	1160	989	1060	565
11	220	634	912	1390	4210	3480	4680	5170	1180	897	786	572
12	157	750	895	1970	4090	8130	4110	3970	714	931	755	744
13	124	759	841	1120	3560	9380	3660	3100	1860	818	762	1530
14	408	729	877	1220	3010	7600	3580	3270	1670	839	886	867
15	564	646	7060	1250	2750	6070	4310	1490	1280	841	550	1320
16	597	618	11100	1250	6630	4950	4040	627	1510	855	729	754
17	1240	593	8030	1230	7430	5100	3740	459	1040	786	893	567
18	496	744	6220	1480	5420	5050	3530	1280	975	759	954	951
19	255	1870	4300	1040	4310	4860	3630	2530	996	835	909	927
20	195	7100	2840	2000	3890	10800	2690	1590	1110	1010	842	784
21	277	4660	2890	2520	3260	11400	3020	1330	1280	930	762	952
22	597	2550	2880	2000	3250	8870	5350	1290	1610	548	813	1350
23	615	2570	1770	1940	2370	13100	2600	1130	1340	768	936	1080
24	709	1620	1160	1380	1770	10600	1510	889	706	772	803	1060
25	754	1260	1140	1060	1740	9500	1670	1700	545	760	795	1460
26	1290	1270	1300	1070	4140	9170	3230	1260	5650	853	783	1150
27	1620	786	917	838	5760	8470	2500	838	1480	790	936	1880
28	446	633	1690	962	8130	8270	1810	1160	1510	788	813	1150
29	212	388	949	2110	---	8600	1980	1210	1660	1130	775	1320
30	195	305	930	3730	---	7970	2110	1070	2000	1030	857	1340
31	158	---	898	3800	---	5030	---	1040	---	705	789	---
TOTAL	18233	33836	63197	44356	126850	234980	110320	85103	42566	33187	24240	29497
MEAN	588	1128	2039	1431	4530	7580	3677	2745	1419	1071	782	983
MAX	1620	7100	11100	3800	9800	13100	7400	8320	5650	2660	1060	1880
MIN	124	157	208	483	1740	3370	1510	459	545	548	403	565
AC-FT	36170	67110	125400	87980	251600	466100	218800	168800	84430	65830	48080	58510

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1993, BY WATER YEAR (WY)

MEAN	1849	2201	2204	2717	2902	3477	3429	6212	5509	1910	1101	1282
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 1992 CALENDAR YEAR			FOR 1993 WATER YEAR			WATER YEARS 1966 - 1993		
ANNUAL TOTAL	3361553			846365					
ANNUAL MEAN	9185			2319			2897		
HIGHEST ANNUAL MEAN							11320		
LOWEST ANNUAL MEAN							329		
HIGHEST DAILY MEAN	38200			13100			70300		
LOWEST DAILY MEAN	124			124			23		
ANNUAL SEVEN-DAY MINIMUM	205			205			23		
INSTANTANEOUS PEAK FLOW				13900			78700		
INSTANTANEOUS PEAK STAGE				10.28			30.78		
INSTANTANEOUS LOW FLOW				114			32		
ANNUAL RUNOFF (AC-FT)	6668000			1679000			2099000		
10 PERCENT EXCEEDS	30300			6130			6350		
50 PERCENT EXCEEDS	3220			1180			1030		
90 PERCENT EXCEEDS	445			482			220		

## BRAZOS RIVER MAIN STEM

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.

INSTRUMENTATION.--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 daily water temperature for many days in December and January were estimated from partial recorded data at the site, field observations, and continuously recorded data from stations in the vicinity. 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, 3,000 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, 1,700 microsiemens Sept. 1; minimum daily, 372 microsiemens June 26. WATER TEMPERATURES: Maximum daily, 35.0°C July 30; minimum daily, 7.5°C Mar. 14.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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-WF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CaCO3)	
NOV 06...	1230	170	1530	7.7	12.5	--	--	--	--	--	--	380	
DEC 07...	1200	277	1200	7.9	15.5	6.3	9.4	94	0.6	K15	K5	310	
FEB 12...	1155	4030	678	7.9	12.5	32	10.3	97	2.0	K40	K40	210	
MAY 20...	1006	1900	831	8.1	25.5	27	12.1	150	1.7	96	80	270	
JUL 28...	1205	926	1410	8.1	32.0	26	8.2	114	1.9	24	51	300	
DATE		HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	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)
NOV 06...	180	98	32	180	4	4.9	--	--	200	--	190	260	
DEC 07...	110	88	21	140	3	5.5	0	244	200	200	140	200	
FEB 12...	56	67	10	56	2	3.4	0	187	150	154	71	86	
MAY 20...	88	86	14	73	2	3.7	0	226	--	186	99	100	
JUL 28...	150	77	25	160	4	5.6	0	181	150	148	180	230	
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 06...	0.20	10	--	893	--	--	--	--	--	--	--	--	--
DEC 07...	0.40	9.7	790	735	1.77	1.67	0.030	0.030	1.70	1.70	0.090	0.080	
FEB 12...	0.20	7.1	405	398	1.07	1.07	--	0.030	1.10	1.10	--	0.040	
MAY 20...	0.30	7.5	492	499	0.810	0.810	--	0.020	0.830	0.830	--	0.020	
JUL 28...	0.40	9.8	854	780	0.330	0.330	--	0.010	0.340	0.340	--	0.020	

## BRAZOS RIVER MAIN STEM

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08098290 BRAZOS RIVER NEAR HIGHBANK, TX--Continued  
(National stream-quality accounting network)

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

		NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	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- SOLVED (UG/L AS AL)
DATE												
NOV	06...	--	--	--	--	--	--	--	--	--	--	--
DEC	07...	0.41	0.50	0.430	0.360	0.340	0.350	1.0	11	8.2	98	10
FEB	12...	0.36	0.40	0.070	0.020	0.020	--	0.06	108	1180	52	70
MAY	20...	0.28	0.30	0.030	<0.010	<0.010	--	--	70	359	90	<10
JUL	28...	0.48	0.50	0.030	<0.010	<0.010	--	--	73	183	84	<10
DATE		BARIUM, DIS- SOLVED (UG/L AS BA)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
NOV	06...	--	--	--	--	--	--	--	--	--	--	--
DEC	07...	110	<3	4	20	43	<10	2	<1	<1.0	1100	<6
FEB	12...	63	<3	51	8	5	<10	1	<1	<1.0	540	<6
MAY	20...	83	<3	9	14	<1	<10	<1	<1	<1.0	750	<6
JUL	28...	110	<3	7	23	2	10	<1	<1	<1.0	1200	<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.	1992	18233	1420	811	39900	260	12700	170	8200	310		
NOV.	1992	33836	1120	635	58000	190	17200	130	11600	260		
DEC.	1992	63197	756	425	72500	110	19000	80	13700	190		
JAN.	1993	44356	1040	590	70700	170	19900	120	13800	250		
FEB.	1993	126850	678	379	130000	93	32000	70	24000	180		
MAR.	1993	234980	1010	569	361000	160	101700	110	70400	250		
APR.	1993	110320	781	438	131000	110	33300	82	24400	200		
MAY	1993	85103	933	526	121000	140	33200	100	23300	230		
JUNE	1993	42566	941	531	61000	150	16800	100	11800	230		
JUL Y	1993	33187	1220	694	62200	210	18800	140	12500	280		
AUG.	1993	24240	1420	815	53300	260	17000	170	11000	310		
SEPT	1993	29497	1530	876	69800	290	22900	180	14600	320		
TOTAL		846365	**	**	1230000	**	345000	**	239000	**		
WTD.AVG.		2319	952	538	**	150	**	100	**	230		



## 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 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	1420	1250	1370	---	---	e1480	---	---	e1500	---	---	e1150
2	1510	1420	1460	---	---	e1450	---	---	e1500	---	---	e1200
3	1560	1500	1530	---	---	e1500	---	---	e1500	---	---	e1210
4	1530	1500	1510	1380	1240	1330	---	---	e1510	---	---	e1250
5	1510	1480	1500	---	---	e1520	---	---	e1500	---	---	e1200
6	1500	1440	1470	1540	1420	1530	---	---	e1500	---	---	e1100
7	1510	1470	1490	1580	1060	1420	---	---	e1300	---	---	e1000
8	1440	1360	1410	1150	956	1030	---	---	e1350	---	---	e1100
9	1430	1360	1400	1410	1150	1300	---	---	e1530	---	---	e1200
10	1480	1410	1440	1510	1410	1480	---	---	e1500	---	---	e1250
11	---	---	e1270	1550	1490	1520	---	---	e1480	---	---	e950
12	---	---	e1580	1500	1420	1490	---	---	e1490	930	840	892
13	---	---	e1600	1440	1390	1420	---	---	e1490	---	---	e1200
14	---	---	e1450	1490	1430	1450	---	---	e1300	---	---	e1200
15	1390	1330	1350	1540	1490	1520	---	---	e636	---	---	e1170
16	1350	1230	1300	1590	1520	1560	737	473	587	---	---	e1180
17	1390	1240	1340	1620	1560	1590	---	---	e619	---	---	e1150
18	1410	1370	1380	1640	1600	1620	---	---	e620	1070	510	1020
19	1450	1340	1380	---	---	e930	---	---	e630	---	---	e1120
20	---	---	e1550	---	---	e750	---	---	e650	---	---	e900
21	---	---	e1500	---	---	e950	---	---	e640	990	860	951
22	1390	1310	1360	---	---	e1020	---	---	e650	1010	770	861
23	1360	1300	1320	---	---	e1020	---	---	e700	1130	1010	1090
24	1420	1280	1350	---	---	e1040	---	---	e720	1150	980	1120
25	1450	1380	1410	---	---	e1380	---	---	e700	---	---	e1170
26	1460	1390	1420	---	---	e1390	---	---	e800	---	---	e1140
27	1500	1380	1420	---	---	e1400	---	---	e850	---	---	e1180
28	1490	1450	1470	---	---	e1430	---	---	e880	---	---	e1170
29	---	---	e1500	---	---	e1450	---	---	e1100	1050	560	928
30	---	---	e1500	---	---	e1500	---	---	e1100	1000	710	816
31	---	---	e1500	---	---	---	---	---	e1100	1100	960	1020
MUN III	1560	1230	1440	1640	956	1350	737	473	1080	1150	510	1090

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	1080	970	1010	1160	1080	1130	921	783	856	---	---	758
2	1060	870	944	1140	1110	1120	783	724	758	772	525	633
3	930	900	909	1140	1050	1090	805	615	710	724	576	642
4	940	470	741	1240	1090	1190	646	556	610	899	701	770
5	870	500	698	1280	1240	1250	739	556	667	994	538	766
6	500	440	458	1380	1280	1360	944	709	860	770	694	730
7	610	480	529	1390	1370	1380	955	601	878	995	756	930
8	670	600	623	1400	1370	1380	653	601	621	1040	917	993
9	660	560	598	1390	1360	1380	736	653	691	1050	560	805
10	640	570	600	1460	1350	1400	810	716	761	891	610	683
11	640	580	601	1460	1010	1370	873	800	846	1150	774	1050
12	710	640	670	1220	870	990	906	863	884	1210	983	1140
13	720	690	703	1010	780	849	940	896	906	1240	973	1110
14	770	690	720	810	730	767	981	558	820	1390	1240	1320
15	800	410	629	1020	810	920	901	799	845	---	---	e1350
16	1070	570	940	1080	1020	1050	822	800	813	---	---	e1380
17	970	390	493	1100	1060	1080	866	802	840	---	---	e1380
18	610	440	512	1110	1030	1050	856	648	738	---	---	e1300
19	870	610	786	1040	640	953	661	639	651	---	---	e1020
20	840	700	757	880	630	755	768	651	697	---	---	e1060
21	830	640	702	960	670	805	778	706	748	---	---	e1090
22	770	650	706	950	700	820	889	686	769	1090	1070	1080
23	790	670	748	960	710	780	---	---	e812	1090	1010	1040
24	790	---	e740	750	510	589	---	---	e950	1140	1090	1130
25	680	---	e750	770	590	699	---	---	e950	1180	1100	1140
26	890	640	763	1080	700	955	---	---	e750	1210	1160	1190
27	640	510	591	1110	1070	1100	---	---	e850	1170	1080	1130
28	1130	430	731	1130	1100	1110	---	---	e900	1080	1020	1040
29	---	---	---	1150	1110	1130	---	---	e900	1150	1040	1090
30	---	---	---	1150	1020	1090	992	852	932	1220	1140	1170
31	---	---	---	1060	921	1000	---	---	---	1260	1200	1240
MUNIII	1130	390	702	1460	510	1050	992	556	800	1390	525	1040

e Estimated

BRAZOS RIVER MAIN STEM

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08098290 BRAZOS RIVER NEAR HIGHBANK, TX--Continued  
(National stream-quality accounting network)

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	1250	1140	1190	817	663	758	1410	1370	1390	1700	1640	1670
2	1140	1090	1100	928	698	795	1420	1380	1400	1690	1650	1670
3	1120	1080	1100	1160	928	1070	1430	1400	1410	1690	1590	1630
4	1170	1080	1120	1240	1140	1180	1440	1400	1410	1600	1560	1590
5	1230	1140	1190	1300	1240	1270	1470	1410	1430	1600	1550	1580
6	1270	1220	1240	1330	1280	1300	1420	1380	1400	1610	1560	1590
7	1280	1240	1250	1370	1310	1330	1390	1330	1360	1610	1530	1570
8	1280	1250	1270	1410	1350	1390	1430	1390	1410	1630	1570	1600
9	1260	1200	1230	1400	1300	1360	1440	---	e1380	1660	1570	1610
10	1210	1140	1160	1320	1280	1300	---	---	e1320	1660	---	e1600
11	1150	1120	1140	1340	1270	1310	---	---	e1340	---	---	e1610
12	1130	1080	1100	1350	1240	1300	---	---	e1350	---	---	e1640
13	1090	1060	1080	1350	1250	1320	---	---	e1350	1570	1520	1550
14	1080	810	963	1340	1260	1320	---	---	e1350	1570	1500	1530
15	967	753	846	1330	1260	1300	---	---	e1420	1540	1490	1510
16	1000	916	961	1300	1240	1280	---	---	e1480	1560	1510	1600
17	951	879	915	1310	1230	1280	---	---	e1490	---	---	e1600
18	968	940	953	1310	1250	1300	1450	1410	1430	1600	1320	1440
19	1060	967	1030	1310	1270	1290	---	---	e1380	1470	1360	1400
20	1080	1040	1060	1310	1280	1300	---	---	e1370	1540	1400	1480
21	1100	589	982	1320	1280	1300	---	---	e1360	1540	1490	1520
22	955	552	790	1350	1310	1330	---	---	e1440	1550	1510	1460
23	988	900	946	1350	1310	1330	1360	1340	1350	1570	1520	1540
24	988	857	960	1370	1320	1350	1380	1330	1350	1600	1520	1550
25	857	720	795	1410	1320	1360	1490	1340	1410	1560	1520	1510
26	873	372	561	1410	1380	1390	1580	1460	1400	1530	1470	1490
27	633	399	497	1390	1370	1380	1560	1520	1550	1510	1460	1480
28	911	633	778	1380	1360	1370	1590	1530	1560	1500	1450	1470
29	911	719	855	1400	1370	1380	1650	1560	1600	1450	1340	1390
30	844	692	761	1420	1400	1410	1660	1610	1630	1390	1320	1350
31	---	---	---	1410	1370	1390	1680	1550	1610	---	---	---
MUNIII	1280	372	994	1420	663	1280	1680	1330	1420	1700	1320	1540
YEAR	1700	372	1150									

e Estimated

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	23.3	20.1	21.7	24.3	19.0	21.4	---	---	e11.5	---	---	e13.8
2	23.8	19.8	21.6	20.6	15.7	18.4	---	---	e11.7	---	---	e12.0
3	23.8	20.1	21.9	18.7	15.6	17.5	---	---	e11.3	---	---	e12.8
4	24.4	20.1	22.2	15.6	12.8	13.9	---	---	e13.2	---	---	e13.0
5	24.7	21.1	22.9	13.2	10.9	12.1	---	---	e12.0	---	---	e13.4
6	25.3	20.8	23.0	13.1	10.2	11.7	---	---	e11.0	---	---	e13.2
7	24.2	21.1	22.6	13.6	10.6	12.2	---	---	e10.0	---	---	e13.2
8	22.4	19.2	20.7	13.6	12.1	12.7	---	---	e10.1	---	---	e13.5
9	21.9	19.2	20.5	16.3	13.6	15.1	---	---	e11.0	---	---	e13.6
10	24.3	20.7	22.3	17.5	15.8	16.6	---	---	e10.7	---	---	e13.4
11	23.0	19.5	21.5	18.1	17.0	17.6	---	---	e10.7	---	---	e12.0
12	24.9	18.6	20.7	17.8	15.3	16.3	---	---	e11.5	---	---	e11.5
13	27.1	18.6	21.9	16.1	13.5	14.9	---	---	e12.0	---	---	e11.5
14	23.8	20.1	21.8	15.4	12.6	14.1	---	---	e10.0	---	---	e11.3
15	23.9	22.0	22.9	14.7	12.5	13.6	---	---	e9.0	---	---	e11.6
16	23.2	21.5	22.6	15.5	13.1	14.3	8.9	8.1	8.6	---	---	e11.5
17	21.7	20.6	21.2	15.5	14.0	14.9	---	---	e9.0	---	---	e11.5
18	21.8	19.9	20.8	16.3	15.2	15.8	---	---	e9.1	11.1	10.1	10.9
19	21.4	18.3	20.1	16.6	16.0	16.4	---	---	e11.0	---	---	e11.0
20	21.7	18.6	20.3	---	---	e16.2	---	---	e10.9	---	---	e10.0
21	23.4	18.3	21.3	---	---	e15.8	---	---	e9.6	---	---	e11.0
22	22.7	20.4	21.6	---	---	e14.8	---	---	e10.3	12.3	9.9	11.0
23	23.8	20.6	22.3	---	---	e14.1	---	---	e11.6	13.6	11.2	12.3
24	24.2	20.8	22.5	---	---	e14.8	---	---	e11.4	12.7	9.8	11.0
25	24.5	21.3	22.9	---	---	e14.3	---	---	e11.3	---	---	e12.8
26	24.1	21.8	23.0	---	---	e12.4	---	---	e11.1	---	---	e12.0
27	23.6	21.4	22.5	---	---	e10.9	---	---	e10.6	---	---	e12.5
28	23.1	20.2	21.9	---	---	e10.4	---	---	e11.3	---	---	e12.0
29	23.0	20.6	22.0	---	---	e10.9	---	---	e12.0	10.4	9.4	10.0
30	22.6	20.3	21.8	---	---	e12.0	---	---	e15.2	---	---	e11.5
31	25.1	21.5	23.1	---	---	---	---	---	e15.8	---	---	e11.0
MUNIII	27.1	18.3	21.9	24.3	10.2	14.5	8.9	8.1	11.1	13.6	9.4	12.0

e Estimated



# BRAZOS RIVER BASIN

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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.--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)
Apr. 4	0845	600	6.18	No peaks greater than base discharge.			

## BRAZOS RIVER BASIN

08099100 LEON RIVER NEAR DE LEON, TX  
(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 1992 TO SEPTEMBER 1993

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)
NOV 1/...	1335	4.4	1810	8.1	14.5	10	1.5	9.6	100	0.9	510
JAN 06...	1615	11	1620	8.2	7.5	15	1.4	12.6	111	0.9	420
MAR 1/...	1110	26	1500	8.1	13.0	15	4.4	11.4	113	0.7	410
MAY 18...	0935	6.7	1720	8.1	21.0	10	4.1	8.9	106	0.7	470

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)
NOV 17...	220	150	32	170	3	6.1	280	140	340	0.30
JAN 06...	150	120	30	160	3	4.5	270	120	300	0.30
MAR 1/...	180	120	27	150	3	5.0	230	120	290	0.20
MAY 18...	220	140	30	170	3	5.3	260	150	330	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, 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)
NOV 17...	13	1020	<1	<1	--	--	0.040	--	<0.050	--
JAN 06...	9.7	909	2	2	0	--	--	0.020	--	<0.050
MAR 17...	6.9	856	2	2	0	--	--	<0.010	--	<0.050
MAY 18...	11	993	12	7	5	0.150	--	<0.010	0.150	0.150

DATE	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, 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)
NOV 17...	0.040	--	0.16	--	0.20	0.040	--	--	0.020	--
JAN 06...	--	0.010	--	<0.20	--	--	<0.010	<0.010	--	--
MAR 17...	--	0.030	--	<0.20	--	--	<0.010	<0.010	--	--
MAY 18...	--	0.050	--	<0.20	--	--	0.020	0.020	--	0.06

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)
NOV 17...	3.9	--	--	--	--	--	--	--	--	--
JAN 06...	3.7	<1	180	<0.5	<1.0	<5	<3	<10	9	<10
MAR 17...	5.0	--	--	--	--	--	--	--	--	--
MAY 18...	3.8	<1	200	<0.5	<1.0	<5	<3	<10	<3	<10



BRAZOS RIVER BASIN

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08099100 LEON RIVER NEAR DE LEON, TX--Continued  
(Flood-hydrograph Partial-record Station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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 17...	--	--	--	--	--	--	--	--	--	--
JAN 06...	18	220	0.1	<10	<10	<1	<1.0	1100	<6	<3
MAR 17...	--	--	--	--	--	--	--	--	--	--
MAY 18...	24	180	<0.1	10	<10	<1	<1.0	1300	<6	4

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.

### WATER-DISCHARGE RECORDS

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.--No estimated daily discharges. Records good. Beginning Oct. 1, 1985, only daily discharges greater than 250 ft/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)
Apr. 4	1100	1.070	11.17	No peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

[illegible]

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1990 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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)
NOV 1/...	1620	3.4	1390	8.1	15.5	5	1.9	13.8	146	0.7	490
JAN 0/...	1000	11	1360	8.2	7.5	25	5.8	12.9	114	1.5	420
MAR 1/...	1415	21	1820	8.3	12.5	25	7.2	14.3	140	1.2	530
MAY 18...	1222	6.2	1700	8.1	23.0	20	8.5	8.9	110	2.3	480
JUL 13...	1005	0.56	1120	8.0	25.5	14	1.9	6.0	78	0.6	360

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- LINIT 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 17...	180	140	35	110	2	5.6	320	230	140	0.40	13
JAN 07...	150	110	34	120	3	6.1	270	170	200	0.30	13
MAR 17...	220	130	50	180	3	5.3	310	180	330	0.30	9.6
MAY 18...	200	120	43	170	3	5.4	280	180	290	0.40	9.0
JUL 13...	120	93	30	100	2	4.8	240	130	150	0.50	10

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, 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 1/...	865	3	3	0	0.080	--	0.050	--	0.130	--	0.020
JAN 0/...	818	3	3	0	0.320	0.320	--	0.030	0.350	0.350	--
MAR 1/...	1070	41	12	29	--	--	--	<0.010	--	<0.050	--
MAY 18...	989	24	13	11	0.074	--	--	<0.010	0.074	0.074	--
JUL 13...	661	7	6	1	--	--	--	<0.010	--	<0.050	--

DATE	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)	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)
NOV 17...	--	0.38	--	--	0.40	0.020	--	--	<0.010	--
JAN 0/...	0.010	--	0.29	0.30	--	--	<0.010	<0.010	--	--
MAR 1/...	0.010	--	0.19	0.20	--	--	<0.010	<0.010	--	--
MAY 18...	0.020	--	0.28	0.30	--	--	<0.010	<0.010	--	--
JUL 13...	0.070	--	0.13	0.20	--	--	<0.010	0.010	--	0.03

[illegible]

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

[illegible]

## 08099400 PROCTOR LAKE NEAR PROCTOR, TX

LOCATION.--Lat 31°58'07", 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-CONTENT 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, 73,300 acre-ft Mar. 3 (elevation, 1,164.82 ft); minimum daily, 43,500 acre-ft Sept. 30 (elevation, 1,158.19 ft).

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

1,158.0	42,793	1,172.0	116,900	1,184.0	218,100
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

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64940	58020	60180	60180	60230	71730	61300	61730	58750	58380	51120	45580
2	64210	57840	60130	60230	60270	72820	60880	62200	58610	58250	50830	45350
3	63490	57980	60130	60270	60410	73300	60690	62440	58480	57840	51460	45350
4	62910	57840	60230	60270	60600	73190	61440	62390	58430	57700	51330	45160
5	62200	57700	60040	59860	60690	72560	62010	61870	58160	57430	51080	45010
6	61540	57660	59990	59810	60690	72040	62290	61160	57880	57300	51000	44860
7	60930	57570	59990	59760	60690	71420	62720	60600	57790	57070	50750	44670
8	60510	57570	60180	59760	60690	70700	62820	60130	57610	56850	50620	44510
9	60180	57700	60180	59990	60740	69980	62820	60090	57660	56710	50420	44290
10	59990	57790	60180	59810	61070	69270	62670	59810	57700	56530	50250	44100
11	59760	58160	60130	59760	61580	68710	62530	59860	57700	56310	50000	43910
12	59670	57980	60090	59760	61730	68100	62290	59620	57610	56000	49800	43540
13	59440	57930	61260	59720	61870	67200	62060	59620	57570	55730	49550	43360
14	59350	57930	62480	59720	62010	66260	62200	59620	57520	55550	49310	44820
15	59260	57930	63440	59860	62530	65570	62010	59620	57430	55330	49060	44740
16	59160	57930	63440	59950	62960	64990	61770	59580	57300	55110	48820	44670
17	59020	57930	63060	60090	63440	64110	61540	59530	57250	54940	48540	44550
18	58890	58340	62630	60130	63630	63390	61160	59530	57250	54760	48300	44480
19	58750	59720	62340	60510	63920	63150	60930	59440	57250	54540	48020	44440
20	58660	59950	61820	60410	64110	63100	60550	59350	57160	54320	47780	44400
21	58520	60370	61440	60410	64310	62910	60180	59210	57070	54060	47540	44290
22	58480	60180	61210	60370	64360	62820	59990	59210	57200	53850	47220	44170
23	58430	60270	60690	60040	64500	62530	59950	59350	57340	53460	46980	44100
24	58340	60690	60270	59720	64600	62340	59950	59350	57340	53160	46980	43980
25	58250	60510	59950	59580	67800	62100	59950	59260	57390	52940	46790	44170
26	58200	60320	59760	59620	69720	61730	59860	59210	58200	52640	46670	44060
27	57980	60230	59810	59620	70490	61400	59720	59160	58610	52340	46480	43870
28	57790	60180	59760	59810	71060	61680	59720	59070	58700	52130	46280	43760
29	57880	60230	59860	60040	---	61770	60790	59020	58570	51880	46010	43650
30	57750	60180	59950	60040	---	61960	61160	58980	58520	51630	45780	43500
31	58110	---	60180	60090	---	61630	---	58930	---	51330	45740	---
MAX	64940	60690	63440	60510	71060	73300	62820	62440	58750	58380	51460	45580
MIN	57750	57570	59760	59580	60230	61400	59720	58930	57070	51330	45740	43500
(†)	1161.72	1162.17	1162.17	1162.15	1164.39	1162.48	1162.38	1161.90	1161.81	1160.17	1158.78	1158.19
(Φ)	-7610	+2070	0	-90	10970	-9430	-470	-2230	-410	-7190	-5590	-2240
CAL YR 1992	MAX	290800	MIN	57570	(Φ)	-156920						
WTR YR 1993	MAX	73300	MIN	43500	(Φ)	-2220						

(†) Elevation, in feet, at end of month.  
(Φ) Change in contents, in acre-feet.



## BRAZOS RIVER BASIN

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.

REVISED RECORDS.--Due to a computation error discovered after publication of Phytoplankton analyses for the period October 1991 to September 1992, revised data for these analyses are included in this report.

315814098291201 - PROCTOR LAKE SITE AC

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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)
JAN										
05...	0920	59900	1.00	740	8.4	9.0	0.60	9.7	86	80
05...	0922	--	10.0	743	8.4	9.0	--	9.9	88	--
05...	0924	--	20.0	744	8.4	9.0	--	9.7	86	--
05...	0926	--	29.0	748	8.3	9.0	--	9.0	80	--
APR										
21...	0915	60200	1.00	978	8.3	18.0	0.50	8.2	89	1
21...	0917	--	10.0	980	8.3	18.0	--	8.2	89	--
21...	0919	--	20.0	978	8.3	18.0	--	8.2	89	--
21...	0921	--	28.0	978	8.3	18.0	--	8.2	89	--
AUG										
24...	0910	47000	1.00	1100	7.7	28.0	0.80	3.8	51	K1
24...	0912	--	10.0	1100	7.6	28.0	--	3.1	41	--
24...	0914	--	24.0	1100	7.5	28.0	--	2.5	33	--

DATE	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)
JAN									
05...	K2	220	81	60	18	60	2	6.8	140
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	230	77	61	18	60	2	6.9	150
APR									
21...	1	290	120	75	24	85	2	6.8	170
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	290	120	76	25	86	2	6.8	170
AUG									
24...	K4	260	140	58	29	110	3	6.5	130
24...	--	--	--	--	--	--	--	--	--
24...	--	280	150	61	30	110	3	7.5	130

DATE	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)
JAN									
05...	69	110	0.20	3.2	413	0.059	0.059	0.030	0.089
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	69	120	0.20	3.6	428	0.040	0.040	0.030	0.070
APR									
21...	93	160	0.30	0.30	546	--	--	<0.010	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	92	160	0.30	0.50	547	--	--	<0.010	--
AUG									
24...	99	210	0.30	3.1	592	--	--	<0.010	--
24...	--	--	--	--	--	--	--	<0.010	--
24...	99	200	0.30	3.5	589	--	--	<0.010	--

## BRAZOS RIVER BASIN

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08099400 PROCTOR LAKE NEAR PROCTOR, TX--Continued

315814098291201 - PROCTOR LAKE SITE AC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	NITRO- GEN. NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN. AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN. ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN. AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN									
05...	0.089	0.040	0.96	1.0	0.010	<0.010	--	85	22
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	0.070	0.050	0.85	0.90	0.010	<0.010	--	29	27
APR									
21...	<0.050	0.020	0.28	0.30	<0.010	<0.010	--	<3	2
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	<0.050	0.030	0.27	0.30	<0.010	<0.010	--	32	2
AUG									
24...	<0.050	0.050	0.35	0.40	0.020	<0.010	--	<3	44
24...	<0.050	0.120	0.28	0.40	0.030	0.010	0.03	<10	150
24...	<0.050	0.150	0.35	0.50	0.030	0.010	0.03	3	260

315823098282801 - PROCTOR LAKE SITE AL

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
05...	1045	1.00	729	8.3	9.5	9.8	88
05...	1047	10.0	731	8.3	9.0	9.6	85
05...	1049	20.0	728	8.3	9.0	9.5	85
05...	1051	28.0	728	8.3	9.0	9.4	84
APR							
21...	0900	1.00	982	8.2	18.0	7.7	84
21...	0902	10.0	982	8.2	18.0	7.7	84
21...	0904	20.0	981	8.2	18.0	7.8	85
21...	0906	28.0	979	8.2	18.0	7.8	85
AUG							
24...	0850	1.00	1100	7.8	28.0	4.4	59
24...	0852	10.0	1100	7.8	28.0	4.3	57
24...	0854	20.0	1100	7.7	28.0	3.9	52
24...	0856	25.0	1110	7.2	27.5	0	0

315832098302301 - PROCTOR LAKE SITE BC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
05...	1020	1.00	821	8.4	9.5	10.0	90
05...	1022	10.0	829	8.4	9.5	9.9	89
05...	1024	18.0	744	8.4	9.0	9.4	84
APR							
21...	0935	1.00	987	8.3	18.5	8.4	92
21...	0937	10.0	985	8.3	18.0	8.1	88
21...	0938	15.0	985	8.2	18.5	8.0	88
21...	0939	20.0	983	7.8	17.5	5.0	54
AUG							
24...	0935	1.00	1100	7.8	28.0	4.6	61
24...	0937	10.0	1100	7.6	28.0	3.6	48
24...	0939	16.0	1100	7.5	28.0	2.7	36

## BRAZOS RIVER BASIN

08099400 PROCTOR LAKE NEAR PROCTOR, TX--Continued

## 315837098314201 - PROCTOR LAKE SITE CC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
05...	1035	1.00	863	8.4	9.0	9.8	87
05...	1037	7.00	860	8.4	9.0	9.5	85
APR							
21...	0950	1.00	1070	8.2	18.5	7.4	81
21...	0952	7.00	1090	8.1	18.5	7.2	79
AUG							
24...	0950	1.00	1130	7.9	27.5	5.8	77
24...	0952	3.00	1140	7.9	27.5	5.4	71

## 315943098273101 - PROCTOR LAKE SITE DC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
05...	1155	1.00	736	8.4	9.5	10.3	93
05...	1157	10.0	738	8.4	9.5	10.1	91
APR							
21...	0805	1.00	980	8.1	17.5	7.1	76
21...	0807	11.0	978	8.1	17.0	7.1	76
AUG							
24...	0755	1.00	1110	7.9	28.5	5.2	70
24...	0757	8.00	1110	7.9	28.5	5.2	70

## 315924098285501 - PROCTOR LAKE SITE EC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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												
05...	1100	1.00	754	8.4	9.5	0.40	9.9	89	K15	K6	230	
05...	1102	10.0	770	8.4	9.5	--	9.8	88	--	--	--	
05...	1104	21.0	767	8.4	9.0	--	9.6	85	--	--	240	
APR												
21...	0820	1.00	1020	8.2	18.0	0.60	7.8	85	K1	1	320	
21...	0822	10.0	1000	8.1	18.0	--	7.0	76	--	--	--	
21...	0824	20.0	995	7.8	17.5	--	5.1	55	--	--	310	
AUG												
24...	0805	1.00	1110	7.9	28.5	0.70	4.8	65	K2	K4	260	
24...	0807	10.0	1110	7.8	28.5	--	4.7	63	--	--	--	
24...	0809	17.0	1110	7.8	28.5	--	4.0	54	--	--	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- 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)
JAN												
05...	78	63	17	61	2	6.7	150	70	120	0.20	3.1	
05...	--	--	--	--	--	--	--	--	--	--	--	--
05...	86	65	18	63	2	6.9	150	71	120	0.20	3.7	
APR												
21...	140	85	25	94	2	6.8	170	94	170	0.30	1.7	
21...	--	--	--	--	--	--	--	--	--	--	--	--
21...	140	81	25	88	2	7.0	170	91	170	0.30	1.6	
AUG												
24...	140	58	29	110	3	6.6	120	98	210	0.30	2.9	
24...	--	--	--	--	--	--	--	--	--	--	--	--
24...	130	54	28	110	3	6.6	120	100	190	0.30	3.1	

