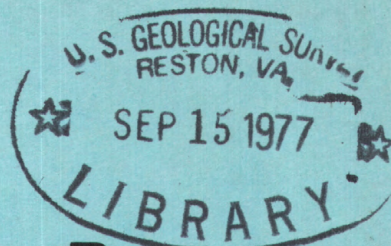


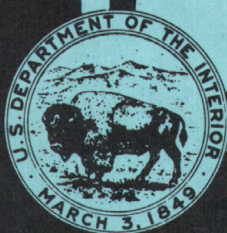
R.  
(200)  
Ga3  
TEXAS  
1976  
v.1



# Water Resources Data for Texas

## Water Year 1976

Volume 1. Arkansas River Basin, Red River Basin,  
Sabine River Basin, Neches River Basin,  
Trinity River Basin and  
Intervening Coastal Basins



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-76-1

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



# CALENDAR FOR WATER YEAR 1976

1 9 7 5

## O C T O B E R

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	

## N O V E M B E R

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						

## D E C E M B E R

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			

1 9 7 6

## J A N U A R Y

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

## F E B R U A R Y

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						

## M A R C H

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			

## A P R I L

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	

## M A Y

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					

## J U N E

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			

## J U L Y

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

## A U G U S T

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				

## S E P T E M B E R

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 for Texas Water Year 1976**

Volume 1. Arkansas River Basin, Red River Basin,  
Sabine River Basin, Neches River Basin,  
Trinity River Basin and  
Intervening Coastal Basins



**U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-76-1**

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



UNITED STATES DEPARTMENT OF THE INTERIOR

CECIL D. ANDRUS, Secretary

GEOLOGICAL SURVEY

V. E. McKelvey, Director

For additional information write to  
District Chief, Water Resources Division  
U.S. Geological Survey  
300 East 8th Street  
Austin, Texas 78701

1977



## Preface

This report was prepared by the U.S. Geological Survey in cooperation with the State of Texas and with other agencies by personnel of the Texas district of the Water Resources Division under the supervision of I. D. Yost, District Chief, and Alfred Clebsch, Jr., Regional Hydrologist, Central Region.

This report is one of a series issued State by State under the general direction of J. S. Cragwall, Jr., Chief Hydrologist, and G. W. Whetstone, Assistant Chief Hydrologist for Scientific Publications and Data Management.

Data for Texas are in three volumes as follows:

- 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 Bernardo River basin, and intervening Coastal basins
- Volume 3. Colorado River basin, Lavaça River basin, Guadalupe River basin, Neches River basin, Rio Grande basin, and intervening Coastal basins



<b>BIBLIOGRAPHIC DATA SHEET</b>	1. Report No. USGS/WRD/HD-77/034	2.	3. Recipient's Accession No.
	4. Title and Subtitle Water Resources Data for Texas, 1976, Volume 1; Arkansas, Red, Sabine, Neches, Trinity River basins, and intervening Coastal basins		5. Report Date July 1977
7. Author(s)		6.	
9. Performing Organization Name and Address U.S. Geological Survey, Water Resources Division 300 East 8th Street Austin, Texas 78701		8. Performing Organization Rept. No. USGS-WDR-TX-76-1	
12. Sponsoring Organization Name and Address U.S. Geological Survey, Water Resources Division 300 East 8th Street Austin, Texas 78701		10. Project/Task/Work Unit No.	
		11. Contract/Grant No.	
13. Type of Report & Period Covered Oct. 1, 1975 to Sept. 30, 1976		14.	
15. Supplementary Notes Prepared in cooperation with the State of Texas and with other agencies.			
16. Abstracts  Surface-water data for the 1976 water year for Texas are presented in three volumes, appropriately identified as to content by river basins. Data in each volume consist of records of stage, discharge, and water quality of streams and canals; and stage, contents, and water quality of lakes and reservoirs. Also included are 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 are also included. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in Texas.			
17. Key Words and Document Analysis. 17a. Descriptors  *Texas, *Hydrologic data, *Surface water, *Water quality, Flow rate, Gaging stations, Lakes, Reservoirs, Chemical analyses, Sediments, Water temperatures, Sampling sites, Water analyses			
17b. Identifiers/Open-Ended Terms			
17c. COSATI Field/Group			
18. Availability Statement No restriction on distribution. This report may be purchased from: National Technical Information Service Springfield, VA 22161		19. Security Class (This Report) UNCLASSIFIED	21. No. of Pages
		20. Security Class (This Page) UNCLASSIFIED	22. Price



## CONTENTS

---

	Page
List of gaging stations, in downstream order, for which records are published.....	V
Introduction.....	1
Cooperation.....	2
Hydrologic conditions.....	3
Definition of terms.....	4
Downstream order and station number.....	13
Special networks and programs.....	14
Explanation of stage and water-discharge records.....	15
Collection and computation of data.....	15
Accuracy of field data and computed results.....	19
Other data available.....	20
Records of discharge collected by agencies other than the Geological Survey.....	20
Explanation of surface-water quality records.....	20
Collection and examination of data.....	20
Water analysis.....	21
Water temperature.....	21
Sediment.....	22
Publications.....	22
Publications of techniques of water-resources investigations.....	24
Gaging-station records.....	27
Discharge at partial-record stations and miscellaneous sites.....	559
Low-flow partial-record stations.....	559
Crest-stage partial-record stations.....	560
Discharge measurements at miscellaneous sites.....	562
Index.....	563

---

## TABLE

---

Table 1.--Water-supply paper numbers and parts containing water-quality data for Texas, water years 1941-71.....	23
--	----



LOWER MISSISSIPPI RIVER BASINARKANSAS RIVER BASIN

## Arkansas River:

Canadian River at Logan, N. Mex.....	27
Revuelto Creek near Logan, N. Mex.....	28
Canadian River above New Mexico-Texas State line, N. Mex.....	30
Canadian River at Tascosa.....	36
Canadian River near Amarillo.....	41
Lake Meredith near Sanford.....	46
Dixon Creek near Borger.....	48
Canadian River near Canadian.....	49

## North Canadian River:

Palo Duro Creek near Spearman.....	60
Wolf Creek at Lipscomb.....	62

RED RIVER BASIN

Prairie Dog Town Fork Red River near Wayside.....	63
Tule Creek:	
Mackenzie Reservoir near Silverton.....	69
Tule Creek near Silverton.....	71
Prairie Dog Town Fork Red River near Lakeview.....	72
Little Red River near Turkey.....	75
Prairie Dog Town Fork Red River near Estelline.....	78
Prairie Dog Town Fork Red River below Mountain Creek near Estelline.....	79
Prairie Dog Town Fork Red River above Jonah Creek near Estelline....	80
Jonah Creek at weir near Estelline.....	81
Jonah Creek below weir near Estelline.....	84
Jonah Creek at mouth near Estelline.....	87
Salt Creek near Estelline.....	88
Prairie Dog Town Fork Red River near Childress.....	91
Red River near Quanah.....	94
Groesbeck Creek at State Highway 6 near Quanah.....	95
Salt Fork Red River:	
Greenbelt Lake near Clarendon.....	96
Salt Fork Red River near Wellington.....	98
Salt Fork Red River at Mangum, Okla.....	107
McClellan Creek near McLean.....	108
North Fork Red River near Shamrock.....	110
Sweetwater Creek near Kelton.....	112
North Pease River near Childress.....	114
North Pease River near Kirkland.....	117
Middle Pease River near Paducah.....	118
Middle Pease River near Kirkland.....	121
Pease River near Childress.....	122
Pease River near Vernon.....	125
China Creek near Electra.....	127
Red River near Burkburnett.....	128

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

VII

Page

LOWER MISSISSIPPI RIVER BASIN--Continued

RED RIVER BASIN--Continued

Red River--Continued

North Fork Wichita River near Paducah.....	139
North Fork Wichita River near Crowell.....	142
Middle Fork Wichita River near Truscott.....	145
North Fork Wichita River near Truscott.....	148
South Fork Wichita River near Guthrie.....	151
South Fork Wichita River at Ross Ranch near Benjamin.....	154
South Fork Wichita River near Benjamin.....	157
Wichita River near Seymour.....	160
Lake Kemp near Mabelle.....	163
Wichita River near Mabelle.....	164
Diversion Lake:	
South Side Canal near Dundee.....	167
Beaver Creek near Electra.....	168
Wichita River at Wichita Falls.....	169
Wichita River near Charlie.....	170
North Fork Little Wichita River:	
Lake Kickapoo near Archer City.....	174
Little Wichita River near Archer City.....	176
Lake Arrowhead near Henrietta.....	177
Little Wichita River above Henrietta.....	179
East Fork Little Wichita River near Henrietta.....	181
Red River near Terral, Okla.....	183
Moss Lake near Gainesville.....	188
Red River near Gainesville.....	190
Mineral Creek near Sadler.....	196
Lake Texoma near Denison.....	198
Red River at Denison Dam near Denison.....	199
Bois d'Arc Creek near Randolph.....	209
Pat Mayse Lake near Chicota.....	210
Sanders Creek near Chicota.....	212
Red River at Arthur City.....	213
Big Pine Creek:	
Little Pine Creek near Kanawha.....	214
Pecan Bayou near Clarksville.....	216
Red River near De Kalb.....	218
Red River at Index, Ark.....	224
South Sulphur River (head of Sulphur River) near Cooper.....	225
North Sulphur River near Cooper.....	228
Sulphur River near Talco.....	231
White Oak Creek near Talco.....	236
White Oak Creek near Omaha.....	239
Wright Patman Lake near Texarkana.....	240
Big Cypress Creek near Winnsboro.....	242



LOWER MISSISSIPPI RIVER BASIN--ContinuedRED RIVER BASIN--Continued

Big Cypress Creek:	
Lake Cypress Springs near Mount Vernon.....	243
Big Cypress Creek near Pittsburg.....	245
Boggy Creek near Daingerfield.....	249
Ellison Creek Reservoir near Lone Star.....	250
Lake O' the Pines near Jefferson.....	252
Big Cypress Creek:	
Black Cypress Bayou at Jefferson.....	254
Little Cypress Creek near Ore City.....	256
Little Cypress Creek near Jefferson.....	257
Frazier Creek near Linden.....	262

WESTERN GULF OF MEXICO BASINSSABINE RIVER BASIN

Sabine River:	
Cowleech Fork Sabine River at Greenville.....	263
South Fork Sabine River near Quinlan.....	264
Lake Tawakoni near Wills Point.....	265
Sabine River near Wills Point.....	267
Grand Saline Creek near Grand Saline.....	270
Sabine River near Mineola.....	271
Lake Fork Creek:	
Dry Creek near Quitman.....	276
Lake Fork Creek near Quitman.....	277
Big Sandy Creek:	
Lake Winnsboro near Winnsboro.....	281
Big Sandy Creek near Big Sandy.....	282
Sabine River near Gladewater.....	284
Prairie Creek near Gladewater.....	286
Rabbit Creek at Kilgore.....	288
Cherokee Bayou:	
Lake Cherokee near Longview.....	290
Sabine River near Tatum.....	292
Martin Lake near Tatum.....	297
Martin Creek near Tatum.....	299
Murvaul Bayou:	
Murvaul Lake near Gary.....	300
Murvaul Bayou near Gary.....	302
Sabine River at Logansport, La.....	303
Tenaha Creek near Shelbyville.....	304
Sandy Creek:	
Mill Creek near Burkeville.....	305
Toledo Bend Reservoir near Burkeville.....	311
Sabine River at Toledo Bend Reservoir near Burkeville.....	312
Sabine River near Burkeville.....	314

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

IX

Page

WESTERN GULF OF MEXICO BASINS--Continued

SABINE RIVER BASIN--Continued

Sabine River near Bon Wier.....	319
Big Cow Creek near Newton.....	323
Cypress Creek near Buna.....	324
Sabine River near Ruliff.....	325
Cow Bayou near Mauriceville.....	335

NECHES RIVER BASIN

Neches River near Chandler.....	336
Kickapoo Creek near Brownsboro.....	338
Lake Athens near Athens.....	339
Lake Palestine near Frankston.....	340
Neches River near Neches.....	341
Neches River near Alto.....	344
Neches River near Diboll.....	346
Piney Creek near Groveton.....	350
Neches River near Rockland.....	351

Angelina River:

Striker Creek:

Bowles Creek near Selman City.....	354
East Fork Angelina River near Cushing.....	355

Mud Creek:

Prairie Creek:

Lake Tyler near Whitehouse.....	356
Mud Creek near Jacksonville.....	357
Angelina River near Alto.....	358
Angelina River near Lufkin.....	359
Bayou LaNana at Nacogdoches.....	363
Bayou LaNana near Nacogdoches.....	364
Paper Mill Creek near Herty.....	366
Angelina River below Paper Mill Creek near Herty.....	368
Attoyac Bayou near Chireno.....	369
Ayish Bayou near San Augustine.....	370
Sam Rayburn Reservoir near Jasper.....	371
Angelina River below Sam Rayburn Dam near Jasper.....	373
B. A. Steinhagen Lake at Town Bluff.....	376
Neches River at Town Bluff.....	377
Neches River at Evadale.....	378
Village Creek near Kountze.....	387
Pine Island Bayou near Sour Lake.....	389

TAYLOR BAYOU BASIN

Taylor Bayou near LaBelle.....	392
Hillebrandt Bayou near Lovell Lake.....	393

TRINITY RIVER BASIN

West Fork Trinity River (head of Trinity River):

North Creek:

North Creek subwatershed No. 28-A near Jermyn.....	394
North Creek near Jacksboro.....	395



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

Page

WESTERN GULF OF MEXICO BASINS--Continued

TRINITY RIVER BASIN--Continued

West Fork Trinity River near Jacksboro.....	396
Bridgeport Reservoir above Bridgeport.....	397
West Fork Trinity River:	
Big Sandy Creek near Bridgeport.....	399
West Fork Trinity River near Boyd.....	404
Eagle Mountain Reservoir above Fort Worth.....	405
West Fork Trinity River:	
Clear Fork Trinity River:	
Lake Weatherford near Weatherford.....	406
Benbrook Lake near Benbrook.....	407
Clear Fork Trinity River near Benbrook.....	409
Clear Fork Trinity River at Fort Worth.....	410
West Fork Trinity River at Fort Worth.....	411
Sycamore Creek at Interstate Highway 35-W, Fort Worth.....	413
Sycamore Creek tributary above Seminary South Shopping Center, Fort Worth.....	414
Sycamore Creek tributary at Interstate Highway 35-W, Fort Worth.....	415
Dry Branch at Fain Street, Fort Worth.....	416
Big Fossil Creek:	
Little Fossil Creek at Mesquite Street, Fort Worth.....	417
Village Creek:	
Lake Arlington at Arlington.....	418
West Fork Trinity River at Grand Prairie.....	420
Big Bear Creek near Grapevine.....	424
Mountain Creek near Cedar Hill.....	425
Walnut Creek near Mansfield.....	428
Mountain Creek near Duncanville.....	429
Mountain Creek Lake near Grand Prairie.....	432
Mountain Creek at Grand Prairie.....	434
Elm Fork Trinity River near Sanger.....	435
Isle du Bois Creek near Pilot Point.....	437
Clear Creek near Sanger.....	438
Little Elm Creek:	
Little Elm Creek subwatershed No. 10 near Gunter.....	443
Little Elm Creek near Celina.....	444
Little Elm Creek near Aubrey.....	445
Lewisville Lake near Lewisville.....	446
Elm Fork Trinity River near Lewisville.....	448
Denton Creek near Justin.....	449
Grapevine Lake near Grapevine.....	450
Denton Creek near Grapevine.....	452
Elm Fork Trinity River near Carrollton.....	453
Bachman Branch at Dallas.....	454
Turtle Creek at Dallas.....	455

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

XI

Page

WESTERN GULF OF MEXICO BASINS--Continued

TRINITY RIVER BASIN--Continued

Trinity River at Dallas.....	456
White Rock Creek at Keller Springs Road, Dallas.....	457
White Rock Creek at Greenville Avenue, Dallas.....	458
White Rock Creek at White Rock Lake, Dallas.....	459
White Rock Creek at Scyene Road, Dallas.....	460
Trinity River below Dallas.....	461
Prairie Creek at U.S. Highway 175, Dallas.....	466
Tenmile Creek at State Highway 342 at Lancaster.....	467
East Fork Trinity River:	
Honey Creek:	
Honey Creek subwatershed No. 12 near McKinney.....	468
East Fork Trinity River near McKinney.....	469
Pilot Grove Creek:	
Sister Grove Creek near Blue Ridge.....	470
Lavon Lake near Lavon.....	472
East Fork Trinity River near Lavon.....	474
Rowlett Creek near Sachse.....	475
Lake Ray Hubbard near Forney.....	476
Duck Creek near Garland.....	478
East Fork Trinity River near Forney.....	479
South Mesquite Creek at Mercury Road near Mesquite.....	480
East Fork Trinity River near Crandall.....	481
Trinity River near Rosser.....	485
Cedar Creek Reservoir spillway outflow near Trinidad.....	490
Trinity River at Trinidad.....	491
Cedar Creek near Kemp.....	493
Kings Creek near Kaufman.....	494
Cedar Creek Reservoir near Trinidad.....	495
Richland Creek:	
Navarro Mills Lake near Dawson.....	497
Richland Creek near Dawson.....	499
Richland Creek near Richland.....	500
Chambers Creek:	
Waxahachie Creek:	
Bardwell Lake near Ennis.....	501
Waxahachie Creek near Bardwell.....	503
Chambers Creek near Corsicana.....	504
Richland Creek near Fairfield.....	506
Tehuacana Creek near Streetman.....	510
Catfish Creek near Tennessee Colony.....	512
Trinity River near Oakwood.....	513
Upper Keechi Creek near Oakwood.....	514
Trinity River near Crockett.....	516
Bedias Creek:	
Caney Creek near Madisonville.....	530
Bedias Creek near Madisonville.....	531



WESTERN GULF OF MEXICO BASINS--ContinuedTRINITY RIVER BASIN--Continued

## Trinity River:

White Rock Creek near Trinity.....	532
Kickapoo Creek near Onalaska.....	533
Livingston Reservoir near Goodrich.....	534
Livingston Reservoir at outflow weir near Goodrich.....	536
Trinity River:	
Long King Creek at Livingston.....	537
Trinity River near Goodrich.....	538
Menard Creek near Rye.....	539
Big Creek near Shepherd.....	541
Trinity River at Romayor.....	543
Trinity River at Liberty.....	552
Devers Canal near Liberty.....	553
CEDAR BAYOU BASIN	
Cedar Bayou near Crosby.....	554

# WATER RESOURCES DATA FOR TEXAS, 1976

## VOLUME 1 ARKANSAS, RED, SABINE, NECHES, TRINITY RIVERS, AND INTERVENING COASTAL BASINS

### INTRODUCTION

Surface-water data for Texas for the 1976 water year are presented in three volumes, appropriately identified by river basins. Data in each volume consist of records of stage, discharge, and water quality of streams and canals; and stage, contents, and water quality of lakes and reservoirs. Records for a few pertinent stations in bordering states are also included. These data represent that part of the National Water Data System operated by the U.S. Geological Survey in cooperation with State and Federal agencies in Texas.

Records of discharge (or stage) of streams and contents (or stage) of lakes and reservoirs were first published in a series of Geological Survey Water-Supply Papers entitled, "Surface Water Supply of the United States." Through water year 1960, these water-supply papers were in an annual series and then in a 5-year series for 1961-65 and 1966-70. Records of chemical quality, water temperature, and suspended sediment were published from 1941 to 1971 in an annual series of water-supply papers entitled, "Quality of Surface Waters of the United States."

For water years 1961 through 1974, streamflow data were released by the Geological Survey in annual reports on a State-boundary basis. Water-quality records for water years 1964 through 1974 were similarly released either in separate reports or in conjunction with streamflow records. Beginning with the 1975 water year, water data for streamflow and water quality are published as an official Survey report on a State-boundary basis. These official Survey reports carry 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 report is identified as "U.S. Geological Survey Water-Data Report TX-76-1." Water-Data reports are for sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22161.

## COOPERATION

Organizations that assisted in the collection of data in this report through cooperative agreements with the Geological Survey in 1976 are:

City of Austin, Charles B. Graves, Jr., Director, Engineering Department.

City of Dallas, Monroe McCorkle, Director, Public Works Department.

City of Fort Worth, J. M. Graham, Director of Public Works.

City of Houston, E. B. Cape, Director, Department of Public Works.

County of Dallas, Judson Shook, Director of Public Works.

Pecos River Commission, Horace Babcock, Federal Representative and Chairman; R. B. McGowen, Jr., Commissioner for Texas, and John B. Walker, Commissioner for New Mexico.

Sabine River Compact Administration, William H. Robinson, Federal Representative and Chairman; Raymond J. Palmer and H. B. Meyers for Louisiana; and J. M. Syler and George M. Smith for Texas.

Texas Department of Highways and Public Transportation, B. L. DeBerry, Engineer-Director.

Texas Water Development Board, James M. Rose, Executive Director; A. L. Black, Chairman; Robert B. Gilmore, Vice-Chairman; Milton T. Potts, W. E. Tinsley, John H. Garrett, and George W. McCleskey, Members.

Assistance in the form of funds or services was given by the following Federal agencies:

Corps of Engineers, U.S. Army.

International Boundary and Water Commission, Department of State.

Soil Conservation Service, Department of Agriculture.



Assistance in the form of funds or services was rendered by the following organizations through the Texas Water Development Board:

The cities of Abilene, Alice, Arlington, Austin, Brady, Cleburne, Clyde, Corpus Christi, Dallas, El Paso, Gainesville, Graham, Houston, Lampasas, San Angelo, and Wichita Falls; Athens Municipal Water Authority; Bexar, Medina, and Atascosa Counties Water Control and Improvement District No. 1; Bistone Municipal Water Supply District; Brazos River Authority; Chocolate Bayou Land and Water Company; Colorado River Municipal Water District; Dallas County; Dallas Power and Light Company; Dow Chemical Company; Edwards Underground Water District; Franklin County Water District; GMA Development Corporation; Greenbelt Municipal and Industrial Water Authority; Guadalupe-Blanco River Authority; Harris County Flood Control District; Houston Lighting and Power Company; Lone Star Steel Company; Lower Colorado River Authority; Lower Neches Valley Authority; Palo Pinto County Municipal Water District; Red Bluff Water Power Control District; Reeves County Water Improvement District No. 1; Richmond Rice Association; Sabine River Authority of Texas; San Antonio City Public Service Board; San Antonio City Water Board; San Antonio River Authority; San Jacinto River Authority; Tarrant County Water Control and Improvement District No. 1; Texas Electric Service Company; Texas Utilities Services, Inc.; Tom Green County Water Control and Improvement District No. 1; Trinity River Authority; Upper Guadalupe River Authority; Upper Neches River Municipal Water Authority; West Central Texas Municipal Water District; White River Municipal Water District; Wichita County Water Improvement District No. 2; and Wood County.

### HYDROLOGIC CONDITIONS

Large variations in rainfall and runoff characterize the usual hydrologic conditions in Texas. In the east, streams are usually deep with wide alluvial flood plains, and streamflow is generally perennial. Normal annual rainfall exceeds 50 inches in the extreme east and annual runoff may average as much as 15 inches. In the west, streams are generally of the arroyo type and streamflow is highly ephemeral. Normal annual rainfall is less than 8 inches in the extreme west and annual runoff averages less than 0.1 inch in many areas.

During the 1976 water year, annual runoff over the State was generally deficient in the west and central parts and near normal in all other parts. Conservation storage in a selected group of 63 reservoirs, with a combined conservation capacity of 30,000,000 acre-ft, decreased from 88 percent of capacity in September 1975, to 87 percent at the end of September 1976.

At the beginning of the 1976 water year, streamflow was in the median range except for deficient flows (in the lower 25 percent of record) in the Panhandle and in a small area near San Angelo. During November the area of deficient streamflow spread to a wide band across the northern part of the State with other areas remaining about the same. In December the area of deficient streamflow spread into central Texas, but a small area near San Angelo showed excessive flow (in the upper 25 percent of record).

The trend established in December continued into February 1976 with the area of deficient streamflow covering north, central, and most of east Texas. Streamflow in the remainder of the State remained near normal.

Streamflow in east Texas increased to near normal in March. Thunderstorms during April relieved drought conditions in west Texas and produced locally heavy runoff in the central and northeastern parts of the State.

Streamflow in the panhandle remained deficient for May, but was near normal in the remainder of the State. Locally intense rainfall in mid-June caused flash flooding in the Houston area and in the South Concho River in the west. Locally heavy showers in July in the lower half of the State caused excessive streamflow while the Panhandle remained deficient in streamflow.

This trend was reversed in August with a return to median and deficient streamflow in the southern half of the State; an exception being continued excessive streamflow in the upper Guadalupe River basin.

September ended the water year with near normal streamflow over the State except in the Panhandle where streamflow was deficient and in the lower Pecos, Devils, and Nueces River basins streamflow was excessive.

#### DEFINITION OF TERMS

Terms related to streamflow, water quality, and other hydrologic data, as used in this report, are defined below. See also the table for converting English units to International System of units (SI) 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, about 326,000 gallons, or 1,233 cubic meters.

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

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, 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 48 hours at 35°C. In the laboratory these bacteria are defined as the organisms which produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C ± 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 ml of sample.

Fecal coliform bacteria are bacteria that are present in the intestines 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 which produce blue colonies within 24 hours when incubated at 44.5°C ± 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 ml of sample.

Fecal streptococcal bacteria are bacteria found in intestines 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 ± 1.0°C on M-enterococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 ml of sample.

Bed material is the unconsolidated material 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 g/m<sup>3</sup> (grams per cubic meter), and periphyton and benthic organisms in g/m<sup>2</sup> (grams per square meter).



Dry mass refers to the mass of residue present after drying in an oven at 60°C for zooplankton and 105°C for 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.

Biomass pigment ratio is the ratio of organic mass in  $\text{mg/m}^2$  (milligrams per square meter) to the mass of chlorophyll a, in  $\text{mg/m}^2$ .

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 ml (milliliters) or l (liters).

Cfs-day is the volume of water represented by flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-ft, about 646,000 gallons or 2,447 cubic meters.

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 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.

Coliform organisms are a group of bacteria used as an indicator of the sanitary quality of water. The number of coliform colonies per 100 ml of sample was determined by the immediate-incubation membrane-filter method.

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

Control designates a feature downstream from a 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.

Cubic foot per second per square mile (CFSM) 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.

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

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 mass of individual daily mean discharges during a specified period.

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

Dissolved refers to the amount of substance present in true chemical solution. In practice, however, the term includes all forms of substance that will pass through a 0.45-micrometer membrane filter, and thus may include some very small (colloidal) suspended particles. Analyses are performed on filtered samples.

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

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

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

Drainage area of a stream at a 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 location. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise noted.

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.HT.) 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 made.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ( $\text{CaCO}_3$ ).

Methylene blue active substance (MBAS) is a measure of apparent detergents. This determination depends on the formation of a blue color when methylene blue dye reacts with synthetic-detergent compounds.

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

Micrograms per liter ( $\text{UG/L}$ ,  $\mu\text{g/l}$ ) 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 represent 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 sediment per liter of water-sediment mixture.

ND is used in some of the tables of pesticide data as an abbreviation for "Not Detected." Analyses in which this term is reported were made by the U.S. Environmental Protection Agency laboratory in Bay Saint Louis, Mississippi.

Organism is any living entity, such as an insect, phytoplankter, or zooplankter.



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 metres ( $m^2$ ), acres, or hectares. Periphyton benthic organisms, and macrophytes are expressed in these terms.

Organisms count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliters (ml) or liters (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.

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

Particle size is the diameter, in millimeters (mm), of suspended sediment or bed material determined either by 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 recommendations 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.....	.004 - .062	Do.
Sand.....	.062 - 2.0	Sedimentation or sieve
Gravel.....	2.0 - 64.0	Sieve

The particle-size distribution given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic material 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 growing upon solid surfaces. While primarily consisting of algae, the assemblage may include bacteria, fungi, protozoa, rotifers, and other small organisms.

Pesticides are chemical compounds used to control undesirable plants and animals. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides. Insecticides and herbicides, which control insects and plants respectively, are the two categories reported.

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/ml of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algal mats of floating "moss" in lakes. Their concentrations are expressed as number of 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.

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.

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).

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight or volume, that passes a section in a given time. It is computed by multiplying discharge times mg/l times 0.0027.

Suspended-sediment load is quantity of suspended sediment passing a section in a specified period.

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 weight or volume, that passes a section during a given time.

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

Sodium adsorption ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions with soil and is an index of sodium or alkali hazard to the soil. This ratio should be known especially for water used for irrigation.

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks 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 micromhos 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 in the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). 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 the 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 lived.

Natural substrates refers to any naturally occurring emersed or submersed solid surface, such as a rock or tree, upon which an organism lived.

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 multi-plate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection.

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 in milligrams per liter by 0.00136.

Tons per day is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour day.

Total (as used in tables of chemical analyses) refers to the amount of substance present both in solution and suspension.

Total load (tons) is the total quantity of any individual constituent, as measured by dry mass or volume, that is dissolved in a specific amount of water (discharge) during a given time. It is computed by multiplying the total discharge, times the mg/l of the constituent, times the factor 0.0027, times the number of days.

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.....	<u>Hexagenia</u>
Species.....	<u>Hexagenia limbata</u>

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.

WRD is used as an abbreviation for "Water Resources Data" in the summary REVISIONS paragraph to refer to previously published State annual basic-data reports published before 1975.

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

#### DOWNSTREAM ORDER AND STATION NUMBER

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 main-stream

station are listed before that station. A station on a tributary that enters between two main-stream 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 on which a station is situated with respect to the stream to which it is immediately tributary is indicated by an indention in a list of stations in the front of the report. Each indention represents one rank. This downstream order and system of indention show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

As an added means of identification, each hydrologic station and partial-record station has been assigned a station number. These are in the same downstream order used in this report. 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 station numbering system is not used at miscellaneous sites where only random water-quality samples or discharge measurements are taken. The complete number for each station consists of eight digits, such as 08123800. The first two digits, 08 or 07, identify the river basin as previously published in the series of water-supply papers on the Surface Water Supply of the United States. The digits 07 indicate the Lower Mississippi River basin, and the digits 08 indicate the Western Gulf of Mexico basins. The remaining six digits of the station number are sequential in downstream order.

All records for a drainage basin that extends across State boundaries can be arranged in downstream order by assembling the pages from the appropriate State reports by station number.

#### SPECIAL NETWORKS AND PROGRAMS

Hydrologic bench-mark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from manmade changes in other basins that have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin.

National stream-quality accounting network (NASQAN) is a data collection designed by the Geological Survey to meet many of the information demands of agencies or groups involved in national or regional water-quality planning and management. Both accounting and broad-scale monitoring objectives have been incorporated into the network design. Areal configuration of the network is based on river-basin accounting in con-



sultation with the Water Resources Council. Primary objectives of the network are (1) to depict areal variability of water-quality conditions nationwide on a year-by-year basis and (2) to detect and assess long-term changes in stream quality.

Pesticide program is a network of regularly sampled water-quality stations where samples are collected to determine the concentration and distribution of pesticides in streams where potential contamination could result from the application of the commonly used insecticides and herbicides. Operation of the network is a Federal interagency activity.

Radiochemical program is a network of regularly sampled gaging stations where additional samples are collected monthly or twice a year (at high and low flow) to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

## EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

### Collection and computation of data

The basic data collected at gaging stations consist of (1) records of stage; (2) measurements of discharge of streams and canals; and (3) stage, surface area, and contents of lakes and reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement basic data in determining the daily flow or volume of water in storage. Records of stage are obtained from direct readings on a non-recording gage or from a water-stage recorder that gives either a continuous graph of the fluctuations or a tape punched at 5-, 15-, 30-, or 60-minute intervals. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey on the basis of experience in stream gaging since 1888. These methods are described in standard textbooks, in Water-Supply Paper 888, and in U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chapter A6. Surface areas of lakes or reservoirs are determined from instrument surveys using standard methods. The configuration of the reservoir bottom is often determined by sounding at many points.

For stream-gaging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. If extensions to the rating curves are necessary to express discharge greater than measured, they are made on the basis of indirect measurements of peak discharge (such as slope-area measurements, contracted-opening measurements, or computation of flow over dams or weirs), velocity-area studies, and logarithmic plotting. The daily mean discharge is computed from gage heights and rating tables; monthly and yearly mean discharges

are computed from the daily values. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is computed by the shifting-control method, in which correction factors (based on individual discharge measurements and notes by the hydrologists or observers) are used in applying the gage heights to the rating tables.

At some stream-gaging stations, the stage-discharge relation is affected by 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.

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

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

At 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 on the basis of recorded range in stage, adjoining good record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Daily contents may be estimated on the basis of operator's log, adjoining good record, inflow-outflow studies, and other information.

The data in this report generally comprise a description of the station and tabulations of daily and monthly values. For gaging stations on streams or canals, a table showing the daily, monthly, and yearly discharge is given. For a gaging station on a reservoir, a table showing the daily contents is given. Tables of daily or maximum and minimum daily gage heights are included for some gaging stations. Records are published for the water year, which begins on October 1 and ends on September 30. A calendar for the current water year is shown on the inside of the front cover to facilitate finding the day of the week for any date.

The description of the gaging stations, except those partial-record stations published in tabular form in the back of the report, gives the location, drainage area, period of record, type and history of gages, average discharge, extremes of discharge or contents, general remarks, and notations of revisions of previously published records. The location of the gaging stations and the drainage areas are obtained from the most accurate maps available. River mileage, given under "LOCATION" for some stations, is that determined and used by the Corps of Engineers or other agencies (U.S. Water Resources Council, 1968). Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD."

The type of gage currently in use, the datum of the present gage above mean sea level, and a condensed history of the types, locations, and datums of gages used previously during the period of record are given under "GAGE." In references to datum of gage, the phrase "mean sea level" denotes "Sea Level Datum of 1929" as used by the Topographic Division of the Geological Survey unless otherwise qualified. The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE;" it is not given for stations having fewer than 5 complete years of record.

For stations where changes in upstream water-resources development occurred during the period of record, "AVERAGE DISCHARGE" is given for both before and after development. The maximum discharge or contents, maximum gage height or elevation, minimum discharge or contents (if there is little or no regulation), and minimum gage height or elevation (if it is significant) are given under "EXTREMES." The minimum daily discharge is given if there is extensive regulation (also the minimum discharge and gage height if they are abnormally low).

Reliable information concerning major floods that occurred outside the period of record is given in the third or last paragraph under "EXTREMES." Unless otherwise qualified, the maximum discharge or contents correspond to the crest stage obtained by use of a water-stage recorder (graphic or digital), crest-stage gage, or nonrecording gage read at the time of the crest. If the maximum gage height did not occur at the same time as the maximum discharge or contents, it is given separately. Information pertaining to the accuracy of the discharge records and to conditions that affect the natural flow at the gaging station is given under "REMARKS;" for a reservoir station information on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir is also given under "REMARKS."

Previously published records for some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISIONS (WATER YEARS)" has been added to the description for all stations for which revised rec-

ords have been published, each followed by the water years for which values are revised in that report. In listing the water years, one number is given; for instance, 1965 stands for the water year October 1, 1964, to September 30, 1965. If no daily, monthly, or annual values of discharge were revised, that fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum discharge was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the revised value was first published is given. It should be noted that for all stations for which runoff in cubic feet per second per square mile and in inches are published, a revision of the drainage area necessitates corresponding revision of all measurements based on the drainage area. Revised values of runoff in cubic feet per second per square mile and in inches, resulting from a revision of the drainage area only, are usually not published in the annual series of reports.

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also may be expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN"), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion, if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches.

In the yearly summary below the monthly summary, the values following "MAX" are the maximum daily discharges for the calendar and water years; those following "MIN" are the minimum daily discharges.

Footnotes to the table of daily discharges are introduced by the word "NOTE." Footnotes are used to indicate periods for which the discharge is computed or estimated by special methods because of the lack of a gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage-discharge relation, or of any other unusual conditions at the gage site are indicated only if they are a month or more in length and the accuracy of the records is affected. Days on which the stage-discharge relation is affected by ice are not indicated. The methods used in computing discharge for various unusual conditions have been explained in preceding paragraphs.



Peak discharges and their times of occurrence and corresponding gage heights for many stations are listed below the yearly summary. All independent peaks above the selected base are given. The base discharge, which is given in parentheses, is selected so that an average of about three peaks a year can be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subjected to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330.

For gaging stations on lakes and reservoirs, the data presented comprise a description of the station, a skeleton table of capacity at given stages, a table of daily contents, and a monthly summary of stage, contents, and known diversions.

Streamflow data collected at partial-record stations and miscellaneous sites where water-quality data are not collected are given in three tables at the end of this volume. The first is a table of low-flow discharge at low-flow partial-record stations; the second is a table of annual maximum stage and (or) discharge at crest-stage and (or) flood-hydrograph partial-record stations; and the third is a table of discharge measurements at miscellaneous sites.

#### Accuracy of field data and computed results

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

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent; "good", within 10 percent; and "fair" within 15 percent. "Poor" means that daily discharge have less than "fair" accuracy.

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

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such station, 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 data available

Information of a more detailed nature than that published for most of the gaging stations, such as observations of water temperatures, discharge measurements, gage-height records, and rating tables, is on file in the Texas District Office in Austin. Most gaging-station records are available in computer-usable form, and many statistical analyses have been made.

#### Records of discharge collected by agencies other than the Geological Survey

The International Boundary and Water Commission, United States and Mexico, operates all streamflow stations on the Rio Grande and near the mouth of its principal tributaries at and below El Paso, Texas. Records collected at these stations are published in annual bulletins by the Commission and may be obtained from the International Boundary and Water Commission, United States Section, P. O. Box 20003, El Paso, Texas 79998.

### EXPLANATION OF SURFACE-WATER QUALITY RECORDS

#### Collection and examination of data

Water samples for analyses are usually collected at or near gaging stations. The discharge records at these stations are used in conjunction with the computations of the loads of chemical constituents and sediment.

Water-quality information is presented for chemical, biological, and microbiological quality; water temperature; and fluvial sediment. Chemical quality includes concentrations of individual dissolved constituents and certain properties or characteristics such as hardness, specific conductance, and pH. The biological information includes qualitative analyses of plankton and particulate inorganic and amorphous matter present. Microbiological information includes quantitative identification of certain bacteriological indicator organisms. Water temperature was measured

at the time of collection of most samples. At some sites, a continuous temperature recorder (thermograph) furnished information from which daily minimums and maximums were obtained; at other sites, once-daily temperatures were obtained. Fluvial-sediment information is given for suspended-sediment discharges and concentrations and for particle-size distribution of suspended sediment and bed material.

### Water analysis

Most methods for collecting and analyzing water samples are described in U.S. Geological Survey Techniques of Water Resources Investigations listed on a following page.

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 determination of for an accurate mean concentration and for use in calculating loads.

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

At stream-gaging stations where daily samples are obtained, tables are included to show monthly and annual means of specific conductance; concentrations of dissolved solids, chloride, sulfate, hardness; and loads of dissolved solids, chloride, and sulfate. The means have been computed by using the daily records of specific conductance and developing regression relationships between each water-quality parameter and specific conductance.

### Water temperature

Water temperatures are measured at most of the water-quality stations. Water temperatures are also taken at time of discharge measurements at gaging stations. At sites at which daily samples are taken, the water temperature is taken about the same time each day. Large streams

have a small diurnal temperature change; but small, 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 continuously recording thermographs are present, the records published consist of maximum and minimum temperatures for each day and the monthly averages.

### Sediment

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

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected twice daily or, in some instances, hourly. The published values of sediment discharges for days of rapidly changing flow or concentrations were computed by the subdivided-day method (time-discharge weighted average). Therefore, for those days in which the published value of sediment discharge 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 loads of suspended sediment were estimated on the basis of water-sediment discharge relations, 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 estimating long-term sediment-discharge characteristics of the stream.

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

### Publications

The annual series of water-supply papers that give information on quality of surface waters in Texas are listed in the following table. Data for the Lower Mississippi River basin are given in Part 7 and for the Western Gulf of Mexico Basin in Part 8.



Table 1.--Water-supply paper numbers and parts containing water-quality data for Texas, water years 1941-71

<u>Year</u>	<u>Parts 1-14</u>	<u>Year</u>	<u>Parts 7-8</u>	<u>Year</u>	<u>Parts 7-8</u>
1941	942	1950	1188	1963	1950
1942	950	1951	1199	1964	1957
1943	970	1952	1252	1965	1964
1944	1022	1953	1292	1966	1994
1945	1030	1954	1352	1967	2014
1946	1050	1955	1402	1968	C2096
1947	1102	1956	1452		D2097
1948	A1133	1957	1522	1969	C2146
1949	A1163	1958	1573		D2147
----	-----	1959	1644	1970	C2156
----	-----	1960	1744		D2157
----	-----	1961	1884	1971	BC2166
----	-----	1962	1944		BD2167

A Parts 7-14. B In Press. C Part 7. D Part 8.

## PUBLICATIONS OF TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

Most methods used by the U.S. Geological Survey have been published in the series on techniques describing procedures for planning and executing 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) is on 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, Branch of Distribution, 604 South Picket Street, Alexandria, VA 22304 (authorized agent of the Superintendent of Documents, Government Printing Office).

NOTE: When ordering 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. \$1.60.
- 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. \$0.25.
- 3-A2. *Measurement of peak discharge by the slope-area methods*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 p. \$0.20.
- 3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968, 60 p. \$0.40.
- 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. \$1.00.
- 3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 p. \$0.30.
- 3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6, 1968. 13 p. \$0.20.
- 3-A7. *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 p. \$0.45.
- 3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 p. \$1.25.
- 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. \$0.40.
- 3-A12. *Fluorometric procedures for dye tracing*, by J. F. Wilson Jr.: USGS--TWRI Book 3, Chapter A12. 1968. 31 p. \$0.35. Not currently available.
- 3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 p. \$0.65.
- 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. \$0.70.

- 3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 p. \$1.15.
- 4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 p. \$0.30.
- 4-A2. *Frequency curves*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 p. \$0.20.
- 4-B1. *Low-flow investigations*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 p. \$0.65.
- 4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 p. \$0.75.
- 4-B3. *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 p. \$0.75.
- 5-A1. *Methods for collection and analysis of water samples for dissolved minerals and gases*, by Eugene Brown, M. W. Skougstad, and M. J. Fishman: USGS--TWRI Book 5, Chapter A1. 1970. 160 p. \$2.40.
- 5-A2. *Determination of minor elements in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 p. \$0.80.
- 5-A3. *Methods for analysis of organic substances in water*, by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 p. \$0.90.
- 5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, by K. V. Slack, R. C. Averett, P. E. Greenson, and R. G. Lipscomb: USGS--TWRI Book 5, Chapter A4. 1973. 165 p. \$1.95.
- 5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 p. \$0.65.
- 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. \$0.40.





## ARKANSAS RIVER BASIN

27

07227000 Canadian River at Logan, N. Mex.

LOCATION.--Lat 35°21'25", long 103°25'03", in NE¼NE¼ sec. 15, T. 13 N., R. 33 E., Quay County, on left bank, 1,100 ft (340 m) upstream from bridge on U.S. Highway 54, 0.7 mile (1.1 km) south of Logan, 1.4 miles (2.3 km) upstream from Chicago, Rock Island, & Pacific Railroad Co. bridge, 2.0 miles (3.2 km) downstream from Ute Dam, 4.3 miles (6.9 km) upstream from Revuelto Creek, and at mile 672.0 (1,081.2 km).

DRAINAGE AREA.--11,141 mi<sup>2</sup> (28,855 km<sup>2</sup>), of which 1,110 mi<sup>2</sup> (2,870 km<sup>2</sup>) is probably noncontributing.

PERIOD OF RECORD.--June 1904 to November 1905 (gage heights and discharge measurements only), December 1908 to September 1909, February, April to July 1910, August 1910 to September 1911 (gage heights and discharge measurements only), October 1911 to May 1914, January to May 1924, September 1924 to July 1925, January 1927 to April 1934, August 1934 to current year. Monthly discharge only for some periods, published in WSP 1311. Records for December 1909, January 1910, and May to July 1934, published in WSP 267, 287, and 762 are unreliable and should not be used. Published as South Canadian River, June to September 1904.

GAUGE.--Water-stage recorder. Datum of gage is 3,668.1 ft (1,118.04 m) above mean sea level. See WSP 1311 or 1731 for history of changes prior to Oct. 1, 1934.

AVERAGE DISCHARGE.--15 years (1908-9, 1911-13, 1926-38) prior to completion of Conchas Dam, 392 ft<sup>3</sup>/s (11.10 m<sup>3</sup>/s), 284,000 acre-ft/yr (350 hm<sup>3</sup>/yr); 24 years (1938-62) prior to completion of Ute Dam, 257 ft<sup>3</sup>/s (7.278 m<sup>3</sup>/s), 186,200 acre-ft/yr (230 hm<sup>3</sup>/yr); 14 years (1962-76) regulated, 32.4 ft<sup>3</sup>/s (0.918 m<sup>3</sup>/s), 23,470 acre-ft/yr (28.9 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 191 ft<sup>3</sup>/s (5.41 m<sup>3</sup>/s) Aug. 10 (gage height, 2.94 ft or 0.896 m); minimum, 0.80 ft<sup>3</sup>/s (0.023 m<sup>3</sup>/s) Dec. 1.

Period of record (1930-75): Maximum discharge, 219,000 ft<sup>3</sup>/s (6,200 m<sup>3</sup>/s) Sept. 22, 1941 (gage height, 29.3 ft or 8.93 m, from floodmarks), from rating curve extended above 75,000 ft<sup>3</sup>/s (2,120 m<sup>3</sup>/s); no flow at times prior to completion of Ute Dam.

Maximum discharge, 278,000 ft<sup>3</sup>/s (7,870 m<sup>3</sup>/s) Sept. 30, 1904 (gage height, about 36.5 ft or 11.13 m, site and datum used in 1909, from rating curve extended above 14,000 ft<sup>3</sup>/s (396 m<sup>3</sup>/s), from Ninth Biennial Report of State Engineer.

REMARKS.--Records fair. Flow is regulated by Conchas Lake 45 miles (72 km) upstream and by Ute Reservoir 2 miles (3 km) upstream.

REVISIONS (WATER YEARS).--WSP 1087: 1935-36. WSP 1117: Drainage area. WSP 1281: 1912, 1932(M), 1934, 1945-47, 1949-50. WSP 1311: 1931(M). See also PERIOD OF RECORD.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	1.8	1.4	2.2	2.9	2.2	2.0	2.4	1.6	2.0	2.2	2.4
2	2.4	1.8	1.4	2.4	2.9	2.2	2.0	2.2	1.6	2.0	4.4	2.4
3	2.4	1.8	1.4	2.4	2.6	2.2	2.0	2.0	1.6	2.0	2.9	2.4
4	2.4	1.8	1.4	2.4	2.6	2.2	2.4	2.0	4.2	2.2	2.4	2.4
5	2.4	1.8	1.4	2.6	2.6	2.0	2.2	2.4	7.0	2.0	2.4	2.4
6	2.4	1.8	1.4	2.4	2.6	2.0	2.0	2.2	1.8	2.0	2.4	2.9
7	2.2	1.8	1.4	2.4	3.0	2.0	2.0	2.2	1.8	2.0	2.4	3.2
8	2.2	1.8	1.4	2.4	3.2	2.0	2.0	2.2	1.8	2.0	2.4	3.2
9	2.2	1.8	1.4	2.4	3.2	2.0	2.0	2.2	1.8	2.0	2.4	2.9
10	2.2	1.8	1.3	2.4	2.9	2.0	2.0	2.0	1.8	2.0	23	2.9
11	2.2	1.8	1.3	2.4	2.9	2.0	1.8	2.0	1.6	2.0	2.4	2.9
12	2.2	1.8	1.3	2.4	2.9	1.6	2.0	1.8	1.4	2.2	2.0	2.9
13	2.2	1.8	1.4	2.4	2.9	1.8	2.0	1.8	1.4	2.2	2.4	2.9
14	2.2	1.8	1.4	2.4	2.9	1.8	2.0	2.0	1.4	10	2.2	13
15	2.2	1.8	1.4	2.4	2.9	1.8	2.2	2.0	1.4	2.2	2.0	2.9
16	2.2	1.8	1.4	2.4	2.9	1.8	2.2	1.8	1.6	2.2	1.8	2.9
17	2.2	1.8	1.4	2.4	2.9	1.8	2.0	1.8	1.8	1.8	1.8	2.9
18	2.6	2.0	1.6	2.4	2.9	1.8	2.0	1.6	1.6	1.8	2.0	2.6
19	2.6	2.4	1.6	2.4	3.2	2.2	2.2	1.6	2.2	1.8	2.4	2.6
20	2.6	1.8	1.6	2.4	2.9	1.8	2.2	1.8	1.8	3.6	2.6	2.6
21	1.8	1.8	1.8	2.6	2.8	1.8	2.2	2.4	1.8	3.1	2.4	2.6
22	1.8	2.0	1.8	2.6	2.7	1.8	2.2	1.8	1.8	2.0	2.4	2.6
23	1.8	1.6	1.8	2.6	2.4	1.8	2.2	1.6	1.8	2.2	2.4	2.6
24	1.8	1.6	2.0	2.6	2.4	1.8	2.2	1.6	1.8	2.4	2.4	2.6
25	1.8	1.6	2.0	2.6	2.4	1.8	2.2	1.8	1.8	2.2	2.2	2.6
26	1.8	1.6	2.0	2.6	2.4	1.8	2.2	2.2	1.8	2.0	2.2	2.6
27	1.8	1.6	2.0	2.6	2.2	1.8	2.2	1.8	1.8	2.2	2.2	2.9
28	1.8	1.6	2.0	2.6	2.2	1.8	2.2	1.6	1.8	2.6	2.2	2.6
29	1.8	1.8	2.0	2.6	2.2	2.0	2.9	1.6	1.8	2.4	2.2	2.5
30	1.8	1.8	2.0	2.6	---	2.0	3.2	1.6	2.2	2.2	2.4	2.5
31	1.8	---	2.0	2.9	---	2.0	---	2.0	---	2.2	2.4	---
TOTAL	64.2	54.3	49.7	76.8	79.7	59.4	64.9	60.2	59.0	75.5	93.9	91.4
MEAN	2.07	1.81	1.60	2.48	2.75	1.92	2.16	1.94	1.97	2.44	3.03	3.05
MAX	2.4	2.4	2.0	2.9	3.2	2.2	3.2	2.4	7.0	10	23	13
MIN	1.8	1.6	1.3	2.2	2.2	1.6	1.8	1.6	1.4	1.8	1.8	2.4
AC-FT	127	106	99	152	158	118	129	119	117	150	186	181
CAL YR 1975	TOTAL	782.6	MEAN	2.14	MAX	17	MIN	1.3	AC-FT	1550		
WTR YR 1976	TOTAL	829.0	MEAN	2.27	MAX	23	MIN	1.3	AC-FT	1640		



## ARKANSAS RIVER BASIN

29

07227100 Revuelto Creek near Logan, N. Mex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS) (00061)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS) (00095)	PH (UNITS) (00400)	AIR TEMPER- ATURE (DEG C) (00020)	TEMPER- ATURE (DEG C) (00010)	HARD- NESS (CA+MG) (MG/L) (00900)	NON- CAR- BONATE HARD- NESS (MG/L) (00902)
NOV 12...	1300	.5	4460	8.2	--	13.5	330	0
DEC 09...	0710	1.0	3860	8.3	1.5	2.0	270	0
JAN 14...	1215	.01	3120	8.0	8.0	4.0	380	110
FEB 09...	1710	.30	4460	8.0	22.0	11.0	310	45
APR 21...	1400	.01	6520	8.1	--	26.5	330	0
JUN 09...	1530	8.9	653	8.4	--	29.0	35	0
JUL 14...	1130	--	482	9.0	--	24.0	15	0
SEP 29...	1530	34	523	8.0	--	23.0	43	0

DATE	DIS- SOLVED CAL- CIUM (CA) (MG/L) (00915)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L) (00925)	DIS- SOLVED SODIUM (NA) (MG/L) (00930)	SODIUM AD- SORP- TION RATIO (00931)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L) (00935)	BICAR- BONATE (HCO3) (MG/L) (00440)	CAR- BONATE (CO3) (MG/L) (00445)	DIS- SOLVED SULFATE (SO4) (MG/L) (00945)	DIS- SOLVED CHLO- RIDE (CL) (MG/L) (00940)
NOV 12...	64	41	830	20	5.6	413	0	400	990
DEC 09...	54	32	720	19	4.5	366	0	340	830
JAN 14...	76	47	520	12	4.5	335	0	550	500
FEB 09...	51	44	780	19	4.6	321	0	410	990
APR 21...	45	53	1300	31	7.8	433	0	400	1700
JUN 09...	9.4	2.8	140	10	1.9	211	4	130	23
JUL 14...	4.3	1.0	99	11	1.9	124	0	95	20
SEP 29...	12	3.2	99	6.6	2.4	173	0	95	24

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L) (00940)	DIS- SOLVED SILICA (SI02) (MG/L) (00955)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L) (70300)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L) (70301)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L) (00631)	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L) (00671)	DIS- SOLVED BORON (B) (UG/L) (01020)	DIS- SOLVED IRON (FE) (UG/L) (01046)
NOV 12...	1.0	8.4	2500	2540	.14	.01	570	0
DEC 09...	.8	8.2	--	2210	.02	--	--	--
JAN 14...	.8	7.2	--	1870	.18	--	--	--
FEB 09...	.9	6.3	--	2450	.04	--	--	--
APR 21...	1.2	6.7	--	3730	.02	--	--	--
JUN 09...	.6	10	419	432	1.2	.11	290	70
JUL 14...	.4	6.4	--	293	.94	--	--	--
SEP 29...	.5	7.9	--	336	1.5	--	--	--

DATE	TIME	TEMPER- ATURE (DEG C) (00010)	INSTAN- TANEOUS DIS- CHARGE (CFS) (00061)	SUS- PENDE SEDIM- ENT DIS- CHARGE (MG/L) (80154)	SUS- PENDE SEDIM- ENT DIS- CHARGE (T/DAY) (80155)
JAN 14...	1215	4.0	.01	81	.00
FEB 09...	1710	11.0	.30	58	.05
APR 21...	1400	26.5	.01	22	.00
JUN 09...	1530	29.0	8.9	318	7.6
SEP 29...	1530	23.0	34	1950	179

## ARKANSAS RIVER BASIN

07227140 Canadian River above New Mexico-Texas State line, N. Mex.  
(National stream-quality accounting network station)

LOCATION.--Lat 35°23'35", long 103°02'30", in SW¼ sec. 32, T.14 N., R.37 E., Quay County, 0.1 mile (0.2 km) upstream from New Mexico-Texas State line, 5.5 miles (8.8 km) downstream from Rana Canyon, and 14.7 miles (23.7 km) north of Glenrio.

DRAINAGE AREA.--12,616 mi<sup>2</sup> (32,675 km<sup>2</sup>).

PERIOD OF RECORD.--1969-73, 1975 to current year.

REMARKS.--Discharge measurements were made at the time water-quality samples were collected.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976.

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	AIR TEMPERATURE (DEG C) (00020)	TEMPERATURE (DEG C) (00010)	TURBIDITY (JTU) (00070)	DISSOLVED OXYGEN (MG/L) (00300)	CHEMICAL OXYGEN DEMAND (HIGH LEVEL) (MG/L) (00340)	HARDNESS (CA+MG) (MG/L) (00900)
OCT 21...	0930	5.2	7500	8.1	21.0	13.0	4	--	56	570
NOV 12...	0915	5.5	8200	8.4	6.5	3.5	4	12.0	58	600
DEC 09...	0930	8.5	8500	8.4	9.0	3.0	10	12.0	48	660
JAN 14...	0920	7.2	8400	8.4	.5	.0	15	12.2	60	760
FEB 09...	1335	12	7600	8.6	25.5	14.0	25	8.5	65	620
MAR 24...	1500	5.1	6400	8.0	26.0	23.5	5	8.4	88	610
APR 21...	1130	4.9	12000	8.0	22.5	23.0	24	9.9	27	710
MAY 13...	1000	3.0	8040	7.9	19.0	15.5	17	9.3	58	600
JUN 09...	1000	94	1240	8.3	27.5	21.5	12000	8.1	27	50
SEP 29...	1030	112	1150	8.1	19.5	13.5	200	9.1	180	51

DATE	NON-CARBONATE HARDNESS (MG/L) (00902)	DISSOLVED CALCIUM (CA) (MG/L) (00915)	DISSOLVED MAGNESIUM (MG) (MG/L) (00925)	DISSOLVED SODIUM (NA) (MG/L) (00930)	SODIUM ADSORPTION RATIO (00931)	DISSOLVED PHOSPHATE (K) (MG/L) (00935)	BICARBONATE (HCO3) (MG/L) (00440)	CARBONATE (CO3) (MG/L) (00445)	DISSOLVED SULFATE (SO4) (MG/L) (00945)
OCT 21...	350	110	72	1500	27	9.2	274	0	410
NOV 12...	360	120	73	1700	30	9.4	288	0	450
DEC 09...	410	140	76	1700	29	9.9	314	0	390
JAN 14...	470	160	87	2000	32	9.6	350	0	570
FEB 09...	400	130	72	1600	28	9.8	275	0	430
MAR 24...	400	110	81	1700	30	11	256	0	440
APR 21...	480	130	93	1900	31	11	280	0	520
MAY 13...	360	110	79	1600	28	18	289	0	440
JUN 09...	0	12	4.9	240	15	2.8	198	0	140
SEP 29...	0	13	4.5	220	13	2.8	178	0	76



07227140 Canadian River above New Mexico-Texas State line, N. Mex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED CHLO- RIDE (CL) (MG/L) (00940)	DIS- SOLVED FLUO- RIDE (F) (MG/L) (00950)	DIS- SOLVED SILICA (SIO2) (MG/L) (00955)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L) (70300)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L) (70301)	TOTAL NITRITE PLUS NITRATE (N) (MG/L) (00630)	DIS- SOLVED NITRITE PLUS NITRATE (N) (MG/L) (00631)	TOTAL AMMONIA NITRO- GEN (N) (MG/L) (00610)	TOTAL ORGANIC NITRO- GEN (N) (MG/L) (00605)
OCT 21...	2200	.5	8.8	4420	4450	.03	.03	.01	.29
NOV 12...	2500	.5	7.8	4910	5000	.06	.06	.00	.21
DEC 09...	2500	.5	9.8	5190	4980	.39	.37	.02	.20
JAN 14...	3000	.5	9.7	6290	6010	.31	.30	.02	.36
FEB 09...	2500	.6	8.2	4940	4890	.32	.31	.03	.22
MAR 24...	2600	.6	5.3	5250	5070	.00	.02	.01	.21
APR 21...	3100	.6	4.8	5920	5900	.01	.00	.00	.22
MAY 13...	2500	.7	6.5	4760	4900	.03	.03	.02	.78
JUN 09...	210	.6	7.6	696	720	.86	.81	.04	5.9
SEP 29...	240	.5	6.3	632	655	1.0	.93	.14	.83

DATE	TOTAL NITRO- GEN (N) (MG/L) (00600)	TOTAL PHOS- PHORUS (P) (MG/L) (00665)	DIS- SOLVED ORTHO- PHOS- PHORUS (P) (MG/L) (00671)	DIS- SOLVED BORON (B) (UG/L) (01020)	DIS- SOLVED IRON (FE) (UG/L) (01046)	DIS- SOLVED MAN- GANESE (MN) (UG/L) (01056)	TOTAL ORGANIC CARBON (C) (MG/L) (00680)	DIS- SOLVED ORGANIC CARBON (C) (MG/L) (00681)	SUS- PENDED ORGANIC CARBON (C) (MG/L) (00689)
OCT 21...	.33	.01	.01	370	10	40	--	3.7	--
NOV 12...	.27	.01	.01	360	10	90	--	3.2	.3
DEC 09...	.61	.01	.01	340	0	--	--	3.8	.1
JAN 14...	.69	.01	.01	400	0	--	--	1.4	.3
FEB 09...	.57	.01	.00	320	0	110	2.3	1.8	.6
MAR 24...	.22	.00	.00	340	0	--	--	4.0	.8
APR 21...	.23	.04	.00	380	160	--	--	2.9	1.7
MAY 13...	.83	.05	.00	300	30	140	--	4.4	--
JUN 09...	6.8	11	.03	250	80	--	--	--	--
SEP 29...	2.0	.43	.00	170	20	0	--	2.9	3.0

DATE	TIME	TOTAL ARSENIC (AS) (UG/L) (01002)	DIS- SOLVED ARSENIC (AS) (UG/L) (01000)	DIS- SOLVED BORON (R) (UG/L) (01020)	TOTAL CAD- MIUM (CD) (UG/L) (01027)	DIS- SOLVED CAD- MIUM (CD) (UG/L) (01025)	TOTAL CHRO- MIUM (CR) (UG/L) (01034)	DIS- SOLVED CHRO- MIUM (CR) (UG/L) (01030)	TOTAL COBALT (CO) (UG/L) (01037)	DIS- SOLVED COBALT (CO) (UG/L) (01035)	TOTAL COPPER (CU) (UG/L) (01042)	DIS- SOLVED COPPER (CU) (UG/L) (01040)
OCT 21...	0930	2	2	370	20	0	30	0	<50	0	0	0
NOV 12...	0915	1	1	360	20	0	20	0	250	0	10	0
FEB 09...	1335	2	2	320	<10	0	0	0	<50	1	10	0
MAY 13...	1000	2	1	300	0	0	10	0	0	0	1	0
SEP 29...	1030	19	5	170	10	2	200	0	400	0	190	10

DATE	TOTAL IRON (FE) (UG/L) (01045)	DIS- SOLVED IRON (FE) (UG/L) (01046)	TOTAL LEAD (PR) (UG/L) (01051)	DIS- SOLVED LEAD (PR) (UG/L) (01049)	TOTAL MAN- GANESE (MN) (UG/L) (01055)	DIS- SOLVED MAN- GANESE (MN) (UG/L) (01056)	TOTAL MERCURY (HG) (UG/L) (71900)	DIS- SOLVED MERCURY (HG) (UG/L) (71890)	TOTAL SELE- NIUM (SE) (UG/L) (01147)	DIS- SOLVED SELE- NIUM (SE) (UG/L) (01145)	TOTAL ZINC (ZN) (UG/L) (01092)	DIS- SOLVED ZINC (ZN) (UG/L) (01090)
OCT 21...	130	10	100	0	60	40	.0	.0	1	0	5	5
NOV 12...	200	10	<100	0	130	90	.0	.0	2	2	10	0
FEB 09...	480	0	<100	1	150	110	.0	.0	1	1	10	0
MAY 13...	440	30	10	10	190	140	.7	.6	0	0	20	20
SEP 29...	130000	20	400	5	6400	0	.1	.0	1	1	--	10

## ARKANSAS RIVER BASIN

07227140 Canadian River above New Mexico-Texas State line, N. Mex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	FECAL COLI-FORM (COL. PER 100 ML) (31616)		STREP-TOCOCCI (COL-ONIES PER 100 ML) (31679)			
OCT 21...	0930	51		150			
NOV 12...	0915	4		52			
DEC 09...	0930	7		5			
JAN 14...	0920	7		820			
FEB 09...	1335	0		3			
MAR 24...	1500	0		60			
APR 21...	1130	0		10			
MAY 13...	1000	0		28			
JUN 09...	1000	10000		7400			
SEP 29...	1030	14000		880			

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	INSTAN-TANEOUS DIS-CHARGE (CFS) (00061)	SUS-PENDED SEDI-MENT (MG/L) (80154)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY) (80155)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM (70331)	
OCT 21...	0930	13.0	5.2	16	.22	50	
NOV 12...	0915	3.5	5.5	17	.25	48	
DEC 09...	0930	3.0	8.5	32	.73	29	
JAN 14...	0920	.0	7.2	24	.47	54	
FEB 09...	1335	14.0	12	65	2.1	54	
MAR 24...	1500	23.5	5.1	12	.17	94	
APR 21...	1130	23.0	4.9	40	.53	94	
MAY 13...	1000	15.5	3.0	39	.32	67	
JUN 09...	1000	21.5	94	17800	4520	98	
SEP 29...	1030	13.5	112	16300	4930	98	

DATE	LENGTH OF EXPO-SURE (DAYS) (00022)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	UNCOR-RECTED PERI-PHYTON CHLORO-PHYLL A MG/SQ M (32228)	UNCOR-RECTED PERI-PHYTON CHLORO-PHYLL B MG/SQ M (32226)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70950)	Sampling method
DEC 09...	27	6.30	5.00	.300	.000	3800	Polyethylene strip
JAN 14...	36	11.0	10.0	.300	.000	1200	"
FEB 09...	26	.000	.000	.000	.000	0	"
MAY 13...	23	29.1	26.7	.378	.000	6300	"

## ARKANSAS RIVER BASIN

33

07227140 Canadian River above New Mexico-Texas State line, N. Mex.--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

## PHYTOPLANKTON

OCT. 21, 1975  
0930 HOURS

1,600 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
CHLOROPHYTA	GREEN ALGAE		
..CHLOROPHYCEAE			
..CHLOROCOCCALES			
..NOCTACEAE			
..ANKISTRODESMUS			
TOTALS		78	5
CHRYSTOPHYTA			
..BACILLARIOPHYCEAE	DIATOMS		
..CENTRALES	CENTRIC		
..COSCINOIDISCEAE			
..CYCLOTELLA		580	37
..PENNIALES	PENNATE		
..ACHNANTHACEAE			
..ACHNANTHES		39	2
..CYMBELLACEAE			
..AMPHORA			0
..NAVICULACEAE	NAVICULOID		
..NAVICULA		120	7
..NITZSCHIA		470	30
..NITZSCHIA			
..SURIPELLACEAE			
..SURIPELLA			
TOTALS		270	17
		1,500	93

NOV. 12, 1975  
0915 HOURS

1,800 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
CHLOROPHYTA	GREEN ALGAE		
..CHLOROPHYCEAE			
..CHLOROCOCCALES			
..NOCTACEAE			0
..ANKISTRODESMUS			
..SCENEDSMACEAE			
..SCENEDSMUS			
TOTALS		27	2
CHRYSTOPHYTA			
..BACILLARIOPHYCEAE	DIATOMS		
..CENTRALES	CENTRIC		
..COSCINOIDISCEAE			
..CYCLOTELLA		54	3
..MELOSTHA		95	5
..PENNIALES	PENNATE		
..FUNOTIACEAE			
..FUNOTIA		14	1
..FRAGILARIACEAE			
..SYNEDRA		14	1
..NAVICULACEAE	NAVICULOID		
..AMPHIPRORA		41	2
..NAVICULA		200	11
..NITZSCHIA			
..NITZSCHIA		410	23
..SURIPELLACEAE			
..SURIPELLA			
TOTALS		54	3
		880	49
CYANOPHYTA	BLUE-GREEN ALGAE		
..MYXOPHYCEAE			
..CHRONOCOCCALES	COCCOID		
..CHRONOCOCCACEAE			
..AGMENELLUM		430	24
..ANACYSTIS		120	7
..OSCILLATORIALFS	FILAMENTOUS		
..OSCILLATORIA			
..OSCILLATORIA			
TOTALS		340	19
		890	50

DEC. 9, 1975  
0930 HOURS

230 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
CHRYSTOPHYTA			
..BACILLARIOPHYCEAE	DIATOMS		
..CENTRALES	CENTRIC		
..COSCINOIDISCEAE			
..CYCLOTELLA		11	5
..PENNIALES	PENNATE		
..FRAGILARIACEAE			
..SYNEDRA		22	10
..NAVICULACEAE	NAVICULOID		
..NAVICULA		78	33
..NITZSCHIA			
..NITZSCHIA			
TOTALS		120	52
		230	100

## ARKANSAS RIVER BASIN

07227140 Canadian River above New Mexico-Texas State line, N. Mex.--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

## PHYTOPLANKTON

JAN. 14, 1976  
0920 HOURS

150 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
CHLOROPHYTA	GREEN ALGAE		
..CHLOROPHYCEAE			
..VOLVOCALES			
...CHLAMYDOMONADACEAE			
...CHLAMYDOMONAS			
TOTALS		8	5
CHRYSOPHYTA			
..BACILLARIOPHYCEAE	DIATOMS		
..PENNIALES	PENNATE		
...CYMBELLACEAE			
...AMPHORA			0
...DIATOMACEAE			
...DIATOMA		8	5
...NAVICULACEAE	NAVICULOID		
...CALONEIS			0
...NAVICULA		80	53
...NITZSCHIA			
TOTALS		56	37
		140	95

FEB. 9, 1976  
1335 HOURS

1,900 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
CHRYSOPHYTA			
..BACILLARIOPHYCEAE	DIATOMS		
..PENNIALES	PENNATE		
...NAVICULACEAE	NAVICULOID		
...AMPHIPROA		620	33
...GYROSIGMA			0
...NAVICULA		350	19
...PINNULARIA		88	5
...NITZSCHIA			
TOTALS		710	38
		1,800	95
CYANOPHYTA	BLUE-GREEN ALGAE		
..MYXOPHYCEAE			
..CHROOCOCCALES	COCCOID		
...CHROOCOCCACEAF			
...AGHENELLUM			0
...OSCILLATORIALES	FILAMENTOUS		
...OSCILLATORIA			
TOTALS		88	5

APR. 21, 1976  
1130 HOURS

2,600 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
CHLOROPHYTA	GREEN ALGAE		
..CHLOROPHYCEAE			
..VOLVOCALES			
...CHLAMYDOMONADACEAE			
...CHLAMYDOMONAS			0
CHRYSOPHYTA			
..BACILLARIOPHYCEAE	DIATOMS		
..PENNIALES	PENNATE		
...NAVICULACEAE	NAVICULOID		
...AMPHIPROA		180	7
...CALONEIS			0
...GYROSIGMA			0
...MASTOGLAIA			0
...NAVICULA		620	24
...NITZSCHIA			
...NITZSCHIA			0
...NITZSCHIA		1,700	67
...SURIRELLACEAE			
...SURIRELLA			
TOTALS		44	2
		2,600	100
CYANOPHYTA	BLUE-GREEN ALGAE		
..MYXOPHYCEAE			
...OSCILLATORIALES	FILAMENTOUS		
...OSCILLATORIA			0



## ARKANSAS RIVER BASIN

35

07227140 Canadian River above New Mexico-Texas State line, N. Mex.--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

## PHYTOPLANKTON

MAY 13, 1976  
1000 HOURS

1,000 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
CHLOROPHYTA	GREEN ALGAE		
..CHLOROPHYCEAE			
...CHLONOCOCCALES			
...SCENEDESMACEAE			
....SCENEDESMUS			
TOTALS		120 120	12 12
CHRYSTOPHYTA	DIATOMS		
..BACILLARIOPHYCEAE	PFNNATE		
..PENNALES			
...FRAGILARIACEAE			
...SYNEDRA		30	3
...NAVICULACEAE	NAVICULOID		
...CALONEIS		30	3
...NAVICULA		330	32
TOTALS		400	38
CYANOPHYTA	BLUE-GREEN ALGAE		
..MYXOPHYCEAE	FILAMENTOUS		
..OSCILLATORIALES			
...OSCILLATORIA		520	50
TOTALS		520	50

JUNE 9, 1976  
1000 HOURS

1,900 CELLS/ML

ORGANISM NAME	COMMON NAME	CELLS/ML	PER CENT
CHRYSTOPHYTA	DIATOMS		
..BACILLARIOPHYCEAE	PFNNATE		
..PENNALES			
...ACHNANTHACEAE		760	40
...COCCONFIS			
...DIATOMACEAE		380	20
...NAVICULACEAE	NAVICULOID		
...CALONEIS		380	20
...NITZSCHIA		380	20
TOTALS		1,900	100

SEP. 29, 1976  
1030 HOURS

- - - NO ORGANISMS REPORTED - - -

## 07227470 Canadian River at Tascosa, Tex.

LOCATION (revised).--Lat 35°31'08", long 102°15'35", Oldham County, on right bank at downstream side of bridge on U.S. Highway 385, 0.8 mile (1.3 km) northwest of Tascosa, and 1.0 mile (1.6 km) southwest of Boys Ranch.

DRAINAGE AREA.--18,536 mi<sup>2</sup> (48,008 km<sup>2</sup>), of which approximately 3,823 mi<sup>2</sup> (9,902 km<sup>2</sup>) is noncontributing.

PERIOD OF RECORD.--Discharge: October 1968 to current year.

Water quality: Chemical and biochemical analyses: October 1968 to current year. Water temperatures: October 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,169.25 ft (965.987 m) above mean sea level.

AVERAGE DISCHARGE.--8 years, 175 ft<sup>3</sup>/s (4.956 m<sup>3</sup>/s), 126,800 acre-ft/yr (156 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 18,000 ft<sup>3</sup>/s (510 m<sup>3</sup>/s) Sept. 14 (gage height, 7.49 ft or 2.283 m), from rating curve extended as explained below; no flow at times.

Period of record: Maximum discharge, 27,500 ft<sup>3</sup>/s (779 m<sup>3</sup>/s) July 27, 1971 (gage height, 8.50 ft or 2.591 m), from rating curve extended above 12,000 ft<sup>3</sup>/s (340 m<sup>3</sup>/s); no flow at times each year.

Historic: Maximum stage probably occurred October 1904; other major floods occurred in May 1914, October 1937, and July 1941, from information by local residents.

Water quality: Current year: Maximum daily specific conductance, 5,800 micromhos Mar. 4; minimum daily, 472 micromhos Aug. 3.

Minimum water temperatures, freezing point on several days during January and February.

Period of record: Maximum daily specific conductance, 6,520 micromhos Mar. 3, 1971; minimum daily, 252 micromhos July 21, 1972.

Maximum water temperatures, 35.0°C Aug. 5, 1969, June 22, 1972; minimum, freezing point on many days during winter months.

REMARKS.--Discharge records poor. Some regulation by Ute Reservoir in New Mexico (capacity, 109,600 acre-ft or 135 hm<sup>3</sup>). Conchas and Bell Ranch Canals divert from Conchas Lake for irrigation of about 36,000 acres (15,000 hm<sup>2</sup>) in New Mexico.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			0	3.9	7.2	1.3	0	.77	45	0	.07	0
2			0	3.0	6.6	.77	0	.25	15	0	.02	0
3			0	2.0	5.6	.60	0	.07	8.0	0	1420	0
4			0	2.0	4.6	2.0	0	.04	72	0	897	0
5			0	2.5	3.0	.71	0	.23	207	0	320	0
6			0	2.5	3.0	1.3	0	1.1	338	0	53	0
7			0	2.0	2.0	4.2	0	.37	207	0	9.8	0
8			0	1.0	4.0	16	0	.15	454	0	1.7	0
9			0	3.0	8.8	16	0	.10	555	0	.65	0
10			0	4.5	7.7	6.8	0	.07	214	0	.15	0
11			0	3.9	7.2	3.7	0	.04	96	0	.07	0
12			0	14	6.6	.84	0	.03	26	0	.02	0
13			0	11	4.5	.84	0	.02	19	0	0	0
14			0	9.4	4.2	1.1	0	.02	8.4	0	0	4260
15			0	13	3.9	1.2	.60	.01	5.0	0	0	1710
16			0	11	3.2	.92	17	0	5.7	0	0	4710
17			0	9.8	2.5	1.2	25	0	1.7	0	0	1970
18			0	9.8	2.6	1.0	9.4	0	.71	270	0	729
19			0	8.0	2.6	.65	2.6	0	.45	158	0	214
20			.27	7.6	2.0	.20	40	0	.30	47	0	126
21			.33	7.6	1.0	.27	9.4	569	.10	17	0	86
22			.41	6.6	1.3	.30	3.2	174	.05	1840	0	74
23			.65	8.2	1.7	.25	1.3	13	.03	826	0	47
24			1.2	7.7	1.3	0	.41	4.5	.02	130	.37	40
25			1.2	7.2	1.3	0	.33	2150	.01	72	.04	36
26			1.4	5.0	1.6	0	.10	152	0	35	.08	190
27			2.1	5.0	2.0	0	.08	80	0	49	.02	3120
28			2.6	6.0	2.8	0	.09	31	0	130	.01	1210
29			3.2	8.8	2.5	0	.33	13	0	36	0	1210
30			3.2	8.2	---	0	.92	29	0	6.8	0	233
31		---	4.2	7.7	---	0	---	130	---	2.5	0	---
TOTAL	0	0	20.76	201.9	107.5	62.65	110.76	3348.77	2278.47	3619.3	2703.00	19965
MEAN	0	0	.67	6.51	3.71	2.02	3.69	108	75.9	117	87.2	666
MAX	0	0	4.2	14	8.8	16	40	2150	555	1840	1420	4710
MIN	0	0	0	1.0	1.0	0	0	0	0	0	0	0
AC-FT	0	0	41	400	213	124	220	6640	4520	7180	5360	39600
CAL YR 1975 TOTAL	16609.21			MEAN 45.5	MAX 3090	MIN 0	AC-FT 32940					
WTR YR 1976 TOTAL	32418.11			MEAN 88.6	MAX 4710	MIN 0	AC-FT 64300					

PEAK DISCHARGE (BASE, 10,000 FT<sup>3</sup>/S)

DATE	TIME	G.HT.	DISCHARGE
5-25	0900	6.97	11,200
9-14	2030	7.49	18,000
9-16	1930	7.18	14,400

## ARKANSAS RIVER BASIN

37

07227470 Canadian River at Tascosa, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	RIO-CHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	HARDNESS (CA+MG) (MG/L)
FEB 18...	1615	3.3	4120	8.2	9.5	9.9	88	.6	490
MAR 01...	0800	3.3	3510	8.2	10.0	--	--	--	380
APR 21...	1515	4.5	3630	8.5	26.0	8.4	104	1.8	410
MAY 25...	1420	1160	727	7.7	14.0	--	--	--	150
JUN 01...	2115	20	1940	8.3	24.0	--	--	--	240
JUL 26...	1455	28	1120	7.9	--	--	--	--	90
AUG 03...	1700	826	602	8.4	28.0	6.6	85	6.4	37
SEP 28...	1210	763	673	7.9	14.0	--	--	--	130

DATE	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG)	DISSOLVED SODIUM (NA) (MG/L)	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
FEB 18...	260	97	60	740	15	6.5	280	0	490
MAR 01...	180	65	52	630	14	6.8	244	0	430
APR 21...	180	80	51	650	14	6.5	264	8	460
MAY 25...	0	37	13	100	3.6	4.2	214	0	63
JUN 01...	47	56	34	310	8.1	7.5	284	0	240
JUL 26...	0	23	7.9	210	9.6	3.6	217	0	110
AUG 03...	0	9.2	3.3	110	7.9	2.6	110	4	54
SEP 28...	9	35	11	84	3.2	3.7	151	0	53

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SiO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)
FEB 18...	1000	.6	8.6	2540	.01	.00	.00	.17	.01
MAR 01...	830	.6	8.4	2140	--	--	--	--	--
APR 21...	860	.7	8.9	2260	.12	.01	.04	.51	.09
MAY 25...	85	.9	14	423	--	--	--	--	--
JUN 01...	340	1.3	14	1140	--	--	--	--	--
JUL 26...	140	.6	12	654	--	--	--	--	--
AUG 03...	87	.5	7.2	332	.24	.02	.01	5.3	1.8
SEP 28...	99	.5	4.5	369	--	--	--	--	--

## ARKANSAS RIVER BASIN

07227470 Canadian River at Tascosa, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

		DIS-SOLVED ALUMINUM (AL) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED CADMIUM (CD) (UG/L)	DIS-SOLVED CHROMIUM (CR) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)						
DATE	TIME													
FEB. 18...	1615	10	2	400	0	0	1	0						
AUG. 03...	1700	90	7	--	0	0	0	5						
		DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED LITHIUM (LI) (UG/L)	DIS-SOLVED MANGANESE (MN) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED STRONTIUM (SR) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)					
DATE	TIME													
FEB. 18...	0	0	150	20	.0	0	2500	0						
AUG. 03...	50	0	20	0	.0	0	230	10						
DATE	TIME	TOTAL PCB (UG/L)	PCB IN BOTTOM MATERIAL (UG/KG)	POLY-CHLORINATED NAPHTHALENES (UG/L)	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL CHLORDANE (UG/L)	CHLORDANE IN BOTTOM MATERIAL (UG/KG)	TOTAL DDD (UG/L)	DDD IN BOTTOM MATERIAL (UG/KG)	TOTAL DDE (UG/L)	DDE IN BOTTOM MATERIAL (UG/KG)		
FEB. 18...	1615	.0	0	.00	.00	.0	.0	0	.00	.0	.00	.0		
AUG. 03...	1700	.0	0	.00	.00	.0	.0	0	.00	.0	.00	.0		
DATE	TIME	TOTAL DDT (UG/L)	DDT IN BOTTOM MATERIAL (UG/KG)	TOTAL DIAZINON (UG/L)	TOTAL DIELDRIN (UG/L)	DIELDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL ENDRIN (UG/L)	ENDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL ETHION (UG/L)	ETHION IN BOTTOM MATERIAL (UG/KG)	TOTAL HEPTACHLOR (UG/L)	HEPTACHLOR IN BOTTOM MATERIAL (UG/KG)	TOTAL HEPTACHLOR EPOXIDE (UG/L)	HEPTACHLOR EPOXIDE IN BOTTOM MATERIAL (UG/KG)
FEB. 18...	.00	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00	.0	.00	.0
AUG. 03...	.00	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00	.0	.00	.0
DATE	TIME	TOTAL LINDANE (UG/L)	LINDANE IN BOTTOM MATERIAL (UG/KG)	TOTAL MALATHION (UG/L)	TOTAL METHYL PARATHION (UG/L)	TOTAL METHYL TRIETHION (UG/L)	TOTAL PARATHION (UG/L)	TOTAL TOXAPHENE (UG/L)	TOXAPHENE IN BOTTOM MATERIAL (UG/KG)	TOTAL TRIETHION (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)	
FEB. 18...	.00	.0	.00	.00	.00	.00	.00	0	0	.00	.00	.00	.00	
AUG. 03...	.00	.0	.00	.00	.00	.00	.00	0	0	.00	.02	.89	.00	



## ARKANSAS RIVER BASIN

39

07227470 Canadian River at Tascosa, Tex.--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	0	*****	*****	0	*****	0	*****	0	****
NOV. 1975.....	0	*****	*****	0	*****	0	*****	0	****
DEC. 1975.....	20.76	4060	2530	142	830	46	470	26	380
JAN. 1976.....	201.9	3890	2420	1320	790	429	450	245	370
FEB. 1976.....	104	3920	2440	691	790	225	450	128	370
MAR. 1976.....	62.65	3780	2350	397	760	129	440	73	360
APR. 1976.....	110.76	2390	1460	436	450	136	280	84	240
MAY 1976.....	3348.77	852	490	4450	120	1080	89	805	110
JUNE 1976.....	2278.47	2030	1220	7500	380	2310	240	1480	210
JULY 1976.....	3619.3	1740	1040	10100	310	3050	210	2040	190
AUG. 1976.....	2702	665	390	2840	90	658	75	549	130
SEPT 1976.....	19965	652	370	20100	87	4700	64	3450	130
TOTAL .....	32415.59	**	**	48000	**	12800	**	8880	**
WTD.AVG. ....	88.81	937	550	**	150	**	100	**	120

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			---	2840	3670	3520	---	2690	1500	---	2360	---
2			---	4290	3540	3490	---	2710	2180	---	2550	---
3			---	4350	3750	3180	---	2920	2660	---	472	---
4			---	4410	3960	5800	---	2910	1500	---	865	---
5			---	4280	4000	3100	---	3030	1210	---	893	---
6			---	4170	4010	3550	---	2450	1810	---	942	---
7			---	4200	3850	3950	---	3010	2170	---	1100	---
8			---	4150	3540	3560	---	3120	2120	---	1300	---
9			---	3550	3510	3670	---	3220	2400	---	1570	---
10			---	3110	3680	3560	---	3340	2140	---	1840	---
11			---	3350	4310	4420	---	3500	1960	---	2050	---
12			---	2690	4290	4350	---	3560	1860	---	2230	---
13			---	2710	4310	4370	---	3640	1840	---	---	---
14			---	4070	4350	4400	---	3750	2390	---	---	645
15			---	4150	4390	4110	3260	3460	2890	---	---	757
16			---	4260	4300	4040	2270	---	3130	---	---	550
17			---	4340	4280	3790	937	---	3380	---	---	600
18			---	4350	4250	3740	1250	---	3410	1830	---	614
19			---	4340	4290	3760	3640	---	3500	1720	---	732
20			4350	4380	4850	3780	3000	---	3520	1560	---	950
21			4290	4070	3840	2780	3650	1000	3550	1340	---	1140
22			4130	4050	2850	2910	3980	1050	3630	2010	---	1580
23			4000	4180	3550	3040	3930	1180	3710	1410	---	1930
24			2500	4050	4070	---	3940	1750	3790	1330	1040	2250
25			3830	4070	4050	---	3890	740	3810	1150	1090	2480
26			3840	4070	3570	---	3750	966	---	1060	1170	1850
27			3830	4020	3450	---	3500	1180	---	1390	1290	520
28			4170	3990	3390	---	2890	1300	---	1290	1550	631
29			4430	3980	3500	---	2710	1440	---	965	---	800
30			4390	3850	---	---	2700	2320	---	2130	---	1260
31			4110	3810	---	---	---	452	---	2210	---	---
MONTH			---	3940	3910	---	---	2380	2640	---	---	---

## ARKANSAS RIVER BASIN

07227470 Canadian River at Tascosa, Tex.--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			---	3.0	12.0	10.0	---	22.0	24.0	---	---	---
2			---	0.0	10.0	17.0	---	11.0	23.0	---	---	---
3			---	---	18.0	6.0	---	---	29.0	---	20.0	---
4			---	---	0.0	10.0	---	---	20.0	---	17.0	---
5			---	---	0.0	11.0	---	12.0	18.0	---	32.0	---
6			---	---	0.0	19.0	---	10.0	23.0	---	29.0	---
7			---	---	0.0	8.0	---	14.0	19.0	---	22.0	---
8			---	---	12.0	7.0	---	---	19.0	---	18.0	---
9			---	---	15.0	14.0	---	---	26.0	---	20.0	---
10			---	2.0	18.0	19.0	---	---	26.0	---	18.0	---
11			---	9.0	16.0	10.0	---	---	19.0	---	---	---
12			---	10.0	16.0	10.0	---	---	25.0	---	---	---
13			---	5.0	14.0	8.0	---	---	19.0	---	---	---
14			---	5.0	8.0	17.0	---	---	18.0	---	---	18.0
15			---	7.0	18.0	14.0	11.0	---	25.0	---	---	19.0
16			---	11.0	18.0	14.0	16.0	---	25.0	---	---	22.0
17			---	12.0	10.0	21.0	15.0	---	21.0	---	---	18.0
18			---	11.0	17.0	25.0	10.0	---	---	29.0	---	18.0
19			---	5.0	15.0	26.0	12.0	---	---	27.0	---	19.0
20			---	10.0	11.0	14.0	18.0	---	---	21.0	---	17.0
21			---	10.0	---	15.0	21.0	17.0	---	29.0	---	16.0
22			---	11.0	11.0	21.0	25.0	30.0	---	28.0	---	25.0
23			---	14.0	15.0	18.0	20.0	19.0	---	21.0	---	22.0
24			---	2.0	10.0	20.0	---	15.0	---	28.0	18.0	18.0
25			---	5.0	4.0	11.0	---	15.0	---	26.0	---	25.0
26			7.0	0.0	17.0	---	---	15.0	---	22.0	---	20.0
27			5.0	4.0	19.0	---	---	17.0	---	30.0	---	14.0
28			4.0	12.0	5.0	---	13.0	30.0	---	20.0	---	10.0
29			3.0	12.0	18.0	---	14.0	16.0	---	20.0	---	10.0
30			1.0	13.0	---	---	11.0	25.0	---	33.0	---	12.0
31			11.0	4.0	---	---	---	16.0	---	---	---	---
MONTH			---	---	12.5	---	---	---	---	---	---	---

## ARKANSAS RIVER BASIN

41

07227500 Canadian River near Amarillo, Tex.

LOCATION.--Lat 35°28'13", long 101°52'45", Potter County, near left bank on downstream side of pier of bridge on U.S. Highways 87 and 287, 1,500 ft (457 m) downstream from Pitcher Creek, 1.4 miles (2.3 km) downstream from East Amarillo Creek, 1.7 miles (2.7 km) downstream from Panhandle and Santa Fe Railway Co. bridge, 19 miles (31 km) north of Amarillo, and at mile 537.7 (865.2 km).

DRAINAGE AREA.--19,445 mi<sup>2</sup> (50,362 km<sup>2</sup>), of which 4,069 mi<sup>2</sup> (10,539 km<sup>2</sup>) is probably noncontributing.

PERIOD OF RECORD.--Discharge: January 1924 to December 1925, January 1938 to current year. Monthly discharge only for some periods, published in WSP 1311.

Water quality: Chemical analyses: July 1948 to October 1949, February 1950 to current year. Chemical and biochemical analyses: January 1969 to current year. Pesticide analyses: October 1968 to current year. Water temperatures: August 1949 to current year. Sediment records: August 1949 to September 1952.

GAGE.--Water-stage recorder. Datum of gage is 2,989.16 ft (911.096 m) above mean sea level. Jan. 16, 1924, to Dec. 31, 1925, and Apr. 3 to June 1, 1938, nonrecording gage at site of old bridge 20 ft (6 m) upstream at same datum. June 2 to Dec. 5, 1938, nonrecording gage at present site and datum.

AVERAGE DISCHARGE.--39 years, 359 ft<sup>3</sup>/s (10.17 m<sup>3</sup>/s), 260,100 acre-ft/yr (321 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 20,300 ft<sup>3</sup>/s (575 m<sup>3</sup>/s) Sept. 17 (gage height, 7.01 ft or 2.137 m); minimum, 0.33 ft<sup>3</sup>/s (0.009 m<sup>3</sup>/s) Aug. 20.

Period of record: Maximum discharge, 135,000 ft<sup>3</sup>/s (3,820 m<sup>3</sup>/s) July 25, 1941 (gage height, 15.7 ft or 4.79 m), from rating curve extended above 100,000 ft<sup>3</sup>/s (2,830 m<sup>3</sup>/s); no flow at times January 1924 to December 1925, Aug. 7, 8, 1940.

Historic: Flood in May 1914 reached a stage of 24 ft (7.3 m); a higher stage probably occurred during flood in October 1904, from information by local resident.

Water quality: Current year: Maximum daily specific conductance, 2,840 micromhos June 15; minimum daily, 582 micromhos Sept. 27.

Period of record: Maximum daily specific conductance, 4,880 micromhos Mar. 6, 1971; minimum daily, 346 micromhos Oct. 29, 1964. Maximum water temperatures, 39.0°C July 7, 1973; minimum, freezing point on many days during winter months.

REMARKS.--Discharge records poor. The city of Amarillo reported that during the year 5,680 acre-ft (7.00 hm<sup>3</sup>) of sewage effluent was discharged into East Amarillo Creek. Extreme low flow is maintained by effluent. For regulation and diversions see preceding page.

REVISIONS.--WSP 1341: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	7.4	4.6	5.9	14	16	11	30	62	4.0	6.0	6.6
2	24	10	5.2	4.0	14	12	11	25	15	3.5	15	8.3
3	19	16	2.6	3.0	12	15	15	21	10	3.5	2950	8.3
4	14	25	3.1	4.0	10	16	4.2	20	10	3.5	3120	5.2
5	14	20	2.3	5.0	7.0	11	9.2	11	39	2.6	475	3.1
6	12	10	3.1	8.3	5.0	14	7.4	15	253	1.6	44	1.4
7	15	10	4.6	5.0	10	16	14	14	263	1.1	15	3.5
8	10	5.2	1.6	2.0	20	18	11	7.4	352	1.4	9.2	9.2
9	10	4.6	6.6	4.0	16	23	11	5.9	234	.73	6.6	5.2
10	11	4.6	3.5	12	12	35	11	5.9	198	.73	5.2	3.5
11	8.0	5.2	4.6	10	12	27	11	6.8	48	.73	9.2	2.6
12	10	4.6	3.5	10	12	12	7.4	6.6	30	.57	3.5	3.1
13	6.5	4.0	6.6	12	10	14	12	4.2	20	.91	1.1	1.6
14	4.1	3.5	3.5	15	8.3	18	12	7.4	15	1.1	1.0	899
15	8.9	1.6	4.0	20	5.7	12	16	6.6	10	2.6	1.0	4160
16	11	1.9	6.6	20	6.0	14	18	6.6	6.6	4.0	1.0	4190
17	12	1.4	9.2	15	16	14	39	6.6	3.5	3.1	1.0	5790
18	18	2.3	4.0	12	18	8.3	47	6.6	2.6	299	1.1	2260
19	21	6.6	4.5	5.9	15	12	27	5.9	4.0	360	1.1	427
20	16	28	5.0	8.0	10	12	379	5.9	3.5	137	.33	325
21	23	7.4	4.6	14	10	12	177	5.9	3.5	56	.41	194
22	10	4.6	5.9	14	11	8.3	42	109	4.6	32	.49	107
23	14	4.0	6.6	14	14	12	27	50	3.5	315	.57	53
24	16	4.0	5.2	14	15	7.4	23	28	3.5	382	9.2	26
25	15	2.6	7.4	11	16	7.1	22	2290	3.5	94	15	16
26	14	2.5	7.4	10	16	6.8	20	379	2.6	24	1.9	106
27	8.3	5.0	10	9.0	10	7.2	30	66	2.6	18	1.9	4560
28	8.3	6.6	8.3	10	9.2	9.2	12	31	3.1	15	2.3	2110
29	5.9	7.4	6.6	14	4.6	5.9	21	9.2	3.5	82	2.6	1120
30	6.6	6.6	7.4	11	---	8.3	39	4.6	4.0	22	2.6	454
31	7.4	---	10	14	---	12	---	99	---	10	5.2	---
TOTAL	799.0	222.0	168.1	316.1	338.8	415.5	1091.2	3295.1	1613.6	1881.67	6708.50	26858.6
MEAN	12.9	7.40	5.42	10.2	11.7	13.4	36.4	106	53.8	60.7	216	895
MAX	24	28	10	20	20	35	379	2290	352	382	3120	5790
MIN	5.9	1.4	1.6	2.0	4.6	5.9	7.4	4.6	2.6	.57	.33	1.4
AC-FT	791	441	333	627	672	824	2160	6540	3200	3730	13310	53270

CAL YR 1975 TOTAL 39109.50 MEAN 107 MAX 7220 MIN 1.4 AC-FT 77570

WTR YR 1976 TOTAL 43308.17 MEAN 118 MAX 5790 MIN .33 AC-FT 85900

PEAK DISCHARGE (BASE, 14,000 FT<sup>3</sup>/S).--Sept. 17 (0130) 20,300 ft<sup>3</sup>/s (7.01 ft); Sept. 27 (0645) 15,000 ft<sup>3</sup>/s (6.52 ft).

DATE	TIME	INSTANTANEOUS DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	BIO-CHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	HARDNESS (CA+MG) (MG/L)
OCT 17...	0900	16	1650	7.9	10.0	5	15	11.8	104	19	330
NOV 20...	1500	27	974	7.0	5.0	--	--	--	--	--	180
DEC 03...	1445	2.6	1820	8.4	14.5	5	20	12.8	124	7.0	310
FEB 18...	1410	21	1990	8.7	16.0	40	50	18.0	180	42	300
MAR 24...	1305	6.4	1910	7.4	21.0	--	--	--	--	--	310
APR 21...	1330	143	1050	7.9	21.0	10	4200	7.5	83	20	140
MAY 26...	1210	281	1190	7.7	15.0	--	--	--	--	--	190
JUN 25...	1200	2.6	2100	8.5	27.0	10	30	13.5	173	12	410
JUL 26...	1730	22	1560	7.8	30.0	--	--	--	--	--	130
AUG 03...	1430	2380	731	8.7	23.0	120	10000	6.2	74	7.6	36
SEP 28...	1455	1370	676	8.0	17.0	--	--	--	--	--	120

DATE	NON-SOLVED	DIS-SOLVED	DIS-SOLVED	DIS-SOLVED	SODIUM	DIS-SOLVED	BICARBONATE (HCO3)	CARBONATE (CO3)	DIS-SOLVED	DIS-SOLVED	DIS-SOLVED
	CARBONATE HARDNESS (MG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	ADSORPTION RATIO	POTASSIUM (K) (MG/L)			SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)
OCT 17...	120	85	27	230	5.6	18	250	0	210	280	--
NOV 20...	57	47	16	130	4.2	15	154	0	110	140	1.1
DEC 03...	69	79	27	240	5.9	13	282	5	230	260	1.7
FEB 18...	48	70	31	290	7.3	14	300	6	270	320	2.7
MAR 24...	150	75	30	260	6.4	16	192	0	290	300	1.3
APR 21...	4	34	13	160	5.9	5.0	164	0	130	150	.8
MAY 26...	22	48	16	180	5.7	5.0	200	0	130	200	.9
JUN 26...	160	99	38	330	7.1	18	276	12	320	400	1.9
JUL 20...	0	32	12	270	10	4.4	243	0	170	280	.6
AUG 03...	0	9.8	2.8	140	10	1.8	111	5	80	100	.5
SEP 28...	0	31	9.6	88	3.5	3.4	154	0	61	90	.5

[illegible]



## ARKANSAS RIVER BASIN

43

07227500 Canadian River near Amarillo, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

		DIS-SOLVED ALUMINUM (AL) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED CADMIUM (CD) (UG/L)	DIS-SOLVED CHROMIUM (CR) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)					
DATE	TIME												
OCT. 15...	0900	0	4	440	0	0	0	0					
FEB. 18...	1410	170	5	560	0	0	0	11					
JUNE 26...	1200	10	6	--	0	0	0	4					
AUG. 03...	1430	50	8	--	0	0	0	5					
		DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED LITHIUM (LI) (UG/L)	DIS-SOLVED MANGANESE (MN) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED STRONTIUM (SR) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)				
DATE	TIME												
OCT. 15...	20	2	50	30	.0	0	1500	20					
FEB. 18...	60	4	60	80	.0	4	1600	0					
JUNE 26...	30	8	80	30	.3	3	1900	0					
AUG. 03...	30	0	20	0	.0	0	200	0					
DATE	TIME	TOTAL PCB (UG/L)	PCB IN BOTTOM MATERIAL (UG/KG)	POLY-CHLORINATED NAPHTHALENES (UG/L)	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL CHLORDANE (UG/L)	CHLORDANE IN BOTTOM MATERIAL (UG/KG)	TOTAL DDD (UG/L)	DDD IN BOTTOM MATERIAL (UG/KG)	TOTAL DDE (UG/L)	DDE IN BOTTOM MATERIAL (UG/KG)	
OCT. 15...	0900	.0	0	--	.00	.0	.0	0	.00	.0	.00	.0	
FEB. 18...	1410	.0	0	.00	.00	.0	.1	1	.00	.0	.00	.0	
JUNE 26...	1200	.0	0	.00	.00	.0	.0	0	.00	.0	.00	.0	
AUG. 03...	1430	.0	0	.00	.00	.0	.0	0	.00	.0	.00	.0	
DATE	TIME	TOTAL DDT (UG/L)	DDT IN BOTTOM MATERIAL (UG/KG)	TOTAL DIELDRIN (UG/L)	DI-ELDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL ENDRIN (UG/L)	ENDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL ETHION (UG/L)	TOTAL HEPTACHLOR (UG/L)	HEPTACHLOR IN BOTTOM MATERIAL (UG/KG)	TOTAL HEPTACHLOR EPOXIDE (UG/L)	HEPTACHLOR EPOXIDE IN BOTTOM MATERIAL (UG/KG)	
OCT. 15...	.00	.0	.08	.00	.0	.00	.0	.00	.00	.0	.00	.0	
FEB. 18...	.00	.0	.10	.01	.0	.00	.0	.00	.00	.0	.00	.0	
JUNE 26...	.00	.0	.07	.00	.0	.00	.0	.00	.00	.0	.00	.0	
AUG. 03...	.00	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00	.0	
DATE	TIME	TOTAL LINDANE (UG/L)	LINDANE IN BOTTOM MATERIAL (UG/KG)	TOTAL MALATHION (UG/L)	TOTAL METHYL PARATHION (UG/L)	TOTAL METHYL TRIETHION (UG/L)	TOTAL PARAETHION (UG/L)	TOTAL TOXAPHENE (UG/L)	TOXAPHENE IN BOTTOM MATERIAL (UG/KG)	TOTAL TRIETHION (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)
OCT. 15...	.02	.0	.00	.00	.00	.00	0	0	.00	.15	.00	.05	
FEB. 18...	.02	.0	.00	.00	.00	.00	0	0	.00	.28	.04	.05	
JUNE 26...	.00	.0	.00	.00	.00	.00	0	0	.00	--	--	--	
AUG. 03...	.00	.0	.00	.00	.00	.00	0	0	.00	.00	.00	.00	

## ARKANSAS RIVER BASIN

07227500 Canadian River near Amarillo, Tex.--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	398	1560	910	980	270	292	210	231	260
NOV. 1975.....	221	1370	790	473	230	135	180	111	230
DEC. 1975.....	168.1	1780	1050	477	320	147	250	113	290
JAN. 1976.....	316.1	1800	1070	909	330	282	250	215	290
FEB. 1976.....	334.2	1990	1180	1070	370	338	280	252	320
MAR. 1976.....	415.5	1750	1030	1160	320	355	240	274	290
APR. 1976.....	1091.2	1400	810	2390	230	684	190	566	240
MAY 1976.....	3295.1	953	530	4730	120	1090	120	1080	170
JUNE 1976.....	1613.6	1500	880	3820	260	1120	210	904	250
JULY 1976.....	1881.67	1390	800	4040	230	1160	190	955	230
AUG. 1976.....	6708.46	821	450	8220	91	1640	100	1840	160
SEPT 1976.....	26858.59	745	410	29800	73	5260	89	6450	140
TOTAL .....	43303.52	**	**	58100	**	12500	**	13000	**
WTD.AVG. ....	118.64	887	500	**	110	**	110	**	160

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C) WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1390	1790	1620	2000	1900	1840	2060	1500	1200	1880	1820	1890
2	1300	1610	1730	2020	2060	1870	2090	1450	1640	2180	1980	2050
3	1400	1220	1820	2100	2490	1840	1900	1320	2000	2210	800	2100
4	1420	1390	1830	2040	1950	1840	1750	1350	2380	2260	779	2120
5	1596	1140	1860	2080	2090	1970	1810	1480	2200	2300	934	2160
6	1520	1580	1830	1960	2220	1900	2040	1560	1000	2360	904	2240
7	1420	1340	1800	2010	2060	1650	2390	1170	941	2010	1100	2310
8	1550	1660	1890	2200	1950	1590	1830	1180	937	2060	1600	1950
9	1700	1750	1620	2140	2390	2200	2200	1190	2280	2280	2470	1830
10	1590	1420	1720	1880	1880	1500	2000	1190	2040	2200	2810	2060
11	1630	1620	1700	1800	1870	1300	1960	1330	2490	2150	2190	2160
12	1520	1750	1740	1810	2390	1510	1820	1430	2500	2070	2350	2200
13	1590	1550	1600	1790	2000	1500	1450	1660	2480	1830	2290	2310
14	1590	1770	1690	1760	2100	1490	1850	1590	2450	1910	2310	866
15	1650	1750	1700	1600	2020	1850	2260	1750	2840	1890	2360	970
16	1710	1600	1620	1600	1970	1900	1900	1800	2700	2010	2440	672
17	1760	1620	1560	1750	1880	1850	1860	1870	2310	2010	2460	639
18	1480	1660	1650	1760	1990	1850	1730	1870	2300	1300	2260	722
19	1590	1460	1600	1840	1960	1820	2140	1460	2280	1240	2020	800
20	1640	800	1620	1800	1870	1820	991	1720	2240	1500	2240	1010
21	1530	1100	1680	1750	1860	1800	1050	1520	2200	1520	2280	1110
22	1670	1510	1700	1790	1860	2020	1410	1320	2200	1850	2300	1530
23	1530	1530	1800	1760	1850	1850	1880	1200	2150	1400	2330	1710
24	1600	1660	1810	1780	1840	1910	1870	1250	2200	1210	2050	2180
25	1640	1620	1810	1800	1830	1800	1860	800	2140	1300	1610	2200
26	1750	1890	1900	1820	1810	1820	1850	1190	2100	1560	2220	2160
27	1760	1450	1850	1860	1910	1800	1580	1400	2120	1710	2240	582
28	1760	1420	1930	1840	1900	1760	1550	1160	2100	1890	2200	676
29	1790	1340	2170	1800	1900	1730	1530	1400	2210	2110	2210	811
30	1750	1520	2080	1820	---	1780	1520	1600	1910	1630	2220	1020
31	1820	---	2000	1840	---	1900	---	1300	---	1700	2190	---
MONTH	1600	1520	1770	1860	1990	1780	1820	1440	2080	1860	2000	1570

07227500 Canadian River near Amarillo, Tex.--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.0	9.0			---	5.0	5.0	---	---	20.0	---	17.0
2	15.0	11.0			---	5.0	8.0	---	---	20.0	---	21.0
3	15.0	11.0			18.0	4.0	---	12.0	---	---	18.0	18.0
4	15.0	14.0			4.0	2.0	---	12.0	18.0	---	---	---
5	16.0	15.0			---	0.0	9.0	15.0	---	---	21.0	---
6	17.0	10.0			5.0	---	12.0	12.0	---	18.0	22.0	---
7	16.0	14.0			---	---	13.0	11.0	18.0	17.0	---	19.0
8	18.0	20.0			---	10.0	14.0	---	18.0	17.0	---	22.0
9	12.0	13.0			4.0	5.0	11.0	---	18.0	19.0	17.0	16.0
10	19.0	5.0			9.0	4.0	---	13.0	18.0	---	17.0	16.0
11	15.0	11.0			5.0	5.0	---	12.0	18.0	---	20.0	---
12	21.0	6.0			8.0	2.0	12.0	11.0	---	19.0	19.0	---
13	19.0	5.0			8.0	---	15.0	10.0	---	14.0	20.0	21.0
14	12.0	11.0			---	---	14.0	10.0	18.0	18.0	---	23.0
15	12.0	15.0			---	3.0	14.0	---	18.0	18.0	---	20.0
16	14.0	6.0			5.0	4.0	---	---	15.0	18.0	19.0	20.0
17	12.0	15.0			5.0	4.0	---	10.0	16.0	---	19.0	18.0
18	12.0	11.0			4.0	6.0	---	10.0	15.0	---	19.0	---
19	10.0	5.0			2.0	7.0	10.0	11.0	---	18.0	22.0	---
20	11.0	4.0			4.0	---	8.0	15.0	---	18.0	19.0	22.0
21	13.0	0.0			---	---	9.0	14.0	18.0	18.0	---	17.0
22	12.0	0.0			---	4.0	12.0	---	13.0	18.0	---	17.0
23	11.0	1.0			---	5.0	14.0	---	18.0	18.0	19.0	17.0
24	10.0	6.0			---	9.0	---	12.0	18.0	---	18.0	25.0
25	8.0	1.0			5.0	9.0	---	12.0	18.0	---	17.0	---
26	14.0	0.0			4.0	7.0	7.0	12.0	---	20.0	19.0	---
27	15.0	9.0			4.0	---	11.0	11.0	---	20.0	19.0	15.0
28	13.0	5.0			---	---	13.0	11.0	18.0	21.0	---	11.0
29	12.0	8.0			---	6.0	14.0	---	18.0	18.0	---	12.0
30	11.0	1.0			---	3.0	18.0	---	18.0	20.0	17.0	15.0
31	14.0	---			---	4.0	---	11.0	---	---	14.0	---
MONTH	14.0	8.0			---	---	---	---	---	---	---	---

## ARKANSAS RIVER BASIN

07227900 Lake Meredith near Sanford, Tex.

LOCATION.--Lat 35°42'38", long 101°33'03", Hutchinson County, in outlet tower near right end of dam on Canadian River, 1.2 miles (1.9 km) northwest of Sanford, and at mile 508.5 (818.2 km).

DRAINAGE AREA.--20,220 mi<sup>2</sup> (52,370 km<sup>2</sup>), of which 4,172 mi<sup>2</sup> (10,805 km<sup>2</sup>) is probably noncontributing.

PERIOD OF RECORD.--Contents: October 1964 to current year.

Water quality: Chemical analyses: October 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Bureau of Reclamation). Prior to Aug. 16, 1965, nonrecording gage read daily at same site and datum.

EXTREMES.--Current year: Maximum contents, 430,600 acre-ft (531 hm<sup>3</sup>) Oct. 1 (elevation, 2,905.34 ft or 885.548 m); minimum, 343,200 acre-ft (423 hm<sup>3</sup>) Sept. 12, 13 (elevation, 2,897.05 ft or 883.021 m).

Period of record: Maximum contents, 546,100 acre-ft (673 hm<sup>3</sup>) Apr. 28, 1973 (elevation, 2,914.91 ft or 888.465 m); minimum since first appreciable storage, 219,900 acre-ft (271 hm<sup>3</sup>) Apr. 10, 11, 1967 (elevation, 2,883.10 ft or 878.769 m).

REMARKS.--The lake is formed by a rolled earthfill dam 6,410 ft (1,954 m) long. The dam was completed and storage began in October 1964. The service spillway is an uncontrolled concrete drop inlet located near the left end of dam. The spillway discharges into a 22-foot-diameter (7-meter) conduit that is designed to discharge 19,300 ft<sup>3</sup>/s (547 m<sup>3</sup>/s) at an elevation of 3,004.9 ft (915.89 m). The flood-control outlet works consist of three 12- by 15-foot (4- by 5-meter) gates that open into three 15.5-foot (4.7-meter) concrete conduits. The flood-control works are located just to the left of the service spillway near the left end of dam. The dam was built by the U.S. Bureau of Reclamation for the Canadian River Municipal Water Authority for flood control and municipal and industrial supply for the cities of Amarillo, Borger, Brownfield, Lamesa, Levelland, Lubbock, O'Donnel, Pampa, Plainview, Slaton, and Tahoka. The area-capacity curves are based on Geological Survey topographic maps dated 1953. 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.....	3,011.0	-
Design flood.....	3,004.9	2,434,200
Crest of drop inlet.....	2,965.0	1,407,600
Top of conservation pool.....	2,936.5	864,400
Crest of flood-control outlet works (invert).....	2,894.0	313,700
Lowest gated outlet (invert).....	2,850.0	43,050

COOPERATION.--Record of elevations and diversions furnished by the Canadian River Municipal Water Authority. The area-capacity curves were furnished by the U.S. Bureau of Reclamation.

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

2,897.0	342,700	2,905.0	426,800
2,900.0	337,100	2,907.0	449,500
2,903.0	404,800		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	430600	418200	409800	404000	397900	392600	385200	379800	374300	363900	353100	348400
2	430300	417800	409700	404000	398300	392000	384900	379300	374300	363500	355000	348100
3	429700	417800	409500	403600	397800	391800	384200	379100	374100	362500	355800	347700
4	429300	417400	409400	403500	397800	392000	384200	379200	373500	362300	356800	347400
5	428600	417300	409100	403200	397700	391800	383800	378600	373100	362100	360900	346800
6	428300	417100	408900	402800	397600	391400	384000	378500	373000	361700	361100	346000
7	428400	417000	408400	402700	397300	391100	384000	378200	373500	361200	360800	346000
8	427300	416600	408400	402300	397100	391400	383900	377800	374000	360900	360400	345300
9	426800	416200	408100	402700	397200	391200	383700	377400	374300	360700	359300	344800
10	426800	416100	408100	402000	397000	391100	383200	377200	374300	360000	359100	344300
11	426500	415300	407800	401900	396800	391300	382300	377500	374000	359500	358300	344100
12	425800	415100	407900	401800	396500	390500	382100	376700	373500	359200	358000	343200
13	425000	415000	407500	401600	396400	390400	382500	376300	373300	358400	357500	343200
14	424700	414800	407000	401600	396500	390000	382300	375900	372300	358000	357100	350600
15	424300	414200	406900	401300	396200	389600	383000	374800	371900	357900	356600	351400
16	423600	413800	406200	401200	396100	389600	382800	374700	371900	359000	356000	357700
17	423300	413700	406300	400900	395600	389200	382300	374300	369800	358600	355400	364500
18	423000	413600	406700	400700	394700	389200	381800	374200	370000	358200	354900	368000
19	422400	413700	406700	400600	395500	388700	382000	373800	369600	358000	354500	369200
20	422400	413300	406200	400400	395100	388300	381800	373100	369100	357700	354000	369800
21	421800	413000	406700	400200	394400	387800	382200	373600	368900	357400	353400	369900
22	421800	412600	405500	400300	394200	387900	382400	373100	368200	357100	352700	369900
23	421400	412000	405100	400100	394400	387900	381500	372900	367500	356400	352500	369500
24	420500	412100	405100	400100	393900	387300	381300	372300	367100	356300	351300	369800
25	420300	411800	405100	399900	393300	387300	381300	373300	366800	356100	351300	369400
26	419600	411800	405000	400000	393100	387000	381900	374900	366300	355600	350800	369700
27	419300	411100	404700	399800	393000	386900	380600	375400	365600	355400	350000	373700
28	418600	410800	404600	399300	392800	385900	380400	375800	365300	354700	349300	378700
29	418600	411300	404500	399000	392500	386000	380100	375200	364600	354600	348900	380500
30	418600	410600	404400	398700	---	385500	380100	375900	364500	354100	348400	381600
31	418400	---	404500	398600	---	385500	---	374300	---	353500	348900	---
(+)	2904.24	2903.53	2902.97	2902.42	2901.85	2901.19	2900.68	2900.12	2899.17	2898.08	2897.62	2900.82
(+)	-12200	-7800	-6100	-5900	-6100	-7000	-5400	-5800	-9800	-11000	-4500	+32600
(++)	5867	4758	4184	3858	4451	4790	4947	6245	7377	6964	8115	5887
MAX	430600	418200	409800	404000	398300	392600	385200	379800	374300	363900	361100	381600
MIN	418400	410600	404400	398600	392500	385500	380100	372300	364500	353500	348400	343200
CAL YR 1975.....	* -36900			++ 67342			MAX	456800	MIN			404400
WTR YR 1976.....	* -49000			++ 67443			MAX	430600	MIN			343200

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

++ Diversions, in acre-feet, for municipal and industrial uses.



## ARKANSAS RIVER BASIN

47

07227900 Lake Meredith near Sanford, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	PER-CENT SATURATION	HARDNESS (CA, MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)
JAN 21...	1530	1890	8.3	5.5	11.6	92	260	91
MAY 05...	0830	1910	8.5	14.0	9.9	95	280	95
AUG 24...	0900	2000	8.5	24.5	7.3	90	270	96

DATE	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG)	DIS-SOLVED SODIUM (NA) (MG/L)	SODIUM ADSORPTION RATIO	DIS-SOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)
JAN 21...	58	29	290	7.8	7.2	211	0	290	310
MAY 05...	61	30	300	7.9	7.5	204	8	300	340
AUG 24...	58	30	300	8.0	7.8	202	4	310	340

DATE	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED MANGANESE (MN) (UG/L)
JAN 21...	.9	1.2	1090	.01	.00	.02	0	0
MAY 05...	.9	1.4	1150	.00	.00	.01	10	0
AUG 24...	.9	1.6	1150	.00	.00	.01	10	10

## ARKANSAS RIVER BASIN

07227920 Dixon Creek near Borger, Tex.

LOCATION.--Lat 35°39'53", long 101°21'02", Hutchinson County, on right bank at downstream side of bridge on State Highway 152, 2.4 miles (3.9 km) east of Borger, and 7.6 miles (12.2 km) upstream from mouth.

DRAINAGE AREA.--134 mi<sup>2</sup> (347 km<sup>2</sup>).

PERIOD OF RECORD.--March 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,834.84 ft (864.059 m) above mean sea level.

EXTREMES.--Current year: Maximum discharge, 3,330 ft<sup>3</sup>/s (94.3 m<sup>3</sup>/s) Sept. 15 (gage height, 8.77 ft or 2.673 m); no flow for many days.  
Period of record: Maximum discharge, 3,330 ft<sup>3</sup>/s (94.3 m<sup>3</sup>/s) Sept. 15, 1976 (gage height, 8.77 ft or 2.673 m), from rating curve extended above 25 ft<sup>3</sup>/s (0.71 m<sup>3</sup>/s) on basis of slope-conveyance studies; no flow for many days each year.

REMARKS.--Records poor. No known diversion above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		.02	0	.01	.04	.01	.01	.04	.01	0	0	5.9
2		.05	0	0	.03	0	.03	.06	.01	0	0	.06
3		.03	0	.01	.04	0	.01	.05	0	0	0	.01
4		0	0	.01	.02	0	.02	.07	0	0	0	.02
5		0	0	.01	.01	0	.03	.05	.12	0	0	.04
6		0	0	0	0	0	.02	.03	4.6	0	0	.12
7		0	0	0	0	0	.02	.02	.10	0	0	.14
8		0	0	0	0	0	.01	.01	.01	0	0	.15
9		0	0	0	.01	0	.02	.01	0	0	0	.05
10		0	0	0	.02	0	.04	.01	0	0	0	.04
11		0	0	0	0	0	.02	.02	0	0	0	.11
12		0	0	0	.02	0	.02	.01	0	0	0	.11
13		0	0	0	.02	0	.03	0	0	0	0	.03
14		0	0	0	.02	0	.05	0	0	0	8.7	.10
15		0	0	0	.02	0	.03	0	0	6.2	1.8	415
16		0	0	0	.01	0	.02	0	0	5.7	0	26
17		0	0	0	.01	0	.03	0	0	0	0	19
18		0	0	.02	.01	0	.04	0	0	0	0	.79
19		.03	0	.03	.01	.01	.04	0	0	0	0	.35
20		0	0	.01	.01	0	.05	0	0	0	0	.11
21		0	0	.01	.01	0	.04	1.5	0	0	0	.04
22		0	0	.03	.01	0	.08	.02	0	0	0	.05
23		0	0	.04	.01	.01	.09	.01	0	0	0	.04
24		0	0	.01	.01	.01	.06	.01	0	0	59	.04
25		0	.01	0	.01	.04	.07	.01	0	0	117	.07
26		0	.01	0	.01	.01	.05	0	0	3.4	.67	.06
27		0	.01	0	.01	0	.08	0	0	.09	.26	.90
28		0	.01	0	0	.01	.05	0	0	0	.08	.01
29		0	.01	.01	0	0	.05	.01	0	0	.07	0
30		0	.01	.01	---	0	.06	0	0	0	.05	0
31		---	.02	.02	---	0	---	0	---	0	17	---
TOTAL	0	.13	.08	.23	.37	.10	1.17	1.94	4.85	15.39	204.63	469.34
MEAN	0	.004	.003	.007	.013	.003	.039	.063	.16	.50	6.60	15.6
MAX	0	.05	.02	.04	.04	.04	.09	1.5	4.6	6.2	117	415
MIN	0	0	0	0	0	0	.01	0	0	0	0	0
AC-FT	0	.3	.2	.5	.7	.2	2.3	3.8	9.6	31	406	931

CAL YR 1975 TOTAL 565.13 MEAN 1.55 MAX 225 MIN 0 AC-FT 1120  
WTR YR 1976 TOTAL 698.23 MEAN 1.91 MAX 415 MIN 0 AC-FT 1380

PEAK DISCHARGE (BASE, 500 FT<sup>3</sup>/S).--Aug. 25 (0415) 703 ft<sup>3</sup>/s (6.19 ft); Sept. 15 (1745) 3,330 ft<sup>3</sup>/s (8.77 ft).

## ARKANSAS RIVER BASIN

49

07228000 Canadian River near Canadian, Tex.  
(National stream-quality accounting network)

LOCATION.--Lat 35°56'06", long 100°22'13", Hemphill County, near left bank on downstream side of pier of bridge on U.S. Highways 60 and 83, 600 ft (180 m), revised, downstream from Panhandle and Santa Fe Railway Co. bridge, 1.2 miles (1.9 km) downstream from Red Deer Creek, 1.6 miles (2.6 km) northeast of Canadian, and at mile 433.9 (698.1 km).

DRAINAGE AREA.--22,866 mi<sup>2</sup> (59,222 km<sup>2</sup>), of which 4,688 mi<sup>2</sup> (12,142 km<sup>2</sup>) is probably noncontributing.

PERIOD OF RECORD.--Discharge: July 1924 to August 1925 (gage heights only), January 1938 to current year. Prior to April 1938, monthly discharge only, published in WSP 1311.

Water quality: Chemical and biochemical analyses: March 1968 to current year. Pesticide analyses: October 1971 to current year. Water temperatures: October 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,301.50 ft (701.497 m) above mean sea level. July 1, 1924, to Aug. 31, 1925, and Apr. 21 to Dec. 15, 1938, nonrecording gage; Dec. 16, 1938, to Sept. 30, 1953, water-stage recorder and nonrecording gages; all at site 300 ft (91 m) upstream at same datum.

AVERAGE DISCHARGE.--26 years (1938-64) prior to completion of Lake Meredith, 549 ft<sup>3</sup>/s (15.55 m<sup>3</sup>/s), 397,800 acre-ft/yr (490 hm<sup>3</sup>/yr); 12 years (1964-76) regulated, 85.9 ft<sup>3</sup>/s (2.433 m<sup>3</sup>/s), 62,230 acre-ft/yr (76.7 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 903 ft<sup>3</sup>/s (25.6 m<sup>3</sup>/s) May 27 (gage height, 4.92 ft or 1.500 m); no flow Aug. 10. Period of record: Maximum discharge, 122,000 ft<sup>3</sup>/s (3,460 m<sup>3</sup>/s) Sept. 23, 1941 (gage height, 9.8 ft or 2.99 m, from graph based on gage readings), from rating curves for two channels extended above 8,000 and 54,000 ft<sup>3</sup>/s (227 and 1,530 m<sup>3</sup>/s); no flow at times most years.

Historic: Maximum stage 20.0 ft (6.10 m) Oct. 2, 1904. Floods of May 2, 1914, and Oct. 5, 1923, reached stages of 12 ft (3.7 m).

Water quality: Current year: Maximum daily specific conductance, 3,820 micromhos Sept. 30; minimum daily, 595 micromhos Aug. 28.

Maximum water temperatures, 36.0°C Aug. 12; minimum, freezing point on several days during January and February.

Period of record: Maximum daily specific conductance, 3,930 micromhos Aug. 8, 1975; minimum daily, 595 micromhos Aug. 28, 1976.

Maximum water temperatures, 36.0°C Aug. 12, 1976; minimum, freezing point on several days during winter months.

REMARKS.--Discharge records good. Extreme low flow is maintained by springs which enter the river about 600 ft (180 m) above gage. Some regulation and diversions from Lake Meredith 75 miles (121 km) upstream (station 07227900). When codes for agencies collecting and analyzing a sample are shown in the water-quality table, the sample was collected and field data obtained by the Oklahoma District (1028), U.S. Geological Survey, and the remainder of the analysis performed by the Oklahoma State Health Department (9740).

REVISIONS.--WSP 1341: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.49	.83	34	46	53	48	28	128	51	.35	.09	3.9
2	.42	7.0	33	39	53	46	28	90	42	.35	.06	5.9
3	.36	19	33	26	53	41	22	60	30	.57	.11	6.6
4	.36	19	30	24	51	108	22	48	24	.52	.15	5.9
5	.35	15	32	23	45	116	25	38	26	.33	.20	5.2
6	.30	13	29	21	40	104	24	51	21	.35	.16	2.0
7	.25	14	29	20	45	93	24	44	36	.24	.18	.89
8	.25	14	30	20	50	152	31	38	57	.33	.18	.50
9	.21	11	34	25	58	216	27	35	36	.25	.15	.39
10	.29	9.6	37	43	60	197	27	33	23	.25	.07	.32
11	.27	9.6	36	48	60	168	22	33	17	.20	.08	.37
12	.28	8.5	40	75	63	112	19	24	19	.20	.20	.28
13	.31	9.0	42	106	55	93	22	22	13	.19	.15	.21
14	.35	9.6	48	78	54	83	25	19	9.5	.14	.26	.32
15	.28	9.6	44	70	53	74	62	18	7.1	.18	.24	.34
16	.26	11	43	67	54	71	189	12	6.6	.19	.81	.25
17	.26	11	37	71	50	66	211	8.1	5.3	.21	.26	.23
18	.24	13	25	74	47	60	157	7.5	3.4	.21	.16	.22
19	.35	56	35	65	47	58	104	6.3	2.8	.19	.22	2.8
20	.42	69	44	61	48	42	234	5.5	2.8	.14	.20	37
21	.42	40	38	62	37	40	260	5.2	1.6	.13	.22	63
22	.35	43	43	67	37	38	197	64	1.1	.11	.18	30
23	.42	38	41	69	44	35	152	74	1.7	.10	.16	16
24	.31	34	46	68	39	34	86	35	4.3	.09	.22	10
25	.46	36	50	66	38	36	48	30	3.2	.07	.28	17
26	.31	40	50	63	42	28	35	275	1.6	.07	.31	37
27	.51	46	48	63	45	29	38	770	1.0	.08	.31	27
28	.35	53	45	60	45	29	96	253	.63	.11	.20	33
29	.51	45	53	58	45	28	80	81	.50	.07	.28	33
30	.46	36	53	58	---	27	112	40	.39	.10	1.1	35
31	.42	---	50	56	---	28	---	42	---	.07	.89	---
TOTAL	10.82	739.73	1232	1692	1411	2300	2407	2389.6	448.52	6.39	8.08	374.62
MEAN	.35	24.7	39.7	54.6	48.7	74.2	80.2	77.1	15.0	.21	.26	12.5
MAX	.51	69	53	106	63	216	260	770	57	.57	1.1	63
MIN	.21	.83	25	20	37	27	19	5.2	.39	.07	.06	.21
AC-FT	21	1470	2440	3360	2800	4560	4770	4740	890	13	16	743
CAL YR 1975	TOTAL	20807.27	MEAN	57.0	MAX	927	MIN	.21	AC-FT	41270		
WTR YR 1976	TOTAL	13019.76	MEAN	35.6	MAX	770	MIN	.06	AC-FT	25820		

## ARKANSAS RIVER BASIN

07228000 Canadian River near Canadian, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION
OCT 15...	--	--	1530	.40	1070	8.2	20.0	4	11.6	126
NOV 05...	--	--	1030	12	3110	8.1	14.0	5	10.9	106
DEC 04...	--	--	1020	31	2780	8.0	7.5	5	12.3	103
11...	1028	9740	1700	36	--	8.5	8.0	3	--	--
JAN 08...	--	--	0745	20	3210	7.6	.0	4	14.7	101
21...	1028	9740	0930	62	--	8.5	1.0	4	13.2	102
FEB 12...	1028	9740	1130	60	--	8.4	12.0	1	12.8	113
19...	--	--	1130	33	2680	8.4	10.5	4	12.7	114
MAR 17...	--	--	1400	68	2840	8.4	17.0	7	11.1	116
18...	1028	9740	1215	60	2900	8.4	16.0	2	10.6	116
APR 21...	1028	9740	1430	250	--	8.4	20.5	35	7.7	95
22...	--	--	1100	216	2800	8.0	19.5	25	9.9	108
MAY 18...	1028	9740	1315	7.2	2650	8.4	22.0	3	8.6	110
26...	--	--	1500	357	1680	7.5	18.0	260	7.9	83
JUN 27...	--	--	1000	1.2	1640	7.9	26.0	4	9.2	115
28...	1028	9740	1440	.60	--	8.3	31.0	1	7.2	106
JUL 21...	--	--	1400	.12	702	8.6	31.0	2	9.2	124
26...	1028	9740	1430	.07	--	8.4	32.0	2	11.0	164
AUG 04...	--	--	1000	.15	822	8.1	25.5	3	10.9	136
30...	1028	9740	1600	1.1	1950	8.9	24.5	4	7.7	101
SEP 15...	--	--	1430	.34	1630	8.4	27.5	2	11.0	141
21...	1028	9740	1645	60	2770	8.3	27.0	7	7.8	107
DATE	RIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	IMME- DIATE COLI- FORM (COL. PER 100 ML)	FECAL COLI- FORM (COL. PER 100 ML)	STREP- TOCOCCI (COL- ONIES PER 100 ML)	HARD- NESS (CA, MG) (MG/L)	NON- CAK- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO
OCT 15...	1.4	680	210	800	260	0	75	18	100	2.7
NOV 05...	2.2	220	210	340	500	260	120	49	440	8.6
DEC 04...	1.7	28	24	63	510	260	120	50	390	7.5
11...	--	--	--	--	--	--	--	--	--	--
JAN 08...	1.2	350	180	550	580	250	130	61	450	8.2
21...	--	--	--	--	--	--	--	--	--	--
FEB 12...	--	--	--	--	--	--	--	--	--	--
19...	1.4	44	29	730	490	270	110	52	370	7.3
MAR 17...	1.4	36	21	210	520	290	120	54	400	7.6
18...	--	--	--	--	500	--	--	--	--	--
APR 21...	--	--	--	--	--	--	--	--	--	--
22...	3.0	240	100	390	580	310	110	75	410	7.4
MAY 18...	--	--	--	--	460	--	--	--	--	--
26...	6.8	20000	9400	110000	290	110	68	30	240	6.1
JUN 27...	1.4	3000	420	260	330	87	79	31	240	5.8
28...	--	--	--	--	--	--	--	--	--	--
JUL 21...	.8	4500	600	2400	210	0	58	16	65	1.9
26...	--	--	--	--	--	--	--	--	--	--
AUG 04...	2.8	37000	680	1700	240	0	68	18	82	2.3
30...	--	--	--	--	336	--	--	--	--	--
SEP 15...	4.5	13000	350	1200	350	120	83	34	200	4.7
21...	--	--	--	--	570	--	--	--	--	--

## ARKANSAS RIVER BASIN

51

07228000 Canadian River near Canadian, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT 15...	2.8	354	0	13	120	--	35	489	539
NOV 05...	22	295	0	210	690	1.5	24	1810	1700
DEC 04...	24	300	0	240	620	1.5	24	1630	1620
11...	--	--	--	--	--	--	--	--	--
JAN 08...	20	402	0	270	720	.7	31	1930	1880
21...	--	--	--	--	--	--	--	--	--
FEB 12...	--	--	--	--	--	--	--	--	--
19...	16	252	6	260	590	1.7	17	1620	1550
MAR 17...	17	269	6	240	660	1.8	18	1770	1650
18...	--	--	--	--	660	--	--	--	--
APR 21...	--	--	--	--	--	--	--	--	--
22...	49	340	0	220	620	1.9	22	1690	1680
MAY 18...	--	--	--	--	630	--	--	--	--
26...	11	226	0	100	390	1.0	17	994	968
JUN 27...	7.5	292	0	110	350	1.4	29	994	993
28...	--	--	--	--	170	--	--	--	--
JUL 21...	2.2	275	8	14	77	1.2	37	422	414
26...	--	--	--	--	89	--	--	--	--
AUG 04...	3.4	320	0	12	99	1.2	37	446	479
30...	--	--	--	--	420	--	--	--	--
SEP 15...	11	270	4	110	320	1.2	31	944	927
21...	--	--	--	--	680	--	--	--	--
DATE	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	SUS- PENDE SEDIM- ENT (MG/L)	SUS- PENDE SEDIM- ENT DIS- CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
OCT 15...	.00	.01	.06	.45	.06	14	2	.00	54
NOV 05...	.00	.01	.14	.65	.05	--	7	.23	88
DEC 04...	.08	.01	.09	.68	.10	--	35	2.9	28
11...	--	--	--	--	.01	--	--	--	--
JAN 08...	.41	.01	.35	.55	.16	--	75	4.0	4
21...	--	--	--	--	.08	--	--	--	--
FEB 12...	--	--	--	--	.10	--	--	--	--
19...	.00	.00	.06	.46	.02	3.4	32	2.9	16
MAR 17...	.08	.01	.04	.60	.11	--	19	3.5	49
18...	--	--	--	--	.14	--	--	--	--
APR 21...	--	--	--	--	.08	--	--	--	--
22...	.00	.00	.01	.99	.13	--	349	204	8
MAY 18...	--	--	--	--	.25	--	--	--	--
26...	.04	.02	.15	1.8	.34	--	1620	1560	31
JUN 27...	.00	.00	.01	.22	.07	5.6	6	.02	76
28...	--	--	--	--	<.08	--	--	--	--
JUL 21...	.01	.00	.02	.19	.06	--	2	.00	15
26...	--	--	--	--	<.08	--	--	--	--
AUG 04...	.01	.00	.00	.42	.06	3.2	21	.01	62
30...	--	--	--	--	.25	--	--	--	--
SEP 15...	.00	.00	.00	.42	.09	--	12	.01	86
21...	--	--	--	--	.13	--	--	--	--



## ARKANSAS RIVER BASIN

07228000 Canadian River near Canadian, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	DIS- SOLVED ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)
OCT 15...	--	--	1530	2	1	1	60	0	0	<10	0
DEC 11...	1028	9740	1700	--	--	--	--	--	--	--	--
JAN 21...	1028	9740	0930	--	--	--	--	--	--	--	--
FEB 12...	1028	9740	1130	--	3	--	--	<10	--	6	--
19...	--	--	1130	30	4	3	190	0	0	10	0
MAR 18...	1028	9740	1215	--	--	--	--	--	--	--	--
APR 21...	1028	9740	1430	--	--	--	--	--	--	--	--
MAY 18...	1028	9740	1315	--	8	--	--	3	--	7	--
JUN 27...	--	--	1000	10	5	5	--	0	0	20	0
28...	1028	9740	1440	--	--	--	--	--	--	--	--
JUL 26...	1028	9740	1430	--	--	--	--	--	--	--	--
AUG 04...	--	--	1000	20	3	3	--	0	0	20	0
30...	1028	9740	1600	--	8	--	--	2	--	12	--
SEP 21...	1028	9740	1645	--	--	--	--	--	--	--	--

DATE	TOTAL COBALT (CO) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
OCT 15...	0	0	2	1	330	40	2	2	60	50	30
DEC 11...	--	--	--	--	<100	--	--	--	--	<5	--
JAN 21...	--	--	--	--	200	--	--	--	--	31	--
FEB 12...	--	--	10	--	200	--	10	--	--	33	--
19...	0	0	6	0	230	10	3	0	100	40	20
MAR 18...	--	--	--	--	200	--	--	--	--	28	--
APR 21...	--	--	--	--	900	--	--	--	--	110	--
MAY 18...	--	--	7	--	200	--	20	--	--	34	--
JUN 27...	0	0	9	0	690	40	41	0	80	140	130
28...	--	--	--	--	3000	--	--	--	--	870	--
JUL 26...	--	--	--	--	300	--	--	--	--	54	--
AUG 04...	0	0	5	0	520	40	5	0	70	100	60
30...	--	--	5	--	200	--	16	--	--	43	--
SEP 21...	--	--	--	--	300	--	--	--	--	44	--

## ARKANSAS RIVER BASIN

53

07228000 Canadian River near Canadian, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL MERCURY (HG) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
OCT 15...	.0	.0	--	0	0	0	--	860	20	8
DEC 11...	--	--	--	--	--	--	--	--	--	--
JAN 21...	--	--	--	--	--	--	--	--	--	--
FEB 12...	--	--	10	--	--	--	<10	--	10	--
19...	.0	.0	--	3	1	0	--	2100	100	0
MAR 18...	--	--	--	--	--	--	--	--	--	--
APR 21...	--	--	--	--	--	--	--	--	--	--
MAY 18...	<.5	--	15	--	2	--	2	--	4	--
JUN 27...	.4	.3	--	0	0	0	--	1200	60	10
28...	--	--	--	--	--	--	--	--	--	--
JUL 26...	--	--	--	--	--	--	--	--	--	--
AUG 04...	.1	.0	--	0	0	0	--	780	70	10
30...	<.5	--	14	--	<3	--	1	--	6	--
SEP 21...	--	--	--	--	--	--	--	--	--	--

DATE	TIME	TOTAL PCB (UG/L)	POLY- CHLO- RINATED NAPH- THA- LENES (UG/L)	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL CHLOR- DANE (UG/L)	CHLOR- DANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDD (UG/L)	DDD IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDE (UG/L)	DDE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDT (UG/L)
OCT 15...	1530	.0	--	.00	--	.0	--	.00	--	.00	--	.00
DEC 04...	1020	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND
JAN 08...	0745	.0	--	.00	--	.0	--	.00	--	.00	--	.00
FEB 19...	1130	--	--	ND	--	ND	--	ND	--	ND	--	ND
APR 22...	1100	.0	.00	.00	--	.0	--	.00	--	.00	--	.00
MAY 26...	1500	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND
JUN 27...	1000	.0	.00	.00	--	.0	--	.00	--	.00	--	.00
AUG 04...	1000	--	--	ND	--	ND	--	ND	--	ND	--	ND

DATE	DDT IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DI- AZINON (UG/L)	DI- AZINON IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DI- ELDRIN (UG/L)	DI- ELDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ENDRIN (UG/L)	ENDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ETHION (UG/L)	ETHION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL HEPTA- CHLOR (UG/L)	HEPTA- CHLOR IN BOTTOM MA- TERIAL (UG/KG)
OCT 15...	--	.00	--	.00	--	.00	--	.00	--	.00	--
DEC 04...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JAN 08...	--	.00	--	.00	--	.00	--	.00	--	.00	--
FEB 19...	--	ND	--	ND	--	ND	--	ND	--	ND	--
APR 22...	--	.00	--	.00	--	.00	--	.00	--	.00	--
MAY 26...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JUN 27...	--	.00	--	.00	--	.00	--	.00	--	.00	--
AUG 04...	--	ND	--	ND	--	ND	--	ND	--	ND	--

## ARKANSAS RIVER BASIN

07228000 Canadian River near Canadian, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL HEPTA- CHLOR EPOXIDE (UG/L)	HEPTA- CHLOR EPOXIDE IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL LINDANE (UG/L)	LINDANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL MALA- THION (UG/L)	MALA- THION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL METH- OXY- CHLOR (UG/L)	METHOX- YCHLOR IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL METHYL PARA- THION (UG/L)	METHYL PARA- THION IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL METHYL TRI- THION (UG/L)
OCT 15...	.00	--	.00	--	.00	--	--	--	.00	--	.00
DEC 04...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JAN 08...	.00	--	.00	--	.00	--	--	--	.00	--	.00
FEB 19...	ND	--	ND	--	ND	--	ND	--	ND	--	ND
APR 22...	.00	--	.00	--	.00	--	--	--	.00	--	.00
MAY 26...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JUN 27...	.00	--	.00	--	.00	--	--	--	.00	--	.00
AUG 04...	ND	--	ND	--	ND	--	ND	--	ND	--	ND
DATE	METHYL TRI- THION IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL PARA- THION (UG/L)	PARA- THION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL TOX- APHENE (UG/L)	TOX- APHENE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	TRI- THION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ATRA- ZINE (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)
OCT 15...	--	.00	--	0	--	.00	--	--	.00	.00	.00
DEC 04...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JAN 08...	--	.00	--	0	--	.00	--	--	.00	.00	.00
FEB 19...	--	ND	--	ND	--	ND	--	ND	ND	ND	ND
APR 22...	--	.00	--	0	--	.00	--	--	.00	.00	.00
MAY 26...	ND	ND	ND	ND	ND	ND	--	ND	1.5	ND	ND
JUN 27...	--	.00	--	0	--	.00	--	--	.00	.00	.00
AUG 04...	--	ND	--	ND	--	ND	--	ND	ND	ND	ND

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

## PERIPHYTON

Date	Length of exposure (days)	Biomass (g/m <sup>2</sup> )		Chlorophyll a (mg/m <sup>2</sup> )	Chlorophyll b (mg/m <sup>2</sup> )	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight				
OCT. 15	28	33	23	19	2.0	510	Polyethylene strip
NOV. 05	21	40	33	14	2.0	520	Polyethylene strip
JAN. 08	35	.0	.0	.0	.0	.0	Polyethylene strip
MAR. 17	27	120	96	120	.0	180	Polyethylene strip
JULY 21	24	91.7	8.4	67.2	8.62	170	Polyethylene strip

07228000 Canadian River near Canadian, Tex.--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

OCT. 15, 1975 1530 HOURS

PHYTOPLANKTON 2,000 CELLS/ML

NOV. 5, 1975 1030 HOURS

PHYTOPLANKTON 16,000 CELLS/ML

_ORGANISM_NAME	CELLS/ML	PER_CENT	_ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA			CHLOROPHYTA		
..CHLOROPHYCEAE			..CHLOROPHYCEAE		
...CHLOROCOCCALES			...CHLOROCOCCALES		
....OCCYSTACEAE			....HYDRODICTYACEAE		
.....TETRAEDRON	25	1	....PEDIASTRUM		0
....SCENEDESMACEAE			....OCCYSTACEAE		
....SCENEDESMUS	50	2	....DICTYOSPHAERIUM		0
...VOLVOCALES			....SCENEDESMACEAE		
..CHLAMYDOMONADACEAE			....ACTINASTRUM		0
...CHLAMYDOMONAS	50	2	....SCENEDESMUS	7,000	44
..ZYGNEMATALES			...VOLVOCALES		
...DESMIDIACEAE			..CHLAMYDOMONADACEAE		
....COSMARIUM	25	1	....CHLAMYDOMONAS	110	1
..ZYGNEMATACEAE			CHRYSTOPHYTA		
....SPIROGYRA	150	7	..BACILLARIOPHYCEAE		
CHRYSTOPHYTA			..CENTRALES		
..BACILLARIOPHYCEAE			...COSCINODISCACEAE		
..CENTRALES			....CYCLOTELLA	880	5
...COSCINODISCACEAE			..PENNALES		
....CYCLOTELLA	25	1	...CYMBELLACEAE		
....MELOSIRA		0	....CYMBELLA	110	1
..PENNALES			...FRAGILARIACEAE		
...ACHNANTHACEAE			....SYNEDRA	220	1
....COCCONEIS	25	1	...GOMPHONEMATACEAE		
...CYMBELLACEAE			....GOMPHONEMA		0
....RHOPALODIA	25	1	...NAVICULACEAE		
...FRAGILARIACEAE			....DIPLONEIS		0
....SYNEDRA	25	1	....NAVICULA	880	5
...GOMPHONEMATACEAE			...NITZSCHACEAE		
....GOMPHONEMA	50	2	....HANTZSCHIA	110	1
...NAVICULACEAE			....NITZSCHIA	3,000	18
....NAVICULA	300	15	CYANOPHYTA		
....NEIDIUM	50	2	..MYXOPHYCEAE		
....PINNULARIA	25	1	..CHROOCOCCALES		
...NITZSCHACEAE			...CHROOCOCCACEAE		
....NITZSCHIA	900	45	....ANACYSTIS		0
CYANOPHYTA			...OSCILLATORIALES		
..MYXOPHYCEAE			....NOSTOCACEAE		
...CHROOCOCCALES			....ANABAENA		0
...CHROOCOCCACEAE			...OSCILLATORIA		
....AGMENELLUM	100	5	...OSCILLATORIA	3,800	24
....ANACYSTIS		0	EUGLENOPHYTA		
...OSCILLATORIALES			..EUGLENOPHYCEAE		
...NOSTOCACEAE			..EUGLENALES		
....ANABAENA	170	9	...EUGLENACEAE		
			....TRACHELOMONAS		0

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

DEC. 4, 1975 1020 HOURS

PHYTOPLANKTON 3,800 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...SCENEDESMACEAE		
...SCENEDESMUS	930	24
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
...CYCLOTELLA	93	2
...MELOSIRA		0
..PENNALES		
...CYMBELLACEAE		
...EPITHEMIA	93	2
...NAVICULACEAE		
...AMPHIPRORA	93	2
...DIPLONEIS	93	2
...NAVICULA	280	7
...NEIDIUM	93	2
...NITZSCHIA		
...NITZSCHIA	1,600	41
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
...CHROOCOCCACEAE		
...ANACYSTIS	560	15
..OSCILLATORIALES		
...OSCILLATORIA		0

JAN. 8, 1976 0745 HOURS

PHYTOPLANKTON 3,000 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...HYDRODICTYACEAE		
...PEDIASTRUM		0
...SCENEDESMACEAE		
...SCENEDESMUS	1,000	33
..VOLVOCALES		
...CHLAMYDOMONADACEAE		
...CHLAMYDOMONAS	200	7
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
...CYCLOTELLA	67	2
..PENNALES		
...ACHNANTHACEAE		
...ACHNANTHES		0
...CYMBELLACEAE		
...EPITHEMIA		0
...RHOPALODIA		0
..EUNOTIA		
...EUNOTIA		0
...FRAGILARIACEAE		
...SYNEDRA		0
...GOMPHONEMACEAE		
...GOMPHONEMA		0
...NAVICULACEAE		
...AMPHIPRORA	200	7
...CALONEIS		0
...DIPLONEIS	130	4
...NAVICULA	400	13
...TROPIDONEIS		0
...NITZSCHIA		
...HANTZSCHIA		0
...NITZSCHIA	1,000	33
...SURIRELLACEAE		
...SURIRELLA		0
CYANOPHYTA		
..MYXOPHYCEAE		
..OSCILLATORIALES		
...OSCILLATORIA		0

FEB. 19, 1976 1130 HOURS

PHYTOPLANKTON 9,900 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...MICRACTINIACEAE		
...MICRACTINIUM	3,200	32
...OCCYSTACEAE		
...ANKISTRODESMUS	58	1
...SCENEDESMACEAE		
...SCENEDESMUS	1,600	16
..VOLVOCALES		
...CHLAMYDOMONADACEAE		
...CHLAMYDOMONAS	460	5
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
...CYCLOTELLA	230	2
...MELOSIRA		0
..PENNALES		
...CYMBELLACEAE		
...AMPHORA	120	1
...GOMPHONEMACEAE		
...GOMPHONEMA	170	2
...NAVICULACEAE		
...AMPHIPRORA	640	6
...CALONEIS		0
...DIPLONEIS	58	1
...NAVICULA	1,600	16
...NEIDIUM		0
...NITZSCHIA		
...HANTZSCHIA		0
...NITZSCHIA	1,600	16
CHRYSOPHYCEAE		
..CHRYSONOMADACEAE		
...CHROMULINACEAE		
...CHRYSOCOCCUS		0
CYANOPHYTA		
..MYXOPHYCEAE		
..OSCILLATORIALES		
...OSCILLATORIA		0
...LYNGBYA		0
...OSCILLATORIA		0
...SPIRULINA		0
EUGLENOPHYTA		
..CRYPTOPHYCEAE		
...CRYPTOMONIDACEAE		
...CRYPTOCHRYSIDACEAE		
...CHROOMONAS	120	1
..EUGLENOPHYCEAE		
...EUGLENACEAE		
...EUGLENA	120	1
...TRACHELOMONAS		0



07228000 Canadian River near Canadian, Tex.--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

MAR. 17, 1976 1400 HOURS

PHYTOPLANKTON 6,300 CELLS/ML

_ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
..HYDRODICTYACEAE		
....PEDIASTRUM		0
..SCENEDESMACEAE		
....SCENEDESMUS	2,500	40
..VOLVOCALES		
..CHLAMYDOMONADACEAE		
....CARTERIA	160	3
....CHLAMYDOMONAS	390	6
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
..COSCINODISCAEAE		
....CYCLOTELLA	550	9
..PENNALES		
..ACHNANTHACEAE		
....COCCONEIS	78	1
..CYMBELLACEAE		
....AMPHORA	78	1
....RHOPALODIA		0
..FRAGILARIACEAE		
....SYNEDRA		0
..GOMPHONEMACEAE		
....GOMPHONEMA	78	1
..NAVICULACEAE		
....AMPHIPRORA	390	6
....CALONEIS	78	1
....DIPLONEIS		0
....MASTOGLIOA		0
....NAVICULA	1,300	20
....PINNULARIA		0
....TROPIDONEIS	78	1
..NITZSCHIAEAE		
....HANTZSCHIA	78	1
..NITZSCHIA	470	8
..SURIPELLACEAE		
....SURIPELLA		0
CYANOPHYTA		
..MYXOPHYCEAE		
..OSCILLATORIALES		
..OSCILLATORIAEAE		
....OSCILLATORIA		0
EUGLENOPHYTA		
..EUGLENOPHYCEAE		
..EUGLENALES		
....EUGLENACEAE		
....EUGLENA	78	1
....TRACHELOMONAS		0

APR. 22, 1976 1100 HOURS

PHYTOPLANKTON 38,000 CELLS/ML

_ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
..SCENEDESMACEAE		
....SCENEDESMUS	30,000	80
..VOLVOCALES		
..CHLAMYDOMONADACEAE		
....CHLAMYDOMONAS	700	2
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
..COSCINODISCAEAE		
....CYCLOTELLA	1,400	4
....MELOSIRA	700	2
..PENNALES		
..CYMBELLACEAE		
....CYMBELLA	700	2
....RHOPALODIA		0
..FRAGILARIACEAE		
....SYNEDRA	350	1
..NAVICULACEAE		
....AMPHIPRORA	350	1
....CALONEIS	350	1
....NAVICULA	2,500	6
..SURIPELLACEAE		
....SURIPELLA	350	1
EUGLENOPHYTA		
..EUGLENOPHYCEAE		
..EUGLENALES		
....EUGLENACEAE		
....EUGLENA		0

MAY 26, 1976 1500 HOURS

PHYTOPLANKTON 88,000 CELLS/ML

_ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
..SCENEDESMACEAE		
....SCENEDESMUS	69,000	78
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
..COSCINODISCAEAE		
....CYCLOTELLA	510	1
..PENNALES		
..ACHNANTHACEAE		
....ACHNANTHES	510	1
..CYMBELLACEAE		
....AMPHORA	510	1
..FRAGILARIACEAE		
....SYNEDRA	510	1
..NAVICULACEAE		
....CALONEIS	1,000	1
....DIPLONEIS	510	1
....NAVICULA	12,000	13
....TROPIDONEIS	510	1
..NITZSCHIAEAE		
....HANTZSCHIA	510	1
..NITZSCHIA	2,600	3
EUGLENOPHYTA		
..EUGLENOPHYCEAE		
..EUGLENALES		
....EUGLENACEAE		
....TRACHELOMONAS	510	1

JUNE 27, 1976 1000 HOURS

PHYTOPLANKTON 8,200 CELLS/ML

_ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
..CHARACIACEAE		
....SCHROEDERIA	51	1
..HYDRODICTYACEAE		
....PEDIASTRUM	100	1
..MICRACINIACEAE		
....MICRACINIUM	410	5
..OCCYSTACEAE		
....ANKISTRODESMUS	51	1
..SCENEDESMACEAE		
....SCENEDESMUS	1,100	13
..VOLVOCALES		
..CHLAMYDOMONADACEAE		
....CHLAMYDOMONAS	51	1
....CHLOROGONIUM	100	1
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
..COSCINODISCAEAE		
....CYCLOTELLA	100	1
..PENNALES		
..ACHNANTHACEAE		
....CUCCONEIS	51	1
..GOMPHONEMACEAE		
....GOMPHONEMA	51	1
..NAVICULACEAE		
....NAVICULA	200	2
..NITZSCHIAEAE		
....NITZSCHIA	970	12
CYANOPHYTA		
..MYXOPHYCEAE		
..OSCILLATORIALES		
..NOSTOCACEAE		
....ANABAENA	5,000	61

## ARKANSAS RIVER BASIN

07228000 Canadian River near Canadian, Tex.--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

AUG. 4, 1976 1000 HOURS

PHYTOPLANKTON 9,800 CELLS/ML

_ORGANISM_NAME_____	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
..OCCYSTACEAE		
..ANKISTRODESMUS		0
..SCENEDESMACEAE		
..SCENEDESMUS	150	1
..VOLVOCELES		
..CHLAMYDOMONADACEAE		
..CHLAMYDOMONAS	110	1
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
..COSCINODISCACEAE		
..CYCLOTELLA	110	1
..PENNALES		
..ACHNANTHACEAE		0
..COCCONEIS		
..CYMBELLACEAE		0
..AMPHORA		0
..NAVICULACEAE		
..NAVICULA	180	2
..PINNULARIA		0
..NITZSCHACEAE		
..NITZSCHIA	73	1
CYANOPHYTA		
..MYXOPHYCEAE		
..OSCILLATORIALES		
..NOSTOCACEAE		
..ANABAENA	470	5
..OSCILLATORIA		
..OSCILLATORIA	8,400	86
EUGLENOPHYTA		
..EUGLENOPHYCEAE		
..EUGLENALES		
..EUGLENA		0
..EUGLENA		1
..TRACHELOMONAS	73	
PYRRHOPHYTA		
..DINOPHYCEAE		
..PERIDINIALES		
..GLENODINIACEAE		
..GLENODINIUM		0

SEP. 15, 1976 1430 HOURS

PHYTOPLANKTON 63,000 CELLS/ML

_ORGANISM_NAME_____	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
..HYDRODICTYACEAE		
..PEDIASTRUM	5,600	9
..OCCYSTACEAE		
..DICTYOSPHAERIUM	2,500	4
..SCENEDESMACEAE		
..CRUCIGENIA	4,200	7
..SCENEDESMUS	3,500	6
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
..COSCINODISCACEAE		
..CYCLOTELLA	3,500	6
..STEPHANODISCUS	7,400	12
..PENNALES		
..CYMBELLACEAE		
..EPITHEMIA	350	1
..NITZSCHACEAE		
..NITZSCHIA	4,900	8
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
..CHROOCOCCACEAE		
..ANACYSTIS	7,000	11
..OSCILLATORIALES		
..OSCILLATORIA		
..LYNGBYA	16,000	25
..OSCILLATORIA	7,000	11
EUGLENOPHYTA		
..EUGLENOPHYCEAE		
..EUGLENALES		
..EUGLENA	700	1

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	10.82	834	480	14	110	2.9	18	0.5	230
NOV. 1975.....	739.73	2830	1610	3220	650	1300	200	402	530
DEC. 1975.....	1232	2740	1570	5210	630	2090	190	645	510
JAN. 1976.....	1692	2620	1500	6830	600	2730	180	839	490
FEB. 1976.....	1366	2710	1550	5710	620	2280	190	707	510
MAR. 1976.....	2300	2780	1590	9870	640	3980	200	1230	520
APR. 1976.....	2407	2700	1540	10000	620	4020	190	1240	510
MAY 1976.....	2389.6	1910	1090	7060	410	2630	120	801	370
JUNE 1976.....	448.52	2550	1460	1770	580	702	180	215	480
JULY 1976.....	6.39	974	560	9.6	150	2.6	35	0.5	270
AUG. 1976.....	8.08	971	550	12	160	3.4	39	0.8	270
SEPT 1976.....	374.62	3150	1800	1820	740	748	230	231	580
TOTAL .....	12974.74	**	**	51500	**	20500	**	6310	**
WTD.AVG. ....	35.55	2570	1500	**	590	**	180	**	490

## ARKANSAS RIVER BASIN

59

07228000 Canadian River near Canadian, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C) \* WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	818	1120	2830	2690	2620	2800	2880	2470	2390	912	738	2650
2	836	2140	2820	2720	2630	2780	2970	2590	2450	946	700	2850
3	827	2750	2810	2930	2670	2780	2950	2640	2330	2270	774	3460
4	732	3120	2780	2930	2680	2530	2910	2640	2460	1580	822	3140
5	800	3110	2830	2690	2570	2770	2940	2670	2480	919	673	2800
6	818	2940	2840	2580	2740	2820	2950	2380	2550	835	700	3060
7	824	3000	2810	2730	2600	2560	2840	2670	2360	767	711	2230
8	848	3050	2780	3210	2640	2470	2700	2640	2520	735	685	946
9	790	3020	2800	2980	2680	2690	2820	2470	2780	740	665	908
10	1070	3020	2800	2910	2670	2640	2820	2520	2870	748	670	841
11	867	2990	2810	2690	2620	2750	2880	2640	2840	740	675	819
12	791	2950	2760	2440	2640	2970	2860	2760	2840	726	689	835
13	849	2850	2750	2210	2760	3150	2870	2790	3110	735	700	901
14	703	2800	2760	2400	2700	3010	2950	2300	3010	723	749	908
15	780	2780	2740	2580	2740	2940	1750	2800	2980	749	698	1630
16	846	2750	2750	2720	2760	2960	2640	2850	2980	698	962	1550
17	747	2710	2790	2680	2780	2850	2550	2820	2560	748	711	2280
18	852	2710	2820	2660	2810	2860	2690	2820	2580	682	659	1410
19	865	2460	2670	2630	2680	2880	2730	2820	2570	726	659	2230
20	812	2770	2710	2610	2800	2910	2460	2820	2440	739	637	2060
21	848	2870	2720	2590	2940	2870	2800	2820	1870	702	693	2860
22	878	2700	2730	2590	2760	2840	2800	2100	1490	752	700	3660
23	862	2690	2730	2550	2760	2890	2960	2280	1350	740	677	3630
24	827	2820	2630	2660	2780	2840	3110	2400	2000	691	706	3710
25	835	2980	2650	2640	2800	2850	3090	2190	2590	765	706	3370
26	860	3180	2730	2600	2730	2850	2330	1680	2150	740	659	3170
27	851	2770	2690	2570	2720	2910	3040	1290	1640	702	623	3330
28	847	2810	2680	2610	2740	2940	2900	1750	1160	682	595	3270
29	836	2920	2690	2630	2760	2840	2610	1980	1080	716	665	3410
30	830	2900	2660	2690	---	2860	2300	2060	974	714	2050	3820
31	881	---	2690	2720	---	2810	---	2080	---	742	1330	---
MONTH	834	2790	2750	2670	2720	2830	2770	2460	2310	828	764	2390

TEMPERATURE (DEG. C) OF WATER \* WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	---	8.0	3.0	12.0	14.0	18.0	23.0	31.0	30.0	27.0	29.0
2	21.0	12.0	11.0	1.0	11.0	14.0	21.0	21.0	32.0	25.0	30.0	32.0
3	21.0	15.0	13.0	0.0	12.0	9.0	17.0	20.0	29.0	32.0	24.0	33.0
4	24.0	19.0	12.0	0.0	4.0	9.0	14.0	22.0	27.0	27.0	32.0	32.0
5	---	18.0	13.0	1.0	0.0	11.0	22.0	24.0	24.0	25.0	35.0	31.0
6	21.0	15.0	9.0	2.0	0.0	14.0	22.0	22.0	27.0	29.0	34.0	27.0
7	21.0	21.0	9.0	0.0	3.0	7.0	18.0	20.0	27.0	29.0	29.0	24.0
8	21.0	19.0	10.0	0.0	---	7.0	19.0	22.0	29.0	27.0	32.0	21.0
9	14.0	13.0	12.0	1.0	14.0	15.0	20.0	22.0	28.0	30.0	28.0	26.0
10	23.0	11.0	11.0	2.0	15.0	15.0	22.0	24.0	24.0	31.0	---	24.0
11	25.0	11.0	8.0	1.0	14.0	13.0	24.0	27.0	30.0	28.0	---	29.0
12	21.0	6.0	5.0	---	16.0	9.0	22.0	14.0	18.0	30.0	34.0	22.0
13	22.0	11.0	13.0	2.0	15.0	11.0	24.0	17.0	25.0	27.0	28.0	20.0
14	19.0	12.0	7.0	---	1.0	16.0	25.0	21.0	30.0	30.0	24.0	25.0
15	18.0	13.0	5.0	4.0	15.0	9.0	14.0	25.0	27.0	31.0	30.0	27.0
16	14.0	15.0	5.0	10.0	16.0	15.0	19.0	23.0	25.0	30.0	31.0	27.0
17	14.0	14.0	2.0	10.0	11.0	17.0	14.0	24.0	26.0	30.0	33.0	29.0
18	14.0	15.0	3.0	12.0	15.0	---	21.0	24.0	28.0	33.0	31.0	29.0
19	22.0	5.0	4.0	5.0	12.0	14.0	20.0	24.0	31.0	30.0	24.0	24.0
20	20.0	2.0	4.0	7.0	14.0	13.0	16.0	23.0	24.0	32.0	31.0	24.0
21	---	1.0	5.0	10.0	8.0	15.0	21.0	27.0	27.0	31.0	29.0	26.0
22	14.0	5.0	12.0	10.0	10.0	14.0	24.0	30.0	30.0	32.0	26.0	26.0
23	17.0	6.0	2.0	11.0	13.0	19.0	24.0	24.0	27.0	28.0	27.0	28.0
24	13.0	---	4.0	8.0	12.0	21.0	20.0	24.0	29.0	33.0	24.0	28.0
25	---	---	5.0	4.0	15.0	20.0	23.0	14.0	29.0	29.0	33.0	24.0
26	---	1.0	7.0	5.0	15.0	14.0	15.0	14.0	32.0	31.0	32.0	22.0
27	---	3.0	0.0	5.0	15.0	15.0	16.0	24.0	---	31.0	31.0	14.0
28	---	---	4.0	10.0	---	17.0	14.0	24.0	29.0	33.0	26.0	22.0
29	---	4.0	4.0	12.0	15.0	9.0	14.0	24.0	24.0	33.0	24.0	23.0
30	14.0	4.0	5.0	12.0	---	14.0	16.0	24.0	29.0	33.0	24.0	26.0
31	17.0	---	9.0	10.0	---	15.0	---	24.0	---	20.0	27.0	---
MONTH	---	10.5	7.3	6.3	11.5	14.7	19.5	24.0	24.0	29.5	30.0	26.0

## ARKANSAS RIVER BASIN

07233500 Palo Duro Creek near Spearman, Tex.

LOCATION.--Lat 36°12'08", Long 101°18'20", Hansford County, on right bank at downstream side of bridge on State Highway 15, 6 miles (10 km) west of Spearman, and 18 miles (29 km) upstream from Horse Creek.

DRAINAGE AREA.--960 mi<sup>2</sup> (2,490 km<sup>2</sup>), of which 520 mi<sup>2</sup> (1,350 km<sup>2</sup>) is probably noncontributing.

PERIOD OF RECORD.--Discharge: July 1945 to current year.

Water quality: Chemical analyses: January 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,961.63 ft (902.705 m) above mean sea level. May 8, 1968, to Dec. 4, 1969, at site 5 miles (8 km) downstream at different datum.

AVERAGE DISCHARGE.--31 years, 19.5 ft<sup>3</sup>/s (0.552 m<sup>3</sup>/s), 0.60 in/yr (15 mm/yr), 14,130 acre-ft/yr (17.4 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 396 ft<sup>3</sup>/s (11.2 m<sup>3</sup>/s) Apr. 21 (gage height, 6.68 ft or 2.036 m); no flow at times.

Period of record: Maximum discharge, 21,200 ft<sup>3</sup>/s (600 m<sup>3</sup>/s) Oct. 7, 1946 (gage height, 19.87 ft or 6.056 m); no flow at times most years.

Maximum stage since 1936, 22.5 ft (6.86 m) Sept. 4, 1938, from floodmark (discharge, about 34,000 ft<sup>3</sup>/s or 963 m<sup>3</sup>/s). Flood of June 4, 1936, reached a stage of 21 ft (6.4 m), from floodmark (discharge, 26,100 ft<sup>3</sup>/s or 739 m<sup>3</sup>/s, from rating curve extended above 20,000 ft<sup>3</sup>/s or 566 m<sup>3</sup>/s).

REMARKS.--Discharge records poor Oct. 1 to May 5 and good thereafter. Small diversion above station for irrigation.

REVISIONS.--WSP 1341: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	1.1	1.5	.10	.20	0	.31	13	1.5	0	0	0
2	5.0	2.0	2.0	.10	.20	0	.14	11	14	0	0	0
3	2.5	2.8	2.2	.10	.20	0	0	11	24	0	0	6.3
4	2.8	4.3	1.6	.10	.10	0	0	10	11	0	0	3.9
5	3.5	3.0	1.4	.10	0	0	0	10	5.1	0	.69	1.3
6	5.1	1.8	1.0	.20	0	0	0	10	4.3	0	1.1	.33
7	3.9	2.0	1.0	.05	0	0	0	9.4	3.3	0	.56	0
8	3.1	2.1	1.2	.10	0	0	0	8.0	2.6	0	.11	0
9	4.5	2.7	1.1	.30	0	.03	0	9.3	2.0	0	0	0
10	4.8	2.7	1.1	.40	0	.52	0	11	1.2	0	0	0
11	3.9	2.3	1.2	.50	0	.15	0	10	0	0	0	0
12	3.3	1.9	.90	.40	0	0	0	8.2	0	0	0	0
13	3.0	4.2	1.0	.40	0	0	0	5.1	0	0	0	0
14	3.0	5.6	.62	.40	0	0	0	5.4	0	0	0	0
15	2.4	4.0	.60	.60	0	0	0	6.5	0	0	0	.09
16	1.3	4.2	.70	.60	0	0	.01	6.9	0	0	0	.37
17	.41	4.1	.78	.62	0	0	6.0	4.6	0	33	0	1.0
18	.33	3.9	1.0	.51	0	0	4.9	2.7	0	7.4	0	.08
19	2.4	6.8	1.4	.08	0	0	3.7	2.4	0	2.6	0	0
20	2.6	4.6	1.4	0	0	0	50	3.4	0	1.0	0	0
21	2.5	4.0	1.2	0	0	0	268	3.9	0	.30	0	1.9
22	2.5	3.5	1.2	0	0	0	73	3.8	0	.05	0	2.2
23	.89	3.0	1.0	0	0	0	31	3.6	0	0	0	.42
24	.75	2.0	.80	0	0	0	13	4.7	0	0	0	0
25	.36	1.0	.60	0	0	0	8.6	4.3	0	.08	0	0
26	.19	1.0	.70	0	0	0	7.3	6.9	0	5.3	0	0
27	1.1	2.0	.80	0	0	0	6.4	7.8	0	1.2	0	.11
28	.77	2.5	.70	.10	0	0	7.6	7.1	0	.79	0	0
29	.57	3.1	.60	.10	0	0	7.0	5.0	0	1.5	0	0
30	.51	2.0	.41	.10	---	.76	13	2.9	0	.72	0	2.7
31	.63	---	.14	.10	---	.90	---	2.2	---	.39	0	---
TOTAL	72.21	90.2	31.85	6.06	.70	2.36	499.96	210.1	69.0	54.33	2.46	20.70
MEAN	2.33	3.01	1.03	.20	.024	.076	16.7	6.78	2.30	1.75	.079	.69
MAX	5.1	6.8	2.2	.62	.20	.90	268	13	24	33	1.1	6.3
MIN	.19	1.0	.14	0	0	0	0	2.2	0	0	0	0
CFSM	.002	.003	.001	0	0	0	.02	.007	.002	.001	0	0
IN.	.003	.003	.001	.0002	.00002	.00009	.02	.008	.003	.002	.00009	.0008
AC-FT	143	179	63	12	1.4	4.7	992	417	137	108	4.9	41

CAL YR 1975	TOTAL	6568.86	MEAN	18.0	MAX	2230	MIN	0	CFSM	.02	IN	.25	AC-FT	13030
WTR YR 1976	TOTAL	1059.93	MEAN	2.90	MAX	268	MIN	0	CFSM	.003	IN	.04	AC-FT	2100

PEAK DISCHARGE (BASE, 500 FT<sup>3</sup>/S).--No peak above base.

ARKANSAS RIVER BASIN

61

07233500 Palo Duro Creek near Spearman, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTERRER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
OCT. 09...	1100	5.2	506	8.7	12.0	200	10	37	27	24
NOV. 20...	0950	2.5	552	8.7	.0	230	13	48	27	23
DEC. 30...	1215	.48	598	8.6	.0	250	15	45	33	30
MAY 06...	0805	12	428	7.6	11.0	160	16	36	18	19
JULY 27...	1030	1.4	406	7.4	22.0	160	8	37	16	15

DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RINE (F) (MG/L)	DIS- SOLVED SILICA (SIO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT. 09...	.7	10	204	16	45	17	1.8	19	297
NOV. 20...	.7	13	242	12	49	15	1.7	20	328
DEC. 30...	.8	9.0	264	10	59	19	2.0	12	349
MAY 06...	.6	16	180	0	34	19	1.5	15	247
JULY 27...	.5	13	183	0	28	12	1.3	15	228



## ARKANSAS RIVER BASIN

07235000 Wolf Creek at Lipscomb, Tex.

LOCATION (revised).--Lat 36°14'19", long 100°16'50", Lipscomb County, near center of stream on downstream side of bridge on State Highway 305, 0.3 mile (0.5 km) north of Lipscomb, 0.6 mile (1.0 km) downstream from Sand Creek, 2 miles (3 km) upstream from Plum Creek, and at mile 61.2 (98.5 km).

DRAINAGE AREA.--697 mi<sup>2</sup> (1,805 km<sup>2</sup>), of which 222 mi<sup>2</sup> (575 km<sup>2</sup>) is probably noncontributing.

PERIOD OF RECORD.--October 1937 to September 1942, October 1961 to current year. Prior to 1941, monthly discharge only, published in WSP 1311.

GAGE.--Water-stage recorder. Datum of gage is 2,371.29 ft (722.769 m) above mean sea level. Prior to Feb. 25, 1938, nonrecording gage, Feb. 25, 1938, to Sept. 30, 1942, water-stage recorder at present site at datum 5.77 ft (1.759 m) higher.

AVERAGE DISCHARGE.--20 years (1937-42, 1961-76), 19.1 ft<sup>3</sup>/s (0.541 m<sup>3</sup>/s), 0.37 in/yr (9.40 mm/yr), 13,840 acre-ft/yr (17.1 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 53 ft<sup>3</sup>/s (1.50 m<sup>3</sup>/s) Sept. 19 (gage height, 4.56 ft or 1.390 m); minimum daily, 0.01 ft<sup>3</sup>/s (0.0003 m<sup>3</sup>/s) Aug. 1, 10, 11, Sept. 3, 4.

Period of record: Maximum discharge, 20,000 ft<sup>3</sup>/s (566 m<sup>3</sup>/s) Oct. 21, 1941 (gage height, 11.57 ft or 3.527 m, present datum), from rating curve extended above 14,000 ft<sup>3</sup>/s (396 m<sup>3</sup>/s) on basis of velocity-area studies; no flow at times.

Maximum stage since 1890, 15.5 ft (4.72 m) June 23, 1957, present site and datum, from floodmarks. Flood in May 1955 reached a stage of 12.1 ft (3.69 m), present site and datum, from information by State Highway Department.

REMARKS.--Records fair. Small diversion upstream from station for irrigation and recreation.

REVISIONS.--WSP 1311: 1938-39, drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.41	.81	.88	1.3	1.7	1.9	2.1	6.2	3.7	1.1	.01	.02
2	.41	1.0	.92	1.2	1.8	2.0	2.0	5.0	3.9	1.3	.04	.02
3	.41	.93	.93	.90	1.8	1.7	1.8	4.2	3.9	1.2	.22	.01
4	.41	.83	.91	.90	1.6	3.2	1.8	3.7	4.2	1.3	.41	.01
5	.34	.83	.90	1.0	1.2	2.9	1.9	3.7	4.8	1.7	.41	.02
6	.34	.74	.91	1.1	.80	2.6	2.0	4.1	4.6	1.7	.41	.02
7	.34	.74	.86	.80	.60	2.8	2.1	3.4	5.6	1.8	.41	.04
8	.34	.74	.90	.50	1.0	3.6	2.2	3.1	4.4	1.5	.06	.22
9	.36	.74	.94	.50	2.0	3.8	2.1	3.2	3.4	1.5	.03	.17
10	.37	.74	.95	1.0	2.4	3.6	2.0	3.2	1.4	1.5	.01	.17
11	.36	.65	.95	1.2	2.3	3.5	1.7	2.9	1.9	1.4	.01	.13
12	.36	.65	.97	1.4	2.3	2.9	1.7	2.5	1.9	1.4	.06	.09
13	.37	.74	1.1	1.5	2.3	2.5	1.8	2.3	1.3	1.4	.06	.17
14	.40	.74	1.3	1.6	2.1	2.5	1.8	2.1	1.2	1.4	.06	.34
15	.41	.74	1.2	1.6	2.2	2.4	3.0	2.0	1.2	1.4	.13	.65
16	.43	.74	1.0	1.6	2.2	2.4	7.0	1.8	.86	1.5	.13	1.2
17	.43	.74	.90	1.5	2.2	2.4	6.5	1.6	.90	1.7	.06	.56
18	.47	.83	.60	1.5	2.1	2.5	5.3	1.5	1.1	1.4	.13	.28
19	.45	1.1	.80	1.5	2.0	2.4	4.7	1.4	1.3	1.3	.22	7.3
20	.46	.84	.93	1.4	1.9	2.1	6.3	1.2	1.5	1.0	.28	20
21	.45	.88	1.0	1.7	1.8	1.9	8.2	1.1	1.2	.83	.28	5.0
22	.48	.74	1.2	1.7	1.7	2.0	7.6	1.9	1.3	.93	.17	3.9
23	.44	.79	1.2	1.6	1.9	2.1	6.0	3.7	1.3	1.0	.10	3.5
24	.51	.83	1.2	1.6	2.1	2.0	5.0	16	1.3	1.2	.10	1.3
25	.54	.80	1.2	1.4	1.9	2.4	4.2	7.8	1.4	.56	.10	.41
26	.61	.79	1.2	1.0	1.7	2.1	3.9	7.4	1.1	.22	.08	.41
27	.65	.80	1.2	1.0	1.7	2.1	3.9	5.6	.67	.20	.08	.41
28	.65	.97	1.2	1.3	1.8	2.2	5.7	3.7	.85	.15	.06	.48
29	.65	1.3	1.2	1.7	1.9	1.9	5.3	2.3	1.1	.10	.06	.48
30	.65	1.2	1.3	1.7	---	2.0	6.0	2.3	1.2	.05	.04	.48
31	.74	---	1.3	1.6	---	1.9	---	3.4	---	.02	.04	---
TOTAL	14.24	24.88	32.05	40.30	53.00	76.3	115.6	114.3	64.48	33.76	4.26	47.79
MEAN	.46	.83	1.03	1.30	1.83	2.46	3.85	3.69	2.15	1.09	.14	1.59
MAX	.74	1.3	1.3	1.7	2.4	3.8	8.2	16	5.6	1.8	.41	20
MIN	.34	.65	.60	.50	.60	1.7	1.7	1.1	.67	.02	.01	.01
CFSM	0	.001	.001	.001	.002	.003	.005	.005	.003	.001	0	.002
IN	.0004	.001	.002	.002	.003	.004	.006	.006	.003	.002	.0002	.003
AC-FT	24	49	64	80	105	151	229	227	128	67	8.4	95
CAL YR 1975 TOTAL	1720.15											
MEAN 4.71												
MAX 194												
MIN .20												
CFSM .006												
IN .09												
AC-FT 3410												
WTR YR 1976 TOTAL	621.00											
MEAN 1.70												
MAX 20												
MIN .01												
CFSM .002												
IN .03												
AC-FT 1230												

PEAK DISCHARGE (BASE, 500 FT<sup>3</sup>/S).--No peak above base.

## RED RIVER BASIN

63

07297910 Prairie Dog Town Fork Red River near Wayside, Tex.  
(National stream-quality accounting network)

LOCATION.--Lat 34°50'15", long 101°24'49", Armstrong County, on left bank at downstream side of bridge on Farm Road 284, 13 miles (21 km) northeast of Wayside, 26 miles (42 km) south of Claude, and at mile 1,145 (1,842 km).

DRAINAGE AREA.--4,211 mi<sup>2</sup> (10,906 km<sup>2</sup>), of which 3,281 mi<sup>2</sup> (8,498 km<sup>2</sup>) is probably noncontributing.

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

Water quality: Chemical analyses: November 1967 to current year. Water temperatures: November 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,463.74 ft (750.948 m) above mean sea level.

AVERAGE DISCHARGE.--9 years, 31.4 ft<sup>3</sup>/s (0.889 m<sup>3</sup>/s), 22,750 acre-ft/yr (28.1 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 11,700 ft<sup>3</sup>/s (331 m<sup>3</sup>/s) July 2 (gage height, 10.44 ft or 3.182 m); no flow at times.

Period of record: Maximum discharge, 58,000 ft<sup>3</sup>/s (1,640 m<sup>3</sup>/s) Aug. 28, 1968 (gage height, 13.0 ft or 3.96 m, from floodmark); no flow at times.

Water quality: Current year: Maximum daily specific conductance, 50,800 micromhos Sept. 6; minimum daily, 606 micromhos Sept. 27. Maximum water temperatures, 33.0°C May 29, July 17, 25; minimum, freezing point on several days during December and January.

Period of record: Maximum daily specific conductance, 50,800 micromhos Sept. 6, 1976; minimum daily, 417 micromhos July 10, 1975. Maximum water temperatures, 38.0°C Oct. 14, 1968, June 13, 1975; minimum, freezing point on many days during winter months.

REMARKS.--Discharge records fair. Several small diversions above station. Specific conductance, recorded continuously at this station, was discontinued.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		.46	.18	.32	.25	.12	.04	1.2	.01	0	0	1.1
2		.30	.25	.31	.27	.11	.01	.85	0	657	2.2	.71
3		.01	.25	.31	.30	.24	.01	.28	0	80	122	.49
4		0	.25	.31	.37	1.3	.02	.43	0	1.2	228	.29
5		0	.20	.47	.20	.45	.05	.29	6.2	.54	8.2	.17
6		0	.12	.45	.10	.75	.07	.22	22	.47	1.6	.24
7		0	.20	.31	.10	2.0	.11	.17	9.4	.54	.62	.36
8		0	.20	.31	.20	3.2	.09	.22	9.7	.49	.35	.55
9		0	.22	.40	.26	3.1	.07	.10	3.1	.37	.22	.20
10		0	.20	.52	.18	1.6	.07	.14	.53	.40	.14	.10
11		0	.18	.48	.18	1.6	.06	.04	.10	13	.17	.06
12		0	.20	.51	.21	1.5	.21	.02	.01	6.6	.17	.03
13		0	.22	.35	.18	1.3	2.1	.01	0	2.3	.14	.04
14		0	.20	.35	.18	.85	1.6	.01	0	58	.06	.03
15		0	.13	.39	.19	.85	1.9	.01	0	10	.02	.01
16		0	.14	.37	.15	.62	1.5	0	0	189	0	4.8
17		0	.11	.38	.15	.73	9.6	0	0	2.1	0	76
18		0	.14	.36	.16	.32	.42	0	0	.35	0	41
19		.54	.20	.23	.14	.43	.28	0	0	.17	0	24
20		.49	.21	.26	.13	.22	.53	0	0	.14	0	60
21		.39	.22	.30	.06	.22	.08	0	0	.11	0	3.0
22		.28	.24	.35	.08	.22	.05	0	0	.06	0	.14
23		.25	.25	.35	.09	.17	.04	0	0	.08	.02	.07
24		.22	.49	.35	.07	.15	.03	0	0	.06	.16	.06
25		.20	.36	.35	.06	.12	.02	11	0	1.7	.07	.10
26		.20	.31	.35	.08	.08	.01	15	0	.05	.28	.05
27		.22	.39	.31	.08	.04	4.4	2.7	0	0	0	866
28		.28	.48	.31	.10	.04	2.1	.74	0	14	0	146
29		.39	.59	.35	.11	.06	1.3	.18	0	.52	0	17
30		.22	.53	.42	---	.05	3.5	.04	0	.05	0	4.3
31		---	.44	.26	---	.04	---	.02	---	0	7.2	---
TOTAL	n	4.45	8.10	11.09	4.63	22.48	30.27	33.67	51.05	1039.30	371.62	1246.90
MEAN	n	.15	.26	.36	.16	.73	1.01	1.09	1.70	33.5	12.0	41.6
MAX	n	.54	.59	.52	.37	3.2	9.6	15	22	657	228	866
MIN	n	0	.11	.23	.06	.04	.01	0	0	0	0	.01
AC-FT	n	8.8	16	22	9.2	45	60	67	101	2060	737	2470

CAL YR 1975 TOTAL 4893.47 MEAN 13.4 MAX 1180 MIN 0 AC-FT 9710  
WTR YR 1976 TOTAL 2823.56 MEAN 7.71 MAX 866 MIN 0 AC-FT 5600

PEAK DISCHARGE (BASE, 6,000 FT<sup>3</sup>/S).--July 2 (2115) 11,700 ft<sup>3</sup>/s (10.44 ft).