## BRAZOS RIVER BASIN

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08099400 PROCTOR LAKE NEAR PROCTOR, TX--Continued

315924098285501 - PROCTOR LAKE SITE EC--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN											
05...	430	0.030	<0.050	0.020	0.88	0.90	0.030	<0.010	--	12	1
05...	--	--	--	--	--	--	--	--	--	--	--
05...	438	0.030	<0.050	0.020	0.78	0.80	<0.010	<0.010	--	12	3
APR											
21...	581	<0.010	<0.050	0.030	0.27	0.30	<0.010	0.010	0.03	4	6
21...	--	--	--	--	--	--	--	--	--	--	--
21...	564	<0.010	<0.050	0.110	0.29	0.40	<0.010	0.010	0.03	3	200
AUG											
24...	588	<0.010	<0.050	0.020	0.38	0.40	0.010	<0.010	--	6	16
24...	--	--	--	--	--	--	--	--	--	--	--
24...	565	<0.010	<0.050	0.030	0.37	0.40	0.020	<0.010	--	<3	44

320040098293501 - PROCTOR LAKE SITE FC

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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											
05...	1125	1.00	844	8.4	9.0	0.40	10.1	90	25	K9	260
05...	1127	10.0	847	8.4	9.0	--	9.6	86	--	--	260
APR											
21...	0840	1.00	1130	8.3	19.0	0.40	7.4	82	1	1	330
21...	0842	10.0	1130	8.3	18.5	--	7.3	80	--	--	340
AUG											
24...	0830	1.00	1150	8.0	28.5	0.40	5.2	70	K8	K6	270
24...	0832	6.00	1160	7.6	28.0	--	3.6	48	--	--	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 SI02)
JAN											
05...	97	73	19	70	2	6.6	160	82	130	0.20	4.3
05...	98	74	19	70	2	6.8	170	83	130	0.20	4.8
APR											
21...	140	88	26	100	2	6.6	180	99	200	0.30	4.5
21...	160	95	26	110	3	6.6	180	100	200	0.30	4.8
AUG											
24...	160	60	29	120	3	8.4	100	100	240	0.30	2.9
24...	140	55	27	120	3	8.3	100	110	240	0.30	3.7

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN											
05...	484	0.030	<0.050	0.020	0.38	0.40	<0.010	<0.010	--	36	11
05...	487	0.020	<0.050	0.020	0.48	0.50	<0.010	<0.010	--	11	5
APR											
21...	635	<0.010	<0.050	0.020	0.38	0.40	0.010	<0.010	--	<3	4
21...	653	<0.010	<0.050	0.020	0.28	0.30	0.010	<0.010	--	11	18
AUG											
24...	624	<0.010	<0.050	0.020	0.38	0.40	0.020	<0.010	--	9	7
24...	628	<0.010	<0.050	0.110	0.39	0.50	0.030	0.010	0.03	10	92

## BRAZOS RIVER BASIN

08099400 PROCTOR LAKE NEAR PROCTOR, TX—Continued

Proctor Lake Site AC (315814098291201)

Phytoplankton Analyses October 1992 to September 1993

Date	1-5-93
Time	0920

TOTAL CELLS/mL	21,665
NUMBER OF SPECIES	15
DEPTH COLLECTED (ft.)	1.0

<u>Organisms</u>	<u>Cells/mL</u>
<b>BACILLARIOPHYTA</b>	
Order Centrales	
<i>Cyclotella ocellata</i>	15
<i>Melosira varians</i>	132
<i>Stephanodiscus astraëa</i>	1
Order Pennales	
<i>Fragilaria crotonensis</i>	788
<i>Navicula</i> sp.	75
<b>CHLOROPHYTA</b>	
<i>Ankistrodesmus falcatus</i>	744
<i>Chlamydomonas</i> sp.	30
<i>Cosmarium</i> sp.	30
<i>Pediastrum duplex</i>	119
<i>Scenedesmus acuminatus</i>	60
<i>Scenedesmus quadricauda</i>	327
<b>CYANOPHYTA</b>	
<i>Aphanocapsa delicatissima</i>	9,523
<i>Chroococcus limneticus</i>	833
<i>Merismopedia tenuissima</i>	8,928
<b>EUGLENOPHYTA</b>	
<i>Trachelomonas</i> spp.	60



08098400 PROCTOR LAKE NEAR PROCTOR, TX—Continued

## Proctor Lake Site FC (320040098293501)

Phytoplankton Analyses October 1992 to September 1993

Date	1-5-93
Time	1125

TOTAL CELLS/mL	10,924
NUMBER OF SPECIES	14
DEPTH COLLECTED (ft.)	0.7

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	2
<i>Melosira varians</i>	28
Order Pennales	
<i>Cymbella</i> sp.	40
<i>Fragilaria crotonensis</i>	516
<i>Pinnularia</i> sp.	40
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	1,458
<i>Chlamydomonas</i> sp.	30
<i>Cosmarium</i> sp.	30
<i>Pediastrum duplex</i>	89
<i>Scenedesmus acuminatus</i>	179
<i>Scenedesmus quadricauda</i>	149
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	4,762
<i>Merismopedia tenuissima</i>	3,571
EUGLENOPHYTA	
<i>Trachelomonas</i> spp.	30

## BRAZOS RIVER BASIN

08099400 PROCTOR LAKE NEAR PROCTOR, TX—Continued

## Proctor Lake Site AC (315814098291201)

## Phytoplankton Analyses October 1992 to September 1993

Date	4-21-93
Time	0915

TOTAL CELLS/mL	19,046
NUMBER OF SPECIES	16
DEPTH COLLECTED (ft.)	1.4

<u>Organisms</u>	<u>Cells/mL</u>
<b>BACILLARIOPHYTA</b>	
Order Centrales	
<i>Cyclotella ocellata</i>	800
<i>Melosira varians</i>	242
Order Pennales	
<i>Fragilaria crotonensis</i>	1,005
<i>Stauroneis anceps</i>	126
<b>CHLOROPHYTA</b>	
<i>Ankistrodesmus falcatus</i>	833
<i>Chlamydomonas</i> spp.	119
<i>Cosmarium</i> sp.	119
<i>Pediastrum duplex</i>	179
<i>Scenedesmus bijuga</i>	238
<i>Scenedesmus quadricauda</i>	684
<i>Staurastrum</i> sp.	238
<b>CYANOPHYTA</b>	
<i>Aphanizomenon flos-aquae</i>	1,488
<i>Aphanocapsa delicatissima</i>	4,464
<i>Merismopedia tenuissima</i>	6,785
<b>EUGLENOPHYTA</b>	
<i>Trachelomonas</i> spp.	536
<b>CRYPTOPHYTA</b>	
<i>Cryptomonas erosa</i>	1,190

08099400 PROCTOR LAKE NEAR PROCTOR, TX—Continued

## Proctor Lake Site FC (320040098293501)

Phytoplankton Analyses October 1992 to September 1993

Date	4-21-93
Time	0840
<hr/>	
TOTAL CELLS/mL	24,703
NUMBER OF SPECIES	17
DEPTH COLLECTED (ft.)	0.2
<hr/>	

<u>Organisms</u>	<u>Cells/mL</u>
<b>BACILLARIOPHYTA</b>	
Order Centrales	
<i>Cyclotella ocellata</i>	303
<i>Melosira varians</i>	382
Order Pennales	
<i>Cocconeis placentula</i>	39
<i>Fragilaria crotonensis</i>	1,125
<i>Navicula</i> sp.	39
<i>Synedra ulna</i>	78
<b>CHLOROPHYTA</b>	
<i>Ankistrodesmus falcatus</i>	863
<i>Chlamydomonas</i> spp.	89
<i>Cosmarium</i> sp.	60
<i>Pediastrum</i> sp.	208
<i>Scenedesmus bijuga</i>	60
<i>Scenedesmus quadricauda</i>	298
<i>Staurastrum</i> sp.	208
<b>CYANOPHYTA</b>	
<i>Aphanocapsa delicatissima</i>	5,684
<i>Merismopedia tenuissima</i>	13,332
<b>EUGLENOPHYTA</b>	
<i>Trachelomonas</i> spp.	1,012
<b>CRYPTOPHYTA</b>	
<i>Cryptomonas erosa</i>	923

## BRAZOS RIVER BASIN

08098400 PROCTOR LAKE NEAR PROCTOR, TX—Continued

## Proctor Lake Site AC (315814098291201)

## Phytoplankton Analyses October 1992 to September 1993

Date	8-24-93
Time	0910

TOTAL CELLS/mL	43,124
NUMBER OF SPECIES	19
DEPTH COLLECTED (ft.)	1.4

<u>Organisms</u>	<u>Cells/mL</u>
<b>BACILLARIOPHYTA</b>	
Order Centrales	
<i>Cyclotella ocellata</i>	199
<i>Melosira varians</i>	39
Order Pennales	
<i>Fragilaria crotonensis</i>	289
<i>Fragilaria vaucherie</i>	433
<i>Navicula</i> sp.	14
<i>Tabellaria fenestrata</i>	216
<b>CHLOROPHYTA</b>	
<i>Ankistrodesmus falcatus</i>	3,780
<i>Cosmarium</i> sp.	30
<i>Gloeocystis major</i>	30
<i>Pediastrum duplex</i>	149
<i>Scenedesmus opoliensis</i>	30
<i>Staurastrum</i> sp.	30
<b>CYANOPHYTA</b>	
<i>Anabaena spiroides</i>	179
<i>Aphanizomenon flos-aquae</i>	8,779
<i>Aphanocapsa delicatissima</i>	12,499
<i>Chroococcus limneticus</i>	1,131
<i>Merismopedia tenuissima</i>	15,237
<b>EUGLENOPHYTA</b>	
<i>Trachelomonas</i> sp.	30
<b>PYRRHOPHYTA</b>	
<i>Peridinium</i> sp.	30

08099400 PROCTOR LAKE NEAR PROCTOR, TX—Continued

## Proctor Lake Site FC (320040098293501)

## Phytoplankton Analyses October 1992 to September 1993

Date	8-24-93
Time	0830

TOTAL CELLS/mL	42,232
NUMBER OF SPECIES	19
DEPTH COLLECTED (ft.)	1.1

<u>Organisms</u>	<u>Cells/mL</u>
<b>BACILLARIOPHYTA</b>	
Order Centrales	
<i>Cyclotella ocellata</i>	612
<i>Melosira varians</i>	336
<i>Stephanodiscus astraëa</i>	5
Order Pennales	
<i>Fragilaria crotonensis</i>	1,582
<i>Diatoma hiemale</i>	153
<i>Tabellaria fenestrata</i>	51
<b>CHLOROPHYTA</b>	
<i>Ankistrodesmus falcatus</i>	7,053
<i>Chlamydomonas</i> sp.	60
<i>Cosmarium</i> sp.	30
<i>Pediastrum duplex</i>	149
<i>Scenedesmus dimorphus</i>	60
<i>Scenedesmus opoliensis</i>	30
<b>CYANOPHYTA</b>	
<i>Aphanizomenon flos-aquae</i>	8,005
<i>Aphanocapsa delicatissima</i>	8,333
<i>Chroococcus limneticus</i>	1,071
<i>Merismopedia glauca</i>	1,548
<i>Merismopedia tenuissima</i>	12,856
<b>EUGLENOPHYTA</b>	
<i>Trachelomonas</i> spp.	238
<b>CRYPTOPHYTA</b>	
<i>Cryptomonas erosa</i>	60



## BRAZOS RIVER BASIN

08098400 PROCTOR LAKE NEAR PROCTOR, TX—Continued

## Proctor Lake Site AC (315814098291201)

## Phytoplankton Analyses October 1991 to September 1992

Date	1-29-92
Time	1400

TOTAL CELLS/mL	31,976
NUMBER OF SPECIES	16
DEPTH COLLECTED (ft.)	0.6

Organisms	Cells/mL
<b>BACILLARIOPHYTA (Diatoms)</b>	
Order Centrales	
<i>Cyclotella meneghiniana</i>	98
Order Pennales	
<i>Cocconeis placentula</i> var. <i>euglypta</i>	49
<i>Navicula cryptocephala</i>	49
<i>Nitzschia palea</i>	49
<i>Surirella ovata</i>	49
<b>CHLOROPHYTA (Green algae)</b>	
<i>Ankistrodesmus falcatus</i>	195
<i>Chlamydomonas</i> sp.	1,369
<i>Chlorella ellipsoidea</i>	978
<i>Chlorococcum humicola</i>	196
<i>Selenastrum minutum</i>	391
<i>Tetraedron minimum</i>	196
<b>CHRYSTOPHYTA</b>	
Unknown flagellate	2,542
<b>CYANOPHYTA (Blue-green algae)</b>	
<i>Aphanocapsa delicatissima</i>	23,859
<i>Aphanothece nidulans</i>	978
<i>Chroococcus</i> sp.	782
<b>CRYPTOPHYTA (Cryptomonads)</b>	
<i>Cryptomonas erosa</i>	196

08099400 PROCTOR LAKE NEAR PROCTOR, TX—Continued

## Proctor Lake Site FC (320040098293501)

## Phytoplankton Analyses October 1991 to September 1992

Date	1-29-92
Time	1320

TOTAL CELLS/mL	47,195
NUMBER OF SPECIES	13
DEPTH COLLECTED (ft.)	0.6

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
<i>Cyclotella meneghiniana</i>	261
Order Pennales	
<i>Navicula cryptocephala</i>	261
<i>Navicula radiosa</i>	130
CHLOROPHYTA (Green algae)	
<i>Ankistrodesmus falcatus</i>	782
<i>Chlamydomonas</i> sp.	3,911
<i>Chlorella ellipsoidea</i>	2,738
<i>Chlorococcum humicola</i>	1,173
CHRYSOPHYTA	
Unknown flagellate	3911
CYANOPHYTA (Blue-green algae)	
<i>Aphanocapsa delicatissima</i>	30,508
<i>Aphanocapsa elachista</i>	782
<i>Chroococcus</i> sp.	1,565
CRYPTOPHYTA (Cryptomonads)	
<i>Cryptomonas erosa</i>	391
<i>Rhodomonas minuta</i>	782

## BRAZOS RIVER BASIN

09099400 PROCTOR LAKE NEAR PROCTOR, TX—Continued

Proctor Lake Site AC (315814098291201)

Phytoplankton Analyses October 1991 to September 1992

Date	4-29-92
Time	0950

TOTAL CELLS/mL	21,040
NUMBER OF SPECIES	11
DEPTH COLLECTED (ft.)	1.7

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
<i>Cyclotella ocellata</i>	5,922
CHLOROPHYTA (Green algae)	
<i>Ankistrodesmus falcatus</i>	565
<i>Chlamydomonas</i> sp.	30
<i>Scenedesmus quadricauda</i>	119
<i>Schroederia judyi</i>	119
<i>Selenastrum</i> sp.	179
CYANOPHYTA (Blue-green algae)	
<i>Aphanocapsa delicatissima</i>	8,333
<i>Aphanocapsa elachista</i>	1,786
<i>Merismopedia tenuissima</i>	3,333
EUGLENOPHYTA (Euglenoids)	
<i>Trachelomonas</i> sp.	89
CRYPTOPHYTA (Cryptomonads)	
<i>Cryptomonas erosa</i>	565

06069400 PROCTOR LAKE NEAR PROCTOR, TX—Continued

## Proctor Lake Site FC (320040098293501)

## Phytoplankton Analyses October 1991 to September 1992

Date	4-29-92
Time	0900

TOTAL CELLS/mL	12,084
NUMBER OF SPECIES	13
DEPTH COLLECTED (ft.)	1.2

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
<i>Cyclotella ocellata</i>	1,188
<i>Melosira varians</i>	32
CHLOROPHYTA (Green algae)	
<i>Ankistrodesmus falcatus</i>	268
<i>Chlamydomonas</i> sp.	149
<i>Pediastrum duplex</i>	30
<i>Scenedesmus quadricauda</i>	60
<i>Schroederia judyi</i>	30
<i>Selenastrum</i> sp.	60
CYANOPHYTA (Blue-green algae)	
<i>Anabaena</i> sp.	595
<i>Aphanocapsa delicatissima</i>	6,845
<i>Aphanocapsa elachista</i>	1,488
EUGLENOPHYTA (Euglenoids)	
<i>Trachelomonas</i> sp.	446
CRYPTOPHYTA (Cryptomonads)	
<i>Cryptomonas erosa</i>	893

## BRAZOS RIVER BASIN

08099400 PROCTOR LAKE NEAR PROCTOR, TX—Continued

Proctor Lake Site AC (315814098291201)

Phytoplankton Analyses October 1991 to September 1992

Date	8-13-92
Time	0950

TOTAL CELLS/mL	35,625
NUMBER OF SPECIES	20
DEPTH COLLECTED (ft.)	1.8

<u>Organisms</u>	<u>Cells/mL</u>
<b>BACILLARIOPHYTA (Diatoms)</b>	
Order Centrales	
<i>Cyclotella ocellata</i>	283
<i>Melosira varians</i>	124
<i>Stephanodiscus astraea</i>	10
Order Pennales	
<i>Fragilaria crotonensis</i>	307
<i>Fragilaria vaucherie</i>	296
<i>Nitzschia palea</i>	11
<i>Synedra ulna</i>	11
<b>CHLOROPHYTA (Green algae)</b>	
<i>Ankistrodesmus falcatus</i>	7529
<i>Cosmarium</i> sp.	89
<i>Pediastrum duplex</i>	30
<i>Scenedesmus quadricauda</i>	30
<b>CHRYSTOPHYTA (Golden-brown algae)</b>	
<i>Mallomonas</i> sp.	30
<b>CYANOPHYTA (Blue-green algae)</b>	
<i>Anabaena spiroides</i>	6,845
<i>Aphanizomenon flos-aquae</i>	6,339
<i>Aphanocapsa delicatissima</i>	4,762
<i>Merismopedia tenuissima</i>	8,452
<b>EUGLENOPHYTA (Euglenoids)</b>	
<i>Euglena</i> sp.	60
<i>Trachelomonas</i> spp.	149
<b>PYRRHOPHYTA (Dinoflagellates)</b>	
<i>Peridinium</i> sp.	30
<b>CRYPTOPHYTA (Cryptomonads)</b>	
<i>Cryptomonas ovata</i>	238



08099400 PROCTOR LAKE NEAR PROCTOR, TX—Continued

## Proctor Lake Site FC (320040098293501)

## Phytoplankton Analyses October 1991 to September 1992

Date	8-13-92
Time	0850

TOTAL CELLS/mL	27,976
NUMBER OF SPECIES	20
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
<b>BACILLARIOPHYTA (Diatoms)</b>	
Order Centrales	
<i>Cyclotella ocellata</i>	468
<i>Melosira varians</i>	266
<i>Stephanodiscus astraes</i>	9
Order Pennales	
<i>Fragilaria crotonensis</i>	172
<i>Fragilaria vaucherie</i>	215
<b>CHLOROPHYTA (Green algae)</b>	
<i>Ankistrodesmus falcatus</i>	2,381
<i>Cosmarium</i> sp.	30
<i>Pediastrum duplex</i>	30
<i>Scenedesmus bijuga</i>	30
<i>Scenedesmus quadricauda</i>	30
<b>CHRYSTOPHYTA (Golden-brown algae)</b>	
<i>Mallomonas</i> sp.	30
<b>CYANOPHYTA (Blue-green algae)</b>	
<i>Anabaena spiroides</i>	2,530
<i>Aphanizomenon flos-aquae</i>	10,714
<i>Aphanocapsa delicatissima</i>	6,250
<i>Merismopedia tenuissima</i>	4,166
<b>EUGLENOPHYTA (Euglenoids)</b>	
<i>Euglena</i> sp.	89
<i>Trachelomonas</i> spp.	268
<b>PYRRHOPHYTA (Dinoflagellates)</b>	
<i>Ceratium cornutum</i>	89
<b>CRYPTOPHYTA (Cryptomonads)</b>	
<i>Cryptomonas erosa</i>	60
<i>Cryptomonas ovata</i>	149

## 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 Fe 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 1992 TO SEPTEMBER 1993

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)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	
JAN 05...	1400	353	745	8.0	9.0	30	16	11.1	99	2.6	220	79	
APR 21...	1100	358	983	8.1	18.0	20	--	8.5	92	2.5	290	120	
AUG 24...	1100	86	1110	7.5	27.0	21	19	5.1	67	1.6	270	160	
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 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)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)
JAN 05...	60	18	60	2	7.1	150	68	120	0.20	3.1	425	40	
APR 21...	76	24	85	2	6.9	170	91	160	0.30	0.43	546	--	
AUG 24...	60	29	110	3	7.5	120	97	190	0.30	4.0	569	39	
DATE		RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L AS N)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	
JAN 05...	18	22	0.051	0.051	0.020	0.071	0.071	0.040	1.1	1.1	<0.010		
APR 21...	--	--	--	--	<0.010	--	<0.050	0.020	0.28	0.30	<0.010		
AUG 24...	15	24	0.120	0.120	0.020	0.140	0.140	0.210	0.39	0.60	0.050		
DATE		PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	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)	
JAN 05...	<0.010	--	8.0	<1	120	<0.5	<1.0	<5	<3	<10	7		
APR 21...	<0.010	--	7.4	<1	130	<0.5	<1.0	<5	<3	<10	3		
AUG 24...	0.030	0.09	7.5	2	140	<0.5	<1.0	<5	<3	<10	14		
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)	
JAN 05...	<10	6	7	<0.1	<10	<10	<1	<1.0	480	<6	4		
APR 21...	<10	10	12	<0.1	<10	<10	<1	1.0	630	<6	<3		
AUG 24...	<10	10	85	<0.1	<10	<10	<1	<1.0	700	<6	<3		

BRAZOS RIVER BASIN

295

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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	384	70	66	105	185	505	473	170	44	33	7.1	27
2	375	70	65	120	175	510	437	203	42	27	7.1	23
3	369	80	65	130	202	450	421	304	41	20	12	15
4	358	67	64	130	470	392	421	214	38	16	19	9.3
5	338	49	62	128	390	528	425	159	35	19	38	18
6	314	41	63	260	318	726	420	315	31	30	39	22
7	295	37	64	314	288	738	475	591	34	27	35	19
8	248	36	65	208	271	729	512	580	43	25	33	20
9	235	37	70	222	258	717	456	370	44	23	23	15
10	152	37	70	311	445	699	414	327	44	13	17	9.0
11	128	37	70	264	479	684	392	311	50	10	10	6.9
12	124	38	70	236	382	762	376	187	82	8.8	5.8	6.1
13	95	37	73	215	317	818	366	153	70	12	3.2	5.0
14	74	37	559	200	293	760	447	146	45	16	1.4	26
15	71	39	1050	193	622	725	689	119	38	9.4	.96	47
16	69	38	414	167	683	714	523	89	36	5.7	.68	31
17	68	37	381	133	431	695	426	80	31	4.8	2.6	20
18	68	37	438	126	351	678	425	76	27	5.7	11	13
19	68	326	408	124	328	712	395	71	30	4.6	6.0	11
20	68	445	376	193	320	978	439	65	30	3.6	4.1	9.2
21	65	147	368	207	308	751	360	62	29	5.3	3.5	7.9
22	59	80	347	348	285	590	334	56	32	6.3	3.3	6.5
23	58	59	332	249	266	540	259	55	56	3.3	3.8	6.1
24	59	56	315	318	254	499	185	61	61	3.0	4.1	8.1
25	57	56	311	348	814	473	147	69	44	2.6	12	13
26	58	77	302	334	1440	449	133	65	88	2.4	11	9.9
27	60	96	290	202	769	430	126	58	98	2.6	11	9.5
28	60	95	159	149	483	617	123	55	72	2.6	9.1	17
29	60	87	112	165	---	1150	153	53	49	2.8	10	14
30	60	68	108	199	---	760	189	51	39	3.4	13	9.8
31	61	---	104	200	---	547	---	45	---	11	23	---
TOTAL	4558	2416	7241	6498	11827	20326	10941	5160	1403	358.9	379.74	454.3
MEAN	147	80.5	234	210	422	656	365	166	46.8	11.6	12.2	15.1
MAX	384	445	1050	348	1440	1150	689	591	98	33	39	47
MIN	57	36	62	105	175	392	123	45	27	2.4	.68	5.0
AC-F I	9040	4790	14360	12890	23460	40320	21700	10230	2780	712	753	901

## BRAZOS RIVER BASIN

08100000 LEON RIVER NEAR HAMILTON, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1993#, BY WATER YEAR (WY)

MEAN	76.1	72.4	141	143	197	184	238	465	353	259	125	112
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 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1964 - 1993#	
ANNUAL TOTAL	345545		71562.94		197	
ANNUAL MEAN	944		196		1219	
HIGHEST ANNUAL MEAN					3.92	
LOWEST ANNUAL MEAN					21200	
HIGHEST DAILY MEAN	9490	Feb 5	1440	Feb 26	Dec 21 1991	
LOWEST DAILY MEAN	36	Nov 8	.68	Aug 16	Oct 16 1963	
ANNUAL SEVEN-DAY MINIMUM	37	Nov 7	2.8	Jul 23	Oct 16 1963	
INSTANTANEOUS PEAK FLOW			1660	Feb 26	Dec 20 1991	
INSTANTANEOUS PEAK STAGE			14.57	Feb 26	Dec 20 1991	
INSTANTANEOUS LOW FLOW			.49	Aug 16	at times	
ANNUAL RUNOFF (AC-FT)	685400		141900		142900	
10 PERCENT EXCEEDS	1690		507		538	
50 PERCENT EXCEEDS	826		73		14	
90 PERCENT EXCEEDS	67		8.5		.66	

# Period of regulated streamflow.

## BRAZOS RIVER BASIN

297

## 08100500 LEON RIVER AT GATESVILLE, TX

LOCATION.--Lat 31°25'58", long 97°45'42", Coryell County, Hydrologic Unit 12070201, 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 TX-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.--No estimated daily discharges. Records good. 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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	383	79	116	213	387	1230	761	384	101	104	13	16
2	377	78	95	202	370	1050	664	466	91	85	13	11
3	371	81	88	205	503	887	623	364	85	72	13	11
4	366	78	87	229	2580	769	643	389	82	64	13	15
5	357	85	84	241	1180	679	631	410	80	57	18	15
6	341	82	83	237	768	679	606	403	73	50	18	13
7	324	69	82	248	617	817	778	358	68	45	19	9.7
8	309	58	82	400	528	871	874	548	64	42	28	7.3
9	287	55	87	423	478	866	756	631	60	51	28	12
10	260	54	86	362	1010	841	667	541	168	49	24	12
11	242	52	90	409	979	853	606	422	105	45	21	11
12	182	53	89	430	806	1370	571	408	98	44	17	12
13	162	51	92	384	672	1160	543	371	97	37	13	12
14	154	49	184	354	571	1020	771	295	127	33	10	12
15	123	48	695	331	961	955	710	270	119	31	8.5	9.3
16	100	48	1580	314	2030	898	787	258	90	28	7.1	6.9
17	93	48	803	303	1280	861	782	220	76	30	6.0	23
18	87	49	533	266	828	833	867	184	74	31	5.0	33
19	85	212	572	234	675	976	603	166	73	28	4.5	26
20	87	140	573	287	625	1680	605	157	67	25	3.8	18
21	85	413	545	317	600	1550	667	149	238	22	3.3	13
22	84	343	521	357	562	1460	568	136	220	22	3.1	11
23	82	191	497	358	518	1220	501	146	98	22	5.5	9.6
24	78	126	465	429	488	910	464	157	76	20	5.7	8.2
25	74	118	446	335	846	803	404	134	91	18	4.7	7.0
26	73	105	435	416	1480	744	346	129	928	19	4.0	6.7
27	73	88	425	421	1730	699	316	135	237	19	3.5	5.9
28	72	93	418	384	1440	668	301	131	207	17	3.4	5.6
29	74	119	382	724	---	748	335	120	177	15	3.8	9.2
30	83	120	268	531	---	1300	364	119	139	15	7.6	8.9
31	81	---	228	417	---	1090	---	111	---	14	10	---
TOTAL	5549	3185	10731	10761	25512	30487	18114	8712	4209	1154	337.5	370.2
MEAN	179	106	346	347	911	983	604	281	140	37.2	10.9	12.3
MAX	383	413	1580	724	2580	1680	874	631	928	104	28	33
MIN	72	48	82	202	370	668	301	111	60	14	3.1	5.6
AC-FIT	11010	6320	21280	21340	50600	60470	35930	17280	8350	2290	669	734

## BRAZOS RIVER BASIN

08100500 LEON RIVER AT GATESVILLE, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1993#, BY WATER YEAR (WY)

MEAN	107	116	242	209	343	320	377	694	509	310	141	139
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 1992 CALENDAR YEAR					FOR 1993 WATER YEAR				WATER YEARS 1964 - 1993#		
ANNUAL TOTAL	482130					119121.7						
ANNUAL MEAN	1317					326						
HIGHEST ANNUAL MEAN										292		
LOWEST ANNUAL MEAN										1758		
HIGHEST DAILY MEAN	9190					2580				6.22		
LOWEST DAILY MEAN	48					3.1				49100		
ANNUAL SEVEN-DAY MINIMUM	49					4.3				.00		
INSTANTANEOUS PEAK FLOW						3180				.00		
INSTANTANEOUS PEAK STAGE						14.23				68000		
INSTANTANEOUS LOW FLOW						3.1				35.00		
ANNUAL RUNOFF (AC-FT)	956300					236300				211500		
10 PERCENT EXCEEDS	2360					836				717		
50 PERCENT EXCEEDS	1120					157				31		
90 PERCENT EXCEEDS	87					12				1.5		

# Period of regulated streamflow.

\* No flow at times in 1971, 1978-79, and 1984.



BRAZOS RIVER BASIN

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08101000 COWHOUSE CREEK AT PIDCOKE, TX

LOCATION.--Lat 31°17'05", long 97°53'05", Coryell County, Hydrologic Unit 12070202, 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.

REVISED RECORDS.--WSP 1712: 1955. WSP 1922: Drainage area.

GAGE.--Water-stage recorder and data collection platform (DCP). Datum of gage is 736.71 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. 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:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 4	0330	4,920	12.94	June 26	0230	4,350	12.16

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.1	17	22	64	92	631	163	149	51	45	6.3	2.5
2	6.9	12	21	64	87	411	151	499	47	41	5.6	2.8
3	6.9	8.7	21	67	175	282	151	305	42	37	5.5	3.1
4	7.1	6.9	21	69	1580	218	188	178	39	33	7.1	3.2
5	7.5	6.9	20	69	347	192	177	185	37	29	6.1	3.1
6	8.1	6.9	20	67	209	177	160	346	35	26	5.4	3.1
7	7.6	6.9	20	66	142	165	404	219	33	24	5.2	3.1
8	8.2	6.9	21	67	133	152	409	166	31	23	5.0	3.1
9	7.0	6.9	23	77	120	142	240	140	31	22	5.0	2.8
10	7.5	7.1	23	81	1000	132	184	124	44	21	5.0	2.5
11	6.6	7.8	22	77	378	138	158	110	52	20	4.9	2.5
12	6.4	8.9	22	75	192	542	144	98	49	19	4.1	2.6
13	7.0	7.4	22	74	144	296	136	90	44	19	4.2	3.4
14	6.9	6.9	60	73	130	204	415	84	46	18	4.3	6.1
15	6.9	6.9	405	71	661	181	401	80	37	17	4.1	4.6
16	6.7	6.9	174	70	493	183	206	75	33	16	4.1	4.1
17	6.8	6.9	102	70	229	160	159	71	31	15	4.1	3.6
18	6.4	6.9	82	69	176	141	279	68	37	15	4.0	3.6
19	6.2	247	79	70	159	484	213	65	36	14	3.6	3.4
20	6.3	68	72	93	153	1020	212	62	30	13	3.6	3.3
21	6.2	45	72	92	141	426	217	60	325	12	3.6	3.1
22	6.4	38	70	81	122	560	136	58	234	11	3.6	3.1
23	6.5	30	70	77	111	469	119	73	180	11	3.6	3.1
24	6.3	29	68	75	109	349	111	69	72	9.8	3.5	3.0
25	6.1	41	66	73	662	307	102	65	48	9.3	3.2	2.7
26	6.1	39	66	72	408	267	91	61	1240	8.7	3.3	2.7
27	6.1	28	64	71	206	240	85	57	126	8.4	3.3	2.5
28	6.1	25	64	72	265	229	82	55	69	8.1	3.3	2.5
29	6.2	24	65	359	---	242	228	55	59	7.7	3.2	2.6
30	11	23	65	154	---	230	202	61	51	7.7	2.7	2.7
31	12	---	65	103	---	189	---	54	---	7.2	2.5	---
TOTAL	219.1	781.8	1987	2662	8624	9359	5923	3782	3189	567.9	133.0	94.5
MEAN	7.07	26.1	64.1	85.9	308	302	197	122	106	18.3	4.29	3.15
MAX	12	247	405	359	1580	1020	415	499	1240	45	7.1	6.1
MIN	6.1	6.9	20	64	87	132	82	54	30	7.2	2.5	2.5
AC-F-I	435	1550	3940	5280	17110	18560	11750	7500	6330	1130	264	187
CFSM	.02	.06	.14	.19	.68	.66	.43	.27	.23	.04	.01	.01
IN.	.02	.06	.16	.22	.71	.77	.48	.31	.26	.05	.01	.01

## BRAZOS RIVER BASIN

08101000 COWHOUSE CREEK AT PIDCOKE, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1993, BY WATER YEAR (WY)

MEAN	88.1	37.5	86.4	75.3	120	106	124	232	114	37.2	17.6	35.1
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 1992 CALENDAR YEAR

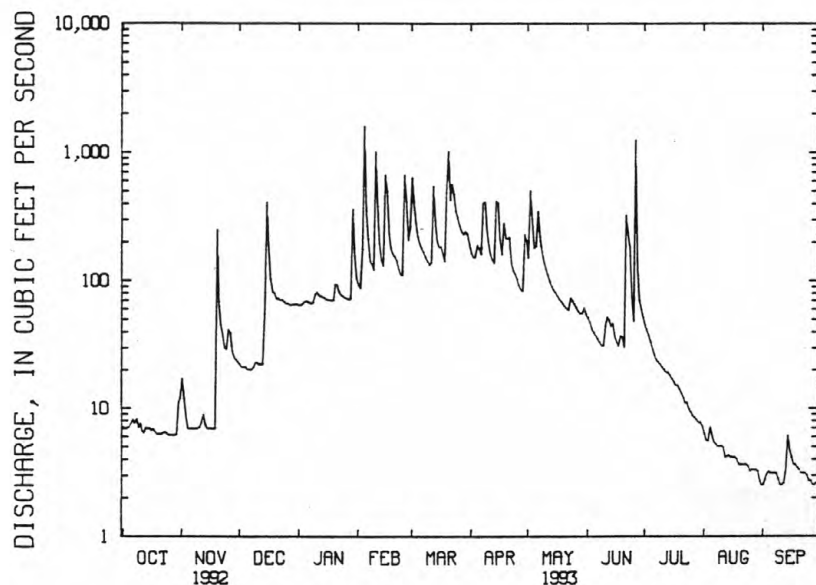
## FOR 1993 WATER YEAR

## WATER YEARS 1951 - 1993

ANNUAL TOTAL	117819.7	37322.3	
ANNUAL MEAN	322	102	89.4
HIGHEST ANNUAL MEAN			482
LOWEST ANNUAL MEAN			1.18
HIGHEST DAILY MEAN	11500	1580	35200
LOWEST DAILY MEAN	6.1	2.5	.00
ANNUAL SEVEN-DAY MINIMUM	6.2	2.7	.00
INSTANTANEOUS PEAK FLOW		4920	a/ 110000
INSTANTANEOUS PEAK STAGE		12.94	b/ 44.30
INSTANTANEOUS LOW FLOW		2.5	.00
ANNUAL RUNOFF (AC-FT)	233700	74030	64770
ANNUAL RUNOFF (CFSM)	.71	.22	.20
ANNUAL RUNOFF (INCHES)	9.63	3.05	2.67
10 PERCENT EXCEEDS	649	241	141
50 PERCENT EXCEEDS	101	49	5.6
90 PERCENT EXCEEDS	7.3	3.6	.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 measurement (flow over roadway and straight line extension) of 110,000 ft<sup>3</sup>/s.

b/ From floodmark.



08101000 COWHOUSE CREEK AT PIDCOKE, TX  
MEAN DAILY DISCHARGE (CFS), FROM THE DCP

## 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 TX-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, 620,200 acre-ft Mar. 2 (elevation, 606.92 ft); minimum daily, 417,600 acre-ft Sept. 24, 25 (elevation, 592.00 ft).

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

591.0	405,800	611.0	685,600	627.0	994,100
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

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	443400	441700	449900	482700	515900	618300	565100	448500	443800	461400	437800	422400
2	443200	441100	449900	483100	517200	620200	560400	450700	443500	459000	437300	422100
3	443000	441000	449900	483400	520200	619000	556800	447200	443100	456300	436800	421800
4	442900	441000	450200	484400	535500	615900	553500	443800	442700	453700	436500	421600
5	442700	440600	450000	484700	543900	611900	548700	445800	442500	451100	435700	421200
6	442500	440400	449900	485100	548300	607400	544100	447200	442000	449200	435600	420900
7	442400	439900	449900	485800	551200	602900	543200	447100	442000	448500	434900	420500
8	442200	439900	449700	486400	553700	598500	540600	446000	442000	447600	434500	420300
9	442000	440100	450600	488000	556300	594400	536600	450200	442200	446800	434000	419900
10	442100	440200	450500	489200	560700	591000	531900	451900	443400	446200	433500	419500
11	442200	440500	450400	489700	564800	588200	527900	451500	444200	445700	433000	418900
12	442100	440400	450600	490600	567900	587400	523200	449600	445700	445500	432600	418600
13	441900	440000	451900	491400	570300	584400	519700	447000	445800	445000	432100	418700
14	441900	440000	455200	492100	572600	580900	519800	444500	446200	444700	431500	420500
15	442200	439800	460800	493000	576100	577200	517100	443700	446300	444500	431100	420100
16	442200	439500	464100	493600	580300	574400	512900	443500	446500	444200	430700	419800
17	442100	439500	467300	494200	585100	570800	509500	443000	447200	444000	430300	419500
18	442000	439500	469300	495000	587600	566200	505900	442900	447900	443700	430300	419300
19	441700	446000	470800	496500	589800	569900	502200	442600	447200	443400	430000	419100
20	441700	447900	472000	497000	592000	572500	498000	442700	445300	443000	429400	419100
21	441600	448700	472800	498000	594200	571500	493300	442700	446700	442500	429000	418800
22	441700	448700	474200	498800	596100	573500	488300	442600	449100	442200	428100	418500
23	441700	449200	475500	499200	597600	574200	484000	443500	450000	441700	427400	418100
24	441700	449900	476200	500500	599100	572500	478100	443700	450500	441100	425700	417600
25	441500	449700	477300	501300	602700	569900	473600	443800	451000	440600	425400	417600
26	441500	449600	478000	502000	605800	566800	467800	444000	461900	440200	425100	421500
27	441500	449600	478800	502800	609400	563600	461400	443800	464000	439900	424500	421200
28	441400	449600	479800	504400	613900	566500	455000	444200	463700	439500	423900	421000
29	441600	449900	480600	509100	---	568900	451200	444100	463600	439000	423500	420700
30	441600	449700	481500	512600	---	571100	446300	444200	463000	438500	423000	420100
31	441000	---	482300	514500	---	568600	---	444100	---	438100	422900	---
MAX	443400	449900	482300	514500	613900	620200	565100	451900	464000	461400	437800	422400
MIN	441000	439500	449700	482700	515900	563600	446300	442600	442000	438100	422900	417600
(↑)	593.92	594.62	597.15	599.56	603.45	594.35	594.17	595.66	593.69	592.44	592.21	592.21
(Φ)	-2600	+8700	+32600	+32200	+99400	-45300	-122300	-2200	+18900	-24900	-15200	-2800

CAL YR 1992 MAX 1168000 MIN 439500 (Φ) -387900  
WTR YR 1993 MAX 620200 MIN 417600 (Φ) -23500

(↑) 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.

REVISID RECORDS.--WSP 1442: 1925(M), 1935(M), 1936, 1938(M), 1941-42(M), 1944-45(M). WSP 1712: 1937(M).  
WDR IX-76-2: Drainage area.

GAGE. Water-stage recorder, and data collection platform (DCP) 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 Lake (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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	317	31	17	37	47	335	3700	3210	212	757	50	10
2	322	23	4.1	39	44	1120	3700	3900	212	1130	51	4.4
3	330	28	16	40	47	2430	3720	3630	269	1130	49	8.9
4	328	28	28	38	55	3000	3720	2920	296	1130	57	10
5	324	24	33	37	47	3350	3700	1520	206	1140	49	12
6	322	29	28	39	53	3580	3690	750	141	727	46	7.1
7	327	31	29	41	49	3580	3700	1160	67	447	56	7.6
8	328	28	28	43	42	3580	3690	1450	54	448	48	9.9
9	260	24	32	43	23	3570	3690	1480	50	327	58	12
10	131	28	28	39	17	3570	3690	351	43	224	50	9.0
11	134	24	29	40	18	3590	3680	1090	9.7	167	51	6.5
12	129	29	29	39	14	3630	3690	1850	12	99	51	6.7
13	103	31	31	39	17	3620	3690	2050	12	89	45	14
14	41	32	45	41	20	3610	3690	1940	9.2	67	50	19
15	35	32	68	38	20	3610	3670	1050	19	64	50	13
16	36	29	44	42	15	3610	3670	623	41	58	50	1.5
17	34	32	38	39	18	3600	3670	754	45	62	46	.49
18	35	31	35	42	14	3610	3660	627	50	55	41	.05
19	32	79	33	43	17	3630	3670	388	480	56	40	.00
20	30	42	38	42	14	3620	3690	266	894	54	41	.00
21	16	68	37	41	17	3610	3680	265	633	52	42	.11
22	15	67	36	39	13	3650	3670	270	149	57	42	35
23	16	68	37	46	9.0	3640	3670	275	92	50	40	46
24	18	86	33	41	37	3640	3670	262	89	55	41	25
25	14	51	41	41	98	3650	3660	265	330	49	27	23
26	15	22	41	41	99	3650	3820	258	500	57	24	42
27	15	22	39	40	107	3350	4060	239	504	53	65	26
28	18	23	39	40	169	177	4060	238	492	46	47	24
29	25	22	40	54	---	118	4060	236	501	51	36	25
30	27	20	38	45	---	644	3500	236	513	45	31	21
31	24	---	39	45	---	2870	---	231	---	51	11	---
TOTAL	3801	1084	1053.1	1274	1140.0	93244	111630	33784	6924.9	8797	1385	419.25
MEAN	123	36.1	34.0	41.1	40.7	3008	3721	1090	231	284	44.7	14.0
MAX	330	86	68	54	169	3650	4060	3900	894	1140	65	46
MIN	14	20	4.1	37	9.0	118	3500	231	9.2	45	11	.00
AC-F	7540	2150	2090	2530	2260	184900	221400	67010	13740	17450	2750	832

BRAZOS RIVER BASIN

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08102500 LEON RIVER NEAR BELTON, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1993#, BY WATER YEAR (WY)

MEAN	362	325	278	481	436	703	666	1028	1127	830	322	175
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 1992 CALENDAR YEAR					FOR 1993 WATER YEAR				WATER YEARS 1954 - 1993#		
ANNUAL TOTAL	1053832.1					264536.25				562		
ANNUAL MEAN	2879					725				3067		
HIGHEST ANNUAL MEAN										4.71		
LOWEST ANNUAL MEAN										10200		
HIGHEST DAILY MEAN	10200					4060				Mar 6		
LOWEST DAILY MEAN	4.1					.00				Oct 1		
ANNUAL SEVEN-DAY MINIMUM	16					2.2				Oct 1		
INSTANTANEOUS PEAK FLOW						4070				56500		
INSTANTANEOUS PEAK STAGE						7.15				24.41		
INSTANTANEOUS LOW FLOW						.00				.00		
ANNUAL RUNOFF (AC-FT)	2090000					524700				406900		
10 PERCENT EXCEEDS	5780					3630				2060		
50 PERCENT EXCEEDS	3860					49				35		
90 PERCENT EXCEEDS	29					16				4.1		

# 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 TX-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.--No estimated daily discharges. Records good. 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.

EXTREMS 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)
Mar. 19	1700	4,320	8.05	June 26	1030	4,290	8.03

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	33	46	67	140	938	344	857	132	122	33	14
2	37	31	45	67	135	678	325	2090	126	103	32	15
3	38	30	45	67	143	444	328	969	118	91	32	16
4	37	27	45	69	752	369	383	598	114	82	33	18
5	38	27	45	70	384	330	380	555	110	74	32	18
6	35	27	45	70	290	313	345	659	110	67	29	16
7	35	30	46	70	244	305	678	483	106	61	27	15
8	34	31	47	70	222	291	867	405	103	55	25	16
9	33	35	55	81	211	283	460	361	100	54	24	18
10	36	37	52	82	1070	278	374	358	137	51	24	18
11	37	36	49	84	689	298	338	318	147	48	25	17
12	33	32	48	85	406	551	319	284	320	48	24	16
13	33	30	49	85	344	427	309	258	193	49	23	20
14	35	31	108	85	312	341	906	241	138	71	20	48
15	35	30	232	85	464	307	736	230	115	60	19	30
16	37	30	195	85	817	312	431	219	107	48	19	27
17	38	30	141	83	402	294	354	206	102	50	19	26
18	37	32	114	81	342	279	327	196	123	54	20	24
19	33	736	102	78	325	1490	310	184	126	52	14	26
20	37	190	87	103	318	2390	282	172	125	54	13	27
21	40	127	82	119	306	1020	266	166	195	47	13	30
22	37	104	82	117	279	865	246	157	683	50	14	28
23	36	71	78	109	260	763	241	164	706	45	13	23
24	35	63	73	93	251	600	234	166	293	43	12	28
25	33	55	71	86	851	546	222	165	172	43	11	27
26	33	53	67	80	921	479	201	152	1530	41	11	52
27	32	53	67	80	398	432	191	143	444	39	11	35
28	31	48	67	82	369	422	187	137	228	40	12	31
29	33	48	67	111	---	505	486	148	171	38	11	30
30	46	47	67	165	---	468	480	145	141	38	12	30
31	38	---	67	154	---	397	---	136	---	36	12	---
TOTAL	1105	2154	2384	2763	11645	17415	11550	11322	7215	1754	619	739
MEAN	35.6	71.8	76.9	89.1	416	562	385	365	240	56.6	20.0	24.6
MAX	46	736	232	165	1070	2390	906	2090	1530	122	33	52
MIN	31	27	45	67	135	278	187	136	100	36	11	14
AC-Ft	2190	4270	4730	5480	23100	34540	22910	22460	14310	3480	1230	1470



BRAZOS RIVER BASIN

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08103800 LAMPASAS RIVER NEAR KEMPNER, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1993, BY WATER YEAR (WY)

MEAN	94.1	64.8	173	122	238	216	184	315	239	64.4	47.1	65.9
MAX	453	398	3193	1107	3526	1502	1106	2995	1716	365	378	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 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1963 - 1993

ANNUAL TOTAL	251113			70665								
ANNUAL MEAN	686			194						151		
HIGHEST ANNUAL MEAN										949		1992
LOWEST ANNUAL MEAN										10.7		1984
HIGHEST DAILY MEAN	21000	Feb 4		2390	Mar 20				42500	Dec 21		1991
LOWEST DAILY MEAN	27	Nov 4		11	Aug 25				1.4	Jul 17		1971
ANNUAL SEVEN-DAY MINIMUM	29	Nov 2		11	Aug 24				2.2	Jul 18		1963
INSTANTANEOUS PEAK FLOW				4320	Mar 19				78000	Dec 20		1991
INSTANTANEOUS PEAK STAGE				8.05	Mar 19				35.00	Dec 20		1991
INSTANTANEOUS LOW FLOW				9.9	Aug 26				1.4	Jul 17		1971
ANNUAL RUNOFF (AC-FT)	498100			140200					109600			
10 PERCENT EXCEEDS	1590			466					270			
50 PERCENT EXCEEDS	230			82					32			
90 PERCENT EXCEEDS	37			24					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.--WDR TX-74-1: 1972-73(P). WDR TX-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 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)
June 25	2100	1,970	7.13	June 26	0230	3610	9.57

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.65	4.8	28	16	121	4.9	17	.71	.00
2	.00	.00	.00	.65	4.7	20	15	78	4.6	15	.58	.00
3	.00	.00	.00	.65	7.5	15	15	29	4.1	14	.40	.00
4	.00	.00	.00	.81	25	14	20	24	3.6	12	.41	.00
5	.00	.00	.00	.86	33	13	16	27	3.3	11	.37	.00
6	.00	.00	.00	.79	25	13	15	29	3.1	9.8	.27	.00
7	.00	.00	.00	.82	20	13	27	24	2.8	9.1	.23	.00
8	.00	.00	.00	.86	17	12	20	22	2.7	8.2	.21	.00
9	.00	.00	.01	1.3	17	11	15	30	2.5	7.0	.18	.00
10	.00	.00	.00	1.2	33	11	13	30	4.8	6.7	.15	.00
11	.00	.00	.00	1.7	23	12	12	21	5.2	5.9	.12	.00
12	.00	.00	.00	1.8	19	18	12	18	3.6	5.5	.07	.00
13	.00	.00	.00	1.4	18	13	12	17	3.2	5.0	.02	.00
14	.00	.00	.42	1.3	18	12	40	15	2.8	4.1	.00	9.6
15	.00	.00	4.3	1.3	19	11	20	14	2.5	3.6	.00	1.1
16	.00	.00	2.4	1.3	17	11	15	12	2.2	3.4	.00	.23
17	.00	.00	1.5	1.3	15	10	14	11	2.2	3.1	.00	.03
18	.00	.00	1.2	1.3	15	10	13	10	2.6	2.8	.00	.00
19	.00	3.2	1.0	16	15	47	12	9.7	2.3	2.6	.00	.00
20	.00	1.0	.86	10	15	57	12	9.1	3.2	2.4	.00	.00
21	.00	.32	.71	4.8	14	33	10	8.0	17	2.2	.00	.00
22	.00	.02	.66	3.4	13	31	9.3	7.7	20	2.0	.00	.00
23	.00	.00	.70	3.3	12	30	9.3	9.6	6.2	1.7	.00	.00
24	.00	.19	.65	2.6	12	26	8.9	10	4.1	1.4	.00	.00
25	.00	.06	.65	2.5	14	25	8.2	8.3	169	1.3	.00	.00
26	.00	.00	.65	2.5	12	23	7.0	6.9	466	1.1	.00	.08
27	.00	.00	33	2.5	11	21	6.7	6.1	42	1.0	.00	.21
28	.00	.00	.65	2.5	17	20	6.7	6.2	30	1.0	.00	.03
29	.00	.00	.65	5.8	---	20	26	6.5	24	.92	.00	.00
30	.00	.00	.64	6.6	---	21	15	7.6	20	.72	.00	.00
31	.00	---	.65	4.9	---	18	---	6.9	---	.71	.00	---
TOTAL	0.00	4.79	51.30	87.39	466.0	619	441.1	634.6	864.5	162.25	3.72	11.28
MEAN	.000	.16	1.65	2.82	16.6	20.0	14.7	20.5	28.8	5.23	.12	.38
MAX	.00	3.2	33	16	33	57	40	121	466	17	.71	9.6
MIN	.00	.00	.00	.65	4.7	10	6.7	6.1	2.2	.71	.00	.00
AC-FT	.00	9.5	102	173	924	1230	875	1260	1710	322	7.4	22
CFSM	.00	.00	.05	.08	.50	.60	.44	.61	.87	.16	.00	.01
IN.	.00	.01	.06	.10	.52	.69	.49	.71	.97	.18	.00	.01

BRAZOS RIVER BASIN

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08103900 SOUTH FORK ROCKY CREEK NEAR BRIGGS, TX--Continued  
(Hydrologic bench-mark station)

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1993, BY WATER YEAR (WY)

MEAN	3.99	3.97	8.22	9.97	18.3	17.8	13.4	25.2	21.1	5.16	2.25	3.95
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 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1964 - 1993

ANNUAL TOTAL	14492.26	3345.93	11.1
ANNUAL MEAN	39.6	9.17	49.2
HIGHEST ANNUAL MEAN			.036
LOWEST ANNUAL MEAN			1992
HIGHEST DAILY MEAN	1010 Feb 4	466 Jun 26	1510 Jun 19 1976
LOWEST DAILY MEAN	.00 Aug 30	.00 Oct 1	.00 Oct 1 1963
ANNUAL SEVEN-DAY MINIMUM	.00 Aug 30	.00 Oct 1	.00 Oct 1 1963
INSTANTANEOUS PEAK FLOW		3610 Jun 26	31200 Jun 19 1976
INSTANTANEOUS PEAK STAGE		9.57 Jun 26	22.70 Jun 19 1976
INSTANTANEOUS LOW FLOW		.00 Oct 1	.00 *
ANNUAL RUNOFF (AC-FT)	28750	6640	8010
ANNUAL RUNOFF (CFSM)	1.19	.28	.33
ANNUAL RUNOFF (INCHES)	16.19	3.74	4.51
10 PERCENT EXCEEDS	95	20	25
50 PERCENT EXCEEDS	6.8	2.5	.69
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 1992 TO SEPTEMBER 1993

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)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CaCO3)	
DEC 16...	1015	2.5	508	8.0	7.0	1.0	10.7	91	900	760	200	
FEB 08...	1103	18	492	8.2	10.5	0.70	10.7	99	100	160	250	
MAY 20...	1435	9.3	494	7.8	25.5	0.30	9.2	117	36	140	260	
JUL 21...	1033	2.6	520	7.9	26.5	0.10	7.4	95	88	K2200	250	
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 FIX END FIELD (MG/L AS CaCO3)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
DEC 16...	20	48	20	23	0.7	1.8	0	224	180		183	24
FEB 08...	17	63	23	8.7	0.2	1.1	0	290	240		238	24
MAY 20...	33	61	25	9.3	0.3	1.1	0	274	220		224	18
JUL 21...	0	56	26	11	0.3	1.4	0	308	250		252	18
DATE		CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE 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)
DEC 16...	37	0.40	7.5	313	274	0.090	0.060	<0.010	0.020	0.080	0.080	
FEB 08...	15	0.30	7.8	291	288	0.057	0.057	--	0.020	0.077	0.077	
MAY 20...	12	0.40	8.7	269	272	--	--	--	<0.010	--	<0.050	
JUL 21...	15	0.40	11	309	293	0.140	--	--	<0.010	0.140	0.140	
DATE		NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
DEC 16...	0.020	0.020	<0.20	<0.010	0.030	0.020	<0.010	0.06	17	0.11	42	
FEB 08...	--	0.010	<0.20	0.010	0.030	0.010	--	0.03	7	0.34	83	
MAY 20...	--	0.010	<0.20	<0.010	<0.010	<0.010	--	--	6	0.15	92	
JUL 21...	--	0.020	<0.20	0.010	<0.010	0.010	--	0.03	6	0.04	60	
DATE		ALUM-INUM, DIS-SOLVED (UG/L AS AL)	BARIIUM, 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)	
DEC 16...	<10	36	<3	<3	13	1	<10	<1	<1	<1.0		
FEB 08...	<10	43	<3	5	6	2	<10	<1	<1	<1.0		
MAY 20...	<10	48	<3	5	8	2	<10	<1	<1	<1.0		
JUL 21...	<10	49	<3	<3	10	5	10	<1	<1	<1.0		

BRAZOS RIVER BASIN

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08103900 SOUTH FORK ROCKY CREEK NEAR BRIGGS, TX--Continued  
(Hydrologic bench-mark station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	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 (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ Y-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ Y-90)	RADIUM 226, DIS- SOLVED, RADOM METHOD (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)
DEC 16...	1300	<6	0.8	<0.6	2.8	<0.6	2.1	<0.6	0.14	0.69
FEB 08...	2200	<6	--	--	--	--	--	--	--	--
MAY 20...	2100	<6	<0.6	<0.6	2.0	<0.6	1.5	<0.6	0.06	0.78
JUL 21...	1900	<6	--	--	--	--	--	--	--	--

## BRAZOS RIVER BASIN

## 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, 284,100 acre-ft May 5 (elevation, 629.08 ft); minimum daily, 232,700 acre-ft Sept. 25 (elevation, 621.53 ft).

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

621.0	229,300	625.0	255,500	628.0	276,500
622.0	235,700	626.0	262,300	629.0	283,500
623.0	242,200	627.0	269,300	630.0	290,800
624.0	248,800				

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	235600	234100	236400	236400	237300	240500	273000	272300	238600	255100	236600	233600
2	235600	234000	236300	236300	237300	241200	272700	278200	238700	252100	236600	233500
3	235400	233800	236400	236500	238000	241500	272600	281400	238700	249500	236500	233400
4	235400	233700	236400	236800	239500	241500	272500	282700	238600	245700	236500	233400
5	235300	233500	236400	236900	240800	242100	272200	284100	238500	242200	236400	233300
6	235200	233400	236400	236900	240800	243000	271800	283500	238400	239900	236300	233300
7	235100	233300	236400	236600	240400	243800	272800	280800	238300	238900	236300	233200
8	234900	233200	236500	236400	240000	244600	273500	277200	238200	237900	236200	233100
9	234700	233300	236800	236700	239600	245300	273500	276300	238000	237600	236200	233000
10	234700	233400	236800	236500	239900	246100	273200	274800	238000	237600	236100	232900
11	234500	233600	236800	236300	240700	247500	273000	271000	238200	237700	236000	232800
12	234500	233500	236900	236100	240200	248700	272600	267000	238500	237700	235900	232800
13	234400	233500	237500	236000	239300	249600	272200	262900	238700	237600	235800	232800
14	234300	233500	238800	236200	238200	250500	273200	258700	238800	237600	235700	233300
15	234300	233400	240000	236300	237400	251500	273900	254400	238700	237500	235600	233300
16	234200	233400	240600	236500	237400	252300	273900	250900	238700	237400	235500	233200
17	234200	233400	240600	236800	237100	253100	274100	248700	238800	237200	235400	233100
18	234100	233400	240200	237000	236700	253900	273800	246900	239200	237100	235300	233000
19	234000	235900	239700	237600	236900	258600	273500	245000	239100	236900	235100	233000
20	233900	236900	239300	237400	237700	265900	273000	243100	239200	236700	235100	233000
21	233800	237400	238700	236900	238200	269000	272400	241100	241900	236500	234900	233000
22	233800	237400	238200	236500	238500	272400	271800	239000	246800	236400	234800	232900
23	233900	237400	237900	236200	238500	275100	271100	238000	248400	236500	234700	232900
24	233900	237400	237700	236000	238300	277200	270600	237100	249700	236500	234500	232800
25	233900	237000	237600	236000	238400	279100	269900	236500	250300	236500	234400	232700
26	233900	236600	237400	236200	239300	280800	269200	236900	264800	236500	234300	234900
27	233800	236300	237200	236300	239400	282200	268300	237400	266700	236500	234100	234900
28	233800	236300	237000	236700	239700	281600	267500	238100	266000	236500	234000	235000
29	233800	236300	236900	237200	---	277900	267900	238700	262800	236500	233800	234900
30	233900	236300	236900	237200	---	274700	267800	239000	258800	236600	233700	234800
31	234000	---	236700	237400	---	273500	---	238800	---	236600	233700	---
MAX	235600	237400	240600	237600	240800	282200	274100	284100	266700	255100	236600	235000
MIN	233800	233200	236300	236000	236700	240500	267500	236500	238000	236400	233700	232700
(†)	621.73	622.10	622.15	622.26	622.62	627.59	626.79	622.48	625.48	622.14	621.68	621.86
(Φ)	-1800	+2300	+400	+700	+2300	+33800	-5700	-29000	+20000	-22200	-2900	+1100
CAL YR 1992	MAX	654000	MIN	233200	(Φ)	-210900						
WTR YR 1993	MAX	284100	MIN	232700	(Φ)	-1000						

(†) Elevation, in feet, at end of month.  
(Φ) Change in contents, in acre-feet.



## BRAZOS RIVER BASIN

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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.

REVISED RECORDS.--Due to a computation error discovered after publication of Phytoplankton analyses for the period October 1991 to September 1992, revised data for these analyses are included in this report.

310129097315901 - STILLHOUSE HOLLOW LAKE AC

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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												
12...	0840	236000	1.00	534	8.3	11.0	2.70	8.9	82	<1	<1	210
12...	0842	--	10.0	534	8.3	11.0	--	8.9	82	--	--	--
12...	0844	--	20.0	534	8.3	11.0	--	9.0	83	--	--	--
12...	0846	--	30.0	535	8.3	11.0	--	8.9	82	--	--	--
12...	0848	--	40.0	535	8.3	11.0	--	9.0	83	--	--	--
12...	0850	--	50.0	535	8.3	11.0	--	9.0	83	--	--	--
12...	0852	--	60.0	535	8.3	11.0	--	9.0	83	--	--	--
12...	0854	--	70.0	535	8.3	11.0	--	9.0	83	--	--	--
12...	0856	--	80.0	533	8.3	11.0	--	9.2	85	--	--	--
12...	0858	--	90.0	534	8.3	11.0	--	9.2	85	--	--	--
12...	0900	--	100	534	8.3	10.5	--	9.2	84	--	--	--
12...	0902	--	117	536	8.3	10.5	--	9.3	85	--	--	210
APR												
28...	0825	268000	1.00	532	8.3	19.5	3.00	9.2	102	1	K16	220
28...	0827	--	10.0	536	8.3	19.0	--	9.0	99	--	--	--
28...	0829	--	20.0	537	8.3	19.0	--	8.9	98	--	--	--
28...	0831	--	30.0	538	8.2	18.5	--	8.7	95	--	--	--
28...	0833	--	40.0	540	8.2	18.5	--	8.5	92	--	--	--
28...	0835	--	50.0	544	8.2	17.0	--	8.0	84	--	--	--
28...	0837	--	60.0	558	8.1	14.0	--	7.2	71	--	--	--
28...	0839	--	70.0	559	8.1	14.0	--	7.3	72	--	--	--
28...	0841	--	80.0	559	8.1	13.5	--	7.3	71	--	--	--
28...	0843	--	90.0	559	8.1	13.5	--	7.0	68	--	--	--
28...	0845	--	100	560	8.1	13.5	--	6.7	65	--	--	--
28...	0847	--	110	560	8.1	13.5	--	6.6	64	--	--	--
28...	0849	--	120	562	8.1	13.5	--	6.7	65	--	--	220
AUG												
17...	0834	235000	1.00	457	8.2	29.5	3.00	6.7	90	K1	<1	180
17...	0836	--	10.0	457	8.2	29.5	--	6.7	90	--	--	--
17...	0838	--	20.0	459	8.1	29.0	--	6.1	81	--	--	--
17...	0840	--	30.0	468	7.6	28.5	--	2.2	29	--	--	--
17...	0842	--	40.0	472	7.5	27.0	--	0	0	--	--	--
17...	0844	--	50.0	469	7.4	26.0	--	0	0	--	--	--
17...	0846	--	60.0	470	7.4	24.5	--	0	0	--	--	--
17...	0848	--	70.0	516	7.4	22.0	--	0	0	--	--	--
17...	0850	--	80.0	527	7.4	21.5	--	0	0	--	--	--
17...	0852	--	90.0	535	7.4	21.0	--	0	0	--	--	--
17...	0854	--	100	547	7.3	20.0	--	0	0	--	--	--
17...	0856	--	109	569	7.3	18.5	--	0	0	--	--	230

## BRAZOS RIVER BASIN

08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX--Continued

310129097315901 - STILLHOUSE HOLLOW LAKE AC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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 SI02)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
JAN												
12...	38	49	22	31	0.9	2.9	170	25	56	0.30	8.4	301
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	39	49	21	31	0.9	2.8	170	24	56	0.30	8.3	295
APR												
28...	36	52	21	28	0.8	2.6	180	28	52	0.30	7.6	300
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	36	53	22	32	0.9	2.8	190	26	58	0.30	8.7	316
AUG												
17...	32	37	21	25	0.8	2.3	150	24	43	0.30	8.0	249
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	19	57	22	27	0.8	2.6	210	16	47	0.30	13	315

## BRAZOS RIVER BASIN

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08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX--Continued

310129097315901 - STILLHOUSE HOLLOW LAKE AC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN												
12...	0.210	0.210	0.030	0.240	0.240	0.040	--	<0.20	0.010	<0.010	<3	<1
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	0.200	0.200	0.010	0.210	0.210	0.020	--	<0.20	0.010	<0.010	4	2
APR												
28...	0.230	--	<0.010	0.230	0.230	0.010	0.29	0.30	<0.010	<0.010	<3	<1
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	0.310	--	<0.010	0.310	0.310	0.010	--	<0.20	<0.010	<0.010	<3	3
AUG												
17...	--	--	<0.010	--	<0.050	0.010	--	<0.20	<0.010	<0.010	<3	<1
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	0.043	0.043	0.010	0.053	0.053	0.040	--	<0.20	<0.010	<0.010	10	20
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	<0.010	--	<0.050	0.640	0.16	0.80	0.010	<0.010	340	700

## BRAZOS RIVER BASIN

08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX--Continued

310033097333001 - STILLHOUSE HOLLOW LAKE BC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
12...	1000	1.00	534	8.3	11.0	9.1	84
12...	1002	10.0	534	8.3	11.0	9.1	84
12...	1004	20.0	534	8.3	11.0	9.0	83
12...	1006	30.0	534	8.3	11.0	9.0	83
12...	1008	40.0	534	8.3	11.0	9.0	83
12...	1010	50.0	534	8.3	11.0	9.0	83
12...	1012	60.0	534	8.3	11.0	9.0	83
12...	1014	70.0	534	8.3	11.0	9.1	84
12...	1016	80.0	534	8.3	10.5	9.2	84
12...	1018	90.0	533	8.3	10.5	9.2	84
12...	1020	100	534	8.3	10.5	9.3	85
12...	1022	110	534	8.3	10.5	9.3	85
APR							
28...	0915	1.00	537	8.2	19.5	9.0	100
28...	0917	10.0	537	8.2	19.0	8.9	98
28...	0919	20.0	538	8.2	19.0	8.5	93
28...	0921	30.0	539	8.2	18.5	8.5	92
28...	0923	40.0	540	8.2	18.0	8.4	90
28...	0925	50.0	556	8.1	15.0	6.7	68
28...	0927	60.0	558	8.1	14.0	6.5	64
28...	0929	70.0	560	8.0	13.5	6.5	63
28...	0931	80.0	560	8.0	13.5	6.6	64
28...	0933	90.0	560	8.0	13.5	6.5	63
28...	0935	100	560	8.0	13.5	6.3	62
28...	0937	115	560	8.0	13.5	6.4	63
AUG							
17...	0933	1.00	457	8.2	29.0	6.6	87
17...	0935	10.0	457	8.2	29.0	6.6	87
17...	0937	20.0	457	8.2	29.0	6.6	87
17...	0939	30.0	457	8.2	28.5	6.4	84
17...	0941	40.0	472	7.5	27.0	0	0
17...	0943	50.0	466	7.4	25.5	0	0
17...	0945	60.0	465	7.4	24.0	0	0
17...	0947	70.0	493	7.3	22.5	0	0
17...	0949	80.0	519	7.3	21.5	0	0
17...	0951	90.0	535	7.3	21.0	0	0
17...	0953	100	546	7.3	20.0	0	0
17...	0955	108	572	7.3	19.0	0	0