## RED RIVER BASIN

07297910 Prairie Dog Town Fork Red River near Wayside, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	BIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	IMME- DIATE COLI- FORM (COL. PER 100 ML)	FECAL COLI- FORM (COL. PER 100 ML)	STREP- TOCOCCI (COL- ONIES PER 100 ML)
NOV 23...	1340	2.0	29200	7.6	13.0	--	--	--	--	--	--	--
DEC 03...	1040	10	33500	8.1	11.0	2	10.3	104	.9	7	4	29
JAN 07...	1400	6.4	34400	7.7	.0	1	13.2	104	.5	1	1	11
FEB 18...	1100	8.3	30300	7.9	12.5	1	9.9	103	.1	27	27	5
MAR 17...	1000	1.7	35200	8.0	12.5	2	9.4	99	.4	13	13	6
APR 21...	1000	2.7	33100	7.9	18.0	10	8.7	102	.3	36	30	110
MAY 26...	1030	30	1540	7.8	16.0	6500	8.8	88	5.2	180000	45000	53000
JUL 21...	1000	.03	40500	8.0	27.0	9	6.6	100	.1	92	50	55
AUG 03...	1130	21	1130	7.9	24.0	9500	7.6	93	11	250000	68000	42000
SEP 15...	1030	.01	40100	8.1	27.0	9	7.1	108	.6	3200	3200	230
DATE	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RINE (F) (MG/L)
NOV 23...	3000	2900	850	210	6200	49	110	142	0	2300	10000	1.0
DEC 03...	3300	3100	920	230	6800	52	120	161	0	2400	11000	1.0
JAN 07...	3400	3300	970	240	6900	51	130	156	0	2500	11000	.9
FEB 18...	3200	3100	930	220	6100	47	98	154	0	2600	10000	1.1
MAR 17...	3500	3400	990	260	7300	53	140	158	0	2800	12000	1.0
APR 21...	3600	3400	1000	260	7000	51	120	162	0	2800	11000	1.2
MAY 26...	330	230	100	20	200	4.8	5.5	120	0	420	170	.9
JUL 21...	4200	4100	1200	290	8400	56	140	154	0	2700	14000	1.0
AUG 03...	280	220	89	14	130	3.4	5.5	76	0	340	120	.5
SEP 15...	3900	3700	1100	270	8700	61	160	152	0	2800	14000	1.1
DATE	DIS- SOLVED SILICA (SI02) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITU- ENTS) (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	SUS- PENDE SEDIM- ENT (MG/L)	SUS- PENDE SEDIM- ENT DIS- CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
NOV 23...	24	--	19800	--	--	--	--	--	--	--	--	--
DEC 03...	25	22200	21600	.00	.01	.15	--	.01	--	26	.70	52
JAN 07...	24	23100	21800	.08	.01	.25	.46	.03	--	3	.05	29
FEB 18...	23	20100	20100	.00	.01	.06	.01	.02	1.0	23	.52	80
MAR 17...	26	23700	23600	.00	.01	.08	.03	.03	--	31	.14	77
APR 21...	26	22600	22300	.02	.01	.19	.04	.01	--	7	.05	61
MAY 26...	9.7	1010	985	.80	.10	.18	2.3	.99	--	26400	2140	100
JUL 21...	24	27800	26900	.01	.00	.18	.00	.03	1.4	38	.00	91
AUG 03...	8.0	772	744	.63	.02	.03	2.8	.86	--	21300	1210	95
SEP 15...	26	26900	27100	.01	.00	.09	.16	.02	--	26	.00	87

## RED RIVER BASIN

65

07297910 Prairie Dog Town Fork Red River near Wayside, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	DIS-SOLVED ALUMINUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BORON (B) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	DIS-SOLVED CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	DIS-SOLVED CHROMIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)
DEC. 03...	1040	20	0	0	1200	0	0	40	0	0
FEB. 18...	1100	10	3	3	820	0	0	20	5	0
JULY 21...	1000	10	1	1	--	0	3	50	0	2

DATE	DIS-SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS-SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED LITHIUM (LI) (UG/L)	TOTAL MANGANESE (MN) (UG/L)
DEC. 03...	0	8	0	220	70	3	2	140	680
FEB. 18...	0	7	0	160	70	0	0	170	290
JULY 21...	0	8	0	280	100	1	1	150	790

DATE	DIS-SOLVED MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	DIS-SOLVED SELENIUM (SE) (UG/L)	DIS-SOLVED STRONTIUM (SP) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
DEC. 03...	630	.0	.0	0	3	2	18000	110	30
FEB. 18...	300	.0	.0	0	2	2	17000	50	10
JULY 21...	780	.2	.3	4	2	2	20000	30	40

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

## PERIPHYTON

Date	Length of exposure (days)	Biomass (g/m <sup>2</sup> )		Chlorophyll <sup>a</sup> (mg/m <sup>2</sup> )	Chlorophyll <sup>b</sup> (mg/m <sup>2</sup> )	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight				
JAN. 07	35	53	47	3.3	0.0	1900	Polyethylene strip
FEB. 18	42	1.2	1.1	.0	.0	.0	Polyethylene strip
AUG. 03	13	2.08	.692	.091	.000	15000	Polyethylene strip

07297910 Prairie Dog Town Fork Red River near Wayside, Tex.--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

DEC. 3, 1975 1040 HOURS

PHYTOPLANKTON 1,100 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..PENNALES		
...CYMBELLACEAE		
....AMPHORA	200	19
...NAVICULACEAE		
....NAVICULA	670	63
...NITZSCHIA		
....NITZSCHIA	200	19

JAN. 7, 1976 1400 HOURS

PHYTOPLANKTON 1,000 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..PENNALES		
...CYMBELLACEAE		
....AMPHORA		0
...NAVICULACEAE		
....AMPHIPRORA		0
...NAVICULA	140	13
...NITZSCHIA		
....NITZSCHIA	890	87
...DENTICULA		0
....NITZSCHIA		

FEB. 18, 1976 1100 HOURS

PHYTOPLANKTON 600 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...OCCYSTACEAE		
....OCCYSTIS		0
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..PENNALES		
...CYMBELLACEAE		
....AMPHORA	9	2
...FRAGILARIACEAE		
....SYNEDRA	9	2
...NAVICULACEAE		
....CALONEIS		0
...NAVICULA	250	42
...NITZSCHIA		
....NITZSCHIA	9	2
...HANTZSCHIA	290	48
CHRYSOPHYCEAE		
..CHRYSOMONADALES		
...OCHROMONADACEAE		
....OCHROMONAS	9	2
EUGLENOPHYTA		
..EUGLENOPHYCEAE		
...EUGLENALES		
...EUGLENACEAE		
....TRACHELOMONAS	19	3

MAR. 17, 1976 1000 HOURS

PHYTOPLANKTON 440 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..PENNALES		
...CYMBELLACEAE		
....AMPHORA	31	7
...NAVICULACEAE		
....AMPHIPRORA		0
...NITZSCHIA		
....NITZSCHIA	400	93

APR. 21, 1976 1000 HOURS

PHYTOPLANKTON 3,100 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..PENNALES		
...NAVICULACEAE		
....NAVICULA	620	20
...NITZSCHIA		
....NITZSCHIA	2,500	80

MAY 26, 1976 1030 HOURS

PHYTOPLANKTON 72,000 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..PENNALES		
...CYMBELLACEAE		
....CYMBELLA	2,500	4
...RHODOPHODIA	1,300	2
...DIATOMACEAE		
....DIATOMA	1,300	2
...NAVICULACEAE		
....MASTOGLOIA	5,000	7
...NAVICULA	1,300	2
...NEIDIDIUM	1,300	2
...NITZSCHIA		
....NITZSCHIA	1,300	2
...DENTICULA	1,300	2
...NITZSCHIA	1,300	2
CYANOPHYTA		
..MYXOPHYCEAE		
...OSCILLATORIALES		
....OSCILLATORIA	57,000	79
...LYNGBYA		

JULY 21, 1976 1000 HOURS

PHYTOPLANKTON 310 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..PENNALES		
...CYMBELLACEAE		
....AMPHORA	81	26
...NAVICULACEAE		
....CALONEIS	15	5
...NAVICULA	55	18
...NITZSCHIA		
....NITZSCHIA	18	6
...HANTZSCHIA	140	46

AUG. 3, 1976 1130 HOURS

PHYTOPLANKTON 1,400 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..PENNALES		
...CYMBELLACEAE		
....CYMBELLA	120	8
...EPITHEMIA	120	8
CYANOPHYTA		
..MYXOPHYCEAE		
...OSCILLATORIALES		
....OSCILLATORIA	1,200	83

SEP. 15, 1976 1030 HOURS

PHYTOPLANKTON 1,600 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...VOLVOCALES		
...CHLAMYDOMONADACEAE		
....CHLAMYDOMONAS	230	14
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..PENNALES		
...CYMBELLACEAE		
....EPITHEMIA	59	4
...NAVICULACEAE		
....NAVICULA	59	4
...NITZSCHIA		
....NITZSCHIA		



## RED RIVER BASIN

67

07297910 Prairie Dog Town Fork Red River near Wayside, Tex.--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	0	*****	*****	0	*****	0	*****	0	****
NOV. 1975.....	4.45	20100	13200	159	6110	73	2110	25	****
DEC. 1975.....	8.1	26100	17000	372	8160	179	2420	53	****
JAN. 1976.....	11.09	24200	15800	472	7490	224	2320	69	****
FEB. 1976.....	4.52	26700	17500	213	8400	102	2460	30	****
MAR. 1976.....	22.48	25700	16800	1020	8040	488	2400	146	****
APR. 1976.....	30.27	15200	9990	816	4370	357	1850	151	****
MAY 1976.....	33.67	6240	4180	380	1520	138	1070	98	1540
JUNE 1976.....	51.05	2750	1870	258	420	57	750	103	800
JULY 1976.....	1039.3	2090	1370	3840	410	1140	400	1130	610
AUG. 1976.....	371.62	2080	1360	1360	370	370	470	467	600
SEPT 1976.....	1246.9	1280	840	2840	180	591	310	1030	370
TOTAL .....	2823.44	**	**	11700	**	3720	**	3300	**
WTD.AVG. ....	7.74	2340	1500	**	490	**	430	**	680

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		19500	31700	14900	26400	36800	42500	15400	41600	---	---	38200
2		18400	33100	24100	23600	37700	41500	21000	---	635	35000	39800
3		27700	32700	27800	23100	30000	43200	36900	---	2170	1590	41400
4		---	30700	23200	23900	16800	39000	37300	---	24800	1140	43200
5		---	34600	8520	20200	31800	39000	34400	4270	40600	3420	46100
6		---	35200	16400	25900	25600	41000	39000	2100	44500	14800	50800
7		---	33800	32400	21800	21600	38300	40000	2690	45200	28200	38800
8		---	31400	36100	20000	16200	38300	40000	2250	47600	43500	25500
9		---	25900	29400	21000	17600	39400	42800	3830	47000	42100	11500
10		---	26200	19800	25900	21600	41700	41600	10100	44500	45300	12100
11		---	26500	26700	27500	22000	42900	45600	27500	5810	44400	13900
12		---	28200	18100	23900	36500	41200	42300	38700	8360	43500	18700
13		---	23900	24800	25300	36900	19100	42400	---	15300	43400	22600
14		---	23500	29100	26900	31200	38600	42500	---	12100	43500	26800
15		---	31300	25000	26400	31200	28700	43500	---	17700	44700	30900
16		---	29300	22800	27700	35400	19300	---	---	1150	---	4750
17		---	28400	22800	31400	32200	10400	---	---	12100	---	1990
18		---	32900	21300	27700	38700	25100	---	---	25400	---	1920
19		6730	30500	26900	31300	37900	27200	---	---	39300	---	4370
20		4400	27200	29400	29400	40000	29900	---	---	40900	---	1510
21		10100	30500	28900	38100	41700	38300	---	---	41200	---	31900
22		27600	28500	25400	35500	37700	37500	---	---	41900	---	25800
23		27600	28400	22700	37100	39400	39300	---	---	42100	45400	25100
24		27000	19300	22700	37500	39600	41700	---	---	41000	41000	24200
25		25800	25100	24400	38500	39000	40000	3500	---	27200	41600	20200
26		29100	23100	31000	38100	41400	40600	2050	---	40200	17900	20200
27		31900	23600	33400	38100	40200	4000	5200	---	---	---	606
28		31500	21600	25400	37100	41700	7790	12900	---	3040	---	1300
29		28900	18600	25400	37500	41400	13900	20600	---	28500	---	6650
30		29400	26200	23400	---	40500	13600	41000	---	41600	---	13400
31		---	16900	27300	---	40200	---	44100	---	---	14100	---
MONTH	---	---	27700	24800	29200	33600	32100	---	---	27900	---	21500

## RED RIVER BASIN

07297910 Prairie Dog Town Fork Red River near Wayside, Tex.--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		---	14.0	4.0	14.0	14.0	19.0	20.0	30.0	---	---	26.0
2		17.0	18.0	1.0	12.0	14.0	23.0	25.0	---	---	24.0	27.0
3		19.0	14.0	0.0	12.0	12.0	19.0	17.0	---	28.0	30.0	30.0
4		---	16.0	0.0	5.0	10.0	14.0	22.0	---	30.0	26.0	28.0
5		---	15.0	9.0	2.0	15.0	25.0	23.0	24.0	25.0	28.0	24.0
6		---	12.0	7.0	1.0	15.0	21.0	20.0	17.0	27.0	32.0	28.0
7		---	12.0	0.0	3.0	4.0	23.0	15.0	21.0	27.0	27.0	21.0
8		---	13.0	0.0	7.0	4.0	20.0	17.0	24.0	26.0	27.0	21.0
9		---	17.0	5.0	11.0	19.0	20.0	21.0	26.0	27.0	28.0	15.0
10		---	14.0	10.0	16.0	18.0	25.0	26.0	31.0	26.0	28.0	20.0
11		---	17.0	5.0	17.0	17.0	23.0	25.0	---	28.0	30.0	22.0
12		---	4.0	14.0	18.0	12.0	21.0	17.0	29.0	23.0	28.0	26.0
13		---	17.0	8.0	20.0	13.0	23.0	---	---	24.0	31.0	19.0
14		---	13.0	10.0	11.0	14.0	15.0	19.0	---	27.0	28.0	25.0
15		---	8.0	10.0	15.0	6.0	17.0	29.0	---	28.0	27.0	26.0
16		---	12.0	13.0	15.0	13.0	18.0	---	---	27.0	---	29.0
17		---	7.0	13.0	12.0	20.0	17.0	---	---	33.0	---	26.0
18		---	0.0	13.0	14.0	25.0	23.0	---	---	30.0	---	25.0
19		---	9.0	9.0	6.0	13.0	12.0	18.0	---	28.0	---	20.0
20		---	3.0	10.0	12.0	14.0	17.0	---	---	29.0	---	18.0
21		---	7.0	6.0	11.0	6.0	17.0	15.0	---	27.0	---	25.0
22		---	10.0	5.0	14.0	13.0	19.0	24.0	---	26.0	---	22.0
23		---	13.0	1.0	12.0	14.0	20.0	25.0	---	26.0	26.0	29.0
24		---	15.0	5.0	11.0	9.0	26.0	17.0	---	28.0	26.0	26.0
25		---	6.0	9.0	9.0	16.0	19.0	18.0	17.0	---	33.0	22.0
26		---	3.0	12.0	7.0	15.0	9.0	19.0	16.0	---	31.0	29.0
27		---	14.0	9.0	0.0	15.0	14.0	20.0	25.0	---	---	14.0
28		---	13.0	4.0	3.0	19.0	17.0	15.0	27.0	---	23.0	---
29		---	12.0	5.0	10.0	20.0	15.0	13.0	33.0	---	30.0	---
30		---	9.0	8.0	15.0	---	15.0	13.0	28.0	---	31.0	---
31		---	12.0	9.0	---	17.0	---	27.0	---	---	26.0	---
MONTH		---	10.5	8.0	12.5	15.0	19.5	---	---	27.5	---	23.5

## RED RIVER BASIN

69

07298100 Mackenzie Reservoir near Silverton, Tex.

LOCATION.--Lat 34°32'43", long 101°26'16", Briscoe County, at upstream side of dam on Tule Creek, 0.9 mile (1.4 km) upstream from Rock Creek, 9.5 miles (15.3 km) northwest of Silverton, and 22.7 miles (36.5 km), revised, upstream from Prairie Dog Town Fork Red River.

DRAINAGE AREA.--188 mi<sup>2</sup> (487 km<sup>2</sup>).

PERIOD OF RECORD.--Contents: October 1974 to current year.

Water quality: Chemical analyses: October 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (Freese, Nichols, and Endress, Consulting Engineers, bench mark).

EXTREMES.--Current year: Maximum contents, 1,190 acre-ft (1.47 hm<sup>3</sup>) June 6 (elevation, 2,988.57 ft or 910.916 m); minimum, 877 acre-ft (1.08 hm<sup>3</sup>) Apr. 12-14 (elevation, 2,984.77 ft or 909.758 m).

Period of record: Maximum contents, 1,190 acre-ft (1.47 hm<sup>3</sup>) June 6, 1976 (elevation, 2,988.57 ft or 910.916 m); minimum, 596 acre-ft (0.737 hm<sup>3</sup>) Oct. 1, 2, 1974 (elevation, 2,980.61 ft or 908.490 m).

REMARKS.--The reservoir is formed by a rolled earthfill dam 2,100 ft (640 m) long. The dam was completed in August 1974 and storage began in June 1974. The uncontrolled emergency spillway is an open cut channel just beyond the right end of dam. The service spillway is an uncontrolled ogee type weir across a concrete chute at the right end of dam. A 30-inch (762-millimeter) gated outlet concrete pipe discharges into a valve vault at the downstream toe of the dam and then into the creek bed downstream. Water is used for municipal, industrial, and recreational purposes by the cities of Floydada, Silverton, and Tulia. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	3,127.0	-
Crest of spillway.....	3,111.0	57,770
Crest of spillway with ogee weir.....	3,100.0	46,080
Lowest gated outlet (invert).....	2,961.0	17

COOPERATION.--The area and capacity tables A-1 and C-1 furnished by Mackenzie Municipal Water Authority.

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

2,984.0	821	2,988.0	1,140
2,986.0	971	2,990.0	1,320

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	991	969	952	941	930	911	885	985	1160	1140	1110	1050
2	993	969	951	940	929	909	885	984	1160	1140	1100	1050
3	991	969	951	939	929	908	883	984	1160	1140	1110	1050
4	990	969	950	939	927	906	882	983	1170	1140	1110	1050
5	989	969	949	939	926	906	882	981	1180	1140	1110	1040
6	988	968	947	938	926	906	882	980	1180	1140	1100	1040
7	986	966	947	938	926	906	881	977	1180	1130	1100	1040
8	985	966	947	937	927	908	881	977	1180	1130	1100	1040
9	984	964	947	939	928	909	881	977	1180	1130	1090	1040
10	983	964	948	937	927	909	880	977	1180	1120	1090	1040
11	982	963	946	936	926	907	878	976	1180	1120	1090	1040
12	982	960	946	937	926	904	877	973	1180	1130	1080	1040
13	980	960	947	935	926	904	877	969	1170	1120	1080	1040
14	978	962	946	935	924	904	879	969	1170	1120	1080	1030
15	976	961	946	934	926	902	888	969	1170	1130	1080	1030
16	975	961	945	935	923	902	892	966	1170	1130	1080	1030
17	973	960	943	934	922	903	890	965	1160	1130	1070	1050
18	973	960	943	935	922	901	890	963	1160	1130	1070	1070
19	973	959	942	932	921	900	891	963	1160	1120	1070	1070
20	972	958	942	933	921	898	890	961	1160	1120	1070	1060
21	970	958	943	932	916	896	890	962	1160	1120	1070	1060
22	969	957	941	932	916	896	890	962	1160	1120	1060	1060
23	968	957	941	932	915	896	888	961	1150	1120	1060	1060
24	964	956	942	931	915	896	887	961	1160	1120	1060	1060
25	963	956	942	930	912	895	885	1150	1160	1120	1060	1060
26	963	955	941	929	912	892	977	1170	1160	1110	1060	1060
27	963	954	942	929	912	891	986	1170	1160	1110	1060	1060
28	961	954	943	929	912	890	984	1170	1150	1110	1050	1060
29	960	953	942	929	911	888	984	1170	1150	1110	1050	1060
30	960	953	942	933	---	887	985	1160	1150	1110	1050	1060
31	960	---	943	929	---	886	---	1160	---	1110	1050	---
(+)	2985.86	2985.76	2985.63	2985.46	2985.22	2984.89	2986.17	2988.31	2988.10	2987.66	2986.98	2987.03
(*)	-32	-7	-10	-14	-18	-25	+99	+175	-10	-40	-60	+10
MAX	993	969	952	941	930	911	886	1170	1180	1140	1110	1070
MIN	960	953	941	929	911	886	877	961	1150	1110	1050	1030

CAL YR 1975..... \* +163

WTR YR 1976..... \* +68

MAX 1040

MAX 1180

MIN 776

MIN 877

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

## RED RIVER BASIN

07298100 MacKenzie Reservoir near Silverton, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA, MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)
APR 19...	1310	842	8.6	17.0	210	20	43	26	94
JUL 12...	1420	807	8.2	24.0	190	21	40	23	83
DATE	SODIUM ADSORPTION RATIO	DIS-SOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
APR 19...	2.8	19	225	6	200	27	2.6	6.8	535
JUL 12...	2.6	21	212	0	190	20	2.3	7.7	492

## RED RIVER BASIN

71

07298200 Tule Creek near Silverton, Tex.

LOCATION.--Lat 34°32'38", long 101°25'40", Briscoe County, on downstream side of bridge on State Highway 207, 0.1 mile (0.2 km) downstream from Rock Creek, 1.0 mile (1.6 km) downstream from MacKenzie Dam, 8.6 miles (13.8 km) northwest of Silverton, 15 miles (24 km) downstream from South Tule Draw, and 17.5 miles (28.2 km) upstream from Prairie Dog Town Fork Red River.

DRAINAGE AREA.--1,150 mi<sup>2</sup> (2,980 km<sup>2</sup>), of which 960 mi<sup>2</sup> (2,490 km<sup>2</sup>) is probably noncontributing.

PERIOD OF RECORD.--Discharge: July 1964 to current year.

Water quality: Chemical analyses: October 1967 to September 1975. Water temperatures: October 1967 to September 1969.

GAGE.--Water-stage recorder. Datum of gage is 2,852.44 ft (869.424 m) above mean sea level (State Highway Department bridge plans).

AVERAGE DISCHARGE.--9 years (1964-73) prior to completion of MacKenzie Dam, 9.24 ft<sup>3</sup>/s (0.262 m<sup>3</sup>/s), 6,690 acre-ft/yr (8.25 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 355 ft<sup>3</sup>/s (10.1 m<sup>3</sup>/s) Apr. 26 (gage height, 3.91 ft or 1.192 m); no flow for many days.  
Period of record: Maximum discharge, 9,900 ft<sup>3</sup>/s (280 m<sup>3</sup>/s) June 11, 1965 (gage height, 11.65 ft or 3.551 m); no flow for many days each year.  
Maximum stage since 1890, occurred in 1892 (stage and discharge unknown); second highest stage occurred September-1926 (stage and discharge unknown); third highest stage occurred May 10, 1934 (gage height, 20.3 ft or 6.19 m), discharge unknown, from information by local residents.

REMARKS.--Discharge records fair. Since June 1974, flow is regulated by MacKenzie Reservoir 1.0 mile (1.6 km) upstream.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		18	0	.11	.03	0	0	.29	0	0	0	.65
2		16	0	.06	.03	0	0	.13	0	0	0	.01
3		0	0	.04	.05	0	0	.06	0	0	.02	0
4		0	0	.02	.04	.02	0	.02	0	0	0	0
5		0	0	.01	.05	.06	0	0	12	0	0	0
6		0	0	.11	.06	.01	0	0	.06	0	0	1.2
7		0	0	.08	.07	.03	0	0	0	0	0	.13
8		0	0	.08	.11	.20	0	0	0	0	0	.02
9		0	0	.05	.10	.32	0	0	0	0	0	0
10		0	0	.03	.07	.11	0	0	0	0	0	0
11		0	0	.11	.05	.07	0	0	0	0	0	0
12		0	0	.08	.05	.03	0	0	0	0	0	0
13		0	0	.06	.05	.01	0	0	0	0	0	0
14		0	0	.04	.04	0	0	0	0	0	0	.02
15		0	0	.04	.06	.01	12	0	0	0	0	.01
16		0	0	.06	.05	.01	2.3	0	0	4.3	0	0
17		0	0	.06	.03	0	1.4	0	0	0	0	14
18		0	0	.06	.02	0	.14	0	0	0	0	.31
19		.11	0	.04	.01	0	.10	0	0	0	0	.11
20		.08	0	.01	.01	0	.09	0	0	0	0	.28
21		.01	.01	0	0	0	.08	0	0	0	0	.03
22		0	.08	.02	0	0	.02	0	0	0	0	0
23		0	.06	.06	0	0	0	0	5.7	0	0	0
24		0	.08	.06	0	0	0	0	6.4	0	0	0
25		0	.15	.04	0	0	0	28	.03	0	0	0
26		0	.11	.02	0	0	38	11	0	0	0	0
27		0	.08	.02	0	0	9.3	.08	0	0	0	.63
28		0	.11	.02	0	0	.32	0	0	1.6	0	.07
29		0	.15	.06	0	0	.24	0	0	.13	0	.01
30		0	.15	.06	---	0	.33	0	.01	0	16	0
31		---	.11	.05	---	0	---	0	---	0	4.7	---
TOTAL	0	34.20	1.09	1.56	.98	.88	64.32	39.58	24.20	6.03	20.72	17.48
MEAN	0	1.14	.035	.050	.034	.028	2.14	1.28	.81	.19	.67	.58
MAX	0	18	.15	.11	.11	.32	38	28	12	4.3	16	14
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	68	2.2	3.1	1.9	1.7	128	79	48	12	41	35

CAL YR 1975 TOTAL 374.97 MEAN 1.03 MAX 96 MIN 0 AC-FT 744  
WTR YR 1976 TOTAL 211.04 MEAN .58 MAX 38 MIN 0 AC-FT 419



07299200 Prairie Dog Town Fork Red River near Lakeview, Tex.

LOCATION.--Lat 34°34'23", long 100°44'43", Hall County, on left bank at downstream side of bridge on Farm Road 657, 7.6 miles (12.2 km) southwest of Lakeview, 8.6 miles (13.8 km) upstream from Little Red River, 13.3 miles (21.4 km) downstream from former gage near Brice, and at mile 1,092.5 (1,757.8 km).

DRAINAGE AREA.--6,792 mi<sup>2</sup> (17,591 km<sup>2</sup>), of which 4,769 mi<sup>2</sup> (12,352 km<sup>2</sup>) is probably noncontributing.

PERIOD OF RECORD.--Discharge: May 1963 to current year.

Water quality: Chemical analyses: July 1968 to current year. Water temperatures: July 1968 to current year.

GAGE.--Water-stage and specific-conductance recorders. Datum of gage is 1,926.41 ft (587.170 m) above mean sea level. Aug. 29 to Dec. 12, 1968, nonrecording gage at present site and datum.

AVERAGE DISCHARGE.--13 years, 71.4 ft<sup>3</sup>/s (2.022 m<sup>3</sup>/s), 51,730 acre-ft/yr (63.8 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 8,500 ft<sup>3</sup>/s (241 m<sup>3</sup>/s) July 3 (gage height, 6.43 ft or 1.960 m); no flow Mar. 30. Period of record: Maximum discharge, 51,000 ft<sup>3</sup>/s (1,440 m<sup>3</sup>/s) Aug. 29, 1968 (gage height, 9.10 ft or 2.774 m, from floodmarks), from rating curve extended above 19,000 ft<sup>3</sup>/s (538 m<sup>3</sup>/s) on basis of slope-area measurement of peak flow; maximum gage height, 10.50 ft (3.200 m) June 26, 1965; no flow at times.

Water quality: Current year: Maximum daily specific conductance, 24,300 micromhos Aug. 27; minimum daily, 2,610 micromhos June 24.

Period of record: Maximum daily specific conductance, 28,200 micromhos July 9, 1974; minimum daily, 1,510 micromhos July 15, 1973.

Minimum water temperatures, freezing point on several days during winter months.

REMARKS.--Discharge records poor. Several small diversions above station. Specific conductance is recorded continuously at this station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.21	.87	.99	1.3	.46	.17	.03	11	1.2	29	6.7	11
2	.17	360	1.7	1.4	.44	.05	.01	5.0	.76	22	6.7	10
3	.22	126	1.1	.97	.68	.08	.01	3.2	.59	3790	1700	4.2
4	.19	49	.80	.87	.72	.46	.06	3.0	.47	325	712	2.1
5	.23	21	.64	.80	.79	.02	.15	4.3	4.9	49	369	1.3
6	.20	15	.59	.75	.91	.07	.85	2.3	13	9.4	210	.37
7	.28	9.8	1.0	.65	.84	.30	2.4	1.9	108	1.3	130	.82
8	.17	6.8	.88	.60	.75	.95	1.5	1.9	65	.21	93	346
9	.16	4.4	.90	.55	.69	.27	1.0	1.6	9.8	.27	68	52
10	.28	2.6	1.1	.57	.58	.13	.67	1.1	2.0	.90	55	8.1
11	.19	1.3	1.1	.69	.65	.07	.72	1.2	3.4	1.1	50	4.6
12	.20	.60	1.5	.61	.64	.02	17	.87	3.4	1.1	40	2.8
13	.17	.74	1.7	.42	.52	.07	11	.68	2.6	.74	32	2.6
14	8.6	.56	1.3	.43	.67	.23	21	.47	2.0	.60	24	3.5
15	4.7	.58	1.1	.50	.73	.33	52	.50	.36	31	19	2.1
16	1.2	.46	1.3	.47	.58	.28	253	.29	.47	458	15	1.8
17	.51	.33	.84	.41	.42	.41	303	.31	.90	350	10	38
18	.27	.61	.84	.48	.51	.31	83	.28	.60	116	7.7	28
19	.26	11	.90	.33	.50	.27	8.5	.19	.36	32	5.1	18
20	.23	1.8	.78	.51	.32	.02	2.3	.26	.12	11	3.7	55
21	.39	.41	.93	.62	.01	.04	1.6	.42	.06	7.4	2.4	30
22	.21	.23	.93	.56	.04	.06	1.3	109	332	6.7	1.3	17
23	.17	.17	1.7	.54	.05	.11	1.5	47	382	8.2	.81	15
24	.10	.08	3.9	.68	.03	.16	.69	3.6	800	7.4	2.1	15
25	.11	.06	1.6	.49	.02	.45	.46	351	41	5.5	1.8	19
26	.14	.06	1.2	.55	.05	.01	.74	1030	10	4.9	.31	16
27	.14	.05	1.2	.63	.06	.03	101	149	5.6	3.8	.13	152
28	.17	.04	1.1	.64	.14	.03	44	40	3.6	34	.30	1310
29	.20	.04	1.6	.74	.19	.02	37	44	3.4	78	.11	99
30	.21	.16	1.2	.62	---	0	24	4.1	71	18	15	54
31	.25	---	1.3	.38	---	.02	---	1.5	---	8.9	20	---
TOTAL	20.53	614.75	37.72	19.76	12.99	5.44	970.49	1819.97	1868.59	5411.42	3601.16	2319.29
MEAN	.66	20.5	1.22	.64	.45	.18	32.3	58.7	62.3	175	116	77.3
MAX	8.6	360	3.9	1.4	.91	.95	303	1030	800	3790	1700	1310
MIN	.10	.04	.59	.33	.01	0	.01	.19	.06	.21	.11	.37
AC-FT	41	1220	75	39	26	11	1920	3610	3710	10730	7140	4600

CAL YR 1975 TOTAL 22428.24 MEAN 61.4 MAX 4920 MIN 0 AC-FT 44490  
WTR YR 1976 TOTAL 16702.11 MEAN 45.6 MAX 3790 MIN 0 AC-FT 33130

PEAK DISCHARGE (BASE, 6,000 FT<sup>3</sup>/S)

DATE	TIME	G.H.T.	DISCHARGE
7- 3	1100	6.43	8,500
8- 3	0500	6.20	7,020
9-28	0415	6.17	6,340

## 07299200 Prairie Dog Town Fork Red River near Lakeview, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
OCT 21...	1215	.51	21700	--	22.0	2800	--	690	270	--
NOV 13...	0935	1.0	20800	--	3.5	2700	--	690	240	--
JAN 17...	1000	2.0	13300	--	.0	2500	--	640	230	--
FEB 18...	0810	.62	16400	--	3.0	2600	--	660	240	--
MAR 22...	1345	32	9570	7.9	20.0	2200	2100	550	140	1500
APR 20...	1100	2.4	19200	--	14.0	2700	--	710	220	--
MAY 12...	0845	1.2	21500	--	17.0	2600	--	660	240	--
JUN 22...	0905	362	5050	7.6	21.0	940	420	300	46	710
AUG 04...	1430	198	7670	7.3	32.0	1300	1200	420	60	1100
SEP 17...	0920	24	4060	7.5	20.0	1300	1100	410	72	470

DATE	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SiO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT 21...	--	--	--	--	2400	6500	--	--	--
NOV 13...	--	--	--	--	2500	6400	--	--	--
JAN 17...	--	--	--	--	2400	3700	--	--	--
FEB 18...	--	--	--	--	2300	4300	--	--	--
MAR 22...	14	10	114	0	2000	2300	--	25	6630
APR 20...	--	--	--	--	2400	6500	--	--	--
MAY 12...	--	--	--	--	2100	6400	--	--	--
JUN 22...	10	13	144	0	840	1100	--	17	3100
AUG 04...	13	17	108	0	1200	1700	--	15	4570
SEP 17...	5.6	--	295	0	980	730	.8	31	2840

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	DISSOLVED SOLIDS (MG/L)	DISSOLVED SOLIDS (TONS)	DISSOLVED CHLORIDE (MG/L)	DISSOLVED CHLORIDE (TONS)	DISSOLVED SULFATE (MG/L)	DISSOLVED SULFATE (TONS)	HARDNESS (CA+MG) (MG/L)
OCT. 1975.....	20.53	18500	12200	677	5600	310	2220	123	****
NOV. 1975.....	614.75	11100	7220	12000	2650	4390	1980	3280	****
DEC. 1975.....	37.72	18900	12400	1270	5730	584	2220	227	****
JAN. 1976.....	19.76	18200	11900	635	5420	289	2200	117	****
FEB. 1976.....	12.8	18100	11800	407	5340	185	2190	76	****
MAR. 1976.....	5.44	16100	10500	153	4560	67	2130	31	****
APR. 1976.....	970.49	9350	6090	16000	2190	5730	1710	4490	1720
MAY 1976.....	1819.97	6770	4450	21900	1570	7720	1270	6260	1520
JUNE 1976.....	1868.59	5560	3670	18500	1270	6410	1070	5380	1430
JULY 1976.....	5411.39	4750	3160	46200	1030	15100	970	14200	1360
AUG. 1976.....	3601.16	5140	3410	33200	1090	10600	1080	10500	1400
SEPT 1976.....	2319.29	5190	3460	21700	1210	7550	990	6210	1400
TOTAL .....	16701.87	**	**	173000	**	58900	**	50900	**
WTD.AVG. ....	45.76	5790	3800	**	1300	**	1100	**	1400

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

[illegible]

## RED RIVER BASIN

75

07299300 Little Red River near Turkey, Tex.

LOCATION.--Lat 34°32'27", long 100°46'13", Hall County, on left bank at downstream side of bridge on Farm Road 657, 10 miles (16 km) up-stream from mouth, and 14.5 miles (23.3 km) northeast of Turkey.

DRAINAGE AREA.--139 mi<sup>2</sup> (360 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: August 1968 to current year.

Water quality: Chemical analyses: July 1968 to current year. Water temperatures: July 1968 to current year.

GAGE.--Water-stage and specific-conductance recorders. Datum of gage is 1,925.39 ft (586.859 m) above mean sea level.

AVERAGE DISCHARGE.--8 years, 11.2 ft<sup>3</sup>/s (0.317 m<sup>3</sup>/s), 1.09 in/yr (28 mm/yr), 8,110 acre-ft/yr (10.0 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 2,910 ft<sup>3</sup>/s (82.4 m<sup>3</sup>/s) Aug. 3 (gage height, 12.19 ft or 3.716 m); no flow for part of July 2.

Period of record: Maximum discharge, 3,570 ft<sup>3</sup>/s (101 m<sup>3</sup>/s) Aug. 29, 1968 (gage height, 13.48 ft or 4.109 m, from floodmarks), from rating curve extended above 620 ft<sup>3</sup>/s (17.6 m<sup>3</sup>/s) on basis of slope-area measurement of peak flow; no flow at times.

Water quality: Current year: Maximum daily specific conductance, 53,200 micromhos Sept. 7; minimum daily, 7,780 micromhos May 25.

Period of record: Maximum daily specific conductance, 118,000 micromhos Apr. 1, 1970; minimum daily, 6,030 micromhos Sept. 11, 1975. Maximum water temperatures, 36.0°C July 23, 1969; minimum, freezing point on several days during December 1968, January and March 1969.

REMARKS.--Discharge records good. No diversion above station. Specific conductance is recorded continuously at this station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.18	.06	.16	.16	.10	.07	.10	17	.36	.96	.10	31
2	.15	276	.17	.16	.09	.09	.10	3.6	.30	.40	.14	2.0
3	.10	20	.18	.16	.09	.07	.11	1.6	.28	259	818	.35
4	.10	2.2	.20	.14	.09	.06	.15	1.6	.26	8.3	42	.22
5	.09	.95	.21	.14	.12	.04	.18	1.3	26	2.0	3.4	.22
6	.07	.59	.18	.13	.12	.05	.19	.26	4.7	1.2	3.2	.28
7	.06	.44	.18	.13	.11	.08	.35	.19	37	.60	2.6	.28
8	.05	.41	.20	.15	.09	.19	.18	.20	21	.40	2.3	27
9	.05	.33	.21	.14	.09	.14	.15	.18	.32	.40	2.0	45
10	.04	.24	.29	.14	.09	.08	.14	.15	.12	.35	1.8	1.8
11	.03	.23	.23	.14	.09	.07	.12	.25	18	.35	1.5	.68
12	.03	.18	.21	.12	.09	.05	.18	.18	67	.35	1.3	.53
13	.02	.19	.24	.12	.08	.06	.07	.14	1.9	.35	.90	.31
14	11	.18	.26	.13	.08	.08	.24	.15	.25	.35	.77	.60
15	398	.18	.21	.14	.09	.08	303	.15	.10	.34	.68	.77
16	12	.18	.21	.14	.08	.07	228	.14	.10	64	.55	.68
17	.84	.18	.21	.14	.08	.08	28	.14	.14	2.8	.46	8.4
18	.35	.24	.21	.13	.09	.08	7.2	.15	.09	1.3	.40	.68
19	.24	1.5	.21	.12	.13	.07	1.1	.16	.08	.88	.40	.31
20	.21	.50	.18	.12	.08	.07	.15	.14	.06	.62	.35	101
21	.17	.17	.19	.20	.07	.08	.14	.14	.07	.63	.34	21
22	.14	.16	.25	.14	.06	.08	.20	219	511	.58	.31	.86
23	.12	.16	.29	.12	.06	.09	.19	201	470	.67	.29	.46
24	.10	.14	.59	.10	.05	.10	.20	17	427	.43	36	.53
25	.09	.15	.29	.11	.06	.10	.20	262	16	.32	36	.53
26	.08	.16	.24	.10	.07	.10	.20	242	.60	.28	20	.40
27	.07	.15	.24	.10	.07	.09	1.5	24	.12	.27	1.3	16
28	.06	.16	.24	.10	.07	.09	92	5.2	.06	1.3	.35	117
29	.05	.17	.29	.11	.08	.10	95	3.0	.04	.76	.27	2.0
30	.04	.12	.22	.10	---	.10	43	1.6	79	.27	19	.53
31	.03	---	.16	.15	---	.10	---	.96	---	.11	25	---
TOTAL	424.56	306.32	7.15	4.08	2.47	2.61	802.34	1003.58	1681.95	350.57	1021.71	381.42
MEAN	13.7	10.2	.23	.13	.085	.084	26.7	32.4	56.1	11.3	33.0	12.7
MAX	398	276	.59	.20	.13	.19	303	262	511	259	818	117
MIN	.02	.06	.16	.10	.05	.04	.07	.14	.04	.11	.10	.22
AC-FT	842	608	14	8.1	4.9	5.2	1590	1990	3340	695	2030	757
CAL YR 1975	TOTAL	2727.57	MEAN	7.47	MAX	520	MIN	.02	AC-FT	5410		
WTR YR 1976	TOTAL	5988.76	MEAN	16.4	MAX	818	MIN	.02	AC-FT	11880		

PEAK DISCHARGE (BASE, 1,000 FT<sup>3</sup>/S)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-15	0300	9.28	1,530	6-23	2200	11.46	2,550
5-25	2315	9.18	1,480	7- 3	0115	8.69	1,260
6-22	0300	11.18	2,410	8- 3	0245	12.19	2,910

## RED RIVER BASIN

07299300 Little Red River near Turkey, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	TEMPERATURE (DEG C)	HARDNESS (CA, MG)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)
OCT 21...	1340	.13	42400	23.0	4700	1400	290	3100	14000
NOV 13...	1230	.18	47400	12.0	5100	1500	330	3400	17000
JAN 06...	1605	.11	50000	9.5	5400	1600	340	3600	19000
MAR 30...	1505	.10	51400	20.0	5200	1500	360	3800	18000
APR 20...	1420	.16	36900	16.0	4200	1300	240	3100	13000
MAY 11...	1430	.17	49300	30.0	5200	1500	350	3500	18000
JUN 22...	1635	.86	13500	30.0	2200	750	74	2000	3900
AUG 30...	1345	.10	44500	25.0	4700	1400	280	3400	16000
SEP 15...	1500	.77	29400	30.0	3400	1100	170	2900	9800

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	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. 1975.....	424.56	17100	11800	13500	5500	6310	1840	2120	****
NOV. 1975.....	306.32	25300	17300	14300	8490	7030	2350	1950	****
DEC. 1975.....	7.15	47100	32400	625	16400	316	3880	75	****
JAN. 1976.....	4.08	49000	33700	371	17100	189	3910	44	****
FEB. 1976.....	2.39	48200	33200	214	16800	109	3890	25	****
MAR. 1976.....	2.61	49800	34200	241	17500	123	3910	27	****
APR. 1976.....	802.34	18900	13000	28100	6150	13300	1950	4230	****
MAY 1976.....	1003.58	13400	8990	24400	4000	10900	1620	4390	****
JUNE 1976.....	1681.95	11200	7410	33700	3170	14400	1460	6640	****
JULY 1976.....	350.57	13300	8790	8320	3900	3690	1600	1510	****
AUG. 1976.....	1021.71	10800	7070	19500	2980	8210	1440	3970	****
SEPT 1976.....	381.42	17400	11900	12300	5550	5710	1910	1970	****
TOTAL .....	5988.66	**	**	156000	**	70300	**	27000	**
WTD.AVG. ....	16.41	14300	9600	**	4300	**	1700	**	*****



SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

[illegible]

## RED RIVER BASIN

07299500 Prairie Dog Town Fork Red River near Estelline, Tex.  
(Low-flow partial-record station)

LOCATION.--Lat 34°34'20", long 100°26'10", Hall County, at bridge on U.S. Highway 287, 1.8 miles (2.9 km) north of Estelline, and at mile 1,076 (1,731 km).

DRAINAGE AREA.--7,293 mi<sup>2</sup> (18,889 km<sup>2</sup>), of which 4,679 mi<sup>2</sup> (12,119 km<sup>2</sup>) is noncontributing.

PERIOD OF RECORD.--Periodic measurements of discharge and water-quality data: June 1974 to September 1976 (discontinued). Operated as a daily discharge station 1924-25, 1938-47.

## DISCHARGE AND WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA, MG) (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SULFATE (SO <sub>4</sub> ) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
OCT.									
01...	1300	.00	--	--	--	--	--	--	--
21...	1620	.00	--	--	--	--	--	--	--
NOV.									
10...	1015	.68	14800	10.0	2700	760	200	2100	3800
DEC.									
02...	1230	.00	--	--	--	--	--	--	--
17...	1500	.00	--	--	--	--	--	--	--
JAN.									
07...	1150	.32	--	.0	--	--	--	--	--
27...	1220	1.1	11100	5.0	2500	670	210	2200	2800
FEB.									
18...	1000	.00	--	--	--	--	--	--	--
MAR.									
09...	1500	.00	--	--	--	--	--	--	--
31...	0800	.00	--	--	--	--	--	--	--
APR.									
21...	0845	6.0	18100	12.0	3000	870	210	2900	5700
MAY									
12...	1100	.00	--	--	--	--	--	--	--
JUNE									
02...	1445	4.3	20500	35.0	3200	870	260	2900	6100
JULY									
15...	1400	.00	--	--	--	--	--	--	--
SEP.									
16...	1500	.00	--	--	--	--	--	--	--

## RED RIVER BASIN

79

07299505 Prairie Dog Town Fork Red River below Mountain Creek near Estelline, Tex.  
(Low-flow partial-record station)

LOCATION.--Lat 34°32'50", long 100°22'50", Childress County, downstream from Mountain Creek, 3.4 miles (5.5 km) east of Estelline, and at mile 1,072 (1,725 km).

DRAINAGE AREA.--7,341 mi<sup>2</sup> (19,013 km<sup>2</sup>), of which 4,769 mi<sup>2</sup> (12,352 km<sup>2</sup>) is noncontributing.

PERIOD OF RECORD.--Periodic measurements of discharge and water-quality data: June 1974 to September 1976 (discontinued).

## DISCHARGE AND WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA, MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)
OCT.							
01...	--	.00	--	--	--	--	--
22...	1110	.00	--	--	--	--	--
NOV.							
10...	1130	1.4	37600	--	14.0	3800	--
DEC.							
02...	1300	1.0	54100	--	15.0	4700	--
17...	1540	.50	57700	--	6.0	4900	--
JAN.							
07...	1315	1.3	--	--	1.0	--	--
27...	1325	1.5	47200	--	11.0	4200	--
FEB.							
18...	1035	1.0	59400	--	9.5	5100	--
MAR.							
09...	1530	1.5	58200	--	22.0	4900	--
31...	0830	.66	63100	7.7	6.0	5400	5300
APR.							
21...	0945	7.7	21500	--	15.0	3200	--
JUNE							
02...	1545	3.3	22700	--	35.0	3100	--
JULY							
15...	1315	.49	56900	--	31.0	4800	--
AUG.							
25...	0900	.70	62000	--	20.0	5200	--
SEP.							
16...	1410	.29	61700	--	32.0	5100	--

DATE	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)
OCT.						
01...	--	--	--	--	--	--
22...	--	--	--	--	--	--
NOV.						
10...	1100	250	--	--	3100	12000
DEC.						
02...	1400	300	--	--	4100	19000
17...	1400	330	--	--	4000	20000
JAN.						
07...	--	--	--	--	--	--
27...	1200	280	--	--	3700	17000
FEB.						
18...	1500	330	--	--	4200	24000
MAR.						
09...	1400	340	--	--	3900	24000
31...	1600	350	144	0	4700	23000
APR.						
21...	950	210	--	--	2800	7200
JUNE						
02...	880	230	--	--	2800	6800
JULY						
15...	1400	320	--	--	3800	23000
AUG.						
25...	1500	350	--	--	3800	25000
SEP.						
16...	1500	340	--	--	4400	24000

## RED RIVER BASIN

07299510 Prairie Dog Town Fork Red River above Jonah Creek near Estelline, Tex.  
(Low-flow partial-record station)

LOCATION.--Lat 34°33'55", long 100°18'25", Childress County, just above mouth of Jonah Creek, 7.6 miles (12.2 km) northeast of Estelline, and at mile 1,068 (1,718 km).

DRAINAGE AREA.--7,533 mi<sup>2</sup> (19,510 km<sup>2</sup>), of which 4,769 mi<sup>2</sup> (12,352 km<sup>2</sup>) is noncontributing.

PERIOD OF RECORD.--Periodic measurements of discharge and water-quality data: June 1974 to September 1976 (discontinued).

## DISCHARGE AND WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA, MG) (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SULFATE (SO <sub>4</sub> ) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
OCT.									
02...	1700	.00	--	--	--	--	--	--	--
22...	0950	.00	--	--	--	--	--	--	--
NOV.									
10...	1230	1.8	42100	16.0	4100	1200	260	3300	14000
DEC.									
02...	1440	1.2	54500	17.0	4600	1300	330	4100	19000
18...	1510	.48	--	5.0	--	--	--	--	--
JAN.									
07...	1420	2.0	--	1.5	--	--	--	--	--
27...	1430	2.1	54200	12.0	4500	1300	310	4100	19000
FEB.									
18...	1145	2.0	66300	12.0	5400	1500	390	4700	26000
MAR.									
10...	0930	2.2	63500	8.0	5000	1400	360	4800	24000
31...	0930	.00	--	--	--	--	--	--	--
APR.									
21...	1100	9.3	20000	18.0	3100	910	190	2600	6500
MAY									
12...	1230	12	25300	--	3000	800	240	2500	9300
JUNE									
03...	0915	.78	29200	21.0	3300	910	250	2900	9500
JULY									
15...	1145	.00	--	--	--	--	--	--	--
SEP.									
16...	1300	.00	--	--	--	--	--	--	--

## RED RIVER BASIN

81

07299512 Jonah Creek at weir near Estelline, Tex.

LOCATION.--Lat 34°34'20", long 100°20'00", Childress County, on left bank, 4 miles (6 km) upstream from mouth, and 6.5 miles (10.5 km) northeast of Estelline.

DRAINAGE AREA.--65.5 mi<sup>2</sup> (169.6 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: May 1974 to current year.

Water quality: Chemical analyses: May 1974 to current year.

GAGE.--Water-stage and specific-conductance recorders and concrete control. Altitude of gage is 1,700 ft (518 m), from topographic map.

EXTREMES.--Discharge: Current year: Maximum discharge, 203 ft<sup>3</sup>/s (5.75 m<sup>3</sup>/s) May 25 (gage height, 2.84 ft or 0.866 m); no flow for part of many days.

Period of record: Maximum discharge, 1,170 ft<sup>3</sup>/s (33.1 m<sup>3</sup>/s) May 25, 1974 (gage height, 4.63 ft or 1.411 m), from rating curve extended above 3.5 ft<sup>3</sup>/s (0.099 m<sup>3</sup>/s) on basis of Francis weir formula; no flow for part of many days.

Water quality: Current year: Maximum daily specific conductance, 113,000 micromhos Aug. 26; minimum daily, 9,560 micromhos June 24.

Period of record: Maximum daily specific conductance, 156,000 micromhos May 14, 1975; minimum daily, 9,540 micromhos Sept. 19, 1974.

REMARKS.--Discharge records fair. Low flow is regulated by an unknown amount of water diverted 0.25 mile (0.40 km) upstream. Water is diverted from a collection system and pumped into a disposal well that penetrates the Ellenberger Formation at a depth of 7,480 ft (2,280 m). Specific conductance is recorded continuously at this station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.38	14	.40	.59	.65	.59	.34	.72	37	.39	.28	.10
2	.47	17	.45	.49	.62	.59	.40	.53	2.1	.73	.33	.10
3	.45	.90	.50	.43	.72	.59	.40	.58	1.5	.93	1.8	.16
4	.46	.50	.70	.46	.72	.65	.40	.57	.80	.78	4.7	.10
5	.51	.47	.75	.51	.84	.59	.40	1.8	.89	.92	.69	.10
6	.48	.51	.68	.57	.90	.65	.46	.56	.79	.99	.52	.10
7	.48	.40	.77	.50	.74	.78	3.0	.28	.84	.80	.53	.10
8	.49	.45	.80	.50	.68	1.5	10	.24	.92	.72	.43	.54
9	.53	.54	.78	.57	.61	.72	1.9	.25	.87	.37	.26	.05
10	.53	.51	.72	.61	.57	.59	.65	.48	.89	.78	.47	.43
11	.60	.59	.71	.53	.51	.59	.59	10	.87	.99	.35	.28
12	.48	.44	.68	.56	.61	.46	.46	3.0	.92	.78	.34	.68
13	.43	.52	.72	.53	.61	.34	.46	1.0	1.3	1.0	.31	.84
14	2.5	.44	.78	.50	.65	.40	1.8	1.0	.92	1.0	.36	.71
15	4.3	.47	.55	.58	.54	.46	12	.93	.86	.77	.59	1.0
16	.88	.49	.60	.53	.55	.34	44	.89	.84	1.6	.53	.74
17	.50	.47	.58	.53	.46	.40	5.4	.94	.86	.80	.49	1.6
18	.38	.45	.52	.47	.37	.52	1.3	1.0	.94	1.0	.49	.29
19	.43	.45	.38	.48	.65	.46	1.1	1.1	.84	.98	.40	.34
20	.43	.45	.41	.42	.82	.46	1.1	.93	.78	.78	.26	.79
21	.47	.40	.38	.52	.55	.52	1.3	1.1	.80	.80	.22	.34
22	.60	.40	.55	.67	.49	.52	.87	10	1.2	.64	.17	.40
23	.57	.40	.60	.73	.55	.52	.95	7.0	5.5	.72	.37	.47
24	.46	.40	2.1	.76	.52	.72	1.1	1.7	15	.62	.64	.73
25	.54	.40	1.1	.81	.59	.72	.70	62	1.2	.56	.57	.69
26	.53	.40	.84	.74	.65	.72	.43	66	.38	.42	.38	.68
27	.62	.40	.62	.70	.59	.65	.61	3.8	.37	.37	.41	1.7
28	.70	.40	.67	.57	.59	.84	1.5	1.8	.45	1.3	.61	.65
29	.68	.40	.91	.56	.59	.96	.73	1.7	.24	.27	.41	.63
30	.63	.40	.69	.60	---	.52	1.5	1.4	.19	.05	4.2	.64
31	.65	---	.62	.72	---	.46	---	1.7	---	.11	.19	---
TOTAL	22.16	44.05	21.56	17.74	17.94	18.83	95.85	185.00	81.06	22.97	22.30	15.98
MEAN	.71	1.47	.70	.57	.62	.61	3.20	5.97	2.70	.74	.72	.53
MAX	4.3	17	2.1	.81	.90	1.5	44	66	37	1.6	4.7	1.7
MIN	.38	.40	.38	.42	.37	.34	.34	.24	.19	.05	.17	.05
AC-FT	44	87	43	35	36	37	190	367	161	46	44	32

CAL YR 1975 TOTAL 498.44 MEAN 1.37 MAX 66 MIN .25 AC-FT 989  
WTR YR 1976 TOTAL 565.44 MEAN 1.54 MAX 66 MIN .05 AC-FT 1120

PEAK DISCHARGE (BASE, 500 FT<sup>3</sup>/S).--No peak above base.



## RED RIVER BASIN

07299512 Jonah Creek at weir near Estelline, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPECIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)
OCT									
01...	1450	.37	100000	--	26.5	6200	--	1800	410
DEC									
18...	1140	.54	93100	--	.0	5900	--	1700	410
JAN									
27...	1635	.69	96300	--	15.0	6200	--	1800	410
MAR									
10...	1240	.78	94000	--	19.0	5900	--	1700	390
APR									
01...	1140	.39	100000	--	18.0	6500	--	1900	430
MAY									
13...	1340	1.0	79600	--	21.0	5200	--	1500	350
JUN									
24...	0910	38	5020	7.5	20.0	730	650	220	45
AUG									
03...	1110	2.7	31800	--	22.0	2200	--	690	110
SEP									
16...	1115	.84	99500	--	26.0	6200	--	1800	420

DATE	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT									
01...	--	--	--	--	--	5100	40000	--	--
DEC									
18...	--	--	--	--	--	5000	38000	--	--
JAN									
27...	--	--	--	--	--	5100	39000	--	--
MAR									
10...	--	--	--	--	--	4900	38000	--	--
APR									
01...	--	--	--	--	--	5400	43000	--	--
MAY									
13...	--	--	--	--	--	4300	31000	--	--
JUN									
24...	790	13	12	101	0	580	1200	11	2910
AUG									
03...	--	--	--	--	--	1800	11000	--	--
SEP									
16...	--	--	--	--	--	5100	--	--	--

## RED RIVER BASIN

83

07299512 Jonah Creek at weir near Estelline, Tex.--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	22.16	82800	60700	3630	33300	1990	4250	254	****
NOV. 1975.....	44.05	57000	39600	4700	21700	2580	2740	326	****
DEC. 1975.....	21.56	91100	67000	3900	36800	2140	4700	274	****
JAN. 1976.....	17.74	96600	71500	3420	39200	1880	5010	240	****
FEB. 1976.....	17.35	99000	73500	3440	40300	1890	5150	241	****
MAR. 1976.....	18.83	100000	74200	3770	40700	2070	5210	264	****
APR. 1976.....	95.85	44300	30600	7930	16800	4350	2060	535	****
MAY 1976.....	184	25600	16900	8470	9310	4650	1100	548	****
JUNE 1976.....	81.06	34400	23800	5210	13100	2860	1590	348	****
JULY 1976.....	22.97	87100	63700	3950	35000	2170	4460	276	****
AUG. 1976.....	22.3	77700	56000	3370	30700	1850	3920	236	****
SEPT 1976.....	15.98	88400	64800	2790	35600	1530	4520	195	****
TOTAL .....	564.85	**	**	54600	**	30000	**	3740	**
WTD.AVG. ....	1.55	50500	36000	**	20000	**	2500	**	*****

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100000	58100	96200	90400	95600	101000	100000	77900	14000	76200	92400	90900
2	100000	29800	93500	91600	96300	101000	102000	77300	50700	78500	77700	96700
3	100000	55200	94800	91600	96500	101000	99600	79900	72500	81100	54800	99300
4	101000	74400	95500	92000	97700	102000	101000	81100	77400	81300	36600	99900
5	101000	84400	95300	91700	101000	103000	99700	76200	81200	81100	75600	100000
6	100000	90500	97500	92600	99700	100000	101000	58000	83300	80800	95900	101000
7	102000	91800	96300	95200	98100	101000	96200	65300	84700	80800	100000	99000
8	100000	94600	95100	98600	96800	96600	50300	66500	86000	80200	102000	98600
9	102000	97100	94100	96300	96300	94000	65700	67900	87400	79900	104000	93500
10	101000	98200	93600	96600	95800	94000	72800	70900	88900	80200	105000	96200
11	102000	97700	93300	96400	96000	98600	82800	28700	90300	80100	103000	98700
12	104000	99000	93800	96300	96700	103000	92200	50500	91200	79900	103000	100000
13	105000	98600	91600	96800	96300	103000	95100	79600	90100	79500	102000	97300
14	94600	98000	90800	96700	97200	101000	91600	85800	93800	89700	103000	93600
15	25100	97400	91800	96600	96700	101000	66200	88400	95100	98800	104000	93500
16	64400	96100	90500	96700	96900	102000	17500	91100	96700	90200	103000	99500
17	74500	95800	91000	96500	98400	100000	20300	93700	97700	97300	101000	58500
18	83300	94800	93100	96500	98600	98300	35700	97300	96300	95000	100000	90200
19	85800	85900	91000	98200	98900	99500	47400	98800	100000	94700	100000	97500
20	89000	90700	90800	98100	97100	103000	75100	100000	102000	97600	100000	78200
21	92500	90300	91600	97800	106000	102000	93700	102000	103000	96600	100000	94300
22	95400	90900	90600	98000	106000	101000	98300	44300	101000	99900	99700	99300
23	99700	93000	91700	98400	105000	101000	92500	63100	35500	98400	98100	101000
24	103000	94100	83900	98700	105000	99600	90300	75200	9560	96800	107000	97600
25	104000	95800	85100	99400	103000	100000	95100	13900	27300	97800	107000	89800
26	102000	97900	87600	99400	103000	101000	97900	11100	49800	94900	113000	94600
27	103000	97100	88800	96300	102000	100000	101000	19300	72600	97800	112000	78200
28	103000	96600	89600	98900	99900	99000	98500	38700	73700	72500	109000	83700
29	103000	95500	89200	99100	99600	101000	91700	49600	74900	76400	109000	89800
30	103000	97300	89600	98900	---	101000	71900	60200	75900	88600	71200	90100
31	103000	---	90000	97500	---	100000	---	59900	---	87600	64300	---
MONTH	95000	89200	91800	96400	99200	100300	81400	66800	76800	87400	95300	93100

## RED RIVER BASIN

07299514 Jonah Creek below weir near Estelline, Tex.

LOCATION.--Lat 34°33'33", long 100°20'21", Childress County, on right bank, 2 miles (3 km) downstream from weir, 2 miles (3 km) upstream from mouth, and 6 miles (10 km) northeast of Estelline.

DRAINAGE AREA.--66.6 mi<sup>2</sup> (172.5 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: May 1974 to September 1976 (discontinued).

Water quality: Chemical analyses: May 1974 to September 1976 (discontinued).

GAGE.--Water-stage and specific-conductance recorders. Altitude of gage is 1,680 ft (512 m), from topographic map.

EXTREMES.--Discharge: Current year: Maximum discharge, about 200 ft<sup>3</sup>/s (5.66 m<sup>3</sup>/s) May 25 (stage unknown); minimum daily, 0.36 ft<sup>3</sup>/s (0.010 m<sup>3</sup>/s) Aug. 6.

Period of record: Maximum discharge, 1,200 ft<sup>3</sup>/s (34.0 m<sup>3</sup>/s) May 25, 1974 (gage height, 4.80 ft or 1.463 m, from floodmark); minimum daily, 0.36 ft<sup>3</sup>/s (0.010 m<sup>3</sup>/s) Aug. 6, 1976.

Water quality: Current year: Maximum daily specific conductance, 101,000 micromhos Aug. 28; minimum daily, 11,200 micromhos June 24.

Period of record: Maximum daily specific conductance, 101,000 micromhos Aug. 28, 1976; minimum daily, 11,200 micromhos June 24, 1976.

REMARKS.--Discharge records poor prior to May 6, 1975, and good thereafter. For statement regarding regulation and diversion, see station 07299512. Specific conductance, recorded continuously at this station, was discontinued.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.80	5.3	.90	1.4	1.3	1.1	.94	1.2	40	1.9	.75	.62
2	.79	14	.89	1.3	1.3	1.1	1.0	1.1	5.0	1.9	.80	.58
3	.69	1.1	.99	1.3	1.4	1.1	.92	1.1	1.7	2.2	1.9	.58
4	.61	.79	1.2	1.4	1.4	1.1	.89	1.5	1.4	1.8	2.7	.58
5	.63	.79	1.2	1.4	1.5	.86	.94	1.9	1.6	1.7	.48	.71
6	.63	.89	.97	.99	1.8	1.1	1.2	1.6	1.5	1.7	.36	.88
7	.78	.89	1.3	.79	1.4	1.1	3.3	1.3	1.6	1.4	.38	.92
8	.85	.99	1.4	1.1	1.4	1.7	6.2	1.3	1.7	1.5	.40	1.5
9	.71	.89	1.4	1.3	1.2	1.3	2.1	1.4	1.8	1.5	.42	.99
10	.74	.99	1.5	1.3	1.1	1.2	1.3	1.6	1.6	1.5	.48	.93
11	.99	1.0	1.3	1.4	1.0	1.2	1.1	4.6	1.7	1.9	.47	1.0
12	.99	.86	1.3	1.4	1.2	.93	.99	3.0	1.6	1.7	.44	1.1
13	1.1	.99	1.4	1.2	1.2	.88	1.1	.96	2.1	1.6	.45	1.1
14	1.6	1.0	1.1	1.2	1.3	1.0	1.4	1.2	1.9	1.7	.48	1.1
15	5.6	1.0	.89	1.3	1.1	.85	10	1.3	1.5	1.9	.61	1.1
16	1.6	1.0	1.1	1.2	1.1	.79	41	.98	1.6	2.9	.95	1.0
17	1.2	1.1	1.1	1.2	1.0	.99	6.3	1.2	1.8	1.9	.90	2.3
18	1.2	1.3	1.3	1.2	.99	1.0	2.1	1.5	1.6	1.8	.80	1.2
19	1.1	1.6	1.4	1.1	.91	.99	1.5	1.7	1.7	1.7	.75	1.2
20	.99	.72	1.4	1.5	.89	.72	.96	1.9	1.8	1.4	.70	1.8
21	.99	.81	1.5	1.5	.39	.91	1.2	1.9	1.9	1.5	.65	1.4
22	.79	.75	1.4	1.5	.64	.97	1.3	12	2.5	1.3	.60	1.4
23	.89	.90	1.5	1.2	.83	1.0	1.3	10	4.5	1.3	.80	1.3
24	.70	.77	2.5	1.2	1.0	1.0	.79	3.0	24	1.2	.99	1.3
25	.61	.62	1.9	1.3	.88	1.1	.89	65	3.6	1.1	.91	1.5
26	.89	.61	1.8	1.3	.84	.83	1.2	70	2.5	1.4	.75	1.4
27	.79	.88	1.5	1.3	1.1	1.2	1.1	7.0	1.9	1.0	.60	2.2
28	.70	1.1	1.5	1.3	1.1	1.2	1.5	3.0	1.7	2.2	.77	1.6
29	.79	.98	1.8	1.1	1.1	.92	1.3	2.0	1.7	1.0	.67	1.2
30	.99	.90	1.8	1.2	---	.90	1.5	1.8	1.7	.85	4.0	1.2
31	1.2	---	1.6	.93	---	.88	---	2.0	---	.88	1.1	---
TOTAL	32.94	45.52	42.84	38.81	32.37	31.92	97.32	210.04	121.2	49.33	27.06	35.69
MEAN	1.06	1.52	1.38	1.25	1.12	1.03	3.24	6.78	4.04	1.59	.87	1.19
MAX	5.6	14	2.5	1.5	1.8	1.7	41	70	40	2.9	4.0	2.3
MIN	.61	.61	.89	.79	.39	.72	.79	.96	1.4	.85	.36	.58
AC-FT	65	90	85	77	64	63	193	417	240	98	54	71

CAL YR 1975 TOTAL 835.26 MEAN 2.29 MAX 97 MIN .44 AC-FT 1660  
WTR YR 1976 TOTAL 765.04 MEAN 2.09 MAX 70 MIN .36 AC-FT 1520

PEAK DISCHARGE (BASE, 500 FT<sup>3</sup>/S).--No peak above base.

NOTE.--No gage-height record Feb. 1-18, May 19 to June 2. Doubtful gage-height record Aug. 17-23.

## RED RIVER BASIN

85

07299514 Jonah Creek below weir near Estelline, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)
OCT 02...	1520	.78	65200	--	24.0	5000	--	1500	300
DEC 03...	1330	5.7	69900	--	19.0	5100	--	1500	340
JAN 28...	1530	1.3	78800	--	10.0	5500	--	1600	360
FEB 18...	1405	6.1	74600	--	18.5	5400	--	1600	350
MAR 31...	1045	.74	67800	--	18.0	5100	--	1500	330
APR 21...	1230	6.5	68200	--	24.0	5100	--	1500	330
MAY 12...	1350	6.5	31500	--	21.0	2300	--	700	140
JUN 24...	1100	32	10000	7.5	22.0	1000	930	310	61
JUL 14...	1540	1.9	85400	--	29.5	5500	--	1600	360

DATE	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT 02...	--	--	--	--	--	4000	24000	--	--
DEC 03...	--	--	--	--	--	4600	26000	--	--
JAN 28...	--	--	--	--	--	4800	30000	--	--
FEB 18...	--	--	--	--	--	4400	30000	--	--
MAR 31...	--	--	--	--	--	4400	25000	--	--
APR 21...	--	--	--	--	--	4500	24000	--	--
MAY 12...	--	--	--	--	--	1800	11000	--	--
JUN 24...	1900	26	14	113	0	820	2900	10	6070
JUL 14...	--	--	--	--	--	4900	34000	--	--

## RED RIVER BASIN

07299514 Jonah Creek below weir near Estelline, Tex.--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	32.94	57000	38900	3460	20500	1820	3660	325	****
NOV. 1975.....	45.52	49300	33400	4100	17800	2180	2970	365	****
DEC. 1975.....	42.84	69000	48500	5610	26000	3010	4080	472	****
JAN. 1976.....	38.81	75800	53900	5650	29200	3060	4290	450	****
FEB. 1976.....	31.27	75900	54000	4560	29200	2470	4300	363	****
MAR. 1976.....	31.92	68300	47900	4130	25700	2220	4050	349	****
APR. 1976.....	97.32	46200	31100	8170	16500	4330	2820	740	****
MAY 1976.....	210.04	23300	15400	8760	8200	4650	1370	776	****
JUNE 1976.....	121.2	36700	24400	8000	12900	4220	2280	745	****
JULY 1976.....	49.33	85200	61400	8180	33600	4470	4590	611	****
AUG. 1976.....	27.06	72100	51100	3730	27700	2020	4060	297	****
SEPT 1976.....	35.69	80400	57600	5550	31300	3020	4440	427	****
TOTAL .....	763.94	**	**	69900	**	37500	**	5920	**
WTD.AVG. ....	2.09	49000	34000	**	18000	**	2900	**	*****

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C)\* WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65000	42700	67200	70400	78300	71400	67500	58400	32400	82200	97900	46400
2	65200	30300	68600	71700	78400	71100	66800	57000	45800	82400	98800	55700
3	61300	38900	69900	72200	78000	70200	67100	55700	53900	82900	70000	64600
4	59600	42600	68800	70600	77800	69900	67600	52600	55400	83300	39900	69300
5	62300	49400	69400	71000	77500	70300	64900	50200	55000	82900	45600	73300
6	63500	47500	70500	71800	76900	68100	62800	51700	55700	83300	61200	74700
7	64000	59800	69600	72300	76800	67500	59600	53000	55500	82800	71400	77000
8	63700	55900	68300	71000	77100	65700	51900	52300	55300	83100	77200	77700
9	64100	60800	69800	76400	76800	68500	63000	50600	55000	83100	78900	77800
10	66100	65900	68800	75900	76700	69400	64800	49900	56100	82600	78600	78100
11	66000	66100	69900	75200	75800	71400	65400	30300	57300	80100	77900	77100
12	58500	67300	71200	73700	76100	72600	65100	31500	59000	83600	77500	76900
13	58100	65200	70700	75400	76200	71400	64000	45100	51200	84200	76800	80700
14	57700	64600	71900	75600	75700	70800	63200	53200	52200	85400	76700	79400
15	44900	64900	72700	75300	75200	70300	41100	59000	53600	85400	75900	78400
16	35600	65400	72000	75900	75200	69900	30700	64800	53200	79000	73800	78500
17	52200	64600	72800	75000	75100	68200	52500	65400	52800	80200	74800	95300
18	58700	63200	71100	74900	74400	67600	63400	67700	53100	82400	73300	92900
19	62000	60700	70300	77100	74900	67400	67900	68900	52700	84600	73600	90500
20	62100	63000	71700	78000	75200	66900	69600	70600	51300	85800	72100	89600
21	61200	62100	70600	79000	76700	66900	68200	73300	49800	87500	79700	86600
22	60600	63300	71000	78800	75300	66300	66400	29900	29700	89900	79300	84200
23	59700	61600	70000	78400	74100	65600	65700	27400	24400	90100	82000	81800
24	62100	62900	61200	79400	72900	65600	67000	33500	11200	90200	83300	81100
25	63800	63800	64400	80700	73800	65900	66100	15300	35500	90600	83000	81900
26	60400	64700	65900	79900	74000	65800	62800	11800	52100	91400	91700	80800
27	61200	64200	68700	79200	72300	66000	63400	14600	60100	91800	92000	80200
28	61900	62900	69300	78800	71700	66000	61100	32800	65400	92600	101000	78300
29	61000	63600	67500	78500	72000	66200	60700	53500	70600	93000	90900	76900
30	59600	65700	68400	78100	---	68500	59800	59300	80200	94800	67100	76100
31	58300	---	69900	78900	---	67800	---	67600	---	96800	37700	---
MONTH	60000	59100	69400	75800	75500	68400	62000	48600	51200	86100	76100	78100



## RED RIVER BASIN

87

07299516 Jonah Creek at mouth near Estelline, Tex.  
(Low-flow partial-record station)

LOCATION.--Lat 34°33'55", Long 100°18'40", Childress County, at mouth 7.5 miles (12.1 km) northeast of Estelline.

DRAINAGE AREA.--76 mi<sup>2</sup> (197 km<sup>2</sup>).

PERIOD OF RECORD.--Periodic measurements of discharge and water-quality data: June 1974 to September 1976 (discontinued).

## DISCHARGE AND WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)
OCT.							
02...	1630	1.6	68100	--	27.0	5100	--
22...	1000	1.6	64800	--	18.0	5000	--
NOV.							
10...	1310	2.1	70700	--	18.5	5300	--
DEC.							
02...	1420	2.0	--	--	17.0	--	--
18...	1540	2.2	64200	--	8.0	4700	--
JAN.							
07...	1500	4.2	66800	--	.0	5000	--
27...	1500	2.4	73100	--	15.0	5100	--
FEB.							
18...	1210	2.3	75700	--	15.0	5400	--
MAR.							
10...	1005	2.6	64900	--	10.5	4800	--
31...	1000	2.1	72200	7.7	12.0	5400	5300
APR.							
21...	1145	2.5	67300	--	22.0	5100	--
MAY							
12...	1305	3.5	43800	--	24.0	3000	--
JUNE							
03...	0945	3.2	58300	--	21.0	4400	--
JULY							
15...	1200	2.4	80100	--	29.0	5600	--
AUG.							
25...	1015	2.9	85200	--	24.0	5600	--
SEP.							
16...	1310	2.1	74900	--	30.0	5500	--

DATE	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	BICAR- BONATE (HCO <sub>3</sub> ) (MG/L)	CAR- BONATE (CO <sub>3</sub> ) (MG/L)	DIS- SOLVED SULFATE (SO <sub>4</sub> ) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
OCT.						
02...	1500	340	--	--	4200	26000
22...	1500	310	--	--	4100	24000
NOV.						
10...	1600	320	--	--	4400	25000
DEC.						
02...	--	--	--	--	--	--
18...	1400	290	--	--	3900	26000
JAN.						
07...	1500	310	--	--	4200	25000
27...	1500	330	--	--	4500	30000
FEB.						
18...	1600	350	--	--	4700	30000
MAR.						
10...	1400	310	--	--	4300	25000
31...	1600	340	158	0	4800	28000
APR.						
21...	1500	330	--	--	4300	26000
MAY						
12...	880	190	--	--	2400	17000
JUNF						
03...	1300	280	--	--	3900	21000
JULY						
15...	1600	380	--	--	4500	34000
AUG.						
25...	1600	380	--	--	4600	37000
SEP.						
16...	1600	370	--	--	4300	31000

## RED RIVER BASIN

07299530 Salt Creek near Estelline, Tex.

LOCATION.--Lat 34°35'26", long 100°15'08", Childress County, on left bank, 3 miles (5 km) upstream from mouth, and 11.5 miles (18.5 km) northeast of Estelline.

DRAINAGE AREA.--142 mi<sup>2</sup> (368 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: May 1974 to current year.

Water quality: Chemical analyses: June 1974 to current year.

GAGE.--Water-stage and specific-conductance recorders. Altitude of gage is 1,650 ft (503 m), from topographic map.

EXTREMES.--Discharge: Current year: Maximum discharge, 266 ft<sup>3</sup>/s (7.53 m<sup>3</sup>/s) May 25 (gage height, 4.10 ft or 1.250 m); minimum daily, 0.50 ft<sup>3</sup>/s (0.014 m<sup>3</sup>/s) Dec. 19-21, Jan. 8, 9, Feb. 21.

Period of record: Maximum discharge, 1,950 ft<sup>3</sup>/s (55.2 m<sup>3</sup>/s) May 25, 1974 (gage height, 7.62 ft or 2.323 m), from rating curve extended above 200 ft<sup>3</sup>/s (5.66 m<sup>3</sup>/s); minimum daily, 0.20 ft<sup>3</sup>/s (0.006 m<sup>3</sup>/s) July 30, 1974.

Water quality: Current year: Maximum daily specific conductance, 69,700 micromhos Jan. 4; minimum daily, 6,460 micromhos May 26.

Period of record: Maximum daily specific conductance, 76,400 micromhos Aug. 26, 1974; minimum daily, 6,460 micromhos May 26, 1976.

REMARKS.--Discharge records fair. No diversion above station. Specific conductance is recorded continuously at this station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.90	3.0	1.3	1.7	1.1	1.3	1.2	1.6	14	1.2	1.3	.78
2	.87	42	1.4	1.4	1.3	1.1	1.3	1.4	3.2	1.2	1.5	.69
3	.78	5.9	1.5	1.2	1.4	1.2	1.2	1.3	1.6	1.2	44	.69
4	.79	1.8	1.4	1.2	1.5	.66	1.2	1.4	1.5	1.4	19	.69
5	.81	1.3	1.2	1.7	1.4	.85	1.3	1.5	1.3	1.4	4.0	.69
6	.76	1.5	1.2	1.4	1.2	1.2	1.4	2.6	1.3	1.4	1.7	.61
7	.83	1.3	1.2	1.0	1.2	1.3	1.5	1.7	1.1	1.4	1.6	.73
8	.82	1.3	1.1	.50	1.4	1.5	7.0	1.5	1.2	1.4	1.3	1.3
9	.96	1.1	.90	.50	1.7	1.7	4.4	1.4	1.2	1.7	1.3	.56
10	1.0	1.2	.95	.60	1.5	1.5	2.4	1.6	1.2	1.4	.90	.61
11	1.2	1.2	1.1	.70	1.7	.95	1.4	1.6	1.3	1.4	1.0	.66
12	1.2	1.1	1.2	.80	1.7	.68	1.2	2.1	1.1	1.5	1.0	.61
13	1.4	.99	1.3	.88	1.8	.83	1.3	1.6	1.2	.72	.92	1.3
14	1.4	1.2	1.0	1.0	1.9	1.1	1.4	1.6	1.1	1.2	1.1	.71
15	1.5	1.4	.90	.97	1.6	.94	11	1.6	.84	1.0	1.3	.73
16	1.1	1.3	1.2	1.1	1.6	.81	50	1.3	1.0	2.1	1.3	.63
17	.90	1.3	1.1	1.3	.89	1.4	7.0	1.5	1.3	.83	1.2	1.5
18	.95	2.0	.67	1.6	1.1	1.3	3.0	1.8	1.3	.84	1.1	1.2
19	1.1	1.2	.50	1.5	1.4	.90	1.3	1.8	1.1	.76	1.3	1.7
20	1.2	.71	.50	1.4	.88	.84	1.1	2.0	.94	1.1	1.2	1.7
21	1.2	1.1	.50	1.5	.50	1.3	1.2	1.9	1.1	1.1	.93	1.5
22	1.2	1.2	.69	1.6	.91	1.5	1.2	2.4	1.3	1.1	.93	1.9
23	1.5	.88	.69	1.2	.98	1.5	1.5	8.8	1.4	1.2	.93	1.9
24	1.1	.76	1.2	1.3	1.3	1.6	.73	2.4	16	1.2	.98	1.4
25	.90	1.1	1.4	1.3	1.3	1.5	.82	83	3.5	1.1	1.1	1.3
26	1.1	.85	1.2	1.3	1.4	1.1	1.7	48	2.0	1.1	1.2	1.4
27	1.1	1.0	1.2	1.0	1.5	1.3	1.7	11	1.4	.94	1.4	2.1
28	.95	1.3	1.2	1.1	1.6	1.7	2.2	3.8	1.4	1.1	1.3	1.8
29	.90	1.1	1.7	1.3	1.5	.76	2.4	2.9	1.2	1.4	1.2	1.3
30	.96	.90	2.0	1.7	---	1.0	1.9	2.1	1.2	1.3	1.0	1.2
31	1.1	---	2.4	1.0	---	1.2	---	6.2	---	1.3	.90	---
TOTAL	32.48	82.99	35.80	36.75	39.26	36.52	116.95	205.4	69.28	37.99	99.89	33.89
MEAN	1.05	2.77	1.15	1.19	1.35	1.18	3.90	6.63	2.31	1.23	3.22	1.13
MAX	1.5	42	2.4	1.7	1.9	1.7	50	83	16	2.1	44	2.1
MIN	.76	.71	.50	.50	.50	.66	.73	1.3	.84	.72	.90	.56
AC-FT	64	165	71	73	78	72	232	407	137	75	198	67

CAL YR 1975 TOTAL 669.84 MEAN 1.84 MAX 47 MIN .34 AC-FT 1330  
WTR YR 1976 TOTAL 827.20 MEAN 2.26 MAX 83 MIN .50 AC-FT 1640

PEAK DISCHARGE (BASE, 1,000 FT<sup>3</sup>/S).--No peak above base.

## RED RIVER BASIN

89

07299530 Salt Creek near Estelline, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG)	DIS-SOLVED SODIUM (NA) (MG/L)
OCT. 22...	1120	8.3	65900	--	19.0	5100	--	1500	320	--
DEC. 03...	1050	6.0	63000	--	10.0	4900	--	1400	340	--
JAN. 08...	0930	4.2	69300	--	2.0	4800	--	1400	310	--
FEB. 20...	0935	1.4	61600	--	10.5	5000	--	1500	310	--
MAR. 31...	1535	1.0	67800	--	20.5	5100	--	1500	330	--
APR. 21...	1500	4.2	52600	--	25.0	4400	--	1300	280	--
MAY 13...	1145	1.6	56400	--	19.0	4700	--	1400	300	--
JUNE 03...	1510	1.8	42600	--	32.0	3300	--	990	210	--
AUG. 03...	1700	174	4690	7.5	--	1200	1100	420	44	660
04...	0915	18	7430	7.2	24.0	1200	1200	420	48	1200

DATE	SODIUM ADSORPTION RATIO	DIS-SOLVED PHOSPHATE (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT. 22...	--	--	--	--	3900	24000	--	--	--
DEC. 03...	--	--	--	--	4100	25000	--	--	--
JAN. 08...	--	--	--	--	4400	28000	--	--	--
FEB. 20...	--	--	--	--	3800	25000	--	--	--
MAR. 31...	--	--	--	--	4300	25000	--	--	--
APR. 21...	--	--	--	--	3500	20000	--	--	--
MAY 13...	--	--	--	--	3600	22000	--	--	--
JUNE 03...	--	--	--	--	2800	15000	--	--	--
AUG. 03...	8.2	12	116	0	990	1100	.4	7.9	3290
04...	15	10	82	0	1000	2000	--	6.3	4720

## RED RIVER BASIN

07299530 Salt Creek near Estelline, Tex.--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	32.48	65400	47400	4160	25100	2200	4380	384	****
NOV. 1975.....	82.99	35600	24800	5560	13100	2950	2340	525	****
DEC. 1975.....	35.8	64400	46600	4510	24700	2390	4300	416	****
JAN. 1976.....	36.75	64200	46400	4600	24600	2440	4290	426	****
FEB. 1976.....	37.76	62700	45200	4600	23900	2440	4180	426	****
MAR. 1976.....	36.52	63000	45400	4480	24100	2370	4210	415	****
APR. 1976.....	116.95	32300	22200	7010	11800	3710	2080	658	****
MAY 1976.....	205.4	20300	13900	7680	7340	4070	1330	738	****
JUNE 1976.....	69.28	37100	25400	4740	13400	2510	2350	439	****
JULY 1976.....	37.99	64000	46200	4740	24500	2510	4280	439	****
AUG. 1976.....	99.89	27800	19600	5290	10400	2810	1860	502	****
SEPT 1976.....	33.89	63200	45600	4170	24200	2210	4220	386	****
TOTAL .....	825.7	**	**	61500	**	32600	**	5750	**
WTD.AVG. ....	2.26	39100	28000	**	15000	**	2600	**	*****

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65100	61100	63200	66000	64200	66100	66900	55200	21500	61900	67300	63700
2	65200	18100	62900	67400	63500	66200	65600	56600	27300	63100	67500	63900
3	66000	20300	63000	68900	63100	67200	65600	59700	42600	63500	9530	64400
4	65900	29900	63400	69700	62200	66800	64600	58300	44900	63300	7430	65100
5	65400	38700	64100	68100	62600	68200	64700	57600	47300	63000	26600	65700
6	66700	45600	64300	68600	63100	69400	64600	53100	49900	62700	45900	66000
7	66200	54500	64700	69100	63400	68400	62600	54900	51100	62600	58100	65200
8	66500	59900	65000	69300	62700	63900	43700	55000	53500	62700	63800	62600
9	64200	60700	65600	65800	61300	63400	50200	55100	55800	62900	67100	64300
10	63500	61600	65000	64400	61600	63100	58200	55200	57400	63200	67600	65000
11	62600	62900	63100	64700	60800	61500	61300	55900	58400	63400	67200	66300
12	63100	63800	62800	63700	61000	63900	62400	52500	57500	63600	66800	67200
13	62900	65100	62200	63100	60400	61800	63500	56400	56500	63600	67100	64800
14	63700	64200	63400	63300	59600	63000	64200	61100	56300	63900	66300	65600
15	63300	63600	64700	62600	60900	61500	25100	60600	57800	64200	62700	66900
16	65700	64000	62600	61800	61400	59300	10600	62900	57800	65000	62100	67700
17	66200	64900	63000	62000	62500	61000	39800	62500	58600	63800	64600	62800
18	66000	60300	63600	59000	61700	61900	47600	62400	57200	63900	66100	62000
19	65600	62700	64100	54900	61000	61800	51700	62800	56300	63900	60200	64700
20	65000	64800	64400	58100	61300	60300	53000	62000	56600	63900	61700	60000
21	65600	63000	65300	62000	66600	59700	52600	61500	58300	64400	62600	62200
22	65900	62500	65000	65200	64700	60300	52900	55600	58400	64400	64300	63300
23	64800	64400	66200	61400	65600	59300	50600	38700	55700	64400	65000	64300
24	66000	65600	64700	63300	65600	62000	55800	43200	23000	64200	65800	63200
25	66900	63700	63900	65600	64500	65000	58400	9450	21500	64300	65700	62600
26	66300	64000	64800	63800	65300	64100	57700	6460	35000	65100	68100	62000
27	66600	63300	66100	65700	66300	59300	58000	8000	47000	65800	69400	61800
28	67400	62600	67300	65400	65800	57000	58300	15300	55700	65900	68700	59400
29	68200	63500	67000	64900	64900	61600	48200	24900	60300	65700	67600	60500
30	67800	64700	66400	63100	---	63400	53200	36600	61300	65900	65600	61400
31	67500	---	64700	64500	---	67800	---	30300	---	66100	63300	---
MONTH	65500	57500	64400	64400	63000	63200	54400	48100	50000	64000	59700	63800

## RED RIVER BASIN

91

07299540 Prairie Dog Town Fork Red River near Childress, Tex.

LOCATION.--Lat 34°34'09", long 100°11'37", Childress County, on left bank at downstream side of bridge on U.S. Highways 62 and 83, 3.1 miles (5.0 km) downstream from Salt Creek, 10.0 miles (16.1 km) north of Childress, and at mile 1,061 (1,707 km).

DRAINAGE AREA.--7,725 mi<sup>2</sup> (20,008 km<sup>2</sup>), of which 4,769 mi<sup>2</sup> (12,352 km<sup>2</sup>) is probably noncontributing.

PERIOD OF RECORD.--Discharge: December 1964 to March 1965 (gage heights only), April 1965 to current year.

Water quality: Chemical analyses: July 1968 to current year. Water temperatures: July 1968 to current year.

GAGE.--Water-stage and specific-conductance recorders. Datum of gage is 1,628.4 ft (496.34 m) above mean sea level, from highway bridge plans.

AVERAGE DISCHARGE.--11 years, 100 ft<sup>3</sup>/s (2.832 m<sup>3</sup>/s), 72,450 acre-ft/yr (89.3 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 7,510 ft<sup>3</sup>/s (213 m<sup>3</sup>/s) Aug. 3 (gage height, 9.04 ft or 2.755 m); minimum, 0.01 ft<sup>3</sup>/s (0.0003 m<sup>3</sup>/s) July 2.

Period of record: Maximum discharge, 58,800 ft<sup>3</sup>/s (1,670 m<sup>3</sup>/s) June 26, 1965 (gage height, 12.0 ft or 3.66 m), from rating curve extended above 33,000 ft<sup>3</sup>/s (935 m<sup>3</sup>/s); no flow at times.

Historic: Maximum stage since at least 1899, 16.9 ft (5.15 m) in May or June 1957, from information by local residents and State Highway Department.

Water quality: Current year: Maximum daily specific conductance, 87,700 micromhos Aug. 26; minimum daily, 10,100 micromhos May 26. Maximum observed water temperature, 36.0°C June 11; minimum, freezing point on many days during winter months.

Period of record: Maximum daily specific conductance, 98,100 micromhos June 18, July 28, and Aug. 9, 1970; minimum daily, 3,000 micromhos Aug. 13, 1971. Maximum water temperatures, 38.0°C Aug. 20, 1969, June 19, 21, 22, 1974; minimum, freezing point on many days during winter months.

REMARKS.--Discharge records poor. Many small diversions above station. Specific conductance is recorded continuously at this station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	134	1.7	34	3.7	.82	2.1	167	124	.06	13	16
2	1.4	833	2.5	19	3.5	.64	2.1	50	40	98	23	5.0
3	1.3	336	4.0	14	4.9	.77	2.5	13	11	820	750	2.6
4	1.3	90	4.8	12	5.1	2.1	2.1	3.9	3.5	2120	351	1.5
5	1.2	49	5.6	11	8.7	.44	3.5	3.0	2.1	198	427	1.1
6	1.3	32	2.6	9.7	13	.73	4.1	11	3.0	46	173	.56
7	1.3	23	2.6	4.1	16	2.5	3.6	2.0	2.0	11	141	1.9
8	1.3	16	4.1	4.0	15	46	212	.80	1.7	7.8	56	40
9	.93	11	5.4	9.0	16	92	78	.73	30	7.0	14	163
10	1.2	5.9	5.3	11	12	21	18	.66	20	6.2	3.5	215
11	1.2	5.7	4.6	7.5	7.8	8.8	7.0	3.2	3.2	9.7	.93	54
12	1.2	2.9	4.6	11	6.6	2.5	6.2	96	1.4	11	.73	6.3
13	1.4	2.4	6.8	7.7	5.8	2.5	8.8	5.8	4.6	9.7	.73	.76
14	10	2.6	8.6	6.2	5.5	2.1	18	.33	13	5.6	.93	2.1
15	212	3.5	4.3	7.0	6.2	2.5	814	.50	1.1	6.4	.93	1.3
16	177	4.4	4.1	7.8	5.3	2.5	1630	.17	.45	8.0	.93	.92
17	54	5.3	4.0	7.4	4.2	2.1	567	.09	.44	7.1	1.2	191
18	18	5.8	4.0	6.9	2.2	2.1	499	.14	.99	7.3	1.4	34
19	8.8	46	4.5	5.3	4.1	2.1	146	.15	.73	8.0	1.2	37
20	4.4	61	6.6	3.6	3.1	2.1	67	.65	.57	7.9	1.2	60
21	2.0	26	5.4	4.0	.47	2.1	25	.66	.69	8.6	1.2	194
22	2.0	13	8.2	5.4	.22	1.7	8.2	17	208	10	.93	104
23	1.6	9.7	8.0	6.5	.60	2.1	4.1	798	556	12	.73	21
24	.57	8.8	80	6.9	.52	1.7	.97	219	2420	12	.93	4.4
25	.75	8.8	134	7.1	.64	2.1	.14	670	309	10	2.1	12
26	1.5	4.1	74	6.6	.52	1.7	.09	2700	44	14	1.5	6.2
27	1.7	4.7	44	5.9	.67	2.1	.51	516	20	13	1.0	35
28	1.1	5.4	46	6.2	1.0	2.1	109	172	7.0	16	1.4	466
29	1.8	13	94	6.4	1.1	1.7	173	115	3.0	25	1.8	446
30	2.2	3.0	82	6.2	---	1.7	268	51	.11	14	36	24
31	3.3	---	50	5.0	---	1.7	---	99	---	13	113	---
TOTAL	521.35	1766.0	716.3	264.4	154.44	217.00	4680.01	5716.78	3831.58	3542.36	2122.27	2146.64
MEAN	16.8	58.9	23.1	8.53	5.33	7.00	156	184	128	114	68.5	71.6
MAX	212	833	134	34	16	92	1630	2700	2420	2120	750	466
MIN	.57	2.4	1.7	3.6	.22	.44	.09	.09	.11	.06	.73	.56
AC-FT	1030	3500	1420	524	306	430	9280	11340	7600	7030	4210	4260

CAL YR 1975 TOTAL 21483.21 MEAN 58.9 MAX 1230 MIN .01 AC-FT 42610

WTR YR 1976 TOTAL 25679.13 MEAN 70.2 MAX 2700 MIN .06 AC-FT 50930

PEAK DISCHARGE (BASE, 7,000 FT<sup>3</sup>/S).--May 26 (0815) 7,190 ft<sup>3</sup>/s (8.74 ft); Aug. 3 (1800) 7,510 ft<sup>3</sup>/s (9.04 ft).



## RED RIVER BASIN

07299540 Prairie Dog Town Fork Red River near Childress, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	HARDNESS (CA+MG) (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)
OCT 23...	0830	2.8	74300	13.0	5300	1500	380	4200	28000
NOV 11...	0900	6.6	65900	5.5	4800	1400	320	4000	25000
DEC 03...	0830	4.9	70600	3.0	5200	1500	360	4200	28000
FEB 19...	1650	3.9	75700	19.0	5500	1600	360	4900	33000
MAR 26...	0900	1.7	79500	10.0	5900	1700	400	5000	31000
APR 22...	0850	12	46800	15.0	4100	1200	270	3600	18000
MAY 27...	1410	218	11400	21.0	1600	520	78	1400	3200
JUN 23...	1040	288	20200	14.0	2500	790	120	2100	6400
JUL 07...	1530	18	34300	34.0	3000	910	180	2500	12000
AUG 03...	1855	3510	13700	29.0	2000	650	96	1600	3800

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICROMHOS)	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. 1975.....	521.35	33500	22900	32100	11600	16300	2740	3860	****
NOV. 1975.....	1765	24200	16300	77800	7970	38000	2270	10800	****
DEC. 1975.....	716.3	56000	40700	78700	21500	41600	4000	7730	****
JAN. 1976.....	264.4	65400	48700	34800	26000	18500	4560	3260	****
FEB. 1976.....	153.34	70000	52600	21800	28100	11600	4840	2000	****
MAR. 1976.....	216	64900	48300	28300	25800	15100	4520	2650	****
APR. 1976.....	4679	23500	15500	196000	7520	94900	2210	27900	****
MAY 1976.....	5716.78	15200	9790	151000	4340	67000	1810	27900	****
JUNE 1976.....	3831.58	15200	9790	101000	4340	44900	1800	18700	****
JULY 1976.....	3542.36	23100	15600	149000	7550	72300	2210	21100	****
AUG. 1976....-	2122.27	15900	10400	59600	4680	26800	1850	10600	****
SEPT 1976.....	2146.64	22100	14800	85500	7090	41100	2150	12500	****
TOTAL .....	25677.99	**	**	1020000	**	488000	**	149000	**
WTD.AVG. ....	70.35	21800	15000	**	7000	**	2100	**	****

## RED RIVER BASIN

93

07299540 Prairie Dog Town Fork Red River near Childress, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C): WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	79900	33700	72900	55900	74000	74100	75900	32200	19100	71100	68800	45100
2	75500	14400	70400	56200	74900	77200	77100	38300	22800	43400	67500	62300
3	75000	17000	70300	70100	73600	76000	76500	44100	42900	38800	14700	70500
4	76200	20800	69800	65300	73600	72500	76500	53200	55600	12500	11400	76700
5	76800	28100	73500	57600	64000	75200	75400	67300	62200	15100	11300	79300
6	76200	37500	72700	65300	67800	73300	75400	64500	66000	19200	13000	81600
7	76800	45800	72500	68500	69800	72500	73700	66300	68200	30800	15300	84000
8	78100	52000	72200	69700	64000	62300	38700	68200	70900	43900	24300	36300
9	78100	59700	71100	68500	65600	59900	36900	72100	37500	61600	39400	18100
10	76100	62400	71400	64900	64500	65500	53000	72300	40400	69700	54500	14400
11	77200	65900	72700	66300	68200	74500	63900	73900	65200	71600	67900	35000
12	78800	68500	72700	65600	69700	73900	68200	43700	75900	70800	73900	53100
13	78800	70200	72000	63100	71100	72900	68700	47900	77700	77700	79000	73200
14	80400	70900	71200	66700	72900	73400	55800	49300	72100	77600	79000	74500
15	76800	71900	72700	65100	71700	72900	29200	69700	76800	76500	82800	75900
16	20400	70900	71200	66700	75500	71600	17600	74800	80200	45100	84800	77400
17	25800	70200	72200	67100	75300	75600	16600	77700	79200	38500	85500	17900
18	31200	70200	76100	68900	75800	72900	15500	75900	78300	35000	84800	58200
19	39700	53300	69300	70500	74500	73600	21700	78900	80200	29700	84800	67500
20	50300	49600	70200	71200	76300	77600	34100	78300	80200	47200	84800	46800
21	58500	36100	70900	71900	81400	73600	38100	76800	82800	69200	85500	20800
22	66400	50200	70400	70500	71000	74200	52200	39800	23600	77700	85500	26200
23	74100	59400	62700	71200	75800	73600	58900	23600	20500	77100	85500	45300
24	78000	62200	55500	70900	73900	80000	68200	16700	11700	76500	82800	68900
25	74600	64700	53200	70500	75300	77000	74100	12000	12000	77100	82100	70300
26	73300	66100	46800	70800	74700	80000	74100	10100	14600	81800	87700	74700
27	74600	70200	54200	71500	74700	74500	72500	10900	20500	81800	87000	37900
28	76500	70200	54000	71300	73900	78500	35300	15000	33300	83500	86700	18600
29	75900	68500	50700	71200	73800	76700	29300	20600	45200	28700	86200	11800
30	75400	71500	58000	71600	---	79100	31500	28600	60100	32600	23500	18200
31	73400	---	54200	72100	---	75600	---	23400	---	49300	20800	---
MONTH	67100	55100	66700	67600	72600	73900	52800	49400	52500	55200	62600	51400

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.0	15.0	0.0	5.0	15.0	11.0	25.0	25.0	20.0	25.0	27.0	20.0
2	14.0	14.0	3.0	5.0	14.0	11.0	11.0	13.0	17.0	29.0	23.0	20.0
3	18.0	14.0	12.0	0.0	11.0	5.0	9.0	11.0	20.0	24.0	21.0	30.0
4	10.0	15.0	13.0	0.0	2.0	4.0	10.0	12.0	25.0	23.0	24.0	23.0
5	11.0	10.0	15.0	0.0	0.0	3.0	28.0	11.0	23.0	23.0	25.0	23.0
6	12.0	13.0	5.0	3.0	0.0	15.0	14.0	17.0	23.0	20.0	25.0	25.0
7	12.0	12.0	9.0	0.0	5.0	8.0	15.0	10.0	20.0	23.0	24.0	23.0
8	11.0	14.0	4.0	0.0	3.0	6.0	14.0	11.0	26.0	25.0	25.0	21.0
9	13.0	17.0	3.0	3.0	7.0	6.0	23.0	15.0	30.0	30.0	26.0	16.0
10	14.0	8.0	4.0	0.0	9.0	12.0	28.0	16.0	23.0	23.0	26.0	25.0
11	16.0	20.0	10.0	0.0	8.0	14.0	16.0	18.0	36.0	23.0	29.0	28.0
12	17.0	6.0	5.0	0.0	14.0	5.0	14.0	19.0	28.0	---	28.0	25.0
13	16.0	5.0	8.0	3.0	19.0	3.0	13.0	13.0	23.0	26.0	28.0	23.0
14	15.0	15.0	12.0	10.0	9.0	4.0	20.0	19.0	23.0	25.0	27.0	22.0
15	17.0	5.0	2.0	5.0	9.0	6.0	16.0	12.0	28.0	25.0	24.0	25.0
16	12.0	8.0	0.0	5.0	9.0	4.0	11.0	14.0	20.0	23.0	27.0	31.0
17	11.0	10.0	1.0	5.0	8.0	18.0	13.0	25.0	28.0	22.0	26.0	25.0
18	---	9.0	4.0	7.0	15.0	9.0	10.0	18.0	20.0	23.0	29.0	21.0
19	---	12.0	11.0	9.0	9.0	20.0	20.0	15.0	20.0	22.0	26.0	21.0
20	---	4.0	0.0	10.0	15.0	17.0	12.0	18.0	20.0	25.0	34.0	19.0
21	---	0.0	5.0	0.0	10.0	7.0	11.0	30.0	21.0	27.0	26.0	16.0
22	---	0.0	5.0	7.0	0.0	15.0	29.0	20.0	27.0	26.0	25.0	17.0
23	15.0	2.0	7.0	12.0	3.0	12.0	26.0	20.0	23.0	27.0	22.0	17.0
24	10.0	5.0	7.0	7.0	15.0	12.0	26.0	---	20.0	35.0	25.0	30.0
25	9.0	3.0	0.0	4.0	8.0	25.0	25.0	---	28.0	32.0	27.0	26.0
26	8.0	8.0	3.0	0.0	5.0	10.0	10.0	15.0	23.0	30.0	28.0	20.0
27	11.0	0.0	3.0	3.0	20.0	8.0	15.0	15.0	28.0	34.0	30.0	20.0
28	11.0	6.0	0.0	0.0	12.0	15.0	15.0	23.0	26.0	28.0	25.0	13.0
29	11.0	14.0	4.0	1.0	14.0	15.0	12.0	18.0	29.0	25.0	21.0	15.0
30	15.0	5.0	4.0	15.0	---	8.0	15.0	18.0	25.0	34.0	25.0	26.0
31	17.0	---	4.0	4.0	---	14.0	---	19.0	---	27.0	20.0	---
MONTH	13.0	9.0	5.5	4.0	9.0	10.5	17.0	17.0	24.0	26.0	25.5	22.0

## RED RIVER BASIN

07299570 Red River near Quanah, Tex.

LOCATION.--Lat 34°24'47", long 99°44'03", Hardeman County, on right bank at downstream side of bridge on State Highway 6, 8 miles (13 km) north of Quanah, 30 miles (48 km) upstream from Salt Fork Red River, and at mile 1,030 (1,657 km).

DRAINAGE AREA.--8,321 mi<sup>2</sup> (21,551 km<sup>2</sup>), of which 4,769 mi<sup>2</sup> (12,352 km<sup>2</sup>) is probably noncontributing.

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

GAGE.--Water-stage recorder. Datum of gage is 1,412.97 ft (430.673 m) above mean sea level.

AVERAGE DISCHARGE.--16 years (1960-76), 135 ft<sup>3</sup>/s (3.823 m<sup>3</sup>/s), 97,810 acre-ft/yr (121 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 7,070 ft<sup>3</sup>/s (200 m<sup>3</sup>/s) June 24 (gage height, 9.37 ft or 2.856 m); minimum, 0.12 ft<sup>3</sup>/s (0.003 m<sup>3</sup>/s) Aug. 2, 3.

Period of record: Maximum discharge, 64,000 ft<sup>3</sup>/s (1,810 m<sup>3</sup>/s) June 7, 1960 (gage height, 16.00 ft or 4.877 m), from rating curve extended above 32,000 ft<sup>3</sup>/s (906 m<sup>3</sup>/s); no flow at times.

Maximum stage since at least 1891 occurred in 1896, about 23 ft (7.0 m); second highest stage occurred June 1, 1957, 21.2 ft (6.46 m), from information by local resident.

REMARKS.--Records good. Several small diversions above station for irrigation.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	2.2	8.2	46	10	6.3	7.3	217	148	4.0	1.8	15
2	2.0	867	8.3	34	10	5.9	7.3	157	79	.49	.31	17
3	1.9	576	8.6	26	10	5.6	7.3	83	40	7.3	.18	3.4
4	1.8	211	9.1	24	10	5.9	7.3	56	21	827	804	1.3
5	1.7	103	9.8	21	9.0	4.6	7.3	120	12	126	346	.75
6	2.1	67	8.5	21	8.0	4.9	7.3	129	6.4	79	265	.58
7	2.0	51	8.0	10	8.0	7.5	7.3	64	4.1	42	109	2.7
8	1.7	40	9.2	9.0	20	16	7.3	46	2.4	23	76	2.1
9	1.8	32	9.8	9.0	21	17	7.3	37	1.5	12	27	1.1
10	2.1	22	10	12	20	23	19	36	1.3	14	10	.73
11	2.0	17	9.4	21	17	22	14	40	1.3	9.4	4.5	17
12	1.9	12	9.4	19	16	12	7.4	34	2.4	5.3	2.0	9.9
13	1.8	9.4	10	16	16	7.7	7.3	28	11	1.9	1.5	216
14	18	8.6	11	14	13	6.4	7.3	52	10	1.5	1.3	62
15	44	8.1	9.5	15	13	6.2	802	37	1.1	1.1	1.0	35
16	68	8.2	9.4	15	12	6.1	2240	21	.82	24	.98	24
17	72	8.5	9.4	15	9.6	6.1	1380	18	.44	67	.98	196
18	42	8.4	7.0	15	9.5	6.1	671	18	1.8	36	.97	94
19	21	20	7.0	14	9.0	7.0	367	17	.70	46	1.0	56
20	10	26	10	12	7.6	5.9	212	18	.49	19	.89	42
21	4.7	30	11	12	6.0	5.6	124	19	.37	4.4	.78	46
22	2.6	30	16	14	6.2	6.4	98	26	.42	.69	.76	28
23	1.9	23	16	15	6.2	7.2	83	196	218	.72	.74	34
24	1.3	19	42	15	5.9	7.7	56	431	1540	.46	.71	21
25	1.1	17	83	15	6.1	7.3	44	748	1370	.40	.72	12
26	1.3	12	96	13	6.1	7.3	36	2250	141	.39	.66	6.4
27	1.1	13	73	13	6.0	7.3	39	1140	56	.23	.60	15
28	.97	13	60	13	6.2	7.3	183	275	18	.21	14	40
29	.92	12	64	14	6.7	7.3	113	144	4.7	1.7	4.8	229
30	1.3	8.2	66	13	---	7.3	240	112	5.6	18	6.1	154
31	1.6	---	62	12	---	7.3	---	119	---	7.2	3.0	---
TOTAL	328.59	2274.6	770.6	517.0	304.1	260.2	6808.7	6688	3699.84	1380.39	1687.28	1381.96
MEAN	10.6	75.8	24.9	16.7	10.5	8.39	227	216	123	44.5	54.4	46.1
MAX	72	867	96	46	21	23	2240	2250	1540	827	804	229
MIN	.92	2.2	7.0	9.0	5.9	4.6	7.3	17	.37	.21	.18	.58
AC-FT	652	4510	1530	1030	603	516	13510	13270	7340	2740	3350	2740
CAL YR 1975	TOTAL	36077.03	MEAN	98.8	MAX	5150	MIN	.74	AC-FT	71560		
WTR YR 1976	TOTAL	26101.26	MEAN	71.3	MAX	2250	MIN	.18	AC-FT	51770		

PEAK DISCHARGE (BASE, 5,000 FT<sup>3</sup>/S).--June 24 (2130) 7,070 ft<sup>3</sup>/s (9.37 ft).

07299670 Groesbeck Creek at State Highway 6 near Quanah, Tex.

LOCATION.--Lat 34°21'16", long 99°44'24", Hardeman County, near left bank on downstream side of bridge on State Highway 6, 2 miles (3 km) downstream from confluence of North and South Groesbeck Creeks, 4 miles (6 km) north of Quanah, and 9 miles (14 km) upstream from mouth.

DRAINAGE AREA.--303 mi<sup>2</sup> (785 km<sup>2</sup>).

PERIOD OF RECORD.--November 1961 to current year. Prior to October 1974, published as "at State Highway 283".

GAGE.--Water-stage recorder. Datum of gage is 1,425.69 ft (434.550 m) above mean sea level.

AVERAGE DISCHARGE.--14 years (1962-76), 13.4 ft<sup>3</sup>/s (0.379 m<sup>3</sup>/s), 0.60 in/yr (15 mm/yr), 9,710 acre-ft/yr (12.0 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 1,700 ft<sup>3</sup>/s (48.1 m<sup>3</sup>/s) Apr. 16 (gage height, 16.02 ft or 4.883 m); minimum, 3.6 ft<sup>3</sup>/s (0.10 m<sup>3</sup>/s) Sept. 23-26.

Period of record: Maximum discharge, 13,900 ft<sup>3</sup>/s (394 m<sup>3</sup>/s) Sept. 19, 1974 (gage height, 23.56 ft or 7.181 m), from rating curve extended above 6,100 ft<sup>3</sup>/s (173 m<sup>3</sup>/s); no flow at times.

Highest stage occurred in June 1891; highest stage since 1891 occurred in September 1929; other large floods are reported to have occurred in 1912, 1936, 1946, 1951, 1955, and 1957, from information by local residents.

REMARKS.--Records good. Several diversions upstream from station for farm and ranch use and for a gypsum wallboard plant.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.1	9.3	7.4	8.0	8.8	11	5.3	9.8	83	8.0	10	8.0
2	7.6	17	7.5	7.9	9.2	10	5.4	7.0	19	8.1	6.7	7.5
3	7.7	12	7.8	7.9	9.4	9.6	5.5	6.3	7.5	7.8	5.9	8.0
4	8.3	8.3	8.1	8.0	9.8	11	5.3	6.2	6.3	7.5	6.1	7.5
5	8.6	8.0	8.6	8.2	9.0	9.6	5.4	10	6.3	7.4	6.1	7.1
6	8.5	7.9	8.4	8.2	8.0	8.8	5.4	25	5.6	7.4	5.8	7.1
7	8.7	7.5	8.8	8.0	8.0	8.9	5.5	9.7	5.6	7.7	6.0	7.1
8	8.6	8.2	8.8	7.0	9.0	9.5	5.7	8.5	5.5	7.2	6.3	8.0
9	8.9	8.2	9.1	7.0	10	9.3	5.3	8.8	6.5	7.5	6.1	7.5
10	8.7	7.9	9.2	8.0	11	8.8	5.2	8.9	8.0	8.0	6.0	7.5
11	8.5	8.5	8.8	8.0	11	8.8	4.9	8.5	9.0	8.2	6.6	7.5
12	8.3	8.5	8.5	7.9	11	8.3	5.0	8.6	8.6	7.5	6.2	7.5
13	8.5	8.7	8.8	7.8	10	7.8	5.0	8.7	9.4	7.5	5.9	44
14	8.8	9.4	8.5	7.5	12	8.1	5.0	8.5	10	7.9	6.2	205
15	11	9.0	8.2	7.7	12	7.6	167	8.5	9.4	7.3	6.4	11
16	9.3	9.0	8.3	7.7	12	7.3	1350	8.6	8.7	7.3	6.0	4.7
17	8.6	9.0	8.3	7.5	12	7.7	658	8.6	9.5	7.2	5.7	4.5
18	8.8	9.4	8.1	7.0	11	8.0	274	8.8	9.6	7.2	6.1	4.0
19	9.3	9.7	8.3	6.7	11	8.6	42	9.0	9.0	7.3	6.2	44
20	10	8.9	8.3	6.7	11	8.1	13	9.3	8.4	6.9	6.3	54
21	9.8	8.2	7.8	6.8	11	7.8	9.1	9.2	9.4	7.0	6.3	7.7
22	10	8.2	8.2	6.6	11	7.8	8.5	9.3	9.1	6.7	6.4	4.4
23	10	8.1	8.0	7.4	11	7.8	8.5	103	15	6.7	6.4	3.9
24	9.4	8.3	8.6	7.5	11	7.9	10	42	16	6.7	6.8	3.7
25	9.6	8.5	8.5	8.0	8.9	8.0	11	15	14	6.9	7.5	3.7
26	9.4	8.0	8.0	8.0	11	7.4	12	447	11	7.1	6.7	3.9
27	9.6	7.5	7.8	8.6	11	7.0	13	192	10	6.7	6.7	4.2
28	9.2	7.9	8.2	8.2	13	7.0	24	22	8.6	6.8	6.7	5.0
29	8.5	8.0	8.3	8.3	11	6.5	213	9.1	8.0	7.3	8.0	5.4
30	9.0	6.9	8.0	8.4	---	5.5	26	9.6	7.8	7.0	7.5	6.1
31	9.2	---	8.1	8.6	---	5.3	---	64	---	18	8.0	---
TOTAL	278.5	264.0	257.3	239.1	304.1	254.8	2913.0	1109.5	353.8	237.8	203.6	509.5
MEAN	8.98	8.80	8.30	7.71	10.5	8.22	97.1	35.8	11.8	7.67	6.57	17.0
MAX	11	17	9.2	8.6	13	11	1350	447	83	18	10	205
MIN	7.6	6.9	7.4	6.6	8.0	5.3	4.9	6.2	5.5	6.7	5.7	3.7
CFSM	.03	.03	.03	.03	.03	.03	.32	.12	.04	.03	.02	.06
IN.	.03	.03	.03	.03	.04	.03	.36	.14	.04	.03	.02	.06
AC-FT	552	524	510	474	603	505	5780	2200	702	472	404	1010
CAL YR 1975 TOTAL	6748.4			18.5	2010	3.7	CFSM .06	IN .83	AC-FT 13390			
WTR YR 1976 TOTAL	6925.0			18.9	1350	3.7	CFSM .06	IN .85	AC-FT 13740			

PEAK DISCHARGE (BASE, 1,000 FT<sup>3</sup>/S).--Apr. 16 (1200) 1,700 ft<sup>3</sup>/s (16.02 ft).

## RED RIVER BASIN

07299840 Greenbelt Lake near Clarendon, Tex.

LOCATION.--Lat 35°00'02", long 100°53'40", Donley County, on upstream side and near right end of dam on Salt Fork Red River and 4.3 miles (6.9 km) north of Clarendon.

DRAINAGE AREA.--457 mi<sup>2</sup> (1,184 km<sup>2</sup>), of which 191 mi<sup>2</sup> (495 km<sup>2</sup>) is probably noncontributing.

PERIOD OF RECORD.--Contents: August 1967 to current year. Prior to October 1973, published as Greenbelt Reservoir.

Water quality: Chemical analyses: October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (Freese, Nichols, and Endress, Consulting Engineers bench mark).

EXTREMES.--Current year: Maximum contents, 41,340 acre-ft (51.0 hm<sup>3</sup>) Oct. 1 (elevation, 2,653.68 ft or 808.842 m); minimum, 36,280 acre-ft (44.7 hm<sup>3</sup>) Sept. 12 (elevation, 2,650.35 ft or 807.827 m).

Period of record: Maximum contents, 44,650 acre-ft (55.1 hm<sup>3</sup>) June 26-28, 1975 (elevation, 2,655.71 ft or 809.460 m); minimum, 2,950 acre-ft (3.64 hm<sup>3</sup>) Aug. 29, 30, 1967 (elevation, 2,607.37 ft or 794.726 m).

REMARKS.--The lake is formed by a rolled earthfill dam 5,800 ft (1,770 m) long. Deliberate impoundment began Dec. 5, 1966, and the dam was completed in August 1967. The dam is the property of Greenbelt Municipal and Industrial Water Authority and was built to impound water for municipal and industrial uses by the cities of Childress, Clarendon, Crowell, Hedley, and Quanah. The spillway is an uncontrolled open cut through natural ground, 1,450 ft (442 m) wide and located at the left end of dam, designed to discharge 184,000 ft<sup>3</sup>/s (5,210 m<sup>3</sup>/s) at an elevation of 2,684.0 ft (818.08 m). A morning-glory type drop inlet with a 26-foot 8.5-inch-diameter (8.14-meter) opening at crest discharges into a 7- by 7-foot (2- by 2-meter) concrete conduit. The outlet works consist of a 36-inch (914-millimeter) pipe that is controlled by two 20-inch (508-millimeter) valves that control the discharge into a stilling basin and to a water treatment plant. The capacity table, dated April 1964, is based on the 1962 Geological Survey topographic maps. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	2,686.0	-
Design flood.....	2,683.0	105,600
Crest of spillway.....	2,674.0	81,760
Crest of morning-glory type drop inlet.....	2,663.65	59,110
Lowest gated outlet (invert).....	2,597.0	900

COOPERATION.--Records of diversion and capacity table furnished by Greenbelt Municipal and Industrial Water Authority.

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

2,650.0	35,770
2,652.0	38,730
2,654.0	41,850

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41340	40790	40730	40590	40490	40220	39850	40010	39840	38540	37520	36500
2	41300	41000	40730	40680	40510	40210	39840	39990	39810	38670	37640	36480
3	41260	41000	40730	40620	40480	40190	39790	39950	39760	38780	37770	36440
4	41220	41000	40730	40620	40480	40160	39790	39930	39750	38760	37800	36410
5	41190	41000	40700	40620	40480	40160	39780	39900	39730	38730	37770	36380
6	41190	41000	40700	40630	40480	40180	39760	39870	39720	38670	37720	36350
7	41170	41000	40730	40520	40460	40180	39810	39840	39700	38640	37700	36300
8	41120	41000	40710	40590	40490	40240	39810	39810	39680	38580	37620	36320
9	41080	40930	40710	40550	40490	40300	39760	39790	39650	38520	37530	36350
10	41080	40930	40710	40590	40490	40300	39780	39780	39620	38480	37470	36320
11	41000	40930	40710	40570	40490	40270	39750	39810	39560	38490	37410	36310
12	41000	40850	40710	40590	40510	40210	39750	39810	39500	38430	37360	36510
13	40960	40850	40730	40570	40510	40210	39760	39730	39450	38380	37290	36780
14	41010	40850	40660	40570	40510	40210	39810	39700	39410	38370	37240	36790
15	40950	40850	40680	40590	40490	40180	40020	39650	39330	38360	37170	36920
16	40950	40840	40680	40590	40510	40190	40040	39640	39240	38320	37110	37030
17	40850	40840	40650	40590	40440	40180	40120	39610	39220	38280	37050	37140
18	40820	40820	40650	40570	40430	40190	40100	39560	39150	38240	37030	37140
19	40810	40850	40630	40550	40460	40160	40080	39530	39080	38200	36950	37190
20	40810	40870	40630	40550	40300	40040	40100	39520	39040	38160	36890	37190
21	40780	40850	40620	40550	40360	40070	40100	39550	38990	38080	36820	37170
22	40730	40850	40630	40550	40360	40080	40070	39530	38950	38010	36760	37140
23	40700	40850	40650	40550	40320	40040	40070	39520	38910	37980	36700	37130
24	40660	40850	40660	40540	40300	40070	40040	39480	38850	37940	36630	37110
25	40650	40810	40680	40540	40300	40040	40010	39920	38820	37890	36590	37130
26	40590	40810	40680	40540	40290	39990	40010	39950	38760	37830	36530	37080
27	40570	40810	40680	40510	40270	39980	39990	39920	38730	37780	36430	37290
28	40550	40780	40680	40520	40250	39960	40040	39930	38680	37740	36400	37290
29	40550	40730	40680	40520	40250	39900	40010	39900	38640	37700	36350	37290
30	40510	40730	40710	40510	---	39900	40020	39880	38600	37620	36340	37280
31	40510	---	40680	40480	---	39900	---	39870	---	37580	36340	---
(+)	2653.15	2653.29	2653.26	2653.13	2652.99	2652.76	2652.84	2652.74	2651.91	2651.23	2650.47	2651.03
(*)	-830	+220	-50	-200	-230	-350	+120	-150	-1270	-1020	-1120	+820
(++)	251	211	217	232	239	275	256	299	415	461	497	317
MAX	41340	41000	40730	40680	40510	40300	40120	40010	39840	38780	37800	37290
MIN	40510	40730	40620	40480	40250	39900	39750	39480	38600	37580	36340	36300

CAL YR 1975..... \* +16900

WTR YR 1976..... \* -4060

†† 3135

†† 3670

MAX 44650

MAX 41340

MIN 23750

MIN 36300

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal and industrial uses.



## RED RIVER BASIN

97

07299840 Greenbelt Lake near Clarendon, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO
SEP 07...	1340	495	8.1	170	33	45	15	32	1.1

DATE	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
SEP 07...	5.8	172	0	56	32	.6	11	282

## RED RIVER BASIN

07300000 Salt Fork Red River near Wellington, Tex.  
(National stream-quality accounting network)

LOCATION.--Lat 34°57'27", long 100°13'14", Collingsworth County, near center of stream on downstream side of bridge on U.S. Highway 83, 4 miles (6 km) downstream from Fort Worth and Denver (Burlington) Railway Co. bridge, 4.5 miles (7.2 km) south of Lutie, and 7.2 miles (11.6 km) north of Wellington.

DRAINAGE AREA.--1,222 mi<sup>2</sup> (3,165 km<sup>2</sup>), of which 209 mi<sup>2</sup> (541 km<sup>2</sup>) is probably noncontributing.

PERIOD OF RECORD.--Discharge: June 1952 to current year.

Water quality: Chemical analyses: October 1967 to current year. Water temperatures: October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,941.41 ft (591.742 m) above mean sea level.

AVERAGE DISCHARGE.--14 years (1952-66) prior to completion of Greenbelt Lake, 72.6 ft<sup>3</sup>/s (2.056 m<sup>3</sup>/s), 52,600 acre-ft/yr (64.9 hm<sup>3</sup>/yr); 10 years (1966-76) since completion, 40.4 ft<sup>3</sup>/s (1.144 m<sup>3</sup>/s), 29,270 acre-ft/yr (36.1 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 798 ft<sup>3</sup>/s (22.6 m<sup>3</sup>/s) Apr. 16 (gage height, 4.64 ft or 1.414 m); minimum, 1.1 ft<sup>3</sup>/s (0.031 m<sup>3</sup>/s) Sept. 6.

Period of record: Maximum discharge, 146,000 ft<sup>3</sup>/s (4,130 m<sup>3</sup>/s) May 16, 1957 (gage height, 19.00 ft or 5.791 m), from rating curve extended above 11,000 ft<sup>3</sup>/s (312 m<sup>3</sup>/s) on basis of slope-area measurement of 63,400 ft<sup>3</sup>/s (1,800 m<sup>3</sup>/s); minimum, 0.1 ft<sup>3</sup>/s (0.003 m<sup>3</sup>/s) June 19, 1952.

Water quality: Current year: Maximum daily specific conductance, 3,900 micromhos July 30; minimum daily, 1,760 micromhos Apr. 16, June 1. Maximum water temperatures, 36.0°C June 28, July 24, Aug. 5; minimum, freezing point Jan. 2, 7, 10, Feb. 6.

Period of record: Maximum daily specific conductance, 4,190 micromhos May 11, 1970; minimum daily, 807 micromhos Apr. 24, 1973. Maximum water temperatures, 38.0°C July 27, 1974; minimum, freezing point on many days during winter months.

REMARKS.--Discharge records good. When codes for agencies collecting and analyzing a sample are shown in the water-quality table, the sample was collected and field data obtained by the Oklahoma District (1028), U.S. Geological Survey, and the remainder of the analysis performed by the Oklahoma State Health Department (9740).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	20	22	37	26	20	9.4	62	58	11	11	3.5
2	10	58	20	33	24	20	9.1	34	25	7.9	11	3.3
3	10	47	21	25	24	19	11	25	19	9.6	19	2.5
4	10	29	24	20	23	19	11	22	16	8.2	24	2.4
5	10	24	26	20	23	18	11	22	15	8.5	20	2.2
6	11	19	25	25	20	18	11	23	14	7.6	14	1.7
7	11	19	25	25	20	18	12	21	20	6.6	9.8	2.3
8	11	18	26	15	22	21	18	18	15	6.1	7.2	2.9
9	11	19	27	15	29	30	23	16	12	5.3	6.9	3.6
10	11	19	26	20	30	35	15	14	11	5.3	6.6	3.0
11	12	19	26	28	29	29	12	16	11	6.9	6.0	2.9
12	12	18	26	31	28	22	10	20	11	7.7	6.1	7.7
13	12	18	26	45	28	18	11	16	9.5	6.3	6.0	26
14	11	18	26	35	26	16	15	15	9.5	6.5	5.1	11
15	22	19	26	33	27	15	81	14	7.9	7.0	4.5	7.4
16	14	20	26	34	27	15	358	12	7.9	50	4.9	14
17	12	22	26	31	27	16	137	11	7.6	16	4.8	11
18	11	21	25	30	27	16	75	11	7.9	10	4.9	6.9
19	2	38	26	27	26	15	47	11	7.8	8.5	4.3	8.4
20	10	61	31	26	26	14	50	12	7.2	7.0	4.6	11
21	10	36	32	25	21	12	39	12	6.7	5.9	4.4	8.4
22	11	28	28	26	20	14	25	12	6.9	6.2	3.9	6.7
23	12	26	41	28	20	14	22	118	7.8	7.2	4.1	6.4
24	10	25	39	30	19	13	20	40	9.3	7.9	4.1	6.2
25	10	24	38	28	20	12	16	102	7.5	6.5	3.6	6.9
26	11	26	39	26	20	10	16	191	7.0	5.5	3.2	7.1
27	11	21	38	25	20	10	22	79	6.7	5.1	3.0	9.2
28	12	22	40	25	19	11	28	45	5.8	6.0	2.4	11
29	12	26	47	26	20	11	35	26	8.5	6.5	3.2	9.3
30	12	25	39	29	---	9.1	52	22	40	12	3.4	8.8
31	13	---	39	29	---	9.5	---	37	---	11	3.5	---
TOTAL	358	785	926	852	691	519.6	1201.5	1079	398.5	281.8	219.5	213.7
MEAN	11.5	26.2	29.9	27.5	23.8	16.8	40.1	34.8	13.3	9.09	7.08	7.12
MAX	22	61	47	45	30	35	358	191	58	50	24	26
MIN	10	18	20	15	19	9.1	9.1	11	5.8	5.1	2.4	1.7
AC-FT	710	1560	1840	1690	1370	1030	2380	2140	790	559	435	424
CAL YR 1975 TOTAL	30010.8											
WTR YR 1976 TOTAL	7525.6											
MEAN	82.2											
MAX	9080											
MIN	7.1											
AC-FT	59530											
AC-FT	14930											

PEAK DISCHARGE (BASE, 5,000 FT<sup>3</sup>/S).--No peak above base.

## RED RIVER BASIN

99

07300000 Salt Fork Red River near Wellington, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHQS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION
OCT 16...	--	--	1000	19	3170	7.9	12.5	6	11.4	107
NOV 05...	--	--	1530	26	3360	8.0	22.0	55	9.0	102
24...	1028	9740	1300	25	--	8.2	11.0	41	10.4	101
DEC 04...	--	--	1415	37	3180	7.7	16.0	30	10.0	100
22...	1028	9740	1300	30	2800	8.4	9.0	26	--	--
JAN 08...	--	--	1100	15	3600	7.4	.0	6	13.6	93
27...	1028	9740	1330	25	--	8.7	8.0	2	11.4	106
FEB 19...	--	--	1500	28	3110	7.9	17.5	15	10.0	104
24...	1028	9740	1415	30	3250	8.1	14.0	3	10.2	110
MAR 18...	--	--	1000	18	3240	8.1	12.0	20	11.1	103
18...	1028	9740	1030	18	--	8.0	12.5	3	10.2	104
APR 21...	1028	9740	1230	40	--	8.1	20.0	100	7.7	94
22...	--	--	1400	26	2870	7.8	27.0	80	8.2	101
MAY 18...	1028	9740	1530	11	3190	8.1	28.0	4	6.8	95
27...	--	--	0900	81	2220	7.9	15.0	360	9.2	90
JUN 27...	--	--	1300	7.6	3210	7.9	30.0	10	7.4	99
28...	1028	9740	1730	5.0	--	8.4	33.0	50	7.0	104
JUL 22...	--	--	0930	7.9	3110	7.7	23.0	10	8.2	99
26...	1028	9740	1250	6.5	--	8.1	32.0	4	6.9	101
AUG 04...	--	--	1330	24	3130	7.8	33.5	30	7.7	108
SEP 16...	--	--	0830	8.0	3010	7.9	21.0	40	8.1	94
22...	1028	9740	0930	6.7	3100	7.9	17.5	12	9.2	103
DATE	BIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	IMME- DIATE COLI- FORM (COL. PER 100 ML)	FECAL COLI- FORM (COL. PER 100 ML)	STREP- TOCOCCI (COL- ONIES PER 100 ML)	HARD- NESS (CA+MG) (MG/L)	NON- CAK- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO
OCT 16...	1.1	1600	1100	1300	1500	1400	480	83	200	2.2
NOV 05...	1.0	310	310	1000	1500	1300	440	94	230	2.6
24...	--	--	--	--	--	--	--	--	--	--
DEC 04...	1.0	22	22	380	1500	1300	460	86	210	2.4
22...	--	--	--	--	1400	--	--	--	--	--
JAN 08...	.4	18	6	190	1800	1500	550	96	240	2.5
27...	--	--	--	--	--	--	--	--	--	--
FEB 19...	.0	8	8	32	1500	1400	470	85	220	2.5
24...	--	--	--	--	1690	--	--	--	--	--
MAR 18...	.2	74	58	140	1700	1500	520	91	200	2.1
18...	--	--	--	--	--	--	--	--	--	--
APR 21...	--	--	--	--	--	--	--	--	--	--
22...	.6	74	58	140	1200	1100	360	78	210	2.6
MAY 18...	--	--	--	--	1600	--	--	--	--	--
27...	2.2	9600	2800	3700	850	690	240	60	180	2.7
JUN 27...	1.2	150	100	180	1800	1700	580	88	160	1.6
28...	--	--	--	--	--	--	--	--	--	--
JUL 22...	.1	210	50	120	1700	1600	560	82	140	1.5
26...	--	--	--	--	--	--	--	--	--	--
AUG 04...	2.2	5300	180	420	1700	1600	540	87	160	1.7
SEP 16...	.2	2300	420	440	1800	1600	570	81	130	1.4
22...	--	--	--	--	1500	--	--	--	--	--

## RED RIVER BASIN

07300000 Salt Fork Red River near Wellington, Tex.--Continued

WATER QUALITY DATA WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (WEST- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT 16...	5.0	220	0	1300	240	--	21	2730	2440
NOV 05...	5.7	202	0	1300	300	.7	21	2830	2490
24...	--	--	--	--	--	--	--	--	--
DEC 04...	4.0	206	0	1300	280	.7	23	2680	2470
22...	--	--	--	--	280	--	--	--	--
JAN 08...	4.0	296	0	1600	330	.3	23	3190	2990
27...	--	--	--	--	--	--	--	--	--
FEB 19...	3.6	187	0	1400	290	.6	18	2700	2580
24...	--	--	--	--	--	--	--	--	--
MAR 18...	3.7	198	0	1500	300	.6	18	2880	2730
18...	--	--	--	--	300	--	--	--	--
APR 21...	--	--	--	--	--	--	--	--	--
22...	5.5	180	0	1100	300	.9	21	2300	2160
MAY 18...	--	--	--	--	260	--	--	--	--
27...	5.0	187	0	730	230	.6	17	1650	1550
JUN 27...	4.3	146	0	1600	230	.7	20	3030	2760
28...	--	--	--	--	--	--	--	--	--
JUL 22...	3.8	180	0	1500	200	.6	20	2850	2600
26...	--	--	--	--	--	--	--	--	--
AUG 04...	4.1	128	0	1500	230	.7	14	2780	2610
SEP 16...	3.8	192	0	1500	170	.6	22	2770	2570
22...	--	--	--	--	190	--	--	--	--

DATE	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	SUS- PENDED SEDI- MENT (MG/L)	SUS- PENDED SEDI- MENT DIS- CHARGE (T/DAY)	SUS- SEDI- SIEVE DIAM. % FINER THAN .062 MM
OCT 16...	.84	.01	.02	.39	.02	12	24	1.2	6
NOV 05...	.78	.01	.24	.20	.05	--	156	11	95
24...	--	--	--	--	.14	--	--	--	--
DEC 04...	.85	.01	.16	.13	.02	--	50	5.0	44
22...	--	--	--	--	.00	--	--	--	--
JAN 08...	2.1	.01	.21	.49	.03	--	17	.69	44
27...	--	--	--	--	.07	--	--	--	--
FEB 19...	.56	.01	.04	.15	.01	1.0	18	1.4	58
24...	--	--	--	--	--	--	--	--	--
MAR 18...	.68	.01	.05	.16	.01	--	20	.97	43
18...	--	--	--	--	<.08	--	--	--	--
APR 21...	--	--	--	--	<.08	--	--	--	--
22...	.74	.01	.06	.48	.05	--	3640	256	4
MAY 18...	--	--	--	--	<.09	--	--	--	--
27...	.46	.01	.07	1.0	.31	--	1170	256	81
JUN 27...	1.6	.02	.07	.15	.10	5.5	41	.84	89
28...	--	--	--	--	<.08	--	--	--	--
JUL 22...	1.9	.02	.10	.00	.01	--	7	.15	70
26...	--	--	--	--	<.08	--	--	--	--
AUG 04...	.55	.01	.06	.55	.05	1.8	68	4.4	78
SEP 16...	.43	.01	.05	.32	.02	--	89	1.9	98
22...	--	--	--	--	.27	--	--	--	--

## RED RIVER BASIN

101

07300000 Salt Fork Red River near Wellington, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	DIS- SOLVED ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)
OCT 16...	--	--	1000	2	2	1	230	0	0	<10	0
NOV 24...	1028	9740	1300	--	2	--	--	<10	--	10	--
DEC 22...	1028	9740	1300	--	--	--	--	--	--	--	--
JAN 27...	1028	9740	1330	--	--	--	--	--	--	--	--
FEB 19...	--	--	1500	20	2	2	230	0	0	30	2
24...	1028	9740	1415	--	1	--	--	<10	--	5	--
MAR 18...	1028	9740	1030	--	--	--	--	--	--	--	--
APR 21...	1028	9740	1230	--	--	--	--	--	--	--	--
MAY 18...	1028	9740	1530	--	2	--	--	<10	--	8	--
JUN 27...	--	--	1300	10	2	1	--	0	0	30	0
28...	1028	9740	1730	--	--	--	--	--	--	--	--
JUL 26...	1028	9740	1250	--	--	--	--	--	--	--	--
AUG 04...	--	--	1330	20	0	0	--	0	0	10	0
SEP 22...	1028	9740	0930	--	--	--	--	--	--	--	--

DATE	TOTAL COBALT (CO) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
OCT 16...	0	0	0	2	240	20	0	0	60	30	30
NOV 24...	--	--	10	--	1100	--	20	--	--	130	--
DEC 22...	--	--	--	--	400	--	--	--	--	57	--
JAN 27...	--	--	--	--	200	--	--	--	--	64	--
FEB 19...	0	0	8	0	290	50	0	0	70	30	10
24...	--	--	<10	--	200	--	20	--	--	57	--
MAR 18...	--	--	--	--	100	--	--	--	--	36	--
APR 21...	--	--	--	--	1500	--	--	--	--	220	--
MAY 18...	--	--	10	--	100	--	30	--	--	33	--
JUN 27...	0	0	7	0	300	10	17	0	80	40	20
28...	--	--	--	--	100	--	--	--	--	30	--
JUL 26...	--	--	--	--	100	--	--	--	--	32	--
AUG 04...	0	0	4	0	770	0	5	0	70	100	30
SEP 22...	--	--	--	--	200	--	--	--	--	69	--



## RED RIVER BASIN

07300000 Salt Fork Red River near Wellington, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL MERCURY (HG) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
OCT 16...	.0	.0	--	0	13	11	--	4000	10	10
NOV 24...	--	--	10	--	--	--	<10	--	10	--
DEC 22...	--	--	--	--	--	--	--	--	--	--
JAN 27...	--	--	--	--	--	--	--	--	--	--
FEB 19...	.0	.0	--	0	7	6	--	3900	90	0
FEB 24...	--	--	10	--	--	--	<10	--	10	--
MAR 18...	--	--	--	--	--	--	--	--	--	--
APR 21...	--	--	--	--	--	--	--	--	--	--
MAY 18...	<.5	--	10	--	29	--	<10	--	<10	--
JUN 27...	.3	.2	--	0	0	0	--	4000	40	0
JUN 28...	--	--	--	--	--	--	--	--	--	--
JUL 26...	--	--	--	--	--	--	--	--	--	--
AUG 04...	.1	.1	--	0	2	2	--	4200	50	0
SEP 22...	--	--	--	--	--	--	--	--	--	--

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

## PERIPHYTON

Date	Length of exposure (days)	Biomass (g/m <sup>2</sup> )		Chlorophyll a (mg/m <sup>2</sup> )	Chlorophyll b (mg/m <sup>2</sup> )	Biomass pigment ratio	Sampling method
NOV. 05	20	11	9.6	1.1	0.0	1000	Polyethylene strip
JAN. 08	35	9.4	8.4	5.7	.0	170	Polyethylene strip
MAR. 18	28	89	82	57	1.8	130	Polyethylene strip
JULY 22	25	12.8	10.3	1.69	.000	1500	Polyethylene strip
SEP. 16	43	166	162	5.28	.725	790	Polyethylene strip

OCT. 16, 1975 1000 HOURS

PHYTOPLANKTON 8,000 CELLS/ML

_ORGANISM_NAME	CELLS/ML	PER_CENT
CHRYSTOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
....COSCINODISCAEAE		
....CYCLOTELLA	98	1
..PENNALES		
....CYMBELLACEAE		
....CYMBELLA	200	2
....FRAGILARIACEAE		
....SYNEDRA		0
....NAVICULACEAE		
....CALONEIS	98	1
....NAVICULA	790	10
....NITZSCHIAEAE		
....HANTZSCHIA	300	4
....NITZSCHIA	300	4
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
..CHROOCOCCACEAE		
....AGMENELLUM	3,700	47
....ANACYSTIS	790	10
..OSCILLATORIALES		
..OSCILLATORIAEAE		
....OSCILLATORIA	1,700	21

NOV. 5, 1975 1530 HOURS

PHYTOPLANKTON 5,300 CELLS/ML

_ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..ZYGNEATALES		
....ZYGNEATAEAE		
....SPIROGYRA	40	1
CHRYSTOPHYTA		
..BACILLARIOPHYCEAE		
..PENNALES		
....FRAGILARIACEAE		
....SYNEDRA	40	1
....NAVICULACEAE		
....DIPLONEIS	40	1
....NAVICULA	1,000	20
....NEIDIUM	200	4
....PINNULARIA	40	1
....NITZSCHIAEAE		
....NITZSCHIA	1,600	30
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
..CHROOCOCCACEAE		
....AGMENELLUM	1,400	26
..OSCILLATORIALES		
..OSCILLATORIAEAE		
....OSCILLATORIA	960	18

07300000 Salt Fork Red River near Wellington, Tex.--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

DEC. 4, 1975 1415 HOURS

PHYTOPLANKTON 2,500 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OCCYSTACEAE		
....ANKISTRODESMUS	110	4
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..PENNALES		
...CYMBELLACEAE		
....CYMBELLA	110	4
....NAVICULACEAE		
....DIPLOEIS	110	4
....NAVICULA	430	17
....NEIDIUM	220	9
....NITZSCHIA		
....HANTZSCHIA	110	4
....NITZSCHIA	650	26
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
..CHROOCOCCACEAE		
....AGMENELLUM		0
....ANACYSTIS	760	30

JAN. 8, 1976 1100 HOURS

PHYTOPLANKTON 690 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCEAE		
....CYCLOTELLA	22	3
..PENNALES		
...ACHNANTHACEAE		
....ACHNANTHES	22	3
....CYMBELLACEAE		
....AMPHORA		0
....FRAGILARIACEAE		
....SYNEDRA		0
....GOMPHONEMACEAE		
....GOMPHONEMA		0
....NAVICULACEAE		
....AMPHIPRORA	22	3
....CALONEIS	45	6
....NAVICULA	89	13
....PINNULARIA	45	6
....NITZSCHIA		
....HANTZSCHIA	45	6
....NITZSCHIA	200	29
....SURIPELLACEAE		
....CYMATOPLEURA	22	3
CYANOPHYTA		
..MYXOPHYCEAE		
..OSCILLATORIALES		
..OSCILLATORIA		
....OSCILLATORIA	180	26

FEB. 19, 1976 1500 HOURS

PHYTOPLANKTON 2,800 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..PENNALES		
...ACHNANTHACEAE		
....ACHNANTHES	360	13
....CYMBELLACEAE		
....AMPHORA	72	3
....CYMBELLA	72	3
....EPITHEMIA	72	3
....FRAGILARIACEAE		
....SYNEDRA	220	8
....GOMPHONEMACEAE		
....GOMPHONEMA	72	3
....NAVICULACEAE		
....AMPHIPRORA	220	8
....CALONEIS	140	5
....NAVICULA	510	18
....PINNULARIA	72	3
....NITZSCHIA		
....HANTZSCHIA		
....NITZSCHIA	1,000	36

MAR. 18, 1976 1000 HOURS

PHYTOPLANKTON 1,400 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..PENNALES		
...CYMBELLACEAE		
....AMPHORA		0
....FRAGILARIACEAE		
....FRAGILARIA	59	4
....SYNEDRA		0
....NAVICULACEAE		
....AMPHIPRORA	230	17
....CALONEIS	59	4
....NAVICULA	59	4
....NITZSCHIA		
....NITZSCHIA	880	65
....SURIPELLACEAE		
....SURIPELLA	59	4

APR. 22, 1976 1400 HOURS

PHYTOPLANKTON 860 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OCCYSTACEAE		
....ANKISTRODESMUS	13	1
..VOLVOCALES		
...CHLAMYDOMONADACEAE		
....CHLAMYDOMONAS	13	1
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCEAE		
....CYCLOTELLA	13	1
..PENNALES		
...ACHNANTHACEAE		
....ACHNANTHES	200	24
....CYMBELLACEAE		
....AMPHORA		0
....CYMBELLA	13	1
....DIATOMACEAE		
....DIATOMA	25	3
....NAVICULACEAE		
....AMPHIPRORA		0
....CALONEIS	76	9
....MASTOGLOIA	13	1
....NAVICULA	200	24
....STAURONEIS	38	4
....NITZSCHIA		
....NITZSCHIA	51	6
....HANTZSCHIA	200	24
....SURIPELLACEAE		
....SURIPELLA		0

MAY 27, 1976 0900 HOURS

PHYTOPLANKTON 1,800 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CEN
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..PENNALES		
...NAVICULACEAE		
....CALONEIS	140	8
....MASTOGLOIA	140	8
....NAVICULA	1,100	62
....NITZSCHIA		
....HANTZSCHIA	280	15
....NITZSCHIA	140	8

07300000 Salt Fork Red River near Wellington, Tex.--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

JUNE 27, 1976 1300 HOURS

PHYTOPLANKTON 4,100 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
..OCCYSTACEAE		
....ANKISTRODESMUS	39	1
CHRYCOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
..COSCONODISCACEAE		
..CYCLOTETRA	120	3
..PENNALLES		
..CYMBELLACEAE		
....AMPHORA	39	1
..NAVICULACEAE		
....CALONEIS		0
..NAVICULA	200	5
..NITZSCHIA		
....HANTZSCHIA	270	7
..NITZSCHIA	590	14
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
..CHROOCOCCACEAE		
....AGMENELLUM	2,700	64
..ANACYSTIS	230	6

JULY 22, 1976 0930 HOURS

PHYTOPLANKTON 1,800 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
..OCCYSTACEAE		
....ANKISTRODESMUS	31	2
CHRYCOPHYTA		
..BACILLARIOPHYCEAE		
..PENNALLES		
..CYMBELLACEAE		
....AMPHORA	21	1
..FRAGILARIACEAE		
..SYNEDRA	21	1
..NAVICULACEAE		
....CALONEIS	10	1
..NAVICULA	73	4
..NITZSCHIA		
....HANTZSCHIA	73	4
..NITZSCHIA	530	29
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
..CHROOCOCCACEAE		
....AGMENELLUM	790	43
..ANACYSTIS	21	1
..OSCILLATORIALES		
..OSCILLATORIA	250	14

AUG. 4, 1976 1330 HOURS

PHYTOPLANKTON 54,000 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHRYCOPHYTA		
..BACILLARIOPHYCEAE		
..PENNALLES		
..CYMBELLACEAE		
....AMPHORA		0
..NAVICULACEAE		
....DIPLOEIS		0
..NAVICULA		0
....TROPIDONEIS		0
..NITZSCHIA		
....HANTZSCHIA		0
..NITZSCHIA	2,900	5
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
..CHROOCOCCACEAE		
....AGMENELLUM	38,000	70
..OSCILLATORIALES		
..OSCILLATORIA	13,000	23

SEP. 16, 1976 0830 HOURS

PHYTOPLANKTON 3,500 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
..SCENEDESMACEAE		
....CRUCIGENIA	790	22
CHRYCOPHYTA		
..BACILLARIOPHYCEAE		
..PENNALLES		
..NAVICULACEAE		
....NAVICULA	110	3
..NITZSCHIA		
....HANTZSCHIA	28	1
..NITZSCHIA	540	15
CYANOPHYTA		
..MYXOPHYCEAE		
..OSCILLATORIALES		
..OSCILLATORIA	2,100	58

## RED RIVER BASIN

105

07300000 Salt Fork Red River near Wellington, Tex.--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	358	3360	2770	2680	310	300	1610	1550	1750
NOV. 1975.....	785	3180	2620	5550	290	625	1510	3190	1640
DEC. 1975.....	926	3000	2440	6110	280	695	1400	3490	1520
JAN. 1976.....	852	2970	2420	5560	280	635	1380	3170	1500
FEB. 1976.....	671	3080	2520	4560	280	515	1440	2610	1570
MAR. 1976.....	519.6	3140	2570	3610	290	409	1480	2070	1610
APR. 1976.....	1201.5	2430	1920	6230	220	729	1060	3430	1160
MAY 1976.....	1079	2520	2010	5840	230	683	1110	3240	1220
JUNE 1976.....	398.5	2940	2390	2570	270	292	1360	1460	1480
JULY 1976.....	281.8	3330	2750	2090	310	234	1590	1210	1730
AUG. 1976.....	219.5	3130	2560	1520	290	172	1470	872	1600
SEPT 1976.....	213.7	2970	2420	1400	280	159	1380	796	1500
TOTAL .....	7505.58	**	**	47700	**	5450	**	27100	**
WTD.AVG. ....	20.56	2900	2400	**	270	**	1300	**	1500

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3290	3290	3170	2860	3060	3190	3150	2710	1760	3330	3150	2920
2	3330	3480	3160	2860	3060	3140	3190	2810	3060	3470	3190	2900
3	3330	2830	3120	2970	3050	3120	3150	2960	3190	3260	3070	2920
4	3350	3160	3180	2970	3050	3310	3140	3140	3100	3340	3130	3080
5	3320	3360	3120	3060	2960	3110	3140	3140	3120	3380	3220	2920
6	3340	3340	3160	3080	2920	3200	3100	3300	3140	3420	3150	2960
7	3330	3360	3150	3460	3100	3200	3100	3250	3460	3390	3070	3140
8	3360	3370	3150	3280	3050	3180	3390	3170	3190	3390	3260	2900
9	3350	3360	3110	2970	2810	3070	3250	3250	3190	3330	3190	3110
10	3330	3340	3120	3080	2960	2820	3180	3230	3220	3280	3190	3030
11	3310	3340	3090	2990	2920	2900	3250	3310	3220	3380	3180	3010
12	3430	3320	3050	2950	2990	3080	3200	3260	3290	3470	3200	3050
13	3390	3360	3110	2480	3010	3150	3200	3390	3270	3280	3260	2290
14	3310	3360	3100	2790	3040	3210	3100	3310	3250	3220	3110	3110
15	3440	3340	3090	2970	3070	3170	2500	3280	3260	3280	3120	3160
16	3170	3340	3090	2970	3040	3200	1760	3310	3340	3010	3140	3010
17	3460	3340	3080	2890	3150	3250	2230	3260	3200	3470	3150	2970
18	3350	3640	3110	2960	3080	3240	2030	3260	3260	3510	3190	2960
19	3380	2990	3080	3010	3110	3150	2430	3200	3270	3380	3100	2950
20	3330	2640	2850	3070	3080	3230	2670	3260	3270	3480	3060	2990
21	3430	3090	2900	3080	3470	3120	2600	3250	3330	3330	3010	3240
22	3400	3240	2950	3010	3210	3430	2870	3380	3230	3240	2950	3160
23	3400	3200	2920	2990	3240	3150	2880	1800	3200	3330	2910	3000
24	3350	3180	2900	2920	3260	3150	2980	2360	3200	3390	3020	3170
25	3370	3180	2870	3030	3240	3190	3070	2000	3290	3330	2910	3000
26	3400	2970	2830	2970	3180	3150	3110	1830	3250	3470	3030	3090
27	3420	3100	2890	3050	3130	3230	3120	2220	3200	3760	3080	3050
28	3350	3240	2870	3010	3200	3280	3150	2580	3290	3270	3150	3300
29	3310	3080	2850	2990	3200	3200	2970	2950	3280	3460	3130	3140
30	3330	3110	2800	2960	---	3070	2940	2990	2510	3900	3110	3120
31	3330	---	2860	3080	---	3190	---	3180	---	3220	2920	---
MONTH	3350	3230	3020	2990	3090	3160	2930	2980	3160	3380	3110	3020

## RED RIVER BASIN

07300000 Salt Fork Red River near Wellington, Tex. --Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.0	18.0	14.0	---	18.0	23.0	12.0	12.0	22.0	22.0	32.0	22.0
2	25.0	15.0	18.0	0.0	15.0	11.0	27.0	28.0	34.0	32.0	30.0	23.0
3	14.0	18.0	18.0	5.0	20.0	8.0	15.0	16.0	33.0	27.0	21.0	26.0
4	25.0	22.0	18.0	5.0	6.0	12.0	18.0	16.0	22.0	---	35.0	35.0
5	20.0	24.0	15.0	8.0	2.0	6.0	15.0	23.0	24.0	---	36.0	33.0
6	26.0	20.0	10.0	8.0	0.0	17.0	15.0	24.0	28.0	32.0	27.0	30.0
7	25.0	20.0	14.0	0.0	10.0	---	22.0	20.0	28.0	34.0	25.0	28.0
8	26.0	23.0	15.0	---	9.0	10.0	14.0	20.0	31.0	34.0	30.0	22.0
9	30.0	---	16.0	4.0	20.0	20.0	24.0	26.0	33.0	30.0	33.0	18.0
10	29.0	17.0	18.0	0.0	17.0	22.0	18.0	30.0	33.0	31.0	---	29.0
11	22.0	15.0	13.0	10.0	15.0	---	20.0	30.0	34.0	---	27.0	32.0
12	28.0	10.0	8.0	15.0	14.0	6.0	---	20.0	32.0	28.0	---	31.0
13	29.0	16.0	18.0	10.0	---	15.0	---	20.0	---	30.0	32.0	20.0
14	19.0	18.0	---	11.0	---	21.0	---	22.0	35.0	31.0	22.0	21.0
15	22.0	16.0	10.0	15.0	20.0	10.0	18.0	30.0	27.0	34.0	---	22.0
16	16.0	17.0	7.0	14.0	20.0	9.0	12.0	24.0	30.0	33.0	35.0	32.0
17	20.0	18.0	5.0	9.0	14.0	22.0	14.0	30.0	33.0	35.0	32.0	22.0
18	15.0	17.0	7.0	17.0	18.0	16.0	18.0	28.0	28.0	34.0	35.0	24.0
19	22.0	10.0	6.0	10.0	18.0	15.0	14.0	20.0	32.0	33.0	---	32.0
20	20.0	8.0	---	12.0	12.0	10.0	18.0	24.0	31.0	32.0	27.0	20.0
21	25.0	8.0	---	16.0	10.0	10.0	16.0	29.0	30.0	26.0	34.0	30.0
22	24.0	12.0	5.0	17.0	16.0	9.0	18.0	31.0	34.0	31.0	24.0	30.0
23	22.0	---	4.0	15.0	18.0	15.0	22.0	29.0	30.0	30.0	31.0	27.0
24	10.0	13.0	---	7.0	18.0	15.0	17.0	28.0	20.0	36.0	30.0	30.0
25	10.0	5.0	---	8.0	20.0	17.0	25.0	17.0	30.0	32.0	26.0	22.0
26	---	5.0	12.0	10.0	21.0	15.0	12.0	15.0	33.0	35.0	27.0	26.0
27	24.0	---	12.0	10.0	15.0	12.0	17.0	16.0	30.0	32.0	33.0	20.0
28	20.0	11.0	---	16.0	24.0	22.0	17.0	18.0	36.0	26.0	23.0	18.0
29	12.0	12.0	16.0	18.0	20.0	18.0	15.0	33.0	34.0	34.0	25.0	17.0
30	12.0	10.0	18.0	18.0	---	18.0	14.0	20.0	32.0	32.0	24.0	16.0
31	14.0	---	11.0	12.0	---	12.0	---	32.0	---	24.0	23.0	---
MONTH	20.5	14.5	12.5	10.5	15.0	14.5	17.5	23.5	30.5	31.0	29.0	25.5



## 107

LOCATION.--Lat 34°51'32", long 99°30'28", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec. 34, T.5 N., R.22 W., Greer County, near left bank on downstream side of pier of bridge on State Highway 34, 0.5 mile (0.8 km) south of Mangum, 13 miles (21 km) downstream from Fish Creek, and at mile 35.5 (57.1 km).

PERIOD OF RECORD.--April 1905 to June 1906. October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311.

GAGE.--Water-stage recorder. Datum of gage is 1,490.87 ft (454.417 m) above mean sea level (levels by Bureau of Reclamation). Apr. 11, 1905, to June 30, 1906, nonrecording gage at site 0.2 mile (0.3 km) upstream at different datum. Oct. 1, 1937, to Nov. 8, 1938, nonrecording gage at present site and datum.

AVERAGE DISCHARGE.--39 years (1937-76), 86.8 ft<sup>3</sup>/s (2.458 m<sup>3</sup>/s), 62,890 acre-ft/yr (77.5 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 17,400 ft<sup>3</sup>/s (493 m<sup>3</sup>/s) Sept. 13 (gage height, 12.09 ft or 3.685 m); no flow at times.  
Period of record: Maximum discharge, 72,000 ft<sup>3</sup>/s (2,040 m<sup>3</sup>/s) May 16, 1957 (gage height, 14.55 ft or 4.435 m); maximum gage height, 14.7 ft (4.48 m) June 16, 1938; no flow at times each year except 1975.

REMARKS.--Records fair.

REVISIONS (WATER YEARS).--WSP 1211: Drainage area. WSP 1241: 1938.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	14	33	54	39	24	12	83	51	8.2		18
2	12	96.8	32	45	38	23	12	79	78	6.9		18
3	12	231	32	40	36	22	11	67	59	6.8		3.9
4	12	213	31	33	38	23	10	55	34	3.8		0
5	11	130	31	27	40	21	11	46	29	15		0
6	11	89	28	38	40	20	11	56	25	6.5		0
7	11	69	28	32	34	22	12	45	22	3.0		0
8	10	58	28	30	43	27	13	39	19	1.5		0
9	9.9	49	29	27	53	33	14	37	17	.60		0
10	10	42	29	25	44	35	15	131	15	.30		0
11	9.7	38	29	33	49	40	19	35	13	1.0		0
12	9.0	34	28	42	50	43	19	27	10	.50		0
13	9.0	31	31	53	47	35	18	24	8.2	.25		3460
14	11	31	30	51	46	30	17	25	9.2	.15		295
15	53	31	28	51	43	28	165	21	7.0	0		138
16	26	31	29	44	42	26	567	17	6.5	.50		120
17	21	31	27	39	40	25	580	14	3.5	.30		89
18	18	32	22	38	39	23	259	12	2.0	.15		129
19	16	38	20	38	36	23	178	10	1.2	0		68
20	14	44	33	36	36	21	147	9.0	.85	0		60
21	14	54	36	36	33	18	106	8.5	.65	0		90
22	14	59	32	35	30	17	82	8.2	.50	0		47
23	13	47	33	35	29	16	72	12	.40	0		31
24	12	40	46	33	27	15	58	38	179	0		25
25	12	38	54	33	25	15	49	82	78	0		21
26	12	37	55	33	24	15	44	216	28	0		19
27	12	36	51	33	23	14	41	308	15	0		17
28	12	38	52	36	24	13	59	157	8.8	0		20
29	12	42	63	37	23	12	139	88	4.8	0		20
30	12	34	65	38	---	11	83	57	3.3	0		17
31	13	---	60	38	---	11	---	56	---	0		---
TOTAL	436.6	2569	1125	1163	1078	701	2823	1862.7	728.90	55.45	0	4705.9
MEAN	14.1	85.6	36.3	37.5	37.2	22.6	94.1	60.1	24.3	1.79	0	157
MAX	53	908	65	54	53	43	580	308	179	15	0	3460
MIN	9.0	14	20	25	23	11	10	8.2	.40	0	0	0
AC-FT	866	5100	2230	2310	2140	1390	5600	3690	1450	110	0	9330
WAL YR 1975	TOTAL	37397.10	MEAN	102	MAX	9070	MIN	6.8	AC-FT	74180		
CTR YR 1976	TOTAL	17248.55	MEAN	47.1	MAX	3460	MIN	0	AC-FT	34210		

## RED RIVER BASIN

07301200 McClellan Creek near McLean, Tex.

LOCATION.--Lat 35°19'45", long 100°36'32", Gray County, on left bank at downstream side of bridge on State Highway 273, 5 miles (8 km) upstream from mouth, and 6.6 miles (10.6 km) north of McLean.

DRAINAGE AREA.--759 mi<sup>2</sup> (1,966 km<sup>2</sup>), of which 299 mi<sup>2</sup> (774 km<sup>2</sup>) is probably noncontributing.

PERIOD OF RECORD.--Discharge: Occasional low-flow measurements, 1965-67, October 1967 to current year.  
 Water quality: Chemical analyses: October 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,545.99 ft (776.018 m), above mean sea level.

AVERAGE DISCHARGE.--9 years, 21.8 ft<sup>3</sup>/s (0.617 m<sup>3</sup>/s), 15,790 acre-ft/yr (19.5 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 701 ft<sup>3</sup>/s (19.9 m<sup>3</sup>/s) Sept. 15 (gage height, 7.42 ft or 2.262 m); no flow at times.  
 Period of record: Maximum discharge, 26,600 ft<sup>3</sup>/s (753 m<sup>3</sup>/s) May 29, 1975 (gage height, 14.55 ft or 4.435 m), from rating curve extended above 1,100 ft<sup>3</sup>/s (31.2 m<sup>3</sup>/s) on basis of contracted-opening measurement of peak stage; no flow at times.  
 Maximum stage since 1912, 21 ft (6.4 m) May 1957, from information by local residents. Other major floods occurred in 1920, 1941, and 1951.

REMARKS.--Discharge records fair. Flow is largely regulated by Lake McClellan (capacity, 5,000 acre-ft or 6.16 hm<sup>3</sup>) 18 miles (29 km) upstream. One small diversion from Lake McClellan.

REVISIONS (WATER YEARS).--WRD TX-75-1: 1968-70, 1972, 1973(M), 1974.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	18	6.0	10	9.9	15	4.6	11	3.4	.11	0	.12
2	1.2	72	7.4	10	11	12	4.3	6.4	2.3	.05	1.1	.02
3	1.2	7.8	6.1	8.0	13	11	3.8	8.6	2.7	.09	3.2	.01
4	1.2	7.0	5.6	9.0	11	20	3.6	10	4.7	.11	.49	0
5	1.2	6.6	5.7	10	10	8.5	3.9	8.4	6.3	.12	.17	0
6	.96	7.9	4.6	11	10	8.5	4.0	6.8	12	.09	.10	0
7	.96	9.9	6.9	7.0	15	14	5.3	4.0	9.6	.07	.10	.01
8	.49	9.6	7.8	5.0	19	39	3.7	5.1	8.2	.06	.03	.01
9	.53	8.8	8.0	5.0	6.4	16	3.5	4.1	7.0	.06	.01	.03
10	1.1	9.2	7.1	8.0	9.0	8.5	3.0	6.6	3.5	.06	0	.01
11	.86	8.5	6.4	9.0	11	9.3	1.6	9.4	13	.14	0	.01
12	.85	7.4	7.6	10	14	7.6	1.4	13	36	.12	0	.08
13	1.0	6.8	9.0	9.9	13	9.2	1.6	11	8.0	.07	0	36
14	1.3	7.1	7.4	9.9	13	8.4	4.8	10	3.3	.10	0	16
15	1.8	7.6	7.0	9.9	14	6.8	16	11	.54	.14	0	64
16	1.9	10	6.5	8.6	15	9.0	5.5	5.8	.31	1.8	0	.05
17	1.6	9.5	6.0	9.9	14	10	5.5	8.6	.32	.07	0	0
18	1.7	9.0	7.0	9.9	16	9.5	1.8	7.7	.39	.05	0	1.3
19	2.3	7.0	7.4	9.9	16	7.6	3.9	4.9	.77	.03	0	.75
20	2.3	6.0	5.5	10	12	6.1	13	4.0	.40	.01	0	.05
21	2.2	6.0	5.5	15	6.6	6.3	7.4	11	.20	.01	0	0
22	2.5	6.6	5.5	15	16	8.2	4.6	19	.23	.01	0	0
23	3.4	5.3	6.4	11	15	5.7	3.3	46	.23	.01	0	.01
24	2.4	4.3	13	11	12	3.8	1.2	2.4	.17	.02	0	.29
25	2.4	4.0	15	10	12	5.1	1.2	11	.16	.01	0	.11
26	3.2	4.0	9.9	8.0	15	4.2	1.2	21	.14	0	0	3.6
27	3.0	5.0	8.5	8.0	14	6.0	3.3	10	.10	0	0	1.1
28	2.9	6.2	9.7	15	16	5.2	4.6	5.9	.07	.01	0	.36
29	4.1	6.3	18	11	16	5.8	6.4	5.5	.06	.04	0	.09
30	4.4	4.7	14	11	---	5.4	11	4.7	.11	.01	0	.05
31	5.4	---	10	9.9	---	4.4	---	16	---	0	.80	---
TOTAL	61.55	288.1	250.5	304.9	374.9	296.1	139.0	308.9	124.20	3.47	6.00	124.06
MEAN	1.99	9.60	8.08	9.84	12.9	9.55	4.63	9.96	4.14	.11	.19	4.14
MAX	5.4	72	18	15	19	39	16	46	36	1.8	3.2	64
MIN	.49	4.0	4.6	5.0	6.4	3.8	1.2	2.4	.06	0	0	0
AC-FT	122	571	497	605	744	587	276	613	246	6.9	12	246
CAL YR 1975 TOTAL	16788.41			MEAN 46.0	MAX 7060	MIN .17	AC-FT 33300					
WTR YR 1976 TOTAL	2281.68			MEAN 6.23	MAX 72	MIN 0	AC-FT 4530					

## RED RIVER BASIN

109

07301200 McClellan Creek near McLean, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICRO- MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG)	DIS-SOLVED SODIUM (NA) (MG/L)
OCT. 07...	1100	1.3	1250	8.3	13.0	230	83	55	22	170
NOV. 18...	1005	8.8	984	8.2	13.5	190	81	44	19	130
DEC. 31...	1500	17	1070	8.1	11.0	270	83	77	20	120
FEB. 10...	1100	11	1070	8.1	12.0	270	85	77	20	120
MAR. 22...	0910	7.6	1140	8.0	6.0	280	92	77	21	130
MAY 03...	1100	9.7	1150	8.1	15.0	280	98	77	22	130
JUNE 18...	1030	.79	1060	8.0	--	240	56	70	17	130

DATE	SODIUM AD- SURP- TION RATIO	DIS-SOLVED PO- TAS- SIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SI02) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT. 07...	4.9	3.6	177	0	110	230	.7	25	704
NOV. 18...	4.1	3.3	130	0	120	170	.7	24	575
DEC. 31...	3.2	3.1	234	0	120	150	.8	23	629
FEB. 10...	3.2	3.0	231	0	120	150	.7	23	628
MAR. 22...	3.4	2.9	228	0	130	170	.8	22	666
MAY 03...	3.4	3.0	226	0	130	180	.7	22	676
JUNE 18...	3.6	2.9	230	0	90	180	.7	24	628

07301300 North Fork Red River near Shamrock, Tex.

LOCATION.--Lat 35°15'51", long 100°14'29", Wheeler County, on left bank at downstream side of bridge on U.S. Highway 83, 2.5 miles (4.0 km) north of Shamrock, 16 miles (26 km) upstream from Oklahoma-Texas State line, and 23 miles (37 km) downstream from McClellan Creek.

DRAINAGE AREA.--1,082 mi<sup>2</sup> (2,802 km<sup>2</sup>), of which 379 mi<sup>2</sup> (982 km<sup>2</sup>) is probably noncontributing.

PERIOD OF RECORD.--Discharge: 1951-63 (occasional low-flow measurements), February 1964 to current year.

Water quality: Chemical analyses: October 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,165.55 ft (660.060 m) above mean sea level.

AVERAGE DISCHARGE.--12 years, 28.8 ft<sup>3</sup>/s (0.816 m<sup>3</sup>/s), 20,870 acre-ft/yr (25.7 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 5,570 ft<sup>3</sup>/s (158 m<sup>3</sup>/s) Apr. 15 (gage height, 4.50 ft or 1.372 m); no flow at times.

Period of record: Maximum discharge, 20,400 ft<sup>3</sup>/s (578 m<sup>3</sup>/s) May 29, 1975 (gage height, 7.47 ft or 2.277 m), from rating curve extended above 3,800 ft<sup>3</sup>/s (108 m<sup>3</sup>/s) on basis of slope-area measurement of peak flow; no flow at times.

Maximum stage since at least 1915, 16.1 ft (4.91 m) in May 1957, from information by State Highway Department and local residents.

REMARKS.--Discharge records poor. Some regulation by Lake McClellan (capacity, 5,000 acre-ft or 6.16 hm<sup>3</sup>) 41 miles (66 km) upstream.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	336	22	25	14	0	0	62	14	0	0	24
2	0	274	8.9	13	12	0	0	19	5.4	0	0	0
3	0	395	12	4.5	9.1	0	0	12	.35	0	0	0
4	0	118	12	4.0	11	0	0	2.9	0	0	0	0
5	0	17	8.9	4.2	6.0	0	0	.60	0	0	0	0
6	0	8.5	4.9	7.5	5.0	.79	0	.50	.03	0	0	0
7	0	9.5	2.5	4.0	5.0	6.7	1.1	23	.16	0	0	0
8	0	6.1	2.5	2.1	10	124	.43	9.0	4.6	0	0	0
9	0	1.9	4.9	7.4	35	171	.01	.67	.52	0	0	0
10	0	.82	7.7	15	28	35	.01	63	0	0	0	0
11	0	.35	6.7	6.0	20	38	0	38	0	0	0	0
12	0	.13	6.7	6.4	13	16	0	8.4	0	0	0	115
13	0	.09	5.7	111	11	1.5	.01	.77	0	0	0	67
14	.50	.10	13	34	7.4	.40	22	.04	0	0	0	0
15	2.7	.12	6.7	22	5.7	1.1	1510	0	0	0	0	25
16	.08	.12	7.7	26	6.3	2.0	1540	0	0	0	0	160
17	0	.19	3.6	24	5.9	1.5	1140	0	0	0	0	5.4
18	0	1.0	.82	22	4.5	.91	122	0	0	0	0	0
19	0	364	1.5	24	3.3	.93	36	0	0	0	0	274
20	0	265	4.2	10	2.8	.11	766	0	0	0	0	554
21	0	130	25	11	.29	.01	78	0	0	0	0	34
22	0	15	31	18	0	.01	35	0	0	0	0	1.3
23	0	48	22	25	0	.01	16	.07	0	0	0	.03
24	0	48	25	28	0	.01	8.6	3.2	0	0	0	.01
25	0	35	43	27	0	.01	2.0	47	0	0	0	.06
26	0	5.7	31	12	0	0	.39	590	0	0	0	.03
27	0	4.2	22	19	0	0	.76	78	0	0	0	48
28	0	28	31	16	0	0	9.6	12	0	0	0	6.7
29	0	108	31	27	0	0	17	.52	0	0	0	.34
30	0	35	31	29	---	0	92	.01	0	0	131	.05
31	.04	---	25	22	---	0	---	7.6	---	---	.40	---
TOTAL	3.32	2254.82	459.92	606.1	215.29	399.99	5396.91	978.28	25.06	0	131.40	1314.92
MEAN	.11	75.2	14.8	19.6	7.42	12.9	180	31.6	.84	0	4.24	43.8
MAX	2.7	395	43	111	35	171	1540	590	14	0	131	554
MIN	0	.09	.82	2.1	0	0	0	0	0	0	0	0
AC-FT	6.6	4470	912	1200	427	793	10700	1940	50	0	261	2610

CAL YR 1975 TOTAL 25691.07 MEAN 70.4 MAX 7060 MIN 0 AC-FT 50960  
WTR YR 1976 TOTAL 11786.01 MEAN 32.2 MAX 1540 MIN 0 AC-FT 23380

PEAK DISCHARGE (BASE, 3,000 FT<sup>3</sup>/S).--Apr. 15 (2300) 5,570 ft<sup>3</sup>/s (4.50 ft); May 26 (0030) 3,590 ft<sup>3</sup>/s (4.01 ft).

## RED RIVER BASIN

111

07301300 North Fork Red River near Shamrock, Tex.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
NOV. 18...	1600	2.0	3100	7.8	16.5	1300	1200	410	64	240
DEC. 31...	1200	19	2450	7.9	4.0	700	600	210	43	250
FEB. 10...	1045	22	2450	8.0	16.0	680	560	200	44	250
MAR. 22...	1525	.01	2850	7.8	22.0	1500	1400	500	49	160
MAY 03...	1350	12	2820	7.9	21.0	830	700	250	50	290

DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RINE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
NOV. 18...	2.9	6.0	84	0	1100	410	.8	20	2290
DEC. 31...	4.1	4.3	124	0	420	470	.6	20	1480
FEB. 10...	4.2	4.6	151	0	390	500	.7	21	1480
MAR. 22...	1.8	5.0	123	0	1300	270	.6	20	2370
MAY 03...	4.4	6.0	153	0	550	570	.7	20	1810



07301410 Sweetwater Creek near Kelton, Tex.

LOCATION.--Lat 35°28'23", long 100°07'14", Wheeler County, near center of stream on downstream side of bridge on Farm Road 592, 5 miles (8 km) north of Kelton, 8 miles (13 km) upstream from Oklahoma-Texas State line, and 8.5 miles (13.7 km) northeast of Wheeler.

DRAINAGE AREA.--287 mi<sup>2</sup> (743 km<sup>2</sup>), of which 20 mi<sup>2</sup> (50 km<sup>2</sup>) is probably noncontributing.

PERIOD OF RECORD.--Discharge: November 1961 to current year.

Water quality: Chemical analyses: October 1969 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,230 ft (680 m), from topographic map.

AVERAGE DISCHARGE.--14 years (1962-76), 13.6 ft<sup>3</sup>/s (0.385 m<sup>3</sup>/s), 0.64 in/yr (16 mm/yr), 9,850 acre-ft/yr (12.1 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 591 ft<sup>3</sup>/s (16.7 m<sup>3</sup>/s) Apr. 17 (gage height, 12.38 ft or 3.773 m); minimum daily 0.06 ft<sup>3</sup>/s (0.002 m<sup>3</sup>/s) Aug. 22-26.

Period of record: Maximum discharge, 2,110 ft<sup>3</sup>/s (59.8 m<sup>3</sup>/s) Apr. 18, 1970 (gage height, 14.95 ft or 4.557 m); no flow at times.

Maximum stage since at least 1882, about 20 ft (6.1 m) May 16, 1957.

REMARKS.--Discharge records good. Diversion above station for ranch use.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	4.8	8.4	12	11	11	9.5	32	11	2.3	.11	1.4
2	1.7	11	8.5	11	11	11	9.4	24	9.7	1.8	.14	.37
3	1.8	8.7	8.6	10	11	11	9.3	20	7.8	1.7	.27	.17
4	1.9	6.1	7.6	10	11	12	9.3	14	7.6	1.8	.41	.15
5	1.8	5.1	8.7	11	11	11	9.3	17	6.8	1.8	.43	.15
6	1.8	5.1	8.3	12	10	11	9.4	17	6.6	1.9	.29	.15
7	1.8	5.4	8.4	11	8.0	11	9.6	16	5.5	1.9	.28	.15
8	1.8	5.2	8.5	10	8.0	13	12	15	8.8	1.7	.31	.17
9	1.7	5.1	8.8	10	10	15	12	14	7.4	1.6	.24	.22
10	1.6	5.0	8.9	10	12	14	13	14	6.5	1.4	.18	.17
11	1.7	5.0	8.9	10	12	13	23	14	6.1	1.4	.16	.15
12	1.9	5.0	8.8	11	12	12	13	12	5.7	1.5	.17	.19
13	2.0	4.9	9.2	12	12	11	12	12	5.4	1.3	.20	.42
14	1.9	5.3	9.3	11	11	12	12	11	5.1	1.2	.26	.44
15	2.3	5.5	9.0	12	12	12	70	12	4.6	1.2	.31	.34
16	2.5	5.8	8.9	12	12	12	170	11	4.4	1.5	.17	4.6
17	2.6	6.0	8.6	12	12	12	242	10	4.0	1.5	.14	41
18	2.7	6.4	9.3	12	11	12	78	11	4.7	1.3	.12	4.0
19	2.6	9.4	8.0	12	11	11	41	10	4.2	1.4	.09	1.7
20	2.7	13	9.2	11	11	11	79	11	3.9	1.2	.07	7.6
21	2.9	9.9	9.3	11	11	9.9	44	11	3.7	.78	.07	4.4
22	3.1	9.1	9.7	11	10	10	32	11	3.1	.78	.06	1.7
23	3.3	9.0	9.4	12	11	10	27	23	3.2	.71	.06	1.2
24	3.4	8.8	10	12	11	9.9	24	15	3.3	.52	.06	.96
25	3.5	8.5	11	11	10	9.9	21	13	2.9	.49	.06	1.2
26	3.8	8.0	10	11	10	9.8	20	25	2.7	.37	.06	1.4
27	4.0	8.7	9.8	10	11	9.6	20	20	2.5	.33	.07	1.7
28	3.9	9.0	9.9	11	11	9.8	26	15	2.2	.58	.07	2.9
29	4.0	9.1	11	11	11	9.8	26	12	2.5	.65	.07	2.2
30	4.2	8.7	11	12	---	9.6	28	9.9	2.3	.38	.07	1.5
31	4.3	---	12	11	---	9.5	---	10	---	.19	.29	---
TOTAL	80.9	216.7	288.6	345	315.0	345.8	1110.8	465.9	152.9	37.18	5.29	82.70
MEAN	2.61	7.22	9.29	11.1	10.9	11.2	37.0	15.0	5.10	1.20	.17	2.76
MAX	4.3	13	12	12	12	15	242	32	11	2.3	.43	.41
MIN	1.6	4.8	8.0	10	8.0	9.5	9.3	9.9	2.2	.19	.06	.15
CFSM	.009	.03	.03	.04	.04	.04	.13	.05	.02	.004	0	.009
IN	.01	.03	.04	.04	.04	.04	.14	.06	.02	.005	.0007	.01
AC-FT	160	430	571	684	625	686	2200	924	303	74	10	164

CAL YR 1975 TOTAL 4886.40 MEAN 13.4 MAX 220 MIN .69 CFSM .05 IN .63 AC-FT 9690  
WTR YR 1976 TOTAL 3446.17 MEAN 9.42 MAX 242 MIN .06 CFSM .03 IN .45 AC-FT 6840

PEAK DISCHARGE (BASE, 500 FT<sup>2</sup>/S).--Apr. 17 (1100) 591 ft<sup>3</sup>/s (12.38 ft).

## RED RIVER BASIN

113

07301410 Sweetwater Creek near Kelton, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPECIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
OCT. 05...	1100	1.8	1200	8.1	16.0	490	270	140	35	72
NOV. 19...	0930	8.0	798	8.3	12.0	280	120	74	22	59
DEC. 31...	1020	13	838	8.2	2.0	330	52	98	21	57
FEB. 11...	0945	12	822	8.3	8.5	330	83	99	21	52
MAR. 23...	0915	10	846	8.1	8.0	340	100	100	22	54
MAY 06...	1535	18	907	8.2	20.5	350	88	100	24	59
JUNE 17...	1040	4.0	1170	7.9	--	490	260	140	34	65
JULY 28...	0840	.56	1320	7.8	22.0	560	350	160	38	98
SEP. 08...	1000	.17	1340	8.2	22.0	560	350	160	39	84

DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT. 05...	1.4	2.8	276	0	350	47	.7	20	804
NOV. 19...	1.5	3.0	191	0	190	34	.7	24	501
DEC. 31...	1.4	2.8	340	0	120	32	.7	26	525
FEB. 11...	1.2	2.4	306	0	140	33	.8	21	520
MAR. 23...	1.3	2.3	292	0	160	34	.8	21	538
MAY 06...	1.4	2.1	318	0	170	37	.8	21	571
JUNE 17...	1.3	2.2	283	0	340	42	.7	22	785
JULY 28...	1.8	2.6	256	0	420	80	.6	28	953
SEP. 08...	1.5	2.6	260	0	430	68	.6	34	946

## RED RIVER BASIN

07307600 North Pease River near Childress, Tex.

LOCATION.--Lat 34°16'30", long 100°17'05", Cottle County, on left bank at downstream side of bridge on U.S. Highways 62 and 83, 12.2 miles (19.6 km) south of Childress, and at mile 87.6 (140.9 km).

DRAINAGE AREA.--1,434 mi<sup>2</sup> (3,714 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: May 1973 to current year.

Water quality: Chemical analyses: March 1973 to current year. Water temperatures: October 1974 to September 1975.

GAGE.--Water-stage and specific-conductance recorders. Altitude of gage is 1,610 ft (491 m), from topographic map. Prior to June 8, 1973, nonrecording gage at same site and datum.

EXTREMES.--Discharge: Current year: Maximum discharge, 3,710 ft<sup>3</sup>/s (105 m<sup>3</sup>/s) Aug. 3 (gage height, 9.13 ft or 2.783 m); no flow for many days.

Period of record: Maximum discharge, 7,130 ft<sup>3</sup>/s (202 m<sup>3</sup>/s) June 2, 1973 (gage height, 10.24 ft or 3.121 m), from rating curve extended above 4,000 ft<sup>3</sup>/s (113 m<sup>3</sup>/s) by logarithmic plotting; no flow at times.

Water quality: Current year: Maximum daily specific conductance, 54,200 micromhos Apr. 8; minimum daily, 2,370 micromhos Aug. 3. Minimum water temperatures, freezing point on many days during winter months.

Period of record: Maximum daily specific conductance, 54,200 micromhos Apr. 8, 1976; minimum daily, 1,450 micromhos June 23, 1975. Maximum water temperatures, 35.0°C Aug. 17, 1975; minimum, freezing point on many days during winter months.

REMARKS.--Discharge records fair. Specific conductance is recorded continuously at this station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.21	33	.06	.82	.12	0	0	4.3	2.4	0	0	2.7
2	.05	289	.06	.50	.11	0	0	2.5	1.4	.02	0	.01
3	.04	34	.06	.37	.12	0	0	1.1	.76	8.0	1240	0
4	.04	5.8	.08	.42	.11	.01	0	.90	1.2	.14	417	0
5	.03	2.4	.15	.55	.10	0	0	2.8	8.1	0	93	0
6	.03	1.6	.08	.51	.10	0	0	2.2	138	0	44	0
7	.02	1.1	.07	.10	.20	.02	1.4	.70	37	0	23	0
8	.01	.97	.07	.10	.46	.85	1.4	.52	14	0	11	7.0
9	.02	.63	.10	.10	.42	.87	.04	.40	22	0	5.7	30
10	.02	.39	.18	.10	.32	.23	0	.29	36	0	2.6	2.2
11	.02	.39	.15	.43	.15	.09	0	.24	9.8	0	1.1	.18
12	.01	.26	.13	.46	.14	.01	6.7	.19	2.6	0	.28	.01
13	.02	.18	.34	.35	.15	0	.74	.15	1.0	0	.12	0
14	115	.20	.37	.19	.12	.01	8.1	.14	2.2	0	.07	0
15	41	.22	.16	.31	.15	0	448	.15	.26	0	.04	0
16	3.1	.26	.14	.31	.15	0	463	.12	.06	0	.02	0
17	1.2	.28	.10	.33	.08	0	246	.12	.03	0	0	.06
18	.64	.36	.08	.39	.05	0	34	.11	.01	0	0	.01
19	.48	2.8	.12	.21	.03	0	16	.09	0	0	0	.06
20	.30	1.1	.24	.13	.02	0	8.4	.09	0	0	0	0
21	.23	.46	.21	.14	0	0	4.9	.02	0	0	0	0
22	.21	.31	.97	.20	.01	0	3.5	.11	13	0	0	0
23	.24	.31	.71	.27	0	0	3.3	25	20	0	0	0
24	.13	.24	2.7	.32	0	0	1.9	3.5	9.5	0	0	0
25	.15	.26	2.4	.29	0	0	1.1	189	2.1	0	.03	0
26	.19	.19	1.4	.16	0	0	.92	596	.21	0	0	0
27	.25	.14	1.1	.14	0	0	.97	83	.01	0	0	1.0
28	.42	.20	1.3	.18	0	0	21	19	0	7.0	0	.22
29	.51	.44	1.7	.24	0	0	6.3	7.5	0	38	0	0
30	.28	.10	1.4	.26	---	0	5.1	4.8	0	19	0	0
31	.28	---	1.1	.18	---	0	---	6.2	---	.45	2.0	---
TOTAL	165.13	377.59	17.73	9.06	3.11	2.09	1282.77	951.24	321.64	72.61	1839.96	43.45
MEAN	5.33	12.6	.57	.29	.11	.067	42.8	30.7	10.7	2.34	59.4	1.45
MAX	115	289	2.7	.82	.46	.87	463	596	138	38	1240	30
MIN	.01	.10	.06	.10	0	0	0	.02	0	0	0	0
AC-FT	328	749	35	18	6.2	4.1	2540	1890	638	144	3650	86

CAL YR 1975 TOTAL 4977.85 MEAN 13.6 MAX 1340 MIN 0 AC-FT 9870  
WTR YR 1976 TOTAL 5086.38 MEAN 13.9 MAX 1240 MIN 0 AC-FT 10090

PEAK DISCHARGE (BASE, 1,000 FT<sup>3</sup>/S)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-14	2100	7.99	1,530	5-26	1245	7.98	1,520
4-17	0330	7.66	1,120	8- 3	1445	9.13	3,710

## RED RIVER BASIN

115

07307600 North Pease River near Childress, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG)	DIS-SOLVED SODIUM (NA) (MG/L)
OCT 21...	0835	.22	15800	--	15.0	2400	--	730	140	--
NOV 24...	1315	2.0	25600	--	10.0	2900	--	900	160	--
DEC 17...	0835	.05	19100	--	.0	2600	--	790	160	--
JAN 05...	1500	1.0	29600	--	5.0	3100	--	930	180	--
MAR 11...	0900	.09	27600	--	12.0	3200	--	980	180	--
APR 17...	0910	219	5040	7.7	16.0	1100	940	340	52	800
MAY 27...	1115	92	4560	7.4	17.0	920	800	280	54	680
JUN 09...	1450	75	9100	7.7	31.5	1400	1300	400	93	1500
AUG 25...	0900	.01	11200	--	20.5	2200	--	700	100	--

DATE	SODIUM ADSORPTION RATIO	DIS-SOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT 21...	--	--	--	--	1800	4400	--	--	--
NOV 24...	--	--	--	--	2100	8200	--	--	--
DEC 17...	--	--	--	--	2000	6600	--	--	--
JAN 05...	--	--	--	--	2500	10000	--	--	--
MAR 11...	--	--	--	--	2500	9100	--	--	--
APR 17...	11	7.0	148	0	990	1200	--	13	3480
MAY 27...	9.7	16	148	0	800	1000	1.1	15	2920
JUN 09...	18	14	126	0	1200	2300	--	14	5580
AUG 25...	--	--	--	--	1900	2800	--	--	--

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	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. 1975.....	165.13	8300	5170	2310	1780	796	1480	660	1560
NOV. 1975.....	377.59	7420	4650	4740	1860	1890	1080	1110	1410
DEC. 1975.....	17.73	36400	24600	1180	12900	619	2660	127	****
JAN. 1976.....	9.06	28700	19200	469	9790	240	2330	57	****
FEB. 1976.....	3.11	26800	17800	149	9020	76	2250	19	****
MAR. 1976.....	2.09	32700	22000	124	11400	65	2480	14	****
APR. 1976.....	1282.77	6800	4310	14900	1640	5680	1070	3700	1300
MAY 1976.....	951.24	3750	2360	6070	860	2200	600	1540	790
JUNE 1976.....	321.64	8590	5420	4710	2260	1960	1170	1010	1610
JULY 1976.....	72.61	11600	7390	1450	3270	640	1400	275	****
AUG. 1976.....	1839.96	2920	1810	9010	580	2900	520	2580	640
SEPT 1976.....	43.45	8140	5080	596	2040	239	1170	137	1530
TOTAL .....	5086.37	**	**	5700	**	17300	**	11200	**
WTD.AVG. ....	13.94	5280	3300	**	1300	**	820	**	1000

## RED RIVER BASIN

07307600 North Pease River near Childress, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C); WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16800	6530	21200	36300	24000	---	---	37600	24900	---	---	12600
2	16200	6670	20800	34200	21800	---	---	34700	25100	25900	---	16200
3	16500	6930	20100	31200	19700	---	---	33100	24300	14700	2370	---
4	16500	10600	19300	29400	20400	21700	---	29300	22200	21800	2760	---
5	16500	17900	18600	31400	20700	---	---	28100	31700	---	3730	---
6	16500	23000	22900	32500	37300	---	---	27900	5500	---	7580	---
7	16600	25700	20600	33900	31000	20900	52600	31100	6460	---	10000	---
8	16500	25000	18600	27500	31400	16100	54200	23900	12700	---	14600	13700
9	16900	24300	18600	22400	32600	48300	37900	21800	9670	---	17000	6000
10	16000	23700	19700	31100	29900	38100	---	21100	4210	---	21700	8100
11	16000	22600	22800	30400	27200	29000	---	20900	7500	---	19500	12700
12	16300	22000	20400	27600	24600	28700	22100	21100	14400	---	18500	14300
13	16300	18600	24700	29200	21900	---	25200	20900	18100	---	17000	---
14	7770	17300	25400	25600	21700	27500	28100	21000	31100	---	17000	---
15	8140	18100	25700	22300	21200	---	7240	21200	22900	---	16500	---
16	12200	19800	22500	24500	21000	---	3110	21300	18400	---	15300	---
17	14000	21400	19600	26600	22400	---	5260	20800	18700	---	---	14900
18	17000	22200	19500	27900	19400	---	10300	21000	18200	---	---	16200
19	16400	18900	18300	26800	18700	---	15300	20500	---	---	---	15300
20	15800	37800	18100	23600	19200	---	22500	21000	---	---	---	---
21	16000	29300	21900	23800	---	---	27600	20200	---	---	---	---
22	15900	27500	36300	20800	19500	---	29400	20600	11600	---	---	---
23	15800	25400	36200	24700	---	---	33300	8420	12700	---	---	---
24	15800	26300	39600	26400	---	---	33800	12600	17900	---	---	---
25	15800	23900	39800	26900	---	---	32100	2550	19000	---	11200	---
26	15600	27000	39900	27300	---	---	30100	2390	22900	---	---	---
27	18100	20000	38400	22900	---	---	33800	4670	24700	---	---	17200
28	20500	22000	37100	22700	---	---	24300	9880	---	17200	---	19900
29	23000	23600	41500	25500	---	---	34300	12900	---	6550	---	---
30	24600	22900	41500	26600	---	---	35500	22100	---	18300	---	---
31	21900	---	38700	26100	---	---	---	16100	---	15300	---	---
MONTH	16400	21200	26700	27400	---	---	---	20300	17700	---	---	---

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.0	16.0	1.0	5.0	---	---	---	10.0	17.0	---	---	---
2	13.0	14.0	4.0	1.0	---	---	---	14.0	18.0	---	---	---
3	12.0	---	5.0	0.0	4.0	---	---	10.0	---	---	---	---
4	12.0	14.0	8.0	0.0	5.0	---	---	11.0	20.0	24.0	23.0	---
5	14.0	11.0	10.0	0.0	3.0	---	---	15.0	20.0	---	24.0	---
6	13.0	12.0	5.0	0.0	0.0	---	---	---	18.0	---	23.0	---
7	---	11.0	5.0	0.0	0.0	---	---	10.0	18.0	---	23.0	---
8	15.0	---	3.0	---	2.0	6.0	15.0	12.0	19.0	---	24.0	---
9	15.0	---	4.0	0.0	4.0	11.0	12.0	16.0	20.0	---	20.0	18.0
10	15.0	7.0	4.0	1.0	---	6.0	---	15.0	22.0	---	30.0	15.0
11	22.0	8.0	7.0	0.0	---	12.0	---	15.0	20.0	---	22.0	18.0
12	18.0	6.0	7.0	0.0	---	---	---	18.0	22.0	---	21.0	---
13	18.0	3.0	---	3.0	12.0	---	18.0	11.0	23.0	---	20.0	---
14	19.0	3.0	11.0	0.0	10.0	---	28.0	13.0	21.0	---	20.0	---
15	15.0	5.0	1.0	2.0	---	---	16.0	---	18.0	---	25.0	---
16	11.0	6.0	---	---	10.0	---	10.0	23.0	14.0	---	21.0	---
17	13.0	6.0	0.0	3.0	8.0	---	15.0	13.0	17.0	---	---	---
18	12.0	13.0	0.0	3.0	7.0	---	11.0	13.0	20.0	---	---	---
19	---	13.0	0.0	8.0	5.0	---	14.0	14.0	---	---	---	---
20	14.0	2.0	1.0	0.0	8.0	---	12.0	24.0	---	---	---	---
21	15.0	0.0	7.0	2.0	---	---	10.0	17.0	---	---	---	---
22	---	1.0	12.0	5.0	---	---	14.0	17.0	---	---	---	---
23	16.0	0.0	3.0	4.0	---	---	18.0	31.0	21.0	---	---	---
24	15.0	2.0	1.0	5.0	---	---	15.0	19.0	20.0	---	---	---
25	12.0	1.0	---	---	---	---	---	9.0	---	---	---	---
26	16.0	0.0	1.0	0.0	---	---	11.0	11.0	33.0	---	---	---
27	13.0	0.0	0.0	0.0	---	---	20.0	23.0	---	---	---	---
28	14.0	4.0	4.0	9.0	---	---	18.0	---	---	---	---	---
29	13.0	13.0	4.0	3.0	---	---	12.0	17.0	---	---	---	---
30	12.0	---	0.0	5.0	---	---	13.0	32.0	---	---	---	---
31	14.0	---	0.0	5.0	---	---	---	16.0	---	---	---	---
MONTH	14.5	6.5	4.0	2.5	---	---	---	16.0	---	---	---	---

## RED RIVER BASIN

117

07307660 North Pease River near Kirkland, Tex.  
(Reconnaissance partial-record station)

LOCATION.--Lat 34°16'06", long 100°10'19", Cottle County, at ranchroad crossing, 0.6 mile (1.0 km) south of Buckle L Ranch House, and 11.5 miles (18.5 km) southwest of Kirkland.

PERIOD OF RECORD.--Occasional discharge measurements and water-quality data: March 1973 to current year.

## DISCHARGE AND WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)
OCT.							
02...	1300	.57	--	--	21.5	--	--
20...	1620	1.6	33700	--	25.0	3900	--
NOV.							
13...	1325	1.9	--	--	7.0	--	--
25...	0835	2.2	37500	--	6.0	3900	--
DEC.							
17...	0730	.73	40500	--	.0	4100	--
JAN.							
06...	0755	3.0	38000	--	3.0	4000	--
28...	1315	1.6	--	--	5.0	--	--
FEB.							
19...	0830	.86	43600	--	5.0	4700	--
MAR.							
11...	1225	1.6	44200	--	20.5	4400	--
29...	1510	.68	49800	7.7	18.5	5100	5000
APR.							
21...	1155	15	22900	--	14.0	2900	--
MAY							
11...	1400	2.3	34200	--	33.0	4000	--
JUNE							
01...	1835	11	18700	--	32.0	2400	--
22...	0830	.11	42900	--	25.0	4800	--
JULY							
15...	1015	.07	42700	--	23.0	4600	--
AUG.							
02...	1410	.50	31300	--	30.5	3600	--
SEP.							
15...	1200	.05	37000	--	30.5	4100	--

DATE	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
OCT.						
02...	--	--	--	--	--	--
20...	1200	220	--	--	3000	12000
NOV.						
13...	--	--	--	--	--	--
25...	1200	230	--	--	3200	13000
DEC.						
17...	1200	260	--	--	3600	14000
JAN.						
06...	1200	240	--	--	3300	13000
28...	--	--	--	--	--	--
FEB.						
19...	1400	290	--	--	3600	16000
MAR.						
11...	1300	290	--	--	3900	17000
29...	1500	340	130	0	4600	18000
APR.						
21...	890	170	--	--	2500	7900
MAY						
11...	1200	250	--	--	3200	11000
JUNE						
01...	760	120	--	--	2000	6000
22...	1400	310	--	--	3400	15000
JULY						
15...	1300	320	--	--	3400	15000
AUG.						
02...	1100	210	--	--	2800	10000
SEP.						
15...	1200	260	--	--	2800	12000



07307750 Middle Pease River near Paducah, Tex.

LOCATION.--Lat 34°12'31", long 100°18'03", Cottle County, on left bank at downstream side of bridge on U.S. Highways 62 and 83, 11.8 miles (19.0 km) north of Paducah, and at mile 13.4 (21.6 km).