310128097353601 - STILLHOUSE HOLLOW LAKE CC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)
JAN												
12...	1045	1.00	538	8.3	11.0	1.70	8.8	81	<1	<1	220	37
12...	1047	10.0	538	8.3	11.0	--	9.0	83	--	--	--	--
12...	1049	20.0	538	8.3	11.0	--	9.0	83	--	--	--	--
12...	1051	30.0	538	8.3	11.0	--	9.0	83	--	--	--	--
12...	1053	40.0	538	8.3	11.0	--	9.0	83	--	--	--	--
12...	1055	50.0	538	8.3	11.0	--	9.0	83	--	--	--	--
12...	1057	60.0	538	8.2	11.0	--	8.8	81	--	--	--	--
12...	1059	70.0	538	8.2	11.0	--	8.8	81	--	--	--	--
12...	1101	85.0	540	8.2	11.0	--	8.8	81	--	--	220	35
APR												
28...	1000	1.00	533	8.2	20.5	1.80	9.0	102	<1	K13	220	29
28...	1002	10.0	537	8.2	20.5	--	9.0	102	--	--	--	--
28...	1004	20.0	538	8.2	20.0	--	9.0	101	--	--	--	--
28...	1006	30.0	549	8.1	18.5	--	8.0	87	--	--	--	--
28...	1008	40.0	545	8.1	18.5	--	8.0	87	--	--	--	--
28...	1010	50.0	555	8.0	17.0	--	6.5	68	--	--	--	--
28...	1012	60.0	564	7.9	14.5	--	4.8	48	--	--	--	--
28...	1014	70.0	563	7.9	14.0	--	5.2	51	--	--	--	--
28...	1016	80.0	563	7.9	14.0	--	5.2	51	--	--	--	--
28...	1018	90.0	565	7.9	14.5	--	5.2	52	--	--	230	38
AUG												
17...	1034	1.00	458	8.2	30.0	1.70	6.7	90	<1	<1	170	27
17...	1036	10.0	457	8.2	30.0	--	6.6	89	--	--	--	--
17...	1038	20.0	460	8.0	29.0	--	5.3	70	--	--	--	--
17...	1040	30.0	476	7.5	28.0	--	0.1	1	--	--	--	--
17...	1042	40.0	478	7.4	27.0	--	0	0	--	--	--	--
17...	1044	50.0	467	7.4	26.0	--	0	0	--	--	--	--
17...	1046	60.0	448	7.2	23.5	--	0	0	--	--	--	--
17...	1048	70.0	462	7.2	22.5	--	0	0	--	--	--	--
17...	1050	80.0	480	7.2	22.0	--	0	0	--	--	--	--
17...	1052	85.0	484	7.2	22.0	--	0	0	--	--	210	13

## BRAZOS RIVER BASIN

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08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX--Continued

310128097353601 - STILLHOUSE HOLLOW LAKE CC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)
JAN												
12...	50	22	31	0.9	2.9	180	25	57	0.30	8.2	304	0.220
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	50	22	32	0.9	2.9	180	24	57	0.30	8.4	306	0.230
APR												
28...	52	21	27	0.8	2.5	190	27	51	0.30	7.3	301	0.240
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	0.330
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	55	22	31	0.9	2.8	190	28	57	0.30	8.7	320	0.340
AUG												
17...	37	20	26	0.9	2.4	150	23	43	0.30	8.8	249	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	53	18	20	0.6	2.5	190	12	34	0.30	13	271	--

DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN											
12...	0.220	0.020	0.240	0.240	0.030	0.27	0.30	0.030	<0.010	<3	<1
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	0.230	0.020	0.250	0.250	0.030	0.17	0.20	0.010	<0.010	3	5
APR											
28...	--	<0.010	0.240	0.240	<0.010	--	0.20	<0.010	<0.010	<3	<1
28...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
28...	--	<0.010	0.330	0.330	<0.010	--	0.30	<0.010	<0.010	<10	<10
28...	--	--	--	--	--	--	--	--	--	--	--
28...	--	<0.010	0.340	0.340	0.020	0.28	0.30	<0.010	<0.010	<3	25
AUG											
17...	--	<0.010	--	<0.050	0.010	--	<0.20	<0.010	<0.010	<3	2
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	<0.010	--	<0.050	0.020	--	<0.20	<0.010	<0.010	<10	<10
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	<0.010	--	<0.050	0.900	0.20	1.1	0.010	<0.010	220	350

## BRAZOS RIVER BASIN

08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX--Continued

310130097371701 - STILLHOUSE HOLLOW LAKE DC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
12...	1125	1.00	549	8.3	11.0	9.1	84
12...	1127	10.0	549	8.2	11.0	9.1	84
12...	1129	20.0	549	8.2	11.0	9.1	84
12...	1131	30.0	546	8.2	11.0	9.1	84
12...	1133	40.0	546	8.2	11.0	9.1	84
12...	1135	50.0	546	8.2	11.0	9.1	84
12...	1137	60.0	546	8.2	11.0	9.1	84
12...	1139	73.0	546	8.2	10.5	9.2	84
APR							
28...	1041	1.00	544	8.1	20.5	8.9	101
28...	1043	10.0	544	8.1	20.5	8.8	100
28...	1045	20.0	545	8.2	20.5	8.7	98
28...	1047	30.0	556	8.1	19.5	7.7	85
28...	1049	40.0	552	8.1	19.0	7.6	83
28...	1051	50.0	566	7.9	17.0	4.8	51
28...	1053	60.0	568	7.8	15.0	3.5	35
28...	1055	70.0	568	7.8	15.0	3.8	38
28...	1057	77.0	566	7.9	14.5	4.0	40
AUG							
17...	1130	1.00	460	8.2	30.0	7.0	94
17...	1132	10.0	460	8.2	30.0	6.9	93
17...	1134	20.0	461	8.1	29.0	6.5	86
17...	1136	30.0	486	7.4	28.5	0	0
17...	1138	40.0	502	7.4	28.0	0	0
17...	1140	50.0	492	7.3	27.0	0	0
17...	1142	60.0	469	7.2	24.5	0	0
17...	1144	70.0	467	7.1	23.0	0	0

310037097383201 - STILLHOUSE HOLLOW LAKE EC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)
JAN												
12...	1145	1.00	595	8.2	10.5	0.90	9.2	84	<1	K2	220	36
12...	1147	10.0	595	8.2	10.5	--	9.1	83	--	--	--	--
12...	1149	20.0	615	8.2	10.5	--	8.9	81	--	--	--	--
12...	1151	30.0	777	8.0	10.0	--	8.3	75	--	--	--	--
12...	1153	37.0	782	8.0	10.0	--	8.3	75	--	--	260	49
APR												
28...	1109	1.00	570	8.1	21.5	1.40	8.0	92	<1	33	260	34
28...	1111	10.0	577	8.1	21.5	--	7.9	91	--	--	--	--
28...	1113	20.0	578	8.1	21.0	--	7.7	88	--	--	--	--
28...	1115	30.0	571	7.9	19.5	--	5.4	60	--	--	--	--
28...	1117	40.0	576	7.7	18.5	--	2.9	32	--	--	260	39
AUG												
17...	1200	1.00	508	7.9	30.0	0.80	4.9	66	<1	K1	190	46
17...	1202	10.0	516	7.6	29.5	--	1.8	24	--	--	--	--
17...	1204	20.0	554	7.8	29.5	--	3.9	52	--	--	--	--
17...	1206	30.0	567	7.2	28.5	--	0	0	--	--	--	--
17...	1208	35.0	568	7.2	28.5	--	0.1	1	--	--	220	21



BRAZOS RIVER BASIN

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08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX--Continued

310037097383201 - STILLHOUSE HOLLOW LAKE EC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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 CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)
JAN												
12...	52	23	38	1	3.1	190	26	70	0.30	7.1	334	0.310
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	59	28	61	2	3.5	210	30	110	0.30	4.7	427	0.450
APR												
28...	65	23	25	0.7	2.0	220	29	43	0.30	7.1	329	0.270
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	0.310
28...	66	23	25	0.7	2.1	220	29	43	0.30	8.4	331	0.340
AUG												
17...	43	21	29	0.9	2.4	150	22	50	0.30	11	267	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	54	21	30	0.9	2.4	200	16	52	0.30	14	311	--

DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN											
12...	0.310	0.030	0.340	0.340	0.030	0.17	0.20	0.010	<0.010	<3	<1
12...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
12...	0.450	0.020	0.470	0.470	0.050	0.25	0.30	0.010	<0.010	<3	2
APR											
28...	0.270	0.010	0.280	0.280	0.010	0.29	0.30	<0.010	<0.010	<3	<1
28...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
28...	0.310	0.020	0.330	0.330	0.020	0.28	0.30	<0.010	<0.010	<10	10
28...	0.340	0.020	0.360	0.360	0.020	0.18	0.20	<0.010	<0.010	<3	76
AUG											
17...	--	<0.010	--	<0.050	0.020	--	<0.20	<0.010	<0.010	<3	2
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	<0.010	--	<0.050	0.040	0.16	0.20	<0.010	<0.010	<10	<10
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	<0.010	--	<0.050	0.530	0.17	0.70	<0.010	<0.010	240	420

## BRAZOS RIVER BASIN

06104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX—Continued

Stillhouse Hollow Lake Site AC (310129097315901)

Phytoplankton Analyses October 1992 to September 1993

Date	1-12-93
Time	0840

TOTAL CELLS/mL	4,941
NUMBER OF SPECIES	4
DEPTH COLLECTED (ft.)	4.5

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	89
Order Pennales	
<i>Fragilaria crotonensis</i>	30
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	4,762
EUGLENOPHYTA	
<i>Trachelomonas</i> spp.	60

## BRAZOS RIVER BASIN

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08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX—Continued

Stillhouse Hollow Lake Site EC (310037097383201)

Phytoplankton Analyses October 1992 to September 1993

Date	1-12-93
Time	1145

TOTAL CELLS/mL	3,543
NUMBER OF SPECIES	7
DEPTH COLLECTED (ft.)	1.4

Organisms	Cells/mL
BACILLARIOPHYTA	
Order Centrales	
<i>Melosira varians</i>	60
Order Pennales	
<i>Fragilaria crotonensis</i>	30
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	89
<i>Chlamydomonas</i> sp.	30
<i>Scenedesmus quadricauda</i>	30
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	3,274
EUGLENOPHYTA	
<i>Trachelomonas</i> spp.	30

## BRAZOS RIVER BASIN

08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX—Continued

Stillhouse Hollow Lake Site AC (310129097315901)

Phytoplankton Analyses October 1992 to September 1993

Date	4-28-93
Time	0825

TOTAL CELLS/mL	4,554
NUMBER OF SPECIES	8
DEPTH COLLECTED (ft.)	5.0

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Pennales	
<i>Asterionella formosa</i>	60
CHLOROPHYTA	
<i>Gloeocystis major</i>	119
<i>Scenedesmus quadricauda</i>	30
CHRYSTOPHYTA	
<i>Dinobryon sociale</i>	89
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	3,869
<i>Chroococcus limneticus</i>	119
EUGLENOPHYTA	
<i>Trachelomonas</i> spp.	60
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	208

## BRAZOS RIVER BASIN

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08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX—Continued

Stillhouse Hollow Lake Site EC (310037097383201)

Phytoplankton Analyses October 1992 to September 1993

Date	4-28-93
Time	1109

TOTAL CELLS/mL	7,441
NUMBER OF SPECIES	8
DEPTH COLLECTED (ft.)	2.2

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
OrderCentrales	
<i>Cyclotella ocellata</i>	30
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	149
<i>Scenedesmus quadricauda</i>	30
CHRYSTOPHYTA	
<i>Dinobryon sociale</i>	149
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	6,250
<i>Chroococcus limneticus</i>	595
EUGLENOPHYTA	
<i>Trachelomonas</i> spp.	119
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	119

## BRAZOS RIVER BASIN

08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX—Continued

Stillhouse Hollow Lake Site AC (310129097315901)

Phytoplankton Analyses October 1992 to September 1993

Date	8-17-93
Time	0834

TOTAL CELLS/mL	12,737
NUMBER OF SPECIES	14
DEPTH COLLECTED (ft.)	5.0

Organisms	Cells/mL
<b>BACILLARIOPHYTA</b>	
Order Centrales	
<i>Cyclotella ocellata</i>	30
Order Pennales	
<i>Cocconeis placentula</i>	41
<i>Cymbella</i> sp.	20
<i>Fragilaria crotonensis</i>	205
<i>Navicula rhyncocephala</i>	61
<b>CHLOROPHYTA</b>	
<i>Ankistrodesmus falcatus</i>	208
<i>Cosmarium</i> sp.	149
<i>Gloeocystis major</i>	30
<i>Staurastrum</i> sp.	89
<b>CYANOPHYTA</b>	
<i>Anabaena flos-aquae</i>	357
<i>Aphanocapsa delicatissima</i>	11,011
<i>Merismopedia tenuissima</i>	476
<b>EUGLENOPHYTA</b>	
<i>Trachelomonas</i> sp.	30
<b>PYRRHOPHYTA</b>	
<i>Peridinium pusillum</i>	30



## BRAZOS RIVER BASIN

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08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX—Continued

Stillhouse Hollow Lake Site EC (310037097383201)

Phytoplankton Analyses October 1992 to September 1993

Date	8-17-93
Time	1200

TOTAL CELLS/mL	10,388
NUMBER OF SPECIES	12
DEPTH COLLECTED (ft.)	2.4

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	30
Order Pennales	
<i>Fragilaria crotonensis</i>	251
<i>Navicula rhyncocephala</i>	17
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	238
<i>Cosmarium</i> sp.	89
<i>Scenedesmus opoliensis</i>	30
<i>Staurastrum</i> sp.	60
CHRY SOPHYTA	
<i>Dinobryon sociale</i>	30
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	9,226
<i>Chroococcus limneticus</i>	298
EUGLENOPHYTA	
<i>Trachelomonas</i> sp.	30
PYRRHOPHYTA	
<i>Peridinium pusillum</i>	89

## BRAZOS RIVER BASIN

08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX—Continued

Stillhouse Hollow Lake Site AC (310129097315901)

Phytoplankton Analyses October 1991 to September 1992

Date	4-7-92
Time	0905

TOTAL CELLS/mL	36,317
NUMBER OF SPECIES	16
DEPTH COLLECTED (ft.)	8.4

<u>Organisms</u>	<u>Cells/mL</u>
<b>BACILLARIOPHYTA (Diatoms)</b>	
Order Centrales	
<i>Stephanodiscus astraea var minutula</i>	22
Order Pennales	
<i>Fragilaria crotonensis</i>	2,112
<i>Synedra delicatissima</i>	704
<b>CHLOROPHYTA (Green algae)</b>	
<i>Chlamydomonas</i> sp.	469
<i>Chlorella ellipsoidea</i>	782
<i>Chlorococcum humicola</i>	469
<i>Selenastrum minutum</i>	313
<b>CHRYSTOPHYTA</b>	
Unknown flagellate	1,877
<b>CYANOPHYTA (Blue-green algae)</b>	
<i>Aphanocapsa delicatissima</i>	21,277
<i>Aphanocapsa elachista</i>	1,877
<i>Aphanothece nidulans</i>	1,721
<i>Chroococcus</i> sp.	1,095
<i>Oscillatoria</i> sp.	939
<b>CRYPTOPHYTA (Cryptomonads)</b>	
<i>Chroomonas</i> sp.	939
<i>Cryptomonas erosa</i>	1,252
<i>Rhodomonas minuta</i>	469

08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX—Continued

## Stillhouse Hollow Lake Site EC (310037097383201)

## Phytoplankton Analyses October 1991 to September 1992

Date	4-7-92
Time	1250
<hr/>	
TOTAL CELLS/mL	22,840
NUMBER OF SPECIES	17
DEPTH COLLECTED (ft.)	5.8

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Pennales	
<i>Fragilaria crotonensis</i>	52
<i>Nitzschia acicularis</i>	13
<i>Synedra delicatissima</i>	13
<i>Tabellaria flocculosa</i>	78
CHLOROPHYTA (Green algae)	
<i>Ankistrodesmus falcatus</i>	313
<i>Chlamydomonas</i> sp.	469
<i>Chlorella ellipsoidea</i>	469
<i>Chlorococcum humicola</i>	313
<i>Selenastrum minutum</i>	313
CHRYSTOPHYTA	
Unknown flagellate	1,721
CYANOPHYTA (Blue-green algae)	
<i>Aphanocapsa delicatissima</i>	15,801
<i>Aphanocapsa elachista</i>	626
<i>Chroococcus</i> sp.	626
<i>Oscillatoria</i> sp.	469
EUGLENOPHYTA	
<i>Euglena</i> sp.	156
CRYPTOPHYTA (Cryptomonads)	
<i>Chroomonas</i> sp.	782
<i>Cryptomonas erosa</i>	626

## BRAZOS RIVER BASIN

06104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX—Continued

Stillhouse Hollow Lake Site AC (3101291097315901)

Phytoplankton Analyses October 1991 to September 1992

Date	5-14-92
Time	1040

TOTAL CELLS/mL	9,822
NUMBER OF SPECIES	8
DEPTH COLLECTED (ft.)	3.8

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Pennales	
<i>Fragilaria crotonensis</i>	2,708
CHLOROPHYTA (Green algae)	
<i>Chlamydomonas</i> sp.	30
<i>Oocystis lacustris</i>	119
CYANOPHYTA (Blue-green algae)	
<i>Anabaena flos-aquae</i>	1,786
<i>Aphanocapsa delicatissima</i>	4,464
<i>Chroococcus limneticus</i>	298
EUGLENOPHYTA (Euglenoids)	
<i>Euglena</i> sp.	30
CRYPTOPHYTA (Cryptomonads)	
<i>Cryptomonas erosa</i>	387

## BRAZOS RIVER BASIN

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08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX—Continued

Stillhouse Hollow Lake Site EC (310037097383201)

Phytoplankton Analyses October 1991 to September 1992

Date	5-14-92
Time	1445

TOTAL CELLS/mL	10,713
NUMBER OF SPECIES	14
DEPTH COLLECTED (ft.)	2.8

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
<i>Stephanodiscus</i> sp.	327
Order Pennales	
<i>Cocconeis placentula</i>	12
<i>Fragilaria crotonensis</i>	755
<i>Navicula</i> sp.	6
CHLOROPHYTA (Green algae)	
<i>Chlamydomonas</i> sp.	149
<i>Cosmarium</i> sp.	30
<i>Oocytis elliptica</i>	89
<i>Pediastrum</i> sp.	30
CHRYSTOPHYTA	
<i>Dinobryon sociale</i>	60
CYANOPHYTA (Blue-green algae)	
<i>Anabaena flos-aquae</i>	327
<i>Aphanocapsa delicatissima</i>	5,059
<i>Microcystis aeruginosa</i>	2,976
EUGLENOPHYTA (Euglenoids)	
<i>Euglena</i> sp.	298
CRYPTOPHYTA (Cryptomonads)	
<i>Cryptomonas erosa</i>	595

## Stillhouse Hollow Lake Site AC (3101291097315901)

## Phytoplankton Analyses October 1991 to September 1992

Date	8-12-92
Time	0945

TOTAL CELLS/mL	9,614
NUMBER OF SPECIES	20
DEPTH COLLECTED (ft.)	2.9

<u>Organisms</u>	<u>Cells/mL</u>
<b>BACILLARIOPHYTA (Diatoms)</b>	
Order Pennales	
<i>Achnanthes</i> sp.	247
<i>Fragilaria capucina</i>	216
<i>Fragilaria crotonensis</i>	494
<i>Fragilaria vaucherie</i>	216
<i>Navicula</i> spp.	401
<i>Nitzschia palea</i>	62
<b>CHLOROPHYTA (Green algae)</b>	
<i>Ankistrodesmus falcatus</i>	417
<i>Chlamydomonas</i> sp.	30
<i>Cosmarium</i> sp.	30
<i>Staurastrum</i> sp.	30
<b>CHRYSTOPHYTA (Golden-brown algae)</b>	
<i>Dinobryon sociale</i>	60
<b>CYANOPHYTA (Blue-green algae)</b>	
<i>Aphanizomenon flos-aquae</i>	149
<i>Aphanocapsa delicatissima</i>	4,464
<i>Chroococcus limneticus</i>	298
<i>Merismopedia chondroidea</i>	476
<i>Merismopedia tenuissima</i>	714
<i>Oscillatoria subrevis</i>	893
<b>EUGLENOPHYTA (Euglenoids)</b>	
<i>Trachelomonas</i> spp.	268
<b>PYRRHOPHYTA (Dinoflagellates)</b>	
<i>Peridinium pusilla</i>	89
<b>CRYPTOPHYTA (Cryptomonads)</b>	
<i>Cryptomonas ovata</i>	60



08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX—Continued

## Stillhouse Hollow Lake Site EC (310037097383201)

## Phytoplankton Analyses October 1991 to September 1992

Date	8-12-92
Time	1240
<hr/>	
TOTAL CELLS/mL	12,559
NUMBER OF SPECIES	26
DEPTH COLLECTED (ft.)	Surface

<u>Organisms</u>	<u>Cells/mL</u>
<b>BACILLARIOPHYTA (Diatoms)</b>	
Order Centrales	
<i>Cyclotella ocellata</i>	119
Order Pennales	
<i>Achnanthes</i> sp.	437
<i>Fragilaria capucina</i>	275
<i>Fragilaria crotonensis</i>	859
<i>Fragilaria vaucherie</i>	275
<i>Navicula</i> spp.	729
<i>Nitzschia palea</i>	65
Unknown Pennate	49
<i>Tabellaria fenestrata</i>	49
<b>CHLOROPHYTA (Green algae)</b>	
<i>Ankistrodesmus falcatus</i>	595
<i>Chlamydomonas</i> sp.	89
<i>Scenedesmus dimorphus</i>	119
<i>Scenedesmus quadricauda</i>	119
<i>Staurastrum</i> sp.	30
<b>CHRYSTOPHYTA (Golden-brown algae)</b>	
<i>Dinobryon sertularia</i>	30
<i>Dinobryon sociale</i>	30
<i>Mallomonas</i> sp.	30
<b>CYANOPHYTA (Blue-green algae)</b>	
<i>Aphanocapsa delicatissima</i>	6,279
<i>Chroococcus limneticus</i>	238
<i>Merismopedia chondroidea</i>	476
<i>Merismopedia tenuissima</i>	476
<i>Oscillatoria subrevis</i>	595
<b>EUGLENOPHYTA (Euglenoids)</b>	
<i>Euglena</i> sp.	60
<i>Trachelomonas</i> spp.	387
<b>PYRRHOPHYTA (Dinoflagellates)</b>	
<i>Glenodinium</i> sp.	89
<b>CRYPTOPHYTA (Cryptomonads)</b>	
<i>Cryptomonas ovata</i>	60

## BRAZOS RIVER BASIN

## 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 the 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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	467	117	122	331	516	1430	4570	5240	956	3670	153	89
2	464	134	101	332	491	1860	4580	5710	760	3710	153	85
3	469	111	90	201	587	2900	4520	4420	736	3690	148	80
4	468	108	102	179	2300	3570	4530	3980	915	3670	152	92
5	474	106	108	174	1460	3600	4560	3920	738	3670	145	84
6	480	106	112	173	1610	e3850	4520	4020	724	3250	140	84
7	434	106	111	381	1340	e3700	4910	3970	540	1840	143	81
8	441	107	110	395	1260	e3400	4900	4640	495	1520	138	80
9	435	113	169	517	1200	3140	4550	5630	477	1290	139	82
10	252	119	146	508	1470	3120	4460	6230	626	631	138	84
11	222	119	117	433	1280	3140	4440	4290	498	585	133	81
12	217	121	110	419	1230	3440	4420	4990	586	426	135	77
13	218	127	111	402	1460	3250	4400	5100	641	411	130	89
14	182	117	811	235	1460	e3500	4630	5040	459	375	128	287
15	146	114	2090	190	1460	e3600	4620	4590	430	355	131	160
16	142	116	729	181	1380	3520	4470	3740	463	346	128	101
17	139	115	356	181	1080	3490	4420	3330	459	341	127	89
18	139	112	657	175	1060	3480	4600	2850	621	332	121	86
19	140	1340	648	206	951	4010	4470	2480	751	331	116	84
20	141	757	637	501	504	6600	4430	2270	1870	326	114	85
21	127	204	621	686	479	4350	e4390	2230	1960	331	118	85
22	115	210	610	646	466	4330	e4400	2210	2170	328	122	87
23	107	168	568	603	656	4500	e4400	2180	511	188	125	128
24	102	178	358	430	689	4130	4380	1880	369	184	127	116
25	100	370	350	391	950	4070	4400	1490	863	180	123	103
26	97	290	347	218	964	4020	4410	994	3720	167	102	778
27	95	316	343	193	921	3990	4670	613	2650	163	126	384
28	95	147	341	191	970	1820	4700	601	2340	158	124	140
29	100	131	349	728	---	3190	4880	659	3230	156	112	117
30	128	127	346	799	---	3500	4760	645	3660	159	110	105
31	122	---	342	566	---	4370	---	1020	---	157	101	---
TOTAL	7258	6306	12012	11565	30194	110870	136390	100962	35218	32940	4002	4023
MEAN	234	210	387	373	1078	3576	4546	3257	1174	1063	129	134
MAX	480	1340	2090	799	2300	6600	4910	6230	3720	3710	153	778
MIN	95	106	90	173	466	1430	4380	601	369	156	101	77
AC-11	14400	12510	23830	22940	59890	219900	270500	200300	69850	65340	7940	7980

e Estimated

BRAZOS RIVER BASIN

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08104500 LITTLE RIVER NEAR LITTLE RIVER--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1993, BY WATER YEAR (WY)

MEAN	460	472	526	891	971	1195	1356	2028	1872	1250	526	388
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 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1963 - 1993

ANNUAL TOTAL	1738784			491740				994		
ANNUAL MEAN	4751			1347				5054		1992
HIGHEST ANNUAL MEAN								179		1984
LOWEST ANNUAL MEAN										
HIGHEST DAILY MEAN	20000	Mar 5		6600	Mar 20			62000	May 17	1965
LOWEST DAILY MEAN	90	Dec 3		77	Sep 12			8.2	Aug 6	1963
ANNUAL SEVEN-DAY MINIMUM	99	Oct 23		81	Sep 6			9.5	Aug 3	1963
INSTANTANEOUS PEAK FLOW				10500	May 10			79600	May 17	1965
INSTANTANEOUS PEAK STAGE				29.51	May 10			42.85	May 17	1965
INSTANTANEOUS LOW FLOW				77	Sep 12			8.2	Aug 6	1963
ANNUAL RUNOFF (AC-FT)	3449000			975400				720400		
10 PERCENT EXCEEDS	9250			4400				3180		
50 PERCENT EXCEEDS	4920			464				254		
90 PERCENT EXCEEDS	125			107				63		

## BRAZOS RIVER BASIN

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

COOPERATION.--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, 51,220 acre-ft June 26 (elevation, 800.54 ft); minimum daily, 34,130 acre-ft Nov. 18 (elevation, 788.66 ft).

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

788.0	33,327	806.0	60,910	824.0	101,400
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

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35310	34550	34620	35460	36480	37480	37670	37980	37490	46940	37200	35500
2	35260	34520	34600	35460	36540	37530	37640	38820	37400	47230	37150	35440
3	35240	34470	34590	35460	36760	37490	37620	38940	37370	47460	37110	35410
4	35220	34420	34570	35490	36980	37420	37640	38800	37340	46880	37080	35380
5	35190	34370	34580	35500	37400	37370	37560	38960	37290	45490	37020	35310
6	35160	34320	34570	35510	37740	37280	37380	38840	37250	44100	36960	35260
7	35110	34270	34550	35530	37980	37210	37740	38650	37240	42720	36920	35190
8	35080	34260	34550	35540	37950	37250	37790	38430	37270	41560	36870	35140
9	35050	34260	34600	35610	37740	37400	37640	38270	37270	40670	36830	35100
10	35010	34270	34580	35640	37640	37560	37380	38030	37330	39790	36800	35050
11	34990	34270	34570	35660	37450	37580	37280	37750	37420	39190	36740	34980
12	34950	34260	34570	35660	37410	37530	37240	37460	37600	38850	36690	34940
13	34910	34240	34600	35680	37620	37450	37250	37150	37650	38490	36640	34900
14	34890	34220	34800	35690	37830	37330	37450	37080	37690	38130	36570	35050
15	34860	34190	35020	35700	37820	37320	37570	37230	37670	37830	36520	35000
16	34850	34170	35120	35720	37530	37360	37600	37370	37640	37750	36460	34950
17	34830	34140	35170	35730	37330	37400	37640	37500	37620	37790	36420	34910
18	34800	34130	35210	35730	37240	37420	37650	37600	37710	37830	36340	34860
19	34760	34680	35250	35910	37300	37820	37620	37640	37570	37830	36290	34830
20	34740	34750	35260	35960	37490	38850	37530	37650	37480	37790	36230	34800
21	34720	34760	35280	36010	37660	39180	37420	37660	40220	37730	36180	34750
22	34700	34760	35290	36050	37690	39370	37290	37660	41580	37660	36080	34720
23	34690	34750	35320	36100	37610	39240	37290	37950	41880	37570	36020	34660
24	34660	34760	35320	36120	37520	38930	37370	37980	42110	37490	35960	34620
25	34640	34720	35340	36140	37450	38620	37420	37940	42300	37400	35890	34570
26	34620	34700	35350	36160	37370	38290	37480	37870	51220	37320	35840	34580
27	34580	34660	35360	36190	37250	37930	37480	37810	50840	37290	35770	34550
28	34570	34660	35360	36250	37240	37570	37440	37750	49340	37270	35700	34520
29	34580	34640	35410	36340	---	37500	37650	37690	47720	37270	35640	34470
30	34580	34630	35420	36380	---	37650	37740	37660	46630	37240	35560	34420
31	34570	---	35460	36440	---	37710	---	37580	---	37210	35540	---
MAX	35310	34760	35460	36440	37980	39370	37790	38960	51220	47460	37200	35500
MIN	34570	34130	34550	35460	36480	37210	37240	37080	37240	37210	35540	34420
(+)	789.02	789.07	789.74	790.51	791.12	791.48	791.50	791.38	797.70	791.10	789.80	788.90
(Φ)	-770	+60	+830	+980	+800	+470	+30	-160	+9050	-9420	-1670	-1120

CAL YR 1992 MAX 136000 MIN 34130 (Φ) -42650  
WTR YR 1993 MAX 51220 MIN 34130 (Φ) -920

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

## BRAZOS RIVER BASIN

333

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.--Records good except those for estimated daily discharges, which are fair. 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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	2.5	4.1	4.1	4.2	e124	115	92	82	8.7	5.1	8.0
2	2.0	2.8	3.8	4.2	4.3	124	114	95	70	7.8	5.1	9.1
3	2.0	3.8	3.7	4.2	4.9	124	114	131	49	7.5	5.1	9.6
4	1.9	5.9	3.7	4.2	4.9	126	115	214	48	507	5.3	9.6
5	1.9	6.5	3.5	4.1	4.9	124	145	278	48	979	5.3	9.6
6	1.9	5.4	3.5	4.0	5.1	122	171	266	47	969	5.8	9.6
7	2.1	4.1	3.2	4.1	5.3	122	174	266	25	961	5.8	9.3
8	2.2	4.0	3.3	4.1	28	59	171	262	5.8	792	5.9	9.3
9	2.1	4.4	3.9	4.3	46	5.7	198	263	6.2	578	5.8	9.3
10	2.1	4.3	3.6	3.9	46	5.4	230	259	6.9	577	5.9	9.3
11	2.0	3.8	3.4	3.8	46	72	162	260	6.8	388	5.9	9.1
12	2.1	4.0	3.3	3.9	44	119	121	256	7.0	229	5.6	9.5
13	2.2	3.8	3.9	4.0	41	119	100	257	7.6	231	6.0	9.8
14	2.4	3.6	7.4	4.0	41	119	85	120	19	232	6.1	11
15	2.7	3.5	12	4.0	48	100	84	6.4	38	190	6.4	9.6
16	2.8	5.0	7.2	4.0	57	66	84	6.1	49	77	6.6	9.3
17	2.2	4.9	4.6	4.0	57	65	84	5.8	49	6.8	6.6	9.3
18	2.3	4.9	5.1	3.9	57	65	85	16	49	6.9	6.7	9.3
19	2.1	17	4.7	5.0	54	67	106	40	122	29	6.9	9.2
20	2.0	6.7	4.6	6.9	50	67	123	51	171	51	6.9	9.2
21	2.2	4.4	4.6	5.1	50	66	124	51	187	51	7.0	9.3
22	2.4	3.5	4.4	4.8	e64	108	127	51	17	51	6.9	9.9
23	2.3	3.5	4.6	4.6	e123	243	74	53	11	51	6.1	9.9
24	2.1	3.7	4.6	4.5	e124	315	38	69	10	51	10	9.7
25	2.2	5.0	4.4	4.1	e124	315	38	83	173	51	9.8	9.6
26	2.1	3.8	4.2	4.2	e124	311	37	83	294	38	9.6	9.8
27	1.9	4.0	4.2	4.2	e124	309	65	83	910	17	9.6	9.3
28	2.4	4.1	3.6	4.3	e124	309	87	83	1420	13	9.7	9.5
29	2.6	4.4	2.1	4.5	---	162	90	83	1430	5.5	9.9	9.3
30	2.5	4.1	2.0	4.2	---	67	89	83	963	5.3	9.8	9.3
31	2.4	---	2.4	4.2	---	86	---	83	---	5.1	9.7	---
TOTAL	67.9	141.4	133.6	133.4	1505.6	4086.1	3350	3949.3	6321.3	7166.6	216.9	283.6
MEAN	2.19	4.71	4.31	4.30	53.8	132	112	127	211	231	7.00	9.45
MAX	2.8	17	12	6.9	124	315	230	278	1430	979	10	11
MIN	1.8	2.5	2.0	3.8	4.2	5.4	37	5.8	5.8	5.1	5.1	8.0
AC-FT	135	280	265	265	2990	8100	6640	7830	12540	14210	430	563

e Estimated

## BRAZOS RIVER BASIN

08104700 NORTH FORK SAN GABRIEL RIVER NEAR GEORGETOWN, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1993#, BY WATER YEAR (WY)