DRAINAGE AREA.--1,086 mi<sup>2</sup> (2,813 km<sup>2</sup>), of which 65 mi<sup>2</sup> (168 km<sup>2</sup>) is probably noncontributing.

PERIOD OF RECORD.--Discharge: May 1973 to current year.

Water quality: Chemical analyses: May 1973 to current year. Water temperatures: October 1974 to current year.

GAGE.--Water-stage and specific-conductance recorders. Altitude of gage is 1,630 ft (497 m), from topographic map. Prior to June 6, 1973, nonrecording gage to same site and datum.

EXTREMES.--Discharge: Current year: Maximum discharge, 549 ft<sup>3</sup>/s (15.5 m<sup>3</sup>/s) Apr. 17 (gage height, 6.47 ft or 1.972 m); no flow for many days.

Period of record: Maximum discharge, 5,390 ft<sup>3</sup>/s (153 m<sup>3</sup>/s) June 4, 1974 (gage height, 11.20 ft or 3.414 m); no flow for many days.

Water quality: Current year: Maximum daily specific conductance, 4,150 micromhos July 3; minimum daily, 1,680 micromhos Apr. 15.

Period of record: Maximum daily specific conductance, 4,910 micromhos Feb. 12, 1975; minimum daily, 940 micromhos June 4, 1974.

REMARKS.--Discharge records fair. Specific conductance is recorded continuously at this station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		.05					0	57	3.7	0		
2		1.3					0	25	0	0		
3		0					0	7.8	0	.02		
4		0					0	3.5	0	0		
5		0					0	8.2	0	0		
6		0					0	10	0	0		
7		0					0	2.5	0	0		
8		0					0	1.4	0	0		
9		0					0	.83	0	0		
10		0					0	.47	0	0		
11		0					0	.07	0	0		
12		0					0	.01	0	0		
13		0					0	0	0	0		
14		0					0	0	0	0		
15		0					43	0	0	0		
16		0					370	0	0	0		
17		0					299	0	0	0		
18		0					109	0	0	0		
19		0					45	0	0	0		
20		0					30	0	0	0		
21		0					14	0	0	0		
22		0					8.1	0	.03	0		
23		0					5.8	.02	0	0		
24		0					3.1	0	0	0		
25		0					2.5	9.5	0	0		
26		0					1.9	22	0	0		
27		0					1.9	2.5	0	0		
28		0					13	1.1	0	0		
29		0					69	0	0	0		
30		0					108	.15	0	0		
31		---			---		---	6.0	---	0		---
TOTAL	0	1.35	0	0	0	0	1123.3	158.05	3.73	.02	0	0
MEAN	0	.045	0	0	0	0	37.4	5.10	.12	.0006	0	0
MAX	0	1.3	0	0	0	0	370	57	3.7	.02	0	0
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	2.7	0	0	0	0	2230	313	7.4	.04	0	0

CAL YR 1975 TOTAL 1761.19 MEAN 4.83 MAX 128 MIN 0 AC-FT 3490  
WTR YR 1976 TOTAL 1286.45 MEAN 3.51 MAX 370 MIN 0 AC-FT 2550

PEAK DISCHARGE (BASE, 400 FT<sup>3</sup>/S).--Apr. 17 (0215) 549 ft<sup>3</sup>/s (6.47 ft).

## RED RIVER BASIN

119

07307750 Middle Pease River near Paducah, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPIRITUAL CONDUCTANCE (MICRO- MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CAL/MG)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG)	DISSOLVED SODIUM (NA) (MG/L)
APR										
17...	0720	313	1840	7.7	15.5	520	400	140	42	180
21...	0925	13	3500	7.8	14.0	1200	1100	350	85	380
MAY										
27...	1050	7.0	2750	8.0	18.0	1000	900	310	64	240
DATE		SODIUM AD- SORPTION RATIO	DISSOLVED SODIUM TAS- SIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SiO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
APR										
17...		3.4	7.1	144	0	450	250	.6	13	1150
21...		4.7	7.5	158	0	1000	610	.5	16	2530
MAY										
27...		3.2	6.5	163	0	860	370	.6	12	1940

## RED RIVER BASIN

07307750 Middle Pease River near Paducah, Tex.--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	0	*****	*****	0	*****	0	*****	0	****
NOV. 1975.....	1.35	3860	2590	9.5	730	2.7	910	3.3	1100
DEC. 1975.....	0	*****	*****	0	*****	0	*****	0	****
JAN. 1976.....	0	*****	*****	0	*****	0	*****	0	****
FEB. 1976.....	0	*****	*****	0	*****	0	*****	0	****
MAR. 1976.....	0	*****	*****	0	*****	0	*****	0	****
APR. 1976.....	1123.3	2280	1530	4630	360	1090	590	1790	880
MAY 1976.....	158.05	2790	1870	797	480	204	710	301	950
JUNE 1976.....	3.73	3850	2580	26	730	7.4	910	9.2	1090
JULY 1976.....	0.02	4150	2780	0.2	800	0.04	1010	0.05	1140
AUG. 1976.....	0	*****	*****	0	*****	0	*****	0	****
SEPT 1976.....	0	*****	*****	0	*****	0	*****	0	****
TOTAL .....	1286.45	**	**	5460	**	1300	**	2100	**
WTD.AVG. ....	3.52	2350	1600	**	380	**	610	**	880

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		4070					---	2240	3850	---		
2		3850					---	2750	---	---		
3		---					---	3290	---	4150		
4		---					---	3150	---	---		
5		---					---	3360	---	---		
6		---					---	2520	---	---		
7		---					---	3560	---	---		
8		---					---	3530	---	---		
9		---					---	3510	---	---		
10		---					---	3500	---	---		
11		---					---	3450	---	---		
12		---					---	3430	---	---		
13		---					---	---	---	---		
14		---					---	---	---	---		
15		---					1680	---	---	---		
16		---					1810	---	---	---		
17		---					1960	---	---	---		
18		---					2520	---	---	---		
19		---					3070	---	---	---		
20		---					3250	---	---	---		
21		---					3500	---	---	---		
22		---					3900	---	4080	---		
23		---					3920	3870	---	---		
24		---					3940	---	---	---		
25		---					3900	3360	---	---		
26		---					3830	3290	---	---		
27		---					3500	2750	---	---		
28		---					3560	2890	---	---		
29		---					3760	---	---	---		
30		---					2560	3050	---	---		
31		---					---	3500	---	---		
MONTH		---					---	---	---	---		

## RED RIVER BASIN

121

07307780 Middle Pease River near Kirkland, Tex.  
(Low-flow partial-record station)

LOCATION.--Lat 34°14'17", long 100°07'46", Cottle County, 0.3 mile (0.5 km) upstream from mouth and 10.5 miles (16.9 km) southwest of Kirkland.

PERIOD OF RECORD.--Occasional discharge measurements and water-quality data: March 1973 to current year.

## DISCHARGE AND WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA, MG/L)	NON-CARBONATE HARDNESS (MG/L)
OCT.							
01...	1640	3.1	43900	--	23.5	4000	--
20...	1435	4.4	--	--	20.5	--	--
NOV.							
12...	1655	5.0	--	--	14.0	--	--
25...	1025	4.2	43200	--	7.0	3900	--
DEC.							
16...	1705	4.8	43000	--	9.5	3700	--
JAN.							
05...	1130	6.0	42600	--	4.0	3900	--
27...	1710	5.2	43400	--	11.0	3900	--
FEB.							
19...	1405	4.3	44200	--	19.5	3900	--
MAR.							
11...	1600	5.3	44200	--	18.0	4300	--
29...	1330	3.7	46200	7.7	19.5	4600	4500
APR.							
21...	1600	43	19800	--	15.5	2300	--
MAY							
11...	1520	9.0	39600	--	33.5	3900	--
JUNE							
02...	1345	15	32200	--	29.0	3100	--
21...	1145	1.9	44900	--	27.5	4400	--
JULY							
13...	1455	1.2	43700	--	23.0	4300	--
AUG.							
02...	1125	1.4	41900	--	24.0	4300	--
24...	1605	.23	41700	--	33.5	4000	--
SEP.							
15...	0920	1.7	44200	--	21.5	4400	--

DATE	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)
OCT.						
01...	1200	250	--	--	3400	15000
20...	--	--	--	--	--	--
NOV.						
12...	--	--	--	--	--	--
25...	1200	230	--	--	3500	15000
DEC.						
16...	1100	240	--	--	3600	15000
JAN.						
05...	1200	230	--	--	3500	15000
27...	1200	230	--	--	3600	15000
FEB.						
19...	1200	230	--	--	3900	16000
MAR.						
11...	1300	250	--	--	3400	17000
29...	1400	260	137	0	4100	16000
APR.						
21...	670	140	--	--	1900	6600
MAY						
11...	1200	230	--	--	3300	13000
JUNE						
02...	940	180	--	--	2800	11000
21...	1300	270	--	--	3600	16000
JULY						
13...	1300	260	--	--	3600	17000
AUG.						
02...	1300	250	--	--	3400	15000
24...	1200	240	--	--	3400	14000
SEP.						
15...	1300	270	--	--	3400	15000

## RED RIVER BASIN

07307800 Pease River near Childress, Tex.

LOCATION.--Lat 34°13'39", long 100°04'24", Cottle County, near right bank on downstream side of bridge on Farm Road 104, 0.8 mile (1.3 km) upstream from Catfish Creek, 4.4 miles (7.1 km) downstream from confluence of North and Middle Forks, 17 miles (27 km) southeast of Childress, and at mile 71.0 (114.2 km).

DRAINAGE AREA.--2,754 mi<sup>2</sup> (7,133 km<sup>2</sup>), of which 559 mi<sup>2</sup> (1,448 km<sup>2</sup>) is probably noncontributing.

PERIOD OF RECORD.--Discharge: December 1959 to September 1962, October 1967 to current year.

Water quality: Chemical analyses: July 1968 to current year. Water temperatures: July 1968 to current year.

GAGE.--Water-stage and specific-conductance recorders. Datum of gage is 1,492.98 ft (455.060 m) above mean sea level. Prior to Dec. 21, 1959, nonrecording gage at same site and datum.

AVERAGE DISCHARGE.--11 years (1960-62, 1967-76), 62.9 ft<sup>3</sup>/s (1.781 m<sup>3</sup>/s), 0.31 in/yr (8 mm/yr), 45,570 acre-ft/yr (56.2 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 3,570 ft<sup>3</sup>/s (101 m<sup>3</sup>/s) Aug. 3 (gage height, 10.50 ft or 3.200 m); minimum, 0.43 ft<sup>3</sup>/s (0.012 m<sup>3</sup>/s) Aug. 24, 29.

Period of record: Maximum discharge, 19,000 ft<sup>3</sup>/s (538 m<sup>3</sup>/s) June 9, 1960 (gage height, 13.59 ft or 4.142 m), from rating curve extended above 4,000 ft<sup>3</sup>/s (113 m<sup>3</sup>/s) on basis of runoff comparisons with nearby stations; no flow Aug. 10-22, 1969, May 25, 26, 1971.

Historic: Maximum stage since at least 1909, 22 ft (6.7 m) June 1, 1957; flood in May 1935 reached a stage of 18 ft (5.5 m) and was the second highest, from information by local resident.

Water quality: Current year: Maximum daily specific conductance, 40,400 micromhos Mar. 28; minimum daily, 3,510 micromhos Apr. 16. Maximum water temperatures, 37.0°C June 29; minimum, 2.0°C Dec. 25.

Period of record: Maximum daily specific conductance, 43,800 micromhos Apr. 11, 1974; minimum daily, 1,820 micromhos June 4, 1974. Maximum water temperatures, 37.0°C Aug. 10, 12, 14, 15, 1969, and June 29, 1976; minimum, freezing point on several days during January and February of 1971, 1973-74.

REMARKS.--Discharge records fair. Three small diversions for irrigation above station. Specific conductance is recorded continuously at this station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	6.9	4.6	8.2	5.2	6.7	5.6	82	131	6.3	5.2	16
2	4.5	401	5.3	6.8	5.2	6.0	5.8	48	47	1.5	2.3	13
3	4.1	71	5.5	6.3	5.5	5.4	5.7	24	36	21	592	6.3
4	4.5	36	5.8	6.1	5.1	6.0	5.6	21	31	13	369	3.9
5	4.1	26	6.0	6.4	7.1	5.2	6.1	23	27	3.9	154	2.6
6	4.1	20	4.9	5.7	7.6	5.6	6.2	35	146	1.3	72	1.9
7	3.7	16	5.2	4.7	7.5	7.5	8.5	22	88	.99	39	2.2
8	3.7	13	5.1	4.1	7.4	14	26	14	42	.99	28	3.1
9	3.0	10	5.4	4.5	7.1	16	14	12	28	.90	19	35
10	3.3	8.8	5.5	6.2	6.5	11	7.1	12	37	1.2	13	23
11	3.3	8.3	5.1	6.6	6.1	8.3	4.8	10	35	2.1	8.0	6.9
12	3.0	6.4	5.0	6.3	6.1	5.5	4.4	12	22	1.7	5.0	2.6
13	3.0	6.0	6.5	5.6	6.3	4.7	9.9	11	18	1.4	3.1	1.9
14	2.7	6.0	6.4	5.2	6.1	5.6	9.9	8.8	20	1.3	2.2	2.2
15	201	6.0	4.7	5.3	6.2	5.4	778	8.5	11	1.8	1.8	2.1
16	22	6.1	5.2	5.4	6.4	5.3	1290	6.7	8.1	1.9	1.4	2.0
17	13	6.6	5.1	5.4	5.6	5.5	928	5.9	5.5	2.8	1.2	4.1
18	9.7	7.2	5.0	5.5	5.8	6.1	295	5.7	8.0	1.7	1.2	9.6
19	6.7	12	5.5	4.9	6.0	6.0	137	5.7	6.4	1.5	.93	159
20	5.3	16	6.1	4.5	5.7	4.8	78	5.6	4.1	1.3	.95	35
21	4.2	11	6.2	5.0	4.1	4.7	55	8.9	2.9	1.2	.75	13
22	4.4	7.7	10	4.9	4.7	5.1	42	7.8	2.4	1.1	.65	7.9
23	4.7	7.3	8.8	5.1	5.3	5.9	37	215	33	5.2	.67	5.2
24	4.4	6.8	14	5.2	5.4	6.5	29	52	110	27	.67	4.5
25	4.1	5.8	22	4.9	5.4	6.4	26	260	18	5.4	.96	4.5
26	4.8	4.9	16	4.8	5.6	5.2	22	913	8.1	1.6	.80	4.5
27	5.9	5.0	12	5.4	6.8	5.7	24	249	5.5	.97	.78	7.4
28	5.8	5.5	11	5.3	7.0	6.2	212	78	3.3	.89	4.8	25
29	5.8	6.8	13	5.2	6.6	6.0	125	36	1.8	88	1.5	9.2
30	5.9	4.6	12	5.3	---	5.2	111	20	9.0	39	34	4.3
31	6.1	---	10	4.9	---	5.5	---	61	---	15	22	---
TOTAL	365.3	754.7	242.9	169.7	175.4	203.0	4308.6	2273.6	945.1	253.94	1386.86	417.9
MEAN	11.8	25.2	7.84	5.47	6.05	6.55	144	73.3	31.5	8.19	44.7	13.9
MAX	201	401	22	8.2	7.6	16	1290	913	146	88	592	159
MIN	2.7	4.6	4.6	4.1	4.1	4.7	4.4	5.6	1.8	.89	.65	1.9
AC-FT	725	1500	482	337	348	403	8550	4510	1870	504	2750	829

CAL YR 1975 TOTAL 13911.89 MEAN 38.1 MAX 1560 MIN .68 AC-FT 27590  
WTR YR 1976 TOTAL 11497.00 MEAN 31.4 MAX 1290 MIN .65 AC-FT 22800

PEAK DISCHARGE (BASE, 2,200 FT<sup>3</sup>/S)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
4-16	0130	10.36	3,220	5-26	0200	10.16	2,760
4-17	0615	10.14	2,720	8-3	1800	10.50	3,570

07307800 Pease River near Childress, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG)	DISSOLVED SODIUM (NA) (MG/L)
OCT 20...	1240	6.4	3470	--	20.0	3900	--	1200	220	--
NOV 24...	1455	4.9	35900	--	7.0	3600	--	1100	210	--
JAN 27...	1400	5.6	37200	--	12.0	4000	--	1200	240	--
MAR 29...	1145	6.0	39600	--	20.0	4300	--	1300	250	--
APR 17...	1050	750	3480	7.3	17.0	830	720	280	32	450
MAY 27...	1630	122	8020	7.4	--	1200	1100	390	65	1300
JUN 01...	1430	103	7590	7.4	28.0	1100	1100	380	45	1300
JUL 13...	1220	1.8	31600	--	23.0	3600	--	1100	210	--
AUG 05...	1155	156	5120	7.6	29.5	1000	940	330	46	760
SEP 15...	1000	1.9	29900	--	22.5	3700	--	1100	220	--

DATE	SODIUM ADSORPTION RATIO	DISSOLVED PHOSPHATE (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SiO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT 20...	--	--	--	--	2900	12000	--	--	--
NOV 24...	--	--	--	--	3000	12000	--	--	--
JAN 27...	--	--	--	--	3400	14000	--	--	--
MAR 29...	--	--	--	--	3400	14000	--	--	--
APR 17...	6.8	6.0	134	0	720	680	.4	11	2250
MAY 27...	16	13	148	0	1000	2100	--	13	4950
JUN 01...	17	11	92	0	950	2000	--	9.2	4740
JUL 13...	--	--	--	--	2900	10000	--	--	--
AUG 05...	10	10	91	0	840	1200	--	11	3240
SEP 15...	--	--	--	--	2700	9800	--	--	--

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	DISSOLVED SOLIDS (MG/L)	DISSOLVED SOLIDS (TONS)	DISSOLVED CHLORIDE (MG/L)	DISSOLVED CHLORIDE (TONS)	DISSOLVED SULFATE (MG/L)	DISSOLVED SULFATE (TONS)	HARDNESS (CA+MG) (MG/L)
OCT. 1975.....	365.3	22200	14600	14400	6980	6890	2200	2160	****
NOV. 1975.....	754.7	16900	11100	22500	5140	10500	1820	3700	****
DEC. 1975.....	242.9	34800	22900	15000	11300	7400	3090	2030	****
JAN. 1976.....	169.7	36300	23800	10900	11800	5390	3200	1470	****
FEB. 1976.....	168.8	36700	24100	11000	11900	5420	3240	1470	****
MAR. 1976.....	202	37200	24400	13400	12100	6630	3250	1780	****
APR. 1976.....	4308.6	8350	5480	63800	2400	27900	1040	12100	1270
MAY 1976.....	2273.6	9820	6440	39500	2880	17700	1160	7110	1430
JUNE 1976.....	945.1	17800	11700	29800	5460	13900	1880	4810	****
JULY 1976.....	253.94	15300	10000	6870	4600	3150	1700	1170	****
AUG. 1976.....	1386.86	7060	4640	17400	1980	7410	930	3480	1130
SEPT 1976.....	417.9	15900	11100	11800	4810	5430	1750	1970	****
TOTAL .....	11490.37	**	**	256000	**	118000	**	43200	**
MTD.AVG. ....	31.48	12600	3300	**	3900	**	1400	**	****



## RED RIVER BASIN

07307800 Pease River near Childress, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C) • WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36300	36200	29000	37200	37900	32100	35500	15000	7030	32000	28700	31400
2	35200	9740	29600	37000	37500	38100	30600	18000	21400	31200	31400	32000
3	35500	8480	30500	37000	37900	38100	39500	22700	31600	17100	4260	24400
4	35200	17200	30600	36300	37700	40200	38700	27700	32600	20600	4560	30000
5	35200	22300	31900	31600	37100	38600	38700	27200	34900	25600	6120	32000
6	35200	24200	36600	37500	37800	37500	37100	29400	13300	32700	11200	31200
7	35300	26500	32100	32100	37800	36200	38700	24800	17100	32400	14100	27500
8	35500	30000	32100	31900	37700	35500	26000	32600	20500	29500	16600	21600
9	35200	33800	32100	36600	37900	35300	34800	34400	23500	25600	22500	15500
10	36400	28900	32200	36600	38000	35200	39100	35800	16200	22200	25700	13700
11	36800	31200	37100	37100	31500	39000	39100	35800	14800	34200	28000	20800
12	35200	35400	30800	32200	38300	39300	39200	35000	25000	33400	29200	29600
13	35200	28900	36600	37500	37900	38100	36200	35700	32200	31600	30900	20700
14	36200	29300	31900	37200	37800	39100	37900	36600	34700	27500	31400	28500
15	13600	36100	37000	37300	38300	31600	8460	36800	36400	22400	31500	22700
16	18800	36000	36500	37500	38300	38900	3510	36800	35900	33700	31600	30900
17	31400	36000	37800	37200	39400	38400	3790	36100	27800	35400	31100	31700
18	31200	34500	37800	37900	38400	38700	7230	36400	28400	31600	32000	27700
19	34200	33000	31100	37700	39800	38700	12400	31300	27600	31200	31800	6470
20	35700	32200	36800	37700	39700	33300	16700	36400	36400	31500	30300	10400
21	36400	29300	36800	37300	39000	36500	19800	37500	36200	33400	31800	19100
22	30000	33500	36100	37300	35500	39300	24800	37500	36200	29500	31200	31700
23	36900	36500	36900	37900	31700	33000	26200	7180	12600	27600	30100	32200
24	37300	31600	33300	37500	31300	31100	29800	19100	6370	13300	30900	32400
25	36200	30700	35200	37900	30800	40000	28600	7680	20900	19900	20500	32500
26	36300	31000	36900	37700	38400	39800	31200	3920	27300	23600	31800	32600
27	36300	36800	37300	37200	32100	39600	33700	4500	27000	31200	27500	26600
28	36300	36500	35200	31700	30900	40400	16400	11600	32400	32700	15800	15800
29	36300	38100	36000	30700	32100	39500	9900	20000	33300	7280	29900	28300
30	35800	37500	36400	37700	---	39200	10400	17000	30300	10600	8900	32600
31	36400	---	36600	38400	---	39800	---	13500	---	23900	22600	---
MONTH	34100	30400	34400	36300	36500	37400	26500	26000	26000	26900	24300	25800

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.0	18.0	3.0	9.0	13.0	---	---	20.0	---	26.0	29.0	26.0
2	19.0	16.0	4.0	3.0	9.0	---	---	20.0	32.0	27.0	26.0	28.0
3	18.0	16.0	6.0	5.0	14.0	---	---	22.0	26.0	32.0	25.0	29.0
4	19.0	18.0	7.0	3.0	12.0	---	---	23.0	22.0	29.0	30.0	28.0
5	20.0	15.0	16.0	---	---	---	---	20.0	27.0	33.0	27.0	29.0
6	23.0	16.0	9.0	---	---	---	---	20.0	20.0	23.0	29.0	28.0
7	23.0	18.0	13.0	---	---	---	---	13.0	28.0	26.0	32.0	27.0
8	21.0	20.0	14.0	---	---	---	---	24.0	26.0	28.0	28.0	25.0
9	21.0	19.0	15.0	7.0	---	14.0	---	22.0	32.0	28.0	26.0	20.0
10	23.0	12.0	10.0	9.0	17.0	13.0	---	25.0	27.0	29.0	25.0	24.0
11	24.0	12.0	14.0	8.0	15.0	7.0	---	27.0	30.0	26.0	30.0	20.0
12	24.0	11.0	7.0	11.0	20.0	7.0	---	23.0	32.0	29.0	30.0	24.0
13	23.0	14.0	11.0	11.0	17.0	23.0	---	22.0	32.0	27.0	29.0	22.0
14	23.0	8.0	20.0	4.0	16.0	12.0	---	22.0	31.0	27.0	26.0	22.0
15	19.0	12.0	6.0	6.0	20.0	5.0	---	23.0	27.0	25.0	28.0	29.0
16	21.0	10.0	8.0	10.0	21.0	10.0	---	20.0	23.0	25.0	28.0	27.0
17	23.0	10.0	7.0	11.0	13.0	10.0	---	17.0	29.0	27.0	27.0	27.0
18	22.0	---	7.0	9.0	15.0	12.0	---	17.0	23.0	30.0	27.0	---
19	19.0	---	8.0	9.0	14.0	14.0	---	25.0	23.0	32.0	25.0	---
20	21.0	7.0	8.0	11.0	12.0	20.0	---	24.0	30.0	29.0	30.0	20.0
21	23.0	4.0	8.0	11.0	11.0	---	---	26.0	27.0	27.0	26.0	20.0
22	18.0	3.0	13.0	8.0	11.0	---	24.0	24.0	27.0	20.0	27.0	24.0
23	18.0	11.0	---	13.0	12.0	---	21.0	23.0	28.0	---	28.0	32.0
24	16.0	4.0	5.0	6.0	13.0	---	19.0	26.0	20.0	27.0	23.0	26.0
25	16.0	5.0	2.0	9.0	11.0	---	27.0	20.0	23.0	---	30.0	24.0
26	16.0	3.0	11.0	11.0	21.0	---	---	20.0	23.0	25.0	31.0	23.0
27	14.0	12.0	11.0	12.0	19.0	---	19.0	---	---	25.0	29.0	17.0
28	13.0	6.0	6.0	4.0	17.0	---	16.0	21.0	33.0	27.0	27.0	19.0
29	13.0	12.0	7.0	6.0	15.0	---	14.0	25.0	37.0	27.0	26.0	24.0
30	11.0	10.0	7.0	10.0	---	---	14.0	19.0	22.0	25.0	25.0	24.0
31	22.0	---	10.0	10.0	---	---	---	30.0	---	28.0	27.0	---
MONTH	19.5	11.5	9.0	8.5	15.0	---	---	22.0	27.0	27.0	27.5	24.5

## RED RIVER BASIN

125

07308200 Pease River near Vernon, Tex.

LOCATION.--Lat 34°10'44", long 99°16'40", Wilbarger County, near left bank on downstream side of bridge on U.S. Highway 283, 1.9 miles (3.1 km) north of Vernon, and 10 miles (16 km) upstream from mouth.

DRAINAGE AREA.--3,488 mi<sup>2</sup> (9,034 km<sup>2</sup>), of which 559 mi<sup>2</sup> (1,448 km<sup>2</sup>) is probably noncontributing.

PERIOD OF RECORD.--Discharge: December 1959 to current year.

Water quality: Chemical analyses: November 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,166.03 ft (355.406 m) above mean sea level.

AVERAGE DISCHARGE.--16 years (1960-76), 107 ft<sup>3</sup>/s (3.030 m<sup>3</sup>/s), 77,520 acre-ft/yr (95.6 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 4,360 ft<sup>3</sup>/s (123 m<sup>3</sup>/s) Apr. 17 (gage height, 11.28 ft or 3.438 m); no flow at times.  
Period of record: Maximum discharge, 31,000 ft<sup>3</sup>/s (878 m<sup>3</sup>/s) Sept. 19, 1965 (gage height, 18.50 ft or 5.639 m); no flow at times.  
Maximum stage since at least 1890, 24 ft (7.3 m) in 1891. The flood in September 1936 reached a stage of 23.5 ft (7.16 m), and the flood of June 2, 1957, reached a stage of 22.0 ft (6.71 m), from information by local residents.

REMARKS.--Discharge records fair. Four small diversions for irrigation above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	15	16	29	18	17	19	263	188	11	.04	.03
2	24	230	16	25	18	17	19	211	187	8.5	.76	.07
3	23	840	18	20	18	18	18	166	160	8.4	.64	0
4	22	253	17	18	18	17	18	135	81	8.5	467	0
5	21	152	19	24	16	17	18	113	59	7.3	541	0
6	19	101	16	20	16	18	18	116	50	7.0	222	0
7	18	76	16	17	18	19	23	96	43	6.3	95	0
8	17	63	16	15	19	28	21	94	38	6.2	53	.01
9	16	54	17	17	20	29	20	92	74	7.0	34	15
10	16	47	16	23	19	26	20	84	51	7.8	24	16
11	15	42	16	22	18	26	19	80	37	8.9	10	1.5
12	15	38	17	22	19	29	20	75	28	6.8	6.8	.07
13	15	35	17	21	18	22	24	75	26	5.3	4.6	159
14	15	33	19	20	17	21	24	68	43	4.7	2.8	1330
15	74	33	19	19	17	21	35	67	40	4.9	1.6	144
16	149	27	19	20	18	20	713	61	29	4.6	.77	46
17	103	29	18	21	18	20	1500	56	20	3.0	.31	22
18	59	32	15	20	18	20	918	52	47	2.6	.11	14
19	41	39	20	19	18	20	404	49	57	2.0	.02	247
20	32	32	24	19	18	20	230	46	30	1.3	0	865
21	27	33	23	18	18	20	181	44	18	1.2	0	267
22	23	31	24	18	18	20	142	46	12	1.1	0	116
23	20	28	24	17	18	20	119	1250	70	1.1	0	72
24	17	27	33	19	18	19	101	628	146	.77	0	52
25	16	29	31	20	18	19	90	260	72	.62	0	41
26	16	29	30	19	18	19	81	1060	66	.49	0	34
27	16	29	32	18	18	19	74	638	49	.06	0	31
28	16	27	35	18	18	19	207	451	30	2.8	0	37
29	16	26	41	18	18	19	947	189	21	.22	0	29
30	16	18	34	18	---	18	458	118	15	.08	1.7	22
31	15	---	31	18	---	18	---	163	---	.03	.09	---
TOTAL	917	2448	689	612	521	635	6481	6846	1787	130.57	1466.24	3560.68
MEAN	29.6	81.6	22.2	19.7	18.0	20.5	216	221	59.6	4.21	47.3	119
MAX	149	840	41	29	20	29	1500	1250	188	11	541	1330
MIN	15	15	15	15	16	17	18	44	12	.03	0	0
AC-FT	1820	4860	1370	1210	1030	1260	12860	13580	3540	259	2910	7060

CAL YR 1975	TOTAL	66530.60	MEAN	182	MAX	13900	MIN	5.2	AC-FT	132000
WTR YR 1976	TOTAL	26093.49	MEAN	71.3	MAX	1500	MIN	0	AC-FT	51760

PEAK DISCHARGE (BASE, 2,500 FT<sup>3</sup>/S)

DATE	TIME	G.H.T.	DISCHARGE
4-17	0315	11.28	4,360
5-26	1445	10.72	2,880
9-14	0215	11.44	4,270

## RED RIVER BASIN

07308200 Pease River near Vernon, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPF- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)
OCT.										
01...	0910	25	14400	7.9	25.0	2300	2200	650	160	2500
NOV.										
12...	0940	39	13200	7.5	8.0	2100	2000	640	130	2300
DEC.										
16...	0920	18	14500	7.7	2.0	2400	2300	690	170	2600
JAN.										
27...	0900	19	15100	7.7	1.0	2400	2300	680	180	2600
MAR.										
09...	1350	29	12500	7.6	17.0	2300	2100	630	170	2200
APR.										
17...	1440	1080	3480	7.4	19.0	770	670	250	35	450
20...	1615	217	4770	7.6	18.0	1000	950	340	48	680
MAY										
06...	0930	140	10700	7.6	14.0	1800	1700	490	150	1700
28...	1330	408	5490	7.4	18.0	1200	1100	400	43	800
JULY										
17...	1705	4.1	12500	7.8	32.5	2200	2100	620	160	2200
AUG.										
05...	1605	494	5730	7.4	30.0	1100	970	350	48	810
SEP.										
16...	1110	45	1070	7.9	25.0	280	200	84	16	110
DATE		SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITU- ENTS) (MG/L)
OCT.										
01...	23	13	40	0	1900	4000	--	13	9280	
NOV.										
12...	22	15	178	0	1700	3700	--	9.9	8580	
DEC.										
16...	23	14	190	0	2000	4200	.5	10	9780	
JAN.										
27...	23	12	162	0	2000	4200	--	9.3	9760	
MAR.										
09...	20	14	194	0	1900	3400	--	7.6	8420	
APR.										
17...	7.1	7.0	119	0	640	730	.4	9.1	2180	
20...	9.1	5.0	112	0	940	1100	.6	9.0	3180	
MAY										
06...	17	11	160	0	1700	2900	.5	7.6	7040	
28...	10	6.5	124	0	970	1300	--	11	3590	
JULY										
17...	20	17	132	0	1800	3600	--	14	8480	
AUG.										
05...	11	12	120	0	980	1300	--	12	3570	
SEP.										
16...	2.9	7.0	90	0	220	160	.4	8.5	650	

## 127

LOCATION.--Lat 34°06'20", long 98°53'58", Wichita County, on paved county road and 5.3 miles (8.5 km) northeast of Electra.

PERIOD OF RECORD.--Occasional discharge measurements and water-quality data: November 1967 to current year.

		INSTAN- TANEOUS DIS- CHARGE	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH	TEMPER- ATURE (DEG C)	HARD- NESS (CA*MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
DATE	TIME	(CFS)		(UNITS)						
OCT. 03...	0820	.15	11500	8.0	13.0	1900	1800	310	280	1800
NOV. 11...	1555	.65	3160	7.9	17.0	580	370	130	62	410
DEC. 15...	1315	.10	5410	8.1	8.0	820	460	98	140	830
JAN. 06...	1210	1.4	5230	8.1	5.5	1000	830	220	120	650
MAR. 09...	1500	5.0	5760	7.2	11.0	1000	890	220	110	800
APR. 20...	1730	2.8	9580	7.5	18.0	1700	1700	370	200	1400
MAY 28...	1505	.16	9670	7.3	21.0	1700	1500	330	210	1400
JULY 15...	1430	.08	8420	7.5	24.0	1300	940	240	160	1400
AUG. 26...	0800	.00	--	--	--	--	--	--	--	--

[illegible]

## RED RIVER BASIN

07308500 Red River near Burkburnett, Tex.  
(National stream-quality accounting network)

LOCATION (revised).--Lat 34°06'36", long 98°31'53", Cotton County, Okla., on left bank at downstream side of bridge on U.S. Highways 277 and 281, 2.5 miles (4.0 km) northeast of Burkburnett, and at mile 933 (1,501 km).

DRAINAGE AREA.--20,570 mi<sup>2</sup> (53,280 km<sup>2</sup>), of which 5,936 mi<sup>2</sup> (15,374 km<sup>2</sup>) is probably noncontributing.

PERIOD OF RECORD.--Discharge: July 1924 to August 1925 (monthly discharge only), December 1959 to current year.

Water quality: Chemical analyses: July 1968 to current year. Water temperatures: July 1968 to current year.

GAGE.--Water-stage and specific-conductance recorder<sup>§</sup>. Datum of gage is 952.57 ft (290.343 m) above mean sea level. July 11, 1924, to Aug. 31, 1925, nonrecording gage at site 1,000 ft (305 m) downstream at same datum. Dec. 16, 1959, to Jan. 11, 1960, nonrecording gage at present site and datum.

AVERAGE DISCHARGE.--16 years (1960-76), 817 ft<sup>3</sup>/s (23.14 m<sup>3</sup>/s), 591,900 acre-ft/yr (730 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 12,600 ft<sup>3</sup>/s (357 m<sup>3</sup>/s) Sept. 14 (gage height, 9.68 ft or 2.950 m); minimum, 55 ft<sup>3</sup>/s (1.56 m<sup>3</sup>/s) Aug. 25 (gage height, 4.83 ft or 1.472 m).

Period of record: Maximum discharge, 62,800 ft<sup>3</sup>/s (1,780 m<sup>3</sup>/s) Oct. 19, 1965 (gage height, 11.46 ft or 3.493 m); maximum gage height, 12.64 ft (3.853 m) July 27, 1975; no flow at times.

Historic: Flood of June 3, 1957, reached a stage of 13.54 ft (4.127 m), from levels to floodmarks. According to local residents, higher stages occurred in 1891 and June 1941.

Water quality: Current year: Maximum daily specific conductance, 16,700 micromhos Aug. 7; minimum daily, 1,020 micromhos Aug. 31.

Period of record: Maximum daily specific conductance, 17,400 micromhos July 30, 1972; minimum daily, 889 micromhos Sept. 24, 1970. Maximum water temperatures, 35.0°C July 10, 1969; minimum, freezing point on several days during winter months.

REMARKS.--Discharge records fair. Many small diversions for irrigation upstream from station. Specific conductance is recorded continuously at this station. When codes for agencies collecting and analyzing a sample are shown in the water-quality table, the sample was collected and field data obtained by the Oklahoma District (1028), U.S. Geological Survey, and the remainder of the analysis performed by the Oklahoma State Health Department (9740).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	268	299	404	639	248	229	211	2050	2840	463	242	1430
2	262	370	393	583	237	220	218	1970	4160	347	154	582
3	262	717	375	521	242	210	201	1400	2900	271	119	641
4	262	1950	378	480	230	213	196	1110	1810	235	119	628
5	262	1710	388	456	255	211	194	918	1270	211	128	344
6	262	1760	384	411	259	205	191	739	893	289	835	223
7	247	1460	375	390	274	239	211	671	707	719	760	174
8	227	1150	384	397	296	330	225	1240	741	394	523	160
9	227	960	393	363	303	364	218	902	517	324	431	133
10	237	854	404	390	304	364	226	678	463	306	260	253
11	222	720	406	426	292	354	231	538	536	260	185	269
12	208	601	408	397	300	337	228	511	450	253	140	266
13	208	530	408	397	303	377	234	437	370	259	117	2430
14	208	496	408	376	295	330	249	503	280	248	111	8110
15	262	472	404	370	302	294	265	951	264	230	111	7600
16	313	472	404	370	310	277	812	749	804	204	106	7010
17	383	480	383	363	268	274	8090	648	1760	174	99	3810
18	903	480	383	350	262	259	7100	493	1080	162	95	5690
19	108	488	383	319	257	252	5150	388	664	154	82	6410
20	565	505	390	313	262	230	3250	325	558	139	75	6480
21	505	472	404	313	232	214	2170	284	424	162	67	4210
22	441	464	404	307	222	216	2590	268	334	154	69	2550
23	390	449	419	296	227	213	2290	301	489	169	66	1500
24	348	441	464	284	222	209	1270	1150	335	154	61	1120
25	323	440	592	284	217	212	784	1380	471	143	61	878
26	309	441	630	268	221	203	594	1500	3000	139	65	653
27	302	419	639	258	236	189	493	3020	3050	136	69	517
28	293	437	630	257	236	194	584	3220	1860	146	83	476
29	289	462	689	257	230	232	849	1930	1080	158	123	422
30	313	424	785	260	---	226	2420	2590	674	125	184	396
31	311	---	731	252	---	220	---	1790	---	182	2320	---
TOTAL	10420	20923	14242	11347	7542	7897	41744	34654	34784	7310	7860	65365
MEAN	336	697	459	366	260	255	1391	1118	1159	236	254	2179
MAX	903	1950	785	639	310	377	8090	3220	4160	719	2320	8110
MIN	208	299	375	252	217	189	191	268	264	125	61	133
AC-FT	20670	41500	28250	22510	14960	15660	82800	68740	68990	14500	15590	129700

CAL YR 1975 TOTAL 545851 MEAN 1495 MAX 52700 MIN 208 AC-FT 1083000  
WTR YR 1976 TOTAL 264088 MEAN 722 MAX 8110 MIN 61 AC-FT 523800

PEAK DISCHARGE (BASE, 9,000 FT<sup>3</sup>/S).--Apr. 17 (0630) 10,100 ft<sup>3</sup>/s (8.63 ft); Sept. 14 (1130) 12,600 ft<sup>3</sup>/s (9.68 ft).

07308500 Red River near Burkburnett, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

[illegible]



## RED RIVER BASIN

07308500 Red River near Burkburnett, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT 08...	11	156	0	1200	2200	--	13	5520	5420
NOV 06...	9.3	110	0	740	1100	.4	7.2	3090	2930
25...	--	--	--	--	--	--	--	--	--
DEC 17...	9.0	222	0	1200	2100	.6	5.5	5340	5270
22...	--	--	--	--	--	--	--	--	--
JAN 08...	10	312	0	1400	2900	.4	9.2	6600	6910
FEB 25...	10	226	0	1400	2400	.6	2.7	6150	6030
26...	--	--	--	--	--	--	--	--	--
MAR 18...	11	200	0	1400	2600	.6	1.6	6200	6290
23...	--	--	--	--	--	--	--	--	--
APR 07...	11	162	0	1200	2000	.5	1.0	5030	5030
28...	--	--	--	--	--	--	--	--	--
MAY 25...	--	--	--	--	650	--	--	--	--
27...	9.5	110	0	860	1400	.3	7.3	3760	3590
JUN 09...	14	168	0	760	1300	.6	9.2	3480	3320
23...	--	--	--	--	--	--	--	--	--
JUL 22...	13	124	0	1300	2100	.6	7.3	5520	5320
29...	--	--	--	--	--	--	--	--	--
AUG 04...	13	71	0	1000	1500	.6	7.4	3990	3910
26...	--	--	--	--	--	--	--	--	--
SEP 16...	6.5	92	0	190	230	.4	8.9	777	726
29...	--	--	--	--	--	--	--	--	--

DATE	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	SUS- PENDE SEDI- MENT (MG/L)	SUS- PENDE SEDI- MENT DIS- CHARGE (T/DAY)	SUS- SED. SIEVE DIAM. % FINER THAN .062 MM
OCT 08...	--	.01	.00	.73	.07	7.4	139	85	49
NOV 06...	.18	.01	.24	1.6	.95	--	3460	15500	76
25...	--	--	--	--	.78	--	--	--	--
DEC 17...	.31	.01	.08	.37	.11	--	235	243	8
22...	--	--	--	--	.00	--	--	--	--
JAN 08...	.84	.03	.21	.16	.15	--	320	337	10
FEB 25...	.05	.01	.13	.43	.07	4.6	169	99	8
26...	--	--	--	--	.64	--	--	--	--
MAR 18...	.00	.00	.02	.53	.09	--	92	64	19
23...	--	--	--	--	.09	--	--	--	--
APR 07...	.00	.01	.03	.82	.07	--	43	25	45
28...	--	--	--	--	.18	--	--	--	--
MAY 25...	--	--	--	--	1.1	--	--	--	--
27...	.37	.04	.29	2.8	.84	--	7490	68800	65
JUN 09...	.00	.00	.05	1.0	.24	13	464	653	67
23...	--	--	--	--	.20	--	--	--	--
JUL 22...	.01	.00	.05	1.4	.13	--	251	108	35
29...	--	--	--	--	.18	--	--	--	--
AUG 04...	.00	.00	.01	1.3	.13	2.4	42	13	89
26...	--	--	--	--	<.08	--	--	--	--
SEP 16...	.12	.01	.05	12	.57	--	3180	60100	91
29...	--	--	--	--	.17	--	--	--	--

## RED RIVER BASIN

131

07308500 Red River near Burkburnett, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	DIS- SOLVED ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)
OCT 08...	--	--	1400	0	2	1	670	0	0	<10	0
NOV 25...	1028	9740	--	--	2	--	--	10	--	10	--
DEC 22...	1028	9740	1430	--	--	--	--	--	--	--	--
FEB 25...	--	--	1300	10	3	3	710	0	4	10	0
26...	1028	9740	0800	--	4	--	--	10	--	6	--
MAR 23...	1028	9740	1500	--	--	--	--	--	--	--	--
APR 28...	1028	9740	0930	--	--	--	--	--	--	--	--
MAY 25...	1028	9740	1730	--	21	--	--	<10	--	140	--
JUN 09...	--	--	0900	20	10	4	380	0	0	40	0
23...	1028	9740	1330	--	--	--	--	--	--	--	--
JUL 29...	1028	9740	0930	--	--	--	--	--	--	--	--
AUG 04...	--	--	1500	30	5	5	--	0	0	<10	0
26...	1028	9740	0900	--	13	--	--	4	--	25	--
SEP 29...	1028	9740	0900	--	--	--	--	--	--	--	--

DATE	TOTAL COBALT (CO) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
OCT 08...	0	0	2	0	780	10	0	0	90	60	0
NOV 25...	--	--	10	--	300	--	20	--	--	--	--
DEC 22...	--	--	--	--	100	--	--	--	--	--	--
FEB 25...	0	0	1	0	0	30	0	0	90	0	20
26...	--	--	10	--	300	--	30	--	--	130	--
MAR 23...	--	--	--	--	200	--	--	--	--	--	--
APR 28...	--	--	--	--	1300	--	--	--	--	220	--
MAY 25...	--	--	70	--	44000	--	50	--	--	940	--
JUN 09...	2	0	11	2	6100	40	6	6	50	200	10
23...	--	--	--	--	1300	--	--	--	--	180	--
JUL 29...	--	--	--	--	900	--	--	--	--	158	--
AUG 04...	0	0	6	0	1700	10	4	0	70	60	0
26...	--	--	11	--	300	--	22	--	--	--	--
SEP 29...	--	--	--	--	1100	--	--	--	--	125	--

## RED RIVER BASIN

07308500 Red River near Burkburnett, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL MERCURY (HG) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
OCT 08...	.2	.0	--	0	--	4	--	4900	40	10
NOV 25...	--	--	20	--	--	--	<10	--	10	--
DEC 22...	--	--	--	--	--	--	--	--	--	--
FEB 25...	.1	.1	--	0	5	3	--	6600	20	0
FEB 26...	--	--	20	--	--	--	<10	--	10	--
MAR 23...	--	--	--	--	--	--	--	--	--	--
APR 28...	--	--	--	--	--	--	--	--	--	--
MAY 25...	<.5	--	100	--	5	--	<10	--	250	--
JUN 09...	.0	.0	--	0	1	0	--	3300	50	10
JUN 23...	--	--	--	--	--	--	--	--	--	--
JUL 29...	--	--	--	--	--	--	--	--	--	--
AUG 04...	.2	.2	--	0	2	2	--	4000	20	20
AUG 26...	<.5	--	21	--	6	--	4	--	8	--
SEP 29...	--	--	--	--	--	--	--	--	--	--

DATE	TIME	TOTAL PCB (UG/L)	POLY- CHLO- RINATED NAPH- THA- LENES (UG/L)	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL CHLOR- DANE (UG/L)	CHLOR- DANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDD (UG/L)	DDD IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDE (UG/L)	DDE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDT (UG/L)
DEC 17...	1200	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND
JAN 08...	1600	.0	--	.00	--	.0	--	.00	--	.00	--	.00
FEB 25...	1300	.0	.00	.00	--	.0	--	.00	--	.00	--	.00
FEB 25...	1315	--	--	ND	--	ND	--	ND	--	ND	--	ND
MAY 27...	1400	--	--	ND	ND	ND	ND	ND	ND	.02	.4	ND
AUG 04...	1500	--	--	ND	--	ND	--	ND	--	ND	--	ND

DATE	DDT IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DI- AZINON (UG/L)	DI- AZINON IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DI- ELDRIN (UG/L)	DI- ELDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ENDRIN (UG/L)	ENDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ETHION (UG/L)	ETHION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL HEPTA- CHLOR (UG/L)	HEPTA- CHLOR IN BOTTOM MA- TERIAL (UG/KG)
DEC 17...	ND	ND	--	ND	ND	ND	ND	ND	--	ND	ND
JAN 08...	--	.00	--	.00	--	.00	--	.00	--	.00	--
FEB 25...	--	.00	--	.00	--	.00	--	.00	--	.00	--
FEB 25...	--	ND	--	ND	--	ND	--	ND	--	ND	--
MAY 27...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 04...	--	ND	--	ND	--	ND	--	ND	--	ND	--

07308500 Red River near Burkburnett, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL HEPTA- CHLOR EPOXIDE (UG/L)	HEPTA- CHLOR EPOXIDE IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL LINDANE (UG/L)	LINDANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL MALA- THION (UG/L)	MALA- THION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL METH- OXY- CHLOR (UG/L)	METHOX- YCHLOR IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL METHYL PARA- THION (UG/L)	METHYL PARA- THION IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL METHYL TRI- THION (UG/L)
DEC 17...	ND	ND	ND	ND	ND	--	ND	ND	ND	--	ND
JAN 08...	.00	--	.00	--	.00	--	--	--	.00	--	.00
FEB 25...	.00	--	.00	--	.00	--	--	--	.15	--	.00
MAY 25...	ND	--	ND	--	ND	--	ND	--	ND	--	ND
MAY 27...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 04...	ND	--	ND	--	ND	--	ND	--	ND	--	ND

DATE	METHYL TRI- THION IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL PARA- THION (UG/L)	PARA- THION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL TOX- APHENE (UG/L)	TOX- APHENE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	TRI- THION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ATRA- ZINE (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)
DEC 17...	--	ND	--	ND	ND	ND	--	ND	ND	ND	ND
JAN 08...	--	.00	--	0	--	.00	--	--	.00	.00	.00
FEB 25...	--	.00	--	0	--	.00	--	--	.00	.00	.00
MAY 25...	--	ND	--	ND	--	ND	--	ND	ND	ND	ND
MAY 27...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 04...	--	ND	--	ND	--	ND	--	ND	ND	ND	ND

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

## PERIPHYTON

Date	Length of exposure (days)	Biomass (g/m <sup>2</sup> )		Chlorophyll a (mg/m <sup>2</sup> )	Chlorophyll b (mg/m <sup>2</sup> )	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight				
JAN. 08	22	0.0	0.0	0.0	0.0	0.0	Polyethylene strip
MAR. 18	22	6.6	5.5	1.8	.0	650	Polyethylene strip
JULY 22	43	1.92	1.31	.249	.000	2500	Polyethylene strip
AUG. 04	13	35.7	34.0	.000	.000	.0	Polyethylene strip

07308500 Red River near Burkburnett, Tex.--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

OCT. 8, 1975 1400 HOURS

PHYTOPLANKTON 28,000 CELLS/ML

ORGANISM__NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...MICRACTINIACEAE		
...MICRACTINIUM	380	1
...OCCYSTACEAE		
...ANKISTRODESMUS	2,900	10
...CHODATELLA		0
...KIRCHNERIELLA		0
...SCENEDESMACEAE		
...SCENEDESMUS	8,700	31
...VOLVOCALES		
...CHLAMYDOMONADACEAE		
...CHLAMYDOMONAS		0
...CHLOROCOCCALES		
...OCCYSTACEAE		
...GLOEOACTINIUM	1,500	6
CHRYSTOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
...CYCLOTELLA	9,200	33
...MELOSIRA		0
..PENNALES		
...NAVICULACEAE		
...NAVICULA		0
...NITZSCHIA		
...NITZSCHIA	860	3
...SURIPELLACEAE		
...SURIPELLA	570	2
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
...CHROOCOCCACEAE		
...AGMENELLUM	760	3
...ANACYSTIS	1,900	7
...OSCILLATORIALES		
...OSCILLATORIA	570	2

NOV. 6, 1975 1000 HOURS

PHYTOPLANKTON 9,100 CELLS/ML

ORGANISM__NAME	CELLS/ML	PER_CENT
CHRYSTOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
...CYCLOTELLA	1,600	18
..PENNALES		
...CYMBELLACEAE		
...AMPHORA	820	9
...NAVICULACEAE		
...NAVICULA	820	9
...NITZSCHIA		
...NITZSCHIA	820	9
...NITZSCHIA	4,100	45
...SURIPELLACEAE		
...CYMATOPLEURA	820	9

DEC. 17, 1975 1200 HOURS

PHYTOPLANKTON 6,000 CELLS/ML

ORGANISM__NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...OCCYSTACEAE		
...DICTYOSPHAERIUM	220	4
...SCENEDESMACEAE		
...SCENEDESMUS		0
...VOLVOCALES		
...CHLAMYDOMONADACEAE		
...CHLAMYDOMONAS	670	11
CHRYSTOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
...CYCLOTELLA		0
..PENNALES		
...NAVICULACEAE		
...AMPHIPRORA	110	2
...NAVICULA	440	7
...NITZSCHIA		
...NITZSCHIA	1,900	33
CYANOPHYTA		
..MYXOPHYCEAE		
..OSCILLATORIALES		
...OSCILLATORIA	2,600	43

JAN. 8, 1976 1600 HOURS

PHYTOPLANKTON 1,700 CELLS/ML

ORGANISM__NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...OCCYSTACEAE		
...ANKISTRODESMUS	75	4
...SCENEDESMACEAE		
...SCENEDESMUS		0
CHRYSTOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
...CYCLOTELLA	300	17
..PENNALES		
...FRAGILARIACEAE		
...SYNEDRA	150	9
...NAVICULACEAE		
...AMPHIPRORA	75	4
...NAVICULA	750	43
...TROPIDONEIS		0
...NITZSCHIA		
...NITZSCHIA	75	0
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
...CHROOCOCCACEAE		
...ANACYSTIS	300	17
...OSCILLATORIALES		
...OSCILLATORIA		0
EUGLENOPHYTA		
..EUGLENOPHYCEAE		
..EUGLENES		
...EUGLENACEAE		
...PHACUS		0

07308500 Red River near Burkburnett, Tex.--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

FEB. 25, 1976 1300 HOURS

PHYTOPLANKTON 19,000 CELLS/ML

ORGANISM__NAME_____	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...SCENEDESMACEAE		0
...SCENEDESMUS		
...VOLVOCALES		
...CHLAMYDOMONADACEAE		
...CARTERIA	2,400	13
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCEAE		
...CYCLOTELLA	14,000	77
..PENNALES		
...NAVICULACEAE		
...AMPHIPRORA	920	5
...GYROSIGMA		0
...NAVICULA	510	3
...NITZSCHIA		
...NITZSCHIA	100	1
EUGLENOPHYTA		
..EUGLENOPHYCEAE		
..EUGLENALES		
...EUGLENACEAE		
....EUGLENA	410	2

MAR. 18, 1976 1500 HOURS

PHYTOPLANKTON 38,000 CELLS/ML

ORGANISM__NAME_____	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...OCCYSTACEAE		0
...ANKISTRODESMUS		
...CHLORELLA	6,200	16
...DICTYOSPHAERIUM		0
...KIRCHNERITELLA	600	2
...OCCYSTIS		0
...TETRAEDRON		0
...SCENEDESMACEAE		
...SCENEDESMUS	800	2
...VOLVOCALES		
...CHLAMYDOMONADACEAE		
...CHLAMYDOMONAS		0
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCEAE		
...CYCLOTELLA	14,000	38
..PENNALES		
...FRAGILARIACEAE		
...SYNEDRA		0
...NAVICULACEAE		
...AMPHIPRORA	1,400	4
...CALONEIS		0
...GYROSIGMA		0
...NAVICULA	1,800	5
...NEIDIUM		0
...NITZSCHIA		
...NITZSCHIA	1,400	4
CYANOPHYTA		
..MYXOPHYCEAE		
...CHROOCOCCALES		
...CHROOCOCCACEAE		
...ANACYSTIS	11,000	30
...OSCILLATORIALES		
...OSCILLATORIA		0
EUGLENOPHYTA		
..EUGLENOPHYCEAE		
..EUGLENALES		
...EUGLENACEAE		
....EUGLENA	200	1

APR. 7, 1976 1200 HOURS

PHYTOPLANKTON 98,000 CELLS/ML

ORGANISM__NAME_____	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...OCCYSTACEAE		
...ANKISTRODESMUS	2,700	3
...SCENEDESMACEAE		
...SCENEDESMUS	19,000	19
...VOLVOCALES		
...CHLAMYDOMONADACEAE		
...CHLAMYDOMONAS	1,200	1
...VOLVOCAEAE		
...GONIUM	4,200	4
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCEAE		
...CYCLOTELLA	3,900	4
..PENNALES		
...NAVICULACEAE		
...NAVICULA	2,700	3
...NITZSCHIA		
...NITZSCHIA	4,200	4
CYANOPHYTA		
..MYXOPHYCEAE		
...CHROOCOCCALES		
...CHROOCOCCACEAE		
...ANACYSTIS	27,000	28
...OSCILLATORIALES		
...OSCILLATORIA		
...OSCILLATORIA	33,000	34

MAY 27, 1976 1400 HOURS

PHYTOPLANKTON 1,500 CELLS/ML

ORGANISM__NAME_____	CELLS/ML	PER_CENT
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCEAE		
...CYCLOTELLA	91	6
..PENNALES		
...CYMBELLACEAE		
...AMPHORA	180	12
...FRAGILARIACEAE		
...SYNEDRA	91	6
...NAVICULACEAE		
...CALONEIS	180	12
...GYROSIGMA	91	6
...NAVICULA	460	31
...NITZSCHIA		
...NITZSCHIA	180	12
...NITZSCHIA	91	6
EUGLENOPHYTA		
..EUGLENOPHYCEAE		
..EUGLENALES		
...EUGLENACEAE		
...TRACHELOMONAS	91	6



07308500 Red River near Burkburnett, Tex.--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

JUNE 9, 1976 0900 HOURS

PHYTOPLANKTON 100,000 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
..COELASTRACEAE		
..COELASTRUM	11,000	11
..OCCYSTACEAE		
..ANKISTRODESMUS	2,800	3
..KIRCHNERIELLA	1,100	1
..OOCYSTIS	1,400	1
..WESTELLA	17,000	17
..SCENEDESMACEAE		
..SCENEDESMUS	7,800	8
..VOLVOCALES		
..CHLAMYDOMONADACEAE		
..CHLAMYDOMONAS	710	1
CHRYSTOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
..COSCINODISCACEAE		
..CYCLOTELLA	13,000	13
..MELOSIRA	12,000	12
..PENNALES		
..FRAGILARIACEAE		
..SYNEDRA		0
..NAVICULACEAE		
..NAVICULA	710	1
..NITZSCHIA		
..NITZSCHIA	5,100	6
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
..CHROOCOCCACEAE		
..ANACYSTIS	11,000	11
..OSCILLATORIALES		
..OSCILLATORIA	14,000	14
EUGLENOPHYTA		
..EUGLENOPHYCEAE		
..EUGLENALES		
..EUGLENA		0
..EUGLENA		0
..TRACHELOMONAS	1,800	2
PYRRHOPHYTA		
..DINOPHYCEAE		
..PERIDINIALES		
..PERIDINIAEAE		
..PERIDINIUM		0

JULY 22, 1976 1400 HOURS

PHYTOPLANKTON 230,000 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
..CHARACIACEAE		
..SCHROEDERIA		0
..OCCYSTACEAE		
..ANKISTRODESMUS		0
..DICTYOSPHAERIUM	4,800	2
..OOCYSTIS	5,400	2
..SCENEDESMACEAE		
..ACTINASTRUM	2,400	1
..SCENEDESMUS	1,200	1
..VOLVOCALES		
..CHLAMYDOMONADACEAE		
..CARTERIA	1,800	1
CHRYSTOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
..COSCINODISCACEAE		
..CYCLOTELLA	7,300	3
..MELOSIRA		0
..PENNALES		
..NITZSCHIA		
..NITZSCHIA	3,000	1
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
..CHROOCOCCACEAE		
..ANACYSTIS	14,000	6
..OSCILLATORIALES		
..NOSTOCACEAE		
..ANABAENOPSIS	11,000	5
..APHANIZOMENON	36,000	16
..OSCILLATORIAEAE		
..OSCILLATORIA	140,000	60

AUG. 4, 1976 1500 HOURS

PHYTOPLANKTON 260,000 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
..OCCYSTACEAE		0
..ANKISTRODESMUS		0
..OOCYSTIS		
..SCENEDESMACEAE		
..ACTINASTRUM		0
..SCENEDESMUS	3,100	1
CHRYSTOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
..COSCINODISCACEAE		
..CYCLOTELLA	3,000	1
..PENNALES		
..NITZSCHIAEAE		
..NITZSCHIA	2,100	1
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
..CHROOCOCCACEAE		
..ANACYSTIS		0
..OSCILLATORIALES		
..NOSTOCACEAE		
..APHANIZOMENON	22,000	9
..CYLINDROSPERMUM	3,100	1
..OSCILLATORIAEAE		
..OSCILLATORIA	220,000	86
PYRRHOPHYTA		
..DINOPHYCEAE		
..PERIDINIALES		
..GLENODINIAEAE		
..GLENODINIUM		0

SEP. 16, 1976 1330 HOURS

PHYTOPLANKTON 280 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHRYSTOPHYTA		
..BACILLARIOPHYCEAE		
..PENNALES		
..ACHNANTHACEAE		
..COCCONEIS	94	33
..NAVICULACEAE		
..GYROSTIGMA	94	33
..NITZSCHIAEAE		
..NITZSCHIA	94	33

## RED RIVER BASIN

137

07308500 Red River near Burkburnett, Tex.--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	10420	7590	4820	136000	1900	53400	1140	32100	1400
NOV. 1975.....	20923	6240	3900	220000	1460	82200	1000	56600	1160
DEC. 1975.....	14242	7950	5070	195000	2010	77200	1190	45800	1460
JAN. 1976.....	11347	9180	5910	181000	2410	73900	1310	40100	1670
FEB. 1976.....	7312	8850	5690	112000	2310	45500	1280	25200	1620
MAR. 1976.....	7897	8560	5480	117000	2210	47100	1250	26600	1570
APR. 1976.....	41744	4790	2910	328000	1060	120000	760	85400	910
MAY 1976.....	34654	5990	3730	349000	1380	129000	970	90900	1120
JUNE 1976.....	34784	4560	2770	261000	1030	97200	700	65300	870
JULY 1976.....	7310	8580	5500	109000	2220	43700	1250	24700	1570
AUG. 1976.....	7860	7300	4660	98800	1900	40300	1030	21800	1350
SEPT 1976.....	65365	1620	940	166000	360	62900	200	35200	360
TOTAL .....	263858	**	**	2270000	**	972000	**	550000	**
WTD.AVG. ....	722.9	5120	3200	**	1200	**	770	**	970

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8710	8110	8430	10700	8560	8890	8350	4860	3960	6540	6010	1120
2	8760	7230	8440	10200	8520	8740	8160	5000	2680	6800	4560	1880
3	8650	6500	8240	9760	8460	8820	7950	4510	2650	6910	5550	2250
4	8500	4420	8020	9280	8530	8740	8010	4600	3350	7000	6180	2210
5	8480	5550	7920	8810	8350	8820	7990	5000	3850	7220	6400	2520
6	8470	4810	8050	9620	8340	8890	7950	7750	3920	7650	8400	2840
7	8440	4790	8170	10100	8350	8630	7860	7960	4740	12100	16700	3180
8	8510	4540	8280	10400	8250	7520	7770	5910	5260	12400	10600	4790
9	8470	4850	8160	10600	8320	7130	7950	5540	5320	11100	11100	5910
10	8440	5320	8080	9120	8460	7340	8020	6400	6210	10100	10500	5070
11	8430	5880	8020	8810	8570	7560	7950	6770	7810	9830	9500	4750
12	8570	6370	7960	9020	8680	7830	7710	6950	7370	8910	9170	3960
13	8570	6740	8020	9170	8830	7090	8350	7410	6210	8720	9060	1740
14	8580	6900	8120	8860	9020	8050	7890	7050	6100	7830	9010	1080
15	8350	7040	8020	8360	9070	9020	8210	6100	6030	7120	8680	1310
16	7950	7150	8170	8640	9140	9180	8200	5420	6490	6960	7980	1320
17	7880	7340	8210	8630	9170	9620	4600	4730	3070	7040	7240	1080
18	6600	7340	8180	8640	9230	9400	4790	4650	2500	7590	6820	1170
19	4000	7450	8210	8570	9310	9100	3530	5300	2650	7700	6770	1240
20	4250	7190	8250	8640	9230	9070	3380	5950	3460	7560	6520	1260
21	6550	7340	8110	8780	9440	9050	3170	6500	3690	7340	6330	1690
22	7040	7510	8090	8860	9350	9030	3510	6580	4820	8570	6400	2220
23	6830	7670	8050	8720	9230	9020	3220	6780	5100	8100	6410	2380
24	7430	7840	7760	8600	9310	9100	3640	5000	5540	8030	6400	2810
25	7880	8020	6500	8570	9280	9020	3710	3120	6200	9620	6350	3810
26	8330	8350	6250	8490	9210	9100	4400	3380	5800	9190	6280	3900
27	8370	8350	6110	8570	9140	9180	4890	5670	7440	8100	6700	4860
28	8370	8370	6160	8470	9060	9270	4670	7460	4640	7560	6080	4650
29	8270	8390	8020	8540	8900	8940	4110	6540	5670	6540	5590	4770
30	8200	8400	8870	8640	---	9180	5080	5680	6800	6500	5450	4860
31	8110	---	10000	8710	---	8890	---	4480	---	6580	1020	---
MONTH	7870	6860	7960	9060	8870	8680	6170	5780	4980	8170	7410	2890

## RED RIVER BASIN

07308500 Red River near Burkburnett, Tex.--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.0	18.0	2.0	---	12.0	19.0	10.0	---	---	29.0	34.0	23.0
2	21.0	17.0	---	---	6.0	20.0	---	---	---	25.0	27.0	23.0
3	---	17.0	6.0	---	7.0	10.0	20.0	---	---	---	25.0	23.0
4	21.0	16.0	8.0	---	5.0	13.0	---	---	---	---	22.0	27.0
5	---	17.0	15.0	5.0	4.0	3.0	---	---	24.0	---	26.0	26.0
6	23.0	16.0	---	7.0	---	10.0	22.0	---	24.0	---	24.0	29.0
7	23.0	18.0	---	0.0	4.0	8.0	17.0	---	21.0	---	31.0	22.0
8	23.0	19.0	9.0	0.0	10.0	---	21.0	---	22.0	---	29.0	24.0
9	26.0	---	11.0	---	10.0	6.0	21.0	---	22.0	---	30.0	18.0
10	24.0	---	11.0	5.0	12.0	8.0	23.0	---	22.0	---	30.0	18.0
11	25.0	16.0	8.0	4.0	12.0	12.0	---	---	---	---	26.0	20.0
12	25.0	10.0	8.0	---	16.0	10.0	22.0	---	---	---	23.0	20.0
13	---	---	15.0	9.0	19.0	---	22.0	---	28.0	---	31.0	20.0
14	20.0	---	---	9.0	12.0	---	23.0	---	28.0	---	23.0	19.0
15	---	---	7.0	10.0	---	13.0	21.0	---	---	---	26.0	22.0
16	15.0	---	8.0	10.0	17.0	14.0	21.0	---	26.0	---	24.0	23.0
17	15.0	17.0	2.0	---	16.0	17.0	17.0	---	27.0	---	26.0	24.0
18	18.0	14.0	---	12.0	15.0	18.0	16.0	---	22.0	---	27.0	24.0
19	---	17.0	4.0	8.0	15.0	22.0	17.0	---	---	27.0	23.0	22.0
20	14.0	5.0	6.0	3.0	15.0	---	19.0	---	27.0	25.0	23.0	21.0
21	---	7.0	---	3.0	7.0	---	19.0	---	---	29.0	22.0	19.0
22	17.0	---	---	4.0	---	10.0	17.0	---	28.0	28.0	31.0	20.0
23	16.0	---	6.0	14.0	14.0	18.0	22.0	---	---	25.0	22.0	20.0
24	16.0	8.0	---	10.0	13.0	17.0	23.0	---	27.0	24.0	23.0	22.0
25	---	2.0	---	---	16.0	24.0	---	---	29.0	26.0	21.0	22.0
26	16.0	2.0	---	1.0	17.0	19.0	14.0	---	---	27.0	23.0	23.0
27	18.0	2.0	---	0.0	17.0	18.0	14.0	---	---	28.0	22.0	20.0
28	17.0	---	5.0	2.0	17.0	17.0	---	---	28.0	26.0	23.0	15.0
29	15.0	---	---	4.0	---	14.0	13.0	---	---	28.0	25.0	16.0
30	15.0	---	5.0	6.0	---	9.0	14.0	---	25.0	28.0	23.0	17.0
31	19.0	---	---	10.0	---	---	---	---	---	28.0	22.0	---
MONTH	---	---	---	---	12.5	14.0	18.5	---	---	---	25.5	21.5

07311600 North Fork Wichita River near Paducah, Tex.

LOCATION.--Lat 33°57'02", long 100°03'52", Cottle County, near center of stream on downstream side of county bridge, 4 miles (6 km) downstream from Cottonwood Creek, 7 miles (11 km) downstream from Salt Creek, 10 miles (16 km) upstream from Middle Fork, 14 miles (23 km) southeast of Paducah, and at mile 211.3 (340.0 km).

DRAINAGE AREA.--540 mi<sup>2</sup> (1,399 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: 1951-54 (occasional low-flow measurements), July 1961 to current year.

Water quality: Chemical analyses: October 1967 to September 1976 (discontinued). Water temperatures: October 1967 to September 1976 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 1,530 ft (466 m), from topographic map.

AVERAGE DISCHARGE.--15 years, 19.9 ft<sup>3</sup>/s (0.564 m<sup>3</sup>/s), 0.50 in/yr (13 mm/yr), 14,420 acre-ft/yr (17.8 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 4,120 ft<sup>3</sup>/s (117 m<sup>3</sup>/s) Aug. 4 (gage height, 10.62 ft or 3.237 m); minimum, 6.7 ft<sup>3</sup>/s (0.19 m<sup>3</sup>/s) Aug. 2; minimum gage height, 2.66 ft (0.811 m) Sept. 17.

Period of record: Maximum discharge, 9,920 ft<sup>3</sup>/s (281 m<sup>3</sup>/s) Aug. 25, 1966 (gage height, 15.3 ft or 4.66 m, from floodmarks); minimum, 0.3 ft<sup>3</sup>/s (0.008 m<sup>3</sup>/s) Sept. 1-4, 1964 (gage height, 4.35 ft or 1.326 m); minimum gage height, 2.66 ft (0.811 m) Sept. 17, 1976.

Historic: Maximum stage since at least 1908, 29.5 ft (8.99 m) in October 1955; flood in May or June 1956 reached a stage of 27 ft (8.2 m), from information by local resident.

Water quality: Current year: Maximum daily specific conductance, 23,500 micromhos Aug. 2; minimum daily, 750 micromhos Aug. 4.

Minimum water temperatures, 3.0°C Jan. 4, 7.

Period of record: Maximum daily specific conductance, 37,500 micromhos Sept. 22, 1968; minimum daily, 418 micromhos Sept. 25, 1974.

Maximum water temperatures, 34.0°C July 4, Aug. 10, 1973; minimum, freezing point on several days during winter months.

REMARKS.--Discharge records good. One small diversion for irrigation above station. Specific conductance, recorded continuously at this station, was discontinued.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	14	12	12	8.5	12	13	19	12	9.9	7.3	13
2	14	35	13	11	8.5	12	13	16	12	9.8	7.2	11
3	13	30	13	11	8.5	11	13	14	12	9.8	1030	11
4	13	17	13	11	7.9	12	13	14	12	9.8	1330	11
5	13	15	13	12	8.5	11	13	14	12	9.6	66	11
6	13	14	12	11	7.9	11	13	13	11	9.6	35	10
7	13	14	12	9.6	6.5	14	14	13	11	9.5	28	10
8	13	14	13	11	8.5	15	16	13	11	9.4	21	11
9	13	14	13	11	8.5	13	14	13	11	9.4	18	10
10	12	13	13	11	7.9	13	13	13	11	9.7	16	10
11	12	13	13	10	7.9	13	12	13	11	10	15	10
12	12	13	13	11	9.1	12	13	13	11	10	13	10
13	12	13	14	10	9.1	11	17	13	11	9.6	12	10
14	14	13	13	10	9.4	12	14	13	12	9.8	12	9.7
15	16	14	12	10	9.4	12	55	13	10	9.8	11	9.7
16	16	14	12	10	9.2	12	454	13	10	10	11	9.3
17	16	14	12	10	9.0	12	207	13	10	9.7	10	9.3
18	15	14	12	10	9.3	12	99	13	10	9.3	10	9.9
19	13	17	12	9.4	9.7	12	30	13	11	9.1	10	113
20	13	14	13	9.0	9.9	11	19	13	10	9.0	9.7	110
21	13	13	12	9.1	7.9	12	18	13	11	8.5	9.7	23
22	13	13	13	9.3	9.0	12	16	13	23	8.6	9.3	15
23	13	13	12	9.5	9.4	12	16	15	18	8.8	9.3	14
24	12	13	15	9.2	10	12	14	14	15	8.7	9.6	13
25	12	13	15	8.8	10	13	13	13	11	8.7	11	13
26	13	12	13	8.9	10	12	13	13	11	8.9	10	13
27	13	14	13	9.0	11	12	14	12	11	8.4	9.7	15
28	12	14	12	9.1	11	12	50	13	10	8.0	12	63
29	12	14	12	9.2	11	12	204	12	9.8	8.7	12	22
30	12	11	12	9.2	---	11	30	12	9.8	8.3	11	14
31	13	---	12	8.5	---	12	---	14	---	7.6	15	---
TOTAL	408	449	394	309.8	264.5	375	1443	416	350.6	286.0	2790.8	613.9
MEAN	13.2	15.0	12.7	9.99	9.12	12.1	48.1	13.4	11.7	9.23	90.0	20.5
MAX	16	35	15	12	11	15	454	19	23	10	1330	113
MIN	12	11	12	8.5	7.9	11	12	12	9.8	7.6	7.2	9.3
AC-FT	809	891	781	614	525	744	2860	825	695	567	5540	1220
CAL YP 1975	TOTAL	9863.5	MEAN	27.0	MAX	1600	MIN	8.5	AC-FT	19560		
WTR YR 1976	TOTAL	8100.6	MEAN	22.1	MAX	1330	MIN	7.2	AC-FT	16070		

PEAK DISCHARGE (BASE, 400 FT<sup>3</sup>/S)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
4-16	0915	6.01	812	8-4	0215	10.62	4,120
4-29	0215	5.49	606	9-19	2130	5.60	520

## RED RIVER BASIN

07311600 North Fork Wichita River near Paducah, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG)	DIS-SOLVED SODIUM (NA) (MG/L)
OCT 21...	0915	15	20200	--	17.0	2700	--	780	180	--
JAN 27...	0835	9.1	20500	--	.0	2700	--	790	180	--
FEB 17...	1600	9.0	20500	--	15.0	2700	--	800	180	--
MAR 30...	1045	13	21400	--	12.0	2900	--	850	180	--
APR 20...	0845	20	13100	--	15.0	1600	--	470	110	--
JUL 13...	0850	9.6	22100	--	24.0	2800	--	860	170	--
AUG 03...	1245	560	5320	7.5	23.0	730	590	230	38	890
03...	1355	980	1580	7.6	27.0	290	150	95	12	220

DATE	SODIUM ADSORPTION RATIO	DIS-SOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT 21...	--	--	--	--	2400	6300	--	--	--
JAN 27...	--	--	--	--	2500	6600	--	--	--
FEB 17...	--	--	--	--	2500	6400	--	--	--
MAR 30...	--	--	--	--	2400	6600	--	--	--
APR 20...	--	--	--	--	1400	4000	--	--	--
JUL 13...	--	--	--	--	2400	6800	--	--	--
AUG 03...	14	11	169	0	540	1400	--	13	3210
03...	5.7	7.5	166	0	160	330	.5	1	918

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	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. 1975.....	408	20300	13800	15200	6550	7220	2200	2420	****
NOV. 1975.....	449	18400	12300	14900	5830	7060	1990	2410	****
DEC. 1975.....	394	20000	13600	14400	6440	6860	2170	2310	****
JAN. 1976.....	309.8	20000	13500	11300	6430	5380	2160	1810	****
FEB. 1976.....	253.5	20800	14100	9670	6720	4600	2250	1540	****
MAR. 1976.....	375	20800	14100	14300	6730	6810	2250	2280	****
APR. 1976.....	1443	7410	4770	18600	2130	8300	840	3250	910
MAY 1976.....	416	19600	13200	14900	6290	7070	2120	2380	****
JUNE 1976.....	350.6	20100	13600	12900	6470	6120	2170	2060	****
JULY 1976.....	285	22600	15500	11900	7380	5700	2450	1890	****
AUG. 1976.....	2790.8	2810	1820	13800	750	5650	350	2610	420
SEPT 1976.....	613.9	12800	8360	13900	3890	6450	1350	2240	****
TOTAL .....	8089.59	**	**	166000	**	77200	**	27200	**
WTD.AVG. ....	22.16	11300	7600	**	3500	**	1200	**	*****

## RED RIVER BASIN

141

07311600 North Fork Wichita River near Paducah, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20200	20400	20200	19600	20600	20600	21200	11400	20800	21600	23400	22200
2	20300	12200	20700	19400	20900	20700	21200	16200	20200	22200	23500	18300
3	20300	13100	20100	20100	20600	20800	21400	17700	21100	22400	1160	19700
4	20300	15800	20300	20400	20700	20700	21300	17900	21200	22300	750	19700
5	20300	16100	20300	20400	20600	20700	21300	18300	20500	22200	1290	20800
6	20300	17000	20200	16200	20600	20700	21300	18700	20600	22200	2760	21600
7	20300	18100	20300	19300	20700	20300	21100	19400	20800	22300	3990	21900
8	20300	18600	20300	17000	20700	20000	20900	19600	20800	22300	5070	21800
9	20300	19100	20100	20400	20700	20300	21500	19800	20800	22200	7330	22200
10	20300	19100	20400	20400	20700	20500	20900	20000	21200	22700	10200	22100
11	20300	19400	20400	20100	20600	20600	21700	20300	21000	22400	12400	22100
12	20400	19600	19900	20200	20600	20700	21400	20200	21500	22300	14100	22200
13	20400	20000	19900	20200	20700	20700	21100	20200	21400	22100	16800	22200
14	20400	20000	20100	20100	20500	20900	20700	20600	21100	22100	18400	22200
15	19900	20000	19200	20500	20700	20800	3680	20600	21400	22100	19500	22400
16	20100	20000	19400	20100	20800	20800	4070	20700	22300	22200	20200	22700
17	20200	20200	19300	20500	20700	20700	3720	20700	22200	22400	20800	22800
18	20300	20300	19600	20300	20800	20900	6340	21000	22200	22500	20800	22500
19	20400	18700	20200	20500	20900	20800	8750	20800	21800	22700	20800	6830
20	20400	20000	20100	20500	20900	21100	14400	21000	22000	22900	21200	6390
21	20200	20100	20100	20400	21000	20700	15700	20700	21700	23200	21000	8010
22	20200	20300	19900	20600	20900	20900	17600	20900	13200	23200	21200	12100
23	20400	20000	20300	20600	21100	20900	17600	19700	14100	23000	21200	15700
24	20400	20400	19500	20300	21000	21000	18500	20200	20900	23100	21600	18000
25	20400	20000	19700	20300	20800	21000	19600	20600	17800	22900	22000	20100
26	20400	20000	20200	20300	20800	21300	19800	20900	19000	22800	21800	20800
27	20400	20000	20100	20500	20900	20900	19800	20800	20500	23400	22100	18300
28	20400	20000	20100	20400	20900	21300	7850	20800	20800	23400	21500	6360
29	20600	20000	20000	20400	20900	21200	1060	21200	20800	23000	21600	7950
30	20600	20300	19900	20400	---	21400	5330	21300	21400	23400	21600	11400
31	20500	---	19900	20700	---	21300	---	20600	---	23300	21900	---
MONTH	20300	19000	20000	20000	20800	20800	16000	19800	20500	22600	16200	18000

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	19.0	7.0	---	9.0	9.0	20.0	---	25.0	27.0	33.0	26.0
2	24.0	---	8.0	8.0	8.0	---	21.0	29.0	24.0	28.0	31.0	28.0
3	22.0	---	9.0	4.0	15.0	11.0	20.0	23.0	28.0	25.0	---	25.0
4	23.0	20.0	15.0	3.0	9.0	15.0	19.0	17.0	25.0	---	30.0	28.0
5	16.0	22.0	12.0	7.0	7.0	11.0	16.0	---	28.0	31.0	---	26.0
6	19.0	18.0	8.0	8.0	8.0	10.0	18.0	15.0	25.0	24.0	---	28.0
7	18.0	16.0	8.0	3.0	9.0	11.0	22.0	16.0	25.0	31.0	---	25.0
8	20.0	22.0	11.0	4.0	9.0	---	---	15.0	26.0	27.0	---	21.0
9	18.0	15.0	10.0	9.0	17.0	---	16.0	16.0	23.0	23.0	---	18.0
10	25.0	16.0	12.0	7.0	15.0	---	20.0	20.0	31.0	25.0	---	24.0
11	25.0	18.0	14.0	7.0	16.0	14.0	18.0	15.0	23.0	25.0	---	21.0
12	27.0	11.0	10.0	12.0	9.0	13.0	19.0	20.0	29.0	23.0	---	26.0
13	22.0	14.0	14.0	13.0	21.0	9.0	20.0	19.0	---	---	---	18.0
14	20.0	12.0	17.0	11.0	16.0	17.0	25.0	23.0	26.0	---	---	---
15	---	11.0	6.0	12.0	14.0	14.0	---	25.0	24.0	28.0	---	---
16	---	12.0	---	13.0	17.0	16.0	---	20.0	30.0	---	---	---
17	---	---	---	10.0	10.0	15.0	---	24.0	27.0	33.0	31.0	---
18	---	---	---	8.0	17.0	13.0	22.0	25.0	23.0	30.0	32.0	---
19	24.0	---	9.0	8.0	18.0	22.0	18.0	22.0	21.0	31.0	26.0	---
20	26.0	10.0	7.0	10.0	17.0	13.0	20.0	22.0	24.0	---	30.0	---
21	20.0	---	10.0	---	12.0	12.0	14.0	24.0	---	35.0	27.0	---
22	22.0	---	---	11.0	4.0	18.0	22.0	20.0	---	24.0	30.0	---
23	19.0	12.0	---	12.0	11.0	20.0	25.0	---	26.0	---	27.0	---
24	21.0	8.0	---	10.0	15.0	17.0	---	26.0	30.0	31.0	28.0	---
25	13.0	7.0	---	7.0	18.0	22.0	26.0	---	24.0	33.0	30.0	---
26	12.0	7.0	---	8.0	19.0	16.0	15.0	24.0	24.0	---	31.0	---
27	23.0	11.0	---	10.0	14.0	17.0	19.0	20.0	32.0	31.0	---	---
28	21.0	10.0	---	11.0	20.0	15.0	20.0	20.0	34.0	32.0	---	---
29	20.0	15.0	---	8.0	12.0	16.0	---	29.0	34.0	27.0	28.0	22.0
30	20.0	7.0	9.0	10.0	---	20.0	---	30.0	34.0	25.0	26.0	26.0
31	16.0	---	5.0	7.0	---	14.0	---	---	---	---	27.0	---
MONTH	20.5	---	---	8.5	13.5	15.0	---	21.5	27.0	---	---	---



## RED RIVER BASIN

07311622 North Fork Wichita River near Crowell, Tex.

LOCATION.--Lat 33°52'12", long 99°56'48", Foard County, on left bank 152 ft (46 m) downstream from ranch road, 2.0 miles (3.2 km) upstream from Middle Fork, 15.0 miles (24.1 km) southwest of Crowell, and at mile 203.3 (327.1 km).

DRAINAGE AREA.--591 mi<sup>2</sup> (1,531 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: 1956-57 (occasional discharge measurements at site 2 miles or 3 km downstream), October 1970 to September 1976 (discontinued).

Water quality: Chemical analyses: August 1970 to September 1976 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 1,450 ft (442 m), from topographic map.

AVERAGE DISCHARGE.--6 years, 24.1 ft<sup>3</sup>/s (0.683 m<sup>3</sup>/s), 0.55 in/yr (14 mm/yr), 17,460 acre-ft/yr (21.5 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 2,570 ft<sup>3</sup>/s (72.8 m<sup>3</sup>/s) Aug. 4 (gage height, 6.57 ft or 2.003 m); minimum, 4.7 ft<sup>3</sup>/s (0.13 m<sup>3</sup>/s) June 29, 30.

Period of record: Maximum discharge, 4,200 ft<sup>3</sup>/s (119 m<sup>3</sup>/s) Sept. 4, 1972 (gage height, 8.17 ft or 2.490 m); minimum, 1.2 ft<sup>3</sup>/s (0.034 m<sup>3</sup>/s) July 19, 1971.

Water quality: Current year: Maximum daily specific conductance, 23,900 micromhos Aug. 2; minimum daily, 1,030 micromhos Aug. 4.

Period of record: Maximum daily specific conductance, 35,300 micromhos May 3, 1971; minimum daily, 730 micromhos Sept. 25, 1974.

REMARKS.--Discharge records good. Specific conductance, recorded continuously at this station, was discontinued.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	14	14	15	13	15	15	20	14	7.4	7.5	16
2	14	14	14	14	14	13	15	15	11	8.2	7.5	14
3	14	24	15	12	14	12	16	14	10	9.4	249	13
4	14	17	16	12	14	12	15	14	10	11	1220	13
5	14	15	16	13	13	12	16	15	9.8	9.6	92	11
6	15	13	16	14	10	12	16	15	9.4	9.9	38	9.1
7	14	13	15	14	10	13	17	20	9.1	8.2	26	9.1
8	14	13	15	11	12	15	19	22	9.1	5.4	21	9.9
9	14	13	16	10	14	15	19	24	9.1	6.1	18	19
10	14	13	15	12	14	15	17	25	7.9	7.8	15	13
11	13	13	16	16	14	13	15	27	7.4	8.2	15	9.9
12	12	13	15	16	15	12	16	27	7.4	9.9	15	9.9
13	12	13	15	16	17	12	20	28	7.6	8.7	14	9.7
14	12	13	15	15	15	12	21	26	7.4	8.6	14	9.9
15	39	13	14	14	14	12	23	27	6.7	9.3	13	10
16	18	13	14	13	14	12	29	27	6.7	18	13	9.9
17	16	14	14	13	13	12	29	27	6.4	11	13	11
18	17	14	11	13	14	12	29	28	6.7	8.8	13	10
19	16	16	10	13	14	11	29	27	6.4	8.1	13	65
20	16	16	14	13	14	11	26	25	6.5	7.7	13	192
21	13	14	14	13	13	12	23	24	6.7	7.7	12	39
22	12	14	15	13	14	13	22	25	26	7.7	9.5	21
23	11	14	15	13	15	13	22	24	22	8.3	9.5	16
24	11	14	16	13	13	13	20	24	23	8.4	9.2	14
25	11	15	17	13	13	13	20	23	14	8.5	9.6	13
26	11	15	16	13	12	13	20	22	13	9.1	9.8	12
27	12	15	15	13	13	13	20	18	11	8.2	9.1	27
28	12	16	16	13	13	13	38	19	9.1	7.7	11	56
29	13	16	16	13	12	13	146	19	5.4	11	13	33
30	13	15	15	13	---	13	32	18	4.7	10	13	18
31	13	---	15	14	---	13	---	21	---	8.4	14	---
TOTAL	444	495	460	413	390	395	765	690	303.5	276.3	1949.7	713.4
MEAN	14.3	16.5	14.8	13.3	13.4	12.7	25.5	22.3	10.1	8.91	62.9	23.8
MAX	39	74	17	16	17	15	146	28	26	18	1220	192
MIN	11	13	10	10	10	11	15	14	4.7	5.4	7.5	9.1
AC-FT	881	982	912	819	774	783	1520	1370	602	548	3870	1420
CAL YR 1975	TOTAL	9639.4	MEAN 26.4	MAX 1420	MIN 8.6	AC-FT 19120						
WTR YR 1976	TOTAL	7294.9	MEAN 19.9	MAX 1220	MIN 4.7	AC-FT 14470						

PEAK DISCHARGE (BASE, 600 FT<sup>3</sup>/S).--Aug. 4 (0545) 2,570 ft<sup>3</sup>/s (6.57 ft).

## RED RIVER BASIN

143

07311622 North Fork Wichita River near Crowell, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
OCT. 21...	1200	13	19400	--	14.0	2700	--	800	180	--
JAN. 27...	1145	14	20100	--	4.0	2700	--	800	180	--
MAR. 30...	1310	15	21600	--	14.0	3000	--	870	190	--
APR. 20...	1315	24	9070	7.9	17.0	1400	1200	390	93	1600
JULY 13...	1220	8.8	22800	--	26.0	2900	--	860	190	--
AUG. 04...	0800	2240	720	7.6	24.0	210	110	71	8.5	60
DATE		SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SIO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)
OCT. 21...		--	--	--	--	2400	5600	--	--	--
JAN. 27...		--	--	--	--	2500	6400	--	--	--
MAR. 30...		--	--	--	--	2600	6800	--	--	--
APR. 20...	19		13	140	0	1100	2500	--	8.4	5770
JULY 13...		--	--	--	--	2700	7300	--	--	--
AUG. 04...	1.8		6.6	119	0	130	86	.4	8.8	430

## RED RIVER BASIN

07311622 North Fork Wichita River near Crowell, Tex.--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	444	18400	12100	14500	5500	6600	2210	2650	****
NOV. 1975.....	495	15800	10300	13700	4620	6180	1920	2560	****
DEC. 1975.....	460	19800	13100	16300	5990	7440	2370	2950	****
JAN. 1976.....	413	19900	13200	14700	6010	6700	2380	2660	****
FEB. 1976.....	378	20300	13500	13800	6170	6300	2420	2470	****
MAR. 1976.....	395	20500	13700	14600	6270	6690	2440	2610	****
APR. 1976.....	765	14400	9340	19300	4190	8650	1740	3590	****
MAY 1976.....	690	20100	13400	24900	6130	11400	2390	4460	****
JUNE 1976.....	303.5	19200	12800	10500	5830	4780	2300	1880	****
JULY 1976.....	276.3	21700	14600	10900	6760	5040	2560	1910	****
AUG. 1976.....	1949.7	5300	3400	17900	1390	7300	740	3900	790
SEPT 1976.....	713.4	10500	6810	13100	3010	5800	1310	2520	****
TOTAL .....	7282.89	**	**	184000	**	82900	**	34200	**
WTD.AVG. ....	19.95	14200	9400	**	4200	**	1700	**	*****

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19300	19100	21000	19400	20200	19800	21700	8950	16500	21600	23100	20500
2	19200	5410	21200	19700	20300	19900	21700	12500	18800	22000	23900	20500
3	19400	9800	20500	19900	20300	20100	21600	15600	20800	22000	6500	20600
4	19600	12000	19800	19900	20300	20200	21800	18100	21300	21700	1030	21000
5	19600	12600	19900	19800	20100	20500	21600	19300	21000	21500	5150	21200
6	20000	13500	20200	19700	20100	20400	21500	20100	21700	21300	7490	21300
7	20100	14700	20500	20200	20100	20100	21300	19800	21700	20700	12100	21500
8	20100	15300	20600	20900	20000	19700	19900	19700	21100	21500	13600	21200
9	20300	16200	20000	20500	20000	19800	19700	19600	21500	22100	15600	20300
10	20300	17300	20400	19500	20300	19800	20600	19500	21900	21600	16600	20100
11	20400	18200	19800	19300	20200	19900	21100	19400	22200	22400	17500	18900
12	20500	18600	19900	19500	20300	19800	20800	19400	22100	22200	18300	18500
13	20600	18400	20200	19700	20300	20100	17300	19800	22400	22800	19000	20900
14	19800	18500	20000	19700	20300	20000	16000	20100	21200	22300	19500	21700
15	13800	18900	20100	19800	20200	20100	15200	20400	21600	22500	20100	22400
16	11500	19400	19900	19800	20300	20200	10400	20600	22000	21000	20400	22700
17	12300	19100	20100	19700	20500	20300	9260	20900	22600	16700	20700	23400
18	15300	19300	20100	19800	20500	20500	8510	21200	22300	17700	20900	22300
19	17100	18200	20000	19900	20400	20400	8750	21400	22500	19600	20900	10600
20	18500	18400	20000	19900	20200	20500	9070	21600	22700	23500	20900	2320
21	19400	18900	20000	19900	20400	20700	11700	21700	23000	23700	21100	4050
22	20100	19400	19700	20000	20400	20900	14200	21700	21300	23200	21200	10900
23	20200	19800	19700	19900	20300	20900	16100	21800	14500	23400	21300	11600
24	20200	20000	18600	19900	20300	21100	17700	21800	13400	23400	21400	11800
25	20200	19700	18400	19800	20200	21200	19000	21400	12600	21800	21400	12500
26	20200	19900	18700	20000	20100	21200	20100	21600	13400	20900	21500	13600
27	20100	20600	19000	20100	20000	21300	20800	20800	19300	22700	21900	9760
28	19800	20100	18900	20100	20100	21400	18400	21900	19500	23400	21400	5240
29	19800	20200	19100	20000	19900	21500	8350	22600	19900	21800	20800	5820
30	19700	20700	19200	20000	---	21600	4640	22400	20700	22200	20600	9860
31	19500	---	19300	20100	---	21500	---	20400	---	22400	20400	---
MONTH	18900	17400	19800	19900	20200	20500	16600	19900	20200	21800	17900	16300

07311648 Middle Fork Wichita River near Truscott, Tex.

LOCATION.--Lat 33°51'12", long 99°57'44", Foard County, on right bank 32 ft (10 m) downstream from ranch road, 3.0 miles (4.8 km) upstream from mouth, and 11.1 miles (17.9 km) northwest of Truscott.

DRAINAGE AREA.--161 mi<sup>2</sup> (417 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: 1956-57, 1968-70, occasional discharge measurements made 3 miles (5 km) downstream, published as "near Crowell", October 1970 to September 1976 (discontinued).

Water quality: Chemical analyses: August 1970 to September 1976 (discontinued).

GAGE.--Water-stage and specific-conductance recorders. Datum of gage is 1,457.87 ft (444.359 m) above mean sea level (Corps of Engineers bench mark).

AVERAGE DISCHARGE.--6 years, 9.27 ft<sup>3</sup>/s (0.263 m<sup>3</sup>/s), 0.78 in/yr (20 mm/yr), 6,720 acre-ft/yr (8.29 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 367 ft<sup>3</sup>/s (10.4 m<sup>3</sup>/s) Nov. 2 (gage height, 6.52 ft or 1.987 m); minimum daily, 1.5 ft<sup>3</sup>/s (0.042 m<sup>3</sup>/s) July 3.

Period of record: Maximum discharge, 1,680 ft<sup>3</sup>/s (47.6 m<sup>3</sup>/s) July 25, 1975 (gage height, 9.96 ft or 3.036 m); minimum, 1.5 ft<sup>3</sup>/s (0.042 m<sup>3</sup>/s) July 3, 1976.

Historic: Maximum stage since at least 1900 occurred in August 1913, about 17 ft (5.2 m), from information furnished by longtime local resident.

Water quality: Current year: Maximum daily specific conductance, 19,000 micromhos July 11; minimum daily, 7,080 micromhos Nov. 2. Period of record: Maximum daily specific conductance, 20,100 micromhos July 18, 1974; minimum daily, 880 micromhos Sept. 4, 1972.

REMARKS.--Discharge records good. Specific conductance, recorded continuously at this station, was discontinued.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	22	8.1	5.1	4.6	4.5	3.2	3.5	4.4	1.9	5.2	9.2
2	4.6	147	8.1	4.8	4.3	4.2	3.0	2.9	3.2	1.6	4.0	13
3	4.3	16	8.1	4.7	4.3	4.3	3.0	2.9	3.1	1.5	13	14
4	4.6	9.1	8.1	4.2	4.3	4.4	3.1	2.9	3.1	1.7	18	7.8
5	4.6	8.1	8.1	4.5	4.3	4.3	3.1	2.9	3.5	1.8	6.9	7.6
6	4.9	7.7	8.1	4.5	4.0	4.1	3.1	3.3	3.6	1.9	4.2	6.5
7	4.8	7.2	7.2	4.4	3.8	4.7	3.9	3.8	3.4	2.0	3.6	6.0
8	5.3	7.2	6.8	4.0	3.7	6.7	4.7	3.8	3.1	2.0	3.0	6.2
9	5.2	6.8	6.4	4.0	3.7	7.5	4.4	3.8	3.1	2.0	2.8	8.2
10	5.5	6.0	6.4	4.2	4.0	5.9	3.5	4.0	2.7	2.0	2.7	9.3
11	5.7	5.6	6.4	4.4	4.3	5.3	3.2	3.8	2.4	2.1	2.7	8.0
12	6.4	5.6	6.4	4.2	4.3	4.8	3.5	3.6	2.2	2.4	2.5	7.8
13	7.7	4.3	6.0	4.1	4.3	4.3	4.6	3.8	2.3	2.6	2.6	7.3
14	17	5.0	5.6	4.3	4.4	4.2	4.4	3.8	2.6	3.0	2.6	7.7
15	18	5.6	5.3	4.1	4.2	4.4	12	3.1	2.4	3.3	2.7	8.4
16	5.8	6.4	5.3	4.3	4.3	4.1	21	3.3	2.3	4.8	2.9	8.0
17	5.7	8.1	5.3	4.3	4.2	4.1	42	3.0	2.0	4.2	2.9	6.9
18	6.5	11	5.3	4.6	4.1	4.1	13	2.9	2.1	4.8	2.5	4.8
19	5.0	14	5.3	4.7	4.0	3.9	4.3	2.6	2.3	4.4	2.6	4.2
20	3.9	14	5.7	4.7	3.8	3.8	4.0	2.6	2.5	3.5	2.7	3.5
21	3.5	11	5.7	4.6	4.0	3.5	4.0	2.7	2.5	3.0	2.9	3.8
22	3.6	10	6.0	5.0	3.8	3.5	4.0	2.9	3.6	2.8	3.0	3.1
23	4.6	7.7	6.1	4.9	3.9	3.3	4.0	3.2	3.3	2.5	3.1	2.7
24	4.8	6.4	7.0	4.7	4.0	3.5	4.6	3.3	3.4	2.9	3.3	2.9
25	4.9	6.0	8.8	4.6	3.9	3.3	4.6	3.5	2.9	3.8	3.2	2.9
26	5.8	6.3	8.3	4.6	4.1	3.5	4.6	4.3	2.6	4.5	3.1	3.1
27	7.8	7.2	6.8	4.2	4.1	3.1	5.0	4.7	2.5	3.9	3.4	3.5
28	11	7.7	6.8	4.3	4.1	3.1	35	4.3	2.3	3.9	5.0	3.8
29	8.1	7.7	7.1	4.3	4.5	3.2	16	3.9	2.4	5.3	13	3.8
30	10	7.7	6.4	4.3	---	3.3	5.0	10	2.2	4.4	7.2	3.6
31	12	---	5.5	4.9	---	3.3	---	15	---	4.7	5.3	---
TOTAL	206.8	394.4	206.5	138.5	119.3	130.2	233.8	124.1	84.0	95.2	142.6	187.6
MEAN	6.67	13.1	6.66	4.47	4.11	4.20	7.79	4.00	2.80	3.07	4.60	6.25
MAX	18	147	8.8	5.1	4.6	7.5	42	15	4.4	5.3	18	14
MIN	3.5	4.3	5.3	4.0	3.7	3.1	3.0	2.6	2.0	1.5	2.5	2.7
AC-FT	410	782	410	275	237	258	464	246	167	189	283	372

CAL YR 1975 TOTAL 4927.9 MEAN 13.5 MAX 789 MIN 2.0 AC-FT 9770  
WTR YR 1976 TOTAL 2063.0 MEAN 5.64 MAX 147 MIN 1.5 AC-FT 4090

PEAK DISCHARGE (BASE, 200 FT<sup>3</sup>/S).--Nov. 2 (0145) 367 ft<sup>3</sup>/s (6.52 ft).

## RED RIVER BASIN

07311648 Middle Fork Wichita River near Truscott, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA+MG) (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	
OCT.								
02...	1510	5.0	14500	18.0	2700	790	180	
JAN.								
27...	1520	4.3	15600	7.0	2900	850	190	
MAR.								
30...	1435	5.3	16700	16.0	3100	930	200	
APR.								
20...	1550	4.1	12000	17.0	2300	660	160	
JUNE								
22...	1430	3.2	17900	31.0	3300	960	210	
JULY								
13...	1500	2.7	18700	27.0	3400	980	220	
DATE		DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SI02) (MG/L)
OCT.								
02...	--	--	--	2300	3800	--	--	--
JAN.								
27...	--	--	--	2600	4500	--	--	--
MAR.								
30...	--	--	--	2800	4800	--	--	--
APR.								
20...	--	--	--	2100	3200	--	--	--
JUNE								
22...	3100	24	15	2900	5200	.7	1.5	--
JULY								
13...	--	--	--	2900	5700	--	--	--

## RED RIVER BASIN

147

07311648 Middle Fork Wichita River near Truscott, Tex.--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	206.8	14300	9720	5430	3540	2150	2450	1370	****
NOV. 1975.....	394.4	10900	7320	7800	2850	3030	1890	2020	****
DEC. 1975.....	206.5	14900	10100	5640	4010	2240	2550	1420	****
JAN. 1976.....	138.5	15600	10600	3970	4220	1580	2660	996	****
FEB. 1976.....	114.8	16000	10400	3390	4350	1350	2730	847	****
MAR. 1976.....	136.2	16200	11000	3880	4390	1540	2760	970	****
APR. 1976.....	233.8	11900	7920	5000	3100	1950	2040	1280	****
MAY 1976.....	124.1	14700	9990	3350	3950	1320	2520	843	****
JUNF 1976.....	83	17000	11600	2630	4630	1050	2890	656	****
JULY 1976.....	95.2	17200	11800	3020	4690	1210	2930	752	****
AUG. 1976.....	142.6	15000	10200	3930	4050	1560	2570	988	****
SEPT 1976.....	187.6	14400	9720	4930	3850	1950	2450	1240	****
TOTAL .....	2058.5	**	**	53000	**	20900	**	13400	**
WTD.AVG. ....	5.64	14100	9500	**	3800	**	2400	**	*****

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C) • WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14300	13700	14400	12600	15800	16200	16700	12600	13400	18500	17600	13200
2	14500	7080	14400	13400	16200	16800	16800	13100	14200	18700	17700	10100
3	14600	7490	14500	13500	16400	16700	17000	14000	14600	18600	13800	9650
4	14500	9580	14600	14100	16300	16500	16700	14900	15300	18300	12900	11300
5	14700	9760	14200	14500	16300	17000	16800	15600	15800	18300	16900	12500
6	14600	11000	14400	14800	16600	17300	16700	15400	16200	18200	16800	13400
7	14900	12400	14000	15200	16200	16600	16200	15000	16600	18500	16700	14600
8	15300	12800	13900	16100	16300	15700	15600	15300	16900	18800	16600	14200
9	15500	13100	13700	16500	16100	15200	15900	15400	17500	18700	16600	13500
10	15200	13500	14400	16400	15800	15600	16400	15100	17500	18900	16600	13000
11	15100	13900	14700	15400	15300	15700	16700	15100	17400	19000	16800	14700
12	14900	14100	14900	15600	15400	15900	16500	15500	17600	18900	16900	15900
13	14500	14800	14600	14900	15500	15800	16000	15500	17100	18700	16900	16500
14	12300	14600	15100	15300	15200	16000	16300	15700	15400	16700	17000	16200
15	12000	15100	15300	15600	15400	15700	14900	15900	17800	16800	17100	15900
16	14400	15900	15400	16100	15300	15800	10200	16100	18000	12600	17000	16100
17	14600	15500	16600	16100	15500	15600	8450	16200	17900	13100	16900	16300
18	14200	15100	17500	16300	15600	15700	9290	16400	17700	16800	16700	16400
19	14000	12700	17700	16400	15800	15900	10900	16600	18000	17800	16400	16200
20	14100	12200	17700	16600	16100	16100	12000	16700	18200	18000	16300	16500
21	14300	13600	18000	17100	16000	16200	12700	16400	18000	18100	16300	16400
22	15000	14300	16700	18000	16400	16400	13100	16500	17900	18000	16100	17200
23	15300	14600	17200	17200	16300	16600	13800	15500	18100	17900	15800	17400
24	16000	14900	16800	16300	16200	16400	13500	16800	18000	17000	15300	17100
25	16200	15100	15700	15800	17000	16700	14300	16100	18200	17400	14500	17300
26	16000	14400	14600	15700	16700	16400	14600	15900	18300	17100	14800	17000
27	15200	14700	13800	15600	16800	16600	14400	16800	18300	17500	14700	16700
28	14400	15000	13700	15400	17000	16800	9760	13800	18200	17500	14200	16500
29	15000	15000	12700	15800	15900	16900	9810	16400	18100	16100	12100	16900
30	14700	14800	11700	16200	---	16700	11300	13800	18300	16400	12900	17200
31	14100	---	11900	15600	---	16800	---	10100	---	17300	14000	---
MONTH	14700	13400	15000	15600	16000	16300	14100	15300	17200	17600	15800	15200



## RED RIVER BASIN

07311700 North Fork Wichita River near Truscott, Tex

LOCATION.--Lat 33°49'14", long 99°47'10", Foard-Knox County line, near right bank on downstream side of bridge on State Highway 6, 4.5 miles (7.2 km) north of Truscott, about 47.6 miles (76.6 km) upstream from confluence with South Fork, and at mile 188.4 (303.1 km).

DRAINAGE AREA.--937 mi<sup>2</sup> (2,427 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: 1952-57 (occasional low-flow measurements), December 1959 to current year.

Water quality: Chemical analyses: July 1968 to current year. Water temperatures: July 1968 to current year.

GAGE.--Water-stage and specific-conductance recorders. Datum of gage is 1,351.78 ft (412.023 m) above mean sea level. Prior to Jan. 2, 1960, nonrecording gage at same site and datum.

AVERAGE DISCHARGE.--16 years (1960-76), 61.0 ft<sup>3</sup>/s (1.728 m<sup>3</sup>/s), 0.88 in/yr (22 mm/yr), 44,190 acre-ft/yr (54.5 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 2,510 ft<sup>3</sup>/s (71.1 m<sup>3</sup>/s) Aug. 4 (gage height, 13.52 ft or 4.121 m); minimum, 4.8 ft<sup>3</sup>/s (0.14 m<sup>3</sup>/s) June 30.

Period of record: Maximum discharge, 28,900 ft<sup>3</sup>/s (818 m<sup>3</sup>/s) Sept. 19, 1965 (gage height, 21.96 ft or 6.693 m); minimum, 0.01 ft<sup>3</sup>/s (0.0003 m<sup>3</sup>/s) July 25, 1964, Aug. 22, 23, 1974.

Historic: Maximum stage since at least 1900 occurred in September 1919; the next highest flood occurred in May 1954, from information by local resident.

Water quality: Current year: Maximum daily specific conductance, 24,300 micromhos July 28; minimum daily, 2,000 micromhos Aug. 4. Minimum water temperatures, freezing point on several days during January and February.

Period of record: Maximum daily specific conductance, 33,800 micromhos Aug. 19, 1970; minimum daily, 840 micromhos Sept. 23, 1969. Maximum water temperatures, 39.0°C Aug. 21, 23, 1969, Aug. 22, 1973; minimum, freezing point on many days during winter months.

REMARKS.--Discharge records good. One small diversion for irrigation above station. Specific conductance is recorded continuously at this station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	20	22	23	19	16	14	84	63	5.6	8.5	15
2	23	721	22	23	18	15	15	49	31	5.5	7.8	32
3	23	165	23	22	18	16	15	33	17	5.4	19	19
4	22	61	23	22	18	17	14	27	16	6.8	1520	15
5	22	35	23	23	16	16	15	25	13	6.8	321	12
6	22	28	23	22	15	16	15	24	13	7.2	120	9.1
7	21	25	23	17	15	19	16	24	12	7.0	78	8.2
8	21	24	23	16	17	27	23	21	11	7.5	57	76
9	21	23	23	15	19	28	24	20	10	7.4	44	49
10	21	23	23	20	17	23	20	21	9.4	9.9	37	23
11	21	22	23	23	16	20	16	21	7.8	10	32	14
12	21	22	22	21	18	19	15	20	7.5	12	27	12
13	20	23	22	20	19	18	17	21	7.1	14	24	13
14	21	23	23	20	19	17	19	20	9.3	11	21	12
15	122	23	22	20	19	17	29	20	8.9	13	19	12
16	50	23	22	19	20	17	318	19	6.9	22	16	12
17	28	24	21	19	19	16	482	18	103	24	16	12
18	23	23	20	19	17	16	263	18	45	14	15	18
19	20	27	20	18	17	16	107	17	13	12	13	91
20	20	31	22	19	18	15	50	18	9.9	9.7	12	274
21	19	29	22	19	17	15	33	19	7.3	8.4	12	120
22	19	25	22	19	17	15	24	19	15	9.1	11	49
23	19	25	23	19	17	15	20	19	32	11	10	28
24	19	25	29	18	17	15	19	21	25	9.2	8.9	21
25	19	25	37	19	17	15	17	130	27	8.9	8.9	20
26	19	25	33	19	16	15	16	80	12	9.6	8.9	17
27	19	24	27	19	16	15	17	30	8.3	10	8.4	29
28	18	24	27	20	16	15	64	23	7.3	8.8	9.3	145
29	19	25	29	20	16	15	429	18	6.0	13	13	89
30	19	23	27	20	---	14	195	16	5.7	13	42	42
31	19	---	24	19	---	14	---	64	---	11	17	---
TOTAL	776	1616	745	612	503	527	2321	959	559.4	322.8	2556.7	1288.3
MEAN	25.0	53.9	24.0	19.7	17.3	17.0	77.4	30.9	18.6	10.4	82.5	42.9
MAX	122	721	37	23	20	28	482	130	103	24	1520	274
MIN	18	20	20	15	15	14	14	16	5.7	5.4	7.8	8.2
AC-FT	1540	3210	1480	1210	998	1050	4600	1900	1110	640	5070	2560

CAL YR 1975 TOTAL 25617.4 MEAN 70.2 MAX 3980 MIN 5.6 AC-FT 50810  
WTR YR 1976 TOTAL 12786.2 MEAN 34.9 MAX 1520 MIN 5.4 AC-FT 25360

PEAK DISCHARGE (BASE, 1,000 FT<sup>3</sup>/S).--Nov. 2 (0845) 1,070 ft<sup>3</sup>/s (9.61 ft); Aug. 4 (1515) 2,510 ft<sup>3</sup>/s (13.52 ft).

07311700 North Fork Wichita River near Truscott, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG)	DIS-SOLVED SODIUM (NA) (MG/L)
OCT. 21...	1515	28	16900	--	15.0	2600	--	750	180	--
NOV. 03...	1315	145	6580	7.0	16.0	1400	1300	400	89	1000
DEC. 17...	1200	21	17700	--	.0	2800	--	790	190	--
FEB. 18...	1340	19	18800	--	15.0	2900	--	820	200	--
MAR. 30...	1250	20	20300	--	15.5	3100	--	890	210	--
APR. 19...	1620	86	4130	7.5	24.0	830	750	250	50	630
MAY 27...	1025	27	12400	--	17.0	1900	--	540	130	--
JUNE 23...	0845	26	19600	--	24.0	2900	--	830	200	--
JULY 14...	0905	11	22500	--	26.0	3200	--	950	210	--
AUG. 04...	0930	2070	2020	7.6	26.0	340	210	110	16	290
04...	1505	2490	1090	7.6	27.0	260	150	84	12	120

DATE	SODIUM ADSORPTION RATIO	DIS-SOLVED PHOSPHATE (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT. 21...	--	--	--	--	2400	4700	--	--	--
NOV. 03...	12	13	109	0	1200	1600	.4	5.2	4360
DEC. 17...	--	--	--	--	2600	5500	--	--	--
FEB. 18...	--	--	--	--	2500	5700	--	--	--
MAR. 30...	--	--	--	--	2800	6000	--	--	--
APR. 19...	9.5	16	103	0	730	980	.6	7.6	2720
MAY 27...	--	--	--	--	1600	3600	--	--	--
JUNE 23...	--	--	--	--	2600	5800	--	--	--
JULY 14...	--	--	--	--	2800	7000	--	--	--
AUG. 04...	6.8	6.5	156	0	280	410	.5	10	1200
04...	3.2	8.0	132	0	180	160	.5	8.6	638

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	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. 1975.....	776	15300	10000	21000	4450	9330	2000	4190	****
NOV. 1975.....	1616	8720	5620	24500	2390	10400	1200	5250	1410
DEC. 1975.....	745	17100	11300	22700	5030	10100	2220	4460	****
JAN. 1976.....	612	17700	11700	19400	5230	8650	2290	3790	****
FEB. 1976.....	487	18700	12400	16300	5550	7300	2410	3170	****
MAR. 1976.....	527	19100	12700	18100	5690	8100	2460	3500	****
APR. 1976.....	2321	6280	4020	25200	1640	10300	900	5660	1070
MAY 1976.....	959	11300	7350	19000	3190	8270	1510	3910	****
JUNE 1976.....	559.4	13300	8700	13100	3830	5780	1760	2660	****
JULY 1976.....	322.8	22000	14800	12900	6650	5790	2830	2460	****
AUG. 1976.....	2556.7	5020	3220	22200	1270	8780	740	5100	900
SEPT 1976.....	1288.3	9580	6150	21400	2640	9160	1310	4540	1520
TOTAL .....	12770.19	**	**	236000	**	102000	**	48700	**
WTD.AVG. ....	34.99	10500	6800	**	3000	**	1400	**	*****

## RED RIVER BASIN

07311700 North Fork Wichita River near Truscott, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17400	15000	17600	16700	18300	19200	20500	4080	6500	18100	23900	17500
2	17000	3000	17500	17000	18400	19100	20400	6970	11200	20700	24100	15600
3	17200	5000	17500	17200	18500	17900	20300	8420	13500	22300	14800	18800
4	17000	10000	17600	17500	18300	17500	20400	10000	16600	22300	2000	19000
5	17100	12300	17600	16300	18400	18700	20300	12800	19000	22200	2520	19200
6	17300	13200	17500	17700	18200	19400	20400	12800	18400	22600	5000	19900
7	17200	13500	17500	16800	18300	18600	20300	14100	19400	23000	7000	20600
8	18100	13700	17500	18200	18100	17900	20000	15200	20200	23300	9000	3500
9	17500	14500	17500	18600	18300	17600	19500	15800	20400	23500	10000	3000
10	18100	14200	17500	18100	18200	18900	19700	16600	20600	22700	12000	15000
11	18100	15800	17700	17700	18400	17900	19400	16700	21100	21600	13000	20100
12	18200	15500	17600	17700	18100	18200	19600	17100	21700	22200	14000	20200
13	18100	15800	17600	17000	18000	18500	19500	17300	22200	21100	15300	19800
14	18000	16100	17400	17600	18400	18900	19400	17800	21900	22900	16500	18200
15	8000	16300	17500	17600	18700	19000	18900	18100	21500	22700	17400	18600
16	11900	16500	17600	17700	18500	19200	7000	18500	22600	20600	18200	19600
17	12200	15500	17700	17600	18700	19300	2500	19000	5500	20200	18600	20400
18	15100	16100	17400	17800	18600	19100	3200	19200	7000	21500	18900	20600
19	17800	15800	17500	17900	18900	19000	3500	19500	12000	22000	19300	10800
20	17400	15500	17900	18000	19000	20000	5000	19700	20600	19200	19600	6500
21	16900	16200	17800	18100	19100	20100	8430	19800	22000	21100	19800	3000
22	17800	16700	17600	17900	19300	20200	10300	19900	18000	21000	20000	4000
23	17700	16600	17500	18000	19500	20100	11800	20000	15000	22400	20200	8000
24	17800	16700	16400	18100	19300	20000	13200	19900	17000	22600	20400	12400
25	17800	17300	16000	18100	19400	19900	14500	5000	19100	22900	20800	14800
26	17800	16900	15800	18200	19500	19900	15500	3500	20800	24000	21000	15700
27	17800	16700	16100	18100	19300	20000	16600	10000	18400	24200	20800	13200
28	17400	17200	16200	18200	19400	20100	9000	15700	16700	24300	22300	6560
29	16900	17500	15800	18100	19300	20200	3000	18500	17200	20600	20200	13000
30	16400	17700	16200	18200	---	20300	3800	19100	17500	23300	13000	15800
31	14600	---	16400	18200	---	20400	---	6000	---	23400	10700	---
MONTH	16700	14800	17200	17700	18700	19200	14200	14700	17500	22100	15800	14400

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.0	15.0	3.0	9.0	5.0	11.0	12.0	12.0	---	---	33.0	25.0
2	16.0	15.0	5.0	0.0	6.0	11.0	12.0	---	30.0	---	27.0	23.0
3	---	---	6.0	0.0	5.0	11.0	16.0	14.0	28.0	26.0	30.0	22.0
4	15.0	14.0	6.0	1.0	4.0	---	14.0	15.0	---	28.0	28.0	---
5	---	15.0	---	2.0	1.0	---	15.0	15.0	26.0	28.0	27.0	27.0
6	14.0	20.0	7.0	3.0	---	6.5	15.0	16.0	22.0	28.0	33.0	30.0
7	16.0	14.0	5.0	0.0	0.0	---	---	---	20.0	---	33.0	26.0
8	22.0	14.0	5.5	0.0	7.0	7.0	14.0	15.0	28.0	29.0	31.0	25.0
9	18.0	14.0	6.0	0.0	6.0	6.5	16.0	17.0	---	27.0	27.0	20.0
10	20.0	10.0	10.0	1.0	8.0	6.0	16.0	18.0	25.0	---	28.0	23.0
11	25.0	9.0	11.0	4.0	12.0	15.0	17.0	19.0	---	23.0	32.0	26.0
12	21.0	8.0	10.0	4.0	9.0	---	17.0	---	---	23.0	28.0	26.0
13	21.0	6.0	10.0	5.0	14.5	6.0	18.0	17.0	32.0	27.0	30.0	23.0
14	---	---	---	3.0	13.0	8.5	19.0	---	32.0	27.0	---	27.0
15	25.0	---	5.5	3.0	10.0	9.0	20.0	14.0	24.0	28.0	---	27.0
16	19.0	10.0	5.0	7.0	9.0	8.0	12.0	18.0	---	---	27.0	25.0
17	20.0	6.0	5.0	5.0	5.5	8.5	16.0	15.0	25.0	30.0	31.0	27.0
18	20.0	---	3.0	8.0	8.0	10.0	14.0	16.0	21.0	29.0	29.0	24.0
19	15.0	---	5.0	8.0	7.0	14.0	17.0	17.0	---	28.0	29.0	23.0
20	---	7.0	6.0	3.0	9.0	12.0	13.0	21.0	29.0	27.0	28.0	23.0
21	15.0	2.0	7.0	2.0	8.0	14.0	14.0	---	29.0	32.0	23.0	24.0
22	15.0	5.0	8.0	2.0	9.0	13.0	17.0	20.0	---	25.0	29.0	24.0
23	---	---	7.0	8.0	---	---	---	---	---	29.0	31.0	---
24	14.0	5.0	---	8.0	---	19.0	18.0	21.0	26.0	33.0	26.0	---
25	15.0	3.0	2.0	5.5	7.0	15.0	16.0	18.0	---	33.0	29.0	---
26	15.0	1.0	3.0	3.0	8.0	16.0	14.0	17.0	31.0	29.0	24.0	---
27	15.0	1.5	4.0	2.0	12.0	10.0	16.0	14.0	---	29.0	30.0	19.0
28	---	---	6.0	2.0	---	---	18.0	---	33.0	29.0	---	17.0
29	---	3.0	4.5	4.0	14.0	14.0	14.0	22.0	32.0	28.0	24.0	18.0
30	16.0	---	1.0	5.0	---	17.0	---	20.0	---	29.0	25.0	20.0
31	17.0	---	4.0	6.0	---	15.0	---	---	---	35.0	26.0	---
MONTH	---	---	5.5	3.5	8.0	11.5	15.5	---	---	28.5	28.5	24.0

## RED RIVER BASIN

151

07311780 South Fork Wichita River near Guthrie, Tex.

LOCATION.--Lat 33°37'29", long 100°13'04", King County, on left bank 60 ft (18 m) upstream from ranch road, 3.9 miles (6.3 km) upstream from Willow Creek, 6.1 miles (9.8 km) east of Guthrie, and at mile 92.5 (148.8 km).

DRAINAGE AREA.--239 mi<sup>2</sup> (619 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: 1952-54, 1956-57 (discharge measurements only), October 1970 to September 1976 (discontinued).

Water quality: Chemical analyses: August 1970 to September 1976 (discontinued).

GAGE.--Water-stage and specific-conductance recorders. Altitude of gage 1,600 ft (488 m), from topographic map.

AVERAGE DISCHARGE.--6 years, 5.25 ft<sup>3</sup>/s (0.149 m<sup>3</sup>/s), 0.30 in/yr (8 mm/yr), 3,800 acre-ft/yr (4.69 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 204 ft<sup>3</sup>/s (5.78 m<sup>3</sup>/s) Sept. 8 (gage height, 3.86 ft or 1.177 m); minimum, 2.0 ft<sup>3</sup>/s (0.057 m<sup>3</sup>/s) Aug. 9.

Period of record: Maximum discharge, 2,060 ft<sup>3</sup>/s (58.3 m<sup>3</sup>/s) Aug. 25, 1971 (gage height, 7.15 ft or 2.179 m), from rating curve extended above 200 ft<sup>3</sup>/s (5.66 m<sup>3</sup>/s) on basis of indirect discharge estimate of peak flow; minimum, 2.0 ft<sup>3</sup>/s (0.057 m<sup>3</sup>/s) Aug. 9, 1976.

Historic: Maximum stage since 1950, 20.8 ft (6.34 m) in May 1954, present site and datum, from floodmarks furnished by local resident.

Water quality: Current year: Maximum daily specific conductance, 45,200 micromhos July 1, 2; minimum daily, 12,000 micromhos Aug.

4. Period of record: Maximum daily specific conductance, 47,300 micromhos Aug. 11, 1971; minimum daily, 2,230 micromhos Aug. 25, 1971.

REMARKS.--Discharge records good. Specific conductance, recorded continuously at this station, was discontinued.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.4	3.6	3.8	3.8	2.4	3.7	3.5	5.0	4.0	3.3	6.6	2.8
2	4.8	6.1	3.8	3.8	2.4	3.8	3.5	4.4	3.8	3.5	5.3	2.8
3	4.7	4.8	3.8	3.6	2.4	3.7	3.5	4.4	3.8	3.5	29	3.4
4	4.7	4.1	3.8	3.5	2.4	3.8	3.5	4.4	3.8	3.5	23	3.7
5	4.7	3.8	3.8	3.3	2.4	3.9	3.8	5.0	3.8	3.5	7.1	3.5
6	4.7	3.6	3.6	3.3	2.2	3.8	3.8	4.7	3.6	3.5	4.5	3.5
7	4.4	3.5	3.5	2.7	2.4	3.6	3.8	4.7	4.5	3.5	3.5	3.4
8	4.4	3.5	3.5	2.6	2.4	3.5	3.8	4.7	4.6	3.3	2.5	23
9	4.4	3.5	3.5	2.7	2.5	3.5	3.8	4.4	4.0	3.5	2.2	8.0
10	4.4	3.4	3.7	2.9	2.7	3.8	4.1	4.4	3.8	3.3	2.3	5.0
11	4.2	3.3	3.8	3.1	2.8	3.8	4.1	4.4	3.8	3.3	2.8	4.0
12	4.1	3.3	3.8	3.1	2.8	4.1	4.1	4.4	3.8	3.3	2.8	3.8
13	4.1	3.3	3.8	3.3	2.8	3.8	4.1	4.1	3.8	3.3	2.6	3.6
14	4.1	3.3	3.8	3.3	2.8	3.5	4.4	4.1	3.6	3.3	2.6	3.5
15	4.5	3.3	3.6	3.3	2.8	3.8	5.0	4.1	3.5	3.3	2.7	3.7
16	4.7	3.3	3.7	3.5	2.8	3.8	6.4	4.1	3.5	4.5	2.6	3.6
17	4.2	3.3	3.8	3.5	3.0	4.1	8.3	4.1	3.5	3.9	2.8	3.6
18	3.9	3.3	3.6	3.5	3.0	4.1	5.0	4.1	3.5	4.3	2.8	3.6
19	3.8	3.8	3.5	3.4	3.0	4.1	5.0	4.4	3.5	3.9	2.8	3.5
20	3.8	3.6	3.5	3.1	3.3	4.4	4.7	4.4	3.5	4.1	2.6	3.3
21	3.8	3.3	3.5	3.1	2.8	4.1	5.0	4.4	3.5	3.8	2.6	4.1
22	3.8	3.3	3.5	3.1	2.8	4.1	5.0	4.4	3.5	3.6	2.6	3.6
23	3.8	3.3	3.5	4.0	3.0	4.1	5.0	4.4	3.5	3.5	2.8	3.3
24	3.8	3.3	3.7	3.6	3.3	4.4	5.0	4.7	3.5	3.5	2.7	3.5
25	3.8	3.3	3.8	2.7	3.5	4.4	4.7	4.7	3.8	3.8	3.0	3.3
26	3.8	3.3	4.1	2.7	3.3	4.7	4.7	4.4	3.8	4.7	2.7	3.3
27	3.6	3.3	4.1	2.6	3.3	4.7	4.7	4.1	3.7	4.7	3.0	3.3
28	3.5	3.5	4.1	2.4	3.6	4.4	5.4	4.1	3.5	4.6	2.8	4.4
29	3.5	4.1	4.1	2.2	4.1	4.4	6.0	4.1	3.5	16	3.6	3.9
30	3.5	3.8	3.9	2.4	---	4.1	5.4	4.1	3.3	10	3.1	3.4
31	3.5	---	3.8	2.4	---	3.5	---	4.1	---	14	2.8	---
TOTAL	127.4	108.2	115.8	96.5	83.0	123.5	139.1	135.5	111.3	143.8	144.8	131.4
MEAN	4.11	3.61	3.74	3.11	2.86	3.98	4.64	4.37	3.71	4.64	4.67	4.38
MAX	4.8	6.1	4.1	4.0	4.1	4.7	8.3	5.0	4.6	16	29	23
MIN	3.5	3.3	3.5	2.2	2.2	3.5	3.5	4.1	3.3	3.3	2.2	2.8
AC-FT	253	215	230	191	165	245	276	269	221	285	287	261

CAL YR 1975 TOTAL 1908.1 MEAN 5.23 MAX 127 MIN 2.6 AC-FT 3780  
WTR YR 1976 TOTAL 1460.3 MEAN 3.99 MAX 29 MIN 2.2 AC-FT 2900

PEAK DISCHARGE (BASE, 200 FT<sup>3</sup>/S).--Sept. 8 (1515) 204 ft<sup>3</sup>/s (3.86 ft).

## RED RIVER BASIN

07311780 South Fork Wichita River near Guthrie, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA+MG) (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
OCT. 20...	1620	4.3	36600	14.0	3700	1100	240	2900	12000
DEC. 15...	1640	3.5	39000	6.0	3900	1100	280	3200	14000
JAN. 26...	1520	2.5	41700	5.0	4200	1200	280	3100	16000
MAR. 29...	1345	3.3	42100	19.0	4100	1200	270	3100	16000
APR. 21...	1320	4.6	39600	20.0	4100	1200	270	2800	13000
JUNE 21...	1525	3.7	44800	30.0	4200	1200	290	3200	16000
AUG. 02...	1550	3.4	28500	29.0	3100	890	210	2400	9500



## RED RIVER BASIN

153

07311780 South Fork Wichita River near Guthrie, Tex.--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	127.4	36700	25100	8650	12600	4390	2970	1020	****
NOV. 1975.....	108.2	36900	25300	7390	12900	3770	2980	870	****
DEC. 1975.....	115.8	38200	26300	8220	13400	4200	3060	956	****
JAN. 1976.....	96.5	39800	27400	7150	14000	3660	3170	825	****
FEB. 1976.....	78.9	41000	28300	6030	14500	3090	3250	692	****
MAR. 1976.....	123.5	41900	29000	9670	14900	4970	3300	1100	****
APR. 1976.....	139.1	39900	27500	10300	14100	5300	3160	1190	****
MAY 1976.....	135.5	41700	28900	10600	14800	5420	3270	1200	****
JUNE 1976.....	111.3	43900	30500	9170	15700	4720	3420	1030	****
JULY 1976.....	143.8	39600	27300	10600	13900	5420	3150	1220	****
AUG. 1976.....	144.8	29800	20200	7880	10200	3970	2480	969	****
SEPT 1976.....	131.4	35400	24200	8580	12300	4360	2880	1020	****
TOTAL .....	1456.2	**	**	104000	**	53300	**	12100	**
WTD.AVG. ....	3.99	38500	27000	**	14000	**	3100	**	*****

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36200	36900	39000	38500	41100	40600	44100	38600	43300	45200	26200	40800
2	36800	34800	39500	39200	40900	40400	43600	38100	44200	45200	28500	41500
3	36700	34000	39900	39000	40600	40900	43600	38800	44200	44700	21400	41900
4	36700	34300	38600	38800	40500	41500	44100	39400	43700	44800	12000	42400
5	36800	35300	37800	38600	41200	41000	43800	38600	44100	44900	20900	42200
6	36700	35900	38200	39000	41500	41400	43300	38900	44200	45000	26000	43100
7	36600	36400	39000	39100	40500	41100	43100	39300	42900	44900	31000	43100
8	36500	36900	38600	40100	39100	40200	42800	38500	40700	44900	33600	22500
9	36700	36700	38300	39400	38900	40100	42800	38600	42500	44700	35700	25300
10	36800	37000	38000	39600	39100	39700	42700	38400	42500	44500	37600	31900
11	36700	37600	37600	39300	39600	40400	42900	39700	43200	44600	39400	32600
12	36800	37800	38500	39500	40300	41300	42500	41100	43500	44700	38900	35200
13	37000	38000	38400	39600	40300	42900	42000	41900	44000	44400	40600	37800
14	37000	37700	37600	40100	40000	42200	41300	42400	44400	44000	40400	38900
15	36300	37200	39000	40000	39900	42800	40600	43000	44400	44000	41800	40400
16	36200	37500	39400	39900	40000	43700	38100	42900	44900	42100	42000	40600
17	35500	37600	38700	40000	40100	42200	33500	43700	44200	42400	42400	41100
18	36300	37300	38600	40000	40800	41900	32500	43700	44100	43300	42800	42100
19	36600	36800	38400	39700	40600	41900	36400	43700	44400	43800	42900	41600
20	36600	37500	38300	41100	41700	42000	37500	43400	44600	43800	43200	40600
21	36800	37900	38000	40700	42900	42700	39600	43600	44800	44100	43400	41300
22	36600	37900	37400	40400	43800	42100	38900	43600	44300	43900	43900	36300
23	36700	37600	38200	39700	42400	42900	39300	44100	44200	43900	44100	36200
24	36700	36900	37900	39800	42900	41800	39900	43900	44400	44300	43600	38000
25	37000	37600	37000	40400	42400	42500	39800	43400	44800	43900	43100	39100
26	37100	37900	36500	41700	42200	42700	39300	43800	44500	43700	43100	39300
27	36800	38600	36700	41100	41700	43400	39800	43900	44700	44200	43400	39600
28	37000	38100	37400	40600	41000	42200	39300	44000	44700	43600	42900	38100
29	37400	37700	38600	40000	40100	42100	38400	44100	44800	32200	41500	37900
30	37500	38300	38000	39900	---	43600	38100	44000	44800	26400	40500	38400
31	37100	---	38100	40000	---	44400	---	44000	---	23400	40700	---
MONTH	36700	37100	38200	39800	40900	41900	40500	41800	44000	42600	37300	38300



07311790 South Fork Wichita River at Ross Ranch near Benjamin, Tex.

LOCATION.--Lat 33°39'18", long 100°00'49", King County, on left bank 170 ft (52 m) upstream from ranch road, 1.6 miles (2.6 km) downstream from Ox Yoke Creek, 13.7 miles (22.0 km) northwest of Benjamin, and at mile 64.5 (103.8 km).

DRAINAGE AREA.--499 mi<sup>2</sup> (1,292 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: September 1970 to current year.

Water quality: Chemical analyses: August 1970 to current year.

GAGE.--Water-stage and specific-conductance recorders. Altitude of gage is 1,450 ft (442 m), from topographic map.

AVERAGE DISCHARGE.--6 years, 14.3 ft<sup>3</sup>/s (0.405 m<sup>3</sup>/s), 0.39 in/yr (10 mm/yr), 10,360 acre-ft/yr (12.8 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 1,050 ft<sup>3</sup>/s (29.7 m<sup>3</sup>/s) Aug. 3 (gage height, 8.61 ft or 2.624 m); minimum, 0.86 ft<sup>3</sup>/s (0.0244 m<sup>3</sup>/s) July 12.

Period of record: Maximum discharge, 2,780 ft<sup>3</sup>/s (78.7 m<sup>3</sup>/s) May 28, 1975 (gage height, 12.23 ft or 3.728 m); no flow at times.

Water quality: Current year: Maximum daily specific conductance, 42,800 micromhos July 5, 7, 8; minimum daily, 3,190 micromhos Aug. 4.

Period of record: Maximum daily specific conductance, 50,900 micromhos July 16, 1974; minimum daily, 1,500 micromhos May 28, 1975.

REMARKS.--Discharge records good. Specific conductance is recorded continuously at this station.

DISCHARGE IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.5	23	6.8	7.9	6.4	7.3	6.4	8.1	2.8	1.1	8.3	11
2	8.5	239	6.8	7.9	6.4	7.3	6.4	6.6	2.9	1.0	7.3	10
3	8.1	63	6.8	7.9	7.3	7.3	6.4	5.3	2.5	.95	498	9.9
4	8.5	18	7.4	7.9	6.9	7.3	6.4	4.6	2.9	1.0	166	7.1
5	7.4	14	7.4	7.9	6.9	7.3	6.4	4.0	2.6	1.1	38	6.2
6	7.4	12	7.4	7.9	6.0	7.3	6.4	3.9	2.7	.99	12	7.2
7	7.4	9.7	7.4	7.0	6.0	7.8	7.4	3.9	2.8	1.0	7.3	6.3
8	8.5	9.1	7.4	6.0	6.5	10	8.7	3.9	2.7	1.1	5.2	7.5
9	14	8.5	7.4	6.0	7.0	11	9.6	3.9	3.3	.95	3.6	130
10	13	7.9	7.4	7.0	7.3	8.3	9.2	3.6	3.9	.95	3.0	67
11	13	7.4	7.4	7.9	6.9	7.3	8.5	3.6	2.9	1.0	2.6	20
12	9.3	6.8	7.4	7.4	6.9	6.5	8.1	3.6	2.6	1.1	2.5	12
13	11	6.8	7.4	7.4	7.8	6.2	9.4	3.7	2.3	1.1	2.8	7.4
14	10	6.8	7.4	7.4	7.8	6.4	9.4	3.6	2.0	1.4	2.8	6.0
15	11	6.8	7.4	7.4	7.8	6.5	9.5	3.1	1.7	1.5	3.0	5.2
16	11	6.8	7.4	6.8	7.8	6.9	16	2.9	1.8	20	2.8	4.9
17	8.9	6.8	6.8	6.8	7.3	6.8	23	2.9	1.6	21	2.9	4.3
18	9.3	6.8	6.8	6.8	7.3	6.7	18	2.7	1.7	10	3.1	4.0
19	8.2	8.5	7.4	6.3	7.3	6.9	11	2.6	1.9	6.9	3.1	14
20	7.9	8.5	7.4	6.3	7.3	5.9	7.3	3.0	1.9	5.5	3.3	7.9
21	7.1	7.9	7.4	6.3	7.3	5.6	5.7	3.7	1.7	5.2	3.4	6.6
22	6.8	6.8	7.4	6.3	7.3	5.6	5.4	3.7	1.9	4.4	3.2	6.6
23	8.5	6.3	7.4	6.3	7.3	5.7	5.2	3.4	1.7	5.6	3.3	7.4
24	12	6.8	10	6.3	7.8	5.8	4.9	3.4	1.6	5.1	3.2	7.1
25	14	6.8	12	6.3	7.8	5.7	4.9	3.1	1.7	13	3.5	7.5
26	14	6.8	10	6.3	7.8	5.8	4.3	2.9	1.7	7.5	3.5	6.9
27	15	6.8	9.7	6.4	7.8	5.4	3.9	3.0	1.5	7.8	3.5	7.3
28	14	6.8	9.7	6.9	7.8	6.0	5.3	2.9	1.5	14	20	8.9
29	14	6.8	9.7	6.9	7.8	6.3	11	2.9	1.3	57	9.7	9.4
30	14	6.8	9.1	6.4	---	5.7	11	2.7	1.1	32	10	6.9
31	14	---	8.5	6.9	---	6.0	---	2.6	---	19	12	---
TOTAL	324.3	544.8	245.9	215.2	210.1	210.6	255.1	113.8	65.2	250.24	852.9	422.5
MEAN	10.5	18.2	7.93	6.94	7.24	6.79	8.50	3.67	2.17	8.07	27.5	14.1
MAX	15	239	12	7.9	7.8	11	23	8.1	3.9	57	498	130
MIN	6.8	6.3	6.8	6.0	6.0	5.4	3.9	2.6	1.1	.95	2.5	4.0
AC-FT	643	1080	488	427	417	418	506	226	129	496	1690	838
CAL YR 1975 TOTAL	8946.00			24.5	1200	3.0						
WTR YR 1976 TOTAL	3710.64			10.1	MAX	498	MIN	.95	AC-FT	17740		
										7360		

PEAK DISCHARGE (BASE, 500 FT<sup>3</sup>/S).--Aug. 3 (1730) 1,050 ft<sup>3</sup>/s (8.61 ft).

## RED RIVER BASIN

155

07311790 South Fork Wichita River at Ross Ranch near Benjamin, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	HARDNESS (CA, MG) (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)
OCT. 20...	1435	7.7	26400	14.0	3700	1000	280	2700	8200
DEC. 15...	1225	7.3	28300	5.5	4000	1100	310	3000	9500
JAN. 26...	1240	6.5	29600	5.0	4000	1100	310	3200	9600
MAR. 29...	1150	7.8	35000	17.0	4400	1200	340	3400	12000
APR. 21...	1010	5.5	27400	16.0	3900	1100	280	2800	9500
JUNE 21...	1330	2.7	40900	29.0	5200	1400	420	3600	14000
JULY 12...	1225	1.2	41800	27.5	5600	1500	460	3800	15000
AUG. 02...	1220	7.3	35600	28.0	4300	1200	320	3100	12000

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICROMHOS)	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. 1975.....	324.3	26300	17700	15500	8530	7470	2720	2380	****
NOV. 1975.....	544.8	14900	9940	14600	4480	6590	1850	2720	****
DEC. 1975.....	245.9	27900	18900	12500	9130	6070	2830	1880	****
JAN. 1976.....	215.2	29100	19700	11500	9600	5580	2920	1700	****
FEB. 1976.....	202.3	31700	21500	11800	10600	5770	3100	1690	****
MAR. 1976.....	210.6	33400	22700	12900	11200	6350	3220	1830	****
APR. 1976.....	255.1	31200	21200	14600	10400	7150	3070	2110	****
MAY 1976.....	113.8	31400	21300	6560	10500	3210	3080	945	****
JUNE 1976.....	65.2	39200	26800	4720	13300	2350	3630	639	****
JULY 1976.....	250.24	20500	13700	9280	6430	4350	2290	1550	****
AUG. 1976.....	852.9	9540	6460	14900	2670	6150	1440	3330	1740
SEPT 1976.....	422.5	18100	12000	13700	5480	6250	2170	2470	****
TOTAL .....	3702.83	**	**	143000	**	67300	**	23200	**
WTD.AVG. ....	10.14	21100	14000	**	6700	**	2300	**	*****

## RED RIVER BASIN

07311790 South Fork Wichita River at Ross Ranch near Benjamin, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23200	30200	26900	26900	30700	32700	35300	23500	37300	42300	31000	30600
2	23800	8150	27000	27000	30700	33000	35400	25400	37600	42300	35600	30600
3	24500	8220	27400	27200	30900	33300	35700	27100	37800	42600	6980	30900
4	24700	10500	27200	27400	31100	33300	35700	28200	37900	42700	3190	31300
5	24800	14100	27500	27100	31500	33500	35800	28800	37800	42800	4010	31700
6	25200	17000	27600	28100	31600	33600	35700	28900	37600	42700	19100	32100
7	25500	19200	27700	27500	31100	33800	35400	29500	37500	42800	21600	32800
8	25100	20900	27900	29900	31000	32300	35100	30000	37600	42800	23900	35400
9	22300	22100	27600	30400	30900	31700	34700	30600	37900	42700	25200	10100
10	21900	23000	27800	29500	30900	31900	34000	31000	38500	42600	26800	12000
11	22600	22700	27800	29400	31400	32200	34200	31700	39000	42300	27400	15000
12	24800	23300	27900	29300	31300	32300	34200	31900	39500	41800	27900	19300
13	23500	23800	28100	29100	31400	32900	34000	32200	39900	42000	28700	18800
14	24000	24500	28200	29500	31600	32700	34300	32700	40300	42100	29200	18900
15	24800	24900	28300	29500	31500	32700	33900	33100	40500	42300	29800	19700
16	25200	25200	28700	29500	31500	32800	31900	33000	40900	15000	30300	20100
17	25800	25500	28900	29400	31200	32700	29000	33500	41000	20000	31000	21000
18	25300	26300	29400	29300	31800	33000	27400	33900	41100	27900	31900	21800
19	25900	25500	29000	29700	31700	33200	27500	34000	41200	27400	32400	19400
20	26400	25400	28900	29900	31800	33500	27100	34300	41200	27900	33000	17700
21	27200	25600	28900	29600	32400	33800	27400	34400	40900	28900	33100	20800
22	27700	25700	28600	29700	32600	33900	27700	34500	40600	30100	33500	23300
23	28000	26000	28600	29600	32300	34100	28000	34600	40000	32000	33300	24300
24	28400	26300	28400	29800	32500	34200	28000	35000	39900	33500	33300	25100
25	28700	26900	28000	30100	32600	34600	28200	35100	40000	20000	33000	25700
26	28900	27200	27400	29600	32700	34800	28800	35000	40100	31200	32800	26300
27	29100	27200	27200	30300	32800	35100	29600	35100	40200	33200	32400	26200
28	29500	27100	27200	30200	32900	35100	29300	35300	40600	20000	15000	25400
29	29800	27000	27100	30200	32900	35000	26600	35800	41300	10000	22500	26000
30	30100	27300	27000	30300	---	35200	24600	36500	41900	15000	25300	26200
31	30400	---	26700	30500	---	35300	---	36900	---	20000	29700	---
MONTH	26000	22900	27900	29200	31700	33500	31500	32300	39600	33200	26500	24000

07311800 South Fork Wichita River near Benjamin, Tex.

LOCATION.--Lat 33°38'39", long 99°48'02", Knox County, on right bank at upstream side of bridge on State Highway 6, 2 miles (3 km) downstream from Panhandle and Santa Fe Railway Co. bridge, 4 miles (6 km) north of Benjamin, and 41 miles (66 km) upstream from confluence with North Fork Wichita River.

DRAINAGE AREA.--584 mi<sup>2</sup> (1,513 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: 1952-57 (occasional low-flow measurements), December 1959 to current year.

Water quality: Chemical analyses: October 1967 to current year. Water temperatures: October 1967 to current year.

GAGE.--Water-stage and specific-conductance recorders. Datum of gage is 1,334.23 ft (406.673 m) above mean sea level. Prior to Jan. 2, 1960, nonrecording gage at same site and datum.

AVERAGE DISCHARGE.--16 years (1960-76), 41.7 ft<sup>3</sup>/s (1.181 m<sup>3</sup>/s), 0.97 in/yr (25 mm/yr), 30,210 acre-ft/yr (37.2 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 1,880 ft<sup>3</sup>/s (53.2 m<sup>3</sup>/s) Nov. 2 (gage height, 11.46 ft or 3.493 m); no flow for several days.

Period of record: Maximum discharge, 13,000 ft<sup>3</sup>/s (368 m<sup>3</sup>/s) Oct. 18, 1960 (gage height, 15.40 ft or 4.694 m); maximum gage height, 16.48 ft (5.023 m) Oct. 18, 1965; no flow at times.

Historic: Maximum stage since at least 1903 occurred in September 1919 (stage and discharge unknown), from information by local resident.

Water quality: Current year: Maximum daily specific conductance, 36,000 micromhos June 14; minimum daily, 3,500 micromhos Aug. 4. Maximum water temperatures, 33.5°C June 13; minimum, freezing point on several days during winter months.

Period of record: Maximum daily specific conductance, 48,900 micromhos May 13, 1971; minimum daily, 901 micromhos Sept. 6, 1973. Maximum water temperatures, 38.0°C Sept. 7, 1969; minimum, freezing point on many days during winter months.

REMARKS.--Discharge records good. No known regulation or diversion above station. Specific conductance is recorded continuously at this station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	6.7	8.3	9.6	7.8	9.4	5.9	22	2.7	.32	1.0	3.6
2	10	9.24	8.5	8.3	7.5	9.6	6.3	16	2.1	0	.46	3.3
3	9.6	132	8.1	8.3	7.3	9.6	6.3	13	1.9	0	418	3.3
4	9.7	41	8.8	7.8	7.0	9.2	6.6	10	1.9	0	536	2.8
5	10	26	9.1	8.3	6.6	9.2	6.6	12	1.9	0	68	2.4
6	9.7	20	8.1	7.8	6.6	9.2	7.1	11	1.7	0	27	2.1
7	9.6	17	8.1	7.6	7.0	8.9	7.1	8.7	1.3	0	14	1.4
8	9.6	14	8.4	6.6	7.8	10	9.8	8.7	1.3	0	8.8	54
9	9.6	13	8.7	7.8	8.0	11	8.6	8.7	1.2	0	6.9	111
10	9.4	12	8.4	11	8.1	12	9.1	8.3	1.2	.02	5.5	79
11	9.6	12	8.7	10	6.8	11	9.2	8.3	1.1	.04	4.7	24
12	9.6	11	7.7	8.9	7.0	9.6	9.3	7.8	1.1	.08	4.3	16
13	9.8	10	8.6	8.8	7.4	8.8	30	7.4	1.0	0	3.8	82
14	9.6	10	8.1	7.9	6.7	8.3	16	6.6	.92	0	2.8	35
15	44	11	7.4	8.0	7.0	8.7	38	6.6	.65	0	2.6	5.5
16	21	10	7.8	7.9	7.0	7.7	175	6.5	.58	0	1.7	5.2
17	12	10	7.7	8.0	7.5	7.6	186	5.6	.58	16	.33	16
18	11	10	7.4	7.2	7.4	7.4	41	5.6	12	4.8	.20	6.9
19	9.2	12	7.8	7.1	7.4	7.8	23	5.6	2.6	1.7	.09	136
20	8.3	14	7.8	6.9	7.0	7.4	15	5.3	1.2	.75	.06	92
21	7.5	13	7.8	7.1	11	6.8	12	5.5	.66	.29	.01	11
22	7.4	12	7.8	7.1	12	6.8	8.7	6.2	.71	.05	0	6.4
23	7.4	8.8	7.8	7.8	12	7.5	7.8	4.4	1.6	1.3	0	5.6
24	7.1	9.6	11	7.8	12	8.0	7.4	4.4	.98	.45	0	5.2
25	7.0	9.0	15	7.1	11	9.1	5.6	4.4	.67	.05	0	5.2
26	6.6	8.3	14	7.0	11	8.7	5.9	4.4	.45	.66	0	5.0
27	6.6	9.0	12	7.3	11	7.9	6.3	4.2	.27	.47	0	8.1
28	6.6	9.0	12	7.7	10	8.3	60	3.8	.20	45	6.6	24
29	6.3	9.6	12	7.6	10	9.6	68	3.8	.13	420	20	10
30	6.6	8.5	11	7.6	---	8.0	28	3.3	.03	18	2.7	9.2
31	6.6	---	11	7.8	---	5.6	---	2.8	---	2.1	4.7	---
TOTAL	318.0	1412.5	284.9	245.7	244.9	268.7	825.6	230.9	44.63	512.08	1140.25	771.2
MEAN	10.3	47.1	9.19	7.93	8.44	8.67	27.5	7.45	1.49	16.5	36.8	25.7
MAX	44	924	15	11	12	12	186	22	12	420	536	136
MIN	6.3	6.7	7.4	6.6	6.6	5.6	5.6	2.8	.03	0	0	1.4
AC-FT	631	2800	565	487	486	533	1640	458	89	1020	2260	1530

CAL YR 1975 TOTAL 20596.77 MEAN 56.4 MAX 1690 MIN .69 AC-FT 40850  
WTR YR 1976 TOTAL 6299.36 MEAN 17.2 MAX 924 MIN 0 AC-FT 12490

PEAK DISCHARGE (BASE, 800 FT<sup>3</sup>/S)

DATE	TIME	G.HT.	DISCHARGE
11-2	0930	11.46	1,880
7-29	0915	8.75	1,000
8-3	1830	9.47	1,220

## RED RIVER BASIN

07311800 South Fork Wichita River near Benjamin, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)
OCT 01...	1410	10	19100	--	22.0	3400	--	900	280	--
NOV 03...	1130	135	6160	7.2	15.0	1600	1500	470	100	790
DEC 17...	1425	8.3	25700	--	3.0	4100	--	1100	330	--
JAN 28...	1340	7.9	26600	--	8.0	4100	--	1100	340	--
FEB 18...	1500	8.2	29000	--	15.0	4500	--	1200	360	--
MAR 30...	1400	10	32800	--	17.0	5000	--	1300	420	--
APR 16...	1050	150	4670	7.4	11.0	990	890	270	76	690
MAY 12...	1545	4.5	27200	--	24.0	4200	--	1100	360	--
JUN 21...	1110	1.2	15100	--	27.0	3100	--	810	260	--
JUL 29...	1115	850	4630	7.4	26.0	810	710	240	51	680
AUG 04...	1710	305	2430	7.7	28.0	910	840	310	33	210

DATE	SODIUM ADSORPTION RATIO	DIS-SOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SI02) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT 01...	--	--	--	--	2400	5500	--	--	--
NOV 03...	8.6	14	84	0	1200	1400	.3	5.9	4020
DEC 17...	--	--	--	--	2900	8500	--	--	--
JAN 28...	--	--	--	--	3000	8900	--	--	--
FEB 18...	--	--	--	--	3400	10000	--	--	--
MAR 30...	--	--	--	--	3500	10000	--	--	--
APR 16...	9.6	14	116	0	860	1100	.4	10	3080
MAY 12...	--	--	--	--	3000	9200	--	--	--
JUN 21...	--	--	--	--	2400	4400	--	--	--
JUL 29...	10	12	125	0	700	1100	.4	9.6	2850
AUG 04...	3.0	14	88	0	780	350	.4	7.3	1750

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICROMHOS)	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. 1975.....	317	20300	13400	11500	6200	5320	2410	2070	****
NOV. 1975.....	1412.5	8450	5580	21300	2170	8250	1420	5410	1710
DEC. 1975.....	264.9	23900	15800	12100	7430	5710	2710	2090	****
JAN. 1976.....	245.7	24600	16300	10800	7690	5100	2780	1840	****
FEB. 1976.....	234.9	28400	18800	11900	8980	5690	3090	1960	****
MAR. 1976.....	268.7	29900	19800	14300	9490	6890	3220	2340	****
APR. 1976.....	825.6	14800	9740	21700	4320	9630	1950	4340	****
MAY 1976.....	230.9	25700	17000	10600	8060	5030	2870	1790	****
JUNE 1976.....	44.63	24500	16200	1950	7640	921	2770	333	****
JULY 1976.....	512.08	7540	4980	6880	1850	2570	1350	1860	1580
AUG. 1976.....	1140.25	5370	3550	10900	1120	3440	1150	3550	1290
SEPT 1976.....	771.2	12900	8510	17700	3680	7660	1800	3740	****
TOTAL .....	6289.35	**	**	152000	**	66200	**	31300	**
WTD.AVG. ....	17.23	13500	8900	**	3900	**	1800	**	*****

07311800 South Fork Wichita River near Benjamin, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19100	25800	23900	19000	27400	29300	32800	15900	32100	20400	15000	20100
2	19400	5500	23900	20300	27300	29600	33100	21300	32500	---	19600	22700
3	20100	7500	23600	20500	27500	29600	33200	22100	32200	---	5500	24000
4	20300	8000	24100	20600	27600	29400	33100	22800	31600	---	3500	23500
5	20500	8500	23900	19700	27400	31000	33100	23100	31000	---	5100	26200
6	20900	8960	24500	21100	27500	30700	32900	23300	31000	---	7550	28800
7	21300	10700	24400	22500	27600	27500	33000	24500	31100	---	9770	30000
8	21800	12600	24700	25700	27500	26300	32500	25200	31300	---	13600	15000
9	22200	14300	24800	25700	27400	26400	28600	26100	31800	---	14700	10000
10	22400	15500	24800	24500	27700	27800	30900	26100	31800	21700	16700	21300
11	22900	16500	24900	24800	28000	28400	32500	26800	32300	18900	18300	18900
12	23800	17500	25100	24900	27800	28400	32800	27000	32600	20800	20100	12800
13	23500	18200	24600	24800	28000	29000	21700	27400	35800	---	21000	10200
14	23700	18700	25100	25400	28100	29300	23800	28200	36000	---	21900	14400
15	15000	19100	25400	25300	27900	29400	20200	27900	34900	---	23300	15500
16	10000	19800	25300	25400	28000	29400	11000	29000	34700	---	24000	16500
17	12800	19800	25700	25800	28200	29400	6000	29300	33800	12200	23000	13000
18	19400	20200	26000	25800	28900	29600	15000	29400	16400	19400	22800	17900
19	22700	20600	25900	26100	28800	29500	16600	29900	10100	25200	22200	10200
20	23000	19800	25800	26400	28700	31100	19600	30700	12200	26300	21800	8000
21	23700	20900	25800	26600	29300	31100	22800	30200	14400	27100	21500	7930
22	23900	20800	25100	26400	29200	31300	23700	30100	15000	28200	---	9040
23	23800	21600	25800	26100	29100	31400	24300	30600	19800	29500	---	11800
24	24000	21900	22500	26300	29400	31500	25000	30700	18100	34000	---	15500
25	24600	22100	21700	26800	29300	31500	26500	31100	20300	29100	---	16900
26	24700	22700	21700	26800	29400	32000	26500	30800	22500	32100	---	17800
27	24900	22800	22800	27000	29400	32300	27100	31800	24600	30700	---	18900
28	25100	22900	22600	26900	29500	32300	12000	31700	23800	15000	13500	12600
29	25200	22600	20200	26800	29500	32300	10000	31700	24400	6000	11600	14100
30	25500	23600	22000	26800	---	33000	12600	33300	24800	10000	22200	20000
31	25600	---	22100	27000	---	32700	---	32300	---	12100	24500	---
MONTH	21800	17600	24200	24800	28300	30100	24400	27800	26800	---	16900	16800

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.5	16.0	1.0	6.0	6.0	11.0	9.5	11.0	20.0	21.5	25.5	22.0
2	12.0	15.0	4.0	3.5	5.0	14.0	11.5	22.0	20.0	---	25.0	23.0
3	12.0	14.0	5.0	0.0	5.0	15.0	16.0	12.0	21.0	---	23.5	22.0
4	13.0	14.0	8.0	---	6.5	8.0	20.0	15.0	22.0	---	24.0	23.0
5	16.0	13.5	12.0	0.0	4.5	5.0	14.0	16.5	21.0	---	25.5	24.0
6	14.0	14.0	16.0	3.0	0.0	6.0	15.5	16.5	33.0	---	25.5	23.0
7	15.0	13.5	7.0	0.0	0.0	8.0	16.5	14.0	21.0	---	26.0	23.0
8	15.0	13.0	4.0	0.0	7.0	7.0	14.0	14.5	20.5	---	30.5	22.0
9	17.0	19.0	5.0	0.0	7.0	6.0	14.0	23.5	21.0	---	26.5	20.0
10	17.0	10.0	6.0	0.5	11.5	10.0	15.5	17.0	20.0	---	24.0	18.0
11	18.0	11.0	8.0	8.0	12.0	14.0	25.0	19.0	20.5	24.0	25.0	19.5
12	25.0	8.0	8.5	2.0	10.0	11.0	19.0	21.0	23.0	21.5	24.0	27.0
13	19.0	5.0	---	5.0	13.0	6.0	18.0	14.0	33.5	---	23.0	21.0
14	20.0	6.0	15.5	3.0	13.0	15.0	19.5	13.5	22.0	---	23.5	20.0
15	18.0	8.0	4.0	2.0	---	9.0	20.0	14.5	20.0	---	33.0	23.0
16	15.0	16.0	3.0	4.5	12.0	6.0	12.0	25.0	15.0	---	23.0	22.0
17	14.0	11.5	2.0	5.0	9.5	8.0	15.0	15.5	19.0	27.0	23.0	23.0
18	11.0	14.0	0.0	10.0	8.0	10.5	21.0	16.0	22.0	33.0	23.0	23.0
19	21.0	16.0	0.0	8.0	8.5	13.0	17.0	17.0	19.0	24.0	22.0	22.0
20	14.0	5.5	1.5	3.0	9.0	12.0	15.5	19.0	28.0	22.0	21.0	21.0
21	15.5	1.5	7.0	2.0	5.0	16.5	13.0	18.0	18.0	21.0	21.0	18.0
22	18.0	3.0	6.0	3.0	5.0	8.5	18.0	19.0	21.0	21.0	---	19.0
23	14.5	8.0	7.0	8.0	4.5	9.5	21.0	27.0	22.0	21.5	---	18.5
24	14.0	4.0	8.0	8.0	6.0	13.0	18.0	20.0	22.0	23.0	---	21.0
25	10.0	3.5	3.5	6.0	6.5	15.5	25.5	20.5	22.0	27.0	---	22.0
26	14.0	0.0	3.0	3.0	8.0	15.0	15.0	19.0	21.0	21.0	---	---
27	13.5	---	3.0	0.0	9.0	9.0	18.0	17.0	31.0	23.0	---	19.0
28	14.0	5.5	6.0	1.5	12.0	15.0	18.5	17.0	21.0	23.0	21.0	14.0
29	13.0	15.0	4.0	4.0	21.0	13.0	14.0	20.0	19.0	22.0	26.5	13.0
30	12.0	7.0	1.0	5.5	---	9.5	14.0	32.5	22.0	24.0	23.0	16.0
31	14.0	---	4.0	7.0	---	9.0	---	19.5	---	25.0	23.0	---
MONTH	15.5	10.0	5.5	3.5	8.0	10.5	17.0	18.5	22.0	---	24.5	21.0



## RED RIVER BASIN

07311900 Wichita River near Seymour, Tex.

LOCATION.--Lat 33°42'01", long 99°23'18", Baylor County, near left bank on downstream side of pier of bridge on Ranch Road 1919, 6 miles (10 km) upstream from head of Lake Kemp, 10 miles (16 km) downstream from confluence of North and South Forks, and 10.5 miles (16.9 km) northwest of Seymour.

DRAINAGE AREA.--1,874 mi<sup>2</sup> (4,854 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: 1952-57 (occasional low-flow measurements made 4 miles or 6 km downstream), November 1959 to current year.  
Water quality: Chemical analyses: October 1967 to current year. Water temperatures: October 1967 to current year.

GAGE.--Water-stage and specific-conductance recorders. Datum of gage is 1,152.7 ft (351.34 m) above mean sea level (State Highway Department bridge plans).

AVERAGE DISCHARGE.--16 years (1960-76), 169 ft<sup>3</sup>/s (4.786 m<sup>3</sup>/s), 1.22 in/yr (31 mm/yr), 122,400 acre-ft/yr (151 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 3,080 ft<sup>3</sup>/s (87.2 m<sup>3</sup>/s) Apr. 29 (gage height, 10.72 ft or 3.267 m); minimum, 2.0 ft<sup>3</sup>/s (0.057 m<sup>3</sup>/s) July 28.

Period of record: Maximum discharge, 23,100 ft<sup>3</sup>/s (654 m<sup>3</sup>/s) Sept. 20, 1965 (gage height, 17.75 ft or 5.410 m); no flow at times.

Water quality: Current year: Maximum daily specific conductance, 21,900 micromhos Apr. 12; minimum daily, 2,300 micromhos Sept. 20.

Maximum water temperatures, 38.0°C June 30; minimum, 4.0°C Jan. 7, 8.

Period of record: Maximum daily specific conductance, 30,800 micromhos Feb. 12, 1969; minimum daily, 735 micromhos Sept. 22, 1969.

Maximum water temperatures (1967-72, 1974-76), 38.0°C June 30, 1976; minimum, freezing point Dec. 29, 1969, Jan. 5, 1971.

REMARKS.--Discharge records good. Specific conductance is recorded continuously at this station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	21	32	39	29	24	19	274	114	39	45	27
2	46	738	32	32	30	23	17	142	56	15	26	130
3	43	1740	32	30	29	23	17	91	40	6.8	18	29
4	40	378	32	28	29	24	18	70	33	6.6	152	16
5	39	130	33	28	30	23	18	80	27	7.1	1810	11
6	38	91	31	26	25	23	17	57	24	6.0	407	8.1
7	37	71	31	20	30	40	17	51	21	5.4	181	6.5
8	36	61	32	15	32	133	18	40	18	5.1	105	116
9	35	54	31	20	31	82	18	38	17	5.0	80	107
10	35	49	32	30	30	48	20	32	16	5.4	60	115
11	34	46	31	34	30	44	20	26	17	5.3	44	75
12	33	43	31	39	29	43	21	43	16	5.5	29	39
13	33	40	33	34	29	35	40	46	14	11	27	36
14	32	40	34	30	28	32	40	29	13	9.7	22	18
15	38	38	31	31	29	29	48	28	13	24	18	82
16	99	38	32	30	29	28	681	26	12	10	14	17
17	75	37	31	30	27	27	657	24	13	11	11	19
18	49	37	29	30	26	26	647	24	16	11	9.0	104
19	41	40	32	29	26	24	261	21	77	12	7.1	148
20	37	38	32	29	26	23	145	19	29	7.6	6.0	241
21	34	40	32	30	24	22	92	17	21	4.6	5.1	320
22	32	40	36	29	23	22	63	19	28	7.6	5.1	122
23	31	38	36	30	24	21	51	23	30	151	4.5	63
24	28	36	77	31	23	21	43	19	14	43	3.9	41
25	25	35	119	30	23	21	37	1050	20	11	39	24
26	24	34	63	30	24	20	35	425	18	4.2	9.5	12
27	23	34	52	30	24	19	32	133	19	3.1	4.9	16
28	22	34	71	31	24	19	363	71	12	6.6	44	87
29	21	35	138	31	24	19	1660	45	8.6	911	11	92
30	21	31	61	31	---	18	564	34	7.1	510	45	67
31	21	---	46	30	---	18	---	92	---	91	28	---
TOTAL	1148	4087	1365	917	787	974	5679	3089	763.7	1951.6	3271.1	2188.6
MEAN	37.0	136	44.0	29.6	27.1	31.4	189	99.6	25.5	63.0	106	73.0
MAX	99	1740	138	39	32	133	1660	1050	114	911	1810	320
MIN	21	21	29	15	23	18	17	17	7.1	3.1	3.9	6.5
AC-FT	2280	8110	2710	1820	1560	1930	11260	6130	1510	3870	6490	4340

CAL YR 1975 TOTAL 69447.7 MEAN 190 MAX 5980 MIN 4.6 AC-FT 137700  
WTR YR 1976 TOTAL 26221.0 MEAN 71.6 MAX 1810 MIN 3.1 AC-FT 52010

PEAK DISCHARGE (BASE, 2,500 FT<sup>3</sup>/S).--Apr. 29 (0100) 3,080 ft<sup>3</sup>/s (10.72 ft); Aug. 5 (1100) 2,600 ft<sup>3</sup>/s (10.07 ft).

07311900 Wichita River near Seymour, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)
OCT. 22...	1010	33	13100	--	18.0	2300	--	650	170	--
NOV. 03...	1510	1560	3200	7.4	17.0	740	640	220	45	430
DEC. 18...	1000	28	17700	--	.0	2900	--	810	220	--
FEB. 19...	0900	28	19500	--	10.0	3100	--	860	240	--
MAR. 30...	1655	27	21300	--	15.0	3500	--	970	260	--
APR. 22...	0905	65	7130	7.8	19.0	1200	1100	350	84	1200
MAY 27...	1345	108	8680	7.4	17.0	1500	1400	430	98	1400
JUNE 23...	1230	24	8020	7.4	27.0	1400	1300	400	97	1300
JULY 29...	1445	917	1260	7.5	29.0	280	150	85	17	160
AUG. 05...	1430	2200	2040	7.6	26.0	410	290	130	21	270
SEP. 15...	1655	45	5750	7.4	26.0	950	860	280	60	910

DATE	SODIUM ADSORPTION RATIO	DIS-SOLVED PHOSPHATE (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT. 22...	--	--	--	--	1800	3400	--	--	--
NOV. 03...	6.9	6.5	117	0	620	650	.3	8.3	2040
DEC. 18...	--	--	--	--	2500	5500	--	--	--
FEB. 19...	--	--	--	--	2600	6200	--	--	--
MAR. 30...	--	--	--	--	2800	6600	--	--	--
APR. 22...	15	14	108	0	1100	1900	--	7.2	4710
MAY 27...	16	12	105	0	1100	2300	--	7.6	5400
JUNE 23...	15	11	95	0	1200	2100	--	6.2	5160
JULY 29...	4.1	4.3	156	0	200	220	.2	11	774
AUG. 05...	5.8	8.0	145	0	370	360	.5	9.4	1240
SEP. 15...	13	14	106	0	900	1400	--	9.4	3630

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICROMHOS)	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. 1975.....	1148	13900	9420	29200	4170	12900	1910	5920	****
NOV. 1975.....	4087	6760	4340	48000	1780	19700	980	10900	1160
DEC. 1975.....	1365	14400	9720	35800	4310	15900	1940	7160	****
JAN. 1976.....	917	17600	12100	29800	5400	13400	2370	5870	****
FEB. 1976.....	763	19200	13200	27100	5930	12200	2560	5270	****
MAR. 1976.....	974	17100	11700	30700	5220	13700	2300	6060	****
APR. 1976.....	5679	5430	3440	52800	1370	21000	800	12200	960
MAY 1976.....	3089	6290	4030	33600	1640	13700	920	7660	1090
JUNE 1976.....	763.7	12300	8230	17000	3600	7430	1660	3430	****
JULY 1976.....	1951.6	5080	3210	16900	1270	6680	770	4040	910
AUG. 1976.....	3271.1	4470	2800	24700	1080	9510	690	6130	820
SEPT 1976.....	2188.6	6810	4380	25900	1800	10600	970	5750	1170
TOTAL .....	26196.99	**	**	371000	**	157000	**	80400	**
WTD.AVG. ....	71.77	8010	5300	**	2200	**	1100	**	1300

## RED RIVER BASIN

07311900 Wichita River near Seymour, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12800	16900	16800	15900	18600	20200	21300	5000	8500	10000	5500	9250
2	13100	6000	16800	15900	18900	20300	21400	5500	8840	9000	8600	5200
3	13500	3750	16800	16200	18700	20200	21400	6200	10500	12200	10800	6150
4	13700	5240	16700	16600	18700	20000	21200	6920	14600	14400	7200	10400
5	14000	6100	16900	16900	18400	20200	21200	5720	14200	15900	2900	15600
6	14200	7000	17100	16900	18600	19800	21200	8780	14600	18600	3000	15200
7	14200	7570	17300	17300	18600	15500	21200	10100	14600	18800	4000	15500
8	14800	8440	17100	17600	18600	10500	20900	11500	13700	18900	6000	7350
9	15000	10400	17100	18600	18600	11000	21000	12500	14600	18600	7170	5120
10	15000	10400	17300	17000	18900	13000	21400	13100	15100	18200	8420	14900
11	15500	11000	17400	16600	18900	16800	21400	13600	16000	18400	9450	16500
12	15400	11600	17400	17300	18800	17200	21900	12100	16500	18600	10300	17800
13	15700	12300	17400	17900	18800	17800	17600	10300	17400	13300	11100	10000
14	15900	12800	17700	17900	18700	18000	18700	13700	17400	14900	11700	11400
15	15300	13000	17700	17900	18700	18800	18200	15000	18000	19600	12400	6620
16	12000	13600	17700	17600	18700	19200	4000	16600	18300	21500	13100	7350
17	12100	13800	17800	17600	19400	19000	6500	16400	18500	16400	13600	14400
18	10800	14100	17800	17700	19800	19500	4200	16700	18300	15500	12500	5100
19	13200	14100	17800	18100	19800	19700	4000	17100	8260	10000	12800	2600
20	12600	14700	17700	18200	20100	20300	5200	17300	8540	18200	14000	2300
21	12400	15100	17700	18200	20100	20400	5910	17000	11900	17000	14500	4810
22	13200	15500	17400	18000	20100	20400	7320	17400	8840	15500	14900	6250
23	13200	15700	17400	18200	20100	20300	9030	15500	7880	6100	14900	6100
24	14300	15500	12600	18200	20100	20500	10700	14400	8760	7000	15200	6500
25	15300	15500	9500	18300	20100	20500	11500	3100	9670	9900	8510	7100
26	15900	15900	10000	18500	20100	20900	12500	3900	20100	11700	9810	8000
27	16200	16200	14200	18600	20100	20900	13700	8680	20300	12800	13400	8970
28	16700	15900	12300	18600	20100	21100	6550	7000	19700	13000	8210	5500
29	16700	15900	9300	18400	20100	21100	2500	7770	20100	3000	7650	9000
30	16900	16800	10200	18400	---	21300	4550	8540	19700	3890	8300	8200
31	---	---	11900	18700	---	21100	---	9500	---	4300	9000	---
MONTH	14300	12400	15800	17700	19300	18900	13900	11200	14400	13700	9970	8970

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	19.0	11.0	15.0	14.0	21.0	22.0	21.0	28.0	35.0	34.0	27.0
2	22.0	16.0	---	5.0	13.0	19.0	23.0	20.0	31.0	31.0	31.0	27.0
3	22.0	17.0	15.0	8.0	14.0	10.0	25.0	---	31.0	27.0	34.0	30.0
4	17.0	17.0	17.0	6.0	11.0	14.0	---	22.0	25.0	28.0	31.0	31.0
5	25.0	20.0	17.0	9.0	9.0	12.0	24.0	20.0	29.0	32.0	---	31.0
6	24.0	21.0	11.0	10.0	5.0	10.0	25.0	20.0	30.0	33.0	32.0	34.0
7	25.0	20.0	11.0	4.0	10.0	---	21.0	19.0	29.0	35.0	32.0	---
8	26.0	21.0	12.0	4.0	10.0	9.0	22.0	15.0	29.0	33.0	32.0	24.0
9	27.0	---	13.0	5.0	18.0	16.0	25.0	22.0	30.0	30.0	34.0	20.0
10	26.0	17.0	15.0	9.0	20.0	18.0	23.0	29.0	32.0	29.0	35.0	24.0
11	27.0	---	17.0	10.0	17.0	21.0	23.0	30.0	32.0	26.0	34.0	30.0
12	26.0	14.0	11.0	13.0	20.0	17.0	24.0	25.0	34.0	30.0	34.0	30.0
13	27.0	13.0	16.0	11.0	21.0	11.0	22.0	23.0	28.0	27.0	34.0	23.0
14	24.0	15.0	---	11.0	17.0	17.0	27.0	15.0	31.0	32.0	35.0	31.0
15	19.0	15.0	9.0	11.0	19.0	17.0	24.0	16.0	25.0	28.0	35.0	29.0
16	20.0	18.0	14.0	12.0	20.0	15.0	17.0	25.0	32.0	34.0	34.0	31.0
17	20.0	19.0	7.0	14.0	17.0	19.0	17.0	27.0	26.0	31.0	35.0	30.0
18	20.0	20.0	8.0	15.0	17.0	19.0	26.0	29.0	21.0	---	35.0	24.0
19	19.0	15.0	10.0	10.0	17.0	22.0	22.0	27.0	27.0	32.0	35.0	25.0
20	24.0	10.0	15.0	11.0	24.0	20.0	16.0	25.0	24.0	32.0	35.0	23.0
21	25.0	9.0	9.0	10.0	9.0	20.0	---	---	27.0	32.0	35.0	23.0
22	21.0	10.0	12.0	13.0	13.0	20.0	---	31.0	33.0	26.0	35.0	25.0
23	24.0	10.0	9.0	13.0	16.0	21.0	---	30.0	32.0	29.0	35.0	26.0
24	20.0	10.0	---	13.0	13.0	25.0	---	30.0	27.0	34.0	---	30.0
25	13.0	11.0	7.0	7.0	20.0	26.0	22.0	16.0	33.0	33.0	---	29.0
26	18.0	7.0	11.0	10.0	20.0	20.0	---	21.0	33.0	31.0	30.0	25.0
27	23.0	11.0	11.0	11.0	19.0	19.0	21.0	20.0	30.0	31.0	32.0	24.0
28	21.0	---	15.0	11.0	21.0	20.0	---	29.0	35.0	31.0	28.0	18.0
29	20.0	18.0	5.0	---	23.0	25.0	15.0	---	36.0	28.0	26.0	22.0
30	22.0	10.0	8.0	15.0	---	16.0	15.0	---	38.0	30.0	26.0	26.0
31	24.0	---	12.0	11.0	---	---	---	29.0	---	34.0	28.0	---
MONTH	22.5	15.0	11.5	10.0	16.0	18.0	---	23.5	30.0	31.0	32.5	26.5

## RED RIVER BASIN

163

07312000 Lake Kemp near Mabelle, Tex.

LOCATION.--Lat 33°45'30", long 99°09'03", Baylor County, in outlet gate tower near center of dam on Wichita River, 6.2 miles (10.0 km) north of Mabelle, 13 miles (21 km), revised, northeast of Seymour, and at mile 126.7 (203.9 km).

DRAINAGE AREA.--2,086 mi<sup>2</sup> (5,403 km<sup>2</sup>).

PERIOD OF RECORD.--October 1922 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers). Prior to Oct. 1, 1972, nonrecording gage at different site and at datum 2.40 ft (0.732 m) higher.

EXTREMES.--Current year: Maximum contents, 227,800 acre-ft (281 hm<sup>3</sup>) Nov. 7 (elevation, 1,141.26 ft or 347.856 m); minimum, 160,700 acre-ft (198 hm<sup>3</sup>) Aug. 29, 30 (elevation, 1,135.40 ft or 346.070 m).  
Period of record: Maximum contents, 420,900 acre-ft (519 hm<sup>3</sup>) June 30, 1941 (elevation, 1,152.0 ft or 351.13 m, present datum); minimum since first appreciable storage, 26,160 acre-ft (32.3 hm<sup>3</sup>) June 30, 1953 (elevation, 1,108.0 ft or 337.72 m, present datum).

REMARKS.--The lake is formed by a rolled-fill earthen dam 8,890 ft (2,710 m) long. The original dam was completed Aug. 25, 1923, but deliberate impoundment had begun Oct. 1, 1922. Enlargement of the dam was completed in November 1973. The uncontrolled emergency spillway, 3,000 ft (910 m) wide, is located approximately 600 ft (180 m) to right and slightly upstream from right end of dam. The controlled outlet works near center of dam consist of two hydraulically operated slide gates 5 ft 8 inches by 13 ft (1.7 by 4 m) with a 13-foot-diameter (4.0-meter) conduit and spillway basin. The dam and lake are owned by the city of Wichita Falls and the Wichita County Water Improvement District No. 2. Water is used for irrigation in the Wichita River Valley, oilfield operation, and municipal and industrial uses. The capacity table is based on a resurvey made in 1973. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	1,183.0	-
Crest of spillway.....	1,160.0	603,000
Top of flood-control pool.....	1,156.0	502,900
Top of conservation pool.....	1,144.0	268,000
Lowest gated outlet (invert).....	1,090.0	1,400

COOPERATION.--Capacity table No. 4-C was furnished by the Corps of Engineers.

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

1,134.0	148,900	1,140.0	210,900
1,136.0	166,200	1,142.0	238,200
1,138.0	186,700		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	227400	220000	223100	220400	219700	214500	207000	215900	220100	202700	185600	161900
2	227000	223100	223000	220300	219700	214000	207000	215700	220100	201600	184800	162400
3	227000	225700	222600	219900	219700	212800	207000	215600	220000	200600	184400	162400
4	226800	226700	222200	219900	219600	212300	206700	215600	219900	199600	183600	162400
5	226400	227000	221900	220000	219300	211000	206700	216100	219300	198600	185400	162200
6	226700	227500	221000	219900	219200	210600	206500	215900	218500	197500	185400	162100
7	226500	227400	221100	219300	219200	210600	205700	215600	218000	196600	185000	162000
8	226400	227400	221100	219200	219300	212000	203000	215600	217300	195700	184200	163300
9	226400	227100	221100	219500	220000	212200	203000	215900	216500	194900	183200	164400
10	226300	227100	221200	219600	220000	212300	202800	215900	215900	194300	182200	164500
11	225700	226400	221200	219600	220000	212800	202400	216000	215200	193700	181200	164600
12	225000	225700	221200	220400	220000	212300	202100	216000	214400	193200	180200	164500
13	224500	225000	221200	219900	219500	212300	202400	216000	213600	192800	179200	165700
14	224200	224900	220300	220000	219300	212200	202400	215600	213000	192300	177700	165800
15	223400	224600	219600	220100	218800	212200	203500	215600	211800	191900	176400	166000
16	222800	224600	218900	220000	218400	212200	205100	215500	210600	191700	175000	166000
17	222400	224600	218100	220000	218100	212200	206700	215300	210500	191200	173800	166100
18	221800	224600	217900	220300	217100	212200	207500	214900	209800	190800	172500	166200
19	221500	225900	217300	220000	216300	212200	208100	214500	209800	190300	171300	168900
20	221600	225000	216900	220000	216100	212000	208000	214100	209700	189500	170000	169800
21	221400	224200	216700	219900	214800	211800	207900	213600	209000	188900	168700	170200
22	221500	224100	216700	220300	214800	211600	208100	214300	209300	188100	167600	170800
23	221100	224200	216300	220300	214800	211600	208300	214800	209300	187800	166400	170900
24	220500	223500	218100	220300	214700	208900	207900	214800	208900	187400	165100	171000
25	220300	223500	218700	219900	214500	208900	207500	216900	208500	186700	163900	171000
26	220100	223400	218800	219600	214500	208800	207000	218400	208000	186200	162900	170900
27	220300	223400	218900	219700	214500	208100	207100	218000	207300	185200	162000	171400
28	220000	223500	219900	219700	214700	208100	210200	218000	206200	184500	161400	171500
29	220100	224900	220300	220000	214700	207900	213600	218300	205400	185200	160700	171700
30	219900	223400	220300	219900	---	207500	215200	218800	204000	185900	162100	171700
31	220000	---	220100	220000	---	207100	---	219900	---	185900	162200	---
(†)	1140.69	1140.94	1140.70	1140.69	1140.29	1139.71	1140.33	1140.68	1139.46	1137.93	1135.56	1136.57
(*)	-7500	+3400	-3300	-100	-5300	-7600	+8100	+4700	-15900	-18100	-23700	+9500
MAX	227400	227500	223100	220400	220000	214500	215200	219900	220100	202700	185600	171700
MIN	219900	220000	216300	219200	214500	207100	202100	213600	204000	185900	160700	161900
CAL YR 1975.....	+73700			MAX 228200			MIN 126100					
WTR YR 1976.....	-55800			MAX 227500			MIN 160700					

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

## RED RIVER BASIN

07312100 Wichita River near Mabelle, Tex.

LOCATION.--Lat 33°45'36", long 99°08'33", Baylor County, near left bank on downstream side of bridge on U.S. Highways 183 and 283, 0.3 mile (0.5 km) downstream from Lake Kemp Dam, 6.2 miles (10.0 km), revised, north of Mabelle, and 13 miles (21 km) northeast of Seymour.

DRAINAGE AREA.--2,086 mi<sup>2</sup> (5,403 km<sup>2</sup>), all of which is above Lake Kemp Dam.

PERIOD OF RECORD.--Discharge: 1952-58 (occasional discharge measurements), October 1959 to current year.

Water quality: Chemical analyses: October 1966 to current year. Water temperatures: October 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,062.72 ft (323.917 m) above mean sea level.

AVERAGE DISCHARGE.--17 years (1959-76), 155 ft<sup>3</sup>/s (4.390 m<sup>3</sup>/s), 112,300 acre-ft/yr (138 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 4,290 ft<sup>3</sup>/s (121 m<sup>3</sup>/s) Mar. 24 (gage height, 10.47 ft or 3.191 m); minimum daily, 0.22 ft<sup>3</sup>/s (0.006 m<sup>3</sup>/s) Nov. 20.

Period of record: Maximum discharge, 4,290 ft<sup>3</sup>/s (121 m<sup>3</sup>/s) Mar. 24, 1976 (gage height, 10.47 ft or 3.191 m); minimum daily, 0.15 ft<sup>3</sup>/s (0.004 m<sup>3</sup>/s) June 22, 1973.

Water quality: Current year: Maximum daily specific conductance, 5,730 micromhos on several days during August; minimum daily, 2,260 micromhos Apr. 30. Maximum water temperatures, 30.0°C Sept. 3-5; minimum, 2.0°C Jan. 7.

Period of record: Maximum daily specific conductance (1968-76), 6,190 micromhos May 25, 1971; minimum daily, 561 micromhos May 28, 1975. Maximum water temperatures (1968-76), 32.0°C Sept. 4, 1972, June 26, July 5, 1975; minimum, freezing point Dec. 20, 1973.

REMARKS.--Discharge records good. Flow regulated by Lake Kemp (see station 07312000). Water is released from Lake Kemp to supply Lake Diversion. Water from Lake Diversion is released for mining and industrial uses, recreation, and irrigation in vicinity of Wichita Falls.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.72	.24	.72	.91	.54	176	1.5	2.0	2.6	472	122	2.3
2	.72	16	151	.82	.57	273	1.5	1.7	1.1	394	122	1.9
3	.73	.33	270	.79	.58	274	1.5	1.7	1.1	354	122	1.9
4	.74	.28	267	.72	.58	273	1.5	1.6	1.1	354	159	1.8
5	.79	.28	267	.68	.62	274	37	2.5	155	354	347	1.8
6	.81	.28	184	.63	.56	274	154	1.7	240	351	347	1.8
7	.74	.25	.54	.59	.57	274	274	1.6	239	351	348	1.9
8	.79	.28	.39	.67	.61	101	1370	1.6	240	282	347	8.3
9	.84	.29	.33	.68	.61	.76	64	1.6	240	238	346	2.9
10	118	177	.28	.65	.59	.68	175	1.6	243	239	347	2.7
11	274	281	.28	.62	.61	.80	279	1.6	245	239	347	1.8
12	275	282	.28	1.4	140	.66	279	1.7	245	237	346	1.7
13	275	283	172	.82	267	.59	106	1.6	245	205	400	7.5
14	276	118	270	.57	267	.59	2.7	1.6	245	123	446	1.7
15	277	.34	270	.53	267	.60	6.1	1.6	311	123	447	1.6
16	276	.26	270	.58	267	.59	5.8	1.6	357	124	448	5.0
17	276	.23	274	.54	268	.60	2.5	1.6	364	124	445	5.3
18	275	.23	276	.56	270	.61	2.3	83	133	124	447	1.5
19	101	.32	207	.56	270	.64	2.5	147	1.7	124	450	4.5
20	.52	.22	166	.54	270	.60	2.5	147	1.1	198	449	1.8
21	.37	.23	166	.56	171	.61	2.4	147	28	236	448	1.6
22	.34	.23	166	.59	.90	.59	2.4	150	1.1	234	446	1.6
23	.29	.26	166	.60	.72	.60	2.2	58	1.0	234	442	14
24	.26	.24	69	.62	.68	1500	2.2	1.2	39	234	443	1.4
25	.23	.28	2.3	.60	.66	70	2.1	1.1	34	234	445	1.5
26	.23	.23	.50	.60	.62	71	2.1	1.1	243	234	384	1.4
27	.25	.25	.46	.63	.63	64	2.1	1.1	244	303	338	1.7
28	.24	.24	4.7	.64	.62	1.8	11	1.1	367	349	338	1.7
29	.23	.46	.96	.58	.63	1.7	2.9	1.0	464	204	229	1.4
30	.24	.48	90	.60	---	1.6	3.9	.99	464	122	8.5	1.6
31	.24	---	1.1	.57	---	1.6	---	4.4	---	122	4.2	---
TOTAL	2433.32	1163.73	3713.84	20.45	2468.90	3640.22	2801.7	772.89	5395.8	7516	10357.7	87.6
MEAN	78.5	38.8	120	.66	85.1	117	93.4	24.9	180	242	334	2.92
MAX	277	283	276	1.4	270	1500	1370	150	464	472	450	14
MIN	.23	.22	.28	.53	.54	.59	1.5	.99	1.0	122	4.2	1.4
AC-FT	4830	2310	7370	41	4900	7220	5560	1530	10700	14910	20540	174
CAL YR 1975	TOTAL	37142.71	MEAN	102	MAX	1510	MIN	.22	AC-FT	73670		
WTR YR 1976	TOTAL	40372.15	MEAN	110	MAX	1500	MIN	.22	AC-FT	80080		



07312100 Wichita River near Mabelle, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG)	DIS-SOLVED SODIUM (NA) (MG/L)
OCT. 03...	1300	.86	4670	7.6	23.0	940	790	250	77	690
NOV. 11...	0900	279	4480	8.0	16.5	830	740	240	55	680
JAN. 29...	0920	.59	4610	7.6	8.5	970	820	260	78	680
FEB. 16...	0805	123	4810	8.1	10.0	870	780	260	54	760
MAR. 31...	0830	1.6	4890	7.9	12.0	930	780	250	73	740
MAY 28...	1115	1.1	4850	7.9	19.5	940	780	260	71	720
JUNE 27...	0745	244	5450	7.8	25.0	900	810	250	68	810
JULY 12...	1405	237	5520	8.1	25.0	930	830	270	61	810
AUG. 25...	1645	450	5750	7.6	30.0	1000	920	290	69	850

DATE	SODIUM ADSORPTION RATIO	DIS-SOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT. 03...	9.8	5.7	182	0	610	1200	.4	11	2930
NOV. 11...	10	7.0	108	0	680	1100	.5	6.8	2820
JAN. 29...	9.5	5.5	180	0	620	1200	.5	10	2940
FEB. 16...	11	7.8	116	0	720	1200	.5	5.9	3070
MAR. 31...	11	7.1	182	0	700	1200	.4	8.6	3070
MAY 28...	10	6.0	203	0	660	1200	.5	8.9	3030
JUNE 27...	12	7.8	118	0	770	1300	--	5.1	3270
JULY 12...	12	7.8	114	0	780	1300	--	5.4	3290
AUG. 25...	12	9.0	106	0	790	1400	--	5.6	3470

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	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. 1975.....	2433.32	4450	2780	18300	1070	7050	470	3110	830
NOV. 1975.....	1163.73	4480	2800	8800	1080	3390	480	1510	840
DEC. 1975.....	3713.84	4540	2830	28400	1100	11000	490	4900	850
JAN. 1976.....	20.45	4670	2900	160	1130	63	500	28	870
FEB. 1976.....	2468.27	4750	2940	19600	1160	7700	510	3420	890
MAR. 1976.....	3640.22	5060	3100	30500	1230	12100	550	5450	950
APR. 1976.....	2801.7	5170	3160	23900	1250	9450	570	4340	960
MAY 1976.....	772.89	5270	3210	6700	1270	2650	590	1220	970
JUNE 1976.....	5395.8	5380	3260	47500	1290	18800	600	8720	980
JULY 1976.....	7516	5520	3330	67600	1310	26600	610	12500	990
AUG. 1976.....	10357.7	5680	3410	95400	1340	37500	640	17800	1010
SEPT 1976.....	87.6	4800	2930	693	1150	272	570	134	900
TOTAL .....	40371.48	**	**	348000	**	137000	**	63100	**
WTD.AVG. ....	110.61	5240	3200	**	1300	**	580	**	970



## RED RIVER BASIN

07312100 Wichita River near Mabelle, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C); WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4730	4730	4680	4590	4540	4910	4840	3810	3890	5460	5610	4800
2	4660	2550	4600	4630	4720	4910	4890	4090	3930	5460	5610	4960
3	4740	4010	4510	4700	4520	4920	4930	4460	4110	5480	5610	5450
4	4620	4300	4510	4620	4590	4920	4870	4720	4370	5480	5610	5280
5	4710	4430	4510	4700	4540	4940	4870	4720	4520	5480	5610	5340
6	4710	4590	4570	4720	4570	4940	4890	4650	5370	5500	5640	5460
7	4730	4350	4650	4620	4620	4940	5180	4740	5370	5500	5640	5570
8	4730	4610	4650	4770	4570	4800	5220	4720	5370	5510	5680	3550
9	4730	4490	4570	4750	4570	4680	5330	4810	5370	5510	5680	3210
10	4750	4610	4670	4720	4620	4680	5110	4830	5370	5510	5680	4520
11	4440	4490	4730	4650	4520	4720	5240	4920	5370	5500	5650	5380
12	4430	4490	4620	4620	4650	4660	5280	4790	5400	5510	5650	5420
13	4430	4490	4620	4630	4720	4680	5260	4830	5400	5500	5650	3480
14	4440	4490	4590	4650	4720	4720	5050	4920	5400	5510	5680	3910
15	4410	4670	4590	4700	4750	4720	4770	4890	5400	5510	5680	4500
16	4410	4650	4590	4640	4750	4700	3880	4960	5430	5510	5680	4930
17	4440	4650	4590	4700	4750	4720	3650	4960	5430	5530	5680	5590
18	4440	4670	4590	4600	4770	4720	4480	5170	5430	5530	5670	5450
19	4620	4590	4590	4670	4790	4700	4770	5340	5180	5530	5670	4790
20	4690	4690	4590	4580	4790	4680	4960	5340	5190	5540	5710	4520
21	4680	4710	4590	4780	4790	4740	4870	5370	4500	5530	5730	4690
22	4670	4690	4620	4690	4690	4770	4920	5370	5150	5550	5680	5260
23	4670	4690	4620	4750	4690	4680	4840	5070	5300	5560	5680	5380
24	4620	4670	4590	4630	4690	5250	4920	5100	5270	5570	5680	5420
25	4670	4710	4300	4690	4610	5140	4920	4650	5180	5570	5730	5550
26	4710	4610	4210	4670	4640	4890	4820	4740	5450	5540	5730	5390
27	4690	4710	4500	4750	4630	4870	4980	4790	5450	5560	5730	5420
28	4690	4690	3750	4730	4610	4870	2880	4850	5450	5600	5730	5180
29	4700	4610	4020	4690	4690	4890	3560	4920	5450	5570	5730	5000
30	4690	4690	3050	4600	---	4890	2260	4980	5440	5600	5430	5490
31	4730	---	3810	4710	---	4910	---	3800	---	5600	4180	---
MONTH	4630	4510	4450	4680	4660	4820	4680	4820	5130	5530	5620	4960

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.0	20.0	7.0	9.0	9.0	13.0	12.0	13.0	20.0	26.0	28.0	23.0
2	15.0	17.0	9.0	7.0	8.0	13.0	14.0	14.0	22.0	25.0	28.0	23.0
3	14.0	15.0	10.0	5.0	11.0	12.0	16.0	18.0	22.0	26.0	26.0	30.0
4	23.0	15.0	11.0	7.0	9.0	11.0	15.0	15.0	22.0	26.0	27.0	30.0
5	17.0	16.0	12.0	5.0	8.0	10.0	15.0	16.0	22.0	25.0	26.0	30.0
6	16.0	15.0	10.0	7.0	10.0	11.0	15.0	15.0	21.0	25.0	27.0	24.0
7	16.0	15.0	16.0	2.0	10.0	11.0	16.0	14.0	24.0	25.0	28.0	26.0
8	16.0	15.0	9.0	6.0	16.0	---	15.0	17.0	23.0	26.0	28.0	24.0
9	17.0	17.0	10.0	5.0	10.0	11.0	15.0	17.0	23.0	26.0	28.0	20.0
10	17.0	13.0	9.0	8.0	12.0	12.0	16.0	17.0	25.0	26.0	29.0	19.0
11	21.0	17.0	11.0	8.0	10.0	16.0	16.0	19.0	24.0	25.0	28.0	21.0
12	21.0	16.0	11.0	8.0	11.0	11.0	17.0	22.0	24.0	25.0	27.0	---
13	21.0	16.0	11.0	9.0	9.0	8.0	17.0	17.0	25.0	25.0	28.0	21.0
14	21.0	16.0	12.0	8.0	10.0	13.0	19.0	24.0	24.0	26.0	27.0	21.0
15	21.0	18.0	10.0	8.0	9.0	14.0	19.0	16.0	24.0	25.0	28.0	23.0
16	21.0	15.0	10.0	9.0	10.0	8.0	13.0	18.0	24.0	26.0	27.0	23.0
17	20.0	15.0	9.0	9.0	12.0	10.0	18.0	16.0	24.0	26.0	27.0	23.0
18	21.0	16.0	9.0	9.0	10.0	12.0	14.0	17.0	23.0	27.0	28.0	23.0
19	21.0	15.0	8.0	11.0	10.0	14.0	18.0	19.0	20.0	26.0	26.0	22.0
20	16.0	17.0	8.0	7.0	11.0	12.0	16.0	20.0	21.0	26.0	28.0	21.0
21	---	7.0	9.0	5.0	9.0	10.0	16.0	20.0	20.0	26.0	26.0	19.0
22	17.0	10.0	9.0	7.0	7.0	11.0	18.0	21.0	21.0	---	26.0	19.0
23	20.0	7.0	9.0	9.0	6.0	12.0	20.0	25.0	24.0	26.0	26.0	19.0
24	17.0	15.0	8.0	10.0	11.0	14.0	19.0	20.0	24.0	27.0	26.0	21.0
25	13.0	7.0	8.0	11.0	12.0	14.0	16.0	20.0	28.0	27.0	26.0	27.0
26	14.0	4.0	8.0	7.0	14.0	16.0	14.0	20.0	26.0	26.0	27.0	21.0
27	15.0	11.0	9.0	5.0	---	12.0	17.0	18.0	25.0	27.0	27.0	20.0
28	15.0	21.0	11.0	5.0	13.0	18.0	17.0	17.0	25.0	27.0	---	17.0
29	15.0	20.0	8.0	9.0	15.0	16.0	14.0	20.0	26.0	27.0	27.0	16.0
30	15.0	13.0	7.0	11.0	---	12.0	18.0	27.0	26.0	27.0	23.0	25.0
31	16.0	---	6.0	8.0	---	12.0	---	20.0	---	28.0	25.0	---
MONTH	17.5	14.5	9.5	7.5	10.5	12.5	16.0	18.5	23.5	26.0	27.0	22.5

## RED RIVER BASIN

167

07312110 South Side Canal near Dundee, Tex.

LOCATION.--Lat 33°48'50", long 98°55'57", Archer County, on left bank 125 ft (38 m) downstream from Lake Diversion headgates and 5.3 miles (8.5 km) northwest of Dundee.

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

GAGE.--Water-stage recorder. Datum of gage is 1,039.70 ft (316.901 m) above mean sea level (Wichita County Water Improvement District bench mark).

AVERAGE DISCHARGE.--5 years, 83.9 ft<sup>3</sup>/s (2.376 m<sup>3</sup>/s), 60,790 acre-ft/yr (75.0 hm<sup>3</sup>/yr).

EXTREMES.--Period of record: Maximum daily discharge, 374 ft<sup>3</sup>/s (10.6 m<sup>3</sup>/s) July 22, 1974; maximum gage height, 8.31 ft (2.533 m) July 22, 1974; no flow at times.

REMARKS.--Records good. Water diverted from Lake Diversion is used for mining, industrial use, recreation, and irrigation.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.3	89	39	76	3.9	83	43	23	67	209	184	153
2	21	89	29	67	3.9	92	43	15	29	224	188	153
3	62	88	15	56	3.9	111	42	4.5	38	218	189	153
4	79	87	15	56	3.9	120	47	4.5	61	198	188	152
5	64	87	13	56	6.6	101	50	4.3	78	199	251	149
6	77	88	15	55	12	74	60	4.3	84	208	252	149
7	80	77	19	54	12	84	105	4.3	107	215	264	152
8	83	46	22	56	24	60	120	4.3	131	225	272	123
9	94	32	23	44	44	26	120	6.4	131	231	278	100
10	95	25	49	12	52	11	98	14	121	212	282	112
11	91	22	99	4.7	51	5.5	114	20	130	204	289	114
12	92	23	79	4.1	50	1.1	105	35	144	153	299	116
13	95	23	61	4.0	54	.96	25	49	143	143	308	110
14	104	23	64	3.9	75	.82	13	68	158	189	312	13
15	103	21	66	3.9	75	.81	13	70	179	210	312	4.3
16	104	13	71	3.7	60	.81	13	70	192	210	318	3.9
17	99	11	73	3.8	56	.81	13	71	194	194	322	3.7
18	79	11	75	4.8	47	.81	13	86	124	181	322	3.6
19	85	11	77	9.5	48	5.5	11	118	82	192	322	3.6
20	84	10	78	9.6	46	12	4.3	124	79	212	322	3.5
21	83	10	79	9.6	45	13	3.8	133	66	215	322	3.5
22	81	10	86	9.6	48	13	3.8	179	55	229	311	3.5
23	80	17	88	9.6	54	13	3.7	169	53	239	301	3.5
24	80	26	91	8.8	65	13	3.7	111	62	238	288	3.5
25	80	26	85	4.8	65	19	3.8	99	79	233	273	3.5
26	81	25	73	4.4	78	28	3.9	95	88	239	268	3.5
27	80	25	77	4.1	79	34	4.0	89	94	242	271	3.5
28	79	26	77	4.1	79	34	3.9	87	115	242	273	3.5
29	81	24	77	3.9	78	37	3.9	85	153	130	276	3.5
30	89	26	77	3.9	---	44	11	83	181	123	229	3.5
31	90	---	77	3.9	---	43	---	86	---	181	154	---
TOTAL	2502.3	1091	1869	650.7	1319.2	1082.12	1097.8	2011.6	3218	6338	8440	1806.6
MEAN	80.7	36.4	60.3	21.0	45.5	34.9	36.6	64.9	107	204	272	60.2
MAX	104	89	99	76	79	120	120	179	194	242	322	153
MIN	7.3	10	13	3.7	3.9	.81	3.7	4.3	29	123	154	3.5
AC-FT	4960	2160	3710	1290	2620	2150	2180	3990	6380	12570	16740	3580
CAL YR 1975 TOTAL	23311.80			MEAN 63.9	MAX 212	MIN 0	AC-FT 46240					
WTR YR 1976 TOTAL	31426.32			MEAN 85.9	MAX 322	MIN .81	AC-FT 62330					

## RED RIVER BASIN

07312200 Beaver Creek near Electra, Tex.

LOCATION.--Lat 33°54'21", long 98°54'17", Wichita County, near right bank on downstream side of bridge on Farm Road 2326, 6.5 miles (10.5 km) northwest of Kamay, 8 miles (13 km) upstream from Wichita River, and 9 miles (14 km) south of Electra.

DRAINAGE AREA.--652 mi<sup>2</sup> (1,689 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: February 1960 to current year.

Water quality: Chemical analyses: October 1968 to June 1970. Water temperatures: October 1968 to June 1970. Sediment records: April 1966 to September 1975.

GAGE.--Water-stage recorder. Datum of gage is 991.3 ft (302.15 m) above mean sea level (State Highway Department reference point).

AVERAGE DISCHARGE.--16 years, 62.0 ft<sup>3</sup>/s (1.756 m<sup>3</sup>/s), 1.29 in/yr (33 mm/yr), 44,920 acre-ft/yr (55.4 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 1,720 ft<sup>3</sup>/s (48.7 m<sup>3</sup>/s) Sept. 20 (gage height, 22.01 ft or 6.709 m); minimum, 0.25 ft<sup>3</sup>/s (0.007 m<sup>3</sup>/s) Aug. 25.

Period of record: Maximum discharge, 11,700 ft<sup>3</sup>/s (331 m<sup>3</sup>/s) Mar. 17, 1961 (gage height, 33.57 ft or 10.232 m); no flow at times. Maximum stage since at least 1925, 36.0 ft (10.97 m) in 1941 (partly caused by deliberate demolition of Santa Rosa Dam to avoid its failure), from information by local residents.

REMARKS.--Discharge records fair. Some regulation by Santa Rosa Lake (capacity, 11,570 acre-ft or 14.3 hm<sup>3</sup>) about 30 miles (48 km) upstream. Several small diversions above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	2.0	3.7	10	2.6	1.9	2.7	126	535	6.0	1.6	29
2	17	204	3.7	21	2.5	1.7	2.6	40	222	4.2	1.3	11
3	13	204	3.6	8.6	2.5	1.6	2.7	16	45	3.1	1.1	5.7
4	37	45	3.4	3.1	2.5	1.5	2.1	6.6	18	2.5	.89	5.3
5	197	35	2.8	3.0	2.4	1.4	2.1	4.7	7.8	2.0	.79	2.8
6	189	39	2.7	2.9	2.3	1.3	2.4	7.4	34	1.7	.74	1.8
7	96	11	2.6	2.8	2.4	5.8	2.4	6.8	12	2.0	.68	1.4
8	16	6.8	2.6	2.8	2.7	68	2.4	2.5	3.9	2.0	.72	1.3
9	6.0	4.8	2.6	2.7	2.7	66	2.4	1.9	3.3	1.9	.65	49
10	4.1	4.8	2.6	2.8	2.7	19	2.2	1.7	2.9	1.9	.81	14
11	3.3	4.2	2.6	2.8	2.6	8.1	2.1	1.5	2.4	2.0	.90	3.8
12	2.9	2.9	2.6	2.9	2.6	7.3	2.2	1.4	2.1	2.1	.69	1.7
13	2.6	2.5	2.6	2.8	2.7	9.9	6.4	1.4	2.6	6.2	.55	572
14	2.5	2.7	2.5	2.7	2.4	8.7	3.8	1.2	3.2	5.0	.51	567
15	7.0	3.2	2.6	2.6	2.5	4.7	3.0	1.1	3.2	3.1	.51	68
16	6.4	3.7	2.7	2.6	2.4	2.8	156	1.1	4.2	4.0	.44	14
17	8.0	3.8	2.7	2.6	2.3	2.3	58	1.0	76	5.0	.44	4.9
18	4.3	3.9	2.6	2.7	2.2	2.1	23	1.0	440	6.2	.39	2.3
19	2.9	5.0	2.5	2.9	2.2	2.0	10	1.0	137	16	.38	545
20	2.6	8.2	2.5	2.7	2.2	1.5	8.9	1.0	37	21	.38	1120
21	2.6	7.0	2.6	2.5	2.1	1.8	5.4	1.0	16	7.3	.34	329
22	2.6	4.5	3.0	2.5	1.9	1.9	2.6	1.0	9.4	5.4	.34	33
23	2.6	3.8	2.9	2.5	2.0	1.8	1.9	869	54	5.4	.30	11
24	2.4	3.7	31	2.5	2.0	1.7	71	406	41	4.4	.30	5.1
25	2.0	3.6	96	2.6	1.9	1.8	18	50	35	3.5	.26	2.9
26	1.8	3.8	82	2.6	2.0	1.9	7.8	33	16	3.2	.30	2.9
27	1.8	3.7	25	2.5	2.2	1.9	3.5	17	7.2	3.2	.41	4.0
28	1.9	3.6	21	2.5	2.2	1.9	113	8.4	6.5	2.9	14	81
29	2.0	3.7	267	2.6	2.1	2.4	259	4.9	7.3	2.9	24	26
30	1.9	3.7	79	2.6	---	2.8	82	3.6	7.1	2.1	121	7.5
31	1.8	---	18	2.7	---	2.8	---	132	---	1.8	199	---
TOTAL	661.0	637.6	683.7	115.1	67.8	240.7	861.6	1751.2	1791.1	140.0	374.72	3522.4
MEAN	21.3	21.3	22.1	3.71	2.34	7.76	28.7	56.5	59.7	4.52	12.1	117
MAX	197	204	267	21	2.7	68	259	869	535	21	199	1120
MIN	1.8	2.0	2.5	2.5	1.9	1.3	1.9	1.0	2.1	1.7	.26	1.3
CFSM	.03	.03	.03	.005	.003	.01	.04	.09	.09	.006	.02	.18
IN.	.04	.04	.04	.007	.004	.01	.05	.10	.10	.008	.02	.20
AC-FT	1310	1260	1360	228	134	477	1710	3470	3550	278	743	6990

CAL YR 1975 TOTAL 48878.10 MEAN 134 MAX 6030 MIN 1.1 CFSM .21 IN 2.79 AC-FT 96950  
WTR YR 1976 TOTAL 10846.92 MEAN 29.6 MAX 1120 MIN .26 CFSM .05 IN .62 AC-FT 21510

PEAK DISCHARGE (BASE, 1,000 FT<sup>3</sup>/S)

DATE	TIME	G.HT.	DISCHARGE
5-23	1800	20.23	1,350
9-13	2100	21.00	1,560
9-20	1030	22.01	1,720

## 07312500 Wichita River at Wichita Falls, Tex.

LOCATION.--Lat 33°54'34", long 98°32'00", Wichita County, near center of stream on downstream side of bridge on Beverly Drive in Wichita Falls, 4 miles (6 km) upstream from Fort Worth and Denver Railway Co. bridge, 8.4 miles (13.5 km) upstream from Holliday Creek, and at mile 55.3 (89.0 km).

DRAINAGE AREA.--3,140 mi<sup>2</sup> (8,130 km<sup>2</sup>), of which 2,086 mi<sup>2</sup> (5,403 km<sup>2</sup>) is above Lake Kemp Dam.

PERIOD OF RECORD.--Discharge: February 1900 to January 1902 (monthly discharge only, published in WSP 1311), October 1910 to December 1911 (gage heights only), March 1938 to current year.

Water quality: Sediment records: January 1966 to September 1975.

GAGE.--Water-stage recorder. Datum of gage is 924.26 ft (281.714 m) above mean sea level. February 1900 to February 1902 and Oct. 1, 1910, to Dec. 31, 1911, nonrecording gages at site 4 miles (6 km) downstream at different datum. Mar. 30, 1938, to Dec. 1, 1959, non-recording gage at present site and datum.

AVERAGE DISCHARGE.--39 years (1900-1, 1938-76), 285 ft<sup>3</sup>/s (8.071 m<sup>3</sup>/s), 206,500 acre-ft/yr (255 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 3,020 ft<sup>3</sup>/s (85.5 m<sup>3</sup>/s) Sept. 15 (gage height, 12.83 ft or 3.911 m); minimum, 16 ft<sup>3</sup>/s (0.45 m<sup>3</sup>/s) Jan. 28.

Period of record: Maximum discharge, 17,800 ft<sup>3</sup>/s (504 m<sup>3</sup>/s) Oct. 3, 1941 (gage height, 24.0 ft or 7.32 m); no flow Oct. 11, 1960 (construction of cofferdam upstream).

Maximum discharge, 50,000 ft<sup>3</sup>/s (1,420 m<sup>3</sup>/s) June 8, 1915, computed by Vernon L. Sullivan, engineer for Big Wichita River Irrigation Co.

REMARKS.--Discharge records poor. Flow from 2,086 mi<sup>2</sup> (5,403 km<sup>2</sup>) is regulated by Lake Kemp (capacity, 603,000 acre-ft or 743 hm<sup>3</sup>) 71 miles (114 km) upstream. Since completion of dam in 1923 no flow has been permitted to pass over spillway. Water is diverted from Lake Diversion (capacity, 40,000 acre-ft or 49.3 hm<sup>3</sup>) 51 miles (82 km) upstream for irrigation, 42,000 acres (17,000 hm<sup>2</sup>) under permit in the vicinity of Wichita Falls. During the water year, Wichita County Water Improvement District No. 2 diverted 62,330 acre-ft (76.9 hm<sup>3</sup>) from Lake Diversion for mining, industrial use, recreation, and irrigation of 32,860 acres (133 km<sup>2</sup>). For diversions from Lake Diversion during the current year, see station 07312110.

REVISIONS.--WSP 1211: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	115	95	80	121	22	53	41	240	1020	40	74	407
2	108	126	70	117	26	53	42	205	1080	40	72	307
3	136	161	82	94	27	54	43	131	395	44	74	200
4	173	218	82	65	27	54	44	114	144	52	79	170
5	195	129	68	39	28	54	44	146	104	54	78	150
6	194	114	59	39	33	56	46	89	92	56	71	140
7	182	81	49	33	31	58	49	59	88	59	72	130
8	157	60	47	32	35	228	52	52	86	56	79	120
9	111	50	44	32	41	230	59	43	85	56	75	110
10	92	44	43	32	46	190	58	38	84	58	82	100
11	72	39	43	32	49	140	59	41	82	56	88	110
12	67	36	46	30	56	110	154	50	84	56	89	197
13	66	38	49	29	56	75	413	59	85	56	91	1480
14	68	38	50	29	63	55	223	65	82	55	92	2620
15	82	41	49	28	79	46	176	67	79	59	112	2930
16	81	44	52	28	82	39	421	68	82	62	98	1230
17	84	47	54	28	86	40	374	72	150	65	100	259
18	86	50	55	27	89	41	172	74	392	71	101	245
19	85	52	56	25	75	41	230	75	570	78	107	747
20	84	50	58	25	69	42	148	78	222	76	112	1970
21	84	53	60	26	67	42	100	78	145	76	120	1870
22	82	53	63	26	59	42	76	81	142	75	131	635
23	81	56	67	24	56	42	80	292	120	75	144	242
24	79	56	68	21	54	41	196	1550	92	75	145	243
25	79	47	67	19	52	39	197	671	64	74	142	259
26	78	47	74	19	52	40	175	174	55	75	142	273
27	78	52	84	17	52	39	118	145	49	75	144	277
28	76	59	165	19	49	39	120	142	44	136	144	261
29	76	72	183	18	50	38	532	140	42	175	144	239
30	84	88	179	16	---	38	410	154	40	100	282	196
31	86	---	154	20	---	39	---	371	---	74	448	---
TOTAL	3121	2096	2300	1110	1511	2098	4852	5564	5799	2159	3732	18117
MEAN	101	69.9	74.2	35.8	52.1	67.7	162	179	193	69.6	120	604
MAX	195	218	183	121	89	230	532	1550	1080	175	448	2930
MIN	66	36	43	16	22	38	41	38	40	40	71	100
AC-FT	6190	4160	4560	2200	3000	4160	9620	11040	11500	4280	7400	35940
CAL YR 1975	TOTAL	114042.0	MEAN	312	MAX	6450	MIN	9.0	AC-FT	226200		
WTR YR 1976	TOTAL	52459.0	MEAN	143	MAX	2930	MIN	16	AC-FT	104100		

## RED RIVER BASIN

07312700 Wichita River near Charlie, Tex.

LOCATION.--Lat 34°03'11", long 98°17'47", Clay County, on right bank at upstream side of bridge on Farm Road 810, 3.0 miles (4.8 km) southeast of Charlie, and 5.7 miles (9.2 km) northwest of Petrolia.

DRAINAGE AREA.--3,439 mi<sup>2</sup> (8,907 km<sup>2</sup>), of which 2,086 mi<sup>2</sup> (5,403 km<sup>2</sup>) is above Lake Kemp Dam and 143 mi<sup>2</sup> (370 km<sup>2</sup>) is above Lake Wichita Dam.

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

Water quality: Chemical and biochemical analyses: October 1967 to current year. Water temperatures: October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 872.71 ft (266.002 m) above mean sea level.

AVERAGE DISCHARGE.--9 years, 297 ft<sup>3</sup>/s (8.411 m<sup>3</sup>/s), 215,200 acre-ft/yr (265 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 3,160 ft<sup>3</sup>/s (89.5 m<sup>3</sup>/s) Sept. 14 (gage height, 14.59 ft or 4.447 m); minimum, 43 ft<sup>3</sup>/s (1.22 m<sup>3</sup>/s) June 30.

Period of record: Maximum discharge, 6,090 ft<sup>3</sup>/s (172 m<sup>3</sup>/s) Nov. 4, 1972 (gage height, 21.21 ft or 6.465 m); minimum, 25 ft<sup>3</sup>/s (0.71 m<sup>3</sup>/s) Feb. 4, 1974.

Water quality: Current year: Maximum daily specific conductance, 7,390 micromhos Nov. 5; minimum daily, 641 micromhos Sept. 14. Maximum water temperatures, 33.0°C Aug. 1; minimum, 1.0°C Jan. 7-9.

Period of record: Maximum daily specific conductance, 10,000 micromhos Apr. 25, 1972; minimum daily, 384 micromhos Aug. 16, 1971. Maximum water temperatures, 33.0°C July 31, 1970, Aug. 1, 1976; minimum, freezing point on many days during winter months.

REMARKS.--Discharge records good. For statement regarding regulations and diversions, see station 07312500. Records furnished by the city of Wichita Falls show that 12,730 acre-ft (15.7 hm<sup>3</sup>) was returned to river above station as sewage effluent or filter plant wastewater.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	138	129	122	256	58	94	71	452	520	54	125	681
2	139	146	113	184	57	93	85	270	1210	68	96	729
3	138	260	103	150	57	90	85	247	1070	73	109	394
4	136	387	122	134	54	108	74	164	448	100	111	205
5	133	378	125	125	56	112	72	123	219	110	122	178
6	132	263	109	112	62	127	74	115	153	96	120	156
7	283	280	109	104	56	139	81	93	134	82	120	142
8	300	244	102	87	54	273	95	81	118	78	114	133
9	251	216	100	97	54	519	83	72	128	85	122	127
10	177	164	103	117	54	367	88	74	88	174	142	119
11	149	133	92	127	55	231	97	73	92	117	137	127
12	146	116	103	115	67	154	102	78	105	105	136	124
13	151	112	116	101	96	120	314	137	87	124	134	672
14	148	117	145	98	101	110	475	91	76	139	130	2850
15	150	106	120	90	79	85	215	95	68	84	140	2940
16	237	105	106	81	96	77	280	116	64	78	148	2790
17	175	102	104	74	94	71	587	120	73	98	151	1420
18	179	105	102	72	120	63	504	122	219	126	143	570
19	177	108	105	69	130	58	411	102	607	118	134	526
20	168	127	108	68	122	55	383	98	611	109	147	1700
21	153	115	109	63	105	52	214	108	256	97	139	2290
22	151	101	109	62	98	49	158	121	144	105	147	2270
23	148	101	110	62	95	55	122	173	185	100	161	1390
24	139	98	122	62	86	80	188	538	132	108	192	891
25	132	99	297	62	80	70	230	1430	83	113	183	646
26	137	95	310	60	102	62	193	693	104	126	186	507
27	135	94	282	58	104	61	144	268	94	132	185	413
28	132	98	235	58	98	65	118	200	75	133	141	389
29	142	103	247	57	88	76	297	179	58	280	131	455
30	145	118	356	58	---	75	645	150	47	325	165	427
31	135	---	414	61	---	66	---	135	---	227	927	---
TOTAL	5056	4620	4800	2924	2378	3657	6485	6718	7268	3764	5138	26261
MEAN	163	154	155	94.3	82.0	118	216	217	242	121	166	875
MAX	300	387	414	256	130	519	645	1430	1210	325	927	2940
MIN	132	94	92	57	54	49	71	72	47	54	96	119
AC-FT	10030	9160	9520	5800	4720	7250	12860	13330	14420	7470	10190	52090

CAL YR 1975 TOTAL 152796 MEAN 419 MAX 5670 MIN 45 AC-FT 303100  
WTR YR 1976 TOTAL 79069 MEAN 216 MAX 2940 MIN 47 AC-FT 156800



## RED RIVER BASIN

171

07312700 Wichita River near Charlie, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICRO- MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	RIO-CHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	HARDNESS (CA, MG) (MG/L)
OCT.									
08...	1600	299	3670	8.5	22.5	13.5	153	5.1	760
NOV.									
26...	0900	92	4280	8.1	4.0	--	--	--	920
DEC.									
17...	1430	106	4170	7.8	6.5	8.7	71	4.9	750
JAN.									
07...	1430	105	3910	8.2	2.0	--	--	--	780
FEB.									
25...	1615	76	4570	8.6	13.5	17.9	172	6.6	930
MAR.									
29...	1045	73	4930	7.9	12.0	--	--	--	1000
APR.									
07...	1530	83	4960	8.0	18.5	9.5	102	6.3	1000
MAY									
10...	1115	67	4010	7.8	22.0	--	--	--	820
JUNE									
09...	1000	130	3410	7.7	25.5	6.6	82	4.4	640
JULY									
25...	1704	110	5310	8.1	29.0	--	--	--	950
AUG.									
04...	1645	108	5060	8.5	29.0	11.5	153	4.8	1000
SEP.									
16...	1400	2910	709	7.5	23.5	--	--	--	140

DATE	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNE- SIUM (MG)	DISSOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DISSOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
OCT.									
08...	610	180	75	460	7.3	7.4	170	7	180
NOV.									
26...	700	220	90	600	8.6	6.5	264	0	390
DEC.									
17...	560	170	78	580	9.2	7.5	230	0	420
JAN.									
07...	600	190	73	560	8.8	6.5	213	0	390
FEB.									
25...	750	240	80	650	9.3	10	190	12	540
MAR.									
29...	820	250	95	720	9.8	9.5	233	0	560
APR.									
07...	840	250	100	700	9.5	10	236	0	560
MAY									
10...	620	190	83	550	8.4	8.0	234	0	360
JUNE									
09...	500	160	59	480	8.2	8.0	168	0	350
JULY									
25...	810	240	85	770	11	12	172	0	530
AUG.									
04...	870	250	92	730	10	10	149	6	570
SEP.									
16...	65	39	10	78	2.9	4.1	90	0	48



## RED RIVER BASIN

07312700 Wichita River near Charlie, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS-SOLVED CHLO- RIDE (CL) (MG/L)	DIS-SOLVED FLUO- RIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)
OCT 08...	970	--	6.6	1970	.11	.01	.25	.85	.58
NOV 26...	1100	.5	6.4	2540	--	--	--	--	--
DEC 17...	970	.6	4.5	2340	.29	.05	.38	1.3	1.8
JAN 07...	1000	.5	8.7	2330	--	--	--	--	--
FEB 25...	1200	.6	2.1	2830	.68	.16	1.2	1.4	1.7
MAR 29...	1300	.6	1.6	3050	--	--	--	--	--
APR 07...	1300	.6	1.8	3040	1.3	.19	.24	1.3	1.9
MAY 10...	1000	.7	9.7	2320	--	--	--	--	--
JUN 09...	860	.6	8.5	2010	1.4	.02	.09	1.1	1.0
JUL 25...	1400	--	6.1	3130	--	--	--	--	--
AUG 04...	1300	.6	6.5	3040	.22	.01	.00	1.1	1.0
SEP 16...	140	.3	4.8	369	--	--	--	--	--

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	5056	3660	2190	29900	910	12400	450	6120	710
NOV. 1975.....	4620	4250	2560	31900	1060	13300	510	6410	820
DEC. 1975.....	4800	4300	2600	33600	1080	14000	520	6720	830
JAN. 1976.....	2924	4100	2470	19500	1020	8080	500	3930	790
FEB. 1976.....	2290	4930	2980	18400	1240	7680	590	3650	950
MAR. 1976.....	3657	4720	2860	28200	1190	11700	570	5590	910
APR. 1976.....	6485	3490	2090	36500	860	15100	430	7520	670
MAY 1976.....	6718	3390	2020	36700	840	15200	420	7570	650
JUNE 1976.....	7268	2780	1640	32200	680	13300	350	6840	540
JULY 1976.....	3764	4670	2820	28700	1170	11900	560	5700	900
AUG. 1976.....	5138	4620	2790	38800	1160	16100	560	7720	890
SEPT 1976.....	26261	1470	840	59200	340	24000	170	12300	280
TOTAL .....	78981	**	**	394000	**	163000	**	80100	**
WTD.AVG. ....	216.39	3100	1800	**	760	**	380	**	600

## RED RIVER BASIN

173

07312700 Wichita River near Charlie, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C) \* WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3570	4120	4370	2920	4610	4930	4890	2510	3250	4290	4650	2450
2	3640	4060	4630	3110	4930	4980	4990	2510	1500	5170	4390	4890
3	3590	3260	4430	3560	5220	5100	4850	3590	1600	5050	4390	1670
4	3610	4540	4150	2630	5260	5420	5220	3390	1650	5080	4940	3110
5	3720	7390	4300	3560	4780	5180	5220	3420	1970	4650	4980	3900
6	3890	3910	4880	3560	4800	5180	4980	3630	2180	4720	5450	4200
7	4590	3200	4690	3910	4990	5200	4930	3510	2520	4810	5230	4790
8	3870	3270	3940	3760	4660	4390	4820	3520	3080	5170	5510	4890
9	1930	3750	4350	4200	4780	2570	4930	3790	3410	4720	5270	5200
10	2040	3810	4520	4200	4870	4330	4720	4010	3980	4700	5370	5280
11	2470	3750	4450	4220	4890	4250	4630	4310	3750	2310	5300	5250
12	2590	3880	4300	4910	4910	5730	5320	4120	4090	4640	5300	5540
13	3320	4050	4300	4690	4990	4290	4840	4980	4330	4610	5410	2000
14	3770	4190	4760	4250	5580	5510	2900	3670	4460	4610	5330	641
15	3710	4340	4980	4250	4890	5650	3000	2930	4550	3670	5230	672
16	3670	4370	4730	4290	4830	5830	3510	4650	4750	4570	5300	709
17	3090	4340	4150	4550	4450	5620	2950	5380	4790	4770	5330	1140
18	3840	4000	4280	4460	5370	5670	2040	5330	4610	4700	5300	1420
19	3930	4200	4280	4520	5220	5750	4620	5750	4380	4930	5370	1640
20	4160	4170	4500	4610	4780	6130	1860	5100	3120	4870	5370	1170
21	4160	4070	4850	4710	4910	6040	3050	5050	3330	4910	5450	1130
22	3830	3980	4600	4750	4910	5670	4180	5050	3260	4890	5450	858
23	3740	4130	4650	4890	4970	5800	4620	4910	3200	5300	5370	1130
24	4000	4170	4370	4890	4720	5470	4200	2600	2120	5300	5470	1490
25	4020	4130	4070	4750	4570	5880	2870	3500	2640	5300	5330	1770
26	4040	4280	3080	4840	4840	6180	4310	2150	3580	5260	5470	2090
27	4180	4360	4600	5180	4840	5370	3860	2470	4260	5510	5470	2320
28	4400	4220	5600	5180	4930	4740	4200	2620	4590	5450	5510	2490
29	4160	4260	4610	5260	4890	4930	3760	3030	4150	4570	5270	2740
30	4280	4480	4010	5150	---	5210	2200	3420	4260	3570	5330	3650
31	4360	---	3370	5280	---	5100	---	3650	---	4770	1640	---
MONTH	3690	4160	4410	4360	4910	5230	4080	3820	3450	4740	5130	2670

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.0	---	9.5	6.5	9.5	19.0	16.5	16.5	25.5	26.0	33.0	24.0
2	20.0	18.5	9.5	4.5	9.5	19.0	19.5	20.5	24.0	29.5	29.5	24.0
3	19.5	18.0	10.0	4.0	9.5	14.0	20.0	19.5	24.0	26.5	28.5	26.0
4	19.5	18.0	14.5	3.5	8.0	14.5	19.0	20.5	---	26.5	29.5	28.0
5	---	18.0	14.5	4.0	6.5	12.0	20.0	20.0	26.0	26.5	29.5	29.0
6	20.0	19.5	10.0	6.5	4.5	11.0	20.0	20.0	25.5	26.5	30.5	---
7	20.0	19.0	9.5	1.0	4.5	---	19.0	18.0	25.5	28.5	31.0	29.0
8	22.0	19.0	10.0	1.0	7.0	9.0	20.0	20.5	26.0	29.0	31.5	28.0
9	24.0	18.5	10.0	1.0	10.0	10.0	20.0	20.0	26.5	26.0	31.0	24.0
10	24.5	17.0	10.5	5.5	13.0	13.0	20.0	23.5	28.0	27.0	31.0	23.0
11	---	15.0	13.0	6.5	13.5	15.0	20.0	25.5	28.0	26.0	31.0	24.0
12	23.5	13.0	10.0	7.0	15.5	13.5	21.0	20.0	29.0	28.5	29.5	25.0
13	24.5	11.0	13.5	8.0	18.0	11.5	21.0	20.0	30.0	28.5	29.5	20.0
14	23.5	13.0	15.5	8.0	15.5	13.0	20.0	20.5	28.5	28.0	31.0	20.5
15	20.0	13.0	10.0	7.0	18.0	---	---	22.0	24.5	27.0	29.5	21.0
16	20.0	14.0	13.0	8.0	18.0	13.5	20.0	21.0	26.0	28.5	30.0	21.5
17	18.5	16.5	5.0	8.5	15.5	14.0	19.0	21.5	27.0	29.0	29.5	25.0
18	19.5	18.0	4.0	10.5	20.0	15.5	19.5	22.0	24.0	---	29.5	25.5
19	19.0	15.5	4.5	8.5	15.0	20.0	20.0	23.0	24.0	29.0	29.0	24.0
20	20.0	10.0	6.0	8.5	18.0	15.5	19.5	23.5	24.0	29.0	29.0	23.0
21	20.0	8.5	5.0	9.0	10.0	16.0	20.0	24.5	24.0	30.0	26.5	23.0
22	20.5	13.0	7.0	9.0	10.0	16.5	23.5	26.0	25.5	29.0	28.5	21.5
23	21.5	7.0	7.0	9.0	11.5	16.5	22.0	25.5	27.0	30.0	28.5	24.0
24	18.5	8.0	6.5	10.0	11.5	19.0	23.5	25.5	27.0	29.5	26.5	24.0
25	15.0	8.0	5.5	8.0	13.0	21.0	20.0	20.0	28.0	29.0	28.0	25.0
26	16.0	6.0	7.0	6.0	14.5	20.0	20.0	21.0	28.5	29.5	29.5	24.5
27	18.5	7.0	6.5	6.5	15.5	17.0	20.5	20.0	29.5	30.0	29.5	23.5
28	18.0	10.5	7.0	7.0	16.5	18.0	18.5	23.0	30.0	30.0	28.5	20.5
29	18.5	16.5	5.5	9.5	18.0	18.0	18.5	25.0	31.0	29.0	26.5	21.0
30	18.5	10.0	6.5	9.0	---	14.0	15.5	27.0	29.0	30.5	25.5	21.5
31	19.5	---	6.5	9.5	---	14.0	---	26.5	---	31.5	24.0	---
MONTH	20.0	14.0	9.0	7.0	12.5	15.5	20.0	22.0	26.5	28.5	29.0	24.0

## 07314000 Lake Kickapoo near Archer City, Tex.

LOCATION.--Lat 33°39'47", long 98°46'43", Archer County, on intake tower near left end of dam on North Fork Little Wichita River, 8.2 miles (13.2 km) south of Mankins, and 9.2 miles (14.8 km) northwest of Archer City.

DRAINAGE AREA.--275 mi<sup>2</sup> (712 km<sup>2</sup>).

PERIOD OF RECORD.--Contents: February 1946 to current year. Prior to October 1965, monthend contents only.  
Water quality: Chemical analyses: October 1969 to current year.

GAGE.--Nonrecording gage read twice daily prior to Feb. 17, 1974, once daily thereafter. Datum of gage is at mean sea level. Prior to Oct. 8, 1946, water-stage recorder at same site and datum.

EXTREMES (at 0800).--Current year: Maximum contents, 108,000 acre-ft (133 hm<sup>3</sup>) Oct. 1-7 (elevation, 1,045.3 ft or 318.61 m); minimum observed, 84,850 acre-ft (105 hm<sup>3</sup>) Aug. 22-28 (elevation, 1,041.5 ft or 317.45 m).  
Period of record: Maximum contents, 134,300 acre-ft (166 hm<sup>3</sup>) Aug. 2, 1950 (elevation, 1,049.2 ft or 319.80 m); minimum observed since first filling in July 1950, 35,660 acre-ft (44.0 hm<sup>3</sup>) June 30, 1953 (elevation, 1,029.8 ft or 313.88 m).

REMARKS.--The lake is formed by a rolled-fill earthen dam 8,200 ft (2,500 m) long, including a 483-foot-wide (147-meter) reinforced concrete ogee-type uncontrolled spillway near right end of dam. The dam was completed Dec. 15, 1945, and storage began Feb. 1, 1946. The service outlet consists of two gate-controlled 4- by 5-foot (1.2- by 1.5-meter) conduits. The dam and lake are owned by the city of Wichita Falls, which uses the lake for their municipal water supply. The capacity table is based on Geological Survey topographic maps, 5-foot (1.5-meter) contour interval, surveyed in 1929. The capacity curve, dated November 1946, was entitled "Lake Kickapoo Area & Capacity Curve". Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	1,062.0	-
Design flood (2-foot freeboard).....	1,060.0	221,000
Crest of spillway.....	1,045.0	106,000
Lowest gated outlet (invert).....	1,000.92	0

COOPERATION.--Capacity curve, record of lake elevations, and diversions for municipal use are furnished by the city of Wichita Falls.

REVISIONS.--WSP 1211: Drainage area.

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

1,041.0	82,000	1,044.0	99,700
1,042.0	87,700	1,045.0	106,000
1,043.0	93,600	1,046.0	112,500

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	108000	104700	104100	96650	94820	93010	91830	90650	91240	90650	87130	85420
2	108000	104700	104100	96650	94820	93010	91830	90650	91240	90650	86560	85420
3	108000	104700	104100	96650	94820	92420	91830	90650	91240	90650	86560	85420
4	108000	104700	104100	96650	94210	92420	91240	90650	91240	90650	86560	85420
5	108000	104700	104100	96650	94210	92420	91240	90650	91240	90060	86560	85420
6	108000	104700	104100	96650	94210	92420	91240	90650	91240	90060	86560	85420
7	108000	104700	102800	96650	94210	92420	91240	90650	91240	90060	86560	85420
8	107300	104700	102800	96650	94210	92420	91240	90650	91240	90060	86560	85420
9	107300	104700	102800	96650	94210	92420	91240	90650	91240	90060	85990	85420
10	107300	104700	102800	96650	94210	92420	91240	90650	91240	90060	85990	85420
11	106600	104700	102800	96040	93600	92420	91240	90650	91240	90060	85990	85420
12	106600	104700	102200	96040	93600	92420	91240	90650	91240	90060	85990	85990
13	106600	104700	102200	96040	93600	92420	91240	90650	91240	90060	85990	85990
14	106000	104700	102200	94820	93600	92420	91240	90650	91240	90060	85990	85990
15	106000	104700	102200	94820	93600	91830	91240	90650	91240	89470	85990	85990
16	106000	104700	102200	94820	93600	91830	91240	90650	91240	89470	85420	85990
17	106000	104100	101600	94820	93600	91830	91240	90060	91240	89470	85420	85990
18	106000	104100	101600	96040	93010	91830	90650	90060	91240	89470	85420	85990
19	106000	104100	101000	96040	93010	91830	90650	90060	91240	88290	85420	85990
20	105400	104100	101000	96040	93010	91830	90650	90060	90650	88290	85420	85990
21	105400	104100	100300	96040	93010	91830	90650	90060	90650	88290	85420	87700
22	105400	104100	99700	96040	93600	91830	90650	90060	90650	88290	84850	87700
23	104700	104100	99700	95430	93600	91830	90650	90060	90650	88290	84850	87700
24	104700	104100	99090	95430	93600	91830	90650	90650	90650	88290	84850	88290
25	104700	104100	99090	95430	93600	91830	90650	90650	90650	87700	84850	88290
26	104700	104100	98480	95430	93600	91830	90650	90650	90650	87700	84850	88290
27	104700	104100	98480	95430	93600	91830	90650	90650	90650	87700	84850	88290
28	104700	104100	97870	95430	93600	91830	90650	90650	90650	87130	85420	88290
29	104700	104100	97870	94820	93010	91830	90650	90650	90650	87130	85420	88290
30	104700	104100	97260	94820	---	91830	90650	91240	90650	87130	85420	---
31	104700	---	97260	94820	---	91830	---	91240	---	87130	85420	---
(†)	1044.8	1044.7	1043.6	1043.2	1042.9	1042.7	1042.5	1042.6	1042.5	1041.9	1041.6	1042.1
(*)	-1300	-600	-6840	-2440	-1810	-1180	-1180	+590	-590	-3520	-1710	+2870
(††)	122	122	130	40.5	36.6	27.9	39.7	40.8	53.6	55.5	117	77.9
MAX	108000	104700	104100	96650	94820	93010	91830	91240	91240	90650	87130	88290
MIN	104700	104100	97260	94820	93010	91830	90650	90060	90650	87130	84850	85420

CAL YR 1975..... \* -4940

WTR YR 1976..... \* -17710

†† 1256

†† 864

MAX 112500

MAX 108000

MIN 97260

MIN 84850

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal use.

## RED RIVER BASIN

175

07314000 Lake Kickapoo near Archer City, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
OCT 15...	1500	429	8.4	21.0	120	0	34	9.7	38
DATE	SODIUM ADSORPTION RATIO	DISSOLVED PHOSPHATE (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT 15...	1.5	4.8	163	2	11	43	.5	8.2	232

## RED RIVER BASIN

07314500 Little Wichita River near Archer City, Tex.

LOCATION.--Lat 33°39'45", long 98°36'46", Archer County, on left bank at downstream side of bridge on State Highway 79, 1.5 miles (2.4 km) downstream from confluence of North and Middle Forks, and 4.8 miles (7.7 km) north of Archer City.

DRAINAGE AREA.--481 mi<sup>2</sup> (1,246 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: May 1932 to January 1956, August 1966 to current year.

Water quality: Chemical analyses: January 1953 to January 1956. Water temperatures: January 1953 to January 1956. Sediment records: May 1968 to September 1975 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 934.72 ft (284.903 m) above mean sea level. Aug. 17, 1954, to Jan. 6, 1956, nonrecording gage at present site and datum.

AVERAGE DISCHARGE.--13 years (1932-45) prior to completion of Lake Kickapoo, 110 ft<sup>3</sup>/s (3.115 m<sup>3</sup>/s), 79,700 acre-ft/yr (98.3 hm<sup>3</sup>/yr); 20 years (1945-55, 1966-76) regulated, 39.9 ft<sup>3</sup>/s (1.130 m<sup>3</sup>/s), 28,910 acre-ft/yr (35.6 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 891 ft<sup>3</sup>/s (25.2 m<sup>3</sup>/s) Sept. 20 (gage height, 15.50 ft or 4.724 m); no flow for many days. Period of record: Maximum discharge, 17,900 ft<sup>3</sup>/s (507 m<sup>3</sup>/s) Oct. 31, 1941 (gage height, 26.18 ft or 7.980 m); no flow at times. Flood of June 1930 reached a stage of about 28 ft (8.5 m), from information by State Highway Department.

REMARKS.--Discharge records good. Some regulation by Lake Kickapoo (station 07314000) on North Fork Little Wichita River. Records furnished by Wichita Falls show that 864 acre-ft (1.07 hm<sup>3</sup>) was diverted from Lake Kickapoo for municipal use during the current water year.

REVISIONS (WATER YEARS).--WSP 827: 1932-35. WSP 1211: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.02	.09	.72	2.0	.21	.10	4.9	98	.27	1.6	8.3
2	.02	.03	.07	.56	2.2	.21	.10	3.0	48	.14	.55	.41
3	.02	2.8	.07	.43	2.2	.21	.06	1.1	10	.07	.29	2.9
4	.02	1.2	.07	.35	2.2	.26	.04	.50	2.6	.06	.13	0
5	.02	.40	.11	.32	2.2	.29	.03	.29	1.3	.05	.09	0
6	.02	.24	.18	.07	2.2	.29	.03	.29	.99	.02	.04	0
7	.02	.17	.14	.03	2.2	.31	.07	.33	2.5	.01	.01	0
8	.01	.14	.19	.02	2.2	7.7	.10	.29	18	.01	.01	0
9	.01	.09	.20	.02	2.2	27	.10	.29	2.1	0	0	1.6
10	.01	.07	.20	.06	2.2	5.0	.10	.20	1.2	0	0	18
11	.01	.07	.20	.06	2.2	1.8	.10	.10	.83	.01	0	8.4
12	.01	.07	.20	.06	2.2	3.6	.10	.06	.82	.02	0	1.4
13	0	.07	.23	.06	2.2	5.8	1.2	.06	.80	.01	0	41
14	0	.07	.26	.06	2.2	1.5	4.9	.05	.71	.01	0	349
15	.02	.07	.26	.06	2.2	.93	2.2	.03	.43	.01	0	42
16	.44	.07	.26	.06	2.2	.62	35	.01	1.5	0	0	6.4
17	.10	.07	.20	.06	2.5	.33	35	.01	1.9	0	0	.70
18	.04	.07	.20	.10	2.2	.28	12	.01	.47	2.1	0	0
19	.01	.07	.37	.10	2.2	.21	4.6	0	12	1.6	0	297
20	.01	.07	.48	.32	2.2	.21	1.9	0	1.7	.92	0	851
21	.01	.07	.48	.77	1.4	.21	1.2	0	.73	1.3	0	435
22	.01	.07	.52	.77	.78	.19	.65	0	.23	.21	0	49
23	.01	.07	.48	.77	.49	.15	.40	212	.16	.06	0	5.5
24	.01	.07	.65	.77	.34	.15	.29	290	.06	1.5	0	.13
25	.02	.07	12	1.4	.28	.15	.29	26	.03	.12	0	0
26	.02	.07	7.1	1.8	.21	.15	.23	12	.02	.13	0	0
27	.02	.07	3.4	1.8	.21	.15	.21	16	.01	.05	0	0
28	.02	.08	3.4	1.8	.21	.15	.24	4.0	19	3.3	0	0
29	.02	.11	1.8	1.8	.21	.16	17	2.2	5.3	65	0	0
30	.02	.10	5.9	1.8	---	.15	5.6	1.1	.77	44	40	0
31	.02	---	1.3	2.0	---	.13	---	4.1	---	9.2	56	---
TOTAL	.99	6.64	41.01	19.00	48.23	58.50	123.84	578.92	278.69	130.18	98.72	2117.74
MEAN	.032	.22	1.32	.61	1.66	1.89	4.13	18.7	9.29	4.20	3.18	70.6
MAX	.44	2.8	12	2.0	2.5	27	35	290	98	65	56	851
MIN	0	.02	.07	.02	.21	.13	.03	0	.01	0	0	0
AC-FT	2.0	13	81	38	96	116	246	1150	553	258	196	4200
CAL YR 1975	TOTAL	32854.88	MEAN	90.0	MAX	4080	MIN	0	AC-FT	65170		
WTR YR 1976	TOTAL	3502.46	MEAN	9.57	MAX	851	MIN	0	AC-FT	6950		



07314800 Lake Arrowhead near Henrietta, Tex.

LOCATION.--Lat 33°45'51", long 98°22'17", Clay County, at intake tower near center of dam on Little Wichita River, 2.3 miles (3.7 km) upstream from Lake Creek, 11 miles (18 km) southwest of Henrietta, and 12.3 miles (19.8 km) southeast of Wichita Falls.

DRAINAGE AREA.--822 mi<sup>2</sup> (2,129 km<sup>2</sup>).

PERIOD OF RECORD.--Contents: June 1967 to current year.

Water quality: Chemical analyses: October 1970 to current year.

GAGE.--Water-stage recorder. Datum of gage is 0.40 ft (0.122 m) below mean sea level.

EXTREMES.--Current year: Maximum contents, 239,500 acre-ft (295 hm<sup>3</sup>) Oct. 1 (gage height, 924.96 ft or 281.928 m); minimum, 189,400 acre-ft (234 hm<sup>3</sup>) Sept. 9 (gage height, 921.42 ft or 280.849 m).

Period of record: Maximum contents, 246,300 acre-ft (304 hm<sup>3</sup>) July 28, 30, 1975 (gage height, 925.40 ft or 282.062 m); minimum since first appreciable storage, 4,640 acre-ft (5.72 hm<sup>3</sup>) Aug. 31 to Sept. 4, 1967.

REMARKS.--The lake is formed by a rolled-fill earthen dam 15,900 ft (4,846 m) long, including an uncontrolled reinforced concrete ogee spillway 1,581 ft (482 m) wide located near the left end of dam. The dam was completed in December 1966 and storage began in June 1967. The service outlet works, located in a cylindrical service tower at upstream side of dam, consist of two gated 5-foot-diameter (2-meter) inlets that can be used for controlled releases. The area-capacity curves are based on Geological Survey topographic maps. 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.....	944.4	-
Design flood.....	939.95	551,400
Crest of spillway (top of conservation pool).....	926.4	262,100
Lowest gated outlet (invert).....	874.1	-

COOPERATION.--Capacity table furnished by Homer Hunter and Associates and Biggs and Mathews Consulting Engineers for the city of Wichita Falls. Area-capacity curves furnished by Homer Hunter and Associates. Record of diversions furnished by the city of Wichita Falls.

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

920.0	171,300	924.0	225,200
922.0	197,000	926.0	255,700

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	238800	232000	227400	226000	222800	218500	212800	210400	213500	207300	200500	191600
2	238400	232600	227500	225800	222600	218500	212600	210100	213600	207000	199600	191700
3	238400	232300	227500	225200	222800	217100	211900	209700	213600	207300	199300	191900
4	238400	232300	228000	225900	221500	216200	211800	209800	213200	207000	199200	191700
5	238200	232400	227400	226200	221200	216000	211800	210000	212900	206600	198700	191500
6	238000	233200	226600	224600	221200	216200	211600	209300	212800	206500	197800	191100
7	237700	232600	226900	224600	221600	216800	211500	208800	212500	206300	197800	190700
8	237600	233000	226800	225000	221800	217200	211500	209000	212500	206000	197100	190100
9	237600	231800	227000	225800	222400	217800	211400	208800	212300	205600	196900	189700
10	237400	231800	227200	225200	222100	217800	211400	209000	212100	205600	196400	190000
11	237100	231000	226500	225200	221600	217900	211200	208800	211600	205300	196000	190100
12	236600	230500	226600	225800	222100	216500	210700	209000	211500	205200	195400	189600
13	236600	230800	226300	224800	221900	216600	210900	208800	210900	205100	195000	190900
14	236200	230800	226200	224900	222200	216600	211200	208800	211200	205100	194600	192100
15	235800	230500	226200	224900	222200	216500	211100	208800	210000	205100	194200	193000
16	235000	230400	226200	224900	221600	216400	211500	208100	209800	204800	193600	192900
17	234600	230500	225900	224900	220600	216600	211600	208100	210100	204500	193400	192800
18	234400	230600	225500	225300	220200	216400	211200	208000	209700	204400	193000	192800
19	234200	230000	225300	224300	220000	217100	211800	207900	210000	204200	192500	197000
20	234200	229000	224900	224300	219300	215400	211500	207400	209700	203900	192300	201100
21	234100	228700	225000	224300	218700	215600	211600	207400	209500	203500	192000	203800
22	233800	228800	224800	224300	218900	216400	211600	206600	209800	203100	191600	204600
23	233500	229000	224800	224600	218900	215800	211600	209000	209700	203000	191100	204500
24	232200	228600	226000	224200	219000	215000	211200	210700	208700	202600	191200	204400
25	232300	228400	226500	223400	218300	215800	210400	211100	208800	202400	190900	204200
26	232600	228400	226300	223400	218500	214200	210400	210500	208700	202400	190800	203400
27	232800	228600	226500	223600	218500	214200	210200	210200	208400	201800	190400	203400
28	231600	228800	226200	223200	218300	214200	210200	210500	208400	201800	190100	203300
29	231700	228700	226500	223400	218500	212900	210200	210700	208100	201500	190100	203300
30	232000	227500	226800	223200	---	212900	210100	210800	207200	201100	191600	203100
31	232200	---	227000	223000	---	212300	---	211500	---	200800	191700	---
(+)	924.47	924.16	924.13	923.85	923.54	923.11	922.95	923.05	922.74	922.28	921.60	922.45
(*)	-7300	-4700	-500	-4000	-4500	-6200	-2200	+1400	-4300	-6400	-9100	+11400
(++)	1505	1125	1095	1168	1158	1298	1265	1354	1645	1996	2502	1393
MAX	238800	233200	228000	226200	222800	218500	212800	211500	213600	207300	200500	204600
MIN	231600	227500	224800	223000	218300	212300	210100	206600	207200	200800	190100	189600

CAL YR 1975..... \* +64100

WTR YR 1976..... \* -36400

++ 16891

++ 17504

MAX 246100

MAX 238800

MIN 160500

MIN 189600

† Gage height, in feet, at end of month.

\* Change in contents, in acre-feet.

++ Diversions, in acre-feet, for municipal use.



## RED RIVER BASIN

07314800 Lake Arrowhead near Henrietta, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
NOV 26...	1155	722	8.5	11.0	160	35	44	13	73
DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SI02) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
NOV 26...	2.5	8.6	148	4	7.9	140	.5	1.4	365

07314900 Little Wichita River above Henrietta, Tex.

LOCATION.--Lat 33°49'36", long 98°14'23", Clay County, on right bank at downstream side of bridge on U.S. Highways 822 and 287, 1.0 mile (1.6 km) downstream from Duck Creek, 2.8 miles (4.5 km) west of Henrietta, 6.6 miles (10.6 km) upstream from Turkey Creek, and 7.6 miles (12.2 km) upstream from Dry Fork Little Wichita River.

DRAINAGE AREA.--1,037 mi<sup>2</sup> (2,686 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: January 1953 to current year. Prior to October 1974, published as "near Henrietta".

Water quality: Chemical analyses: December 1952 to January 1956, March 1959 to September 1966, January 1968 to September 1975.  
Water temperatures: December 1952 to January 1956, March 1959 to September 1966.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 831.57 ft (253.463 m) above mean sea level. Prior to June 26, 1953, nonrecording gage. Prior to July 11, 1975, at site 2.6 miles (4.2 km) downstream at same datum.

AVERAGE DISCHARGE.--13 years (1953-66) prior to completion of Lake Arrowhead, 124 ft<sup>3</sup>/s (3.512 m<sup>3</sup>/s), 89,840 acre-ft/yr (111 hm<sup>3</sup>/yr); 10 years (1966-76) regulated, 24.2 ft<sup>3</sup>/s (0.685 m<sup>3</sup>/s), 17,530 acre-ft/yr (21.6 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 975 ft<sup>3</sup>/s (27.6 m<sup>3</sup>/s) Sept. 21 (gage height, 12.05 ft or 3.673 m, from floodmark); no flow for many days.

Period of record: Maximum discharge, 7,630 ft<sup>3</sup>/s (216 m<sup>3</sup>/s) May 1, 1966 (gage height, 18.28 ft or 5.572 m); maximum gage height, 18.36 ft (5.596 m) May 2, 1957; no flow at times each year.

Flood in 1908 reached a stage of about 21 ft (6.4 m), from information by State Highway Department.

REMARKS.--Discharge records fair. Flow largely regulated by Lake Arrowhead 39 miles (63 km) upstream (capacity, 262,100 acre-ft or 323 hm<sup>3</sup>). The city of Wichita Falls diverted 864 acre-ft (1.07 hm<sup>3</sup>) from Lake Kickapoo and 17,500 acre-ft (21.6 hm<sup>3</sup>) from Lake Arrowhead for municipal uses, and returned 12,730 acre-ft (15.7 hm<sup>3</sup>) as sewage effluent and filter plant washwater to the Wichita River below station 07312500 at Wichita Falls and above station 07312700 near Charlie. The city of Henrietta diverted 400 acre-ft (0.493 hm<sup>3</sup>) from pool at gage for municipal use. Diversion records were furnished by the cities of Wichita Falls and Henrietta, respectively.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							0	0	381			0
2							0	0	189			0
3							0	0	55			0
4							0	0	19			0
5							0	0	8.5			0
6							0	0	1.8			0
7							0	0	.32			0
8							0	0	.08			0
9							0	0	.02			0
10							0	0	.01			0
11							0	0	0			0
12							0	0	0			0
13							0	0	0			0
14							0	0	0			73
15							0	0	0			622
16							3.0	0	0			567
17							0	0	0			265
18							0	0	0			97
19							.61	0	0			54
20							.22	0	0			532
21							0	0	0			931
22							0	0	0			634
23							0	0	0			306
24							0	0	0			152
25							0	0	0			52
26							0	0	0			11
27							0	0	0			1.4
28							0	0	0			.19
29							0	0	0			.05
30							0	0	0			.03
31		---			---		---	2.7	---			---
TOTAL	0	0	0	0	0	0	3.83	2.7	654.73	0	0	4297.67
MEAN	0	0	0	0	0	0	.13	.087	21.8	0	0	143
MAX	0	0	0	0	0	0	3.0	2.7	381	0	0	931
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	0	0	0	7.6	5.4	1300	0	0	8520
CAL YR 1975	TOTAL	23037.27	MEAN 63.1	MAX 3900	MIN 0	AC-FT 45690						
WTR YR 1976	TOTAL	4958.93	MEAN 13.5	MAX 931	MIN 0	AC-FT 9840						

## RED RIVER BASIN

07314900 Little Wichita River above Henrietta, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
SFP. 01...	1350	66	363	6.9	24.0	66	16	19	4.6	40
DATE		SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SI02) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
SFP. 01...		2.1	6.0	62	0	6.5	69	.2	5.9	182

## RED RIVER BASIN

181

07315200 East Fork Little Wichita River near Henrietta, Tex.

LOCATION.--Lat 33°48'46", long 98°05'05", Clay County, on downstream side of bridge on U.S. Highway 82, 5.8 miles (9.3 km) upstream from Little Wichita River, 6.4 miles (10.3 km) east of Henrietta, and 8.9 miles (14.3 km) west of Ringgold.

DRAINAGE AREA.--178 mi<sup>2</sup> (461 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: November 1963 to current year.

Water quality: Chemical analyses: October 1965 to September 1968, October 1969 to current year. Sediment records: October 1965 to September 1975.

GAGE.--Water-stage recorder. Datum of gage is 825.32 ft (251.558 m) above mean sea level.

AVERAGE DISCHARGE.--12 years (1964-76), 22.5 ft<sup>3</sup>/s (0.637 m<sup>3</sup>/s), 1.72 in/yr (44 mm/yr), 16,300 acre-ft/yr (20.1 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 410 ft<sup>3</sup>/s (11.6 m<sup>3</sup>/s) May 24 (gage height, 14.59 ft or 4.447 m); no flow for many days.

Period of record: Maximum discharge, 15,500 ft<sup>3</sup>/s (439 m<sup>3</sup>/s) May 12, 1972 (gage height, 28.85 ft or 8.793 m), from rating curve extended above 4,000 ft<sup>3</sup>/s (113 m<sup>3</sup>/s) on basis of contracted-opening measurement of 15,500 ft<sup>3</sup>/s (439 m<sup>3</sup>/s); no flow for many days most years.

Maximum stage since at least 1920, that of May 12, 1972. Flood in October 1941 reached a stage of 28.8 ft (8.78 m), from information by local residents.

REMARKS.--Discharge records good. No known diversion above station.

REVISIONS (WATER YEARS).--WRD Texas 1972: 1966(M).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.05	.31	.02	0	.05	.01	.69	256	.01		0
2	.01	.06	.33	.02	0	.03	.01	.53	268	.01		0
3	0	.08	.35	.01	0	.02	.01	.35	53	.01		0
4	0	.08	.37	.01	0	.03	.01	.27	11	.01		0
5	0	.09	.36	.01	0	.02	0	.26	3.8	.01		0
6	0	.10	.34	.01	0	.03	0	.30	1.5	.01		0
7	0	.11	.35	.01	0	.04	.01	.22	.69	.01		0
8	0	.11	.37	0	0	.23	.01	.16	.52	.01		0
9	0	.12	.40	0	0	.28	.01	.12	.39	.01		0
10	0	.12	.40	0	.01	.13	.01	.10	.29	.01		68
11	0	.14	.41	0	.01	.10	0	.09	.22	.01		21
12	0	.14	.43	0	.01	.07	0	2.2	.15	.01		4.0
13	.01	.16	.45	0	.02	.05	0	70	.10	.01		16
14	.01	.16	.46	0	.02	.04	0	121	.07	.01		20
15	.01	.18	.46	0	.02	.03	0	12	.05	.01		2.4
16	.01	.18	.46	0	.03	.03	.05	3.5	.04	.01		1.7
17	.01	.19	.29	0	.03	.02	.08	1.2	.03	.01		1.3
18	.01	.21	0	0	.03	.02	.05	.58	.07	.02		1.1
19	.01	.22	0	0	.03	.02	6.1	.43	.18	.02		45
20	.01	.24	0	0	.03	.02	142	.26	.06	4.6		253
21	.02	.24	0	0	.04	.03	306	.17	.04	4.6		213
22	.02	.24	0	0	.03	.03	24	.14	.03	2.0		25
23	.02	.26	0	0	.04	.02	6.1	2.9	.03	.92		6.0
24	.02	.26	0	0	.04	.02	3.3	252	.03	.65		2.3
25	.02	.28	.64	0	.04	.03	2.0	173	.02	.43		2.1
26	.02	.28	1.4	0	.04	.03	1.5	12	.01	.23		1.8
27	.03	.30	.17	0	.04	.02	1.2	3.5	.01	.09		1.2
28	.03	.32	.03	0	.05	.03	1.0	1.3	.01	.03		1.0
29	.03	.33	.02	0	.05	.03	1.9	.64	.01	.01		.74
30	.04	.32	.02	0	---	.02	1.0	.47	.01	0		.52
31	.04	---	.02	0	---	.02	---	27	---	0		---
TOTAL	.39	5.57	8.84	.09	.61	1.54	496.36	687.38	596.36	13.77	0	687.16
MEAN	.013	.19	.29	.003	.021	.050	16.5	22.2	19.9	.44	0	22.9
MAX	.04	.33	1.4	.02	.05	.28	306	252	268	4.6	0	253
MIN	0	.05	0	0	0	.02	0	.09	.01	0	0	0
CFSM	0	.001	.001	0	0	0	.09	.12	.11	.002	0	.13
IN.	.00008	.001	.002	.00001	.0001	.0003	.10	.14	.12	.003	0	.14
AC-FT	.8	11	18	.2	1.2	3.1	985	1360	1180	27	0	1360

CAL YR 1975	TOTAL	11935.56	MEAN	32.7	MAX	1240	MIN	0	CFSM	.18	IN	2.49	AC-FT	23670
WTR YR 1976	TOTAL	2498.07	MEAN	6.83	MAX	306	MIN	0	CFSM	.04	IN	.52	AC-FT	4950

PEAK DISCHARGE (BASE, 300 FT<sup>3</sup>/S)

DATE	TIME	G.H.T.	DISCHARGE	DATE	TIME	G.H.T.	DISCHARGE
4-21	1400	13.98	369	6- 1	1400	13.08	312
5-24	2130	14.59	410	9-21	0130	13.76	354

## RED RIVER BASIN

07315200 East Fork Little Wichita River near Henrietta, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH  (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
NOV. 26...	1100	.28	1340	8.6	6.0	210	0	26	35	220
FEB. 17...	1025	.03	1630	8.1	13.0	330	0	69	39	240
MAR. 29...	1210	.03	1540	7.9	16.0	370	0	89	35	220
MAY 10...	1230	.10	1210	7.7	19.5	290	0	67	29	160
JUNE 21...	1220	.04	1380	7.4	21.0	310	64	74	30	160
SEP. 14...	1045	16	139	6.9	20.5	31	0	8.5	2.4	12

DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SI02) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITU- TENTS) (MG/L)
NOV. 26...	6.6	6.0	406	12	42	200	.5	22	764
FFR. 17...	5.7	3.8	585	0	78	210	.5	19	948
MAR. 29...	5.0	4.0	608	0	51	190	.7	17	906
MAY 10...	4.1	3.3	399	0	37	190	.6	18	702
JUNE 21...	4.0	7.5	298	0	35	280	.5	13	747
SFP. 14...	.9	5.0	40	0	6.1	16	.1	7.8	78

07315500 Red River near Terra1, Okla.

LOCATION.--Lat 33°52'43", long 97°56'03", Jefferson County, near left bank on downstream side of pier of bridge on U.S. Highway 81, 0.5 mile (0.8 km) downstream from Chicago, Rock Island, and Pacific Railroad Co. bridge, 1.2 miles (1.9 km) south of Terra1, 3.6 miles (5.8 km) downstream from Little Wichita River, and at mile 872 (1,403 km).

DRAINAGE AREA.--28,723 mi<sup>2</sup> (74,393 km<sup>2</sup>), of which 5,936 mi<sup>2</sup> (15,374 km<sup>2</sup>) is probably noncontributing.

PERIOD OF RECORD.--Discharge: January 1938 to current year. Monthly discharge only for some periods, published in WSP 1311.

Water quality: Chemical analyses: October 1967 to current year. Water temperatures: October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 770.31 ft (234.790 m) above mean sea level. Prior to Jan. 12, 1939, nonrecording gage at same site and datum.

AVERAGE DISCHARGE.--38 years, 2,193 ft<sup>3</sup>/s (62.11 m<sup>3</sup>/s), 1,589,000 acre-ft/yr (1.96 km<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 19,700 ft<sup>3</sup>/s (558 m<sup>3</sup>/s) Sept. 15 (gage height, 16.57 ft or 5.051 m); minimum, 228 ft<sup>3</sup>/s (6.46 m<sup>3</sup>/s) Aug. 23.

Period of record: Maximum discharge, 197,000 ft<sup>3</sup>/s (5,580 m<sup>3</sup>/s) June 8, 1941 (gage height, 28.12 ft or 8.571 m); minimum, 43 ft<sup>3</sup>/s (1.22 m<sup>3</sup>/s) Mar. 15, 1939.

Historic: Maximum stage since at least 1891, that of June 8, 1941. Flood of May 19, 1935, reached a stage of 27.2 ft (8.29 m); floods in 1891 and May 1, 1908, are reported to have reached about the same stage.

Water quality: Current year: Maximum daily specific conductance, 10,700 micromhos July 10; minimum daily, 928 micromhos Sept. 17. Maximum water temperatures, 29.0°C July 23, 26, Aug. 8; minimum, freezing point Jan. 7.

Period of record: Maximum daily specific conductance, 10,700 micromhos Apr. 23, 1970; minimum daily, 450 micromhos May 25, 1975. Maximum water temperatures, 32.0°C July 19, 1974, July 10, 1976; minimum, freezing point on many days during winter months.

REMARKS.--Discharge records good. Many small diversions for irrigation, oilfield, and municipal uses upstream from station. When codes for agencies collecting and analyzing a sample are shown in the water-quality table, the sample was collected and field data obtained by the Oklahoma District (1028), U.S. Geological Survey, and the remainder of the analysis performed by the Oklahoma State Health Department (9740).

REVISIONS.--WSP 1211: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	651	492	569	1150	438	365	338	4400	2560	905	630	561
2	621	516	562	1020	441	358	343	3160	3670	727	491	2090
3	604	529	562	890	436	355	350	2420	7780	701	396	2090
4	585	582	557	815	434	364	355	2010	5100	925	332	2060
5	568	1730	557	767	424	364	357	1620	2930	637	310	1520
6	556	2270	551	726	424	366	359	1380	1890	535	303	933
7	534	2550	551	672	430	399	351	1180	1620	486	306	592
8	565	1950	545	618	445	503	355	1060	1180	479	511	474
9	629	1670	545	598	445	680	361	1130	1070	627	668	413
10	600	1420	540	599	445	1320	366	1210	1000	546	562	387
11	533	1210	540	596	445	1310	356	1050	828	512	504	438
12	479	1060	534	542	440	1050	356	975	746	549	413	399
13	470	934	534	562	444	767	362	3370	762	459	355	481
14	476	858	529	596	453	735	385	2420	707	440	320	7440
15	479	804	529	597	468	869	589	1220	637	472	298	18000
16	494	760	523	597	463	701	604	1000	570	655	281	15800
17	553	729	523	575	440	585	1850	1100	529	504	273	11600
18	621	713	518	557	440	534	7690	969	1210	469	269	4720
19	693	700	520	536	436	484	9460	887	2270	440	257	4300
20	1100	704	516	523	441	445	8640	791	2220	397	249	6550
21	967	703	512	507	436	417	7440	700	1950	379	239	8180
22	781	703	507	502	422	395	5010	648	1200	351	239	6090
23	680	696	507	494	408	371	3210	727	821	325	234	4440
24	622	711	511	481	392	355	2730	709	713	316	242	2780
25	568	676	513	471	384	356	2070	1150	753	308	245	2130
26	535	645	601	466	374	355	1720	3000	623	318	251	1780
27	510	643	760	468	360	342	1420	2220	971	316	243	1480
28	516	630	806	468	366	341	1300	3600	2780	296	247	1280
29	518	611	859	462	367	329	1870	5220	1810	305	245	1150
30	627	577	888	453	---	321	3720	2910	1220	427	246	1100
31	559	---	1020	445	---	323	---	2750	---	506	261	---
TOTAL	18694	28776	18289	18753	12341	16459	64317	56986	52120	15312	10420	111258
MEAN	603	959	590	605	426	531	2144	1838	1737	494	336	3709
MAX	1100	2550	1020	1150	468	1320	9460	5220	7780	925	668	18000
MIN	470	492	507	445	360	321	338	648	529	296	234	387
AC-FT	37080	57080	36280	37200	24480	32650	127600	113000	103400	30370	20670	220700
CAL YR 1975 TOTAL	1285106											
WTR YR 1976 TOTAL	423725											
MEAN	3521											
MAX	49000											
MIN	470											
AC-FT	2549000											
AC-FT	840500											

PEAK DISCHARGE (BASE, 21,000 FT<sup>3</sup>/S).--No peak above base.



## RED RIVER BASIN

07315500 Red River near Terral, Okla.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICHO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)
OCT 08...	--	--	0935	535	5780	7.0	18.0	--
NOV 25...	1028	9740	--	570	--	8.5	7.0	52
30...	--	--	0850	577	6420	8.1	10.0	--
DEC 22...	1028	9740	0600	507	6000	8.1	5.0	4
31...	--	--	0920	1000	5970	7.9	4.0	--
JAN 27...	1028	9740	1530	468	--	8.4	7.0	2
31...	--	--	1140	450	6430	8.0	9.0	--
FEB 26...	1028	9740	1100	374	--	8.7	11.0	10
29...	--	--	1030	367	6490	7.7	16.0	--
MAR 23...	1028	9740	1230	395	--	8.8	15.5	1
24...	--	--	0930	358	6380	7.6	14.0	--
APR 23...	--	--	1025	3220	2060	7.8	21.0	--
27...	1028	9740	1515	1380	3500	8.3	20.0	71
MAY 05...	--	--	1130	1630	3280	7.7	18.0	--
25...	1028	9740	1545	1200	--	8.5	23.5	165
JUN 23...	1028	9740	1400	770	--	8.6	26.5	210
30...	--	--	0830	1200	4740	7.9	27.0	--
JUL 28...	--	--	0935	297	6710	7.5	26.0	--
28...	1028	9740	1430	296	--	8.7	31.0	66
AUG 25...	1028	9740	1330	245	--	6.1	29.0	43
31...	--	--	0945	250	5330	7.8	18.0	--
SEP 16...	--	--	1105	16300	894	7.7	24.0	--
28...	1028	9740	1445	1300	--	8.1	20.5	13

DATE	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)
OCT 08...	--	--	1100	900	260	98	880	12	10
NOV 25...	6.1	--	--	--	--	--	--	--	--
30...	--	--	1200	960	320	99	970	12	8.5
DEC 22...	11.6	97	1183	--	--	--	--	--	--
31...	--	--	1200	960	300	100	890	11	7.0
JAN 27...	11.3	97	--	--	--	--	--	--	--
31...	--	--	1300	1100	330	110	970	12	7.5
FEB 26...	10.5	100	--	--	--	--	--	--	--
29...	--	--	1200	1000	300	110	1000	13	8.5
MAR 23...	12.5	133	--	--	--	--	--	--	--
24...	--	--	1200	980	290	110	1000	13	10
APR 23...	--	--	440	330	130	28	270	5.6	6.5
27...	9.0	105	--	--	--	--	--	--	--
MAY 05...	--	--	660	530	180	51	470	8.0	7.0
25...	9.5	119	--	--	--	--	--	--	--
JUN 23...	8.5	110	--	--	--	--	--	--	--
30...	--	--	690	580	200	46	760	13	12
JUL 28...	--	--	1100	1000	290	100	1000	13	15
28...	10.0	139	--	--	--	--	--	--	--
AUG 25...	10.4	139	--	--	--	--	--	--	--
31...	--	--	1100	930	270	93	770	10	10
SEP 16...	--	--	210	110	61	14	92	2.8	7.3
28...	9.6	113	--	--	--	--	--	--	--

## RED RIVER BASIN

185

07315500 Red River near Terra1, Okla.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)
OCT								
18...	184	0	760	1400	.4	10	3510	--
NOV								
25...	--	--	--	--	--	--	--	.63
30...	300	0	870	1600	--	12	4030	--
DEC								
22...	--	--	--	1554	--	--	--	.17
31...	242	0	730	1500	--	7.3	3650	--
JAN								
27...	--	--	--	--	--	--	--	.47
31...	271	0	920	1600	--	2.9	4070	--
FEB								
26...	--	--	--	--	--	--	--	.64
29...	230	0	900	1600	.6	1.9	4030	--
MAR								
23...	--	--	--	--	--	--	--	.46
24...	238	0	810	1600	--	4.0	3940	--
APR								
23...	132	0	320	430	.5	11	1260	--
27...	--	--	--	--	--	--	--	.49
MAY								
05...	159	0	460	760	.4	11	2020	--
25...	--	--	--	--	--	--	--	.57
JUN								
23...	--	--	--	--	--	--	--	.36
30...	132	0	560	1200	.5	12	2860	--
JUL								
28...	168	0	850	1700	--	7.4	4050	--
28...	--	--	--	--	--	--	--	.31
AUG								
25...	--	--	--	--	--	--	--	.45
31...	156	0	750	1300	--	8.1	3280	--
SEP								
16...	122	0	100	140	.3	9.7	484	--
28...	--	--	--	--	--	--	--	.32

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	TOTAL ARSENIC (AS) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
NOV								
25...	1028	9740	--	4	5	14	9	600
DEC								
22...	1028	9740	0600	--	--	--	--	<100
JAN								
27...	1028	9740	1530	--	--	--	--	100
FEB								
26...	1028	9740	1100	3	4	3	3	300
MAR								
23...	1028	9740	1230	--	--	--	--	200
APR								
27...	1028	9740	1515	--	--	--	--	1400
MAY								
25...	1028	9740	1545	9	2	21	21	3800
JUN								
23...	1028	9740	1400	--	--	--	--	1300
JUL								
28...	1028	9740	1430	--	--	--	--	500
AUG								
25...	1028	9740	1330	13	4	20	10	300
SEP								
28...	1028	9740	1445	--	--	--	--	900

## RED RIVER BASIN

07315500 Red River near Terral, Okla.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
NOV 25...	38	75	--	19	--	4	15
DEC 22...	--	48	--	--	--	--	--
JAN 27...	--	95	--	--	--	--	--
FEB 26...	33	124	--	10	--	4	3
MAR 23...	--	75	--	--	--	--	--
APR 27...	--	340	--	--	--	--	--
MAY 25...	36	380	<.5	30	4	4	35
JUN 23...	--	299	--	--	--	--	--
JUL 28...	--	98	--	--	--	--	--
AUG 25...	23	121	<.5	25	<3	3	8
SEP 28...	--	200	--	--	--	--	--

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	18694	5460	3320	167000	1390	70000	670	33900	930
NOV. 1975.....	28776	5300	3220	250000	1340	104000	650	50600	900
DEC. 1975.....	18289	5930	3610	178000	1510	74700	730	36000	1010
JAN. 1976.....	18753	6880	4190	212000	1770	89400	850	42900	1160
FEB. 1976.....	11974	6540	3980	129000	1680	54200	800	26000	1100
MAR. 1976.....	16459	5370	3260	145000	1360	60400	660	29300	910
APR. 1976.....	64317	3450	2080	361000	850	147000	420	72900	600
MAY 1976.....	56986	4240	2570	395000	1060	163000	520	79900	730
JUNE 1976.....	52120	3590	2160	304000	880	124000	440	61400	620
JULY 1976.....	15312	5920	3600	149000	1510	62500	730	30100	1000
AUG. 1976.....	10420	6140	3740	105000	1570	44100	760	21300	1040
SEPT 1976.....	111258	1500	880	264000	320	97400	170	52500	280
TOTAL .....	423358	**	**	2660000	**	1090000	**	537000	**
WTD.AVG. ....	1159.88	3850	2300	**	950	**	470	**	670

## RED RIVER BASIN

187

07315500 Red River near Terra, Okla.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5980	5800	6690	6500	6520	6450	6460	2700	5000	4910	4000	5530
2	5990	5750	6570	6770	6520	6460	6570	3000	4100	5220	3500	3000
3	6030	5630	6430	7320	6620	6380	6680	3300	2750	5860	4160	2500
4	6030	5600	6270	7370	6520	6260	6250	3530	2420	4500	4990	1700
5	5910	4500	6220	7320	6470	6220	6020	4000	2170	4000	4440	1170
6	5880	5000	6270	7070	6430	6300	5650	4500	2790	4500	3950	1650
7	5860	6600	6090	7590	6450	6340	5900	5420	3000	5240	4010	2480
8	5820	5040	5620	7450	6450	5370	5800	5690	3600	5570	6180	2140
9	5570	4090	5910	7320	6430	5050	5830	5580	3260	7100	7090	2730
10	5820	4200	6090	7270	6410	4500	5750	5990	4420	10700	8020	3120
11	5470	3960	6090	7540	6310	4000	5880	6000	3840	9360	9020	3300
12	5120	4430	6030	6770	6290	3500	5830	6100	4290	8170	8790	3980
13	5310	4630	6060	6470	6360	4130	5820	2500	5270	7360	8260	4850
14	5330	4870	6120	6610	6430	4770	5810	2000	6340	6950	7980	3000
15	5340	5310	6030	6820	6430	4740	5700	4000	5970	6650	7170	1500
16	5190	5520	5990	7020	6470	4830	3970	4710	5340	5570	7120	1010
17	5480	5680	6060	6880	6600	4870	4380	5570	5210	4460	7050	928
18	5070	5780	6080	6670	6690	5800	4200	4460	4650	4790	6810	935
19	5190	5910	6100	6470	6730	6180	4000	4190	3570	4460	7270	1160
20	6270	5850	6130	6660	6690	6500	3000	4240	2420	4850	6240	1010
21	5190	5770	6140	6530	6620	6730	2500	4340	1920	5280	6030	1290
22	3760	5720	5990	6610	6710	6420	2000	4560	2360	5350	5860	1350
23	3910	5850	6030	6700	6640	6380	2500	4220	2890	5720	5810	1490
24	4840	5550	5940	6660	6780	6380	2890	4240	3220	5990	5640	1510
25	5470	5660	5680	6700	6690	6460	2710	3770	4180	5840	5640	1720
26	5260	5750	5520	6610	6690	6220	3120	4350	3720	6280	5670	2090
27	5470	6090	5430	6470	6620	6340	3440	3500	3910	6190	5690	1300
28	5540	6330	5000	6610	6640	6300	3670	3230	5000	6650	5810	1200
29	5730	6330	5120	6570	6410	6260	3580	5720	6930	6800	5580	1410
30	5800	6280	5530	6470	---	6460	2720	6180	5100	6190	5460	1450
31	5810	---	6010	6480	---	6510	---	6060	---	5500	5300	---
MONTH	5470	5450	5980	6850	6540	5780	4620	4450	3990	6000	6080	2080

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.0	18.0	5.0	9.0	7.0	16.0	13.0	17.0	24.0	25.0	28.0	---
2	17.0	18.0	6.0	6.0	7.0	19.0	15.0	17.0	25.0	25.0	28.0	---
3	17.0	17.0	8.0	9.0	6.0	17.0	16.0	18.0	26.0	26.0	25.0	---
4	16.0	18.0	11.0	1.0	10.0	15.0	---	17.0	---	25.0	25.0	26.0
5	17.0	17.0	6.0	3.0	7.0	9.0	16.0	18.0	25.0	25.0	24.0	27.0
6	22.0	16.0	10.0	1.0	4.0	12.0	18.0	18.0	25.0	25.0	25.0	26.0
7	17.0	17.0	8.0	0.0	3.0	10.0	18.0	17.0	25.0	25.0	27.0	25.0
8	18.0	17.0	8.0	---	5.0	9.0	16.0	16.0	24.0	28.0	29.0	25.0
9	20.0	17.0	9.0	---	8.0	8.0	17.0	20.0	25.0	27.0	28.0	24.0
10	22.0	15.0	9.0	5.0	14.0	10.0	17.0	19.0	24.0	26.0	28.0	19.0
11	22.0	14.0	10.0	5.0	14.0	13.0	20.0	19.0	23.0	25.0	28.0	21.0
12	22.0	12.0	10.0	5.0	10.0	12.0	22.0	23.0	25.0	24.0	25.0	20.0
13	22.0	9.0	14.0	7.0	15.0	10.0	20.0	17.0	26.0	25.0	---	21.0
14	21.0	9.0	15.0	5.0	17.0	10.0	20.0	17.0	28.0	26.0	26.0	20.0
15	20.0	10.0	8.0	5.0	16.0	12.0	20.0	18.0	25.0	25.0	27.0	22.0
16	17.0	12.0	7.0	8.0	16.0	10.0	16.0	20.0	22.0	25.0	26.0	23.0
17	16.0	14.0	5.0	9.0	17.0	11.0	18.0	19.0	23.0	26.0	26.0	24.0
18	15.0	15.0	1.0	11.0	11.0	11.0	17.0	18.0	23.0	27.0	27.0	25.0
19	16.0	17.0	5.0	10.0	11.0	17.0	19.0	22.0	23.0	25.0	25.0	25.0
20	16.0	8.0	7.0	6.0	13.0	17.0	18.0	21.0	23.0	26.0	25.0	24.0
21	17.0	6.0	4.0	5.0	10.0	13.0	17.0	21.0	23.0	26.0	24.0	21.0
22	18.0	7.0	5.0	6.0	5.0	15.0	18.0	23.0	23.0	26.0	24.0	22.0
23	18.0	7.0	7.0	8.0	10.0	15.0	20.0	25.0	25.0	29.0	27.0	22.0
24	17.0	5.0	7.0	11.0	9.0	15.0	20.0	24.0	25.0	27.0	23.0	22.0
25	14.0	4.0	7.0	8.0	10.0	18.0	18.0	23.0	25.0	28.0	25.0	24.0
26	15.0	3.0	6.0	5.0	10.0	18.0	15.0	23.0	25.0	29.0	25.0	23.0
27	14.0	3.0	7.0	8.0	12.0	15.0	16.0	20.0	27.0	27.0	25.0	23.0
28	18.0	6.0	5.0	6.0	15.0	15.0	19.0	19.0	27.0	26.0	25.0	19.0
29	17.0	5.0	6.0	6.0	16.0	17.0	16.0	21.0	27.0	26.0	20.0	19.0
30	17.0	10.0	5.0	10.0	---	12.0	17.0	25.0	27.0	27.0	26.0	24.0
31	18.0	---	5.0	9.0	---	12.0	---	24.0	---	28.0	18.0	---
MONTH	18.0	11.5	7.5	6.5	10.5	13.5	17.5	20.0	25.0	26.0	25.5	23.0

## RED RIVER BASIN

07315950 Moss Lake near Gainesville, Tex.

LOCATION.--Lat 33°46'26", long 97°12'52", Cooke County, at upstream side of outlet tower near right end of dam on Fish Creek, 1.6 miles (2.6 km) upstream from Bearhead Creek, 3.7 miles (6.0 km) upstream from mouth, and 11 miles (18 km) northwest of Gainesville.

DRAINAGE AREA.--65 mi<sup>2</sup> (168 km<sup>2</sup>).

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

Water quality: Chemical analyses: October 1969 to current year.

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

EXTREMES.--Current year: Maximum contents, 25,370 acre-ft (31.3 hm<sup>3</sup>) May 31 (elevation, 716.85 ft or 218.496 m); minimum, 21,990 acre-ft (27.1 hm<sup>3</sup>) Sept. 30 (elevation, 713.89 ft or 217.594 m).

Period of record: Maximum contents, 32,960 acre-ft (40.6 hm<sup>3</sup>) Oct. 31, 1974 (elevation, 722.63 ft or 220.258 m); minimum since lake first filled in May 1968, 20,800 acre-ft (25.6 hm<sup>3</sup>) Oct. 20, 1972 (elevation, 712.77 ft or 217.252 m).

REMARKS.--The lake is formed by a rolled earthfill dam 1,460 ft (445 m) long. The dam was completed and storage began Dec. 2, 1966. An uncontrolled morning-glory type spillway with a 7- by 7-foot (2- by 2-meter) opening is designed to discharge 2,500 ft<sup>3</sup>/s (70.8 m<sup>3</sup>/s) at a 10-foot (3-meter) head. The emergency spillway is a 400-foot-wide (120-meter) cut through natural ground located about 100 ft (30 m) to the left of the left end of dam. The dam was built by the city of Gainesville to impound water for municipal use. Area and capacity tables are based on a 1961 survey. There was no diversion from the lake during the current water year. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	740.0	-
Top of design flood pool.....	736.0	55,230
Crest of spillway.....	725.0	36,440
Crest of spillway (top of conservation pool).....	715.0	23,210
Lowest gated outlet (invert).....	666.0	78

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

713.0	21,040	716.0	24,360
714.0	22,110	717.0	25,550

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22690	22380	22200	22360	22300	22330	22310	23000	24070	22940	22820	22230
2	22670	22440	22200	22350	22300	22330	22300	22980	23680	22910	22790	22230
3	22650	22430	22190	22350	22300	22320	22310	22960	23460	22900	22760	22220
4	22640	22420	22220	22340	22290	22320	22310	22950	23320	22900	22730	22220
5	22630	22420	22220	22330	22290	22290	22310	23010	23230	22890	22700	22190
6	22620	22420	22220	22330	22280	22280	22310	23030	23180	22880	22690	22180
7	22600	22420	22220	22310	22280	22350	22410	23010	23190	22860	22670	22160
8	22590	22420	22210	22300	22280	22380	22410	23000	23100	22850	22650	22160
9	22580	22410	22220	22300	22290	22400	22400	22990	23080	22960	22640	22180
10	22580	22400	22210	22310	22300	22380	22400	22990	23060	22950	22600	22150
11	22580	22380	22210	22310	22300	22410	22400	22990	23030	22960	22580	22120
12	22570	22330	22220	22320	22310	22380	22400	23060	23010	22960	22550	22090
13	22550	22320	22240	22310	22310	22380	22400	23060	22990	22960	22530	22070
14	22530	22300	22240	22310	22340	22380	22400	23030	22970	22950	22500	22060
15	22580	22300	22220	22310	22340	22380	22410	23020	22970	22970	22460	22050
16	22570	22300	22220	22300	22330	22350	22440	23000	22960	23260	22430	22040
17	22550	22290	22200	22300	22340	22350	22460	22980	22970	23190	22410	22020
18	22540	22290	22190	22310	22340	22340	22480	22970	23070	23200	22380	22040
19	22530	22320	22190	22320	22330	22380	23500	22960	23060	23140	22350	22150
20	22520	22280	22180	22320	22350	22350	23470	22940	23040	23100	22330	22180
21	22510	22250	22160	22320	22330	22340	23340	22940	23010	23060	22300	22150
22	22500	22240	22180	22320	22320	22330	23230	22940	23000	23030	22290	22130
23	22500	22230	22180	22320	22320	22330	23180	23500	22980	23010	22260	22120
24	22470	22220	22300	22330	22300	22350	23130	23490	22980	23000	22220	22100
25	22450	22210	22330	22320	22300	22370	23080	23350	22970	22980	22210	22080
26	22440	22180	22340	22310	22300	22350	23060	23270	22960	22970	22200	22070
27	22430	22160	22350	22310	22300	22340	23020	23190	22950	22950	22180	22050
28	22420	22180	22350	22310	22310	22340	23040	23140	22940	22910	22210	22020
29	22410	22230	22350	22310	22320	22350	23030	23100	22920	22890	22200	22000
30	22400	22210	22360	22310	---	22330	23020	25130	22940	22870	22180	21990
31	22380	---	22360	22300	---	22320	---	24490	---	22850	22230	---
(†)	714.25	714.09	714.23	714.17	714.19	714.19	714.83	716.11	714.75	714.67	714.11	713.89
(*)	-350	-170	+150	-60	+20	0	+700	+1470	-1550	-90	-620	-240
MAX	22690	22440	22360	22360	22350	22410	23500	25130	24070	23260	22820	22230
MIN	22380	22160	22160	22300	22280	22280	22300	22940	22920	22850	22180	21990

CAL YR 1975..... \* -830

WTR YR 1976..... \* -740

MAX 24710

MAX 25130

MIN 22160

MIN 21990

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

## RED RIVER BASIN

189

07315950 Moss Lake near Gainesville, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
NOV 19...	0848	335	8.0	16.0	140	9	52	3.5	10
DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
NOV 19...	.4	2.8	165	0	15	12	.3	8.8	186



07316000 Red River near Gainesville, Tex.

LOCATION.--Lat 33°43'40", long 97°09'35", in SW¼ sec. 36, T.9 S., R.1 E., Love County, Okla., near center of span on downstream side of bridge on U.S. Highway 77, 0.2 mile (0.3 km) downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 5.0 miles (8.0 km) downstream from Fish Creek, 7.0 miles (11.0 km) north of Gainesville, and at mile 791.5 (1,273.5 km).

DRAINAGE AREA.--30,782 mi<sup>2</sup> (79,725 km<sup>2</sup>), of which 5,936 mi<sup>2</sup> (15,374 km<sup>2</sup>) is probably noncontributing.

PERIOD OF RECORD.--Discharge: May 1936 to current year. Monthly discharge only for some periods, published in WSP 1311.

Water quality: Chemical analyses: May 1944 to April 1946, October 1952 to September 1963, October 1966 to current year. Pesticide analyses: April 1968 to current year. Water temperatures: October 1952 to September 1963, October 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 627.91 ft (191.387 m) above mean sea level. Prior to Jan. 17, 1939, and Feb. 13, 1965, to Nov. 14, 1966, nonrecording gage at same site and datum.

AVERAGE DISCHARGE.--40 years, 2,750 ft<sup>3</sup>/s (77.88 m<sup>3</sup>/s), 1,992,000 acre-ft/yr (2.46 km<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 17,300 ft<sup>3</sup>/s (490 m<sup>3</sup>/s) Apr. 20 (gage height, 15.25 ft or 4.648 m); maximum gage height, 15.44 ft (4.706 m) Sept. 16; minimum daily discharge, 243 ft<sup>3</sup>/s (6.88 m<sup>3</sup>/s) Aug. 24-27.

Period of record: Maximum discharge, 168,000 ft<sup>3</sup>/s (4,760 m<sup>3</sup>/s) June 9, 1941 (gage height, 24.15 ft or 7.361 m); maximum gage height, 26.53 ft (8.086 m) May 21, 1951; minimum discharge, 48 ft<sup>3</sup>/s (1.36 m<sup>3</sup>/s) Jan. 27, 1940.

Water quality: Current year: Maximum daily specific conductance, 8,130 micromhos Aug. 18; minimum daily, 940 micromhos Sept. 23.

Period of record: Maximum daily specific conductance, 11,100 micromhos July 16, 1972; minimum daily, 176 micromhos Nov. 4, 1958. Maximum water temperatures, 35.0°C July 13, 1954; minimum, freezing point on many days during winter months.

REMARKS.--Discharge records good. Flow is slightly regulated by nine major upstream reservoirs in Texas and Oklahoma with a total capacity of 1,402,000 acre-ft (1.73 km<sup>3</sup>). When codes for agencies collecting and analyzing a sample are shown in the water-quality table, the sample was collected and field data obtained by the Oklahoma District (1028), U.S. Geological Survey, and the remainder of the analysis performed by the Oklahoma State Health Department (9740).

COOPERATION.--Gage-height record and 31 discharge measurements furnished by the Corps of Engineers; records computed by the Geological Survey.

REVISIONS.--WSP 1211: Drainage area.

DISCHARGE\* IN CUBIC FEET PER SECOND\* WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	840	561	620	900	503	403	422	2990	4970	2000	365	285
2	790	553	595	932	487	403	418	4830	4700	1460	432	336
3	748	550	594	1040	487	398	412	4520	5500	1100	521	401
4	727	547	600	1050	487	381	412	3150	9730	1060	592	1480
5	712	547	600	947	487	391	412	2590	9730	1010	506	1800
6	693	550	593	862	487	380	412	2360	5160	940	448	1890
7	665	1400	580	810	487	383	421	1980	3400	812	382	1550
8	644	2250	570	742	487	446	441	1650	2460	642	347	1120
9	625	2510	570	647	487	626	470	1410	2030	571	317	803
10	619	2120	570	739	487	903	473	1260	1560	565	323	656
11	637	1740	576	649	487	1110	461	1240	1370	640	530	508
12	650	1390	576	631	487	1700	457	1310	1270	646	599	434
13	650	1180	568	631	487	1690	457	1480	1100	576	537	408
14	631	1050	553	629	487	1390	450	1470	948	553	458	408
15	619	940	552	597	487	1080	440	3430	916	549	389	954
16	619	874	539	588	487	913	475	3210	899	570	346	14000
17	625	818	536	588	487	928	535	2180	819	589	317	14000
18	613	769	542	588	487	901	713	1300	1080	634	275	12200
19	619	741	542	596	486	782	6570	1220	1490	748	261	7410
20	649	705	542	606	469	706	15300	1070	1760	608	261	4570
21	679	687	531	603	469	637	14300	967	2440	545	261	6070
22	938	662	536	600	469	585	12800	922	2420	650	261	8640
23	1070	662	536	591	469	555	11900	1100	2120	483	250	7240
24	913	662	542	580	469	525	7700	1350	1530	416	243	5300
25	806	662	616	571	466	525	5060	1310	1120	408	243	3630
26	705	662	687	545	451	486	3180	1960	927	398	243	2470
27	670	650	694	533	438	452	2440	1970	892	371	243	1930
28	632	637	709	530	426	452	2060	3050	809	351	274	1640
29	594	637	839	530	411	448	2090	2640	892	368	295	1380
30	577	654	886	530	---	441	2170	5800	2170	376	269	1190
31	571	---	894	528	---	423	---	7160	---	374	280	---
TOTAL	21530	28370	18888	20913	13805	21443	93851	72879	76212	21013	11068	104703
MEAN	695	946	609	675	476	692	3128	2351	2540	678	357	3490
MAX	1070	2510	894	1050	503	1700	15300	7160	9730	2000	599	14000
MIN	571	547	531	528	411	380	412	922	809	351	243	285
AC-FT	42700	56270	37460	41480	27380	42530	186200	144600	151200	41680	21950	207700

CAL YR 1975	TOTAL	1616265	MEAN	4428	MAX	56200	MIN	531	AC-FT	3206000
WTR YR 1976	TOTAL	504675	MEAN	1379	MAX	15300	MIN	243	AC-FT	1001000

07316000 Red River near Gainesville, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)
OCT								
21...	--	--	0815	650	4960	7.8	17.5	--
NOV								
19...	--	--	0935	750	4910	7.9	15.0	--
24...	1028	9740	1600	662	6000	8.2	8.0	50
DEC								
04...	--	--	1635	600	5800	7.7	11.0	--
22...	1028	9740	1415	536	6000	8.7	6.0	6
JAN								
27...	1028	9740	1300	533	6100	8.5	5.0	1
31...	--	--	1700	520	6050	7.5	8.0	--
FEB								
11...	1028	9740	1155	487	--	--	13.5	5
12...	--	--	1100	487	--	--	14.0	--
29...	--	--	1800	410	6090	7.9	8.0	--
MAR								
10...	1028	9740	0930	700	--	7.9	15.0	15
16...	--	--	0915	1000	3450	8.0	9.0	--
APR								
07...	1028	9740	1236	420	5000	--	17.0	10
27...	--	--	0945	2600	2670	7.8	19.0	--
MAY								
11...	1028	9740	1100	1240	4500	8.6	24.0	90
31...	--	--	1920	7000	3910	7.7	23.0	--
JUN								
09...	1028	9740	0936	2100	2400	--	26.5	280
22...	--	--	1245	2420	2460	7.6	26.0	--
JUL								
07...	1028	9740	1215	800	--	--	27.0	140
31...	--	--	2030	375	6650	7.7	25.0	--
AUG								
25...	1028	9740	1000	243	6500	8.6	25.0	85
31...	--	--	1945	280	5140	7.7	--	--
SEP								
22...	--	--	1200	8600	--	--	23.5	--
28...	1028	9740	1000	1600	1200	7.6	20.5	27

DATE	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)
OCT									
21...	--	--	950	750	240	84	750	11	7.5
NOV									
19...	--	--	1000	800	280	73	740	10	9.0
24...	--	--	1100	--	--	--	--	--	--
DEC									
04...	--	--	1100	880	280	95	880	12	7.5
22...	--	--	1200	--	--	--	--	--	--
JAN									
27...	16.0	128	1200	--	--	--	--	--	--
31...	--	--	1200	950	300	100	1000	13	7.5
FEB									
11...	9.8	89	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
29...	--	--	1100	870	270	100	950	13	8.0
MAR									
10...	9.6	99	--	--	--	--	--	--	--
16...	--	--	670	490	170	59	500	8.4	6.5
APR									
07...	13.0	140	--	--	--	--	--	--	--
27...	--	--	580	470	170	37	350	6.3	7.5
MAY									
11...	9.9	118	950	--	--	--	--	--	--
31...	--	--	640	510	190	40	630	11	10
JUN									
09...	--	--	520	--	--	--	--	--	--
22...	--	--	460	330	120	39	320	6.5	6.8
JUL									
07...	7.9	101	900	--	--	--	--	--	--
31...	--	--	1000	950	270	90	1100	15	14
AUG									
25...	7.7	96	--	--	--	--	--	--	--
31...	--	--	970	860	240	89	750	11	10
SEP									
22...	--	--	--	--	--	--	--	--	--
28...	8.3	96	--	--	--	--	--	--	--

## RED RIVER BASIN

07316000 Red River near Gainesville, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	BICARBONATE (HCO <sub>3</sub> ) (MG/L)	CARBONATE (CO <sub>3</sub> ) (MG/L)	DISSOLVED SULFATE (SO <sub>4</sub> ) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SiO <sub>2</sub> ) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)
OCT								
21...	236	0	610	1200	.4	8.7	3020	--
NOV								
19...	238	0	710	1200	.5	12	3140	--
24...	--	--	--	1300	--	--	--	.22
DEC								
04...	254	0	780	1400	--	11	3580	--
22...	--	--	--	1300	--	--	--	.28
JAN								
27...	--	--	--	1500	--	--	--	.16
31...	260	0	810	1600	--	2.8	3950	--
FEB								
11...	--	--	--	--	--	--	--	.34
12...	--	--	--	--	--	--	--	--
29...	260	0	770	1600	.6	2.8	3830	--
MAR								
10...	--	--	--	--	--	--	--	.16
16...	222	0	390	830	.5	6.5	2070	--
APR								
07...	--	--	--	--	--	--	--	.33
27...	134	0	470	580	.4	11	1690	--
MAY								
11...	--	--	--	1248	--	--	--	.42
31...	156	0	470	1000	.4	10	2430	--
JUN								
09...	--	--	--	550	--	--	--	.76
22...	162	0	290	540	.4	10	1410	--
JUL								
07...	--	--	--	1200	--	--	--	.23
31...	116	0	780	1700	--	6.9	4020	--
AUG								
25...	--	--	--	--	--	--	--	.16
31...	130	0	690	1200	--	5.6	3050	--
SEP								
22...	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	.24

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANALYZING SAMPLE	TIME	TOTAL ARSENIC (AS) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
NOV								
24...	1028	9740	1600	4	<10	7	10	400
DEC								
22...	1028	9740	1415	--	--	--	--	2100
JAN								
27...	1028	9740	1300	--	--	--	--	100
FEB								
11...	1028	9740	1155	4	<10	9	10	200
MAR								
10...	1028	9740	0930	--	--	--	--	2100
APR								
07...	1028	9740	1236	--	--	--	--	<100
MAY								
11...	1028	9740	1100	8	10	20	10	1200
JUN								
09...	1028	9740	0936	--	--	--	--	1100
JUL								
07...	1028	9740	1215	--	--	--	--	2500
AUG								
25...	1028	9740	1000	12	<1	16	7	600
SEP								
28...	1028	9740	1000	--	--	--	--	1400

## RED RIVER BASIN

193

07316000 Red River near Gainesville, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

		TOTAL LEAD (PB) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)				
DATE												
NOV 24...		20	70	--	20	--	<10	<10				
DEC 22...		--	14	--	--	--	--	--				
JAN 27...		--	47	--	--	--	--	--				
FEB 11...		20	66	--	20	--	<10	<10				
MAR 10...		--	390	--	--	--	--	--				
APR 07...		--	<5	--	--	--	--	--				
MAY 11...		30	180	.5	20	4	10	20				
JUN 09...		--	18	--	--	--	--	--				
JUL 07...		--	200	--	--	--	--	--				
AUG 25...		21	279	<.5	14	<3	2	20				
SEP 28...		--	390	--	--	--	--	--				
DATE	TIME	TOTAL PCB (UG/L)	POLY- CHLO- RINATED NAPH- THA- LENES (UG/L)	TOTAL ALDRIN (UG/L)	TOTAL CHLOR- DANE (UG/L)	TOTAL DDD (UG/L)	TOTAL DDE (UG/L)	TOTAL DDT (UG/L)	TOTAL DI- AZINON (UG/L)	TOTAL DI- ELDRIN (UG/L)	TOTAL ENDRIN (UG/L)	TOTAL ETHION (UG/L)
OCT. 21...	0815	.0	--	.00	.0	.00	.00	.00	.01	.00	.00	.00
FEB. 12...	1100	.0	.00	.00	.0	.00	.00	.00	.01	.00	.00	.00
JUNE 22...	1245	.0	.00	.00	.0	.00	.01	.00	.00	.00	.00	.00
SEP. 22...	1200	.0	.00	.00	.0	.00	.04	.00	.00	.00	.00	.00
DATE	TOTAL HEPTA- CHLOR (UG/L)	TOTAL HEPTA- CHLOR EPOXIDE (UG/L)	TOTAL LINDANE (UG/L)	TOTAL MALA- THION (UG/L)	TOTAL METHYL PARA- THION (UG/L)	TOTAL METHYL TRI- THION (UG/L)	TOTAL PARA- THION (UG/L)	TOTAL TOX- APHENE (UG/L)	TOTAL TRI- THION (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)
OCT. 21...	.00	.00	.00	.00	.00	.00	.00	0	.00	.00	.00	.00
FEB. 12...	.00	.00	.00	.00	.00	.00	.00	0	.00	.00	.00	.00
JUNE 22...	.00	.00	.00	.00	.00	.00	.00	0	.00	.04	.05	.00
SEP. 22...	.00	.00	.00	.00	.00	.00	.00	0	.00	.00	.00	.00

## RED RIVER BASIN

07316000 Red River near Gainesville, Tex.--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	21530	5020	3040	177000	1260	73200	570	33100	910
NOV. 1975.....	28370	5090	3080	236000	1280	97700	580	44300	930
DEC. 1975.....	18888	5490	3330	170000	1380	70600	630	31900	1000
JAN. 1976.....	20913	6130	3730	210000	1550	87600	700	39600	1110
FEB. 1976.....	13805	6000	3640	136000	1520	56600	690	25600	1040
MAR. 1976.....	21443	4660	2810	163000	1160	67300	530	30500	850
APR. 1976.....	93851	2550	1500	381000	600	153000	270	69400	480
MAY 1976.....	72879	2980	1770	348000	720	141000	330	64100	550
JUNE 1976.....	76212	3070	1830	376000	740	152000	340	69200	570
JULY 1976.....	21013	4540	2740	155000	1130	64000	510	29100	830
AUG. 1976.....	11068	5870	3560	106000	1480	44300	670	20100	1060
SEPT 1976.....	104703	1430	820	232000	310	86800	140	39600	280
TOTAL .....	504675	**	**	2690000	**	1090000	**	496000	**
WTD.AVG. ....	1378.89	3300	2000	**	800	**	370	**	610

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5330	4910	5600	5180	6000	6100	5770	2600	2450	3800	6500	6800
2	5350	4850	5700	5150	6060	6130	5690	2300	2480	3900	5000	5500
3	5380	5300	5750	5410	5930	6150	5750	2100	2500	3900	4900	4510
4	5400	5270	5800	5670	6060	6180	5830	2460	2520	4000	4800	3000
5	5420	5240	5880	5930	6010	6120	5870	2500	2400	4100	5200	3290
6	5440	5320	5950	6400	6000	6080	5920	2580	2350	4000	5000	2500
7	5450	5390	5860	6600	6010	5960	5730	3090	2300	3800	5300	2000
8	5510	5500	5730	6890	6010	5470	5720	3100	2290	3600	5000	1800
9	5450	5610	5730	6960	5960	5000	5560	3400	2800	4050	4800	1610
10	5400	5300	5730	6900	5840	4800	5300	3500	2770	4100	4700	2000
11	5370	4800	5620	6800	5880	4400	5080	3800	4590	4250	5500	2200
12	5330	4200	5400	6400	5890	4000	5270	4000	3050	7520	6000	2400
13	5260	4300	5300	6000	5870	3500	5490	3700	3500	7600	6200	2600
14	5180	4400	5440	6890	5860	3300	5470	3600	3880	7740	6500	2800
15	5100	4500	5600	6730	5870	3230	5500	3500	3860	5500	7000	2370
16	5020	4600	5540	6220	5860	3800	5400	3100	4460	4830	7500	1290
17	4950	4700	5540	6000	5900	4180	5000	2900	5350	4010	8000	1000
18	4880	4850	5690	6130	5960	4310	4500	2700	4500	3600	8130	995
19	4810	4850	5690	6380	6040	4000	3110	3000	3480	4000	7630	990
20	4870	5200	5600	6380	6090	3930	2850	3500	3620	4690	7500	962
21	5230	5280	5500	6220	6100	4560	1750	3800	3700	4700	7000	960
22	4000	5000	5570	6000	6150	5260	1600	4260	3000	4750	6800	950
23	3750	5490	5600	5880	6180	5570	1500	3800	1970	4780	6550	940
24	5860	5460	5700	5900	6180	5600	1240	3600	2300	4800	6340	942
25	4150	5440	5500	5950	6000	5650	1450	3200	2400	4810	6000	1420
26	4590	5420	5300	5950	5910	5700	1750	2380	2500	4500	5920	1500
27	4690	5350	5100	5950	6130	5750	2050	1880	2610	4200	5500	1600
28	4790	5270	5050	6000	6100	5820	2330	1500	3550	4070	5160	1800
29	4890	5200	4500	6100	6090	5620	2600	2000	3680	4800	4900	2090
30	4770	5530	5130	6100	---	5700	2800	2300	3760	5600	4650	2450
31	4930	---	5230	6100	---	5820	---	2400	---	6650	5000	---
MONTH	5050	5080	5530	6170	6000	5090	4130	2990	3150	4730	5970	2180

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

[illegible]



## RED RIVER BASIN

07316200 Mineral Creek near Sadler, Tex.

LOCATION.--Lat 33°42'08", long 96°50'51", Grayson County, on right bank at downstream side of bridge on Farm Road 901, 1.4 miles (2.3 km) north of Sadler, and 2.0 miles (3.2 km) upstream from Mustang Creek.

DRAINAGE AREA.--26.0 mi<sup>2</sup> (67.3 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: December 1967 to current year.

Water quality: Chemical analyses: January 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 650.00 ft (198.120 m) above mean sea level.

AVERAGE DISCHARGE.--8 years (1968-76), 11.6 ft<sup>3</sup>/s (0.329 m<sup>3</sup>/s), 6.06 in/yr (154 mm/yr), 8,400 acre-ft/yr (10.4 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 1,860 ft<sup>3</sup>/s (52.7 m<sup>3</sup>/s) May 31 (gage height, 12.93 ft or 3.941 m); no flow at times.

Period of record: Maximum discharge, 2,360 ft<sup>3</sup>/s (66.8 m<sup>3</sup>/s) Oct. 31, 1974 (gage height, 13.97 ft or 4.258 m); no flow at times each year.

Maximum stage since about 1900, about 18 ft (5.5 m) in 1922, from information by local residents.

REMARKS.--Discharge records fair. The city of Whitesboro discharged 245 acre-ft (302,000 m<sup>3</sup>) of sewage effluent into a tributary above the station during the current water year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.44	.65	.76	.65	.65	.83	.83	36	.83	0	87
2	0	.55	.60	.76	.60	.65	.83	.68	15	1.0	0	44
3	0	.55	.55	.76	.65	.65	1.6	.68	7.2	.83	0	2.2
4	0	.44	.55	.70	.65	.60	2.8	.55	4.8	.83	0	.55
5	.01	.40	.55	.70	.60	.55	1.3	4.5	3.7	1.0	0	.20
6	.02	.44	.50	.70	.55	.55	1.3	91	3.4	1.0	.43	.09
7	.05	.44	.44	.65	.60	.70	1.3	6.3	2.5	.83	1.3	.06
8	.04	.44	.50	.65	.65	2.0	1.3	2.8	2.2	.83	.26	.05
9	0	.44	.44	.65	.65	1.0	1.0	2.0	1.5	.83	.06	14
10	0	.40	.44	.70	.65	.65	1.0	1.3	1.3	.68	0	1.6
11	0	.40	.50	.65	.60	3.0	.86	1.0	1.3	2.0	0	.34
12	0	.40	.55	.60	.50	6.4	.86	5.0	1.0	1.3	0	.09
13	0	.31	.60	.65	.50	1.2	.86	27	1.0	.83	0	.05
14	0	.35	.60	.60	.50	1.1	.68	2.5	.83	.68	0	.04
15	.31	.40	.55	.55	.50	1.0	.83	1.6	.83	.55	0	.03
16	.55	.44	.50	.55	.55	.73	2.2	1.3	.83	53	0	.01
17	.40	.40	.55	.50	.60	.61	6.5	1.0	.68	7.2	0	.01
18	.35	.40	.50	.60	.60	.59	22	.83	112	1.0	0	.01
19	.40	.40	.44	.50	.65	.65	72	.83	18	.83	0	.01
20	.40	.44	.55	.50	.76	.59	107	.68	1.7	.68	0	23
21	.40	.31	.60	.50	1.5	.44	6.3	.68	1.3	.55	0	3.1
22	.40	.31	.65	.50	.50	.46	2.0	.55	.83	.43	0	2.0
23	.44	.27	.60	.55	.44	.50	1.6	145	.83	.26	0	1.6
24	.55	.31	.88	.60	.40	1.0	1.6	373	.83	.14	0	1.3
25	.55	.31	2.1	.60	.65	1.8	1.6	25	.68	.08	0	.43
26	.44	.35	1.1	.70	.60	.98	1.0	37	.68	.04	0	.14
27	.50	.44	.76	.60	.60	.63	.68	45	.68	0	0	.06
28	.50	.50	.76	.60	.60	1.0	4.4	10	.68	0	0	.06
29	.50	.82	.65	.60	.60	1.7	4.8	5.9	.55	0	0	.03
30	.44	1.3	.65	.65	---	.83	1.0	107	.55	0	0	.01
31	.44	---	.76	.76	---	.83	---	452	---	0	0	---
TOTAL	7.69	13.40	20.07	19.39	17.90	34.04	252.03	1353.51	223.38	78.23	2.05	182.07
MEAN	.25	.45	.65	.63	.62	1.10	8.40	43.7	7.45	2.52	.066	6.07
MAX	.55	1.3	2.1	.76	1.5	6.4	107	452	112	53	1.3	87
MIN	0	.27	.44	.50	.40	.44	.68	.55	.55	0	0	.01
CFSM	.009	.02	.03	.02	.02	.04	.32	1.68	.29	.10	.002	.23
IN.	.01	.02	.03	.03	.03	.05	.36	1.94	.32	.11	.003	.26
AC-FT	15	27	40	38	36	68	500	2680	443	155	4.1	361

CAL YR 1975 TOTAL 4050.02 MEAN 11.1 MAX 453 MIN 0 CFSM .43 IN 5.79 AC-FT 8030  
WTR YR 1976 TOTAL 2203.76 MEAN 6.02 MAX 452 MIN 0 CFSM .23 IN 3.15 AC-FT 4370

PEAK DISCHARGE (BASE, 1,400 FT<sup>3</sup>/S).--May 24 (0115) 1,610 ft<sup>3</sup>/s (12.51 ft); May 31 (0145) 1,860 ft<sup>3</sup>/s (12.93 ft).

## RED RIVER BASIN

197

07316200 Mineral Creek near Sadler, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
NOV. 17...	1628	.40	1360	8.8	17.5	170	0	49	12	250
DEC. 30...	1058	.66	975	7.9	7.0	230	0	66	15	120
FEB. 10...	1505	.66	1230	7.5	11.5	210	0	61	15	200
MAR. 15...	1651	.93	909	7.6	14.0	210	0	59	14	110
APR. 27...	1230	.71	1050	8.0	19.0	290	53	83	19	110
MAY 06...	1350	.84	226	6.9	19.5	61	19	18	4.0	16
JUNE 09...	1250	1.5	921	7.7	24.0	--	--	--	--	--
18...	1258	394	191	6.8	21.0	52	9	16	3.0	14
JULY 21...	1344	.54	759	7.7	--	190	1	56	12	86
SEP. 01...	2050	197	179	7.2	23.0	62	0	21	2.3	9.4

DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
NOV. 17...	8.3	12	416	24	120	150	.9	12	835
DEC. 30...	3.5	6.5	281	0	110	89	.4	4.7	550
FEB. 10...	5.9	10	404	0	130	120	.6	3.1	739
MAR. 15...	3.3	6.5	280	0	100	82	.7	12	522
APR. 27...	2.8	7.0	284	0	120	110	.5	11	600
MAY 06...	.9	3.8	52	0	16	28	.3	7.5	119
JUNE 09...	--	--	233	0	--	--	--	--	--
18...	.8	3.8	53	0	14	18	.4	5.7	101
JULY 21...	2.7	6.8	230	0	76	90	.5	12	453
SEP. 01...	.5	3.6	78	0	12	5.2	.4	4.5	97

## RED RIVER BASIN

07331500 Lake Texoma near Denison, Tex.

LOCATION.--Lat 33°49'05", long 96°34'20", in NE 1/4 sec. 33, T.8 S., R.7 E., Bryan County, Okla., in control tower of Denison Dam on Red River, 1.2 miles (1.9 km) upstream from Shawnee Creek, 1.8 miles (2.9 km) upstream from Sand Creek, 4.0 miles (6.4 km) northwest of Denison, and at mile 725.9 (1,168.0 km).

DRAINAGE AREA.--39,719 mi<sup>2</sup> (102,872 km<sup>2</sup>), of which 5,936 mi<sup>2</sup> (15,374 km<sup>2</sup>) is probably noncontributing.

PERIOD OF RECORD.--July 1942 to current year. Monthend contents only for some periods, published in WSP 1311.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Mar. 30, 1944, nonrecording gage at same site and datum. Prior to Oct. 1, 1948, auxiliary nonrecording gage in Cumberland pool at same datum.

EXTREMES.--Current year: Maximum contents, 2,797,000 acre-ft (3.45 km<sup>3</sup>) June 1 (elevation, 617.72 ft or 188.281 m); minimum, 2,338,000 acre-ft (2.88 km<sup>3</sup>) Feb. 25 (elevation, 612.24 ft or 186.611 m).

Period of record: Maximum contents, 5,991,300 acre-ft (7.39 km<sup>3</sup>) June 5, 1957 (elevation, 643.18 ft or 196.041 m); minimum since power pool was first filled, 1,565,100 acre-ft (1.93 km<sup>3</sup>) Sept. 16, 1964; minimum elevation, 599.96 ft (182.868 m) Mar. 1, 2, 1957.

REMARKS.--The lake is formed by a rolled earthfill dam. Flow was diverted through conduits July 27, 1942; regulated storage began Oct. 31, 1943; power pool was first filled Mar. 15, 1945. Capacity is based on 1962 survey, 5,392,900 acre-ft (6.65 km<sup>3</sup>) at elevation 640.0 ft (195.07 m), crest of spillway, 2,733,300 acre-ft (3.37 km<sup>3</sup>) at elevation 617.0 ft (188.06 m), maximum power pool, 1,049,200 acre-ft (1.29 km<sup>3</sup>) at elevation 590.0 ft (179.83 m), minimum power pool, in Denison pool. Dead storage, 11,000 acre-ft (13.6 hm<sup>3</sup>) at elevation 610.0 ft (185.93 m) in Cumberland pool. When contents are below 2,167,900 acre-ft (2.67 km<sup>3</sup>), the lake is divided into two pools by protective levees around the Cumberland oilfield on the Washita River arm with bottom of outlet channel for the upper pool (known as Cumberland pool) at elevation 610.0 ft (185.93 m). At higher elevations the two pools are considered as being at a common level, contents being computed from gage in the Denison pool. Figures given herein represent contents of both pools. The lake is used principally for flood control and power development. A revised capacity table, based on a survey in 1962, has been used since Oct. 1, 1963.

COOPERATION.--Records furnished by Corps of Engineers.

REVISIONS.--WSP 1211: Drainage area.

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

612.0	2,319,000	615.0	2,562,000
613.0	2,398,000	616.0	2,646,000
614.0	2,479,000	618.0	2,822,000

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2656000	2549000	2495000	2462000	2395000	2342000	2419000	2746000	2794000	2747000	2663000	2495000
2	2652000	2556000	2491000	2454000	2390000	2341000	2420000	2749000	2785000	2745000	2658000	2492000
3	2649000	2555000	2487000	2453000	2387000	2343000	2426000	2750000	2776000	2758000	2656000	2486000
4	2650000	2555000	2487000	2451000	2387000	2346000	2428000	2748000	2768000	2760000	2653000	2479000
5	2651000	2555000	2484000	2446000	2387000	2346000	2427000	2762000	2766000	2762000	2646000	2479000
6	2649000	2555000	2490000	2440000	2379000	2343000	2424000	2767000	2762000	2762000	2646000	2478000
7	2645000	2551000	2491000	2430000	2378000	2348000	2422000	2764000	2758000	2757000	2639000	2474000
8	2639000	2553000	2491000	2410000	2378000	2354000	2422000	2762000	2754000	2754000	2638000	2473000
9	2635000	2560000	2488000	2398000	2376000	2349000	2420000	2755000	2744000	2753000	2628000	2472000
10	2631000	2559000	2485000	2404000	2376000	2353000	2419000	2746000	2738000	2753000	2621000	2467000
11	2631000	2563000	2485000	2406000	2376000	2362000	2418000	2738000	2736000	2760000	2615000	2461000
12	2632000	2567000	2479000	2400000	2374000	2372000	2414000	2740000	2734000	2757000	2609000	2456000
13	2627000	2564000	2479000	2404000	2372000	2376000	2412000	2746000	2733000	2754000	2599000	2450000
14	2624000	2560000	2479000	2403000	2372000	2382000	2408000	2747000	2727000	2748000	2593000	2440000
15	2627000	2555000	2477000	2404000	2376000	2392000	2411000	2749000	2730000	2747000	2589000	2434000
16	2623000	2557000	2471000	2404000	2378000	2386000	2411000	2754000	2723000	2749000	2583000	2445000
17	2618000	2553000	2467000	2406000	2372000	2388000	2419000	2752000	2717000	2749000	2579000	2464000
18	2618000	2548000	2454000	2406000	2364000	2391000	2426000	2747000	2770000	2754000	2572000	2483000
19	2618000	2551000	2450000	2411000	2361000	2392000	2468000	2742000	2773000	2750000	2562000	2502000
20	2610000	2549000	2448000	2410000	2366000	2394000	2548000	2737000	2777000	2746000	2553000	2509000
21	2604000	2536000	2442000	2408000	2363000	2395000	2593000	2731000	2776000	2740000	2549000	2512000
22	2596000	2522000	2438000	2406000	2357000	2400000	2631000	2725000	2776000	2733000	2547000	2520000
23	2588000	2521000	2433000	2407000	2349000	2402000	2663000	2732000	2775000	2723000	2542000	2531000
24	2587000	2515000	2439000	2410000	2339000	2406000	2690000	2732000	2775000	2718000	2533000	2536000
25	2576000	2514000	2446000	2415000	2340000	2408000	2701000	2731000	2769000	2710000	2525000	2538000
26	2572000	2500000	2441000	2403000	2340000	2412000	2713000	2747000	2763000	2705000	2514000	2537000
27	2562000	2500000	2444000	2396000	2340000	2412000	2718000	2752000	2757000	2696000	2508000	2536000
28	2563000	2492000	2452000	2396000	2340000	2413000	2733000	2753000	2750000	2689000	2503000	2532000
29	2563000	2507000	2450000	2394000	2342000	2415000	2739000	2755000	2745000	2684000	2499000	2528000
30	2562000	2506000	2450000	2394000	---	2418000	2751000	2775000	2743000	2678000	2498000	2523000
31	2552000	---	2452000	2395000	---	2420000	---	2789000	---	2672000	2493000	---
(†)	614.89	614.34	613.68	612.97	612.29	613.28	617.20	617.63	617.11	616.30	614.18	614.54
(*)	-111000	-46000	-54000	-57000	-53000	+78000	+331000	+38000	-46000	-71000	-179000	+30000
MAX	2656000	2567000	2495000	2462000	2395000	2420000	2751000	2789000	2794000	2762000	2663000	2538000
MIN	2552000	2492000	2433000	2394000	2339000	234100	2408000	2725000	2717000	2672000	2493000	2434000
CAL YR 1975.....	* -306000			MAX 3104000			MIN 2433000					
WTR YR 1976.....	* -140000			MAX 2794000			MIN 2339000					

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

LOCATION.--Lat 33°49'08", long 96°33'47", Grayson County, on right bank 1,800 ft (549 m) downstream from Denison Dam powerhouse, 0.4 mile (0.6 km) upstream from Shawnee Creek (spillway flow return), 4.5 miles (7.2 km) north of Denison, and at mile 725.5 (1,167.3 km).

PERIOD OF RECORD.--Discharge: October 1923 to current year. Monthly discharge only for some periods, published in WSP 1311. Prior to October 1934, published as "near Denison, Tex.," and October 1934 to September 1961, published as "near Colbert, Okla." Gage-height records collected at various sites in this vicinity 1892-93, 1906-28, 1931-49 are contained in reports of the National Weather Service. Water quality: Chemical analyses: May 1944 to current year. Water temperatures: October 1945 to current year.

GAGE.--Water-stage recorder. Datum of gage is 500.00 ft (152.400 m) above mean sea level. Oct. 9, 1923, to Sept. 24, 1934, nonrecording gage, and July 29, 1942, to Sept. 30, 1961, water-stage recorder at county road bridge 2.5 miles (4.0 km) downstream. Prior to Oct. 1, 1931, at datum 6.85 ft (2.088 m) higher; Oct. 1, 1931, to Sept. 24, 1934, at datum 7.07 ft (2.155 m) higher; and July 29, 1942, to Sept. 30, 1961, at datum 2.64 ft (0.805 m) lower. Sept. 25, 1934, to July 28, 1942, water-stage recorder at railway bridge 1.9 miles (3.1 km) downstream at datum 7.36 ft (2.243 m) higher.

AVERAGE DISCHARGE.--20 years (1924-44) prior to completion of Denison Dam, 5,684 ft<sup>3</sup>/s (161.0 m<sup>3</sup>/s), 4,118,000 acre-ft/yr (5.08 km<sup>3</sup>/yr); 32 years (1945-76), 4,397 ft<sup>3</sup>/s (124.5 m<sup>3</sup>/s), 3,186,000 acre-ft/yr (3.93 km<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 11,300 ft<sup>3</sup>/s (320 m<sup>3</sup>/s) June 1 (gage height, 8.91 ft or 2.716 m); minimum daily, 56 ft<sup>3</sup>/s (1.59 m<sup>3</sup>/s) Mar. 24.  
Period of record: Maximum discharge, 201,000 ft<sup>3</sup>/s (5,690 m<sup>3</sup>/s) May 21, 1935 (gage height, 31.8 ft or 9.69 m, at site and datum then in use); maximum gage height, 32.0 ft (9.75 m) Apr. 25, 1942 (at site and datum used in 1943); minimum daily discharge, 12 ft<sup>3</sup>/s (0.34 m<sup>3</sup>/s) Jan. 10, 1944.  
Historic: Flood of May 26, 1908, reached a stage of 45.5 ft (13.87 m) at site and datum used July 29, 1942, to Sept. 30, 1961, from records of the National Weather Service.  
Water quality: Current year: Maximum daily specific conductance, 1,810 micromhos Apr. 16; minimum daily, 1,220 micromhos Oct. 17, 21, 22.  
Period of record: Maximum daily specific conductance (1944-69, 1972-76), 3,520 micromhos Aug. 14, 1944; minimum daily, 656 micromhos Oct. 16, 1945. Maximum water temperatures (1945-69), 31.0°C July 17, 1969; minimum, 3.0°C Feb. 2-4, 7, 1966.

REMARKS.--Discharge records good. Flow completely regulated since October 1943 by Lake Texoma (station 07331500). When codes for agencies collecting and analyzing a sample are shown in the water-quality table, the sample was collected and field data obtained by the Oklahoma District (1028), U.S. Geological Survey, and the remainder of the analysis performed by the Oklahoma State Health Department (9740).

COOPERATION.--Gage-height record and 10 discharge measurements furnished by the Corps of Engineers; records computed by the Geological Survey.

REVISIONS (WATER YEARS).--WSP 807: 1935(M). WSP 1211: Drainage area. WSP 1241: 1924-29, 1932-33, 1934(M), 1935.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2170	2840	6380	107	117	985	64	5450	11000	1930	2970	1730
2	1970	183	3930	4600	3540	1540	62	3660	10900	2420	2390	2310
3	1960	2680	2470	1100	1640	669	63	4990	10900	167	134	3040
4	150	101	1730	900	1610	126	65	4970	10900	87	904	4120
5	101	299	1670	3700	1620	82	973	3310	9330	90	3430	1630
6	2090	93	126	3780	4040	1510	2390	5210	9070	1590	2390	1920
7	2290	3520	121	7030	839	159	1460	3950	5510	2910	2860	2240
8	2930	136	2190	8510	130	3440	1530	4560	5380	2160	335	2330
9	3450	196	868	5290	1640	2760	1500	4370	7460	2160	4640	1910
10	3450	2900	1430	188	2010	1230	1480	7020	5260	156	3900	1870
11	176	373	2150	109	1190	108	1470	6330	2820	83	2690	1930
12	93	312	3090	2830	1630	100	2330	4330	2960	2090	2560	1350
13	2430	1220	192	521	2170	445	1380	3050	1870	2160	4920	4590
14	2650	3000	698	1010	122	122	1540	4460	2870	2160	3230	4220
15	2550	2140	3940	1070	107	102	1520	4480	2480	2170	1740	3680
16	2490	177	3130	1050	1010	2410	1510	4510	3650	1460	2480	4540
17	2670	2980	3720	124	6060	98	1460	5130	4960	280	2820	5120
18	161	3340	4730	124	3100	84	1530	5210	3800	702	3040	4270
19	93	3080	2950	793	2180	74	1600	5240	1660	3980	3850	312
20	4070	3010	2020	1520	2270	66	2290	5760	147	2210	2710	2090
21	4340	5580	2770	1590	1110	823	1720	5290	2480	3550	1670	2520
22	4660	5160	3340	1580	971	137	1460	4760	2770	3800	197	1930
23	5160	927	2960	1040	3930	72	1500	4770	3360	5240	2740	2020
24	4840	2890	2770	114	4370	56	2420	3270	2960	3800	3110	3230
25	3130	3290	150	115	1040	60	1510	2950	4960	3360	4500	3130
26	2520	4200	2630	4590	1380	59	1470	2940	4830	2580	4790	3950
27	4720	241	250	3330	593	59	1500	3330	4370	3310	4080	2550
28	1860	4130	150	1840	533	601	1520	5000	4760	2600	3160	2410
29	804	1370	1810	1920	140	917	1760	5100	4010	2450	2210	2940
30	1120	793	285	1300	---	66	176	5100	4610	2760	207	2920
31	3700	---	108	459	---	72	---	8640	---	3170	2020	---
TOTAL	74798	61161	64758	62234	51092	19032	41253	147140	152037	67585	82677	82802
MEAN	2413	2039	2089	2008	1762	614	1375	4746	5068	2180	2667	2760
MAX	5160	5580	6380	8510	6060	3440	2420	8640	11000	5240	4920	5120
MIN	93	93	108	107	107	56	62	2940	147	83	134	312

## RED RIVER BASIN

07331600 Red River at Denison Dam near Denison, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION
OCT 21...	--	--	1200	4340	1230	7.6	21.5	2	8.0	90
NOV 11...	--	--	1600	373	1270	7.8	20.5	5	11.8	130
20...	1028	9740	1445	3000	--	8.2	15.5	5	--	--
DEC 04...	--	--	1530	1730	1340	8.0	13.5	3	9.6	91
18...	1028	9740	1030	4730	1350	8.0	11.0	5	10.9	102
JAN 07...	--	--	0930	7000	1440	7.9	6.5	4	10.6	85
28...	1028	9740	0930	1840	1650	8.1	5.0	2	14.0	116
FEB 10...	1028	9740	1800	2000	--	--	10.5	1	10.1	94
12...	--	--	1500	1630	1550	7.9	9.0	1	11.4	98
MAR 03...	--	--	1730	660	1540	8.3	13.5	1	13.8	131
09...	1028	9740	1730	2700	1500	8.4	12.5	1	9.3	89
APR 07...	1028	9740	1000	1460	--	--	16.0	1	15.2	160
27...	--	--	1205	1500	1680	7.6	15.0	1	9.0	88
MAY 11...	1028	9740	1345	6300	1600	8.3	20.0	2	9.6	105
26...	--	--	1430	2940	1710	8.0	18.5	2	6.1	65
JUN 09...	--	--	0936	--	--	--	--	--	--	--
09...	1028	9740	1100	2800	1650	--	20.0	2	--	--
22...	--	--	1535	4760	1710	7.3	21.0	2	3.0	34
JUL 07...	1028	9740	1430	2900	--	--	22.0	2	4.3	51
07...	--	--	1436	--	--	--	22.0	--	4.3	51
27...	--	--	0945	3300	1710	7.2	22.5	1	2.2	26
AUG 05...	1028	9740	0900	3430	--	7.2	21.0	2	3.0	35
11...	--	--	1430	2700	1720	7.1	24.0	1	1.7	21
SEP 16...	1028	9740	1030	4500	1750	6.2	22.0	1	5.3	63
22...	--	--	1400	1930	1760	7.6	24.0	1	4.4	54

DATE	BIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	IMME- DIATE COLI- FORM (COL. PER 100 ML)	FECAL COLI- FORM (COL. PER 100 ML)	STREP- TOCOCCI (COL- ONIES PER 100 ML)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO
OCT 21...	.8	200	45	74	280	170	76	22	140	3.6
NOV 11...	1.0	210	36	40	310	190	80	26	150	3.7
20...	--	--	--	--	--	--	--	--	--	--
DEC 04...	1.2	300	32	45	310	180	83	24	150	3.7
18...	--	--	--	--	340	--	--	--	--	--
JAN 07...	1.0	82	10	13	310	180	82	25	160	4.0
28...	--	--	--	--	--	--	--	--	--	--
FEB 10...	--	--	--	--	--	--	--	--	--	--
12...	1.1	8	0	1	350	220	91	29	180	4.2
MAR 03...	.8	190	18	72	350	220	95	28	180	4.2
09...	--	--	--	--	370	--	--	--	--	--
APR 07...	--	--	--	--	--	--	--	--	--	--
27...	.2	6600	4	8	380	250	99	33	200	4.4
MAY 11...	--	--	--	--	360	--	--	--	--	--
26...	.5	40	0	20	390	250	100	34	210	4.6
JUN 09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	400	--	--	--	--	--
22...	.8	4600	60	170	420	280	110	34	200	4.3
JUL 07...	--	--	--	--	390	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
27...	.6	2900	23	80	390	250	100	34	200	4.4
AUG 05...	--	--	--	--	--	--	--	--	--	--
11...	1.3	360	22	32	390	250	98	34	210	4.7
SEP 16...	--	--	--	--	430	--	--	--	--	--
22...	1.0	220	35	23	390	270	98	36	210	4.6



07331600 Red River at Denison Dam near Denison, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT									
21...	5.8	140	0	160	200	--	3.3	719	677
NOV									
11...	7.0	142	0	170	240	.5	3.6	753	747
20...	--	--	--	--	--	--	--	--	--
DEC									
04...	5.5	151	0	170	230	.2	3.6	764	741
18...	--	--	--	--	290	--	--	--	--
JAN									
07...	5.0	154	0	190	260	.8	3.7	844	802
28...	--	--	--	--	--	--	--	--	--
FEB									
10...	--	--	--	--	--	--	--	--	--
12...	5.5	155	0	210	290	.3	4.1	948	888
MAR									
03...	5.3	160	0	220	290	.5	3.9	892	902
09...	--	--	--	--	270	--	--	--	--
APR									
07...	--	--	--	--	--	--	--	--	--
27...	6.0	166	0	240	320	.4	4.4	1060	985
MAY									
11...	--	--	--	--	300	--	--	--	--
26...	5.5	168	0	250	330	.3	5.0	--	1020
JUN									
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	300	--	--	--	--
22...	5.5	166	0	250	330	.4	5.9	1100	1020
JUL									
07...	--	--	--	--	340	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
27...	5.5	166	0	250	320	.3	6.7	1050	998
AUG									
05...	--	--	--	--	--	--	--	--	--
11...	8.0	164	0	240	330	.3	6.9	1050	1010
SEP									
16...	--	--	--	--	310	--	--	--	--
22...	6.5	151	0	250	350	.3	6.3	1060	1030

DATE	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	SUS- PENDE SEDI- MENT (MG/L)	SUS- PENDE SEDI- MENT DIS- CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
OCT									
21...	.07	.02	.07	.30	.03	2.6	3	35	83
NOV									
11...	.09	.01	.05	.39	.04	--	10	10	46
20...	--	--	--	--	.05	--	--	--	--
DEC									
04...	.04	.00	.05	.34	.03	--	5	23	84
18...	--	--	--	--	.04	--	--	--	--
JAN									
07...	.10	.01	.09	.21	.06	--	12	227	86
28...	--	--	--	--	.01	--	--	--	--
FEB									
10...	--	--	--	--	<.10	--	--	--	--
12...	.04	.00	.04	.33	.01	2.8	5	22	68
MAR									
03...	.05	.01	.14	.64	.02	--	4	7.1	52
09...	--	--	--	--	<.14	--	--	--	--
APR									
07...	--	--	--	--	<.08	--	--	--	--
27...	.04	.01	.14	.34	.02	--	6	24	82
MAY									
11...	--	--	--	--	.17	--	--	--	--
26...	.03	.03	.08	.28	.03	--	7	56	86
JUN									
09...	--	--	--	--	<.80	--	--	--	--
09...	--	--	--	--	<.08	--	--	--	--
22...	.05	.01	.02	.32	.04	4.2	6	77	9
JUL									
07...	--	--	--	--	<.09	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
27...	--	.01	.11	.39	.08	2.4	4	36	70
AUG									
05...	--	--	--	--	.13	--	--	--	--
11...	.01	.00	.17	.43	.07	1.8	14	102	93
SEP									
16...	--	--	--	--	.20	--	--	--	--
22...	.01	.00	.23	.62	.09	--	4	21	84



## RED RIVER BASIN

07331600 Red River at Denison Dam near Denison, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	DIS- SOLVED ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)
OCT 21...	--	--	1200	0	1	1	130	0	2	<10	0
NOV 20...	1028	9740	1445	--	--	--	--	<10	--	7	--
DEC 18...	1028	9740	1030	--	--	--	--	--	--	--	--
JAN 28...	1028	9740	0930	--	--	--	--	--	--	--	--
FEB 10...	1028	9740	1800	--	1	--	--	<10	--	4	--
12...	--	--	1500	10	1	1	160	0	0	20	0
MAR 09...	1028	9740	1730	--	--	--	--	--	--	--	--
APR 07...	1028	9740	1000	--	--	--	--	--	--	--	--
MAY 11...	1028	9740	1345	--	<1	--	--	<10	--	4	--
JUN 09...	--	--	0936	--	--	--	--	--	--	--	--
09...	1028	9740	1100	--	--	--	--	--	--	--	--
22...	--	--	1535	20	2	2	150	1	1	<10	0
JUL 07...	1028	9740	1430	--	--	--	--	--	--	--	--
AUG 05...	1028	9740	0900	--	4	--	--	2	--	11	--
11...	--	--	1430	0	2	3	--	0	0	40	0
SEP 16...	1028	9740	1030	--	--	--	--	--	--	--	--

DATE	TOTAL COBALT (CO) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
OCT 21...	0	0	0	1	150	0	0	0	3	10	0
NOV 20...	--	--	--	--	700	--	20	--	--	33	--
DEC 18...	--	--	--	--	<100	--	--	--	--	40	--
JAN 28...	--	--	--	--	100	--	--	--	--	41	--
FEB 10...	--	--	<10	--	<100	--	10	--	--	30	--
12...	0	0	8	0	160	110	5	0	10	30	0
MAR 09...	--	--	--	--	<100	--	--	--	--	20	--
APR 07...	--	--	--	--	<100	--	--	--	--	32	--
MAY 11...	--	--	10	--	100	--	20	--	--	25	--
JUN 09...	--	--	--	--	--	--	--	--	--	<1	--
09...	--	--	--	--	200	--	--	--	--	<1	--
22...	0	0	5	0	140	0	10	0	20	90	70
JUL 07...	--	--	--	--	100	--	--	--	--	250	--
AUG 05...	--	--	4	--	100	--	17	--	--	750	--
11...	0	0	6	0	140	10	3	3	10	400	370
SEP 16...	--	--	--	--	200	--	--	--	--	580	--

07331600 Red River at Denison Dam near Denison, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL MERCURY (HG) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
OCT										
21...	.6	.6	--	--	--	0	--	980	20	4
NOV										
20...	--	--	<10	--	--	--	<10	--	--	--
DEC										
18...	--	--	--	--	--	--	--	--	--	--
JAN										
28...	--	--	--	--	--	--	--	--	--	--
FEB										
10...	--	--	10	--	--	--	<10	--	8	--
12...	.0	.0	--	0	0	0	--	1200	40	0
MAR										
09...	--	--	--	--	--	--	--	--	--	--
APR										
07...	--	--	--	--	--	--	--	--	--	--
MAY										
11...	.5	--	10	--	2	--	10	--	10	--
JUN										
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
22...	1.0	.0	--	0	1	0	--	1300	10	0
JUL										
07...	--	--	--	--	--	--	--	--	--	--
AUG										
05...	<.5	--	9	--	<3	--	3	--	5	--
11...	.1	.1	--	4	0	0	--	1100	30	0
SEP										
16...	--	--	--	--	--	--	--	--	--	--

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

OCT. 21, 1975 1200 HOURS

PHYTOPLANKTON 58,000 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...COELASTRACEAE		
...COELASTRUM	850	1
...HYDRODICTYACEAE		
...PEDIASTRUM		0
...OCCYSTACEAE		
...ANKISTRODESMUS	960	2
...KIRCHNERIELLA	1,400	2
...TETRAEDRON	320	1
...SCENEDESMACEAE		
...CRUCIGENIA	530	1
...SCENEDESMUS	8,300	14
...ZYGNEMATALES		
...DESMIDIACEAE		
...CLOSTERIUM		0
...COSMARIUM		0
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
...CENTRALES		
...COSCINODISCACEAE		
...COSCINODISCUS	1,200	2
...MELOSIRA		0
...PENNALES		
...NITZSCHIA		0
...CHRYSOPHYCEAE		
...CHRYSOMONADALES		
...OCHROMONADACEAE		
...CYCLOPLEXIS	640	1
CYANOPHYTA		
..MYXOPHYCEAE		
...CHROOCOCCALES		
...CHROOCOCCACEAE		
...AGMENELLUM	19,000	32
...ANACYSTIS	2,900	5
...OSCILLATORIALES		
...NOSTOCACEAE		
...ANABAENA	3,700	6
...OSCILLATORIAEAE		
...PHORMIDIUM	18,000	31

NOV. 11, 1975 1600 HOURS

PHYTOPLANKTON 7,400 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...OCCYSTACEAE		
...ANKISTRODESMUS	350	5
...KIRCHNERIELLA	190	3
...OCCYSTIS	270	4
...TETRAEDRON	120	2
...SCENEDESMACEAE		
...CRUCIGENIA	310	4
...SCENEDESMUS	1,300	18
...TETRASTRUM		0
...ZYGNEMATALES		
...DESMIDIACEAE		
...COSMARIUM	78	1
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
...CENTRALES		
...COSCINODISCACEAE		
...COSCINODISCUS	39	1
...CYCLOTETRA	39	1
...MELOSIRA	230	3
...PENNALES		
...CYMBELLACEAE		
...CYMBELLA		0
...FRAGILARIACEAE		
...FRAGILARIA	39	1
...NAVICULACEAE		
...NAVICULA	78	1
...NITZSCHIA		
...NITZSCHIA	120	2
CYANOPHYTA		
..MYXOPHYCEAE		
...CHROOCOCCALES		
...CHROOCOCCACEAE		
...AGMENELLUM	1,100	15
...ANACYSTIS	820	11
...OSCILLATORIALES		
...OSCILLATORIAEAE		
...LYNGBYA	2,200	30
EUGLENOPHYTA		
..EUGLENOPHYCEAE		
...EUGLENALES		
...EUGLENACEAE		
...PHACUS	39	1

07331600 Red River at Denison Dam near Denison, Tex.--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

DEC. 4, 1975 1530 HOURS

PHYTOPLANKTON 3,800 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OCCYSTACEAE		
....OOCYSTIS	790	21
....SELENASTRUM	49	1
....TETRAEDRON	99	3
...SCENEDESMACEAE		
....CRUCIGENIA	790	21
....SCENEDESMUS	490	13
....TETRASTRUM	200	5
..ZYGNEMATALES		
...DESMIDIACEAE		
....COSMARIUM		0
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
....CYCLOTELLA	450	12
....MELOSIRA	49	1
..PENNALES		
...NAVICULACEAE		
....DIPLONEIS	99	3
....NAVICULA	49	1
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
...CHROOCOCCACEAE		
....AGMENELLUM		0
....ANACYSTIS	740	19
...OSCILLATORIALES		
....NOSTOCACEAE		0
....APHANIZOMENON		

JAN. 7, 1976 0930 HOURS

PHYTOPLANKTON 2,500 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OCCYSTACEAE		
....ANKISTRODESMUS		0
....CHODATELLA	29	1
....OOCYSTIS	350	14
....TETRAEDRON	29	1
...SCENEDESMACEAE		
....SCENEDESMUS	87	4
....TETRASTRUM	350	14
..VOLVOCALES		
...CHLAMYDOMONADACEAE		
....CHLAMYDOMONAS	87	4
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
....CYCLOTELLA	120	5
....MELOSIRA	58	2
..PENNALES		
...NITZSCHIA		
....NITZSCHIA	29	1
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
...CHROOCOCCACEAE		
....AGMENELLUM	930	38
....ANACYSTIS	350	14
EUGLENOPHYTA		
..CRYPTOPHYCEAE		
...CRYPTOMONADALES		
....CRYPTOMONADACEAE		
....CRYPTOMONAS	29	1
PYRRHOPHYTA		
..DINOPHYCEAE		
...PERIDINIALES		
....PERIDINIAEAE		
....PERIDINIUM	29	1

FEB. 12, 1976 1500 HOURS

PHYTOPLANKTON 6,900 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...MICRACTINIACEAE		
....MICRACTINIUM	47	1
...OCCYSTACEAE		
....ANKISTRODESMUS	240	3
....DICTYOSPHAERIUM	1,600	22
....KIRCHNERIELLA	1,100	16
....OOCYSTIS	1,900	27
....TETRAEDRON		0
...SCENEDESMACEAE		
....CRUCIGENIA	900	13
....SCENEDESMUS	280	4
..VOLVOCALES		
...CHLAMYDOMONADACEAE		
....CHLAMYDOMONAS	95	1
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..PENNALES		
...CYMBELLACEAE		
....CYMBELLA		0
...FRAGILARIACEAE		
....SYNEDRA		0
...NITZSCHIAEAE		
....NITZSCHIA	47	1
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
...CHROOCOCCACEAE		
....ANACYSTIS	520	7
....COCCOCHLORIS	190	3
...OSCILLATORIALES		
....OSCILLATORIAEAE		
....OSCILLATORIA		0
PYRRHOPHYTA		
..DINOPHYCEAE		
...PERIDINIALES		
....GLENODINIACEAE		
....GLENODINIUM	47	1

MAR. 3, 1976 1730 HOURS

PHYTOPLANKTON 3,200 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OCCYSTACEAE		
....CHODATELLA	34	1
....KIRCHNERIELLA	910	29
....OOCYSTIS	1,000	32
....TETRAEDRON	68	2
...SCENEDESMACEAE		
....CRUCIGENIA		0
....SCENEDESMUS	410	13
....TETRASTRUM	270	9
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
....CYCLOTELLA		0
..PENNALES		
...CYMBELLACEAE		
....CYMBELLA		0
...NAVICULACEAE		
....NAVICULA	68	2
...NITZSCHIAEAE		
....NITZSCHIA	140	4
...ACHNANTHACEAE		
....RHOICOSPHENIA		0
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
...CHROOCOCCACEAE		
....ANACYSTIS	270	9
...OSCILLATORIALES		
....OSCILLATORIAEAE		
....OSCILLATORIA		0
EUGLENOPHYTA		
..EUGLENOPHYCEAE		
..EUGLENALES		
...EUGLENACEAE		
....PHACUS		0

07331600 Red River at Denison Dam near Denison, Tex.--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

APR. 27, 1976 1205 HOURS

PHYTOPLANKTON 5,100 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...OCCYSTACEAE		
....OCCYSTIS	140	3
....TETRAEDRON	35	1
...SCENEDESMACEAE		
....CRUCIGENIA		0
....SCENEDESMUS	2,400	46
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
...CENTRALES		
...COSCINODISCAEAE		
....CYCLOTELLA	69	1
..PENNALES		
...ACHNANTHACEAE		
....ACHNANTHES	35	1
....COCONEIS	35	1
...CYMBELLACEAE		
....CYMBELLA	170	3
...GOMPHONEMACEAE		
....GOMPHONEMA	35	1
...NITZSCHIACEAE		
....NITZSCHIA	240	5
CHRYSOPHYCEAE		
..CHRYSONOMADALES		
...OCHROMONADACEAE		
....OCHROMONAS	35	1
..BACILLARIOPHYCEAE		
...PENNALES		
...ACHNANTHACEAE		
....RHOICOSPHENIA	69	1
CYANOPHYTA		
..MYXOPHYCEAE		
...CHROOCOCCALES		
...CHROOCOCCACEAE		
....ANACYSTIS	100	2
...OSCILLATORIALES		
....OSCILLATORIAEAE		
....OSCILLATORIA	1,700	32
EUGLENOPHYTA		
..CRYPTOPHYCEAE		
...CRYPTOMONIDALES		
....CRYPTOMONODACEAE		
....CRYPTOMONAS	140	3

MAY 26, 1976 1430 HOURS

PHYTOPLANKTON 3,800 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...COELASTRACEAE		
....COELASTRUM	340	9
...OCCYSTACEAE		
....OCCYSTIS	560	15
....TETRAEDRON	130	3
...SCENEDESMACEAE		
....CRUCIGENIA	130	3
....SCENEDESMUS	2,400	65
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
...CENTRALES		
...COSCINODISCAEAE		
....CYCLOTELLA	43	1
..PENNALES		
...CYMBELLACEAE		
....CYMBELLA	43	1
...GOMPHONEMACEAE		
....GOMPHONEMA	43	1
...NITZSCHIACEAE		
....NITZSCHIA	43	1

JUNE 22, 1976 1535 HOURS

PHYTOPLANKTON 2,400 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...OCCYSTACEAE		
....KIRCHNERIELLA	25	1
....OCCYSTIS	98	4
....TETRAEDRON	490	21
...SCENEDESMACEAE		
....SCENEDESMUS	1,200	52
....TETRASTRUM	98	4
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
...CENTRALES		
...COSCINODISCAEAE		
....COSCINODISCUS	74	3
....CYCLOTELLA	25	1
....MELOSIRA	49	2
..PENNALES		
...NAVICULACEAE		
....NAVICULA	49	2
...NITZSCHIACEAE		
....NITZSCHIA	25	1
CYANOPHYTA		
..MYXOPHYCEAE		
...CHROOCOCCALES		
...CHROOCOCCACEAE		
....AGMENELLUM	200	8
PYRRHOPHYTA		
..DINOPHYCEAE		
...PERIDINIALES		
....CERATIAEAE		
....CERATIUM	25	1

07331600 Red River at Denison Dam near Denison, Tex.--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

JULY 27, 1976 0945 HOURS

PHYTOPLANKTON 6,800 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OCCYSTACEAE		
....ANKISTRODESMUS	50	1
....TETRAEDRON	150	2
...SCENEDESMACEAE		
....CRUCIGENIA	200	3
....SCENEDESMUS	100	1
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..PENNALES		
...ACHNANTHACEAE		
....ACHNANTHES	50	1
...NAVICULACEAE		
....NAVICULA	100	1
...NITZSCHIA		
....NITZSCHIA	250	4
...ACHNANTHACEAE		
....RHOICOSPHEA	50	1
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
..CHROOCOCCACEAE		
....AGMENELLUM	1,400	21
....ANACYSTIS	200	3
...OSCILLATORIALES		
...NOSTOCACEAE		
....CYLINDROSPERMUM	450	7
...OSCILLATORIA		
....OSCILLATORIA	3,800	56

AUG. 11, 1976 1430 HOURS

PHYTOPLANKTON 8,100 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...COELASTRACEAE		
....COELASTRUM	210	3
...OCCYSTACEAE		
....OCCYSTIS	84	1
....TETRAEDRON	100	1
...SCENEDESMACEAE		
....CRUCIGENIA	340	4
....SCENEDESMUS	250	3
....TETRASTRUM	84	1
..VOLVOCELES		
...CHLAMYDOMONADACEAE		
....CHLAMYDOMONAS	42	1
..PHACOTACEAE		
...PHACOTUS		0
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
....CYCLOTILLA		0
..PENNALES		
...NAVICULACEAE		
....NAVICULA	42	1
...NITZSCHIA		
....NITZSCHIA	84	1
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
..CHROOCOCCACEAE		
....ANACYSTIS	100	1
...OSCILLATORIALES		
...NOSTOCACEAE		
....CYLINDROSPERMUM	460	6
...OSCILLATORIA		
....OSCILLATORIA	6,200	76
EUGLENOPHYTA		
..CRYPTOPHYCEAE		
...CRYPTOMONIDALES		
....CRYPTOMONODACEAE		
....CRYPTOMONAS	63	1
..EUGLENOPHYCEAE		
...EUGLENALES		
....EUGLENA		0
PYRRHOPHYTA		
..DINOPHYCEAE		
...PERIDINIALES		
....PERIDINIACEAE		
....PERIDINIUM		0

SEP. 22, 1976 1400 HOURS

PHYTOPLANKTON 94,000 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OCCYSTACEAE		
....ANKISTRODESMUS	1,300	1
....CLOSTERIOPSIS		0
....KIRCHNERIELLA		0
....OCCYSTIS	2,000	2
....TETRAEDRON		0
...SCENEDESMACEAE		
....SCENEDESMUS		0
..VOLVOCELES		
...CHLAMYDOMONADACEAE		
....CHLAMYDOMONAS		0
..PHACOTACEAE		
...PHACOTUS		0
...ZYGNEMATALES		
...DESMIDIACEAE		
...STAUSTRUM		0
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
....CYCLOTILLA		0
....MELOSIRA		0
..PENNALES		
...FRAGILARIACEAE		
....SYNEDRA		0
...NAVICULACEAE		
....NAVICULA		0
...NITZSCHIA		
....NITZSCHIA		0
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
..CHROOCOCCACEAE		
....AGMENELLUM	2,900	3
...OSCILLATORIALES		
...NOSTOCACEAE		
....ANABAENA		0
....ANABAENOPSIS	1,400	2
....APHANIZOMENON	1,900	2
....CYLINDROSPERMUM	3,200	3
...OSCILLATORIA		
....LYNGBYA	900	1
....OSCILLATORIA	79,000	83
EUGLENOPHYTA		
..CRYPTOPHYCEAE		
...CRYPTOMONIDALES		
....CRYPTOMONODACEAE		
....CRYPTOMONAS		0
..EUGLENOPHYCEAE		
...EUGLENALES		
....EUGLENA		0

## RED RIVER BASIN

207

07331600 Red River at Denison Dam near Denison, Tex.--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	74798	1250	710	143000	230	46700	160	32600	280
NOV. 1975.....	61161	1300	740	122000	240	39900	170	28100	290
DEC. 1975.....	64758	1390	800	139000	260	45800	190	32400	310
JAN. 1976.....	62234	1460	840	141000	280	46500	200	33300	330
FEB. 1976.....	50952	1530	880	122000	290	39700	210	28600	350
MAR. 1976.....	19032	1550	890	45900	290	15000	210	10800	350
APR. 1976.....	41253	1680	970	108000	320	35900	230	26100	380
MAY 1976.....	147140	1670	970	384000	320	127000	230	92600	380
JUNE 1976.....	152037	1720	1000	409000	330	136000	240	99200	390
JULY 1976.....	67585	1780	1030	188000	340	62000	250	45600	400
AUG. 1976.....	82677	1750	1010	226000	330	74300	240	54200	390
SEPT 1976.....	82802	1740	1010	226000	330	74000	240	53900	390
TOTAL .....	906429	**	**	2250000	**	743000	**	537000	**
WTD.AVG. ....	2483.37	1600	920	**	300	**	220	**	360

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1240	1270	1330	1420	1490	1560	1570	1690	1700	1770	1770	1730
2	1240	1270	1310	1420	1490	1550	1570	1690	1700	1770	1770	1730
3	1240	1280	1310	1430	1490	1550	1570	1680	1700	1770	1760	1730
4	1240	1270	1320	1430	1490	1550	1570	1680	1700	1770	1740	1730
5	1240	1270	1330	1430	1490	1550	1570	1660	1700	1770	1740	1740
6	1240	1270	1330	1450	1500	1550	1570	1660	1710	1770	1740	1740
7	1240	1280	1330	1450	1500	1550	1570	1660	1720	1770	1750	1740
8	1260	1280	1340	1460	1500	1550	1570	1660	1720	1770	1760	1740
9	1250	1280	1340	1470	1540	1550	1570	1660	1720	1770	1770	1740
10	1310	1280	1330	1470	1520	1550	1590	1660	1720	1770	1760	1730
11	1270	1280	1340	1470	1530	1550	1630	1670	1750	1780	1740	1740
12	1270	1290	1440	1470	1530	1550	1680	1670	1760	1780	1740	1740
13	1270	1280	1440	1490	1540	1550	1680	1670	1770	1780	1740	1740
14	1270	1290	1440	1470	1540	1550	1700	1660	1780	1780	1740	1720
15	1240	1290	1430	1470	1540	1550	1740	1650	1780	1790	1740	1740
16	1230	1290	1420	1470	1550	1550	1810	1650	1780	1790	1740	1740
17	1220	1280	1430	1470	1550	1550	1800	1640	1760	1790	1740	1740
18	1230	1290	1420	1470	1550	1550	1760	1640	1760	1790	1740	1740
19	1230	1300	1430	1480	1550	1550	1740	1660	1750	1790	1740	1740
20	1240	1300	1420	1470	1570	1550	1670	1670	1750	1780	1770	1740
21	1220	1300	1410	1470	1570	1560	1670	1690	1740	1780	1770	1740
22	1220	1300	1410	1470	1560	1570	1740	1700	1720	1780	1750	1730
23	1230	1300	1440	1480	1560	1570	1700	1700	1740	1780	1740	1740
24	1240	1300	1420	1480	1550	1570	1700	1710	1740	1790	1740	1740
25	1240	1320	1420	1490	1550	1590	1710	1720	1720	1790	1740	1740
26	1250	1320	1410	1490	1550	1570	1710	1710	1720	1780	1740	1740
27	1250	1310	1410	1480	1540	1570	1710	1710	1720	1780	1740	1740
28	1260	1310	1410	1480	1540	1570	1700	1630	1720	1780	1740	1780
29	1290	1320	1410	1480	1540	1570	1680	1650	1720	1780	1740	1780
30	1270	1320	1420	1500	---	1570	1700	1680	1740	1780	1740	1790
31	1260	---	1410	1490	---	1570	---	1690	---	1770	1740	---
MONTH	1250	1290	1390	1470	1530	1560	1670	1670	1730	1780	1750	1740



TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

[illegible]

## RED RIVER BASIN

209

07332600 Bois d'Arc Creek near Randolph, Tex.

LOCATION.--Lat 33°28'32", long 96°12'52", Fannin County, on right bank at downstream side of bridge on State Highway 11, 2.3 miles (3.7 km) upstream from Henson Creek, and 2.4 miles (3.9 km) east of Randolph.

DRAINAGE AREA.--72 mi<sup>2</sup> (186 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 564.38 ft (172.023 m) above mean sea level (State Highway Department bench mark).

AVERAGE DISCHARGE.--13 years (1963-76), 61.1 ft<sup>3</sup>/s (1.730 m<sup>3</sup>/s), 11.52 in/yr (293 mm/yr), 44,270 acre-ft/yr (54.6 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 14,100 ft<sup>3</sup>/s (399 m<sup>3</sup>/s) July 1 (gage height, 23.15 ft or 7.056 m); no flow for many days.  
 Period of record: Maximum discharge, 14,100 ft<sup>3</sup>/s (399 m<sup>3</sup>/s) July 1, 1976 (gage height, 23.15 ft or 7.056 m); no flow at times most years.  
 Maximum stage since at least 1922, 24.6 ft (7.50 m) about 1935, from information by State Highway Department and local resident.

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

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			0	.03	.01	.24	.97	.37	5.0	3750	.47	4.2
2			0	.02	.01	.20	.65	.29	1.5	569	.30	1.4
3			0	.02	.01	.14	.83	.16	.87	33	.20	.85
4			0	.01	.01	.12	1.0	.10	.59	20	.17	.65
5			.04	.01	.01	.08	.69	3.9	.47	15	.17	.51
6			.03	.01	0	.05	.63	552	1.1	13	.27	.33
7			.01	.01	0	.12	.83	27	.76	9.9	.69	.20
8			0	0	0	62	.86	6.4	.50	7.9	.46	.14
9			0	0	.01	17	.70	3.7	.35	7.3	.34	.09
10			0	0	.02	1.9	.57	2.8	.24	8.8	.22	.05
11			0	0	.02	.97	.55	2.4	.15	9.1	.13	.03
12			0	.01	.02	.88	.57	39	.11	12	.08	.01
13			0	.02	.02	.46	.64	258	.06	8.0	.05	0
14			0	.02	.02	.52	.64	23	.03	5.0	.03	0
15			0	.01	.02	.52	.59	8.0	.02	4.2	.01	0
16			0	0	.02	.36	.97	4.9	.01	95	0	0
17			0	0	.08	.35	1.0	3.0	0	33	0	0
18			0	0	.20	.37	1.7	2.2	2.2	17	0	0
19			0	.01	.17	.43	19	1.6	30	14	0	.08
20			0	.02	.32	.39	79	1.3	4.1	4.3	0	9.5
21			0	.02	.97	.28	5.2	1.1	.39	2.2	0	4.8
22			0	.02	.46	.30	1.4	1.0	.12	1.4	0	.80
23			.01	.03	.46	.23	70	1.3	.04	.96	0	.41
24			.14	.04	.97	.70	148	2.4	31	.77	0	.20
25			.36	.10	.80	1.1	6.1	1.1	247	.58	0	.12
26			.12	.06	.58	1.1	1.4	1.1	6.1	.45	0	.96
27			.06	.06	.52	.83	.74	2.8	1.1	.41	0	1.4
28			.06	.06	.32	.82	.61	2.1	.46	.51	0	.12
29			.04	.05	.20	1.2	.74	1.0	.20	.50	0	.06
30			.04	.05	---	.67	.76	.81	65	.56	16	.05
31		---	.03	.02	---	1.5	---	9.8	---	.54	3.6	---
TOTAL	0	0	.94	.71	6.25	95.83	347.34	964.63	399.47	4644.38	23.19	26.96
MEAN	0	0	.030	.023	.22	3.09	11.6	31.1	13.3	150	.75	.90
MAX	0	0	.36	.10	.97	62	148	552	247	3750	16	9.5
MIN	0	0	0	0	0	.05	.55	.10	0	.41	0	0
CFSM	0	0	0	0	.003	.04	.16	.43	.18	2.08	.01	.01
IN.	0	0	.0005	.0004	.003	.05	.18	.50	.21	2.40	.01	.01
AC-FT	0	0	1.9	1.4	12	190	689	1910	792	9210	46	53
CAL YR 1975	TOTAL	21234.68	MEAN	58.2	MAX	4520	MIN	0	CFSM	.81	IN	10.97
WTR YR 1976	TOTAL	6509.70	MEAN	17.8	MAX	3750	MIN	0	CFSM	.25	IN	3.36
									AC-FT	42120	AC-FT	12910

PEAK DISCHARGE (BASE, 1,500 FT<sup>3</sup>/S).--July 1 (1500) 14,100 ft<sup>3</sup>/s (23.15 ft).

07335390 Pat Mayse Lake near Chicota, Tex.

LOCATION.--Lat 33°51'10", long 95°32'38", Lamar County, on upstream side of dam on Sanders Creek, 2,800 ft (853 m) to right of outlet channel, 2.0 miles (3.2 km) southeast of Chicota, and 4.6 miles (7.4 km) upstream from the Red River.

DRAINAGE AREA.--175 mi<sup>2</sup> (453 km<sup>2</sup>).

PERIOD OF RECORD.--Contents: October 1967 to current year. Prior to October 1970, published as Pat Mayse Reservoir.  
Water quality: Chemical analyses: October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to May 10, 1968, nonrecording gage at present site and datum.

EXTREMES.--Current year: Maximum contents, 141,600 acre-ft (175 hm<sup>3</sup>) July 18 (elevation, 453.75 ft or 138.303 m); minimum, 110,800 acre-ft (137 hm<sup>3</sup>) Mar. 7 (elevation, 448.64 ft or 136.745 m).

Period of record: Maximum contents, 208,000 acre-ft (256 hm<sup>3</sup>) Dec. 11, 12, 1971 (elevation, 462.87 ft or 141.083 m); minimum since conservation pool was first reached on Apr. 20, 1968, 109,600 acre-ft (135 hm<sup>3</sup>) Oct. 20, 21, 1972 (elevation, 448.42 ft or 136.678 m).

REMARKS.--The lake is formed by a rolled earthfill dam about 7,080 ft (2,160 m) long, including an emergency spillway 100 ft (30 m) wide located near the right abutment of dam. The dam was completed and deliberate impoundment began Sept. 28, 1967. The flood-control outlet works consist of an uncontrolled morning-glory type drop-inlet spillway that is connected to a 7.25-foot-diameter (2.21-meter) concrete conduit through the dam. A 24-inch-diameter (610-millimeter) and a 12-inch (305-millimeter) low-flow pipe are provided for additional outlets. The lake was built for flood control, municipal and industrial water supply, recreation, fish and wildlife conservation, and for channel improvement on Sanders Creek. Records furnished by the Corps of Engineers indicate that during the year 10,660 acre-ft (13.1 hm<sup>3</sup>) was diverted from the lake for municipal and industrial uses by the city of Paris. Any resultant effluent is discharged into Pine Creek below Lake Cook, which is located in another drainage basin. The capacity table is based on Geological Survey topographic maps dated 1949. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	488.5	-
Crest of spillway.....	477.0	352,700
Top of flood-control pool.....	460.5	189,100
Crest of morning-glory drop-inlet spillway (top of conservation pool)....	451.0	124,500
Bed of stream.....	393.0	0

COOPERATION.--Records furnished by Corps of Engineers and reviewed by the Geological Survey.

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

448.0	107,300	452.0	130,600
450.0	118,600	454.0	143,200

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	119200	115900	114300	113200	112000	111200	112300	116800	122500	126700	131700	124900
2	119000	116600	114200	113600	112000	111200	112300	116700	122500	127800	131100	124800
3	119000	116600	114100	113500	111900	111100	112300	116600	122500	128800	130500	125000
4	118900	116500	114000	113400	111900	111200	112300	116500	122300	128800	130200	124900
5	118800	116500	114100	113300	111900	111000	112300	117300	122100	128500	129800	124700
6	118700	116500	114100	113400	111900	111000	112300	119000	122100	128400	129600	124600
7	118600	116300	114100	113000	111900	111200	112100	120500	122000	128100	129300	124500
8	118700	116300	114100	113000	111800	112300	112000	120700	122000	128000	128800	124500
9	118400	116300	113900	113000	111900	112300	111900	120800	121800	127700	128600	124200
10	118300	116200	113700	112900	111800	112500	111800	120800	121800	127600	128400	124000
11	118300	116100	113800	112900	111800	112600	111800	120700	121600	127900	128100	123800
12	118200	115800	113800	112900	111800	112500	111900	121300	121500	127900	127800	123800
13	118100	115600	113800	112900	111700	112400	112000	121500	121400	128000	127600	123600
14	117800	115500	113800	112800	111700	112400	112000	122200	121300	127700	127300	123600
15	117700	115400	113700	112800	111700	112500	112000	122400	121000	127600	127000	123400
16	117600	115400	113700	112700	111700	112400	112400	122600	121000	130000	126900	123300
17	117400	115400	113400	112600	111800	112400	112500	122500	120900	140000	126500	123600
18	117400	115200	113400	112500	111700	112300	113000	122400	121700	141300	126300	123600
19	117200	115300	113300	112600	111600	112300	114700	122300	125200	140800	126000	123600
20	117200	115000	113300	112600	111800	112300	116000	122300	127000	140000	125800	123600
21	117000	114900	113200	112500	111600	112100	116700	122200	126900	139000	125700	123500
22	116900	114800	113100	112400	111500	112100	117000	122000	126800	138200	125600	123400
23	116800	114800	113100	112300	111500	112100	117100	122000	127000	137300	125200	123300
24	116700	114600	113400	112300	111400	112100	117100	122000	126800	136500	125100	123200
25	116600	114400	113700	112300	111300	112100	117100	121700	126800	135600	125100	123100
26	116500	114300	113700	112300	111300	112100	117000	121700	126600	135000	124900	123800
27	116400	114200	113700	112300	111300	112000	117000	121700	126500	134500	124700	123800
28	116400	114200	113700	112200	111300	112400	117000	121700	126500	133900	124500	123600
29	116200	114400	113800	112200	111100	112600	116900	121700	126300	133300	124500	123400
30	116200	114400	113700	112100	---	112300	116900	121700	125900	132800	124500	123400
31	116000	---	113600	112000	---	112400	---	121800	---	132200	124500	---
(+)	449.55	449.27	449.14	448.86	448.70	448.92	449.71	450.54	451.23	452.26	451.00	450.81
(*)	-3400	-1600	-800	-1600	-900	+1300	+4500	+4900	+4100	+6300	-7700	-1100
(++)	1090	903	914	731	705	939	892	831	754	933	1050	915
MAX	119200	116600	114300	113600	112000	112600	117100	122600	127000	141300	131700	125000
MIN	116000	114200	113100	112000	111100	111000	111800	116500	120900	126700	124500	123100
CAL YR 1975.....	*	-18200			++	9360		MAX	152400		MIN	113100
WTR YR 1976.....	*	+4000			++	10660		MAX	141300		MIN	111000

+ Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

++ Diversions, in acre-feet, for municipal and industrial use by city of Paris.

## RED RIVER BASIN

211

07335390 Pat Mayse Lake near Chicota, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG)	DIS-SOLVED SODIUM (NA) (MG/L)
MAY 11...	0845	178	7.7	22.0	63	6	22	2.0	7.6
DATE	SODIUM ADSORPTION RATIO	DIS-SOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SI02) (MG/L)	DIS-SOLVED SOLIDS (SUM OF TUENTS) (MG/L)
MAY 11...	.4	2.8	70	0	14	7.1	.2	.4	91

## RED RIVER BASIN

07335400 Sanders Creek near Chicota, Tex.  
(Outflow from Pat Mayse Lake)

LOCATION.--Lat 33°51'10", long 95°32'28", Lamar County, on upstream side of Pat Mayse Dam, 2,800 ft (853 m) to right of morning-glory drop inlet, 2.0 miles (3.2 km) southeast of Chicota, and 4.6 miles (7.4 km) upstream from mouth.

DRAINAGE AREA.--175 mi<sup>2</sup> (453 km<sup>2</sup>), at Pat Mayse Dam; 184 mi<sup>2</sup> (477 km<sup>2</sup>) at former site 2.6 miles (4.2 km) downstream.

PERIOD OF RECORD.--March 1964 to September 1967 (gage heights and discharge measurements only), October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 440.00 ft (134.112 m) above mean sea level. Prior to Oct. 1, 1967, at site 2.6 miles (4.2 km) downstream at datum 52.77 ft (16.084 m) lower. Oct. 1, 1967, to Sept. 30, 1970, at datum 10.00 ft (3.048 m) higher.

AVERAGE DISCHARGE.--9 years, 152 ft<sup>3</sup>/s (4.305 m<sup>3</sup>/s), 110,100 acre-ft/yr (136 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum outflow, 611 ft<sup>3</sup>/s (17.3 m<sup>3</sup>/s) July 18 (gage height, 13.75 ft or 4.191 m); no flow for many days.  
Period of record: Maximum outflow, 1,060 ft<sup>3</sup>/s (30.0 m<sup>3</sup>/s) May 19, 1969 (gage height, 10.20 ft or 3.109 m, datum then in use); maximum gage height, 22.87 ft (6.971 m) Dec. 11, 12, 1971; no flow at times each year.

REMARKS.--Records fair. Flow represents uncontrolled outflow from Pat Mayse Lake (see preceding page). Flow downstream from dam is affected by local runoff and backwater from the Red River.

COOPERATION.--Records furnished by Corps of Engineers and reviewed by the Geological Survey.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1									0	20	158	1.4
2									0	34	136	2.6
3									0	63	121	2.5
4									0	69	110	3.0
5									0	64	100	2.6
6									0	60	89	1.1
7									0	55	84	.30
8									0	51	76	0
9									0	45	67	0
10									0	41	62	0
11									0	45	55	0
12									0	48	49	0
13									0	49	44	0
14									0	47	39	0
15									0	44	34	0
16									0	67	30	0
17									0	325	26	0
18									0	588	22	0
19									.60	573	17	0
20									24	552	15	0
21									31	497	13	0
22									28	447	11	0
23									32	404	8.0	0
24									29	364	5.8	0
25									27	324	5.2	0
26									25	296	3.8	0
27									23	269	2.4	0
28									22	243	.50	0
29									21	218	.30	0
30									15	195	.10	0
31		---			---		---		---	174	.20	---
TOTAL	0	0	0	0	0	0	0	0	277.60	6271	1384.30	13.50
MEAN	0	0	0	0	0	0	0	0	9.25	202	44.7	.45
MAX	0	0	0	0	0	0	0	0	32	588	158	3.0
MIN	0	0	0	0	0	0	0	0	0	20	.10	0
AC-FT	0	0	0	0	0	0	0	0	551	12440	2750	27
CAL YR 1975	TOTAL	53213.60	MEAN	146	MAX	879	MIN	0	AC-FT	105500		
WTR YR 1976	TOTAL	7946.40	MEAN	21.7	MAX	588	MIN	0	AC-FT	15760		

## RED RIVER BASIN

213

07335500 Red River at Arthur City, Tex.

LOCATION.--Lat 33°52'32", long 95°30'08", in NW¼ sec. 11, T.8 S., R.17 E., Choctaw County, Okla., near right bank on downstream side of pier of bridge on U.S. Highway 271 at Arthur City, 10.6 miles (17.1 km) downstream from Muddy Boggy River, 26.0 miles (41.8 km) upstream from Kiamichi River, and at mile 633.1 (1,018.7 km).

DRAINAGE AREA.--44,531 mi<sup>2</sup> (115,335 km<sup>2</sup>), of which 5,936 mi<sup>2</sup> (15,374 km<sup>2</sup>) is probably noncontributing.

PERIOD OF RECORD.--January to September 1905 (gage heights and discharge measurements only), October 1905 to December 1911, July 1936 to current year. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected at same site since 1891 are contained in reports of the National Weather Service.

GAGE.--Water-stage recorder. Datum of gage is 380.07 ft (115.845 m) above mean sea level. From 1905-11, nonrecording gage at St. Louis-San Francisco Railway Co. bridge 200 ft (61 m) upstream at same datum. July 1, 1936, to Mar. 24, 1940, nonrecording gage at present site and datum.

AVERAGE DISCHARGE.--13 years (1906-11, 1937-43) prior to completion of Denison Dam, 9,266 ft<sup>3</sup>/s (262.4 m<sup>3</sup>/s), 6,713,000 acre-ft/yr (8.28 km<sup>3</sup>/yr); 33 years (1943-76) regulated, 8,008 ft<sup>3</sup>/s (226.8 m<sup>3</sup>/s), 5,802,000 acre-ft/yr (7.15 km<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 44,000 ft<sup>3</sup>/s (1,250 m<sup>3</sup>/s) Apr. 22 (gage height unknown); minimum daily, 571 ft<sup>3</sup>/s (16.2 m<sup>3</sup>/s) Jan. 21.

Period of record: Maximum discharge, about 400,000 ft<sup>3</sup>/s (11,300 m<sup>3</sup>/s) May 28, 1908 (gage height, 43.2 ft or 13.17 m), from rating curve extended above 41,000 ft<sup>3</sup>/s (1,160 m<sup>3</sup>/s) on basis of records for later years; minimum, 130 ft<sup>3</sup>/s (3.68 m<sup>3</sup>/s) Dec. 11, 12, 1956 (gage height, 4.49 ft or 1.369 m).

REMARKS.--Records fair. Flow regulated since October 1943 by Lake Texoma (station 07331500) 92.8 miles (149.3 km) above station.

COOPERATION.--Gage-height record and 24 discharge measurements furnished by the Corps of Engineers; records computed by the Geological Survey.

REVISIONS (WATER YEARS).--WSP 1241: Drainage area. WSP 1311: 1906-11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2420	1350	3800	2400	2100	987	4000	7740	9260	5540	3260	2190
2	2910	2970	5800	1300	1350	867	3110	6720	15200	7930	3240	1200
3	2850	3840	7600	1000	899	588	1700	7340	15300	13200	3590	2170
4	2550	2530	6380	4800	2340	1020	1290	7640	12700	12700	2890	2350
5	2490	2710	4300	2000	2640	1670	1170	8090	12100	7660	1980	2640
6	1860	1920	2860	1530	2210	1000	1250	13000	11100	3000	828	3880
7	719	830	2470	2880	2160	588	1410	23600	10100	1840	1770	2940
8	831	791	2630	4380	3640	952	1950	20500	9380	1590	3160	1960
9	2380	1720	2570	7270	2780	4360	2570	13900	6880	3300	3060	2290
10	2900	2330	1940	8370	1370	9390	2190	9170	6250	3800	2380	2340
11	3530	958	2140	6170	1130	12000	2150	7220	7600	3000	2010	2280
12	3800	1090	1840	2640	2060	11200	2080	8580	5810	2200	4110	1950
13	2450	1860	2410	1370	2210	8850	2150	10400	3720	1250	3300	2300
14	735	866	3030	2040	1860	6000	2570	12400	3670	1470	2760	1510
15	603	622	2230	2520	2260	5450	2570	13700	2550	2580	3730	2680
16	2600	2500	799	1560	1850	3700	2160	13700	3140	3140	3660	4220
17	2800	3100	2600	1630	697	2390	2370	13700	2930	6470	2680	4250
18	2800	2100	3500	1640	620	2580	9500	13100	5990	13500	2030	4240
19	2800	1200	3830	1340	4220	2830	24000	10700	11200	8570	2590	5120
20	2500	3350	4620	763	4940	1740	37000	7970	15100	3730	2750	4900
21	889	3680	3890	571	3650	1300	42000	7130	6460	3900	3140	3210
22	1790	3660	2710	1400	3140	1090	43000	7190	2820	4030	3230	1580
23	4480	5210	3160	2120	2740	972	36000	6690	2300	4000	2240	2750
24	5280	5460	3480	2210	2500	1210	30800	6110	3320	4390	1510	2470
25	5350	2870	3880	1970	3720	1250	29600	5750	3670	5560	848	2190
26	5610	2800	3780	1310	5000	883	28200	4830	4100	4720	2460	2770
27	4360	3800	2740	674	3230	760	23100	4230	6320	4620	3360	3790
28	3470	4400	4170	2630	1940	734	18200	4380	5690	3500	4280	3900
29	4770	2500	4110	4460	1440	777	13700	6860	5200	3500	4270	3400
30	3400	2700	2630	3000	---	810	9200	8370	5430	3440	3870	2860
31	2220	---	1950	2580	---	1690	---	8150	---	3070	2950	---
TOTAL	88147	75717	103849	80528	70696	89638	380990	298860	215290	151200	87936	86330
MEAN	2843	2524	3350	2598	2438	2892	12700	9641	7176	4877	2837	2878
MAX	5610	5460	7600	8370	5000	12000	43000	23600	15300	13500	4280	5120
MIN	603	622	799	571	620	588	1170	4230	2300	1250	828	1200
AC-FT	174800	150200	206000	159700	140200	177800	755700	592800	427000	299900	174400	171200
CAL YR 1975 TOTAL	4393634			12040		60700			8715000			
WTR YR 1976 TOTAL	1729181			4725		43000			3430000			



## RED RIVER BASIN

07336750 Little Pine Creek near Kanawha, Tex.

LOCATION.--Lat 33°50'26", long 95°15'55", Red River County, on right bank at downstream side of bridge on Farm Road 410, 1.6 miles (2.6 km) south of Kanawha, and 2.5 miles (4.0 km) upstream from mouth.

DRAINAGE AREA.--75.4 mi<sup>2</sup> (195.3 km<sup>2</sup>).

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

Water quality: Chemical analyses: October 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 389.26 ft (118.646 m) above mean sea level.

AVERAGE DISCHARGE.--7 years (1969-76), 79.1 ft<sup>3</sup>/s (2.240 m<sup>3</sup>/s), 14.25 in/yr (362 mm/yr), 57,310 acre-ft/yr (70.7 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 1,040 ft<sup>3</sup>/s (29.5 m<sup>3</sup>/s) Apr. 21 (gage height, 14.29 ft or 4.356 m); no flow for many days.  
Period of record: Maximum discharge, 30,200 ft<sup>3</sup>/s (855 m<sup>3</sup>/s) Dec. 10, 1971 (gage height, 21.26 ft or 6.480 m), from rating curve extended above 4,400 ft<sup>3</sup>/s (125 m<sup>3</sup>/s) on basis of contracted-opening and flow-over-road measurement of peak flow; no flow at times each year.

Maximum stage since 1948, that of Dec. 10, 1971.

REMARKS.--Discharge records good. No known diversion or return of water in vicinity of gage.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						0	1.4	1.1	.86	.66		0
2						0	.84	.84	12	149		0
3						0	.68	.73	1.1	.84		0
4						0	.86	.75	.35	2.9		.03
5						0	.70	.74	.18	.85		.43
6						0	.54	170	.10	.38		.20
7						0	.51	847	.09	.17		.11
8						9.3	.53	349	.06	.10		.08
9						26	.45	44	.09	.06		.05
10						14	.41	13	.09	.03		.02
11						2.2	.37	7.3	.13	.03		0
12						.81	.35	6.0	.14	.02		0
13						.42	.33	272	.13	.02		0
14						.38	.39	529	.12	.01		0
15						.36	.35	100	.11	.01		0
16						.33	.36	28	.09	.01		0
17						.27	.42	11	.08	.02		0
18						.23	2.5	5.0	26	.01		0
19						.21	100	1.9	89	.22		0
20						.17	709	.95	18	.08		0
21						.14	925	.66	1.4	.05		0
22						.09	308	.43	.48	.04		0
23						.06	36	.37	.22	.04		0
24						.05	27	.25	.11	.03		0
25						.06	81	.22	.11	.03		0
26						.16	20	.32	.11	.02		0
27						.15	5.6	.75	.10	.02		0
28						2.5	2.9	1.2	.10	.02		0
29						3.4	2.0	.65	.11	.02		0
30						1.4	1.5	.38	.10	.01		0
31		---			---	2.3	---	.38	---	0		---
TOTAL	0	0	0	0	0	64.99	2229.99	2393.92	151.56	238.86	0	.92
MEAN	0	0	0	0	0	2.10	74.3	77.2	5.05	7.71	0	.031
MAX	0	0	0	0	0	26	925	847	89	149	0	.43
MIN	0	0	0	0	0	0	.33	.22	.06	0	0	0
CFSM	0	0	0	0	0	.03	.99	1.02	.07	.10	0	.0004
IN.	0	0	0	0	0	.03	1.10	1.18	.07	.12	0	.0005
AC-FT	0	0	0	0	0	129	4420	4750	301	474	0	1.8

CAL YR 1975 TOTAL 20366.57 MEAN 55.8 MAX 2950 MIN 0 CFSM .74 IN 10.05 AC-FT 40400  
WTR YR 1976 TOTAL 5080.24 MEAN 13.9 MAX 925 MIN 0 CFSM .18 IN 2.51 AC-FT 10080

PEAK DISCHARGE (BASE, 1,000 FT<sup>3</sup>/S).--Apr. 21 (1100) 1,040 ft<sup>3</sup>/s (14.29 ft); May 7 (1230) 1,030 ft<sup>3</sup>/s (14.28 ft).