MEAN	18.4	24.4	50.8	55.6	90.9	131	76.9	97.1	184	201	9.62	40.4
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 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1980 - 1993#	
ANNUAL TOTAL	128327.14		27355.7		81.6	
ANNUAL MEAN	351		74.9		358	
HIGHEST ANNUAL MEAN					4.00	
LOWEST ANNUAL MEAN					1992	
HIGHEST DAILY MEAN	3660	Mar 4	1430	Jun 29	4500	Jun 9 1981
LOWEST DAILY MEAN	.84	Sep 25	1.8	Oct 1	.00	Sep 27 1981
ANNUAL SEVEN-DAY MINIMUM	1.5	Sep 25	1.9	Oct 1	.01	Oct 2 1981
INSTANTANEOUS PEAK FLOW			1530	Jun 29	3500	Sep 17 1974
INSTANTANEOUS PEAK STAGE			8.52	Jun 29	26.20	Sep 17 1974
INSTANTANEOUS LOW FLOW			1.5	Oct 24		
ANNUAL RUNOFF (AC-FT)	254500		54260		59120	
10 PERCENT EXCEEDS	1000		179		183	
50 PERCENT EXCEEDS	20		9.3		6.3	
90 PERCENT EXCEEDS	2.5		3.0		1.9	

# Period of regulated streamflow.



## 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)
June 21	2400	19,200	a/ 17.0	June 26	0800	4,460	8.95

a/ from floodmark.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	3.0	7.5	31	48	161	72	56	42	99	13	1.2
2	1.5	3.3	7.2	34	37	143	70	83	38	90	14	1.1
3	3.4	1.2	6.2	34	52	87	69	70	36	82	13	.90
4	2.5	.81	7.0	34	75	77	79	54	35	75	12	.82
5	3.3	.91	6.9	32	108	73	72	255	34	69	12	1.9
6	1.5	1.0	8.2	31	142	71	66	174	33	63	12	2.4
7	1.2	1.5	8.6	31	87	73	214	111	32	57	12	2.8
8	1.5	2.0	6.9	32	81	69	189	93	29	52	13	1.6
9	1.4	3.8	10	41	88	68	94	93	29	49	13	1.1
10	1.1	3.1	9.1	46	146	65	83	88	35	48	9.1	.85
11	.77	3.8	8.0	43	132	65	79	78	34	45	9.2	.69
12	1.9	6.0	8.2	40	102	72	71	73	73	42	7.2	1.6
13	.85	3.8	9.8	39	100	66	68	69	47	38	7.8	3.5
14	.49	3.8	23	39	100	62	99	65	36	35	7.0	15
15	.36	2.9	210	39	102	64	110	62	32	32	7.0	8.5
16	.40	3.6	115	38	95	64	77	59	47	30	6.4	5.0
17	.29	2.3	57	40	89	60	71	54	51	29	5.0	2.6
18	.50	2.2	46	41	88	57	70	56	64	27	4.1	4.0
19	1.9	116	43	80	87	106	66	51	58	24	4.5	3.8
20	.87	57	42	114	89	429	60	48	68	23	3.2	3.5
21	.55	25	39	89	89	139	56	47	752	21	2.8	3.0
22	.67	18	37	81	83	110	53	45	2160	19	4.2	1.9
23	.80	14	36	79	77	91	51	95	164	18	4.0	1.3
24	1.0	12	33	77	72	88	52	76	99	18	2.3	1.1
25	1.3	10	33	73	74	88	50	55	105	17	1.9	.93
26	3.2	10	33	75	70	83	47	46	1170	15	1.8	2.5
27	1.0	11	33	75	66	79	43	44	279	14	1.5	3.0
28	.19	11	32	75	71	80	43	44	167	13	1.2	1.7
29	.65	11	31	84	---	79	85	45	132	13	2.8	.82
30	2.1	9.2	31	80	---	79	87	52	115	12	3.4	.68
31	1.5	---	31	67	---	76	---	51	---	12	1.9	---
TOTAL	40.29	353.22	1008.6	1714	2450	2924	2346	2292	5996	1181	212.3	79.79
MEAN	1.30	11.8	32.5	55.3	87.5	94.3	78.2	73.9	200	38.1	6.85	2.66
MAX	3.4	116	210	114	146	429	214	255	2160	99	14	15
MIN	.19	.81	6.2	31	37	57	43	44	29	12	1.2	.68
AC-FT	80	701	2000	3400	4860	5800	4650	4550	11890	2340	421	158

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1993, BY WATER YEAR (WY)

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MEAN	36.8	22.0	46.6	53.6	83.3	65.0	68.7	101	127	26.7	15.3	21.6														
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 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1968 - 1993

ANNUAL TOTAL	58785.31	20597.20	52.7	
ANNUAL MEAN	161	56.4	203	1992
HIGHEST ANNUAL MEAN			2.15	1984
LOWEST ANNUAL MEAN				
HIGHEST DAILY MEAN	6010	2160	7830	Sep 3 1981
LOWEST DAILY MEAN	.19 Oct 28	.19 Oct 28	.00	Jul 3 1971
ANNUAL SEVEN-DAY MINIMUM	.68 Oct 12	.68 Oct 12	.00	Jul 3 1971
INSTANTANEOUS PEAK FLOW		19200	33400	Sep 3 1981
INSTANTANEOUS PEAK STAGE		a/17.0	24.60	Sep 3 1981
INSTANTANEOUS LOW FLOW		.06 Oct 28		
ANNUAL RUNOFF (AC-FT)	116600	40850	38180	
10 PERCENT EXCEEDS	310	97	100	
50 PERCENT EXCEEDS	51	38	14	
90 PERCENT EXCEEDS	2.3	1.5	.32	

a/ from floodmark.

## BRAZOS RIVER BASIN

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 TX-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)
May 2	1000	1,200	6.26	June 26	1030	8,400	15.91
June 22	0530	5,440	13.12				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.4	3.2	3.2	7.4	16	103	43	96	35	54	9.6	3.2
2	7.4	3.2	2.9	7.4	16	81	43	411	36	48	9.1	3.1
3	7.4	3.0	2.6	6.9	27	50	43	109	36	44	8.4	3.3
4	7.4	2.5	2.5	6.6	166	41	47	62	35	40	8.3	e3.5
5	7.4	2.9	2.5	6.6	153	38	48	274	34	37	8.1	e3.5
6	7.4	2.4	2.5	6.6	100	36	46	210	34	33	7.9	e3.5
7	7.4	2.2	2.5	6.6	54	36	137	84	31	30	7.7	e3.2
8	7.4	2.2	2.2	6.8	45	36	123	69	32	29	7.7	e3.2
9	7.4	2.2	2.6	8.1	41	37	62	67	31	29	7.4	e3.2
10	7.3	2.2	2.4	7.3	115	37	51	65	31	27	7.2	e3.2
11	7.0	2.2	2.2	7.4	62	37	47	60	30	26	7.2	2.7
12	7.0	2.6	2.2	7.4	44	37	46	54	29	25	6.8	2.5
13	6.8	2.9	2.2	7.4	41	45	45	51	28	25	6.6	2.7
14	6.6	2.9	3.1	7.4	40	40	50	49	28	25	6.4	3.9
15	6.6	2.9	96	7.5	42	39	74	45	29	24	6.2	3.1
16	6.4	2.6	42	7.7	40	39	52	43	29	19	5.8	2.9
17	6.2	2.2	11	7.7	36	38	46	40	28	19	5.2	2.9
18	6.0	2.5	8.9	7.7	35	36	44	39	28	18	4.9	2.7
19	5.6	23	8.8	9.5	35	69	42	40	41	18	4.6	2.9
20	5.2	5.4	8.7	15	37	390	41	41	38	17	4.6	2.9
21	4.9	3.6	8.0	12	37	92	40	40	145	16	4.5	2.5
22	4.7	3.8	7.1	13	34	75	39	38	1490	16	4.5	1.9
23	4.5	3.9	7.0	13	32	76	39	46	96	16	4.5	1.9
24	4.3	4.1	7.0	13	33	67	39	63	59	14	4.1	1.9
25	4.1	3.9	7.0	13	34	62	40	47	49	14	3.7	1.9
26	3.7	3.9	7.0	13	33	57	40	42	3480	12	3.5	2.8
27	3.3	3.8	35	13	33	52	37	39	301	12	3.4	2.5
28	3.1	3.5	6.6	13	34	50	37	38	120	11	3.2	2.2
29	3.1	3.3	6.6	14	---	50	41	37	80	11	3.2	1.9
30	3.4	3.2	6.6	14	---	50	56	36	64	10	3.2	1.6
31	3.4	---	7.0	15	---	47	---	35	---	9.7	3.1	---
TOTAL	179.8	112.2	315.9	301.0	1415	1943	1538	2370	6527	728.7	180.6	83.2
MEAN	5.80	3.74	10.2	9.71	50.5	62.7	51.3	76.5	218	23.5	5.83	2.77
MAX	7.4	23	96	15	166	390	137	411	3480	54	9.6	3.9
MIN	3.1	2.2	2.2	6.6	16	36	37	35	28	9.7	3.1	1.6
AC-FI	357	223	627	597	2810	3850	3050	4700	12950	1450	358	165

e Estimated

BRAZOS RIVER BASIN

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08105100 BERRY CREEK NEAR GEORGETOWN, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1993, BY WATER YEAR (WY)

MEAN	16.8	9.45	23.9	29.7	53.1	35.2	35.3	49.7	57.1	14.3	5.32	8.58
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 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1968 - 1993

ANNUAL TOTAL	31848.5	15694.4	28.0	
ANNUAL MEAN	87.0	43.0	106	1992
HIGHEST ANNUAL MEAN			.047	1984
LOWEST ANNUAL MEAN			4670	Oct 31 1974
HIGHEST DAILY MEAN	2570 Feb 4	3480 Jun 26	.00	May 4 1971
LOWEST DAILY MEAN	2.2 Nov 7	1.6 Sep 30	.00	May 4 1971
ANNUAL SEVEN-DAY MINIMUM	2.3 Nov 6	2.1 Sep 24	15500	Oct 31 1974
INSTANTANEOUS PEAK FLOW		8400 Jun 26	19.33	Oct 31 1974
INSTANTANEOUS PEAK STAGE		15.91 Jun 26	.00	at times
INSTANTANEOUS LOW FLOW		1.6 Sep 30	20300	
ANNUAL RUNOFF (AC-FT)	63170	31130	50	
10 PERCENT EXCEEDS	143	62	5.2	
50 PERCENT EXCEEDS	40	14	.00	
90 PERCENT EXCEEDS	3.3	2.9		

## 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, 89,150 acre-ft June 27 (elevation, 508.84 ft); minimum daily, 65,240 acre-ft Sept. 12 (elevation, 503.94 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 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66120	66920	65990	66300	66700	69880	66480	67320	66920	79910	67230	65420
2	66040	66880	65950	66170	66660	70510	66480	69520	66740	76440	67190	65380
3	65990	66700	65950	66040	67590	70060	66610	70150	66480	73710	67050	65330
4	65950	66570	65860	65950	69610	69470	66880	70010	66300	71060	66970	65330
5	65900	66430	65860	65990	71060	68710	66660	72820	66300	69970	66880	65290
6	65860	66340	65860	66120	71200	67990	66340	75040	66300	68750	66660	65290
7	65860	66260	65860	66340	70650	67280	68440	75090	66300	67630	66660	65290
8	65730	66210	65900	66390	69880	66880	69290	74800	66170	67940	66570	65330
9	65730	66210	66170	66790	69380	66700	69160	80460	66040	68710	66480	65290
10	65680	66260	66120	66920	69790	66430	68710	82100	66040	69610	66390	65290
11	65680	66300	66120	67050	69610	66340	68350	81840	66120	70240	66260	65290
12	65680	66300	66170	67010	68890	66660	67590	80920	66390	69920	66170	65240
13	65680	66210	66210	66830	67900	66700	66830	79410	66480	69240	66120	65290
14	65770	66210	67100	66660	67410	66700	66480	77620	66390	68570	66080	65680
15	65820	66120	69740	66480	67540	66830	66300	75570	66390	67860	66040	65640
16	65820	66120	70600	66340	67860	66570	66340	73470	66390	67410	66040	65640
17	65820	66040	70060	66210	68120	66120	66660	71100	66390	67100	66040	65640
18	65860	66040	68890	66040	67810	65990	66920	69430	66390	66740	65990	65680
19	65860	67280	67770	67460	67280	68710	66660	67990	66390	66660	65950	65680
20	65900	67630	66570	68350	66830	72960	66210	67360	67770	66830	65950	65680
21	65950	67590	66080	68350	66210	74180	65990	67140	69430	67010	65860	65730
22	65990	67360	66480	68120	65990	74710	65950	66920	80310	67140	65820	65770
23	66040	67050	66480	67810	66300	74330	65990	69110	81430	67230	65770	65770
24	66080	66880	66570	67500	66740	73800	66040	68840	82250	67280	65680	65770
25	66120	66520	66660	67140	67100	72910	66040	68080	82200	67280	65600	65680
26	66170	66170	66790	66740	67280	72070	66040	67190	87200	67320	65600	66040
27	66120	66040	66920	66390	67280	71240	66040	66880	89150	67360	65550	65990
28	66210	65990	66920	66300	67460	70380	66120	67100	88170	67360	65550	65950
29	66700	66040	66830	66660	---	69380	66740	67190	86400	67360	65510	65950
30	66700	65990	66740	66700	---	67990	67100	67100	84330	67280	65460	65990
31	66920	---	66570	66700	---	66830	---	67050	---	67280	65460	---
MAX	66920	67630	70600	68350	71200	74710	69290	82100	89150	79910	67230	66040
MIN	65680	65990	65860	65950	65990	65990	65950	66880	66040	66660	65460	65240
(↑)	504.32	504.11	504.24	504.27	504.44	504.30	504.36	504.35	507.94	504.40	503.99	504.11
(Φ)	+710	-930	+580	+130	+760	-630	+270	-50	+17280	-17050	-1820	+530

CAL YR 1992 MAX 266600 MIN 65680 (Φ) -90630  
WTR YR 1993 MAX 89150 MIN 65240 (Φ) -220

(↑) Elevation, in feet, at end of month.  
(Φ) Change in contents, in acre-feet.

## BRAZOS RIVER BASIN

339

08105700 SAM GABRIEL RIVER AT LANEPORT, TX

LOCATION.--Lat 30°41'39", long 97°16'43", Williamson County, Hydrologic Unit 12070205, 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.--WDR 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 except those for period June 30-Aug. 20, which are fair. Flow partly regulated by Granger Lake (station 08105600) since Jan. 21, 1980. 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.--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 in 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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	5.0	56	191	176	341	541	220	369	2590	36	7.3
2	46	17	56	191	182	564	345	219	269	2350	36	7.1
3	47	51	55	191	220	787	342	257	270	1860	36	7.2
4	47	52	56	193	225	785	345	493	228	1840	36	7.3
5	47	52	56	95	464	782	449	773	150	1810	36	7.1
6	40	53	55	10	760	784	549	778	150	1830	36	6.6
7	27	53	54	18	758	784	562	777	152	1840	36	6.2
8	28	53	58	12	877	659	558	777	152	1100	35	7.0
9	28	53	60	13	1030	342	573	906	154	400	36	7.1
10	28	53	59	29	1030	342	745	752	157	400	36	7.1
11	21	54	58	48	1020	341	745	727	161	400	36	7.0
12	6.9	56	58	124	1040	341	745	954	240	640	36	6.9
13	6.6	51	59	196	1030	341	745	1310	168	819	23	7.1
14	6.5	53	64	197	653	338	745	1460	172	818	8.4	9.0
15	5.0	54	70	197	341	338	495	1440	170	820	8.2	6.9
16	4.4	54	52	197	340	470	333	1430	170	647	8.0	6.7
17	4.3	54	383	197	338	562	333	1420	170	366	7.8	6.8
18	4.2	54	758	197	559	356	333	1220	172	367	7.6	6.9
19	4.2	59	768	207	690	224	431	863	174	226	7.5	7.0
20	4.1	115	764	282	561	156	546	563	210	13	7.7	7.0
21	3.6	226	416	346	559	59	432	249	235	13	7.5	6.9
22	3.5	227	54	345	373	293	329	247	198	14	7.5	6.6
23	3.9	222	54	345	198	791	297	337	28	23	7.5	6.6
24	3.9	220	53	346	197	1050	223	460	22	32	7.0	6.4
25	3.9	218	51	345	198	1310	222	685	643	32	7.1	6.3
26	7.5	225	49	345	276	1300	220	683	1200	32	6.9	7.0
27	6.2	152	49	345	338	1290	220	442	1570	32	7.1	6.6
28	3.9	58	113	277	341	1280	221	352	2020	34	6.6	6.2
29	4.1	57	198	216	---	1280	223	348	2400	35	5.7	6.1
30	5.9	55	191	203	---	1280	220	341	2420	36	6.9	5.8
31	4.6	---	191	191	---	986	---	338	---	36	7.2	---
TOTAL	502.2	2706.0	5018	6089	14774	20556	13067	21821	14594	21455	586.2	205.8
MEAN	16.2	90.2	162	196	528	663	436	704	486	692	18.9	6.86
MAX	47	227	768	346	1040	1310	745	1460	2420	2590	36	9.0
MIN	3.5	5.0	49	10	176	59	220	219	22	13	5.7	5.8
AC-FT	996	5370	9950	12080	29300	40770	25920	43280	28950	42560	1160	408

## BRAZOS RIVER BASIN

08105700 SAN GABRIEL RIVER AT LANEPORT, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1993#, BY WATER YEAR (WY)

MEAN	78.8	103	202	257	308	409	293	414	528	539	39.2	84.2
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 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1980 - 1993#

ANNUAL TOTAL	363142.4		121374.2			
ANNUAL MEAN	992		333			
HIGHEST ANNUAL MEAN						271
LOWEST ANNUAL MEAN						1015
HIGHEST DAILY MEAN	6870	Mar 5	2590	Jul 1		21.4
LOWEST DAILY MEAN	3.5	Oct 22	3.5	Oct 22		6870
ANNUAL SEVEN-DAY MINIMUM	3.9	Oct 19	3.9	Oct 19		.00
INSTANTANEOUS PEAK FLOW			2640	Jul 1		.00
INSTANTANEOUS PEAK STAGE			12.67	Jul 1		31200
INSTANTANEOUS LOW FLOW			3.5	Oct 22		30.80
ANNUAL RUNOFF (AC-FT)	720300		240700			.00
10 PERCENT EXCEEDS	2420		837			196500
50 PERCENT EXCEEDS	262		191			907
90 PERCENT EXCEEDS	12		6.9			36
						3.1

# Period of regulated streamflow

\* No flow Aug. 21, to Oct. 6, and Oct. 13-15, 1985.



## BRAZOS RIVER BASIN

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## 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.--No estimated daily discharges. 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 Soil Conservation Service floodwater-retarding structures in the Little River basin, see station number 08104500. Flow from the San Gabriel river is largely regulated by Granger Lake (station 08105600). Flow in the San Gabriel may be affected at times by discharge from the flood-detention pools of 46 flood water-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. The Aluminum Company of America diverts water from Little River to their plant reservoir. Satellite telemeter (DCP) at station.

EXTREMS 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.

EXTREMS FOR CURRENT YEAR.--Maximum gage height, 33.49 ft May 11 at 0100 hours (maximum discharge not determined); minimum daily discharge, 103 ft<sup>3</sup>/s Sept. 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	663	194	298	840	---	---	---	---	---	---	271	125
2	651	178	284	829	---	---	---	---	---	---	268	115
3	656	203	269	822	---	---	---	---	---	---	260	117
4	664	237	244	748	---	---	---	---	---	---	256	123
5	656	210	231	638	---	---	---	---	---	---	250	111
6	648	210	241	460	---	---	---	---	---	---	249	115
7	640	e208	246	375	---	---	---	---	---	---	236	127
8	622	205	248	589	---	---	---	---	---	---	235	131
9	609	205	249	---	---	---	---	---	---	---	235	129
10	610	210	247	---	---	---	---	---	---	---	249	129
11	450	214	339	---	---	---	---	---	---	---	264	129
12	337	226	253	---	---	---	---	---	---	---	236	129
13	297	221	236	---	---	---	---	---	---	---	215	129
14	281	200	448	---	---	---	---	---	---	---	197	136
15	249	193	---	---	---	---	---	---	---	---	170	193
16	199	186	---	720	---	---	---	---	---	---	168	365
17	181	181	---	680	---	---	---	---	---	---	166	188
18	175	181	---	666	---	---	---	---	---	---	162	152
19	188	280	---	---	---	---	---	---	---	983	159	141
20	202	---	---	---	---	---	---	---	---	698	152	125
21	197	---	---	---	---	---	---	---	---	581	147	107
22	195	---	---	---	---	---	---	---	---	559	144	104
23	182	911	---	---	---	---	---	---	---	537	136	103
24	173	723	---	---	---	---	---	---	---	425	137	118
25	165	629	822	---	---	---	---	---	---	353	135	128
26	160	769	717	---	---	---	---	---	---	328	135	124
27	156	751	692	---	---	---	---	---	---	315	132	---
28	155	627	677	---	---	---	---	---	---	311	120	---
29	148	439	808	---	---	---	---	---	---	301	147	210
30	171	315	875	---	---	---	---	---	---	291	134	150
31	173	---	865	---	---	---	---	---	---	281	126	---
TOTAL	10853	---	---	---	---	---	---	---	---	---	5891	---
MEAN	350	---	---	---	---	---	---	---	---	---	190	---
MAX	664	---	---	---	---	---	---	---	---	---	271	---
MIN	148	---	---	---	---	---	---	---	---	---	120	---
AC-F1	21530	---	---	---	---	---	---	---	---	---	11680	---

e Estimated

## 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.--Water-stage recorder and data collection platform (DCP). Period Aug. 14, to Oct. 21, 1992, non-recording gage at site. 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.--No estimated daily discharges. Records good. 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, 1,807 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.  
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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	630	172	296	651	1290	1460	5110	5350	1450	5500	262	61
2	615	170	269	642	1080	3480	5160	5970	1460	5540	257	49
3	603	169	253	643	1000	4160	5060	7380	1310	5060	251	45
4	599	232	224	618	1440	4110	5590	5780	1230	4680	233	58
5	599	200	203	538	4220	4680	5740	4870	1220	4620	216	46
6	599	193	209	440	4980	4750	5400	6290	1070	4590	217	39
7	581	186	217	336	4010	4690	5440	7180	1020	4340	206	46
8	543	187	220	431	2910	4640	7120	5510	927	3290	202	59
9	532	188	227	718	2670	4370	6660	6020	862	2100	200	55
10	528	189	202	1760	2610	4180	5730	12600	861	1690	206	55
11	473	194	312	1260	3410	4160	5520	15800	1000	1170	226	53
12	338	207	245	810	3150	4300	5440	7580	1080	1040	210	54
13	276	203	210	809	2670	4890	5390	6420	2040	1180	173	55
14	260	183	403	803	2750	4520	5410	6550	1830	1190	165	62
15	244	167	2280	725	2300	4290	5780	6460	1040	1160	126	82
16	179	157	5660	598	2230	4270	5480	6040	870	1110	116	379
17	145	152	3190	566	2470	4440	5110	5190	835	909	113	261
18	132	148	1590	555	1800	4420	5050	4690	1010	786	112	175
19	130	260	1550	594	1970	4400	5510	4010	967	771	108	148
20	152	844	1540	2740	1900	12000	5280	3340	1220	655	101	131
21	159	2210	1470	3570	1470	13300	5160	2830	2930	545	93	87
22	177	994	1030	2110	1320	7370	4960	2550	12600	523	88	79
23	156	766	930	1610	1030	6930	4900	3370	5930	507	83	73
24	146	652	877	1380	996	6140	4830	4740	2140	440	80	78
25	135	576	688	1160	1050	5600	4770	3190	1210	357	82	115
26	128	614	587	1040	1210	5460	4750	2560	2460	332	79	117
27	120	658	567	923	1430	5340	4760	2090	5500	316	78	195
28	120	588	554	827	1400	5230	5020	1430	4930	307	64	836
29	115	465	609	1420	---	3700	5130	2490	4350	302	82	369
30	144	330	670	2500	---	3900	5310	2000	5020	286	77	201
31	147	---	670	2040	---	4530	---	1390	---	277	67	---
TOTAL	9705	12254	27952	34817	60766	159710	160570	161670	70372	55573	4573	4063
MEAN	313	408	902	1123	2170	5152	5352	5215	2346	1793	148	135
MAX	630	2210	5660	3570	4980	13300	7120	15800	12600	5540	262	836
MIN	115	148	202	336	996	1460	4750	1390	835	277	64	39
AC-1-1	19250	24310	55440	69060	120500	316800	318500	320700	139600	110200	9070	8060

BRAZOS RIVER BASIN

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08106500 LITTLE RIVER AT CAMERON, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1993#, BY WATER YEAR (WY)

MEAN	1305	1022	1329	1649	2087	1912	2170	3270	2689	1703	627	599
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 1992 CALENDAR YEAR					FOR 1993 WATER YEAR				WATER YEARS 1954 - 1993#		
ANNUAL TOTAL	2570850					762025				1695		
ANNUAL MEAN	7024					2088				7759		1992
HIGHEST ANNUAL MEAN										174		1956
LOWEST ANNUAL MEAN										84200		May 18 1965
HIGHEST DAILY MEAN	45300					15800	May 11					
LOWEST DAILY MEAN	115					39	Sep 6			.00	Jul 12 1956	
ANNUAL SEVEN-DAY MINIMUM	130					49	Sep 2			.00	Jul 12 1956	
INSTANTANEOUS PEAK FLOW						17000	May 11			116000	Apr 5 1957	
INSTANTANEOUS PEAK STAGE						29.83	May 11			39.56	Apr 5 1957	
INSTANTANEOUS LOW FLOW						35	Sep 5			.00	*	
ANNUAL RUNOFF (AC-FT)	5099000					1511000					1228000	
10 PERCENT EXCEEDS	11800					5450					4770	
50 PERCENT EXCEEDS	7990					967					480	
90 PERCENT EXCEEDS	210					116					62	

# Period of regulated streamflow  
\* No flow July 12-27, 1956

## 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, 910 microsiemens Nov. 4; minimum daily, 250 microsiemens June 22.

WATER TEMPERATURE: Maximum daily, 29.0°C on many days during July and Aug.; minimum daily, 9.0°C Nov. 28, Dec. 7, 17, and Jan. 26.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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, FECA, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECA, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CaCO3)	
DEC 09...	1130	230	680	7.9	11.0	95	10.2	94	1.2	60	67	260	
FEB 11...	1108	3360	509	7.9	13.0	150	9.6	92	2.6	900	1000	210	
APR 06...	1230	5330	520	7.7	14.0	330	9.5	93	--	740	400	220	
MAY 19...	1100	4130	543	7.6	22.0	72	7.7	89	0.5	K300	820	250	
JUL 2/...	1110	330	653	7.5	29.5	26	8.5	113	2.3	58	80	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 FIX END FIELD (MG/L AS CaCO3)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
DEC 09...	24	79	16	39	1	3.3	0	293	240	240	44	50	
FEB 11...	26	63	13	26	0.8	2.9	0	226	180	185	34	42	
APR 06...	40	64	14	30	0.9	3.6	0	216	180	177	35	49	
MAY 19...	48	73	15	26	0.7	2.9	0	240	--	197	33	41	
JUL 2/...	13	60	19	37	1	2.9	0	264	220	216	47	46	
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 CONSTITUENTS, 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)
DEC 09...	0.30	9.5	414	403	3.54	3.68	0.060	0.020	3.70	3.70	0.010	0.010	
FEB 11...	0.20	8.1	311	308	1.47	1.47	--	0.030	1.50	1.50	--	0.040	
APR 06...	0.20	8.4	330	314	0.770	0.770	--	0.010	0.780	0.780	--	0.030	
MAY 19...	0.30	8.5	314	319	0.170	--	--	<0.010	0.170	0.170	--	0.030	
JUL 2/...	0.30	8.5	364	360	1.98	1.98	--	0.020	2.00	2.00	--	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 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)	
DEC 09...	0.59	0.60	0.390	0.190	0.180	0.190	0.55	156	97		79	30	
FEB 11...	0.76	0.80	0.380	0.050	0.040	--	0.12	2570	23300		30	20	
APR 06...	0.37	0.40	0.110	<0.010	0.020	--	0.06	407	5860		18	--	
MAY 19...	0.37	0.40	0.030	0.010	0.010	--	0.03	508	5660		54	<10	
JUL 2/...	0.28	0.30	0.030	<0.010	<0.010	--	--	131	117		76	20	

## 08106500 LITTLE RIVER AT CAMERON, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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)
DEC	09...	71	<3	10	11	11	<10	1	1	<1.0	740	<6
FEB	11...	57	<3	28	9	37	<10	<1	<1	<1.0	670	<6
APR	06...	--	--	--	--	--	--	--	--	--	--	--
MAY	19...	65	<3	5	11	2	<10	<1	<1	<1.0	860	6
JUL	27...	75	<3	<3	13	1	10	2	1	<1.0	980	<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.	1992	9/05	638	355	9320	53	1380	46	1200	220
NOV.	1992	12254	553	308	10200	45	1470	37	1230	200
DEC.	1992	27952	466	260	19600	36	2730	28	2130	180
JAN.	1993	34817	504	281	26400	39	3710	31	2930	190
FEB.	1993	60766	496	276	45300	39	6340	30	4970	190
MAR.	1993	159710	514	286	123000	40	17400	32	13700	190
APR.	1993	160570	539	300	130000	43	18500	34	14900	200
MAY	1993	161670	481	268	117000	37	16300	29	12700	180
JUNE	1993	70372	430	239	45500	33	6270	25	4760	170
JULY	1993	55573	504	281	42100	39	5910	31	4660	190
AUG.	1993	4573	672	374	4620	56	691	49	610	230
SEPT	1993	4063	688	383	4200	58	636	52	572	230
TOTAL		762025	**	**	578000	**	81300	**	64400	**
WTD.AVG.		2088	504	281	**	40	**	31	**	190

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	600	760	610	580	480	560	560	550	600	460	640	690
2	600	780	630	580	500	550	550	550	580	460	650	690
3	600	790	640	580	540	460	550	500	580	480	650	700
4	600	910	650	590	540	510	540	510	580	480	660	680
5	610	800	670	580	430	520	540	530	590	490	660	740
6	600	760	670	590	390	530	540	490	602	490	660	710
7	600	740	680	650	390	530	540	400	610	480	680	720
8	600	690	690	690	470	530	500	510	610	480	680	700
9	600	690	690	660	500	530	500	530	620	520	680	700
10	600	690	690	520	510	540	530	370	620	550	690	690
11	600	680	700	510	510	540	530	320	610	560	680	690
12	610	680	710	530	500	540	540	450	550	570	670	690
13	630	680	710	560	500	530	540	520	500	530	670	690
14	640	670	430	540	500	520	540	520	490	510	660	700
15	670	690	430	560	540	540	540	530	470	510	660	720
16	690	700	370	570	500	540	540	530	550	510	670	720
17	710	700	320	580	500	540	540	530	580	510	690	830
18	710	700	390	590	550	540	540	530	500	580	690	880
19	720	700	390	600	530	540	550	540	590	580	690	790
20	730	630	460	460	530	460	540	550	540	570	690	760
21	730	480	460	390	530	450	540	550	520	630	690	790
22	740	380	500	460	550	500	540	570	250	640	690	820
23	750	390	550	470	580	500	540	560	330	640	680	760
24	760	400	540	500	600	490	540	430	330	640	690	670
25	760	440	570	510	590	520	550	510	420	660	690	630
26	760	460	600	520	590	530	550	540	540	670	690	630
27	770	510	610	540	570	530	550	540	390	650	690	640
28	770	540	620	540	570	530	550	570	350	650	690	690
29	800	570	620	440	---	530	550	460	420	640	680	480
30	750	590	580	430	---	540	550	420	450	630	690	470
31	760	---	580	500	---	530	---	550	---	630	690	---
MEAN	680	640	573	543	517	523	540	505	512	561	677	702
MAX	800	910	710	690	600	560	560	570	620	670	690	880
MIN	600	380	320	390	390	450	500	320	250	460	640	470