## RED RIVER BASIN

215

07336750 Little Pine Creek near Kanawha, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNE- SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)
MAR. 30...	1210	.92	600	6.9	15.0	160	120	47	10	48
MAY 11...	1550	7.0	211	6.6	22.0	59	37	18	3.4	13
JUNE 15...	1145	.12	234	6.8	25.0	71	18	22	3.8	16
JULY 27...	1230	.02	215	6.7	26.0	61	7	19	3.3	16
DATE	SODIUM AD-SORPTION RATIO	DIS-SOLVED POTAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SI02) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	
MAR. 30...	1.7	5.0	44	0	120	74	.2	14	340	
MAY 11...	.7	3.4	27	0	47	14	.2	12	124	
JUNE 15...	.8	3.8	64	0	32	14	.3	9.1	133	
JULY 27...	.9	4.0	66	0	19	21	.3	8.1	123	

## RED RIVER BASIN

07336800 Pecan Bayou near Clarksville, Tex.

LOCATION.--Lat 33°41'07", long 94°59'41", Red River County, on right bank at downstream side of bridge on Farm Road 1159, 0.2 mile (0.3 km) downstream from Tanyard Bayou, 4.3 miles (6.9 km) upstream from Little White Oak Creek, and 6.0 miles (9.7 km) northeast of Clarksville.

DRAINAGE AREA.--100 mi<sup>2</sup> (259 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: January 1962 to current year.

Water quality: Chemical analyses: November 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 360.00 ft (109.728 m) above mean sea level. Prior to Oct. 1, 1970, at datum 5.00 ft (1.524 m) higher.

AVERAGE DISCHARGE.--14 years, 80.7 ft<sup>3</sup>/s (2.285 m<sup>3</sup>/s), 10.96 in/yr (278 mm/yr), 58,470 acre-ft/yr (72.1 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 873 ft<sup>3</sup>/s (24.7 m<sup>3</sup>/s) June 25 (gage height, 9.60 ft or 2.926 m); no flow for many days.  
Period of record: Maximum discharge, 21,300 ft<sup>3</sup>/s (603 m<sup>3</sup>/s) Dec. 10, 1971 (gage height, 15.92 ft or 4.852 m); no flow at times each year.

Maximum stage since at least 1910, about 17 ft (5.2 m), present datum, in 1957, from information by local residents.

REMARKS.--Discharge records good. No known diversion above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1						0	.98	3.1	7.6	17	.27			
2						0	.74	1.1	19	17	.14			
3						0	1.2	.77	3.8	8.8	.08			
4						0	1.9	.67	1.1	3.5	.02			
5						0	1.6	1.1	.70	2.2	.01			
6						0	1.4	182	.35	1.6	0			
7						.20	1.2	269	.20	.98	0			
8						21	1.4	536	.10	.44	0			
9						43	1.5	235	.05	.29	0			
10						57	1.8	59	.03	.25	0			
11						51	1.8	27	.02	.19	0			
12						27	1.6	17	.01	.17	0			
13						13	3.4	19	0	.14	0			
14						6.9	6.0	99	0	.12	0			
15						3.6	24	140	0	.10	0			
16						2.6	19	74	0	1.6	0			
17						1.3	10	44	0	20	0			
18						.66	15	29	48	5.8	0			
19						.46	226	18	78	145	0			
20						.90	523	9.7	27	276	0			
21						.59	622	4.5	13	177	0			
22						.35	521	1.7	4.7	42	0			
23						.21	165	1.1	1.5	13	0			
24						.43	53	.90	5.1	5.4	0			
25						.41	37	.74	689	3.5	0			
26						.44	45	.60	154	3.2	0			
27						.23	29	.45	74	1.9	0			
28						1.3	15	.35	374	1.6	0			
29						3.7	8.6	.25	63	1.1	0			
30					---	2.5	4.9	.20	27	.77	0			
31		---			---	1.3	---	.15	---	.47	0	---		
TOTAL	0	0	0	0	0	240.08	2344.02	1775.38	1591.26	751.12	.52	0		
MEAN	0	0	0	0	0	7.74	78.1	57.3	53.0	24.2	.017	0		
MAX	0	0	0	0	0	57	622	536	689	276	.27	0		
MIN	0	0	0	0	0	0	.74	.15	0	.10	0	0		
CFSM	0	0	0	0	0	.08	.78	.57	.53	.24	.0002	0		
IN.	0	0	0	0	0	.09	.87	.66	.59	.28	.0002	0		
AC-FT	0	0	0	0	0	476	4650	3520	3160	1490	1.0	0		
CAL YR 1975	TOTAL	23574.38	MEAN	64.6	MAX	3150	MIN	0	CFSM	.65	IN	8.77	AC-FT	46760
WTR YR 1976	TOTAL	6702.38	MEAN	18.3	MAX	689	MIN	0	CFSM	.18	IN	2.49	AC-FT	13290

PEAK DISCHARGE (BASE, 1,000 FT<sup>3</sup>/S).--No peak above base.

## RED RIVER BASIN

217

07336800 Pecan Bayou near Clarksville, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
MAR. 30...	1500	2.2	194	6.0	16.0	44	36	13	2.8	14
MAY 12...	1010	16	130	6.6	33.5	29	6	9.0	1.5	8.8
JULY 27...	1520	2.0	142	6.6	34.0	45	1	15	1.8	8.6

DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SI02) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)
MAR. 30...	.9	4.5	10	0	42	18	.2	10	109
MAY 12...	.7	3.0	28	0	17	9.6	.2	6.5	69
JULY 27...	.6	3.1	54	0	8.1	8.9	.2	7.8	80

07336820 Red River near De Kalb, Tex.

LOCATION.--Lat 33°41'15", long 94°41'39", Bowie County, Tex.--McCurain County, Okla. State line, near left bank at downstream side of bridge on U.S. Highway 259, 4.8 miles (7.7 km) upstream from North Mill Creek, 13 miles (21 km) north of De Kalb, and at mile 556.9 (896.1 km).

DRAINAGE AREA.--47,348 mi<sup>2</sup> (122,631 km<sup>2</sup>), of which 5,936 mi<sup>2</sup> (15,374 km<sup>2</sup>) is probably noncontributing.

PERIOD OF RECORD.--Discharge: December 1967 to current year.

Water quality: Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: October 1970 to current year. Water temperatures: January 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 302.92 ft (92.330 m) above mean sea level.

AVERAGE DISCHARGE.--8 years, 12,890 ft<sup>3</sup>/s (365.0 m<sup>3</sup>/s), 9,339,000 acre-ft/yr (11.5 km<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 48,300 ft<sup>3</sup>/s (1,370 m<sup>3</sup>/s) Apr. 24 (gage height, 21.11 ft or 6.434 m, from graph based on gage readings); minimum, 510 ft<sup>3</sup>/s (14.4 m<sup>3</sup>/s) Jan. 23 (gage height, 8.22 ft or 2.505 m, from graph based on gage readings). Period of record: Maximum discharge, 189,000 ft<sup>3</sup>/s (5,350 m<sup>3</sup>/s) Dec. 11, 1971 (gage height, 31.55 ft or 9.616 m, from graph based on gage readings); minimum, 431 ft<sup>3</sup>/s (12.2 m<sup>3</sup>/s) Sept. 4, 5, 1972.

Historic: Maximum stage since 1957, 32.2 ft (9.81 m) in June 1957. Greatest flood since 1936 occurred in February 1938, stage unknown.

Water quality: Current year: Maximum daily specific conductance, 1,730 micromhos Aug. 30; minimum daily, 184 micromhos Apr. 26. Maximum water temperatures, 31.0°C July 25, 27, Aug. 1; minimum, 2.0°C Jan. 8.

Period of record: Maximum daily specific conductance, 1,740 micromhos Oct. 16-19, 1972; minimum daily, 132 micromhos Mar. 25, 1968. Maximum water temperatures, 34.0°C on several days during July and August 1969-70; minimum, 1.0°C Jan. 8, 9, 1968.

REMARKS.--Discharge records good. At times, flood peaks may be affected by storage in Lake Texoma (station 07331500) located approximately 169 miles (272 km) upstream, and low flows may be affected by releases for generation of electric power. When codes for agencies collecting and analyzing a sample are shown in the water-quality table, the sample was collected and field data obtained by the Oklahoma District (1028), U.S. Geological Survey, and the remainder of the analysis performed by the Oklahoma State Health Department (9740).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2520	3480	3010	5760	3120	3350	1620	20100	11800	6190	3970	4210
2	2000	2640	3240	5890	2550	2830	2660	10100	11600	6810	3890	3500
3	2960	2270	3970	5840	2270	2100	4560	8620	15500	9630	3930	2740
4	3120	3500	5860	4700	1350	1650	3640	7290	18600	13300	3850	2470
5	2860	3890	7470	4210	1290	1420	2700	7420	15800	13600	3890	2630
6	2860	2610	6270	5200	2410	1640	2360	8000	12900	10500	3440	2770
7	2700	3090	4620	4370	2340	2240	2740	13300	12100	6610	2460	3070
8	2220	2680	3420	2680	2340	2910	2860	25500	10600	4270	1590	3870
9	1350	1450	3070	3950	2430	4470	2460	28500	9660	3520	2540	3290
10	1400	1400	3680	5310	3680	5290	2750	21100	8100	3370	3540	2500
11	2700	2570	3560	8080	2980	14200	2880	15900	6660	4030	3480	2590
12	3010	2590	3290	8370	1620	22800	2590	12200	6490	4090	2810	2670
13	3200	1500	3160	5710	1320	20400	2550	10800	6890	3750	2750	2600
14	3830	1750	2990	2810	2220	15200	2640	12000	5120	3030	4070	2360
15	2640	2290	3390	1480	2570	12100	2700	15600	4290	2430	3620	2520
16	1440	1320	3790	2020	2250	9520	2920	17200	3930	2550	3160	2120
17	1440	1140	2790	2000	2750	6060	2940	18000	3250	3710	3910	3020
18	2720	2570	1680	1260	2310	4410	3240	18000	3970	4950	3930	4380
19	3120	3030	2750	1330	1230	3400	4600	18400	6000	9360	2960	4510
20	3100	2610	3640	1290	1420	3540	9470	16400	9940	14000	2390	4610
21	3180	2220	4130	1130	4440	3390	24300	13200	15000	8340	2830	5220
22	2360	3390	4800	672	4950	2590	39800	10200	10600	5160	3090	5020
23	1360	3830	3950	542	4170	2190	46800	8160	5910	5160	3420	3540
24	2240	4050	3070	986	3810	1930	47800	7760	4390	4680	3460	2360
25	4110	5120	3480	1860	3750	1800	44500	7160	4800	4640	2630	2910
26	4930	5220	3790	2050	3680	1920	43100	6640	5230	5230	1830	2840
27	5290	3470	3990	1850	4600	2020	41300	6150	5370	5710	1240	2680
28	5220	3240	3830	1210	5310	1720	38100	6170	6540	5140	2680	3260
29	4210	3870	3180	774	4230	1880	34000	7570	7060	4890	3540	3910
30	3910	4390	4270	2870	---	2150	28800	7440	6610	4130	4290	4090
31	4350	---	5180	4090	---	1850	---	11200	---	4110	4410	---
TOTAL	92350	87180	119320	100294	83390	162970	453380	396080	254710	186890	99600	98260
MEAN	2979	2906	3849	3235	2876	5257	15110	12780	8490	6029	3213	3275
MAX	5290	5220	7470	8370	5310	22800	47800	28500	18600	14000	4410	5220
MIN	1350	1140	1680	542	1230	1420	1620	6150	3250	2430	1240	2120
AC-FT	183200	172900	236700	198900	165400	323300	899300	785600	505200	370700	197600	194900
CAL YR 1975	TOTAL	5695620	MEAN	15600	MAX	69500	MIN	1140	AC-FT	11300000		
WTR YR 1976	TOTAL	2134424	MEAN	5832	MAX	47800	MIN	542	AC-FT	4234000		

07336820 Red River near De Kalb, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH  (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	BIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)
OCT 21....	--	--	1200	3000	1200	7.9	18.5	30	15	9.8	104	2.4
NOV 20....	102R	9740	--	2600	--	7.8	15.0	--	12	9.8	--	--
24....	--	--	1635	4950	1260	7.4	9.0	--	--	--	--	--
DEC 02....	--	--	1415	3120	1100	7.5	10.0	40	20	11.7	104	2.3
JAN 07....	--	--	1305	4240	919	8.0	4.0	--	--	--	--	--
22....	102R	9740	1000	700	--	7.3	7.0	--	3	11.4	99	--
FEB 03....	--	--	1200	2380	1280	7.3	8.5	30	15	11.3	96	2.7
18....	102R	9740	1000	2400	--	8.7	13.0	--	6	10.0	99	--
MAR 17....	102R	9740	1200	6000	350	8.5	11.0	--	97	11.2	105	--
31....	--	--	1100	1840	528	7.3	15.0	--	--	--	--	--
APR 21....	102R	9740	1000	20000	300	8.3	19.0	--	>100	8.8	99	--
27....	--	--	1100	40500	202	7.0	18.5	--	--	--	--	--
MAY 07....	102R	9740	0800	10000	940	8.9	21.0	--	46	8.6	100	--
12....	--	--	1430	12200	704	7.3	22.5	--	--	--	--	--
JUN 08....	--	--	0830	10700	1420	7.4	24.5	30	50	8.1	96	2.0
16....	102R	9740	1430	3700	--	8.6	27.0	--	27	8.5	108	--
JUL 21....	102R	9740	1300	8000	360	7.5	27.0	--	80	7.2	91	--
29....	--	--	1415	4950	1430	8.1	31.5	10	35	8.0	108	2.9
AUG 18....	102R	9740	1900	3900	--	8.3	29.0	--	32	8.1	105	--
23....	--	--	0930	3400	1630	8.2	28.0	--	--	--	--	--
SEP 21....	--	--	1310	5200	1660	8.2	24.5	0	40	8.4	102	3.4
22....	102R	9740	0815	5000	--	--	23.0	--	6	8.3	100	--

[illegible]



## RED RIVER BASIN

07336820 Red River near De Kalb, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO <sub>2</sub> ) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NON- FILT- RAHLE RESIDUE (MG/L)	VOL. NON- FILT- RABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)
OCT											
21...	--	2.5	646	30	1	.01	.00	.01	.66	.07	5.6
NOV											
21...	--	--	--	--	--	--	--	--	--	.05	--
24...	.3	4.2	708	--	--	--	--	--	--	--	--
DEC											
02...	.3	4.6	599	47	3	.10	.01	.01	.64	.11	4.2
JAN											
07...	.3	5.2	482	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	2.0	--
FEB											
03...	.3	3.9	703	23	11	.06	.00	.03	1.3	.06	11
13...	--	--	--	--	--	--	--	--	--	<.10	--
MAR											
17...	--	--	--	--	--	--	--	--	--	.27	--
31...	.2	6.2	281	--	--	--	--	--	--	--	--
APR											
21...	--	--	--	--	--	--	--	--	--	.12	--
27...	.2	4.9	104	--	--	.08	.01	.08	1.2	.18	7.6
MAY											
07...	--	--	--	--	--	--	--	--	--	<.09	--
12...	.2	5.9	392	--	--	--	--	--	--	--	--
JUN											
08...	.5	4.7	844	266	37	.01	.01	.01	.64	.18	12
16...	--	--	--	--	--	--	--	--	--	.10	--
JUL											
21...	--	--	--	--	--	--	--	--	--	.15	--
29...	.4	5.4	851	64	12	.00	.00	.01	.59	.08	6.8
AUG											
18...	--	--	--	--	--	--	--	--	--	<.08	--
23...	.3	6.1	952	--	--	--	--	--	--	--	--
SEP											
21...	.3	5.5	977	122	16	.00	.00	.02	.86	.10	8.0
22...	.3	--	--	--	--	--	--	--	--	<.09	--

DATE	CODE FOR AGENCY COL- LECTING SAMPLE	CODE FOR AGENCY ANA- LYZING SAMPLE	TIME	DIS- SOLVED ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)
NOV										
20...	1028	9740	--	--	3	--	--	<10	--	7
DEC										
02...	--	--	1415	20	--	1	130	--	1	--
JAN										
22...	1028	9740	1000	--	--	--	--	--	--	--
FEB										
18...	1028	9740	1000	--	1	--	--	<10	--	3
MAR										
17...	1028	9740	1200	--	--	--	--	--	--	--
APR										
21...	1028	9740	1000	--	--	--	--	--	--	--
29...	--	--	1100	40	--	0	100	--	0	--
MAY										
07...	1028	9740	0800	--	4	--	--	<10	--	8
JUN										
08...	--	--	0830	40	--	1	40	--	0	--
16...	1028	9740	1430	--	--	--	--	--	--	--
JUL										
21...	1028	9740	1300	--	--	--	--	--	--	--
29...	--	--	1415	40	--	2	--	--	1	--
AUG										
18...	1028	9740	1900	--	7	--	--	20	--	40
SEP										
21...	--	--	1310	40	--	2	--	--	0	--
22...	1028	9740	0815	--	--	--	--	--	--	--



## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	TOTAL PCB (UG/L)	PCB IN BOTTOM MA- TERIAL (UG/KG)	POLY- CHLO- RINATED NAPH- THA- LENES (UG/L)	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL CHLOR- DANE (UG/L)	CHLOR- DANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDD (UG/L)	DDD IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDE (UG/L)	DDE IN BOTTOM MA- TERIAL (UG/KG)
DEC. 02...	1415	.0	0	--	.00	.0	.0	0	.00	.2	.00	.7
APR. 27...	1100	.0	0	.00	.00	.0	.0	0	.00	.0	.00	.3
JUNE 08...	0830	.0	0	.00	.00	.0	.0	0	.00	.0	.00	.0
JULY 29...	1415	.0	0	.00	.00	.0	.0	0	.00	.0	.00	.0
SEP. 21...	1310	.0	0	.00	.00	.0	.0	0	.00	.0	.00	.1

DATE	TOTAL DDT (UG/L)	DDT IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DI- AZINON (UG/L)	TOTAL DI- ELDRIN (UG/L)	DI- ELDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ENDRIN (UG/L)	ENDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ETHION (UG/L)	TOTAL HEPTA- CHLOR (UG/L)	HEPTA- CHLOR IN BOTTOM MA- TERIAL (UG/KG)	TOTAL HEPTA- CHLOR EPOXIDE (UG/L)	HEPTA- CHLOR EPOXIDE IN BOT- TOM MA- TERIAL (UG/KG)
DEC. 02...	.00	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00	.0
APR. 27...	.00	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00	.0
JUNE 08...	.00	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00	.0
JULY 29...	.00	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00	.0
SEP. 21...	.00	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00	.0

DATE	TOTAL LINDANE (UG/L)	LINDANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL MALA- THION (UG/L)	TOTAL METHYL PARA- THION (UG/L)	TOTAL METHYL TRI- THION (UG/L)	TOTAL PARA- THION (UG/L)	TOTAL TOX- APHENE (UG/L)	TOX- APHENE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)
DEC. 02...	.00	.0	.00	.00	.00	.00	0	0	.00	.00	.01	.00
APR. 27...	.00	.0	.00	.00	.00	.00	0	0	.00	.00	.00	.00
JUNE 08...	.00	.0	--	.00	.00	.00	0	0	.00	.05	.00	.00
JULY 29...	.00	.0	.00	.00	.00	.00	0	0	.00	.00	.00	.00
SEP. 21...	.00	.0	.00	.00	.00	.00	0	0	.00	.00	.00	.00

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	92350	1150	660	163000	180	45600	130	33200	270
NOV. 1975.....	87180	1170	670	157000	190	43900	140	33200	280
DEC. 1975.....	119320	1040	590	189000	160	52000	120	39100	250
JAN. 1976.....	100294	957	540	147000	150	40200	120	31400	230
FEB. 1976.....	79160	1220	700	149000	200	41700	160	33300	290
MAR. 1976.....	162970	490	280	122000	64	28400	47	20800	140
APR. 1976.....	453380	339	190	234000	37	45900	31	38200	100
MAY 1976.....	396080	700	400	426000	100	109000	73	78100	180
JUNE 1976.....	254710	1110	630	434000	170	120000	140	94700	270
JULY 1976.....	186890	864	490	248000	130	66400	100	50600	210
AUG. 1976.....	99600	1540	880	236000	250	67900	230	62500	360
SEPT 1976.....	98260	1540	880	232000	250	66900	230	61400	360
TOTAL .....	2130194	**	**	2740000	**	728000	**	576000	**
WTD.AVG. ....	5836.14	832	480	**	130	**	100	**	210

## RED RIVER BASIN

223

07336820 Red River near De Kalb, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1090	1280	1290	620	1330	980	532	253	765	1180	1520	1650
2	1000	1210	1160	480	1250	971	554	379	783	1270	1450	1530
3	944	1130	1280	361	1290	961	727	513	961	1060	1480	1400
4	1050	1100	950	365	1280	926	520	536	1020	950	1440	1330
5	1090	1240	708	371	1200	948	371	675	1050	560	1530	1140
6	1140	1170	935	420	1130	971	387	892	1340	409	1520	1310
7	1120	1130	1020	886	1260	979	408	896	1430	523	1440	1400
8	1120	1080	1040	809	1320	985	352	750	1440	471	1360	1500
9	1110	1100	957	813	1290	707	350	450	1470	489	1260	1670
10	1070	1020	995	1170	1320	567	428	449	1500	536	1350	1430
11	980	1010	715	1430	1440	496	750	506	1380	543	1600	1430
12	1110	893	493	1450	1270	378	990	649	1480	900	1530	1560
13	1210	1190	506	1360	1180	369	1110	762	1630	1290	1390	1550
14	1230	1050	650	1240	1150	363	1130	1140	1500	1220	1540	1520
15	1230	926	798	1130	1300	318	1170	912	1380	1250	1650	1500
16	1170	1160	971	1090	1330	289	1190	731	1410	1120	1540	1590
17	1100	1140	1090	1140	1280	334	1240	476	1450	1010	1560	1460
18	1030	1040	985	1220	1330	356	1170	593	1320	1030	1720	1670
19	1230	1160	906	1130	1320	382	1020	576	1310	800	1630	1690
20	1250	1220	1310	1150	1190	441	671	589	1120	416	1510	1660
21	1200	1160	1320	1140	922	522	576	679	850	426	1510	1670
22	1200	1090	1410	1160	1410	803	389	812	558	365	1620	1660
23	1160	1290	1310	1120	1260	722	270	1060	510	392	1630	1660
24	1070	1260	1280	1070	1230	665	219	1230	571	958	1650	1430
25	1100	1270	1310	1000	1250	602	204	1260	633	1090	1550	1410
26	1200	1290	1300	1210	917	570	184	1290	660	1330	1480	1460
27	1220	1230	1290	1220	889	554	215	1290	1070	1490	1440	1490
28	1240	1180	1250	1230	1260	602	266	1160	1080	1470	1350	1530
29	1220	1270	1220	1170	1200	641	255	921	1280	1510	1640	1650
30	1230	1280	1030	1110	---	563	244	809	1100	1490	1730	1640
31	1190	---	795	1240	---	528	---	810	---	1390	1720	---
MONTH	1140	1150	1040	1010	1230	629	596	776	1140	933	1530	1520

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.5	18.5	10.0	---	9.0	17.5	15.5	18.5	24.0	29.0	31.0	26.0
2	20.5	---	9.5	---	8.5	19.0	17.0	19.0	25.0	26.5	29.5	26.0
3	19.5	20.0	13.5	6.0	8.0	20.0	18.5	19.5	25.0	26.5	28.0	26.0
4	18.5	20.0	11.0	---	10.5	20.0	---	19.0	25.0	27.0	28.0	26.5
5	---	20.0	13.5	4.0	12.0	17.0	18.0	20.0	25.0	26.5	28.0	28.5
6	19.5	19.0	14.0	7.5	8.0	15.0	18.5	20.0	25.5	25.5	28.5	28.0
7	20.5	19.0	14.0	5.5	7.0	---	19.0	20.5	25.0	26.0	29.0	27.0
8	21.0	20.5	13.5	2.0	7.5	12.0	19.5	19.0	24.5	28.0	29.5	28.0
9	22.0	20.5	12.0	2.5	8.5	12.0	18.0	19.0	25.0	28.0	28.5	28.5
10	23.0	19.0	11.0	3.5	16.0	12.0	18.0	20.0	26.0	28.0	28.5	25.0
11	24.0	17.0	11.5	6.5	13.5	14.0	---	21.0	26.0	28.5	28.5	24.5
12	---	16.5	14.0	---	13.5	15.0	20.5	22.5	26.5	28.5	28.5	24.0
13	24.0	12.0	14.5	10.0	15.0	12.0	21.0	22.0	28.0	29.0	28.5	24.0
14	24.5	11.0	---	9.0	16.0	12.0	22.0	22.0	27.0	29.0	30.0	25.0
15	24.5	11.5	14.0	8.0	---	13.5	22.5	21.0	27.0	29.0	30.5	26.0
16	23.5	14.0	11.5	9.0	18.0	12.0	21.5	21.0	26.5	29.0	30.0	27.0
17	21.0	15.0	10.5	7.0	19.0	12.0	22.0	20.0	27.0	28.0	29.5	26.0
18	19.0	15.0	6.0	8.5	16.0	13.0	---	20.0	27.0	29.5	29.0	26.0
19	17.5	17.0	6.0	8.5	15.0	16.0	20.5	20.5	26.0	28.5	28.0	26.0
20	18.0	14.0	6.0	7.5	16.0	19.5	20.0	21.0	24.5	28.0	27.0	26.0
21	19.0	10.0	8.5	---	14.5	17.0	19.0	22.5	24.5	28.0	28.0	24.0
22	20.0	9.5	6.5	8.0	11.0	16.5	19.0	23.5	24.5	29.0	28.0	24.0
23	21.0	9.0	8.0	9.5	11.0	16.5	21.0	25.0	26.0	29.0	28.0	24.0
24	22.0	9.0	8.0	12.5	12.0	---	20.0	24.5	26.0	30.0	28.0	24.0
25	20.0	7.5	---	15.0	12.5	17.0	20.0	24.5	26.0	31.0	27.0	25.0
26	17.0	7.0	---	10.5	13.0	18.0	18.0	24.0	26.5	30.5	28.0	---
27	15.0	7.0	7.0	---	14.5	16.5	18.0	22.0	28.0	31.0	28.5	25.0
28	19.0	8.5	---	7.5	15.0	17.0	18.5	21.0	27.0	30.0	29.0	24.0
29	19.5	12.0	8.5	8.5	16.5	18.0	17.5	22.0	28.5	30.0	28.5	23.5
30	19.5	---	8.0	10.5	---	16.5	18.0	23.0	29.5	30.0	28.0	22.0
31	19.0	---	7.0	---	---	15.0	---	23.0	---	30.5	28.0	---
MONTH	20.5	14.5	10.5	---	13.0	15.5	19.5	21.5	26.0	28.5	28.5	25.5

## 07337000 Red River at Index, Ark.

LOCATION.--Lat 33°33'07", long 94°02'28", in NW¼SW¼ sec.7, T.14 S., R.28 W., Miller County, near right bank on downstream side of bridge on U.S. Highway 71 at Index, 2.2 miles (3.5 km) south of Ogden, 20.6 miles (33.1 km) upstream from Little River, and at mile 485.3 (780.8 km).

DRAINAGE AREA.--48,030 mi<sup>2</sup> (124,400 km<sup>2</sup>), of which 5,936 mi<sup>2</sup> (15,374 km<sup>2</sup>) is probably noncontributing.

PERIOD OF RECORD.--July 1936 to current year. Gage-height records collected at same site since 1917 are contained in reports of the National Weather Service.

GAGE.--Water-stage recorder. Datum of gage is 246.87 ft (75.246 m) above mean sea level. Prior to Dec. 12, 1939, nonrecording gage at present site and datum.

AVERAGE DISCHARGE.--40 years, 11,990 ft<sup>3</sup>/s (340 m<sup>3</sup>/s), 8,687,000 acre-ft/yr (10.7 km<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 40,800 ft<sup>3</sup>/s (1,160 m<sup>3</sup>/s) Apr. 24 (gage height, 14.96 ft or 4.560 m); minimum daily, 1,710 ft<sup>3</sup>/s (48.4 m<sup>3</sup>/s) Jan. 24.  
Period of record: Maximum discharge, 297,000 ft<sup>3</sup>/s (8,410 m<sup>3</sup>/s) Feb. 23, 1938 (gage height, 34.25 ft or 10.439 m); minimum, 378 ft<sup>3</sup>/s (10.7 m<sup>3</sup>/s) Nov. 28, 1956.

REMARKS.--Records good. Some regulation by Lake Texoma (station 07331500) 241 miles (388 km) upstream since Oct. 31, 1943 (capacity, 5,392,900 acre-ft or 6.65 km<sup>3</sup>), by Pat Mayse Lake (station 07335390) since Sept. 28, 1967 (capacity, 352,700 acre-ft or 435 hm<sup>3</sup>), and by Hugo Lake (Oklahoma) since Jan. 18, 1974 (capacity, 966,700 acre-ft or 1.19 km<sup>3</sup>).

REVISIONS.--WSP 1211: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4890	3770	3890	4520	3020	4500	3170	26700	11100	8190	4430	4380
2	3740	3930	3720	5080	3250	3580	2820	20800	12300	7580	4400	4430
3	2730	3370	2960	5410	2840	3050	2640	14700	12000	7620	4170	4160
4	2610	2670	3360	5550	2580	2590	3830	12400	13800	9560	4120	3650
5	3090	2630	4240	5120	2340	2280	4250	11000	16900	12600	4090	3050
6	3190	3460	5910	4350	2080	2090	3590	11800	15500	14300	4200	2970
7	3060	3430	6480	4460	1940	1980	3040	16100	13300	12800	4070	3010
8	2950	2880	5310	4690	2490	6110	2940	20700	12600	9420	3620	3120
9	2800	2870	4030	3720	2550	14200	3120	26400	11700	6240	2890	3440
10	2310	2330	3300	3350	2460	12700	3050	26200	10800	4790	2550	3870
11	2000	1980	3290	4190	2660	9400	2870	21400	9620	4180	3290	3260
12	2250	1940	3540	5330	3100	13700	3140	17300	8030	4250	3680	2830
13	2810	2550	3270	6590	2620	19800	3040	14800	7420	4630	3600	2880
14	3210	2400	3250	6190	2110	17600	2910	13800	7790	4480	2990	3110
15	3580	1950	3010	4200	2020	14000	2900	15000	6840	4100	3650	2940
16	3400	2250	3060	2750	2310	12000	2960	17300	5590	3460	4110	2780
17	2450	2200	3360	2240	2470	10200	3000	17800	5130	3170	3700	2800
18	1920	1850	3370	2550	3230	7700	3190	17700	5230	3730	3640	2690
19	2170	1850	2580	2360	3480	5650	3270	17400	9090	4710	4120	3820
20	2840	2650	2290	2200	2760	4490	4260	17400	12400	7630	3830	4470
21	3030	2830	3140	2130	2150	4020	9630	16000	13500	12600	3180	4540
22	3070	2390	3590	2100	2570	4020	22800	13800	14800	10900	3050	4730
23	2980	2560	4150	1920	4320	3520	33100	11900	13500	7280	3230	4990
24	2330	3270	4230	1710	4300	3090	39000	9790	9050	5600	3380	4570
25	1940	3540	3760	1750	3750	2850	39500	8960	6390	5600	3660	3360
26	2750	3990	3450	2090	3590	2710	37200	8550	6530	5160	3470	2930
27	3980	4680	3680	2360	3480	2650	36100	9990	7220	5260	2930	3220
28	4470	4310	3880	2360	3690	2750	34600	10100	6970	5620	2420	3060
29	4730	3300	4010	2200	4500	2940	32700	8620	7410	5630	2420	3050
30	4490	3480	3750	1900	---	3350	30000	8710	8590	5260	3110	3560
31	3840	---	3680	1790	---	3420	---	9040	---	4800	3870	---
TOTAL	95610	87310	115540	107160	84660	202940	378620	472160	301100	211150	109870	105670
MEAN	3084	2910	3727	3457	2919	6546	12620	15230	10040	6811	3544	3522
MAX	4890	4680	6480	6590	4500	19800	39500	26700	16900	14300	4430	4990
MIN	1920	1850	2290	1710	1940	1980	2640	8550	5130	3170	2420	2690
AC-FT	189600	173200	229200	212600	167900	402500	751000	936500	597200	418800	217900	209600
CAL YR 1975	TOTAL	5125210	MEAN	14040	MAX	55900	MIN	1850	AC-FT	10170000		
WTR YR 1976	TOTAL	2271790	MEAN	6207	MAX	39500	MIN	1710	AC-FT	4506000		

07342500 South Sulphur River near Cooper, Tex.

LOCATION.--Lat 33°21'20", long 95°35'39", Hopkins-Delta County line, on left bank of cut channel at downstream side of bridge on State Highways 19 and 154, 1.0 mile (1.6 km) downstream from Big Creek, 1.0 mile (1.6 km) upstream from Brushy Creek, 4.5 miles (7.2 km) downstream from Doctors Creek, and 5.6 miles (9.0 km) southeast of Cooper.

DRAINAGE AREA.--527 mi<sup>2</sup> (1,365 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: May 1942 to current year. Monthly discharge only for some periods, published in WSP 1311.

Water quality: Chemical analyses: October 1958 to September 1966, October 1967 to current year. Water temperatures: October 1958 to September 1966, October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 371.91 ft (113.358 m) above mean sea level. Prior to Oct. 1, 1970, at datum 3.00 ft (0.914 m) higher. May 9, 1942, to Nov. 8, 1949, nonrecording gage, and Nov. 9, 1949, to May 13, 1955, water-stage recorder at site 700 ft (213 m) to right of present gage.

AVERAGE DISCHARGE.--34 years, 411 ft<sup>3</sup>/s (11.64 m<sup>3</sup>/s), 10.59 in/yr (269 mm/yr), 297,800 acre-ft/yr (367 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 12,500 ft<sup>3</sup>/s (354 m<sup>3</sup>/s) Apr. 20 (gage height, 22.42 ft or 6.834 m); no flow at times.

Period of record: Maximum discharge, 42,500 ft<sup>3</sup>/s (1,200 m<sup>3</sup>/s) Dec. 10, 1971 (gage height, 26.15 ft or 7.971 m, from floodmark in gage well); no flow at times.

Water quality: Current year: Maximum daily specific conductance, 1,180 micromhos Nov. 19; minimum daily, 82 micromhos July 2. Maximum water temperatures, 29.0°C Aug. 1; minimum, 1.0°C Jan. 8, 9.

Period of record: Maximum daily specific conductance, 4,710 micromhos Aug. 14, 1973; minimum daily, 82 micromhos July 2, 1976. Maximum water temperatures, 36.0°C Aug. 6, 1960, Aug. 10, 1962; minimum, freezing point on Jan. 31, 1966, Jan. 11-13, 1973.

REMARKS.--Discharge records good. Small diversions upstream from station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	.28	1.3	.77	1.5	1.2	21	66	7.6	1820	.97	153
2	1.0	.27	2.6	.57	1.1	.90	3.6	30	7.7	5240	.82	155
3	1.3	.95	3.0	.23	.88	1.3	1.3	15	13	2500	.73	78
4	.91	2.0	3.4	.57	1.8	.78	.50	8.4	8.9	1810	.61	171
5	.72	2.1	3.5	.62	1.8	.83	.17	6.2	6.5	825	.54	74
6	.57	1.3	4.5	.23	2.2	1.2	.11	2950	43	95	.52	47
7	.25	.77	2.6	.10	2.1	2.0	.07	6150	29	47	.44	25
8	.17	.89	2.5	.15	2.1	447	.10	4960	51	29	.42	10
9	.34	.54	2.4	.15	1.7	1140	.11	1860	17	19	.36	5.6
10	.49	.27	4.6	.10	1.3	761	.11	209	7.6	189	.32	3.8
11	.45	.20	4.7	.05	1.4	157	0	88	4.2	135	.25	2.8
12	.42	.43	3.9	0	2.0	40	0	53	3.2	43	.25	2.1
13	.24	.65	3.3	0	1.8	13	.06	208	3.5	24	.34	1.7
14	.19	.71	2.4	0	1.4	5.4	.18	494	3.0	29	.30	1.6
15	.23	.49	2.1	0	1.1	2.7	.18	640	2.7	40	.35	1.4
16	.67	.43	4.4	0	1.5	1.5	.73	265	2.8	626	.36	1.3
17	.62	.33	4.0	.02	1.4	.86	10	92	2.1	1940	.29	1.5
18	.39	1.3	2.2	.41	1.5	.45	620	46	69	1780	.26	12
19	.26	1.5	1.3	.75	3.2	.25	3420	28	980	2000	.26	22
20	.31	1.7	.71	.74	2.2	.24	10300	18	1230	429	.23	32
21	.45	1.4	.26	.29	1.8	.36	7840	14	371	95	.23	117
22	.44	1.1	.08	.18	2.0	.45	3690	11	57	73	.21	329
23	.22	1.1	0	.93	1.5	.79	1290	9.2	22	75	.22	84
24	.16	1.0	.06	1.1	1.3	.55	319	7.8	12	23	.31	28
25	.11	.87	5.3	1.5	2.5	.73	600	6.9	140	9.8	.38	14
26	.15	.87	12	2.3	2.2	.94	309	6.8	968	4.4	.32	89
27	.41	.74	15	2.1	1.9	2.4	117	6.8	1720	2.1	.25	576
28	.67	.74	5.4	2.1	2.4	3.8	61	7.2	943	1.8	.25	153
29	.70	.53	3.6	1.4	1.6	.42	112	9.9	81	2.0	.26	49
30	.56	.92	3.2	1.2	---	135	182	11	28	1.6	.39	24
31	.39	---	1.3	1.2	---	107	---	9.3	---	1.3	237	---
TOTAL	15.19	26.38	105.61	19.76	51.18	2871.63	28898.22	18286.5	6833.8	19909.0	248.44	2263.8
MEAN	.49	.88	3.41	.64	1.76	92.6	963	590	228	642	8.01	75.5
MAX	1.4	2.1	15	2.3	3.2	1140	10300	6150	1720	5240	237	576
MIN	.11	.20	0	0	.88	.24	0	6.2	2.1	1.3	.21	1.3
CFSM	0	.001	.006	.001	.003	.18	1.83	1.12	.43	1.22	.02	.14
IN.	.001	.002	.007	.001	.004	.20	2.04	1.29	.48	1.41	.02	.16
AC-FT	30	52	209	39	102	5700	57320	36270	13550	39490	493	4490

CAL YR 1975 TOTAL 218966.53 MEAN 600 MAX 22100 MIN 0 CFSM 1.14 IN 15.46 AC-FT 434300  
WTR YR 1976 TOTAL 79529.51 MEAN 217 MAX 10300 MIN 0 CFSM .41 IN 5.61 AC-FT 157700

PEAK DISCHARGE (BASE, 8,000 FT<sup>3</sup>/S).--Apr. 20 (1700) 12,500 ft<sup>3</sup>/s (22.42 ft).



## RED RIVER BASIN

07342500 South Sulphur River near Cooper, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPECIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
OCT. 13...	1315	.24	703	7.5	22.0	250	0	80	11	54
NOV. 30...	0715	1.3	1130	7.9	12.0	170	0	57	7.4	200
DEC. 31...	0800	.80	1050	7.9	5.0	110	0	38	4.7	200
JAN. 06...	1000	.24	1030	8.2	4.0	130	0	43	5.5	200
MAR. 29...	1435	41	367	7.1	17.5	91	0	29	4.5	34
APR. 30...	0735	190	223	7.3	16.0	75	6	25	3.0	13
MAY 10...	1530	136	196	7.1	20.0	66	1	23	2.1	9.8
JUNE 14...	1435	3.0	430	7.3	28.5	130	0	45	4.0	33
JULY 17...	1450	1480	220	7.5	24.5	83	0	31	1.4	9.5
AUG. 30...	1420	.39	551	7.9	28.0	200	0	70	7.3	34
SEP. 30...	0730	27	372	8.0	20.0	93	0	33	2.5	42

DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RINE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT. 13...	1.5	5.1	299	0	42	47	.4	6.1	393
NOV. 30...	6.6	5.5	526	0	46	86	.6	12	674
DEC. 31...	8.1	6.1	440	0	64	72	.6	7.6	610
JAN. 06...	7.6	6.6	459	0	65	76	.7	8.2	631
MAR. 29...	1.6	4.5	137	0	29	22	.5	9.3	200
APR. 30...	.7	3.4	84	0	22	5.4	.3	9.2	123
MAY 10...	.5	3.4	79	0	13	6.7	.3	10	107
JUNE 14...	1.3	4.0	172	0	37	17	.4	8.0	233
JULY 17...	.5	3.4	106	0	9.3	5.2	.5	12	125
AUG. 30...	1.0	5.5	265	0	27	27	.5	9.6	312
SEP. 30...	1.9	4.5	154	0	34	29	.6	11	233

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	15.19	704	400	16	52	2.1	44	1.7	190
NOV. 1975.....	26.38	1080	650	46	89	6.3	67	4.6	200
DEC. 1975.....	105.61	1070	640	182	88	25	67	19	200
JAN. 1976.....	19.76	1040	620	33	85	4.4	65	3.3	200
FEB. 1976.....	49.58	1030	610	82	84	11	64	8.8	200
MAR. 1976.....	2871.63	337	190	1470	17	132	21	164	100
APR. 1976.....	28898.21	145	82	6390	6	477	9	716	44
MAY 1976.....	18286.48	150	85	4180	6	312	9	459	45
JUNE 1976.....	6833.8	242	140	2520	10	186	15	275	73
JULY 1976.....	19908.98	170	96	5150	7	373	11	566	51
AUG. 1976.....	248.44	175	98	66	8	5.4	11	7.3	52
SEPT 1976.....	2263.8	219	120	758	9	55	14	84	66
TOTAL .....	79527.81	**	**	20900	**	1590	**	2310	**
WTD.AVG. ....	217.88	172	98	**	7.3	**	11	**	52

## RED RIVER BASIN

227

07342500 South Sulphur River near Cooper, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHUS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	601	882	1140	1030	1080	1040	318	260	432	180	404	97
2	606	874	1150	1060	1090	1050	331	266	444	82	422	292
3	619	848	1140	888	1090	1060	312	273	440	209	423	303
4	636	874	1140	1030	1090	1060	342	292	456	200	433	171
5	644	922	1120	1030	1070	1050	367	308	465	187	436	209
6	654	1000	1110	1030	1090	1060	373	140	527	234	450	247
7	660	1060	1110	1080	1080	1060	375	117	483	267	458	252
8	669	1090	1120	1090	1070	400	385	139	561	291	467	305
9	680	1100	1120	1120	1090	398	388	152	355	315	473	292
10	689	1120	1120	1080	1080	206	393	192	287	124	481	290
11	693	1120	1100	1100	1090	196	---	200	384	165	485	296
12	703	1130	1100	---	1070	224	---	217	412	320	490	303
13	703	1140	1100	---	1040	247	423	286	429	337	492	311
14	709	1140	1100	---	1050	267	436	301	430	339	497	317
15	717	1140	1090	---	1070	287	440	261	440	368	501	325
16	716	1160	1100	---	1070	301	456	249	446	240	503	329
17	731	1160	1110	1110	1090	312	493	250	446	220	508	334
18	742	1120	1120	1110	1070	323	250	272	400	210	511	804
19	750	1180	1120	1100	1040	334	215	291	280	179	516	445
20	762	1160	1120	1050	985	345	111	305	225	160	521	309
21	761	1160	1120	1050	947	356	123	318	237	205	528	234
22	779	1140	1120	1040	938	364	171	329	280	259	534	225
23	781	1140	---	1030	933	371	157	339	296	286	537	262
24	787	1140	1120	1010	942	378	186	349	315	322	537	275
25	787	1150	1060	975	951	383	160	360	300	306	540	281
26	793	1160	1050	1010	970	392	265	373	273	326	548	275
27	802	1160	926	1050	995	394	242	382	200	341	548	157
28	818	1160	1080	1060	1020	390	241	388	190	354	548	252
29	839	1160	1070	1070	1030	400	246	396	260	368	551	283
30	841	1130	1060	1080	---	396	223	405	284	379	554	369
31	845	---	1050	1090	---	468	---	417	---	390	160	---
MONTH	726	1090	1100	1050	1040	500	301	285	366	263	486	295

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.0	16.0	6.0	7.0	6.0	17.0	14.0	16.0	23.0	25.0	29.0	22.0
2	16.0	19.0	6.0	7.0	5.0	18.0	15.0	16.0	23.0	21.0	28.0	23.0
3	15.0	18.0	6.0	4.0	5.0	19.0	16.0	17.0	23.0	24.0	26.0	23.0
4	14.0	18.0	8.0	2.0	10.0	20.0	17.0	17.0	24.0	25.0	24.0	24.0
5	14.0	17.0	12.0	2.0	9.0	15.0	17.0	19.0	24.0	25.0	24.0	25.0
6	15.0	17.0	12.0	4.0	6.0	13.0	15.0	17.0	21.0	24.0	26.0	25.0
7	16.0	17.0	11.0	3.0	5.0	14.0	16.0	18.0	23.0	24.0	26.0	24.0
8	16.0	18.0	11.0	1.0	4.0	11.0	17.0	17.0	22.0	25.0	28.0	24.0
9	18.0	18.0	9.0	1.0	5.0	9.0	16.0	18.0	22.0	25.0	26.0	24.0
10	19.0	16.0	8.0	4.0	10.0	9.0	17.0	19.0	22.0	24.0	26.0	22.0
11	20.0	14.0	10.0	5.0	13.0	11.0	---	20.0	23.0	25.0	25.0	21.0
12	21.0	14.0	12.0	---	13.0	13.0	---	20.0	24.0	24.0	25.0	21.0
13	20.0	11.0	13.0	---	13.0	11.0	20.0	21.0	25.0	25.0	26.0	21.0
14	20.0	9.0	15.0	---	15.0	10.0	21.0	20.0	25.0	25.0	26.0	22.0
15	20.0	10.0	12.0	---	15.0	11.0	21.0	19.0	25.0	26.0	27.0	23.0
16	19.0	13.0	9.0	---	16.0	10.0	20.0	18.0	24.0	26.0	27.0	23.0
17	17.0	13.0	7.0	3.0	18.0	10.0	20.0	18.0	24.0	24.0	26.0	23.0
18	15.0	14.0	4.0	5.0	15.0	12.0	20.0	18.0	25.0	25.0	26.0	24.0
19	14.0	16.0	3.0	7.0	14.0	15.0	17.0	18.0	23.0	24.0	24.0	23.0
20	15.0	12.0	4.0	6.0	15.0	18.0	19.0	19.0	23.0	24.0	25.0	23.0
21	16.0	10.0	3.0	4.0	13.0	15.0	18.0	20.0	22.0	25.0	24.0	22.0
22	17.0	8.0	5.0	5.0	10.0	13.0	19.0	21.0	23.0	26.0	24.0	21.0
23	18.0	6.0	---	6.0	8.0	14.0	20.0	22.0	24.0	26.0	24.0	21.0
24	20.0	6.0	6.0	10.0	10.0	15.0	20.0	22.0	25.0	26.0	23.0	21.0
25	17.0	5.0	5.0	11.0	12.0	17.0	19.0	22.0	24.0	27.0	24.0	21.0
26	13.0	6.0	5.0	8.0	11.0	8.0	18.0	21.0	24.0	27.0	24.0	23.0
27	15.0	4.0	5.0	5.0	12.0	15.0	18.0	21.0	26.0	28.0	25.0	23.0
28	18.0	7.0	6.0	5.0	14.0	16.0	18.0	19.0	25.0	28.0	25.0	22.0
29	17.0	18.0	7.0	5.0	15.0	16.0	17.0	20.0	26.0	28.0	25.0	21.0
30	17.0	12.0	6.0	6.0	---	16.0	16.0	22.0	27.0	28.0	25.0	20.0
31	16.0	---	5.0	7.0	---	15.0	---	22.0	---	28.0	24.0	---
MONTH	17.0	12.5	7.5	5.0	11.0	14.0	18.0	19.5	24.0	25.5	25.5	22.5

07343000 North Sulphur River near Cooper, Tex.

LOCATION.--Lat 33°28'25", long 95°35'15", Delta-Lamar County line, near center of span at downstream side of downstream bridge on State Highways 19 and U.S. Highway 380, 2.3 miles (3.7 km) upstream from Auds Creek, 5.5 miles (8.8 km) upstream from Hickory Creek, 8.7 miles (14.0 km) northeast of Cooper, and at mile 15.6 (25.1 km).

DRAINAGE AREA.--276 mi<sup>2</sup> (715 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: October 1949 to current year.

Water quality: Chemical analyses: October 1967 to current year. Water temperatures: October 1968 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 372.42 ft (113.51 m) above mean sea level (levels by Corps of Engineers). Prior to Nov. 8, 1949, nonrecording gage, Nov. 8, 1949, to May 21, 1960, water-stage recorder at site 50 ft (15 m) upstream at datum 9.00 ft (2.743 m) higher, and May 22, 1960, to Sept. 30, 1970, at datum 5.00 ft (1.524 m) higher.

AVERAGE DISCHARGE.--27 years, 249 ft<sup>3</sup>/s (7.052 m<sup>3</sup>/s), 12.25 in/yr (311 mm/yr), 180,400 acre-ft/yr (222 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 44,100 ft<sup>3</sup>/s (1,250 m<sup>3</sup>/s) July 16 (gage height, 30.80 ft or 9.388 m); minimum daily, 0.10 ft<sup>3</sup>/s (0.003 m<sup>3</sup>/s) Oct. 1, 2, 14-22.

Period of record: Maximum discharge, 90,600 ft<sup>3</sup>/s (2,570 m<sup>3</sup>/s) Oct. 19, 1971 (gage height, 36.16 ft or 11.022 m, from floodmarks); no flow at times most years.

Historic: Maximum stage since at least 1915, that of Oct. 19, 1971. Flood of May 2, 1944, reached a stage of 35.6 ft (10.85 m), present datum, and flood in 1932 reached about same stage, from information by Corps of Engineers and local residents.

Water quality: Current year: Maximum daily specific conductance, 2,260 micromhos Nov. 10, 13, 14; minimum daily, 250 micromhos July 18. Maximum water temperatures, 35.0°C July 25, Aug. 26; minimum, freezing point Nov. 27, Jan. 7.

Period of record: Maximum daily specific conductance (1968-76), 2,290 micromhos Sept. 17, 1969; minimum daily, 191 micromhos Oct. 12, Dec. 10, 1971. Maximum water temperatures, 35.0°C June 22, 1970, Aug. 20, 22, 1975, July 25, Aug. 26, 1976; minimum, freezing point on several days during winter months.

REMARKS.--Discharge records good. In 1928-29, the channel was rectified for a distance of 28 miles (45 km) upstream and 18 miles (29 km) downstream from station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	.18	.41	2.3	.52	.33	5.8	13	15	4790	22	21
2	.10	.78	.48	2.2	.52	.33	2.3	9.9	11	1330	19	4.9
3	.13	3.3	.52	1.1	.42	.25	2.0	8.2	5.5	155	18	5.0
4	.13	2.6	.52	.95	.42	.33	12	7.7	4.5	105	17	5.3
5	.13	1.8	.52	.90	.42	.33	13	22	4.3	38	16	4.0
6	.13	1.3	1.1	.85	.42	.33	5.8	1920	89	26	17	2.4
7	.18	1.1	1.1	.70	.52	.95	4.9	105	450	17	17	1.5
8	.18	.95	1.3	.52	.65	1080	4.1	44	33	11	15	1.1
9	.18	.80	1.3	.33	.79	203	3.0	21	14	8.8	15	.80
10	.18	.79	1.1	.42	.79	25	2.3	18	7.2	655	14	.54
11	.18	.75	1.1	.79	.79	16	2.3	16	4.3	51	13	.52
12	.18	.47	1.1	.65	.79	13	3.0	20	1.9	113	12	.51
13	.17	.25	1.1	.65	.79	11	4.1	1010	1.2	23	11	.42
14	.10	.25	1.1	.65	.79	8.8	4.9	108	.80	24	10	.33
15	.10	.25	1.1	.52	.79	7.2	4.9	64	.79	22	9.9	.33
16	.10	.25	.95	.52	.79	6.2	4.9	34	.79	14400	9.3	.27
17	.10	.25	.98	.52	.95	5.3	28	24	.65	1920	9.3	.35
18	.10	.25	.52	.52	1.1	3.7	673	16	8260	2030	8.8	92
19	.10	.25	.42	.52	1.8	2.6	2140	12	3400	495	8.2	61
20	.10	.34	.32	.65	1.8	2.0	2140	14	159	128	9.3	19
21	.10	.42	.42	.65	1.8	1.8	94	13	60	82	9.3	57
22	.10	.42	.42	.52	1.5	1.5	33	13	37	163	8.8	21
23	.13	.42	.51	.52	1.1	1.5	24	13	46	87	8.2	8.9
24	.18	.42	1.8	.65	.95	1.8	125	10	25	53	7.7	4.7
25	.18	.38	11	.95	.65	2.6	48	9.3	2570	44	7.2	2.9
26	.18	.30	6.7	2.3	.52	1.5	23	11	86	112	5.8	28
27	.18	.25	3.8	1.2	.42	1.5	18	12	31	43	4.9	40
28	.18	.25	3.7	.79	.42	4.1	17	9.9	19	33	4.1	14
29	.18	.34	3.7	.79	.33	62	16	8.4	12	28	3.7	6.9
30	.18	.52	3.2	.65	---	24	16	7.7	8.2	26	3.7	4.0
31	.18	---	2.3	.65	---	9.9	---	15	---	23	9.3	---
TOTAL	4.44	20.63	54.59	25.93	23.55	1498.85	5474.3	3609.1	15357.13	27035.8	343.5	408.67
MEAN	.14	.69	1.76	.84	.81	48.4	182	116	512	872	11.1	13.6
MAX	.18	3.3	11	2.3	1.8	1080	2140	1920	8260	14400	22	92
MIN	.10	.18	.32	.33	.33	.25	2.0	7.7	.65	8.8	3.7	.27
CFSM	0	.002	.006	.003	.002	.18	.66	.42	1.86	3.16	.04	.05
IN.	.0006	.003	.007	.003	.003	.20	.74	.49	2.07	3.64	.05	.06
AC-FT	8.8	41	108	51	47	2970	10860	7160	30460	53630	681	811
CAL YR 1975 TOTAL	90772.61			MEAN 249		MAX 14800	MIN .03	CFSM .90		IN 12.23	AC-FT 180000	
WTR YR 1976 TOTAL	53856.49			MEAN 147		MAX 14400	MIN .10	CFSM .53		IN 7.26	AC-FT 106800	

PEAK DISCHARGE (BASE, 20,000 FT<sup>3</sup>/S).--June 18 (1400) 29,700 ft<sup>3</sup>/s (25.88 ft); July 16 (1800) 44,100 ft<sup>3</sup>/s (30.80 ft).

07343000 North Sulphur River near Cooper, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
OCT 13...	1520	.20	1970	7.5	22.0	440	380	140	23	250
DEC 31...	0900	1.4	2040	8.0	4.0	560	430	180	27	240
JAN 31...	0950	.42	2190	8.0	9.0	630	480	200	32	270
FEB 29...	1400	.20	2100	7.7	19.0	560	470	170	32	280
MAR 30...	0925	26	654	7.5	14.5	200	85	65	8.2	48
APR 21...	0950	84	380	8.0	20.0	140	40	50	4.2	20
MAY 31...	1045	6.6	918	8.0	25.0	260	110	88	10	100
JUN 15...	0920	.83	806	8.1	28.5	210	120	68	9.3	75
JUL 27...	0940	43	434	7.5	28.5	150	23	54	3.0	30
AUG 31...	0930	9.9	1450	7.8	27.0	450	350	150	18	150
SEP 30...	1410	4.0	614	7.9	25.0	200	93	67	7.1	43

DATE	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SiO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT 13...	5.2	3.5	80	0	510	270	.4	2.8	1240
DEC 31...	4.4	3.0	158	0	580	220	.3	3.4	1330
JAN 31...	4.7	3.0	190	0	690	270	.5	1.3	1560
FEB 29...	5.2	3.6	106	0	700	250	.4	1.7	1490
MAR 30...	1.5	3.7	136	0	150	30	.6	5.7	378
APR 21...	.7	2.9	124	0	51	8.0	.7	9.3	207
MAY 31...	2.7	2.8	180	0	200	75	.5	3.4	568
JUN 15...	2.3	3.4	108	0	190	71	.7	4.9	476
JUL 27...	1.1	2.2	151	0	61	19	.6	8.8	253
AUG 31...	3.1	3.4	118	0	430	150	.4	3.6	964
SEP 30...	1.3	3.6	126	0	140	31	.4	3.5	358

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED SOLIDS (MG/L)	DISSOLVED SOLIDS (TONS)	DISSOLVED CHLORIDE (MG/L)	DISSOLVED CHLORIDE (TONS)	DISSOLVED SULFATE (MG/L)	DISSOLVED SULFATE (TONS)	HARDNESS (CA+MG) (MG/L)
OCT. 1975.....	4.44	1990	1380	16	250	2.6	620	7.7	570
NOV. 1975.....	20.63	2090	1450	80	260	14	660	37	590
DEC. 1975.....	54.59	2040	1410	208	250	37	640	94	580
JAN. 1976.....	25.93	2080	1440	101	260	18	650	46	590
FEB. 1976.....	23.22	2110	1460	91	260	17	670	42	600
MAR. 1976.....	1498.85	555	330	1320	28	113	110	439	190
APR. 1976.....	5474.3	391	230	3400	16	235	63	930	150
MAY 1976.....	3609.1	414	240	2350	18	172	69	677	150
JUNE 1976.....	15357.12	316	180	7520	10	414	42	1740	130
JULY 1976.....	27035.79	290	170	12600	8	609	37	2700	120
AUG. 1976.....	343.5	1190	770	714	120	110	320	293	360
SEPT 1976.....	408.67	702	430	473	52	57	160	176	230
TOTAL .....	53856.13	**	**	28900	**	1800	**	7180	**
WTD.AVG. ....	147.55	336	200	**	12	**	49	**	130

## RED RIVER BASIN

07343000 North Sulphur River near Cooper, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C) \* WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1860	2110	2160	2020	2200	2180	694	698	868	300	831	1480
2	1860	2070	2120	2060	2180	2190	725	729	852	330	883	1170
3	1860	1900	2120	2060	2220	2170	766	769	836	385	934	1000
4	1860	1870	2120	2000	2210	2220	822	788	907	410	958	905
5	1890	2030	2130	2060	2200	2190	881	826	933	484	983	836
6	1890	2140	2130	2010	2160	2190	970	400	433	523	1040	818
7	1890	2200	2150	2050	2160	2000	960	359	334	608	1090	830
8	1900	2200	2160	2040	2150	532	957	467	444	643	1130	854
9	1920	2250	2220	2010	2150	458	987	535	519	682	1130	867
10	1960	2260	2240	1980	2120	559	1000	581	554	287	1160	888
11	1920	2250	2250	2020	2080	662	1040	604	590	354	1190	895
12	1960	2250	2250	2040	2100	739	1030	599	637	343	1220	920
13	1970	2260	2250	2040	2120	801	1040	354	719	459	1240	958
14	1960	2260	2250	2040	2100	843	1080	391	690	500	1260	1000
15	1980	2210	2200	2040	2120	897	1100	431	769	529	1300	1050
16	2020	2210	2230	2040	2100	942	1070	514	875	269	1280	1040
17	2030	2210	2230	2040	2080	970	987	552	875	302	1310	1100
18	2040	2210	2200	2060	2100	991	417	544	315	250	1340	450
19	2040	2210	2230	2090	2080	991	311	596	263	361	1360	397
20	2040	2200	2200	2100	2080	1040	404	622	350	467	1400	432
21	2040	2200	2200	2080	2080	1060	384	656	457	533	1420	983
22	2040	2140	2200	2100	2080	1040	515	693	502	355	1460	1260
23	2040	2140	2200	2160	2080	1040	587	732	421	465	1480	833
24	2050	2140	2180	2120	2080	1030	619	732	544	498	1480	816
25	2060	2140	1900	2100	2100	1120	552	794	345	608	1520	816
26	2070	2140	1970	2080	2100	1110	609	820	380	357	1520	842
27	2080	2140	1920	2160	2100	1120	656	826	511	417	1540	535
28	2090	2140	1970	2160	2120	1130	676	838	574	559	1540	550
29	2100	2140	1950	2210	2140	689	686	848	640	665	1540	561
30	2110	2150	1950	2190	---	654	712	882	702	711	1570	612
31	2110	---	2030	2220	---	658	---	918	---	768	1450	---
MONTH	1990	2160	2140	2080	2120	1170	775	648	595	465	1280	857

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.0	15.0	5.0	8.0	12.0	21.0	20.0	15.0	24.0	29.0	30.0	28.0
2	15.0	19.0	5.0	7.0	10.0	22.0	20.0	19.0	29.0	28.0	26.0	28.0
3	21.0	---	10.0	2.0	6.0	21.0	15.0	22.0	26.0	25.0	25.0	25.0
4	20.0	19.0	13.0	6.0	16.0	19.0	18.0	25.0	28.0	25.0	24.0	24.0
5	19.0	17.0	18.0	5.0	10.0	12.0	18.0	20.0	24.0	26.0	25.0	32.0
6	24.0	19.0	11.0	4.0	7.0	9.0	21.0	17.0	24.0	24.0	25.0	25.0
7	19.0	22.0	13.0	0.0	2.0	12.0	18.0	17.0	25.0	30.0	28.0	24.0
8	22.0	20.0	11.0	---	13.0	8.0	17.0	21.0	25.0	31.0	30.0	30.0
9	24.0	18.0	12.0	---	16.0	8.0	20.0	28.0	28.0	30.0	25.0	25.0
10	28.0	20.0	16.0	3.0	19.0	9.0	15.0	25.0	30.0	27.0	25.0	21.0
11	21.0	19.0	16.0	14.0	14.0	15.0	18.0	25.0	23.0	24.0	28.0	24.0
12	20.0	14.0	15.0	9.0	8.0	20.0	26.0	27.0	23.0	24.0	28.0	20.0
13	22.0	11.0	15.0	14.0	14.0	9.0	24.0	24.0	29.0	29.0	32.0	25.0
14	22.0	7.0	15.0	8.0	15.0	10.0	23.0	20.0	23.0	31.0	32.0	30.0
15	25.0	9.0	10.0	5.0	16.0	12.0	20.0	16.0	29.0	30.0	28.0	31.0
16	20.0	---	11.0	6.0	21.0	13.0	20.0	24.0	33.0	24.0	27.0	29.0
17	16.0	15.0	8.0	3.0	18.0	18.0	19.0	24.0	29.0	24.0	30.0	26.0
18	14.0	14.0	2.0	5.0	16.0	16.0	18.0	27.0	22.0	25.0	30.0	25.0
19	18.0	16.0	2.0	9.0	20.0	19.0	17.0	27.0	21.0	15.0	29.0	23.0
20	15.0	9.0	3.0	9.0	15.0	19.0	17.0	28.0	27.0	31.0	30.0	22.0
21	20.0	10.0	6.0	5.0	8.0	11.0	20.0	28.0	29.0	32.0	25.0	23.0
22	19.0	5.0	5.0	4.0	13.0	18.0	25.0	28.0	25.0	30.0	25.0	30.0
23	19.0	5.0	6.0	9.0	13.0	19.0	23.0	27.0	10.0	32.0	31.0	28.0
24	20.0	9.0	5.0	12.0	13.0	17.0	19.0	30.0	29.0	28.0	29.0	28.0
25	20.0	5.0	---	14.0	15.0	22.0	20.0	20.0	27.0	35.0	25.0	23.0
26	16.0	6.0	6.0	8.0	18.0	18.0	21.0	24.0	24.0	33.0	35.0	24.0
27	19.0	0.0	5.0	6.0	18.0	5.0	23.0	21.0	30.0	30.0	27.0	25.0
28	20.0	9.0	7.0	10.0	14.0	15.0	17.0	25.0	28.0	30.0	27.0	---
29	21.0	17.0	6.0	8.0	19.0	21.0	16.0	20.0	33.0	33.0	27.0	25.0
30	16.0	12.0	5.0	9.0	---	14.0	13.0	25.0	29.0	30.0	25.0	25.0
31	15.0	---	4.0	9.0	---	10.0	---	25.0	---	30.0	27.0	---
MONTH	19.5	13.0	9.0	7.5	14.0	15.0	19.5	23.5	26.0	28.0	27.5	26.0



07343200 Sulphur River near Talco, Tex.

LOCATION.--Lat 33°23'11", long 95°07'57", Red River-Titus County line, on right bank at downstream side of pier of bridge on U.S. Highway 271, 2.2 miles (3.5 km) northwest of Talco, 3.2 miles (5.1 km) downstream from Mustang Creek, and at mile 162 (261 km).

DRAINAGE AREA.--1,365 mi<sup>2</sup> (3,535 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: October 1956 to current year.

Water quality: Chemical analyses: October 1966 to current year. Chemical and biochemical analyses: October 1967 to current year. Pesticide analyses: January 1969 to current year. Water temperatures: October 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 290.82 ft (88.642 m) above mean sea level.

AVERAGE DISCHARGE.--20 years, 1,484 ft<sup>3</sup>/s (42.03 m<sup>3</sup>/s), 14.76 in/yr (375 mm/yr), 1,075,000 acre-ft/yr (1.33 km<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 30,500 ft<sup>3</sup>/s (864 m<sup>3</sup>/s) July 3 (gage height, 24.86 ft or 7.577 m); minimum, 0.14 ft<sup>3</sup>/s (0.004 m<sup>3</sup>/s) Oct. 30.

Period of record: Maximum discharge, 77,000 ft<sup>3</sup>/s (2,180 m<sup>3</sup>/s) Dec. 11, 1971 (gage height, 29.40 ft or 8.961 m, from floodmark); no flow at times in 1957, 1964-65, 1970.

Historic: Floods in 1908 and 1914 each reached a stage of 27.5 ft (8.38 m), and flood in 1945 reached a stage of 26.5 ft (8.08 m), from information by local residents.

Water quality: Current year: Maximum daily specific conductance, 1,800 micromhos Feb. 17; minimum daily, 118 micromhos May 12.

Maximum water temperatures, 30.5°C Aug. 17; minimum, 2.0°C Jan. 8, 9.

Period of record: Maximum daily specific conductance, 1,800 micromhos Feb. 17, 1976; minimum daily, 100 micromhos Sept. 11, 1974.

Maximum water temperatures, 38.0°C Aug. 15, 1975; minimum, freezing point Jan. 7, 8, 10, 12, 13, 1970.

REMARKS.--Discharge records good. A total of 862 acre-ft (1.06 hm<sup>3</sup>) was diverted from channel upstream from station during the 1976 water year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	3.3	.31	4.6	13	5.1	1.1	150	225	31	1400	39	466		
2	3.6	.43	5.2	11	4.9	.90	91	139	34	17000	29	360		
3	3.0	.83	5.9	8.9	4.6	.97	57	83	32	24800	22	178		
4	2.7	.84	5.9	6.4	4.2	.95	42	55	26	13300	18	184		
5	2.6	2.5	5.9	4.4	3.8	1.2	33	42	19	7200	15	217		
6	2.7	2.1	6.2	3.5	3.5	1.0	33	2900	19	3380	14	156		
7	2.9	5.6	6.7	3.2	3.3	5.8	39	13200	272	1260	13	106		
8	2.4	6.0	9.1	2.8	3.3	1310	29	11500	338	655	13	83		
9	1.5	4.5	8.2	2.6	3.5	3830	21	9500	87	266	13	62		
10	.66	4.4	8.5	2.3	4.3	1900	15	6110	56	428	14	46		
11	.54	4.6	8.6	2.0	4.4	745	11	1410	32	596	13	35		
12	.39	3.4	8.6	1.6	4.4	235	8.7	340	21	283	13	28		
13	.54	2.7	8.2	1.5	4.9	115	7.9	771	14	250	13	22		
14	.54	1.9	7.8	1.7	5.5	76	18	1520	8.4	120	13	17		
15	.44	4.2	7.3	1.7	5.2	59	37	1200	5.8	90	14	14		
16	.37	4.6	7.2	1.5	4.2	50	25	1020	4.0	846	14	12		
17	.61	4.3	7.5	1.3	5.3	46	19	511	4.0	11600	15	9.6		
18	.65	3.5	7.2	1.3	5.7	38	96	215	230	15600	15	9.9		
19	.87	3.2	7.2	1.3	4.3	32	4020	122	7530	9550	15	45		
20	.94	4.0	7.5	2.1	2.7	28	14600	78	12200	6650	15	147		
21	.85	3.6	7.1	2.2	2.4	24	17300	55	5480	2300	14	152		
22	.64	3.6	6.7	2.3	1.9	21	15300	44	1310	621	14	171		
23	.61	3.6	6.0	3.8	1.8	17	12300	36	237	329	12	308		
24	.39	3.6	6.1	4.0	3.9	17	5730	30	351	211	15	160		
25	.26	4.4	8.3	3.8	4.3	20	1490	24	1510	121	16	70		
26	.31	4.9	12	11	2.9	21	882	22	2550	81	16	44		
27	.30	4.9	22	12	2.0	22	460	20	1430	110	17	109		
28	.26	4.1	20	7.2	1.5	30	211	19	2710	58	18	625		
29	.17	4.1	17	4.9	1.3	59	143	17	1430	38	18	275		
30	.17	4.4	19	4.4	---	206	139	16	248	31	16	103		
31	.33	---	16	4.5	---	156	---	19	---	31	18	---		
TOTAL	35.54	105.11	283.5	134.2	109.1	9068.92	73307.6	51243	38219.2	119205	504	4214.5		
MEAN	1.15	3.50	9.15	4.33	3.76	293	2444	1653	1274	3845	16.3	140		
MAX	3.6	6.0	22	13	5.7	3830	17300	13200	12200	24800	39	625		
MIN	.17	.31	4.6	1.3	1.3	.90	7.9	16	4.0	31	12	9.6		
CFSM	0	.002	.006	.003	.002	.21	1.79	1.21	.93	2.82	.01	.10		
IN.	.0010	.003	.008	.004	.003	.25	2.00	1.40	1.04	3.25	.01	.11		
AC-FT	70	208	562	266	216	17990	145400	101600	75810	236400	1000	8360		
CAL YR 1975	TOTAL	463383.35	MEAN	1270	MAX	37100	MIN	.17	CFSM	.93	IN	12.63	AC-FT	919100
WTR YR 1976	TOTAL	296429.67	MEAN	810	MAX	24800	MIN	.17	CFSM	.59	IN	8.08	AC-FT	588000

PEAK DISCHARGE (BASE, 15,000 FT<sup>3</sup>/S)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
4-21	0630	25.65	17,900	7- 3	0330	24.86	30,500
5- 7	1130	23.28	15,000	7-17	2300	23.95	20,600
6-20	0200	23.31	15,300				



## RED RIVER BASIN

07343200 Sulphur River near Talco, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	BIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	HARD- NESS (CA+MG) (MG/L)
OCT. 21...	1335	.92	1040	7.2	16.5	20	6	4.1	42	1.5	350
NOV. 24...	--	3.8	1140	8.0	7.0	--	--	--	--	--	350
DEC. 02...	1200	1.0	1330	7.3	7.0	30	9	9.0	74	1.4	390
JAN. 08...	1230	2.8	1560	7.8	2.0	--	--	--	--	--	430
FEB. 03...	1350	4.4	1580	7.0	10.0	20	10	8.0	71	1.2	470
MAR. 13...	0915	170	319	7.9	11.0	--	--	--	--	--	110
APR. 27...	1320	445	252	6.9	20.0	120	150	6.6	72	3.4	92
MAY 13...	1430	610	308	7.6	23.0	--	--	--	--	--	120
JUNE 07...	1830	595	890	6.9	26.5	20	150	6.9	84	2.2	260
JULY 29...	1645	2.9	540	7.1	31.5	10	20	5.7	77	1.7	200
AUG. 03...	1930	17	621	8.3	28.0	--	--	--	--	--	220
SEP. 01...	1700	705	304	7.3	27.0	--	--	--	--	--	100
21...	1500	88	565	7.3	23.5	10	50	6.4	77	1.8	160

DATE	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HC03) (MG/L)	CAR- BONATE (C03) (MG/L)	DIS- SOLVED SULFATE (S04) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)
OCT. 21...	45	120	11	85	2.0	3.8	366	0	130	63	--
NOV. 24...	96	120	12	120	2.8	4.4	308	0	190	92	.3
DEC. 02...	120	130	15	140	3.1	4.4	323	0	250	110	.5
JAN. 08...	300	140	20	170	3.6	3.7	166	0	380	210	.3
FEB. 03...	220	160	18	160	3.2	3.7	313	0	310	160	.2
MAR. 13...	27	38	3.0	20	.8	3.8	98	0	39	15	.4
APR. 27...	12	32	2.8	12	.5	3.8	97	0	25	6.6	.3
MAY 13...	9	44	2.8	13	.5	3.8	137	0	27	7.9	.4
JUNE 07...	120	90	8.8	75	2.0	4.0	170	0	180	68	.6
JULY 29...	40	71	5.1	33	1.0	4.0	194	0	72	27	.4
AUG. 03...	45	78	6.6	43	1.3	4.3	216	0	94	32	.4
SEP. 01...	19	35	3.6	17	.7	3.3	101	0	42	14	.3
21...	76	56	5.7	43	1.5	3.1	108	0	110	43	.4

## 07343200 Sulphur River near Talco, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED SILICA (SIO <sub>2</sub> ) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITU- ENTS) (MG/L)	TOTAL NON- FILT- RABLE RESIDUE (MG/L)	VOL. NON- FILT- RABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)
OCT. 21...	9.2	692	16	5	.01	.00	.01	.65	.04	12
NOV. 24...	8.3	699	--	--	--	--	--	--	--	--
DEC. 02...	8.3	819	20	0	.00	.00	.07	.66	.06	6.8
JAN. 08...	5.3	1010	--	--	--	--	--	--	--	--
FEB. 03...	5.0	971	14	7	.00	.00	.07	.82	.05	9.0
MAR. 13...	6.3	174	--	--	--	--	--	--	--	--
APR. 27...	10	141	368	58	.45	.03	.10	1.2	.44	12
MAY 13...	9.7	176	--	--	--	--	--	--	--	--
JUNE 07...	4.9	517	750	128	.00	.01	.06	.69	.18	9.0
JULY 29...	11	320	50	3	.00	.00	.02	.48	.09	4.4
AUG. 03...	12	377	--	--	--	--	--	--	--	--
SEP. 01...	5.8	171	--	--	--	--	--	--	--	--
21...	6.2	322	138	26	.35	.02	.04	.64	.08	6.2

DATE	TIME	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)
DEC. 02...	1200	10	1	90	1	1	0	0
APR. 27...	1320	40	8	60	0	0	0	3
JUNE 07...	1830	10	2	670	3	0	0	3
JULY 29...	1645	40	2	--	2	0	0	3
SEP. 21...	1500	40	2	--	0	9	0	0

DATE	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
DEC. 02...	20	2	20	0	.0	0	1400	10
APR. 27...	70	0	0	0	.0	0	300	50
JUNE 07...	20	20	20	10	.2	0	1100	40
JULY 29...	0	0	10	30	.1	0	790	20
SEP. 21...	50	0	20	50	.0	3	670	10

07343200 Sulphur River near Talco, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	TOTAL PCB (UG/L)	PCB IN BOTTOM MA- TERIAL (UG/KG)	POLY- CHLO- RINATED NAPH- THA- LENES (UG/L)	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL CHLOR- DANE (UG/L)	CHLOR- DANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDD (UG/L)	DDD IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDE (UG/L)	DDE IN BOTTOM MA- TERIAL (UG/KG)
DEC. 02...	1200	.0	0	--	.00	.0	.0	0	.00	1.6	.00	3.4
APR. 27...	1320	.0	0	.00	.00	.0	.0	0	.00	.4	.00	2.0
JUNE 07...	1830	.0	0	.00	.00	.0	.0	0	.00	6.9	.00	20
JULY 29...	1645	.0	--	.00	.00	--	.0	--	.00	--	.00	--
SEP. 21...	1500	.0	0	.00	.00	.0	.0	0	.00	9.4	.00	20

DATE	TOTAL DDT (UG/L)	DDT IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DI- AZINON (UG/L)	TOTAL DI- ELDRIN (UG/L)	DI- ELDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ENDRIN (UG/L)	ENDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ETHION (UG/L)	TOTAL HEPTA- CHLOR (UG/L)	HEPTA- CHLOR IN BOTTOM MA- TERIAL (UG/KG)	TOTAL HEPTA- CHLOR EPOXIDE (UG/L)	HEPTA- CHLOR EPOXIDE IN BOT- TOM MA- TERIAL (UG/KG)
DEC. 02...	.00	.5	.00	.00	.7	.00	.0	.00	.00	.0	.00	.0
APR. 27...	.00	1.1	.00	.00	.0	.00	.0	.00	.00	.0	.00	.0
JUNE 07...	.00	6.4	.00	.00	.0	.00	.0	.00	.00	.0	.00	.0
JULY 29...	.00	--	.00	.00	--	.00	--	.00	.00	--	.00	--
SEP. 21...	.00	54	.00	.00	.3	.00	.0	.00	.00	.0	.00	.0

DATE	TOTAL LINDANE (UG/L)	LINDANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL MALA- THION (UG/L)	TOTAL METHYL PARA- THION (UG/L)	TOTAL METHYL TRI- THION (UG/L)	TOTAL PARA- THION (UG/L)	TOTAL TOX- APHENE (UG/L)	TOX- APHENE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)
DEC. 02...	.00	.0	.00	.00	.00	.00	0	0	.00	.00	.00	.00
APR. 27...	.00	.0	.00	.00	.00	.00	0	0	.00	.00	.00	.00
JUNE 07...	.00	.0	--	.00	.00	.00	0	0	.00	.00	.01	.00
JULY 29...	.00	--	.00	.00	.00	.00	0	--	.00	.00	.00	.00
SEP. 21...	.00	.0	.00	.00	.00	.00	0	0	.00	.00	.00	.00

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	35.54	853	510	49	55	5.3	140	14	270
NOV. 1975.....	105.11	1060	640	181	79	22	190	52	310
DEC. 1975.....	283.5	1380	830	632	110	88	250	192	370
JAN. 1976.....	134.2	1520	910	329	130	46	280	101	400
FEB. 1976.....	107.8	1590	960	278	140	40	290	86	410
MAR. 1976.....	9068.92	433	260	6310	20	480	59	1440	120
APR. 1976.....	73307.56	218	130	25100	7	1370	19	3710	53
MAY 1976.....	51243	203	120	16600	6	833	17	2390	48
JUNE 1976.....	38219.19	280	160	16900	8	810	28	2870	73
JULY 1976.....	119205	208	120	39500	6	1990	16	5290	49
AUG. 1976.....	504	791	470	646	49	67	130	179	260
SEPT 1976.....	4214.5	394	230	2660	17	191	51	579	110
TOTAL .....	296428.16	**	**	109000	**	5940	**	16900	**
WTD.AVG. ....	812.13	232	140	**	7.4	**	21	**	57

## RED RIVER BASIN

235

07343200 Sulphur River near Talco, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	833	933	1160	1470	1380	1650	510	328	605	260	643	304
2	809	974	1190	1560	1500	1740	455	312	640	221	628	226
3	776	1030	1330	1560	1580	1740	462	330	599	170	620	312
4	856	1010	1190	1470	1440	1740	600	389	605	156	620	292
5	789	1060	1210	1490	1480	1710	689	390	622	210	665	413
6	798	953	1250	1470	1530	1610	667	274	653	225	673	323
7	859	1030	1180	1540	1600	1670	625	219	650	236	679	326
8	869	900	1250	1560	1460	600	600	157	398	236	700	337
9	837	893	1260	1580	1570	469	590	160	396	288	715	346
10	859	911	1270	1580	1500	275	590	176	393	307	736	352
11	879	1000	1360	1560	1530	222	590	235	420	287	761	360
12	893	1010	1360	1580	1550	303	609	118	442	308	793	366
13	950	1040	1430	1590	1660	320	619	308	485	281	816	382
14	837	1050	1550	1660	1620	333	650	297	619	342	831	399
15	869	1050	1510	1580	1750	362	690	297	717	353	850	413
16	779	1030	1440	1640	1790	381	680	310	851	253	863	430
17	837	1070	1420	1640	1800	400	670	291	862	230	869	443
18	983	1090	1400	1640	1630	415	650	317	400	231	883	451
19	904	1100	1400	1640	1770	443	338	336	257	223	890	454
20	915	1080	1420	1690	1580	467	226	366	260	192	897	1180
21	1000	1090	1440	1620	1550	498	225	374	273	247	897	746
22	942	1100	1490	1560	1500	533	164	396	282	254	900	413
23	915	1100	1510	1540	1530	555	191	411	314	312	911	500
24	942	1140	1440	1540	1560	575	199	431	325	414	897	346
25	983	1160	1390	1620	1590	611	312	452	426	354	897	328
26	1030	1160	1420	1540	1700	599	284	470	318	364	904	355
27	915	1110	1260	1470	1620	611	252	493	352	479	904	386
28	1040	1150	1470	1390	1620	606	323	527	211	495	911	409
29	897	1200	1420	1370	1650	555	338	558	230	540	840	274
30	1050	1240	1410	1410	---	816	356	558	273	546	863	299
31	958	---	1500	1390	---	659	---	587	---	584	897	---
MONTH	897	1060	1370	1550	1590	757	472	351	463	310	805	406

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

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

## RED RIVER BASIN

07343500 White Oak Creek near Talco, Tex.

LOCATION.--Lat 33°19'20", long 95°05'33", Titus County, near center of main channel on downstream side of bridge on U.S. Highway 271, 0.8 mile (1.3 km) downstream from Lewis Creek, 2.4 miles (3.9 km) upstream from Ripley Creek, 2.7 miles (4.3 km) south of Talco, and at mile 38.4 (61.8 km).

DRAINAGE AREA.--494 mi<sup>2</sup> (1,279 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: December 1949 to current year.

Water quality: Chemical analyses: October 1967 to current year. Water temperatures: October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 286.45 ft (87.310 m) above mean sea level.

AVERAGE DISCHARGE.--26 years (1950-76), 456 ft<sup>3</sup>/s (12.91 m<sup>3</sup>/s), 12.54 in/yr (319 mm/yr), 330,400 acre-ft/yr (407 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 16,600 ft<sup>3</sup>/s (470 m<sup>3</sup>/s) Apr. 21 (gage height, 18.35 ft or 5.593 m); no flow at times.

Period of record: Maximum discharge, 48,000 ft<sup>3</sup>/s (1,360 m<sup>3</sup>/s) Dec. 11, 1971 (gage height, 21.20 ft or 6.462 m), from rating curve extended above 23,000 ft<sup>3</sup>/s (651 m<sup>3</sup>/s); no flow at times in 1954, 1956, 1964-65, 1969-73, and 1976.

Historic: Maximum stage since at least 1870, 22.9 ft (6.98 m) Mar. 31, 1945, from floodmarks and from information by local residents.

Water quality: Current year: Maximum daily specific conductance, 613 micromhos Jan. 4; minimum daily, 45 micromhos July 3. Maximum water temperatures, 32.0°C Aug. 10; minimum, 3.0°C Jan. 10.

Period of record: Maximum daily specific conductance, 1,220 micromhos June 15, 1972; minimum daily, 33 micromhos May 16, 1969. Maximum water temperatures, 37.0°C July 18, Aug. 3, 15, 1975; minimum, freezing point on Jan. 8, 1968, Jan. 10, 13, 14, 1970.

REMARKS.--Discharge records good. Several small diversions above station for municipal supply. Records furnished by the cities of Sulphur Springs and Mount Vernon show that during the year, 1,690 acre-ft (2.08 hm<sup>3</sup>) and 190 acre-ft (234,000 m<sup>3</sup>), respectively, were discharged into tributaries above station.

REVISIONS.--WSP 1711: Elevation of historical maximum.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.07	.52	1.1	7.9	1.5	2.7	94	131	61	422	18	13
2	.42	.22	1.2	6.3	2.8	2.2	54	153	130	6760	19	102
3	2.3	.40	1.2	5.1	4.0	1.7	27	108	109	11800	15	261
4	4.0	.43	1.4	4.4	4.3	1.6	15	65	60	5860	10	186
5	4.4	.50	1.6	4.1	4.1	1.6	8.9	45	41	4030	8.0	94
6	5.0	.52	2.0	3.4	4.8	1.2	5.8	827	29	2720	6.5	196
7	4.6	.47	1.7	2.8	4.7	1.1	3.9	3310	52	1460	5.1	151
8	4.0	.41	1.7	2.3	4.4	272	2.8	6340	53	828	3.8	53
9	3.8	.34	1.5	1.9	4.3	1240	2.0	5780	37	567	2.6	24
10	4.0	.28	1.5	1.8	4.9	1640	1.5	3910	25	261	1.7	12
11	3.2	.22	1.4	1.6	5.2	1700	1.4	2550	19	146	1.3	5.6
12	2.1	.17	1.5	1.6	4.2	1490	1.3	1360	15	35	.99	2.7
13	1.3	.11	1.4	1.4	5.5	1040	1.4	342	12	101	.75	1.2
14	1.0	.10	1.5	1.2	7.4	364	1.6	316	9.8	166	.58	.63
15	.78	.08	1.4	.88	7.9	151	1.4	1190	8.0	90	.39	.27
16	.80	.07	1.4	.83	6.5	70	1.2	1590	7.7	289	.25	.06
17	.87	.07	1.5	1.4	6.6	37	1.1	1310	6.7	716	.09	0
18	.83	.07	3.2	1.4	11	21	1.6	574	38	979	.05	0
19	.85	.12	3.4	1.4	11	13	207	204	198	1380	.01	0
20	1.0	.31	3.3	1.6	28	8.6	1730	112	536	1450	.04	.21
21	1.2	.33	3.1	1.6	24	5.6	11200	78	555	1560	.04	.74
22	1.1	.41	3.4	1.5	16	3.8	10800	60	310	1490	.03	.01
23	1.1	.39	3.6	1.4	12	3.0	5740	51	111	1190	.03	0
24	.86	.44	4.4	1.8	8.2	2.1	3690	45	50	396	.23	.03
25	.71	.42	6.7	1.8	7.9	2.1	2410	45	39	116	.79	9.3
26	.59	.45	6.9	1.5	6.4	2.8	1510	46	54	308	.84	8.2
27	.55	.41	6.5	1.4	4.7	4.0	827	45	138	164	.72	4.6
28	.58	.45	17	1.6	4.0	19	343	45	725	47	2.4	1.5
29	.66	.50	19	1.6	3.4	139	159	42	1570	35	4.3	.73
30	.68	.98	15	1.4	---	174	120	37	978	27	4.7	.70
31	.68	---	10	1.4	---	106	---	38	---	22	6.5	---
TOTAL	54.03	10.19	130.5	70.31	219.7	8520.1	38961.9	30749	5977.2	45415	114.73	1128.48
MEAN	1.74	.34	4.21	2.27	7.58	275	1299	992	199	1465	3.70	37.6
MAX	5.0	.98	19	7.9	28	1700	11200	6340	1570	11800	19	261
MIN	.07	.07	1.1	.83	1.5	1.1	1.1	37	6.7	22	.01	0
CFSM	.003	0	.008	.004	.02	.56	2.63	2.01	.40	2.97	.007	.08
IN.	.004	.0008	.010	.005	.02	.64	2.93	2.32	.45	3.42	.009	.08
AC-FT	107	20	259	139	436	16900	77280	60990	11860	90080	228	2240

CAL YR 1975 TOTAL 215743.50 MEAN 591 MAX 20400 MIN .04 CFSM 1.20 IN 16.25 AC-FT 427900  
WTR YR 1976 TOTAL 131351.14 MEAN 359 MAX 11800 MIN 0 CFSM .73 IN 9.89 AC-FT 260500

PEAK DISCHARGE (BASE, 9,000 FT<sup>3</sup>/S).--Apr. 21 (1700) 16,600 ft<sup>3</sup>/s (18.35 ft); July 2 (2300) 16,200 ft<sup>3</sup>/s (18.31 ft).

## RED RIVER BASIN

237

07343500 White Oak Creek near Talco, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG)	DIS-SOLVED SODIUM (NA) (MG/L)
OCT. 15...	1105	.79	144	7.3	20.5	48	5	11	4.9	9.6
NOV. 01...	0845	.68	168	8.3	17.0	53	0	13	5.1	12
DEC. 01...	0720	1.1	204	7.9	9.0	59	3	14	5.9	16
JAN. 08...	1030	2.5	596	7.7	3.5	110	0	24	12	73
FEB. 19...	1100	7.9	740	7.8	15.0	100	30	24	10	100
MAR. 11...	1430	1650	112	6.7	12.0	24	11	5.9	2.3	8.8
APR. 21...	1235	15400	83	7.2	18.0	21	4	5.5	1.8	5.3
MAY 13...	1210	365	155	6.7	21.0	38	10	9.2	3.7	11
JUNE 16...	1605	8.0	370	7.1	30.0	82	34	19	8.5	34
JULY 04...	0820	6000	50	7.2	24.0	14	0	3.6	1.1	9.0
AUG. 01...	0715	20	207	7.6	28.0	58	12	14	5.6	15
SEP. 01...	1415	12	290	7.2	27.0	79	11	18	8.3	24

DATE	SODIUM ADSORPTION RATIO	DIS-SOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT. 15...	.6	3.2	52	0	12	7.3	.2	4.3	78
NOV. 01...	.7	3.5	65	0	14	9.2	.3	5.0	94
DEC. 01...	.9	3.8	68	0	19	13	.2	5.6	111
JAN. 08...	3.0	8.5	148	0	47	78	.6	10	326
FEB. 19...	4.3	7.5	87	0	66	140	.3	5.1	396
MAR. 11...	.8	4.8	16	0	18	11	.3	5.9	65
APR. 21...	.5	4.3	21	0	12	6.1	.3	6.3	52
MAY 13...	.8	4.2	34	0	20	13	.3	9.2	87
JUNE 16...	1.6	5.4	59	0	56	39	.3	12	203
JULY 04...	1.1	2.7	16	0	7.9	9.0	.2	4.2	46
AUG. 01...	.9	4.4	56	0	24	15	.3	8.3	114
SEP. 01...	1.2	4.4	83	0	30	24	.3	7.9	158

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	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. 1975.....	54.03	148	83	12	15	2.4	17	2.5	37
NOV. 1975.....	10.19	184	100	2.5	19	0.5	21	0.6	45
DEC. 1975.....	130.5	330	180	63	37	13	36	13	78
JAN. 1976.....	70.31	556	300	57	65	12	60	11	130
FEB. 1976.....	216.3	460	250	146	53	31	50	29	110
MAR. 1976.....	8520.08	123	70	1620	12	280	15	338	31
APR. 1976.....	38961.89	92	55	5740	8	861	12	1250	26
MAY 1976.....	30749	107	63	5190	10	847	13	1110	27
JUNE 1976.....	5977.2	142	81	1310	14	233	17	276	35
JULY 1976.....	45415	70	42	5120	6	686	9	1120	20
AUG. 1976.....	114.73	236	130	40	26	7.8	26	8.2	57
SEPT 1976.....	1128.48	152	85	260	15	47	18	54	38
TOTAL .....	131347.56	**	**	19600	**	3020	**	4210	**
WTD.AVG. ....	359.86	94	55	**	8.5	**	12	**	27



## RED RIVER BASIN

07343500 White Oak Creek near Talco, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	140	169	200	521	472	426	426	194	345	120	206	294
2	145	168	205	540	458	433	305	234	354	52	223	312
3	145	168	202	579	462	440	275	202	276	45	225	115
4	145	170	204	613	465	443	251	213	254	52	225	122
5	146	171	209	603	472	443	262	231	238	64	225	158
6	148	171	205	596	475	445	269	119	243	70	228	149
7	146	175	206	587	478	445	281	99	260	94	228	107
8	143	173	211	587	487	420	293	78	371	88	233	140
9	146	176	208	590	499	79	312	81	361	102	239	152
10	143	179	211	572	505	117	318	82	299	125	239	161
11	143	178	218	590	502	111	335	95	302	130	242	162
12	143	182	216	590	493	109	345	160	307	157	243	166
13	142	181	217	576	490	119	345	157	318	173	243	172
14	144	180	218	576	491	138	348	174	367	173	245	172
15	146	184	223	572	475	161	356	150	378	205	248	176
16	147	185	223	567	478	188	360	138	371	395	250	179
17	149	188	227	567	462	209	368	138	367	120	256	---
18	156	185	225	563	483	228	375	177	351	102	257	---
19	155	188	227	555	500	257	360	203	200	92	261	---
20	155	187	243	543	448	292	130	226	114	88	261	187
21	156	190	239	543	465	303	82	236	153	88	265	205
22	156	192	304	544	429	313	73	249	133	90	264	260
23	157	192	310	544	435	321	83	262	147	102	268	---
24	157	194	318	531	407	325	91	272	198	122	268	448
25	164	194	259	514	440	335	102	282	211	153	271	383
26	162	198	284	521	420	353	142	288	220	158	275	280
27	161	193	297	525	402	401	147	276	178	98	277	285
28	162	198	373	514	406	367	164	297	130	153	285	280
29	162	198	315	479	420	310	176	301	87	182	296	268
30	164	198	498	460	---	267	183	301	100	192	302	255
31	168	---	579	442	---	342	---	306	---	196	301	---
MONTH	151	184	260	552	463	285	252	201	255	128	253	215

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	17.0	9.0	6.5	6.5	15.0	14.0	17.0	22.0	25.0	28.0	24.5
2	19.5	17.0	10.5	8.0	8.5	19.5	18.0	17.5	24.5	21.0	29.0	23.5
3	17.0	18.5	10.0	5.0	8.5	19.5	16.5	17.0	25.0	22.0	28.0	23.0
4	13.0	18.0	10.0	4.5	9.5	19.5	17.0	19.5	26.0	24.0	28.0	24.5
5	15.0	18.5	13.0	4.5	10.0	15.5	18.0	19.5	23.0	24.0	29.5	24.5
6	17.0	20.5	11.5	5.0	8.0	16.5	20.0	18.0	23.5	23.0	28.5	24.0
7	17.0	18.0	11.0	4.5	6.5	14.5	18.5	17.5	25.0	23.0	27.0	24.0
8	18.0	17.0	11.5	4.0	8.5	10.0	23.0	16.5	25.0	23.5	31.5	26.0
9	18.0	18.0	11.0	3.5	8.5	9.0	20.5	18.0	25.5	23.5	30.0	26.0
10	19.0	18.0	11.0	3.0	12.0	10.0	16.5	20.0	26.0	24.0	32.0	25.0
11	19.0	18.0	12.0	6.0	8.0	12.0	18.0	21.5	26.0	24.0	29.0	22.0
12	20.0	16.0	13.5	6.5	13.0	13.5	24.0	21.0	24.0	25.0	29.5	21.5
13	19.0	14.0	13.0	8.5	---	12.0	20.0	21.5	24.0	24.5	29.5	22.0
14	22.0	15.5	14.0	9.5	14.0	11.5	21.5	19.5	27.0	26.0	26.5	24.5
15	20.0	13.0	11.0	6.0	15.0	12.0	23.0	18.5	27.0	27.0	29.0	23.0
16	20.0	13.0	11.5	6.5	18.0	12.0	20.5	20.0	28.0	24.5	29.5	22.0
17	18.0	14.0	9.5	6.0	16.0	13.5	21.0	18.0	26.0	24.0	30.5	---
18	16.0	17.0	8.0	6.0	16.0	13.0	19.0	19.0	26.5	24.5	29.5	---
19	18.5	16.0	7.0	7.0	15.5	15.5	18.0	19.5	23.5	24.0	30.0	---
20	16.5	13.5	6.0	8.0	15.5	18.5	19.0	20.5	22.0	25.0	29.0	23.0
21	17.0	12.0	6.0	8.0	14.0	18.0	18.0	19.5	22.0	27.0	26.0	23.5
22	17.0	9.0	6.0	7.0	12.0	19.0	19.5	20.0	24.0	22.0	25.0	---
23	18.5	8.0	7.0	8.5	13.5	19.0	20.0	21.0	23.0	25.0	28.0	---
24	20.0	12.0	6.5	9.0	13.5	17.0	19.5	25.5	26.0	25.0	27.0	---
25	17.0	9.0	6.0	11.5	13.0	19.0	19.5	22.0	25.5	28.0	27.0	---
26	15.5	8.0	5.0	8.0	14.0	19.5	18.0	23.0	24.0	26.5	29.0	---
27	18.0	8.5	4.5	6.5	14.0	16.0	19.5	20.0	24.5	26.5	28.0	---
28	19.0	9.0	6.0	8.0	14.0	16.0	18.0	20.5	24.0	27.0	26.5	---
29	19.0	14.0	7.0	8.5	15.5	18.0	16.5	20.0	24.5	28.5	28.5	---
30	18.5	11.0	6.5	9.0	---	15.5	17.0	21.5	25.0	27.0	27.0	---
31	17.0	---	5.5	8.0	---	16.0	---	24.5	---	29.5	24.5	---
MONTH	18.0	14.5	9.0	7.0	12.0	15.5	19.0	20.0	24.5	25.0	28.5	---

07343850 White Oak Creek near Omaha, Tex.  
(Low-flow partial-record station)

LOCATION.--Lat 33°16'30", long 94°44'30", Morris County, at bridge on U.S. Highway 259, 6.2 miles (10.0 km) north of Omaha, and at mile 10.5 (16.9 km).

DRAINAGE AREA.--773 mi<sup>2</sup> (2,002 km<sup>2</sup>).

PERIOD OF RECORD.--Occasional discharge measurements and water-quality data: February 1965 to August 1967, October 1968 to current year.

DISCHARGE AND WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
OCT. 14...	1400	.89	--	--	21.5	--	--	--	--	--
NOV. 23...	1135	10	381	8.1	7.0	88	19	21	8.7	36
JAN. 07...	1515	17	871	7.1	6.0	110	71	26	11	120
FEB. 19...	0815	125	344	7.1	13.5	73	48	17	7.3	34
MAR. 31...	1150	530	321	6.4	16.0	60	44	14	6.1	31
MAY 12...	1555	3800	88	6.7	22.5	20	3	5.2	1.8	6.6
JUNE 16...	1300	35	337	6.9	23.0	68	24	16	6.8	34
JULY 28...	1240	800	154	6.4	28.0	40	5	10	3.6	12
SEP. 01...	1130	18	334	7.1	24.0	77	18	18	7.9	30

DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITU- ENTS) (MG/L)
OCT. 14...	--	--	--	--	--	--	--	--	--
NOV. 23...	1.7	6.0	84	0	37	44	.3	6.1	201
JAN. 07...	5.0	6.5	48	0	78	180	.3	10	455
FEB. 19...	1.7	5.5	30	0	39	56	.2	10	184
MAR. 31...	1.7	4.2	20	0	51	46	.3	9.1	172
MAY 12...	.6	3.3	21	0	10	7.4	.2	6.5	51
JUNE 16...	1.8	4.6	54	0	40	44	.3	10	182
JULY 28...	.8	4.1	43	0	13	13	.3	9.9	87
SEP. 01...	1.5	5.0	72	0	36	38	.3	6.2	177

## 07344200 Wright Patman Lake near Texarkana, Tex.

LOCATION.--Lat 33°18'16", long 94°09'38", Bowie-Cass County line, in intake structure of Texarkana Dam on the Sulphur River, 0.5 mile (0.8 km) upstream from U.S. Highway 59, 10 miles (16 km) southwest of Texarkana, and at mile 44.5 (71.6 km).

DRAINAGE AREA.--3,443 mi<sup>2</sup> (8,917 km<sup>2</sup>).

PERIOD OF RECORD.--Contents: July 1953 to current year. Published as Texarkana Reservoir prior to October 1970 and as Lake Texarkana from October 1970 to September 1972.

Water quality: Chemical analyses: March 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers). July 19 to Dec. 31, 1953, nonrecording gage at site about 125 ft (38 m) upstream at datum 200 ft (61.0 m) higher.

EXTREMES.--Current year: Maximum contents, 546,680 acre-ft (674 hm<sup>3</sup>) May 21 (elevation, 232.65 ft or 70.912 m); minimum, 152,400 acre-ft (188 hm<sup>3</sup>) Dec. 17 (elevation, 220.34 ft or 67.160 m).

Period of record: Maximum contents, 1,912,100 acre-ft (2.36 km<sup>3</sup>) May 9, 1966 (elevation, 252.64 ft or 77.005 m); minimum since first appreciable storage and after deliberate impoundment began, 137,500 acre-ft (170 hm<sup>3</sup>) Sept. 5, 1958.

REMARKS.--The lake is formed by a rolled earthfill dam 18,500 ft (5,640 m) long, including a 200-foot (61-meter) uncontrolled spillway and a 1-mile (1.6-kilometer) long dike. Temporary impoundment of water began July 2, 1953, and deliberate impoundment began June 27, 1956. The dam was completed in December 1957. The flood-control outlet works consist of two 20.0-foot-diameter (6.1-meter) conduits controlled by four 10.0- by 20.0-foot (3.0- by 6.1-meter) electrically driven broome-type gates. Flow discharging over the spillway passes into an outlet channel and then to the Sulphur River. The lake was built for flood control and conservation. The capacity table is based on a 1948 survey. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	286.0	-
Crest of spillway.....	259.5	2,654,300
Top of conservation pool.....	220.0	145,300
Lowest gated outlets (invert).....	200.0	2,600

COOPERATION.--Records furnished by the Corps of Engineers and reviewed by the Geological Survey.

REVISIONS (WATER YEARS).--WSP 1561: 1957(M). WSP 1711: 1959(M).

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

220.0	145,300	228.0	364,100
222.0	189,300	230.0	437,300
224.0	240,200	232.0	518,400
226.0	298,500	234.0	607,900

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 0700

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	266130	168700	156190	159570	162130	164060	187890	350480	492960	455740	435330	294210
2	264130	166230	155980	160850	161490	164060	189540	365160	489230	460080	423970	293000
3	264130	168030	155760	161270	161490	163200	189540	374690	485100	463650	417970	293300
4	263560	164270	155550	159780	161700	162770	189300	380710	481380	468820	409750	293000
5	262700	161910	155550	159360	161700	162550	186720	382130	475230	473220	401190	292390
6	261280	161060	156610	158930	162980	159780	187890	382840	469620	477670	392470	290880
7	259010	159780	154920	160850	162770	160000	187650	382480	465240	481380	387820	290270
8	255340	159150	155340	158300	162770	163410	187650	388180	460880	490060	374330	289370
9	248590	158720	155550	157450	162550	185330	186260	395710	456130	510020	366210	289370
10	244950	157660	154920	157030	162550	195850	188120	406020	449820	531010	357930	286960
11	245790	157450	154710	157450	162340	204650	188590	413110	445890	535350	350140	286960
12	237230	157450	154710	157240	162340	211580	187190	423220	437640	536220	342400	286060
13	231910	157030	154500	158300	162770	210330	187190	436860	425850	532740	333690	284260
14	227690	154290	154500	157660	163200	209970	187650	456920	404160	523210	325160	285460
15	225070	155130	157240	158300	163200	190750	187190	482620	381420	510020	318120	287260
16	223490	154500	154920	158090	162980	189540	187420	501670	376100	493780	312400	286060
17	221660	154290	154290	157240	162340	192450	186720	520610	367270	476440	307960	284860
18	216450	153870	154290	156400	167800	194630	187190	534920	363060	454950	304490	283960
19	212580	153450	155130	156820	167580	196330	186720	541440	384620	440000	303540	285760
20	209830	158930	155130	158090	167580	197070	186720	545810	401930	433420	302910	285460
21	208590	158510	153870	158930	173000	195850	191480	546680	408630	430760	302600	289370
22	205880	156400	153660	159150	170060	192450	193180	545370	402670	429630	301330	288470
23	201460	155760	153450	159360	169150	189540	198530	544060	396070	430760	298810	286660
24	196090	154920	152610	158510	169150	187190	205880	539700	394630	435330	296960	285760
25	193660	154290	155980	160850	167800	184640	215930	534480	403040	440390	296340	285460
26	191240	154710	157240	161490	167580	182340	221400	529270	411240	445890	295430	285160
27	187420	155340	157030	161910	167130	180270	234830	531440	422470	452970	294820	286660
28	182340	154500	157030	162340	166010	175950	261560	527970	434940	456920	294520	283960
29	175950	154500	160420	162340	165140	180270	293300	514210	445490	456530	293910	284860
30	171410	158930	160420	162130	---	181420	326130	498760	452180	451400	292690	283360
31	170510	---	159150	161490	---	183710	---	494200	---	444710	292090	---
(+)	221.18	220.65	220.66	220.77	220.94	221.76	226.87	231.42	230.38	230.19	225.79	225.50
(*)	-96490	-11580	+220	+2340	+3650	+18570	+142420	+168070	-42020	-7470	-152620	-8730
(+†)	2790	2610	2470	2690	2320	2350	2370	2530	2520	2590	2820	2430
MAX	266130	168700	160420	162340	173000	211580	326130	546680	492960	536220	435330	294210
MIN	170510	153450	152610	156400	161490	159780	186260	350480	363060	429630	292090	283360

CAL YR 1975..... \* -222950

WTR YR 1976..... \* +16360

†† 29420

†† 30490

MAX 767300

MAX 546680

MIN 152610

MIN 152610

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal and industrial use.

## RED RIVER BASIN

241

07344200 Wright Patman Lake near Texarkana, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
JUL 29...	0825	176	7.4	30.0	69	3	24	2.1	7.5
DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SI02) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)
JUL 29...	.4	3.2	80	0	9.7	6.5	.3	7.3	100

## RED RIVER BASIN

07344482 Big Cypress Creek near Winnsboro, Tex.

LOCATION.--Lat 33°01'24", long 95°16'12", Franklin County, on left bank at downstream side of bridge on State Highway 37, 0.3 mile (0.5 km) downstream from Glade Branch, 1.8 miles (2.9 km) upstream from Little Cypress Creek, 4.7 miles (7.6 km) north of Winnsboro, and at mile 146.5 (235.7 km).

DRAINAGE AREA.--27.2 mi<sup>2</sup> (70.4 km<sup>2</sup>).

PERIOD OF RECORD.--March 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 375.83 ft (114.553 m) above mean sea level.

EXTREMES.--Current year: Maximum discharge, 4,170 ft<sup>3</sup>/s (118 m<sup>3</sup>/s) May 6 (gage height, 12.34 ft or 3.761 m); minimum, 0.38 ft<sup>3</sup>/s (0.011 m<sup>3</sup>/s) Aug. 22, 23.

Period of record: Maximum discharge, 4,320 ft<sup>3</sup>/s (122 m<sup>3</sup>/s) Nov. 24, 1974 (gage height, 12.39 ft or 3.776 m); no flow Aug. 24, 1974.

REMARKS.--Records good. Flow affected slightly by Lake Franklin located upstream on Glade Branch.

DISCHARGE\* IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.4	16	18	4.1	3.8	5.2	6.5	12	5.7	466	1.6	3.4
2	7.2	18	15	3.8	4.2	5.4	5.6	8.1	4.3	137	1.6	3.4
3	7.7	19	15	3.4	3.8	3.8	5.1	6.1	4.0	17	1.3	5.1
4	8.3	16	15	2.9	4.8	4.7	5.4	5.3	3.6	11	1.2	4.2
5	9.1	15	17	2.8	5.1	4.4	5.2	6.7	14	149	1.2	2.3
6	9.7	15	16	3.4	8.3	4.2	4.9	1100	24	34	1.4	2.0
7	10	17	13	2.8	6.1	6.9	4.6	266	5.9	12	1.4	1.3
8	11	16	11	2.1	5.5	449	4.2	36	4.1	7.7	1.5	1.1
9	12	18	8.7	2.6	5.6	99	3.9	18	3.5	6.5	1.4	1.1
10	11	17	8.4	3.9	6.1	20	3.8	13	3.2	6.2	1.3	.95
11	11	17	11	3.3	4.6	13	3.7	10	3.1	7.3	1.3	.93
12	12	15	9.1	3.5	5.4	18	3.6	11	3.1	6.2	1.2	1.0
13	12	13	10	3.7	5.4	13	4.0	97	2.8	6.0	1.1	.97
14	13	15	13	2.7	4.6	15	4.1	50	2.7	7.9	1.2	1.1
15	12	18	11	3.2	5.4	14	3.8	214	2.6	5.6	1.2	1.1
16	14	17	10	2.2	5.7	11	4.5	43	4.4	11	1.1	1.2
17	14	18	10	2.2	49	8.4	5.0	19	3.6	13	.94	1.4
18	14	18	7.9	2.6	41	7.6	14	12	11	10	.86	2.4
19	15	19	9.4	3.6	8.9	7.0	621	9.1	12	8.8	.79	1.6
20	15	21	8.5	5.3	6.7	7.6	505	7.9	5.7	6.3	.67	3.4
21	15	17	8.7	4.1	11	7.7	70	6.9	3.5	4.8	.67	2.9
22	15	16	9.8	3.5	7.0	6.0	19	6.2	3.1	4.4	.55	1.7
23	17	16	10	4.3	5.5	5.2	12	6.0	3.0	4.0	.52	1.4
24	16	16	11	3.5	5.2	10	76	6.0	3.1	3.8	.76	1.2
25	14	17	23	6.7	4.9	18	31	5.3	14	3.7	1.7	1.2
26	15	18	9.3	4.7	3.5	12	12	7.4	7.2	3.3	1.5	3.3
27	15	18	6.3	3.7	4.3	8.0	9.3	6.7	4.2	3.1	1.2	4.3
28	16	18	6.3	3.9	4.8	17	10	5.9	3.6	3.0	1.1	2.2
29	16	21	6.2	2.8	5.0	46	16	5.3	3.1	2.5	.95	1.6
30	16	21	4.8	3.2	---	16	21	4.7	2.9	2.0	1.2	1.3
31	16	---	4.4	3.3	---	8.8	---	6.1	---	1.8	2.0	---
TOTAL	395.4	516	336.8	107.8	241.2	871.9	1494.2	1990.7	171.0	964.9	36.41	61.05
MEAN	12.8	17.2	10.9	3.48	8.32	28.1	49.8	64.2	5.70	31.1	1.17	2.04
MAX	17	21	23	6.7	49	449	621	1100	24	466	2.0	5.1
MIN	6.4	13	4.4	2.1	3.5	3.8	3.6	4.7	2.6	1.8	.52	.93
CFSM	.47	.63	.40	.13	.31	1.03	1.83	2.36	.21	1.14	.04	.08
IN.	.54	.71	.46	.15	.33	1.19	2.04	2.72	.23	1.32	.05	.08
AC-FT	784	1020	668	214	478	1730	2960	3950	339	1910	72	121

CAL YR 1975 TOTAL 11836.80 MEAN 32.4 MAX 1230 MIN 1.4 CFSM 1.19 IN 16.19 AC-FT 23480  
WTR YR 1976 TOTAL 7187.36 MEAN 19.6 MAX 1100 MIN .52 CFSM .72 IN 9.83 AC-FT 14260

PEAK DISCHARGE (BASE, 900 FT<sup>3</sup>/S)

DATE	TIME	G.HT.	DISCHARGE
4-19	1645	10.87	1,330
5- 6	1530	12.34	4,170
7- 1	1745	10.65	1,050

07344484 Lake Cypress Springs near Mount Vernon, Tex.  
(Formerly published as Lake Cypress Springs near Newsome.)

LOCATION.--Lat 33°03'45", long 95°08'20", Franklin County, on steel tower 100 ft (30 m) upstream from left end of dam on Big Cypress Creek, 2.2 miles (3.5 km) upstream from Brushy Creek, and 5.9 miles (9.5 km) north of Newsome.

DRAINAGE AREA.--75.0 mi<sup>2</sup> (194.2 km<sup>2</sup>).

PERIOD OF RECORD.--Contents: October 1973 to current year.

Water quality: Chemical analyses: October 1974 to current year.

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

EXTREMES.--Current year: Maximum contents, 79,420 acre-ft (97.9 hm<sup>3</sup>) May 7 (elevation, 379.85 ft or 115.778 m); minimum, 68,900 acre-ft (85.0 hm<sup>3</sup>) Jan. 18 (elevation, 376.82 ft or 114.855 m).  
Period of record: Maximum contents, 83,770 acre-ft (103 hm<sup>3</sup>) Feb. 2, 1975 (elevation, 381.00 ft or 116.129 m); minimum, 68,900 acre-ft (85.0 hm<sup>3</sup>) Jan. 18, 1975 (elevation, 376.82 ft or 114.855 m).

REMARKS.--The lake is formed by a rolled earthfill dam 5,230 ft (1,590 m) long. Deliberate impoundment began July 7, 1970, and the dam was completed Feb. 15, 1971. The emergency spillway is an excavated channel through natural ground 1,000 ft (305 m) wide located to the left of left end of dam. The service spillway is a rectangular 23- by 23-foot (7- by 7-meter) drop inlet located near the right end of dam. The low-flow outlet works consist of an 18-inch-diameter (457-millimeter) concrete pipe that has duplicate valve controls and discharges into the service spillway conduit. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	397.0	-
Crest of spillway.....	385.0	100,400
Crest of spillway.....	378.0	72,850
Lowest gated outlet (invert).....	317.75	0

COOPERATION.--The capacity table, furnished by the Franklin County Water District, was based on data prepared by Wisenbaker, Fix, and Associates, Consulting Engineers. Records of diversions furnished by Franklin County Water District.

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

376.0	66,240	379.0	76,340
377.0	69,490	380.0	79,980
378.0	72,850		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71190	70150	69790	69850	69290	71490	74230	75170	74400	75910	73780	72240
2	71120	70280	69790	69820	69290	71520	74190	75030	74330	76230	73600	72300
3	71090	70350	69750	69690	69260	71520	74160	74860	74260	76020	73540	72470
4	70990	70350	69790	69650	69290	71660	74090	74750	74230	75840	73470	72470
5	70950	70320	69850	69520	69390	71630	74060	75030	74120	75810	73430	72440
6	70920	70280	69950	69460	69460	71590	74020	79160	74190	75740	73360	72410
7	70890	70280	69950	69390	69420	71900	73990	79050	74120	75490	73330	72370
8	70820	70280	69950	69390	69420	73880	73920	78280	74120	75310	73260	72340
9	70820	70280	69920	69290	69420	74160	73880	77670	74060	75210	73190	72300
10	70820	70280	69920	69260	69490	74190	73850	77160	74020	75070	73120	72170
11	70820	70250	69920	69260	69490	74330	73850	76700	73950	74960	73090	72100
12	70790	70180	69920	69220	69560	74440	73810	76520	73920	74860	73020	72030
13	70750	70050	69920	69190	69590	74440	73810	76410	73850	74820	72950	72000
14	70720	70020	69950	69130	69590	74470	73810	76450	73780	74720	72920	72000
15	70680	69950	70020	69060	69620	74580	73810	76620	73740	74650	72850	71960
16	70650	69950	69990	69030	69650	74510	73810	76410	73990	74820	72780	71960
17	70580	69920	69920	68960	70450	74470	73810	76060	73950	74750	72710	72000
18	70480	69890	69820	68900	70580	74470	74020	75810	74190	74750	72610	72000
19	70420	70020	69690	69030	70580	74470	76730	75560	74300	74720	72540	71960
20	70380	70020	69650	69030	71320	74580	77810	75350	74230	74610	72510	72170
21	70350	69950	69590	69060	71460	74540	77410	75170	74120	74540	72440	72100
22	70320	69890	69520	69060	71390	73710	76880	75070	74060	74470	72370	72070
23	70380	69850	69520	69090	71390	73710	76660	74930	74060	74400	72300	72000
24	70420	69820	69590	69090	71390	73850	76770	74890	74230	74330	72370	71960
25	70380	69690	69990	69320	71390	73880	76380	74790	74300	74260	72340	71930
26	70350	69720	69920	69320	71390	74060	76020	74750	74330	74230	72300	72300
27	70320	69690	69890	69290	71420	74060	75740	74680	74400	74120	72240	72300
28	70320	69620	69990	69290	71420	74300	75490	74540	74400	74020	72170	72270
29	70320	69620	69990	69290	71460	74440	75450	74470	74330	73950	72130	72200
30	70250	69820	69950	69260	---	74330	75310	74470	74260	73880	72100	72170
31	70180	---	69890	69320	---	74260	---	74510	---	73850	72200	---
(†)	377.21	377.10	377.12	376.95	377.59	378.41	378.71	378.48	378.41	378.29	377.81	377.80
(*)	-1080	-360	+70	-570	+2140	+2800	+1050	-800	-250	-410	-1650	-30
(††)	31	34	884	1172	30	31	59	43	125	33	57	50
MAX	71190	70350	70020	69850	71460	74580	77810	79160	74400	76230	73780	72470
MIN	70180	69620	69520	68900	69260	71490	73810	74470	73740	73850	72100	71930

CAL YR 1975..... \* -4930

WTR YR 1976..... \* +910

†† 1402

†† 2550

MAX 83770

MAX 79160

MIN 69520

MIN 68900

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal, commercial, and recreational uses.



## RED RIVER BASIN

07344484 Lake Cypress Springs near Mount Vernon, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA, MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)
MAR 30...	1355	142	7.0	15.5	38	14	8.6	4.1	9.4
SFP 01...	1545	145	7.0	27.0	38	12	7.7	4.5	10
DATE	SODIUM ADSORPTION RATIO	DIS-SOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SI02) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
MAR 30...	.7	3.0	30	0	16	15	.2	1.3	72
SFP 01...	.7	3.6	32	0	13	16	.2	2.0	73

## 07344500 Big Cypress Creek near Pittsburg, Tex.

LOCATION.--Lat 33°01'15", long 94°52'55", Camp-Titus County line, near center of stream at downstream side of bridge on State Highway 11, 0.5 mile (0.8 km) upstream from Louisiana & Arkansas Railway Co. bridge, 1.4 miles (2.3 km) upstream from Williamson Creek, 5.2 miles (8.4 km) east of Pittsburg, and at mile 110.0 (177.0 km).

DRAINAGE AREA.--366 mi<sup>2</sup> (948 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: March 1943 to January 1963 (published as Cypress Creek near Pittsburg), October 1967 to current year.

Gage-height records collected at this site September 1963 to December 1967 are published in reports by Corps of Engineers.

Water quality: Chemical analyses: October 1967 to current year. Water temperatures: October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 247.49 ft (75.435 m) above mean sea level. Prior to Nov. 12, 1954, water-stage recorder at site 1,900 ft (579 m) downstream at present datum.

AVERAGE DISCHARGE.--28 years (1943-62, 1967-76), 338 ft<sup>3</sup>/s (9.572 m<sup>3</sup>/s), 12.54 in/yr (319 mm/yr), 244,900 acre-ft/yr (302 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 4,080 ft<sup>3</sup>/s (116 m<sup>3</sup>/s) Mar. 9 (gage height, 14.38 ft or 4.383 m); minimum, 6.6 ft<sup>3</sup>/s (0.19 m<sup>3</sup>/s) Sept. 14, 15.

Period of record: Maximum discharge, 58,500 ft<sup>3</sup>/s (1,660 m<sup>3</sup>/s) Mar. 30, 1945 (gage height, 28.3 ft or 8.63 m, from floodmark and adjusted to present site on basis of record for flood of Apr. 27, 1958), from rating curve extended above 20,000 ft<sup>3</sup>/s (566 m<sup>3</sup>/s); no flow Aug. 20 to Oct. 3, 1954, July 19 to Nov. 4, 1956.

Historic: Maximum stage since at least 1895, that of Mar. 30, 1945; flood in January 1938 reached a stage of about 25 ft (7.6 m), present site, adjusted as explained above, from information by local resident.

Water quality: Current year: Maximum daily specific conductance, 742 micromhos Oct. 2; minimum daily, 85 micromhos Mar. 9. Maximum water temperatures, 29.0°C July 25, Aug. 1; minimum, 2.0°C Jan. 9.

Period of record: Maximum daily specific conductance (1968-69, 1971-76), 941 micromhos Sept. 1, 1972; minimum daily, 69 micromhos July 30, 1969. Maximum water temperatures, 32.0°C Aug. 20, 1969; minimum, 2.0°C Jan. 9, 1976.

REMARKS.--Discharge records good. Small diversions upstream for municipal water supply. Flow from 111 mi<sup>2</sup> (287 km<sup>2</sup>) above this station is partly controlled by Lake Cypress Springs and Monticello Reservoir with a capacity of 112,900 acre-ft (139 hm<sup>3</sup>). Continued construction on Fort Sherman Dam located on Big Cypress Creek between Lake Cypress Springs and this station may have effect on low to medium flow at times. No storage in the lake has started. Records furnished by the city of Mount Pleasant show that 2,870 acre-ft (3.54 hm<sup>3</sup>) of sewage effluent was returned to a tributary above the station. Records furnished by the city of Pittsburg show that 336 acre-ft (0.414 hm<sup>3</sup>) was returned to a tributary below the station.

REVISIONS.--WSP 1211: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	8.9	11	20	30	26	31	354	215	53	43	26	17		
2	9.1	11	21	26	25	30	260	170	51	100	24	17		
3	8.6	13	18	19	24	30	168	141	46	209	22	14		
4	8.1	14	19	14	23	30	99	111	43	531	20	16		
5	8.6	13	20	10	25	44	74	85	38	568	17	16		
6	8.8	13	19	8.5	30	54	63	261	35	452	15	12		
7	8.3	14	19	8.2	31	43	56	917	31	467	15	10		
8	8.3	14	19	8.9	32	1020	51	1270	30	332	13	10		
9	9.5	14	18	20	36	3500	46	1600	36	253	14	8.6		
10	9.8	13	17	30	34	2030	42	1350	34	266	13	8.8		
11	9.7	12	17	18	33	1450	38	1130	28	386	18	8.2		
12	9.5	11	17	13	30	1060	36	961	24	239	15	8.0		
13	8.8	11	17	12	29	850	34	931	21	91	12	7.4		
14	7.8	11	18	18	28	634	33	907	19	96	12	6.7		
15	7.2	11	17	17	28	356	32	1420	16	172	11	6.8		
16	8.4	12	16	12	27	216	31	1910	16	83	10	7.7		
17	9.0	12	15	14	35	156	31	1460	19	128	9.1	7.8		
18	8.5	13	13	14	144	123	31	1200	21	335	8.7	7.2		
19	7.9	13	10	12	153	98	50	1020	42	194	11	7.3		
20	7.4	34	8.4	15	98	83	332	862	107	115	11	7.1		
21	7.1	32	7.8	23	97	76	680	617	54	85	10	10		
22	7.8	20	8.2	21	92	68	670	293	34	72	10	14		
23	8.3	19	7.7	26	63	62	658	151	29	64	9.3	9.2		
24	8.9	19	7.6	27	56	57	768	121	24	55	8.6	7.9		
25	10	16	20	33	48	67	819	108	25	47	12	7.2		
26	10	15	52	44	42	104	778	99	43	64	14	7.3		
27	12	15	48	38	36	197	610	88	255	139	11	13		
28	12	15	31	42	34	164	472	82	92	87	11	19		
29	12	15	34	38	33	239	367	75	56	41	10	11		
30	12	18	44	30	---	524	271	68	46	33	10	7.8		
31	11	---	32	27	---	529	---	58	---	29	10	---		
TOTAL	283.3	454	630.7	668.6	1392	13925	7954	19681	1368	5776	412.7	310.0		
MEAN	9.14	15.1	20.3	21.6	48.0	449	265	635	45.6	186	13.3	10.3		
MAX	12	34	52	44	153	3500	819	1910	255	568	26	19		
MIN	7.1	11	7.6	8.2	23	30	31	58	16	29	8.6	6.7		
CFSM	.02	.04	.06	.06	.13	1.23	.72	1.73	.12	.51	.04	.03		
IN.	.03	.05	.06	.07	.14	1.42	.81	2.00	.14	.59	.04	.03		
AC-FT	562	901	1250	1330	2760	27620	15780	39040	2710	11460	819	615		
CAL YR 1975	TOTAL	149840.8	MEAN	411	MAX	8860	MIN	5.4	CFSM	1.12	IN	15.23	AC-FT	297200
WTR YR 1976	TOTAL	52855.3	MEAN	144	MAX	3500	MIN	6.7	CFSM	.39	IN	5.37	AC-FT	104800

## RED RIVER BASIN

07344500 Big Cypress Creek near Pittsburg, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
OCT. 31...	1410	22	436	7.3	18.0	61	29	16	5.2	53
NOV. 25...	1156	17	319	7.1	5.5	59	36	15	5.3	32
DEC. 31...	1735	57	296	7.3	7.0	60	45	15	5.4	27
JAN. 08...	1340	9.0	304	6.5	2.0	66	43	16	6.3	28
FEB. 29...	1231	44	331	7.0	17.0	70	54	17	6.7	30
MAR. 30...	1825	586	257	6.3	14.0	60	43	14	6.0	21
APR. 30...	1642	305	220	7.2	17.0	53	29	12	5.7	18
MAY 12...	1430	660	158	6.7	24.5	35	14	7.6	3.9	12
JUNE 17...	1145	21	284	6.8	26.0	56	28	13	5.7	28
JULY 31...	0715	25	264	7.3	27.0	56	23	13	5.6	24
AUG. 31...	0715	9.0	626	7.4	23.0	84	25	21	7.6	77
SEP. 02...	1041	18	296	6.6	22.5	45	21	11	4.3	30

DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SI02) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITU- ENTS) (MG/L)
OCT. 31...	2.9	8.5	40	0	30	69	2.9	14	218
NOV. 25...	1.8	6.3	29	0	40	46	1.4	14	174
DEC. 31...	1.5	5.5	18	0	45	37	2.3	15	161
JAN. 08...	1.5	5.5	28	0	42	38	1.2	18	169
FEB. 29...	1.6	4.5	20	0	52	46	1.1	19	186
MAR. 30...	1.2	4.3	20	0	45	31	.2	11	142
APR. 30...	1.1	3.6	30	0	30	27	.4	8.8	120
MAY 12...	.9	3.3	26	0	20	17	.2	5.6	82
JUNE 17...	1.6	4.5	34	0	31	37	.9	14	151
JULY 31...	1.4	4.4	40	0	32	38	.6	11	148
AUG. 31...	3.7	14	72	0	29	97	4.2	15	300
SEP. 02...	1.9	4.6	30	0	29	37	1.5	11	143

## 07344500 Big Cypress Creek near Pittsburg, Tex.--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	283.3	563	300	229	81	62	62	47	91
NOV. 1975.....	454	385	210	252	53	65	48	60	75
DEC. 1975.....	630.7	324	170	296	43	74	44	74	66
JAN. 1976.....	668.6	325	170	311	43	78	44	79	66
FEB. 1976.....	1359	318	170	628	43	156	43	159	65
MAR. 1976.....	13925	159	85	3200	19	708	24	885	40
APR. 1976.....	7954	216	120	2480	27	570	32	696	49
MAY 1976.....	19681	166	89	4710	19	1000	25	1350	41
JUNE 1976.....	1368	237	130	464	30	110	35	129	52
JULY 1976.....	5776	179	96	1490	21	324	27	425	43
AUG. 1976.....	412.7	461	250	273	65	72	54	60	86
SEPT 1976.....	309	495	260	221	70	58	57	47	87
TOTAL .....	52822.29	**	**	14600	**	3280	**	4010	**
WTD.AVG. ....	144.72	191	100	**	23	**	28	**	45

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	683	417	322	322	331	344	247	260	234	207	296	629
2	742	430	348	287	340	357	242	247	240	230	310	304
3	601	502	333	276	342	337	275	232	244	217	314	509
4	596	501	314	296	336	336	310	226	266	118	328	521
5	535	504	344	288	341	352	301	235	281	145	336	436
6	462	438	347	290	336	366	299	167	281	165	345	480
7	526	395	375	300	360	337	309	163	275	173	342	514
8	585	395	405	304	381	125	315	151	266	157	359	505
9	585	528	334	317	362	85	322	119	263	146	379	489
10	544	483	332	346	319	106	320	124	266	145	445	477
11	439	454	293	252	332	123	317	142	276	168	497	487
12	438	481	341	248	348	132	312	160	265	185	574	498
13	454	398	326	265	359	175	307	166	273	197	562	498
14	533	393	369	310	366	189	311	216	282	205	547	507
15	530	388	378	364	367	248	336	169	287	246	516	498
16	526	388	374	336	375	273	358	139	287	209	483	486
17	529	415	312	324	357	299	331	164	284	234	463	461
18	531	406	286	351	292	301	328	183	320	174	454	491
19	526	399	329	386	275	311	315	186	342	202	468	516
20	505	293	298	336	317	320	260	183	298	218	514	529
21	531	386	311	362	310	313	229	190	263	227	590	523
22	633	328	320	369	287	304	203	208	240	227	607	516
23	653	365	347	373	297	301	183	221	233	229	612	529
24	646	357	365	348	304	292	168	231	239	266	620	543
25	600	309	428	288	318	313	192	229	247	279	590	529
26	560	289	335	355	333	314	194	228	263	260	568	523
27	589	256	315	341	320	365	199	235	129	236	554	516
28	667	268	230	327	317	342	199	251	212	214	607	485
29	659	321	240	314	328	307	201	248	245	218	631	481
30	550	378	292	328	---	256	219	245	211	243	628	448
31	431	---	296	322	---	273	---	235	---	265	630	---
MONTH	561	396	330	320	333	274	270	198	260	207	489	498

## RED RIVER BASIN

07344500 Big Cypress Creek near Pittsburg, Tex.--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.0	18.0	8.0	9.0	9.0	19.5	17.0	18.0	25.0	26.0	29.0	23.0
2	19.0	18.0	9.0	8.0	9.5	21.0	18.0	18.0	25.0	24.0	27.0	22.0
3	19.0	18.0	10.0	7.0	10.0	21.0	18.0	19.0	25.0	25.0	25.0	23.0
4	19.0	---	10.0	6.0	11.0	21.5	18.0	19.0	26.0	25.0	24.0	23.0
5	---	18.0	10.0	6.0	10.5	17.0	19.0	20.0	25.0	26.0	24.0	25.0
6	19.0	18.0	9.0	7.0	9.5	16.0	19.0	19.0	24.0	25.0	25.0	---
7	19.0	18.0	---	5.0	8.0	16.0	19.0	19.0	25.0	25.0	28.0	23.0
8	20.0	18.0	9.0	---	9.0	10.0	20.0	18.0	25.0	25.0	27.0	22.0
9	19.0	18.0	10.0	2.0	11.0	10.0	19.0	19.0	22.0	25.0	26.0	23.0
10	20.0	---	10.0	8.0	14.0	13.0	19.0	22.0	23.0	25.0	25.0	22.0
11	19.0	---	10.0	7.0	14.0	14.0	19.0	24.0	23.0	25.0	25.0	21.0
12	19.0	---	12.0	8.0	15.0	16.5	21.0	25.0	26.0	25.0	25.0	20.0
13	20.0	---	12.0	11.0	17.0	12.0	21.0	22.0	24.0	25.0	25.0	19.0
14	20.0	---	12.0	9.0	16.0	11.0	23.0	20.0	25.0	26.0	27.0	21.0
15	---	---	12.0	9.0	17.0	13.0	23.0	18.0	25.0	26.0	28.0	21.0
16	22.0	---	11.0	8.0	19.0	13.5	21.0	19.0	25.0	26.0	25.0	21.0
17	---	---	10.5	7.0	18.0	14.0	22.0	21.0	24.0	26.0	25.0	22.0
18	21.0	---	7.0	8.0	17.0	15.0	21.0	21.0	25.0	26.0	25.0	19.0
19	21.0	---	7.0	9.5	16.0	17.0	21.0	21.0	23.0	25.0	25.0	24.0
20	21.0	---	8.0	9.5	16.0	19.0	20.0	22.0	23.0	25.0	24.0	23.0
21	19.0	---	---	8.5	16.0	17.0	20.0	23.0	22.0	25.0	26.0	21.0
22	---	---	7.0	9.0	13.0	18.0	21.0	23.0	23.0	25.0	25.0	19.0
23	19.0	---	8.0	10.0	13.0	18.0	21.0	22.0	24.0	26.0	23.0	19.0
24	19.0	---	---	13.0	13.0	17.0	21.5	24.0	24.0	28.0	23.0	19.0
25	---	---	7.0	14.0	14.0	18.0	20.0	22.0	25.0	29.0	23.0	22.0
26	---	8.0	7.0	11.0	15.0	19.0	19.0	23.0	26.0	27.0	23.0	21.0
27	19.0	7.0	7.0	9.0	17.0	18.0	19.0	21.0	25.0	27.0	24.0	21.0
28	19.0	7.0	8.0	8.0	17.0	17.0	18.0	22.0	25.0	27.0	26.0	21.0
29	19.0	7.0	---	9.0	17.0	18.5	16.0	21.0	25.0	27.0	26.0	20.0
30	---	7.0	8.0	10.0	---	17.0	17.0	23.0	26.0	27.0	24.0	17.0
31	18.0	---	7.0	8.5	---	16.0	---	25.0	---	27.0	23.0	---
MONTH	---	---	9.0	8.5	14.0	16.0	19.5	21.0	24.5	26.0	25.0	21.5

## RED RIVER BASIN

249

07345000 Boggy Creek near Daingerfield, Tex.

LOCATION.--Lat 33°02'10", long 94°47'15", Morris County, on right bank at downstream side of bridge on State Highway 11, 0.4 mile (0.6 km) upstream from Louisiana & Arkansas Railway Co. bridge, 3.8 miles (6.1 km) west of Daingerfield, and 9 miles (14 km) upstream from mouth.

DRAINAGE AREA.--72 mi<sup>2</sup> (186 km<sup>2</sup>).

PERIOD OF RECORD.--March 1943 to current year.

GAGE.--Water-stage recorder. Datum of gage is 258.41 ft (78.763 m) above mean sea level. Prior to Oct. 1, 1954, at site 1,700 ft (518 m) downstream at same datum.

AVERAGE DISCHARGE.--33 years, 79.1 ft<sup>3</sup>/s (2.240 m<sup>3</sup>/s), 14.92 in/yr (379 mm/yr), 57,310 acre-ft/yr (70.7 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 1,840 ft<sup>3</sup>/s (52.1 m<sup>3</sup>/s) Mar. 9 (gage height, 11.10 ft or 3.383 m); no flow Oct. 1 to Nov. 20, Aug. 2 to Sept. 30.

Period of record: Maximum discharge, 28,900 ft<sup>3</sup>/s (818 m<sup>3</sup>/s) Apr. 27, 1958 (gage height, 17.80 ft or 5.425 m), from rating curve extended above 13,000 ft<sup>3</sup>/s (368 m<sup>3</sup>/s); no flow at times most years.

Maximum stage since at least 1900, that of Apr. 27, 1958; flood in January 1938 reached a stage of 17.5 ft (5.33 m), adjusted to present site, from information by local residents.

REMARKS.--Records good. No known diversion above station.

REVISIONS (WATER YEARS).--WSP 1211: Drainage area. WSP 1561: 1955.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		0	12	6.9	11	9.8	40	15	15	10	.04	
2		0	17	5.6	10	9.3	28	11	15	36	0	
3		0	16	4.9	9.5	8.5	22	7.3	11	55	0	
4		0	14	4.3	8.9	8.1	19	4.9	8.8	30	0	
5		0	10	3.7	9.1	13	17	3.6	8.4	36	0	
6		0	9.4	3.4	15	21	15	59	8.6	74	0	
7		0	9.1	3.7	20	20	12	171	10	47	0	
8		0	8.7	3.7	16	293	11	195	13	16	0	
9		0	8.9	3.3	14	1420	9.1	115	9.0	9.8	0	
10		0	8.7	3.2	12	552	7.4	48	6.6	7.5	0	
11		0	8.4	3.5	12	251	6.2	31	4.8	6.6	0	
12		0	7.8	4.1	11	136	5.5	24	3.5	5.4	0	
13		0	7.2	4.2	10	93	4.9	53	2.6	3.9	0	
14		0	6.5	4.2	9.7	88	4.6	128	2.0	2.6	0	
15		0	5.7	4.6	9.8	76	4.3	174	1.6	2.0	0	
16		0	5.4	4.4	9.4	71	4.1	261	1.4	2.8	0	
17		0	5.3	4.3	29	56	4.1	239	1.6	2.8	0	
18		0	4.3	4.4	90	41	4.2	122	13	10	0	
19		0	3.8	4.7	90	34	11	56	47	8.9	0	
20		0	3.5	6.9	46	32	65	35	96	5.1	0	
21		14	3.3	11	36	35	110	27	59	3.2	0	
22		14	3.5	9.8	38	30	89	22	15	5.6	0	
23		6.8	3.6	8.1	28	24	32	19	8.6	5.4	0	
24		4.2	3.3	6.9	20	22	19	17	5.8	3.3	0	
25		3.4	30	29	16	29	29	15	13	1.4	0	
26		3.0	30	44	14	43	26	16	35	.78	0	
27		2.4	14	28	12	49	14	19	43	12	0	
28		2.4	9.2	17	11	43	9.5	30	28	6.3	0	
29		3.0	7.5	13	10	58	8.2	25	16	1.8	0	
30		6.4	7.6	12	---	86	10	17	9.1	.57	0	
31		---	7.4	11	---	68	---	15	---	.19	0	---
TOTAL	0	59.6	291.1	277.8	627.4	3719.7	641.1	1974.8	511.4	411.94	.04	0
MEAN	0	1.99	9.39	8.96	21.6	120	21.4	63.7	17.0	13.3	.001	0
MAX	0	14	30	44	90	1420	110	261	96	74	.04	0
MIN	0	0	3.3	3.2	8.9	8.1	4.1	3.6	1.4	.19	0	0
CFSM	0	.03	.13	.12	.30	1.67	.30	.88	.24	.18	0	0
IN.	0	.03	.15	.14	.32	1.92	.33	1.02	.26	.21	.00002	0
AC-FT	0	118	577	551	1240	7380	1270	3920	1010	817	.08	0

CAL YR 1975 TOTAL 35828.37 MEAN 98.2 MAX 2630 MIN 0 CFMS 1.36 IN 18.51 AC-FT 71070  
WTR YR 1976 TOTAL 8514.88 MEAN 23.3 MAX 1420 MIN 0 CFMS .32 IN 4.40 AC-FT 16890

PEAK DISCHARGE (BASE, 1,000 FT<sup>3</sup>/S).--Mar. 9 (1000) 1,840 ft<sup>3</sup>/s (11.10 ft).



## 07345500 Ellison Creek Reservoir near Lone Star, Tex.

LOCATION.--Lat 32°55'16", long 94°43'17", Morris County, at pumphouse of Lone Star Steel Co., on left bank 1,700 ft (518 m) upstream from Ellison Creek Dam on Ellison Creek, 0.6 mile (1.0 km) upstream from Big Cypress Creek, and 1.4 miles (2.3 km) southwest of Lone Star.

DRAINAGE AREA.--37.0 mi<sup>2</sup> (95.8 km<sup>2</sup>).

PERIOD OF RECORD.--Contents: January 1943 to September 1962 (published as "near Daingerfield"), January 1974 to current year.  
Water quality: Chemical analyses: October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Sept. 22, 1943, staff gage at site just upstream from dam at datum 200 ft (61.0 m) lower.

EXTREMES.--Current year: Maximum contents, 24,350 acre-ft (30.0 hm<sup>3</sup>) May 17 (elevation, 267.92 ft or 81.662 m); minimum, 15,760 acre-ft (19.4 hm<sup>3</sup>) Dec. 24 (elevation, 261.28 ft or 79.638 m).

Period of record: Maximum contents, 31,240 acre-ft (38.5 hm<sup>3</sup>) Apr. 26, 1958 (elevation, 272.11 ft or 82.939 m); minimum since lake first filled in May 1944, 15,760 acre-ft (19.4 hm<sup>3</sup>) Dec. 24, 1975 (elevation, 261.28 or 79.638 m).

REMARKS.--The reservoir is formed by a rolled earthfill dam, 4,000 ft (1,200 m) long with an uncontrolled concrete spillway 300 ft (91 m) long at the left end of dam. Deliberate impoundment began Jan. 14, 1943, and the dam was completed in April 1943. Another spillway is cut through natural ground near the right end of dam. In addition, there is a relief dam, approximately 125 ft (38 m) long, located near the reservoir pumphouse that can be breached if the other spillways are unable to release sufficient floodwater. There is a 36-inch-diameter (914-millimeter) conduit through the dam that is used for pumping water from Big Cypress Creek into the reservoir and can also be used to discharge water from the reservoir into Big Cypress Creek. The dam is owned by Lone Star Steel Co. Area capacity curves are based on a survey made in 1942. Records furnished by the company show that during the current year, the city of Lone Star diverted 219 acre-ft (0.270 hm<sup>3</sup>) from the reservoir. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	280.1	-
Design flood.....	275.1	36,600
Crest of spillway.....	273.1	33,000
Crest of concrete spillway.....	268.1	24,700
Lowest gated outlet (invert).....	235.1	196

COOPERATION.--Capacity table, area-capacity curves, and records of diversions furnished by Lone Star Steel Co.

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

261.0	15,440	265.0	20,230
262.0	16,590	266.0	21,540
263.0	17,780	267.0	22,970
264.0	18,980	268.0	24,470

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20100	18300	17100	16000	17000	17900	23600	23100	22600	23900	23300	22700
2	20100	18300	17100	16100	17000	17800	23600	23100	22600	23800	23300	22700
3	20000	18400	17100	16100	17000	17800	23600	23000	22500	23800	23200	22800
4	19900	18400	17000	16100	17000	17900	23600	22900	22400	23800	23200	22800
5	19900	18300	17000	16100	17100	18000	23700	23000	22200	23700	23200	22800
6	19800	18200	16900	16100	17100	18000	23600	23300	22100	23700	23100	22900
7	19700	18200	16900	16100	17000	18400	23600	23400	22100	23700	23100	22900
8	19700	18200	16900	16000	17000	21900	23500	23400	22100	23700	23100	22800
9	19700	18100	16900	16000	17000	22600	23500	23400	22200	23800	23000	22800
10	19600	18100	16700	16000	17000	22800	23400	23400	22300	23700	23000	22700
11	19500	18100	16700	16100	17000	22900	23500	23400	22400	23700	23000	22700
12	19500	18000	16600	16100	17000	23100	23500	23500	22500	23700	22900	22600
13	19400	17900	16500	16100	17000	23100	23500	23600	22600	23700	22900	22600
14	19300	17800	16400	16000	17000	23200	23400	23900	22600	23700	22900	22600
15	19300	17700	16300	16100	17000	23300	23400	24300	22800	23700	22900	22600
16	19200	17700	16200	16000	17000	23300	23300	24300	22900	23800	22800	22600
17	19200	17600	16200	16000	17400	23260	23300	24300	23100	23800	22800	22500
18	19200	17600	16100	16000	17600	23200	23300	24300	23300	23800	22800	22500
19	19100	17700	16000	16000	17700	23200	23400	24100	23600	23700	22800	22500
20	18900	17700	16000	16100	17800	23300	23600	23900	23800	23700	22700	22600
21	18900	17700	15900	16100	17900	23300	23500	23700	23800	23600	22600	22600
22	18800	17600	15800	16100	17900	23300	23300	23500	23900	23600	22600	22500
23	18700	17500	15800	16000	17900	23300	23200	23300	24000	23500	22600	22400
24	18700	17400	15800	16200	17900	23400	23300	23000	24100	23500	22600	22400
25	18600	17300	15900	16800	17900	23400	23300	22800	24200	23500	22600	22400
26	18600	17200	15900	16900	17900	23400	23200	22800	24000	23500	22500	22400
27	18500	17100	15900	16900	17900	23500	23200	22700	23900	23500	22500	22400
28	18500	17100	15900	17000	17900	23600	23200	22600	23800	23400	22500	22400
29	18400	17000	15900	17000	17800	23700	23100	22600	23700	23400	22500	22300
30	18300	17200	16000	17000	---	23700	23100	22600	23700	23400	22500	22300
31	18300	---	16000	17000	---	23700	---	22600	---	23300	22600	---
(+)	263.45	262.49	261.45	262.38	263.04	267.48	267.05	266.74	267.46	267.23	266.76	266.55
(*)	-1870	-1150	-1210	+1080	+790	+5860	-640	+1080	-340	-710	-300	-300
(++)	11495	11216	10999	9551	8616	11112	10438	11630	11670	11719	12000	10280
MAX	20140	18380	17100	17040	17920	23710	23660	24320	24190	23930	23330	22870
MIN	18320	17040	15760	16020	16960	17780	23050	22580	22070	23320	22460	22310

CAL YR 1975..... \* -7180                    ++ 135600                    MAX 26120                    MIN 15760  
WTR YR 1976..... \* +2120                    ++ 130726                    MAX 24320                    MIN 15760

+ Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

++ Diversions, in acre-feet, for industrial use by Lone Star Steel Company.

## RED RIVER BASIN

251

07345500 Ellison Creek Reservoir near Lone Star, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG)	DISSOLVED SODIUM (NA) (MG/L)
MAR 29...	1355	334	7.0	18.0	95	70	30	4.9	18
DATE	SODIUM ADSORPTION RATIO	DISSOLVED PHOSPHATE (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SI02) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
MAR 29...	.8	7.5	30	0	62	35	1.0	.7	174

07345900 Lake O' the Pines near Jefferson, Tex.

LOCATION.--Lat 32°45'04", long 94°29'59", Marion County, in intake structure of Ferrell's Bridge Dam on Big Cypress Creek, on Farm Road 726, 9.0 miles (14.5 km) west of Jefferson, and at mile 80.1 (128.9 km).

DRAINAGE AREA.--850 mi<sup>2</sup> (2,202 km<sup>2</sup>).

PERIOD OF RECORD.--Contents: August 1957 to current year.

Water quality: Chemical analyses: October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Nov. 12, 1957, nonrecording gage at same site and datum.

EXTREMES.--Current year: Maximum contents, 288,290 acre-ft (355 hm<sup>3</sup>) June 25 (elevation, 230.23 ft or 70.174 m); minimum, 249,680 acre-ft (308 hm<sup>3</sup>) Oct. 28 (elevation, 228.22 ft or 69.561 m).

Period of record: Maximum contents, 694,360 acre-ft (856 hm<sup>3</sup>) May 5, 1966 (elevation, 245.41 ft or 74.801 m); minimum since December 1959, 219,700 acre-ft (271 hm<sup>3</sup>) Nov. 16, 1963 (elevation, 226.54 ft or 69.049 m).

REMARKS.--The lake is formed by a rolled earthfill dam 10,600 ft (3,230 m) long, including a 200-foot (61-meter) concrete spillway. Impoundment of water began Aug. 21, 1957, and the dam was completed June 25, 1958. Official operation began Dec. 11, 1959. The flood-control outlet works consist of two 10.0-foot-diameter (3.0-meter) conduits that are controlled by two 8.0- by 12.5-foot (2.4- by 3.8-meter) electrically driven broome-type gates. The low-flow outlet works consist of one controlled 14-inch (356-millimeter) pipe. Flow over the spillway is discharged into a 2,000 ft (610 m) channel and then into Cypress Creek. The capacity table is based on a survey made in 1950. The lake was built for flood control, conservation, and water supply. During the current year, 827 acre-ft (1.02 hm<sup>3</sup>) was diverted from lake for municipal use and 3,200 acre-ft (3.95 hm<sup>3</sup>) was diverted by Southwestern Electric Power Co. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	277.0	-
Crest of spillway.....	249.5	842,100
Top of conservation pool.....	228.5	254,900
Crest of intake to wet well (14-inch).....	202.5	5,760
Lowest gated outlet (invert).....	200.0	2,860

COOPERATION.--Records furnished by the Corps of Engineers and reviewed by the Geological Survey.

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

228.0	245,600	234.0	369,130
230.0	283,680	235.0	392,680
232.0	324,770		

CONTENTS, IN ACRE-Feet, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 0700

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	256230	251910	255450	256390	256950	256390	258630	259000	283680	285680	282500	272380
2	255030	251360	255090	261320	255080	256570	259190	257320	284480	285680	282300	273160
3	254330	255270	255270	260690	254890	256570	259380	256760	284280	285480	281710	273740
4	253960	255270	255270	258630	254710	255640	258820	256390	285080	285680	281120	274120
5	253780	254890	255080	256570	254710	258070	257320	255270	285080	286280	280540	273930
6	253430	254890	256570	256010	256950	257130	257130	256950	285280	287080	279370	273740
7	253400	254890	256010	259000	255450	256570	256760	258820	285080	287280	279760	272960
8	253220	255080	256200	255450	254890	260500	256570	259190	284680	287080	278780	272380
9	253220	255080	256950	254890	254890	269290	255640	258630	283880	286880	278390	272580
10	253400	255080	255830	254150	254890	269290	255450	258630	283680	286080	278010	272380
11	253030	254710	256200	255270	255640	272190	255450	259570	283480	285680	277810	271610
12	253030	255270	256390	255450	256010	275290	255640	260320	283090	285280	277420	271220
13	252660	255080	256760	256010	256570	275290	255640	264280	282300	284280	276840	270260
14	252470	253030	256760	256390	256760	274320	255830	263710	281910	283880	276260	270260
15	252660	253220	259190	256010	256760	272380	255270	265630	281710	283480	276060	271030
16	252470	252840	257320	256390	256760	272190	256570	265240	283880	283880	275680	270450
17	253400	253030	257130	255830	257130	266210	256010	265440	283280	285680	275480	269480
18	252840	252840	257690	254710	259750	263710	256390	266210	283880	285280	275090	268520
19	252470	252470	256760	255080	258630	261820	255450	269290	285480	284880	274320	266400
20	251730	256390	256570	257130	257510	260500	257690	272380	285680	285080	274320	265240
21	251360	256200	256390	256950	261070	260130	256760	274710	284480	285080	274120	264280
22	251170	254890	255450	256950	258630	258260	256200	276450	283480	284880	273740	261820
23	251170	254150	256390	257130	256570	256570	256390	278200	283480	284680	273160	259190
24	250430	253960	255270	256950	255450	255830	258440	279560	283680	284280	273350	258070
25	251730	253590	258260	262570	255080	257320	259940	279760	285480	284480	273350	257510
26	252660	254520	257320	263710	256010	257880	259000	280150	284480	283880	272580	257510
27	252290	254150	256390	260880	256390	258070	259380	281910	285280	283680	272380	257130
28	252100	253960	255270	259190	256390	255450	259000	282500	286080	283090	272000	256570
29	253220	253590	258440	258070	256010	256570	259190	282100	286680	282890	272380	257510
30	252660	256760	258440	257130	---	259000	259380	281520	286280	283090	272580	256760
31	252470	---	257130	256760	---	258440	---	283680	---	283090	272380	---
(+)	228.37	228.60	228.62	228.60	228.56	228.69	228.74	230.00	230.13	229.97	229.42	228.60
(*)	-4130	+4290	+370	-370	-750	+2430	+940	+24300	+2600	-3190	-10710	-15620
(++)	75	402	459	203	53	61	64	62	514	277	985	871
MAX	256200	256760	259190	263710	261070	275290	259940	283680	286680	287280	282500	274120
MIN	250430	251360	255080	254150	254710	255450	255270	255270	281710	282890	272000	256570

CAL YR 1975..... \* -10270

WTR YR 1976..... \* +160

++ 3970

++ 4030

MAX 377300

MAX 287280

MIN 250430

MIN 250430

+ Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

++ Diversions, in acre-feet, for municipal and industrial use.

## RED RIVER BASIN

253

07345900 Lake 0' the Pines near Jefferson, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	PERCENT SATURATION	HARDNESS (CA, MG)	NON-CARBONATE HARDNESS (MG/L)
JAN 29...	0945	131	7.2	9.0	10.8	93	33	12
MAY 12...	1230	137	8.1	24.5	9.3	111	33	15
AUG 30...	1255	152	7.1	29.0	5.8	76	35	13

DATE	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG)	DIS-SOLVED SODIUM (NA) (MG/L)	SODIUM ADSORPTION RATIO	DIS-SOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)
JAN 29...	8.2	3.0	9.5	.7	2.7	26	0	15	13
MAY 12...	8.5	2.9	10	.8	3.0	22	0	19	14
AUG 30...	8.5	3.3	12	.9	3.4	26	0	17	16

DATE	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED MANGANESE (MN) (UG/L)
JAN 29...	.2	11	75	.04	.00	.01	0	0
MAY 12...	.3	9.5	78	.00	.00	.01	10	0
AUG 30...	.3	11	85	.00	.01	.01	60	450

## RED RIVER BASIN

07346045 Black Cypress Bayou at Jefferson, Tex.

LOCATION.--Lat 32°46'40", long 94°21'26", Marion County, near center of channel at downstream side of bridge on U.S. Highway 59, 1.1 miles (1.8 km) north of Jefferson, 2.0 miles (3.2 km) upstream from Texas and Pacific Railway bridge, and at mile 5.2 (8.4 km).

DRAINAGE AREA.--365 mi<sup>2</sup> (945 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: September 1968 to current year. May 1938 to September 1955 (daily gage heights) and November 1956 to August 1968 (daily gage heights and discharge measurements) published by Corps of Engineers as "Black Cypress Creek at Jefferson". September 1964 to August 1968 operated as low-flow partial-record station only.

Water quality: Chemical analyses: October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 171.47 ft (52.264 m) above mean sea level (levels by Corps of Engineers).

AVERAGE DISCHARGE.--8 years, 361 ft<sup>3</sup>/s (10.22 m<sup>3</sup>/s), 13.43 in/yr (341 mm/yr), 261,600 acre-ft/yr (323 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 3,480 ft<sup>3</sup>/s (98.6 m<sup>3</sup>/s) Mar. 12 (gage height, 15.68 ft or 4.779 m); minimum, 1.9 ft<sup>3</sup>/s (0.054 m<sup>3</sup>/s) Aug. 23, 24 (gage height, 3.41 ft or 1.039 m).

Period of record: Maximum discharge, 7,120 ft<sup>3</sup>/s (202 m<sup>3</sup>/s) Apr. 25, 1974 (gage height, 17.69 ft or 5.392 m); no flow at times most years.

Maximum stage since 1938, 22.42 ft (6.834 m) Apr. 29, 1958, from records of Corps of Engineers.

REMARKS.--Discharge records good. No known regulation or diversion in vicinity of gage.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.8	21	80	230	629	306	449	190	215	298	15	3.5
2	3.9	21	76	372	512	259	441	162	203	337	14	4.5
3	3.6	46	74	497	413	226	432	140	171	294	13	5.5
4	4.2	69	81	472	334	204	417	125	140	274	11	8.3
5	4.8	55	87	381	282	209	396	116	115	295	9.8	14
6	4.4	48	92	316	254	226	366	120	98	325	9.1	17
7	4.9	58	93	287	230	225	326	152	88	299	9.1	20
8	3.5	66	91	262	211	429	285	183	74	272	8.7	22
9	4.5	68	86	235	200	876	248	229	65	262	7.7	23
10	6.3	62	80	209	199	1170	219	294	61	239	6.7	21
11	4.9	52	75	195	202	2510	196	342	57	194	5.8	15
12	3.4	43	72	185	202	3390	179	339	52	156	5.0	11
13	3.2	36	71	175	199	3170	168	341	44	127	4.5	8.2
14	3.4	31	70	169	192	2410	159	342	37	100	4.1	8.4
15	3.3	28	70	167	184	1650	149	397	33	81	3.8	9.3
16	3.6	26	70	165	178	1220	139	414	157	75	3.3	10
17	3.7	26	68	158	189	978	135	427	97	76	2.8	9.3
18	4.2	26	67	147	260	823	133	467	53	80	2.5	22
19	4.7	28	67	139	260	713	130	525	81	75	2.5	22
20	4.1	37	68	146	236	631	131	544	130	59	2.3	20
21	4.5	47	68	161	278	567	138	512	137	52	2.3	26
22	5.1	47	68	158	343	512	135	448	166	47	2.4	28
23	5.3	52	67	159	384	462	151	362	213	44	2.2	24
24	6.3	65	68	172	415	421	200	266	250	42	2.7	33
25	12	73	86	362	455	424	248	181	277	39	7.1	33
26	19	78	109	460	482	461	271	133	278	35	4.9	28
27	20	79	110	497	477	431	272	125	248	31	3.4	28
28	19	76	118	608	435	407	259	127	226	27	2.7	25
29	20	69	156	876	368	440	242	131	208	23	2.8	38
30	21	72	199	937	---	454	220	153	221	20	2.6	31
31	21	---	222	779	---	458	---	194	---	17	2.8	---
TOTAL	236.6	1505	2809	10076	9003	26662	7234	8481	4195	4295	176.6	568.0
MEAN	7.63	50.2	90.6	325	310	860	241	274	140	139	5.70	18.9
MAX	21	79	222	937	629	3390	449	544	278	337	15	38
MIN	3.2	21	67	139	178	204	130	116	33	17	2.2	3.5
CFSM	.02	.14	.25	.89	.85	2.36	.66	.75	.38	.38	.02	.05
IN.	.02	.15	.29	1.03	.92	2.72	.74	.86	.43	.44	.02	.06
AC-FT	469	2990	5570	19990	17860	52880	14350	16820	8320	8520	350	1130

CAL YR 1975 TOTAL 162835.8 MEAN 446 MAX 6290 MIN 3.2 CFSM 1.22 IN 16.60 AC-FT 323000  
WTR YR 1976 TOTAL 75241.2 MEAN 206 MAX 3390 MIN 2.2 CFSM .56 IN 7.67 AC-FT 149200

PEAK DISCHARGE (BASE, 4,000 FT<sup>3</sup>/S).--No peak above base.

07346045 Black Cypress Bayou at Jefferson, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
OCT. 14...	1325	3.5	79	7.0	25.0	16	2	4.1	1.3	6.7
NOV. 24...	1140	66	58	7.1	5.5	13	4	3.2	1.1	4.0
FEB. 17...	1206	178	62	6.8	17.0	15	7	3.4	1.6	4.8
MAR. 30...	1053	448	53	6.4	17.0	12	3	3.1	1.1	4.2
MAY 11...	1805	346	51	6.4	19.0	14	6	4.0	1.0	4.0
JUNE 16...	1236	183	57	5.9	26.0	9	1	2.5	.7	4.5
JULY 28...	1455	27	70	6.7	28.5	16	1	3.6	1.6	5.3
SEP. 09...	1452	22	64	6.7	24.5	15	0	3.5	1.5	4.3

DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT. 14...	.7	2.6	16	0	3.6	10	.2	18	54
NOV. 24...	.5	2.3	10	0	7.7	6.2	.3	20	50
FEB. 17...	.5	1.7	10	0	8.6	7.5	.1	18	51
MAR. 30...	.5	1.5	11	0	6.3	6.4	.1	15	43
MAY 11...	.5	1.7	10	0	8.3	5.3	.1	16	45
JUNE 16...	.6	2.4	10	0	5.5	7.8	.2	6.8	35
JULY 28...	.6	2.0	18	0	6.3	6.0	.1	20	54
SEP. 09...	.5	2.3	18	0	5.7	5.5	.1	16	48



## RED RIVER BASIN

07346050 Little Cypress Creek near Ore City, Tex.

LOCATION.--Lat 32°40'21", long 94°45'03", Upshur County (revised), on right bank at downstream side of bridge on U.S. Highway 259, 4 miles (6 km) downstream from Clear Creek, 9 miles (14 km) south of Ore City, and 12 miles (19 km) north of Longview.

DRAINAGE AREA.--383 mi<sup>2</sup> (992 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 232.67 ft (70.918 m) above mean sea level.

AVERAGE DISCHARGE.--13 years (1963-76), 283 ft<sup>3</sup>/s (8.015 m<sup>3</sup>/s), 10.04 in/yr (255 mm/yr), 205,000 acre-ft/yr (253 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 2,100 ft<sup>3</sup>/s (59.5 m<sup>3</sup>/s) July 2 (gage height, 10.88 ft or 3.316 m); minimum, 0.31 ft<sup>3</sup>/s (0.009 m<sup>3</sup>/s) Oct. 18.

Period of record: Maximum discharge, 23,500 ft<sup>3</sup>/s (666 m<sup>3</sup>/s) Apr. 24, 1966 (gage height, 20.20 ft or 6.157 m); no flow at times. Maximum stage since at least 1902 occurred in March 1945; maximum stage since 1945, that of Apr. 24, 1966. The flood in April 1958 reached a stage of 19.4 ft (5.91 m), or 1.3 ft (0.40 m) lower than the flood of March 1945 at a point 6 miles (10 km) upstream, from information by local resident.

REMARKS.--Records good except those for Oct. 24 to Nov. 22, which are fair. No known diversion above station. During the water year, the city of Gilmer discharged 597 acre-ft (736,000 m<sup>3</sup>) of sewage effluent into tributaries above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.7	30	71	75	139	101	397	187	122	406	18	33
2	4.3	40	74	284	122	97	358	165	110	1810	16	52
3	3.1	60	73	220	113	93	308	155	80	1170	14	62
4	2.4	65	72	92	107	91	255	135	65	799	12	75
5	1.8	50	70	74	105	131	205	116	55	651	12	78
6	1.3	43	68	70	105	201	165	158	48	749	11	62
7	.95	37	67	68	103	192	140	240	44	741	12	41
8	1.1	35	67	69	99	499	125	296	44	647	11	26
9	.79	32	65	67	99	1080	114	336	38	586	11	19
10	.79	29	66	65	99	1090	106	390	36	540	11	15
11	.90	27	65	66	100	912	99	427	32	447	11	12
12	1.3	26	64	68	99	1440	92	459	29	353	10	10
13	1.0	25	63	68	97	1480	87	531	26	237	9.8	9.6
14	.56	23	62	67	95	1220	85	580	23	119	9.5	10
15	.48	22	62	65	93	986	84	598	19	76	8.9	9.8
16	.41	21	65	62	92	796	84	554	22	78	8.3	9.1
17	.38	20	65	60	101	638	81	535	22	144	7.7	9.0
18	.38	28	64	57	191	503	78	558	26	261	7.6	12
19	.74	37	64	57	248	403	78	625	53	415	7.4	13
20	.56	70	63	65	240	325	85	650	104	666	8.9	24
21	.48	80	63	80	267	275	115	587	83	741	8.3	24
22	.44	70	62	74	295	237	150	466	84	473	7.2	19
23	.52	68	64	69	265	206	193	292	56	149	7.0	17
24	.95	66	66	67	232	203	258	146	36	80	6.7	16
25	4.8	61	76	297	199	275	316	99	39	65	6.2	14
26	20	59	96	594	161	428	311	83	78	53	5.4	12
27	35	57	86	604	133	549	285	90	110	43	5.8	16
28	30	57	85	468	116	519	257	103	164	35	4.5	27
29	28	58	120	335	106	452	231	100	111	31	4.0	44
30	26	61	134	241	---	443	219	89	64	26	4.5	40
31	24	---	86	175	---	433	---	88	---	21	6.3	---
TOTAL	199.13	1357	2268	4723	4221	16298	5361	9838	1823	12612	283.0	810.5
MEAN	6.42	45.2	73.2	152	146	526	179	317	60.8	407	9.13	27.0
MAX	35	80	134	604	295	1480	397	650	164	1810	18	78
MIN	.38	20	62	57	92	91	78	83	19	21	4.0	9.0
CFSM	.02	.12	.19	.40	.38	1.37	.47	.83	.16	1.06	.02	.07
IN.	.02	.13	.22	.46	.41	1.58	.52	.96	.18	1.22	.03	.08
AC-FT	395	2690	4500	9370	8370	32330	10630	19510	3620	25020	561	1610
CAL YR 1975	TOTAL	142601.23	MEAN	391	MAX	6600	MIN	.38	CFSM	1.02	IN	13.85
WTR YR 1976	TOTAL	59793.63	MEAN	163	MAX	1810	MIN	.38	CFSM	.43	IN	5.81
										AC-FT	282800	
										AC-FT	118600	

PEAK DISCHARGE (BASE, 2,000 FT<sup>3</sup>/S).--July 2 (0700) 2,100 ft<sup>3</sup>/s (10.88 ft).

## 07346070 Little Cypress Creek near Jefferson, Tex.

LOCATION.--Lat 32°42'46", long 94°20'44", Harrison-Marion County line, near center of channel at downstream side of bridge on U.S. Highway 59, 0.3 mile (0.5 km) downstream from Texas and Pacific Railway Co. bridge, 3.3 miles (5.3 km) downstream from Grays Creek, 3.5 miles (5.6 km) south of Jefferson, and 6.8 miles (10.9 km) upstream from mouth.

DRAINAGE AREA.--675 mi<sup>2</sup> (1,748 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: June 1946 to current year (monthly discharge only for June 1946 to September 1963, published in WSP 1920).  
Water quality: Chemical and biochemical analyses: October 1967 to current year. Pesticide analyses: January 1968 to current year. Water temperatures: October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 174.60 ft (53.218 m) above mean sea level. Prior to Sept. 19, 1947, nonrecording gage at upstream side of bridge at same datum.

AVERAGE DISCHARGE.--30 years, 538 ft<sup>3</sup>/s (15.24 m<sup>3</sup>/s), 10.82 in/yr (275 mm/yr), 389,800 acre-ft/yr (481 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 1,710 ft<sup>3</sup>/s (48.4 m<sup>3</sup>/s) July 6 (gage height, 11.00 ft or 3.353 m); minimum, 0.18 ft<sup>3</sup>/s (0.005 m<sup>3</sup>/s) Oct. 23 (gage height, 1.92 ft or 0.585 m).  
Period of record: Maximum discharge, 35,500 ft<sup>3</sup>/s (1,010 m<sup>3</sup>/s) Apr. 26, 1966 (gage height, 22.28 ft or 6.791 m); no flow at times.  
Historic: Maximum stage since May 1944, that of Apr. 26, 1966; flood in May 1944 reached a stage of 21.1 ft (6.43 m).  
Water quality: Current year: Maximum daily specific conductance, 598 micromhos Sept. 28; minimum daily, 72 micromhos July 5. Maximum water temperatures, 28.0°C on several days during August; minimum, 5.0°C Dec. 25, 26, Jan. 8.  
Period of record: Maximum daily specific conductance, 1,350 micromhos Nov. 9, 1969; minimum daily, 39 micromhos Apr. 20, 1973.  
Maximum water temperatures, 30.5°C Aug. 6, 8, 1970; minimum, 1.5°C Jan. 9, 10, 1970.

REMARKS.--Discharge records good. For record of discharges into tributaries above this station, see Little Cypress Creek near Ore City (station 07346050). No known diversion above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.7	34	72	191	714	300	835	396	289	215	103	15
2	4.3	30	82	286	646	260	784	390	314	216	94	16
3	2.6	45	87	346	538	234	713	362	363	354	87	19
4	2.1	60	89	417	424	221	650	320	385	581	76	35
5	1.9	82	89	479	325	249	596	275	320	1170	66	67
6	1.9	93	88	582	270	300	551	244	210	1650	60	87
7	1.3	92	85	735	248	357	509	224	149	1660	54	99
8	.91	77	85	757	238	697	452	215	120	1460	48	106
9	.97	59	83	575	228	1140	390	233	100	1200	44	99
10	.94	47	81	347	216	1320	328	263	85	974	41	84
11	.81	41	78	242	207	1320	281	297	75	837	38	61
12	.79	37	76	209	201	1400	247	324	65	759	36	45
13	.98	34	73	203	196	1500	224	376	56	697	33	34
14	1.5	31	73	199	194	1510	207	456	48	643	32	29
15	2.5	29	75	193	191	1440	193	550	41	578	30	27
16	2.1	28	78	184	192	1430	182	623	44	518	29	25
17	.71	26	81	173	200	1530	173	681	40	495	27	23
18	.52	25	80	162	283	1550	165	718	56	393	25	20
19	.50	27	77	154	304	1440	160	718	86	350	24	21
20	.35	34	74	160	315	1280	157	675	105	341	24	19
21	.27	41	71	176	380	1120	151	611	151	350	22	18
22	.22	57	69	195	446	954	146	565	203	377	20	19
23	.20	75	68	201	478	807	148	557	198	430	19	22
24	.25	86	71	205	490	693	184	578	158	496	18	34
25	1.1	82	88	293	488	625	220	586	141	556	17	34
26	5.6	73	110	419	470	642	261	559	158	560	16	29
27	15	68	131	471	440	640	298	522	206	413	15	29
28	23	65	144	515	394	611	322	425	215	239	23	31
29	37	62	153	590	344	702	356	327	215	171	19	31
30	40	68	161	684	---	910	385	257	215	140	16	30
31	45	---	177	728	---	883	---	221	---	119	15	---
TOTAL	201.02	1608	2849	11071	10060	28065	10268	13548	4811	18942	1171	1208
MEAN	6.48	53.6	91.9	357	347	905	342	437	160	611	37.8	40.3
MAX	45	93	177	757	714	1550	835	718	385	1660	103	106
MIN	.20	25	68	154	191	221	146	215	40	119	15	15
CFSM	.010	.08	.14	.53	.51	1.34	.51	.65	.24	.91	.06	.06
IN.	.01	.09	.16	.61	.55	1.55	.57	.75	.27	1.04	.06	.07
AC-FT	399	3190	5650	21960	19950	55670	20370	26870	9540	37570	2320	2400
CAL YR 1975 TOTAL	243487.42			MEAN 667	MAX 7280	MIN .20	CFSM .99	IN 13.42	AC-FT 483000			
WTR YR 1976 TOTAL	103802.02			MEAN 284	MAX 1660	MIN .20	CFSM .42	IN 5.72	AC-FT 205900			

## RED RIVER BASIN

07346070 Little Cypress Creek near Jefferson, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICRO- MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLAT- INUM- COHALT UNITS)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	BIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	HARD- NESS (CA+MG) (MG/L)
OCT.											
22...	1145	.24	242	6.2	17.5	60	15	5.8	60	1.7	27
NOV.											
24...	1410	92	244	5.9	5.0	--	--	--	--	--	29
DEC.											
03...	1200	84	224	5.9	8.0	100	15	10.2	86	2.0	28
JAN.											
31...	1430	840	163	5.9	8.5	--	--	--	--	--	21
FEB.											
04...	1215	450	275	5.7	10.0	60	10	6.8	60	.9	34
MAR.											
30...	1321	954	138	6.1	17.5	--	--	--	--	--	21
APR.											
24...	1310	325	214	5.8	18.0	140	30	6.2	65	1.3	26
MAY											
12...	1150	320	166	6.5	--	--	--	--	--	--	18
JUNE											
04...	1100	140	261	6.1	23.0	160	30	5.7	66	1.8	40
JULY											
29...	1215	140	189	5.8	27.0	120	25	5.6	71	.9	37
AUG.											
31...	1420	10	245	7.1	26.0	--	--	--	--	--	30
SEP.											
21...	1030	18	165	6.4	23.0	60	10	5.0	60	.4	25

DATE	NON- CAR- BONATE H2PO4- NFSS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAP- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)
OCT.											
22...	5	7.2	2.3	28	2.3	3.5	27	0	15	42	--
NOV.											
24...	20	7.0	2.7	28	2.3	4.9	10	0	15	51	.1
DEC.											
03...	20	7.9	1.9	24	2.0	4.4	10	0	19	40	.3
JAN.											
31...	17	4.3	2.4	18	1.7	3.0	5	0	18	30	.2
FEB.											
04...	30	9.1	2.8	29	2.2	3.6	5	0	26	51	.0
MAR.											
30...	14	5.1	2.0	13	1.2	2.6	8	0	18	20	.2
APR.											
28...	15	7.5	1.8	24	2.0	4.0	14	0	19	37	.2
MAY											
12...	9	4.1	2.0	18	1.8	2.7	12	0	18	27	.4
JUNE											
08...	25	11	3.0	31	2.1	4.2	19	0	16	51	.3
JULY											
29...	17	9.9	2.8	21	1.5	3.2	24	0	14	33	.2
AUG.											
31...	9	7.0	3.0	30	2.4	5.5	25	0	16	47	.2
SEP.											
21...	7	6.2	2.2	18	1.6	4.5	22	0	20	22	.1

## 07346070 Little Cypress Creek near Jefferson, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED SILICA (SIO <sub>2</sub> ) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NON- FILTRABLE RESIDUE (MG/L)	VOL. NON- FILTRABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)
OCT. 22...	17	128	26	0	.01	.00	.02	.62	.08	6.2
NOV. 24...	24	138	--	--	--	--	--	--	--	--
DEC. 03...	23	126	26	13	.00	.00	.04	.43	.14	--
JAN. 31...	14	92	--	--	--	--	--	--	--	--
FEB. 04...	20	144	13	4	.01	.00	.02	.61	.05	8.6
MAR. 30...	16	81	--	--	--	--	--	--	--	--
APR. 28...	19	120	27	9	.16	.01	.07	.93	.14	6.0
MAY 12...	19	97	--	--	--	--	--	--	--	--
JUNE 08...	22	149	49	16	.28	.01	.02	.36	.14	13
JULY 29...	22	119	30	5	.20	.01	.03	.67	.13	7.0
AUG. 31...	18	139	--	--	--	--	--	--	--	--
SEP. 21...	19	104	16	6	.13	.00	.04	.42	.09	8.8

DATE	TIME	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)
DEC. 03...	1200	20	0	60	0	0	0	2
APR. 28...	1310	20	0	40	0	0	0	7
JUNE 08...	1100	40	0	30	33	0	0	3
JULY 29...	1215	140	1	--	2	0	1	4
SEP. 21...	1030	40	1	--	0	7	0	0

DATE	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
DEC. 03...	100	0	0	0	.0	0	250	20
APR. 28...	320	3	10	40	.0	14	300	340
JUNE 08...	480	--	20	240	.1	0	250	150
JULY 29...	490	2	10	240	.1	3	260	10
SEP. 21...	190	0	10	190	.1	1	240	30

## RED RIVER BASIN

07346070 Little Cypress Creek near Jefferson, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	TOTAL PCB (UG/L)	PCB IN BOTTOM MA- TERIAL (UG/KG)	POLY- CHLO- RINATED NAPH- THA- LENES (UG/L)	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL CHLOR- DANE (UG/L)	CHLOR- DANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDD (UG/L)	DDD IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDE (UG/L)	DDE IN BOTTOM MA- TERIAL (UG/KG)
DEC. 03...	1200	.0	140	--	.00	.0	.0	12	.00	1.7	.00	.0
APR. 28...	1310	.0	0	.00	.00	.0	.0	0	.00	.0	.00	.0
JUNE 08...	1100	.0	0	.00	.00	.0	.0	8	.00	2.2	.00	.0
JULY 29...	1215	.0	0	.00	.00	.0	.0	0	.00	.0	.00	.0
SEP. 21...	1030	.0	31	.00	.00	.0	.0	6	.00	2.6	.00	1.3

DATE	TOTAL DDT (UG/L)	DDT IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DI- AZINON (UG/L)	TOTAL DI- ELDRIN (UG/L)	DI- ELDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ENDRIN (UG/L)	ENDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ETHION (UG/L)	HEPTA- CHLOR IN BOTTOM MA- TERIAL (UG/KG)	TOTAL HEPTA- CHLOR EPOXIDE (UG/L)	HEPTA- CHLOR EPOXIDE IN BOT- TOM MA- TERIAL (UG/KG)
DEC. 03...	.00	.0	.00	.00	.3	.00	.0	.00	.00	.0	.00
APR. 28...	.00	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00
JUNE 08...	.00	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00
JULY 29...	.00	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00
SEP. 21...	.00	2.5	.00	.01	.5	.00	.0	.00	.00	.0	.00

DATE	TOTAL LINDANE (UG/L)	LINDANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL MALA- THION (UG/L)	TOTAL METHYL PARA- THION (UG/L)	TOTAL METHYL TRI- THION (UG/L)	TOTAL PARA- THION (UG/L)	TOTAL TOX- APHENE (UG/L)	TOX- APHENE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)
DEC. 03...	.00	.0	.00	.00	.00	.00	0	0	.00	.00	.00	.00
APR. 28...	.00	.0	.00	.00	.00	.00	0	0	.00	.00	.00	.00
JUNE 08...	.00	.0	--	.00	.00	.00	0	0	.00	.00	.00	.00
JULY 29...	.00	.0	.00	.00	.00	.00	0	0	.00	.00	.00	.00
SEP. 21...	.00	.0	.00	.00	.00	.00	0	0	.00	.00	.00	.00

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	201.02	324	180	96	60	33	29	16	42
NOV. 1975.....	1608	257	140	618	47	203	24	102	36
DEC. 1975.....	2849	262	140	1110	48	369	24	186	36
JAN. 1976.....	11071	223	120	3740	40	1190	21	624	33
FEB. 1976.....	9716	224	120	3270	40	1050	21	550	33
MAR. 1976.....	28065	141	83	6300	22	1670	14	1040	25
APR. 1976.....	10268	199	110	3130	35	958	19	519	30
MAY 1976.....	13548	170	98	3570	28	1040	16	596	27
JUNE 1976.....	4811	213	120	1550	38	487	20	260	32
JULY 1976.....	18942	129	77	3930	20	1030	13	653	24
AUG. 1976.....	1171	233	130	410	42	132	22	68	34
SEPT 1976.....	1208	260	140	463	48	156	24	78	36
TOTAL .....	103458	**	**	28200	**	8320	**	4690	**
WTD.AVG. ....	283.45	176	100	**	30	**	17	**	28

## RED RIVER BASIN

261

07346070 Little Cypress Creek near Jefferson, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	227	228	255	190	177	221	159	184	194	154	208	246
2	230	232	239	179	210	232	164	187	197	151	215	255
3	229	348	223	170	245	240	174	210	198	140	212	263
4	229	447	214	126	271	253	183	207	196	77	214	238
5	227	350	224	115	326	230	192	211	225	72	217	291
6	226	206	279	119	303	214	195	198	222	74	216	318
7	227	225	277	139	332	175	205	198	270	80	217	483
8	226	255	282	150	341	130	209	200	269	101	219	218
9	227	279	240	227	337	116	212	198	262	115	218	199
10	230	250	238	285	311	115	217	209	246	126	220	192
11	233	230	270	339	248	122	222	177	246	136	222	189
12	234	231	279	365	235	121	225	160	233	149	223	183
13	231	229	316	336	220	112	226	149	237	166	229	176
14	234	227	328	353	220	112	234	143	248	193	232	173
15	234	235	347	376	220	121	243	140	258	217	232	171
16	236	234	345	413	221	122	239	153	249	205	252	169
17	236	233	338	369	234	122	250	160	236	177	288	173
18	235	240	328	371	200	125	250	161	245	190	295	171
19	234	243	306	355	199	131	238	162	259	198	301	170
20	233	245	345	364	206	137	237	158	243	193	299	169
21	234	284	336	409	200	145	235	146	305	198	280	163
22	235	253	328	369	193	150	238	145	229	146	255	175
23	234	255	282	379	175	158	229	142	221	117	249	200
24	233	256	236	435	173	164	226	151	215	98	265	266
25	226	254	213	320	179	170	221	158	200	108	280	180
26	230	255	234	228	191	178	183	180	188	133	273	171
27	245	247	213	191	201	184	185	184	170	156	269	219
28	258	240	210	170	203	191	208	191	173	175	286	598
29	571	222	211	184	209	180	186	184	176	184	266	543
30	345	213	267	174	---	140	184	218	156	199	255	440
31	249	---	197	163	---	147	---	240	---	206	245	---
MONTH	248	255	271	270	234	160	212	178	226	149	247	247

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.0	16.5	6.5	---	8.5	17.0	16.5	17.0	22.5	---	---	24.0
2	20.0	8.5	7.0	---	9.5	17.0	17.0	17.0	22.5	24.5	---	25.0
3	19.0	17.0	7.5	8.0	10.5	17.5	17.0	18.0	22.5	24.0	---	25.0
4	19.0	18.0	8.0	7.5	11.5	18.0	---	19.0	22.5	24.0	---	25.0
5	19.0	18.0	8.5	6.5	10.5	17.5	18.0	19.0	22.5	24.5	---	26.0
6	20.0	18.0	8.5	6.0	11.0	17.0	18.5	19.0	23.0	24.0	---	26.0
7	---	18.0	9.0	6.0	11.0	---	19.0	19.0	23.5	---	---	25.5
8	21.0	11.0	9.5	5.0	11.0	16.5	19.0	18.5	23.5	24.0	---	25.0
9	21.0	18.0	10.0	6.0	11.5	16.0	19.0	18.5	23.0	24.5	---	25.0
10	20.0	17.0	10.5	---	12.0	---	---	19.0	23.0	25.0	---	25.0
11	22.0	17.5	10.5	6.5	11.5	16.5	19.0	20.0	23.5	25.0	27.0	23.0
12	22.0	16.0	11.0	6.5	11.5	16.5	19.0	21.0	24.0	24.5	27.0	23.0
13	21.0	15.0	13.0	7.5	12.0	15.5	18.5	20.0	25.0	25.0	27.0	23.0
14	21.0	14.0	15.0	8.0	11.5	16.0	19.0	18.5	25.0	25.0	27.0	22.0
15	21.0	13.0	14.0	9.0	12.0	16.0	20.0	17.5	26.0	25.0	27.0	22.0
16	22.0	---	13.0	10.0	11.5	15.5	20.0	17.5	25.5	25.0	27.0	21.0
17	22.0	14.0	12.0	9.0	11.0	15.5	---	18.5	25.5	25.0	28.0	22.0
18	21.0	14.5	10.0	8.5	11.5	15.0	20.5	---	25.0	25.0	28.0	24.0
19	21.0	14.0	8.0	8.5	12.0	15.5	21.0	18.0	25.5	25.0	28.0	25.0
20	18.0	14.0	6.5	8.5	11.5	---	---	19.0	23.5	25.0	28.0	23.0
21	16.0	13.0	---	8.0	---	---	21.0	19.0	23.5	25.0	28.0	22.0
22	18.0	12.0	6.0	8.5	10.5	---	21.0	19.0	24.0	25.0	28.0	---
23	---	---	6.0	8.5	11.0	---	21.0	20.0	---	25.0	28.0	---
24	21.0	8.0	5.5	9.0	11.5	---	20.0	---	24.5	25.0	28.0	23.0
25	19.0	7.0	5.0	---	11.5	---	20.0	20.5	---	25.0	27.0	23.0
26	18.0	6.5	5.0	10.5	---	---	20.0	20.0	25.0	25.0	27.0	23.5
27	16.5	---	5.5	10.0	12.0	---	---	19.5	24.5	---	28.0	23.0
28	18.0	7.0	---	10.0	12.0	16.0	19.0	20.5	---	26.5	26.0	22.0
29	17.0	7.0	6.5	9.5	11.5	16.0	18.0	19.5	---	26.5	27.0	21.5
30	18.0	6.5	6.5	---	---	16.0	17.0	---	25.0	26.5	26.5	19.0
31	17.5	---	7.0	8.5	---	16.5	---	22.0	---	---	26.0	---
MONTH	19.5	13.5	8.5	8.0	11.0	---	19.0	19.0	24.0	25.0	---	23.5



## RED RIVER BASIN

07346140 Frazier Creek near Linden, Tex.

LOCATION.--Lat 33°03'16", long 94°17'22", Cass County, on right bank at downstream side of bridge on U.S. Highway 59, 1.6 miles (2.6 km) upstream from Colley Creek, 3.7 miles (6.0 km) upstream from Johns Creek, and 5.5 miles (8.8 km) northeast of Linden.

DRAINAGE AREA.--48.0 mi<sup>2</sup> (124.3 km<sup>2</sup>).

PERIOD OF RECORD.--August 1958 to June 1961 (low-flow partial-record only), November 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is 228.7 ft (69.71 m) above mean sea level (State Highway Department bridge plans).

AVERAGE DISCHARGE.--11 years (1965-76), 44.9 ft<sup>3</sup>/s (1.272 m<sup>3</sup>/s), 12.70 in/yr (323 mm/yr), 32,530 acre-ft/yr (40.1 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 1,820 ft<sup>3</sup>/s (51.5 m<sup>3</sup>/s) Mar. 9 (gage height, 10.32 ft or 3.146 m); no flow Aug. 25-30.  
Period of record: Maximum discharge, 5,010 ft<sup>3</sup>/s (142 m<sup>3</sup>/s) Apr. 22, 1974 (gage height, 12.51 ft or 3.813 m); no flow at times in 1964-73 and 1976.  
Maximum stage since at least 1945, 15.6 ft (4.75 m) Apr. 26, 27, 1958, from information by State Highway Department.

REMARKS.--Records good. No known diversion.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	3.7	31	27	39	26	55	25	23	30	1.5	3.8
2	.94	4.4	20	69	35	25	46	19	16	38	1.2	7.4
3	.99	28	14	91	32	24	40	15	12	31	.98	3.0
4	.98	48	13	40	31	24	37	12	10	23	.92	5.5
5	1.0	18	12	28	32	55	34	11	8.4	32	.81	4.8
6	1.0	11	12	26	48	59	32	57	7.6	30	.72	2.2
7	1.1	8.8	12	28	46	48	30	117	7.8	19	.65	1.3
8	1.1	7.9	12	31	35	539	28	65	7.1	14	.53	.81
9	1.0	7.4	12	23	32	1120	25	35	5.7	13	.45	.66
10	1.0	7.0	12	23	30	346	23	23	4.9	12	.37	.74
11	.96	6.5	11	25	29	224	22	21	4.5	15	.32	1.4
12	.93	5.8	11	24	28	155	21	17	4.0	12	.25	1.1
13	.78	5.4	11	23	27	120	27	36	3.6	9.3	.22	.75
14	.71	5.5	12	21	26	108	28	75	3.4	8.1	.18	1.1
15	.68	5.3	12	19	25	115	24	147	4.9	7.6	.16	1.3
16	.70	5.8	14	19	25	95	21	115	382	6.7	.12	.94
17	.75	6.3	14	18	36	73	19	61	157	8.0	.10	.85
18	.77	6.5	12	17	104	64	18	35	352	17	.07	1.2
19	1.1	7.1	11	18	91	60	20	25	899	62	.05	2.5
20	1.1	17	11	32	61	59	46	20	330	25	.05	3.8
21	1.3	27	11	43	86	57	97	18	115	13	.05	26
22	1.2	14	11	28	83	50	40	16	45	9.4	.04	13
23	1.3	9.6	11	24	54	43	24	14	30	7.6	.02	4.9
24	1.5	9.5	12	24	41	48	24	14	25	6.6	.01	3.0
25	2.5	9.5	34	207	34	79	30	14	45	5.8	0	2.3
26	7.4	10	52	331	32	84	25	12	73	5.0	0	1.8
27	7.1	12	33	184	29	70	18	52	64	4.3	0	2.1
28	5.8	12	23	78	28	59	16	44	86	3.5	0	4.1
29	5.3	11	64	58	27	115	17	23	101	2.9	0	4.1
30	4.7	16	82	48	---	122	27	17	49	2.3	0	3.5
31	4.1	---	38	43	---	73	---	18	---	1.9	.01	---
TOTAL	60.80	346.0	640	1670	1226	4139	914	1173	2875.9	475.0	9.78	109.95
MEAN	1.96	11.5	20.6	53.9	42.3	134	30.5	37.8	95.9	15.3	.32	3.67
MAX	7.4	48	82	331	104	1120	97	147	899	62	1.5	26
MIN	.68	3.7	11	17	25	24	16	11	3.4	1.9	0	.66
CFSM	.04	.24	.43	1.12	.88	2.79	.64	.79	2.00	.32	.006	.08
IN.	.05	.27	.50	1.29	.95	3.21	.71	.91	2.23	.37	.008	.09
AC-FT	121	686	1270	3310	2430	8210	1810	2330	5700	942	19	218

CAL YR 1975 TOTAL 26519.70 MEAN 72.7 MAX 1680 MIN .68 CFSM 1.51 IN 20.55 AC-FT 52600  
WTR YR 1976 TOTAL 13639.43 MEAN 37.3 MAX 1120 MIN 0 CFSM .78 IN 10.57 AC-FT 27050

PEAK DISCHARGE (BASE, 700 FT<sup>3</sup>/S)

DATE	TIME	G.HT.	DISCHARGE
3-9	0130	10.32	1,820
6-16	1300	9.19	711
6-18	2230	9.84	1,290

08017200 Cowleech Fork Sabine River at Greenville, Tex.

LOCATION (revised).--Lat 33°07'58", long 96°04'36", Hunt County, on left bank 103 ft (31 m) downstream from centerline of downstream bridge on Interstate Highway 30 (U.S. Highway 67), 0.3 mile (0.5 km) downstream from Horse Creek, 0.9 mile (1.4 km) downstream from Louisiana and Arkansas Railroad Co. bridge, 1.8 miles (2.9 km) east of Greenville, and at mile 558.3 (898.3 km).

DRAINAGE AREA.--77.7 mi<sup>2</sup> (201.2 km<sup>2</sup>).

PERIOD OF RECORD.--February 1959 to current year. Prior to October 1963, published as Sabine River at Greenville.

GAGE.--Water-stage recorder. Datum of gage is 485.07 ft (147.849 m) above mean sea level.

AVERAGE DISCHARGE.--17 years, 62.8 ft<sup>3</sup>/s (1.778 m<sup>3</sup>/s), 10.98 in/yr (279 mm/yr), 45,500 acre-ft/yr (56.1 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 2,550 ft<sup>3</sup>/s (72.2 m<sup>3</sup>/s) May 6 (gage height, 15.40 ft or 4.694 m); minimum, 0.24 ft<sup>3</sup>/s (0.007 m<sup>3</sup>/s) Jan. 4.

Period of record: Maximum discharge, 10,800 ft<sup>3</sup>/s (306 m<sup>3</sup>/s) May 7, 1969 (gage height, 17.95 ft or 5.471 m); no flow at times in 1964, 1969-70, 1972-73.

Maximum stage since 1895, 22 ft (6.7 m) in May 1935, from information by local resident and city engineer of Greenville. Flood of July 3, 1913, reached a stage of 20 ft (6.1 m), from information by local resident.

REMARKS.--Records fair. During the current water year, the city of Greenville reported that 4,520 acre-ft (5.57 hm<sup>3</sup>) was diverted from city lakes upstream from station and 3,830 acre-ft (4.72 hm<sup>3</sup>) was diverted from Lake Tawakoni for municipal uses; 2,630 acre-ft (3.24 hm<sup>3</sup>) of sewage effluent was returned to a tributary downstream from station. Extreme low flow is largely sustained by returned water from water treatment plant upstream.

REVISIONS (WATER YEARS).--WSP 1732: Drainage area. WSP 2122: 1960, 1963-65.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.86	.50	.86	.57	.94	.64	1.9	1.7	2.6	5.3	.39	1.9
2	.77	4.9	.53	.38	.74	.64	1.2	1.1	1.6	332	.55	1.7
3	.47	2.0	.50	.36	.84	.79	1.0	.83	1.4	65	.43	5.6
4	.38	1.3	.50	.28	.94	1.2	1.2	1.1	1.2	135	.55	2.0
5	.38	1.0	.53	.41	1.0	1.3	1.1	7.8	2.7	5.5	.51	1.0
6	.33	1.4	.77	.64	.89	.74	.94	1550	4.8	2.3	.55	.69
7	.36	.50	.60	.79	.74	7.2	.84	341	3.9	1.2	.55	.69
8	.64	.38	.57	.51	.79	240	1.3	14	1.4	1.0	.55	.79
9	1.2	.38	.72	.47	.94	200	1.2	4.6	1.2	1.8	.43	.94
10	.64	.88	.60	.51	1.1	13	.84	3.0	.94	2.3	.43	.74
11	.68	.76	.72	.55	1.5	4.4	1.3	3.1	.51	2.4	.51	.60
12	.57	1.0	.50	.64	1.1	4.7	.84	8.4	.64	2.5	.47	.43
13	.57	.65	.57	.69	1.4	2.4	2.1	108	.51	1.4	.47	.60
14	.71	.53	.50	.84	.89	2.6	1.3	38	.51	.89	.51	.87
15	1.1	.70	.47	.84	.94	2.3	.79	28	.46	.89	.55	.94
16	.59	.68	.68	.94	.89	1.7	7.7	4.4	.64	1.3	.47	.70
17	.41	.60	.57	.69	3.2	2.2	2.6	2.3	.67	3.8	.55	.70
18	.41	.75	.41	.64	1.9	2.0	132	2.1	7.0	316	.60	5.6
19	.38	1.7	.53	.64	1.4	2.0	1150	1.8	7.0	98	.51	2.5
20	.50	1.1	.47	.94	1.2	1.1	735	1.3	9.5	4.4	.43	22
21	.50	.47	.36	1.0	4.0	1.1	171	1.3	1.8	2.0	.47	7.6
22	1.4	.31	.50	.94	.89	2.0	11	1.2	.94	1.0	.43	2.7
23	1.5	.33	.68	1.0	.84	1.1	26	4.0	.84	.79	.64	1.4
24	1.6	.36	4.5	.74	1.0	10	204	2.1	1.0	.55	1.3	.94
25	.78	.47	6.1	.74	.79	4.4	26	2.7	97	.55	.74	.99
26	.76	.36	.77	.74	1.0	3.3	4.6	3.3	12	.43	.51	5.4
27	.58	.68	.47	.55	.79	2.2	2.3	3.1	2.3	.54	.60	3.1
28	.56	.64	.38	.64	.64	9.0	8.3	1.8	1.2	.49	2.1	1.2
29	.38	.72	.31	1.0	.64	76	9.1	1.1	.79	1.0	1.2	.91
30	.68	3.1	.36	.69	---	29	3.3	.94	---	.60	1.0	.97
31	1.1	---	.44	.64	---	3.2	---	5.1	---	.55	3.0	---
TOTAL	21.79	29.15	26.47	21.01	33.93	632.21	2510.75	2149.17	167.84	991.48	22.00	76.20
MEAN	.70	.97	.85	.68	1.17	20.4	83.7	69.3	5.59	32.0	.71	2.54
MAX	1.6	4.9	6.1	1.0	4.0	240	1150	1550	97	332	3.0	22
MIN	.33	.31	.31	.28	.64	.64	.79	.83	.46	.43	.39	.43
CFSM	.009	.01	.01	.008	.02	.26	1.08	.89	.07	.41	.009	.03
IN.	.01	.01	.01	.01	.02	.30	1.20	1.03	.08	.47	.01	.04
AC-FT	43	58	53	42	67	1250	4980	4260	333	1970	44	151

CAL YR 1975 TOTAL 21361.10 MEAN 58.5 MAX 3050 MIN .19 CFSM .75 IN 10.23 AC-FT 42370  
WTR YR 1976 TOTAL 6682.00 MEAN 18.3 MAX 1550 MIN .28 CFSM .24 IN 3.20 AC-FT 13250

PEAK DISCHARGE (BASE, 2,000 FT<sup>3</sup>/S).--May 6 (1800) 2,550 ft<sup>3</sup>/s (15.40 ft).

## SABINE RIVER BASIN

08017300 South Fork Sabine River near Quinlan, Tex.

LOCATION.--Lat 32°53'52", Long 96°15'11", Hunt County, on right bank at downstream side of bridge on Farm Road 1565, 2.4 miles (3.9 km) upstream from Dry Creek, 6.2 miles (10.0 km) upstream from Bearpen Creek, 7 miles (11 km) southwest of Quinlan, and 25 miles (40 km) upstream from mouth.

DRAINAGE AREA.--78.7 mi<sup>2</sup> (203.8 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 461.40 ft (140.635 m) above mean sea level.

AVERAGE DISCHARGE.--17 years, 67.6 ft<sup>3</sup>/s (1.914 m<sup>3</sup>/s), 11.66 in/yr (296 mm/yr), 48,980 acre-ft/yr (60.4 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 13,600 ft<sup>3</sup>/s (385 m<sup>3</sup>/s) Apr. 19 (gage height, 17.03 ft or 5.191 m); no flow for many days.  
 Period of record: Maximum discharge, 14,500 ft<sup>3</sup>/s (411 m<sup>3</sup>/s) May 7, 1969 (gage height, 16.93 ft or 5.160 m); maximum gage height, 17.03 ft (5.191 m) Apr. 19, 1976; no flow at times each year.  
 Maximum stage since at least 1890, 21 ft (6.4 m) July 29, 1902, from information by local resident. Flood of Apr. 27, 1957, reached a stage of 17.76 ft (5.413 m), from floodmarks.

REMARKS.--Records good. Recording rain gage located at station. Records furnished by the city of Royse City show that 120 acre-ft (148,000 m<sup>3</sup>) of sewage effluent was returned to the stream above this station.

REVISIONS.--WSP 1732: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						0	24	27	104	14		0
2						0	23	23	32	16		0
3						0	22	21	26	21		0
4						0	22	19	23	24		0
5						0	22	29	30	112		0
6						0	21	1490	31	309		0
7						0	20	469	22	29		0
8						98	20	51	19	23		0
9						106	20	29	17	19		0
10						36	19	25	16	18		0
11						31	19	22	16	211		0
12						29	19	22	15	931		0
13						29	25	54	15	76		0
14						28	26	32	15	28		0
15						27	22	25	14	23		0
16						26	21	20	14	271		0
17						25	25	18	14	900		0
18						25	60	17	15	49		0
19						24	6830	16	53	118		0
20						24	1380	15	37	9.7		0
21						23	188	15	23	2.6		0
22						23	38	14	19	1.1		0
23						22	30	232	17	.38		0
24						24	452	1220	16	.15		0
25						26	65	122	17	.34		0
26						27	31	146	19	5.5		0
27						29	26	477	17	2.3		.35
28						27	23	49	16	.70		.21
29						30	28	31	15	.16		.13
30						31	31	27	14	.04		.20
31		---			---	26	---	587	---	0		---
TOTAL	0	0	0	0	0	796	9552	5344	701	3214.97	0	.89
MEAN	0	0	0	0	0	25.7	318	172	23.4	104	0	.030
MAX	0	0	0	0	0	106	6830	1490	104	931	0	.35
MIN	0	0	0	0	0	0	19	14	14	0	0	0
CFSM	0	0	0	0	0	.33	4.04	2.19	.30	1.32	0	0
IN.	0	0	0	0	0	.38	4.51	2.53	.33	1.52	0	.0004
AC-FT	0	0	0	0	0	1580	18950	10600	1390	6380	0	1.8

CAL YR 1975	TOTAL	23004.39	MEAN	63.0	MAX	5100	MIN	0	CFSM	.80	IN	10.87	AC-FT	45630
WTR YR 1976	TOTAL	19608.86	MEAN	53.6	MAX	6830	MIN	0	CFSM	.68	IN	9.27	AC-FT	38890

PEAK DISCHARGE (BASE, 1,800 FT<sup>3</sup>/S)

DATE	TIME	G.HT.	DISCHARGE
4-19	0830	17.03	13,600
5-6	1300	15.28	2,450
5-24	0845	15.09	1,910

## SABINE RIVER BASIN

265

08017400 Lake Tawakoni near Wills Point, Tex.

LOCATION.--Lat 32°48'40", long 95°54'56", Rains-Van Zandt County line, in stairwell at left end of spillway of Iron Bridge Dam on Sabine River, 750 ft (229 m) upstream from bridge on Farm Road 47, 3 miles (5 km) upstream from McBee Creek, 9.0 miles (14.5 km) northeast of Wills Point, and at mile 514.5 (827.8 km).

DRAINAGE AREA.--756 mi<sup>2</sup> (1,958 km<sup>2</sup>).

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

Water quality: Chemical analyses: October 1969 to current year.

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

EXTREMES.--Current year: Maximum contents, 1,005,000 acre-ft (1.24 km<sup>3</sup>) Apr. 21 (elevation, 439.36 ft or 133.917 m); minimum, 842,800 acre-ft (1.04 km<sup>3</sup>) Mar. 6 (elevation, 434.84 ft or 132.539 m).

Period of record: Maximum contents, 1,130,000 acre-ft (1.39 km<sup>3</sup>) May 1, 1966 (elevation, 442.58 ft or 134.900 m); minimum since lake first filled in May 1965, 802,700 acre-ft (990 hm<sup>3</sup>) Oct. 21, 1972 (elevation, 433.65 ft or 132.177 m).

REMARKS.--Lake is formed by a rolled earthfill dam 29,560 ft (9,010 m) long, including a 480-foot (146-meter) uncontrolled concrete ogee spillway. Outlet works consist of two 4- by 6-foot (1.2- by 1.8-meter) sluice gates and two 20-inch (508-millimeter) steel pipes controlled by service valves. Closure of earthen dam began July 1, 1960, and deliberate impoundment of water began Oct. 7, 1960. Capacity table is based on 1956 survey. Records furnished by Sabine River Authority show that during year the city of Dallas diverted 23,280 acre-ft (28.7 hm<sup>3</sup>) of water for municipal use in the Trinity River basin and that 16 other users in the Sabine River basin diverted 6,010 acre-ft (7.41 hm<sup>3</sup>). Lake built for water conservation. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	454.0	-
Design flood.....	446.2	1,290,000
Crest of spillway.....	437.5	936,200
Lowest intake to wet well (invert).....	416.5	342,700
Lowest gated outlet (invert).....	378.0	0

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

434.0	814,300	438.0	954,300
435.0	848,200	439.0	991,200
436.0	882,800	440.0	1,029,000
437.0	918,200		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	887000	869300	857500	855100	846500	843400	853000	967200	958000	937700	937000	912200
2	884900	873100	857900	855100	846500	843400	852300	963900	956500	936600	935900	912200
3	883800	873400	857500	853400	846100	843400	852700	961300	954700	939500	934400	915300
4	883100	872400	857900	851600	845500	844500	852700	959100	952900	943800	933000	914600
5	882800	871700	857500	850900	848200	843800	852300	961700	951800	943100	932300	914300
6	881700	871400	858600	850600	847200	842800	852000	993500	950700	942800	931500	913200
7	881400	871000	857900	850600	844800	844800	852000	1003000	949600	940900	930800	912900
8	881100	870700	858900	850600	844800	854100	851600	997300	948500	941700	929700	912200
9	880700	871400	857200	849200	844800	853000	850900	990500	947100	944900	929000	912200
10	880700	868900	856100	849900	844800	853000	850600	985300	946000	944600	927200	909300
11	880400	871400	856500	850600	844800	854100	850600	980900	944900	944600	926500	907600
12	879700	869600	856100	849600	844800	855800	850300	977200	944200	945300	925000	906800
13	879300	866200	855800	850600	845100	853400	849900	975700	943100	945300	924300	906800
14	879000	864400	857500	850300	844100	853400	849200	975400	941700	945300	923200	906500
15	879300	864100	858600	849900	844800	857500	848500	970900	942400	943800	922100	905800
16	878600	863800	856800	850300	845500	853000	851300	969500	941700	945300	921800	905400
17	878300	863400	858200	849200	845800	852000	852700	965800	941300	945300	921100	905100
18	876600	863100	855100	847800	846500	851300	862000	962800	943500	945600	920000	907200
19	875200	866500	854100	848900	846100	850900	974600	960200	943500	947800	918200	906800
20	874500	865800	854800	849600	847200	852700	1004000	958800	942400	947800	917500	912900
21	873800	863400	853700	849600	846500	851600	1003000	956900	941300	946700	916800	911100
22	873400	861700	853400	848900	845800	851600	996500	955100	940200	945600	916000	910000
23	873100	859900	853000	847500	845500	849900	992000	960600	939500	944900	914600	909300
24	875500	860300	856500	848900	845500	853400	993100	961300	941700	944200	915000	909000
25	873100	858600	856800	849200	844500	851600	988300	962800	942400	943100	913900	908300
26	871700	857900	855800	849600	844100	855800	982400	963600	942000	942000	912900	910400
27	871400	856800	854400	847800	844100	853400	977600	963600	941700	941300	912200	910000
28	871400	856100	856800	847800	843800	854400	976100	961000	940900	940200	911400	909700
29	871400	858200	856100	847500	843100	855100	973900	958800	939900	939500	911100	908600
30	870000	858900	854100	847200	---	854100	971300	958000	938800	938400	910000	907600
31	869300	---	854100	847200	---	853700	---	957300	---	937700	911100	---
(+)	435.61	435.31	435.17	434.97	434.85	435.16	438.46	438.08	437.57	437.54	436.80	436.70
(*)	-18100	-10400	-4800	-6900	-4100	+10600	+117600	-14000	-18500	-1100	-26600	-3500
(+)	2110	2380	916	1400	2270	2450	2080	2120	1790	2100	6010	3670
MAX	887000	873400	858900	855100	848200	857500	1004000	1003000	958000	947800	937000	915300
MIN	869300	856100	853000	847200	843100	842800	848500	955100	938800	936600	910000	905100

CAL YR 1975..... \* -98100

WTR YR 1976..... \* +20200

++ 22980

++ 29300

MAX 1040000

MAX 1004000

MIN 853000

MIN 842800

+ Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

++ Diversions, in acre-feet, for municipal use.

## SABINE RIVER BASIN

08017400 Lake Tawakoni near Wills Point, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA, MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN 27...	0900	215	7.9	7.0	81	0	29	2.8	11
DATE	SODIUM ADSORPTION RATIO	DISSOLVED PHOSPHATE (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SiO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
JAN 27...	.5	3.4	100	0	15	6.9	.3	1.7	118

## SABINE RIVER BASIN

267

08017410 Sabine River near Wills Point, Tex.

LOCATION.--Lat 32°48'34", long 95°54'46", Van Zandt County, on right bank at downstream side of bridge on Farm Road 47, 750 ft (229 m) downstream from Iron Bridge Dam which forms Lake Tawakoni, 3.0 miles (4.8 km) upstream from McBee Creek, 9.0 miles (14.5 km) northeast of Wills Point, and at mile 54.3 (827.5 km).

DRAINAGE AREA.--756 mi<sup>2</sup> (1,958 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: October 1970 to current year.

Water quality: Chemical and biochemical analyses: July 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 370.00 ft (112.776 m) above mean sea level.

AVERAGE DISCHARGE.--6 years, 503 ft<sup>3</sup>/s (14.24 m<sup>3</sup>/s), 364,400 acre-ft/yr (449 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 3,910 ft<sup>3</sup>/s (110 m<sup>3</sup>/s) Apr. 21 (gage height, 15.60 ft or 4.755 m); minimum, 0.10 ft<sup>3</sup>/s (0.003 m<sup>3</sup>/s) for many days.

Period of record: Maximum discharge, 13,600 ft<sup>3</sup>/s (385 m<sup>3</sup>/s) Dec. 11, 1971 (gage height, 18.5 ft or 5.64 m, from graph based on gage readings); no flow in October 1971-72, April 1974, and September 1975.

Maximum discharge since construction of Iron Bridge Dam in 1960, about 21,000 ft<sup>3</sup>/s (595 m<sup>3</sup>/s) May 1, 1966, from theoretical rating curve of flow over dam 750 ft (229 m) upstream.

REMARKS.--Discharge records good except those for Apr. 23 to Aug. 24, which are fair. Flow regulated by Lake Tawakoni (see station 08017400).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	.21	.31	.31	.67	4.8	1.3	1280	815	90	66	1.4
2	2.0	.83	5.3	2.8	.65	.42	1.3	1030	811	80	61	1.4
3	.42	.73	.42	1.9	3.7	.31	1.3	920	685	130	38	1.8
4	.31	.73	.42	.31	.76	.59	1.4	760	583	190	29	1.0
5	.31	.62	.62	.21	1.5	1.9	1.4	730	523	230	20	1.0
6	.31	.62	4.4	6.0	3.2	.31	5.2	1900	468	240	10	1.0
7	5.3	.62	.52	45	.88	.83	1.4	3700	430	240	4.0	5.5
8	.42	.73	.42	1.8	.75	2.0	1.4	3850	372	235	1.5	1.0
9	.42	3.0	5.5	.10	.88	7.6	1.4	3300	322	245	1.0	33
10	.42	5.0	.31	.21	3.9	4.8	1.4	2700	281	230	5.5	4.8
11	.42	.52	.31	.31	.67	1.0	1.4	2300	230	225	1.0	.10
12	.42	53	.31	.31	.65	2.3	1.4	1950	180	220	.90	.10
13	.42	7.2	.31	7.1	.83	4.0	5.5	1850	150	220	.90	.10
14	7.0	.83	.52	.62	.73	.94	1.8	1700	140	225	.90	4.6
15	1.7	.62	7.0	.62	.73	1.1	1.8	1550	135	215	.90	.31
16	1.0	.62	.31	2.6	.73	23	2.2	1400	160	210	.90	.31
17	10	.62	3.1	.62	4.3	.95	2.0	1180	140	240	5.5	.42
18	1.6	4.1	1.0	.52	.31	.83	48	980	220	255	1.0	1.2
19	.31	2.2	.21	1.0	.21	.96	515	820	260	300	.90	.62
20	.31	19	.21	5.6	.42	1.4	3120	750	200	350	.90	13
21	4.9	5.8	.31	.73	16	1.2	3790	680	160	290	.80	28
22	.52	1.9	.31	.62	6.3	1.1	3550	590	130	240	.80	.21
23	.62	.21	.42	.73	4.7	4.9	3050	680	115	200	.80	.10
24	2.7	1.4	.94	.83	.21	1.6	2700	820	100	170	5.5	.10
25	2.3	.21	4.4	7.1	.10	1.4	2600	780	140	135	1.0	.10
26	.42	32	1.4	2.4	.10	5.3	2350	890	220	125	.94	.62
27	.31	.31	1.1	.42	.10	2.1	2000	1050	170	110	.83	1.0
28	4.9	.31	1.2	3.4	.10	1.5	1800	980	140	92	4.0	29
29	1.0	.31	2.0	.55	.21	1.3	1650	450	120	81	1.2	13
30	.21	9.6	6.7	.53	---	6.2	1480	830	105	74	1.0	.31
31	.10	---	.62	11	---	1.3	---	820	---	69	6.3	---
TOTAL	68.07	153.85	50.90	106.25	54.29	87.94	28686.6	43620	8505	5956	272.97	145.10
MEAN	2.20	5.13	1.64	3.43	1.87	2.84	956	1407	284	192	8.81	4.84
MAX	17	53	7.0	45	16	23	3790	3850	815	350	66	33
MIN	.10	.21	.21	.10	.10	.31	1.3	590	100	69	.80	.10
AC-FT	135	305	101	211	108	174	56900	86520	16870	11810	541	288

CAL YR 1975 TOTAL 192138.70 MEAN 526 MAX 7130 MIN 0 AC-FT 381100  
WTR YR 1976 TOTAL 87706.97 MEAN 240 MAX 3850 MIN .10 AC-FT 174000

NOTE.--No gage-height record Apr. 24 to June 2, June 11 to Aug. 23.



## SABINE RIVER BASIN

08017410 Sabine River near Wills Point, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICHO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	BIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)
OCT												
22...	1500	.20	216	8.4	23.5	0	4	11.7	136	1.1	80	5
NOV												
11...	1155	.20	217	8.9	18.0	0	2	12.2	128	.7	85	4
DEC												
04...	1305	.20	210	8.9	16.5	0	2	13.4	137	1.3	76	0
JAN												
06...	1700	.20	218	8.4	11.0	0	4	12.8	115	1.1	81	0
FEB												
10...	1330	.80	212	8.5	17.5	0	4	13.5	141	1.7	77	0
MAR												
02...	1310	.20	214	9.2	23.5	0	7	12.6	147	1.3	74	0
APR												
29...	1500	2100	211	7.4	18.5	0	10	8.4	89	.0	73	0
MAY												
26...	1000	820	193	7.7	20.0	0	10	8.6	93	.5	70	0
JUN												
22...	1805	75	193	7.3	24.0	0	10	8.6	105	1.1	67	0
JUL												
28...	1230	120	188	7.5	28.5	5	1	8.6	112	2.0	68	0
AUG												
12...	1600	120	214	8.4	35.0	5	6	10.4	149	2.5	76	0
SEP												
21...	1800	14	201	8.5	25.5	0	4	9.1	114	1.4	69	0

DATE	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SIO2) (MG/L)
OCT											
22...	27	3.0	12	.6	3.3	84	4	16	7.9	--	1.2
NOV											
11...	29	3.0	12	.6	3.1	82	8	15	7.7	.5	.9
DEC											
04...	26	2.8	14	.7	3.1	74	11	16	8.6	.4	.8
JAN											
06...	28	2.6	12	.6	3.3	86	8	16	7.6	.2	1.0
FEB											
10...	26	2.8	11	.5	3.1	83	7	14	7.2	.3	.2
MAR											
02...	26	2.1	13	.7	3.1	73	11	16	9.0	.4	.2
APR											
28...	25	2.5	10	.5	3.2	92	0	14	7.0	.3	1.1
MAY											
26...	25	1.8	10	.5	3.0	86	0	14	6.6	.2	1.8
JUN											
22...	23	2.3	10	.5	2.9	86	0	14	8.2	.2	2.2
JUL											
28...	24	1.9	9.5	.5	3.0	87	0	12	6.1	.3	1.3
AUG											
12...	27	1.9	11	.6	3.4	80	8	15	7.4	.3	3.8
SEP											
21...	24	2.2	10	.5	3.4	85	3	12	6.9	.3	1.9

## SABINE RIVER BASIN

269

08017410 Sabine River near Wills Point, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NON- FILT- RABLE RESIDUE (MG/L)	VOL. NON- FILT- RABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 22...	116	6	2	.00	.00	.03	.57	.06	4.6	1	.0
NOV 11...	120	4	0	.00	.01	.01	.35	.04	4.0	0	.0
DEC 04...	119	6	1	.00	.00	.07	.30	.02	5.2	0	.1
JAN 06...	121	6	1	.01	.00	.02	.17	.05	5.0	0	.0
FEB 10...	113	8	2	.00	.00	.02	.33	.04	5.0	0	.0
MAR 02...	117	10	5	.00	.00	.01	.68	.02	17	2	.0
APR 28...	108	25	2	.18	.01	.04	.40	.03	3.4	6	.0
MAY 26...	105	17	2	.26	.00	.05	.31	.05	6.1	1	.0
JUN 22...	106	17	2	.30	.01	.10	.35	.07	4.0	0	.0
JUL 28...	101	5	1	.02	.00	.03	.84	.03	3.2	0	.0
AUG 12...	118	9	1	.09	.03	.07	.55	.18	4.0	2	.0
SEP 21...	106	10	3	.02	.00	.02	.50	.05	4.2	0	.0

DATE	TIME	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)
OCT. 22...	1500	0	2	50	0	0	0	0
FEB. 10...	1330	50	1	30	1	5	1	6
JUNE 22...	1805	30	1	60	0	0	0	0
AUG. 12...	1600	20	9	--	0	0	0	0

DATE	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
OCT. 22...	10	0	0	0	.4	0	350	0
FEB. 10...	0	0	0	0	.1	0	270	0
JUNE 22...	0	0	0	0	.2	0	250	10
AUG. 12...	0	0	0	10	.1	2	250	10

## SABINE RIVER BASIN

08018200 Grand Saline Creek near Grand Saline, Tex.  
(Low-flow partial-record station)

LOCATION.--Lat 32°40'20", long 95°36'36", Van Zandt County, at bridge on U.S. Highway 80, 0.3 mile (0.5 km) downstream from Texas and Pacific Railway Co. bridge, 1.7 miles (2.7 km) upstream from mouth, and 5.5 miles (8.8 km) east of Grand Saline.

DRAINAGE AREA.--91.4 mi<sup>2</sup> (236.7 km<sup>2</sup>).

PERIOD OF RECORD.--Occasional discharge measurements: September 1964 to January 1968, October 1973 to current year. Operated as a daily discharge station January 1968 to September 1973. Occasional water-quality data: February 1968 to current year. Water temperatures: February 1968 to September 1973.

## DISCHARGE AND WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPF-CIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG)	DIS-SOLVED SODIUM (NA) (MG/L)
OCT. 16...	1125	.37	10600	7.8	27.0	320	190	90	23	2300
NOV. 18...	1350	.36	19300	7.5	20.0	460	370	140	27	4300
DEC. 16...	1600	1.9	--	--	10.0	--	--	--	--	--
JAN. 27...	1345	26	3470	6.3	7.5	180	170	43	17	630
MAR. 09...	1245	598	703	6.2	9.5	67	56	16	6.6	110
JUNE 02...	1250	330	580	6.2	24.5	75	56	18	7.4	82
JULY 13...	1745	28	677	6.8	27.5	99	72	23	10	83
AUG. 25...	0945	.48	9450	6.9	24.0	400	290	100	37	1900

DATE	SODIUM ADSORPTION RATIO	DIS-SOLVED PHOSPHATE (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SI02) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT. 16...	56	11	158	0	250	3500	--	4.1	6260
NOV. 18...	87	12	110	0	350	6600	--	8.8	11500
DEC. 16...	--	--	--	--	--	--	--	--	--
JAN. 27...	21	9.0	14	0	170	1000	.2	15	1890
MAR. 09...	5.8	5.0	14	0	53	170	.4	6.3	374
JUNE 02...	4.1	4.1	24	0	52	130	.3	8.8	314
JULY 13...	3.6	3.8	33	0	69	130	.3	12	347
AUG. 25...	41	8.0	134	0	250	3000	--	6.1	5370

## 08018500 Sabine River near Mineola, Tex.

LOCATION (revised).--Lat 32°36'49", long 95°29'08", Wood County, on left bank 5 ft (2 m) downstream from bridge on U.S. Highway 69, 3.5 miles (5.6 km) south of Mineola, 4.5 miles (7.2 km) upstream from Missouri Pacific Railway Lines bridge, 16.2 miles (26.1 km) upstream from Lake Fork Creek, and at mile 461.1 (741.9 km).

DRAINAGE AREA.--1,357 mi<sup>2</sup> (3,515 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: May 1939 to September 1959, October 1967 to current year. Gage-height records collected at this site since July 1946 are contained in reports published by the National Weather Service.

Water quality: Chemical analyses: October 1967 to current year. Water temperatures: October 1967 to current year.

GAGE (revised).--Water-stage recorder. Datum of gage is 304.16 ft (92.708 m) above mean sea level. May 12, 1939, to Dec. 11, 1955, at site 55 ft (17 m) upstream from downstream side of bridge; Dec. 12, 1955, to Dec. 12, 1959, at downstream side of bridge; Oct. 1, 1967, to Sept. 12, 1968, nonrecording gage at downstream side of bridge; Sept. 13, 1968, to Oct. 23, 1974, water-stage recorder at downstream side of bridge; Oct. 24, 1974, to Oct. 16, 1975, at site on right bank 75 ft (23 m) downstream from bridge. All gages at present datum.

AVERAGE DISCHARGE.--20 years (1939-59) prior to regulation by Lake Tawakoni, 1,054 ft<sup>3</sup>/s (29.85 m<sup>3</sup>/s), 763,600 acre-ft/yr (942 hm<sup>3</sup>/yr); 9 years (1967-76) regulated, 1,095 ft<sup>3</sup>/s (31.01 m<sup>3</sup>/s), 793,300 acre-ft/yr (978 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 26,600 ft<sup>3</sup>/s (753 m<sup>3</sup>/s) Apr. 21 (gage height, 19.75 ft or 6.020 m); minimum, 3.0 ft<sup>3</sup>/s (0.085 m<sup>3</sup>/s) Aug. 29.

Period of record: Maximum discharge, 76,000 ft<sup>3</sup>/s (2,150 m<sup>3</sup>/s) Apr. 1, 1945 (gage height, 24.00 ft or 7.315 m); maximum gage height, 24.37 ft (7.428 m) June 8, 1943; no flow at times.

Historic: Maximum stage since at least 1890, that of June 8, 1943.

Water quality: Current year: Maximum daily specific conductance, 3,950 micromhos Oct. 1; minimum daily, 96 micromhos Apr. 23.

Maximum water temperatures, 28.0°C July 28-30; minimum, 4.0°C Jan. 5, 9.

Period of record: Maximum daily specific conductance, 11,400 micromhos June 3, 1971; minimum daily, 70 micromhos Dec. 12, 1971.

Maximum water temperatures, 29.0°C on several days during summer months; minimum, 2.0°C Jan. 7, 10, 1968, Jan. 9, 1970, Jan. 12, 1973.

REMARKS.--Discharge records good. Flow partly regulated since October 1960 by Lake Tawakoni (station 08017400) located 53 miles (85 km) upstream and since September 1962 by Lake Holbrook (capacity, 7,990 acre-ft or 9.85 hm<sup>3</sup>) on a tributary stream. Flow from Keys Creek, tributary to Sabine River 8.0 miles (12.9 km) upstream, largely regulated since September 1962 by Lake Holbrook (capacity, 7,990 acre-ft or 9.85 hm<sup>3</sup>).

REVISIONS.--WSP 1732: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	12	29	24	30	25	79	3450	1610	177	68	27
2	8.9	11	29	22	27	24	60	3070	1500	230	51	26
3	7.8	18	26	20	24	23	47	2730	1370	196	48	22
4	7.0	17	22	17	23	23	43	2430	1270	438	52	72
5	6.6	16	20	15	22	27	46	2140	1170	795	52	223
6	6.3	15	20	15	22	28	43	2090	988	545	47	259
7	6.3	13	20	15	23	27	39	2330	816	411	39	245
8	6.3	12	19	13	23	561	34	3290	632	315	35	145
9	6.5	11	19	12	22	1740	32	6820	503	226	37	52
10	7.0	11	18	13	23	1500	28	6620	428	183	37	29
11	7.9	11	19	17	23	1110	25	5310	375	194	33	21
12	8.4	11	19	29	23	576	23	4420	329	313	32	16
13	8.1	12	18	28	22	255	22	4070	278	323	32	16
14	8.2	13	18	24	21	156	22	4150	219	290	32	21
15	8.2	12	17	20	23	129	21	4730	174	283	27	20
16	7.7	13	16	18	27	119	24	3740	144	266	19	16
17	4.8	12	13	16	53	105	30	3150	130	305	14	15
18	4.7	15	11	15	278	88	58	2700	177	402	11	14
19	4.7	19	10	15	238	76	878	2400	410	662	8.8	15
20	4.5	37	10	19	116	74	5680	2100	769	851	6.8	17
21	4.7	32	11	22	109	72	22500	1780	716	774	5.8	24
22	5.2	24	11	21	97	67	17900	1480	618	648	5.0	88
23	10	18	11	21	70	62	9040	1290	424	627	4.2	209
24	13	16	14	21	48	72	6550	1180	228	488	4.0	108
25	15	14	45	136	39	118	5420	1080	166	334	3.8	50
26	16	12	58	175	36	136	4690	1130	233	257	3.6	39
27	14	12	44	105	32	116	4100	1210	274	268	3.5	80
28	14	16	32	56	29	103	3770	1270	234	325	3.1	103
29	14	18	28	41	27	132	3810	1330	180	296	3.0	46
30	13	26	27	38	---	138	3710	1430	139	175	3.6	27
31	12	---	27	34	---	105	---	1570	---	96	4.2	---
TOTAL	271.8	479	681	1037	1550	7787	88724	86490	16504	11693	725.4	2045
MEAN	8.77	16.0	22.0	33.5	53.4	251	2957	2790	550	377	23.4	68.2
MAX	16	37	58	175	278	1740	22500	6820	1610	851	68	259
MIN	4.5	11	10	12	21	23	21	1080	130	96	3.0	14
AC-FT	539	950	1350	2060	3070	15450	176000	171600	32740	23190	1440	4060
CAL YR 1975 TOTAL	373757.8			1024		13200		3.7		AC-FT	741300	
WTR YR 1976 TOTAL	217987.2			596		22500		3.0		AC-FT	432400	

## SABINE RIVER BASIN

08018500 Sabine River near Mineola, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	BIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)
OCT.												
23...	1050	9.0	542	6.4	18.5	20	25	6.8	72	1.5	80	36
NOV.												
11...	1020	10	1090	6.6	15.5	30	35	6.4	63	1.8	120	78
DEC.												
04...	1125	23	1820	7.0	9.5	30	15	9.0	79	1.7	120	66
JAN.												
06...	1525	17	728	6.7	5.5	5	10	11.6	92	2.1	98	59
FEB.												
10...	1450	22	1260	6.8	13.5	2	20	9.9	94	2.0	130	100
MAR.												
02...	1500	23	689	7.0	19.5	10	25	8.4	90	1.9	130	97
APR.												
22...	1300	17600	73	6.4	19.5	--	--	--	--	--	16	3
29...	1130	5800	213	6.7	18.0	0	10	6.0	63	1.2	69	3
MAY												
26...	1030	1250	226	7.1	22.0	20	50	6.0	68	2.1	68	9
JUNE												
22...	1930	620	382	6.5	24.5	15	50	6.6	80	2.0	77	33
JULY												
28...	1515	360	269	6.8	28.5	10	35	6.7	87	1.0	68	12
AUG.												
12...	1730	32	318	6.8	29.0	5	20	7.0	92	2.2	89	13
SEP.												
21...	1655	55	324	6.7	23.5	30	40	5.5	66	1.5	63	33

DATE	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)
OCT.											
23...	23	5.4	72	3.5	3.0	54	0	36	100	--	14
NOV.											
11...	35	8.1	160	6.3	4.2	52	0	53	260	.3	16
DEC.											
04...	34	8.1	310	12	5.0	64	0	71	460	.2	14
JAN.											
06...	26	8.1	100	4.4	4.1	48	0	66	150	.0	15
FEB.											
10...	34	11	200	7.6	4.5	36	0	89	300	.3	14
MAR.											
02...	34	11	76	2.9	4.3	40	0	96	130	.3	15
APR.											
22...	5.2	.8	5.5	.6	2.9	16	0	8.6	7.8	.1	3.5
29...	22	3.4	13	.7	3.6	80	0	17	12	.3	4.6
MAY											
26...	22	3.2	16	.8	3.0	72	0	20	17	.2	4.1
JUNE											
22...	22	5.3	40	2.0	3.6	54	0	41	57	.3	6.7
JULY											
28...	21	3.8	23	1.2	3.6	68	0	22	31	.3	4.6
AUG.											
12...	28	4.5	25	1.2	3.4	92	0	25	32	.2	5.3
SEP.											
21...	17	4.9	33	1.8	4.3	36	0	41	49	.2	14

## SABINE RIVER BASIN

273

08018500 Sabine River near Mineola, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED SOLIDS (SUM OF CONSTITU- ENTS) (MG/L)	TOTAL NON- FILT- RABLE RESIDUE (MG/L)	VOL. NON- FILT- RABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT. 23...	281	45	9	.00	.00	.01	.38	.08	5.6	1	.0
NOV. 11...	562	60	6	.00	.00	.00	.53	.10	5.6	0	.1
DEC. 04...	934	29	3	.02	.00	.26	.51	.10	8.4	0	.1
JAN. 06...	393	16	2	.11	.00	.24	.44	.07	5.6	0	.0
FEB. 10...	671	51	6	.09	.00	.05	.65	.07	5.2	0	.0
MAR. 02...	386	62	22	.04	.00	.02	.86	.08	8.6	4	.0
APR. 22...	42	--	--	--	--	--	--	--	--	--	--
29...	115	22	5	.02	.01	.03	.51	.07	5.6	3	.0
MAY 26...	121	113	15	.20	.01	.09	.57	.13	8.7	1	.1
JUNE 22...	203	101	11	.16	.01	.06	.70	.11	7.4	0	.0
JULY 28...	143	69	6	.02	.00	.01	.89	.09	9.1	0	.0
AUG. 12...	169	38	0	.01	.00	.01	.44	.06	2.8	0	.1
SEP. 21...	181	79	16	.02	.00	.04	.55	.09	9.6	0	.0

DATE	TIME	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)
OCT. 23...	1050	0	0	20	0	0	0	0
FEB. 10...	1450	40	1	40	0	0	1	2
JUNE 22...	1930	20	1	170	1	0	0	2
AUG. 12...	1730	40	0	--	0	0	0	2

DATE	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
OCT. 23...	170	0	5	160	.6	0	280	0
FEB. 10...	80	0	10	270	.2	6	400	0
JUNE 22...	60	0	10	30	.1	0	190	10
AUG. 12...	10	4	0	50	.1	2	280	10



## SABINE RIVER BASIN

08018500 Sabine River near Mineola, Tex.--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	271.8	1170	650	477	290	213	71	52	150
NOV. 1975.....	479	1340	750	969	340	443	78	100	160
DEC. 1975.....	681	1840	1030	1890	500	916	90	165	140
JAN. 1976.....	1037	1120	620	1740	270	754	73	203	140
FEB. 1976.....	1523	1150	640	2640	280	1150	73	302	150
MAR. 1976.....	7787	521	290	6070	97	2030	48	999	100
APR. 1976.....	88724	164	91	21800	18	4300	15	3640	47
MAY 1976.....	86490	201	110	26100	21	4850	19	4380	58
JUNE 1976.....	16504	307	170	7630	41	1830	28	1260	88
JULY 1976.....	11693	370	210	6510	57	1800	34	1070	92
AUG. 1976.....	725.4	331	180	360	50	97	31	60	89
SEPT 1976.....	2045	384	210	1180	61	336	34	186	93
TOTAL .....	217960	**	**	77400	**	18700	**	12400	**
WTD.AVG. ....	597.15	236	130	**	32	**	21	**	68

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3950	656	971	2790	804	677	903	278	251	291	325	312
2	3330	552	1160	2240	603	685	820	269	315	297	356	352
3	2820	248	1480	1460	560	729	703	259	297	259	371	432
4	2540	438	1890	1110	554	722	697	247	259	263	359	578
5	2280	435	1360	890	560	711	690	241	250	491	322	290
6	2030	622	1190	769	635	685	713	232	242	673	329	277
7	1770	720	1450	688	752	681	696	267	235	428	331	274
8	1450	750	2130	511	794	422	732	105	239	379	323	265
9	1220	852	2630	701	1120	380	1170	103	240	336	337	268
10	1150	990	2480	717	1270	474	1070	103	235	300	341	286
11	1100	1120	2350	718	1160	546	1000	164	240	320	311	315
12	1030	1200	2200	1020	1060	473	957	182	242	565	322	339
13	962	1320	2270	1000	1010	479	922	193	250	365	323	366
14	935	1350	2200	1180	1810	523	882	213	253	307	312	442
15	940	1390	2070	990	1610	570	907	183	258	326	305	435
16	846	1350	1910	741	1310	578	778	224	259	251	303	504
17	722	1290	1810	615	1400	682	790	233	273	261	301	511
18	689	1330	1690	611	1580	645	803	222	314	850	291	456
19	727	1670	1550	640	1600	682	681	218	168	324	290	398
20	721	2900	1460	700	933	716	201	216	528	463	311	366
21	659	2990	1450	754	521	672	161	219	563	366	324	285
22	619	1780	1440	864	550	692	107	223	455	301	328	338
23	572	1990	1420	876	626	705	96	232	378	233	329	685
24	432	1560	1360	885	1100	782	122	234	366	273	330	280
25	526	1360	1200	448	1780	625	150	253	342	269	334	220
26	527	1220	1660	911	1560	654	187	223	346	258	331	229
27	599	940	2030	1800	1020	1010	206	262	465	246	342	152
28	602	845	1410	1790	739	930	215	328	468	238	353	330
29	663	863	2050	1840	683	742	214	288	386	307	360	1530
30	815	864	2880	1680	---	660	238	234	360	264	357	1350
31	791	---	3900	1180	---	1060	---	217	---	292	335	---
MONTH	1230	1190	1840	1070	1020	664	594	221	316	348	329	429

## SABINE RIVER BASIN

275

08018500 Sabine River near Mineola, Tex.--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.0	18.0	8.0	9.0	8.0	17.0	15.0	18.0	21.0	25.0	27.0	24.0
2	19.0	19.0	7.0	10.0	8.0	18.0	15.0	16.0	22.0	24.0	27.0	23.0
3	18.0	20.0	8.0	7.0	8.0	18.0	17.0	18.0	22.0	25.0	27.0	25.0
4	18.0	17.0	9.0	5.0	11.0	19.0	16.0	18.0	23.0	25.0	25.0	26.0
5	15.0	16.0	12.0	4.0	12.0	18.0	18.0	20.0	24.0	25.0	25.0	24.0
6	18.0	16.0	13.0	8.0	10.0	11.0	16.0	20.0	23.0	25.0	26.0	25.0
7	16.0	17.0	12.0	8.0	8.0	15.0	17.0	20.0	22.0	25.0	25.0	24.0
8	17.0	19.0	13.0	5.0	9.0	13.0	17.0	19.0	23.0	25.0	27.0	25.0
9	19.0	18.0	10.0	4.0	10.0	13.0	17.0	19.0	23.0	25.0	27.0	26.0
10	---	18.0	8.0	6.0	13.0	10.0	18.0	20.0	23.0	25.0	27.0	25.0
11	20.0	19.0	12.0	7.0	13.0	11.0	18.0	21.0	23.0	25.0	26.0	23.0
12	21.0	15.0	13.0	8.0	14.0	14.0	19.0	21.0	24.0	25.0	26.0	21.0
13	20.0	10.0	15.0	11.0	15.0	13.0	20.0	22.0	24.0	25.0	27.0	21.0
14	21.0	10.0	15.0	10.0	16.0	11.0	20.0	20.0	25.0	25.0	26.0	22.0
15	21.0	11.0	15.0	---	16.0	12.0	21.0	19.0	25.0	26.0	27.0	23.0
16	21.0	12.0	13.0	9.0	20.0	11.0	20.0	19.0	25.0	25.0	27.0	22.0
17	19.0	14.0	9.0	12.0	20.0	11.0	19.0	19.0	25.0	26.0	27.0	24.0
18	17.0	14.0	7.0	7.0	15.0	12.0	20.0	19.0	26.0	25.0	27.0	24.0
19	15.0	15.0	7.0	10.0	15.0	15.0	20.0	19.0	24.0	25.0	25.0	23.0
20	17.0	14.0	6.0	10.0	15.0	18.0	19.0	20.0	21.0	25.0	25.0	25.0
21	20.0	10.0	6.0	8.0	11.0	15.0	18.0	20.0	23.0	25.0	25.0	24.0
22	17.0	10.0	6.0	10.0	11.0	15.0	19.0	20.0	23.0	26.0	24.0	20.0
23	18.0	7.0	---	10.0	11.0	15.0	20.0	22.0	25.0	26.0	24.0	20.0
24	20.0	8.0	8.0	12.0	11.0	17.0	21.0	21.0	25.0	27.0	24.0	22.0
25	18.0	7.0	8.0	14.0	13.0	17.0	20.0	21.0	24.0	26.0	24.0	21.0
26	15.0	8.0	7.0	10.0	12.0	18.0	19.0	21.0	25.0	27.0	25.0	22.0
27	15.0	5.0	8.0	11.0	14.0	17.0	18.0	21.0	25.0	27.0	26.0	22.0
28	17.0	7.0	8.0	13.0	15.0	17.0	19.0	20.0	25.0	28.0	26.0	22.0
29	18.0	12.0	10.0	8.0	16.0	17.0	19.0	20.0	26.0	28.0	25.0	23.0
30	18.0	14.0	10.0	8.0	---	17.0	17.0	21.0	27.0	28.0	24.0	19.0
31	17.0	---	8.0	9.0	---	14.0	---	21.0	---	27.0	24.0	---
MONTH	18.0	13.5	9.5	9.0	13.0	15.0	18.5	20.0	24.0	25.5	25.5	23.0

## SABINE RIVER BASIN

08018950 Dry Creek near Quitman, Tex.  
(Low-flow partial-record station)

LOCATION.--Lat 32°47'52", long 95°27'50", Wood County, at bridge on State Highways 154 and 182, 0.8 mile (1.3 km) west of Quitman, and 2.5 miles (4.0 km) upstream from mouth.

DRAINAGE AREA.--63.6 mi<sup>2</sup> (164.7 km<sup>2</sup>).

PERIOD OF RECORD.--Occasional discharge measurements and water-quality data: October 1967 to September 1976.

## DISCHARGE AND WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPF-CIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)
OCT. 15...	1553	1.5	326	7.8	26.0	61	29	15	5.8	34
NOV. 25...	1500	.86	781	7.8	6.0	110	65	30	9.6	100
JAN. 07...	1010	1.2	1400	7.4	7.5	190	170	49	17	190
FEB. 19...	0930	21	796	5.9	13.0	130	120	32	11	98
MAR. 29...	1640	32	1530	5.4	20.5	220	220	55	21	200
MAY 13...	1400	142	--	--	25.0	--	--	--	--	--
JUNE 16...	1135	7.7	1210	6.3	26.0	180	150	44	16	170
JULY 28...	0915	6.2	596	6.4	29.0	99	84	24	9.5	70
SEP. 01...	1113	17	731	5.5	22.0	100	100	26	9.5	85

DATE	SODIUM ADSORPTION RATIO	DIS-SOLVED PHOSPHATE (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT. 15...	1.9	4.8	40	0	33	50	.2	12	175
NOV. 25...	4.1	5.0	60	0	76	130	1.8	22	404
JAN. 07...	6.0	7.5	24	0	93	350	.4	19	738
FEB. 19...	3.8	8.0	9	0	67	190	.2	11	422
MAR. 29...	5.8	4.6	4	0	120	400	.3	20	823
MAY 13...	--	--	--	--	--	--	--	--	--
JUNE 16...	5.6	7.5	32	0	95	290	.4	26	665
JULY 28...	3.1	3.8	18	0	60	130	.3	20	326
SEP. 01...	3.6	9.0	4	0	69	170	.2	12	383

## 08019000 Lake Fork Creek near Quitman, Tex.

LOCATION.--Lat 32°45'45", long 95°27'48", Wood County, near center of main channel at downstream side of bridge on State Highway 37, 0.3 mile (0.5 km) downstream from Dry Creek, 2.4 miles (3.9 km) south of Quitman, and 23.4 miles (37.7 km) upstream from mouth.

DRAINAGE AREA.--585 mi<sup>2</sup> (1,515 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: June 1924 to April 1926, February 1939 to current year. Discharge for some high-water periods in 1925-26 published in WSP 1342. Monthly discharge only for some periods, published in WSP 1312. Prior to October 1961, published as Lake Fork Sabine River near Quitman.

Water quality: Chemical analyses: December 1961 to June 1965, November 1967 to current year. Water temperatures: December 1967 to current year.

GAGE.--Nonrecording gage read twice daily, more often during floods. Datum of gage is 317.42 ft (96.750 m) above mean sea level. June 27, 1924, to Apr. 30, 1926, nonrecording gage at site 1,000 ft (305 m) downstream at same datum.

AVERAGE DISCHARGE.--38 years (1924-25, 1939-76), 443 ft<sup>3</sup>/s (12.55 m<sup>3</sup>/s), 10.28 in/yr (261 mm/yr), 321,000 acre-ft/yr (396 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge observed, 18,700 ft<sup>3</sup>/s (530 m<sup>3</sup>/s) May 7 (gage height, 20.60 ft or 6.279 m); minimum daily, 0.51 ft<sup>3</sup>/s (0.014 m<sup>3</sup>/s) Aug. 19.

Period of record: Maximum discharge, 75,600 ft<sup>3</sup>/s (2,140 m<sup>3</sup>/s) Mar. 30, 1945 (gage height, 29.85 ft or 9.098 m, from floodmark), from rating curve extended above 49,000 ft<sup>3</sup>/s (1,390 m<sup>3</sup>/s); no flow at times most years.

Historic: Maximum stage since at least 1890, that of Mar. 30, 1945. Flood in July 1895 reached a stage of about 25.9 ft (7.89 m), from information by local resident.

Water quality: Current year: Maximum daily specific conductance, 1,860 micromhos Jan. 28; minimum daily, 87 micromhos May 9. Maximum water temperatures, 26.0°C on several days during August.

Period of record: Maximum daily specific conductance (1967-76), 2,800 micromhos Oct. 5, 1972; minimum daily, 37 micromhos Dec. 11, 1971. Maximum water temperatures, 29.0°C on several days during summer months in 1969, July 29, 1972; minimum, 2.0°C Jan. 10, 1970.

REMARKS.--Discharge records fair. No large diversion above station. Flow is affected at times by discharge from the flood-detention pools of 18 floodwater-retarding structures with combined detention capacity of 17,700 acre-ft (21.8 hm<sup>3</sup>). These structures control runoff from 51.8 mi<sup>2</sup> (134.2 km<sup>2</sup>). Records furnished by the city of Quitman indicate that during the current year 337 acre-ft (0.416 hm<sup>3</sup>) of sewage effluent was returned to a tributary above station. During the 1975 water year, construction began on Lake Fork Creek Reservoir (capacity, 675,800 acre-ft or 833 hm<sup>3</sup>) located about 5 miles (8 km) upstream from station.

REVISIONS.--WSP 1732: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	6.0	12	14	8.6	7.0	74	727	65	162	8.6	26
2	11	6.4	13	12	9.2	6.6	58	624	54	368	7.2	27
3	11	10	13	9.7	7.0	6.2	47	508	46	1050	5.8	79
4	11	10	12	8.2	7.6	6.2	34	406	40	1450	4.4	137
5	12	13	13	7.2	8.0	7.0	30	314	35	1030	3.4	71
6	11	11	13	7.2	9.2	6.8	28	768	30	442	2.9	40
7	12	8.6	12	6.4	12	9.5	25	11400	33	297	2.7	25
8	11	8.0	14	5.6	14	262	23	12100	41	254	2.3	18
9	11	8.4	15	5.6	15	750	21	6870	49	118	1.7	14
10	11	8.6	14	5.6	14	603	20	2940	51	122	1.8	15
11	12	9.9	13	5.6	15	540	18	1830	42	252	1.5	8.2
12	12	8.2	14	6.2	13	429	16	935	26	295	1.3	4.3
13	11	6.8	13	6.0	11	252	16	612	17	216	1.2	1.9
14	11	5.8	14	5.6	10	170	15	641	14	125	.90	1.4
15	11	4.9	14	5.4	9.2	124	13	1030	13	94	1.0	1.2
16	12	4.3	14	5.6	8.8	107	15	1140	15	201	.85	1.1
17	13	4.4	14	6.4	20	84	18	915	19	452	.73	.90
18	13	4.0	13	7.0	109	67	24	653	21	535	.61	35
19	13	3.7	12	7.6	48	56	524	456	71	861	.51	24
20	14	10	12	8.4	32	52	6720	261	102	1160	.61	3.7
21	14	14	13	9.2	47	50	15000	138	88	868	2.3	2.9
22	13	14	14	9.2	38	45	8400	107	74	466	4.8	3.1
23	14	12	14	9.7	25	40	3690	87	84	238	2.4	3.4
24	14	11	15	12	21	49	2510	108	190	121	1.5	10
25	16	10	21	22	18	64	1760	119	313	84	.85	15
26	18	10	25	28	16	65	1590	172	399	50	.61	7.2
27	17	9.5	19	18	11	73	1370	154	362	36	.61	7.8
28	17	9.0	26	13	8.2	97	1340	107	250	28	.61	6.8
29	13	9.5	32	10	7.0	140	1200	85	118	21	7.1	5.6
30	9.7	13	25	9.2	---	94	934	74	71	14	47	4.3
31	7.6	---	17	8.4	---	78	---	70	---	11	33	---
TOTAL	387.3	264.0	485	294.0	571.8	4340.3	45533	46351	2733	11421	150.79	599.80
MEAN	12.5	8.80	15.6	9.48	19.7	140	1518	1495	91.1	368	4.86	20.0
MAX	18	14	32	28	109	750	15000	12100	399	1450	47	137
MIN	7.6	3.7	12	5.4	7.0	6.2	13	70	13	11	.51	.90
CFSM	.02	.02	.03	.02	.03	.24	2.59	2.56	.16	.63	.008	.03
IN.	.02	.02	.03	.02	.04	.28	2.90	2.95	.17	.73	.010	.04
AC-FT	768	524	962	583	1130	8610	90310	91940	5420	22650	299	1190

CAL YR 1975 TOTAL 202031.30 MEAN 554 MAX 16600 MIN 3.7 CFSM .95 IN 12.85 AC-FT 400700  
WTR YR 1976 TOTAL 113130.99 MEAN 309 MAX 15000 MIN .51 CFSM .53 IN 7.19 AC-FT 224400

PEAK DISCHARGE (BASE, 6,000 FT<sup>3</sup>/S).--Apr. 21 (0800) 17,800 ft<sup>3</sup>/s (20.40 ft); May 7 (1700) 18,700 ft<sup>3</sup>/s (20.60 ft).

## SABINE RIVER BASIN

08019000 Lake Fork Creek near Quitman, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)
OCT										
31...	0800	12	394	7.7	15.0	80	39	19	8.0	39
NOV										
30...	0800	18	428	7.4	7.0	98	37	23	9.8	40
DEC										
31...	0800	40	625	7.9	7.0	140	81	32	14	63
JAN										
07...	0920	6.6	653	6.7	2.0	140	110	32	14	65
FEB										
19...	1030	51	892	6.3	13.0	130	120	32	12	120
MAR										
29...	1415	148	953	6.1	18.5	170	150	41	16	120
APR										
30...	0800	960	223	7.0	15.0	50	27	12	4.8	20
MAY										
13...	1315	627	428	6.4	24.5	80	62	19	7.8	43
JUN										
16...	1005	13	599	7.1	27.0	140	83	31	14	58
JUL										
29...	1100	20	423	6.9	29.5	89	55	22	8.3	40
AUG										
31...	0800	35	615	7.0	25.0	100	82	25	9.5	69
SEP										
30...	0800	8.0	342	7.4	18.0	75	34	18	7.2	32

DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PU- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT									
31...	1.9	5.1	50	0	42	62	.2	11	211
NOV									
30...	1.8	6.6	74	0	46	56	.2	13	231
DEC									
31...	2.3	6.7	69	0	72	110	.2	21	353
JAN									
07...	2.4	6.5	38	0	81	130	.2	26	373
FEB									
19...	4.6	6.0	12	0	71	220	.3	14	481
MAR									
29...	4.0	4.7	19	0	99	220	.3	17	527
APR									
30...	1.2	3.6	28	0	24	33	.3	8.4	120
MAY									
13...	2.1	3.7	22	0	44	83	.2	11	223
JUN									
16...	2.2	4.4	63	0	83	87	1.4	19	329
JUL									
29...	1.8	4.6	42	0	53	67	.3	17	233
AUG									
31...	3.0	7.5	24	0	64	120	.3	11	318
SEP									
30...	1.6	5.2	50	0	37	50	.2	11	185

## SABINE RIVER BASIN

279

08019000 Lake Fork Creek near Quitman, Tex.--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	387.3	347	200	206	55	58	44	46	74
NOV. 1975.....	263	462	260	185	79	56	58	41	96
DEC. 1975.....	485	720	400	529	140	180	82	108	150
JAN. 1976.....	293	784	440	348	160	124	87	69	160
FEB. 1976.....	564.8	787	440	677	150	224	91	138	160
MAR. 1976.....	4340.3	567	320	3740	100	1210	66	778	120
APR. 1976.....	45533	162	92	11300	20	2420	21	2550	38
MAY 1976.....	46351	176	99	12300	23	2850	22	2790	40
JUNE 1976.....	2733	479	270	1990	83	611	60	445	100
JULY 1976.....	11421	260	150	4540	37	1150	33	1020	57
AUG. 1976.....	150.79	732	410	165	150	63	76	31	150
SEPT 1976.....	599.8	434	250	399	73	118	55	89	91
TOTAL .....	113123.87	**	**	36400	**	9060	**	8100	**
WTU.AVG. ....	309.93	211	120	**	30	**	26	**	47

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C) • WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	343	406	458	544	814	783	841	255	570	406	437	496
2	344	415	464	481	839	775	851	247	646	424	452	671
3	343	420	545	526	824	767	810	240	601	225	471	523
4	339	431	561	634	839	783	828	235	585	197	490	424
5	339	420	552	656	794	767	828	239	610	245	500	367
6	334	428	538	648	852	757	841	260	607	271	504	350
7	331	457	543	652	862	760	844	200	605	278	514	340
8	331	467	800	648	825	1000	860	100	617	263	511	347
9	330	514	1250	656	767	489	881	87	557	342	535	345
10	330	477	1270	656	732	451	857	125	570	367	544	340
11	338	536	1140	656	704	372	854	173	590	394	548	347
12	336	528	1000	648	710	365	854	218	603	316	516	319
13	334	521	900	668	708	409	850	288	605	330	502	330
14	335	520	800	686	725	407	848	234	607	368	511	354
15	338	509	750	690	750	496	871	342	608	409	508	360
16	340	498	725	672	775	600	929	320	731	384	511	366
17	338	498	715	656	800	600	921	310	608	393	504	363
18	340	496	642	690	869	605	970	310	608	270	511	484
19	346	496	635	652	856	568	500	340	800	180	521	564
20	347	467	630	686	786	620	250	374	625	164	504	543
21	346	462	596	686	600	796	115	402	533	246	511	554
22	346	462	542	701	781	800	107	433	507	250	508	551
23	346	483	530	690	789	835	115	460	533	285	530	425
24	354	469	511	676	827	767	125	482	455	319	570	427
25	354	459	667	860	750	819	205	511	450	330	588	427
26	370	438	800	870	714	1120	210	500	445	402	590	377
27	367	438	820	920	760	866	217	446	338	405	595	336
28	361	433	650	1860	746	775	187	461	354	420	595	311
29	373	436	850	1100	744	890	176	499	417	421	600	344
30	383	427	600	1050	---	1080	223	490	402	426	1200	340
31	395	---	625	848	---	983	---	502	---	433	550	---
MONTH	347	467	713	744	777	713	599	325	560	328	546	411



## SABINE RIVER BASIN

08019000 Lake Fork Creek near Quitman, Tex.--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.0	13.0	7.0	8.0	7.0	10.0	11.0	15.0	19.0	23.0	25.0	25.0
2	15.0	12.0	7.0	7.0	7.0	9.0	11.0	16.0	20.0	23.0	25.0	25.0
3	15.0	11.0	7.0	7.0	8.0	9.0	11.0	15.0	20.0	23.0	25.0	24.0
4	15.0	11.0	7.0	7.0	8.0	9.0	12.0	15.0	20.0	23.0	25.0	24.0
5	14.0	11.0	7.0	7.0	8.0	8.0	12.0	15.0	20.0	23.0	25.0	23.0
6	14.0	11.0	7.0	7.0	7.0	8.0	12.0	16.0	---	23.0	25.0	23.0
7	14.0	11.0	7.0	7.0	7.0	8.0	12.0	16.0	21.0	23.0	25.0	23.0
8	14.0	11.0	8.0	6.0	8.0	8.0	12.0	16.0	20.0	23.0	25.0	23.0
9	14.0	10.0	8.0	7.0	8.0	9.0	12.0	16.0	20.0	23.0	25.0	23.0
10	14.0	10.0	8.0	7.0	8.0	10.0	13.0	16.0	21.0	23.0	25.0	21.0
11	14.0	10.0	8.0	7.0	8.0	10.0	13.0	16.0	---	23.0	25.0	---
12	14.0	10.0	8.0	7.0	8.0	10.0	13.0	17.0	21.0	23.0	25.0	22.0
13	14.0	10.0	8.0	7.0	8.0	11.0	13.0	17.0	21.0	24.0	25.0	21.0
14	14.0	9.0	8.0	8.0	8.0	10.0	14.0	18.0	21.0	24.0	26.0	20.0
15	14.0	9.0	8.0	8.0	9.0	10.0	14.0	17.0	21.0	24.0	26.0	20.0
16	13.0	9.0	8.0	8.0	9.0	10.0	14.0	17.0	21.0	24.0	26.0	20.0
17	13.0	9.0	7.0	8.0	9.0	10.0	14.0	17.0	21.0	24.0	26.0	20.0
18	13.0	9.0	7.0	8.0	9.0	10.0	14.0	17.0	21.0	24.0	26.0	20.0
19	13.0	9.0	7.0	8.0	9.0	10.0	14.0	17.0	21.0	24.0	26.0	20.0
20	13.0	8.0	7.0	8.0	9.0	11.0	14.0	18.0	21.0	24.0	26.0	20.0
21	13.0	8.0	8.0	8.0	9.0	11.0	14.0	18.0	21.0	24.0	26.0	20.0
22	13.0	8.0	8.0	8.0	9.0	11.0	14.0	18.0	22.0	24.0	26.0	20.0
23	13.0	8.0	8.0	8.0	9.0	11.0	14.0	18.0	22.0	24.0	26.0	---
24	13.0	7.0	7.0	8.0	9.0	11.0	14.0	18.0	22.0	24.0	26.0	---
25	13.0	7.0	8.0	8.0	9.0	11.0	14.0	19.0	22.0	24.0	26.0	---
26	13.0	7.0	8.0	8.0	9.0	11.0	14.0	18.0	22.0	24.0	26.0	19.0
27	13.0	7.0	8.0	8.0	9.0	11.0	15.0	18.0	22.0	25.0	26.0	19.0
28	13.0	7.0	8.0	8.0	9.0	12.0	15.0	18.0	23.0	25.0	26.0	19.0
29	13.0	7.0	8.0	8.0	9.0	12.0	15.0	19.0	23.0	25.0	26.0	19.0
30	13.0	7.0	7.0	8.0	---	11.0	15.0	19.0	23.0	25.0	25.0	18.0
31	13.0	---	7.0	8.0	---	11.0	---	19.0	---	25.0	25.0	---
MONTH	13.5	9.0	7.5	7.5	8.5	10.0	13.5	17.0	21.0	24.0	25.5	21.0

## SABINE RIVER BASIN

281

08019300 Lake Winnsboro near Winnsboro, Tex.

LOCATION.--Lat 32°53'11", long 95°20'37", Wood County, near left end of dam on Big Sandy Creek, 0.8 mile (1.3 km) upstream from bridge on State Highway 37, 2.5 miles (4.0 km) upstream from Indian Creek, and 5.8 miles (9.3 km) southwest of Winnsboro.

DRAINAGE AREA.--27.1 mi<sup>2</sup> (70.2 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Jan. 19, 1963, nonrecording gage at same site and datum.

EXTREMES.--Current year: Maximum contents, 9,730 acre-ft (12.0 hm<sup>3</sup>) May 6 (elevation, 420.90 ft or 128.290 m); minimum, 6,570 acre-ft (8.10 hm<sup>3</sup>) Feb. 1 (elevation, 416.98 ft or 127.096 m).

Period of record: Maximum contents, 11,640 acre-ft (14.4 hm<sup>3</sup>) Feb. 5, 1975 (elevation, 422.92 ft or 128.906 m); minimum since first appreciable storage, 2,430 acre-ft (3.00 hm<sup>3</sup>) Jan. 19, 20, 1965 (elevation, 409.79 ft or 124.904 m).

REMARKS.--The lake is formed by a rolled earthfill dam 2,500 ft (762 m) long. Storage began June 11, 1962, and the dam was completed in August 1962. The dam was built by Wood County for flood control and recreation. The spillway is an uncontrolled 20-foot (6-meter) square drop inlet at crest elevation of 419.0 ft (127.71 m). The crest was raised in April 1966 from elevation 417 to 419 ft (127.1 to 127.7 m). The other spillway is a 300-foot-wide (91-meter) cut channel through natural ground near right end of dam. The capacity curve is based on 1960 Geological Survey topographic maps. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	437.0	-
Design flood.....	433.0	22,500
Crest of spillway.....	427.0	16,270
Crest of drop inlet (top of conservation pool).....	419.0	8,110
Lowest gated outlet (invert).....	392.2	0

COOPERATION.--Capacity curve furnished by Wisenbaker, Fix, and Associates, Consulting Engineers for Wood County.

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

416.0	5,890	419.0	8,110
417.0	6,590	421.0	9,820

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7120	6780	6700	6720	6570	7190	8160	8220	8140	8900	7970	7540
2	7080	6810	6660	6730	6590	7190	8150	8200	8110	8810	7940	7580
3	7070	6790	6610	6700	6580	7210	8140	8180	8100	8600	7910	7630
4	7020	6760	6620	6680	6580	7150	8140	8160	8090	8470	7880	7610
5	7020	6760	6660	6690	6600	7180	8140	8230	8100	8390	7850	7610
6	7060	6760	6690	6700	6690	7180	8120	9730	8100	8320	7850	7600
7	7060	6750	6700	6720	6770	7240	8110	9240	8100	8270	7830	7590
8	7060	6770	6710	6690	6790	7870	8110	8860	8090	8230	7810	7570
9	7060	6790	6710	6700	6800	8010	8090	8640	8070	8190	7790	7550
10	7100	6750	6700	6720	6810	8070	8080	8520	8060	8210	7770	7520
11	7240	6780	6710	6710	6800	8110	8070	8410	8050	8210	7750	7500
12	7260	6780	6720	6720	6780	8140	8070	8350	8030	8190	7730	7490
13	7300	6750	6750	6730	6770	8150	8070	8390	8010	8180	7710	7480
14	7060	6700	6750	6720	6760	8150	8060	8670	7990	8180	7700	7470
15	7080	6720	6740	6710	6770	8220	8030	8820	7990	8160	7680	7460
16	6980	6730	6710	6700	6780	8180	8060	8640	7980	8180	7660	7450
17	7060	6740	6680	6700	7060	8110	8070	8480	7970	8220	7650	7500
18	6810	6660	6660	6690	7080	8090	8130	8400	7980	8240	7620	7490
19	6870	6720	6660	6750	7080	8090	9330	8340	7990	8230	7600	7480
20	6870	6700	6660	6730	7110	8090	9300	8290	7980	8210	7600	7520
21	6920	6720	6650	6720	7100	8070	8900	8250	7960	8170	7580	7500
22	6880	6700	6650	6710	7120	8100	8650	8220	7940	8160	7560	7480
23	6930	6720	6650	6710	7120	8100	8530	8210	7930	8140	7540	7470
24	6940	6720	6730	6780	7120	8140	8520	8190	7950	8100	7540	7460
25	6910	6780	6770	6640	7130	8150	8440	8140	8090	8100	7530	7440
26	6860	6810	6750	6660	7140	8160	8370	8180	8100	8080	7510	7450
27	6810	6860	6750	6670	7120	8140	8310	8150	8090	8060	7500	7450
28	6840	6780	6770	6640	7180	8170	8260	8140	8080	8030	7480	7430
29	6830	6730	6770	6630	7180	8220	8260	8140	8070	8020	7480	7410
30	6780	6680	6710	6630	---	8190	8240	8140	8060	8000	7480	7400
31	6760	---	6710	6630	---	8180	---	8140	---	7980	7500	---
(†)	417.24	417.13	417.17	417.06	417.80	419.08	419.16	419.03	418.93	418.84	418.23	418.10
(*)	-360	-80	+30	-80	+550	+1000	+60	-100	-80	-80	-480	-100
MAX	7300	6860	6770	6780	7180	8220	9330	9730	8140	8900	7970	7630
MIN	6760	6660	6610	6630	6570	7150	8030	8140	7930	7980	7480	7400

CAL YR 1975..... \* -1690

WTR YR 1976..... \* +280

MAX 11620

MAX 9730

MIN 6610

MIN 6570

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

## SABINE RIVER BASIN

08019500 Big Sandy Creek near Big Sandy, Tex.

LOCATION.--Lat 32°36'12", long 95°05'32", Upshur County, on left bank at downstream side of bridge on State Highway 155, 0.5 mile (0.8 km) upstream from St. Louis Southwestern Railway Lines bridge, 1.6 miles (2.6 km) northeast of Big Sandy, and 6.5 miles (10.5 km) upstream from mouth.

DRAINAGE AREA.--231 mi<sup>2</sup> (598 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: February 1939 to current year.

Water quality: Chemical analyses: October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is 278.38 ft (84.850 m) above mean sea level. Prior to Oct. 5, 1940, nonrecording gage, and Oct. 5, 1940, to Nov. 26, 1951, water-stage recorder at site 1.3 miles (2.1 km) upstream at datum 3.00 ft (0.914 m) higher.

AVERAGE DISCHARGE.--37 years, 184 ft<sup>3</sup>/s (5.211 m<sup>3</sup>/s), 133,300 acre-ft/yr (164 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 1,490 ft<sup>3</sup>/s (42.2 m<sup>3</sup>/s) July 4 (gage height, 12.94 ft or 3.944 m); minimum, 15 ft<sup>3</sup>/s (0.42 m<sup>3</sup>/s) Aug. 23, 24.

Period of record: Maximum discharge, 24,000 ft<sup>3</sup>/s (680 m<sup>3</sup>/s) Mar. 31, 1945 (gage height, 24.1 ft or 7.35 m, present site and datum, from floodmark), from rating curve extended above 13,000 ft<sup>3</sup>/s (368 m<sup>3</sup>/s); minimum, 5.0 ft<sup>3</sup>/s (0.14 m<sup>3</sup>/s) Aug. 15, 1956.

Maximum stage since at least 1875, that of Mar. 31, 1945, from information by local residents.

REMARKS.--Discharge records good. Since June 1962, flow affected at times by storage or discharge from the flood-detention pool of Lake Winnsboro (station 08019300). Records furnished by the city of Winnsboro show that 11.7 acre-ft (14,400 m<sup>3</sup>) of sewage effluent was discharged into a tributary above station.

REVISIONS (WATER YEARS).--WSP 1732: 1941(M), 1945-46, 1956, drainage area. WSP 1922: 1944(M), 1945-46.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	36	74	132	120	78	196	246	109	178	33	89
2	28	37	80	145	98	75	218	217	95	271	29	121
3	28	43	85	135	90	73	204	179	84	1110	27	114
4	28	46	76	114	88	74	160	163	76	1460	25	122
5	28	43	80	98	86	151	138	139	71	1230	23	97
6	28	42	85	83	84	116	119	156	68	871	22	79
7	28	42	80	76	82	97	108	202	82	692	22	63
8	25	46	81	69	80	185	100	150	88	538	21	56
9	23	48	78	66	80	309	96	447	96	376	20	47
10	23	44	66	66	82	460	89	1170	70	274	19	37
11	24	42	61	70	84	1270	87	875	58	196	18	31
12	23	44	67	69	82	1210	84	606	53	156	18	28
13	23	47	66	67	74	779	82	498	48	132	18	26
14	23	45	63	64	71	499	78	422	44	133	18	25
15	23	44	68	60	70	333	77	413	41	134	17	24
16	27	43	69	55	68	239	75	443	41	131	17	24
17	30	38	66	58	77	193	75	592	37	267	17	22
18	30	36	65	58	117	169	75	577	39	212	16	27
19	31	36	63	56	132	156	85	564	75	178	16	33
20	31	50	63	68	161	147	117	469	109	175	16	44
21	30	55	63	68	200	137	167	350	127	180	16	52
22	30	61	61	65	217	126	308	261	117	180	16	49
23	34	67	62	66	198	121	1130	193	91	188	15	44
24	39	70	65	70	154	129	1090	154	68	150	15	38
25	40	64	96	222	126	152	793	127	109	104	16	35
26	45	61	105	187	111	174	554	117	144	81	17	39
27	50	59	107	162	96	168	416	115	151	66	16	138
28	46	57	105	174	87	163	352	111	148	55	16	167
29	40	56	131	187	82	179	346	105	159	47	18	296
30	37	69	140	185	---	174	306	98	148	41	92	355
31	36	---	129	152	---	180	---	109	---	37	76	---
TOTAL	959	1471	2500	3147	3097	8316	7725	10268	2646	9843	725	2322
MEAN	30.9	49.0	80.6	102	107	268	258	331	88.2	318	23.4	77.4
MAX	50	70	140	222	217	1270	1130	1170	159	1460	92	355
MIN	23	36	61	55	68	73	75	98	37	37	15	22
AC-FT	1900	2920	4960	6240	6140	16490	15320	20370	5250	19520	1440	4610

CAL YR 1975 TOTAL 89237 MEAN 244 MAX 2930 MIN 22 AC-FT 177000  
WTR YR 1976 TOTAL 53019 MEAN 145 MAX 1460 MIN 15 AC-FT 105200

PEAK DISCHARGE (BASE, 1,500 FT<sup>3</sup>/S).--No peak above base.

## SABINE RIVER BASIN

283

08019500 Big Sandy Creek near Big Sandy, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
OCT. 14...	1355	22	135	7.3	26.5	20	8	4.3	2.2	16
JAN. 07...	1255	75	163	6.2	1.5	32	25	7.4	3.3	15
FEB. 16...	1200	68	219	6.5	16.0	40	32	9.4	4.0	22
APR. 02...	1125	220	238	5.9	14.5	49	44	12	4.7	21
MAY 10...	1700	1130	133	6.0	21.0	26	20	6.3	2.6	11
JUNE 15...	1610	40	177	6.6	27.0	26	12	6.6	2.4	19
JULY 26...	1430	79	166	6.6	28.0	33	14	7.9	3.1	16
AUG. 30...	1305	102	94	5.7	23.0	12	6	2.8	1.2	5.0

DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SI02) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT. 14...	1.6	2.1	14	0	5.6	30	.3	14	81
JAN. 07...	1.2	2.9	9	0	17	30	.2	16	96
FEB. 16...	1.5	2.9	10	0	20	42	.1	14	119
APR. 02...	1.3	3.3	7	0	43	35	.1	16	139
MAY 10...	.9	3.0	8	0	23	17	.2	9.2	76
JUNE 15...	1.6	2.5	18	0	10	33	.2	15	98
JULY 26...	1.2	2.8	22	0	14	27	.2	16	98
AUG. 30...	.6	9.0	7	0	11	9.8	.2	9.2	52

## SABINE RIVER BASIN

08020000 Sabine River near Gladewater, Tex.

LOCATION.--Lat 32°31'37", long 94°57'36", Gregg County, on right bank 46 ft (14 m) downstream from bridge on U.S. Highway 271, 0.4 mile (0.6 km) downstream from Glade Creek, 1.2 miles (1.9 km) southwest of Gladewater, and at mile 397.5 (639.6 km).

DRAINAGE AREA.--2,791 mi<sup>2</sup> (7,229 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: October 1932 to current year.

Water quality: Chemical and biochemical analyses: October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 243.85 ft (74.325 m) above mean sea level (Texas Reclamation Department bench mark based on Geological Survey datum). Prior to Oct. 13, 1933, nonrecording gage at same site and datum.

AVERAGE DISCHARGE.--28 years (1932-60) prior to regulation by Lake Tawakoni, 2,012 ft<sup>3</sup>/s (56.98 m<sup>3</sup>/s), 1,458,000 acre-ft/yr (1.80 km<sup>3</sup>/yr); 16 years (1960-76) regulated, 1,802 ft<sup>3</sup>/s (51.03 m<sup>3</sup>/s), 1,306,000 acre-ft/yr (1.61 km<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 16,000 ft<sup>3</sup>/s (453 m<sup>3</sup>/s) Apr. 27 (gage height, 33.99 ft or 10.360 m); minimum, 56 ft<sup>3</sup>/s (1.59 m<sup>3</sup>/s) Aug. 26-28.

Period of record: Maximum discharge, 138,000 ft<sup>3</sup>/s (3,910 m<sup>3</sup>/s) Apr. 2, 1945 (gage height, 44.16 ft or 13.460 m, from floodmark), from rating curve extended above 91,000 ft<sup>3</sup>/s (2,580 m<sup>3</sup>/s); minimum, 5.6 ft<sup>3</sup>/s (0.16 m<sup>3</sup>/s) Aug. 16, 1939.

Maximum stage since at least 1892, that of Apr. 2, 1945. Flood in May 1914 reached a stage of about 41.7 ft (12.71 m), discharge, 85,900 ft<sup>3</sup>/s (2,430 m<sup>3</sup>/s), from information by local resident.

REMARKS.--Discharge records good. Flow is partly regulated by Lake Tawakoni (station 08017400) and five tributary reservoirs, with a combined capacity of 975,500 acre-ft (1,200 hm<sup>3</sup>). Many diversions above station for oilfield operations and municipal supply. At end of year, flow from 61.5 mi<sup>2</sup> (159.3 km<sup>2</sup>) above this station was affected at times by discharge from the flood-detention pools of 19 floodwater-retarding structures with a combined detention capacity of 23,230 acre-ft (28.6 hm<sup>3</sup>) below the flood-spillway crests.

REVISIONS (WATER YEARS).--WSP 1732: Drainage area. WRD Texas 1973: 1972.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90	153	273	531	520	348	865	10500	2660	1030	387	244
2	91	152	291	1210	442	330	774	9330	2510	2080	298	448
3	94	199	296	1210	389	310	701	8420	2330	1860	238	927
4	93	196	291	910	356	310	628	7670	2170	2140	201	1080
5	93	190	279	736	346	534	549	7100	2010	2390	171	832
6	96	181	291	430	340	704	475	6700	1850	2600	163	661
7	99	178	294	314	324	662	430	6280	1710	2660	157	622
8	98	174	287	267	316	1460	390	5820	1510	2570	159	582
9	95	172	285	247	308	2630	364	4880	1270	2160	150	521
10	91	175	283	234	306	2860	335	5080	1040	1590	132	435
11	89	170	271	242	310	3030	312	5860	840	1050	119	319
12	87	165	267	251	312	3350	286	6610	704	779	115	237
13	86	157	265	259	312	3510	275	7630	607	675	110	197
14	84	152	265	253	304	3100	266	8740	526	749	103	175
15	83	149	265	249	302	2430	247	9290	452	835	99	157
16	82	145	265	249	296	1760	232	9330	402	807	95	214
17	84	144	265	228	358	1230	227	8970	343	917	95	222
18	88	142	265	219	577	902	226	8490	321	958	90	200
19	88	149	267	212	768	746	260	8000	502	984	81	184
20	88	227	247	246	1020	664	389	7560	1080	1240	75	189
21	85	228	244	267	1120	593	1160	7090	1610	1470	69	219
22	83	261	240	269	990	559	2110	6610	1670	1630	65	245
23	88	273	238	261	842	533	3930	5680	1320	1710	62	262
24	103	275	242	275	730	520	6320	4890	1080	1630	60	240
25	138	251	342	1170	601	672	9290	3900	1010	1270	59	319
26	175	232	416	1740	510	1010	14500	3440	1040	952	58	317
27	223	214	458	1650	444	1110	15900	2470	981	734	57	390
28	227	208	491	1290	402	980	14900	2100	908	586	66	538
29	203	210	551	939	366	927	13500	1910	900	512	68	659
30	178	253	543	738	---	912	11900	1740	866	495	75	687
31	160	---	545	605	---	908	---	1930	---	463	201	---
TOTAL	3462	5775	9812	17701	14211	39594	101741	194020	36222	41526	3878	12322
MEAN	112	193	317	571	490	1277	3391	6259	1207	1340	125	411
MAX	227	275	551	1740	1120	3510	15900	10500	2660	2660	387	1080
MIN	82	142	238	212	296	310	226	1740	321	463	57	157
AC-FT	6870	11450	19460	35110	28190	78530	201800	384800	71850	82370	7690	24440
CAL YR 1975	TOTAL	885565	MEAN	2426	MAX	23200	MIN 82	AC-FT	1757000			
WTR YR 1976	TOTAL	480264	MEAN	1312	MAX	15900	MIN 57	AC-FT	952600			

## SABINE RIVER BASIN

285

08020000 Sabine River near Gladewater, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	BIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	HARD- NESS (CA, MG) (MG/L)
OCT. 21...	1555	7	477	6.8	19.0	--	--	9.7	103	2.1	53
DEC. 03...	0850	145	575	6.5	8.5	40	10	10.1	86	.9	50
FEB. 03...	1700	185	431	6.2	9.5	--	--	8.4	74	1.1	49
APR. 27...	1720	105000	110	5.5	20.0	--	--	3.9	42	1.8	23
JUNE 07...	1645	125	245	6.5	24.5	--	--	7.4	88	1.7	61
JULY 29...	1830	520	254	6.5	30.0	--	--	6.9	92	1.4	63
SEP. 20...	1610	200	214	6.7	25.0	--	--	6.8	84	1.0	39

DATE	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
OCT. 21...	32	14	4.4	64	3.8	3.0	26	0	18	100
DEC. 03...	34	13	4.2	78	4.8	3.6	19	0	25	140
FEB. 03...	37	12	4.6	56	3.5	3.3	14	0	34	91
APR. 27...	8	6.9	1.5	8.8	.8	3.6	19	0	12	12
JUNE 07...	11	18	3.8	19	1.1	3.3	60	0	24	25
JULY 29...	19	14	4.5	22	1.2	3.5	54	0	23	32
SEP. 20...	19	10	3.4	21	1.5	3.6	24	0	21	35

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NON- FILT- RABLE RESIDUE (MG/L)	VOL. NON- FILT- RABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)
OCT. 21...	--	15	231	--	--	.01	.00	.02	.73	.06
DEC. 03...	.4	17	291	16	6	.03	.00	.01	.42	.09
FEB. 03...	.2	16	224	--	--	.10	.00	.03	1.1	.05
APR. 27...	.2	5.4	60	--	--	.00	.01	.07	1.3	.11
JUNE 07...	.4	7.3	130	--	--	.20	.01	.03	.65	.12
JULY 29...	.3	11	141	--	--	.08	.01	.01	.49	.09
SEP. 20...	.2	16	122	--	--	.07	.01	.04	.43	.05



## SABINE RIVER BASIN

08020200 Prairie Creek near Gladewater, Tex.

LOCATION.--Lat 32°28'48", long 94°57'10", Gregg County, on downstream side of bridge on State Highway 135, 0.7 mile (1.1 km) upstream from Little Caney Creek, 3.5 miles (5.6 km) upstream from mouth, and 3.9 miles (6.3 km) south of Gladewater.

DRAINAGE AREA.--48.9 mi<sup>2</sup> (126.7 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: January 1968 to current year.

Water quality: Chemical analyses: February 1968 to August 1976 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 280.95 ft (85.634 m) above mean sea level (State Highway Department bench mark).

AVERAGE DISCHARGE.--8 years, 35.9 ft<sup>3</sup>/s (1.017 m<sup>3</sup>/s), 9.97 in/yr (253 mm/yr), 26,010 acre-ft/yr (32.1 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 870 ft<sup>3</sup>/s (24.6 m<sup>3</sup>/s) Jan. 2 (gage height, 8.87 ft or 2.704 m); minimum, 0.57 ft<sup>3</sup>/s (0.016 m<sup>3</sup>/s) Oct. 4.

Period of record: Maximum discharge, 4,030 ft<sup>3</sup>/s (114 m<sup>3</sup>/s) May 10, 1968 (gage height, 9.91 ft or 3.021 m); no flow at times.

Maximum stage since 1938, 14.8 ft (4.51 m) Apr. 25, 1966, from information by State Highway Department.

REMARKS.--Discharge records good. No known diversion above station. Collection of water quality samples discontinued Aug. 31, 1976.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.78	5.7	27	31	32	23	34	37	80	48	3.3	33
2	.68	6.4	19	431	30	22	31	26	52	114	2.9	32
3	.63	21	17	286	28	22	29	19	27	52	2.5	17
4	.62	21	16	152	28	23	28	16	22	50	2.2	16
5	.77	12	16	62	29	70	27	14	18	106	2.1	21
6	.87	9.7	16	46	32	102	26	42	15	112	1.6	13
7	.93	8.8	15	43	29	85	24	46	15	45	3.1	8.5
8	.95	8.5	15	38	27	198	23	55	14	28	5.9	6.5
9	.91	8.5	14	32	27	355	23	35	12	23	3.5	5.6
10	.92	7.8	14	31	27	211	20	26	11	20	2.7	4.8
11	1.0	7.4	13	36	27	92	19	22	8.9	19	2.2	4.0
12	1.1	7.2	13	43	27	64	18	19	8.0	18	1.9	3.8
13	.99	6.7	13	35	26	53	18	46	7.0	16	1.7	3.7
14	.95	6.4	14	31	25	49	18	76	6.1	14	1.6	3.7
15	1.0	7.0	14	28	25	50	17	77	5.7	14	1.5	7.0
16	1.0	7.4	15	27	25	45	16	62	25	13	1.4	7.0
17	1.1	7.9	14	26	32	38	18	33	21	15	1.3	5.8
18	1.1	8.0	13	25	65	34	17	25	20	16	1.3	5.6
19	1.2	9.3	12	25	47	33	18	21	77	14	1.5	4.5
20	1.3	33	12	33	32	33	21	18	169	13	1.5	4.7
21	1.5	30	13	37	38	42	23	16	102	11	1.3	7.0
22	1.7	18	13	29	34	35	16	15	29	9.8	1.2	6.8
23	2.2	15	13	28	28	30	14	14	21	10	1.1	5.0
24	3.7	14	14	29	26	38	20	23	17	8.5	1.0	4.1
25	16	13	29	145	25	81	23	20	42	7.8	1.0	3.6
26	27	13	34	229	24	86	17	21	77	7.2	.99	3.5
27	14	14	22	104	23	70	13	33	40	5.9	.97	6.0
28	8.9	13	22	49	23	51	12	29	25	5.4	1.7	12
29	7.3	13	46	40	23	59	35	21	20	4.7	5.3	38
30	6.5	20	37	36	---	52	61	17	18	4.0	5.9	20
31	5.9	---	25	34	---	40	---	35	---	3.7	27	---
TOTAL	113.50	372.7	570	2221	864	2186	679	959	1004.7	828.0	93.16	313.2
MEAN	3.66	12.4	18.4	71.6	29.8	70.5	22.6	30.9	33.5	26.7	3.01	10.4
MAX	27	33	46	431	65	355	61	77	169	114	27	38
MIN	.62	5.7	12	25	23	22	12	14	5.7	3.7	.97	3.5
CFSM	.07	.25	.38	1.46	.61	1.44	.46	.63	.69	.55	.06	.21
IN.	.09	.28	.43	1.69	.66	1.66	.52	.73	.76	.63	.07	.24
AC-FT	225	739	1130	4410	1710	4340	1350	1900	1990	1640	185	621

CAL YR 1975 TOTAL 15061.58 MEAN 41.3 MAX 1130 MIN .62 CFSM .84 IN 11.46 AC-FT 29870  
WTR YR 1976 TOTAL 10204.26 MEAN 27.9 MAX 431 MIN .62 CFSM .57 IN 7.76 AC-FT 20240

PEAK DISCHARGE (BASE, 500 FT<sup>3</sup>/S).--Jan. 2 (1330) 870 ft<sup>3</sup>/s (8.87 ft).

## SABINE RIVER BASIN

287

08020200 Prairie Creek near Gladewater, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
NOV. 24...	1400	14	177	7.1	7.0	28	18	7.2	2.4	18
JAN. 06...	1210	47	151	6.6	6.5	27	19	6.8	2.5	14
APR. 01...	1250	34	141	6.7	14.5	26	14	6.6	2.4	14
MAY 11...	1400	22	149	6.7	23.5	28	15	6.4	2.9	14
JUNE 15...	1320	5.6	141	6.8	27.5	26	9	6.3	2.4	13
JULY 27...	1300	6.2	136	6.8	31.0	28	9	7.2	2.5	12
AUG. 31...	0951	24	148	6.4	22.0	15	5	3.7	1.5	16

DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SI02) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
NOV. 24...	1.5	2.7	12	0	13	35	.3	25	110
JAN. 06...	1.2	2.4	10	0	15	26	.2	23	95
APR. 01...	1.2	1.9	15	0	13	24	.1	23	92
MAY 11...	1.2	1.9	16	0	12	26	.2	24	95
JUNE 15...	1.1	1.8	20	0	9.0	24	.2	26	93
JULY 27...	1.0	2.1	23	0	7.6	22	.2	26	91
AUG. 31...	1.8	4.0	13	0	9.2	27	.1	17	85

08020700 Rabbit Creek at Kilgore, Tex.

LOCATION.--Lat 32°23'17", long 94°54'11", Gregg County, near center of channel on downstream side of bridge on State Highway 31 at Kilgore, 0.4 mile (0.6 km) upstream from Big Caney Creek, 4.4 miles (7.1 km) upstream from Peavine Creek, and 14 miles (23 km) upstream from mouth.

DRAINAGE AREA.--75.8 mi<sup>2</sup> (196.3 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: October 1963 to current year.

Water quality: Chemical analyses: March 1965 to September 1976.

GAGE.--Water-stage recorder. Datum of gage is 299.80 ft (91.38 m) above mean sea level (State Highway Department bench mark).

AVERAGE DISCHARGE.--13 years, 54.0 ft<sup>3</sup>/s (1.529 m<sup>3</sup>/s), 9.67 in/yr (246 mm/yr), 39,120 acre-ft/yr (48.2 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 785 ft<sup>3</sup>/s (22.2 m<sup>3</sup>/s) about Mar. 9 (gage height, 10.24 ft or 3.121 m, from peak-stage indicator); minimum, 1.1 ft<sup>3</sup>/s (0.031 m<sup>3</sup>/s) Oct. 4.

Period of record: Maximum discharge, 15,200 ft<sup>3</sup>/s (430 m<sup>3</sup>/s) Apr. 24, 1966 (gage height, 16.40 ft or 4.999 m); no flow at times in 1964, 1967-68, 1972.

Maximum stage since at least 1943, 19.6 ft (5.97 m) July 11, 1945, from information by local resident and State Highway Department.

REMARKS.--Discharge records good except those for Jan. 29 to Apr. 1, which are fair. Small diversions for oilfield operations upstream from station. Low flow is partly sustained by effluents from oilfield operations.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	8.1	35	25	22	23	40	105	181	115	11	123
2	1.2	13	21	184	21	22	36	59	82	69	10	48
3	1.2	71	18	112	21	22	33	44	47	35	9.7	27
4	1.2	37	16	41	21	22	33	36	37	131	8.9	26
5	1.6	18	16	31	21	30	31	33	32	504	8.6	26
6	1.9	14	17	29	35	30	30	51	29	621	27	18
7	2.1	13	17	35	30	40	27	139	28	238	78	14
8	2.3	12	16	28	29	150	26	176	25	65	22	12
9	2.5	12	16	25	27	650	25	77	22	47	14	10
10	2.5	12	16	26	25	300	22	50	20	40	12	9.3
11	2.6	11	15	38	25	150	21	43	19	41	9.9	8.3
12	2.6	11	16	40	25	100	21	38	18	36	8.9	8.3
13	2.6	9.8	16	32	24	80	20	148	16	31	8.4	8.1
14	2.5	9.4	16	28	24	70	21	235	15	31	7.9	7.9
15	2.6	10	27	24	24	60	19	404	14	27	7.3	29
16	2.9	11	33	24	24	50	19	189	19	24	6.8	13
17	3.2	12	22	22	35	47	22	73	17	64	6.9	10
18	3.8	12	18	22	45	46	19	52	25	45	7.4	13
19	2.9	13	16	23	35	45	20	43	282	116	7.4	11
20	3.1	37	16	48	30	45	22	37	412	100	6.1	12
21	3.5	27	16	46	40	70	22	35	133	42	6.0	31
22	3.6	16	16	31	35	66	16	32	45	34	5.5	15
23	4.1	14	17	28	30	60	15	32	34	27	5.1	10
24	9.2	14	20	28	27	54	31	43	28	23	4.7	8.9
25	42	14	68	139	26	90	25	37	106	26	4.4	8.5
26	35	15	45	83	25	170	17	52	138	21	4.2	9.3
27	17	17	29	41	25	100	15	186	55	18	4.0	19
28	12	15	25	30	24	70	20	98	59	16	5.6	50
29	11	15	47	27	24	80	335	49	43	14	7.9	84
30	9.6	38	37	24	---	60	271	37	30	13	41	30
31	8.5	---	28	23	---	50	---	97	---	12	240	---
TOTAL	202.1	531.3	731	1337	799	2852	1274	2730	2011	2626	606.6	699.6
MEAN	6.52	17.7	23.6	43.1	27.6	92.0	42.5	88.1	67.0	84.7	19.6	23.3
MAX	42	71	68	184	45	650	335	404	412	621	240	123
MIN	1.2	8.1	15	22	21	22	15	32	14	12	4.0	7.9
CFSM	.09	.23	.31	.57	.36	1.21	.56	1.16	.88	1.12	.26	.31
IN.	.10	.26	.36	.66	.39	1.40	.63	1.34	.99	1.29	.30	.34
AC-FT	401	1050	1450	2650	1580	5660	2530	5410	3990	5210	1200	1390

CAL YR 1975 TOTAL 24595.32 MEAN 67.4 MAX 2850 MIN .70 CFSM .89 IN 12.07 AC-FT 48780  
WTR YR 1976 TOTAL 16399.60 MEAN 44.8 MAX 650 MIN 1.2 CFSM .59 IN 8.05 AC-FT 32530

PEAK DISCHARGE (BASE, 800 FT<sup>3</sup>/S).--No peak above base.

## SABINE RIVER BASIN

289

08020700 Rabbit Creek at Kilgore, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPF- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
JAN. 06...	1030	29	946	7.3	6.0	67	56	16	6.6	150
FEB. 17...	1040	29	699	7.1	15.0	65	52	15	6.6	110
APR. 01...	1030	41	651	6.4	14.5	66	56	15	7.0	95
MAY 11...	1530	39	580	6.4	23.0	61	50	14	6.4	78
JUNE 15...	1145	14	672	6.5	26.5	68	56	15	7.4	95
JULY 27...	1040	18	842	6.7	29.0	72	56	17	7.2	130
SEP. 02...	1619	41	547	6.1	23.0	45	39	11	4.3	76

DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SI02) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
JAN. 06...	8.0	3.2	14	0	16	260	.2	26	485
FEB. 17...	6.0	2.5	16	0	15	190	.2	26	373
APR. 01...	5.1	2.4	12	0	18	180	.1	26	349
MAY 11...	4.3	2.4	14	0	15	150	.2	26	299
JUNE 15...	5.0	2.5	14	0	13	180	.2	30	350
JULY 27...	6.7	2.8	20	0	13	240	.2	29	449
SEP. 02...	4.9	3.7	8	0	17	140	.2	20	276

## SABINE RIVER BASIN

08021500 Lake Cherokee near Longview, Tex.

LOCATION.--Lat 32°22'36", long 94°38'30", Gregg-Rusk County line, on left wingwall of intake structure of electric generating plant of Southwestern Electric Power Co., 2.3 miles (3.7 km) upstream from dam on Cherokee Bayou, 10 miles (16 km) upstream from Sabine River, and 10.3 miles (16.6 km) southeast of Longview.

DRAINAGE AREA.--158 mi<sup>2</sup> (409 km<sup>2</sup>).

PERIOD OF RECORD.--Contents: April 1951 to current year.

Water quality: Chemical analyses: October 1969 to current year.

GAGE.--Nonrecording gage. Datum of gage is at mean sea level.

EXTREMES (at 0800).--Current year: Maximum contents observed, 49,880 acre-ft (61.5 hm<sup>3</sup>) July 5-6 (elevation, 280.8 ft or 85.59 m); minimum observed, 42,160 acre-ft (52.0 hm<sup>3</sup>) Oct. 13-25 (elevation, 278.8 ft or 84.98 m).

Period of record: Maximum contents observed, 71,170 acre-ft (87.8 hm<sup>3</sup>) May 3, 1959 (elevation, 285.5 ft or 87.02 m); minimum observed, 34,620 acre-ft (42.7 hm<sup>3</sup>) Oct. 16-18, 31, 1956, Aug. 9, 18-21, Aug. 31 to Sept. 8, 11-18, 1958 (elevation, 276.6 ft or 84.31 m)

REMARKS.--The lake is formed by a rolled earthfill dam 4,000 ft (1,220 m) long. An uncontrolled concrete spillway 828 ft (252 m) long is located at left end of dam. An emergency spillway, 160-foot (49-meter) wide, is cut in natural ground at right end of dam. Storage began in October 1948 and dam was completed Nov. 19, 1948. Lake was built for recreational purposes, to supply cooling water for generating plant of Southwestern Electric Power Co., and for municipal use by city of Longview. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	295.0	-
Top of design flood pool.....	291.0	-
Crest of spillway.....	287.7	-
Crest of spillway (top of conservation pool).....	280.0	46,700
Lowest gated outlet (invert).....	260.0	4,510

COOPERATION.--Elevation record furnished by Southwestern Electric Power Co. Record of diversions furnished by city of Longview. Capacity curve data from "Report of Sedimentation of Lake Cherokee, Gregg & Rusk Counties, Apr. 4 to May 13, 1960", by Soil Conservation Service.

REVISIONS.--WSP 1732: Drainage area.

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

278.0	39,300	280.0	46,700
279.0	42,900	281.0	50,700

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43640	43270	45150	47100	47480	47100	47880	47880	47880	48670	47100	45920
2	42900	43270	45150	47100	47480	47100	47480	47880	48270	48670	47100	46700
3	42900	44010	45150	47100	47100	47100	47480	47880	48270	48670	47100	47480
4	42900	44010	45150	47100	47100	47100	47100	47480	47880	48670	46700	47480
5	42900	44010	45150	47100	47100	47480	47100	47480	47480	49880	45920	47480
6	42900	44010	45150	47100	47100	47880	47100	47480	47480	49880	45920	47100
7	42900	44010	45540	47100	47100	47880	47100	47480	47480	48270	45920	47100
8	42900	44010	45540	47100	47100	48670	47100	47480	47100	47880	45920	46700
9	42530	44010	45540	47100	47100	49070	47100	47480	47100	47880	45920	46700
10	42530	44010	45540	47100	47100	49070	47100	47480	47100	47480	45920	46700
11	42530	44010	45540	47100	47100	48270	47100	47480	47100	47480	45920	46700
12	42530	44010	45920	47100	47100	47880	47100	47480	47100	47480	45920	46700
13	42160	44010	45920	47100	47100	47480	47100	47480	47100	47480	45920	46700
14	42160	44010	45920	47100	47100	47480	47100	47880	47100	47480	45920	47480
15	42160	44010	46320	47100	47100	47480	47100	47880	47100	47480	45540	47480
16	42160	44010	46320	47100	47100	47480	47100	47480	47100	47480	45540	47100
17	42160	44010	46320	47100	47480	47480	47100	47480	47100	47100	45540	47100
18	42160	44010	46320	47100	47480	47100	47100	47480	47100	47100	45540	47100
19	42160	44390	46320	47100	47480	47100	47100	47100	47480	47100	45540	47100
20	42160	44770	46320	47100	47480	47480	47100	47100	47480	47100	45540	47100
21	42160	44770	46320	47100	47480	47480	47100	47100	47480	47100	45150	47100
22	42160	44770	46320	47100	46700	47480	47100	47100	47480	47100	45150	46700
23	42160	44770	46320	47480	47100	47100	47100	47100	47480	47100	45150	46700
24	42160	44770	46700	47480	47100	47880	47100	47100	47480	47100	45150	46700
25	42160	44770	46700	47480	47100	47880	47100	46700	47480	47100	44770	46700
26	43270	44770	48670	47480	47100	47880	47100	47100	48270	47480	44770	46700
27	43270	44770	48670	47480	47100	47880	47100	47480	48270	47480	44010	46700
28	43270	45150	47100	47480	47100	47880	47100	47480	48270	47480	44390	46700
29	43270	45150	47100	47480	47100	48270	47880	47480	47480	47100	44390	46700
30	43270	45150	47100	47480	---	48270	48270	47480	47480	47100	44770	46700
31	43270	---	47100	47480	---	48270	---	47880	---	47100	45150	---
(+)	279.1	279.6	280.1	280.2	280.1	280.4	280.4	280.3	280.2	280.1	279.6	280.0
(*)	-370	+1880	+1950	+380	-380	+1170	0	-390	-400	-380	-1950	+1550
(††)	1326	1074	1118	1098	911	1115	1223	1236	1319	1390	1752	1260
MAX	43640	45150	48670	47480	47480	49070	48270	47880	48270	49880	47100	47480
MIN	42160	43270	45150	47100	46700	47100	47100	46700	47100	47100	44010	45920

CAL YR 1975..... \* -780

WTR YR 1976..... \* +3060

†† 14448

†† 14822

MAX 52350

MAX 49880

MIN 42160

MIN 42160

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal use by city of Longview.

SABINE RIVER BASIN

291

08021500 Lake Cherokee near Longview, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
JUL 26...	1330	141	6.5	33.0	28	16	7.3	2.3	14
DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SI02) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)
JUL 26...	1.2	2.2	14	0	8.5	27	.1	11	79



08022000 Sabine River near Tatum, Tex.

LOCATION.--Lat 32°22'11", long 94°27'28", Panola County, near right bank on downstream side of pier of bridge on State Highway 43, 5.1 miles (8.2 km) northeast of Tatum, 5.2 miles (8.4 km) upstream from Potters Creek, 5.6 miles (9.0 km) downstream from Cherokee Bayou, and at mile 339.4 (546.1 km).

DRAINAGE AREA.--3,493 mi<sup>2</sup> (9,047 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: October 1938 to current year. Monthly discharge only for October 1938 to January 1939, published in WSP 1312.

Water quality: Chemical analyses: February 1952 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: March 1968 to current year. Water temperatures: February 1952 to current year.

GAGE.--Water-stage recorder. Datum of gage is 204.18 ft (62.234 m) above mean sea level (levels by Corps of Engineers). Prior to Sept. 21, 1945, nonrecording gage at same site and datum.

AVERAGE DISCHARGE.--22 years (1938-60) prior to regulation by Lake Tawakoni, 2,663 ft<sup>3</sup>/s (75.42 m<sup>3</sup>/s), 1,929,000 acre-ft/yr (2.38 km<sup>3</sup>/yr); 16 years (1960-76) regulated, 2,332 ft<sup>3</sup>/s (66.04 m<sup>3</sup>/s), 1,690,000 acre-ft/yr (2.08 km<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 10,600 ft<sup>3</sup>/s (300 m<sup>3</sup>/s) May 4 (gage height, 21.94 ft or 6.687 m); minimum, 76 ft<sup>3</sup>/s (2.15 m<sup>3</sup>/s) Aug. 28.

Period of record: Maximum discharge, 123,000 ft<sup>3</sup>/s (3,480 m<sup>3</sup>/s) Apr. 4, 1945 (gage height, 33.80 ft or 10.302 m, from graph based on gage readings), from rating curve extended above 66,000 ft<sup>3</sup>/s (1,870 m<sup>3</sup>/s) on basis of partly estimated measurement of 88,900 ft<sup>3</sup>/s (2,520 m<sup>3</sup>/s); minimum observed, 2.4 ft<sup>3</sup>/s (0.068 m<sup>3</sup>/s) Aug. 11, 12, 1964.

Historic: Maximum stage since at least 1884, that of Apr. 4, 1945. Flood in May 1884 reached a stage of about 32 ft (9.8 m), from information by local residents.

Water quality: Current year: Maximum daily specific conductance, 1,000 micromhos Sept. 14; minimum daily, 119 micromhos Apr. 29. Maximum water temperatures, 36.0°C Aug. 8, 15, 17; minimum, 8.0°C Dec. 28, 29, Jan. 8.

Period of record: Maximum daily specific conductance, 3,040 micromhos Jan. 13, 1966; minimum daily, 82 micromhos Dec. 24, 1971. Maximum water temperatures (1952-62, 1964-76), 38.0°C July 8, 1969; minimum, 2.0°C Jan. 12, 13, 1962.

REMARKS.--Discharge records fair. Flow is partly regulated by Lake Tawakoni (station 08017400) located 175 miles (282 km) upstream and by six reservoirs on tributary streams, combined capacity, 1,022,000 acre-ft (1.26 km<sup>3</sup>). Several diversions above station and below Lake Tawakoni for oilfield operation, municipal, and industrial uses.

REVISIONS.--WSP 1732: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	116	226	337	715	902	636	1610	8610	2550	1530	613	754
2	108	304	398	712	815	600	1410	9600	3010	2980	544	865
3	110	299	388	1690	756	578	1210	10300	3570	4110	465	680
4	107	278	367	2330	707	531	1070	10600	3340	3960	358	867
5	110	269	367	1090	664	594	956	10600	2930	4790	306	1200
6	110	260	371	974	646	1200	841	10400	2500	5000	285	1220
7	110	254	365	944	630	1690	739	10100	2220	5030	269	999
8	112	246	355	792	618	2290	680	9920	1980	5080	336	821
9	115	232	349	633	599	4600	623	9300	1780	4420	301	728
10	111	220	343	517	575	5740	552	8640	1530	3590	239	648
11	107	208	341	488	556	5640	496	7880	1260	2750	223	573
12	104	198	341	515	542	5080	482	7070	1040	1930	209	456
13	103	194	341	538	533	4480	432	6570	873	1370	176	349
14	102	187	341	547	529	4200	419	6500	756	1090	175	320
15	106	183	341	484	524	4020	400	6610	647	998	159	392
16	103	178	339	484	515	3700	391	6870	572	1050	155	361
17	95	177	339	499	508	3020	366	7290	536	1080	135	314
18	93	175	339	473	662	2100	353	7680	538	1210	144	338
19	90	178	337	462	1090	1460	360	8020	818	1270	123	385
20	87	198	337	462	1100	1140	352	8250	1600	1260	132	337
21	87	278	333	545	1240	1070	423	8460	1880	1430	137	300
22	99	316	327	594	1610	1040	678	8600	2150	1830	110	270
23	93	306	357	575	1490	924	1390	8610	2130	1980	109	275
24	94	306	377	556	1260	860	2190	8360	1760	1960	100	285
25	98	312	390	547	1100	1110	3030	8000	1530	1900	96	264
26	192	306	404	877	956	1630	3670	7650	1960	1680	99	270
27	228	284	419	2730	826	1760	4310	7030	2180	1370	90	340
28	284	284	412	2690	739	1860	4980	6020	2100	1120	85	404
29	297	260	427	2100	688	1940	5950	4400	1750	893	147	519
30	278	262	608	1460	---	2070	7330	2920	1450	729	230	689
31	251	---	693	1050	---	1880	---	2520	---	650	299	---
TOTAL	4100	7378	11783	29073	23380	69443	47693	243380	52940	70040	6849	16223
MEAN	132	246	380	938	806	2240	1590	7851	1765	2259	221	541
MAX	297	316	693	2730	1610	5740	7330	10600	3570	5080	613	1220
MIN	87	175	327	462	508	531	352	2520	536	650	85	264
AC-FT	8130	14630	23370	57670	46370	137700	94600	482700	105000	138900	13580	32180
CAL YR 1975 TOTAL	1068747			2928	MAX 18000	MIN 87	AC-FT 2120000					
WTR YR 1976 TOTAL	582282			MEAN 1591	MAX 10600	MIN 85	AC-FT 1155000					

## SABINE RIVER BASIN

293

08022000 Sabine River near Tatum, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	BIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	HARD- NESS (CA+MG) (MG/L)
OCT.											
22...	1300	112	491	6.4	20.5	20	8	4.2	46	3.4	63
NOV.											
25...	1550	298	440	6.1	4.5	--	--	--	--	--	48
DEC.											
03...	1330	340	388	6.4	10.5	30	20	7.8	70	2.9	55
JAN.											
21...	1620	400	474	6.6	10.0	--	--	--	--	--	52
FEB.											
04...	1330	380	439	6.2	12.0	30	25	8.1	75	2.1	56
MAR.											
04...	1600	340	431	7.2	18.0	--	--	--	--	--	54
APR.											
28...	1500	6000	134	5.5	20.0	120	50	4.9	53	2.3	25
MAY											
13...	1715	6560	179	6.5	20.5	--	--	--	--	--	37
JUNE											
08...	1330	2100	328	6.1	25.0	60	40	6.6	79	2.2	66
JULY											
29...	1000	910	293	6.3	28.5	30	35	5.6	73	1.6	58
AUG.											
17...	1600	110	638	7.6	36.0	--	--	--	--	--	78
SEP.											
21...	0925	300	395	6.7	24.5	10	20	5.6	68	2.0	56

DATE	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)
OCT.											
22...	18	17	5.0	65	3.6	4.2	55	0	37	86	--
NOV.											
25...	23	12	4.3	58	3.7	3.7	30	0	23	90	.2
DEC.											
03...	29	15	4.2	50	2.9	3.8	32	0	28	73	.3
JAN.											
21...	34	13	4.8	63	3.8	3.0	22	0	28	100	.3
FEB.											
04...	40	14	5.1	54	3.1	3.5	20	0	34	86	.4
MAR.											
04...	34	13	5.2	52	3.1	3.3	24	0	39	82	.2
APR.											
28...	11	7.1	1.7	11	1.0	3.6	17	0	15	17	.2
MAY											
13...	14	10	2.9	14	1.0	3.5	28	0	17	20	.3
JUNE											
08...	20	19	4.4	33	1.8	3.3	56	0	28	48	.4
JULY											
29...	19	16	4.2	32	1.8	3.6	47	0	25	45	.2
AUG.											
17...	5	21	6.2	95	4.7	4.0	89	0	42	130	.3
SEP.											
21...	26	15	4.3	48	2.8	3.8	36	0	29	76	.3

## SABINE RIVER BASIN

08022000 Sabine River near Tatum, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED SILICA (SI02) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NON- FILT- RABLE RESIDUE (MG/L)	VOL. NON- FILT- RABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)
OCT. 22...	14	255	16	0	.00	.00	.02	.81	.21	12
NOV. 25...	18	224	--	--	--	--	--	--	--	--
DEC. 03...	17	208	34	3	.29	.02	.16	.94	.28	--
JAN. 21...	19	242	--	--	--	--	--	--	--	--
FEB. 04...	17	224	31	14	.17	.01	.24	1.2	.18	9.4
MAR. 04...	17	224	--	--	--	--	--	--	--	--
APR. 23...	6.0	72	115	32	.03	.01	.07	1.3	.17	9.1
MAY 13...	7.3	89	--	--	--	--	--	--	--	--
JUNE 08...	8.8	174	84	11	.26	.01	.06	.94	.16	11
JULY 29...	12	162	62	12	.23	.01	.05	.85	.19	6.1
AUG. 17...	12	354	--	--	--	--	--	--	--	--
SEP. 21...	14	209	92	66	.38	.02	.17	.55	.24	6.6

DATE	TIME	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)
DEC. 03...	1330	10	0	60	1	0	0	2
APR. 28...	1500	60	0	100	0	0	0	9
JUNE 08...	1330	40	1	300	16	0	0	1
JULY 29...	1000	50	1	--	2	0	0	4
SEP. 21...	0925	40	1	--	0	6	0	0

DATE	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
DEC. 03...	40	2	0	0	.0	0	290	10
APR. 28...	230	0	0	30	.0	0	130	30
JUNE 08...	120		10	60	1.4	0	300	80
JULY 29...	90	0	10	70	.0	3	260	10
SEP. 21...	110	0	20	200	.1	4	350	10

08022000 Sabine River near Tatum, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	TOTAL PCB (UG/L)	PCR IN BOTTOM MA- TERIAL (UG/KG)	POLY- CHLO- RINATED NAPH- THA- LENES (UG/L)	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL CHLOR- DANE (UG/L)	CHLOR- DANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDD (UG/L)	DDD IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDE (UG/L)	DDE IN BOTTOM MA- TERIAL (UG/KG)
DEC. 03...	1330	.0	10	--	.00	.0	.0	3	.00	.2	.00	.0
APR. 28...	1500	.0	8	.00	.00	.0	.0	3	.00	.3	.00	.0
JUNE 08...	1330	.0	0	.00	.00	.0	.0	0	.00	.0	.00	.0
JULY 29...	1000	.0	0	.00	.00	.0	.0	0	.00	.0	.00	.0
SEP. 21.	0925	.0	0	.00	.00	.0	.0	2	.00	.0	.00	.0

DATE	TOTAL DDT (UG/L)	DDT IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DI- AZINON (UG/L)	TOTAL DI- ELDRIN (UG/L)	DI- ELDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ENDRIN (UG/L)	ENDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ETHION (UG/L)	TOTAL HEPTA- CHLOR (UG/L)	HEPTA- CHLOR IN BOTTOM MA- TERIAL (UG/KG)	TOTAL HEPTA- CHLOR EPOXIDE (UG/L)	HEPTA- CHLOR EPOXIDE IN BOT- TOM MA- TERIAL (UG/KG)
DEC. 03...	.00	.0	.04	.00	.0	.00	.0	.00	.00	.0	.00	.0
APR. 28...	.00	.0	.00	.00	.2	.00	.0	.00	.00	.0	.00	.0
JUNE 08...	.00	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00	.0
JULY 29...	.00	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00	.0
SEP. 21...	.00	.0	.03	.00	.0	.00	.0	.00	.00	.0	.00	.0

DATE	TOTAL LINDANE (UG/L)	LINDANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL MALA- THION (UG/L)	TOTAL METHYL PARA- THION (UG/L)	TOTAL METHYL TRI- THION (UG/L)	TOTAL PARA- THION (UG/L)	TOTAL TOX- APHENE (UG/L)	TOX- APHENE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)
DEC. 03...	.01	.0	.00	.00	.00	.00	0	0	.00	.00	.02	.00
APR. 28...	.00	.0	.00	.00	.00	.00	0	0	.00	.00	.00	.00
JUNE 08...	.00	.0	--	.00	.00	.00	0	0	.00	.00	.00	.00
JULY 29...	.00	.0	.00	.00	.00	.00	0	0	.00	.00	.01	.00
SEP. 21...	.00	.0	.00	.00	.00	.00	0	0	.00	.03	.00	.00

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	4100	506	280	3050	100	1160	40	444	67
NOV. 1975.....	7378	423	230	4630	85	1690	34	686	61
DEC. 1975.....	11783	439	240	7620	89	2820	35	1130	62
JAN. 1976.....	29073	339	190	14700	64	5050	29	2240	55
FEB. 1976.....	22692	402	220	13500	80	4890	33	2020	59
MAR. 1976.....	69443	313	170	32200	58	10900	27	5010	53
APR. 1976.....	47693	236	130	16900	41	5220	21	2640	48
MAY 1976.....	243380	184	100	67900	27	17700	17	11400	43
JUNE 1976.....	52940	271	150	21500	48	6830	24	3400	50
JULY 1976.....	70040	255	140	26700	44	8280	23	4270	49
AUG. 1976.....	6849	506	280	5090	110	1950	40	742	67
SEPT 1976.....	16223	410	220	9840	81	3570	33	1470	60
TOTAL .....	581594	**	**	224000	**	70100	**	35500	**
WTD.AVG. ....	1593.41	257	140	**	45	**	23	**	49

## SABINE RIVER BASIN

08022000 Sabine River near Tatum, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C) • WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	554	475	434	405	275	462	321	127	274	225	461	585
2	551	572	446	354	340	461	347	130	286	162	390	340
3	551	483	467	192	377	432	458	139	249	240	390	398
4	507	457	443	175	539	431	450	178	260	158	399	391
5	447	466	459	222	439	420	444	166	244	236	469	307
6	472	412	432	326	488	371	434	180	277	262	383	283
7	479	471	485	355	503	340	489	192	326	238	382	285
8	485	483	533	399	457	312	515	205	254	167	469	259
9	444	451	592	341	447	216	454	235	324	260	556	255
10	471	455	401	404	444	293	506	210	315	192	593	299
11	464	435	415	407	485	257	461	184	305	280	609	249
12	443	453	462	332	469	294	480	230	314	199	420	550
13	445	436	442	478	455	174	496	170	325	321	654	881
14	517	443	466	413	440	391	469	232	335	330	634	1000
15	512	448	369	486	410	414	488	163	340	241	622	804
16	502	442	393	604	385	343	480	145	350	303	622	405
17	501	434	425	534	375	335	473	153	362	299	634	467
18	500	436	430	363	312	327	470	152	281	349	649	432
19	499	414	384	472	351	207	510	148	319	420	625	485
20	489	415	465	530	376	378	250	149	279	278	582	475
21	441	413	444	350	445	330	443	179	250	324	649	420
22	495	394	462	400	312	403	400	188	204	245	634	386
23	565	355	462	485	388	367	212	251	204	335	530	400
24	472	326	453	544	400	341	300	164	196	368	616	458
25	576	434	452	500	418	421	121	202	334	339	551	405
26	495	375	451	300	386	426	169	207	254	298	616	451
27	472	326	441	240	351	395	132	212	251	293	603	585
28	417	446	391	266	444	362	140	226	253	292	363	447
29	416	321	415	366	449	268	119	252	246	305	514	405
30	511	341	351	461	---	343	127	261	244	319	551	434
31	542	---	452	215	---	299	---	221	---	322	551	---
MONTH	504	425	441	386	414	346	372	189	283	279	540	452

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.0	24.0	12.0	---	---	16.0	17.0	18.0	24.0	27.0	33.0	33.0
2	26.0	28.0	11.0	10.0	12.0	16.0	17.0	20.0	23.0	28.0	34.0	32.0
3	27.0	25.0	11.0	9.0	12.0	18.0	15.0	20.0	23.0	28.0	33.0	32.0
4	26.0	25.0	14.0	---	14.0	18.0	---	21.0	23.0	29.0	34.0	31.0
5	---	26.0	14.0	9.0	13.0	17.0	17.0	22.0	22.0	31.0	35.0	32.0
6	24.0	26.0	11.0	11.0	13.0	17.0	17.0	---	24.0	30.0	35.0	31.0
7	25.0	27.0	---	9.0	14.0	---	16.0	22.0	24.0	30.0	34.0	33.0
8	26.0	26.0	13.0	8.0	14.0	17.0	19.0	20.0	25.0	29.0	36.0	31.0
9	25.0	24.0	12.0	9.0	13.0	13.0	18.0	19.0	26.0	32.0	34.0	31.0
10	27.0	26.0	13.0	9.0	14.0	14.0	19.0	---	25.0	30.0	35.0	30.0
11	28.0	26.0	12.0	11.0	14.0	13.0	16.0	19.0	26.0	32.0	34.0	29.0
12	24.0	18.0	13.0	11.0	14.0	14.0	---	17.0	26.0	31.0	35.0	---
13	27.0	16.0	14.0	9.0	14.0	13.0	20.0	14.0	---	31.0	34.0	29.0
14	26.0	18.0	13.0	10.0	15.0	14.0	19.0	19.0	---	30.0	33.0	30.0
15	25.0	16.0	12.0	9.0	---	15.0	18.0	18.0	26.0	32.0	36.0	30.0
16	26.0	---	11.0	11.0	15.0	14.0	---	20.0	27.0	31.0	35.0	30.0
17	---	16.0	10.0	---	14.0	---	19.0	19.0	27.0	30.0	36.0	29.0
18	27.0	14.0	11.0	10.0	14.0	16.0	20.0	22.0	24.0	29.0	33.0	29.0
19	27.0	13.0	10.0	10.0	15.0	13.0	19.0	19.0	25.0	31.0	35.0	29.0
20	26.0	17.0	9.0	10.0	12.0	15.0	21.0	21.0	25.0	33.0	33.0	28.0
21	24.0	14.0	10.0	11.0	16.0	16.0	21.0	21.0	25.0	33.0	34.0	29.0
22	25.0	12.0	9.0	---	12.0	16.0	20.0	22.0	26.0	33.0	33.0	30.0
23	26.0	13.0	10.0	11.0	15.0	15.0	21.0	21.0	27.0	34.0	33.0	30.0
24	25.0	14.0	11.0	10.0	---	14.0	20.0	20.0	28.0	34.0	34.0	28.0
25	25.0	12.0	---	---	13.0	15.0	22.0	22.0	24.0	35.0	35.0	28.0
26	24.0	10.0	9.0	11.0	15.0	14.0	20.0	---	26.0	34.0	34.0	27.0
27	26.0	10.0	9.0	9.0	15.0	15.0	20.0	21.0	---	34.0	33.0	26.0
28	24.0	11.0	8.0	10.0	16.0	15.0	19.0	20.0	26.0	34.0	35.0	26.0
29	24.0	12.0	8.0	11.0	15.0	15.0	19.0	22.0	26.0	32.0	33.0	27.0
30	25.0	---	10.0	11.0	---	16.0	18.0	22.0	27.0	35.0	31.0	28.0
31	26.0	---	11.0	10.0	---	14.0	---	22.0	---	33.0	31.0	---
MONTH	25.5	18.5	11.0	10.0	14.0	15.0	19.0	20.5	25.0	31.5	34.0	29.5



08022060 Martin Lake near Tatum, Tex.

LOCATION (revised).--Lat 32°15'42", long 94°34'23", Rusk County, on retaining wall, 30 ft (9 m) to right of intake, 1.9 miles (3.1 km) upstream from Martin Dam on Martin Creek, 5.8 miles (9.3 km) southwest of Tatum, and at mile 21.9 (35.2 km).

DRAINAGE AREA.--130 mi<sup>2</sup> (337 km<sup>2</sup>).

PERIOD OF RECORD.--Contents: April 1974 to current year.

Water quality: Chemical analyses: October 1974 to current year.

GAGE (revised).--Water-stage recorder. Datum of gage is at mean sea level. Prior to May 15, 1976, nonrecording gage near left end of dam 1.9 miles (3.1 km) downstream at same datum.

EXTREMES (at 2400).--Current year: Maximum contents observed, 80,100 acre-ft (98.8 hm<sup>3</sup>) Mar. 10 (elevation, 306.52 ft or 93.427 m, from graph); minimum observed, 70,100 acre-ft (86.4 hm<sup>3</sup>) Oct. 26 (elevation, 304.48 ft or 92.806 m, from graph).  
Period of record: Maximum contents observed, 80,100 acre-ft (98.8 hm<sup>3</sup>) Mar. 10, 1976 (elevation, 306.52 ft or 93.427 m, from graph); minimum since first appreciable storage, 70,100 acre-ft (86.4 hm<sup>3</sup>) Oct. 26, 1975 (elevation, 304.48 ft or 92.806 m, from graph).

REMARKS.--The lake is formed by a rolled earthfill dam 8,675 ft (2,644 m) long, including a 1,000-foot (305-meter) uncontrolled emergency spillway. Deliberate impoundment began in April 1974. The uncontrolled emergency spillway is an excavated channel cut through natural ground and located at the left end of the dam. The controlled spillway is a concrete ogee design with four 14.0- by 40.0-foot-wide (4.3- by 12.2-meter) tainter gates located near the left end of the dam. The low-flow outlet works consist of a 3.0- by 5.0-foot (0.9- by 1.5-meter) conduit with a sluice gate located in one of the gate piers. In addition, there is an 8-inch (203-millimeter) pipe with sluice gate. The area and capacity tables are based on an aerial survey made in October 1971. There are no known diversions. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	321.5	-
Crest of uncontrolled spillway.....	312.0	111,500
Top of gates.....	308.0	87,960
Top of conservation pool.....	306.0	77,500
Crest of gated spillway.....	294.0	31,040
Lowest gated outlet (invert).....	284.0	10,320

COOPERATION.--Gage readings for the period Oct. 1, 1975, to May 28, 1976, were furnished by Texas Utilities Services, Inc. Area and capacity tables furnished by Forrest and Cotton, Consulting Engineers, for Texas Utilities Services, Inc.

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

304.0	67,900
306.0	77,500
307.0	82,600

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71600	72400	73600	72800	72700	72700	73500	74300	76800	76000	73700	72900
2	71400	72600	73600	72900	72700	73300	73300	72600	76000	77200	73600	72900
3	71300	73160	73600	73000	72800	73000	73300	72200	74400	77200	73400	72900
4	71300	73100	73800	73100	73000	73200	73300	72500	72700	77800	73400	73300
5	71300	73100	73800	73100	73100	74500	73300	72600	72000	77100	73300	73300
6	71300	73200	73800	73100	73100	76300	73300	72600	72000	77400	73200	73300
7	71300	73300	73800	73100	73200	77400	73500	73000	72000	77400	73200	73400
8	71300	73360	73800	73100	73300	79100	73600	73500	72000	77300	73200	73400
9	71300	73300	73800	73100	73300	80100	73600	73900	72000	77000	73100	73300
10	71200	73300	73800	73100	73300	79500	73600	74000	72000	76800	72900	73200
11	71200	73100	73800	73100	73300	78800	73600	73600	72000	76500	72900	73100
12	71200	73100	73800	73100	73300	76900	73600	73400	72000	76300	72800	73000
13	71200	73100	73900	73100	73500	74500	73600	73300	71900	76000	72800	72900
14	71100	73100	74000	73100	73600	72300	73500	73070	71900	75800	72700	73400
15	70900	73100	74400	73100	73700	71600	73500	72700	71800	75300	72600	73400
16	70900	73100	73900	73200	74000	71700	73100	72200	71900	75000	72500	73400
17	70900	73100	73200	73400	74500	71800	72500	72000	71800	74800	72500	73700
18	70900	73100	72700	73500	75000	71800	72400	72100	72300	74500	72400	73700
19	70900	73200	72600	73600	75000	72100	72400	72100	74700	74000	72300	73700
20	70900	73300	72600	73600	75000	72300	72400	72100	72200	73700	72200	73800
21	70900	73300	72600	73300	75000	72500	72400	72100	72400	73700	72200	73700
22	70900	73300	72600	72800	75000	72600	72600	72100	72500	73700	72100	73700
23	70700	73300	72600	72900	75000	72600	72600	72200	72600	73700	72000	73600
24	72100	73300	72800	73300	74900	73700	72600	72300	72600	73700	71900	73600
25	71200	73300	73100	73600	74400	76400	72600	72400	72900	73700	71900	73600
26	71200	73300	73500	73400	73200	78000	72600	72900	73300	74100	71800	73800
27	71900	73300	73800	73100	72400	77900	72600	73300	73800	74200	71700	73800
28	71900	73400	74100	72700	72500	77100	73900	73400	73800	74100	71800	73700
29	71900	73500	73800	72600	72600	76400	77600	73600	73500	74000	71800	73700
30	71900	73500	72900	72600	---	75700	76100	73700	73300	73900	71800	73700
31	72100	---	72700	72600	---	74800	---	75200	---	73800	72400	---
(+)	304.89	305.19	305.02	305.00	305.00	305.46	305.71	305.53	305.14	305.26	304.97	305.23
(+)	+300	+1400	-800	-100	0	+2200	+1300	-900	-1900	+500	-1400	+1300
MAX	72100	73500	74400	73600	75000	80100	77600	75200	76800	77800	73700	73800
MIN	70700	72400	72600	72600	72400	71600	72400	72000	71800	73700	71700	72900
CAL YR 1975.....	* +35300				MAX	75400	MIN	37900				
WTR YR 1976.....	* +1900				MAX	80100	MIN	70700				

+ Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.



## SABINE RIVER BASIN

08022060 Martin Lake near Tatum, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA, MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)
APR 01...	1545	189	7.6	18.0	50	17	10	6.0	14
JUL 26...	1408	167	7.2	31.5	45	12	8.7	5.6	13
DATE	SODIUM ADSORPTION RATIO	DIS-SOLVED PHOSPHATE (K) (MG/L)	BICARBONATE (HC03) (MG/L)	CARBONATE (C03) (MG/L)	DIS-SOLVED SULFATE (S04) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SI02) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
APR 01...	.9	3.0	40	0	23	18	.2	4.7	99
JUL 26...	.8	2.8	40	0	19	17	.2	4.6	91

LOCATION.--Lat 32°17'47", long 94°29'36", Panola County, on left bank at downstream side of bridge on State Highway 149, 100 ft (30 m) upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 1.7 miles (2.7 km) upstream from Hogan Creek, 2.0 miles (3.2 km) south-east of Tatum, 5.0 miles (8.0 km) downstream from Martin Lake, and at mile 15.0 (24.1 km).

REVISIONS.--The maximum discharge for the water year 1975 has been revised to 2,500 ft<sup>3</sup>/s (70.8 m<sup>3</sup>/s) Feb. 3, 1975 (gage height, 13.72 ft or 4.182 m), superseding figures published in WRD TX-75-1.

REVISIONS.--Revised figures of discharge, in cubic feet per second, for high-water periods in water year 1975, superseding those published in WRD TX-75-1 are given below:

Date	Discharge	Date	Discharge	Date	Discharge
1975		1975-Con.		1975-Con.	
Feb. 1	428	Apr. 30	377	May 22	1,410
2	1,230	May 1	1,520	23	849
3	2,400	2	1,060	24	154
4	2,120	3	903	June 10	390
5	950	4	849	11	758
6	750	5	840	12	742
7	720	6	380	13	265
8	248	21	1,150		

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
February 1975.....	9,381	2,400	16	335	18,610
April.....	927.4	377	8.0	30.9	1,840
May.....	9,739	1,520	11	314	19,320
June.....	3,187.4	758	8.1	106	6,320
WTR YR 1975.....	30,130.9	2,400	2.5	82.6	59,760

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	4.2	9.4	209	10	9.8	832	1640	950	260	2.8	24
2	2.4	4.9	6.9	15	8.5	7.4	849	1370	1230	242	2.7	11
3	2.5	63	6.2	10	7.3	6.2	425	858	1220	242	2.5	8.5
4	2.7	160	5.8	9.4	6.7	5.6	28	159	1210	279	2.5	8.1
5	2.9	21	5.8	8.8	6.9	5.1	10	13	1170	1200	2.4	9.8
6	2.9	10	5.4	8.3	8.5	4.7	7.6	8.9	299	912	2.4	7.0
7	2.8	7.8	5.1	8.7	6.8	11	6.5	69	16	349	2.4	5.7
8	2.8	6.6	5.0	7.4	5.9	768	5.8	67	9.2	193	2.4	5.1
9	2.8	5.7	4.7	6.3	5.7	1050	5.4	17	7.1	171	2.3	4.7
10	2.7	5.0	4.4	6.5	5.6	941	5.3	13	6.1	165	2.2	4.3
11	2.7	4.6	4.3	7.2	5.5	912	5.1	19	5.3	163	2.0	4.0
12	2.5	4.6	4.4	7.7	5.4	876	5.0	215	4.7	160	2.2	4.1
13	2.2	4.2	4.2	7.4	5.3	1560	4.9	408	4.1	156	2.1	4.0
14	2.2	4.0	4.2	6.2	4.8	1570	7.1	428	3.7	153	2.0	15
15	2.4	4.3	8.8	5.1	4.6	1270	133	428	3.5	195	1.9	32
16	2.6	4.4	132	5.1	13	203	216	408	5.0	232	1.9	8.7
17	2.8	4.3	250	4.5	115	16	203	392	5.0	207	2.1	6.9
18	4.3	4.2	270	4.4	196	10	204	101	11	198	2.0	8.1
19	4.0	4.3	264	4.5	146	9.2	136	10	544	211	1.8	6.0
20	3.3	7.9	76	17	127	8.1	18	7.1	2300	253	1.8	7.4
21	3.2	6.4	12	168	140	7.4	9.9	5.5	813	130	1.9	10
22	3.0	4.9	8.1	267	120	6.6	7.4	4.8	44	12	1.9	6.4
23	3.4	4.6	8.1	277	103	6.2	6.3	4.5	12	6.8	1.9	5.3
24	4.3	4.6	8.0	79	92	5.7	5.4	5.5	8.9	5.5	1.9	4.8
25	24	4.6	20	96	87	46	4.9	4.7	7.1	6.6	1.9	4.7
26	284	5.7	14	181	422	363	4.5	6.7	5.8	8.0	1.9	4.7
27	287	7.3	9.9	271	734	733	4.2	33	5.1	5.4	1.8	8.7
28	16	6.4	21	279	402	867	4.4	12	5.9	4.6	7.8	6.4
29	7.7	6.4	99	271	25	894	97	7.6	135	3.7	10	6.5
30	5.3	9.5	614	72	---	885	2400	5.6	238	3.1	3.9	5.6
31	4.6	---	908	13	---	867	---	96	---	2.9	75	---
TOTAL	698.7	395.4	2798.7	2332.5	2819.5	13924.0	5650.7	6816.9	10278.5	6129.6	154.3	247.5
MEAN	22.5	13.2	90.3	75.2	97.2	449	188	220	343	198	4.98	8.25
MAX	287	160	908	279	734	1570	2400	1640	2300	1200	75	32
MIN	2.2	4.0	4.2	4.4	4.6	4.7	4.2	4.5	3.5	2.9	1.8	4.0
AC=FT	1390	784	5550	4630	5590	27620	11210	13520	20390	12160	306	44

CAL YR 1975	TOTAL	30924.6	MEAN	84.7	MAX	2400	MIN	2.2	AC-FT	61340
WTR YR 1976	TOTAL	52246.3	MEAN	143	MAX	2400	MIN	1.8	AC-FT	103600

## SABINE RIVER BASIN

08022200 Murvaul Lake near Gary, Tex.

LOCATION.--Lat 32°02'04", long 94°25'15", Panola County, at outlet structure of Murvaul Lake Dam on Murvaul Bayou, 3.0 miles (4.8 km) west of Gary, and 9.0 miles (14.5 km) southwest of Carthage.

DRAINAGE AREA.--115 mi<sup>2</sup> (298 km<sup>2</sup>).

PERIOD OF RECORD.--Contents: December 1957 to current year.

Water quality: Chemical analyses: October 1969 to September 1974.

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

EXTREMES.--Current year: Maximum contents, 51,940 acre-ft (64.0 hm<sup>3</sup>) June 20 (elevation, 266.80 ft or 81.321 m); minimum, 42,820 acre-ft (52.8 hm<sup>3</sup>) Oct. 22 (elevation, 264.53 ft or 80.629 m).

Period of record: Maximum contents, 58,050 acre-ft (71.6 hm<sup>3</sup>) Mar. 30, 1965 (elevation, 268.24 ft or 81.760 m); minimum since lake first filled in 1958, 26,670 acre-ft (32.9 hm<sup>3</sup>) about Sept. 19, 1958 (elevation, 259.9 ft or 79.22 m).

REMARKS.--The lake is formed by a rolled earthfill dam 8,300 ft (2,530 m) long. Spillway is an uncontrolled concrete flat-crested weir section 270 ft (82 m) long at right end of dam, designed to discharge 26,700 ft<sup>3</sup>/s (756 m<sup>3</sup>/s) under a 10-foot (3-meter) head. Storage began in November 1957 and dam completed in June 1958. Outlet works consist of an outlet tower and a 36-inch-diameter (914-millimeter) pipe through the dam with flow controlled by a valve in control tower. The pipe terminates in a tee at downstream side of dam with one branch discharging below the dam and the other branch connected to a pipeline for municipal supply. The lake is the property of Panola County Fresh Water Supply District No. 1, Carthage, and was built to impound water for municipal and industrial uses. The capacity table is based on a survey made in 1955. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	280.0	-
Top of design flood pool.....	275.0	91,520
Crest of spillway.....	265.3	45,840
Invert of lowest sluice gate.....	235.0	25

COOPERATION.--Capacity table and records of diversions furnished by Panola County Fresh Water Supply District No. 1.

REVISIONS.--WSP 1732: Drainage area.

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

264.0	40,790	266.0	48,660
265.0	44,650	267.0	52,780

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43990	44420	46240	47640	47040	46720	47800	49730	50050	49230	46440	45560
2	43830	44770	46240	47760	46920	46680	47560	48950	49770	49230	46320	45600
3	43750	45600	46240	47520	46880	46680	47400	48370	49110	48860	46200	45600
4	43710	46040	46200	47360	46800	46760	47320	47960	48500	49070	46160	45560
5	43640	46040	46240	47240	46800	47080	47200	47640	48090	48910	46120	45520
6	43600	46080	46280	47200	46960	47880	47120	47440	47800	48910	46120	45440
7	43600	46080	46240	47120	46880	48500	47040	48660	47560	48740	46080	45400
8	43520	46080	46240	47000	46800	49970	46920	48620	47360	48410	46000	45320
9	43520	46120	46240	46840	46840	50260	46840	48290	47240	48090	45920	45280
10	43480	46040	46240	46840	46760	49480	46800	48040	47120	47880	45800	45120
11	43440	46040	46200	46840	46720	48780	46760	47800	46920	47680	45720	45040
12	43400	45960	46240	46800	46720	48330	46680	47760	46840	47520	45680	44880
13	43360	45840	46160	46760	46720	48000	46640	48460	46720	47280	45600	44840
14	43320	45760	46280	46720	46680	47760	46640	48860	46600	47200	45480	45040
15	43250	45680	46360	46680	46680	47680	46480	48540	46600	47080	45440	45040
16	43240	45680	46320	46640	46680	47440	46440	48210	46520	47160	45360	45000
17	43210	45640	46320	46560	47560	47280	46480	47840	46520	47160	45320	44920
18	43130	45640	46280	46520	47680	47120	46520	47600	46680	47400	45280	44880
19	43050	45840	46240	46560	47520	47080	46440	47360	51740	47400	45120	44880
20	42970	45880	46200	46720	47920	47120	46640	47240	51450	47320	45120	45080
21	42930	45760	46160	46760	47640	47000	46480	47120	50260	47240	45000	45160
22	42860	45680	46120	46800	47440	46920	46440	46920	49360	47200	44920	45160
23	42970	45640	46120	46800	47280	46840	46440	46920	48780	47080	44880	45120
24	43560	45640	46280	46840	47120	47160	46440	46880	48330	47040	44840	45080
25	44260	45640	46480	47640	46960	47600	46360	46840	48130	46920	44810	45040
26	44460	45840	46480	47880	46920	48860	46240	47000	47960	47040	44840	45200
27	44530	45800	46520	47720	46840	49190	46200	47120	47720	47040	44730	45240
28	44530	45840	46840	47560	46800	48950	46240	47000	47600	46880	44880	45280
29	44530	45960	47640	47440	46760	48580	48500	46880	47440	46800	44960	45280
30	44460	46240	47880	47240	---	48330	50380	46840	47240	46640	44960	45200
31	44420	---	47720	47200	---	48000	---	48500	---	46560	45360	---
(+)	264.94	265.40	265.77	265.64	265.53	265.84	266.42	265.96	265.65	265.48	265.18	265.14
(*)	+390	+1820	+1480	-520	-440	+1240	+2380	-1880	-1260	-680	-1200	-160
(††)	71	54	61	57	57	68	61	61	66	68	82	66
MAX	44530	46240	47880	47880	47920	50260	50380	49730	51740	49230	46440	45600
MIN	42860	44420	46120	46520	46680	46680	46200	46840	46520	46560	44730	44840
CAL YR 1975.....	* +680			†† 664			MAX 53960	MIN 42860				
WTR YR 1976.....	* +1170			†† 772			MAX 51740	MIN 42860				

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal use by city of Carthage.

SABINE RIVER BASIN

301

08022200 Murvaul Lake near Gary, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG)	DISSOLVED SODIUM (NA) (MG/L)
OCT 15...	1030	267	7.4	21.0	63	15	12	7.9	25
MAR 31...	0823	282	7.3	16.5	62	29	12	7.8	25
DATE	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SI02) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT 15...	1.4	3.1	58	0	23	33	.3	9.5	142
MAR 31...	1.4	3.0	40	0	38	37	.1	5.8	148

## SABINE RIVER BASIN

08022300 Murvaul Bayou near Gary, Tex.

LOCATION.--Lat 32°02'54", long 94°22'31", Panola County, near center of main channel on downstream side of bridge on Farm Road 10, 0.3 mile (0.5 km) downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 1.0 mile (1.6 km) downstream from Indian Creek, 1.5 miles (2.4 km) north of Gary, and 3 miles (5 km) downstream from Murvaul Lake.

DRAINAGE AREA.--134 mi<sup>2</sup> (347 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 217.82 ft (66.392 m) above mean sea level.

AVERAGE DISCHARGE.--18 years, 84.9 ft<sup>3</sup>/s (2.404 m<sup>3</sup>/s), 61,510 acre-ft/yr (75.8 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 1,590 ft<sup>3</sup>/s (45.0 m<sup>3</sup>/s) June 19 (gage height, 10.85 ft or 3.307 m); no flow at times.  
Period of record: Maximum discharge, 3,590 ft<sup>3</sup>/s (102 m<sup>3</sup>/s) Mar. 18, 1969 (gage height, 11.57 ft or 3.527 m); no flow at times in 1967-76.  
Maximum stage since at least 1928, about 14.5 ft (4.42 m) in July 1933, from information by local resident.

REMARKS.--Records fair. Discharge largely regulated by Murvaul Lake (station 08022200).

REVISIONS.--WSP 1732: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.06	3.8	90	56	28	204	588	427	273	9.4	1.7
2	0	.11	3.3	97	44	25	147	501	499	356	6.7	2.3
3	0	54	1.8	107	36	22	109	381	470	339	3.1	.62
4	0	26	1.1	82	32	18	86	252	362	407	1.8	.27
5	0	4.6	.91	62	32	43	69	151	244	369	1.1	.16
6	0	2.1	.80	52	44	96	57	93	156	369	.76	.08
7	0	1.1	.66	58	40	242	47	201	110	317	.55	.06
8	0	.71	.54	57	36	376	42	431	81	264	.44	.03
9	0	.55	.54	38	32	612	33	293	61	208	.32	.02
10	0	.42	.51	30	28	618	25	212	48	160	.21	0
11	0	.38	.50	27	28	487	22	149	38	131	.15	0
12	0	.22	.48	28	25	388	20	119	29	108	.12	0
13	0	.11	.48	28	25	309	16	275	21	89	.11	0
14	0	.17	.50	28	22	220	14	289	14	73	.10	0
15	0	.10	.65	22	22	161	12	321	10	61	.08	0
16	0	.07	1.9	22	22	138	8.5	277	10	52	.07	0
17	0	.06	2.4	22	40	96	8.1	202	9.2	62	.07	0
18	0	.06	2.3	13	313	73	8.2	131	9.0	62	.07	0
19	0	.06	1.8	10	177	57	8.5	87	850	71	.07	0
20	0	.08	1.4	17	121	53	9.4	61	853	69	.06	0
21	0	.14	1.2	27	196	52	16	48	721	62	.04	0
22	0	.11	1.1	28	194	39	9.0	39	543	53	0	0
23	0	.15	3.1	25	119	33	6.9	33	416	45	0	0
24	0	.11	2.0	26	92	45	7.0	35	306	38	0	0
25	3.4	.08	6.2	52	69	102	9.0	28	214	33	0	0
26	11	.23	9.4	125	55	209	7.2	22	248	29	0	0
27	2.6	.85	6.4	145	47	352	3.0	50	163	53	0	0
28	.56	.55	5.6	122	40	399	2.3	50	128	37	0	0
29	.21	.46	29	96	33	385	52	36	107	23	0	0
30	.10	1.7	85	78	---	332	361	26	90	17	.01	0
31	.07	---	103	68	---	279	---	150	---	13	.04	---
TOTAL	17.94	95.34	278.37	1682	2020	6289	1419.1	5531	7237.2	4243	25.37	5.24
MEAN	.58	3.18	8.98	54.3	69.7	203	47.3	178	241	137	.82	.17
MAX	11	54	103	145	313	618	361	588	853	407	9.4	2.3
MIN	0	.06	.48	10	22	18	2.3	22	9.0	13	0	0
AC-FT	36	189	552	3340	4010	12470	2810	10970	14350	8420	50	10
CAL YR 1975	TOTAL	31940.27	MEAN	87.5	MAX	1520	MIN	0	AC-FT	63350		
WTR YR 1976	TOTAL	28843.56	MEAN	78.8	MAX	853	MIN	0	AC-FT	57210		

## 303

LOCATION.--Lat 31°58'20", long 94°00'22", De Soto Parish, La.-Shelby County, Tex. State line at Logansport, just upstream from bridge on U.S. Highway 84, 3 miles (5 km) upstream from Bayou Castor, 111 miles (179 km) upstream from Toledo Bend Dam, and at mile 267.1 (429.8 km).

PERIOD OF RECORD.--Gage-height record March 1968 to current year. Discharge record July 1903 to February 1968.

GAGE.--Water-stage recorder. Datum of gage is 147.72 ft (45.025 m) above mean sea level. July 1, 1903, to Sept. 30, 1956, nonrecording gage. Oct. 1, 1956, to Jan. 16, 1964, water-stage recorder 4,600 ft (1,400 m) upstream. Jan. 16, 1964, to Dec. 10, 1968, water-stage recorder 4,700 ft (1,430 m) upstream. All gages to present datum except prior to Dec. 31, 1906, when datum was 2.00 ft (0.610 m) lower.

EXTREMES.--Current year: Maximum gage height, 25.85 ft (7.879 m) May 14; minimum, 19.35 ft (5.898 m) Sept. 30.  
Period of gage-height record 1968-76: Maximum gage height, 32.50 ft (9.906 m) Apr. 20, 1969; minimum since initial filling of Toledo Bend Reservoir in June 1968, 18.40 ft (5.608 m) Oct. 19, 1972.  
Period of discharge record 1903-67: Maximum discharge, 92,000 ft<sup>3</sup>/s (2,610 m<sup>3</sup>/s) Apr. 8, 1945 (gage height, 44.07 ft or 13.433 m, from floodmark); minimum, 16 ft<sup>3</sup>/s (0.453 m<sup>3</sup>/s) Sept. 26-28, Oct. 3, 4, 1939.  
Maximum stage since at least 1884, that of Apr. 8, 1945. Flood in May 1884 reached a stage of 39.4 ft (12.01 m), present site and datum.

REMARKS.--Gage-height records good. Station discontinued as daily streamflow station on Mar. 1, 1968, due to backwater from storage in Toledo Bend Reservoir (station 08025350). Eight major reservoirs, with a combined capacity of 1,068,000 acre-ft (1.32 km<sup>3</sup>), largely regulate the flow. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see Sabine River near Gladewater (station 08020000). Numerous diversions above station for oilfield operations, municipal, and industrial uses.

REVISIONS (WATER YEARS).--WSP 1312: 1903-6 (monthly and annual means). WSP 1732: 1929(M), 1933(M).

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.68	20.50	20.38	20.78	21.93	22.42	23.66	23.24	25.55	24.50	23.64	20.91
2	19.77	20.60	20.47	20.85	21.87	22.33	23.59	23.57	25.45	24.59	23.54	20.91
3	19.77	20.65	20.52	21.03	22.04	22.42	23.34	23.80	25.37	24.69	23.38	20.89
4	19.76	20.68	20.53	21.25	21.79	22.30	23.20	24.15	25.32	24.77	23.31	20.93
5	19.79	20.62	20.56	21.40	21.57	21.90	23.10	24.62	25.16	25.12	23.21	20.81
6	19.79	20.57	20.56	21.45	21.52	22.18	23.00	24.65	24.98	25.29	23.05	20.81
7	19.81	20.50	20.52	21.48	21.70	22.62	22.92	24.95	24.74	25.48	22.90	20.86
8	19.82	20.37	20.49	21.43	21.72	22.93	22.78	25.30	24.51	25.44	22.80	20.81
9	19.77	20.28	20.48	21.34	21.77	23.24	22.74	25.46	24.28	25.31	22.65	20.60
10	19.81	20.15	20.57	21.30	21.82	23.56	22.70	25.62	24.19	25.17	22.60	20.50
11	19.82	20.22	20.62	21.28	21.68	23.92	22.58	25.65	24.13	25.00	22.53	20.56
12	19.78	20.28	20.62	21.26	21.79	23.87	22.56	25.79	24.13	24.79	22.40	20.56
13	19.83	20.36	20.63	21.25	21.72	23.99	22.58	25.75	24.12	24.60	22.41	20.61
14	19.80	20.39	20.60	21.32	21.86	24.00	22.60	25.78	24.02	24.45	22.29	20.38
15	19.76	20.43	20.59	21.38	21.84	23.79	23.13	25.70	24.02	24.36	22.15	20.30
16	19.76	20.42	20.58	21.00	21.87	23.52	22.76	25.57	23.92	24.42	22.08	20.28
17	19.80	20.42	20.60	21.35	22.04	23.52	22.47	25.46	24.12	24.48	21.94	20.14
18	19.85	20.42	20.56	21.66	22.06	23.48	22.45	25.49	23.95	24.49	21.84	20.08
19	19.90	20.42	20.50	21.44	22.27	23.13	22.45	25.53	24.27	24.57	21.79	20.06
20	19.88	20.42	20.48	21.37	22.53	22.67	22.34	25.50	24.67	24.48	21.73	20.02
21	19.88	20.44	20.47	21.37	22.07	22.55	22.23	25.47	24.94	24.42	21.64	19.86
22	19.88	20.44	20.50	21.42	22.50	22.52	22.30	25.43	24.92	24.40	21.62	19.86
23	19.87	20.41	20.58	21.57	22.50	22.58	22.29	25.43	25.02	24.35	21.56	19.76
24	19.97	20.37	20.60	21.58	22.50	22.56	22.32	25.42	24.75	24.28	21.46	19.65
25	20.04	20.37	20.61	21.36	22.37	22.78	22.17	25.49	24.40	24.27	21.39	19.66
26	20.14	20.40	20.69	21.64	22.30	23.28	22.44	25.60	24.37	24.32	21.33	19.66
27	20.27	20.46	20.82	22.02	22.28	23.70	22.56	25.38	24.42	24.14	21.23	19.57
28	20.43	20.52	20.82	22.13	22.35	24.19	22.68	25.37	24.42	24.11	21.18	19.45
29	20.40	20.50	20.78	22.09	22.42	24.18	22.77	25.45	24.48	23.98	21.12	19.43
30	20.35	20.38	20.78	22.06	---	23.88	22.98	25.47	24.26	23.85	21.10	19.38
31	20.40	---	20.77	21.67	---	23.80	---	25.41	---	23.78	20.	



## SABINE RIVER BASIN

08023200 Tenaha Creek near Shelbyville, Tex.

LOCATION.--Lat 31°45'56", long 94°05'02", Shelby County, near center of span at downstream side of bridge on State Highway 87, 0.5 mile (0.8 km) northwest of Shelbyville, 4.2 miles (6.8 km) downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, and 5.0 miles (8.0 km) upstream from Beauchamp Creek.

DRAINAGE AREA.--97.8 mi<sup>2</sup> (253.3 km<sup>2</sup>).

PERIOD OF RECORD.--March 1952 to current year.

GAGE.--Water-stage recorder. Prior to May 9, 1963, nonrecording gage at same site and datum. Datum of gage is 205.71 ft (62.700 m) above mean sea level.

AVERAGE DISCHARGE.--24 years, 77.9 ft<sup>3</sup>/s (2.206 m<sup>3</sup>/s), 10.82 in/yr (275 mm/yr), 56,440 acre-ft/yr (69.6 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 886 ft<sup>3</sup>/s (25.1 m<sup>3</sup>/s) July 3 (gage height, 9.31 ft or 2.838 m); minimum daily, 1.4 ft<sup>3</sup>/s (0.040 m<sup>3</sup>/s) Oct. 2.  
Period of record: Maximum discharge, 15,200 ft<sup>3</sup>/s (430 m<sup>3</sup>/s) Mar. 11, 1953 (gage height, 13.85 ft or 4.221 m); no flow at times.  
Maximum stage since at least 1884, 15.0 ft (4.57 m) Nov. 23, 1940, from information by local residents.

REMARKS.--Records good. The city of Center reported that during the year they diverted 1,440 acre-ft (1.78 hm<sup>3</sup>) upstream from gage and returned 1,020 acre-ft (1.26 hm<sup>3</sup>) as sewage effluent 1.0 mile (1.6 km) downstream from gage.

REVISIONS.--WSP 1732: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	3.8	59	19	29	18	135	22	204	361	9.2	5.6
2	1.4	5.0	29	42	31	16	68	13	216	650	7.5	10
3	1.5	80	17	77	23	13	47	9.4	71	788	5.9	8.0
4	1.5	134	13	36	19	12	38	6.4	23	357	5.3	7.7
5	2.1	47	12	22	17	11	32	5.6	12	234	5.0	8.1
6	2.2	19	12	18	25	9.6	27	5.9	9.7	77	4.7	6.6
7	1.7	13	12	18	38	20	22	37	7.5	41	7.8	5.1
8	1.6	12	12	17	32	177	19	98	5.7	26	7.4	4.2
9	1.8	11	11	14	24	308	16	49	4.9	21	5.9	3.9
10	2.0	10	10	13	21	181	15	27	4.8	28	4.4	3.6
11	2.2	7.8	10	15	19	78	14	28	4.0	74	3.8	3.5
12	2.1	6.9	11	15	17	57	13	17	3.5	35	3.5	3.7
13	2.6	6.8	9.8	16	17	44	12	44	3.6	18	3.4	3.6
14	2.3	6.2	12	14	15	42	12	57	3.7	17	3.3	3.5
15	1.8	6.0	12	12	16	57	11	30	2.7	13	4.3	3.5
16	3.1	7.9	11	12	16	61	11	16	3.1	14	26	3.5
17	5.8	8.1	14	10	17	43	9.4	9.6	3.5	346	9.2	3.5
18	3.7	7.2	12	10	172	32	9.4	5.9	18	584	4.8	3.8
19	3.5	7.0	11	12	126	29	8.4	4.5	299	581	3.5	4.5
20	3.1	7.7	11	12	59	29	12	3.8	363	282	3.0	6.7
21	2.4	9.2	11	19	185	31	17	3.4	125	68	2.6	9.4
22	2.1	8.8	11	18	239	26	10	3.4	28	263	2.8	6.5
23	2.1	8.2	11	15	103	19	7.9	3.3	14	358	2.9	4.4
24	2.4	7.8	11	17	52	39	7.4	4.1	10	133	2.5	3.9
25	5.0	8.0	61	101	37	182	8.8	4.8	7.4	43	2.1	4.0
26	25	11	65	167	28	125	8.3	4.1	64	28	1.9	4.1
27	23	23	33	76	24	123	6.9	8.9	111	20	2.2	7.2
28	9.4	15	23	41	22	99	5.4	37	52	57	3.8	11
29	6.4	13	28	29	20	69	6.7	13	22	32	3.6	16
30	5.0	27	33	23	---	93	25	6.5	11	15	3.2	9.4
31	4.0	---	23	22	---	187	---	33	---	11	5.0	---
TOTAL	134.5	537.4	610.8	932	1443	2230.6	634.6	610.6	1707.1	5575	160.5	178.5
MEAN	4.34	17.9	19.7	30.1	49.8	72.0	21.2	19.7	56.9	180	5.18	5.95
MAX	25	134	65	167	239	308	135	98	363	788	26	16
MIN	1.4	3.8	9.8	10	15	9.6	5.4	3.3	2.7	11	1.9	3.5
AC-FT	267	1070	1210	1850	2860	4420	1260	1210	3390	11060	318	354

CAL YR 1975 TOTAL 36800.4 MEAN 101 MAX 1790 MIN 1.4 AC-FT 72990  
WTR YR 1976 TOTAL 14754.6 MEAN 40.3 MAX 788 MIN 1.4 AC-FT 29270

PEAK DISCHARGE (BASE, 1.000 FT<sup>3</sup>/S).--No peak above base.

## SABINE RIVER BASIN

305

08025307 Mill Creek near Burkeville, Tex.

LOCATION.--Lat 31°09'23" (revised), long 93°40'35", Newton County, about 500 ft (150 m) downstream from Mitchell Creek, 3.5 miles (5.6 km) east of State Highway 87, and 11 miles (18 km) north of Burkeville.

DRAINAGE AREA.--17.6 mi<sup>2</sup> (45.6 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: April to May 1974 (periodic discharge measurements only), June 1974 to current year.  
 Water quality: Chemical, biochemical, and pesticide analyses: April 1974 to current year (periodic samples). Water temperatures: April 1974 to current year (periodic observations).

GAGE.--Water-stage recorder. Datum of gage is 166.45 ft (50.734 m) above mean sea level (Cooperator's Consulting Engineers bench mark).

EXTREMES.--June to September 1974: Maximum discharge during period, 275 ft<sup>3</sup>/s (7.79 m<sup>3</sup>/s) Sept. 8 (gage height, 11.59 ft or 3.533 m); minimum, 4.5 ft<sup>3</sup>/s (0.13 m<sup>3</sup>/s) July 30.

Water year 1975: Maximum discharge, 1,010 ft<sup>3</sup>/s (28.6 m<sup>3</sup>/s) Oct. 28 (gage height, 17.46 ft or 5.322 m), from rating curve extended above 610 ft<sup>3</sup>/s (17.3 m<sup>3</sup>/s) on basis of area-velocity study; minimum, 6.2 ft<sup>3</sup>/s (0.18 m<sup>3</sup>/s) Oct. 12, 14.

Water year 1976: Maximum discharge, 1,250 ft<sup>3</sup>/s (35.4 m<sup>3</sup>/s) May 31 (gage height, 18.28 ft or 5.572 m), from rating curve extended above 610 ft<sup>3</sup>/s (17.3 m<sup>3</sup>/s) on basis of area-velocity study; minimum, 6.6 ft<sup>3</sup>/s (0.19 m<sup>3</sup>/s) Sept. 11, 13, 25.

Flood of Apr. 12, 1974, reached a stage of 20.5 ft (6.25 m), from levels.

REMARKS.--Discharge records good. No known diversion.

DISCHARGE, IN CUBIC FEET PER SECOND, JUNE TO SEPTEMBER 1974  
 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1									20	7.4	11	11
2									17	7.4	8.8	8.0
3									14	9.0	8.0	9.9
4									12	8.5	8.0	9.0
5									11	8.0	7.2	7.5
6									10	10	6.8	7.3
7									10	15	11	7.7
8									10	12	15	9.4
9									11	10	15	53
10									12	7.9	15	16
11									20	6.8	11	12
12									12	6.6	8.6	12
13									10	6.5	8.0	11
14									9.6	9.4	11	10
15									9.4	9.0	8.6	9.4
16									9.2	8.6	12	8.6
17									9.0	7.5	7.9	8.0
18									9.9	6.6	7.3	7.9
19									9.4	6.3	7.2	7.3
20									8.6	6.2	8.8	7.0
21									8.4	6.0	15	6.8
22									8.0	6.3	8.2	7.0
23									8.5	5.4	7.3	6.3
24									9.0	5.4	7.2	6.5
25									8.5	6.2	7.2	12
26									8.2	5.4	12	11
27									8.0	5.4	9.7	9.7
28									7.8	5.3	8.8	8.2
29									7.6	5.0	9.4	7.7
30									7.5	12	13	7.2
31									---	27	12	---
TOTAL									315.8	258.1	306.0	399.0
MEAN									10.5	8.33	9.87	13.3
MAX									20	27	15	9.4
MIN									7.5	5.0	6.8	6.3
CFSM									5.8	4.6	5.5	7.4
IN									6.5	5.3	6.3	8.2
AC-FT									626	512	607	791

WTR YR 1974 TOTAL - MEAN - MAX - MIN - CFSM - IN - AC-FT -

PEAK DISCHARGE (BASE, 500 FT<sup>3</sup>/S).--No peak above base.

## SABINE RIVER BASIN

08025307 Mill Creek near Burkeville, Tex.--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1974 TO SEPTEMBER 1975  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.0	83	18	45	81	26	24	49	42	145	35	13
2	7.0	31	17	59	139	25	23	35	34	66	70	12
3	6.8	24	16	125	106	24	21	118	30	54	60	11
4	6.8	23	15	61	186	54	20	261	28	37	55	11
5	6.8	21	16	46	72	37	20	144	26	31	30	12
6	6.6	17	264	40	50	30	19	68	25	28	23	12
7	6.5	15	71	44	44	28	18	52	23	24	19	11
8	6.6	20	37	42	40	25	44	200	22	23	16	11
9	7.0	18	29	35	38	24	33	64	50	38	14	11
10	7.0	28	26	140	35	26	28	48	155	41	13	11
11	6.5	44	72	55	38	24	76	41	142	35	12	11
12	6.3	21	33	56	37	25	30	39	91	26	12	11
13	6.6	17	27	44	31	316	26	43	46	22	13	11
14	8.6	17	70	39	29	80	66	120	34	20	13	11
15	34	15	120	36	65	53	36	76	49	19	12	11
16	10	25	39	34	154	45	27	50	37	19	11	160
17	7.7	37	30	32	57	96	24	40	29	18	11	150
18	7.0	30	28	77	42	134	23	33	25	18	13	50
19	6.6	85	32	50	35	54	21	30	24	37	11	30
20	6.8	32	26	39	32	42	19	28	30	53	10	22
21	6.3	23	22	34	31	38	85	26	26	26	13	18
22	6.3	20	22	32	31	35	48	24	24	31	11	15
23	6.6	19	21	30	42	32	30	23	33	70	11	13
24	6.8	63	27	32	33	30	24	147	37	46	15	12
25	7.0	44	93	35	29	27	21	112	35	35	17	11
26	7.2	25	78	29	27	25	19	47	33	40	17	11
27	7.2	21	99	28	27	26	18	37	33	30	14	11
28	162	19	128	27	27	26	20	51	58	35	14	10
29	195	18	88	26	---	29	26	176	56	45	12	10
30	33	21	109	25	---	27	113	106	127	35	19	10
31	64	---	58	25	---	24	---	61	---	30	17	---
TOTAL	669.6	876	1731	1422	1558	1487	1002	2349	1404	1177	613	703
MEAN	21.6	29.2	55.8	45.9	55.6	48.0	33.4	75.8	44.8	38.0	19.8	23.4
MAX	195	85	264	140	186	316	113	261	155	145	70	160
MIN	6.3	15	15	25	27	24	18	23	22	18	10	10
CFSM	1.20	1.62	3.10	2.55	3.09	2.67	1.86	4.21	2.60	2.11	1.10	1.30
IN.	1.38	1.81	3.58	2.94	3.22	3.07	2.07	4.85	2.90	2.43	1.27	1.45
AC-FT	1330	1740	3430	2820	3090	2950	1990	4660	2780	2330	1220	1390

CAL YR 1974	TOTAL	-	MEAN	-	MAX	-	MIN	-	CFSM	-	IN	-	AC-FT	-
WTR YR 1975	TOTAL	14991.6	MEAN	41.1	MAX	316	MIN	6.3	CFSM	2.28	IN	30.98	AC-FT	29740

PEAK DISCHARGE (BASE, 500 FT<sup>2</sup>/S)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-28	2300	17.46	1,010	5- 8	0330	14.17	527
12- 6	1100	14.99	624	5-24	1930	14.82	603
3-13	0930	15.42	681	5-29	1800	14.82	603
5- 4	0230	15.44	683	6-30	2300	14.97	622

## SABINE RIVER BASIN

307

08025307 Mill Creek near Burkeville, Tex.--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	10	18	18	25	18	14	20	15	150	121	12	8.6		
2	9.6	18	16	213	16	14	18	12	60	29	14	8.6		
3	9.3	24	15	123	15	14	16	11	45	34	15	8.4		
4	9.5	19	14	52	13	13	16	9.8	35	68	13	8.6		
5	9.1	17	14	41	13	14	15	8.7	30	37	12	11		
6	9.1	16	17	37	15	23	15	9.1	28	44	12	8.7		
7	9.1	16	16	37	13	19	14	177	25	25	19	7.7		
8	9.3	16	15	31	13	114	14	104	23	27	12	7.3		
9	9.0	16	14	29	12	71	13	33	20	23	11	7.5		
10	9.2	15	14	29	12	33	12	129	19	21	10	7.2		
11	9.0	15	14	29	12	27	11	58	17	20	9.9	7.0		
12	8.5	15	13	28	12	25	11	41	16	18	9.9	7.2		
13	8.9	13	13	27	11	23	11	142	15	19	11	7.7		
14	8.5	14	13	24	11	32	11	51	15	16	11	9.0		
15	28	14	13	22	11	51	10	31	15	15	12	9.4		
16	29	14	18	22	11	30	11	24	40	54	15	8.2		
17	14	14	16	21	11	24	11	20	25	164	15	7.5		
18	10	14	13	21	21	22	11	18	96	153	10	7.2		
19	9.4	14	13	20	13	21	14	16	97	44	9.4	7.0		
20	8.6	18	13	22	12	20	30	15	41	30	9.0	7.7		
21	8.5	14	13	21	107	18	18	14	28	25	9.0	9.2		
22	8.6	13	12	20	32	17	14	13	24	23	9.0	7.9		
23	10	14	11	19	23	16	12	12	21	21	8.8	7.3		
24	11	14	27	19	20	17	12	45	19	19	8.4	7.2		
25	323	14	71	30	18	25	14	18	18	19	8.8	7.0		
26	124	17	24	20	17	27	10	16	16	17	9.2	7.0		
27	46	15	21	17	16	27	9.6	14	18	17	12	9.7		
28	30	14	59	17	15	21	9.0	13	25	16	8.8	9.7		
29	24	15	81	16	15	33	34	12	17	15	9.2	9.0		
30	22	32	34	16	---	29	20	11	16	13	8.6	8.0		
31	19	---	27	16	---	26	---	450	---	13	8.8	---		
TOTAL	853.2	482	672	1064	528	860	436.6	1542.6	1014	1160	342.8	242.8		
MEAN	27.5	16.1	21.7	34.3	18.2	27.7	14.6	49.8	33.8	37.4	11.1	8.09		
MAX	323	32	81	213	107	114	34	450	150	164	19	11		
MIN	8.5	13	11	16	11	13	9.0	8.7	15	13	8.4	7.0		
CFSM	1.53	.89	1.21	1.91	1.01	1.54	.81	2.77	1.88	2.08	.62	.45		
IN.	1.76	1.00	1.39	2.20	1.09	1.78	.90	3.19	2.10	2.40	.71	.50		
AC-FT	1690	956	1330	2110	1050	1710	866	3060	2010	2300	680	482		
CAL YR 1975	TOTAL	13722.2	MEAN	37.6	MAX	323	MIN	8.5	CFSM	2.09	IN	28.36	AC-FT	27220
WTR YR 1976	TOTAL	9198.0	MEAN	25.1	MAX	450	MIN	7.0	CFSM	1.39	IN	19.01	AC-FT	18240

PEAK DISCHARGE (BASE, 500 FT<sup>3</sup>/S)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-25	0900	15.40	670	5-31	1300	18.28	1,250
1- 2	1700	14.50	564	7-17	2300	15.19	650
5- 7	2130	14.30	541				

## SABINE RIVER BASIN

08025307 Mill Creek near Burkeville, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)
OCT 07...	1100	14	37	6.3	15.0	25	8	9.6	94	.9	6	2
NOV 11...	0930	20	38	6.1	16.5	40	9	8.6	88	.9	9	3
DEC 16...	1100	23	37	6.3	12.0	50	10	10.8	100	.7	6	1
JAN 13...	0900	24	41	6.3	14.0	20	10	9.3	89	.5	7	3
FEB 24...	1020	20	41	5.8	11.0	30	15	10.0	90	.7	11	5
MAR 23...	1030	16	40	6.2	14.0	40	10	9.7	93	.6	9	2
APR 14...	1130	11	42	6.6	19.5	40	15	8.7	94	.5	9	4
MAY 26...	0900	16	39	6.3	19.5	50	15	9.1	98	.8	7	1
JUN 22...	1030	20	37	5.8	20.0	60	20	8.4	95	.5	7	3
JUL 20...	0925	32	36	5.4	26.5	60	20	8.7	110	.5	7	1
AUG 27...	0930	12	38	5.6	22.0	60	20	8.2	96	.6	8	1
SEP 14...	0900	11	37	5.9	20.0	60	20	9.4	107	.6	8	2

DATE	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	SODIUM ADSORPTION RATIO	DISSOLVED PHOSPHATE (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SiO2) (MG/L)
OCT 07...	1.4	.5	3.1	.6	1.1	4	0	1.5	4.7	--	16
NOV 11...	2.3	.7	2.9	.4	1.2	7	0	2.1	5.2	.2	19
DEC 16...	1.6	.5	3.1	.5	1.3	6	0	2.1	4.5	.1	17
JAN 13...	2.1	.5	3.3	.5	1.0	6	0	3.9	5.2	.2	18
FEB 24...	2.4	1.1	3.8	.5	1.0	7	0	3.2	5.0	.2	20
MAR 23...	1.9	1.0	3.4	.5	1.1	8	0	3.5	5.2	.1	18
APR 14...	2.4	.7	3.4	.5	1.2	6	0	2.8	5.5	.1	18
MAY 26...	2.4	.2	3.6	.6	1.0	7	0	3.2	5.0	.1	18
JUN 22...	2.4	.2	3.5	.6	1.0	5	0	3.6	4.3	.1	18
JUL 20...	2.6	.1	3.5	.6	1.1	7	0	3.2	4.4	.1	19
AUG 27...	2.7	.2	3.5	.6	1.3	8	0	3.1	6.0	.1	16
SEP 14...	2.0	.7	3.0	.5	1.5	7	0	2.9	5.4	.1	17

## SABINE RIVER BASIN

309

08025307 Mill Creek near Burkeville, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NON- FILT- RABLE RESIDUE (MG/L)	VOL. NON- FILT- RABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 07...	30	10	0	.33	.01	.04	.04	.02	3.2	0	.0
NOV 11...	37	16	5	.14	.00	.01	.12	.02	4.2	4	.1
DEC 16...	33	12	1	.12	.01	.00	--	.01	4.2	1	.0
JAN 13...	37	16	6	.17	.00	.01	.35	.01	4.2	1	.0
FEB 24...	41	20	9	.15	.00	.00	.26	.00	3.0	3	.0
MAR 23...	33	15	2	.20	.01	.03	.13	.01	3.3	9	.0
APR 14...	37	17	14	.22	.01	.01	.15	.01	7.1	4	.1
MAY 26...	37	19	9	.17	.00	.00	.18	.00	--	0	.0
JUN 22...	34	35	8	.15	.00	.00	.23	.01	4.6	--	.0
JUL 20...	38	64	20	.08	.00	.00	.01	.01	5.2	10	.0
AUG 27...	37	32	15	.20	.00	.00	.19	.01	8.6	0	.2
SEP 14...	36	28	10	.22	.00	.01	.24	.01	2.3	1	.0

DATE	TIME	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)
OCT 07...	1100	0	0	10	0	0	0	1
NOV 11...	0930	30	1	30	0	0	0	2
DEC 16...	1100	30	0	20	0	0	0	0
JAN 13...	0900	40	0	10	0	0	0	4
FEB 24...	1020	10	0	30	0	10	0	3
MAR 23...	1030	0	0	5	0	0	2	2
APR 14...	1130	20	0	50	0	0	0	0
MAY 26...	0900	80	2	30	0	0	0	2
JUNE 22...	1030	100	0	7	0	0	0	3
JULY 20...	0925	80	1	20	0	0	0	3
AUG 27...	0930	130	0	20	0	0	0	2
SEP 14...	0900	40	1	10	0	0	0	1



## SABINE RIVER BASIN

08025307 Mill Creek near Burkeville, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED LITHIUM (LI) (UG/L)	DIS-SOLVED MANGANESE (MN) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED STRONTIUM (SR) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
OCT. 07...	10	0	0	7	.0	0	140	4
NOV. 11...	60	0	1	60	.0	0	70	30
DEC. 16...	70	0	0	0	.3	0	50	10
JAN. 13...	60	7	0	30	.0	0	100	20
FEB. 24...	40	0	0	0	.1	1	110	200
MAR. 23...	20	0	0	0	.0	0	30	10
APR. 14...	40	0	0	0	.3	0	30	20
MAY 26...	60	0	0	0	.1	0	50	10
JUNE 22...	100	0	0	0	.0	0	60	20
JULY 20...	90	0	0	10	.2	0	30	20
AUG. 27...	110	0	0	10	.1	0	40	10
SEP. 14...	30	0	0	0	.2	2	40	10

DATE	TIME	TOTAL PCB (UG/L)	POLY-CHLORINATED NAPHTHALENES (UG/L)	TOTAL ALDRIN (UG/L)	TOTAL CHLORDANE (UG/L)	TOTAL DDD (UG/L)	TOTAL DDE (UG/L)	TOTAL DDT (UG/L)	TOTAL DI-AZINON (UG/L)	TOTAL DI-ELDRIN (UG/L)	TOTAL ENDRIN (UG/L)	TOTAL ETHION (UG/L)
OCT. 07...	1100	.0	--	.00	.0	.00	.00	.00	.00	.00	.00	.00
DEC. 16...	1100	.0	--	.00	.0	.00	.00	.00	.00	.00	.00	.00
FEB. 24...	1020	.0	.00	.00	.0	.00	.00	.00	.00	.00	.00	.00
APR. 14...	1130	.0	.00	.00	.0	.00	.00	.00	.00	.00	.00	.00
JUNE 22...	1030	.0	.00	.00	.0	.00	.00	.00	.00	.00	.00	.00
AUG. 27...	0930	.0	.00	.00	.0	.00	.00	.00	.00	.00	.00	.00

DATE	TOTAL HEPTACHLOR (UG/L)	TOTAL HEPTACHLOR EPOXIDE (UG/L)	TOTAL LINDANE (UG/L)	TOTAL MALATHION (UG/L)	TOTAL METHYL PARATHION (UG/L)	TOTAL METHYL TRI-THION (UG/L)	TOTAL PARATHION (UG/L)	TOTAL TOXAPHENE (UG/L)	TOTAL TRI-THION (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)
OCT. 07...	.00	.00	.00	.00	.00	.00	.00	0	.00	.00	.00	.00
DEC. 16...	.00	.00	.00	.00	.00	.00	.00	0	.00	.00	.00	.00
FEB. 24...	.00	.00	.00	.00	.00	.00	.00	0	.00	.00	.00	.00
APR. 14...	.00	.00	.00	.00	.00	.00	.00	0	.00	.00	.00	.00
JUNE 22...	.00	.00	.00	.00	.00	.00	.00	0	.00	.00	.00	.00
AUG. 27...	.00	.00	.00	.00	.00	.00	.00	0	.00	1.6	1.5	.00

08025350 Toledo Bend Reservoir near Burkeville, Tex.

LOCATION.--Lat 31°10'25", long 93°33'57", Newton County, in powerhouse at right end of Toledo Bend Dam on Sabine River, 15 miles (24 km) northeast of Burkeville, and at mile 156.5 (251.8 km).

DRAINAGE AREA.--7,178 mi<sup>2</sup> (18,591 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Sabine River Authority). Prior to July 20, 1967, nonrecording gage read once daily at same site and datum. July 20, 1967, to June 30, 1973, recording gage at south end of spillway 1.6 miles (2.6 km) north of present site and at same datum.

EXTREMES.--Current year: Maximum contents, 4,577,000 acre-ft (5.64 km<sup>3</sup>) May 17 (elevation, 172.55 ft or 52.593 m); minimum, 3,663,000 acre-ft (4.52 km<sup>3</sup>) Sept. 30 (elevation, 167.22 ft or 50.969 m).

Period of record: Maximum contents, 4,739,000 acre-ft (5.84 km<sup>3</sup>) Mar. 21, 1969 (elevation, 173.42 ft or 52.858 m); minimum since initial filling of reservoir in June 1968, 3,517,000 acre-ft (4.34 km<sup>3</sup>) Oct. 22, 1972 (elevation, 166.29 ft or 50.685 m).

REMARKS.--Reservoir is formed by a rolled earthfill dam 11,243 ft (3,427 m) long, including dikes. Closure at embankment completed and deliberate impoundment was begun Oct. 3, 1966. Reservoir is operated for hydro-electric power generation and water conservation. A gate-controlled concrete ogee weir is located near the left abutment of the dam. Net opening of 440 ft (134 m) is controlled by eleven 40- by 28-foot (12- by 9-meter) tainter gates. A low-flow release sluiceway is located in an enlarged gate pier near the center of the spillway structure. This sluiceway is a single 8.33- by 12-foot (2.54- by 4-meter) concrete conduit controlled by a single gate. Two 20-inch-diameter (508-millimeter) conduits are provided which bypass the sluice gate. Water for turbines is admitted through four 16.75- by 29-foot (5.11- by 9-meter) penstocks and controlled by vertically operated caterpillar-type gates. The capacity table is based on Geological Survey 15-minute quadrangle sheets, scale 1:62,500 with 20-foot (6-meter) contour intervals. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see Lake Fork Creek near Quitman (station 08019000). For statement regarding regulation by upstream reservoirs, see Sabine River near Logansport (station 08022500). Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	185.0	-
Design flood.....	175.3	5,102,000
Top of gates.....	173.0	4,660,000
Top of power drawdown storage.....	172.0	4,476,000
Top of power head storage.....	162.2	2,922,000
Crest of spillway (controlled).....	145.0	1,162,000
Lowest gated outlet (invert).....	100.0	4,090

COOPERATION.--Capacity table furnished by Sabine River Authority.

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

167.2	3,660,000	171.0	4,297,000
169.0	3,953,000	172.6	4,586,000

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3759000	3805000	3821000	3887000	4081000	4106000	4254000	4175000	4559000	4472000	4387000	3912000
2	3740000	3788000	3821000	3970000	4072000	4106000	4245000	4184000	4540000	4462000	4370000	3904000
3	3732000	3821000	3821000	3953000	4064000	4098000	4254000	4193000	4531000	4462000	4347000	3890000
4	3727000	3834000	3818000	3945000	4055000	4106000	4254000	4184000	4513000	4494000	4318000	3887000
5	3721000	3838000	3818000	3945000	4089000	4123000	4245000	4184000	4504000	4513000	4285000	3889000
6	3719000	3834000	3846000	3945000	4072000	4115000	4236000	4227000	4494000	4522000	4274000	3887000
7	3718000	3834000	3838000	4004000	4047000	4123000	4236000	4333000	4494000	4516000	4262000	3882000
8	3714000	3838000	3838000	3962000	4047000	4149000	4227000	4351000	4489000	4513000	4226000	3872000
9	3719000	3838000	3834000	3937000	4030000	4149000	4201000	4378000	4480000	4531000	4201000	3874000
10	3721000	3846000	3821000	3945000	4030000	4149000	4193000	4413000	4472000	4531000	4191000	3852000
11	3721000	3846000	3821000	3970000	4047000	4140000	4184000	4440000	4458000	4531000	4175000	3841000
12	3722000	3887000	3829000	3956000	4047000	4120000	4167000	4467000	4449000	4528000	4163000	3839000
13	3714000	3838000	3821000	3987000	4047000	4193000	4149000	4504000	4440000	4522000	4137000	3826000
14	3711000	3821000	3838000	3975000	4047000	4184000	4132000	4513000	4422000	4504000	4120000	3821000
15	3748000	3818000	3862000	3969000	4047000	4193000	4055000	4522000	4404000	4494000	4108000	3809000
16	3756000	3818000	3851000	4011000	4047000	4184000	4072000	4550000	4437000	4494000	4092000	3795000
17	3772000	3821000	3862000	3975000	4064000	4167000	4098000	4559000	4426000	4504000	4099000	3785000
18	3748000	3818000	3846000	3948000	4081000	4167000	4098000	4540000	4426000	4513000	4075000	3769000
19	3743000	3838000	3834000	3965000	4081000	4158000	4098000	4531000	4476000	4513000	4069000	3764000
20	3740000	3829000	3862000	3987000	4064000	4184000	4132000	4522000	4480000	4513000	4055000	3769000
21	3732000	3818000	3846000	3985000	4193000	4158000	4123000	4522000	4480000	4513000	4038000	3764000
22	3727000	3808000	3838000	3980000	4140000	4149000	4106000	4522000	4476000	4504000	4024000	3737000
23	3727000	3795000	3838000	3977000	4123000	4132000	4098000	4522000	4472000	4504000	4007000	3724000
24	3732000	3821000	3854000	3984000	4115000	4140000	4123000	4531000	4467000	4494000	4002000	3711000
25	3788000	3788000	3871000	4065000	4140000	4158000	4140000	4513000	4476000	4485000	3987000	3720000
26	3796000	3805000	3854000	4045000	4140000	4193000	4123000	4485000	4472000	4467000	3970000	3700000
27	3800000	3788000	3849000	4035000	4132000	4193000	4132000	4500000	4480000	4449000	3950000	3689000
28	3805000	3788000	3874000	4047000	4123000	4210000	4140000	4513000	4480000	4440000	3932000	3703000
29	3813000	3788000	3904000	4048000	4115000	4236000	4167000	4476000	4476000	4431000	3940000	3684000
30	3805000	3838000	3892000	4052000	---	4271000	4167000	4449000	4472000	4415000	3922000	3663000
31	3801000	---	3887000	4109000	---	4254000	---	4550000	---	4403000	3912000	---
(†)	168.08	168.30	168.60	169.92	169.95	170.75	170.25	172.40	171.98	171.59	168.75	167.22
(*)	+48000	+37000	+49000	+222000	+6000	+139000	-87000	+383000	-78000	-69000	-491000	-249000
MAX	3813000	3887000	3904000	4109000	4193000	4271000	4254000	4559000	4531000	4531000	4387000	3912000
MIN	3711000	3788000	3818000	3887000	4030000	4098000	4055000	4175000	4404000	4403000	3912000	3663000

CAL YR 1975..... \* -690000      MAX 4660000      MIN 3711000  
WTR YR 1976..... \* -90000      MAX 4559000      MIN 3663000

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

## SABINE RIVER BASIN

08025360 Sabine River at Toledo Bend Reservoir near Burkeville, Tex.

LOCATION.--Lat 31°10'25", long 93°33'57", Newton County, in powerhouse at right end of Toledo Bend Dam, 10 miles (16 km) upstream from Sabine River near Burkeville gage, and at mile 156.5 (251.8 km).