## BRAZOS RIVER BASIN

08106500 LITTLE RIVER AT CAMERON, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.5	23.0	10.5	12.0	11.0	13.0	17.0	18.0	22.0	25.0	29.0	28.0
2	20.5	20.0	11.0	11.0	12.0	13.0	15.0	18.0	23.0	25.0	29.0	28.0
3	20.5	20.5	11.0	13.5	12.5	13.0	15.0	19.0	23.0	25.0	29.0	28.0
4	20.0	15.5	12.0	14.0	12.5	13.0	15.0	20.0	24.0	25.0	29.0	27.0
5	21.0	14.0	10.0	11.0	13.0	13.0	13.5	19.0	25.0	25.0	29.0	25.0
6	21.0	13.0	10.0	11.0	12.0	13.0	14.0	20.0	25.0	25.0	29.0	26.0
7	22.0	13.0	9.0	11.0	11.0	14.0	15.0	21.0	25.0	25.0	29.0	25.0
8	20.0	13.0	10.0	12.0	12.0	14.5	15.0	20.0	25.0	25.0	29.0	25.0
9	22.0	16.0	11.0	13.0	13.0	15.0	15.0	20.0	25.0	25.0	29.0	25.0
10	21.5	17.0	11.0	11.0	14.0	15.0	16.0	19.0	25.0	25.0	29.0	26.0
11	20.5	18.0	11.0	11.0	13.0	14.0	16.0	20.0	24.0	25.0	29.0	26.0
12	20.0	16.0	11.5	11.0	12.5	11.0	17.0	20.0	24.0	26.0	29.0	27.0
13	20.0	15.0	15.0	10.0	13.0	11.0	18.0	19.0	24.0	26.0	29.0	27.0
14	21.5	14.0	11.0	9.5	13.0	11.0	17.5	19.0	24.0	27.0	29.0	25.0
15	23.0	13.0	10.5	10.5	13.0	12.0	15.0	20.0	25.0	27.0	29.0	22.0
16	23.5	14.0	10.0	10.5	12.0	14.5	16.0	20.0	25.0	27.0	29.0	21.0
17	21.0	15.0	9.0	11.0	11.0	13.0	17.0	21.0	25.0	27.0	29.0	22.0
18	21.0	17.0	10.0	12.0	10.0	13.0	17.0	22.0	25.0	27.0	29.0	23.0
19	19.5	18.0	12.0	11.0	10.0	14.5	18.0	20.0	25.0	27.0	29.0	25.0
20	20.0	16.5	11.0	10.0	12.0	15.0	17.5	20.0	25.0	27.0	29.0	25.0
21	21.0	16.5	11.0	10.0	12.0	15.0	16.5	21.0	25.0	27.0	29.0	26.0
22	21.0	15.0	13.0	11.0	13.0	17.0	17.0	21.0	24.0	28.0	29.0	27.0
23	20.0	14.0	14.0	13.0	13.0	17.0	17.5	21.0	25.0	28.0	29.0	27.0
24	20.5	15.0	12.5	12.0	14.5	16.0	17.5	20.0	25.0	28.0	29.0	27.0
25	20.5	13.0	13.0	10.0	16.0	16.0	19.0	20.0	26.0	28.0	28.0	27.0
26	20.5	11.0	12.0	9.0	13.0	14.0	19.0	21.0	25.0	28.0	28.0	27.0
27	21.0	11.0	12.0	9.5	13.0	16.0	18.0	21.0	25.0	28.0	28.0	24.0
28	21.0	9.0	13.5	10.0	13.0	16.0	18.0	22.0	25.0	28.0	28.0	22.0
29	22.0	12.0	15.0	11.0	---	17.0	18.0	22.0	25.0	28.0	28.0	21.0
30	22.0	10.0	17.0	11.0	---	18.0	18.0	23.0	25.0	29.0	28.0	22.0
31	23.0	---	13.5	11.0	---	18.0	---	23.0	---	29.0	28.0	---
MEAN	21.0	14.9	11.7	11.1	12.5	14.4	16.6	20.3	24.6	26.6	28.8	25.2
MAX	23.5	23.0	17.0	14.0	16.0	18.0	19.0	23.0	26.0	29.0	29.0	28.0
MIN	19.5	9.0	9.0	9.0	10.0	11.0	13.5	18.0	22.0	25.0	28.0	21.0



## 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.--Records fair, except those for estimated daily discharges which are poor. 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)
Jan. 22	1500	1,500	10.93	May 5	2200	972	10.16
Apr. 7	1800	1,420	10.82	May 13	1400	950	10.12

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	e2.1	e9.0	20	211	26	55	27	28	16	.69	.00
2	.00	e1.3	4.8	19	191	37	38	28	20	13	.20	.00
3	.00	e1.0	5.6	19	92	47	31	31	19	12	.20	.00
4	.00	e.70	7.2	20	55	47	192	32	16	11	.14	.00
5	.00	2.4	12	22	51	36	339	378	16	8.4	.11	.00
6	.00	3.8	13	24	61	29	445	796	15	6.5	.07	.00
7	.00	e3.2	13	24	97	25	1150	617	14	7.8	.04	.00
8	.02	2.7	12	23	97	22	1060	310	15	11	.04	.00
9	.01	2.5	14	37	60	21	747	256	14	12	.03	.00
10	.01	2.2	17	79	62	20	312	232	24	13	.02	.00
11	.02	2.0	19	129	101	19	85	271	16	14	.02	.00
12	.02	5.4	18	169	142	19	46	310	14	15	.02	.00
13	.02	13	16	169	143	20	37	803	9.0	14	.01	.00
14	.01	e17	16	77	84	21	35	752	2.2	13	.00	.00
15	.00	e19	123	45	53	40	40	216	6.5	12	.00	.00
16	.00	e16	180	36	44	59	37	43	14	e11	.01	.00
17	.00	e20	191	31	72	37	33	30	12	e10	.09	.00
18	.00	e50	246	28	124	31	28	25	12	e9.0	.13	.00
19	.00	63	305	115	75	44	24	21	12	e8.5	.10	.00
20	.00	94	258	295	42	250	22	18	139	e9.0	.05	.00
21	.00	106	65	350	35	223	20	16	81	e10	.03	.00
22	.00	138	41	1150	32	231	18	15	84	e11	.02	.00
23	.00	108	38	1210	30	312	17	19	67	12	.00	.00
24	.00	44	39	832	28	448	16	37	39	e1.0	.00	.00
25	.00	27	35	345	26	254	15	52	34	e10	.00	.00
26	.00	19	30	76	26	87	15	42	58	6.1	.00	.00
27	.00	15	27	48	24	56	14	29	92	4.2	.00	.00
28	.00	13	25	40	24	42	13	25	58	3.5	.00	.00
29	.00	12	25	68	---	36	16	25	28	3.1	.00	.00
30	e14	12	23	144	---	42	23	34	20	2.4	.00	.00
31	e3.8	---	21	169	---	61	---	41	---	2.0	.00	---
TOTAL	17.91	815.30	1848.6	5813	2082	2642	4923	5531	978.7	291.5	2.02	0.00
MEAN	.58	27.2	59.6	188	74.4	85.2	164	178	32.6	9.40	.065	.000
MAX	14	138	305	1210	211	448	1150	803	139	16	.69	.00
MIN	.00	.70	4.8	19	24	19	13	15	2.2	1.0	.00	.00
AC-FI	36	1620	3670	11530	4130	5240	9760	10970	1940	578	4.0	.00

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1993, BY WATER YEAR (WY)

	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MEAN	19.4	43.0	77.8	67.8	98.5	63.3	63.1	133	107	6.86	1.37	17.2																			
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	1963	1963																			

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1963 - 1993

ANNUAL TOTAL	74936.88	24945.03	
ANNUAL MEAN	205	68.3	57.9
HIGHEST ANNUAL MEAN			256
LOWEST ANNUAL MEAN			.55
HIGHEST DAILY MEAN	5080	1210	9470
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW		1500	12500
INSTANTANEOUS PEAK STAGE		10.93	15.39
INSTANTANEOUS LOW FLOW		.00	.00
ANNUAL RUNOFF (AC-FT)	148600	49480	41930
10 PERCENT EXCEEDS	517	184	95
50 PERCENT EXCEEDS	21	19	4.5
90 PERCENT EXCEEDS	.09	.00	.00

## 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.

REVISID RECORDS.--WDR TX-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 good. 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)
Jan. 21	1500	1,020	9.72	May 6	0600	1,850	10.16
Mar. 22	0700	1,400	9.79	June 20	2400	1,320	9.72
Apr. 5	2400	1,860	10.17	June 22	0300	1,240	9.65
Apr. 9	0500	1,430	9.82				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.9	18	17	25	213	51	85	67	108	49	17	15
2	7.0	15	14	24	81	73	73	70	54	41	20	14
3	8.7	10	22	23	65	73	69	105	41	39	26	14
4	6.2	5.7	26	31	62	57	362	74	35	39	28	18
5	3.1	6.8	26	42	84	50	1410	492	29	39	28	19
6	4.2	11	28	37	130	48	1510	1480	28	38	27	18
7	6.4	17	29	29	161	45	939	1140	27	42	25	17
8	11	18	30	27	93	43	1230	722	27	36	25	17
9	11	19	26	90	69	42	1060	271	28	34	25	20
10	12	20	22	254	96	45	419	162	31	33	25	20
11	14	19	22	444	155	45	136	248	35	32	25	22
12	20	23	18	321	149	55	93	336	36	31	25	22
13	16	18	16	88	80	78	81	142	43	30	25	23
14	17	18	47	54	59	69	82	66	51	29	19	23
15	17	15	294	38	53	73	99	56	43	29	17	26
16	17	11	275	37	61	100	92	51	39	28	16	22
17	18	11	287	34	104	81	75	44	35	29	16	19
18	18	13	133	33	68	65	67	40	41	29	15	19
19	20	129	42	280	49	102	65	36	44	28	15	17
20	20	143	32	1110	45	495	63	34	847	28	16	18
21	21	99	31	1240	45	910	59	34	1060	27	24	17
22	18	41	28	992	46	1200	56	34	1020	26	25	16
23	16	38	36	409	43	914	59	43	519	26	26	15
24	17	32	46	103	39	463	66	91	323	22	26	15
25	15	27	46	67	38	341	53	82	186	20	21	16
26	13	23	36	56	33	175	49	53	274	16	17	16
27	12	20	32	50	35	101	44	43	422	17	14	18
28	13	19	29	47	38	87	40	58	576	19	14	19
29	15	19	29	99	---	81	63	117	376	17	14	17
30	26	18	29	196	---	93	84	72	77	17	16	16
31	18	---	26	323	---	109	---	176	---	16	16	---
TOTAL	436.5	876.5	1774	6603	2194	6164	8583	6439	6455	906	648	548
MEAN	14.1	29.2	57.2	213	78.4	199	286	208	215	29.2	20.9	18.3
MAX	26	143	294	1240	213	1200	1510	1480	1060	49	28	26
MIN	3.1	5.7	14	23	33	42	40	34	27	16	14	14
AC-Ft	866	1740	3520	13100	4350	12230	17020	12770	12800	1800	1290	1090

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1993, BY WATER YEAR (WY)

	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	
MEAN	21.0	40.6	72.2	73.3	112	78.1	80.0	133	118	17.6	6.62	23.5																					
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 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1962 - 1993

ANNUAL TOTAL	72158.9	41627.0	
ANNUAL MEAN	197	114	
HIGHEST ANNUAL MEAN			64.3
LOWEST ANNUAL MEAN			3.93
HIGHEST DAILY MEAN	3880	Feb 25	9490
LOWEST DAILY MEAN	3.1	Oct 5	.00
ANNUAL SEVEN-DAY MINIMUM	5.9	Sep 30	.00
INSTANTANEOUS PEAK FLOW			14000
INSTANTANEOUS PEAK STAGE			13.91
INSTANTANEOUS LOW FLOW			.00
ANNUAL RUNOFF (AC-Ft)	143100	82570	46550
10 PERCENT EXCEEDS	465	277	80
50 PERCENT EXCEEDS	29	35	7.7
90 PERCENT EXCEEDS	11	16	.10

## 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 Vegua 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, 221,800 acre-ft June 27 (elevation, 242.85 ft); minimum daily, 140,200 acre-ft Sept. 30 (elevation, 236.10 ft).

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

236.0	138,200	246.0	268,800	254.0	416,100
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

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	156900	154400	163600	165500	184000	160800	177200	163800	193400	217800	160700	144700
2	156800	154400	163600	164700	184000	160800	175400	163300	192000	215800	160300	144400
3	156700	154800	163600	166300	183200	160900	173600	162400	190400	213900	160100	144200
4	156600	154800	162800	166400	184000	160900	174100	161600	188700	212000	160000	144000
5	156400	154400	162400	165200	183300	160800	173600	170900	186800	210000	159700	143800
6	156400	154400	162400	165500	182200	160600	174300	189300	184800	207800	159300	143600
7	156600	154400	162400	165900	181200	160500	179000	203800	183200	205900	159300	143400
8	156700	154400	162400	165900	180200	160500	183700	210800	181300	203900	159000	143300
9	156700	154400	162400	169400	178500	160200	187600	215000	179600	202100	158700	143100
10	156700	154600	162400	171500	178500	160300	190600	215800	178200	200400	158400	142800
11	156400	154800	162400	174200	178500	160600	191400	215400	179600	198300	157600	142700
12	156000	155000	162400	174300	177700	161700	190500	214700	178700	196300	156600	142400
13	155700	155500	162400	174900	176400	161500	189200	214100	177400	194300	155600	142400
14	155600	155300	165300	174600	175100	161400	189000	213600	176000	192400	154700	142100
15	155500	155300	173000	173400	174500	161600	187100	213000	174700	190500	153800	141700
16	155900	155300	177900	171800	173200	162400	185700	211900	173500	188500	152800	141500
17	156100	155100	180900	170600	171500	163000	184200	210000	172200	186600	151800	141300
18	156100	155600	181200	169800	169800	163000	182800	208200	170500	184700	151200	141200
19	156100	156500	180200	172500	168500	165500	181200	206500	172200	182700	149800	141100
20	156100	156700	179300	177100	167300	169800	179600	204600	192400	180900	148800	141100
21	156100	156700	179800	181700	165100	173700	177700	202600	203900	179000	148200	141000
22	156100	157100	179400	183900	163500	178000	176100	200600	210200	177100	147400	141000
23	155800	157600	177400	184000	162200	180800	174600	201100	213500	174800	146700	140900
24	155600	159300	174900	185700	161500	183900	172800	199800	216000	173000	146100	140800
25	155100	160100	172600	186900	161500	184900	171200	198900	218900	171000	145500	140700
26	155000	160100	170100	186800	161000	184700	169400	197500	220300	168800	145200	141100
27	154800	161300	167900	185300	160700	183900	167800	196300	221800	167200	145100	140700
28	154600	161300	165500	184300	161000	182700	166500	195100	221700	165200	144900	140600
29	154600	162400	165900	184000	---	181100	166700	194100	220700	163300	144800	140400
30	155000	162400	163000	185700	---	180200	165200	194500	219400	161600	144400	140200
31	155000	---	165100	184800	---	178700	---	194300	---	161000	144800	---
MAX	156900	162400	181200	186900	184000	184900	191400	215800	221800	217800	160700	144700
MIN	154600	154400	162400	164700	160700	160200	165200	161600	170500	161000	144400	140200
(↑)	237.55	238.20	238.43	240.06	238.08	239.57	238.44	240.81	242.68	238.08	236.62	236.19
(Φ)	-2100	+7400	+2700	+19700	-23800	+17700	+13500	+29100	+25100	-58400	-16200	-4600
CAL YR 1992	MAX	547600	MIN	154400	(Φ)	-160900						
WTR YR 1993	MAX	221800	MIN	140200	(Φ)	-16900						

(↑) Elevation, in feet, at end of month.  
(Φ) Change in contents, in acre-feet.

## BRAZOS RIVER BASIN

## 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. 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.--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. 16	1300	1,950	14.87	May 6	1100	5,700	16.47
Jan. 20	1530	2,940	15.45	June 20	2330	5,670	16.46
Mar. 21	0700	1,860	14.81				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.06	11	3.3	9.6	61	16	70	30	80	21	.46	.29
2	.05	44	3.1	8.6	41	21	34	48	45	16	.44	.29
3	.04	19	2.2	7.8	34	31	26	77	24	12	.42	.32
4	.04	4.1	1.6	57	30	27	77	50	15	10	.41	.36
5	.03	1.1	1.5	326	31	21	225	598	11	8.8	.34	.48
6	.02	.49	1.1	64	131	18	235	4480	8.7	7.8	.33	.48
7	.02	.19	.98	42	88	15	289	2440	7.3	6.6	.26	.41
8	.04	.08	.96	59	54	14	717	884	6.1	5.8	.28	.39
9	.03	.07	2.0	228	37	13	519	219	5.2	5.2	.26	.33
10	.03	.06	3.3	1170	87	12	315	89	6.2	4.7	.26	.34
11	.02	.12	5.3	1020	279	9.7	82	78	48	4.2	.26	.42
12	.02	.24	5.2	221	102	10	42	75	96	3.8	.24	.41
13	.00	11	5.1	100	52	10	32	38	35	3.4	.23	.35
14	.00	13	49	53	36	13	29	26	15	3.0	.22	.32
15	.00	6.3	830	37	30	15	82	19	11	2.6	.22	.31
16	.00	2.6	1650	28	27	52	56	15	11	2.5	.22	.36
17	.62	1.0	568	23	25	44	35	13	8.3	2.3	.22	.42
18	.23	.51	81	20	27	26	26	11	6.9	2.2	.19	.39
19	.07	2.5	41	423	26	47	23	9.3	49	1.9	.14	.38
20	.05	428	e28	2320	22	972	20	8.3	4330	1.7	.12	.29
21	.05	367	e22	1840	21	1510	17	7.8	3900	1.5	.14	.26
22	.05	255	e14	591	19	563	14	7.2	2640	1.3	.12	.26
23	.05	55	12	135	18	1150	14	10	1940	1.3	.12	.26
24	.04	38	20	59	17	1040	12	43	1040	1.2	.17	.29
25	.04	116	26	40	16	248	11	48	480	1.1	.18	.28
26	.03	31	17	32	14	91	9.3	35	332	.90	.17	.35
27	.02	14	13	27	14	53	8.5	24	118	.84	.17	.33
28	.02	9.0	11	23	15	39	8.1	180	88	.67	.16	.31
29	.02	6.6	10	200	---	33	13	51	46	.60	.17	.52
30	15	5.2	11	311	---	30	46	40	30	.55	.25	.42
31	46	---	11	129	---	53	---	70	---	.43	.34	---
TOTAL	62.69	1442.16	3449.64	9604.0	1354	6196.7	3086.9	9723.6	15432.7	135.89	7.51	10.62
MEAN	2.02	48.1	111	310	48.4	200	103	314	514	4.38	.24	.35
MAX	46	428	1650	2320	279	1510	717	4480	4330	21	.46	.52
MIN	.00	.06	.96	7.8	14	9.7	8.1	7.2	5.2	.43	.12	.26
AC-FT	124	2860	6840	19050	2690	12290	6120	19290	30610	270	15	21

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1993, BY WATER YEAR (WY)

	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MEAN	30.1	40.6	78.8	91.2	130	82.7	117	142	130	8.45	3.83	22.1																			
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 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1963 - 1993

ANNUAL TOTAL	71500.72	50506.41	
ANNUAL MEAN	195	138	72.6
HIGHEST ANNUAL MEAN			237
LOWEST ANNUAL MEAN			1.42
HIGHEST DAILY MEAN	4590	May 6	12000
LOWEST DAILY MEAN	.00	Oct 13	.00
ANNUAL SEVEN-DAY MINIMUM	.01	Oct 10	.00
INSTANTANEOUS PEAK FLOW		5700	23200
INSTANTANEOUS PEAK STAGE		16.47	a/ 18.67
INSTANTANEOUS LOW FLOW		.00	.00
ANNUAL RUNOFF (AC-FT)	141800	100200	52590
10 PERCENT EXCEEDS	509	240	78
50 PERCENT EXCEEDS	11	12	2.5
90 PERCENT EXCEEDS	.05	.15	.00

a/ Maximum stage since at least 1902.



## 351

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.

AVERAGE DISCHARGE.--17 years (1965-83), 5,153 ft<sup>3</sup>/s (3,733,000 acre-ft/yr).

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, 27.00 ft June 23 at 0600 hours; minimum, 2.88 ft Aug. 13, 14.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.15	3.37	4.00	5.34	10.59	11.84	15.27	11.21	7.78	13.25	4.25	3.41
2	4.63	3.32	3.66	5.13	9.15	12.90	14.17	12.44	7.50	13.43	3.97	3.30
3	4.82	3.08	3.49	5.01	8.24	15.67	13.28	16.21	7.61	13.57	3.91	3.26
4	4.60	2.98	3.37	5.21	8.07	14.58	13.81	15.93	7.36	12.62	3.74	3.30
5	4.49	2.91	3.34	6.15	12.06	13.62	15.71	18.43	7.30	11.73	3.82	3.73
6	4.22	3.08	3.43	5.79	16.22	13.48	14.43	20.09	7.43	10.65	3.49	3.47
7	4.17	3.01	3.48	6.34	15.34	13.32	16.17	21.06	7.07	10.14	3.15	3.23
8	4.02	2.94	3.43	6.83	13.45	13.27	17.77	20.45	6.65	9.88	3.69	3.08
9	4.07	3.17	3.46	9.75	12.13	13.22	18.71	18.15	6.59	8.98	3.61	3.03
10	4.55	3.47	3.52	11.22	11.87	12.53	16.89	22.24	6.53	8.00	3.40	3.06
11	4.32	3.35	3.37	11.81	11.60	11.00	15.18	25.46	6.43	7.24	3.30	3.20
12	3.95	3.44	3.79	11.36	11.92	10.93	14.10	23.75	7.39	6.83	4.31	3.09
13	3.61	3.63	4.21	10.37	11.74	15.46	13.48	18.45	7.04	6.40	4.16	2.88
14	3.40	3.67	7.40	9.51	10.96	15.96	13.20	15.93	7.19	6.36	4.08	3.15
15	3.27	3.73	12.80	8.34	10.50	14.41	13.57	15.23	8.73	6.33	4.02	4.09
16	3.25	3.75	17.02	7.71	10.65	13.06	14.37	13.90	7.46	6.30	4.17	3.47
17	3.67	3.58	18.35	7.20	11.62	12.33	13.59	12.58	6.96	6.21	3.89	3.86
18	3.69	3.55	15.35	6.90	13.36	12.62	12.96	11.21	7.12	6.13	3.82	3.54
19	4.31	4.02	13.28	11.84	11.62	15.15	12.51	10.37	8.97	5.76	3.93	3.24
20	3.75	5.21	11.78	13.70	10.49	21.78	12.86	10.57	20.54	5.65	4.07	3.38
21	3.36	9.38	10.48	14.71	10.22	25.59	12.10	9.65	22.50	5.65	3.80	3.44
22	3.20	10.72	9.54	15.56	9.38	25.43	11.77	8.88	26.80	5.61	3.80	3.22
23	3.08	8.13	9.28	13.10	9.00	24.20	12.98	8.61	26.08	5.45	3.57	3.32
24	3.41	7.45	8.72	10.59	8.21	23.88	11.72	9.86	20.98	5.04	3.71	3.75
25	3.62	6.81	8.02	8.98	7.20	21.65	10.58	10.77	17.14	5.14	3.88	3.48
26	3.66	5.81	7.32	7.95	6.92	19.87	10.27	9.28	14.96	5.10	3.44	3.51
27	3.74	5.41	7.18	7.31	7.52	19.07	10.64	9.02	16.04	5.01	3.36	4.05
28	4.34	5.18	7.11	6.95	9.70	18.64	11.17	8.69	16.42	5.00	3.34	4.04
29	4.68	4.70	7.05	7.14	---	18.28	10.82	7.68	14.09	4.93	3.51	4.63
30	4.02	4.39	6.77	8.61	---	17.47	10.91	7.83	12.86	4.97	3.41	4.32
31	3.52	---	6.08	11.71	---	16.84	---	8.24	---	4.94	3.36	---
MAX	4.82	10.72	18.35	15.56	16.22	25.59	18.71	25.46	26.80	13.57	4.31	4.63
MIN	3.08	2.91	3.34	5.01	6.92	10.93	10.27	7.68	6.43	4		

## 08110325 NAVASOTA RIVER ABOVE GROESBECK, TX

LOCATION.--Lat 31°34'27", long 96°31'14", Limestone County, Hydrologic Unit 12070103, 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.

GAGE.--Water-stage recorder, data collection platform (DCP), rainfall recorder, 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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	7.2	90	85	21	37	1.1	2.4	.00	.00
2	.00	.00	.00	4.9	55	120	14	187	.92	1.2	.04	.00
3	.00	.00	.00	6.3	43	131	11	275	1.1	.85	.00	.00
4	.00	.00	.03	11	121	83	21	113	.94	.57	.00	.00
5	.00	.00	.05	8.0	860	53	30	121	.69	.70	.00	.00
6	.00	.00	.12	5.9	467	37	31	485	.68	.43	.00	.00
7	.00	.00	.12	5.1	184	30	60	313	.56	.36	.00	.00
8	.00	.00	.11	4.5	83	23	537	111	.71	.25	.00	.00
9	.00	.00	.25	14	55	18	380	55	.80	.29	.00	.00
10	.00	.00	.21	61	44	14	113	75	1.7	.34	.00	.00
11	.00	.00	.17	80	42	12	50	52	.91	.43	.00	.00
12	.00	.00	.15	70	32	896	38	39	1.0	.34	.00	.00
13	.00	.00	.19	52	24	1710	28	29	22	.49	.00	.00
14	.00	.00	1.5	38	18	526	103	20	56	.15	.00	.00
15	.00	.00	1180	30	18	147	728	14	42	.15	.00	.00
16	.00	.00	2940	24	206	83	322	9.7	29	.07	.00	.00
17	.00	.01	1120	19	786	64	98	7.3	20	.03	.00	.00
18	.00	.02	240	19	260	51	51	6.7	15	.04	.00	.00
19	.00	.83	78	17	80	61	36	5.3	11	.07	.00	.00
20	.00	.46	54	31	52	1640	31	3.7	10	.00	.00	.00
21	.00	.07	39	133	48	1670	21	2.5	10	.00	.00	.00
22	.00	.06	30	108	32	895	14	1.7	10	.00	.00	.00
23	.00	.00	24	70	24	1870	9.1	2.5	16	.00	.00	.00
24	.00	.02	21	49	16	985	7.2	2.8	14	.00	.00	.00
25	.00	.02	16	31	240	282	7.6	2.3	12	.00	.00	.00
26	.00	.00	13	23	1430	93	6.9	1.9	11	.00	.00	.00
27	.00	.00	9.7	18	698	49	4.5	1.7	9.5	.00	.00	.00
28	.00	.00	8.7	14	184	39	3.9	1.8	7.7	.00	.00	.00
29	.00	.02	8.0	22	---	32	21	1.3	5.4	.00	.00	.00
30	.00	.02	7.5	102	---	29	37	1.1	3.6	.00	.03	.00
31	.00	---	8.9	173	---	28	---	1.3	---	.00	.00	---
TOTAL	0.00	1.53	5800.70	1250.9	6192	11756	2835.2	1979.6	315.31	9.16	0.07	0.00
MEAN	.000	.051	187	40.4	221	379	94.5	63.9	10.5	.30	.002	.000
MAX	.00	.83	2940	173	1430	1870	728	485	56	2.4	.04	.00
MIN	.00	.00	.00	4.5	16	12	3.9	1.1	.56	.00	.00	.00
AC-FI	.00	3.0	11510	2480	12280	23320	5620	3930	625	18	.1	.00

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1993, BY WATER YEAR (WY)

	MEAN	37.8	47.8	212	93.8	251	184	81.3	325	128	4.13	8.41	.84
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	.000	.031	.075	.35	.65	.72	.61	.19	.13	.009	.001	.000	
(WY)	1993	1989	1990	1989	1981	1981	1981	1984	1984	1984	1980	1993	

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1978 - 1993

ANNUAL TOTAL	66708.39	30140.47	115	
ANNUAL MEAN	182	82.6	270	
HIGHEST ANNUAL MEAN			17.8	1992
LOWEST ANNUAL MEAN				1984
HIGHEST DAILY MEAN	5350	Feb 25	17300	May 11 1979
LOWEST DAILY MEAN	.00	Sep 24	.00	Jun 14 1978
ANNUAL SEVEN-DAY MINIMUM	.00	Sep 24	.00	Jun 14 1978
INSTANTANEOUS PEAK FLOW			27200	May 11 1979
INSTANTANEOUS PEAK STAGE			15.06	May 11 1979
INSTANTANEOUS LOW FLOW				*
ANNUAL RUNOFF (AC-FT)	132300	59780	83190	
10 PERCENT EXCEEDS	334	121	105	
50 PERCENT EXCEEDS	5.8	1.7	1.5	
90 PERCENT EXCEEDS	.00	.00	.00	

\* No flow at times most years.



## 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.

GAGE.--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)
Dec. 16	0400	673	12.39	Apr. 8	2100	715	12.54
Mar. 12	1000	751	12.63	June 22	0230	1,420	13.13
Mar. 20	2100	743	12.61	June 26	0430	520	11.62
Mar. 23	0500	1,290	13.03				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.07	.36	7.7	23	117	20	172	28	8.5	.00	.00
2	.00	.03	.46	7.4	20	323	18	303	11	6.8	.00	.00
3	.00	.02	.64	5.8	17	126	17	250	6.9	5.5	.00	.00
4	.00	.01	.88	46	22	44	155	68	4.6	4.4	.00	.00
5	.00	.00	.40	40	74	27	285	87	3.0	3.7	.00	.00
6	.00	.04	.21	21	136	21	98	302	2.2	3.4	.00	.00
7	.00	.08	.14	17	64	18	185	205	1.5	3.1	.00	.00
8	.00	.04	.11	18	31	16	563	49	1.4	2.7	.00	.00
9	.00	.03	.32	45	23	13	482	23	.78	2.4	.00	.00
10	.00	.03	3.0	213	22	12	113	25	.75	2.2	.00	.00
11	.00	.03	2.3	152	30	20	37	18	3.4	1.7	.00	.00
12	.00	.04	1.3	47	24	665	24	13	5.6	1.5	.00	.00
13	.00	.03	1.5	43	19	585	19	11	11	1.5	.00	.00
14	.05	.09	52	27	17	202	37	9.4	14	1.2	.00	2.8
15	.13	.09	439	20	17	54	116	7.6	9.8	1.1	.00	.01
16	.10	.05	597	18	107	48	49	5.9	5.9	.97	.00	.00
17	.12	.15	248	16	46	42	27	6.3	3.0	.77	.00	.02
18	.08	.13	39	15	23	30	24	5.4	2.9	.52	.00	.02
19	.05	.67	25	17	18	84	16	4.9	3.3	.31	.00	.00
20	.02	71	18	90	16	646	14	4.7	5.6	.15	.00	.00
21	.01	40	15	187	16	610	13	5.0	353	.09	.00	.00
22	.00	36	14	62	15	469	11	3.9	1270	.05	.00	.00
23	.01	17	12	32	13	996	8.9	4.5	678	.04	.00	.00
24	.02	5.7	12	24	10	559	9.3	5.6	210	.04	.00	.00
25	.03	3.3	9.2	20	72	191	9.1	6.1	69	.02	.00	.00
26	.02	2.0	7.9	17	325	63	9.0	6.4	432	.01	.00	.00
27	.02	1.3	6.6	16	254	37	8.6	5.2	225	.00	.00	.00
28	.01	1.0	6.0	15	49	29	7.2	4.1	36	.00	.00	.00
29	.00	.76	6.8	18	---	26	22	5.8	16	.00	.00	.05
30	.02	.45	8.3	56	---	24	60	8.5	11	.00	.00	.01
31	.04	---	9.4	34	---	23	---	84	---	.00	.00	---
TOTAL	0.73	180.14	1536.82	1346.9	1503	6120	2457.1	1709.3	3424.63	52.67	0.00	2.91
MEAN	.024	6.00	49.6	43.4	53.7	197	81.9	55.1	114	1.70	.000	.097
MAX	.13	71	597	213	325	996	563	303	1270	8.5	.00	2.8
MIN	.00	.00	.11	5.8	10	12	7.2	3.9	.75	.00	.00	.00
AC-FI	1.4	357	3050	2670	2980	12140	4870	3390	6790	104	.00	5.8

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 1993, BY WATER YEAR (WY)

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
MEAN	26.9	31.3	96.5	55.2	95.0	78.0	42.3	106	47.8	6.47	2.25	4.43
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 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1979 - 1993

ANNUAL TOTAL	30437.89	18334.20	
ANNUAL MEAN	83.2	50.2	49.2
HIGHEST ANNUAL MEAN			138
LOWEST ANNUAL MEAN			4.58
HIGHEST DAILY MEAN	2490	1270	8390
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW		1420	17500
INSTANTANEOUS PEAK STAGE		13.13	16.33
INSTANTANEOUS LOW FLOW		.00	.00
ANNUAL RUNOFF (AC-FT)	60370	36370	35670
10 PERCENT EXCEEDS	220	121	89
50 PERCENT EXCEEDS	7.7	5.8	3.0
90 PERCENT EXCEEDS	.01	.00	.00

## BRAZOS RIVER BASIN

## 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, 1991 (elevation, 364.38 ft); minimum, 10,740 acre-ft Nov. 30, 1978, (elevation, 332.63 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 233,900 acre-ft May 9, at 2400 hours (elevation, 363.60 ft); minimum, 179,600 acre-ft Nov. 9, at 1400 hours (elevation, 359.40 ft).

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

359.0	174,800	361.0	199,400	363.0	225,600
360.0	187,000	362.0	212,200	364.0	239,600

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	189700	182200	181900	208400	224200	227200	223200	226000	231000	223900	212800	198700
2	189300	181200	181500	208100	224600	227400	222600	227200	230400	223700	212300	198000
3	188900	182200	181500	209000	225000	225600	223800	226800	230300	223100	211900	198300
4	188600	181500	181900	211400	225700	224700	227400	227200	230000	222400	211400	197800
5	188400	181000	181200	211500	227800	223500	225600	230300	229000	222300	210600	197500
6	187900	180700	181000	211700	227800	223200	224300	233800	228100	221900	210300	197100
7	188800	180400	181000	212100	226700	222700	226800	233300	226800	221700	209700	196600
8	187100	180000	180600	212300	225800	222700	228600	232500	225700	221500	209200	196500
9	186400	180100	181600	215200	225700	222400	228500	233900	225700	221300	208700	195800
10	186600	180600	181500	215900	226000	223400	227000	231400	226400	221100	208400	195500
11	186100	181900	181200	216500	225700	226700	226100	231400	227000	220700	207900	194700
12	185600	181100	181000	217400	225000	228900	225300	231700	226700	220200	207200	194200
13	185100	180500	180700	217800	225300	227800	224100	231700	227000	220000	206900	193900
14	184600	180400	185900	217900	224900	226100	225200	231500	226700	219700	206300	195500
15	184600	180000	190100	218100	226000	224900	223800	231300	226000	219300	205800	194500
16	185100	179600	198200	218200	225600	224900	223700	231300	225000	219000	205600	194000
17	184800	179800	204300	218300	226700	223500	223200	231000	224300	218700	205200	193700
18	184500	179800	205800	218900	225800	222700	222300	232200	224100	218500	204800	193400
19	183400	182300	207500	219800	226000	225000	223100	231000	224600	218100	204200	193000
20	183500	182200	207400	220500	225800	230000	223700	230700	226400	217800	203800	193000
21	183300	183000	207400	221600	226500	230400	223200	230300	231700	217400	203100	192700
22	183200	182900	207600	222000	226400	231700	222600	229700	228600	216900	202500	192200
23	183000	182800	208400	225600	226400	230300	220100	230700	227100	216500	201700	192200
24	182700	183300	207900	222800	226000	227400	222300	230800	226400	216100	201400	191600
25	182400	182900	207900	222600	228300	225800	223000	230600	225800	215700	201400	191700
26	182300	182400	207900	222400	228200	224500	222700	230400	225700	215400	201100	192900
27	181900	182100	207900	222400	228500	223400	222300	230100	225700	214900	200600	191900
28	181600	181700	207900	222800	226500	222800	221900	230100	225000	214600	200100	191500
29	183700	181900	207900	223700	---	222800	223500	230100	224900	214100	199700	191300
30	182100	181700	208400	223400	---	224700	223800	231100	224300	213600	199300	190500
31	181000	---	208700	223900	---	223100	---	231700	---	213200	199100	---
MAX	189700	183300	208700	225600	228500	231700	228600	233900	231700	223900	212800	198700
MIN	181000	179600	180600	208100	224200	222400	220100	226000	224100	213200	199100	190500
(↑)	359.51	359.57	361.73	362.88	363.07	362.82	362.87	363.44	362.91	362.08	360.98	360.29
(Φ)	+9000	+700	+27000	+16200	+2800	+3400	+700	+7900	-7400	-11100	-14100	-8600

CAL YR 1992 MAX 236400 MIN 179600 (Φ) -15800  
WTR YR 1993 MAX 233900 MIN 179600 (Φ) +500

(↑) Elevation, in feet, at end of month.  
(Φ) Change in contents, in acre-feet.

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 1992 TO SEPTEMBER 1993

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							
11...	1050	1.00	250	7.9	10.0	10.3	91
11...	1052	10.0	250	7.9	10.0	10.2	91
11...	1054	20.0	250	7.9	10.0	10.2	91
11...	1056	30.0	250	7.9	10.0	10.2	91
11...	1058	38.0	250	7.9	9.5	10.2	89
APR							
27...	0930	1.00	236	7.6	20.0	8.2	91
27...	0932	10.0	237	7.5	19.5	8.0	87
27...	0934	20.0	236	7.5	19.5	7.8	85
27...	0936	30.0	236	7.4	19.0	7.7	83
27...	0938	37.0	236	7.4	19.0	7.5	81
AUG							
18...	0945	1.00	250	7.7	29.5	6.3	83
18...	0947	10.0	250	7.6	29.5	6.1	81
18...	0949	20.0	250	7.1	29.5	3.8	50
18...	0951	30.0	249	6.7	28.5	0	0
18...	0953	35.0	278	6.7	27.0	0	0

## 311941096191401 - LAKE LIMESTONE SITE AC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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)	CALCIUM DIS- SOLVED (MG/L AS CA)
JAN												
11...	1110	217000	1.00	250	7.8	10.0	0.90	10.0	89	78	22	24
11...	1112	--	10.0	250	7.8	10.0	--	10.0	89	--	--	--
11...	1114	--	20.0	250	7.8	10.0	--	10.0	89	--	--	--
11...	1116	--	30.0	250	7.8	10.0	--	10.0	89	--	--	--
11...	1118	--	44.0	250	7.8	10.0	--	10.0	89	81	24	25
APR												
27...	0950	222000	1.00	236	7.6	19.5	0.50	8.2	90	72	20	22
27...	0952	--	10.0	236	7.5	19.5	--	8.1	89	--	--	--
27...	0954	--	20.0	236	7.5	19.0	--	8.0	87	--	--	--
27...	0956	--	30.0	235	7.4	19.0	--	7.8	84	--	--	--
27...	0958	--	41.0	237	7.3	18.5	--	7.0	75	75	23	23
AUG												
18...	1007	205000	1.00	250	7.9	29.5	1.30	6.8	90	78	21	24
18...	1009	--	10.0	249	7.9	29.5	--	6.5	86	--	--	--
18...	1011	--	20.0	249	7.2	29.0	--	4.1	54	--	--	--
18...	1013	--	30.0	250	6.8	28.5	--	0	0	--	--	--
18...	1015	--	38.0	281	6.8	26.5	--	0	0	85	1	26

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 (MG/L 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)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)
JAN											
11...	4.4	17	0.8	4.1	56	21	25	0.20	4.4	134	--
11...	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--
11...	4.5	17	0.8	4.2	57	21	24	0.20	4.4	135	--
APR											
27...	4.1	16	0.8	3.9	52	23	24	0.10	2.2	128	0.260
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	4.2	16	0.8	4.0	52	23	23	0.20	2.6	128	0.270
AUG											
18...	4.5	17	0.8	4.0	57	20	24	0.20	1.9	130	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	4.8	16	0.8	4.1	84	12	21	0.20	11	158	--

## BRAZOS RIVER BASIN

08110470 LAKE LIMESTONE NEAR MARQUEZ, TX--Continued

311941096191401 - LAKE LIMESTONE SITE AC--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN											
11...	0.020	--	<0.050	0.070	0.33	0.40	0.020	<0.010	--	<3	1
11...	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--
11...	0.010	--	<0.050	0.070	0.33	0.40	0.040	0.030	0.09	<3	5
APR											
27...	<0.010	0.260	0.260	0.020	0.38	0.40	0.020	<0.010	--	10	1
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	<0.010	0.270	0.270	0.030	0.27	0.30	0.020	0.010	0.03	12	8
AUG											
18...	<0.010	--	<0.050	0.020	0.28	0.30	<0.010	<0.010	--	<3	4
18...	--	--	--	--	--	--	--	--	--	--	--
18...	<0.010	--	<0.050	0.020	0.38	0.40	<0.010	<0.010	--	30	140
18...	--	--	--	--	--	--	--	--	--	--	--
18...	<0.010	--	<0.050	1.20	0.40	1.6	0.720	0.710	2.2	4700	3700

312458096205101 - LAKE LIMESTONE SITE BC

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
JAN												
11...	1135	1.00	250	7.8	10.0	0.70	10.0	89	78	21	24	4.4
11...	1137	10.0	250	7.8	9.5	--	10.0	88	--	--	--	--
11...	1139	20.0	250	7.8	9.5	--	10.0	88	--	--	--	--
11...	1141	28.0	250	7.8	9.5	--	10.0	88	78	21	24	4.4
APR												
27...	1020	1.00	227	7.6	20.5	0.40	8.0	89	69	17	21	3.9
27...	1022	10.0	226	7.6	20.0	--	7.9	87	--	--	--	--
27...	1024	20.0	227	7.4	20.0	--	7.6	84	--	--	--	--
27...	1026	28.0	232	7.2	19.0	--	6.2	67	72	20	22	4.1
AUG												
18...	1040	1.00	258	8.2	31.0	0.90	6.5	88	79	20	24	4.6
18...	1042	10.0	257	8.0	31.0	--	5.9	80	--	--	--	--
18...	1044	20.0	259	7.4	30.5	--	3.9	53	--	--	--	--
18...	1046	25.0	258	7.6	30.5	--	1.6	22	79	20	24	4.6

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)
JAN											
11...	18	0.9	4.1	57	21	25	0.10	4.5	136	0.042	0.042
11...	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--
11...	18	0.9	4.2	57	21	26	0.20	4.5	137	0.064	0.064
APR											
27...	16	0.8	3.8	52	21	23	0.20	2.8	124	0.230	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	15	0.8	4.0	52	21	24	0.20	3.9	127	0.260	--
AUG											
18...	18	0.9	4.1	59	21	24	0.20	2.5	134	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	18	0.9	4.1	59	21	23	0.20	2.6	133	--	--

BRAZOS RIVER BASIN

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08110470 LAKE LIMESTONE NEAR MARQUEZ, TX--Continued

312458096205101 - LAKE LIMESTONE SITE BC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN											
11...	0.020	0.062	0.062	0.080	0.32	0.40	0.030	0.010	0.03	6	2
11...	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--
11...	0.030	0.094	0.094	0.100	0.30	0.40	0.030	0.010	0.03	5	4
APR											
27...	<0.010	0.230	0.230	0.030	0.37	0.40	0.020	0.010	0.03	18	1
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	<0.010	0.260	0.260	0.090	0.31	0.40	0.030	0.020	0.06	18	58
AUG											
18...	<0.010	--	<0.050	0.020	0.28	0.30	<0.010	<0.010	--	<3	2
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	<0.010	--	<0.050	0.050	2.0	2.1	0.030	<0.010	--	<3	13

312625096205901 - LAKE LIMESTONE SITE CC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
11...	1200	1.00	245	7.8	9.5	10.0	88
11...	1202	10.0	245	7.8	9.5	9.9	87
11...	1204	18.0	245	7.8	9.5	9.9	87
APR							
27...	1040	1.00	225	7.6	20.5	7.9	88
27...	1042	10.0	225	7.6	20.5	7.9	88
27...	1044	16.0	226	7.4	20.5	7.2	80
AUG							
18...	1104	1.00	256	8.5	31.5	7.4	101
18...	1106	10.0	258	8.3	31.5	6.7	92
18...	1108	16.0	260	8.2	31.0	6.3	86

312622096224201 - LAKE LIMESTONE SITE DC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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							
11...	1215	1.00	239	7.8	9.0	9.8	85
11...	1217	10.0	239	7.8	9.0	9.8	85
11...	1219	20.0	239	7.8	9.0	9.8	85
APR							
27...	1100	1.00	225	7.6	21.0	7.5	84
27...	1102	10.0	228	7.5	20.5	6.8	76
27...	1104	20.0	229	7.4	20.5	6.7	75
AUG							
18...	1120	1.00	282	8.4	31.0	7.2	98
18...	1122	10.0	284	8.1	31.0	5.8	79
18...	1124	21.0	299	7.2	30.0	1.4	19



## BRAZOS RIVER BASIN

08110470 LAKE LIMESTONE NEAR MARQUEZ, TX--Continued

312726096240001 - LAKE LIMESTONE SITE EC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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)	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)
JAN												
11...	1230	1.00	236	7.8	8.5	0.30	9.8	84	78	22	25	3.7
11...	1232	13.0	239	7.7	8.5	--	9.7	83	81	18	26	3.8
APR												
27...	1130	1.00	231	7.6	21.0	0.30	7.4	83	77	11	25	3.6
27...	1132	14.0	237	7.5	21.0	--	6.9	78	80	14	26	3.6
AUG												
18...	1140	1.00	308	8.3	31.5	0.50	6.9	95	95	20	30	4.9
18...	1142	11.0	308	7.6	31.0	--	4.6	63	95	18	30	4.9

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINIT- WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)
JAN											
11...	15	0.7	4.7	56	17	23	0.10	7.5	131	0.300	0.300
11...	16	0.8	4.6	62	17	20	0.20	7.6	135	0.330	0.330
APR											
27...	15	0.7	3.8	66	18	19	0.20	2.4	127	0.100	0.100
27...	15	0.7	3.8	66	18	19	0.20	2.4	128	0.080	0.080
AUG											
18...	22	1	4.5	75	22	33	0.20	6.4	168	--	--
18...	22	1	4.5	77	21	33	0.20	6.2	168	--	--

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN											
11...	0.020	0.320	0.320	0.280	0.42	0.70	0.080	0.060	0.18	34	5
11...	0.030	0.360	0.360	0.260	0.34	0.60	0.050	0.040	0.12	18	10
APR											
27...	0.010	0.110	0.110	0.070	0.53	0.60	0.030	0.030	0.09	32	3
27...	0.010	0.090	0.090	0.070	0.43	0.50	0.030	0.020	0.06	29	6
AUG											
18...	<0.010	--	<0.050	0.020	0.38	0.40	0.030	0.020	0.06	<3	1
18...	<0.010	--	<0.050	0.030	0.37	0.40	0.050	0.030	0.09	<3	13



## BRAZOS RIVER BASIN

359

## 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.--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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	24	14	25	84	1540	55	86	222	134	69	60
2	75	22	14	24	55	1690	46	912	99	124	69	59
3	77	17	14	22	44	1990	42	2090	46	58	69	60
4	76	13	14	364	51	1970	135	2550	34	32	66	61
5	76	9.2	14	469	213	1210	797	1050	233	28	64	60
6	76	7.4	14	166	1130	437	1320	960	317	25	66	60
7	76	7.3	14	92	1450	377	974	1670	319	23	65	59
8	75	7.3	14	305	1300	170	1460	2280	318	22	64	59
9	76	7.2	20	412	684	48	2160	1550	304	21	64	61
10	76	7.3	22	774	158	43	2400	1130	85	19	65	63
11	75	7.9	20	426	381	58	1520	1470	43	19	68	63
12	75	13	17	202	396	1370	766	382	531	18	67	63
13	75	13	16	112	128	6090	745	127	1020	17	66	65
14	75	13	66	69	49	6390	927	81	803	16	66	76
15	76	12	522	52	42	4010	1490	60	488	17	65	69
16	80	12	680	43	51	2240	1570	48	355	17	66	65
17	82	12	636	38	325	1140	858	42	338	16	64	64
18	85	12	358	36	371	911	494	39	324	16	66	61
19	84	17	68	40	349	316	220	36	101	15	67	56
20	81	41	40	255	98	1480	70	34	376	13	66	55
21	77	40	38	388	38	3120	53	30	1010	11	67	55
22	76	35	36	255	34	5480	45	29	3220	10	66	55
23	76	31	87	111	31	9230	41	34	7030	9.9	65	52
24	77	26	134	70	30	10100	40	46	4500	9.4	64	48
25	77	23	63	54	37	5930	46	43	2110	9.0	62	47
26	76	18	36	39	607	3510	42	37	798	8.4	61	50
27	76	15	30	34	1230	1740	38	33	672	8.4	61	51
28	76	15	28	32	1500	718	35	31	708	48	61	50
29	77	15	25	55	---	458	66	30	234	81	61	49
30	84	14	27	107	---	143	95	32	147	64	61	49
31	57	---	27	112	---	71	---	275	---	67	60	---
TOTAL	2375	506.6	3108	5183	10866	73980	18550	17217	26785	976.1	2011	1745
MEAN	76.6	16.9	100	167	388	2386	618	555	893	31.5	64.9	58.2
MAX	85	41	680	774	1500	10100	2400	2550	7030	134	69	76
MIN	57	7.2	14	22	30	43	35	29	34	8.4	60	47
AC-FI	4710	1000	6160	10280	21550	146700	36790	34150	53130	1940	3990	3460

## BRAZOS RIVER BASIN

08110500 NAVASOTA RIVER NEAR EASTERLY, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1993#, BY WATER YEAR (WY)

MEAN	217	315	682	514	723	622	655	962	532	70.2	42.4	126
MAX	2427	4059	5244	2974	3322	2386	3761	5195	2794	474	486	1614
(WY)	1974	1975	1992	1961	1992	1993	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 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1961 - 1993 #	
ANNUAL TOTAL	266906.3		163302.7		454	
ANNUAL MEAN	729		447		1172	
HIGHEST ANNUAL MEAN					15.4	
LOWEST ANNUAL MEAN					1992	
HIGHEST DAILY MEAN	20200	Feb 26	10100	Mar 24	57400	Dec 22 1991
LOWEST DAILY MEAN	7.2	Nov 9	7.2	Nov 9	.19	Aug 11 1980
ANNUAL SEVEN-DAY MINIMUM	7.7	Nov 5	7.7	Nov 5	.26	Jul 12 1964
INSTANTANEOUS PEAK FLOW			10600	Mar 23	61800	Dec 22 1991
INSTANTANEOUS PEAK STAGE			21.85	Mar 23	27.22	Dec 22 1991
ANNUAL RUNOFF (AC-FT)	529400		323900		328600	
10 PERCENT EXCEEDS	2280		1310		981	
50 PERCENT EXCEEDS	76		66		27	
90 PERCENT EXCEEDS	14		16		2.5	

# Period of regulated streamflow.

BRAZOS RIVER BASIN

361

08111000 MAVASOTA 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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	61	7.5	146	326	1080	614	441	1070	775	76	72
2	23	40	7.1	127	278	1330	318	785	793	391	73	67
3	22	14	6.8	116	236	1480	233	992	459	284	74	66
4	22	7.0	6.7	258	217	1610	269	1190	263	224	75	67
5	22	5.4	6.7	615	312	1760	430	1760	177	147	76	67
6	22	3.8	6.7	781	701	1890	668	3230	173	103	73	69
7	23	2.6	6.7	811	791	1730	1110	3350	336	84	70	67
8	27	1.7	6.8	525	1090	1080	1870	2760	373	72	70	66
9	24	1.2	9.5	647	1360	578	1800	2740	377	65	70	65
10	23	1.1	10	1680	1450	292	1800	3240	370	60	68	64
11	23	1.7	16	1450	1110	184	2030	3190	326	55	67	64
12	23	3.0	18	1440	591	550	2270	2550	211	51	67	67
13	23	3.9	16	1320	543	1020	2240	2230	348	48	70	70
14	23	6.0	38	796	427	1370	1860	1740	738	46	71	71
15	24	5.2	1250	405	259	2360	1930	838	988	44	69	78
16	30	4.2	2010	292	186	5790	1770	393	1010	41	69	107
17	36	4.2	1460	229	173	5060	1780	263	730	39	68	110
18	52	4.4	1270	201	241	3740	1880	206	478	38	67	94
19	48	8.1	1070	268	396	2930	1630	174	452	37	68	83
20	39	169	563	676	429	2820	1050	149	1240	35	67	77
21	36	145	288	745	357	2530	487	130	2010	33	67	70
22	33	280	237	809	203	2230	270	117	1950	32	67	67
23	30	174	414	842	143	3800	201	133	1900	27	67	66
24	28	102	1480	572	123	6290	170	295	2090	24	67	65
25	28	65	1020	335	115	10700	151	302	3100	22	68	62
26	28	40	650	246	140	9360	140	274	6000	19	68	60
27	28	23	363	207	343	6450	135	212	4880	18	67	60
28	27	13	248	170	766	4430	125	180	3450	16	67	63
29	27	9.8	205	248	---	3450	132	164	2410	16	67	66
30	32	8.3	184	365	---	2520	243	157	1600	33	68	61
31	41	---	165	341	---	1560	---	1140	---	85	71	---
TOTAL	891	1207.6	13039.5	17663	13306	91974	29606	35325	40302	2964	2152	2131
MEAN	28.7	40.3	421	570	475	2967	987	1140	1343	95.6	69.4	71.0
MAX	52	280	2010	1680	1450	10700	2270	3350	6000	775	76	110
MIN	22	1.1	6.7	116	115	184	125	117	173	16	67	60
AC-F T	1770	2400	25860	35030	26390	182400	58720	70070	79940	5880	4270	4230

## BRAZOS RIVER BASIN

08111000 NAVASOTA RIVER NEAR BRYAN, TX--Continued

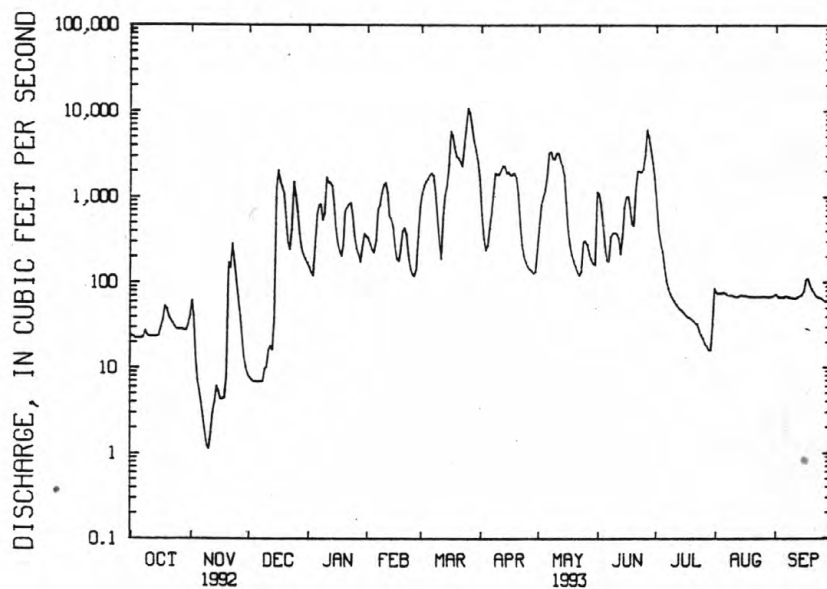
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1993#, BY WATER YEAR (WY)

MEAN	309	407	894	727	1012	859	823	1186	741	129	58.1	181
MAX	3338	4108	6075	4029	4625	3141	4104	5500	3228	848	408	2456
(WY)	1974	1975	1992	1961	1992	1973	1966	1965	1979	1968	1983	1974
MIN	1.33	2.95	2.81	21.8	36.4	35.4	18.6	15.2	8.32	.41	.79	.60
(WY)	1964	1989	1990	1990	1990	1972	1972	1972	1971	1964	1963	1963

## SUMMARY STATISTICS FOR 1992 CALENDAR YEAR FOR 1993 WATER YEAR WATER YEARS 1961 - 1993#

ANNUAL TOTAL	363497.17	250561.1	
ANNUAL MEAN	993	686	
HIGHEST ANNUAL MEAN			1476 1992
LOWEST ANNUAL MEAN			48.7 1963
HIGHEST DAILY MEAN	19700 Feb 27	10700 Mar 25	58700 Dec 23 1991
LOWEST DAILY MEAN	.98 Jul 30	1.1 Nov 10	.00 Sep 1 1963
ANNUAL SEVEN-DAY MINIMUM	1.2 Jul 27	2.2 Nov 6	.00 Sep 1 1963
INSTANTANEOUS PEAK FLOW		11200 Mar 25	66600 Dec 23 1991
INSTANTANEOUS PEAK FLOW		14.29 Mar 25	19.97 Dec 23 1991
INSTANTANEOUS LOW FLOW		.87 Nov 10	
ANNUAL RUNOFF (AC-FT)	721000	497000	440600
10 PERCENT EXCEEDS	3890	1940	1560
50 PERCENT EXCEEDS	32	173	57
90 PERCENT EXCEEDS	6.5	19	5.3

# Period of regulated streamflow.



— 08111000 NAVASOTA RIVER NR BRYAN, TX  
MEAN DAILY DISCHARGE (CFS), DCP

## 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.--Records good except those for estimated daily discharges, which are fair. 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 telemeter 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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1610	1620	2080	3800	9560	6990	21900	9640	6380	14100	2690	1440
2	1710	1500	1810	3110	8710	9580	19000	10800	5890	14400	2300	1430
3	2090	1370	1560	2790	7070	12400	16700	13000	5650	14500	2020	1410
4	2260	1290	1400	2690	6030	16300	15000	18100	5730	14200	1960	1360
5	2180	1140	1300	2990	5760	15200	15400	21100	5580	12500	1880	1360
6	2080	e1060	1260	3590	10600	13700	17500	35700	5530	10900	1850	1530
7	1950	e1070	1260	3860	17700	13400	17200	31900	5520	9420	1770	1550
8	1880	1020	1300	4840	16500	13100	22300	30600	5080	8540	1540	1380
9	1780	e1080	1340	5390	13400	13100	23200	28800	4630	8050	1660	1280
10	1790	1020	1400	11600	11700	13000	23800	26000	4510	7140	1770	1230
11	2010	1300	1420	e14000	11700	11900	20800	34400	4490	6120	1660	1240
12	2000	1310	1380	11900	10800	10300	17900	39800	4580	5320	1570	1290
13	1790	1370	1470	11400	10900	10200	15900	34500	5820	4860	2010	1340
14	1550	1390	3420	e10000	10800	15900	14800	24200	5170	4440	2140	1160
15	1390	1460	14100	8660	9870	17400	14700	19600	5340	4300	2050	1250
16	1280	1480	17600	7200	10100	15200	15000	18000	6470	4250	2010	1650
17	1220	1500	20900	6320	9880	13000	16000	15700	5540	4180	2040	1610
18	1390	1440	22000	e6000	10500	11800	15000	13300	5100	4100	1980	1630
19	1510	1540	17300	e7000	12900	12200	13800	10700	5550	3980	1830	1580
20	1750	2650	14100	e18000	11000	24200	13100	9580	23100	3710	1900	1430
21	1700	3030	11700	e21000	9090	e37000	13300	9120	33400	3530	1990	1360
22	1380	6770	9720	e19500	e8100	e43000	12300	8110	41300	3490	1870	1460
23	1230	8250	8320	17600	e7300	e43000	11800	7260	45600	3430	1820	1370
24	1160	6190	7610	13800	6660	39200	12800	7130	40500	3290	1700	1330
25	1220	5110	6770	10000	5990	37100	11500	8320	30500	3040	1720	1540
26	1410	4470	5960	7470	5110	32000	9560	9260	25700	2970	1760	1500
27	1450	3600	5180	5970	4480	28400	8830	7870	19600	2950	1580	1460
28	1520	3010	4960	5120	4900	26800	9170	7410	20100	2870	1450	1720
29	1780	2750	5010	5040	---	26000	9970	6950	19600	2830	1440	1850
30	2130	2350	4890	5330	---	25200	9690	6090	15900	2790	1490	2240
31	1900	---	4580	6520	---	23600	---	5980	---	2750	1500	---
TOTAL	52100	73140	203100	262490	267110	630170	457920	528920	417860	192950	56950	43980
MEAN	1681	2438	6552	8467	9540	20330	15260	17060	13930	6224	1837	1466
MAX	2260	8250	22000	21000	17700	43000	23800	39800	45600	14500	2690	2240
MIN	1160	1020	1260	2690	4480	6990	8830	5980	4490	2750	1440	1160
AC-FT	103300	145100	402800	520600	529800	1250000	908300	1049000	828800	382700	113000	87230

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1993, BY WATER YEAR (WY)

	MEAN	4456	4775	6032	6949	8095	7594	8795	14720	11300	4966	2337	2910
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 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1939 - 1993

ANNUAL TOTAL	8424100	3186690	6902	
ANNUAL MEAN	23020	8731	26170	
HIGHEST ANNUAL MEAN			1216	1984
LOWEST ANNUAL MEAN			138000	May 1 1957
HIGHEST DAILY MEAN	93500	Feb 28	137	Nov 6 1952
LOWEST DAILY MEAN	1020	Nov 8	140	Nov 3 1952
ANNUAL SEVEN-DAY MINIMUM	1100	Nov 4	143000	May 2 1957
INSTANTANEOUS PEAK FLOW			54.21	May 2 1957
INSTANTANEOUS PEAK STAGE				
ANNUAL RUNOFF (AC-FT)	16710000	6321000	5000000	
10 PERCENT EXCEEDS	55600	20800	17900	
50 PERCENT EXCEEDS	17100	5530	2500	
90 PERCENT EXCEEDS	1500	1390	675	

e = estimated

## BRAZOS RIVER BASIN

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. Records poor. During the year, the city of Bellville discharged about 520 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. 10	0500	6,310	13.62	June 21	0900	22,300	15.71
May 6	1000	14,400	14.79				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	26	45	82	e105	177	127	248	143	176	33	9.8
2	11	26	43	75	e100	227	211	1130	90	158	32	8.9
3	12	24	41	82	133	230	346	479	74	142	31	8.0
4	13	31	41	91	79	164	535	195	67	131	28	7.5
5	12	29	39	133	104	133	771	1260	61	122	26	7.1
6	12	23	39	116	151	117	973	12600	54	115	25	7.1
7	13	23	40	336	106	112	1260	7760	48	105	24	6.7
8	13	22	40	602	71	101	1820	2760	47	95	24	5.9
9	10	23	66	346	53	101	3250	442	45	91	22	6.5
10	11	24	65	285	277	98	1600	515	44	89	21	7.4
11	13	27	53	285	1680	94	266	307	82	85	19	7.5
12	11	28	46	336	432	124	204	161	251	81	18	7.5
13	9.7	28	43	216	270	361	168	125	879	78	18	7.4
14	13	27	420	162	199	206	167	110	485	74	16	8.1
15	13	27	4170	150	186	134	166	94	330	71	16	7.4
16	15	26	6270	133	179	181	165	84	168	69	14	6.9
17	18	25	2380	117	178	e167	180	78	201	68	14	6.9
18	20	27	276	115	178	e140	138	71	720	67	14	6.3
19	18	71	162	519	172	e122	130	81	603	58	12	6.1
20	17	720	138	4480	155	e160	129	70	11100	52	11	6.1
21	18	387	121	4250	153	e190	129	62	18100	50	9.6	6.6
22	17	997	112	838	144	e130	102	59	7500	48	9.1	7.1
23	17	204	103	260	128	e170	74	120	3010	47	8.7	6.8
24	17	124	101	201	116	e140	71	380	864	43	8.3	6.2
25	17	90	97	174	212	e122	70	204	648	41	8.3	5.7
26	17	65	86	143	432	e110	66	130	1790	40	8.2	5.2
27	17	54	82	127	279	e106	59	104	942	40	8.0	5.9
28	14	50	86	e110	174	e104	52	90	343	41	9.1	6.6
29	14	49	93	e140	---	e100	87	162	247	35	11	6.7
30	22	48	93	e125	---	e130	206	161	202	33	10	5.7
31	25	---	89	e110	---	e121	---	269	---	37	9.6	---
TOTAL	460.7	3325	15480	15139	6446	4572	13522	30311	49138	2382	517.9	207.6
MEAN	14.9	111	499	488	230	147	451	978	1638	76.8	16.7	6.92
MAX	25	997	6270	4480	1680	361	3250	12600	18100	176	33	9.8
MIN	9.7	22	39	75	53	94	52	59	44	33	8.0	5.2
AC-1-I	914	6600	30700	30030	12790	9070	26820	60120	97470	4720	1030	412
CFSM	.04	.29	1.33	1.30	.61	.39	1.20	2.60	4.36	.20	.04	.02
IN.	.05	.33	1.53	1.50	.64	.45	1.34	3.00	4.86	.24	.05	.02

e Estimated



BRAZOS RIVER BASIN

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08111700 MILL CREEK NEAR BELLVILLE, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1993, BY WATER YEAR (WY)

MEAN	111	161	240	287	354	260	333	531	486	35.6	32.2	106
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 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1964 - 1993	
ANNUAL TOTAL	232122.7		141501.2		244	
ANNUAL MEAN	634		388		667	
HIGHEST ANNUAL MEAN					21.5	
LOWEST ANNUAL MEAN					1992	
HIGHEST DAILY MEAN	12500	Mar 5	18100	Jun 21	24000	Nov 1 1981
LOWEST DAILY MEAN	9.7	Oct 13	5.2	Sep 26	.08	Jul 22 1971
ANNUAL SEVEN-DAY MINIMUM	11	Sep 26	6.0	Sep 24	.20	Jun 28 1967
INSTANTANEOUS PEAK FLOW			22300	Jun 21	44400	Jun 13 1973
INSTANTANEOUS PEAK STAGE			15.71	Jun 21	17.95	Jun 13 1973
ANNUAL RUNOFF (AC-FT)	460400		280700		176500	
ANNUAL RUNOFF (CFSM)	1.69		1.03		.65	
ANNUAL RUNOFF (INCHES)	22.97		14.00		8.80	
10 PERCENT EXCEEDS	2240		481		292	
50 PERCENT EXCEEDS	98		89		35	
90 PERCENT EXCEEDS	16		9.4		4.4	

## BRAZOS RIVER MAIN STEM

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.--Records fair, including those for estimated daily discharges. 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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1690	2070	2840	5390	6650	5630	22800	10100	8300	18900	2550	1360
2	1580	2020	2480	4960	9020	7940	21100	10500	7630	16300	2450	1350
3	1550	1730	2180	4210	9960	10300	18700	12600	7070	15700	2370	1400
4	1550	1570	1920	3390	8680	12800	21400	13100	6220	15800	2030	1300
5	1800	1360	1690	3050	7290	15500	19200	16600	6010	15500	1770	1190
6	1970	1270	1490	2960	6500	15900	16800	32100	5950	14500	1630	1140
7	1910	1210	1370	3800	8390	14300	17800	48800	5780	12900	1500	1120
8	1780	1060	1290	5400	16800	13600	22700	44600	5720	11300	1470	1180
9	1800	997	1460	6920	17900	13500	27300	36500	5580	10000	1410	1300
10	1760	1060	1420	9290	16200	13400	26700	32700	5130	9230	1210	1300
11	1690	1120	1410	13700	15400	13400	25000	29500	6100	8420	1120	1240
12	1600	1140	1420	15800	14900	13100	21600	34200	5640	7330	1230	1240
13	1700	1210	1390	13600	13400	11500	18300	39100	5570	6290	1210	1170
14	1730	1270	1410	12700	11800	10800	16200	35500	6710	5780	1110	1170
15	1600	1310	2780	11800	11700	14300	15500	26600	7190	5210	1300	1290
16	1520	1280	18100	10600	11400	17900	15300	21200	5880	4720	1710	1190
17	1450	1320	23100	8630	11000	16400	14600	18700	6150	4470	1720	1070
18	1350	1360	23300	7180	10900	14200	15100	16700	6920	4450	1680	1430
19	1210	1530	22800	6210	9920	12700	14800	14600	7360	4190	1670	1680
20	1230	3300	18800	7260	11700	13200	13700	12500	14300	3940	1650	1460
21	1360	3190	15500	19000	11400	26700	13200	10800	37100	3760	1540	1520
22	1500	4030	13300	22500	9550	37400	13500	9910	52800	3480	1630	1420
23	1600	5240	11200	20500	8720	44500	13000	9390	58900	3250	1690	1270
24	1390	8490	9670	19100	8180	44700	12200	9280	58800	3140	1580	1290
25	1260	7860	9000	15600	7780	41500	12600	9170	51700	3080	1500	1100
26	1170	6110	8060	12100	7750	37800	12800	9010	40600	2930	1420	1080
27	1040	5220	7250	9310	6770	32300	11200	10100	32500	2690	1510	1260
28	1130	4490	6320	7540	e5770	28000	9950	10300	25200	2600	1580	1310
29	1220	3660	5710	6730	---	26100	9160	9160	22500	2620	1540	1140
30	1300	3130	5580	6710	---	25100	9740	9170	22200	2600	1400	1350
31	1580	---	5580	7080	---	24200	---	10600	---	2600	1330	---
TOTAL	47020	80607	229820	303020	295430	628670	501950	613090	537510	227680	49510	38320
MEAN	1517	2687	7414	9775	10550	20280	16730	19780	17920	7345	1597	1277
MAX	1970	8490	23300	22500	17900	44700	27300	48800	58900	18900	2550	1680
MIN	1040	997	1290	2960	5770	5630	9160	9010	5130	2600	1110	1070
AC-FT	93260	159900	455800	601000	586000	1247000	995600	1216000	1066000	451600	98200	76010

e Estimated

BRAZOS RIVER MAIN STEM

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08114000 BRAZOS RIVER AT RICHMOND, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 1993#, BY WATER YEAR (WY)

MEAN	4894	5573	6930	7967	8974	8525	9325	15820	12430	5096	2506	3267
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 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1941 - 1993#			
ANNUAL TOTAL	8841047				3552627				7598			
ANNUAL MEAN	24160				9733				26620			
HIGHEST ANNUAL MEAN									1403			
LOWEST ANNUAL MEAN									118000			
HIGHEST DAILY MEAN	93400				58900				May 5 1957			
LOWEST DAILY MEAN	997				997				55			
ANNUAL SEVEN-DAY MINIMUM	1110				1110				93			
INSTANTANEOUS PEAK FLOW					60100				119000			
INSTANTANEOUS PEAK STAGE					40.15				49.68			
ANNUAL RUNOFF (AC-FT)	17540000				7047000				5505000			
10 PERCENT EXCEEDS	61300				22700				19100			
50 PERCENT EXCEEDS	16900				6650				2920			
90 PERCENT EXCEEDS	1510				1280				768			

# Period of regulated streamflow.

## BRAZOS RIVER MAIN STEM

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, 1,220 microsiemens Oct. 3-4; minimum daily 230 microsiemens Jun. 23.