DRAINAGE AREA.--7,178 mi<sup>2</sup> (18,591 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: October 1971 to current year.

Water quality: Chemical and biochemical analyses: October 1967 to current year.

GAGE.--Water-stage recorders. Datum of gages is at mean sea level (levels by Sabine River Authority).

AVERAGE DISCHARGE.--5 years, 6,836 ft<sup>3</sup>/s (193.6 m<sup>3</sup>/s), 4,953,000 acre-ft/yr (6.11 km<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum daily discharge, 19,900 ft<sup>3</sup>/s (564 m<sup>3</sup>/s) June 3; minimum daily, 34 ft<sup>3</sup>/s (0.96 m<sup>3</sup>/s) estimated Nov. 21 to Dec. 10.

Period of record: Maximum daily discharge, 67,000 ft<sup>3</sup>/s (1,900 m<sup>3</sup>/s) Jan. 28, 1974; minimum daily, 30 ft<sup>3</sup>/s (0.85 m<sup>3</sup>/s) estimated Oct. 1-4, 1972.

REMARKS.--Discharges above 16,000 ft<sup>3</sup>/s (453 m<sup>3</sup>/s) are result of tainter gate operations and are based on tainter gate rating. Discharges below 16,000 ft<sup>3</sup>/s (453 m<sup>3</sup>/s) are based upon scroll case differential pressure-discharge relationships during turbine release periods, estimates of turbine leakage during non-turbine release periods, and low-flow sluiceway discharge based on discharge measurements.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	59	34	92	92	3440	5070	92	10000	6710	8640	5260
2	59	59	34	92	5920	4260	5150	92	16600	6580	8590	5330
3	59	59	34	92	5640	3330	6360	3110	19900	6880	10700	5450
4	59	59	34	92	6210	3500	6930	3270	16600	59	10100	4350
5	59	59	34	92	6050	5860	6940	2170	14000	6780	10300	59
6	59	59	34	92	5590	59	5860	3260	13800	6760	10400	59
7	59	59	34	92	59	59	7000	2950	12700	6750	9930	59
8	59	59	34	92	92	7180	7130	59	9820	6740	10100	5440
9	59	59	34	92	5460	4250	6750	92	9180	6310	9810	5480
10	59	59	34	92	92	6970	6970	2920	6640	6940	7070	5520
11	59	59	76	92	92	6770	7110	2950	6600	6460	6900	59
12	59	59	101	92	92	6930	7160	6280	6810	6820	7140	59
13	59	59	101	52	92	6770	7040	6410	59	6900	6880	5340
14	59	59	101	94	92	6830	6220	6350	6850	7310	7250	5350
15	59	59	101	103	92	6910	6970	92	6970	6840	7210	5470
16	59	59	106	103	92	5810	7140	92	6810	6760	7080	5420
17	59	59	96	103	87	6790	92	8380	6310	6940	5400	6170
18	59	59	92	103	103	6890	92	8990	6310	6380	5270	6020
19	59	59	92	128	103	6760	92	8370	6960	6900	4990	59
20	59	59	92	92	1960	6890	92	9110	59	6910	5400	5960
21	59	34	92	92	2180	6720	3590	9160	6860	6210	5510	5900
22	59	34	92	92	3150	6910	3630	9300	6810	6870	59	5900
23	59	34	92	101	5070	6820	3510	9290	6670	6850	5350	6030
24	59	34	92	92	3170	6930	92	8760	6950	6740	5370	6090
25	59	34	92	92	2960	6960	92	9020	6520	6300	5340	2400
26	59	34	92	92	3440	331	92	9090	6790	6850	6150	59
27	59	34	92	92	3460	59	92	9010	59	6470	5260	6370
28	59	34	92	119	3590	59	92	9090	6840	6900	5410	6200
29	59	34	92	1910	3540	6370	92	9170	5580	6880	59	6130
30	59	34	92	92	---	6740	92	8850	6750	5800	5390	6070
31	59	---	92	92	---	6160	---	8630	---	6460	5630	---
TOTAL	1829	1520	2310	4748	68570	160317	117542	174409	242807	201059	208688	128063
MEAN	59.0	50.7	74.5	153	2364	5172	3918	5626	8094	6486	6732	4269
MAX	59	59	106	1910	6210	7180	7160	9300	19900	7310	10700	6370
MIN	59	34	34	52	59	59	92	59	59	59	59	59
AC-FT	3630	3010	4580	9420	136000	318000	233100	345900	481600	398800	413900	254000
CAL YR 1975 TOTAL	2986119			8181	MAX 39300	MIN 34	AC-FT 5923000					
WTR YR 1976 TOTAL	1311862			MEAN 3584	MAX 19900	MIN 34	AC-FT 2602000					

## SABINE RIVER BASIN

313

08025360 Sabine River at Toledo Bend Reservoir near Burkeville, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	BIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)
OCT. 07...	0945	163	6.4	19.5	4.8	52	1.2	32	7
DEC. 16...	0915	169	6.4	13.0	8.5	80	.8	34	8
FEB. 24...	0945	157	6.3	11.5	10.2	93	.7	35	13
APR. 14...	0945	160	6.2	17.5	8.6	90	.5	35	13
JUNE 22...	0850	155	6.2	23.0	6.1	73	.7	30	8
AUG. 27...	1200	176	5.9	25.5	5.8	72	.5	33	8

DATE	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
OCT. 07...	9.2	2.2	14	1.1	2.5	30	0	17	20
DEC. 16...	9.1	2.8	17	1.3	2.5	32	0	15	19
FEB. 24...	8.6	3.4	14	1.0	2.4	27	0	15	19
APR. 14...	8.9	3.1	15	1.1	2.5	27	0	15	20
JUNE 22...	8.0	2.5	13	1.0	2.3	27	0	14	19
AUG. 27...	8.7	2.8	16	1.2	2.5	31	0	15	23

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITU- ENTS) (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)
OCT. 07...	--	8.0	88	.00	.00	.01	.30	.02
DEC. 16...	.4	11	93	.04	.03	.04	.30	.07
FEB. 24...	.2	7.1	83	.13	.00	.01	.32	.01
APR. 14...	.4	6.6	85	.09	.01	.02	.19	.00
JUNE 22...	.2	5.1	77	.05	.01	.00	.26	.01
AUG. 27...	.2	4.1	88	.00	.00	.01	.30	.01

08026000 Sabine River near Burkeville, Tex.  
(Formerly published as Sabine River below Toledo Bend near Burkeville)

LOCATION.--Lat 31°03'50", long 93°31'10", Newton County, Tex.--Vernon Parish, La. State line, near left edge of low-water channel at downstream side of bridge on State Highway 63, about 200 ft (61 m) downstream from Pearl Creek, 10 miles (16 km) northeast of Burkeville, 16 miles (26 km) downstream from Bayou Toro, and at mile 139.7 (224.8 km).

DRAINAGE AREA.--7,482 mi<sup>2</sup> (19,378 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: September 1955 to current year. Published as "below Toledo Bend near Burkeville" for 1955-75.  
Water quality: Chemical and biochemical analyses: May 1968 to current year. Pesticide analyses: October 1972 to current year.  
Water temperatures: May 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 70.59 ft (21.516 m) above mean sea level. Prior to Aug. 23, 1958, nonrecording gage at same site and datum.

AVERAGE DISCHARGE.--11 years (1955-66) prior to completion of Toledo Bend Reservoir, 4,653 ft<sup>3</sup>/s (131.8 m<sup>3</sup>/s), 3,371,000 acre-ft/yr (4.16 km<sup>3</sup>/yr); 10 years (1966-76) regulated, 5,244 ft<sup>3</sup>/s (148.5 m<sup>3</sup>/s), 3,799,000 acre-ft/yr (4.68 km<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 19,400 ft<sup>3</sup>/s (549 m<sup>3</sup>/s) June 3 (gage height, 21.23 ft or 6.471 m); minimum daily, 167 ft<sup>3</sup>/s (4.73 m<sup>3</sup>/s) Oct. 14, Nov. 25.  
Period of record: Maximum discharge, 80,600 ft<sup>3</sup>/s (2,280 m<sup>3</sup>/s) Jan. 29, 1974 (gage height, 34.20 ft or 10.424 m); minimum daily, 38 ft<sup>3</sup>/s (1.08 m<sup>3</sup>/s) Sept. 14, 15, 1967.  
Historic: Maximum stage since at least 1860, 35.9 ft (10.94 m) in May 1884, from information by local resident. Flood of Apr. 15, 1945, reached a stage of 35.8 ft (10.91 m), and flood of May 23, 1953, reached a stage of 35.3 ft (10.76 m), from floodmarks.  
Water quality: Current year: Maximum daily specific conductance, 196 micromhos Apr. 25; minimum daily, 31 micromhos Dec. 7. Maximum water temperatures, 31.0°C July 28, 30, Aug. 7, 13; minimum, 5.0°C Jan. 9.  
Period of record: Maximum daily specific conductance, 352 micromhos Mar. 15, 16, 1973; minimum daily, 31 micromhos Dec. 7, 1975. Maximum water temperatures, 32.0°C Aug. 20, 1975; minimum, 5.0°C Jan. 8, 10, 1970, Jan. 9, 1976.

REMARKS.--Discharge records fair. Flow regulated by Toledo Bend Reservoir (station 08025350) 16.8 miles (27.0 km) upstream (capacity, 4,660,000 acre-ft or 5.75 km<sup>3</sup>).

REVISIONS.--WSP 1732: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3190	309	373	435	471	3320	6070	244	12400	6780	6780	5420
2	375	288	300	487	3350	3890	5030	219	18500	6880	8520	5350
3	233	293	265	2760	5750	3550	5690	2040	18700	7210	10300	5370
4	211	300	227	1940	5840	3360	6720	2830	15000	3580	10300	5040
5	201	279	205	1420	5620	4580	6720	2330	14000	4190	9410	2640
6	198	267	306	767	5430	2810	6050	2860	13800	7090	10400	343
7	192	256	312	547	2820	584	6700	3750	13400	7070	10000	236
8	189	242	236	480	588	4590	6890	5670	10400	6930	9860	2520
9	186	234	218	451	3070	5960	6810	2090	9600	6870	10200	5290
10	183	225	203	424	2700	6420	6610	3890	6690	6710	7310	5500
11	179	214	187	404	513	7140	6690	5750	6350	6950	6960	3000
12	175	204	225	396	393	6950	6830	5080	6550	6680	6860	316
13	171	188	245	374	359	6820	6830	7070	3080	6960	6900	2490
14	167	182	242	359	335	6910	6160	7720	3880	6940	7080	5240
15	179	185	236	391	322	7350	6570	3990	6540	6920	7070	5290
16	470	187	254	372	317	6340	6850	778	6630	6950	7150	5340
17	699	187	302	355	300	6770	2920	3770	6650	7000	5820	6170
18	508	187	242	349	329	6910	425	9000	6410	7350	5430	5980
19	296	188	221	336	381	6840	441	8050	7340	6930	5130	2550
20	225	212	216	335	900	6820	369	8640	3800	7080	5210	3730
21	199	192	203	299	2890	6760	2470	8790	4350	6540	5340	5850
22	186	179	203	284	3770	6800	2310	8920	6570	6850	3070	5950
23	181	174	211	280	4560	6790	3470	8900	6620	6940	2680	6000
24	190	170	237	287	4310	6860	2520	8730	6830	6930	5320	5970
25	1010	167	676	390	2820	7170	387	8840	6620	6680	5340	3540
26	2890	182	571	644	3240	4450	299	8800	6590	6720	5900	1760
27	1800	212	424	658	3310	1740	247	8790	3130	6600	5520	3600
28	1170	201	363	518	3350	1220	224	8800	4090	6690	5390	6060
29	609	207	688	1330	3370	4040	237	8670	5940	6540	3180	6050
30	414	277	808	928	---	6890	276	8450	6580	6110	2730	6080
31	356	---	617	387	---	7530	---	9870	---	5640	5370	---
TOTAL	17232	6588	10016	19387	71408	168164	119815	183331	247040	205310	206530	128675
MEAN	556	220	323	625	2462	5425	3994	5914	8235	6623	6662	4289
MAX	3190	309	808	2760	5840	7530	6890	9870	18700	7350	10400	6170
MIN	167	167	187	280	300	584	224	219	3080	3580	2680	236
AC-FT	34180	13070	19870	38450	141600	333600	237700	363600	490000	407200	409700	255200

CAL YR 1975 TOTAL 3238875 MEAN 8874 MAX 39100 MIN 167 AC-FT 6424000  
WTR YR 1976 TOTAL 1383496 MEAN 3780 MAX 18700 MIN 167 AC-FT 2744000



## SABINE RIVER BASIN

315

08026000 Sabine River near Burkeville, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DIS-SOLVED OXYGEN (MG/L)	PERCENT SATURATION	RIO-CHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	HARDNESS (CA+MG) (MG/L)
OCT.											
07...	0815	220	121	6.3	18.0	50	10	8.2	86	1.3	22
08...	2200	215	112	--	22.5	50	--	--	--	--	--
15...	2030	235	45	--	22.5	60	--	--	--	--	--
22...	1715	215	47	--	21.0	60	--	--	--	--	--
24...	1945	490	54	--	18.0	120	--	--	--	--	--
NOV.											
01...	1205	320	90	7.1	21.0	80	--	--	--	--	18
07...	1650	255	67	--	22.0	70	--	--	--	--	--
14...	1455	162	99	--	16.0	60	--	--	--	--	--
21...	1645	183	75	--	14.5	50	--	--	--	--	--
DEC.											
15...	1600	215	55	6.6	17.0	50	45	8.8	91	.8	10
FEB.											
24...	0815	3150	146	6.4	11.5	30	10	10.2	93	.9	35
APR.											
14...	0830	3350	158	6.2	18.5	30	10	8.6	91	.5	35
JUNE											
22...	0900	4100	146	6.5	24.0	30	10	7.3	89	.7	29
AUG.											
27...	1245	2650	174	6.1	28.5	40	6	7.0	91	.5	32
DATE	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG)	DIS-SOLVED SODIUM (NA) (MG/L)	SODIUM ADSORPTION RATIO	DIS-SOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)
OCT.											
07...	--	6.4	1.5	11	1.0	2.0	29	0	8.8	12	--
08...	--	--	--	--	--	--	--	--	9.6	13	--
15...	--	--	--	--	--	--	--	--	7.2	12	--
22...	--	--	--	--	--	--	--	--	6.8	12	--
24...	--	--	--	--	--	--	--	--	5.6	8.4	--
NOV.											
01...	7	4.7	1.4	7.7	.8	2.3	13	0	--	--	--
07...	--	--	--	--	--	--	--	--	2.6	8.4	--
14...	--	--	--	--	--	--	--	--	5.6	13	--
21...	--	--	--	--	--	--	--	--	13	12	--
DEC.											
15...	1	2.8	.8	5.6	.8	1.2	12	0	3.7	6.6	.1
FEB.											
24...	23	8.7	3.2	12	.9	2.3	14	0	15	19	.2
APR.											
14...	15	9.1	3.6	15	1.1	2.6	25	0	14	25	.2
JUNE											
22...	8	7.7	2.4	13	1.0	2.3	26	0	13	18	.1
AUG.											
27...	9	8.3	2.7	16	1.2	2.5	28	0	15	24	.2
DATE	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NON-FILT-RABLE RESIDUE (MG/L)	VOL. NON-FILT-RABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	
OCT.											
07...	18	75	15	5	.01	.00	.02	.50	.05	2.8	
08...	--	--	--	--	--	--	--	--	--	--	
15...	--	--	--	--	--	--	--	--	--	--	
22...	--	--	--	--	--	--	--	--	--	--	
29...	--	--	--	--	--	--	--	--	--	--	
NOV.											
01...	--	--	--	--	--	--	--	--	--	--	
07...	--	--	--	--	--	--	--	--	--	--	
14...	--	--	--	--	--	--	--	--	--	--	
21...	--	--	--	--	--	--	--	--	--	--	
DEC.											
15...	15	42	156	30	.03	.00	.01	.19	.02	5.0	
FEB.											
24...	8.0	75	19	2	.12	.00	.01	.35	.01	5.2	
APR.											
14...	7.3	89	15	14	.10	.00	.06	.53	.01	7.8	
JUNE											
22...	5.5	75	26	6	.00	.01	.00	.35	.01	5.4	
AUG.											
27...	4.1	87	18	15	.00	.00	.00	.31	.01	6.9	



## SABINE RIVER BASIN

08026000 Sabine River near Burkeville, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

		DIS-SOLVED ALUMINUM (AL) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED CADMIUM (CD) (UG/L)	DIS-SOLVED CHROMIUM (CR) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)
DATE	TIME							
OCT. 07...	0815	--	0	30	0	--	0	0
DEC. 15...	1600	30	0	20	0	0	0	0
APR. 14...	0830	20	0	60	0	0	0	40
JUNE 22...	0800	50	1	40	0	0	0	3

		DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED LITHIUM (LI) (UG/L)	DIS-SOLVED MANGANESE (MN) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED STRONTIUM (SR) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
DATE	TIME								
OCT. 07...	50	0	0	310	.0	0	220	7	
DEC. 15...	90	0	0	30	.3	0	70	0	
APR. 14...	30	0	10	10	.2	12	130	140	
JUNE 22...	40	0	0	0	.1	0	160	40	

DATE	TIME	TOTAL PCB (UG/L)	PCR IN BOTTOM MATERIAL (UG/KG)	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL CHLORDANE (UG/L)	CHLORDANE IN BOTTOM MATERIAL (UG/KG)	TOTAL DDD (UG/L)	DDD IN BOTTOM MATERIAL (UG/KG)	TOTAL DDE (UG/L)	DDE IN BOTTOM MATERIAL (UG/KG)	TOTAL DDT (UG/L)
OCT. 07...	0815	.0	0	.00	.0	.0	0	.00	.0	.00	.0	.00

DATE	TIME	DDT IN BOTTOM MATERIAL (UG/KG)	TOTAL DIAZINON (UG/L)	TOTAL DIELDRIN (UG/L)	DIELDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL ENDRIN (UG/L)	ENDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL ETHION (UG/L)	TOTAL HEPTACHLOR (UG/L)	HEPTACHLOR IN BOTTOM MATERIAL (UG/KG)	TOTAL HEPTACHLOR EPOXIDE (UG/L)	HEPTACHLOR EPOXIDE IN BOTTOM MATERIAL (UG/KG)	TOTAL LINDANE (UG/L)
OCT. 07...	.0	.00	.00	.0	.00	.0	.00	.00	.00	.0	.00	.0	.00

DATE	TIME	LINDANE IN BOTTOM MATERIAL (UG/KG)	TOTAL MALATHION (UG/L)	TOTAL METHYL PARATHION (UG/L)	TOTAL METHYL TRIETHION (UG/L)	TOTAL PARAETHION (UG/L)	TOTAL TOXAPHENE (UG/L)	TOXAPHENE IN BOTTOM MATERIAL (UG/KG)	TOTAL TRIETHION (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)
OCT. 07...	.0	.00	.00	.00	.00	.00	0	0	.00	.00	.00	.00

## SABINE RIVER BASIN

317

08026000 Sabine River near Burkeville, Tex.--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	17232	81	50	2330	10	464	7	316	17
NOV. 1975.....	6588	79	51	901	10	170	7	121	16
DEC. 1975.....	10016	69	44	1190	8	228	6	163	14
JAN. 1976.....	19387	73	46	2390	9	473	6	336	15
FEB. 1976.....	68038	141	77	14200	19	3400	10	1750	29
MAR. 1976.....	168164	149	81	36700	20	9020	10	4460	30
APR. 1976.....	119815	156	83	27000	21	6710	10	3260	32
MAY 1976.....	183331	145	78	38800	19	9550	10	4720	29
JUNE 1976.....	247040	149	81	53900	20	13200	10	6600	30
JULY 1976.....	205310	160	85	47400	21	11900	10	5810	33
AUG. 1976.....	206530	172	90	50000	23	12900	11	6130	35
SEPT 1976.....	128675	177	92	32000	24	8330	11	3870	36
TOTAL .....	1380126	**	**	307000	**	76300	**	37500	**
WTD.AVG. ....	3781.17	154	82	**	20	**	10	**	31

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	120	90	70	47	37	156	152	135	128	156	168	169
2	120	93	79	52	154	154	150	131	147	153	168	177
3	128	85	80	75	146	153	144	159	150	151	169	174
4	124	71	78	62	156	154	154	160	151	155	171	177
5	119	81	61	59	153	159	150	159	152	157	175	164
6	115	67	32	76	153	113	163	158	150	158	172	167
7	111	67	31	75	147	97	159	85	152	157	173	153
8	112	82	88	75	128	153	158	40	153	159	168	177
9	105	78	88	94	153	152	158	59	154	159	170	177
10	119	88	93	50	147	141	159	151	154	136	168	182
11	106	80	84	50	118	133	159	153	148	159	170	179
12	117	73	60	57	107	154	158	156	154	159	170	172
13	104	81	34	49	107	151	158	125	148	160	170	171
14	98	99	36	67	132	153	154	155	160	162	171	170
15	85	85	62	67	131	153	150	75	154	160	171	176
16	99	76	61	38	129	154	162	76	150	159	170	180
17	75	100	50	46	123	154	155	154	156	162	172	182
18	69	80	65	47	129	154	150	155	180	161	167	179
19	73	68	62	37	123	154	129	155	153	164	170	169
20	79	56	72	43	116	154	91	155	83	162	174	180
21	84	75	35	34	98	154	159	155	115	162	170	183
22	87	76	34	53	97	156	151	153	144	162	173	177
23	80	77	84	34	110	156	153	156	150	164	175	179
24	80	89	39	34	155	156	158	153	154	164	181	184
25	65	88	50	32	148	154	196	156	156	166	178	173
26	53	64	84	97	152	106	126	154	157	169	180	173
27	50	74	39	109	149	76	131	155	147	167	181	180
28	51	87	64	77	150	75	128	156	155	169	174	184
29	54	72	111	145	154	152	123	155	155	166	166	182
30	72	60	98	148	---	153	123	155	146	167	161	168
31	90	---	96	47	---	153	---	135	---	169	174	---
MONTH	92	79	65	64	131	143	149	138	149	160	172	175

08026000 Sabine River near Burkeville, Tex.--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.0	21.0	15.0	13.5	12.0	15.0	15.5	22.5	23.0	28.0	30.0	29.0
2	23.5	21.0	15.0	---	11.5	15.5	18.0	24.5	23.5	27.5	28.0	29.0
3	24.0	---	13.5	---	12.0	16.0	20.0	22.5	25.0	---	29.5	29.5
4	---	21.0	14.5	10.5	12.5	15.0	14.0	22.5	26.0	---	30.0	29.0
5	23.0	21.0	11.5	11.5	13.0	14.0	---	23.0	26.0	28.0	30.0	29.0
6	22.0	21.5	17.0	---	11.0	14.5	19.0	22.0	25.5	28.0	30.0	30.0
7	23.0	22.0	15.5	11.0	11.0	14.5	19.5	---	26.0	28.0	31.0	29.5
8	22.5	21.0	15.0	12.5	12.0	15.0	19.0	21.0	26.5	29.0	30.0	28.5
9	23.5	23.0	13.5	5.0	11.5	14.0	19.5	22.0	---	29.0	30.0	28.5
10	24.0	21.0	13.5	10.0	13.5	---	20.0	22.5	27.0	28.0	30.0	27.5
11	23.0	---	15.0	17.5	16.0	14.5	20.0	23.5	25.0	29.0	30.5	27.0
12	25.0	18.0	15.5	12.5	15.0	15.0	20.5	23.5	26.5	28.5	30.0	28.0
13	25.0	18.0	17.0	16.5	15.5	14.0	20.5	22.5	28.5	29.5	31.0	---
14	---	16.0	14.0	13.5	17.0	14.0	22.0	23.0	25.5	---	30.5	27.0
15	22.5	16.0	15.0	13.0	17.5	15.0	21.5	23.0	26.0	29.0	29.0	26.5
16	21.5	16.5	14.0	13.0	19.5	14.5	18.5	24.0	26.5	28.5	30.0	---
17	23.0	14.0	12.5	11.0	---	14.0	20.5	23.5	26.5	28.5	30.0	27.0
18	21.5	18.0	11.5	10.5	17.0	14.5	22.0	24.0	26.0	28.5	24.5	28.5
19	22.0	14.0	9.0	11.5	14.0	15.0	24.0	24.0	26.0	28.5	30.0	28.0
20	---	16.0	10.5	11.0	18.5	17.0	22.5	23.5	26.5	28.5	29.0	26.5
21	22.0	14.5	9.0	11.5	16.0	15.5	20.0	23.5	---	28.5	30.0	27.0
22	21.0	11.5	9.0	11.0	14.5	15.5	23.0	24.0	---	29.0	30.0	27.0
23	23.0	---	9.0	13.0	---	15.5	22.0	25.0	---	24.5	30.0	26.5
24	23.0	11.5	4.5	15.0	13.5	15.5	23.0	25.5	26.0	30.0	29.5	26.5
25	---	12.0	---	15.5	13.0	15.5	24.0	25.0	---	30.5	29.5	25.5
26	14.5	11.5	9.0	11.0	13.5	---	24.5	---	---	30.0	30.0	28.0
27	---	11.5	10.0	13.0	15.0	---	25.5	25.0	28.5	30.0	29.0	---
28	---	13.0	11.5	11.0	15.0	---	25.5	29.0	29.0	31.0	29.5	26.5
29	18.0	17.0	11.5	11.0	15.0	---	22.5	25.5	24.5	30.0	30.0	26.0
30	22.0	15.0	11.0	10.5	---	16.0	21.5	24.5	24.5	31.0	29.0	26.0
31	22.0	---	11.5	10.0	---	16.0	---	23.0	---	29.5	---	---
MONTH	22.5	17.0	13.0	12.0	14.5	15.0	21.0	23.5	26.5	29.0	29.5	28.0

COLOR (PLATINUM-COBALT UNITS), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

[illegible]

## SABINE RIVER BASIN

319

08028500 Sabine River near Bon Wier, Tex.

LOCATION.--Lat 30°44'49", long 93°36'30", Beauregard Parish, La.-Newton County, Tex. State line, near left bank at downstream side of bridge on U.S. Highway 190, 0.7 mile (1.1 km) upstream from Quicksand Creek, 0.8 mile (1.3 km) upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 2.0 miles (3.2 km) east of Bon Wier, 2.4 miles (3.9 km) upstream from Caney Creek, and at mile 97.7 (157.2 km).

DRAINAGE AREA.--8,229 mi<sup>2</sup> (21,313 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: October 1923 to current year. Monthly discharge only for some periods, published in WSP 1312. Gage-height records collected in this vicinity since 1913 are contained in reports of the National Weather Service.  
Water quality: Chemical analyses: January 1970 to current year. Water temperatures: January 1970 to current year.

GAGE (revised).--Water-stage recorder. Datum of gage is 43.42 ft (13.234 m) above mean sea level. Prior to July 8, 1931, nonrecording gage at site 0.8 mile (1.3 km) downstream at datum 3.00 ft (0.914 m) higher. July 8, 1931, to Oct. 15, 1958, nonrecording gage at present site at datum 3.00 ft (0.914 m) higher. Oct. 16, 1958, to Sept. 30, 1975, water-stage recorder at present site at datum 3.00 ft (0.914 m) higher.

AVERAGE DISCHARGE.--43 years (1923-66) prior to completion of Toledo Bend Reservoir, 6,846 ft<sup>3</sup>/s (193.9 m<sup>3</sup>/s), 4,960,000 acre-ft/yr (6.12 km<sup>3</sup>/yr); 10 years (1966-76) regulated, 6,278 ft<sup>3</sup>/s (177.8 m<sup>3</sup>/s), 4,548,000 acre-ft/yr (5.61 km<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 23,300 ft<sup>3</sup>/s (660 m<sup>3</sup>/s) June 3 (gage height, 19.47 ft or 5.934 m); minimum daily, 523 ft<sup>3</sup>/s (14.8 m<sup>3</sup>/s) Nov. 16.

Period of record: Maximum discharge, 115,000 ft<sup>3</sup>/s (3,260 m<sup>3</sup>/s) May 19, 1953 (gage height, 28.70 ft or 8.748 m, revised); minimum daily, 134 ft<sup>3</sup>/s (3.79 m<sup>3</sup>/s) Nov. 9, 1966.

Historic: Maximum stage since at least 1833, 33.5 ft (10.21 m) Apr. 23 or 24, 1913, from information by Gulf, Colorado, and Santa Fe Railway Co. and local residents. Flood in May 1884 reached a stage of 29 ft (8.8 m). Floods occurring about 1844 and 1860 were higher than flood in May 1884, from information by local residents. All flood data referenced to current datum.

Water quality: Current year: Maximum daily specific conductance, 229 micromhos Dec. 12; minimum daily, 51 micromhos May 9. Maximum water temperatures, 30.0°C on several days during summer months; minimum, 7.0°C Jan. 9.

Period of record: Maximum daily specific conductance, 385 micromhos Aug. 24, 1970; minimum daily, 36 micromhos May 1, 1973. Maximum water temperatures, 31.0°C July 16, 21, 1975; minimum, 6.0°C Jan. 11-13, 1973.

REMARKS.--Discharge records fair. Flow regulated by Toledo Bend Reservoir (station 08025350) located 58.8 miles (94.6 km) upstream.

REVISIONS (WATER YEARS).--WSP 1342: 1953. WSP 1442: 1924, 1926-27(M), 1929(M), 1939. WSP 1732: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8220	956	962	1500	957	4180	9670	1290	15200	7770	6950	6030
2	2750	849	1150	1240	1090	4140	7930	1050	20500	8280	7910	6090
3	992	813	1030	1730	4650	4670	6720	937	23000	8050	9470	5990
4	767	835	907	4120	6230	4350	7390	2780	22000	8220	10700	6050
5	704	851	788	3080	6490	4160	8100	3620	17400	4050	10400	5740
6	670	770	751	2440	6140	5650	7970	3100	16200	6000	10400	3000
7	656	713	947	1780	5880	3810	7380	4090	16000	7820	10800	1310
8	636	688	1030	1450	2700	2090	7870	9170	14200	7790	10500	1050
9	628	661	811	1290	1220	7550	7900	9080	11900	8290	10400	3700
10	619	642	639	1160	4340	7970	7830	5740	10200	8180	9660	5790
11	613	628	562	1080	2660	8470	7780	8750	8030	7840	7720	6000
12	602	595	551	1030	1110	8480	7780	8980	7610	7640	7410	3090
13	594	558	651	1010	937	8530	7870	10400	7680	7600	7330	1190
14	580	536	664	946	937	8880	7800	13300	3580	7800	7380	3640
15	571	524	655	887	892	9620	7220	13000	5680	7680	7550	5770
16	665	523	707	867	854	9910	7600	7940	7550	7720	7570	5890
17	1240	528	802	820	839	8590	7700	4730	7900	7930	7590	5940
18	1340	537	878	786	830	8540	3370	7980	8090	8280	6370	6420
19	1030	544	800	756	820	8330	2040	10200	8530	8430	6040	6460
20	760	613	711	738	816	8110	1910	9620	9840	8220	5760	3250
21	631	760	665	743	1560	8040	2080	9950	5540	7990	5860	4430
22	579	696	631	727	4740	7930	3930	10000	6880	7380	5940	6290
23	557	588	619	685	5680	7880	3980	10000	8030	7490	3120	6410
24	563	554	639	660	6300	7860	4490	10100	7910	7550	4130	6470
25	1110	541	1170	732	5300	8320	2850	10200	7960	7520	5850	6460
26	6830	549	2410	1360	4040	10300	1400	10100	7650	7230	5920	4180
27	7050	602	1950	1720	4280	7100	1210	9900	7570	7340	6490	2380
28	3800	707	1420	1460	4310	4540	1060	9790	3570	7180	6120	4540
29	2220	639	1310	1200	4280	3250	993	9730	5810	7350	6510	6480
30	1460	651	1770	1810	---	6920	1470	9590	6750	7390	3720	6550
31	1120	---	1760	1420	---	9680	---	9910	---	7020	4370	---
TOTAL	50557	19651	30340	41227	90882	217850	163293	245027	308760	235030	225940	146590
MEAN	1631	655	979	1330	3134	7027	5443	7904	10290	7582	7288	4886
MAX	8220	956	2410	4120	6490	10300	9670	13300	23000	8430	10800	6550
MIN	557	523	551	660	816	2090	993	937	3570	4050	3120	1050
AC-FT	100300	38980	60180	81770	180300	432100	323900	486000	612400	466200	448200	290800
CAL YR 1975 TOTAL		3905338		MEAN 10700	MAX 41400	MIN 523	AC-FT 7746000					
WTR YR 1976 TOTAL		1775147		MEAN 4850	MAX 23000	MIN 523	AC-FT 3521000					

## SABINE RIVER BASIN

08028500 Sabine River near Bon Wier, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- NUM- CORAL UNITS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
OCT.							
07...	1630	578	211	24.0	80	14	23
14...	1655	578	211	26.0	120	30	22
21...	1320	660	164	21.0	140	16	19
24...	1220	3220	63	20.0	140	8.8	8.6
NOV.							
07...	0830	570	172	20.0	140	24	19
14...	1730	760	160	15.0	120	4.8	19
21...	1410	640	173	15.0	120	24	20
28...	1705	2680	177	13.0	120	23	22
DEC.							
07...	1100	937	196	15.0	140	31	21
14...	0900	672	176	17.0	120	28	20
21...	1000	651	185	8.5	140	20	21
28...	1335	1270	92	10.0	120	17	10
JAN.							
07...	1125	1760	96	10.0	140	15	11
14...	1340	857	146	14.0	120	17	16
21...	1720	690	171	11.0	80	13	19
28...	1700	1400	88	11.0	80	6.8	13
FEB.							
01...	1630	870	106	11.0	40	9.6	13
08...	1030	2970	155	10.0	40	14	22
15...	1540	750	153	20.0	70	20	18
22...	1410	5500	123	14.0	50	12	19
MAR.							
07...	1120	3800	150	14.0	50	14	22
14...	0840	9400	142	13.0	50	15	21
21...	1320	8800	152	16.0	40	17	21
28...	1835	4000	105	19.0	140	14	12
APR.							
08...	1610	8200	159	19.0	40	16	21
15...	1700	7200	160	19.5	30	18	22
22...	1640	4600	140	22.0	70	13	19
28...	1815	880	167	24.0	70	20	19
MAY							
07...	1745	4200	151	20.0	40	16	21
14...	1740	13000	113	21.0	60	9.6	16
21...	1820	10000	156	23.0	40	15	22
28...	1830	10000	156	25.0	40	12	22
JUNE							
07...	1950	16500	148	25.0	20	19	22
14...	1130	3200	160	26.0	30	14	18
21...	0910	5800	118	25.0	60	18	20
28...	0950	3500	157	27.0	30	18	23
JULY							
01...	0940	8600	149	--	30	16	22
08...	1430	8200	154	--	30	15	22
15...	0845	8200	159	--	40	16	23
22...	0820	7800	158	27.0	30	12	24
AUG.							
07...	0810	11300	170	28.0	20	18	24
14...	0825	7500	173	28.0	20	16	24
21...	0725	5000	178	27.0	20	16	25
28...	0820	5500	174	28.0	20	10	25
SEP.							
07...	1710	1000	183	30.0	40	19	26
14...	1900	5400	179	26.0	30	18	29
21...	1755	6300	179	26.0	30	19	31
28...	1710	6800	181	26.0	40	16	31

## SABINE RIVER BASIN

321

08028500 Sabine River near Bon Wier, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	131	153	115	106	144	146	131	117	149	166	171
2	161	135	127	175	98	143	147	156	119	143	170	174
3	177	127	223	144	147	167	138	165	136	150	167	175
4	201	153	145	109	153	157	152	143	138	154	167	172
5	203	138	169	75	149	156	155	157	143	158	168	184
6	211	184	223	87	152	153	150	161	146	113	171	177
7	211	172	196	96	153	150	157	151	148	155	170	183
8	219	159	122	106	155	158	159	120	147	154	169	191
9	211	142	149	114	156	146	159	51	150	145	172	164
10	211	145	152	124	137	143	160	69	150	149	173	176
11	211	150	189	122	155	153	156	111	153	153	172	190
12	208	156	229	136	160	128	161	73	154	157	173	189
13	211	153	205	142	164	144	160	110	155	157	176	202
14	211	160	176	146	164	142	161	113	160	154	173	179
15	199	162	167	154	153	135	160	94	157	159	177	178
16	200	159	169	154	152	140	161	144	153	157	168	178
17	174	172	170	157	152	132	155	71	151	155	170	180
18	136	173	176	165	152	138	160	111	147	152	160	184
19	144	175	175	165	134	150	158	144	147	151	164	177
20	160	165	199	169	128	153	138	149	128	152	174	191
21	154	173	185	171	123	152	154	156	118	158	178	179
22	150	145	205	120	123	156	140	157	84	158	174	182
23	153	166	211	107	116	158	154	149	143	162	182	182
24	147	150	222	108	141	153	166	155	150	158	167	186
25	148	153	205	114	145	161	161	148	151	165	171	182
26	60	153	79	122	150	147	169	154	155	163	171	191
27	52	175	79	103	150	120	165	155	151	164	174	191
28	63	177	92	88	155	105	167	156	157	164	174	181
29	113	171	115	83	153	105	168	156	150	167	168	184
30	115	166	107	120	---	141	137	152	150	165	162	185
31	114	---	103	145	---	142	---	155	---	164	174	---
MONTH	164	157	166	127	144	144	154	133	143	155	171	182

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.0	21.0	13.0	11.0	11.0	18.0	18.0	20.0	22.0	27.0	29.0	29.0
2	24.5	21.0	13.0	14.0	10.0	18.0	18.0	20.0	25.0	28.0	28.0	28.0
3	20.0	21.5	12.5	11.0	12.0	17.0	19.0	23.0	24.0	27.5	28.0	29.0
4	21.0	22.0	13.0	9.0	12.0	18.0	18.0	24.0	24.5	27.0	29.0	30.0
5	21.0	21.0	15.0	9.0	14.0	17.0	18.0	23.0	25.0	26.0	30.0	27.0
6	23.5	23.0	16.0	10.0	12.0	14.5	18.0	23.0	25.0	26.0	29.0	28.0
7	24.0	20.0	15.0	10.0	10.0	14.0	19.0	20.0	25.0	26.0	28.0	30.0
8	24.0	22.0	15.0	8.0	10.0	15.0	19.0	19.0	24.5	27.0	28.0	30.0
9	24.0	23.0	15.0	7.0	11.5	14.5	19.5	19.0	26.0	29.0	29.5	28.0
10	25.0	23.0	14.0	8.0	9.0	15.0	21.5	21.0	27.0	26.0	29.0	28.0
11	26.0	21.0	15.0	8.0	13.0	17.0	19.0	22.0	27.0	27.0	30.0	26.0
12	24.0	19.0	15.0	12.0	16.0	16.0	20.0	23.0	27.0	27.0	30.0	25.0
13	26.0	17.0	15.5	13.0	17.0	14.0	20.0	21.0	26.0	27.0	30.0	27.5
14	26.0	15.0	17.0	14.0	17.0	13.0	20.5	21.0	26.0	28.0	28.0	26.0
15	24.5	13.0	18.0	12.0	20.0	14.0	19.5	20.0	26.0	28.0	28.5	27.0
16	23.0	14.0	15.0	12.0	19.0	15.0	19.5	21.0	25.0	28.0	27.0	27.0
17	22.0	11.0	15.0	9.0	20.0	15.0	20.0	21.0	26.0	27.0	29.0	27.0
18	23.0	17.0	11.5	9.0	20.0	18.0	19.0	23.0	26.0	27.0	29.0	26.0
19	18.0	18.0	10.0	14.0	20.0	16.0	21.0	22.0	26.0	28.0	29.0	27.0
20	20.0	17.0	9.0	13.0	19.0	16.5	21.0	23.0	24.0	28.5	28.0	26.0
21	21.0	15.0	8.5	11.0	18.0	16.0	22.5	24.0	25.0	28.0	27.0	26.0
22	22.0	12.0	10.0	11.0	14.0	16.0	22.0	24.0	25.0	27.0	27.0	26.0
23	22.5	11.0	11.0	12.0	14.0	16.0	21.5	23.0	26.0	28.0	30.0	26.0
24	22.5	12.0	9.0	12.0	13.0	16.0	21.0	25.0	26.0	28.5	29.0	26.5
25	21.0	13.0	9.0	14.0	14.0	15.0	20.0	24.5	27.0	29.0	30.0	26.5
26	18.5	11.0	9.0	12.0	15.5	17.0	23.0	25.0	27.0	29.0	29.0	26.0
27	18.0	10.0	8.0	11.0	14.5	18.0	24.0	23.0	26.5	30.0	29.0	27.0
28	20.0	13.0	10.0	11.0	14.0	19.0	24.0	25.0	27.0	29.0	28.0	26.0
29	21.5	14.0	11.0	12.0	17.0	20.0	22.0	25.0	28.0	30.0	27.0	25.0
30	22.0	15.0	11.0	12.0	---	17.0	20.0	24.0	27.0	30.0	29.0	25.0
31	21.0	---	10.0	11.0	---	17.0	---	23.5	---	29.0	29.0	---
MONTH	22.5	17.0	12.5	11.0	14.5	16.0	20.5	22.5	25.5	28.0	28.5	27.0



## SABINE RIVER BASIN

08028500 Sabine River near Bon Wier, Tex.--Continued

COLOR (PLATINUM-COBALT UNITS), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	140	160	120	40	30	40	30	80	30	20	30
2	40	140	120	140	40	30	40	120	70	30	20	30
3	50	120	140	140	60	40	60	100	50	20	20	30
4	70	140	140	140	40	40	40	60	40	30	20	20
5	70	140	120	240	50	40	40	30	40	40	20	30
6	30	120	140	200	40	40	40	30	20	70	20	20
7	30	140	140	140	40	50	30	40	20	30	20	40
8	40	140	120	140	40	30	40	60	20	30	20	50
9	30	30	140	140	60	50	40	140	20	40	20	30
10	100	100	140	140	70	50	40	120	30	30	20	30
11	100	120	140	140	40	40	30	30	30	40	20	20
12	70	160	140	140	60	70	30	100	20	30	20	30
13	120	100	140	140	70	50	30	50	30	30	20	40
14	120	120	120	120	70	50	30	60	30	30	20	30
15	120	120	120	140	70	60	30	30	50	40	20	30
16	100	120	120	140	70	50	30	70	30	30	20	30
17	100	120	140	140	70	60	30	120	30	30	20	30
18	120	120	120	80	70	50	30	120	40	30	30	30
19	120	140	140	80	80	40	50	30	40	30	30	20
20	120	140	140	80	80	40	70	40	50	30	20	40
21	140	120	140	80	70	40	120	40	60	40	20	30
22	120	120	120	60	50	40	70	30	140	30	20	30
23	140	130	140	60	60	40	70	40	40	20	30	30
24	120	120	140	60	40	40	60	30	30	25	30	30
25	140	120	140	60	40	40	40	40	30	30	20	30
26	120	120	120	70	40	60	60	40	30	30	25	40
27	140	120	120	120	40	30	60	30	20	30	20	40
28	140	120	120	30	40	140	70	40	30	30	20	40
29	140	140	140	30	40	140	70	40	20	30	20	40
30	140	100	140	100	---	60	70	30	20	30	30	40
31	140	---	140	30	---	50	---	30	---	30	30	---
MONTH	110	120	130	120	55	55	48	60	34	32	22	32

## SABINE RIVER BASIN

323

08029500 Big Cow Creek near Newton, Tex.

LOCATION.--Lat 30°49'08", long 93°47'07", Newton County, near center of span at downstream side of bridge on State Highway 87, 2.6 miles (4.2 km) southwest of Newton, 5.0 miles (8.0 km) downstream from Melhones Creek, and 8.0 miles (12.9 km) upstream from White Oak Creek.

DRAINAGE AREA.--128 mi<sup>2</sup> (332 km<sup>2</sup>).

PERIOD OF RECORD.--April 1952 to current year.

GAGE.--Water-stage recorder. Datum of gage is 134.69 ft (41.054 m) above mean sea level (levels by Topographic Division). Prior to Dec. 19, 1957, nonrecording gage at same site and datum.

AVERAGE DISCHARGE.--24 years, 110 ft<sup>3</sup>/s (3,115 m<sup>3</sup>/s), 11.67 in/yr (296 mm/yr), 79,700 acre-ft/yr (98.3 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 1,820 ft<sup>3</sup>/s (51.5 m<sup>3</sup>/s) Oct. 26 (gage height, 15.23 ft or 4.642 m); minimum, 38 ft<sup>3</sup>/s (1.08 m<sup>3</sup>/s) Sept. 13, 14.

Period of record: Maximum discharge, 20,200 ft<sup>3</sup>/s (572 m<sup>3</sup>/s) Apr. 29, 1953 (gage height, 19.45 ft or 5.928 m); minimum daily, 10 ft<sup>3</sup>/s (0.28 m<sup>3</sup>/s) July 7, 8, 21-23, 1971.

Maximum stage since at least 1907, 27.5 ft (8.38 m) in April 1922, from information by local resident.

REMARKS.--Records good. No known diversion above station.

REVISIONS.--WSP 1732: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57	127	164	163	103	90	123	212	834	97	50	61
2	57	125	149	173	106	89	104	117	1260	280	49	52
3	56	166	104	932	98	89	97	93	371	158	49	50
4	55	205	96	692	95	91	93	82	145	135	52	49
5	55	155	93	236	95	95	92	76	115	120	48	52
6	56	121	94	175	96	136	90	74	102	160	47	46
7	57	112	102	162	97	281	87	166	93	125	55	43
8	57	108	101	163	93	261	88	885	87	87	82	42
9	57	106	92	143	90	599	88	744	81	190	57	41
10	57	104	88	132	91	273	81	238	76	104	50	40
11	58	99	86	131	91	159	77	238	73	87	47	42
12	58	95	85	135	91	146	76	178	70	81	45	40
13	57	91	86	132	90	196	75	370	67	126	45	39
14	57	86	85	126	88	203	75	448	65	89	47	40
15	95	85	85	117	86	381	76	199	65	74	47	61
16	362	88	93	112	86	281	73	129	83	69	62	77
17	334	89	130	110	86	165	71	107	179	108	69	64
18	162	88	127	107	91	129	113	96	293	139	58	51
19	92	88	94	107	104	118	212	89	331	90	51	46
20	79	96	86	110	93	117	182	83	350	74	46	44
21	72	103	85	119	123	125	314	80	172	68	44	48
22	70	98	84	115	206	111	179	77	100	63	43	60
23	72	86	83	107	151	100	101	74	87	62	44	50
24	96	86	93	107	104	99	88	79	80	66	44	44
25	543	87	377	151	97	152	99	107	75	60	44	42
26	1600	91	338	198	95	344	99	90	71	60	45	41
27	1150	104	190	152	93	218	80	82	69	69	43	45
28	336	108	133	113	91	164	73	78	72	62	55	62
29	201	95	599	104	90	170	149	71	70	56	67	81
30	165	121	655	99	---	212	463	67	69	53	49	72
31	142	---	239	99	---	155	---	152	---	51	48	---
TOTAL	6367	3213	4916	5522	2920	5749	3618	5581	5605	3063	1582	1525
MEAN	205	107	159	178	101	185	121	180	187	98.8	51.0	50.8
MAX	1600	205	655	932	206	599	463	885	1260	280	82	81
MIN	55	85	83	99	86	89	71	67	65	51	43	39
CFSM	1.60	.84	1.24	1.39	.79	1.45	.95	1.41	1.46	.77	.40	.40
IN.	1.85	.93	1.43	1.60	.85	1.67	1.05	1.62	1.63	.89	.46	.44
AC-FT	12630	6370	9750	10950	5790	11400	7180	11070	11120	6080	3140	3020

CAL YR 1975	TOTAL	74331	MEAN 204	MAX 2940	MIN 55	CFSM 1.59	IN 21.60	AC-FT 147400
WTR YR 1976	TOTAL	49661	MEAN 136	MAX 1600	MIN 39	CFSM 1.06	IN 14.43	AC-FT 98500

PEAK DISCHARGE (BASE, 1,100 FT<sup>3</sup>/S)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
10-26	1700	15.23	1,820	5-8	2400	14.27	1,120
1- 3	2100	14.45	1,190	6-2	0800	14.93	1,500

## SABINE RIVER BASIN

08030000 Cypress Creek near Buna, Tex.

LOCATION.--Lat 30°25'52", long 93°54'28", Jasper County, near center of span at downstream side of bridge on Farm Road 253, 0.3 mile (0.5 km) downstream from Boggy Creek, 3.2 miles (5.1 km) east of Buna, and 9.5 miles (15.3 km) upstream from Little Cypress Creek.

DRAINAGE AREA.--69.2 mi<sup>2</sup> (179.2 km<sup>2</sup>).

PERIOD OF RECORD.--March 1952 to current year.

GAGE.--Water-stage recorder. Datum of gage is 46.16 ft (14.070 m) above mean sea level. Prior to Oct. 23, 1957, nonrecording gage at same site and datum.

AVERAGE DISCHARGE.--24 years, 67.4 ft<sup>3</sup>/s (1.909 m<sup>3</sup>/s), 13.23 in/yr (336 mm/yr), 48,830 acre-ft/yr (60.2 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 2,350 ft<sup>3</sup>/s (66.6 m<sup>3</sup>/s) Mar. 25 (gage height, 11.00 ft or 3.353 m); no flow for many days. Period of record: Maximum discharge, 7,100 ft<sup>3</sup>/s (201 m<sup>3</sup>/s) Sept. 18, 1963 (gage height, 13.28 ft or 4.048 m); no flow at times.

REMARKS.--Records good. No known diversions above station.

REVISIONS.--WSP 1732: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.41	13	100	27	10	1.1	182	15	452	24	.17	.11
2	.26	8.8	35	19	9.3	.88	76	14	658	8.9	.09	.03
3	.16	7.2	19	47	8.1	.72	35	7.8	444	3.2	.05	.04
4	.08	6.8	12	39	6.2	.62	21	4.3	345	1.4	.04	.08
5	.05	9.5	7.9	21	5.0	.54	14	2.4	183	.70	.02	.11
6	.04	10	6.0	16	4.1	.58	11	1.4	43	.48	0	.05
7	.02	7.3	14	14	3.6	1.1	8.3	17	16	.37	0	.01
8	0	5.0	14	15	3.2	.17	64	205	9.8	2.6	0	0
9	0	3.5	8.9	10	2.6	.311	95	153	6.0	3.3	0	0
10	0	2.6	6.3	7.4	2.2	.183	71	119	3.7	11	0	0
11	0	1.9	5.0	6.5	2.0	.65	28	146	2.4	29	0	0
12	0	1.4	3.8	12	1.8	.46	14	94	1.6	16	0	0
13	0	1.0	3.1	15	1.6	.174	8.6	79	1.1	8.5	0	0
14	0	.80	2.4	16	1.4	.118	5.9	143	.84	5.8	0	0
15	.08	.68	1.9	18	1.2	.202	4.3	152	.67	2.8	0	0
16	2.2	.62	1.8	12	1.1	.121	3.1	132	.92	1.3	0	0
17	4.4	.53	2.5	7.8	.95	.58	2.3	62	.95	1.2	0	0
18	2.5	.49	10	5.5	.93	.29	23	21	1.6	1.5	0	0
19	1.3	.47	7.5	4.1	.84	.18	24	11	71	1.3	0	0
20	.69	25	4.7	3.3	.87	.13	11	6.1	48	.52	0	0
21	.44	38	3.6	2.8	.28	.16	53	3.6	18	.22	0	0
22	.32	11	3.0	2.6	.50	.19	65	2.3	7.3	.15	0	0
23	.37	5.3	2.4	2.7	.21	.11	38	1.5	3.2	.13	0	0
24	.84	3.3	5.3	2.6	.12	.12	17	1.1	1.8	2.7	0	0
25	128	2.4	333	33	6.3	1350	9.5	.80	1.0	12	0	0
26	408	32	312	148	3.8	1290	6.1	.68	.67	1.9	0	0
27	320	26	138	93	2.5	726	4.3	.59	.45	12	0	0
28	241	12	67	59	1.8	561	3.0	.49	.34	9.0	0	0
29	184	6.7	53	31	1.3	453	2.7	.43	.38	2.4	3.8	0
30	65	16	55	18	---	315	4.8	.39	54	1.3	1.8	0
31	23	---	39	13	---	336	---	19	---	.40	.34	---
TOTAL	1383.16	259.29	1277.1	721.3	193.69	6449.54	904.9	1415.88	2376.72	166.07	6.31	.43
MEAN	44.6	8.64	41.2	23.3	6.68	208	30.2	45.7	79.2	5.36	.20	.014
MAX	408	38	333	148	50	1350	182	205	658	29	3.8	.11
MIN	0	.47	1.8	2.6	.84	.54	2.3	.39	.34	.13	0	0
CFSM	.64	.12	.60	.34	.10	3.01	.44	.66	1.14	.08	.003	.0002
IN.	.74	.14	.69	.39	.10	3.47	.49	.76	1.28	.09	.003	.0002
AC-FT	2740	514	2530	1430	384	12790	1790	2810	4710	329	13	.9

CAL YR 1975 TOTAL 30083.23 MEAN 82.4 MAX 1610 MIN 0 CFSM 1.19 IN 16.17 AC-FT 59670  
WTR YR 1976 TOTAL 15154.39 MEAN 41.4 MAX 1350 MIN 0 CFSM .60 IN 8.15 AC-FT 30060

PEAK DISCHARGE (BASE, 1,000 FT<sup>3</sup>/S).--Mar. 25 (1800) 2,350 ft<sup>3</sup>/s (11.00 ft).

## SABINE RIVER BASIN

325

08030500 Sabine River near Ruliff, Tex.  
(Radiochemical and national stream-quality accounting network)

LOCATION.--Lat 30°18'13", long 93°44'37", Calcasieu Parish, La.--Newton County, Tex. State line, at downstream side of bridge on Texas State Highway 12, 2.4 miles (3.9 km) north of Ruliff, 4.2 miles (6.8 km) upstream from the Kansas City Southern Railway Co. bridge, 4.5 miles (7.2 km) downstream from Cypress Creek, and at mile 40.2 (64.7 km).

DRAINAGE AREA.--9,329 mi<sup>2</sup> (24,162 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: October 1924 to current year.

Water quality: Chemical analyses: October 1945 to September 1946, October 1947 to current year. Chemical and biochemical analyses: October 1967 to current year. Pesticide analyses: January 1968 to current year. Water temperatures: October 1947 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4.08 ft (1.244 m) above mean sea level. Prior to Mar. 1, 1941, nonrecording gage at Kansas City Southern Railway Co. bridge, 4.2 miles (6.8 km) downstream and at datum 2.02 ft (0.616 m) lower. Mar. 1, 1941, to Dec. 8, 1948, nonrecording gage at present site and datum.

AVERAGE DISCHARGE.--42 years (1924-66) prior to completion of Toledo Bend Reservoir, 8,422 ft<sup>3</sup>/s (238.5 m<sup>3</sup>/s), 6,102,000 acre-ft/yr (7.52 km<sup>3</sup>/yr); 10 years (1966-76) regulated, 7,766 ft<sup>3</sup>/s (219.9 m<sup>3</sup>/s), 5,626,000 acre-ft/yr (6.94 km<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 22,800 ft<sup>3</sup>/s (646 m<sup>3</sup>/s) June 6 (gage height, 14.39 ft or 4.386 m); minimum daily, 937 ft<sup>3</sup>/s (26.5 m<sup>3</sup>/s) Oct. 14.

Period of record: Maximum discharge, 121,000 ft<sup>3</sup>/s (3,430 m<sup>3</sup>/s) May 22, 1953 (gage height, 19.98 ft or 6.090 m); minimum, 270 ft<sup>3</sup>/s (7.65 m<sup>3</sup>/s) Sept. 27-30, Oct. 1-3, 17-20, 1956.

Historic: Maximum stage since at least 1835, 22.2 ft (6.77 m) in May or June 1884 (adjusted to present site and datum on basis of slope of flood of June 8, 9, 1950); flood of Apr. 26-29, 1913, reached a stage of 19.5 ft (5.94 m), present site and datum, from information by local resident.

Water quality: Current year: Maximum daily specific conductance, 182 micromhos Oct. 9, 10; minimum daily, 55 micromhos Oct. 29. Maximum water temperatures, 30.0°C Aug. 2; minimum, 7.0°C Jan. 9, 10.

Period of record: Maximum daily specific conductance, 779 micromhos Aug. 31, 1966; minimum daily, 28 micromhos Sept. 19, 1963.

Maximum water temperatures, 36.0°C Aug. 14, 1962; minimum, 1.0°C Jan. 28, 1948.

REMARKS.--Discharge records fair. Flow is partly regulated by Toledo Bend Reservoir (station 08025350) 116.3 miles (187.1 km) upstream.

REVISIONS (WATER YEARS).--WSP 1282: 1941(M), 1942. WSP 1442: 1925-29, 1937-39, 1943. WSP 1732: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2980	4510	1430	3930	2770	5000	11800	1950	12800	6520	8080	4990
2	4360	3000	1600	3740	2270	4960	11700	2500	14400	7200	7870	5240
3	4800	2280	2060	3240	1940	4920	11600	2300	15600	8050	7750	5860
4	3220	1940	2060	2950	3010	5000	10800	1850	17300	8770	8060	6190
5	1840	1810	1780	4100	5070	5210	9780	2090	20000	9250	8530	6300
6	1350	1840	1610	5010	6250	5140	9090	3330	22200	9090	9250	6270
7	1200	1740	1580	4810	6830	5130	8880	3710	21000	7730	9980	5560
8	1120	1570	1600	3810	7040	5150	8790	4440	18600	7380	10200	3350
9	1080	1460	1810	3040	6460	5150	8620	6350	17000	7930	10400	1890
10	1040	1390	1770	2550	4350	4970	8630	8570	15800	8470	10400	2160
11	1010	1340	1550	2270	3640	7180	8730	11100	14500	8930	10500	4200
12	984	1260	1400	2070	4280	8690	8660	11500	13000	9330	10300	5280
13	961	1200	1310	1960	3190	9570	8510	11300	11300	9420	9620	5190
14	937	1130	1240	1910	2090	10200	8440	11300	9870	9350	8820	3220
15	951	1080	1220	1930	1680	11200	8380	11400	8450	8870	8270	2430
16	1150	1040	1210	1880	1530	11400	8310	11900	6810	8550	8060	4180
17	1300	1020	1220	1770	1450	11600	8150	12700	6960	8500	8030	5230
18	1620	1010	1250	1680	1400	11800	8120	12300	7530	8510	8030	5690
19	2090	1010	1380	1600	1360	11500	7550	10200	8160	8480	7880	5970
20	1890	1060	1470	1520	1330	10900	5330	9110	8680	8590	7430	6260
21	1510	1150	1380	1460	1440	10400	4080	9330	9220	8770	6890	5990
22	1220	1260	1270	1430	1780	9910	3680	9710	9470	8820	6480	4500
23	1080	1400	1200	1420	3620	9500	4180	9960	8720	8670	6330	5060
24	977	1300	1170	1410	5250	9340	4770	10100	8130	8910	5740	5840
25	1470	1180	1720	1550	6130	12600	5020	10100	8130	8860	4250	6260
26	3600	1220	2950	2200	6580	18400	4780	10200	8230	8900	4870	6470
27	6060	1420	4270	2770	6130	20700	3420	10300	8270	8690	5620	6280
28	7790	1570	4890	3410	5410	19200	2400	10200	8260	8500	6080	4710
29	8720	1490	4510	3310	5080	16800	1980	10300	7780	8370	6580	3670
30	8540	1460	3820	2810	---	14200	1840	10200	6480	8230	6650	4940
31	6620	---	3720	2550	---	12300	---	10600	---	8160	6380	---
TOTAL	83480	46140	61450	80090	109360	308020	216020	260900	352650	263800	243330	149180
MEAN	2693	1538	1982	2584	3771	9936	7201	8416	11760	8510	7849	4973
MAX	8720	4510	4890	5010	7040	20700	11800	12700	22200	9420	10500	6470
MIN	937	1010	1170	1410	1330	4920	1840	1850	6480	6520	4250	1890
AC-FT	165600	91520	121900	158900	216900	611000	428500	517500	699500	523200	482600	295900
CAL YR 1975 TOTAL		4510700		MEAN 12360	MAX 40600	MIN 937	AC-FT 8947000					
WTR YR 1976 TOTAL		2174420		MEAN 5941	MAX 22200	MIN 937	AC-FT 4313000					

## SABINE RIVER BASIN

08030500 Sabine River near Ruliff, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	HIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	
OCT											
07...	0645	1550	173	--	21.0	80	--	--	--	--	
07...	1345	1516	178	6.3	23.5	90	20	6.4	74	1.3	
14...	0643	1250	179	--	24.0	130	--	--	--	--	
21...	0650	1980	115	--	22.0	120	--	--	--	--	
28...	0645	9350	57	--	18.0	120	--	--	--	--	
NOV											
02...	0630	3700	82	--	21.0	140	--	--	--	--	
08...	0643	1620	109	--	21.0	140	--	--	--	--	
11...	1400	1340	--	--	--	--	--	--	--	--	
12...	0830	1250	120	6.3	20.0	100	15	7.3	79	.7	
15...	0640	1070	128	--	16.0	140	--	--	--	--	
22...	0640	1210	131	--	13.0	120	--	--	--	--	
DEC											
17...	0930	1200	153	6.4	15.0	120	20	8.8	86	1.2	
JAN											
13...	1345	1950	108	6.1	13.5	40	30	10.1	96	1.5	
FEB											
25...	0830	6100	93	6.2	13.5	120	55	9.3	89	2.0	
MAR											
23...	1330	10000	145	5.7	17.5	60	20	8.7	91	.7	
APR											
15...	0700	8400	155	6.1	20.5	30	20	7.9	87	.6	
MAY											
13...	1200	12000	71	5.8	21.5	200	55	6.8	76	1.6	
JUN											
23...	0730	9200	115	5.9	25.5	100	30	6.2	78	1.0	
JUL											
20...	1230	8600	143	6.0	28.0	40	20	7.0	90	.8	
AUG											
25...	1100	4000	175	5.9	28.0	50	20	6.2	79	.9	
SEP											
14...	1145	3300	176	6.1	26.5	40	20	7.4	94	.7	
DATE	TIME	IMME- DIATE COLI- FORM (COL. PER 100 ML)	FECAL COLI- FORM (COL. PER 100 ML)	STREP- TOCOCCI (COL- ONIES PER 100 ML)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)
OCT											
07...	--	--	--	--	--	--	--	--	--	--	--
07...	650	20	22	36	2	9.2	3.2	16	1.2	2.1	--
14...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
NOV											
02...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--
12...	2900	54	66	28	7	8.0	2.0	12	1.0	1.8	--
15...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
DEC											
17...	1600	14	12	19	0	5.6	1.3	22	2.2	2.0	--
JAN											
13...	550	58	38	15	1	4.8	.8	12	1.3	1.6	--
FEB											
25...	9300	680	680	20	10	4.5	2.1	8.8	.9	1.8	--
MAR											
23...	110	36	26	27	7	6.6	2.6	13	1.1	2.2	--
APR											
15...	2300	10	30	31	10	7.8	2.7	15	1.2	3.4	--
MAY											
13...	7000	150	150	9	1	3.1	.2	6.6	1.0	1.5	--
JUN											
23...	7300	46	40	19	3	4.9	1.6	11	1.1	1.9	--
JUL											
20...	17000	62	48	29	9	8.2	2.1	13	1.0	2.1	--
AUG											
25...	5000	18	20	33	7	8.4	3.0	17	1.3	2.6	--
SEP											
14...	650	42	31	30	7	7.4	2.8	18	1.4	2.6	--

## SABINE RIVER BASIN

327

08030500 Sabine River near Ruliff, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	BICARBONATE (HCO <sub>3</sub> ) (MG/L)	CARBONATE (CO <sub>3</sub> ) (MG/L)	DIS-SOLVED SULFATE (SO <sub>4</sub> ) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO <sub>2</sub> ) (MG/L)	DIS-SOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NON-FILT- RABLE RESIDUE (MG/L)	VOL. NON-FILT- RABLE RESIDUE (MG/L)
OCT										
07...	--	--	16	21	--	--	--	--	--	--
07...	42	0	15	17	--	14	114	98	28	10
14...	--	--	22	19	--	--	--	--	--	--
21...	--	--	14	15	--	--	--	--	--	--
28...	--	--	15	8.6	--	--	--	--	--	--
NOV										
02...	--	--	6.8	13	--	--	--	--	--	--
08...	--	--	14	15	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
12...	26	0	11	13	.4	18	73	79	31	0
15...	--	--	13	15	--	--	--	--	--	--
22...	--	--	18	15	--	--	--	--	--	--
DEC										
17...	27	0	19	15	.1	18	136	97	25	0
JAN										
13...	18	0	13	11	.2	14	84	66	38	11
FEB										
25...	12	0	10	12	.2	10	72	55	127	25
MAR										
23...	25	0	14	18	.2	8.2	76	77	45	7
APR										
15...	25	0	15	19	.2	7.7	102	83	39	13
MAY										
13...	9	0	8.6	8.3	.2	7.1	62	40	123	26
JUN										
23...	20	0	11	14	.1	7.5	70	62	13	25
JUL										
20...	24	0	12	18	.2	5.2	80	73	81	16
AUG										
25...	32	0	14	22	.2	5.4	80	88	57	31
SEP										
14...	28	0	16	23	.1	6.4	106	90	32	10
								SUS- PENDE SEDIM- ENT DIS- CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM	
OCT										
07...	--	--	--	--	--	--	--	--	--	--
07...	.06	.00	.12	.98	.05	3.0	26	106	--	97
14...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
NOV										
02...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	523	1890	--	3
12...	.05	.00	.05	.31	.05	6.4	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
DEC										
17...	.04	.01	.06	.39	.06	8.0	14	45	--	97
JAN										
13...	.06	.00	.03	.24	.22	7.6	19	100	--	97
FEB										
25...	.07	.00	.03	.69	.05	6.8	74	1220	--	96
MAR										
23...	.10	.00	.03	.41	.02	6.5	22	594	--	97
APR										
15...	.09	.01	.03	.40	.03	8.2	22	499	--	86
MAY										
13...	.06	.01	.01	.49	.07	11	116	3760	--	74
JUN										
23...	.03	.00	.02	.50	.02	4.0	21	522	--	91
JUL										
20...	.00	.01	.01	.04	.04	5.0	41	952	--	94
AUG										
25...	.01	.00	.04	.72	.11	8.4	81	875	--	80
SEP										
14...	.03	.00	.04	.57	.02	3.4	17	151	--	97



## SABINE RIVER BASIN

08030500 Sabine River near Ruliff, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	DIS- SOLVED ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)
OCT. 07...	1345	4	1	0	30	0	0	<10	0	0
DEC. 17...	0930	30	1	0	60	0	0	10	0	0
APR. 15...	0700	10	0	0	60	0	0	<10	0	0
JUNE 23...	0730	160	1	0	50	1	0	10	0	0

DATE	DIS- SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)
OCT. 07...	0	0	0	1900	190	3	0	3	640
DEC. 17...	0	0	0	1600	220	17	0	0	210
APR. 15...	0	0	0	780	20	1	0	10	60
JUNE 23...	0	0	2	1400	90	4	0	0	100

DATE	DIS- SOLVED MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
OCT. 07...	580	.0	.0	0	0	0	180	30	0
DEC. 17...	100	.3	.1	0	0	0	90	10	0
APR. 15...	0	.1	.1	0	0	0	100	40	10
JUNE 23...	10	.6	.0	0	0	0	100	100	100

DATE	TIME	DIS- SOLVED GROSS ALPHA AS U-NAT. (UG/L)	SUS- PENDED GROSS ALPHA AS U-NAT. (UG/L)	DIS- SOLVED GROSS BETA AS CS-137 (PC/L)	SUS- PENDED GROSS BETA AS CS-137 (PC/L)	DIS- SOLVED GROSS BETA AS SR90 /Y90 (PC/L)	SUS- PENDED GROSS BETA AS SR90 /Y90 (PC/L)	DIS- SOLVED RA-226 (RADON METHOD) (PC/L)	DIS- SOLVED URANIUM (U) (UG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)
OCT 07...	1345	<1.2	1.4	4.9	.9	3.9	.8	.03	.04	110
JUN 23...	0730	<1.0	.6	3.5	.5	2.8	.4	.03	.06	73

08030500 Sabine River near Ruliff, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	TOTAL PCB (UG/L)	PCP IN BOTTOM MA- TERIAL (UG/KG)	POLY- CHLO- RINATED NAPH- THA- LENES (UG/L)	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL CHLOR- DANE (UG/L)	CHLOR- DANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDD (UG/L)	DDD IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDE (UG/L)	DDE IN BOTTOM MA- TERIAL (UG/KG)
OCT 07...	1345	.0	420	--	.00	.0	.0	0	.00	.0	.00	--
NOV 12...	0830	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND
DEC 17...	0930	.0	0	--	.00	.0	.0	0	.00	.0	.00	.0
FEB 25...	0830	--	--	--	ND	--	ND	--	ND	--	ND	--
APR 15...	0700	.0	0	.00	.00	.0	.0	0	.00	.0	.00	.0
MAY 13...	1200	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND
JUN 23...	0730	.0	0	.00	.00	.0	.0	0	.00	.0	.00	.0
AUG 25...	1100	--	--	--	ND	--	ND	--	ND	--	ND	--

DATE	TOTAL DDT (UG/L)	DDT IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDT IN AZINON (UG/L)	DI- AZINON IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDT IN ELDRIN (UG/L)	DI- ELDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ENDRIN (UG/L)	ENDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ETHION (UG/L)	ETHION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL HEPTA- CHLOR (UG/L)	HEPTA- CHLOR IN BOTTOM MA- TERIAL (UG/KG)
OCT 07...	.00	.0	.00	--	.00	.0	.00	.0	.00	--	.00	.0
NOV 12...	ND	ND	ND	ND	ND	.3	ND	ND	ND	ND	ND	ND
DEC 17...	.00	.0	.00	--	.00	.1	.00	.0	.00	--	.00	.0
FEB 25...	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--
APR 15...	.00	.0	.00	--	.00	.0	.00	.0	.00	--	.00	.0
MAY 13...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JUN 23...	.00	.0	.00	--	.00	.0	.00	.0	.00	--	.00	.0
AUG 25...	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	TOTAL HEPTA- CHLOR EPOXIDE (UG/L)	HEPTA- CHLOR EPOXIDE IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL LINDANE (UG/L)	LINDANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL MALA- THION (UG/L)	MALA- THION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL METH- OXY- CHLOR (UG/L)	METHOX- YCHLOR IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL METHYL PARA- THION (UG/L)	METHYL PARA- THION IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL METHYL TRI- THION (UG/L)
OCT 07...	.00	.0	.00	.0	.00	--	--	--	.00	--	.00
NOV 12...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DEC 17...	.00	.0	.00	.0	.00	--	--	--	.00	--	.00
FEB 25...	ND	--	ND	--	ND	--	ND	--	ND	--	ND
APR 15...	.00	.0	.00	.0	.00	--	--	--	.00	--	.00
MAY 13...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JUN 23...	.00	.0	.00	.0	.00	--	--	--	.00	--	.00
AUG 25...	ND	--	ND	--	ND	--	ND	--	ND	--	ND

DATE	TOTAL METHYL TRI- THION IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL PARA- THION (UG/L)	PARA- THION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL TOX- APHENE (UG/L)	TOX- APHENE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	TRI- THION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ATRA- ZINE (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)
OCT 07...	--	.00	--	0	0	.00	--	--	.00	.00	.00
NOV 12...	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
DEC 17...	--	.00	--	0	0	.00	--	--	.00	.00	.00
FEB 25...	--	ND	--	ND	--	ND	--	ND	ND	ND	ND
APR 15...	--	.00	--	0	0	.00	--	--	.00	.00	.00
MAY 13...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JUN 23...	--	.00	--	0	0	.00	--	--	.00	.00	.00
AUG 25...	--	ND	--	ND	--	ND	--	ND	ND	ND	ND

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

## PERIPHYTON

Date	Length of exposure (days)	Biomass (g/m <sup>2</sup> )		Chlorophyll a (mg/m <sup>2</sup> )	Chlorophyll b (mg/m <sup>2</sup> )	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight				
DEC. 17	35	7.80	5.40	35.0	0.000	69	Polyethylene strip
MAR. 23	27	1.70	.90	.500	.100	1400	Polyethylene strip
APR. 15	23	1.80	.60	.200	.000	6400	Polyethylene strip
MAY 13	28	1.92	1.39	.000	.000	.0	Polyethylene strip
JULY 20	27	1.85	1.15	.000	.000	.0	Polyethylene strip

OCT. 7, 1975 1345 HOURS

DEC. 17, 1975 0930 HOURS

PHYTOPLANKTON 170 CELLS/ML

PHYTOPLANKTON 290 CELLS/ML

_ORGANISM_NAME	CELLS/ML	PER_CENT	_ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA			CHLOROPHYTA		
..CHLOROPHYCEAE			..CHLOROPHYCEAE		
..CHLOROCOCCALES			..CHLOROCOCCALES		
..OCCYSTACEAE			..SCENEDESMACEAE		
....ANKISTRODESMUS	10	6	....CRUCIGENIA	220	76
..SCENEDESMACEAE			CHRYSOPHYTA		
....CRUCIGENIA	41	24	..BACILLARIOPHYCEAE		
..VOLVOCALES			..CENTRALES		
..CHLAMYDOMONADACEAE			..COSCONODISCACEAE		
....CHLAMYDOMONAS		0	....CYCLOTETRA	8	3
CHRYSOPHYTA			..PENNIALES		
..BACILLARIOPHYCEAE			..FRAGILARIACEAE		
..CENTRALES			....SYNEDRA	8	3
..COSCONODISCACEAE			..GOMPHONEMACEAE		
....CYCLOTETRA	20	12	....GOMPHONEMA	8	3
....MELOSIRA	20	12	..NAVICULACEAE		
..PENNIALES			....FRUSTULIA		0
..NAVICULACEAE			....NAVICULA	23	8
....NAVICULA	31	18	....STAURONEIS		0
..NITZSCHIA			..NITZSCHIA		
....NITZSCHIA	51	29	....NITZSCHIA	23	8

NOV. 12, 1975 0830 HOURS

PHYTOPLANKTON 350 CELLS/ML

_ORGANISM_NAME	CELLS/ML	PER_CENT	_ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA			CHLOROPHYTA		
..CHLOROPHYCEAE			..CHLOROPHYCEAE		
..CHLOROCOCCALES			..CHLOROCOCCALES		
..OCCYSTACEAE			..OCCYSTACEAE		
....ANKISTRODESMUS	41	12	....ANKISTRODESMUS	9	3
CHRYSOPHYTA			....KIRCHNERIELLA	9	3
..BACILLARIOPHYCEAE			..SCENEDESMACEAE		
..PENNIALES			....SCENEDESMUS	18	7
....ACHNANTHACEAE			CHRYSOPHYTA		
....ACHNANTHES	21	6	..BACILLARIOPHYCEAE		
....COCCONEIS	21	6	..CENTRALES		
..FRAGILARIACEAE			..COSCONODISCACEAE		
....FRAGILARIA	21	6	....MELOSIRA	9	3
..NAVICULACEAE			..PENNIALES		
....NAVICULA	120	35	..NAVICULACEAE		
..PINNULARIA	21	6	....NAVICULA	88	34
..NITZSCHIA			..NITZSCHIA		
....NITZSCHIA	62	18	....NITZSCHIA	53	21
EUGLENOPHYTA			CYANOPHYTA		
..EUGLENOPHYCEAE			..MYXOPHYCEAE		
..EUGLENES			..CHROOCOCCALES		
..EUGLENACEAE			..CHROOCOCCACEAE		
....EUGLENA	41	12	....AGMENELLUM	70	28

08030500 Sabine River near Ruliff, Tex.--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

FEB. 25, 1976 0830 HOURS

PHYTOPLANKTON 970 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OCCYSTACEAE		
....ANKISTRODESMUS	26	3
....SCENEDESMACEAE		
....SCENEDESMUS	310	32
CHRYSTOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
...CYCLOTELLA	77	8
...MELOSIRA	51	5
..PENNALES		
...ACHNANTHACEAE		
...ACHNANTHES		0
...CYMBELLACEAE		
...EPITHEMIA	26	3
...EUNOTIACEAE		
...EUNOTIA	26	3
...GOMPHONEMATACEAE		
...GOMPHONEMA	51	5
...NAVICULACEAE		
...GYROSIGMA	26	3
...NAVICULA	130	13
...PINNULARIA	26	3
...NITZSCHIA		
...NITZSCHIAEAE	210	21
...SURIPELLACEAE		
...SURIPELLA	26	3

MAR. 23, 1976 1330 HOURS

PHYTOPLANKTON 820 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...COELASTRACEAE		
...COELASTRUM	150	18
...OCCYSTACEAE		
....ANKISTRODESMUS	37	5
....WESTELLA	37	5
....SCENEDESMACEAE		
....SCENEDESMUS	170	21
...VOLVOCALES		
...CHLAMYDOMONADACEAE		
...CHLAMYDOMONAS	28	3
CHRYSTOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAF		
...CYCLOTELLA	84	10
...MELOSIRA	150	18
..PENNALES		
...ACHNANTHACEAE		
...ACHNANTHES	19	2
...NAVICULACEAE		
...NAVICULA	47	6
...NITZSCHIAEAE		
...NITZSCHIA	94	11

APR. 15, 1976 0700 HOURS

PHYTOPLANKTON 920 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OCCYSTACEAE		
....ANKISTRODESMUS	37	4
....SCENEDESMACEAE		
....SCENEDESMUS	260	28
...ZYGNEMATALES		
...DESMIDIACEAE		
...CLOSTERIUM		0
CHRYSTOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
...CYCLOTELLA	18	2
...MELOSIRA	74	8
..PENNALES		
...CYMBELLACEAE		
...CYMBELLA	18	2
...GOMPHONEMATACEAE		
...GOMPHONEMA	18	2
...NAVICULACEAE		
...NAVICULA	18	2
...NITZSCHIAEAE		
...NITZSCHIA	18	2
...SURIPELLACEAE		
...SURIPELLA		0
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
..CHROOCOCCACEAE		
...ANACYSTIS	440	48
PYRRHOPHYTA		
..DINOPHYCEAE		
...PERIDINIALES		
...GLENODINIACEAE		
...GLENODINIUM	18	2

MAY 13, 1976 1200 HOURS

PHYTOPLANKTON 1,600 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OCCYSTACEAE		
....DICTYOSPHAERIUM	380	24
....SCENEDESMACEAE		
....SCENEDESMUS	32	2
CHRYSTOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
...MELOSIRA	42	3
..PENNALES		
...FRAGILARIACEAE		
...SYNEDRA		0
...GOMPHONEMATACEAE		
...GOMPHONEMA	11	1
...NAVICULACEAE		
...FRUSTULIA	11	1
...GYROSIGMA		0
...NAVICULA	53	3
...PINNULARIA	21	1
...NITZSCHIAEAE		
...NITZSCHIA	21	1
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
..CHROOCOCCACEAE		
...AGMENELLUM	550	35
...OSCILLATORIALES		
...NOSTOCACEAE		
...APHANIZOMENON	440	28
EUGLENOPHYTA		
..EUGLENOPHYCEAE		
..EUGLENALES		
...EUGLENACEAE		
...TRACHELOMONAS	11	1
PYRRHOPHYTA		
..DINOPHYCEAE		
...PERIDINIALES		
...CERATIACEAE		
...CERATIUM	11	1

08030500 Sabine River near Ruliff, Tex.--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

JUNE 23, 1976 0730 HOURS

PHYTOPLANKTON 710 CELLS/ML

ORGANISM__NAME_____	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...OCCYSTACEAE		
...ANKISTRODESMUS	86	12
...SCENEDESMACEAE		
...CRUCIGENIA	31	4
...SCENEDESMUS	70	10
..VOLVOCALES		
...CHLAMYDOMONADACEAE		
...CHLAMYDOMONAS	8	1
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCEAE		
...CYCLOTELLA	31	4
...MELOSIRA	16	2
..PENNALES		
...ACHNANTHACEAE		
...ACHNANTHES	270	37
...FRAGILARIACEAE		
...SYNEDRA	8	1
...NAVICULACEAE		
...NAVICULA	31	4
...NITZSCHIA		
...NITZSCHIA	70	10
...SURIPELLACEAE		
...SURIPELLA	8	1
CYANOPHYTA		
..MYXOPHYCEAE		
...OSCILLATORIALES		
...OSCILLATORIA	62	9
EUGLENOPHYTA		
..EUGLENACEAE		
...EUGLENES		
...EUGLENACEAE		
...TRACHELOMONAS	8	1
PYRRHOPHYTA		
..DINOPHYCEAE		
...PERIDINIALES		
...PERIDINIA		
...PERIDINIUM	16	2

JULY 20, 1976 1230 HOURS

PHYTOPLANKTON 19,000 CELLS/ML

ORGANISM__NAME_____	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...OCCYSTACEAE		
...ANKISTRODESMUS	120	1
...TETRAEDRON	120	1
...SCENEDESMACEAE		
...CRUCIGENIA	2,400	13
...SCENEDESMUS	240	1
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..PENNALES		
...ACHNANTHACEAE		
...ACHNANTHES	12,000	65
...NAVICULACEAE		
...NAVICULA	120	1
...NITZSCHIA		
...NITZSCHIA	600	3
CYANOPHYTA		
..MYXOPHYCEAE		
...OSCILLATORIALES		
...NOSTOCACEAE		
...APHANIZOMENON	2,400	13
...OSCILLATORIA		
...OSCILLATORIA	720	4

AUG. 25, 1976 1100 HOURS

PHYTOPLANKTON 2,700 CELLS/ML

ORGANISM__NAME_____	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...OCCYSTACEAE		
...ANKISTRODESMUS	18	1
...SCENEDESMACEAE		
...SCENEDESMUS	180	7
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..PENNALES		
...NITZSCHIA		
...NITZSCHIA	72	3
CYANOPHYTA		
..MYXOPHYCEAE		
...OSCILLATORIALES		
...OSCILLATORIA		
...OSCILLATORIA	2,300	87
EUGLENOPHYTA		
..EUGLENACEAE		
...EUGLENES		
...EUGLENACEAE		
...TRACHELOMONAS	72	3

SEP. 14, 1976 1145 HOURS

PHYTOPLANKTON 7,100 CELLS/ML

ORGANISM__NAME_____	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...MICHACTINIACEAE		
...GOLENKINIA		0
...MICRACINUM	190	3
...OCCYSTACEAE		
...ANKISTRODESMUS	94	1
...DICTYOSPHAERIUM		0
...SCENEDESMACEAE		
...ACTINASTRUM	75	1
...CRUCIGENIA	75	1
...SCENEDESMUS	230	3
...TETRASTRUM	75	1
..VOLVOCALES		
...VOLVOCAEAE		
...PANDORINA		0
..ZYGEMATALES		
...DESMIDIACEAE		
...STAUSTRUM		0
...ZYGEMATAEAE		
...MOUGEOTIA	130	2
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCEAE		
...CYCLOTELLA	57	1
...MELOSIRA	57	1
..PENNALES		
...ACHNANTHACEAE		
...ACHNANTHES	260	4
...NAVICULACEAE		
...NAVICULA		0
...NITZSCHIA		
...NITZSCHIA	75	1
CYANOPHYTA		
..MYXOPHYCEAE		
...CHROOCOCCALES		
...CHROOCOCCACEAE		
...ANACYSTIS	470	7
...OSCILLATORIALES		
...NOSTOCACEAE		
...CYLINDROSPERMUM	1,300	18
...OSCILLATORIA		
...OSCILLATORIA	2,700	39
...OSCILLATORIA	280	4
EUGLENOPHYTA		
..EUGLENACEAE		
...EUGLENES		
...EUGLENACEAE		
...TRACHELOMONAS		0
UNKNOWN 218010102300011	910	13

## SABINE RIVER BASIN

333

08030500 Sabine River near Ruliff, Tex.--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	83480	110	63	14100	14	3070	11	2390	22
NOV. 1975.....	46140	111	63	7800	14	1720	11	1330	22
DEC. 1975.....	61450	113	64	10600	14	2330	11	1820	22
JAN. 1976.....	80090	99	57	12300	12	2650	10	2100	20
FEB. 1976.....	104280	129	72	20300	16	4560	12	3480	25
MAR. 1976.....	308020	118	66	55300	15	12200	11	9440	23
APR. 1976.....	216020	136	75	44000	17	9820	13	7510	26
MAY 1976.....	250900	117	66	46600	15	10300	11	7890	23
JUNE 1976.....	352650	129	72	68600	16	15300	12	11700	25
JULY 1976.....	263800	143	79	56500	18	12800	14	9690	27
AUG. 1976.....	243330	167	93	60900	21	13900	16	10300	30
SEPT 1976.....	149180	174	97	38900	22	8940	16	6540	31
TOTAL .....	2169340	**	**	436000	**	97500	**	74200	**
MTD.AVG. ....	5943.39	133	74	**	17	**	13	**	25

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	147	74	120	87	84	145	102	141	140	149	158	160
2	153	82	127	81	106	147	112	139	123	137	159	172
3	15	86	119	98	115	135	115	106	95	142	160	169
4	151	98	110	97	110	134	116	95	100	134	166	172
5	153	104	108	131	124	156	116	118	105	136	164	174
6	156	100	131	97	141	151	136	146	112	136	163	172
7	173	111	155	70	145	133	141	152	119	128	163	172
8	180	109	139	78	150	134	144	147	128	139	164	165
9	142	107	129	83	144	133	146	125	138	145	166	168
10	142	125	121	89	136	133	147	95	138	140	167	180
11	18	133	121	94	135	129	148	62	138	129	168	171
12	179	118	118	100	129	123	147	60	141	131	166	174
13	180	121	120	106	142	136	152	92	140	135	164	177
14	179	124	127	104	138	136	152	75	145	137	166	175
15	179	128	150	112	136	134	153	93	146	142	170	173
16	164	129	164	114	141	130	153	94	142	146	169	175
17	165	130	154	117	143	126	152	94	146	150	168	172
18	165	133	141	121	141	124	154	86	149	148	168	174
19	135	134	136	127	134	127	154	78	145	148	167	171
20	121	136	134	128	132	135	147	126	136	143	165	176
21	115	134	134	133	130	137	140	133	133	138	169	174
22	122	131	136	135	127	141	101	139	124	140	171	177
23	132	128	169	134	112	142	108	143	116	144	174	175
24	140	129	154	135	119	143	101	147	128	147	175	175
25	142	133	142	133	107	151	147	148	140	151	173	180
26	107	123	122	96	110	89	153	152	144	154	179	176
27	73	137	100	92	132	81	134	148	147	153	176	176
28	57	103	71	87	138	83	136	148	146	149	175	181
29	65	106	68	95	145	82	139	150	149	153	169	173
30	58	110	67	89	---	82	142	162	139	155	173	174
31	66	---	82	82	---	74	---	151	---	158	161	---
MONTH	140	117	125	105	129	126	136	121	133	143	168	173





## SABINE RIVER BASIN

335

08031000 Cow Bayou near Mauriceville, Tex.

LOCATION.--Lat 30°11'10", long 93°54'30", Orange County, near center of span at downstream side of bridge on State Highway 12, 0.4 mile (0.6 km) upstream from Kansas City Southern Railway Co. bridge, and 2.7 miles (4.3 km) southwest of Mauriceville.

DRAINAGE AREA.--83.3 mi<sup>2</sup> (215.7 km<sup>2</sup>).

PERIOD OF RECORD.--March 1952 to current year (October 1956 to September 1957, monthly discharge only).

GAGE.--Water-stage recorder. Datum of gage is 4.73 ft (1.442 m) above mean sea level. Prior to Oct. 23, 1957, nonrecording gage at same site and datum.

AVERAGE DISCHARGE.--24 years, 96.4 ft<sup>3</sup>/s (2.730 m<sup>3</sup>/s), 15.71 in/yr (399 mm/yr), 69,840 acre-ft/yr (86.1 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 1,120 ft<sup>3</sup>/s (31.7 m<sup>3</sup>/s) Mar. 29 (gage height, 13.00 ft or 3.962 m); minimum, 0.08 ft<sup>3</sup>/s (0.002 m<sup>3</sup>/s) Sept. 13.

Period of record: Maximum discharge, 4,600 ft<sup>3</sup>/s (130 m<sup>3</sup>/s) Sept. 19, 1963 (gage height, 18.15 ft or 5.532 m); no flow at times. Maximum stage since at least 1940, 18.16 ft (5.535 m) Oct. 28, 1970.

REMARKS.--Records fair. No large diversion above station. Base flow is partly sustained by springs.

REVISIONS.--WSP 1732: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.41	221	202	196	58	11	711	18	615	55	7.9	.20
2	.37	163	185	149	44	8.1	556	13	731	65	5.6	.15
3	.30	105	157	131	32	6.5	419	9.3	874	63	4.2	.13
4	.26	70	121	86	32	5.5	300	6.1	919	49	3.1	.15
5	.21	46	96	56	20	4.8	214	3.9	859	30	2.5	.16
6	.17	31	113	42	34	4.5	133	2.4	684	21	2.1	.13
7	.17	22	112	38	42	4.4	73	42	410	17	5.7	.13
8	.13	16	96	34	35	24	45	143	252	11	4.5	.13
9	.11	12	87	31	29	94	26	83	141	12	3.3	.13
10	.11	9.3	71	27	22	76	15	281	58	18	2.5	.12
11	.11	7.1	54	25	17	61	9.3	457	25	12	2.0	.11
12	.09	5.2	42	24	14	43	6.8	269	11	9.1	1.6	.11
13	.08	4.1	35	22	12	49	5.6	391	5.9	16	1.4	.10
14	.04	3.3	29	19	9.5	284	4.6	451	3.6	37	1.2	.11
15	.35	2.6	24	16	8.1	466	3.7	422	2.5	67	1.1	.18
16	2.7	2.1	20	14	7.0	405	2.9	375	2.6	64	1.1	.18
17	2.4	1.8	17	12	6.2	390	2.3	290	5.0	187	1.1	.13
18	1.1	1.6	13	9.8	5.7	335	1.9	199	12	386	.92	.13
19	.62	1.6	10	8.3	5.1	265	1.5	102	18	344	.76	.13
20	.39	2.4	8.3	7.3	4.6	201	1.6	49	18	244	.60	.24
21	.27	2.1	7.1	6.4	16	137	1.8	24	9.0	139	.47	.23
22	.21	1.8	6.5	5.6	29	89	2.4	10	5.3	72	.45	.21
23	.37	1.7	5.9	4.9	30	57	2.3	5.8	3.2	34	.35	.17
24	.77	1.5	20	4.4	28	54	1.8	3.7	2.1	20	.30	.14
25	1.86	1.3	333	219	25	350	1.7	2.6	1.9	40	.25	.13
26	306	371	249	262	24	666	1.8	1.9	1.4	82	.20	.13
27	255	288	224	161	23	907	1.8	1.5	17	85	.18	.48
28	259	149	238	125	19	1050	1.4	1.2	22	62	.16	.48
29	307	160	279	104	14	1110	2.7	1.0	49	42	.50	.35
30	314	191	265	85	---	1060	24	.77	46	26	.40	.25
31	276	---	234	70	---	920	---	125	---	14	.30	---
TOTAL	1914.78	1894.5	3353.8	1994.7	645.2	9137.8	2573.9	3784.17	5803.5	2323.1	56.74	5.42
MEAN	61.8	63.2	108	64.3	22.2	295	85.8	122	193	74.9	1.83	.18
MAX	314	371	333	262	58	1110	711	457	919	386	7.9	.48
MIN	.08	1.3	5.9	4.4	4.6	4.4	1.4	.77	1.4	9.1	.16	.10
CFSM	.74	.76	1.30	.77	.27	3.54	1.03	1.46	2.32	.90	.02	.002
IN.	.86	.85	1.50	.89	.29	4.08	1.15	1.69	2.59	1.04	.03	.002
AC-FT	3800	3760	6650	3960	1280	18120	5110	7510	11510	4610	113	11

CAL YR 1975 TOTAL 62347.43 MEAN 171 MAX 2020 MIN .08 CFSM 2.05 IN 27.84 AC-FT 123700  
WTR YR 1976 TOTAL 33487.61 MEAN 91.5 MAX 1110 MIN .08 CFSM 1.10 IN 14.95 AC-FT 66420

PEAK DISCHARGE (BASE, 900 FT<sup>3</sup>/S).--Mar. 29 (1400) 1,120 ft<sup>3</sup>/s (13.00 ft); June 4 (0700) 923 ft<sup>3</sup>/s (11.79 ft).

## NECHES RIVER BASIN

08031180 Neches River near Chandler, Tex.  
(Low-flow partial-record station)

LOCATION.--Lat 32°21'53", long 95°27'12", Smith-Van Zandt County line, at bridge on Farm Road 279 and 4.3 miles (6.9 km) northeast of Chandler.

DRAINAGE AREA.--218 mi<sup>2</sup> (565 km<sup>2</sup>).

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1975 to September 1976.

## DISCHARGE AND WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICHO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	RIO-CHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	HARDNESS (CA+MG) (MG/L)
OCT. 3...	1245	36	318	6.8	19.5	30	8	4.7	51	5.1	62
DEC. 31...	1030	143	235	6.5	9.0	20	30	8.2	71	5.2	41
FEB. 2...	1145	151	340	6.5	17.0	20	15	5.7	59	5.6	54
APR. 22...	1630	610	289	6.4	21.5	180	10	5.6	63	3.8	56
JUNE 07...	1545	88	228	6.3	23.0	50	20	5.4	62	3.6	47
AUG. 26...	1515	11	494	6.5	26.5	50	6	3.2	41	.5	57

DATE	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	SODIUM ADSORPTION RATIO	DISSOLVED PHOSPHATE (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)
OCT. 31...	22	18	4.2	33	1.8	5.4	49	0	33	38	.5
DEC. 31...	23	12	2.6	22	1.5	4.2	22	0	24	32	.3
FEB. 20...	27	15	4.1	36	2.1	4.0	33	0	27	54	.3
APR. 22...	39	14	5.0	27	1.6	4.6	20	0	37	43	.3
JUNE 07...	15	13	3.5	21	1.3	3.0	39	0	17	28	.4
AUG. 26...	0	17	3.4	62	3.6	6.5	85	0	54	50	.9

DATE	DISSOLVED SILICA (SiO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NON-FILTERABLE RESIDUE (MG/L)	VOL. NON-FILTERABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)
OCT. 31...	21	178	17	6	2.5	.37	1.2	1.1	1.9	9.4
DEC. 31...	16	124	35	10	.77	.11	1.1	.70	.71	7.2
FEB. 20...	16	173	21	6	1.4	.19	.85	1.6	.81	6.6
APR. 22...	15	156	25	17	.97	.13	.53	1.8	.64	9.5
JUNE 07...	17	122	50	20	1.6	.16	.26	1.4	.71	12
AUG. 26...	21	257	16	15	2.8	.22	3.1	1.9	3.4	8.7

## NECHES RIVER BASIN

337

08031180 Neches River near Chandler, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED MOLYB- DENUM (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)
OCT 30...	1245	30	1	90	0	0	0	1
FEB 19...	1145	20	1	60	0	0	0	3
APR 22...	1630	0	0	180	0	0	0	0
AUG 26...	1515	60	2	130	0	0	0	4

DATE	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
OCT 30...	250	3	5	130	.3	8	160	30
FEB 19...	50	0	10	0	.0	0	120	70
APR 22...	220	0	10	10	.2	8	130	70
AUG 26...	140	0	20	10	.1	8	140	20

## NECHES RIVER BASIN

08031200 Kickapoo Creek near Brownsboro, Tex.

LOCATION.--Lat 32°18'34", long 95°36'19", Henderson County, on left bank 94 ft (29 m) downstream from bridge on Farm Road 314, 1.0 mile (1.6 km) northeast of Brownsboro, and 11.5 miles (18.5 km) upstream from mouth.

DRAINAGE AREA.--232 mi<sup>2</sup> (601 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 358.62 ft (109.307 m) above mean sea level.

AVERAGE DISCHARGE.--14 years, 143 ft<sup>3</sup>/s (4.050 m<sup>3</sup>/s), 8.37 in/yr (213 mm/yr), 103,600 acre-ft/yr (128 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 2,340 ft<sup>3</sup>/s (66.3 m<sup>3</sup>/s) June 20 (gage height, 10.78 ft or 3.286 m); no flow for many days.  
 Period of record: Maximum discharge, 14,800 ft<sup>3</sup>/s (419 m<sup>3</sup>/s) Apr. 27, 1966 (gage height, 14.79 ft or 4.508 m); maximum gage height, 15.34 ft (4.676 m) May 11, 1968; no flow for many days.  
 Maximum stage since 1935, 16.4 ft (5.00 m) in 1936 or 1937, from information by local residents.

REMARKS.--Records good.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.16	6.6	18	38	66	46	104	381	934	53	23	375
2	.08	6.0	20	35	54	45	81	291	1450	45	20	1000
3	.05	6.6	20	34	48	45	64	222	1080	.40	17	1200
4	.02	6.6	21	32	45	43	54	147	637	74	14	1460
5	.01	7.8	20	31	43	44	48	97	421	220	12	1350
6	0	9.3	19	30	41	53	45	123	293	348	7.9	937
7	0	10	18	29	40	61	44	215	169	606	5.5	643
8	0	9.8	18	28	39	104	43	283	89	520	4.9	410
9	0	9.1	18	28	39	255	41	374	63	410	4.4	218
10	0	7.8	18	28	38	348	39	370	56	352	3.8	97
11	0	7.2	18	29	38	741	36	285	55	254	3.3	58
12	0	6.5	18	32	38	625	34	203	48	197	2.7	47
13	0	6.5	18	33	38	430	33	156	40	215	2.3	42
14	0	7.1	18	33	38	303	37	207	35	237	2.0	38
15	0	8.0	17	33	36	215	38	272	31	214	1.8	37
16	0	7.9	17	33	35	129	40	344	343	154	1.7	41
17	0	7.8	17	31	37	89	44	357	541	123	1.7	38
18	0	7.4	17	30	65	75	56	306	424	115	1.7	36
19	0	7.4	16	30	110	69	94	234	1310	134	1.4	36
20	0	11	16	29	121	62	168	138	2060	162	1.2	41
21	0	12	15	30	136	58	922	79	1110	174	.99	61
22	0	13	14	30	162	57	1340	56	641	191	.80	87
23	.07	12	14	31	179	56	787	48	445	179	.58	118
24	.73	14	15	32	158	61	519	96	303	153	.34	162
25	4.1	15	28	72	107	81	359	134	222	89	.21	157
26	7.6	15	35	129	75	99	250	191	173	81	.14	93
27	14	14	42	138	59	112	152	311	182	109	.09	67
28	16	13	47	128	52	126	105	475	126	57	.05	112
29	13	12	51	119	48	132	282	623	92	39	.03	172
30	9.8	15	47	110	---	132	419	538	68	31	.02	227
31	7.6	---	42	90	---	125	---	684	---	27	2.3	---
TOTAL	73.22	291.4	712	1535	1985	4821	6278	8240	13441	5603	137.85	9360
MEAN	2.36	9.71	23.0	49.5	68.4	156	209	266	448	181	4.45	312
MAX	16	15	51	138	179	741	1340	684	2060	606	23	1460
MIN	0	6.0	14	28	35	43	33	48	31	27	.02	36
CFSM	.01	.04	.10	.21	.29	.67	.90	1.15	1.93	.78	.02	1.34
IN.	.01	.05	.11	.25	.32	.77	1.01	1.32	2.16	.90	.02	1.50
AC-FT	145	578	1410	3040	3940	9560	12450	16340	26660	11110	273	18570

CAL YR 1975	TOTAL	55989.00	MEAN	153	MAX	2320	MIN	0	CFSM	.66	IN	8.98	AC-FT	111100
WTR YR 1976	TOTAL	52477.47	MEAN	143	MAX	2060	MIN	0	CFSM	.62	IN	8.41	AC-FT	104100

PEAK DISCHARGE (BASE, 1,000 FT<sup>3</sup>/S)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
4-21	2200	10.02	1,560	6-20	0400	10.78	2,340
6-2	1200	10.01	1,550	9-4	2100	10.14	1,660

## 08031290 Lake Athens near Athens, Tex.

LOCATION.--Lat 32°12'15", long 95°43'30", Henderson County, at upstream side of dam on Flat Creek, 5 miles (8 km) downstream from Underwood Lake, 8 miles (13 km) east of Athens, and 18 miles (29 km) upstream from Neches River.

DRAINAGE AREA.--21.6 mi<sup>2</sup> (55.9 km<sup>2</sup>).

PERIOD OF RECORD.--October 1964 to current year. Prior to October 1972, published as Flat Creek Reservoir.

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

EXTREMES.--Current year: Maximum contents, 33,990 acre-ft (41.9 hm<sup>3</sup>) June 22 (elevation, 440.78 ft or 134.350 m); minimum, 31,440 acre-ft (38.8 hm<sup>3</sup>) Oct. 21, 22 (elevation, 439.10 ft or 133.838 m).

Period of record: Maximum contents, 36,500 acre-ft (45.0 hm<sup>3</sup>) May 10, 1968 (elevation, 442.37 ft or 134.834 m); minimum since operating level was reached (May 7, 1968), 30,400 acre-ft (37.5 hm<sup>3</sup>) Sept. 22, 1971 (elevation, 438.40 ft or 133.624 m).

REMARKS.--The lake is formed by a rolled earthfill dam 3,000 ft (910 m) long. Deliberate impoundment began Nov. 1, 1962, and the dam was completed in May 1963. The emergency spillway is an uncontrolled 300-foot-wide (91-meter) cut through natural ground located about 500 ft (150 m) to the left of left end of dam. The service spillway is an uncontrolled 6- by 6-foot (2- by 2-meter) square drop inlet. The outlet works consist of a controlled 18-inch-diameter (457-millimeter) concrete conduit that extends through the dam. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	453 +	-
Crest of spillway.....	446.0	42,600
Crest of spillway.....	440.0	32,790
Lowest gated outlet (invert of 18-inch conduit).....	396.5	100

COOPERATION.--The area and capacity tables were furnished by the city of Athens.

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

439.0	31,290
440.0	32,790
441.0	34,340

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31520	31820	31760	32250	32810	32940	33210	33380	33440	33180	32940	32760
2	31520	31880	31770	32280	32810	32930	33180	33330	33390	33140	32900	32810
3	31520	31890	31790	32300	32790	32970	33140	33300	33360	33160	32850	32870
4	31520	31890	31790	32300	32790	33020	33140	33250	33300	33160	32820	32910
5	31500	31890	31820	32310	32780	32990	33130	33390	33300	33190	32810	32910
6	31500	31890	31800	32310	32780	33010	33110	33440	33240	33160	32760	32910
7	31500	31890	31800	32330	32780	33050	33080	33480	33220	33160	32750	32900
8	31500	31890	31820	32330	32780	33300	33080	33500	33210	33140	32730	32880
9	31490	31880	31820	32330	32760	33300	33050	33500	33180	33210	32700	32850
10	31490	31850	31830	32340	32760	33280	33020	33480	33130	33250	32670	32820
11	31490	31820	31850	32340	32760	33270	33020	33470	33080	33380	32630	32790
12	31490	31790	31850	32340	32750	33240	33010	33440	33040	33330	32610	32790
13	31470	31770	31880	32340	32750	33210	32970	33410	32990	33360	32570	32760
14	31470	31760	31910	32340	32750	33180	32940	33440	32970	33300	32540	32760
15	31470	31740	31910	32330	32760	33160	32960	33470	32940	33280	32490	32760
16	31470	31740	31920	32330	32810	33140	33050	33470	32990	33340	32490	32750
17	31460	31730	31920	32330	32850	33130	33070	33440	32970	33760	32490	32780
18	31460	31730	31920	32330	32900	33100	33240	33410	32960	33680	32450	32760
19	31460	31790	31910	32390	32940	33100	33360	33380	33330	33590	32370	32750
20	31460	31790	31910	32420	33010	33140	33390	33330	33610	33480	32390	32840
21	31440	31770	31890	32420	32990	33130	33360	33250	33760	33420	32370	32840
22	31560	31770	31890	32420	32970	33110	33310	33180	33870	33360	32330	32850
23	31680	31770	31880	32420	32960	33100	33310	33130	33670	33300	32310	32820
24	31740	31760	32070	32520	33010	33220	33330	33160	33480	33250	32280	32820
25	31770	31760	32120	32670	33010	33250	33280	33160	33580	33220	32250	32820
26	31800	31740	32150	32720	32990	33300	33250	33190	33470	33180	32220	32970
27	31830	31740	32190	32760	32970	33280	33220	33240	33410	33140	32190	33050
28	31850	31730	32220	32780	32960	33300	33330	33330	33360	33100	32180	33180
29	31850	31730	32220	32790	32960	33310	33420	33420	33300	33050	32160	33180
30	31850	31760	32220	32810	---	33250	33420	33500	33210	32990	32180	33160
31	31830	---	32220	32820	---	33240	---	33480	---	32970	32300	---
(+)	439.36	439.31	439.62	440.02	440.11	440.29	440.41	440.45	440.27	440.12	439.67	440.24
(*)	+330	-70	+460	+600	+140	+280	+180	+60	-270	-240	-670	+860
(++)	136	48	59	56	53	58	59	64	87	105	141	90
MAX	31850	31890	32220	32820	33010	33310	33420	33500	33870	33760	32940	33180
MIN	31440	31730	31760	32250	32750	32930	32940	33130	32940	32970	32160	32750
CAL YR 1975.....	* -1220											
WTR YR 1976.....	* +1660											
					++ 876	MAX 33880			MIN 31440			
					++ 957	MAX 33870			MIN 31440			

+ Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

++ Diversions, in acre-feet, for municipal use by city of Athens.



08031400 Lake Palestine near Frankston, Tex.

LOCATION.--Lat 32°03'12", long 95°26'12", Anderson-Cherokee County line, in outlet tower near right bank, 140 ft (43 m) upstream from Blackburn Crossing Dam on Neches River, 5 miles (8 km) east of Frankston, 11 miles (18 km) upstream from gage Neches River near Neches, and at mile 354.0 (569.6 km).

DRAINAGE AREA.--839 mi<sup>2</sup> (2,173 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Sept. 20, 1962, nonrecording gage read once daily.

EXTREMES.--Current year: Maximum contents, 442,500 acre-ft (546 hm<sup>3</sup>) June 21 (elevation, 346.17 ft or 105.513 m); minimum, 382,100 acre-ft (471 hm<sup>3</sup>) Oct. 22 (elevation, 343.81 ft or 104.793 m).

Period of record: Maximum contents, 501,300 acre-ft (618 hm<sup>3</sup>) June 7, 1973 (elevation, 348.29 ft or 106.159 m); minimum since first appreciable storage, 11,450 acre-ft (14.1 hm<sup>3</sup>) Nov. 28, 1970 (elevation, 310.00 ft or 94.488 m).

REMARKS.--The lake is formed by a rolled earthfill dam 5,720 ft (1,740 m) long, including a 500-foot-wide (150-meter) uncontrolled emergency spillway near the left end of dam. Deliberate impoundment began May 1, 1962. The enlargement of lake began Sept. 26, 1969, and was completed on Mar. 3, 1971. The outlet works consist of two 5- by 7-foot (1.5- by 2.1-meter) gates located in concrete tower near center of dam and connected to an 8.5-foot-diameter (2.6-meter) concrete conduit through the dam. The low-flow outlet consists of two 3.0-foot (0.9-meter) iron pipes connected to the tower structure for low-flow releases. Water is used for municipal and industrial purposes in the Palestine area. The diversion point is downstream from Neches River near Neches (station 08032000). There are no large diversions above station. The capacity table is based on Geological Survey topographic maps dated 1946 and 1948-49. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	364.0	-
Design flood.....	355.3	726,000
Crest of spillway (top of conservation pool).....	345.0	412,000
Lowest gated outlet (invert).....	298.0	550

COOPERATION.--The capacity table furnished by the Upper Neches River Municipal Water Authority.

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

343.0	362,600	346.0	437,900
344.0	386,700	347.0	464,900
345.0	411,800		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	390500	391700	392200	403000	412600	413100	422200	423300	429500	425400	414900	414100
2	389000	393500	392500	406000	412600	412800	420900	422500	431400	422800	414400	426700
3	388500	393500	392500	405300	412600	412300	420700	422500	433200	424300	413100	430600
4	388000	393500	392200	404500	412600	414900	420400	420900	433200	425400	412100	433500
5	387700	393500	392200	404000	412600	416200	419600	421500	432200	426200	411000	434500
6	387200	393200	393700	403500	412300	415700	418800	424900	430300	425600	410500	434500
7	386700	393000	393500	406800	411800	417000	418300	425400	429300	424300	410500	433500
8	386000	392700	393500	404800	411300	422200	418100	424600	427500	424100	409800	431600
9	386200	394700	393500	403000	410800	421700	417000	424300	425400	425400	409000	430100
10	386200	393200	393200	403000	410800	422200	416000	424300	423500	428000	408300	426700
11	386000	394200	393000	405300	411800	422200	415700	424100	421700	427700	408300	424300
12	385700	392700	392700	404800	411800	426200	414900	424300	419900	426400	407500	422500
13	385500	391500	392500	406300	411800	424300	414400	426200	419100	425900	406800	421200
14	385300	390500	392700	405800	411800	423800	414100	426200	418100	424600	406500	420700
15	386200	390000	395500	404800	411800	423500	413600	426200	418300	423300	406000	419400
16	385700	390000	394500	405800	411800	422500	413100	425900	420400	423500	406500	418300
17	385000	390200	396000	405300	413600	420900	413600	425400	419100	427200	406300	417000
18	384300	389500	394000	404800	414100	419600	414900	424900	423500	426200	405800	416200
19	383800	393500	393200	407500	413900	418800	414400	424100	438400	425900	405300	416000
20	383100	393200	394200	406800	414100	420900	416200	424600	441100	425400	404800	422200
21	382400	392700	393700	406800	415700	420200	416500	422200	442000	425600	404000	420400
22	383600	392200	393700	406300	414400	419400	416800	421500	440300	424300	403500	418800
23	385500	391700	393700	406000	413600	418100	420200	421200	436900	423800	403000	418100
24	391700	391500	396000	408000	412800	420200	422500	421700	436100	423000	402300	417800
25	392700	391200	397700	411800	414900	420900	423000	421500	439000	421700	402000	416800
26	392200	391000	397200	411800	414900	425400	421500	422500	436300	420700	401300	420900
27	392700	390500	397200	411800	414400	424300	420700	423300	434500	419400	400800	420900
28	393000	390000	400300	412300	414100	424300	421700	422200	432200	417800	400800	420700
29	393700	389500	400300	412600	413600	424900	424100	421200	429500	417000	400800	419600
30	393000	393000	400000	412600	---	424300	424100	421200	428000	416500	400500	418800
31	392200	---	399800	412600	---	423000	---	427700	---	415700	402000	---
(†)	344.22	344.25	344.52	345.03	345.07	345.43	345.47	345.61	345.62	345.15	344.61	345.27
(*)	+2200	+800	+6800	+12800	+1000	+9400	+1100	+3600	+300	-12300	-13700	+16800
MAX	393700	394700	400300	412600	415700	426200	424100	427700	442000	428000	414900	434500
MIN	382400	389500	392200	403000	410800	412300	413100	420900	418100	415700	400500	414100
CAL YR 1975.....	+ -28200			MAX 458400			MIN 382400					
WTR YR 1976.....	+ 28800			MAX 442000			MIN 382400					

† Elevation, in feet, at end of month.  
\* Change in contents, in acre-feet.

## NECHES RIVER BASIN

341

08032000 Neches River near Neches, Tex.

LOCATION.--Lat 31°53'32", long 95°25'50", Anderson-Cherokee County line, on left bank downstream from bridge on U.S. Highway 79, 1.0 mile (1.6 km) downstream from Missouri Pacific Railroad Co. bridge, 1.4 miles (2.3 km) downstream from Walnut Creek, 4.4 miles (7.1 km) northeast of Neches, and at mile 333.2 (536.1 km).

DRAINAGE AREA.--1,145 mi<sup>2</sup> (2,966 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: February 1939 to current year.

Water quality: Chemical analyses: December 1969 to current year.

GAGE.--Water-stage recorder and Conductance Monitor System. Datum of gage is 264.06 ft (80.486 m) above mean sea level. Prior to Oct. 27, 1945, nonrecording gage at present site and datum.

AVERAGE DISCHARGE.--22 years (1939-61) unregulated, 804 ft<sup>3</sup>/s (22.77 m<sup>3</sup>/s), 582,500 acre-ft/yr (718 hm<sup>3</sup>/yr); 15 years (1961-76) regulated, 662 ft<sup>3</sup>/s (18.75 m<sup>3</sup>/s), 479,600 acre-ft/yr (591 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 4,200 ft<sup>3</sup>/s (119 m<sup>3</sup>/s) June 27 (gage height, 15.02 ft or 4.578 m); minimum daily, 81 ft<sup>3</sup>/s (2.29 m<sup>3</sup>/s) Aug. 28.

Period of record: Maximum discharge, 45,500 ft<sup>3</sup>/s (1,290 m<sup>3</sup>/s) Apr. 2, 1945 (gage height, 22.07 ft or 6.727 m); no flow Oct. 3-5, 1939.

Historic: Flood in May 1908, stage 24.3 ft (7.41 m), was the highest since flood in May 1884, which was probably higher.

Water quality: Current year: Maximum daily specific conductance, 1,190 micromhos Aug. 29; minimum, 149 micromhos June 20.

Period of record: Maximum daily specific conductance (1973-76), 1,190 micromhos Aug. 29, 1976; minimum, 106 micromhos Sept. 14, 1974.

REMARKS.--Discharge records good. Some regulation by Lake Palestine (station 08031400) 11 miles (18 km) upstream and by Lake Athens (station 08031290) 50 miles (80 km) upstream (capacity, 100,200 acre-ft or 124 hm<sup>3</sup>). No large diversion above station. Specific conductance is recorded continuously at this station.

REVISIONS.--WSP 1732: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	86	133	205	214	414	404	1110	1140	999	1760	424	95
2	88	128	195	204	421	390	1040	1140	1160	1500	376	135
3	87	142	165	279	346	381	964	1100	1230	1300	339	445
4	82	156	151	371	308	375	881	1020	1370	1190	295	725
5	82	149	146	350	302	414	820	935	1500	1130	244	910
6	82	142	144	249	377	615	766	845	1620	1190	197	1050
7	82	139	151	205	484	709	704	897	1700	1210	171	1190
8	82	136	153	302	426	795	648	1080	1630	1170	159	1320
9	82	134	146	305	313	1000	610	1200	1490	1100	144	1440
10	83	134	143	206	281	1130	560	1240	1330	1030	124	1460
11	83	139	141	190	274	1190	495	1220	1210	1000	111	1410
12	83	129	140	204	293	1170	446	1170	1060	1040	101	1300
13	83	159	140	197	299	1100	416	1170	903	1080	94	1180
14	83	146	141	186	291	1090	382	1230	740	1090	93	1030
15	83	121	147	191	294	1090	352	1290	605	1060	90	880
16	83	115	193	166	291	1070	320	1310	545	1030	88	761
17	84	116	187	205	301	1060	350	1290	583	1130	88	656
18	85	118	164	190	396	1030	344	1250	622	1220	92	557
19	87	121	170	157	498	942	396	1200	928	1200	96	477
20	84	184	147	202	475	837	444	1140	1360	1180	90	459
21	84	228	141	302	459	768	498	1060	1970	1150	87	583
22	84	176	139	246	578	760	508	985	2590	1110	85	728
23	124	146	139	205	651	728	473	914	2750	1070	84	734
24	225	136	143	190	548	686	568	872	2670	1040	83	646
25	353	134	222	227	459	774	747	906	3420	1020	82	556
26	478	135	291	368	425	892	802	926	3730	969	82	496
27	406	145	262	461	445	991	808	923	3960	891	82	522
28	351	144	222	375	447	1080	770	944	3180	785	81	677
29	264	138	241	314	428	1130	855	962	2580	661	114	758
30	184	148	302	318	---	1130	1080	921	2120	556	104	777
31	147	---	260	326	---	1120	---	875	---	479	95	---
TOTAL	4374	4271	5531	7905	11524	26851	19157	33155	51555	33341	4395	23957
MEAN	141	142	178	255	397	866	639	1070	1719	1076	142	799
MAX	478	228	302	461	651	1190	1110	1310	3960	1760	424	1460
MIN	82	115	139	157	274	375	320	845	545	479	81	95
AC-FT	8680	8470	10970	15680	22860	53260	38000	65760	102300	66130	8720	47520
CAL YR 1975	TOTAL	312266	MEAN 856	MAX 5520	MIN 67	AC-FT 619400						
WTR YR 1976	TOTAL	226016	MEAN 618	MAX 3960	MIN 81	AC-FT 448300						

## NECHES RIVER BASIN

08032000 Neches River near Neches, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPECIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	DIS- SOLVED CHLOR- IDE (CL) (MG/L)
OCT.					
28...	1500	342	209	17.5	40
NOV.					
17...	1520	110	234	15.5	41
DEC.					
09...	1100	138	248	11.5	46
JAN.					
13...	0840	194	234	11.5	43
FEB.					
04...	1200	270	205	11.0	34
MAR.					
05...	1100	363	255	--	49
26...	1030	900	205	17.5	34
APR.					
14...	1100	376	221	21.0	34
26...	0840	780	195	20.0	24
MAY					
14...	1030	1200	191	19.0	24
JUNE					
25...	1110	3450	193	24.0	20
AUG.					
13...	0940	106	259	--	45
27...	1100	81	241	--	39
SEP.					
27...	1000	560	229	25.0	38

## NECHES RIVER BASIN

343

08032000 Neches River near Neches, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	213	210	271	226	424	205	240	219	204	194	209	204
2	219	210	243	226	222	205	274	241	201	197	209	207
3	248	218	519	236	239	219	244	186	210	197	209	206
4	323	249	388	243	245	221	196	185	209	203	209	206
5	367	324	252	233	257	241	215	187	235	209	503	241
6	393	353	243	228	261	250	234	215	301	202	321	233
7	410	365	243	228	316	231	279	227	201	192	240	218
8	415	301	238	223	242	234	274	182	211	192	295	223
9	374	304	243	225	253	243	211	186	222	210	218	151
10	348	318	240	214	247	236	254	205	217	216	166	151
11	355	243	215	206	246	234	266	233	225	216	179	169
12	243	231	224	206	244	238	382	220	218	216	192	179
13	231	228	214	196	415	243	239	229	220	211	189	182
14	228	226	209	195	248	244	247	212	214	208	145	180
15	228	227	225	209	249	240	215	211	211	208	193	185
16	227	226	230	218	450	234	239	216	220	212	191	184
17	227	223	234	213	233	226	234	201	240	219	187	181
18	224	221	226	206	233	214	231	201	373	203	197	187
19	222	218	218	207	220	202	243	231	277	200	203	197
20	221	218	686	212	262	213	528	228	208	200	209	203
21	254	216	270	219	247	229	260	213	358	208	204	191
22	256	221	225	211	245	222	237	213	222	188	193	188
23	1110	203	237	211	246	232	247	233	203	187	196	191
24	975	204	256	216	243	236	255	240	208	203	293	196
25	460	191	238	223	547	239	475	248	208	203	298	192
26	247	193	237	221	259	219	274	187	208	206	205	189
27	236	191	393	223	228	216	203	186	209	204	188	181
28	231	191	245	214	243	226	216	203	203	200	187	184
29	240	230	260	229	486	229	220	208	200	200	207	188
30	237	222	309	256	229	205	209	205	---	---	202	191
31	354	224	---	---	219	205	207	204	---	---	192	187
MONTH	1110	191	686	195	547	202	528	182	373	187	503	151

DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	198	192	184	176	---	---	227	219	214	212	233	223
2	200	195	192	183	---	---	236	227	213	212	235	203
3	203	200	194	190	---	---	250	232	217	212	200	195
4	207	201	196	193	---	---	249	233	220	213	200	192
5	207	203	199	196	---	---	254	244	228	219	205	195
6	203	200	207	196	---	---	---	---	238	227	207	203
7	305	199	207	187	199	198	---	---	242	236	205	197
8	242	209	202	179	202	197	---	---	239	233	199	194
9	208	201	183	178	203	201	---	---	246	233	199	195
10	204	201	190	183	205	201	---	---	256	242	199	195
11	204	203	201	190	205	202	---	---	260	251	199	195
12	204	204	200	194	207	204	---	---	264	254	203	195
13	205	204	225	191	216	206	---	---	265	259	203	197
14	211	204	205	184	214	210	---	---	263	256	203	199
15	209	202	180	183	214	209	---	---	259	252	205	200
16	409	202	190	183	223	209	---	---	257	251	216	201
17	325	218	194	190	209	204	---	---	270	250	207	201
18	249	206	193	191	234	202	---	---	264	240	206	200
19	254	217	195	191	273	164	---	---	240	233	225	201
20	343	204	195	191	164	149	---	---	240	232	303	209
21	246	196	199	194	183	163	---	---	237	230	273	191
22	200	194	205	195	203	183	---	---	238	232	198	191
23	201	197	206	204	207	202	---	---	240	234	194	190
24	315	191	206	206	207	203	---	---	237	234	191	191
25	191	187	206	206	207	183	---	---	241	233	---	---
26	189	187	---	---	184	179	---	---	236	231	---	---
27	192	189	---	---	191	172	209	207	233	229	240	213
28	194	191	---	---	204	191	207	204	280	229	221	185
29	300	179	---	---	215	204	209	205	1190	226	195	183
30	177	166	---	---	222	215	211	208	233	199	188	183
31	---	---	---	---	---	---	212	210	233	222	---	---
MONTH	409	166	225	176	273	149	---	---	1190	199	303	183

## NECHES RIVER BASIN

08032500 Neches River near Alto, Tex.

LOCATION.--Lat 31°34'45", Long 95°09'55", Houston-Cherokee County line, near left bank on downstream side of pier of bridge on State Highway 21, 600 ft (180 m) downstream from Bowles Creek, 7.5 miles (12.1 km) southwest of Alto, and at mile 273.9 (440.7 km).

DRAINAGE AREA.--1,945 mi<sup>2</sup> (5,038 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: January 1944 to current year.

Water quality: Chemical analyses: October 1959 to current year. Biochemical analyses: October 1967 to current year. Water temperatures: October 1959 to September 1969.

GAGE.--Water-stage recorder. Datum of gage is 198.29 ft (60.439 m) above mean sea level.

AVERAGE DISCHARGE.--17 years (1944-61) unregulated, 1,272 ft<sup>3</sup>/s (36.02 m<sup>3</sup>/s), 921,600 acre-ft/yr (1,140 hm<sup>3</sup>/yr); 15 years (1961-76) regulated, 1,020 ft<sup>3</sup>/s (28.89 m<sup>3</sup>/s), 739,000 acre-ft/yr (911 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 5,140 ft<sup>3</sup>/s (146 m<sup>3</sup>/s) May 1, 2 (gage height, 17.60 ft or 5.364 m); minimum daily, 89 ft<sup>3</sup>/s (2.52 m<sup>3</sup>/s) Oct. 18-20.

Period of record: Maximum discharge, 42,800 ft<sup>3</sup>/s (1,210 m<sup>3</sup>/s) Apr. 4, 1945 (gage height, 26.85 ft or 8.184 m); minimum, 0.1 ft<sup>3</sup>/s (0.003 m<sup>3</sup>/s) Sept. 27, 28, 1954.

Maximum stage since at least 1861, 28.2 ft (8.60 m) in May 1884, from information by local residents (discharge, about 50,000 ft<sup>3</sup>/s or 1,420 m<sup>3</sup>/s).

REMARKS.--Discharge records good. Flow partly regulated since 1962 by Lake Athens (station 08031290) and Lake Palestine (station 08031400); minor regulation by Lake Jacksonville since 1957; combined capacity, 130,700 acre-ft (161 hm<sup>3</sup>). During the current year, Upper Neches River Municipal Water Authority diverted 2,523 acre-ft (3.11 hm<sup>3</sup>) from stream at Rocky Point Crossing 50 miles (80 km) upstream for municipal and industrial uses in the Palestine area.

REVISIONS.--WSP 1732: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	107	409	254	430	464	520	1730	4860	1980	4070	879	209
2	103	336	289	439	446	516	1650	4920	2510	3800	741	196
3	100	324	292	422	450	503	1580	4070	2580	3510	640	178
4	97	354	308	387	479	485	1520	3360	2120	3230	562	173
5	98	377	306	363	491	525	1480	2720	1800	3160	516	234
6	100	335	283	381	479	684	1410	2180	1620	3320	464	395
7	98	298	265	418	511	966	1330	1840	1600	2940	411	548
8	97	269	255	429	486	1320	1240	1740	1690	2360	363	694
9	96	239	249	398	489	1720	1140	1740	1670	2010	316	825
10	95	218	248	362	517	1830	1040	1680	1650	1780	278	948
11	94	212	248	372	508	1790	947	1680	1640	1640	253	1070
12	93	204	243	393	453	1680	865	1650	1620	1550	230	1180
13	93	196	239	375	411	1610	794	1950	1560	1470	207	1270
14	92	185	240	352	395	1560	727	2480	1460	1510	190	1330
15	91	183	242	343	395	1540	664	2960	1320	1470	177	1350
16	91	189	249	337	401	1500	628	2790	1140	1380	167	1310
17	91	196	268	326	442	1440	643	2460	983	1670	165	1200
18	89	187	270	318	550	1390	653	2190	865	2110	169	1060
19	89	180	286	310	569	1350	614	1970	1300	2150	164	910
20	89	182	290	319	516	1330	613	1800	3450	2110	161	808
21	90	209	272	380	593	1320	667	1660	3460	2050	152	801
22	92	271	261	426	688	1290	700	1580	3200	1950	149	825
23	99	298	249	440	686	1190	699	1490	3090	1840	146	762
24	114	311	243	454	637	1140	699	1410	2990	1660	141	717
25	294	273	262	522	639	1410	705	1360	2790	1600	144	742
26	593	240	335	629	650	2200	701	1300	2660	1490	146	750
27	702	226	388	549	620	3210	742	1350	2890	1380	143	749
28	646	218	417	494	564	2540	824	1380	3090	1300	138	762
29	617	214	508	512	528	2200	1600	1320	3530	1230	140	737
30	580	231	537	531	---	1960	3360	1240	4010	1140	172	713
31	491	---	461	507	---	1830	---	1400	---	1020	176	---
TOTAL	6221	7564	9257	12918	15057	44549	31965	66530	66268	63900	8700	23446
MEAN	201	252	299	417	519	1437	1066	2146	2209	2061	281	782
MAX	702	409	537	629	688	3210	3360	4920	4010	4070	879	1350
MIN	89	180	239	310	395	485	613	1240	865	1020	138	173
AC-FT	12340	15000	18360	25620	29870	88360	63400	132000	131400	126700	17260	46510
CAL YR 1975	TOTAL	471355	MEAN	1291	MAX	6180	MIN	89	AC-FT	934900		
WTR YR 1976	TOTAL	356375	MEAN	974	MAX	4920	MIN	89	AC-FT	706900		

## NECHES RIVER BASIN

345

08032500 Neches River near Alto, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPF- CIFIC CON- DUCT- ANCE (MICHO- MHOS)	PH  (UNITS)	TEMPER- ATURE (DEG C)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	RIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	HARD- NESS (CA+MG) (MG/L)
OCT. 20...	1320	87	311	6.8	18.0	9.3	98	1.0	49
DEC. 01...	1400	255	228	6.7	10.5	10.2	91	1.1	39
FEB. 02...	1500	445	236	6.3	10.5	11.2	100	1.0	44
APR. 06...	1400	700	214	6.4	20.5	7.7	85	.9	43
JUNF. 07...	1330	1650	191	6.3	23.5	8.1	94	1.3	42
AUG. 26...	1315	135	282	6.4	27.0	7.3	92	1.0	48
DATE	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)
OCT. 20...	10	12	4.7	33	2.0	3.8	48	0	12
DEC. 01...	15	9.0	4.0	22	1.5	3.4	29	0	15
FEB. 02...	25	10	4.7	22	1.4	3.3	24	0	24
APR. 06...	14	9.8	4.5	20	1.3	3.0	30	0	19
JUNF. 07...	16	9.5	4.4	16	1.1	3.0	31	0	19
AUG. 26...	12	11	5.1	29	1.8	3.4	44	0	15
DATE	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SI02) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITU- ENTS) (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)
OCT. 20...	56	--	12	157	.08	.00	.02	.66	.04
DEC. 01...	38	.2	18	124	.15	.00	.03	.53	.05
FEB. 02...	37	.0	14	127	.12	.00	.01	.67	.05
APR. 06...	31	.3	13	115	.20	.01	.06	.60	.03
JUNF. 07...	25	.2	11	103	.11	.01	.01	.54	.05
AUG. 26...	48	.2	14	147	.14	.00	.04	.67	.03



08033000 Neches River near Diboll, Tex.

LOCATION.--Lat 31°07'58", long 94°48'35", Angelina-Polk County line, near center of main span on downstream side of downstream bridge on U.S. Highway 59, 700 ft (210 m) downstream from Texas and New Orleans Railroad Co. bridge, 2.9 miles (4.7 km) downstream from Alabama Creek, 3.8 miles (6.1 km) south of Diboll, and at mile 203.5 (327.4 km).

DRAINAGE AREA.--2,724 mi<sup>2</sup> (7,055 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: October 1923 to September 1925, March 1939 to current year. Monthly discharge only for some periods, published in WSP 1312.

Water quality: Chemical and biochemical analyses: October 1969 to current year. Water temperatures: October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is 134.46 ft (40.983 m) above mean sea level. Prior to July 10, 1925, nonrecording gage at site 630 ft (192 m) upstream; July 10 to Aug. 31, 1925, and Mar. 30, 1939, to Sept. 24, 1943, nonrecording gage at site 500 ft (150 m) upstream; Sept. 25, 1943, to Aug. 16, 1973, nonrecording gage at site 70 ft (21 m) upstream; all at present datum.

AVERAGE DISCHARGE.--24 years (1923-25, 1939-61) unregulated, 1,807 ft<sup>3</sup>/s (51.17 m<sup>3</sup>/s), 1,309,000 acre-ft/yr (1.61 km<sup>3</sup>/yr); 15 years (1961-76) regulated, 1,344 ft<sup>3</sup>/s (38.06 m<sup>3</sup>/s), 973,700 acre-ft/yr (1.20 km<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 5,640 ft<sup>3</sup>/s (160 m<sup>3</sup>/s) May 10 (gage height, 13.43 ft or 4.093 m); minimum daily, 101 ft<sup>3</sup>/s (2.86 m<sup>3</sup>/s) Oct. 22.

Period of record: Maximum discharge, 49,900 ft<sup>3</sup>/s (1,410 m<sup>3</sup>/s) May 4, 1944 (gage height, 18.70 ft or 5.700 m); no flow Aug. 15-22, 1925.

Historic: Maximum stage since at least 1874, 21 ft (6.4 m) in May 1884 (discharge, about 110,000 ft<sup>3</sup>/s or 3,120 m<sup>3</sup>/s, from rating curve extended above 40,000 ft<sup>3</sup>/s or 1,130 m<sup>3</sup>/s); flood in 1900 reached a stage of 19.9 ft or 6.07 m (discharge, about 80,000 ft<sup>3</sup>/s or 2,270 m<sup>3</sup>/s); from information by local residents.

Water quality: Current year: Maximum daily specific conductance, 359 micromhos Oct. 26; minimum daily, 119 micromhos June 26.

Maximum water temperatures, 29.0°C on several days during August and September; minimum, 7.0°C Jan. 7-9, 17.

Period of record: Maximum daily specific conductance, 614 micromhos May 2, 1971; minimum daily, 85 micromhos Jan. 27, 1974. Maximum water temperatures, 38.0°C Aug. 31, Sept. 6, 1970; minimum, 3.0°C Jan. 21, 1970.

REMARKS.--Discharge records good. No large diversion above station. At times flow may be affected by discharge from upstream reservoirs.

REVISIONS (WATER YEARS).--WSP 1242: 1950. WSP 1732: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	127	678	284	698	781	853	2690	1980	2010	3140	1450	141
2	123	656	285	703	748	799	2920	3070	2180	2960	1310	164
3	122	926	292	651	719	746	2950	3720	2250	2880	1190	215
4	121	1180	305	601	681	708	2840	3680	2220	3030	1070	220
5	118	1150	319	569	657	682	2620	3530	2230	3160	914	208
6	115	1100	326	537	653	659	2350	3480	2280	3330	781	191
7	112	842	332	499	659	672	2140	3850	2330	3590	676	198
8	109	615	329	471	668	1030	1950	4900	2350	3980	593	206
9	109	476	310	476	676	1250	1820	5230	2300	4320	520	201
10	110	365	293	500	679	1400	1720	5520	2170	4110	461	421
11	109	297	279	507	666	1490	1620	4950	2000	3780	409	567
12	107	278	272	486	663	1550	1520	4110	1850	3550	351	640
13	105	253	267	464	668	1600	1410	3760	1770	3340	317	704
14	104	234	267	464	655	1680	1290	3730	1730	3100	281	746
15	108	218	265	462	620	1770	1170	3300	1700	2780	259	810
16	113	210	266	443	579	1820	1070	2990	1700	2480	231	871
17	115	201	270	422	556	1840	981	2750	1670	2860	211	934
18	116	195	275	405	698	1830	892	2590	1660	2990	202	976
19	112	200	283	395	929	1810	823	2520	1650	2530	202	1010
20	107	205	292	382	1120	1770	804	2530	1650	2260	199	1050
21	104	203	293	373	1430	1720	812	2570	1640	2100	187	1070
22	101	199	297	379	1610	1670	787	2590	1650	2050	177	1040
23	103	198	298	417	1640	1620	771	2530	1850	2050	169	969
24	106	215	298	482	1600	1650	769	2410	1950	2080	165	892
25	205	252	424	923	1410	1790	767	2260	2120	2150	158	840
26	502	293	467	1230	1210	1880	781	2120	2540	2140	151	804
27	566	310	459	1180	1060	1930	777	1960	3160	2000	141	796
28	653	298	438	1220	959	1930	783	1860	3430	1940	140	844
29	682	283	462	1110	901	2000	860	1820	3420	1850	144	956
30	698	277	524	962	---	2090	1300	1790	3390	1730	141	945
31	697	---	613	840	---	2290	---	1760	---	1590	141	---
TOTAL	6679	12807	10384	19251	25895	46529	43987	95860	64850	85850	13341	19629
MEAN	215	427	335	621	893	1501	1466	3092	2162	2769	430	654
MAX	698	1180	613	1230	1640	2290	2950	5520	3430	4320	1450	1070
MIN	101	195	265	373	556	659	767	1760	1640	1590	140	141
AC-FT	13250	25400	20600	38180	51360	92290	87250	190100	128600	170300	26460	38930
CAL YR 1975	TOTAL	669179	MEAN	1833	MAX	11400	MIN 101	AC-FT	1327000			
WTR YR 1976	TOTAL	445062	MEAN	1216	MAX	5520	MIN 101	AC-FT	882800			

## NECHES RIVER BASIN

347

08033000 Neches River near Diboll, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	RIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	HARD- NESS (CA+MG) (MG/L)
OCT. 20...	1130	80	275	6.9	18.5	8.1	86	1.2	42
NOV. 12...	1645	350	259	7.0	19.0	--	--	--	46
DEC. 01...	1215	380	269	6.7	11.0	9.7	87	1.3	54
JAN. 14...	1615	450	232	6.4	9.5	--	--	--	44
FEB. 02...	1300	760	263	6.1	9.5	9.7	85	2.5	47
MAR. 08...	1805	1150	299	7.5	18.0	--	--	--	53
APR. 26...	1200	805	241	6.2	20.5	7.2	79	1.0	47
MAY 10...	1545	5480	160	6.2	20.0	--	--	--	24
JUNE 07...	1130	2350	161	6.3	23.5	6.5	76	1.5	35
JULY 14...	1730	3000	203	7.6	26.0	--	--	--	41
AUG. 26...	0845	1750	283	6.3	26.0	6.6	82	1.1	52

DATE	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)
OCT. 20...	0	9.7	4.2	32	2.2	3.8	66	0	19
NOV. 12...	21	11	4.5	25	1.6	4.3	30	0	24
DEC. 01...	22	13	5.3	27	1.6	3.8	39	0	28
JAN. 14...	21	10	4.5	23	1.5	3.5	28	0	25
FEB. 02...	24	11	4.7	25	1.6	3.7	28	0	30
MAR. 08...	24	13	5.0	30	1.8	3.8	36	0	44
APR. 26...	27	11	4.7	23	1.5	3.0	24	0	23
MAY 10...	9	5.8	2.2	15	1.3	3.4	18	0	23
JUNE 07...	11	8.1	3.6	14	1.0	2.7	29	0	17
JULY 14...	12	9.8	4.1	18	1.2	3.1	36	0	16
AUG. 26...	8	12	5.4	29	1.7	3.5	54	0	18

DATE	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SI02) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)
OCT. 20...	34	--	12	147	.02	.00	.04	.44	.26
NOV. 12...	39	.4	18	141	--	--	--	--	--
DEC. 01...	37	.2	17	151	.22	.01	.03	.63	.09
JAN. 14...	34	.2	16	130	--	--	--	--	--
FEB. 02...	38	.1	16	142	.12	.00	.00	.96	.06
MAR. 08...	36	.3	13	163	--	--	--	--	--
APR. 26...	34	.3	15	126	.24	.02	.09	.75	.08
MAY 10...	19	.3	9.2	87	--	--	--	--	--
JUNE 07...	20	.3	11	91	.10	.01	.02	.55	.07
JULY 14...	28	.2	12	109	--	--	--	--	--
AUG. 26...	41	.2	16	152	.22	.01	.13	1.2	.08

## NECHES RIVER BASIN

08033000 Neches River near Dibo11, Tex.--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	6679	257	140	2540	34	620	22	403	46
NOV. 1975.....	12807	248	130	4650	33	1130	22	757	45
DEC. 1975.....	10384	268	150	4090	36	999	23	641	47
JAN. 1976.....	19251	269	150	7620	36	1870	23	1190	47
FEB. 1976.....	24994	262	140	9650	35	2340	22	1510	46
MAR. 1976.....	46529	237	130	16400	31	3880	21	2670	44
APR. 1976.....	43987	221	120	14300	29	3390	21	2440	42
MAY 1976.....	95860	172	94	24300	21	5460	18	4670	38
JUNE 1976.....	64850	177	96	16800	22	3840	18	3190	38
JULY 1976.....	85850	186	100	23500	23	5400	19	4400	39
AUG. 1976.....	13341	235	130	4610	31	1100	21	759	44
SEPT 1976.....	19629	243	130	6990	32	1690	22	1150	45
TOTAL .....	444161	**	**	135000	**	31700	**	23800	**
WTD.AVG. ....	1216.88	207	110	**	26	**	20	**	41

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	220	241	276	244	271	252	201	163	207	170	211	275
2	229	275	280	236	257	254	204	159	208	168	213	274
3	234	264	293	258	277	253	207	145	211	172	214	272
4	250	253	274	252	257	254	205	148	192	165	216	263
5	264	222	252	253	260	255	206	131	173	166	217	269
6	245	225	249	252	262	298	209	125	168	177	237	275
7	235	223	244	255	255	300	213	134	164	185	222	284
8	227	230	243	251	254	299	217	151	175	174	224	280
9	226	239	245	248	245	292	220	148	185	171	232	282
10	229	248	249	246	241	289	223	160	188	184	239	290
11	234	259	247	248	245	231	226	169	194	199	266	305
12	231	259	246	260	251	245	230	176	196	201	251	220
13	232	260	243	243	250	230	235	187	201	202	260	205
14	233	259	239	232	255	220	238	190	199	203	270	207
15	245	261	240	245	258	217	242	198	201	185	245	219
16	259	263	239	243	260	214	240	196	203	177	229	211
17	274	289	250	247	253	210	238	193	206	198	255	221
18	281	292	263	252	250	212	237	182	220	200	277	225
19	286	258	264	238	310	213	235	174	223	197	278	229
20	275	264	258	242	302	216	241	182	224	199	278	215
21	263	258	252	254	297	220	249	180	217	195	282	207
22	264	262	290	261	260	224	238	183	193	190	278	254
23	300	258	328	281	255	248	242	188	175	185	238	283
24	256	246	330	285	253	254	240	196	141	183	265	285
25	300	235	300	300	255	252	237	203	129	181	280	284
26	359	232	286	337	254	260	238	200	119	185	245	255
27	290	239	290	340	253	240	245	196	129	192	280	236
28	289	255	296	300	252	236	249	205	136	201	292	237
29	242	272	286	268	262	222	230	214	138	199	289	245
30	204	280	269	265	---	217	198	209	150	206	287	254
31	215	---	246	262	---	213	---	208	---	207	277	---
MONTH	255	254	267	261	260	243	228	177	182	188	253	252

## NECHES RIVER BASIN

349

08033000 Neches River near Dibo11, Tex.--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.0	24.0	9.0	10.0	13.0	16.0	---	18.0	22.0	26.0	26.0	29.0
2	26.0	22.0	9.0	9.0	13.0	16.0	18.0	19.0	22.0	26.0	27.0	29.0
3	25.0	23.0	8.0	9.0	12.0	16.0	19.0	20.0	23.0	27.0	26.0	28.0
4	24.0	23.0	10.0	8.0	11.0	18.0	20.0	19.0	23.0	26.0	26.0	28.0
5	23.0	23.0	12.0	8.0	---	19.0	20.0	21.0	24.0	---	26.0	---
6	24.0	23.0	9.0	8.0	---	18.0	20.0	22.0	24.0	---	27.0	29.0
7	24.0	23.0	9.0	7.0	12.0	18.0	20.0	23.0	24.0	27.0	28.0	29.0
8	25.0	---	---	7.0	13.0	18.0	20.0	20.0	24.0	25.0	28.0	28.0
9	25.0	---	10.0	7.0	13.0	18.0	20.0	20.0	---	25.0	28.0	28.0
10	24.0	21.0	10.0	8.0	13.0	15.0	20.0	20.0	---	25.0	27.0	27.0
11	24.0	20.0	10.0	8.0	12.0	15.0	20.0	20.0	24.0	25.0	27.0	26.0
12	25.0	19.0	11.0	8.0	12.0	15.0	20.0	20.0	25.0	25.0	27.0	26.0
13	25.0	19.0	---	8.0	13.0	15.0	20.0	19.0	25.0	26.0	---	26.0
14	25.0	18.0	10.0	8.0	13.0	14.0	20.0	20.0	25.0	26.0	27.0	26.0
15	25.0	15.0	10.0	8.0	---	14.0	20.0	22.0	25.0	26.0	28.0	27.0
16	---	16.0	9.0	9.0	15.0	14.0	---	22.0	---	26.0	28.0	27.0
17	24.0	10.0	9.0	7.0	17.0	14.0	21.0	22.0	27.0	26.0	---	27.0
18	24.0	17.0	9.0	8.0	18.0	14.0	22.0	22.0	27.0	25.0	29.0	---
19	22.0	18.0	9.0	8.0	18.0	14.0	23.0	23.0	---	25.0	29.0	25.0
20	22.0	17.0	9.0	9.0	18.0	14.0	22.0	23.0	27.0	26.0	29.0	25.0
21	23.0	16.0	9.0	9.0	18.0	14.0	23.0	23.0	27.0	26.0	---	25.0
22	23.0	16.0	8.0	9.0	16.0	14.0	22.0	24.0	25.0	27.0	29.0	24.0
23	22.0	16.0	8.0	11.0	16.0	16.0	22.0	24.0	25.0	27.0	28.0	24.0
24	22.0	14.0	---	---	16.0	15.0	20.0	24.0	25.0	---	28.0	24.0
25	21.0	14.0	9.0	---	---	15.0	---	24.0	26.5	26.0	28.0	24.0
26	22.0	10.0	9.0	12.0	---	14.0	---	24.0	25.0	26.0	28.0	25.0
27	23.0	10.0	8.0	12.0	16.0	14.0	22.0	24.0	25.0	27.0	29.0	24.0
28	23.0	11.0	9.0	12.0	16.0	17.0	22.0	---	26.0	28.0	29.0	23.0
29	24.0	11.0	9.0	13.0	16.0	20.0	20.0	24.0	26.0	28.0	29.0	23.0
30	24.0	10.0	9.0	13.0	---	18.0	---	24.0	27.0	---	28.0	23.0
31	24.0	---	9.0	13.0	---	17.0	---	25.0	---	28.0	29.0	---
MONTH	24.0	17.0	9.5	9.0	14.5	16.0	20.5	22.0	25.0	26.0	28.0	26.0

## NECHES RIVER BASIN

08033300 Piney Creek near Groveton, Tex.

LOCATION.--Lat 31°08'25", long 95°05'11", Trinity County, on left bank at downstream side of bridge on State Highway 94, 6.3 miles (10.1 km) northeast of Groveton, and 7.3 miles (11.7 km) upstream from Caney Creek.

DRAINAGE AREA.--79.0 mi<sup>2</sup> (204.6 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 251.40 ft (76.627 m) above mean sea level.

AVERAGE DISCHARGE.--15 years, 31.2 ft<sup>3</sup>/s (0.884 m<sup>3</sup>/s), 5.36 in/yr (136 mm/yr), 22,600 acre-ft/yr (27.9 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 527 ft<sup>3</sup>/s (14.9 m<sup>3</sup>/s) June 28 (gage height, 11.04 ft or 3.365 m); no flow for many days.  
Period of record: Maximum discharge, 5,890 ft<sup>3</sup>/s (167 m<sup>3</sup>/s) Mar. 24, 1973 (gage height, 15.43 ft or 4.703 m); no flow at times.  
Maximum stage since at least 1921, 17 ft (5.2 m) in May 1942, from information by local residents.

REMARKS.--Records good. No diversion above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.88	6.2	1.8	3.1	4.5	90	276	129	9.7	.16	1.1
2	0	1.1	1.6	1.5	2.7	4.2	30	94	127	28	.14	.08
3	0	156	.86	11	2.4	3.8	15	26	46	9.9	.11	.04
4	0	263	.64	5.0	2.2	3.6	8.8	14	18	4.5	.08	.03
5	0	43	.59	2.1	2.0	3.4	6.1	8.5	8.6	3.7	.08	.03
6	0	12	.55	1.4	1.9	3.2	4.8	6.1	5.5	3.3	.06	.01
7	0	5.4	.53	1.2	1.7	6.7	4.0	21	4.2	2.9	.05	.01
8	0	3.0	.52	1.1	1.6	31	3.5	62	3.5	2.8	.03	0
9	0	2.0	.48	.94	1.5	81	3.2	23	3.1	2.5	.03	0
10	0	1.4	.46	.91	1.5	47	2.8	242	2.8	2.3	.02	0
11	0	1.1	.47	.89	1.5	23	2.5	259	2.5	2.1	.02	0
12	0	.95	.52	.86	1.4	14	2.4	85	2.2	2.0	.01	0
13	0	.87	.53	.90	1.4	8.4	2.2	223	2.0	1.7	.01	0
14	0	.81	.53	.88	1.4	5.8	2.1	418	1.9	1.6	.01	0
15	0	.74	.64	.81	1.3	4.8	2.0	162	1.7	1.6	.01	0
16	0	.72	.95	.71	1.3	4.3	2.0	42	1.6	1.6	0	0
17	0	.69	1.1	.68	3.8	3.8	2.0	21	1.5	1.7	.02	.02
18	0	.66	1.0	.65	194	3.3	2.0	14	1.9	1.6	.03	.01
19	0	.63	.88	.64	109	3.1	1.9	9.7	8.3	1.4	.02	0
20	0	.62	.74	.87	39	3.0	2.2	7.5	23	2.0	.01	.01
21	0	.60	.66	.97	124	3.1	3.7	6.4	7.5	1.5	.01	0
22	0	.58	.62	1.1	143	3.0	3.1	5.7	3.4	1.2	.01	0
23	0	.60	.57	1.1	44	2.8	2.1	5.1	2.4	.94	.01	0
24	0	.60	1.5	1.0	22	30	1.7	4.7	1.9	.74	0	0
25	88	.60	41	124	13	81	1.5	4.4	1.6	.57	0	0
26	214	.74	20	222	8.8	73	1.4	4.5	128	.48	.03	.01
27	43	.74	6.5	39	7.5	53	1.4	10	398	.40	.30	.05
28	10	.73	3.3	14	5.6	30	1.2	20	471	.32	.02	36
29	3.8	.76	2.6	7.1	5.0	16	129	13	74	.30	0	73
30	1.9	4.0	5.3	4.7	---	15	402	7.5	17	.24	.03	2.9
31	1.1	---	2.9	3.7	---	204	---	6.6	---	.19	2.7	---
TOTAL	361.8	505.52	104.74	453.51	747.6	772.8	736.6	2101.7	1499.1	93.78	4.01	113.30
MEAN	11.7	16.9	3.38	14.6	25.8	24.9	24.6	67.8	50.0	3.03	.13	3.78
MAX	214	263	41	222	194	204	402	418	471	28	2.7	73
MIN	0	.58	.46	.64	1.3	2.8	1.2	4.4	1.5	.19	0	0
CFSM	.15	.21	.04	.18	.33	.32	.31	.86	.63	.04	.002	.05
IN.	.17	.24	.05	.21	.35	.36	.35	.99	.71	.04	.002	.05
AC-FT	718	1000	208	900	1480	1530	1460	4170	2970	186	8.0	225

CAL YR 1975 TOTAL 19948.22 MEAN 54.7 MAX 1480 MIN 0 CFSM .69 IN 9.39 AC-FT 39570  
WTR YR 1976 TOTAL 7494.46 MEAN 20.5 MAX 471 MIN 0 CFSM .26 IN 3.53 AC-FT 14870

PEAK DISCHARGE (BASE, 500 FT<sup>3</sup>/S).--June 28 (0800) 527 ft<sup>3</sup>/s (11.04 ft).

## NECHES RIVER BASIN

351

08033500 Neches River near Rockland, Tex.

LOCATION.--Lat 31°01'29", long 94°23'55", Tyler County, on downstream side of bridge at U.S. Highway 69, 2,200 ft (671 m) upstream from abandoned ferry crossing, 0.8 mile (1.3 km) upstream from Texas and New Orleans Railway Co. bridge, 1.2 miles (1.9 km) north of Rockland, 3.2 miles (5.1 km) downstream from Billiams Creek, and 32.4 miles (52.1 km) upstream from Angelina River.

DRAINAGE AREA.--3,536 mi<sup>2</sup> (9,417 km<sup>2</sup>). Prior to May 23, 1973, 3,637 mi<sup>2</sup> (9,420 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: July 1903 to current year. Monthly discharge only for some periods, published in WSP 1312.

Water quality: Chemical analyses: October 1945 to September 1947. Chemical and biochemical analyses: December 1967 to current year.

GAGE (revised).--Water-stage recorder. Datum of gage is 88.41 ft (26.947 m) above mean sea level. Prior to May 23, 1973, nonrecording gage located 2,200 ft (671 m) downstream at datum 3.00 ft (0.914 m) higher. May 23, 1973, to Sept. 30, 1975, recording gage at present site at datum 3.00 ft (0.914 m) higher.

AVERAGE DISCHARGE.--58 years (1903-61) unregulated, 2,362 ft<sup>3</sup>/s (66.89 m<sup>3</sup>/s), 1,711,000 acre-ft/yr (2.11 km<sup>3</sup>/yr); 15 years (1961-76) regulated, 1,924 ft<sup>3</sup>/s (54.49 m<sup>3</sup>/s), 1,394,000 acre-ft/yr (1.72 km<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 9,340 ft<sup>3</sup>/s (265 m<sup>3</sup>/s) May 13 (gage height, 18.81 ft or 5.733 m); minimum daily, 123 ft<sup>3</sup>/s (3.48 m<sup>3</sup>/s) Oct. 14.

Period of record: Maximum discharge, 49,800 ft<sup>3</sup>/s (1,410 m<sup>3</sup>/s) May 6, 1944 (gage height, 35.04 ft or 10.680 m, present site); minimum observed during period of daily records, 1.6 ft<sup>3</sup>/s (0.045 m<sup>3</sup>/s) Sept. 28-30, Oct. 1, 2, 1956.

Historical flood information begins with flood in May 1884 which reached a stage of 38.0 ft (11.58 m), revised, present site, from information by local resident (discharge, about 62,000 ft<sup>3</sup>/s or 1,760 m<sup>3</sup>/s).

REMARKS.--Discharge records good. No large diversion above station.

REVISIONS (WATER YEARS).--WSP 878: 1926-27. WSP 1342: 1922(M), 1935. WSP 1732: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	159	916	461	1290	1390	1180	3340	1650	2740	3250	1870	280
2	151	926	504	1290	1120	1100	3100	1830	3200	3430	1720	233
3	147	1980	518	1910	970	1040	3080	2110	3610	3540	1560	299
4	141	2360	465	1730	897	969	3120	2510	3220	3750	1420	293
5	141	2620	437	1200	843	920	3160	2930	2830	3570	1280	355
6	140	2370	436	963	881	898	3160	3260	2650	3400	1140	308
7	136	2100	439	872	997	957	3050	5090	2550	3470	973	280
8	132	1730	440	835	1150	1820	2830	7380	2470	3370	835	257
9	130	1300	435	775	1180	2590	2580	7510	2430	3470	732	255
10	127	966	423	728	1030	2750	2310	8600	2430	3810	642	309
11	125	707	403	712	894	2630	2100	8830	2410	4070	565	406
12	125	554	385	711	833	2170	1950	8810	2330	4200	498	509
13	125	458	371	698	804	2070	1830	9120	2180	4230	442	606
14	123	410	363	660	789	2010	1730	9030	2020	4190	401	693
15	125	381	358	623	780	2000	1630	8310	1910	4110	363	759
16	173	349	378	605	757	2040	1500	7440	2040	3860	336	783
17	161	335	428	578	717	2080	1380	6450	2290	3520	308	838
18	155	322	436	549	706	2100	1260	5470	2590	3530	288	899
19	149	313	428	524	1100	2120	1160	4620	3270	3490	272	950
20	143	315	414	518	1390	2100	1100	3970	3040	3460	263	997
21	136	309	404	562	2160	2040	1070	3540	2810	3260	255	1040
22	130	306	400	612	2720	2000	1010	3190	2540	2890	251	1070
23	125	305	400	616	3200	1940	990	2940	2360	2700	240	1080
24	127	303	477	593	2830	1940	972	2830	2300	2750	228	1050
25	1320	303	1680	833	2410	2120	963	2780	2210	2990	219	976
26	2550	344	1810	1900	2130	2540	945	2710	2170	2460	216	910
27	1680	405	1620	3000	1860	2560	929	2590	2290	2520	214	887
28	1430	435	1870	2700	1560	2450	923	2420	2570	2280	211	1150
29	1270	437	3800	2070	1310	2950	1130	2230	2800	2190	223	1320
30	1160	452	2660	1870	---	3490	1320	2080	3040	2090	203	1340
31	1020	---	1570	1670	---	3640	---	2030	---	2000	206	---
TOTAL	13756	25011	25213	34197	39408	63214	55622	144260	77300	101850	18374	21132
MEAN	444	834	813	1103	1359	2039	1854	4654	2577	3285	593	704
MAX	2550	2620	3800	3000	3200	3640	3340	9120	3610	4230	1870	1340
MIN	123	303	358	518	706	898	923	1650	1910	2000	203	233
AC-FT	27290	49610	50010	67830	78170	125400	110300	286100	153300	202000	36440	41920
CAL YR 1975	TOTAL	991930	MEAN	2718	MAX	12000	MIN 123	AC-FT	1967000			
WTR YR 1976	TOTAL	619337	MEAN	1692	MAX	9120	MIN 123	AC-FT	1228000			



## NECHES RIVER BASIN

08033500 Neches River near Rockland, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

		INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COHALT UNITS)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	BIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	HARD- NESS (CA, MG) (MG/L)
DATE	TIME			(UNITS)							
NOV. 10...	1545	450	201	6.5	19.5	120	40	7.2	77	1.1	43
JAN. 12...	1550	720	264	6.6	10.5	50	60	11.6	104	1.4	49
MAR. 22...	1635	1940	226	6.5	19.0	100	35	8.6	91	.8	45
MAY 25...	1430	2750	193	6.3	23.0	120	30	7.2	83	.7	39
JULY 19...	1430	3500	181	6.1	25.5	200	40	6.2	78	1.2	40
SEP. 13...	1530	620	281	6.3	25.5	100	30	8.0	100	.9	51
DATE	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)
NOV. 10...	26	12	3.1	18	1.2	4.4	21	0	32	24	.5
JAN. 12...	30	13	4.0	25	1.6	3.3	23	0	31	39	.2
MAR. 22...	32	11	4.2	21	1.4	3.5	16	0	32	31	.2
MAY 25...	17	9.6	3.6	17	1.2	3.0	26	0	21	25	.2
JULY 19...	16	11	3.1	17	1.2	2.8	30	0	22	22	.2
SEP. 13...	22	13	4.4	32	2.0	3.7	35	0	17	49	.1
DATE	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITU- TENTS) (MG/L)	TOTAL NON- FILT- RABLE RESIDUE (MG/L)	VOL. NON- FILT- RABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)
NOV. 10...	14	119	54	6	.03	.01	.04	.66	.13	8.6	1
JAN. 12...	19	146	240	37	.11	.01	.02	.26	.05	5.6	6
MAR. 22...	12	123	66	1	.00	.00	.01	.47	.03	9.0	6
MAY 25...	13	105	63	0	.07	.01	.02	.67	.07	7.8	0
JULY 19...	11	104	100	24	.13	.00	.01	.20	.08	9.9	6
SEP. 13...	13	150	44	16	.13	.00	.01	.53	.05	3.8	1

## NECHES RIVER BASIN

353

08033500 Neches River near Rockland, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)
NOV. 10...	1545	80	1	80	0	0	0	2
MAR. 22...	1635	0	0	20	0	0	4	1
JULY 19...	1430	60	1	100	0	0	0	0
SEP. 13...	1530	50	1	40	0	0	0	2

DATE	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
NOV. 10...	150	0	7	80	.0	0	190	30
MAR. 22...	60	0	0	50	.0	0	130	0
JULY 19...	210	0	0	0	.3	2	120	0
SEP. 13...	40	3	10	0	.2	2	180	20

## NECHES RIVER BASIN

08033600 Bowles Creek near Selman City, Tex.  
(Low-flow partial-record station)

LOCATION.--Lat 32°11'41", long 94°58'36", Rusk County, at bridge on State Highway 64 and 1.5 miles (2.4 km) west of Selman City.

DRAINAGE AREA.--14.5 mi<sup>2</sup> (37.6 km<sup>2</sup>).

PERIOD OF RECORD.--Occasional discharge measurements and water-quality data: November 1967 to current year.

## DISCHARGE AND WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPF-CIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA, MG/L)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)
OCT. 23...	0940	1.2	808	5.6	18.5	70	56	17	6.7	120
DEC. 04...	1130	3.2	792	5.1	9.0	63	63	14	6.9	120
JAN. 13...	1645	2.8	977	4.3	16.5	71	71	16	7.6	130
MAR. 04...	1015	3.6	2080	4.6	19.0	100	100	25	10	350
APR. 14...	1730	3.4	--	--	25.0	--	--	--	--	--
JUNE 03...	1000	5.0	1330	6.1	20.5	87	80	21	8.3	220
JULY 14...	1730	4.2	2220	5.9	28.0	110	100	26	9.9	370
AUG. 26...	0940	1.4	4240	5.7	23.5	180	180	47	15	780

DATE	SODIUM ADSORPTION RATIO	DIS-SOLVED PHOSPHATE (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT. 23...	6.2	6.5	17	0	9.0	220	.3	24	412
DEC. 04...	6.6	3.2	1	0	12	220	.1	28	405
JAN. 13...	6.7	3.3	0	0	12	250	.3	29	448
MAR. 04...	15	4.2	0	0	12	640	.3	28	1070
APR. 14...	--	--	--	--	--	--	--	--	--
JUNE 03...	10	3.6	8	0	19	390	.1	25	691
JULY 14...	16	4.0	5	0	15	680	.2	29	1140
AUG. 26...	25	5.8	4	0	16	1400	.2	27	2290

## NECHES RIVER BASIN

355

08033900 East Fork Angelina River near Cushing, Tex.

LOCATION.--Lat 31°51'36", long 94°49'23", Rusk County, near left bank on downstream side of bridge on Farm Road 225, 0.1 mile (0.2 km) downstream from Everett Branch, 0.9 mile (1.4 km) upstream from Reagan Branch, 3.5 miles (5.6 km) north of Cushing, and 8 miles (13 km) upstream from Angelina River.

DRAINAGE AREA.--158 mi<sup>2</sup> (409 km<sup>2</sup>).

PERIOD OF RECORD.--January 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is 275.29 ft (83.908 m) above mean sea level.

AVERAGE DISCHARGE.--12 years, 105 ft<sup>3</sup>/s (2,974 m<sup>3</sup>/s), 9.02 in/yr (229 mm/yr), 76,070 acre-ft/yr (93.8 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 2,110 ft<sup>3</sup>/s (59.8 m<sup>3</sup>/s) June 20 (gage height, 10.31 ft or 3.142 m); minimum, 10 ft<sup>3</sup>/s (0.28 m<sup>3</sup>/s) Sept. 26.

Period of record: Maximum discharge, 11,100 ft<sup>3</sup>/s (314 m<sup>3</sup>/s) July 23, 1968 (gage height, 11.66 ft or 3.554 m), from rating curve extended above 4,600 ft<sup>3</sup>/s (130 m<sup>3</sup>/s); minimum, 0.7 ft<sup>3</sup>/s (0.020 m<sup>3</sup>/s) Aug. 14, 1964.

REMARKS.--Records good. No known diversion above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	28	92	95	70	68	140	968	430	61	43	29
2	15	35	64	77	69	66	110	594	433	277	39	27
3	15	289	52	73	63	64	96	183	286	400	36	27
4	14	303	48	63	59	63	91	103	104	240	32	25
5	15	184	46	57	60	176	87	82	73	188	30	24
6	15	80	46	56	167	257	80	74	62	125	28	22
7	15	61	45	62	211	288	73	89	57	104	36	18
8	15	53	45	64	117	467	68	185	54	76	43	16
9	15	49	44	56	87	598	65	141	49	65	31	15
10	15	45	43	54	77	654	59	105	44	62	26	13
11	15	41	42	56	73	430	57	101	40	75	22	12
12	15	38	41	57	69	192	55	82	37	81	20	11
13	14	34	41	57	67	149	54	162	34	62	19	11
14	14	32	42	55	64	156	53	245	31	54	18	12
15	14	32	46	50	62	152	52	234	29	53	17	13
16	15	34	56	49	63	134	51	160	28	50	21	16
17	18	35	54	48	78	111	55	97	28	133	24	14
18	19	35	47	48	258	98	52	74	42	231	25	13
19	17	35	41	48	237	93	50	64	640	480	18	14
20	17	41	40	60	123	94	52	58	1620	502	15	14
21	17	50	40	92	184	112	61	55	868	353	14	18
22	16	42	39	74	230	102	51	52	362	211	13	19
23	19	37	40	61	137	85	45	49	116	278	13	14
24	27	36	43	58	98	116	48	89	75	175	13	12
25	96	36	78	179	85	253	48	77	61	92	12	11
26	182	40	100	255	79	277	42	66	93	74	14	12
27	107	56	68	228	75	319	36	133	214	92	30	38
28	56	49	64	106	72	294	33	168	142	92	30	49
29	44	46	195	79	69	211	495	101	111	61	31	70
30	37	59	247	72	---	159	1130	60	68	53	40	38
31	32	---	183	68	---	174	---	102	---	47	39	---
TOTAL	941	1935	2072	2457	3103	6412	3389	4753	6231	4847	792	627
MEAN	30.4	64.5	66.8	79.3	107	207	113	153	208	156	25.5	20.9
MAX	182	303	247	255	258	654	1130	968	1620	502	43	70
MIN	14	28	39	48	59	63	33	49	28	47	12	11
CFSM	.19	.41	.42	.50	.68	1.31	.72	.97	1.32	.99	.16	.13
IN.	.22	.46	.49	.58	.73	1.51	.80	1.12	1.47	1.14	.19	.15
AC-FT	1870	3840	4110	4870	6150	12720	6720	9430	12360	9610	1570	1240

CAL YR 1975 TOTAL 51978 MEAN 142 MAX 2430 MIN 14 CFSM .90 IN 12.24 AC-FT 103100  
WTR YR 1976 TOTAL 37559 MEAN 103 MAX 1620 MIN 11 CFSM .65 IN 8.84 AC-FT 74500

PEAK DISCHARGE (BASE, 900 FT<sup>3</sup>/S).--Apr. 30 (1700) 1,210 ft<sup>3</sup>/s (9.91 ft); June 20 (0500) 2,110 ft<sup>3</sup>/s (10.31 ft).

## 08034000 Lake Tyler near Whitehouse, Tex.

LOCATION.--Lat 32°14'30", long 95°10'33", Smith County, at city of Tyler pumphouse, 2.0 miles (3.2 km) north of Whitehouse Dam on Prairie Creek, 3.0 miles (4.8 km) northwest of Mud Creek Dam on Mud Creek, and 3.2 miles (5.1 km) northeast of Whitehouse.

DRAINAGE AREA.--107 mi<sup>2</sup> (277 km<sup>2</sup>). Prior to May 29, 1968, 45.3 mi<sup>2</sup> (117.3 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (city of Tyler bench mark). Prior to May 3, 1949, nonrecording gage at dam. May 3, 1949, to July 11, 1951, nonrecording gage at pumphouse. July 12, 1951, to Feb. 1, 1968, water-stage recorder at intake tower in lake 660 ft (201 m) south of pumphouse. All gages at same datum.

EXTREMES.--Current year: Maximum contents, 84,160 acre-ft (104 hm<sup>3</sup>) June 19 (elevation, 376.07 ft or 114.626 m); minimum, 72,690 acre-ft (89.6 hm<sup>3</sup>) Oct. 22 (elevation, 373.64 ft or 113.885 m).

Period of record: Maximum contents, 87,340 acre-ft (108 hm<sup>3</sup>) Feb. 3, 1975 (elevation, 376.71 ft or 114.821 m); maximum elevation, 378.3 ft (115.31 m) Apr. 24, 1966, prior to joining of lakes; minimum contents since joining of lakes, 65,300 acre-ft (80.5 hm<sup>3</sup>) Nov. 17, 1971 (elevation, 371.96 ft or 113.373 m).

REMARKS.--Originally Lake Tyler was formed by Whitehouse Dam. Deliberate impoundment began Jan. 8, 1949, and the dam was completed May 13, 1949. The construction of Mud Creek Dam began Feb. 11, 1966, with deliberate impoundment beginning Nov. 22, 1966, and final completion of dam in January 1967. Whitehouse Dam is a rolled earthfill dam 4,708 ft (1,435 m) long with an uncontrolled concrete spillway 200 ft (61 m) wide located 800 ft (240 m) from left end of dam. Mud Creek Dam is a rolled earthfill dam 4,700 ft (1,400 m) long with an uncontrolled concrete spillway 300 ft (90 m) wide located near center of dam. On May 29, 1968, the lakes were joined through an interconnecting canal. An 18-inch (457-millimeter) conduit through the embankment of Mud Creek Dam serves as a low-flow service outlet. Water is used for municipal supply for the cities of Tyler, Troop, and Whitehouse. The dam is owned and operated by the city of Tyler. Capacity tables based on surveys made in 1948-49 and 1966-67. Data regarding the dams and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	390.0 to 391.5	-
Design flood.....	386.0	-
Crest of spillways.....	375.4	80,900
Bottom of interconnecting canal between lakes.....	355.0	14,480
Lowest gated outlet (invert at Mud Creek dam).....	350.0	7,200

COOPERATION.--Capacity tables were furnished by the city of Tyler.

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

373.0	69,820	376.0	83,820
374.0	74,330	377.0	88,800
375.0	79,000		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74420	73650	74100	76100	79670	81020	81700	81840	82180	80930	80450	78630
2	74240	74190	74150	77090	79720	81070	81550	81700	81800	80830	80350	78720
3	74150	74280	74150	77270	79670	81070	81510	81600	81510	80780	80160	78810
4	74060	74280	74280	77370	79770	81510	81510	81310	81310	81700	80010	78910
5	73970	74240	74280	77410	79960	81650	81460	81510	81170	81750	79870	79000
6	73920	74280	74380	77460	79960	81800	81410	81600	81070	81510	79870	78950
7	73870	74240	74420	77460	79960	82330	81310	81840	80980	81310	79920	78910
8	73780	74240	74470	77510	80110	83920	81410	81750	80830	81120	79870	78770
9	73690	74190	74470	77460	80160	83430	81360	81750	80780	81070	79820	78720
10	73690	74100	74470	77600	80210	82860	81270	81650	80740	81220	79630	78580
11	73650	74100	74470	77690	80250	82370	81270	81600	80690	81170	79580	78390
12	73560	73830	74520	77790	80350	82080	81220	81700	80590	81120	79480	78350
13	73510	73740	74420	77880	80350	81840	81220	82080	80490	81020	79430	78250
14	73420	73690	74520	77830	80450	81750	81170	82470	80450	80980	79340	78350
15	73370	73690	74700	77880	80490	81650	81020	82330	80400	80930	79340	78390
16	73240	73650	74750	77880	80590	81510	81120	82080	80540	80930	79190	78300
17	73150	73690	74700	77930	81170	81410	81220	81800	80450	81550	79140	78300
18	73010	73650	74610	77880	81220	81360	81220	81650	81170	82330	79000	78160
19	72960	73920	74560	78110	81270	81310	81220	81460	84060	82330	78860	78070
20	72920	73870	74560	78300	81270	81510	81270	81410	83050	81940	78770	78300
21	72780	73870	74610	78350	81120	81460	81270	81310	82330	81750	78630	78350
22	72690	73780	74560	78390	81070	81410	81270	81220	81890	81840	78530	78300
23	72920	73830	74610	78440	81070	81270	81410	81650	81510	81600	78440	78210
24	73470	73780	74980	78670	80930	81840	81360	81600	81270	81310	78250	78210
25	73780	73780	75120	79290	81020	82620	81310	81600	81750	81170	78210	78110
26	73780	73780	75170	79430	81020	82760	81220	81840	81510	81070	78070	78490
27	73780	73740	75220	79480	81020	82470	81120	81840	81360	80880	77930	78530
28	73830	73780	75590	79530	81020	82280	81650	81650	81270	80830	77790	79390
29	73780	73780	75680	79580	81020	82280	82180	81460	81120	80740	77740	79580
30	73780	74100	75730	79630	---	81990	82080	81310	80980	80640	77880	79580
31	73690	---	75730	79630	---	81840	---	82370	---	80540	78110	---
(+)	373.86	373.95	374.30	375.13	375.42	375.59	375.64	375.70	375.41	375.32	374.81	375.12
(*)	-820	+410	+1630	+3900	+1390	+820	+240	+290	-1390	-440	-2430	+1470
(+)	1178	900	955	956	850	937	932	918	1065	1020	1501	1019
MAX	74420	74280	75730	79630	81270	83920	82180	82470	84060	82330	80450	79580
MIN	72690	73650	74100	76100	79670	81020	81020	81220	80400	80540	77740	78070
CAL YR 1975.....	* -6260				++ 11865		MAX 87290		MIN 72690			
WTR YR 1976.....	* +5070				++ 12231		MAX 84060		MIN 72690			

+ Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

++ Diversions, in acre-feet, for municipal use by city of Tyler.

## NECHES RIVER BASIN

357

08034500 Mud Creek near Jacksonville, Tex.

LOCATION.--Lat 31°58'35", long 95°09'38", Cherokee County, on right bank on downstream side of pile bent of bridge on U.S. Highway 79, 0.6 mile (1.0 km) downstream from Caney Creek, 3.9 miles (6.3 km) downstream from another Caney Creek, 4 miles (6 km) downstream from Missouri Pacific Railroad Co. bridge, 6.9 miles (11.1 km) east of Jacksonville, and 25.9 miles (41.7 km) upstream from mouth.

DRAINAGE AREA.--376 mi<sup>2</sup> (974 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 271.64 ft (82.796 m) above mean sea level.

AVERAGE DISCHARGE.--9 years (1939-48) prior to regulation by Lake Tyler, 383 ft<sup>3</sup>/s (10.85 m<sup>3</sup>/s), 277,500 acre-ft/yr (342 hm<sup>3</sup>/yr); 28 years (1948-76) regulated, 220 ft<sup>3</sup>/s (6.230 m<sup>3</sup>/s), 159,400 acre-ft/yr (197 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 3,780 ft<sup>3</sup>/s (107 m<sup>3</sup>/s) June 21 (gage height, 9.06 ft or 2.761 m); minimum daily, 9.8 ft<sup>3</sup>/s (0.28 m<sup>3</sup>/s) Oct. 6.

Period of record: Maximum discharge, 27,500 ft<sup>3</sup>/s (779 m<sup>3</sup>/s) Apr. 25, 1966 (gage height, 15.20 ft or 4.633 m); no flow at times. Maximum stage since May 1884, 20 ft (6.1 m) in May 1908 and December 1913; flood in May 1884 was higher (stage unknown), from information by local residents.

REMARKS.--Records good. Some regulation by Lake Tyler (station 08034000), capacity 80,900 acre-ft (99.7 hm<sup>3</sup>). Several diversions above station.

REVISIONS.--WSP 1732: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	26	69	99	87	90	644	761	705	381	52	52
2	11	26	70	78	83	87	580	697	668	211	44	58
3	12	55	71	72	80	85	482	671	592	165	39	74
4	11	81	55	114	76	84	330	611	637	150	37	129
5	10	65	48	203	72	145	233	433	640	177	34	215
6	9.8	49	46	283	83	318	198	228	546	436	30	148
7	10	36	45	245	88	435	182	198	321	664	28	87
8	10	31	45	105	86	627	164	293	201	694	28	79
9	11	29	53	77	80	799	150	348	161	721	37	46
10	11	27	48	72	74	779	143	383	125	626	32	32
11	11	26	44	68	72	1220	137	423	99	389	25	28
12	11	25	42	69	70	1280	121	384	82	267	23	25
13	11	24	42	69	69	903	113	389	69	298	21	24
14	11	23	42	73	67	715	107	481	61	329	20	24
15	11	23	45	66	65	614	102	536	54	248	19	25
16	11	23	54	59	63	524	99	528	75	175	18	37
17	11	24	62	54	68	404	107	535	75	536	18	35
18	11	25	55	51	97	294	110	544	114	538	18	30
19	11	26	46	50	135	233	110	484	828	620	19	27
20	11	43	41	59	153	189	118	336	1520	1060	17	30
21	11	62	39	83	156	187	135	200	3360	1270	16	50
22	11	61	38	90	143	180	135	145	2040	950	15	48
23	12	58	39	87	151	182	117	123	1160	731	14	56
24	18	41	40	73	154	194	132	199	795	603	14	58
25	70	35	73	122	120	350	149	233	1740	496	13	35
26	101	34	105	151	102	552	143	267	1940	408	13	28
27	85	36	109	149	93	794	121	351	820	272	12	49
28	80	38	109	164	92	1350	93	377	681	171	13	96
29	74	40	93	191	91	1230	669	367	637	116	19	125
30	43	47	91	136	---	905	1300	388	575	84	14	122
31	30	---	106	96	---	726	---	421	---	64	34	---
TOTAL	751.8	1139	1865	3308	2770	16475	7224	12334	2132	13850	736	1872
MEAN	24.3	38.0	60.2	107	95.5	531	241	398	711	447	23.7	62.4
MAX	101	81	109	283	156	1350	1300	761	3360	1270	52	215
MIN	9.8	23	38	50	63	84	93	123	54	64	12	24
AC-FT	1490	2260	3700	6560	5490	32680	14330	24460	42290	27470	1460	3710
CAL YR 1975	TOTAL	100002.8	MEAN	274	MAX	6680	MIN	9.8	AC-FT	198400		
WTR YR 1976	TOTAL	83645.8	MEAN	229	MAX	3360	MIN	9.8	AC-FT	165900		

PEAK DISCHARGE (BASE, 2,000 FT<sup>3</sup>/S).--June 21 (0900) 3,780 ft<sup>3</sup>/s (9.06 ft); June 25 (2200) 3,150 ft<sup>3</sup>/s (8.79 ft).



## NECHES RIVER BASIN

08036500 Angelina River near Alto, Tex.

LOCATION.--Lat 31°40'10", long 94°57'24", Nacogdoches-Cherokee County line, near center of rectified channel at downstream side of pier of bridge on State Highway 21, 0.4 mile (0.6 km) upstream from Allen Creek, 1.5 miles (2.4 km) upstream from Bingham Creek, 7.5 miles (12.1 km) east of Alto, and at mile 149.3 (240.2 km).

DRAINAGE AREA.--1,276 mi<sup>2</sup> (3,305 km<sup>2</sup>).

PERIOD OF RECORD.--May to August 1940 (discharge measurements only), September 1940 to March 1949 (fragmentary for 1941-42, 1944-49), February 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 204.30 ft (62.271 m) above mean sea level. May 9, 1940, to Mar. 31, 1949, nonrecording gage on bridge at natural channel 1,400 ft (427 m) to right at same datum. \*Feb. 18 to Sept. 15, 1959, nonrecording gage at present site and datum.

AVERAGE DISCHARGE.--18 years (1942-43, 1959-76), 790 ft<sup>3</sup>/s (22.37 m<sup>3</sup>/s), 572,400 acre-ft/yr (706 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 5,430 ft<sup>3</sup>/s (154 m<sup>3</sup>/s) June 25 (gage height, 17.69 ft or 5.392 m); minimum daily, 58 ft<sup>3</sup>/s (1.64 m<sup>3</sup>/s) Oct. 22-24.

Period of record: Maximum discharge, 30,600 ft<sup>3</sup>/s (867 m<sup>3</sup>/s) Apr. 28, 1966 (gage height, 21.51 ft or 6.556 m), but may have been higher during period of no gage-height record in November 1940; minimum, 2.0 ft<sup>3</sup>/s (0.057 m<sup>3</sup>/s) Aug. 14, 15, 1964.

Maximum stage since at least 1905, about 22 ft (6.7 m) in May 1908, from information by local residents. Flood in 1932 reached a stage of 21.5 ft (6.55 m), and flood in May 1958 reached a stage of 20.3 ft (6.19 m), from floodmarks and information by local residents.

REMARKS.--Records good. No large diversion above station. Flow partly regulated since May 1957 by Lake Striker (revised) 35.5 miles (57.1 km) upstream and Lake Tyler 69.9 miles (112.5 km) upstream since January 1949 (combined capacity, 110,700 acre-ft or 136 hm<sup>3</sup>). Recording rain gage located at station.

REVISIONS.--WSP 1732: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	95	230	198	671	864	402	3560	1980	1220	3050	517	115
2	92	203	201	727	747	375	3290	2750	1260	2870	375	171
3	99	420	248	735	656	357	3070	3760	1370	2630	290	241
4	87	362	273	680	587	344	2790	4340	1600	2350	242	342
5	86	417	252	595	525	430	2390	4410	1880	2090	211	360
6	86	526	231	527	494	687	1940	3970	2060	1920	190	280
7	86	595	216	477	460	817	1550	3300	2100	1760	183	252
8	86	576	204	396	454	1150	1200	2790	2050	1590	177	330
9	86	411	194	360	484	1560	907	2330	1910	1380	164	391
10	86	261	187	380	477	1920	737	1990	1640	1210	183	373
11	85	200	183	390	419	2470	723	1720	1220	1130	171	326
12	85	176	182	361	374	3020	719	1470	749	1150	156	292
13	84	155	182	311	349	3310	577	1330	486	1200	142	261
14	83	141	180	281	331	3420	475	1360	367	1170	125	243
15	83	133	179	264	318	3350	433	1540	306	968	113	242
16	84	127	186	254	307	3130	432	1660	266	747	108	223
17	90	123	203	241	351	2870	537	1760	236	833	106	139
18	86	123	254	229	515	2540	576	1820	253	877	99	105
19	85	123	349	222	617	2150	488	1810	1080	1080	95	102
20	78	128	399	227	693	1800	432	1660	1870	1440	92	105
21	64	134	377	260	826	1460	460	1380	2180	1710	86	103
22	58	147	325	301	943	1140	538	1100	3260	1910	80	101
23	58	181	304	369	989	983	482	1000	4230	2050	76	124
24	58	200	289	388	995	880	425	978	5140	2300	71	154
25	134	190	261	436	994	925	419	963	5390	2600	67	138
26	193	184	254	540	914	1140	401	859	4980	2700	64	126
27	369	178	296	631	713	1940	411	800	4220	2570	62	145
28	467	168	380	748	534	2840	387	863	3790	2220	60	140
29	521	170	455	879	449	3460	1150	969	3560	1750	61	147
30	478	187	509	968	---	3680	1960	1050	3270	1240	69	191
31	326	---	585	958	---	3690	---	1090	---	777	79	---
TOTAL	4448	7169	8536	14806	17379	58280	33459	58802	63945	53272	4514	6262
MEAN	143	239	275	478	599	1880	1115	1897	2132	1718	146	209
MAX	521	595	585	968	995	3690	3560	4410	5390	3050	517	391
MIN	58	123	179	222	307	344	387	800	236	747	60	101
AC-FT	8820	14220	16930	29370	34470	115600	66370	116600	126800	105700	8950	12420
(††)	4.30	5.23	2.20	.82	2.40	4.70	5.43	7.92	4.44	5.19	1.66	3.85
CAL YR 1975	TOTAL	355646	MEAN	974	MAX	11200	MIN	53	AC-FT	705400	††	41.08
WTR YR 1976	TOTAL	330872	MEAN	904	MAX	5390	MIN	58	AC-FT	656300	††	48.14

†† Rainfall, in inches.

## NECHES RIVER BASIN

359

08037000 Angelina River near Lufkin, Tex.

LOCATION.--Lat 31°27'26", long 94°43'34", Angelina-Nacogdoches County line, near right bank at downstream side of bridge on U.S. Highway 59, 100 ft (30 m), revised, upstream from Procella Creek, 1.5 miles (2.4 km) downstream from Bayou Loco, 1.5 miles (2.4 km) upstream from Southern Pacific Lines bridge, 8 miles (13 km) north of Lufkin, and at mile 109.5 (176.2 km).

DRAINAGE AREA.--1,600 mi<sup>2</sup> (4,140 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: October 1923 to September 1934, July 1939 to current year.

Water quality: Chemical and biochemical analyses: October 1954 to current year. Water temperatures: October 1954 to current year.

GAGE.--Water-stage recorder. Datum of gage is 164.72 ft (50.207 m) above mean sea level. Oct. 29, 1923, to Jan. 17, 1926, nonrecording gage at Southern Pacific Lines bridge 1.5 miles (2.4 km) downstream at datum 1.39 ft (0.424 m) lower; Jan. 18, 1926, to Sept. 30, 1934, nonrecording gage at Lufkin-Nacogdoches highway bridge 1,400 ft (427 m) upstream at present datum.

AVERAGE DISCHARGE.--20 years (1923-34, 1939-48) unregulated, 1,438 cfs (40.72 m<sup>3</sup>/s), 1,042,000 acre-ft/yr (1.25 km<sup>3</sup>/yr); 28 years (1948-76) regulated, 1,010 ft<sup>3</sup>/s (28.60 m<sup>3</sup>/s), 731,700 acre-ft/yr (902 km<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 4,850 ft<sup>3</sup>/s (137 m<sup>3</sup>/s) May 6 (gage height, 11.37 ft or 3.466 m); minimum daily, 80 ft<sup>3</sup>/s (2.27 m<sup>3</sup>/s) Oct. 24.

Period of record: Maximum discharge, 38,200 ft<sup>3</sup>/s (1,080 m<sup>3</sup>/s) Feb. 24, 1932; maximum gage height, 18.65 ft (5.654 m) May 7, 1944; minimum discharge, 0.8 ft<sup>3</sup>/s (0.023 m<sup>3</sup>/s) Oct. 29, 30, 1956.

Historic: Flood in May 1884 reached a stage of 26.5 ft (8.08 m) and is the highest since at least that date, and flood in May 1908 reached a stage of 25.0 ft (7.62 m); from information by local residents.

Water quality: Current year: Maximum daily specific conductance, 315 micromhos Oct. 14, 15; minimum daily, 86 micromhos May 1. Maximum water temperatures, 28.0°C Aug. 16; minimum, 5.0°C Jan. 5, 10.

Period of record: Maximum daily specific conductance, 1,090 micromhos Nov. 10, 11, 1963; minimum daily, 38 micromhos Sept. 21, 1958, May 2, 1962. Maximum water temperatures, 32.0°C on several days during July 1966; minimum, freezing point Jan. 11, 12, 1962.

REMARKS.--Discharge records fair. Flow at this station may be affected by releases from Striker Creek Reservoir above station. Water is pumped from stream above control into Lake Kurth.