WATER TEMPERATURE: Maximum daily, 31.0°C Aug. 2, 3; minimum daily, 10.0°C Nov. 28, Dec. 17 and Jan. 16.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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)
JAN 26...	1125	12000	342	8.0	11.5	210	9.6	87	1.7	700	280
MAR 29...	1118	26800	383	8.0	20.0	320	7.8	86	1.7	210	170
JUN 08...	1122	5710	621	8.3	27.0	120	7.2	91	2.0	100	150
AUG 16...	1420	1740	1080	8.0	29.0	22	7.6	99	2.3	56	120
SEP 08...	1205	1170	1150	8.1	27.0	8.0	6.9	87	1.0	84	40

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)	CAR-BONATE WATER DIS IT FLD. AS C03	BICAR-BONATE WATER DIS IT FLD. AS HC03	ALKA-LINITY WAT DIS TOT IT FLD. AS CAC03	SULFATE DIS-SOLVED (MG/L AS S04)
JAN 26...	100	24	33	5.2	24	1	4.3	0	98	80	35
MAR 29...	130	26	40	6.5	25	1	4.3	0	123	100	38
JUN 08...	200	62	60	12	49	2	4.7	0	168	138	70
AUG 16...	290	95	76	23	110	3	4.7	0	233	191	110
SEP 08...	270	92	70	23	120	3	4.6	0	217	178	130

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)
JAN 26...	31	0.20	9.0	215	194	0.620	0.620	0.010	0.630	0.630	0.050
MAR 29...	34	0.20	8.9	240	220	0.620	0.620	0.020	0.640	0.640	0.050
JUN 08...	71	0.10	9.5	355	363	0.720	--	<0.010	0.720	0.720	0.030
AUG 16...	160	0.30	13	626	613	0.058	--	<0.010	0.058	0.058	0.050
SEP 08...	180	0.40	13	665	648	--	--	<0.010	--	<0.050	0.030

## BRAZOS RIVER MAIN STEM

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08114000 BRAZOS RIVER AT RICHMOND, TX--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	BARIUM, DIS- SOLVED (UG/L AS BA)
JAN 26...	0.75	0.80	0.300	0.110	0.100	0.31	710	23000	78	50	59
MAR 29...	1.2	1.2	0.460	0.060	0.060	0.18	945	68400	78	--	--
JUN 08...	0.67	0.70	0.250	0.030	0.040	0.12	249	3840	96	60	100
AUG 16...	0.25	0.30	0.040	0.030	0.030	0.09	69	324	92	<10	170
SEP 08...	0.37	0.40	0.810	0.040	0.040	0.12	20	63	96	--	--
DATE	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	
JAN 26...	<3	90	7	3	<10	2	<1	<1.0	260	<6	
MAR 29...	--	--	--	--	--	--	--	--	--	--	
JUN 08...	<3	25	13	1	<10	1	<1	<1.0	570	<6	
AUG 16...	<3	11	25	10	<10	<1	<1	<1.0	940	<6	
SEP 08...	--	--	--	--	--	--	--	--	--	--	
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. 1992	47020	983	552	70100	160	19900	100	13000	240		
NOV. 1992	80607	859	482	105000	130	28400	87	19000	220		
DEC. 1992	229820	407	228	141000	49	30100	37	23000	120		
JAN. 1993	303020	390	218	179000	44	36100	35	28400	120		
FEB. 1993	295430	503	282	225000	61	48900	46	36800	150		
MAR. 1993	628670	558	313	531000	72	121700	52	89000	160		
APR. 1993	501950	473	265	359000	58	79100	44	59200	140		
MAY 1993	613090	409	229	379000	48	79800	37	61300	120		
JUNE 1993	537510	312	175	253000	36	51700	28	40400	94		
JULY 1993	227680	493	276	170000	61	37600	46	28000	140		
AUG. 1993	49510	905	508	67800	140	18400	92	12300	230		
SEPT 1993	38320	1040	582	60300	170	17800	110	11400	240		
TOTAL	3552627	**	**	2540000	**	569000	**	422000	**		
WTD.AVG.	9733	473	265	**	59	**	44	**	140		

## BRAZOS RIVER MAIN STEM

08114000 BRAZOS RIVER AT RICHMOND, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1140	1130	460	480	510	550	590	690	520	340	790	1010
2	1140	1140	480	470	530	460	600	740	550	320	760	1030
3	1220	1010	530	510	630	580	650	600	570	330	780	1030
4	1220	1140	580	550	530	640	---	530	630	380	800	1040
5	1210	1180	620	600	490	550	490	580	660	440	810	1100
6	1150	1120	670	600	560	950	490	580	600	430	820	1130
7	1040	1180	760	640	630	790	520	300	580	470	840	1130
8	940	1150	830	610	650	770	490	280	610	480	900	1140
9	910	1100	840	580	520	810	380	---	640	560	960	1160
10	860	1170	790	430	530	850	360	360	650	---	1020	1180
11	1020	1070	830	340	380	870	---	350	550	600	1050	1180
12	1100	1030	860	390	380	900	460	370	640	600	1040	1170
13	1070	1050	---	400	410	900	460	460	720	610	1040	1180
14	1010	1040	900	340	460	880	480	350	690	610	1040	1160
15	1050	990	---	390	460	810	510	360	660	630	1040	1120
16	---	980	680	340	470	890	550	380	590	650	1060	1140
17	1040	970	260	330	460	670	590	450	700	680	1080	1160
18	---	950	350	370	490	600	610	480	700	720	---	1170
19	980	960	560	400	490	560	600	540	690	730	1080	---
20	980	---	430	430	490	540	640	540	---	740	1000	1140
21	1000	660	400	350	610	610	600	560	---	760	920	---
22	1080	830	350	370	750	450	560	520	290	730	960	1170
23	1080	650	330	290	450	410	600	---	230	720	970	1160
24	1070	740	320	300	460	380	580	540	240	710	950	1130
25	960	830	---	360	530	380	---	630	240	710	970	1170
26	930	1210	---	340	570	380	550	580	240	710	960	1170
27	940	990	400	360	560	420	630	560	240	710	970	1140
28	910	830	420	400	---	410	620	570	250	730	940	1190
29	1000	550	480	410	---	370	670	530	260	750	960	1180
30	1070	490	480	440	---	440	670	490	300	750	1010	1070
31	1100	---	460	500	---	550	---	400	---	780	1040	---
MEAN	1040	970	558	430	519	625	554	494	509	613	952	1130
MAX	1220	1210	900	640	750	950	670	740	720	780	1080	1190
MIN	860	490	260	290	380	370	360	280	230	320	760	1010

WTR YR 1993 MEAN 700 MAX 1220 MIN 230

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	24.0	12.0	14.0	12.0	14.0	19.0	21.0	25.0	27.0	29.0	28.0
2	23.0	22.0	13.0	14.0	12.0	15.0	19.0	21.0	25.0	28.0	31.0	28.0
3	23.0	22.0	12.0	15.0	13.0	15.0	19.0	20.0	25.0	28.0	31.0	28.0
4	22.0	20.0	15.0	18.0	13.0	14.0	---	21.0	26.0	28.0	30.0	28.0
5	23.0	20.0	13.0	14.0	13.0	13.0	---	22.0	26.0	28.0	30.0	28.0
6	23.0	20.0	11.0	14.0	12.0	13.0	17.0	21.0	27.0	28.0	30.0	28.0
7	23.0	15.0	11.0	13.0	12.0	14.0	17.0	21.0	27.0	28.0	30.0	28.0
8	22.0	16.0	12.0	14.0	12.0	13.0	17.0	22.0	27.0	28.0	30.0	28.0
9	23.0	17.0	13.0	14.0	12.0	15.0	17.0	---	27.0	28.0	30.0	28.0
10	23.0	19.0	13.0	13.0	13.0	15.0	17.0	21.0	27.0	---	30.0	27.0
11	23.0	20.0	13.0	13.0	14.0	17.0	---	22.0	25.0	28.0	30.0	28.0
12	22.0	20.0	13.0	12.0	13.0	15.0	18.0	22.0	25.0	28.0	30.0	28.0
13	22.0	17.0	---	12.0	12.0	12.0	19.0	21.0	26.0	28.0	30.0	28.0
14	23.0	16.0	13.0	12.0	12.0	12.0	20.0	21.0	26.0	28.0	30.0	28.0
15	23.0	16.0	---	11.0	14.0	13.0	18.0	22.0	26.0	29.0	30.0	23.0
16	---	16.0	12.0	10.0	16.0	13.0	18.0	23.0	26.0	29.0	30.0	23.0
17	23.0	17.0	10.0	12.0	14.0	12.0	18.0	23.0	27.0	29.0	---	23.0
18	---	18.0	11.0	13.0	13.0	12.0	19.0	24.0	27.0	29.0	30.0	24.0
19	22.0	19.0	12.0	13.0	13.0	12.0	19.0	23.0	27.0	29.0	30.0	---
20	22.0	---	12.0	11.5	12.0	12.0	20.0	23.0	---	29.0	30.0	28.0
21	23.0	17.0	11.0	12.0	14.0	15.0	19.0	23.0	---	29.0	30.0	---
22	23.0	16.0	11.0	12.0	14.0	15.0	18.0	23.0	26.0	29.0	30.0	27.0
23	23.0	15.0	14.0	13.0	14.0	15.0	18.0	---	25.0	29.0	30.0	27.0
24	23.0	15.0	13.0	12.0	14.0	15.0	20.0	24.0	26.0	29.0	30.0	27.0
25	25.0	14.0	---	11.0	16.0	16.0	---	24.0	26.0	29.0	30.0	28.0
26	25.0	13.0	---	11.0	15.0	17.0	21.0	22.0	26.0	29.0	30.0	28.0
27	23.0	11.0	14.0	11.0	14.0	16.0	21.0	22.0	27.0	29.0	29.0	26.0
28	23.0	10.0	14.0	11.0	---	18.0	21.0	23.0	27.0	29.0	29.0	23.0
29	23.0	11.0	15.0	12.0	---	18.0	22.0	24.0	27.0	29.0	29.0	24.0
30	24.0	12.0	17.0	11.0	---	19.0	21.0	24.0	28.0	29.0	29.0	24.0
31	24.0	---	18.0	11.0	---	19.0	---	24.0	---	29.0	28.0	---
MEAN	23.0	17.0	13.0	12.5	13.5	14.5	19.0	22.5	26.0	28.5	30.0	26.5
MAX	25.0	24.0	18.0	18.0	16.0	19.0	22.0	24.0	28.0	29.0	31.0	28.0
MIN	22.0	10.0	10.0	10.0	12.0	12.0	17.0	20.0	25.0	27.0	28.0	23.0

WTR YR 1993 MEAN 20.5 MAX 31.0 MIN 10.0



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.

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.

REMARKS.--Records good except those for estimated daily discharges, which are fair. 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.

EXTREMS 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)
Mar. 1	2400	1.680	20.41	June 22	1230	1,540	19.97
June 10	0300	1.710	20.52				

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.78	19	3.5	1.2	24	509	2.1	15	92	5.2	1.5	7.0
2	.81	5.8	2.1	1.2	15	895	1.8	157	36	2.9	1.8	5.6
3	.74	1.7	1.7	7.3	10	178	24	97	18	2.0	1.6	4.2
4	.82	1.4	1.5	34	6.9	67	797	36	9.6	1.7	1.8	3.2
5	1.5	1.3	1.4	6.6	16	31	200	27	5.5	1.8	2.1	2.8
6	.61	1.2	1.3	3.3	31	18	69	709	3.4	1.8	1.5	3.2
7	.17	1.3	1.3	331	18	11	290	255	2.4	1.6	1.5	3.6
8	1.8	1.4	1.3	210	12	7.6	302	114	2.1	1.5	1.5	3.1
9	.64	1.4	19	321	8.6	5.3	99	51	1.9	1.5	1.5	2.5
10	.53	1.6	20	399	592	3.7	37	229	31	1.5	1.5	1.8
11	.60	4.7	10	129	219	3.1	19	68	483	1.6	1.5	1.6
12	.52	14	6.9	56	81	6.9	11	28	463	1.6	1.5	1.8
13	.43	5.2	4.7	31	35	9.9	7.0	14	120	1.6	1.6	1.6
14	.55	1.5	15	20	21	3.7	4.4	7.9	102	1.5	1.6	6.0
15	.56	2.1	394	14	14	4.1	3.9	4.9	170	1.5	1.6	e4.3
16	.59	1.8	202	11	57	28	3.7	3.5	187	1.5	1.6	e1.5
17	.59	1.7	82	8.9	35	12	4.4	2.6	202	1.5	1.6	e1.5
18	.53	1.7	38	8.3	19	7.4	3.6	2.7	377	1.5	1.6	e1.4
19	.51	56	22	20	11	5.2	2.9	3.5	638	1.5	1.6	e1.9
20	.40	871	15	49	7.2	172	2.5	2.7	1590	1.6	1.6	e2.0
21	.52	345	11	44	5.2	60	1.7	2.1	559	1.6	1.6	e1.4
22	.56	323	8.5	24	3.6	41	1.5	1.9	900	1.6	1.6	e1.6
23	.56	126	6.6	15	2.6	270	1.5	121	487	1.6	1.6	e1.3
24	.56	55	5.2	15	2.1	94	2.0	143	336	1.6	1.6	e1.3
25	.57	29	4.1	11	24	39	1.9	39	102	1.6	1.6	e1.5
26	.62	17	2.9	7.1	47	22	1.7	38	49	1.6	1.6	e1.3
27	.58	11	2.2	4.4	31	13	1.6	38	28	1.6	1.6	e1.3
28	.52	7.5	2.0	3.2	18	7.8	1.4	49	18	1.6	1.6	e1.4
29	.59	5.4	1.7	154	---	5.2	2.5	46	12	1.6	1.6	e1.4
30	.56	3.7	1.5	136	---	3.6	3.2	180	7.9	1.7	1.6	e1.3
31	.61	---	1.4	49	---	2.7	---	365	---	1.5	3.7	---
TOTAL	19.93	1918.4	889.8	2124.5	1366.2	2536.2	1903.3	2850.8	7032.8	54.5	51.8	74.2
MEAN	.64	63.9	28.7	68.5	48.8	81.8	63.4	92.0	234	1.76	1.67	2.47
MAX	1.8	871	394	399	592	895	797	709	1590	5.2	3.7	7.0
MIN	.17	1.2	1.3	1.2	2.1	2.7	1.4	1.9	1.9	1.5	1.5	1.3
AC-F-I	40	3810	1760	4210	2710	5030	3780	5650	13950	108	103	147

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1993, BY WATER YEAR (WY)

MEAN	42.4	35.4	39.6	37.0	47.9	20.3	35.4	41.3	51.1	15.8	26.1	42.7
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 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1947 - 1993
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ANNUAL TOTAL	21085.81		20822.43				
ANNUAL MEAN	57.6		57.0			36.1	
HIGHEST ANNUAL MEAN						91.1	1973
LOWEST ANNUAL MEAN						3.18	1947
HIGHEST DAILY MEAN	1350	Apr 18	1590	Jun 20		7080	Jun 26 1960
LOWEST DAILY MEAN	.17	Oct 7	.17	Oct 7		.00	Jun 13 1947
ANNUAL SEVEN-DAY MINIMUM	.52	Oct 18	.52	Oct 18		.00	Jun 13 1947
INSTANTANEOUS PEAK FLOW			1710	Jun 20		10400	Jun 26 1960
INSTANTANEOUS PEAK STAGE			20.52	Jun 20		24.03	Oct 31 1959
INSTANTANEOUS LOW FLOW			.15	Oct 7			
ANNUAL RUNOFF (AC-FT)	41820		41300			26170	
10 PERCENT EXCEEDS	150		171			49	
50 PERCENT EXCEEDS	4.6		3.7			1.6	
90 PERCENT EXCEEDS	.85		1.3			.00	

## BRAZOS RIVER MAIN STEM

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 good. 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). Gage-height telemeter at station.

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 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2060	2610	3150	4790	6610	6720	24100	9810	10200	20100	2080	1380
2	1860	2890	2850	4560	6840	15600	22300	10600	7720	16300	1990	1260
3	1760	2390	2560	4000	8670	15400	20200	12000	6930	14300	1950	1150
4	1740	1980	2320	4360	8580	13100	23400	13100	6000	14000	1860	1170
5	1790	1720	2060	3830	7520	14000	26500	14300	5270	14000	1600	1080
6	1980	1540	1850	3250	6740	15900	21200	25200	5090	13500	1450	991
7	2090	1460	1700	5030	6240	14900	19600	45800	4920	12100	1340	946
8	2000	1370	1590	9390	10800	13600	26400	51300	4760	10600	1260	909
9	1960	1260	1760	8630	15700	12900	30500	44300	4730	9180	1240	983
10	1970	1280	2020	12600	17000	12600	30100	39300	4460	8190	1160	1080
11	1910	1420	1780	13100	17400	12500	28100	34800	4980	7540	1010	1090
12	1840	1470	1680	15100	14500	12400	24700	33600	6120	6740	978	1070
13	1790	1540	1630	13900	12700	11700	21000	39700	5980	5820	1030	1050
14	1910	1490	1700	12200	11200	10400	18200	40800	5450	4990	976	1020
15	1920	1490	3310	11200	10700	10900	16600	33200	6500	4440	909	1190
16	1860	1480	9490	9920	10900	15700	15700	24400	6140	3960	1130	1230
17	1810	1420	21100	8720	10800	16800	15200	19700	5280	3600	1340	1110
18	1680	1450	22400	7440	10600	14900	15100	17300	5980	3450	1310	978
19	1550	1510	23200	6590	9990	12700	15200	15100	7350	3380	1270	1310
20	1440	4430	20500	6270	10200	13100	14400	12900	13900	3280	1300	1490
21	1440	6410	16200	11800	11400	19600	13000	10900	31400	3150	1270	1310
22	1530	6280	13300	20300	10200	33800	12500	9510	53700	2970	1220	1470
23	1690	5090	11100	19900	8660	44900	12400	8930	63000	2750	1290	1490
24	1630	6560	9560	18800	8400	49400	11700	9640	64900	2580	1290	1400
25	1460	7990	8290	17100	7300	47200	11300	9400	61900	2500	1190	1380
26	1600	6860	7480	13500	8090	43300	11700	8690	52600	2420	1150	1240
27	1540	5580	6680	10300	7390	38100	10700	8830	41400	2280	1110	1250
28	1470	4860	5920	7980	6290	32100	9220	9690	31500	2100	1310	1360
29	1570	4120	5210	6880	---	28500	8480	9240	24100	2070	1370	1350
30	1630	3510	4840	7080	---	26700	8760	8530	22600	2070	1360	1260
31	1760	---	4790	6990	---	25600	---	10600	---	2070	1430	---
TOTAL	54240	93460	222020	305510	281420	655020	538260	641170	574860	206430	41173	35997
MEAN	1750	3115	7162	9855	10050	21130	17940	20680	19160	6659	1328	1200
MAX	2090	7990	23200	20300	17400	49400	30500	51300	64900	20100	2080	1490
MIN	1440	1260	1590	3250	6240	6720	8480	8530	4460	2070	909	909
AC-FT	107600	185400	440400	606000	558200	1299000	1068000	1272000	1140000	409500	81670	71400

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1993, BY WATER YEAR (WY)

	MEAN	4243	5806	7630	10760	11190	11440	11330	14700	14610	5187	2591	3258
MAX	24240	33580	23360	70560	60530	60170	17940	32050	39370	41010	18200	8669	19370
(WY)	1974	1975	1992	1992	1992	1992	1990	1977	1990	1987	1968	1992	1974
MIN	369	290	866	1119	596	498	540	312	367	246	596	504	504
(WY)	1989	1989	1989	1971	1971	1971	1971	1978	1971	1971	1985	1988	1988

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1968 - 1993

ANNUAL TOTAL	9877250	3649560	8677
ANNUAL MEAN	26990	9999	29050
HIGHEST ANNUAL MEAN			1634
LOWEST ANNUAL MEAN			1992
HIGHEST DAILY MEAN	82500	Jan 3	82500
LOWEST DAILY MEAN	1260	Nov 9	67
ANNUAL SEVEN-DAY MINIMUM	1400	Nov 6	78
INSTANTANEOUS PEAK FLOW			82700
INSTANTANEOUS PEAK STAGE			51.89
ANNUAL RUNOFF (AC-FT)	19590000	7239000	6286000
10 PERCENT EXCEEDS	71100	24100	22100
50 PERCENT EXCEEDS	17000	6560	3640
90 PERCENT EXCEEDS	1760	1280	710

## SAN BERNARD RIVER MAIN STEM

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08117500 SAN BERNARD RIVER NEAR BOLING, TX

LOCATION.--Lat 29°18'48", long 95°53'37", 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 good except those for estimated daily discharges, which are fair. 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)
Nov. 21	0300	4,550	21.27	May 9	1400	8,140	28.90
Jan. 13	1400	3,190	17.66	May 24	2200	3,050	17.26
Feb. 11	0300	4,700	21.64	June 12	2200	4,120	20.20
Mar. 2	1600	4,760	21.81	June 17	1100	3,460	18.41
Apr. 5	0230	3,510	18.57	June 25	0200	15,400	40.76
Apr. 8	1230	5,220	22.89				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	133	47	104	45	714	1280	332	757	1830	5310	130	366
2	125	70	77	51	580	4360	212	1540	1480	4240	143	256
3	117	119	59	46	582	3500	156	1410	1200	2840	128	177
4	119	117	47	41	487	1920	2000	1280	751	1370	128	115
5	110	74	42	39	443	1020	3160	995	413	774	115	86
6	99	54	36	38	597	679	2640	4600	258	490	112	70
7	92	43	33	578	468	475	3440	6330	169	349	124	60
8	121	39	32	1770	340	315	5040	6720	128	277	139	53
9	118	35	32	1710	287	204	4340	8020	119	224	164	47
10	112	33	97	2660	2690	144	3750	7540	117	190	169	46
11	151	36	103	2550	4360	112	4020	6230	974	159	165	52
12	145	37	78	2810	3320	121	3530	4890	3620	144	172	63
13	128	44	57	3150	2860	230	2280	3490	3860	133	153	56
14	124	82	51	2840	2730	264	1310	2000	3220	131	139	72
15	132	91	1080	1710	1860	236	931	1090	2970	124	132	94
16	132	68	2640	982	1460	241	817	685	3100	123	139	93
17	141	55	2430	649	1330	338	662	409	3430	137	157	89
18	158	43	2110	426	970	307	509	250	3250	152	158	79
19	169	67	1990	292	620	231	503	212	3070	148	129	66
20	150	2850	1610	323	520	1970	430	192	5110	141	129	57
21	123	4250	1160	333	455	2460	301	169	6740	122	123	56
22	104	3970	840	305	340	1890	201	150	9580	147	115	62
23	80	3290	572	1170	242	2160	146	150	13600	175	122	61
24	68	2210	383	1960	182	2210	112	2260	15200	175	121	71
25	56	1260	260	1450	207	2260	92	2770	15100	152	95	68
26	45	724	187	938	927	2790	77	2350	14300	125	76	63
27	39	457	139	640	1170	2550	71	2060	e13000	124	75	60
28	36	299	113	425	1100	1720	69	2640	e10500	122	164	53
29	29	208	93	870	---	1140	72	2250	e8500	112	578	57
30	31	148	74	1540	---	791	74	1820	e6900	117	750	54
31	33	---	57	1100	---	519	---	2380	---	125	556	---
TOTAL	3200	20820	16586	33441	31841	38437	41277	77639	152489	18952	5600	2602
MEAN	103	694	535	1079	1137	1240	1376	2504	5083	611	181	86.7
MAX	169	4250	2640	3150	4360	4360	5040	8020	15200	5310	750	366
MIN	29	33	32	38	182	112	69	150	117	112	75	46
AC-FI	6350	41300	32900	66330	63160	76240	81870	154000	302500	37590	11110	5160

e Estimated

## SAN BERNARD RIVER MAIN STEM

08117500 SAN BERNARD RIVER NEAR BOLING, TX--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1955 - 1993, BY WATER YEAR (WY)

MEAN	494	483	437	570	727	362	486	669	923	350	209	612
MAX	3326	4069	2497	2316	4303	2142	3348	2840	5083	1417	710	3794
(WY)	1958	1986	1992	1979	1992	1957	1973	1972	1993	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 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1955 - 1993	
ANNUAL TOTAL	455031		442884		524	
ANNUAL MEAN	1243		1213		1357	
HIGHEST ANNUAL MEAN					37.9	
LOWEST ANNUAL MEAN					21000	
HIGHEST DAILY MEAN	8260	Feb 7	15200	Jun 24	Jun 28 1960	
LOWEST DAILY MEAN	29	Oct 29	29	Oct 29	1.7	
ANNUAL SEVEN-DAY MINIMUM	37	Oct 26	37	Oct 26	2.2	
INSTANTANEOUS PEAK FLOW			15400	Jun 25	21200	
INSTANTANEOUS PEAK STAGE			40.76	Jun 25	42.41	
ANNUAL RUNOFF (AC-FT)	902600		878500		379600	
10 PERCENT EXCEEDS	3770		3300		1310	
50 PERCENT EXCEEDS	375		224		121	
90 PERCENT EXCEEDS	79		56		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 1993

Station no.	Station name	Location	Drainage area (mi <sup>2</sup> )	Period of record	Measurements	
					Date	Discharge (ft <sup>3</sup> /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.	--	1967-93	10-29-92 12-10-92 02-04-93 04-01-93 06-04-93 07-14-93	20.0 23.4 25.1 30.0 20.8 10.6
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, 1990-93	03-10-93 04-16-93 06-11-93 08-02-93 09-10-93	38.5 43.4 24.6 8.87 4.96
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, 1990-93	03-10-93 04-16-93 06-11-93 08-02-93 09-10-93	69.0 84.2 54.5 38.8 28.1
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, 1990-93	03-10-93 04-16-93 06-11-93 08-02-93 09-10-93	14.0 98.7 12.8 8.19 10.9
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, 1990-93	03-10-93 04-16-93 06-11-93 08-02-93 09-10-93	63.4 79.5 42.0 18.8 0.69
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, 1990-93	03-10-93 04-16-93 06-11-93 08-02-93 09-10-93	100 197 70.4 45.4 28.0
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, 1990-93	03-10-93 04-16-93 06-11-93 08-02-93 09-10-93	20.4 36.6 6.27 0.02 0
08105180	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, 1990-93	03-10-93 04-16-93 04-19-93 06-11-93 08-02-93 09-10-93	4.99 4.84 2.78 1.01 0.07 0
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.	--	1984-73 1984-87† 1988, 1990-93	03-10-93 04-19-93 06-11-93 08-02-93 09-10-93	57.3 53.7 33.6 14.5 8.31
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† 1993	03-10-93 04-16-93 06-11-93 08-07-93 09-10-93	176 286 123 59.0 32.1

† 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 1993

Station name and number	Location	Drainage area (mi²)	Period of record	Water Year 1993 maximum			Period of record maximum		
				Date	Gage height (ft)	Dis-charge (ft³)	Date	Gage height (ft)	Dis-charge (ft³)
San Jacinto River Basin									
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.	15.8	1984-93	04-03-93	*15.48	--	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	1984-93	05-05-93	27.97	1,240	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, 1979-93	06-23-93	*67.53	--	09-21-79	67.75	--
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	1986-93	04-04-93	13.17	--	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	1974-93	06-20-93	*107.24	--	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	1974-93	06-20-93	*100.90	--	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	1984-93	03-01-93	*45.87	4,520	05-18-89	48.77	7,390
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	1979-93	03-22-93	*38.25	--	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	1977-93	03-01-93	14.41	--	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.	8.63	1965-71, 1975-93	03-01-93	*78.11	--	04-16-66	83.53	--
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	1977-93	03-01-93	*57.85	8,380	03-04-92	65.42	16,900
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.	8.65	1965-93	03-01-93	*113.47	725	09-21-67	118.38	--
Carpenters Bayou at IH-10 near Channelview, Tex. 08076902	Lat 29°46'18", long 95°08'56", Harris County, at bridge on eastbound access road to IH-10, at western boundary of Channelview, 4.4 mi upstream from mouth.	25.9	1991-93	03-22-93	*10.44	--	03-04-92	12.33	--

See footnotes at end of table.



## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

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Annual maximum stage and (or) discharge during water year 1993--Continued

Station name and number	Location	Drainage area (mi <sup>2</sup> )	Period of record	Water Year 1993 maximum			Period of record maximum		
				Date	Gage height (ft)	Dis-charge (ft <sup>3</sup> )	Date	Gage height (ft)	Dis-charge (ft <sup>3</sup> )
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	1984-93	06-26-93	*27.17	--	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	1985-93	01-07-93	*22.57	--	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.	--	1966-93	03-02-93	--	--	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 south-east Houston, and 2.0 mi upstream from Armand Bayou.	17.8	1985-93	04-03-93	*8.17	--	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	1963-93	06-19-93	0.33	3	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† 1965-93	06-19-93	2.67	10	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.



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## CONVERSION FACTORS AND VERTICAL DATUM

Multiply	By	To obtain
<i>Length</i>		
inch (in.)	$2.54 \times 10^1$	millimeter
	$2.54 \times 10^{-2}$	meter
foot (ft)	$3.048 \times 10^{-1}$	meter
mile (mi)	$1.609 \times 10^0$	kilometer
<i>Area</i>		
acre	$4.047 \times 10^3$	square meter
	$4.047 \times 10^{-1}$	square hectometer
	$4.047 \times 10^{-3}$	square kilometer
square mile (mi <sup>2</sup> )	$2.590 \times 10^0$	square kilometer
<i>Volume</i>		
gallon (gal)	$3.785 \times 10^0$	liter
	$3.785 \times 10^0$	cubic decimeter
	$3.785 \times 10^{-3}$	cubic meter
million gallons (Mgal)	$3.785 \times 10^3$	cubic meter
	$3.785 \times 10^{-3}$	cubic hectometer
cubic foot (ft <sup>3</sup> )	$2.832 \times 10^1$	cubic decimeter
	$2.832 \times 10^{-2}$	cubic meter
cubic-foot-per-second day [(ft <sup>3</sup> /s) d]	$2.447 \times 10^3$	cubic meter
	$2.447 \times 10^{-3}$	cubic hectometer
acre-foot (acre-ft)	$1.233 \times 10^3$	cubic meter
	$1.233 \times 10^{-3}$	cubic hectometer
	$1.233 \times 10^{-6}$	cubic kilometer
<i>Flow</i>		
cubic foot per second (ft <sup>3</sup> /s)	$2.832 \times 10^1$	liter per second
	$2.832 \times 10^1$	cubic decimeter per second
	$2.832 \times 10^{-2}$	cubic meter per second
gallon per minute (gal/min)	$6.309 \times 10^{-2}$	liter per second
	$6.309 \times 10^{-2}$	cubic decimeter per second
	$6.309 \times 10^{-5}$	cubic meter per second
million gallons per day (Mgal/d)	$4.381 \times 10^1$	cubic decimeter per second
	$4.381 \times 10^{-2}$	cubic meter per second
<i>Mass</i>		
ton (short)	$9.072 \times 10^{-1}$	megagram or metric ton

*Sea level:* In this report "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment for the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.



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