REVISIONS (WATER YEARS).--WSP 718: 1924, 1926. WSP 1312: 1924(M). WSP 1752: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97	467	266	751	1030	796	3240	3260	1520	4130	1750	101
2	92	378	285	783	1060	677	3510	3530	1710	3920	1120	117
3	92	465	281	824	1010	598	3700	3190	1680	3720	718	148
4	97	735	284	850	920	549	3760	2710	1680	3590	525	173
5	87	831	315	948	827	518	3730	2700	1580	3520	406	257
6	90	720	330	819	747	536	3580	2970	1540	3400	338	302
7	83	640	322	761	688	672	3330	3790	1660	3230	304	296
8	90	645	303	692	652	949	3000	4730	1770	2850	202	249
9	87	679	286	624	618	1219	2530	4450	1860	2390	264	239
10	93	659	274	556	811	1430	1920	4080	1890	2040	244	281
11	88	539	263	522	619	1500	1380	3660	1680	1760	231	312
12	94	382	254	520	607	1790	1050	3150	1780	1490	230	303
13	87	293	252	522	561	1990	929	2840	1480	1320	222	274
14	90	249	250	495	514	2300	868	2440	993	1300	206	247
15	85	220	251	449	479	2630	748	2120	658	1320	190	225
16	97	204	266	469	450	2920	638	1870	492	1270	178	210
17	96	192	266	382	458	3220	577	1740	401	1460	167	206
18	101	180	264	364	488	3460	570	1690	354	1370	178	185
19	101	162	271	352	948	3560	622	1670	730	1200	172	156
20	94	197	315	349	987	3480	653	1680	1460	1150	156	138
21	88	223	375	369	1140	3240	618	1690	1970	1170	143	141
22	85	207	416	381	1340	2870	563	1660	2240	1310	134	161
23	83	199	410	397	1380	2400	557	1510	2300	1510	126	140
24	80	204	387	437	1310	2800	506	1320	2240	1660	117	126
25	151	219	436	612	1290	1870	592	1190	2550	1850	109	135
26	216	221	454	746	1260	1750	540	1090	3290	1990	108	150
27	275	247	395	790	1210	1710	496	1120	3860	2120	102	156
28	269	252	365	794	1120	1700	472	1070	4410	2270	57	191
29	344	246	473	834	959	1910	935	989	4630	2350	99	227
30	440	243	670	892	---	2360	2480	993	4500	2370	95	201
31	487	---	732	958	---	2960	---	1150	---	2220	93	---
TOTAL	4359	11098	10705	19082	25483	53635	48177	72052	59089	67260	9102	6047
MEAN	141	370	345	616	879	1924	1606	2324	1970	2170	294	202
MAX	487	831	732	958	1300	3560	3760	4730	4630	4130	1750	312
MIN	80	162	250	349	450	518	472	569	354	1150	93	101
AC=FT	8650	22010	21230	37850	50550	118200	95560	142900	117200	133400	18050	11990
CAL YR 1975 TOTAL	490473		MEAN	1368	MAX	10680	MIN	64	AC=FT	958700		
WTR YR 1976 TOTAL	392109		MEAN	1071	MAX	4730	MIN	80	AC=FT	777700		

## NECHES RIVER BASIN

08037000 Angelina River near Lufkin, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	BIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)
OCT										
06...	1215	96	293	6.9	20.0	8.8	96	--	38	18
NOV										
10...	1145	650	147	6.2	18.0	7.4	78	1.2	34	26
DEC										
15...	1130	245	171	6.6	15.0	9.0	88	--	37	17
JAN										
12...	1145	515	205	6.6	10.5	11.4	102	.9	37	24
FEB										
23...	1300	1400	226	6.3	13.5	8.9	85	--	47	36
MAR										
22...	1315	2800	196	6.2	17.5	8.0	83	1.0	35	27
APR										
13...	1130	940	202	6.7	19.5	8.3	89	--	44	25
MAY										
25...	1030	1350	202	6.4	22.0	7.0	80	1.0	39	21
JUN										
21...	1130	2090	113	6.0	23.0	6.6	79	--	19	6
JUL										
19...	1130	1200	156	5.9	24.5	6.3	77	1.0	38	14
AUG										
26...	1110	105	210	6.3	27.0	6.4	81	--	38	4
SEP										
13...	1115	240	267	5.9	23.5	7.2	87	.5	49	42

DATE	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SOPP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)
OCT										
06...	8.8	3.9	33	2.3	2.8	24	0	19	55	--
NOV										
10...	8.3	3.1	12	.9	3.3	9	0	28	16	.1
DEC										
15...	9.4	3.4	16	1.1	2.9	25	0	19	20	.3
JAN										
12...	7.9	4.1	19	1.4	2.6	15	0	29	28	.1
FEB										
23...	9.6	5.5	20	1.3	5.5	13	0	40	29	.1
MAR										
22...	7.0	4.3	18	1.3	2.9	10	0	31	26	.1
APR										
13...	9.3	5.1	18	1.2	2.6	23	0	29	26	.1
MAY										
25...	8.4	4.4	18	1.3	2.3	22	0	24	27	.2
JUN										
21...	3.8	2.2	9.3	.9	2.9	15	0	15	13	.1
JUL										
19...	8.7	3.9	13	.9	2.5	29	0	16	17	.2
AUG										
26...	8.1	4.4	21	1.5	2.6	42	0	16	28	.2
SEP										
13...	11	5.3	24	1.5	3.3	9	0	47	38	.1

## NECHES RIVER BASIN

361

08037000 Angelina River near Lufkin, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED SILICA (SIO <sub>2</sub> ) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
OCT 06...	16	150	.10	.00	.03	.54	.07	--	--
NOV 10...	17	93	.01	.00	.01	.51	.11	440	100
DEC 16...	19	102	.07	.00	.01	.31	.09	--	--
JAN 12...	16	114	.09	.00	.01	.48	.08	290	0
FEB 23...	15	131	.06	.00	.04	.88	.08	--	--
MAR 22...	15	110	.00	.00	.02	.63	.07	330	40
APR 13...	18	119	.09	.01	.08	.85	.09	--	--
MAY 25...	16	112	.15	.01	.02	.45	.12	560	50
JUN 21...	12	66	.19	.01	.10	1.6	.07	--	--
JUL 19...	17	93	.17	.00	.03	.10	.10	410	60
AUG 26...	20	121	.26	.01	.08	1.1	.10	--	--
SEP 13...	20	153	.12	.00	.03	.35	.06	120	20

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	4359	244	140	1630	35	408	24	288	41
NOV. 1975.....	11098	159	93	2780	20	600	22	672	35
DEC. 1975.....	10705	202	120	3350	28	798	24	683	38
JAN. 1976.....	19082	215	120	6410	30	1530	24	1220	39
FEB. 1976.....	24524	244	140	9180	35	2300	24	1620	41
MAR. 1976.....	59655	211	120	19600	29	4690	24	3810	38
APR. 1976.....	48177	200	120	15200	27	3530	23	3020	38
MAY 1976.....	72052	171	100	19500	22	4290	22	4350	36
JUNF 1976.....	59089	160	94	14900	20	3220	22	3580	35
JULY 1976.....	67260	151	88	16000	19	3380	22	4060	35
AUG. 1976.....	9102	175	100	2530	23	560	23	566	36
SEPT 1976.....	6047	204	120	1910	26	455	23	382	38
TOTAL .....	391150	**	**	113000	**	25800	**	24300	**
MTD.AVG. ....	1071.64	184	110	**	24	**	23	**	37

## NECHES RIVER BASIN

08037000 Angelina River near Lufkin, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C); WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	253	170	181	169	271	230	199	88	207	137	163	182
2	265	172	170	183	270	218	190	101	203	128	162	179
3	265	195	164	197	277	212	181	111	165	129	171	176
4	280	176	159	219	285	210	186	121	159	137	174	168
5	283	142	158	234	280	208	207	132	173	145	184	150
6	289	129	155	252	284	204	217	159	197	157	183	149
7	292	157	163	265	291	208	211	183	200	166	186	148
8	296	166	164	270	289	211	197	190	185	159	184	139
9	301	153	165	279	246	214	192	194	189	147	184	145
10	308	149	170	285	230	217	195	178	203	145	186	156
11	304	154	175	265	218	215	199	185	220	150	184	177
12	306	161	177	216	216	214	201	200	212	156	183	246
13	311	186	175	181	214	204	220	201	191	159	183	261
14	315	169	174	173	216	203	252	196	189	154	181	266
15	315	171	175	176	218	209	264	174	188	160	178	265
16	311	169	173	184	213	224	237	168	193	161	178	275
17	295	168	170	186	211	232	212	156	197	165	183	277
18	299	166	171	189	218	234	201	173	191	160	179	282
19	299	165	169	187	196	240	195	199	193	153	183	280
20	299	164	169	186	182	226	254	210	153	145	175	277
21	300	158	170	185	220	216	273	213	115	154	176	271
22	309	158	188	186	221	203	243	203	105	165	169	263
23	304	157	281	183	222	200	205	194	114	160	172	260
24	294	155	310	195	237	197	197	181	121	142	176	215
25	265	156	305	227	250	205	254	196	125	131	183	198
26	235	157	279	197	267	199	237	218	121	127	194	173
27	220	157	272	195	268	200	203	228	143	149	194	183
28	211	153	274	193	265	201	195	175	153	177	189	166
29	151	150	257	201	256	172	243	170	148	181	179	158
30	183	155	208	219	---	174	94	168	143	173	181	153
31	163	---	162	262	---	188	---	185	---	163	177	---
MONTH	275	161	196	211	242	209	212	176	170	153	180	208

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.0	19.0	10.0	10.0	10.0	18.0	16.0	17.0	21.0	25.0	27.0	25.0
2	20.0	20.0	10.0	12.0	8.0	20.0	18.0	17.0	22.0	26.0	27.5	25.0
3	16.0	19.0	10.0	7.0	8.0	20.0	18.0	17.0	22.0	26.0	25.0	25.0
4	17.0	19.0	10.0	6.0	14.0	20.0	19.0	18.0	23.0	26.0	25.0	25.5
5	18.0	19.0	13.0	5.0	14.0	19.0	18.0	20.0	22.0	24.0	25.0	25.0
6	17.0	18.0	13.0	9.0	9.0	16.0	18.0	20.0	23.0	25.0	26.0	24.5
7	18.0	18.0	15.0	7.5	8.0	16.0	18.0	20.0	22.0	25.0	27.0	24.0
8	18.0	20.0	13.0	7.0	9.0	16.0	18.0	19.0	22.0	25.0	27.0	24.0
9	20.0	20.0	11.0	7.0	10.0	13.0	18.0	19.0	22.0	25.0	27.0	24.0
10	20.0	18.0	9.0	5.0	14.0	11.0	17.0	20.0	22.0	25.5	25.0	24.0
11	22.0	16.0	10.0	10.0	15.0	13.0	19.0	20.0	22.0	25.0	26.0	22.0
12	22.0	16.0	13.0	9.0	15.0	18.0	20.0	21.5	22.0	25.0	26.0	22.0
13	21.0	15.0	15.0	10.0	15.0	13.0	20.0	20.0	25.0	25.0	26.0	21.0
14	22.0	12.0	16.0	8.0	17.0	11.0	21.0	19.0	25.0	25.0	26.0	13.0
15	24.0	12.0	17.0	8.0	18.0	14.0	22.0	19.0	26.0	25.5	27.0	23.0
16	27.0	14.0	12.0	10.0	18.0	12.0	22.0	20.0	25.0	25.0	28.0	23.0
17	26.0	14.0	10.0	10.0	19.0	12.0	23.0	19.5	26.0	25.0	27.0	24.0
18	18.0	14.0	7.0	10.0	16.0	14.0	23.0	18.0	26.0	25.0	26.0	24.0
19	17.0	16.0	7.0	10.0	15.0	17.0	22.0	18.0	26.0	24.0	25.0	24.0
20	16.0	13.0	8.0	9.0	18.0	19.0	21.0	19.0	23.0	24.0	25.0	24.0
21	18.0	11.0	7.0	8.0	15.0	16.0	20.0	20.0	21.0	25.0	24.0	23.0
22	19.0	10.0	7.0	8.0	15.0	16.0	20.0	20.0	22.0	25.0	24.0	20.0
23	20.0	9.0	9.0	9.0	11.0	16.5	22.0	21.0	24.0	25.5	23.0	20.0
24	22.0	9.0	7.0	13.0	12.0	17.0	23.0	21.0	25.0	26.0	24.0	20.0
25	18.0	8.0	7.0	14.0	14.0	18.0	21.0	22.0	25.0	26.0	24.0	21.0
26	16.0	10.0	6.5	10.0	14.0	19.0	18.0	22.0	25.5	26.0	25.0	23.0
27	17.0	10.0	7.0	7.0	14.0	16.0	19.0	22.0	25.0	26.0	24.0	23.0
28	20.0	10.0	9.0	8.0	15.0	16.0	19.0	20.0	25.0	26.5	25.0	22.0
29	20.0	13.0	9.0	8.0	17.0	19.0	19.0	20.0	---	27.0	25.0	21.0
30	19.0	13.0	8.0	8.0	---	18.0	16.0	24.0	25.0	27.0	25.0	20.0
31	17.0	---	7.0	10.0	---	15.0	---	22.0	---	27.0	25.0	---
MONTH	19.0	14.5	17.0	9.0	13.5	16.0	19.5	20.0	23.5	25.5	25.5	22.5

## NECHES RIVER BASIN

363

08037050 Bayou LaNana at Nacogdoches, Tex.

LOCATION.--Lat 31°36'58", long 94°38'28", Nacogdoches County, on right bank at downstream side of bridge on Farm Road 1878 in Nacogdoches and 14.5 miles (23.3 km) upstream from mouth.

DRAINAGE AREA.--31.3 mi<sup>2</sup> (81.1 km<sup>2</sup>).

PERIOD OF RECORD.--October 1964 to current year.

GAGE.--Water-stage recorder. Prior to July 1974, concrete control. Datum of gage is 264.23 ft (80.537 m) above mean sea level.

AVERAGE DISCHARGE.--12 years, 28.4 ft<sup>3</sup>/s (0.804 m<sup>3</sup>/s), 12.32 in/yr (313 mm/yr), 20,580 acre-ft/yr (25.4 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 707 ft<sup>3</sup>/s (20.0 m<sup>3</sup>/s) July 5 (gage height, 9.47 ft or 2.886 m); minimum, 0.12 ft<sup>3</sup>/s (0.003 m<sup>3</sup>/s) Sept. 11-14.

Period of record: Maximum discharge, 9,000 ft<sup>3</sup>/s (255 m<sup>3</sup>/s) Feb. 1, 1975 (gage height, 19.85 ft or 6.050 m), from rating curve extended above 2,800 ft<sup>3</sup>/s (79.3 m<sup>3</sup>/s) on basis of indirect measurement of peak flow; no flow at times.

Maximum stage since at least 1956, that of Feb. 1, 1975. Flood in April 1957 reached a stage of 19.6 ft (5.97 m), from information by Texas Highway Department and local resident.

REMARKS.--Records fair. No diversion above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	1.7	3.7	5.8	8.9	12	20	31	211	12	2.0	.44
2	.96	21	3.2	7.0	7.8	12	16	19	36	11	1.4	.42
3	.93	44	2.9	5.2	7.3	11	15	14	22	10	1.1	.36
4	.93	8.8	2.9	4.9	7.1	10	14	13	16	57	.99	.46
5	.98	4.5	2.9	4.7	7.1	18	13	12	14	181	.89	.28
6	1.0	3.2	2.8	5.0	12	13	12	11	13	64	.83	.26
7	1.1	3.1	2.7	5.8	10	21	11	99	11	25	.79	.29
8	1.1	2.9	2.8	4.7	8.5	61	10	50	9.5	18	.70	.24
9	1.1	2.9	2.7	4.5	7.9	44	9.8	21	8.5	16	.65	.25
10	1.1	2.6	2.7	4.7	7.7	22	9.4	28	7.6	15	.58	.19
11	1.0	2.5	2.8	4.8	7.4	18	9.0	20	6.8	16	.53	.14
12	1.0	2.5	2.9	4.9	7.2	16	8.8	18	6.2	13	.50	.14
13	1.0	2.3	2.9	4.8	6.9	15	8.4	45	5.8	12	.46	.18
14	1.0	2.4	3.0	4.3	6.7	20	8.2	34	5.4	11	.35	.17
15	1.3	2.5	4.1	4.1	6.7	19	8.0	19	5.2	10	.30	.21
16	2.2	2.6	3.3	4.2	7.0	16	7.8	15	5.1	11	.35	.20
17	1.6	2.7	2.9	3.9	82	13	7.6	13	5.0	17	.32	5.0
18	1.2	2.7	2.7	4.0	140	12	7.4	11	28	15	.47	.61
19	1.2	11	2.6	4.1	27	11	7.3	9.6	240	24	.27	.29
20	1.2	5.7	2.7	7.6	21	13	13	8.8	34	13	.25	17
21	1.2	2.9	2.7	5.2	115	13	11	8.2	13	9.6	.19	2.1
22	1.3	2.6	2.8	4.7	35	11	9.6	7.8	9.0	8.5	.19	.68
23	9.6	2.6	2.8	4.5	23	10	8.6	7.6	7.5	6.6	.29	.41
24	2.2	2.6	11	4.9	20	64	7.8	52	5.7	6.3	1.3	.37
25	34	2.5	11	47	17	58	7.2	17	22	6.0	.57	.34
26	8.5	3.2	4.3	19	16	45	6.6	15	182	9.6	.33	1.7
27	2.6	2.7	3.8	11	15	37	6.2	113	24	67	.33	12
28	2.2	2.7	9.2	9.4	14	23	6.0	21	16	12	.30	7.5
29	3.6	2.7	21	8.7	13	23	274	13	12	6.6	.28	1.6
30	2.2	10	9.1	8.2	---	34	63	14	10	3.8	.36	.56
31	1.8	---	6.7	8.6	---	33	---	116	---	2.6	.39	---
TOTAL	92.10	166.1	143.6	230.2	664.2	728	615.7	881.0	991.3	689.6	18.26	54.39
MEAN	2.97	5.54	4.63	7.43	22.9	23.5	20.5	28.4	33.0	22.2	.59	1.81
MAX	34	44	21	47	140	64	274	116	240	181	2.0	17
MIN	.93	1.7	2.6	3.9	6.7	10	6.0	7.6	5.0	2.6	.19	.14
CFSM	.09	.18	.15	.24	.73	.75	.65	.91	1.05	.71	.02	.06
IN.	.11	.20	.17	.27	.79	.87	.73	1.05	1.18	.82	.02	.06
AC-FT	183	329	285	457	1320	1440	1220	1750	1970	1370	36	108

CAL YR 1975 TOTAL 15606.13 MEAN 42.8 MAX 3420 MIN .93 CFSM 1.37 IN 18.55 AC-FT 30950  
WTR YR 1976 TOTAL 5274.45 MEAN 14.4 MAX 274 MIN .14 CFSM .46 IN 6.27 AC-FT 10460

PEAK DISCHARGE (BASE, 1,100 FT<sup>3</sup>/S).--No peak above base.



## NECHES RIVER BASIN

08037080 Bayou LaNana near Nacogdoches, Tex.

LOCATION.--Lat 31°31'10", long 94°39'21", Nacogdoches County, at bridge on county road, 2.6 miles (4.2 km) upstream from Southern Pacific Lines bridge, 5 miles (8 km) upstream from Black Bayou, and 6 miles (10 km) south of Nacogdoches.

PERIOD OF RECORD.--Periodic chemical analyses: June 1964 to current year. Biochemical analyses: October 1967 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	BIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)
OCT 06...	1300	434	7.1	17.5	6.6	69	--	30	0	8.4
NOV 10...	1245	255	6.7	19.5	7.2	77	3.6	50	0	13
DEC 15...	1215	383	6.7	16.5	5.2	53	--	47	0	12
JAN 12...	1230	252	6.5	13.0	9.4	89	4.9	44	0	10
FEB 23...	1400	223	6.3	13.0	9.4	89	--	55	24	11
MAR 22...	1400	240	6.9	18.5	9.9	105	7.2	53	13	11
APR 13...	1215	279	6.5	22.0	5.8	66	--	51	7	11
MAY 25...	1115	219	6.4	23.0	5.3	61	8.0	46	17	10
JUN 21...	1215	211	5.8	23.5	5.6	67	--	43	11	8.8
JUL 19...	1215	119	6.0	23.5	5.6	67	8.2	28	5	7.4
AUG 26...	1200	374	6.7	25.0	3.0	37	--	44	0	11
SEP 13...	1200	479	6.8	21.5	4.5	52	8.6	32	0	8.3

DATE	DIS- SOLVED MAG- NE- SIUM (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)
OCT 06...	2.2	69	5.5	7.0	136	0	30	27	--
NOV 10...	4.3	29	1.8	4.5	70	0	22	16	.4
DEC 15...	4.2	44	2.8	5.4	132	0	24	19	.3
JAN 12...	4.6	27	1.8	3.6	77	0	25	17	.2
FEB 23...	6.6	18	1.1	3.3	37	0	36	17	.2
MAR 22...	6.1	21	1.3	3.3	48	0	32	17	.3
APR 13...	5.7	30	1.8	4.0	54	0	31	17	.2
MAY 25...	5.1	18	1.2	3.6	35	0	35	14	.2
JUN 21...	5.0	17	1.1	3.7	38	0	35	15	.2
JUL 19...	2.4	9.1	.7	3.0	28	0	11	7.0	.3
AUG 26...	3.9	50	3.3	7.0	138	0	25	21	.4
SEP 13...	2.8	81	6.2	8.0	154	0	35	33	.4

## NECHES RIVER BASIN

365

08037080 Bayou LaNana near Nacogdoches, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED SILICA (SiO <sub>2</sub> ) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
OCT 06...	15	226	2.0	.20	1.6	3.3	3.2	--	--
NOV 10...	14	138	1.3	.08	.21	1.2	.88	70	70
DEC 15...	14	188	1.4	.10	4.4	4.5	2.1	--	--
JAN 12...	11	136	1.5	.04	.40	.90	.86	10	0
FEB 23...	15	125	.90	.04	1.2	.60	.61	--	--
MAR 22...	14	128	1.7	.74	.06	1.3	.79	80	0
APR 13...	16	142	2.0	.20	2.5	.90	1.4	--	--
MAY 25...	12	115	1.2	.15	1.0	1.2	.64	150	30
JUN 21...	15	118	.52	.08	.49	1.9	.38	--	--
JUL 19...	8.5	63	.66	.07	.70	1.4	.36	60	20
AUG 26...	14	200	.52	.19	4.0	.00	2.1	--	--
SEP 13...	17	261	2.8	.77	1.2	2.7	3.5	60	0

## NECHES RIVER BASIN

08037200 Paper Mill Creek near Herty, Tex.

LOCATION.--Lat 31°23'32", long 94°39'46", Angelina County, at bridge on county road, 2.0 miles (3.2 km) upstream from Mill Creek, and 2.3 miles (3.7 km) northeast of Herty.

PERIOD OF RECORD.--Periodic chemical analyses: June 1964 to current year. Biochemical analyses: October 1967 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	BIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)
OCT 06...	1345	2260	7.5	35.0	4.8	68	--	240	0	89
NOV 10...	1330	1850	7.2	34.0	5.2	72	13	160	1	57
DEC 15...	1300	1930	6.9	31.5	4.4	59	--	170	34	61
JAN 12...	1315	2180	7.0	32.5	4.3	58	20	230	58	85
FEB 23...	1500	2220	7.1	31.0	4.0	53	--	240	0	85
MAR 22...	1445	2130	7.2	33.5	3.0	42	28	190	0	69
APR 13...	1300	2030	7.1	33.5	3.6	50	--	230	1	83
MAY 25...	1145	1690	7.1	34.5	4.0	56	23	140	0	51
JUN 21...	1315	1770	7.1	37.5	4.2	62	--	230	20	86
JUL 19...	1300	1970	7.1	38.0	4.7	70	19	190	64	68
AUG 26...	1045	2170	7.3	39.5	5.3	80	--	130	14	44
SEP 13...	1300	2230	7.3	38.5	5.6	84	23	160	0	55

DATE	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)
OCT 06...	4.3	380	11	11	296	0	230	460	--
NOV 10...	4.0	320	11	8.0	192	0	200	340	1.9
DEC 15...	5.0	330	11	9.5	169	0	180	400	2.1
JAN 12...	4.5	340	9.7	11	211	0	200	440	2.4
FEB 23...	5.5	410	12	13	311	0	250	460	2.8
MAR 22...	4.8	360	11	12	351	0	230	360	--
APR 13...	5.2	350	10	9.5	277	0	250	350	2.1
MAY 25...	3.9	290	11	6.8	234	0	160	300	1.6
JUN 21...	4.7	270	7.7	7.0	261	0	150	350	1.8
JUL 19...	4.8	330	10	7.0	153	0	190	410	2.5
AUG 26...	4.7	400	15	10	141	0	230	480	3.0
SEP 13...	4.3	390	14	12	189	0	230	470	2.6

## NECHES RIVER BASIN

367

08037200 Paper Mill Creek near Herty, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED SILICA (SiO <sub>2</sub> ) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOLVED IRON (FF) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)
OCT 6...	15	1340	.00	.00	.48	2.5	.25	--	--
NOV 10...	15	1040	.00	.01	1.2	2.9	.25	1100	340
DEC 15...	15	1090	.00	.02	.20	--	.20	--	--
JAN 12...	15	1200	.00	.02	.22	2.5	.19	1100	900
FEB 23...	16	1400	.03	.00	.50	3.6	.32	--	--
MAR 22...	15	1230	.01	.02	.33	2.9	.23	1700	810
APR 13...	16	1200	.00	.05	.18	3.0	.23	--	--
MAY 25...	14	945	.03	.00	3.0	2.7	.17	1000	1000
JUN 21...	13	1010	.00	.02	.73	2.4	.10	--	--
JUL 19...	14	1100	.00	.08	.09	.01	.14	1200	950
AUG 26...	15	1260	.00	.08	.32	3.4	.13	--	--
SEP 13...	14	1270	.02	.01	.13	2.1	.13	--	--

## NECHES RIVER BASIN

08037250 Angelina River below Paper Mill Creek near Herty, Tex.

LOCATION.--Lat 31°26'22", long 94°37'11", Angelina County, at end of county road, 1.5 miles (2.4 km) downstream from Paper Mill Creek, and 7 miles (11 km) northeast of Herty.

PERIOD OF RECORD.--Periodic chemical analyses: June 1954 to current year. Biochemical analyses: October 1967 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	PER-CENT SATURATION	BIO-CHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)
OCT 06...	1430	831	7.0	22.5	6.8	77	--	90	6	30
NOV 10...	1415	353	6.3	19.5	7.1	76	2.2	48	23	14
JAN 12...	1400	512	6.5	10.5	10.1	90	2.3	66	35	18
FEB 23...	1345	351	6.2	15.0	7.5	74	--	61	28	16
MAR 22...	1515	317	6.1	18.5	6.9	73	3.5	49	28	12
APR 13...	1330	340	6.4	20.5	7.4	81	--	56	21	14
MAY 25...	1300	297	6.3	22.0	6.9	78	1.4	46	16	11
JUN 21...	1430	256	6.4	23.0	6.0	71	--	37	4	10
AUG 26...	0945	736	6.5	27.0	3.8	48	--	68	4	20
SEP 13...	1400	571	6.3	24.5	5.3	65	2.6	71	33	20

DATE	DIS-SOLVED MAGNESIUM (MG)	DIS-SOLVED SODIUM (NA) (MG/L)	SODIUM ADSORPTION RATIO	DIS-SOLVED PHOSPHORIUM (P) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)
OCT 06...	3.6	120	5.5	5.0	102	0	64	160	--
NOV 10...	3.2	39	2.4	3.9	31	0	47	51	.2
JAN 12...	5.1	65	3.5	3.7	38	0	53	92	.3
FEB 23...	5.0	38	2.1	4.0	40	0	51	48	.3
MAR 22...	4.6	35	2.2	3.3	25	0	41	47	.3
APR 13...	5.1	37	2.2	3.2	43	0	43	44	.3
MAY 25...	4.4	33	2.1	2.6	36	0	35	39	.2
JUN 21...	2.9	29	2.1	3.0	40	0	26	36	.2
AUG 26...	4.4	110	5.8	4.2	78	0	58	140	.8
SEP 13...	5.1	75	3.9	4.3	46	0	71	93	.4

DATE	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED MANGANESE (MN) (UG/L)
OCT 06...	16	449	.13	.01	.10	1.0	.18	--	--
NOV 10...	17	191	.02	.01	.17	.65	.11	630	140
JAN 12...	17	273	.09	.00	.04	.40	.11	560	10
FEB 23...	14	196	.13	.01	.11	.89	.10	--	--
MAR 22...	14	170	.00	.00	.04	.57	.07	520	110
APR 13...	17	185	.15	.01	.13	.87	.08	--	--
MAY 25...	17	161	.19	.01	.16	.55	.10	800	140
JUN 21...	13	140	.21	.01	.14	1.3	.09	--	--
AUG 26...	18	394	.21	.02	.17	1.8	.15	--	--
SEP 13...	19	311	.19	.01	.06	.79	.12	650	300

## NECHES RIVER BASIN

369

08038000 Attoyac Bayou near Chireno, Tex.

LOCATION.--Lat 31°30'15", Long 94°18'15", Nacogdoches-San Augustine County line, near right bank on downstream side of pier of bridge on State Highway 21, 2.2 miles (3.5 km) upstream from Amaladeros Creek, 2.8 miles (4.5 km) east of Chireno, 5.4 miles (8.7 km) downstream from Arenoso Creek, and 41 miles (66 km) upstream from mouth.

DRAINAGE AREA.--503 mi<sup>2</sup> (1,303 km<sup>2</sup>).

PERIOD OF RECORD.--January 1924 to September 1925, July 1939 to November 1954, and October 1955 to current year. Monthly discharge only for some periods, published in WSP 1312 and 1732.

GAGE.--Water-stage recorder. Datum of gage is 169.58 ft (51.688 m) above mean sea level. Jan. 24, 1924, to Aug. 29, 1925, and Sept. 6, 1957, to Oct. 27, 1958, nonrecording gage at same site and datum.

AVERAGE DISCHARGE.--37 years, 441 ft<sup>3</sup>/s (12.49 m<sup>3</sup>/s), 11.91 in/yr (303 mm/yr), 319,500 acre-ft/yr (394 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 1,300 ft<sup>3</sup>/s (36.8 m<sup>3</sup>/s) July 9 (gage height, 14.43 ft or 4.398 m); minimum, 38 ft<sup>3</sup>/s (1.08 m<sup>3</sup>/s) Sept. 13, 14.

Period of record: Maximum discharge, 31,900 ft<sup>3</sup>/s (903 m<sup>3</sup>/s) Nov. 24, 1940 (gage height, 25.97 ft or 7.916 m); minimum, 0.8 ft<sup>3</sup>/s (0.023 m<sup>3</sup>/s) Aug. 26, 27, 1956.

Maximum stage since at least 1865, 29.9 ft (9.11 m) June 29, 1902, from information by local residents. Flood in July 1933 reached a stage of 25.2 ft (7.68 m), from information by local residents.

REMARKS.--Records good. At end of year, flow from 29.8 mi<sup>2</sup> (77.2 km<sup>2</sup>) above this station may be affected by eight floodwater-retarding structures with a combined detention capacity of 10,060 acre-ft (12.4 hm<sup>3</sup>).

REVISIONS.--WSP 1732: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	119	269	301	242	251	762	456	526	662	131	58
2	61	116	223	292	238	248	729	542	675	600	108	132
3	58	294	199	340	216	216	643	561	699	722	95	151
4	56	639	190	266	204	206	438	539	732	775	86	103
5	55	711	164	220	192	202	322	377	755	883	78	77
6	55	684	150	206	188	203	276	204	705	999	72	69
7	56	593	143	195	189	269	246	168	422	1140	67	58
8	57	336	138	192	276	542	225	263	206	1270	65	48
9	57	199	135	175	401	682	205	331	150	1290	64	44
10	57	160	132	172	439	671	185	438	127	1210	64	43
11	57	139	128	171	359	621	171	423	112	895	54	41
12	57	125	126	170	255	573	162	309	98	399	63	39
13	56	113	125	168	218	519	153	313	88	254	51	39
14	55	102	124	166	199	408	148	365	80	205	49	41
15	54	99	125	156	188	340	144	326	74	174	48	43
16	102	98	137	151	180	337	136	313	69	161	49	43
17	120	98	151	144	198	329	130	275	68	432	65	42
18	85	98	147	138	420	293	123	205	72	749	58	48
19	77	98	143	136	581	259	120	157	208	805	60	50
20	71	103	133	143	611	235	122	130	528	884	56	46
21	69	120	126	175	797	222	133	114	601	905	50	53
22	66	119	120	175	917	214	136	103	634	898	46	70
23	66	120	120	178	890	208	125	96	682	913	43	58
24	74	115	125	180	840	268	117	115	748	906	42	52
25	121	109	248	435	786	528	118	124	810	871	43	50
26	285	113	359	696	608	602	131	110	900	732	49	44
27	354	167	316	682	374	628	118	127	930	397	48	43
28	299	151	286	589	291	618	105	153	908	272	49	97
29	244	148	275	488	259	600	111	346	878	404	45	143
30	178	183	269	335	---	613	222	390	837	298	51	146
31	139	---	274	257	---	731	---	323	---	185	50	---
TOTAL	3204	6269	5600	8092	11556	12636	6756	8696	14322	21290	1899	1971
MEAN	103	209	181	261	398	408	225	281	477	687	61.3	65.7
MAX	354	711	359	696	917	731	762	561	930	1290	131	151
MIN	54	98	120	136	180	202	105	96	68	161	42	39
CFSM	.20	.42	.36	.52	.79	.81	.45	.56	.95	1.37	.12	.13
IN.	.24	.46	.41	.60	.85	.93	.50	.64	1.06	1.57	.14	.15
AC-FT	6360	12430	11110	16050	22920	25060	13400	17250	28410	42230	3770	3910

CAL YR 1975 TOTAL 207995 MEAN 570 MAX 6600 MIN 54 CFSM 1.13 IN 15.38 AC-FT 412600  
WTR YR 1976 TOTAL 102291 MEAN 279 MAX 1290 MIN 39 CFSM .55 IN 7.57 AC-FT 202900

PEAK DISCHARGE (BASE, 2,500 FT<sup>3</sup>/s).--No peak above base.



## NECHES RIVER BASIN

08039100 Ayish Bayou near San Augustine, Tex.

LOCATION.--Lat 31°23'46", long 94°09'03", San Augustine County, near center of span at downstream side of pier of bridge on State Highway 103, 3.0 miles (4.8 km) upstream from Turkey Creek, and 9.5 miles (15.3 km) south of San Augustine.

DRAINAGE AREA.--89.0 mi<sup>2</sup> (230.5 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 190.22 ft (57.979 m) above mean sea level. Prior to June 2, 1959, nonrecording gage at same site and datum.

AVERAGE DISCHARGE.--17 years, 80.3 ft<sup>3</sup>/s (2.274 m<sup>3</sup>/s), 12.25 in/yr (311 mm/yr), 58,180 acre-ft/yr (71.7 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 714 ft<sup>3</sup>/s (20.2 m<sup>3</sup>/s) Feb. 22 (gage height, 10.75 ft or 3.277 m); minimum, 0.10 ft<sup>3</sup>/s (0.003 m<sup>3</sup>/s) Aug. 27-29.

Period of record: Maximum discharge, 13,200 ft<sup>3</sup>/s (374 m<sup>3</sup>/s) Apr. 9, 1968 (gage height, 16.82 ft or 5.127 m); no flow at times.

Maximum discharge since October 1957, 15,900 ft<sup>3</sup>/s (450 m<sup>3</sup>/s) Sept. 21 or 22, 1958 (gage height, 17.5 ft or 5.33 m, from flood-marks).

REMARKS.--Records fair. No known diversion above station. Recording rain gage located at station.

REVISIONS (WATER YEARS).--WSP 1922: 1959(N).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.2	17	39	50	68	58	127	33	251	141	9.5	1.2
2	6.0	16	35	47	64	55	90	27	130	308	8.4	.67
3	5.2	247	28	59	53	53	76	22	62	66	7.3	5.4
4	5.2	170	24	45	48	50	69	20	41	43	7.1	10
5	4.7	64	23	38	45	51	65	18	32	46	6.6	6.8
6	4.6	49	23	35	51	59	59	16	28	65	6.0	6.3
7	4.9	36	23	42	49	91	54	20	25	40	5.2	5.0
8	5.1	30	22	50	43	439	54	73	24	29	6.0	3.3
9	5.6	27	22	38	41	322	50	53	21	26	5.7	2.5
10	5.7	25	21	36	40	141	44	59	18	36	4.6	1.8
11	4.9	24	20	37	40	99	40	57	16	30	3.2	1.3
12	5.1	20	20	37	39	87	38	42	14	24	2.4	1.3
13	5.1	17	20	36	38	79	36	116	13	22	1.8	.81
14	4.4	15	20	35	36	74	36	126	11	18	1.6	.66
15	5.3	15	20	31	35	88	35	64	10	16	1.3	.67
16	6.7	15	22	29	34	91	33	44	13	15	1.7	.90
17	11	16	27	28	47	73	31	34	19	338	2.1	1.2
18	9.8	15	24	26	417	64	30	28	15	259	3.4	1.6
19	9.2	14	20	26	252	60	31	24	60	72	1.9	1.5
20	7.9	16	19	28	102	60	34	21	108	46	1.2	2.1
21	6.7	20	18	38	380	59	37	19	36	35	.77	2.9
22	6.4	18	18	36	568	53	29	18	21	55	.48	4.0
23	5.8	16	13	31	166	49	25	16	16	31	.19	5.2
24	7.1	15	21	30	105	88	24	57	13	24	.+1	4.3
25	78	14	112	322	87	499	48	48	11	21	.37	2.8
26	149	21	103	385	77	257	40	27	18	19	.25	2.0
27	71	32	59	133	70	246	28	39	98	19	.11	1.9
28	33	26	50	79	65	153	24	46	120	17	.26	3.9
29	22	36	116	65	61	113	24	28	48	14	.18	32
30	21	45	91	58	---	108	37	22	25	12	.25	23
31	23	---	62	55	---	233	---	32	---	11	1.1	---
TOTAL	545.6	1091	1140	1986	3121	3952	1366	1249	1367	1898	91.37	136.99
MEAN	17.6	35.4	36.8	64.1	108	127	44.9	40.3	45.6	61.2	2.95	4.57
MAX	149	247	116	385	568	499	127	126	251	338	9.5	32
MIN	4.4	14	18	26	34	49	24	16	10	11	.11	.64
CFSM	.20	.41	.41	.72	1.21	1.43	.50	.45	.51	.59	.03	.05
IN.	.23	.46	.48	.83	1.30	1.65	.56	.52	.57	.79	.04	.06
AC-FT	1080	2160	2260	3940	6190	7840	2670	2480	2710	3760	181	272
(††)	3.83	3.90	2.00	2.52	2.32	4.64	1.63	4.59	3.69	3.16	1.42	2.10

CAL YR 1975 TOTAL 47325.20 MEAN 131 MAX 2900 MIN 4.4 CFSM 1.47 IN 19.99 AC-FT 94860 †† 42.86  
WTR YR 1976 TOTAL 17925.96 MEAN 49 MAX 568 MIN .11 CFSM .55 IN 7.49 AC-FT 35560 †† 35.80

PEAK DISCHARGE (BASE, 1,500 FT<sup>3</sup>/S).--No peak above base.

†† Rainfall, in inches.

## 08039300 Sam Rayburn Reservoir near Jasper, Tex.

LOCATION.--Lat 31°03'38", long 94°06'21", Jasper County, in the powerhouse-intake structure of Sam Rayburn Dam on the Angelina River, 10 miles (16 km) northwest of Jasper, and 25.2 miles (40.5 km) upstream from mouth.

DRAINAGE AREA.--3,449 mi<sup>2</sup> (8,933 km<sup>2</sup>).

PERIOD OF RECORD.--Contents: January 1965 to current year.

Water quality: Chemical analyses: October 1964 to current year. Biochemical analyses: November 1967 to current year.

GAGE.--Stevens type AP recording transmitter. Datum of gage is at mean sea level (levels by Corps of Engineers). Prior to Apr. 20, 1965, nonrecording gage at same site and datum.

EXTREMES.--Current year: Maximum contents, 2,865,000 acre-ft (3.53 km<sup>3</sup>) July 12 (elevation, 164.11 ft or 50.021 m); minimum, 2,032,000 acre-ft (2.51 km<sup>3</sup>) Oct. 23 (elevation, 156.00 ft or 47.549 m).

Period of record: Maximum contents, 3,881,000 acre-ft (4.79 km<sup>3</sup>) Feb. 7, 1974 (elevation, 172.17 ft or 52.477 m); minimum since conservation storage was reached in 1969, 2,032,000 acre-ft (2.51 km<sup>3</sup>) Oct. 23, 1975 (elevation, 156.00 ft or 47.549 m).

REMARKS.--The reservoir is formed by a rolled earthfill dam 19,430 ft (5,920 m) long, including spillway and dikes. The dam was completed and deliberate impoundment began Mar. 22, 1965. The spillway is an uncontrolled broad-crested weir 2,200 ft (670 m) wide on right bank 7,000 ft (2,100 m) to right of outlet works designed to discharge 125,300 ft<sup>3</sup>/s (3,350 m<sup>3</sup>/s) at maximum flood design. The flood-control outlet works consist of two 10.0- by 20.0-foot (3.0- by 6.1-meter) rectangular concrete-lined conduits controlled by two 10.0- by 20.0-foot (3.0- by 6.1-meter) tractor-type service gates and one 10.0- by 20.0-foot (3.0- by 6.1-meter) tractor-type emergency gate. Water for turbines is admitted through four 13.0- by 26.0-foot (5.5- by 7.9-meter) penstocks and controlled by two wheeled-leaf type headgates. The reservoir is operated for flood control and power generation. The area-capacity tables are based on topographic maps prepared by the Corps of Engineers and detailed sedimentation ranges established in 1961 and dated February 1965. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08038000. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	190.0	—
Design flood.....	183.0	5,610,000
Crest of spillway.....	176.0	4,442,400
Top of flood-control pool.....	173.0	3,937,600
Top of conservation pool (power pool).....	164.0	2,852,600
Top of power head and sediment pool.....	149.0	1,452,000
Lowest gated outlet (invert).....	105.0	21,940

COOPERATION.--Records furnished by Corps of Engineers and reviewed by the Geological Survey.

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

156.0	2,332,000	162.0	2,631,000
158.0	2,221,000	164.0	2,853,000
160.0	2,421,000	166.0	3,085,000

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2167000	2080000	2126000	2179000	2268000	2394000	2614000	2666000	2827000	2784000	2793000	2411000
2	2149000	2084000	2125000	2197000	2259000	2390000	2620000	2669000	2828000	2791000	2783000	2040000
3	2136000	2099000	2125000	2197000	2272000	2390000	2627000	2668000	2824000	2803000	2762000	2391000
4	2125000	2104000	2125000	2191000	2275000	2398000	2638000	2670000	2819000	2815000	2741000	2384000
5	2114000	2110000	2128000	2192000	2278000	2404000	2646000	2670000	2810000	2831000	2718000	2376000
6	2102000	2112000	2133000	2194000	2280000	2407000	2653000	2680000	2814000	2837000	2703000	2365000
7	2097000	2116000	2133000	2194000	2285000	2407000	2668000	2729000	2809000	2846000	2683000	2353000
8	2090000	2118000	2132000	2194000	2284000	2429000	2669000	2738000	2802000	2849000	2662000	2344000
9	2084000	2119000	2131000	2197000	2285000	2432000	2672000	2752000	2793000	2857000	2652000	2337000
10	2078000	2120000	2130000	2200000	2287000	2435000	2676000	2779000	2782000	2859000	2639000	2322000
11	2074000	2122000	2130000	2206000	2293000	2439000	2682000	2792000	2781000	2859000	2628000	2318000
12	2072000	2120000	2131000	2205000	2293000	2458000	2677000	2787000	2760000	2864000	2619000	2312000
13	2066000	2118000	2131000	2213000	2297000	2459000	2669000	2814000	2759000	2856000	2614000	2300000
14	2063000	2114000	2131000	2211000	2298000	2460000	2669000	2830000	2748000	2851000	2592000	2289000
15	2068000	2112000	2143000	2211000	2301000	2468000	2664000	2833000	2748000	2848000	2586000	2280000
16	2073000	2114000	2143000	2218000	2300000	2474000	2664000	2841000	2759000	2851000	2576000	2269000
17	2068000	2114000	2146000	2211000	2305000	2472000	2668000	2833000	2752000	2855000	2570000	2255000
18	2062000	2114000	2143000	2213000	2312000	2479000	2675000	2824000	2755000	2864000	2558000	2254000
19	2058000	2114000	2139000	2213000	2315000	2486000	2675000	2813000	2776000	2853000	2546000	2247000
20	2044000	2124000	2142000	2220000	2315000	2498000	2686000	2803000	2773000	2849000	2535000	2254000
21	2043000	2116000	2141000	2222000	2322000	2503000	2686000	2796000	2765000	2842000	2523000	2244000
22	2034000	2113000	2141000	2218000	2322000	2509000	2675000	2796000	2763000	2838000	2517000	2232000
23	2033000	2110000	2138000	2221000	2325000	2515000	2666000	2794000	2762000	2836000	2501000	2215000
24	2034000	2106000	2155000	2223000	2340000	2530000	2675000	2794000	2765000	2836000	2494000	2200000
25	2065000	2109000	2157000	2251000	2368000	2546000	2675000	2794000	2767000	2831000	2484000	2190000
26	2072000	2115000	2157000	2251000	2374000	2558000	2688000	2779000	2768000	2842000	2470000	2186000
27	2073000	2114000	2157000	2251000	2377000	2560000	2671000	2789000	2769000	2820000	2459000	2176000
28	2077000	2113000	2170000	2254000	2379000	2570000	2666000	2776000	2771000	2812000	2450000	2182000
29	2081000	2114000	2175000	2257000	2384000	2585000	2668000	2771000	2768000	2806000	2443000	2172000
30	2077000	2128000	2177000	2260000	---	2606000	2664000	2756000	2768000	2805000	2431000	2156000
31	2079000	---	2178000	2268000	---	2603000	---	2792000	---	2800000	2417000	---
(+)	156.51	157.03	157.56	158.48	159.64	161.74	162.30	163.46	163.25	163.53	159.97	157.35
(#)	-92000	+49000	+50000	+90000	+116000	+219000	+61000	+126000	-74000	+32000	-38000	-259000
MAX	2167000	2128000	2179000	2268000	2384000	2606000	2686000	2841000	2828000	2864000	2793000	2411000
MIN	2033000	2080000	2125000	2179000	2268000	2384000	2614000	2666000	2748000	2764000	2417000	2158000
CAL YR 1975.....	* -757000				MAX	3258000	MIN	2033000				
WTR YR 1976.....	* -13000				MAX	2864000	MIN	2033000				

† Elevation, in feet, at end of month.

# Change in contents, in acre-feet.

## NECHES RIVER BASIN

08039300 Sam Rayburn Reservoir near Jasper, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	PERCENT SATURATION	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)
JAN 13...	1030	141	7.1	10.5	10.2	91	28	10
APR 27...	1455	141	7.4	22.0	7.4	84	28	13
AUG 17...	1125	156	6.9	31.0	6.4	86	25	11

DATE	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	SODIUM ADSORPTION RATIO	DIS-SOLVED PHOSPHATE (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)
JAN 13...	6.0	3.1	13	1.1	2.4	22	0	18	17
APR 27...	6.1	3.1	14	1.2	2.3	18	0	20	18
AUG 17...	5.2	3.0	16	1.4	2.5	18	0	22	20

DATE	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED MANGANESE (MN) (UG/L)
JAN 13...	.2	9.4	80	.06	.02	.01	20	10
APR 27...	.2	9.1	82	.07	.00	.00	10	10
AUG 17...	.1	9.3	87	.00	.01	.00	80	100

## NECHES RIVER BASIN

373

08039400 Angelina River below Sam Rayburn Dam near Jasper, Tex.

LOCATION.--Lat 31°03'30", long 94°06'20", Jasper County, immediately below Sam Rayburn Dam, 7.6 miles (12.2 km) upstream from gaging station at Horger, and 10 miles (16 km) northwest of Jasper.

DRAINAGE AREA.--3,449 mi<sup>2</sup> (8,933 km<sup>2</sup>).

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1963 to current year. Water temperatures: October 1963 to current year.

EXTREMES.--Current year: Maximum daily specific conductance, 202 micromhos Mar. 1; minimum daily, 124 micromhos Nov. 9. Maximum water temperatures, 28.0°C Aug. 1, 7; minimum, 8.0°C Jan. 3.

Period of record: Maximum daily specific conductance, 350 micromhos Sept. 21, 1969; minimum daily, 60 micromhos June 21, 1973.

Maximum water temperatures, 30.0°C Sept. 28, 1972; minimum, 6.0° Jan. 1, 1974.

REMARKS.--Discharge records are not available for most of year because of backwater from Dam B Reservoir.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COALT UNITS)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	BIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)
OCT.											
06...	1600	154	6.7	23.5	35	4	7.9	92	--	26	5
NOV.											
10...	1700	177	6.5	20.0	20	7	8.2	89	.7	29	5
DEC.											
15...	1445	169	6.6	14.5	--	--	9.4	91	--	32	9
JAN.											
12...	1645	198	6.7	12.5	10	6	11.4	107	.6	30	4
FEB.											
23...	1730	179	6.7	17.5	--	--	10.6	110	--	26	7
MAR.											
23...	0815	158	6.4	14.5	40	10	9.7	94	.6	26	9
APR.											
13...	1515	155	6.2	17.5	--	--	9.8	102	--	29	13
MAY											
25...	1515	154	6.4	23.5	20	4	7.4	86	.8	27	13
JUNE											
21...	1625	160	6.0	25.5	--	--	6.6	82	--	27	12
JULY											
19...	1615	164	5.8	26.0	30	3	4.0	50	.5	29	14
AUG.											
27...	0800	189	5.8	23.0	--	--	5.0	60	--	31	4
SEP.											
13...	1625	165	6.2	27.0	30	4	5.4	68	.7	27	12

DATE	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)
OCT.										
06...	6.9	2.2	13	1.1	2.4	26	0	18	16	--
NOV.										
10...	6.9	2.9	19	1.5	2.4	30	0	19	22	.1
DEC.										
15...	6.7	3.6	17	1.3	2.5	27	0	19	20	.2
JAN.										
12...	7.0	3.1	22	1.7	2.5	32	0	19	27	.2
FEB.										
23...	6.4	2.5	19	1.6	2.6	24	0	21	23	.2
MAR.										
23...	4.9	3.3	15	1.3	2.5	20	0	20	19	.2
APR.										
13...	6.4	3.2	14	1.1	2.7	20	0	15	19	.1
MAY										
25...	5.7	3.0	14	1.2	2.3	16	0	21	18	.1
JUNE										
21...	6.0	2.9	15	1.3	2.6	18	0	21	20	.2
JULY										
19...	6.6	3.0	16	1.3	2.5	18	0	21	19	.1
AUG.										
27...	7.2	3.1	18	1.4	2.6	33	0	21	21	.2
SEP.										
13...	5.1	3.5	17	1.4	2.6	19	0	21	20	.1

## NECHES RIVER BASIN

08039400 Angelina River below Sam Rayburn Dam near Jasper, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS-SOLVED SILICA (SI02) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NON-FILT-RABLE RESIDUE (MG/L)	VOL. NON-FILT-RABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO-GEN (N) (MG/L)	TOTAL ORGANIC NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)
OCT. 06...	9.2	81	10	8	.00	.00	.02	.23	.01	--
NOV. 10...	11	98	17	0	.04	.00	.01	.26	.02	5.4
DEC. 15...	11	93	--	--	.08	.01	.03	.48	.02	--
JAN. 12...	9.2	106	21	1	.07	.00	.02	.19	.04	4.6
FEB. 23...	10	97	--	--	.08	.00	.07	.63	.04	--
MAR. 23...	9.6	84	21	3	.10	.01	.08	.38	.02	6.6
APR. 13...	9.3	80	--	--	.07	.01	.04	.46	.01	--
MAY 25...	9.1	81	12	4	.06	.00	.01	.32	.02	--
JUNE 21...	9.2	86	--	--	.02	.00	.04	.74	.01	--
JULY 19...	9.4	87	19	4	.00	.00	.00	.07	.01	3.1
AUG. 27...	11	100	--	--	.02	.00	.18	.76	.04	--
SEP. 13...	9.5	89	12	11	--	--	--	--	.00	3.4

DATE	TIME	DIS-SOLVED ALUM-INUM (AL) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)
NOV. 10...	1700	0	1	90	0	0	0	1
JAN. 12...	1645	--	--	--	--	--	--	--
MAR. 23...	0815	--	--	--	--	--	--	--
MAY 25...	1515	--	--	--	--	--	--	--
JULY 19...	1615	40	1	40	0	0	0	2
SEP. 13...	1625	40	2	30	0	0	0	1

DATE	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED LITHIUM (LI) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED STRON-TIUM (SR) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
NOV. 10...	10	0	8	70	.0	0	160	20
JAN. 12...	10	--	--	0	--	--	--	--
MAR. 23...	10	--	--	0	--	--	--	--
MAY 25...	30	--	--	10	--	--	--	--
JULY 19...	10	0	0	100	.3	0	110	10
SEP. 13...	30	2	0	130	.2	2	100	20

## NECHES RIVER BASIN

375

08039400 Angelina River below Sam Rayburn Dam near Jasper, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C.) \* WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	143	144	155	---	153	202	164	160	157	172	155	166
2	141	147	161	156	154	171	167	178	161	167	166	166
3	141	149	159	172	154	165	156	161	160	---	156	170
4	143	141	161	153	155	163	182	159	157	---	158	160
5	151	146	153	155	155	153	156	161	---	---	160	---
6	143	170	157	157	155	152	160	156	---	167	157	---
7	143	141	157	159	155	165	154	156	159	168	157	168
8	156	168	157	159	156	161	154	169	159	175	---	169
9	153	124	154	160	154	169	154	158	157	160	163	163
10	158	164	161	172	168	157	141	160	157	161	172	168
11	143	162	163	157	154	161	151	158	159	159	172	---
12	178	165	152	155	161	181	156	159	---	164	170	190
13	172	156	140	166	154	157	156	157	---	169	170	173
14	165	163	157	159	163	162	154	164	163	169	163	167
15	160	165	157	155	156	166	156	165	167	167	161	170
16	160	170	164	157	158	163	155	170	169	167	169	168
17	162	160	168	197	162	163	---	177	168	169	169	168
18	162	160	155	159	153	167	166	157	164	161	171	---
19	165	158	157	156	160	147	162	156	167	169	172	165
20	158	162	157	153	161	165	161	149	---	168	169	176
21	160	158	158	153	153	163	167	152	185	169	170	168
22	---	178	---	153	156	159	162	163	161	166	172	168
23	158	170	154	153	160	158	161	156	159	171	173	160
24	168	---	156	177	152	159	162	158	163	162	170	167
25	168	---	---	142	153	158	167	157	160	161	173	167
26	175	162	141	---	153	185	158	157	167	170	171	167
27	181	167	141	154	153	158	169	166	---	169	169	170
28	184	---	200	152	159	171	165	168	164	171	163	163
29	187	175	154	152	156	179	151	161	167	175	172	170
30	191	162	163	154	---	156	154	161	167	171	171	166
31	187	---	160	154	---	162	---	162	---	157	175	---
MONTH	162	168	153	159	157	164	159	161	163	167	167	168

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	20.5	13.5	---	10.0	13.0	15.0	14.0	21.0	22.0	28.0	22.0
2	23.0	20.5	13.5	12.0	10.0	12.0	16.0	14.0	21.0	21.0	24.0	22.0
3	21.5	20.0	13.5	8.0	10.0	13.0	16.0	17.0	21.0	---	27.0	22.0
4	22.0	20.0	13.5	9.5	10.0	13.0	16.0	14.0	22.0	---	26.0	27.0
5	21.0	20.0	14.0	9.5	10.0	13.0	16.0	17.0	---	---	26.0	---
6	21.5	20.0	14.5	9.5	10.0	14.0	---	17.0	---	21.0	26.0	---
7	21.0	19.5	14.0	9.5	10.5	13.0	16.0	14.0	19.0	21.0	28.0	24.0
8	20.5	21.0	14.0	9.0	10.0	14.0	---	13.0	21.0	20.0	---	26.0
9	21.0	20.5	13.5	8.5	10.0	13.0	16.0	17.0	21.0	20.0	26.0	26.0
10	21.0	19.5	13.5	11.0	10.5	13.0	16.0	13.0	21.0	26.0	23.0	26.0
11	23.5	19.5	13.5	9.5	10.0	13.0	16.0	17.0	22.0	26.0	24.0	---
12	21.0	19.5	14.0	9.0	10.0	14.0	16.0	17.0	---	21.0	24.0	22.0
13	21.0	18.5	14.5	9.5	11.0	13.0	16.0	18.0	---	23.0	24.0	24.0
14	21.0	18.0	15.5	9.5	11.0	14.0	16.0	18.0	21.0	23.0	26.0	24.0
15	21.0	20.5	14.0	9.5	11.5	13.0	16.0	18.0	22.0	23.0	27.0	23.0
16	21.5	19.5	13.5	11.0	11.0	13.0	16.0	18.0	21.0	22.0	23.5	24.0
17	21.0	18.0	13.5	10.0	11.0	13.0	---	14.0	19.0	22.0	24.0	26.0
18	21.0	18.0	9.0	10.5	10.5	13.0	17.0	20.0	22.0	26.0	24.0	---
19	20.5	18.0	9.0	9.5	10.0	13.0	17.0	20.0	22.0	23.0	24.0	25.0
20	20.5	17.0	9.5	9.5	12.0	17.0	17.0	20.0	---	22.0	23.0	22.0
21	20.5	16.0	11.5	9.0	11.5	16.0	17.0	20.0	19.0	23.0	27.0	21.0
22	---	14.5	---	9.0	11.5	14.0	17.0	20.0	21.0	23.0	24.0	21.0
23	29.5	15.5	14.5	9.0	11.5	13.0	17.0	19.0	21.0	24.0	26.0	23.0
24	21.0	---	14.0	11.5	11.5	14.0	17.0	20.0	20.0	27.0	23.0	22.0
25	20.0	---	---	11.5	11.5	14.0	19.0	21.0	20.0	27.0	22.0	22.0
26	19.5	15.0	13.5	---	11.5	14.0	16.0	20.0	22.0	23.0	24.0	26.0
27	20.5	13.5	13.5	9.5	12.0	14.0	17.0	19.0	---	24.0	24.0	23.0
28	20.0	---	10.5	11.0	13.5	16.0	17.0	20.0	21.0	25.0	27.0	22.0
29	20.0	14.5	13.0	10.0	13.5	16.0	18.0	21.0	23.0	23.0	27.0	22.0
30	20.0	14.5	10.0	10.0	---	15.0	18.0	21.0	23.0	23.0	24.0	23.0
31	20.0	---	10.0	9.5	---	15.0	---	21.0	---	27.0	23.0	---
MONTH	21.0	18.0	13.0	10.0	11.0	14.0	16.5	19.0	21.0	23.5	25.0	23.5



## NECHES RIVER BASIN

08040000 B. A. Steinhagen Lake at Town Bluff, Tex.

LOCATION.--Lat 30°47'43", long 94°10'48", Tyler County, near right bank 70 ft (21 m) upstream from outlet structure of Town Bluff Dam on Neches River, 0.4 mile (0.6 km) north of Town Bluff, and at mile 113.7 (182.9 km).

DRAINAGE AREA.--7,573 mi<sup>2</sup> (19,614 km<sup>2</sup>).

PERIOD OF RECORD.--April 1951 to current year. Prior to October 1967, published as Dam B Reservoir at Town Bluff.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Oct. 25, 1954, at site 490 ft (149 m) upstream at same datum.

EXTREMES.--Current year: Maximum contents, 98,140 acre-ft (121 hm<sup>3</sup>) Oct. 26 (elevation, 83.28 ft or 25.384 m); minimum, 20,130 acre-ft (24.8 hm<sup>3</sup>) Dec. 24 (elevation, 74.57 ft or 22.729 m).  
Period of record: Maximum contents, 128,400 acre-ft (158 hm<sup>3</sup>) May 22, 1953 (elevation, 85.21 ft or 25.972 m); no storage Sept. 18 to Oct. 13, 1954.

REMARKS.--The lake is formed by a rolled earthfill dam with concrete spillway sections. The total length of dam is 6,698 ft (2,042 m), including a concrete spillway and nonoverflow section. Deliberate impoundment of water began Apr. 16, 1951, and the dam was completed in June 1951. The uncontrolled spillway is 6,100-foot (1,860-meter) long. A 326-foot-long (99-meter) gated service spillway with six 40.0- by 35.0-foot (12.2- by 10.7-meter) tainter gates is located near right end of dam. The capacity of the spillways at maximum flood design is 218,300 ft<sup>3</sup>/s (6,180 m<sup>3</sup>/s). The capacity curve was based on a survey made in 1945. Water is used for industrial, municipal, and irrigation supplies. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam (nonoverflow).....	95.0	-
Design flood.....	93.0	306,400
Crest of uncontrolled spillway (top of tainter gates).....	85.0	124,700
Top of conservation pool.....	83.0	94,200
Bottom of tainter gates (sill).....	50.0	0

COOPERATION.--Records furnished by Corps of Engineers and reviewed by Geological Survey.

REVISIONS.--WSP 1732: Drainage area.

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

74.0	17,510	80.0	59,320
76.0	27,960	82.0	81,280
78.0	41,830	84.0	108,700
79.0	50,090		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53480	69130	48710	56920	74280	84260	77310	78140	76950	89680	84900	82140
2	59130	67730	47690	60910	74160	84140	74970	76130	80660	87200	85790	82260
3	64880	71000	46590	63540	73710	83510	73940	78260	86940	78260	87980	82510
4	70780	74860	45440	65820	73590	83130	71670	80420	89420	68270	87070	83630
5	77660	77070	44210	66450	73480	83760	71330	82260	87980	61410	85660	83380
6	83760	79450	43490	67090	74160	84900	73140	86300	78260	59720	85280	82260
7	86040	81150	42220	67520	72460	85660	75780	95350	72680	60310	84140	82880
8	85280	81890	40900	66880	72230	88760	77780	94110	72570	66030	82880	83010
9	85660	82010	39300	66240	72010	87460	78500	88370	71890	69130	80060	82390
10	86810	81400	37970	65400	72010	86300	76480	82880	71560	71780	78260	84140
11	88500	80060	36580	65610	71890	84390	74970	78260	75320	82510	78380	80180
12	84900	78850	35160	65090	71220	83760	77430	80300	81270	86940	78500	80300
13	83510	76130	33440	64880	70670	81030	84640	82140	86810	87460	77070	83260
14	85020	73940	32230	63840	69780	79090	85400	80660	86560	86940	76480	85400
15	87590	72120	31240	63020	69130	77430	80420	75780	83130	81770	77540	87460
16	83760	70560	30140	62820	68480	74390	78260	68910	78020	79450	76950	89290
17	81890	68590	29390	61410	68050	73020	76250	68050	73250	76840	76950	92220
18	77430	66980	27840	60010	67520	73140	74970	75550	72340	73480	77070	88240
19	75430	65930	26650	59720	66980	72680	72230	71030	73710	74510	77780	85660
20	75320	64570	25310	58940	65930	73940	69460	80790	66140	76130	78260	80420
21	76480	62720	23800	58160	74740	73940	65930	79940	62720	76130	78970	76020
22	76370	60410	22300	58650	77310	73590	69570	75430	64260	75320	79580	78620
23	79210	57880	20770	57690	81400	73360	74970	72340	65190	77660	79940	84140
24	76840	55980	20230	56640	85530	73820	73940	72680	65610	80540	79450	88240
25	89550	54030	26180	59320	87330	74510	70450	72460	73020	81030	78260	88890
26	98010	53120	29950	60010	87720	77070	65820	69460	80660	86300	78730	87590
27	93570	51410	32430	63130	87330	77660	61810	71000	88890	91540	79450	84640
28	86810	49830	35160	65510	86300	78620	60710	70780	92750	91680	79580	82880
29	79210	48620	46010	68050	84640	80910	70780	68810	90880	85280	79700	79700
30	72230	49570	51230	71560	---	83130	78620	67940	88890	82010	80660	77070
31	69890	---	55330	74160	---	79700	---	73360	---	82510	80540	---
(†)	81.02	78.94	79.58	81.40	82.27	81.87	81.78	81.33	82.60	82.10	81.94	81.65
(*)	+23710	-20320	+5760	+18830	+10480	-4940	-1080	-5260	+15530	-6380	-1970	-3470
MAX	98010	82010	55330	74160	87720	88760	85400	95350	92750	91680	87980	92220
MIN	53480	48620	20230	56640	65930	72680	60710	67940	62720	59720	76480	76020

CAL YR 1975..... \* +990  
WTR YR 1976..... \* +30890

MAX 98430  
MAX 98010

MIN 15810  
MIN 20230

† Elevation, in feet, at end of month.  
\* Change in contents, in acre-feet.

## NECHES RIVER BASIN

377

08040500 Neches River at Town Bluff, Tex.

LOCATION.--Lat 30°47'36", long 94°10'28", Jasper-Tyler County line, on left bank 0.3 mile (0.5 km) downstream from Town Bluff Dam, 0.5 mile (0.8 km) northeast of Town Bluff, 2.5 miles (4.0 km) upstream from Walnut Run, 8 miles (13 km) downstream from Wolf Creek, and at mile 113.4 (182.5 km).

DRAINAGE AREA.--7,573 mi<sup>2</sup> (19,614 km<sup>2</sup>).

PERIOD OF RECORD.--March 1951 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to May 21, 1953, water-stage recorder, and May 21, 1953, to Dec. 3, 1954, nonrecording gage at present site and datum.

AVERAGE DISCHARGE.--13 years (1951-64) prior to regulation by Sam Rayburn Reservoir, 4,406 ft<sup>3</sup>/s (124.8 m<sup>3</sup>/s), 3,192,000 acre-ft/yr (3.94 km<sup>3</sup>/yr); 12 years (1964-76) regulated, 4,601 ft<sup>3</sup>/s (130.3 m<sup>3</sup>/s), 3,333,000 acre-ft/yr (4.11 km<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 14,000 ft<sup>3</sup>/s (396 m<sup>3</sup>/s) May 8 (elevation, 64.91 ft or 19.785 m); minimum daily, 1,260 ft<sup>3</sup>/s (35.7 m<sup>3</sup>/s) Dec. 23, 24.

Period of record: Maximum discharge, 90,900 ft<sup>3</sup>/s (2,570 m<sup>3</sup>/s) May 21, 22, 1953 (elevation, 82.85 ft or 25.253 m); no flow at times due to regulation of B. A. Steinhagen Lake.

Flood of May 1884, stage about 86.8 ft or 26.46 m (discharge about 120,000 ft<sup>3</sup>/s or 3,400 m<sup>3</sup>/s), is the highest since at least that date, from information by Corps of Engineers.

REMARKS.--Records fair. Flow regulated by B. A. Steinhagen Lake 0.3 mile (0.5 km) upstream (see preceding page) and by Sam Rayburn Reservoir (station 08039300) 37.9 miles (61.0 km) upstream. Some diversions above station.

REVISIONS.--WSP 1732: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1970	1790	1380	1470	1430	1800	5350	3020	4900	7570	5890	5080
2	1980	1770	1390	1450	1340	1350	4640	2930	6130	8240	6080	5090
3	1980	1790	1370	1870	1420	1460	4220	2890	5600	9240	8560	5090
4	1990	1820	1360	1660	1420	1460	4200	2890	6560	9130	10900	5090
5	1980	1750	1360	1510	1420	1450	3620	2900	8720	8950	11300	5090
6	1990	1720	1350	1470	1410	1470	2600	2900	9270	7790	11300	5080
7	2150	1720	1340	1450	1410	1620	2250	4960	8550	4760	11300	5080
8	2340	1730	1340	1450	1410	2150	2240	12500	7730	3000	11300	5080
9	2350	1720	1330	1450	1400	3830	2390	13400	7690	3050	10000	5080
10	2350	1710	1330	1440	1390	3700	3030	12900	7680	3040	6650	5080
11	2350	1710	1330	1420	1400	3610	3220	12800	6550	3010	5360	4350
12	2360	1690	1320	1410	1380	3590	3220	12600	4410	4400	5500	2180
13	2350	1670	1320	1400	1360	3580	3240	12600	4360	6680	5600	3250
14	2350	1600	1310	1400	1360	3580	3190	12800	5850	7840	5620	5150
15	2520	1510	1290	1390	1370	3680	3050	12500	8240	9430	5620	5220
16	3320	1500	1290	1340	1370	3680	3030	12300	8400	8800	5620	5230
17	3660	1490	1290	1320	1370	3100	3020	10600	8390	7180	5480	5240
18	2650	1480	1290	1340	1350	2260	3010	8150	8320	7040	5300	5250
19	2600	1470	1290	1340	1350	2260	3030	8740	8310	7040	5140	5210
20	2450	1440	1280	1340	1340	2260	3140	10100	8250	7060	4970	5210
21	2290	1440	1270	1340	1360	2240	3210	10200	7220	7050	4880	5170
22	2280	1550	1270	1330	1370	2240	3040	8910	5720	7040	4880	5160
23	2280	1680	1260	1330	1370	2180	2990	6730	5220	6110	4990	5170
24	1990	1590	1260	1330	1350	2030	3000	6620	3820	4560	5380	5190
25	1830	1420	1460	1330	1740	2050	3000	6610	2890	4530	5340	5940
26	3750	1400	1520	1330	2200	2170	2980	6610	2880	4540	5200	7240
27	5930	1390	1390	1340	2210	2110	2940	6150	2880	4570	5070	7280
28	5900	1390	1370	1350	2210	2070	2760	5220	4710	6080	5070	7260
29	5890	1380	2150	1340	2210	2040	2880	5170	7490	8810	5080	7230
30	5280	1360	1880	1340	---	2870	3200	4220	7560	8000	5080	7180
31	2850	---	1540	1340	---	5250	---	3280	---	5980	5080	---
TOTAL	87960	47680	42930	43620	43620	79140	95690	244200	194300	200520	203540	159950
MEAN	2837	1589	1385	1407	1504	2553	3190	7877	6477	6468	6566	5332
MAX	5930	1820	2150	1870	2210	5250	5350	13400	9270	9430	11300	7280
MIN	1830	1360	1260	1320	1330	1350	2240	2890	2680	3000	4880	2180
AC-FT	174500	94570	85150	86520	86520	157000	189800	484400	385400	397700	403700	317300

CAL YR 1975 TOTAL 2911820 MEAN 7978 MAX 18600 MIN 1260 AC-FT 5776000  
WTR YR 1976 TOTAL 1443150 MEAN 3943 MAX 13400 MIN 1260 AC-FT 2862000

## NECHES RIVER BASIN

08041000 Neches River at Evadale, Tex.  
(National stream-quality accounting network)

LOCATION.--Lat 30°21'22", long 94°05'36", Jasper-Hardin County line, near center of channel on downstream side of pier of bridge on U.S. Highway 96 at Evadale, 0.8 mile (1.3 km) upstream from Mill Creek, 16 miles (26 km) upstream from Village Creek, and at mile 55.6 (89.5 km).

DRAINAGE AREA.--7,951 mi<sup>2</sup> (20,593 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: July 1904 to December 1906, April 1921 to current year. Monthly discharge only for some periods, published in WSP 1312.

Water quality: Chemical and biochemical analyses: October 1947 to current year. Pesticide analyses: January 1968 to current year. Water temperatures: October 1947 to current year. Sediment records: October 1974 to September 1975.

GAGE.--Water-stage recorder. Datum of gage is 8.25 ft (2.515 m) above mean sea level. July 1, 1904, to Dec. 31, 1906, nonrecording gage on Gulf, Colorado, and Santa Fe Railway Co. bridge at site 1.2 miles (1.9 km) downstream at datum 5.50 ft (1.676 m) lower; Apr. 1, 1921, to Dec. 7, 1948, nonrecording gages at site 1.2 miles (1.9 km) downstream at present datum; Dec. 8, 1948, to Nov. 8, 1963, water-stage recorder at site 1.2 miles (1.9 km) downstream at present datum.

AVERAGE DISCHARGE.--45 years (1904-6, 1921-64) prior to regulation by Sam Rayburn Reservoir, 6,308 ft<sup>3</sup>/s (178.6 m<sup>3</sup>/s), 4,570,000 acre-ft/yr (5.63 km<sup>3</sup>/yr); 12 years (1964-76) regulated, 5,121 ft<sup>3</sup>/s (145.0 m<sup>3</sup>/s), 3,710,000 acre-ft/yr (4.57 km<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 14,300 ft<sup>3</sup>/s (405 m<sup>3</sup>/s) May 13 (gage height, 15.69 ft or 4.782 m); minimum daily, 1,600 ft<sup>3</sup>/s (45.3 m<sup>3</sup>/s) Feb. 20.  
Period of record: Maximum discharge, 92,100 ft<sup>3</sup>/s (2,610 m<sup>3</sup>/s) May 11, 1944 (gage height, 23.58 ft or 7.187 m, from floodmark), at site then in use; minimum daily, 63 ft<sup>3</sup>/s (1.78 m<sup>3</sup>/s) Nov. 26-28, 1956.  
Historic: Flood in May 1884 (stage 26.2 ft or 7.99 m at former site, discharge about 125,000 ft<sup>3</sup>/s or 3,540 m<sup>3</sup>/s) and flood in August 1915 (stage 24.5 ft or 7.47 m at former site, discharge about 102,000 ft<sup>3</sup>/s or 2,890 m<sup>3</sup>/s) are the highest since at least 1884. Stages by Gulf, Colorado, and Santa Fe Railway Co.

Water quality: Current year: Maximum daily specific conductance, 228 micromhos Feb. 29; minimum daily, 101 micromhos May 26. Maximum water temperatures, 30.0°C on several days during July and August.

Period of record: Maximum daily specific conductance, 422 micromhos Jan. 25, 1957; minimum daily, 23 micromhos Sept. 19, 1963. Maximum water temperatures, 34.0°C June 29, 1953; minimum, 3.0°C Jan. 30, 31, 1948, Jan. 31, 1949, and Jan. 24, 1963.

REMARKS.--Discharge records good. Flow regulated by B. A. Steinhagen Lake (station 08040000) 58.1 miles (93.5 km) upstream (capacity, 124,700 acre-ft or 154 hm<sup>3</sup>) and Sam Rayburn Reservoir (station 08039300) 95.7 miles (154.0 km) upstream (capacity, 4,442,000 acre-ft or 5.48 km<sup>3</sup>). Some diversions upstream for municipal use.

REVISIONS (WATER YEARS).--WSP 718: 1929. WSP 1342: 1905-7, 1924. WSP 1732: Drainage area at former site.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2530	3680	1850	2500	1720	2540	4640	3810	6510	6900	7420	5330
2	2460	2910	1870	2120	1700	2430	5630	3880	7010	7360	6740	5330
3	2420	2830	1870	2090	1690	1910	5750	3750	7820	7720	6390	5320
4	2420	2790	1890	2380	1710	1770	5350	3610	7810	8300	6650	5320
5	2430	2640	1900	2500	1700	1780	5080	3540	7280	8810	7790	5330
6	2430	2480	1880	2160	1710	1780	4850	3490	7630	9100	9030	5330
7	2490	2380	1880	1980	1700	1800	4140	3510	8440	8990	9890	5320
8	2690	2320	1880	1880	1690	2020	3450	4330	8870	7860	10300	5310
9	2770	2280	1880	1820	1690	2550	3240	6910	8430	5930	10400	5310
10	2790	2240	1870	1790	1670	3860	3220	9730	8330	4760	10400	5350
11	2790	2200	1870	1760	1670	4340	3490	12300	8070	4430	9480	5340
12	2800	2160	1860	1760	1670	4400	3770	13400	7820	4160	7550	5160
13	2810	2120	1860	1760	1670	4380	3850	14100	6780	4330	6370	3930
14	2830	2080	1850	1760	1640	4360	3860	14100	5690	5680	6000	3160
15	2960	1970	1850	1750	1630	4410	3850	13300	5510	6720	5910	4320
16	3310	1920	1800	1740	1620	4490	3750	13100	6740	7780	5900	5000
17	3890	1890	1780	1710	1620	4520	3650	13000	7760	8880	5900	5260
18	3730	1880	1780	1670	1620	4260	3610	12400	8310	8890	5860	5350
19	3350	1880	1780	1660	1620	3520	3750	11300	8540	8110	5730	5380
20	3140	1880	1780	1640	1600	3050	4130	9810	8680	7600	5570	5410
21	2910	1870	1780	1640	1650	2930	4540	9350	8640	7420	5390	5430
22	2880	1850	1780	1640	1750	2880	4730	9670	8470	7360	5240	5400
23	2900	1870	1780	1640	1830	2840	4530	9950	7630	7340	5170	5360
24	3020	1980	1780	1640	1780	2810	4180	9340	6720	7200	5160	5360
25	3430	1990	1800	1690	1690	3450	3970	8140	5730	6400	5340	5380
26	4130	1930	2520	1890	1770	4580	3850	7450	4520	5580	5510	5530
27	5290	1840	2630	2000	2300	4830	3780	7190	3870	5250	5530	6290
28	6000	1820	2250	1950	2510	4330	3680	7050	3710	5180	5430	6860
29	6140	1800	2130	1850	2540	3680	3620	6640	4110	5460	5420	7100
30	6080	1810	2560	1780	---	3370	3600	6140	5750	6680	5380	7170
31	5270	---	2860	1740	---	3480	---	6090	---	7580	5350	---
TOTAL	105090	65290	60850	57890	51160	103350	123540	260380	211180	213760	208200	161440
MEAN	3390	2176	1963	1867	1764	3334	4118	8399	7039	6895	6716	5381
MAX	6140	3680	2860	2500	2540	4830	5750	14100	8870	9100	10400	7170
MIN	2420	1800	1780	1640	1600	1770	3220	3490	3710	4160	5160	3160
AC-FT	208400	129500	120700	114800	101500	205000	245000	516500	418900	424000	413000	320200
CAL YR 1975 TOTAL	3237440			8870		19800	1780	AC-FT	6421000			
WTR YR 1976 TOTAL	1622130			4432		14100	1600	AC-FT	3217000			

08041000 Neches River at Evadale, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	HIGH- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)
OCT 07...	1555	235	149	6.5	22.5	50	20	7.9	90	1.2
NOV 12...	1045	210	147	6.6	18.5	120	50	8.1	86	.6
DEC 17...	1115	155	183	6.5	15.0	120	40	10.0	98	1.2
JAN 13...	1510	165	131	6.3	12.5	40	30	11.0	103	1.4
FEB 25...	1100	160	205	6.5	14.5	120	40	9.5	92	.9
MAR 23...	1500	262	216	6.4	19.5	140	45	9.2	99	1.2
APR 15...	0900	365	203	6.1	22.0	140	45	7.8	89	.9
MAY 13...	1030	14500	104	6.3	21.5	240	40	6.2	70	1.6
JUN 23...	0930	7800	144	6.6	26.5	120	40	6.4	81	1.0
JUL 20...	1410	7800	165	5.9	28.0	120	40	7.0	90	.3
AUG 25...	0930	5400	167	5.9	28.5	60	20	7.0	91	.5
SEP 14...	1310	2800	176	6.0	27.0	60	40	7.5	95	.7
DATE	IMME- DIATE COLI- FORM (COL. PER 100 ML)	FECAL COLI- FORM (COL. PER 100 ML)	STREP- TOCOCCI (COL- ONIES PER 100 ML)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)
OCT 07...	2100	35	14	26	7	6.9	2.2	13	1.1	2.3
NOV 12...	2500	37	20	28	12	7.4	2.4	14	1.1	2.9
DEC 17...	3400	26	24	34	11	8.6	3.0	18	1.3	2.8
JAN 13...	460	58	56	24	10	7.0	1.7	12	1.1	2.0
FEB 25...	800	100	50	42	21	11	3.5	20	1.3	2.8
MAR 23...	42	24	20	46	26	12	3.9	20	1.3	3.0
APR 15...	2800	16	24	40	24	10	3.6	19	1.3	3.5
MAY 13...	18000	170	1000	18	9	4.8	1.4	9.5	1.0	2.5
JUN 23...	12000	40	40	30	13	7.9	2.4	14	1.1	2.3
JUL 20...	9000	32	52	33	13	8.4	2.9	15	1.1	2.7
AUG 25...	9700	24	46	27	11	6.5	2.7	16	1.3	2.5
SEP 14...	700	14	31	32	11	7.0	3.5	17	1.3	2.6
DATE	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITU- ENTS) (MG/L)	TOTAL NON- FILT- RABLE RESIDUE (MG/L)	VOL. NON- FILT- RABLE RESIDUE (MG/L)
OCT 07...	23	0	17	16	--	10	82	79	29	5
NOV 12...	20	0	16	20	.3	13	108	86	67	7
DEC 17...	28	0	16	25	.1	17	122	105	44	1
JAN 13...	18	0	12	19	.2	16	94	79	36	12
FEB 25...	26	0	24	29	.2	13	132	116	69	43
MAR 23...	24	0	30	29	.2	8.8	126	119	65	3
APR 15...	19	0	27	26	.3	12	138	111	63	17
MAY 13...	11	0	14	13	.2	8.0	80	59	70	18
JUN 23...	20	0	15	17	.2	9.5	126	79	94	14
JUL 20...	24	0	16	21	.2	11	100	89	86	28
AUG 25...	20	0	21	22	.2	11	100	92	45	16
SEP 14...	25	0	20	22	.1	12	--	97	79	14

## NECHES RIVER BASIN

08041000 Neches River at Evadale, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	SUS- PENDE SEDI- MENT (MG/L)	SUS- PENDE SEDI- MENT DIS- CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
OCT 07...	.01	.00	.02	.42	.04	3.6	16	10	98
NOV 12...	.04	.00	.02	.46	.06	9.8	30	17	81
DEC 17...	.04	.01	.02	.40	.08	6.4	42	18	70
JAN 13...	.05	.01	.04	.68	.07	8.8	35	16	85
FEB 25...	.00	.00	.00	.76	.17	8.4	42	18	95
MAR 23...	.00	.00	.03	.88	.06	11	31	22	97
APR 15...	.01	.01	.03	.63	.06	32	39	38	93
MAY 13...	.04	.01	.04	.82	.06	12	38	1490	75
JUN 23...	.04	.01	.01	.71	.02	7.2	36	758	96
JUL 20...	.05	.00	.00	.08	.05	6.6	40	842	97
AUG 25...	.01	.00	.02	.65	.05	7.4	31	452	97
SEP 14...	.02	.00	.04	.71	.07	3.2	34	257	95

DATE	TIME	DIS- SOLVED ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)
OCT. 07...	1555	--	--	--	40	--	--	--	--	--
DEC. 17...	1115	10	2	0	50	0	0	20	0	0
APR. 15...	0900	10	1	1	70	0	0	10	0	0
JUNE 23...	0930	190	2	1	50	0	0	20	0	0

DATE	DIS- SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)
OCT. 07...	--	--	--	--	--	--	--	--	--
DEC. 17...	0	0	0	2200	70	3	0	0	160
APR. 15...	0	4	4	2100	120	4	0	10	140
JUNE 23...	0	3	3	2000	130	6	0	0	120

DATE	DIS- SOLVED MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
OCT. 07...	--	--	--	--	--	0	--	--	--
DEC. 17...	10	.2	.2	0	0	0	140	20	0
APR. 15...	10	.3	.2	0	0	0	130	30	40
JUNE 23...	10	.2	.2	0	1	0	160	20	20

## NECHES RIVER BASIN

381

08041000 Neches River at Evadale, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	TOTAL PCB (UG/L)	PCR IN BOTTOM MA- TERIAL (UG/KG)	POLY- CHLO- RINATED NAPH- THA- LENES (UG/L)	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL CHLOR- DANE (UG/L)	CHLOR- DANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDD (UG/L)	DDD IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDE (UG/L)	DDE IN BOTTOM MA- TERIAL (UG/KG)
OCT. 07...	1555	.0	0	--	.00	.0	.0	1	.00	.0	.00	.0
DEC. 17...	1115	.0	0	--	.00	.0	.0	0	.00	.0	.00	.0
APR. 15...	0900	.0	0	.00	.00	.0	.0	0	.00	.0	.00	.0
JUNE 23...	0930	.0	0	.00	.00	.0	.0	0	.00	.0	.00	.0

DATE	TOTAL DDT (UG/L)	DOT IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DI- AZINON (UG/L)	TOTAL DI- ELDRIN (UG/L)	DI- ELDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ENDRIN (UG/L)	ENDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ETHION (UG/L)	TOTAL HEPTA- CHLOR (UG/L)	HEPTA- CHLOR IN BOTTOM MA- TERIAL (UG/KG)	TOTAL HEPTA- CHLOR EPOXIDE (UG/L)	HEPTA- CHLOR EPOXIDE IN BOT- TOM MA- TERIAL (UG/KG)
OCT. 07...	.00	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00	.0
DEC. 17...	.00	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00	.0
APR. 15...	.00	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00	.0
JUNE 23...	.00	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00	.0

DATE	TOTAL LINDANE (UG/L)	LINDANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL MALA- THION (UG/L)	TOTAL METHYL PARA- THION (UG/L)	TOTAL METHYL TRI- THION (UG/L)	TOTAL PARA- THION (UG/L)	TOTAL TOX- APHENE (UG/L)	TOX- APHENE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)
OCT. 07...	.00	.0	.00	.00	.00	.00	0	0	.00	.00	.00	.00
DEC. 17...	.00	.0	.00	.00	.00	.00	0	0	.00	.00	.00	.00
APR. 15...	.00	.0	.00	.00	.00	.00	0	0	.00	.00	.00	.00
JUNE 23...	.00	.0	.00	.00	.00	.00	0	0	.00	.02	.01	.00

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

## PERIPHYTON

Date	Length of exposure (days)	Biomass (g/m <sup>2</sup> )		Chlorophyll a (mg/m <sup>2</sup> )	Chlorophyll b (mg/m <sup>2</sup> )	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight				
APR. 15	23	22	18	8.6	0.1	290	Polyethylene strip
MAY 13	28	35.8	30.2	1.35	.067	4200	Polyethylene strip
JULY 20	27	14.0	10.8	1.29	.039	2500	Polyethylene strip
AUG. 25	36	17.0	9.77	10.2	.715	710	Polyethylene strip



## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

OCT. 7, 1975 1555 HOURS

PHYTOPLANKTON 1,100 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OCCYSTACEAE		
....ANKISTRODESMUS	170	16
....SCENEDESMACEAE		
....CRUCIGENIA	140	13
....SCENEDESMUS	140	13
..ZYGNEMATALES		
...DESMIDIACEAE		
...COSMARIUM	68	6
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
....CYCLOTELLA	100	10
....MELOSIRA	68	6
..PENNALES		
...NITZSCHIA	340	32
..NITZSCHIA		
CYANOPHYTA		
..MYXOPHYCEAE		
...OSCILLATORIALES		
...RIVULARIACEAE		
....RAPIDIOPSIS	34	3
PYRRHOPHYTA		
..DINOPHYCEAE		
...PERIDINIALES		
....PERIDINIAEAE		
....PERIDINIUM		0

NOV. 12, 1975 1045 HOURS

PHYTOPLANKTON 480 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OCCYSTACEAE		
....ANKISTRODESMUS	57	12
....SCENEDESMACEAE		
....SCENEDESMUS	85	18
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
....MELOSIRA	280	59
..PENNALES		
...NITZSCHIA	57	12
....NITZSCHIA		

JAN. 13, 1976 1510 HOURS

PHYTOPLANKTON 140 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OCCYSTACEAE		
....DICTYOSPHAERIUM	24	17
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
....MELOSIRA		0
..PENNALES		
...NAVICULACEAE		
....DIPLOEIS	6	4
....GYROSIGMA	6	4
....NAVICULA	18	13
....PINNULARIA	6	4
...NITZSCHIA	77	57
..NITZSCHIA		
EUGLENOPHYTA		
..EUGLENOPHYCEAE		
..EUGLENALES		
...EUGLENACEAE		
....TRACHELOMONAS		0

FEB. 25, 1976 1100 HOURS

PHYTOPLANKTON 10,000 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OCCYSTACEAE		
....ANKISTRODESMUS	310	3
....DICTYOSPHAERIUM	78	1
....KIRCHNERIELLA	230	2
....OCCYSTIS	310	3
....SCENEDESMACEAE		
....SCENEDESMUS		0
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
....CYCLOTELLA	230	2
....MELOSIRA	6,300	60
..PENNALES		
...CYMBELLACEAE		
....CYMBELLA		0
...FRAGILARIACEAE		
....SYNEDRA		0
...NAVICULACEAE		
....NAVICULA	160	1
...NITZSCHIA		
....NITZSCHIA	550	5
CYANOPHYTA		
..MYXOPHYCEAE		
...CHROOCOCCALES		
....CHROOCOCCACEAE		
....ANACYSTIS	2,200	21
EUGLENOPHYTA		
..EUGLENOPHYCEAE		
..EUGLENALES		
...EUGLENACEAE		
....EUGLENA		0
....TRACHELOMONAS	78	1

MAR. 23, 1976 1500 HOURS

PHYTOPLANKTON 47,000 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OCCYSTACEAE		
....ANKISTRODESMUS		0
....DICTYOSPHAERIUM	630	1
....KIRCHNERIELLA	2,800	6
....SELENASTRUM		0
....SCENEDESMACEAE		
....CRUCIGENIA	420	1
....SCENEDESMUS	1,700	4
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
....CYCLOTELLA	730	2
....MELOSIRA	27,000	57
..PENNALES		
...FRAGILARIACEAE		
....ASTERIONELLA		
....SYNEDRA	730	2
...NAVICULACEAE		
....GYROSIGMA		0
...NITZSCHIA		
....NITZSCHIA	730	2
...SURIPELLACEAE		
....SURIPELLA		0
CYANOPHYTA		
..MYXOPHYCEAE		
...CHROOCOCCALES		
....CHROOCOCCACEAE		
....ANACYSTIS	12,000	25
EUGLENOPHYTA		
..EUGLENOPHYCEAE		
..EUGLENALES		
...EUGLENACEAE		
....TRACHELOMONAS		0

08041000 Neches River at Evadale, Tex.--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

APR. 15, 1976 0900 HOURS

PHYTOPLANKTON 6,000 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...OCCYSTACEAE		
...ANKISTRODESMUS		0
...SELENASTRUM		0
...SCENEDESMACEAE		
...SCENEDESMUS	52	1
...TETRASTRUM	52	1
...VOLVOCALES		
...CHLAMYDOMONADACEAE		
...CHLAMYDOMONAS		0
...POLYBLEPHARIDACEAE		
...PYRAMIMONAS		0
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
...CYCLOTELLA	620	10
...MELOSIRA	4,600	77
...STEPHANODISCUS		0
..PENNALES		
...FRAGILARIACEAE		
...ASTERIONELLA		0
...NAVICULACEAE		
...NAVICULA		0
...NITZSCHACEAE		
...NITZSCHIA	260	4
..CHRYSOPHYCEAE		
...CHRYSOMONADALES		
...OCHROMONADACEAE		
...DINOBRYON		0
CYANOPHYTA		
..MYXOPHYCEAE		
...CHROOCOCCALES		
...CHROOCOCCACEAE		
...ANACYSTIS	78	1
EUGLENOPHYTA		
..EUGLENOPHYCEAE		
...EUGLENALES		
...EUGLENACEAE		
...EUGLENA	100	2
...TRACHELOMONAS		0

MAY 13, 1976 1030 HOURS

PHYTOPLANKTON 1,300 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...HYDRODICTYACEAE		
...PEDIASTRUM		0
...OCCYSTACEAE		
...ANKISTRODESMUS	67	5
...DICTYOSPHAERIUM	130	10
...KIRCHNERIELLA	33	2
...WESTELLA		0
...SCENEDESMACEAE		
...ACTINASTRUM	180	13
...CRUCIGENIA	22	2
...SCENEDESMUS	220	17
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
...CYCLOTELLA	45	3
...MELOSIRA	360	26
..PENNALES		
...FRAGILARIACEAE		
...SYNEDRA	11	1
...NAVICULACEAE		
...NAVICULA	45	3
...NEIDIUM		0
...NITZSCHACEAE		
...NITZSCHIA	89	7
CYANOPHYTA		
..MYXOPHYCEAE		
...CHROOCOCCALES		
...CHROOCOCCACEAE		
...ANACYSTIS		0
...OSCILLATORIALES		
...OSCILLATORIA		
...OSCILLATORIA	130	10
EUGLENOPHYTA		
..EUGLENOPHYCEAE		
...EUGLENALES		
...EUGLENACEAE		
...EUGLENA		0
...TRACHELOMONAS	11	1
PYRRHOPHYTA		
..DINOPHYCEAE		
...PERIDINIALES		
...CERATIACEAE		
...CERATIUM		0

## NECHES RIVER BASIN

08041000 Neches River at Evadale, Tex.--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

JUNE 23, 1976 0930 HOURS

PHYTOPLANKTON 4,000 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...MICRACTINIACEAE		
...MICRACTINIUM	74	2
...OCCYSTACEAE		
...ANKISTRODESMUS	56	1
...DICTYOSPHAERIUM	150	4
...TREUBARIA	37	1
...SCENEDESMACEAE		
...CRUCIGENIA	450	11
...SCENEDESMUS	760	19
...TETRASTRUM	74	2
...ZYGNEMATALES		
...DESMIDIACEAE		
...SPONDYLIUM		0
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
...CYCLOTELLA	240	6
...MELOSIRA	430	11
..PENNALES		
...FRAGILIARIACEAE		
...ASTERIONELLA		0
...NAVICULACEAE		
...NAVICULA	56	1
...NITZSCHIA		
...NITZSCHIA	560	14
CHRYSOPHYCEAE		
..CHRYSONOMADALES		
...MALLOMONADACEAE		
...MALLOMONAS		0
...OCHROMONADACEAE		
...DINOBRYON	74	2
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
...CHROOCOCCACEAE		
...ANACYSTIS	390	10
..OSCILLATORIALES		
...NOSTOCACEAE		
...ANABAENA	190	5
...OSCILLATORIA		
...RIVULARIACEAE	190	5
...RAPHIDIOPSIS		0
EUGLENOPHYTA		
..EUGLENOPHYCEAE		
..EUGLENALES		
...EUGLENACEAE		
...TRACHELOMONAS	56	1
PYRRHOPHYTA		
..DINOPHYCEAE		
...GYMNODINIALES		
...GYMNODINIACEAE		
...GYMNODINIUM		0
...PERIDINIALES		
...PERIDINIACEAE		
...PERIDINIUM	190	5

JULY 20, 1976 1410 HOURS

PHYTOPLANKTON 650 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...OCCYSTACEAE		
...ANKISTRODESMUS	6	1
...OCCYSTIS	24	4
...SCENEDESMACEAE		
...SCENEDESMUS	260	40
...VOLVOCALES		
..CHLAMYDOMONADACEAE		
...CHLAMYDOMONAS	18	3
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
...CYCLOTELLA	37	6
...MELOSIRA	130	21
..PENNALES		
...NITZSCHIA		
...NITZSCHIA	49	8
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
...CHROOCOCCACEAE		
...ANACYSTIS	120	18
EUGLENOPHYTA		
..EUGLENOPHYCEAE		
..EUGLENALES		
...EUGLENACEAE		
...TRACHELOMONAS	6	1

08041000 Neches River at Evadale, Tex.--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

AUG. 25, 1976 0930 HOURS

PHYTOPLANKTON 1,500 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OCCYSTACEAE		
...ANKISTRODESMUS	64	4
...SCENEDESMACEAE		
...SCENEDESMUS	97	7
...VOLVOCALES		
...VOLVOCAEAE		
...EUDORINA	230	15
...ZYGEMATALES		
...DESMIDIACEAE		
...SPONDYLIUM	16	1
CHRYSOPLANKTON		
..BACILLARIOPHYCEAE		
..CENTRALES		
..COSCINODISCEAE		
...MELOSIINA	32	2
..PENNIALES		
...NAVICULACEAE		
...NAVICULA	16	1
...NITZSCHIAEAE		
...NITZSCHIA	110	8
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
..CHROOCOCCACEAE		
...ANACYSTIS	130	9
..OSCILLATORIALES		
..NOSTOCACEAE		
...APHANIZOMENON	760	51
PYRRHOPHYTA		
..DINOPHYCEAE		
..PERIDINIALES		
...PERIDINIACEAE		
...PERIDINIUM	32	2

SEP. 14, 1976 1310 HOURS

PHYTOPLANKTON 10,000 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OCCYSTACEAE		
...KIRCHNERIELLA	73	1
...TETRAEDRON	73	1
...SCENEDESMACEAE		
...CRUCIGENIA		0
...SCENEDESMUS	880	9
...TETRASTRUM	290	3
...VOLVOCALES		
...CHLAMYDOMONADACEAE		
...CHLAMYDOMONAS	150	1
...PHACOTACEAE		
...PTEROMONAS	73	1
CHRYSOPLANKTON		
..BACILLARIOPHYCEAE		
..PENNIALES		
...NITZSCHIAEAE		
...NITZSCHIA	370	4
..XANTHOPHYCEAE		
..HETEROCOCCALES		
..CHLOROTHECIACEAE		
...OPHIOCYTIUM	290	3
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
..CHROOCOCCACEAE		
...ANACYSTIS	880	9
..OSCILLATORIALES		
...OSCILLATORIAEAE		
...LYNGBYA	4,300	43
...OSCILLATORIA	2,600	26

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	105090	143	80	22600	18	5110	15	4180	26
NOV. 1975.....	65290	139	78	13700	17	3090	15	2580	26
DEC. 1975.....	60850	164	90	14900	21	3490	18	3000	32
JAN. 1976.....	57890	152	84	13100	19	3030	16	2550	29
FEB. 1976.....	48620	204	110	14600	27	3600	25	3270	41
MAR. 1976.....	103350	192	100	29200	25	7110	23	6430	38
APR. 1976.....	123540	189	100	34700	25	8390	22	7450	38
MAY 1976.....	260380	137	77	53800	17	12100	15	10200	25
JUNE 1976.....	211180	148	82	46800	19	10700	16	8960	28
JULY 1976.....	213760	155	86	49600	20	11400	17	9570	29
AUG. 1976.....	208200	160	88	49700	21	11600	17	9810	31
SEPT 1976.....	161440	167	92	40200	22	9480	19	8140	32
TOTAL .....	1619590	**	**	383000	**	89100	**	76100	**
WTD.AVG. ....	4437.23	158	87	**	20	**	18	**	30

## NECHES RIVER BASIN

08041000 Neches River at Evadale, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	153	123	149	117	175	226	199	177	144	164	164	163
2	151	122	149	132	177	227	205	168	105	163	163	161
3	152	125	149	152	183	223	218	174	102	158	164	160
4	149	122	149	152	185	223	218	174	112	151	166	161
5	153	117	153	127	192	223	211	172	138	146	167	161
6	152	117	153	122	194	223	199	173	149	143	164	163
7	149	121	157	134	192	222	199	174	148	142	150	162
8	147	122	161	140	195	210	195	160	151	145	142	163
9	147	134	161	153	198	195	190	154	155	144	130	165
10	147	143	161	150	200	191	186	142	160	139	125	164
11	146	145	168	150	201	183	192	140	164	135	140	164
12	151	147	165	148	205	206	197	133	164	138	167	167
13	146	147	168	147	207	208	199	122	161	145	166	168
14	148	149	172	150	209	213	200	110	160	154	166	168
15	147	151	175	152	208	207	201	103	159	153	168	162
16	146	151	177	154	208	201	198	101	157	151	168	165
17	145	151	182	154	216	198	192	106	156	148	168	167
18	145	153	187	160	218	201	185	113	155	150	168	168
19	147	153	178	149	218	201	164	117	153	156	168	170
20	147	150	181	161	216	209	165	124	154	158	168	174
21	146	151	184	165	213	216	162	138	154	165	168	169
22	149	151	179	167	209	217	155	143	156	168	170	171
23	149	149	185	167	205	214	156	151	147	166	169	174
24	149	151	179	168	203	216	169	154	146	165	176	175
25	147	149	175	167	201	183	180	157	139	164	168	177
26	140	147	164	168	212	135	186	159	137	165	172	174
27	119	150	163	162	219	114	183	160	141	166	165	172
28	118	151	138	165	227	133	181	163	152	167	165	169
29	139	150	160	165	228	159	178	162	154	168	166	168
30	134	149	175	170	---	160	175	166	161	166	164	166
31	141	---	118	173	---	177	---	154	---	162	165	---
MONTH	145	141	165	153	204	197	188	147	148	155	162	167

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	---	---	13.0	12.0	17.0	19.0	---	23.0	28.0	30.0	28.0
2	22.0	21.0	---	14.0	11.0	19.0	18.0	22.0	23.0	29.0	30.0	28.0
3	21.0	---	---	11.0	12.0	19.0	18.0	---	23.0	---	29.0	28.0
4	20.0	---	---	9.0	14.0	19.0	18.0	22.0	24.0	27.0	29.0	29.0
5	19.0	---	---	9.0	15.0	21.0	20.0	24.0	23.0	27.0	28.0	---
6	21.0	---	---	8.0	15.0	18.0	---	23.0	25.0	26.0	29.0	---
7	21.0	---	---	10.0	12.0	16.0	20.0	23.0	25.0	26.0	29.0	28.0
8	20.5	23.0	---	6.0	---	17.0	20.0	22.0	25.0	26.0	27.0	28.0
9	23.0	23.0	---	6.0	12.0	15.0	20.0	21.0	25.0	26.0	28.0	29.0
10	24.0	---	---	---	13.0	16.0	18.0	---	25.0	26.0	---	28.0
11	23.0	---	---	10.0	15.0	16.0	21.0	21.0	26.0	27.0	27.0	28.0
12	24.0	---	---	10.0	16.0	18.0	21.0	22.0	25.0	27.0	28.0	26.0
13	24.0	---	---	12.0	13.0	---	22.0	21.0	26.0	28.0	28.0	---
14	24.0	---	---	12.0	---	---	---	21.0	27.0	27.0	---	27.0
15	24.0	---	---	12.0	17.0	15.0	23.0	21.0	27.0	27.0	29.0	27.0
16	24.0	---	---	12.0	18.0	15.0	---	20.0	26.0	---	29.0	28.0
17	24.0	---	---	12.0	19.0	14.0	20.0	---	27.0	---	---	28.0
18	24.0	---	---	---	18.0	15.0	21.0	21.0	27.0	26.0	29.0	28.0
19	---	---	---	12.0	18.0	16.0	22.0	20.0	25.0	27.0	30.0	28.0
20	21.0	---	---	11.0	18.0	---	22.0	21.0	25.0	28.0	30.0	25.0
21	22.0	---	---	9.0	18.0	16.0	21.0	22.0	25.0	27.0	30.0	26.0
22	---	---	---	10.0	---	19.0	21.0	22.0	25.0	28.0	30.0	26.0
23	22.0	---	---	12.0	15.0	19.0	23.0	23.0	26.0	28.0	30.0	26.0
24	---	---	---	12.0	15.0	19.0	---	23.0	27.0	28.0	30.0	26.0
25	---	---	---	12.0	15.0	12.0	22.0	24.0	27.0	29.0	29.0	23.0
26	---	---	---	12.0	16.0	20.0	23.0	25.0	27.0	29.0	30.0	26.0
27	---	---	---	11.0	15.0	---	22.0	25.0	28.0	29.0	30.0	26.0
28	---	---	---	11.0	---	---	22.0	24.0	28.0	30.0	---	26.0
29	---	---	---	12.0	17.0	20.0	22.0	24.0	28.0	30.0	29.0	25.0
30	---	---	---	12.0	---	20.0	21.0	25.0	29.0	30.0	---	25.0
31	---	---	---	---	---	19.0	---	25.0	---	---	29.0	---
MONTH	---	---	---	11.0	15.0	17.5	21.0	22.5	25.5	27.5	29.0	27.0

## NECHES RIVER BASIN

387

08041500 Village Creek near Kountze, Tex.

LOCATION.--Lat 30°23'52", long 94°15'48", Hardin County, at downstream side of bridge on Farm Road 418, 1.6 miles (2.6 km) upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 3.1 miles (5.0 km) upstream from Cypress Creek, 3.4 miles (5.5 km) northeast of Kountze, and 4.3 miles (6.9 km) downstream from Beech Creek.

DRAINAGE AREA.--860 mi<sup>2</sup> (2,227 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: May 1924 to September 1927, October 1927 to November 1929 (discharge measurements only), April 1939 to current year.

Water quality: Chemical analyses: November 1967 to current year. Water temperatures: November 1967 to September 1970.

GAGE.--Water-stage recorder. Datum of gage is 25.12 ft (7.657 m) above mean sea level. Prior to Apr. 30, 1939, nonrecording gage at site 1.6 miles (2.6 km) downstream at different datum. Apr. 30, 1939, to Sept. 30, 1966, water-stage recorder at site 2,000 ft (610 m) downstream at present datum.

AVERAGE DISCHARGE.--40 years, 816 ft<sup>3</sup>/s (23.11 m<sup>3</sup>/s), 12.88 in/yr (327 mm/yr), 591,200 acre-ft/yr (729 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 4,990 ft<sup>3</sup>/s (141 m<sup>3</sup>/s) May 13 (gage height, 15.69 ft or 4.782 m); minimum, 105 ft<sup>3</sup>/s (2.97 m<sup>3</sup>/s) Sept. 15.

Period of record: Maximum discharge, 67,200 ft<sup>3</sup>/s (1,900 m<sup>3</sup>/s) Nov. 26, 1940 (gage height, 27.6 ft or 8.41 m, former site, from floodmark), from rating curve extended above 32,000 ft<sup>3</sup>/s (906 m<sup>3</sup>/s); minimum not determined, probably occurred during period of no gage-height record Sept. 16 to Oct. 3, 1956; minimum daily, 16 ft<sup>3</sup>/s (0.45 m<sup>3</sup>/s) Oct. 1, 2, 1956.

Maximum stage since 1884, about 34 ft (10.4 m) in August 1915 at site 2,000 ft (610 m) downstream at present datum. Flood of May 27, 1929, reached a stage of about 32 ft (9.8 m) at site 2,000 ft (610 m) downstream at present datum. Above stages were determined on basis of information by engineers of Gulf, Colorado, and Santa Fe Railway Co. for site 1.6 miles (2.6 km) downstream.

REMARKS.--Discharge records good. Small diversions above station.

REVISIONS.--WSP 1732: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	185	1870	505	1750	633	460	616	655	1930	423	211	115
2	181	1050	571	1930	590	448	642	788	3920	429	197	118
3	179	918	668	2310	573	438	684	717	4650	472	188	187
4	175	1080	630	2290	555	429	613	531	4310	652	176	204
5	170	1360	532	2050	532	420	587	416	3390	792	174	167
6	167	1680	488	2060	514	421	506	354	2250	908	167	151
7	167	1970	485	1820	501	451	461	384	1290	845	189	149
8	167	1960	477	1460	503	513	561	1520	796	660	211	144
9	167	1520	469	1160	524	973	577	2890	664	743	172	136
10	167	946	459	945	502	1350	497	4040	567	1270	169	129
11	167	708	441	860	459	1460	436	4430	478	1170	149	123
12	167	616	430	815	451	1340	386	4680	414	789	140	118
13	167	548	417	802	447	1080	355	4900	370	623	134	113
14	166	499	412	815	444	859	339	4240	337	662	129	109
15	175	458	416	793	435	831	327	3420	315	688	124	106
16	234	427	419	747	426	917	316	2910	321	606	123	106
17	277	413	476	677	418	978	306	2700	531	546	127	114
18	430	406	546	591	413	873	369	2210	906	687	126	143
19	478	402	576	552	408	724	1450	1350	1300	878	127	130
20	354	402	559	530	406	613	1980	791	1600	1450	126	117
21	277	409	491	521	437	576	1900	625	1850	1810	123	114
22	239	442	442	531	644	576	1850	548	1810	1500	120	111
23	228	459	416	565	848	558	1600	495	1320	823	115	113
24	238	430	417	584	995	523	1050	451	804	529	112	120
25	449	399	806	727	899	838	622	418	542	437	117	122
26	1160	388	1250	1100	688	1670	498	392	450	379	156	117
27	1630	388	1530	1070	559	1850	516	372	447	339	147	117
28	1920	423	1770	999	508	1600	499	360	582	308	134	123
29	2970	476	1940	954	480	1210	445	355	542	277	139	147
30	3740	473	1820	866	---	847	502	336	484	250	129	223
31	2890	---	1690	738	---	696	---	520	---	228	117	---
TOTAL	20081	23520	22548	33612	15792	26522	21490	48798	39170	22173	4568	3986
MEAN	648	784	727	1084	545	856	716	1574	1306	715	147	133
MAX	3740	1970	1940	2310	995	1850	1980	4900	4650	1810	211	223
MIN	166	388	412	521	406	420	306	336	315	228	112	106
CFSM	.75	.91	.85	1.26	.63	1.00	.83	1.83	1.52	.83	.17	.15
IN.	.87	1.02	.98	1.45	.68	1.15	.93	2.11	1.69	.96	.20	.17
AC-FT	39830	46650	44720	66670	31320	52610	42630	96790	77690	43980	9060	7910
CAL YR 1975	TOTAL	539274	MEAN	1477	MAX	7250	MIN	166	CFSM	1.72	IN	23.33
WTR YR 1976	TOTAL	282260	MEAN	771	MAX	4900	MIN	106	CFSM	.90	IN	12.21
									AC-FT	1070000	AC-FT	559900



## NECHES RIVER BASIN

08041500 Village Creek near Kountze, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	DIS- SOLVED SODIUM (NA) (MG/L)
OCT. 13...	1500	160	87	6.4	22.0	13	4	3.7	.8	8.2
NOV. 20...	1340	412	88	5.8	16.0	12	4	3.9	.6	8.4
JAN. 09...	0955	1120	80	6.0	6.0	16	10	4.9	1.0	8.0
FEB. 02...	1300	556	97	6.7	11.0	18	8	4.4	1.7	10
MAR. 18...	1500	823	119	6.0	15.5	15	9	3.6	1.5	13
APR. 26...	1500	474	107	6.4	21.5	14	6	3.6	1.3	12
JUNE 10...	1340	561	91	6.0	23.5	8	1	2.7	.3	10
JULY 27...	1445	330	109	6.4	27.5	17	7	4.9	1.1	11
SEP. 02...	1130	118	88	6.8	25.5	17	6	5.3	1.0	9.5

DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT. 13...	1.0	1.1	11	0	2.0	15	.2	14	50
NOV. 20...	1.0	1.0	10	0	2.6	16	.1	15	53
JAN. 09...	.9	1.2	8	0	4.6	14	.0	12	50
FEB. 02...	1.0	.9	12	0	3.7	19	.2	14	60
MAR. 18...	1.5	.9	8	0	4.4	25	.2	12	65
APR. 26...	1.4	1.0	10	0	3.8	22	.1	13	62
JUNE 10...	1.5	.8	8	0	3.2	18	.0	12	51
JULY 27...	1.2	1.1	12	0	3.0	20	.1	14	61
SEP. 02...	1.0	1.2	14	0	2.7	17	.1	13	57

08041700 Pine Island Bayou near Sour Lake, Tex.

LOCATION.--Lat 30°06'21", long 94°20'04", Jefferson-Hardin County line, on right bank at downstream side of bridge on county road 5.1 miles (8.2 km) southeast of Sour Lake.

DRAINAGE AREA.--336 mi<sup>2</sup> (870 km<sup>2</sup>).

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

Water quality: Chemical analyses: February 1968 to current year. Water temperatures: February 1968 to current year.

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

AVERAGE DISCHARGE.--9 years, 412 ft<sup>3</sup>/s (11.67 m<sup>3</sup>/s), 16.65 in/yr (423 mm/yr), 298,500 acre-ft/yr (368 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 1,690 ft<sup>3</sup>/s (47.9 m<sup>3</sup>/s) Oct. 29; maximum elevation, 25.35 ft (7.727 m) June 7; minimum daily discharge, 1.7 ft<sup>3</sup>/s (0.048 m<sup>3</sup>/s) Oct. 14.

Period of record: Maximum discharge, 10,900 ft<sup>3</sup>/s (309 m<sup>3</sup>/s) June 11, 1975 (elevation, 30.83 ft or 9.400 m); minimum daily, 0.58 ft<sup>3</sup>/s (0.016 m<sup>3</sup>/s) Nov. 8, 1967.

Historic: Maximum stage since at least 1917, about 31 ft (9.4 m) in September 1963, from information by local residents.

Water quality: Current year: Maximum daily specific conductance, 900 micromhos Feb. 23; minimum daily, 77 micromhos June 7.

Period of record: Maximum daily specific conductance, 11,600 micromhos Mar. 23, 1968; minimum daily, 34 micromhos June 12, 1975.

Maximum water temperatures, 37.0°C Sept. 15, 1972; minimum, 2.0°C Jan. 11, 1973.

REMARKS.--Discharge records fair. No known diversions. Low flow for March through September was sustained by drainage from rice fields.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	1100	591	1030	368	22	325	239	452	93	58	29
2	47	835	581	918	237	16	187	211	765	88	48	24
3	31	918	514	740	138	13	102	167	1020	76	36	18
4	24	1130	401	567	98	11	71	129	1290	72	29	16
5	18	1190	283	440	69	9.5	64	124	1380	78	34	13
6	13	1160	206	339	59	8.7	42	63	1410	109	35	10
7	13	1100	236	289	47	8.1	59	66	1460	191	35	8.1
8	11	1000	465	302	37	11	36	177	1150	170	39	7.2
9	5.8	865	649	298	30	45	32	347	997	161	36	6.6
10	4.6	673	662	230	25	160	75	489	680	138	31	6.4
11	4.2	450	572	161	22	310	118	630	345	117	33	7.4
12	3.1	274	495	116	19	447	87	914	187	128	26	13
13	2.2	186	434	116	17	555	71	1190	126	178	30	8.4
14	1.7	144	345	128	15	762	59	1270	104	211	38	9.0
15	3.3	115	217	93	13	1070	57	1180	91	189	50	15
16	4.5	91	128	68	12	1020	44	1020	98	123	52	17
17	28	75	96	56	11	817	45	822	160	116	54	21
18	36	63	83	46	9.7	519	47	665	202	166	48	21
19	33	54	73	39	8.7	264	105	539	196	193	34	19
20	23	57	62	36	8.2	152	298	406	175	207	19	20
21	18	46	52	30	16	95	400	245	172	195	14	48
22	12	39	45	24	32	68	476	137	233	141	11	42
23	40	36	43	20	38	52	513	97	254	109	13	26
24	160	31	60	16	38	48	568	67	244	108	14	17
25	355	26	491	29	41	96	673	56	196	131	13	12
26	814	397	758	128	46	308	748	62	150	107	11	10
27	1220	752	950	311	41	511	709	61	116	158	12	33
28	1540	783	1060	525	34	489	517	64	91	188	10	48
29	1680	736	1090	603	28	382	298	79	74	148	16	67
30	1620	622	1070	546	---	358	249	69	78	58	18	62
31	1360	---	1070	495	---	394	---	114	---	69	32	---
TOTAL	9198.4	14948	13782	8739	1557.6	9021.3	7075	11699	13896	4248	929	654.1
MEAN	297	498	445	282	53.7	291	236	377	463	137	30.0	21.8
MAX	1680	1190	1090	1030	368	1070	748	1270	1460	211	58	67
MIN	1.7	26	43	16	8.2	8.1	32	56	74	69	10	6.4
AC-FT	18250	29650	27340	17330	3090	17890	14030	23200	27560	8430	1840	1300
CAL YP 1975	TOTAL	257185.4	MEAN	705	MAX	10700	MIN	1.7	AC-FT	510100		
WTR YR 1976	TOTAL	95747.4	MEAN	262	MAX	1680	MIN	1.7	AC-FT	189900		

# NECHES RIVER BASIN

08041700 Pine Island Bayou near Sour Lake, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG)	DIS-SOLVED SODIUM (NA) (MG/L)
OCT 14...	1215	2.3	519	7.0	23.0	79	3	25	3.9	68
NOV 21...	1730	47	287	6.7	13.5	50	20	16	2.4	31
DEC 13...	1700	410	124	6.7	17.0	25	12	8.1	1.2	17
JAN 05...	1320	4.3	138	6.9	9.5	28	15	8.2	1.8	14
FEB 05...	0900	68	317	7.1	15.0	46	26	15	2.0	35
MAR 19...	1420	241	246	6.4	17.0	38	21	12	1.9	27
APR 26...	1130	777	106	6.4	21.5	19	7	6.1	1.0	10
MAY 23...	1500	100	273	5.9	24.0	34	14	11	1.7	31
JUN 10...	1615	548	133	6.7	25.0	21	6	6.9	.8	14
JUL 29...	1145	166	263	6.8	27.5	50	9	16	2.5	29
AUG 11...	1800	31	312	7.5	30.0	73	25	19	6.1	33
SEP 03...	1115	18	243	7.3	22.5	47	9	15	2.4	25

DATE	SODIUM ADSORPTION RATIO	DIS-SOLVED POTASSIUM (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT 14...	3.3	3.2	93	0	10	97	.3	4.5	--	258
NOV 21...	1.9	2.7	36	0	6.7	58	.1	7.3	--	142
DEC 13...	1.5	2.2	16	0	6.3	22	.2	5.2	--	70
JAN 05...	1.2	1.8	16	0	6.7	26	.4	5.1	--	72
FEB 05...	2.3	2.2	24	0	7.4	68	.3	4.6	--	146
MAR 19...	1.9	1.9	20	0	10	52	.2	4.6	--	119
APR 26...	1.0	1.6	15	0	6.4	17	.2	4.3	94	54
MAY 23...	2.3	3.3	25	0	8.2	53	.4	5.2	--	126
JUN 10...	1.3	1.3	18	0	4.3	23	.2	1.7	--	61
JUL 29...	1.8	1.4	50	0	6.8	46	.2	5.7	--	132
AUG 11...	1.7	3.5	58	0	14	55	.3	7.2	--	167
SEP 03...	1.6	3.2	47	0	14	37	.4	8.5	--	129

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	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. 1975.....	9198.4	126	64	1600	22	552	4	101	25
NOV. 1975.....	14948	141	72	2900	24	971	5	184	28
DEC. 1975.....	13782	147	75	2790	25	932	5	173	29
JAN. 1976.....	8739	196	99	2340	35	829	6	143	39
FEB. 1976.....	1529.6	372	190	776	80	329	11	45	63
MAR. 1976.....	9021.3	224	110	2760	41	988	7	172	44
APR. 1976.....	7075	198	100	1910	35	665	6	117	39
MAY 1976.....	11699	163	83	2620	29	902	5	160	32
JUNE 1976.....	13896	124	63	2350	21	794	4	144	25
JULY 1976.....	4248	227	120	1320	39	448	7	82	45
AUG. 1976.....	929	308	160	392	55	139	10	24	59
SEPT 1976.....	654.1	330	170	294	63	112	10	18	60
TOTAL .....	95719.31	**	**	22100	**	7660	**	1360	**
WTD.AVG. ....	262.24	168	85	**	30	**	5.4	**	33

## NECHES RIVER BASIN

391

08041700 Pine Island Bayou near Sour Lake, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	290	136	190	109	194	695	225	256	140	200	281	245
2	401	145	147	116	206	685	244	300	110	189	321	224
3	512	150	167	155	256	678	250	404	88	196	330	242
4	456	145	160	136	282	671	278	399	127	204	350	270
5	511	127	190	139	314	700	293	394	121	209	363	271
6	554	120	244	150	348	811	318	498	100	215	338	293
7	532	125	230	160	377	767	333	344	77	216	312	297
8	525	126	167	125	419	815	408	438	86	223	325	306
9	515	122	160	127	451	720	439	250	103	221	324	308
10	510	142	168	142	471	283	571	214	133	235	321	316
11	514	176	159	176	505	375	350	125	172	247	312	280
12	520	185	120	212	540	252	321	90	181	239	304	238
13	521	195	124	248	573	202	263	110	215	217	337	247
14	527	200	133	265	609	186	294	96	224	184	374	255
15	520	203	190	289	641	148	259	115	225	218	285	217
16	750	208	238	295	685	153	291	132	224	292	260	232
17	375	214	287	302	722	140	338	140	284	300	250	260
18	335	227	288	310	775	155	385	135	221	189	257	317
19	302	252	255	325	794	162	425	129	225	197	268	375
20	285	288	280	359	785	287	200	141	220	208	299	447
21	275	295	304	386	625	316	204	199	215	207	304	576
22	267	340	329	440	750	344	299	264	199	206	309	321
23	450	368	342	480	900	345	202	273	124	202	321	304
24	250	373	330	501	629	358	150	272	106	198	332	385
25	193	380	210	490	850	317	111	304	119	194	325	302
26	139	137	121	700	587	475	113	289	140	311	219	417
27	94	148	117	450	599	187	109	319	160	383	313	257
28	94	120	125	275	610	256	159	316	185	200	334	267
29	88	104	110	233	700	321	194	311	200	263	345	338
30	112	145	98	300	---	239	230	281	218	272	354	436
31	129	---	90	162	---	242	---	231	---	283	325	---
MONTH	372	197	196	276	559	396	275	251	165	230	313	308

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	23.0	15.0	11.0	11.0	---	22.0	20.0	21.0	24.0	27.0	25.0
2	26.0	24.0	16.0	15.0	13.0	22.0	18.0	22.0	26.0	28.0	24.0	24.0
3	26.0	23.0	17.0	12.0	14.0	17.0	17.0	22.0	27.0	25.0	23.0	29.0
4	25.0	21.5	11.0	11.0	15.0	21.0	17.0	---	23.0	25.0	25.0	25.0
5	26.0	21.5	16.0	8.5	15.0	18.0	17.0	21.0	22.0	---	27.0	27.0
6	---	---	16.0	9.0	14.0	14.0	---	21.0	---	---	---	29.0
7	25.0	---	---	---	14.0	13.0	16.0	19.0	25.0	23.0	26.0	28.0
8	---	21.0	15.5	8.0	15.0	16.0	18.0	20.0	26.0	27.0	24.0	27.0
9	26.0	21.0	---	8.0	15.0	---	16.0	---	26.0	22.0	---	27.0
10	27.0	21.0	15.0	8.5	15.0	15.0	22.0	20.0	---	---	28.0	24.0
11	26.0	21.5	15.0	12.0	---	14.0	---	22.0	26.0	---	30.0	28.0
12	---	---	15.0	14.0	---	13.0	23.0	21.0	26.0	25.0	25.0	27.0
13	27.0	17.0	17.0	17.0	16.0	16.0	16.0	20.0	25.0	---	26.0	24.0
14	26.0	---	16.0	15.0	---	13.0	16.0	22.0	27.0	25.0	24.0	26.0
15	25.0	17.0	---	14.0	16.0	14.0	18.0	20.0	---	24.0	---	26.0
16	26.0	---	14.0	---	13.0	16.0	16.0	22.0	24.0	23.0	23.0	23.0
17	26.0	17.0	11.0	13.0	14.0	15.0	---	23.0	23.0	---	---	---
18	26.0	18.5	10.0	12.0	16.0	14.0	---	---	23.0	23.0	26.0	27.0
19	25.0	19.0	10.0	13.0	14.0	16.0	17.0	21.0	26.0	---	25.5	---
20	26.0	16.5	10.0	10.0	16.0	18.0	22.0	20.0	---	25.0	24.0	22.0
21	---	15.0	---	12.0	16.0	16.5	22.0	22.0	22.0	---	---	25.0
22	27.0	---	---	---	17.0	23.0	20.0	20.0	22.0	25.0	24.0	25.0
23	---	12.0	10.0	15.0	14.0	16.5	21.0	24.0	26.0	---	---	24.0
24	---	11.0	---	---	14.0	16.0	---	24.0	26.0	---	25.0	26.0
25	20.5	---	---	---	15.0	15.0	21.0	24.0	26.0	22.0	---	---
26	24.0	14.0	10.0	15.0	16.0	19.0	22.0	25.0	---	28.0	---	25.0
27	19.0	11.0	10.0	---	---	18.0	23.0	24.0	24.0	25.0	23.0	25.0
28	19.0	12.0	10.0	---	16.0	16.0	22.0	27.0	---	24.0	27.0	27.0
29	25.0	15.0	15.0	11.0	17.0	20.0	21.0	26.0	25.0	26.0	---	22.0
30	21.0	---	11.0	11.0	---	19.5	---	27.0	25.0	26.0	22.0	26.0
31	21.0	---	12.0	11.0	---	14.0	---	25.0	---	25.0	25.0	---
MONTH	---	---	---	---	15.0	16.5	19.5	22.5	24.5	---	---	25.5

08042000 Taylor Bayou near LaBelle, Tex.

LOCATION.--Lat 29°52'30", long 94°09'34", Jefferson County, near center of stream at downstream side of bridge on county road, 0.7 mile (1.1 km) south of LaBelle, 6.0 miles (9.7 km) upstream from Hillebrandt Bayou, 7.2 miles (11.6 km) upstream from State Highway 73, and 11.2 miles (18.0 km) upstream from saltwater gates and barge locks. Distances are measured along rectified channel.

DRAINAGE AREA.--262 mi<sup>2</sup> (679 km<sup>2</sup>).

PERIOD OF RECORD.--April 1954 to current year, complete records for storms of 1.0 inch (25.4 mm) or more runoff, except for the period Sept. 10-22, 1961.

GAGE.--Water-stage recorder. Datum of gage is 4.63 ft (1.411 m) below mean sea level, determined by several comparisons of water surface with auxiliary water-stage recorder 7.2 miles (11.6 km) downstream during times of no flow and ideal weather conditions.

EXTREMES.--Current year: Maximum discharge estimated, 3,000 ft<sup>3</sup>/s (85.0 m<sup>3</sup>/s) June 2; maximum gage height estimated, 7.5 ft (2.29 m) June 2; minimum discharge not determined (affected by tides and pumping); minimum gage height, 4.00 ft (1.219 m) Feb. 2.  
Period of record: Maximum discharge, 9,590 ft<sup>3</sup>/s (272 m<sup>3</sup>/s) Sept. 22, 1963; maximum gage height, 11.78 ft (3.591 m) Sept. 20, 1963 (backwater from Hillebrandt Bayou); minimum discharge not determined (affected by tides and pumping); minimum gage height, 2.31 ft (0.704 m) July 17, 1954.

Maximum stage since at least 1941, that of Sept. 20, 1963. Flood in 1941 reached a stage of 11.3 ft (3.44 m), from information by Corps of Engineers; flood in 1946 reached a stage of 10.4 ft (3.17 m), from county bridge plans; flood of Sept. 13, 1961 (Hurricane Carla), reached a stage of 11.51 ft (3.508 m).

REMARKS.--No storm producing 1 inch (25 mm) of runoff occurred during current year; therefore no daily discharges are published. Discharge is computed using fall as a factor. Discharge for recessions of large rises with insufficient fall are estimated. Small rises with insufficient fall are not computed. Low flow is regulated by drainage from ricefields and operation of saltwater gates and barge locks. An unknown amount of water is diverted above and below gage for rice irrigation.

REVISIONS.--WSP 1922: Drainage area.

08042500 Hillebrandt Bayou near Lovell Lake, Tex.

LOCATION.--Lat 29°55'44", long 94°06'35", Jefferson County, near center of stream at downstream side of bridge on county road, 1.3 miles (2.1 km) southeast of Lovell Lake, and 4.4 miles (7.1 km) upstream (along rectified channel) from Taylor Bayou.

DRAINAGE AREA.--128 mi<sup>2</sup> (332 km<sup>2</sup>).

PERIOD OF RECORD.--April 1954 to current year, complete records for storms of 1.0 inch (25.4 mm) or more runoff, except for the period Sept. 11-18, 1961.

GAGE.--Water-stage recorder. Auxiliary water-stage recorder 3.0 miles (4.8 km) downstream. Datum of gage is 4.63 ft (1.411 m) below mean sea level, determined by comparisons of water surface with Taylor Bayou near LaBelle, auxiliary gage, 5.6 miles (9.0 km) downstream, during times of no flow and ideal weather conditions. Prior to Aug. 28, 1963, auxiliary water-stage recorder on Taylor Bayou 1.2 miles (1.9 km) downstream from Hillebrandt Bayou, nonrecording gages on Taylor Bayou 2.3 and 5.2 miles (3.7 and 8.4 km) downstream from Hillebrandt Bayou.

EXTREMES.--Current year: Maximum discharge, 1,370 ft<sup>3</sup>/s (38.8 m<sup>3</sup>/s) June 2 (gage height, 7.27 ft or 2.216 m); minimum not determined (affected) by tides and pumping); minimum gage height, 4.04 ft (1.231 m) Feb. 2.

Period of record: Maximum discharge, 15,000 ft<sup>3</sup>/s (425 m<sup>3</sup>/s) Sept. 18, 1963; maximum gage height, 12.34 ft (3.761 m) Sept. 19, 1963; minimum discharge not determined (affected by tides and pumping); minimum gage height, 2.33 ft (0.710 m) July 17, 1954.

Maximum stage since 1941, 12.34 ft (3.761 m) Sept. 19, 1963. A stage of 11.56 ft (3.523 m) occurred Sept. 13, 1961 (backwater caused by Hurricane Carla).

REMARKS.--No storm producing 1 inch (25 mm) of runoff occurred during current year; therefore no daily discharges are published. Discharge computed using fall as a factor. Discharge for recessions of large rises with insufficient fall are estimated. Small rises with insufficient fall are not computed. Low flow is regulated by drainage from ricefields and operation of saltwater gates and barge locks. An unknown amount of water is diverted above and below gage for rice irrigation.

REVISIONS.--WSP 1922: Drainage area.



## TRINITY RIVER BASIN

08042650 North Creek subwatershed No. 28-A near Jermyn, Tex.

LOCATION.--Lat 33°14'52", long 98°19'19", Jack County, near center of earthfill dam on unnamed tributary of North Creek, 0.2 miles (0.3 km) upstream from North Creek, and 4.0 miles (6.4 km) southeast of Jermyn.

DRAINAGE AREA.--6.82 mi<sup>2</sup> (17.66 km<sup>2</sup>).

PERIOD OF RECORD.--March 1972 to current year.

GAGE.--Water-stage recorder and flat-crested weir on concrete drop inlet. Datum of gage is 1,090.39 ft (332.351 m) above mean sea level (Soil Conservation Service bench mark). Prior to Oct. 5, 1972, staff gage at same datum.

EXTREMES.--Current year: Maximum outflow, 73.2 ft<sup>3</sup>/s (2.07 m<sup>3</sup>/s) Sept. 19 (gage height, 19.47 ft or 5.934 m); no outflow October to August. Maximum inflow, 787 ft<sup>3</sup>/s (22.3 m<sup>3</sup>/s), average for 5-minute interval, Sept. 19, computed and adjusted as explained below; no inflow at times.

Period of record: Maximum outflow, 96.2 ft<sup>3</sup>/s (2.72 m<sup>3</sup>/s) Oct. 30, 1974 (gage height, 22.80 ft or 6.949 m); no outflow most of time each year. Maximum inflow, 1,430 ft<sup>3</sup>/s (40.5 m<sup>3</sup>/s), average for 5-minute interval, Oct. 30, 1974, computed from change in pool contents and adjusted for rainfall on pool surface during time of peak inflow; no inflow at times each year.

REMARKS.--Records fair. The pool is formed by a rolled earthfill dam 1,800 ft (549 m) long with a 100-foot-wide (30-meter) earthen spillway at the left end of dam. The crest of emergency spillway is at gage height 33.5 ft (10.21 m). The dam was completed in March 1972, and storage began May 12, 1972. The outlet structure consists of a 2.5- by 7.5-foot (0.8- by 2.3-meter) uncontrolled concrete drop-inlet structure that is connected to a 30-inch (762-millimeter) concrete outlet pipe. The drop-inlet structure is also equipped with a 12-inch-diameter (305-millimeter) slide gate near the bottom of the tower with invert at a gage height of 8.61 ft (2.62 m). The crest of the drop inlet is at gage height 18.12 ft (5.52 m). The capacity of pool at crest of emergency spillway is 1,940 acre-ft (2.39 hm<sup>3</sup>), the capacity at crest of the drop inlet is 245 acre-ft (0.302 hm<sup>3</sup>), and the capacity at the crest of the controlled outlet pipe is 24 acre-ft (0.030 hm<sup>3</sup>). The capacity table below 18.12 ft (5.52 m) was computed using the average-end-area method from a surface area table based on a survey of Mar. 14, 1972. The capacity table above 18.12 ft (5.52 m) was computed using the average-end-area method and based on an area table furnished by the Soil Conservation Service.

## POOL WATER BUDGET, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
INFLOW 1/	2.7	5.8	12.3	0	0	0	73.2	2.2	4.9	12.6	21.9	243
OUTFLOW	0	0	0	0	0	0	0	0	0	0	0	125
(+)	-31.3	-19.3	-8.4	-15.6	-15.4	-17.6	+63.5	-15.7	-19.4	-10.8	+1.6	+112
(++)	.32	.89	1.63	0	0	1.00	4.98	2.92	2.39	2.65	3.35	6.75
CAL YR 1975: INFLOW	757		OUTFLOW	590	+	-62.8	++	32.60				
WTR YR 1976: INFLOW	379		OUTFLOW	125	+	+32.6	++	26.88				

PEAK INFLOW (BASE, 200 FT<sup>3</sup>/S).--Apr. 19 (1820) \*418 ft<sup>3</sup>/s; Sept. 19 (1110) \*787 ft<sup>3</sup>/s.

1/ Inflow adjusted for rainfall on pool and pool losses.

± Change in contents, in acre-feet.

++ Weighted-mean rainfall, in inches.

\* Average for 5-minute interval.

## TRINITY RIVER BASIN

395

08042700 North Creek near Jacksboro, Tex.

LOCATION.--Lat 33°16'57", long 98°17'53", Jack County, near left bank on downstream side of bridge on U.S. Highway 281, 1.7 miles (2.7 km) upstream from Henderson Creek, 8.4 miles (13.5 km) upstream from mouth, and 9.5 miles (15.3 km) northwest of Jacksboro.

DRAINAGE AREA.--21.6 mi<sup>2</sup> (55.9 km<sup>2</sup>).

PERIOD OF RECORD.--August 1956 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,016.33 ft (309.78 m) above mean sea level (State Highway Department bench mark), unadjusted.

AVERAGE DISCHARGE.--14 years (1956-70) prior to completion of floodwater-retarding structures, 5.75 ft<sup>3</sup>/s (0.163 m<sup>3</sup>/s), 3.62 in/yr (92 mm/yr), 4,170 acre-ft/yr (5.14 hm<sup>3</sup>/yr); 6 years (1970-76) regulated, 1.93 ft<sup>3</sup>/s (0.0547 m<sup>3</sup>/s), 1.22 in/yr (31 mm/yr), 1,400 acre-ft/yr (1.73 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 1,260 ft<sup>3</sup>/s (35.7 m<sup>3</sup>/s) Sept. 19 (gage height, 12.52 ft or 3.816 m); no flow for many days. Period of record: Maximum discharge, 6,990 ft<sup>3</sup>/s (198 m<sup>3</sup>/s) Apr. 28, 1957 (gage height, 24.45 ft or 7.452 m); no flow at times each year.

Maximum stage since at least 1900, that of Apr. 28, 1957. Significant floods occurred in April 1915, from information by local resident, and flood of May 3, 1956, reached a stage of 21.58 ft (6.578 m), from floodmark (discharge, 5,700 ft<sup>3</sup>/s or 161 m<sup>3</sup>/s, from rating curve).

REMARKS.--Records good. No diversions above station. Six rain gages (two nonrecording and four recording) are operated in the basin. At end of year, flow from 16.3 mi<sup>2</sup> (42.2 km<sup>2</sup>) above this station was partly controlled by five floodwater-retarding structures with a combined detention capacity of 3,940 acre-ft (4.86 hm<sup>3</sup>).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.09	.06	.15	.25	.20	.19	0	.23	.15	0	0	.18
2	.06	.38	.22	.20	.22	.24	0	.20	.06	0	0	0
3	.05	.20	.24	.20	.22	.22	0	.16	.03	1.6	0	2.0
4	.08	.09	.24	.19	.22	.27	0	.14	.01	.60	0	.19
5	.11	.09	.27	.23	.24	.14	.02	1.0	0	0	0	0
6	.08	.10	.20	.27	.17	.04	.07	.44	0	0	0	0
7	.05	.11	.17	.22	.17	.04	.01	.19	0	0	0	0
8	.04	.11	.22	.17	.20	.03	.15	.07	0	0	0	0
9	.02	.09	.24	.20	.24	.01	.08	.04	0	0	0	.24
10	.01	.07	.22	.30	.25	.15	0	.04	0	0	0	.21
11	.01	.07	.24	.22	.24	.22	.02	.03	0	0	0	0
12	.01	.08	.24	.22	.23	.27	0	.05	0	0	0	0
13	.01	.07	.24	.22	.24	.20	.01	.03	0	0	0	0
14	.01	.13	.24	.17	.22	.22	.05	.02	0	0	0	0
15	.01	.13	.20	.20	.21	.21	.06	.02	0	0	0	0
16	.04	.14	.17	.24	.21	.17	.66	.02	0	0	0	0
17	.05	.15	.20	.22	.21	.19	.21	.01	0	.55	0	0
18	.04	.13	.17	.25	.19	.23	.13	.01	0	.01	0	0
19	.03	.15	.20	.21	.19	.22	35	.01	.08	0	0	279
20	.05	.13	.22	.18	.25	.19	2.9	.01	0	0	0	56
21	.05	.09	.22	.19	.18	.11	.49	.01	0	0	0	4.8
22	.03	.09	.24	.21	.09	.11	.33	0	7.4	0	0	1.7
23	.05	.11	.27	.25	.12	.11	.30	.01	.38	0	0	.74
24	.04	.15	1.1	.25	.20	.14	1.3	.01	.01	0	0	.29
25	.02	.17	.60	.21	.14	.22	.23	.01	0	0	0	.07
26	.02	.17	.30	.15	.07	.20	.21	.01	0	0	0	.02
27	.02	.20	.27	.17	.10	.11	.21	0	0	0	0	.01
28	.04	.24	.27	.22	.12	.06	.29	0	0	0	0	.01
29	.02	.30	.24	.22	.09	.12	.37	0	0	0	21	.02
30	.02	.20	.24	.24	---	0	.25	0	0	0	1.8	0
31	.05	---	.27	.20	---	0	---	2.8	---	0	2.4	---
TOTAL	1.21	4.20	8.31	6.67	5.43	4.63	43.35	5.57	8.12	2.76	25.2	345.48
MEAN	.039	.14	.27	.22	.19	.15	1.45	.18	.27	.089	.81	11.5
MAX	.11	.38	1.1	.30	.25	.27	35	2.8	7.4	1.6	21	279
MIN	.01	.06	.15	.15	.07	0	0	0	0	0	0	0
CFSM	.001	.006	.01	.01	.008	.006	.07	.008	.01	.004	.04	.53
IN.	.002	.007	.01	.01	.009	.008	.07	.010	.01	.005	.04	.59
AC-FT	2.4	8.3	16	13	11	9.2	86	11	16	5.5	50	685
CAL YR 1975	TOTAL	1222.40	MEAN 3.35	MAX 205	MIN .01	CFSM .16	IN 2.11	AC-FT 2420				
WTR YR 1976	TOTAL	460.93	MEAN 1.26	MAX 279	MIN 0	CFSM .06	IN .79	AC-FT 914				

## TRINITY RIVER BASIN

08042800 West Fork Trinity River near Jacksboro, Tex.

LOCATION.--Lat 33°17'36", long 98°04'43", Jack County, near left bank on downstream side of bridge on State Highway 59, 4 miles (6 km) downstream from Big Cleveland Creek, 7 miles (11 km) upstream from Carroll Creek, 7 miles (11 km) northeast of Jacksboro, and at mile 660 (1,060 km).

DRAINAGE AREA.--683 mi<sup>2</sup> (1,769 km<sup>2</sup>).

PERIOD OF RECORD.--March 1956 to current year.

GAGE.--Water-stage recorder. Datum of gage is 869.28 ft (264.96 m) above mean sea level (State Highway Department bench mark). Sept. 20, 1960, to May 30, 1961, nonrecording gage at same site and datum.

AVERAGE DISCHARGE.--20 years, 100 ft<sup>3</sup>/s (2.832 m<sup>3</sup>/s), 72,450 acre-ft/yr (89.3 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 2,420 ft<sup>3</sup>/s (68.5 m<sup>3</sup>/s) Sept. 21 (gage height, 19.71 ft or 6.008 m); no flow Aug. 9-30. Period of record: Maximum discharge, 35,100 ft<sup>3</sup>/s (994 m<sup>3</sup>/s) Apr. 27, 1957 (gage height, 32.10 ft or 9.784 m, from floodmark); no flow at times each year. Maximum stage since at least 1900, that of Apr. 27, 1957. Flood in June 1941 reached a stage of 30 ft (9.1 m), from information by local residents.

REMARKS.--Records good. At end of year, flow from 70.9 mi<sup>2</sup> (183.6 km<sup>2</sup>) above this station was partly controlled by 21 floodwater-retarding structures with a combined detention capacity of 19,780 acre-ft (24.4 hm<sup>3</sup>).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.55	.19	.71	.67	.25	.13	.04	28	165	1.2	.10	18
2	.38	.29	.71	.69	.25	.12	.03	16	105	1.0	.08	195
3	.26	.37	.71	.62	.28	.13	.03	11	92	1.0	.06	143
4	.21	.48	.78	.58	.28	.17	.02	6.9	52	105	.05	30
5	.19	.42	.79	.58	.28	.15	.02	6.5	27	422	.04	12
6	.19	.34	.74	.58	.28	.13	.02	5.8	15	163	.04	6.6
7	.19	.32	.71	.52	.28	.13	.04	6.9	9.2	40	.03	4.1
8	.20	.32	.71	.52	.28	.28	.06	5.8	6.1	19	.01	2.7
9	.19	.32	.64	.46	.28	.28	.12	5.2	4.1	10	0	2.6
10	.18	.32	.64	.41	.28	.28	.15	4.1	3.5	6.4	0	2.3
11	.16	.28	.64	.41	.28	.32	.13	3.2	7.0	4.1	0	90
12	.14	.28	.64	.46	.28	.32	.12	34	5.4	2.9	0	276
13	.13	.28	.64	.46	.28	.25	.10	101	3.6	2.1	0	235
14	.10	.28	.69	.46	.28	.22	.08	52	2.7	1.6	0	47
15	.13	.28	.67	.41	.28	.22	.08	23	1.9	1.3	0	14
16	.19	.28	.64	.41	.28	.19	.46	11	1.5	2.4	0	7.5
17	.39	.28	.64	.36	.25	.17	.28	6.2	42	.78	0	5.5
18	.32	.28	.58	.32	.25	.15	.41	3.9	428	.52	0	3.8
19	.26	.33	.58	.27	.22	.15	219	2.6	287	.46	0	267
20	.22	.41	.52	.27	.22	.15	1610	1.9	111	.38	0	1020
21	.19	.41	.52	.32	.25	.15	1610	1.5	32	2.0	0	1940
22	.18	.35	.52	.29	.22	.15	415	1.3	14	4.6	0	2050
23	.17	.36	.58	.28	.19	.15	111	88	42	1.7	0	1530
24	.17	.37	1.5	.24	.17	.15	94	158	62	1.2	0	1080
25	.17	.40	1.4	.25	.17	.15	77	99	24	1.3	0	229
26	.19	.41	1.5	.25	.17	.12	62	45	11	.98	0	33
27	.17	.40	1.3	.24	.15	.08	54	59	6.0	.63	0	17
28	.15	.48	.97	.27	.13	.07	48	31	3.6	1.40	0	11
29	.15	.58	.97	.30	.13	.07	47	15	2.3	.27	0	5.8
30	.16	.70	.95	.30	---	.06	44	8.5	1.5	.19	0	4.1
31	.19	---	.84	.25	---	.05	---	56	---	.13	.98	---
TOTAL	6.47	10.81	24.43	12.45	6.94	5.14	4393.19	897.3	1567.4	807.54	1.39	9282.0
MEAN	.21	.36	.79	.40	.24	.17	146	28.9	52.2	26.0	.045	309
MAX	.55	.70	1.5	.69	.28	.32	1610	158	428	422	.98	2050
MIN	.10	.19	.52	.24	.13	.05	.02	1.3	1.5	.13	0	2.3
AC-FT	13	21	48	25	14	10	8710	1780	3110	1600	2.8	18410

CAL YR 1975 TOTAL 45949.44 MEAN 126 MAX 2610 MIN .10 AC-FT 91140  
WTR YR 1976 TOTAL 17015.06 MEAN 46.5 MAX 2050 MIN 0 AC-FT 33750

PEAK DISCHARGE (BASE, 1,200 FT<sup>3</sup>/S).--Apr. 20 (2100) 2,320 ft<sup>3</sup>/s (19.57 ft); Sept. 21 (1930) 2,420 ft<sup>3</sup>/s (19.71 ft).

## 08043000 Bridgeport Reservoir above Bridgeport, Tex.

LOCATION.--Lat 33°13'22", long 97°49'54", Wise County, at left end of Bridgeport Dam on West Fork Trinity River, 4.6 miles (7.4 km) west of Bridgeport, 13 miles (21 km) upstream from Big Sandy Creek, and at mile 626 (1,007 km).

DRAINAGE AREA.--1,111 mi<sup>2</sup> (2,877 km<sup>2</sup>).

PERIOD OF RECORD.--Contents: April 1932 to current year (prior to October 1950, monthend figures only).  
Water quality: Chemical analyses: October 1969 to current year.

GAGE.--Nonrecording gage read once daily. Datum of gage is at mean sea level. Prior to Jan. 26, 1944, nonrecording gages at various sites in vicinity of present gage at present datum.

EXTREMES (at 0730).--Current year: Maximum contents observed, 381,800 acre-ft (471 hm<sup>3</sup>) Oct. 1-3 (elevation, 835.6 ft or 254.69 m); minimum observed, 313,900 acre-ft (387 hm<sup>3</sup>) Apr. 11-19 (elevation, 830.0 ft or 252.98 m).  
Period of record: Maximum contents observed, 407,600 acre-ft (503 hm<sup>3</sup>) Apr. 29, 30, 1942 (elevation, 836.2 ft or 254.87 m); maximum elevation, 836.3 ft or 254.90 m, July 28, 1975; minimum contents since first appreciable storage in 1935, 7,170 acre-ft (8.84 hm<sup>3</sup>) Oct. 12-16, 1956.

REMARKS.--The reservoir is formed by a rolled earthfill dam 2,040 ft (622 m) long. The dam was completed in December 1931 and storage began Apr. 1, 1932. The original dam was 1,900 ft (579 m) long, but was lengthened to the present length (2,040 ft or 622 m) in 1971-72. The original service spillway was eliminated during construction (1971-72), and a new spillway with approach and discharge channels was built through natural ground 2,800 ft (853 m) from the left end of dam. The new spillway is 90 ft (27 m) wide and has eight vertical lift gates that are 11.25 by 22 ft (3.43 by 7 m). The controlled outlet works consist of a 48-inch-diameter (1,219-millimeter) and an 18-inch-diameter (457-millimeter) pipe encased in a concrete conduit extending through the dam. In addition, a controlled 60-inch-diameter (1,524-millimeter) steel pipe extends through the service spillway wall to the spillway discharge basin. For elevations of outlet works, see table below. Capacity tables are based on surveys made in 1956 and 1968. Date regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	874.0	-
Crest of spillway.....	866.0	902,000
Top of gates.....	842.0	469,300
Top of conservation pool.....	836.0	387,000
Crest of spillway.....	820.0	212,400
Lowest gated outlet (invert, at spillway).....	810.0	133,200
Lowest gated outlet (invert, at service outlet).....	751.4	0

COOPERATION.--Daily elevation and monthly diversion records furnished by Tarrant County Water Control and Improvement District No. 1. Capacity table furnished by Freese, Nichols, and Endress, Consulting Engineers for Tarrant County Water Control and Improvement District No. 1.

REVISIONS.--WSP 1922: Drainage area.

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

830.0	313,900	834.0	361,600
832.0	337,200	836.0	387,000

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 0730

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	341800	354200	345600	340800	333600	326600	316200	332500	344400	346800	346800	323100
2	341800	354200	345600	340800	333600	326600	316200	332500	344400	346800	346800	323100
3	341800	352900	345600	340800	333600	326600	316200	332500	344400	346800	346800	323100
4	379200	354200	345600	339600	333600	325400	316200	332500	344400	346800	346800	323100
5	379200	354200	344400	339600	333600	325400	315000	332500	344400	346800	346800	323100
6	378600	354200	344400	339600	332500	325400	315000	333600	344400	348000	346800	323100
7	376700	354200	344400	339600	332500	324200	315000	334800	344400	348000	345600	323100
8	376700	352900	344400	339600	332500	324200	315000	333600	344400	348000	345600	323100
9	374100	352900	344400	338400	332500	324200	315000	333600	344400	348000	345600	323100
10	371600	352900	344400	338400	332500	323100	315000	333600	344400	348000	345600	323100
11	371600	351700	344400	338400	332500	323100	313900	333600	344400	346800	344400	323100
12	370300	351700	343200	338400	331300	323100	313900	333600	343200	346800	340800	323100
13	369100	351700	343200	338400	331300	323100	313900	339600	343200	346800	339600	323100
14	367800	351700	343200	338400	331300	323100	313900	342000	343200	346800	338400	323100
15	367800	350500	343200	337200	331300	321900	313900	342000	343200	346800	337200	323100
16	366600	350500	343200	337200	331300	321900	313900	342000	343200	346800	336000	323100
17	365300	350500	342000	337200	330100	321900	313900	342000	342000	348000	334800	323100
18	364000	350500	342000	337200	330100	320800	313900	342000	344400	348000	333600	323100
19	364000	350500	342000	337200	330100	320800	313900	342000	346800	349300	332500	323100
20	362800	349300	342000	337200	330100	320800	324200	340800	348000	349300	331300	327800
21	361600	349300	340800	336000	330100	320800	326600	340800	348000	349300	330100	330100
22	361600	349300	340800	336000	328900	319600	330100	340800	348000	349300	328900	332500
23	360300	348000	340800	336000	328900	319600	331300	342000	346800	349300	327800	336000
24	359100	348000	340800	336000	328900	319600	332500	342000	346800	348000	326600	339600
25	359100	348000	342000	336000	327800	319600	332500	342000	346800	348000	325400	342000
26	357800	346800	342000	336000	327800	318400	332500	342000	346800	349300	324200	342000
27	357800	346800	342000	336000	327800	318400	332500	342000	346800	349300	323100	342000
28	356600	346800	342000	336000	326600	318400	332500	342000	346800	349300	323100	342000
29	356600	345600	342000	336000	326600	318400	332500	342000	346800	349300	321900	342000
30	355400	345600	342000	336000	---	317300	332500	340800	346800	348000	320800	342000
31	355400	---	340800	334800	---	317300	---	343200	---	348000	320800	---
(†)	833.5	832.7	832.3	831.8	831.1	830.3	831.6	832.5	832.8	832.9	830.6	832.4
(*)	-26400	-9800	-4800	-6000	-8200	-9300	+15200	+10700	+3600	+1200	-27200	+21200
(††)	252	205	226	396	372	557	196	141	222	263	363	247
MAX	381800	354200	345600	340800	333600	326600	332500	343200	348000	349300	348000	342000
MIN	355400	345600	340800	334800	326600	317300	313900	332500	342000	345600	320800	323100
CAL YR 1975.....	* +117500			†† 2560			MAX 390800			MIN 223300		
WTR YR 1976.....	* -39800			†† 3440			MAX 381800			MIN 313900		

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal and industrial uses.

## TRINITY RIVER BASIN

08043000 Bridgeport Reservoir above Bridgeport, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
APR 26...	1530	347	8.2	20.0	120	9	39	6.4	17
DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
APR 26...	.7	4.8	140	0	16	26	.3	6.0	185

## TRINITY RIVER BASIN

399

08044000 Big Sandy Creek near Bridgeport, Tex.

LOCATION.--Lat 33°13'54", long 97°41'40", Wise County, on downstream side of bridge on U.S. Highway 380, 1.9 miles (3.1 km) upstream from Greathouse Branch, 4.0 miles (6.4 km) east of Bridgeport, and 4.4 miles (7.1 km) upstream from mouth.

DRAINAGE AREA.--333 mi<sup>2</sup> (862 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: October 1936 to current year.

Water quality: Specific conductance: May 1968 to current year. Water temperatures: May 1968 to current year. Sediment records: May 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 727.44 ft (221.724 m) above mean sea level.

AVERAGE DISCHARGE.--40 years, 72.9 ft<sup>3</sup>/s (2.065 m<sup>3</sup>/s), 52,820 acre-ft/yr (65.1 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 1,210 ft<sup>3</sup>/s (34.3 m<sup>3</sup>/s) Apr. 20 (gage height, 7.74 ft or 2.359 m); minimum, 0.02 ft<sup>3</sup>/s (0.001 m<sup>3</sup>/s) Aug. 28-30.

Period of record: Maximum discharge, 53,000 ft<sup>3</sup>/s (1,500 m<sup>3</sup>/s) June 10, 1941 (gage height, 15.69 ft or 4.782 m, from floodmark), from rating curve extended above 22,000 ft<sup>3</sup>/s (623 m<sup>3</sup>/s); no flow at times most years.

Historic: Maximum stage since at least 1887 occurred in 1908 and 1915 and reached about same stage as that of June 10, 1941.

Water quality: Current year: Maximum daily sediment concentrations, 1,150 mg/l Sept. 2; minimum daily, 9 mg/l Jan. 12. Maximum daily sediment loads, 1,430 tons Apr. 20; minimum daily, 0 tons on several days during August.

Period of record: Maximum daily specific conductance, 1,070 micromhos Mar. 16, 1975; minimum daily, 101 micromhos Dec. 29, 1969. Maximum water temperatures, 31.0°C June 13, 1968; minimum, freezing point on several days during January 1973-74. Maximum daily sediment concentrations, 3,480 mg/l July 29, 1971; no flow for many days. Maximum daily sediment loads, 14,000 tons May 7, 1969; minimum daily, 0 tons on many days.

REMARKS.--Discharge records good. Since May 1, 1956, flow from 100 mi<sup>2</sup> (259 km<sup>2</sup>) above station is affected at times by storage in Lake Amon G. Carter 30 miles (48 km) upstream, capacity 15,240 acre-ft (18.8 hm<sup>3</sup>) at elevation 920.0 ft (280.42 m), spillway crest. Records furnished by city of Bowie show that during the current year 757 acre-ft (933,000 m<sup>3</sup>) was diverted from Lake Amon G. Carter for municipal use and 353 acre-ft (435,000 m<sup>3</sup>) of sewage effluent was discharged into a tributary above station. Flow also affected at times by discharge from 13 flood-detention pools of floodwater-retarding structures with a combined capacity of 10,840 acre-ft (13.4 hm<sup>3</sup>). The 13 structures control runoff from 37.5 mi<sup>2</sup> (97.1 km<sup>2</sup>) between this station and Lake Amon G. Carter.

REVISIONS.--WSP 1148: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	2.3	3.4	4.6	8.1	9.5	7.5	24	289	4.0	1.5	75
2	.91	2.5	3.1	4.2	8.2	9.5	7.1	20	359	3.3	1.2	124
3	.88	2.6	3.1	4.2	8.2	9.5	7.1	16	137	2.9	.98	37
4	.86	2.9	3.2	3.9	8.2	9.2	9.3	14	50	7.7	.84	16
5	1.0	2.7	3.6	4.0	8.4	8.5	12	22	29	33	.77	6.6
6	1.1	2.7	3.8	4.1	8.1	7.9	9.4	119	21	19	.65	2.9
7	1.0	2.8	3.8	4.6	8.2	7.6	77	52	17	9.7	.57	1.6
8	.9A	2.8	3.5	8.3	8.2	8.5	96	28	15	5.5	.48	1.1
9	.89	2.9	3.5	7.3	8.6	11	77	20	13	3.8	.33	10
10	.82	2.8	3.6	4.0	9.2	12	35	17	11	3.3	.30	102
11	.77	2.6	3.5	5.3	9.4	12	20	17	9.4	3.8	.26	48
12	.79	2.5	3.7	5.8	9.6	12	15	63	8.1	3.8	.25	18
13	.81	2.5	3.7	6.0	9.5	10	12	474	7.2	2.9	.21	8.4
14	.73	2.6	3.9	6.0	9.5	9.6	11	291	6.3	2.4	.20	4.7
15	.88	2.8	3.9	5.8	9.6	9.3	9.8	81	5.6	2.9	.17	3.2
16	1.1	3.1	3.6	6.0	9.6	9.3	30	42	5.4	3.6	.16	2.1
17	2.7	3.3	3.3	5.9	10	8.6	37	27	5.5	30	.15	1.6
18	2.3	3.6	3.1	5.6	10	8.4	34	19	153	20	.12	1.3
19	1.8	3.7	3.0	5.7	9.6	8.4	64	16	369	22	.10	2.0
20	1.8	3.9	3.3	5.6	9.3	8.4	830	13	156	220	.09	87
21	1.9	3.6	3.5	5.5	14	8.2	987	12	58	236	.07	286
22	2.0	3.6	3.5	5.8	9.4	7.7	286	11	28	65	.07	143
23	2.1	3.6	3.6	6.6	8.7	7.4	93	11	18	25	.05	51
24	2.1	3.5	5.4	7.4	8.7	9.2	77	69	13	13	.05	26
25	2.0	3.6	21	8.2	8.7	12	56	127	10	8.3	.05	16
26	1.9	3.3	25	7.9	8.7	12	37	49	8.9	7.2	.03	11
27	2.0	3.5	16	7.3	8.6	9.9	27	29	7.7	5.5	.03	7.9
28	2.2	3.6	11	7.0	8.9	8.9	23	20	6.7	4.2	.02	6.6
29	2.2	3.8	7.4	7.2	9.2	8.7	28	16	5.7	3.1	.02	6.2
30	2.1	3.8	5.9	7.7	---	8.3	27	14	5.1	2.4	30	5.7
31	2.2	---	5.4	8.0	---	7.8	---	205	---	1.8	128	---
TOTAL	45.82	93.5	177.3	185.5	264.4	289.3	3041.2	1938	1827.6	775.1	167.72	1111.9
MEAN	1.48	3.12	5.72	5.98	9.12	9.33	101	62.5	60.9	25.0	5.41	37.1
MAX	2.7	3.9	25	8.3	14	12	987	474	369	236	128	286
MIN	.73	2.3	3.0	3.9	8.1	7.4	7.1	11	5.1	1.8	.02	1.1
AC-FT	91	185	352	368	524	574	6030	3840	3630	1540	333	2210

CAL YR 1975 TOTAL 25529.42 MEAN 69.9 MAX 1390 MIN .73 AC-FT 50640  
WTR YR 1976 TOTAL 9917.34 MEAN 27.1 MAX 987 MIN .02 AC-FT 19670



## TRINITY RIVER BASIN

08044000 Big Sandy Creek near Bridgeport, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SUS- PENDE SEDI- MENT (MG/L)	SUS- PENDE SEDI- MENT DIS- CHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM	
APR 20...	1730	1190	19.0	647	2080	89	93	
MAY 13...	1300	446	20.0	83	100	81	89	
31...	1300	344	22.0	658	611	82	88	
JUN 19...	1800	361	24.0	436	425	80	85	
JUL 20...	1200	227	26.0	691	424	77	84	
SEP 10...	1300	111	22.0	701	210	84	91	
DATE		SUS. SED. FALL DIAM. % FINER THAN .008 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM	SUS. SED. SIEVE DIAM. % FINER THAN .125 MM	SUS. SED. SIEVE DIAM. % FINER THAN .250 MM	SUS. SED. SIEVE DIAM. % FINER THAN .500 MM
APR 20...	94	97	98	98	99	99	100	
MAY 13...	90	91	92	94	96	98	99	
31...	89	93	94	94	96	98	100	
JUN 19...	88	91	92	94	97	98	100	
JUL 20...	87	91	95	97	99	99	100	
SEP 10...	92	97	98	98	99	99	100	

## TRINITY RIVER BASIN

401

08044000 Big Sandy Creek near Bridgeport, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		---	---	643	663	740	664	840	409	693	487	225
2		---	---	639	621	684	636	815	291	668	514	210
3		---	---	612	604	737	649	830	332	696	510	238
4		---	---	617	624	620	501	786	417	696	569	264
5		---	558	616	635	642	685	751	494	617	---	280
6		---	---	601	623	665	883	625	585	343	---	295
7		---	---	617	595	626	766	673	669	393	---	315
8		---	---	655	663	627	799	775	717	446	---	325
9		---	---	638	608	636	624	719	774	486	---	277
10		---	---	645	657	724	698	738	729	530	---	208
11		---	---	688	637	676	735	759	791	561	---	265
12		---	---	639	643	740	769	803	807	574	---	286
13		---	558	596	608	726	799	374	741	589	---	266
14		---	560	615	618	735	691	358	746	594	---	284
15		---	576	637	619	701	794	440	741	648	---	303
16		---	578	622	598	664	784	530	872	580	---	321
17		---	544	613	615	646	757	604	694	534	---	330
18		---	---	608	639	624	786	681	673	359	---	340
19		526	---	619	682	641	825	775	225	429	---	366
20		554	---	693	661	674	407	837	324	194	---	370
21		524	---	642	678	629	220	751	383	205	---	218
22		---	---	649	746	634	363	806	439	273	---	213
23		---	596	657	697	622	492	837	492	296	---	233
24		---	565	687	697	721	561	611	552	328	---	248
25		---	641	689	660	666	683	355	542	365	---	270
26		---	703	631	647	794	667	460	657	401	---	294
27		---	627	631	660	735	761	556	552	425	---	309
28		---	714	615	614	716	786	642	629	458	---	323
29		---	679	624	630	742	726	743	614	491	---	345
30		---	684	614	---	672	824	764	687	501	720	356
31		---	668	611	---	681	---	407	---	495	194	---
MONTH		---	---	634	643	682	678	666	586	480	---	286

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		---	---	8.0	7.0	17.0	14.0	16.0	21.0	27.0	27.0	24.0
2		---	---	7.0	8.0	19.0	17.0	17.0	23.0	25.0	27.0	23.0
3		---	---	4.0	7.0	19.0	18.0	17.0	23.0	26.0	25.0	24.0
4		---	---	3.0	10.0	18.0	17.0	19.0	24.0	24.0	24.0	25.0
5		---	15.0	4.0	8.0	13.0	16.0	19.0	24.0	25.0	---	26.0
6		---	---	6.0	5.0	11.0	18.0	18.0	23.0	25.0	---	25.0
7		---	---	2.0	4.0	11.0	17.0	18.0	23.0	25.0	---	24.0
8		---	---	3.0	6.0	10.0	16.0	17.0	24.0	26.0	---	23.0
9		---	---	3.0	8.0	9.0	17.0	18.0	24.0	25.0	---	23.0
10		---	---	5.0	11.0	12.0	19.0	19.0	24.0	24.0	---	21.0
11		---	---	7.0	13.0	14.0	19.0	22.0	24.0	24.0	---	22.0
12		---	---	7.0	14.0	14.0	21.0	23.0	25.0	24.0	---	22.0
13		---	14.0	8.0	16.0	10.0	20.0	20.0	26.0	25.0	---	23.0
14		---	17.0	7.0	16.0	11.0	21.0	17.0	25.0	24.0	---	24.0
15		---	11.0	6.0	16.0	12.0	21.0	18.0	25.0	24.0	---	23.0
16		---	8.0	6.0	18.0	11.0	18.0	20.0	23.0	24.0	---	24.0
17		---	7.0	7.0	15.0	11.0	20.0	19.0	23.0	25.0	---	24.0
18		---	---	8.0	14.0	13.0	18.0	19.0	23.0	26.0	---	25.0
19		18.0	---	9.0	13.0	16.0	19.0	20.0	22.0	25.0	---	23.0
20		11.0	---	7.0	15.0	18.0	17.0	21.0	23.0	25.0	---	22.0
21		8.0	---	6.0	10.0	13.0	16.0	22.0	23.0	25.0	---	21.0
22		---	---	7.0	9.0	14.0	20.0	23.0	24.0	26.0	---	22.0
23		---	6.0	9.0	9.0	15.0	21.0	23.0	25.0	27.0	---	21.0
24		---	6.0	11.0	10.0	16.0	20.0	23.0	25.0	26.0	---	22.0
25		---	5.0	9.0	11.0	18.0	19.0	22.0	25.0	27.0	---	23.0
26		---	4.0	6.0	12.0	21.0	17.0	21.0	26.0	25.0	---	25.0
27		---	5.0	4.0	14.0	16.0	19.0	20.0	26.0	27.0	---	23.0
28		---	7.0	5.0	15.0	16.0	17.0	19.0	27.0	27.0	---	21.0
29		---	6.0	6.0	16.0	18.0	17.0	21.0	27.0	27.0	---	21.0
30		---	6.0	8.0	---	14.0	---	24.0	26.0	27.0	24.0	19.0
31		---	6.0	7.0	---	13.0	---	19.0	---	27.0	23.0	---
MONTH		---	---	6.5	11.5	14.5	18.0	20.0	24.0	25.5	---	23.0

## TRINITY RIVER BASIN

08044000 Big Sandy Creek near Bridgeport, Tex.--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	OCTOBER				NOVEMBER				DECEMBER			
	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	1.0	20	.05	2.3	25	.16	3.4	28	.26			
2	.91	20	.05	2.5	25	.17	3.1	24	.20			
3	.88	20	.05	2.6	25	.18	3.1	25	.21			
4	.86	20	.05	2.9	25	.20	3.2	24	.21			
5	1.0	25	.07	2.7	25	.18	3.6	20	.19			
6	1.1	25	.07	2.7	28	.20	3.8	20	.21			
7	1.0	21	.06	2.8	28	.21	3.8	20	.21			
8	.98	21	.06	2.8	28	.21	3.5	20	.19			
9	.89	25	.06	2.9	30	.23	3.5	25	.24			
10	.82	25	.06	2.8	25	.19	3.6	25	.24			
11	.77	20	.04	2.6	24	.17	3.5	20	.19			
12	.79	20	.04	2.5	25	.17	3.7	20	.20			
13	.81	20	.04	2.5	25	.17	3.7	30	.30			
14	.73	20	.04	2.6	25	.18	3.9	32	.34			
15	.88	25	.06	2.8	25	.19	3.9	28	.29			
16	1.1	25	.07	3.1	20	.17	3.6	16	.16			
17	2.7	25	.18	3.3	20	.18	3.3	20	.18			
18	2.3	25	.16	3.6	28	.27	3.1	26	.22			
19	1.8	25	.12	3.7	28	.28	3.0	25	.20			
20	1.8	25	.12	3.9	34	.36	3.3	20	.18			
21	1.9	25	.13	3.6	24	.23	3.5	20	.19			
22	2.0	20	.11	3.6	24	.23	3.5	20	.19			
23	2.1	20	.11	3.6	25	.24	3.6	26	.25			
24	2.1	25	.14	3.5	25	.24	5.4	28	.41			
25	2.0	28	.15	3.6	28	.27	21	75	4.3			
26	1.9	25	.13	3.3	28	.25	25	61	4.1			
27	2.0	25	.14	3.5	28	.26	16	32	1.4			
28	2.2	25	.15	3.6	28	.27	11	34	1.0			
29	2.2	27	.16	3.8	30	.31	7.4	26	.52			
30	2.1	25	.14	3.8	30	.31	5.9	20	.32			
31	2.2	30	.18	---	---	---	5.4	18	.26			
TOTAL	45.82	---	2.99	93.5	---	6.68	177.3	---	17.36			

DAY	JANUARY				FEBRUARY				MARCH			
	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	4.6	20	.25	8.1	37	.81	9.5	61	1.6			
2	4.2	24	.27	8.2	32	.71	9.5	72	1.8			
3	4.2	42	.48	8.2	54	1.2	9.5	68	1.7			
4	3.9	35	.37	8.2	64	1.4	9.2	74	1.8			
5	4.0	22	.24	8.4	44	1.0	8.5	77	1.8			
6	4.1	18	.20	8.1	38	.83	7.9	65	1.4			
7	4.6	22	.27	8.2	37	.82	7.6	56	1.1			
8	8.3	38	.85	8.2	24	.53	8.5	42	.96			
9	7.3	28	.55	8.6	42	.98	11	42	1.2			
10	4.0	44	.48	9.2	56	1.4	12	75	2.4			
11	5.3	22	.31	9.4	55	1.4	12	84	2.7			
12	5.8	9	.14	9.6	70	1.8	12	89	2.9			
13	6.0	32	.52	9.5	77	2.0	10	47	1.3			
14	6.0	16	.26	9.5	75	1.9	9.6	36	.93			
15	5.8	19	.30	9.6	78	2.0	9.3	52	1.3			
16	6.0	28	.45	9.6	69	1.8	9.3	72	1.8			
17	5.9	24	.38	10	72	1.9	8.6	71	1.6			
18	5.6	34	.51	10	88	2.4	8.4	66	1.5			
19	5.7	40	.62	9.6	52	1.3	8.4	78	1.8			
20	5.6	30	.45	9.3	64	1.6	8.4	87	2.0			
21	5.5	46	.68	14	200	7.6	8.2	64	1.4			
22	5.8	49	.77	9.4	54	1.4	7.7	58	1.2			
23	6.6	38	.68	8.7	57	1.3	7.4	54	1.1			
24	7.4	47	.94	8.7	73	1.7	9.2	70	1.7			
25	8.2	56	1.2	8.7	49	1.2	12	78	2.5			
26	7.9	27	.58	8.7	30	.70	12	72	2.3			
27	7.3	36	.71	8.6	68	1.6	9.9	56	1.5			
28	7.0	34	.64	8.9	54	1.3	8.9	62	1.5			
29	7.2	31	.60	9.2	58	1.4	8.7	62	1.5			
30	7.7	26	.54	---	---	---	8.3	66	1.5			
31	8.0	30	.65	---	---	---	7.8	68	1.4			
TOTAL	185.5	---	15.89	264.4	---	45.98	289.3	---	51.19			

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

APRIL					MAY					JUNE				
DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)		
1	7.5	51	1.0	24	70	4.5	289	653	524					
2	7.1	53	1.0	20	74	4.0	359	570	553					
3	7.1	54	1.0	16	85	3.7	137	320	114					
4	9.3	71	1.8	14	77	2.9	50	250	34					
5	12	55	1.6	22	236	24	29	200	1					
6	9.4	58	1.5	119	590	188	21	120	5.8					
7	77	671	311	52	150	21	17	96	4.4					
8	95	553	153	28	92	7.0	15	91	3.7					
9	77	291	70	20	84	4.5	13	80	2.8					
10	35	125	12	17	89	4.1	11	68	2.0					
11	21	120	6.5	17	102	4.7	9.4	64	1.6					
12	15	118	4.8	63	84	8.1	8.1	56	1.2					
13	12	106	3.4	474	914	1220	7.2	63	1.2					
14	11	76	2.3	291	450	354	6.3	65	1.1					
15	9.8	100	2.6	81	300	66	5.6	74	1.1					
16	31	250	20	42	200	23	5.4	55	8.0					
17	37	180	18	27	120	8.7	5.5	70	1.0					
18	34	120	11	19	89	4.0	153	842	637					
19	64	471	190	16	80	3.2	369	550	544					
20	830	770	1430	13	60	2.1	156	250	105					
21	987	370	980	12	58	1.9	58	200	31					
22	288	270	208	11	54	1.0	24	150	11					
23	43	220	55	11	88	3.3	18	97	4.7					
24	77	200	42	69	515	109	13	89	3.1					
25	56	150	23	127	659	236	10	46	1.2					
26	37	128	13	49	350	46	8.9	52	1.2					
27	27	114	8.3	29	200	16	7.7	58	1.2					
28	23	99	6.1	20	130	7.0	6.7	42	.76					
29	28	92	7.0	16	131	5.7	5.7	51	.78					
30	27	89	6.5	14	120	4.5	5.1	51	.70					
31	---	---	---	205	805	386	---	---	---					
TOTAL	3041.2	---	3597.6	1938	---	2851.3	1827.6	---	2622.34					
JULY					AUGUST					SEPTEMBER				
DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)		
1	4.0	48	.52	1.5	63	.26	75	355	79					
2	3.3	52	.46	1.2	61	.20	124	1150	409					
3	2.9	46	.36	.98	65	.17	37	450	45					
4	7.7	150	3.1	.84	58	.13	16	350	15					
5	33	150	13	.77	40	.08	6.6	250	4.5					
6	19	150	7.7	.65	30	.05	2.9	170	1.3					
7	9.7	178	4.5	.57	20	.03	1.6	170	.73					
8	5.5	80	1.2	.48	20	.03	1.1	170	.50					
9	3.8	65	.67	.33	25	.02	10	120	3.2					
10	3.3	61	.54	.30	25	.02	102	674	189					
11	3.8	73	.75	.26	25	.02	48	210	27					
12	3.8	51	.52	.25	20	.01	18	120	5.8					
13	2.9	46	.36	.21	18	.01	8.4	150	3.4					
14	2.4	42	.27	.20	18	.01	4.7	112	1.4					
15	2.9	62	.49	.17	15	.01	3.2	96	.83					
16	3.6	93	.90	.16	15	.01	2.1	40	.45					
17	30	227	19	.15	18	.01	1.6	51	.22					
18	20	400	22	.12	20	.01	1.3	54	.19					
19	22	328	27	.10	20	.01	2.0	70	.38					
20	220	786	404	.09	15	0	87	480	161					
21	236	420	268	.07	18	0	286	588	453					
22	65	220	39	.07	20	0	143	170	66					
23	25	150	10	.05	20	0	51	150	21					
24	13	120	4.2	.05	20	0	26	110	7.7					
25	8.3	100	2.2	.05	18	0	16	110	4.8					
26	7.2	65	1.3	.03	25	0	11	85	2.5					
27	5.5	59	.88	.03	20	0	7.9	60	1.3					
28	4.2	57	.65	.02	20	0	6.6	63	1.1					
29	3.1	42	.35	.02	30	0	6.2	58	.97					
30	2.4	41	.27	.30	504	81	5.7	48	.74					
31	1.8	56	.27	128	720	252	---	---	---					
TOTAL	775.1	---	834.46	167.72	---	334.09	1111.9	---	1507.01					
YEAR	9917.34		11886.89											

## TRINITY RIVER BASIN

08044500 West Fork Trinity River near Boyd, Tex.

LOCATION.--Lat 33°05'08", long 97°33'30", Wise County, on right bank at downstream side of bridge on Farm Road 730, 0.6 mile (1.0 km) northeast of Boyd, 3.5 miles (5.6 km) downstream from Boggy Creek, and at mile 602 (969 km).

DRAINAGE AREA.--1,725 mi<sup>2</sup> (4,468 km<sup>2</sup>).

PERIOD OF RECORD.--January 1947 to current year.

GAGE.--Water-stage recorder. Datum of gage is 660.57 ft (201.342 m) above mean sea level. Prior to Dec. 14, 1954, water-stage recorder at site 2.2 miles (3.5 km) downstream at datum 5.48 ft (1.670 m) lower.

AVERAGE DISCHARGE.--29 years, 216 ft<sup>3</sup>/s (6.117 m<sup>3</sup>/s), 156,500 acre-ft/yr (193 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 836 ft<sup>3</sup>/s (23.7 m<sup>3</sup>/s) May 13 (gage height, 13.43 ft or 4.093 m); minimum, 3.4 ft<sup>3</sup>/s (0.10 m<sup>3</sup>/s) Aug. 12.

Period of record: Maximum discharge, 27,300 ft<sup>3</sup>/s (773 m<sup>3</sup>/s) Oct. 5, 1959 (gage height, 22.17 ft or 6.757 m); no flow at times.

Maximum stage since at least 1880, 25 ft (7.6 m), present site and datum, in May 1908, from information by local residents, who also report a flood of about the same height in the period 1870-80. Flood in April 1942 reached a stage of 20.6 ft (6.28 m), present site and datum, from information by State Highway Department.

REMARKS.--Records good. During the current year, sustained flows of up to 500 ft<sup>3</sup>/s (14.2 m<sup>3</sup>/s) were the result of releases for water supply from Bridgeport Reservoir (station 08043000) 25 miles (40 km) upstream from this station (drainage area, 1,111 mi<sup>2</sup> or 2,877 km<sup>2</sup>). In addition, flow from 100 mi<sup>2</sup> (259 km<sup>2</sup>) is affected by storage in Lake Amon G. Carter (capacity, 15,240 acre-ft or 18.8 hm<sup>3</sup>) on Big Sandy Creek, and at times by 30 floodwater-detention structures with a combined detention capacity of 22,460 acre-ft (27.7 hm<sup>3</sup>). These 30 detention structures control runoff from 82.7 mi<sup>2</sup> (214.2 km<sup>2</sup>) between this station and the two upstream reservoirs.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	260	90	93	86	186	124	48	569	20	7.1	427
2	11	263	90	93	86	144	124	42	375	18	6.2	164
3	11	260	89	90	86	130	123	38	279	18	5.6	100
4	85	94	90	89	85	130	125	34	123	20	5.0	39
5	219	33	91	89	84	129	125	36	69	25	4.8	18
6	221	63	91	90	83	129	126	395	46	36	4.5	12
7	223	99	90	89	82	130	131	258	39	27	14	9.6
8	226	99	90	87	83	135	231	91	36	21	11	8.4
9	355	99	90	88	83	137	190	59	33	19	5.6	8.8
10	399	100	89	90	115	136	160	49	28	18	4.4	38
11	401	99	90	91	130	136	135	153	26	17	3.8	75
12	406	48	90	91	130	141	128	92	24	17	110	35
13	409	15	90	93	130	136	125	635	22	16	430	17
14	412	13	91	91	129	135	123	524	20	15	451	12
15	414	34	90	89	130	135	122	219	20	16	458	10
16	418	81	88	89	130	134	147	105	30	16	465	8.9
17	413	81	88	88	132	132	163	69	25	21	467	7.9
18	359	82	87	89	137	132	159	50	32	39	466	10
19	338	84	88	90	131	132	160	39	437	30	466	36
20	340	87	88	89	130	132	527	35	338	121	469	137
21	410	86	89	86	138	129	755	33	126	196	473	321
22	369	86	91	86	137	129	631	32	65	136	473	196
23	354	86	92	87	135	129	225	30	43	46	469	102
24	352	86	101	88	103	140	132	42	32	24	471	47
25	279	88	145	89	57	139	127	102	28	33	479	27
26	258	89	133	88	180	135	81	95	26	71	475	20
27	259	89	119	87	182	131	60	54	24	23	474	17
28	259	91	107	86	185	130	48	40	23	14	474	16
29	258	93	101	86	184	129	51	34	22	11	478	16
30	259	91	97	86	---	126	52	31	21	9.2	507	15
31	259	---	94	86	---	125	---	490	---	8.0	554	---
TOTAL	8987	2879	2959	2753	3483	4173	5410	3954	2981	1101.2	9181.0	1950.6
MEAN	290	96.0	95.5	88.8	120	135	180	128	99.4	35.5	296	65.0
MAX	418	263	145	93	185	186	755	635	569	196	554	427
MIN	11	13	87	86	57	125	48	30	20	8.0	3.8	7.9
AC-FT	17830	5710	5870	5460	6910	8280	10730	7840	5910	2180	18210	3870
CAL YR 1975	TOTAL	84347.5	MEAN 231	MAX 2860	MIN 7.7	AC-FT 167300						
WTR YR 1976	TOTAL	49811.8	MEAN 136	MAX 755	MIN 3.8	AC-FT 98800						

## 08045000 Eagle Mountain Reservoir above Fort Worth, Tex.

LOCATION.--Lat 32°52'39", long 97°28'29", Tarrant County, at right end of main section (left) of Eagle Mountain Dam on West Fork Trinity River, 17.8 miles (19.0 km) northwest of Fort Worth, and at mile 583.3 (938.5 km).

DRAINAGE AREA.--1,970 mi<sup>2</sup> (5,102 km<sup>2</sup>).

PERIOD OF RECORD.--February 1934 to current year (prior to October 1950, monthend figures only).

GAGE.--Nonrecording gage read once daily. Datum of gage is at mean sea level. Prior to Feb. 24, 1943, nonrecording gages at several sites within 1.0 mile (1.6 km) of present site at present datum.

EXTREMES (at 0700).--Current year: Maximum contents observed, 188,600 acre-ft (233 hm<sup>3</sup>) June 1-6 (elevation, 648.9 ft or 197.78 m); minimum observed, 169,200 acre-ft (209 hm<sup>3</sup>) Feb. 21-29 (elevation, 646.7 ft or 197.11 m).

Period of record: Maximum contents observed, 333,500 acre-ft (411 hm<sup>3</sup>) Apr. 26, 1942 (elevation, 659.9 ft or 201.14 m); minimum observed since first appreciable storage in 1935, 57,690 acre-ft (71.1 hm<sup>3</sup>) Nov. 19, 20, 1956.

REMARKS.--The reservoir is formed by two sections of rolled earthfill and a concrete spillway separated by high natural ground. The total length of the dam, including spillway, is 4,800 ft (1,460 m). The dam was completed Oct. 24, 1932, and storage began Feb. 28, 1934. The emergency spillway is a 1,300-foot-wide (396-meter) cut through natural ground located between the two sections of earthfill that make up the dam. The original service spillway, located in the section to the right of the main dam, contains a concrete spillway with four 25-foot (8-meter) bays, three are equipped with vertical lift gates and the fourth is left open. In 1971, a side-channel spillway was constructed. The newest spillway is located 300 ft (91 m) to the left of the original service spillway and has six 11.25- by 22-foot-wide (3.43- by 7-meter) roller lift gates. The main section of the dam contains the outlet works that consist of two concrete conduits with two 48-inch-diameter (1,219-millimeter) valves in each conduit. The reservoir is used for flood control and maintains the water level of Lake Worth from which the city of Fort Worth derives part of its municipal water supply. Capacities are based on a survey made in 1968. For storage above reservoir, see REMARKS for West Fork Trinity River near Boyd (station 08044500). Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	682.0	-
Crest of spillway.....	676.0	558,000
Top of gates (new side-channel spillway).....	659.0	295,400
Crest of (old service) spillway (top of conservation pool).....	649.1	190,400
Crest of spillway (new side-channel spillway).....	637.0	99,120
Lowest gated outlet (invert).....	599.9	94

COOPERATION.--Daily elevation and monthly diversion records furnished by Tarrant County Water Control and Improvement District No. 1. Capacity table furnished by Freese, Nichols, and Endress, Consulting Engineers for Tarrant County Water Control and Improvement District No. 1.

REVISIONS.--WSP 1922: Drainage area.

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

646.0	163,300	648.0	180,400
647.0	171,700	649.0	189,500

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 0700

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	173400	176900	172600	172600	171700	170000	170900	181300	188600	184000	178700	174300
2	173400	176900	172600	172600	170900	170000	170000	181300	188600	184000	177800	175200
3	173400	176900	172600	172600	170900	170000	170000	180400	188600	183100	176900	175200
4	172600	177800	172600	172600	170900	170000	170000	180400	188600	184000	176900	175200
5	171700	176900	172600	172600	170900	170000	170000	180400	188600	183100	176000	175200
6	171700	176900	172600	172600	170900	170000	170000	182200	188600	183100	175200	175200
7	171700	176900	172600	172600	170000	170000	170000	184000	187700	182200	175200	174300
8	171700	176900	172600	172600	170000	170000	170900	184000	187700	182200	174300	174300
9	171700	176000	172600	171700	170000	170900	170900	184000	187700	181300	173400	174300
10	171700	176000	172600	171700	170000	170000	170900	184000	186800	181300	172600	173400
11	172600	176000	171700	171700	170000	170000	170900	184000	186800	180400	171700	173400
12	172600	176000	171700	171700	170000	170900	170900	184000	185800	180400	170900	172600
13	172600	176000	171700	171700	170000	170900	170900	184000	185800	180400	170900	172600
14	173400	175200	171700	171700	170000	170900	170900	184900	185800	180400	170000	172600
15	173400	175200	171700	171700	170000	170900	170900	185800	184900	179600	170000	171700
16	174300	174300	171700	171700	170000	170900	171700	185800	184900	179600	170000	171700
17	174300	174300	171700	171700	170000	170900	171700	185800	184000	181300	170000	171700
18	174300	174300	171700	171700	170000	170000	172600	185800	184000	181300	170000	170900
19	174300	174300	171700	171700	170000	170900	173400	184900	185800	180400	170900	170900
20	174300	174300	171700	171700	170000	170900	176000	184900	185800	180400	170900	171700
21	175200	174300	171700	171700	169200	170900	176900	184900	185800	180400	170900	170900
22	175200	174300	170900	171700	169200	170000	177800	184900	184900	180400	170900	171700
23	175200	173400	170900	171700	169200	170000	179600	184000	184000	180400	170900	171700
24	176000	173400	171700	171700	169200	170900	180400	184000	184000	180400	170900	171700
25	176000	173400	172600	171700	169200	170900	180400	184000	185800	179600	170900	170900
26	176000	173400	172600	171700	169200	171700	181300	184000	185800	180400	170900	170900
27	176000	172600	172600	171700	169200	170900	180400	184000	185800	180400	170900	170900
28	176000	172600	172600	171700	169200	170900	181300	184000	184900	179600	170900	170900
29	176000	172600	173400	171700	169200	170900	181300	183100	184900	179600	171700	170900
30	176000	173400	172600	171700	---	170900	181300	183100	184900	178700	171700	170000
31	176000	---	172600	171700	---	170900	---	187700	---	178700	171700	---
(†)	647.5	647.2	647.1	647.0	646.7	646.9	648.1	648.8	648.5	647.8	647.0	646.8
(*)	+1700	-2600	-800	-900	-2500	+1700	+10400	-6400	-2800	-6200	-7000	-1700
(††)	256	356	268	254	216	182	302	313	402	428	571	312
MAX	176000	177800	173400	172600	171700	171700	181300	187700	188600	184000	178700	175200
MIN	171700	172600	170900	171700	169200	170000	170000	180400	184000	178700	170000	170000

CAL YR 1975..... \* -16900      †† 3800      MAX 198800      MIN 170900  
WTR YR 1976..... \* -4300      †† 3860      MAX 188600      MIN 169200

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal and industrial uses.



## TRINITY RIVER BASIN

08045800 Lake Weatherford near Weatherford, Tex.

LOCATION.--Lat 32°46'21", long 97°40'28", Parker County, in pumphouse 168 ft (51 m) upstream from right end of dam, 2.4 miles (3.9 km) downstream from Hays Branch, 3.9 miles (6.3 km) upstream from Squaw Creek, and 7.3 miles (11.7 km) east of Weatherford.

DRAINAGE AREA.--109 mi<sup>2</sup> (282 km<sup>2</sup>).

PERIOD OF RECORD.--June to September 1976.

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

EXTREMES.--Maximum contents during period June to September 1976, 19,930 acre-ft (24.6 hm<sup>3</sup>) May 31 (elevation, 896.75 ft or 273.329 m); minimum, 18,070 acre-ft (22.3 hm<sup>3</sup>) Sept. 30 (elevation, 895.10 ft or 272.826 m).

REMARKS.--The lake is formed by a rolled earthfilled dam 4,055 ft (1,236 m) long. The dam was completed and deliberate impoundment began in March 1957. The service spillway is a semi-circular drop inlet with a crest length of 162 ft (49 m) located 550 ft (168 m) to the right of the pumphouse. The drop inlet discharges into a 9- by 9-foot (3- by 3-meter) concrete conduit that extends 425 ft (130 m) under the dam. The emergency spillway is an uncontrolled excavated split-level cut channel located at the right end of dam. The low-flow outlet works consist of an 18-inch-diameter (457-millimeter) concrete pipe with a valve control assembly. At end of year, flow from 43.9 mi<sup>2</sup> (113.7 km<sup>2</sup>) above this station was partly affected at times by discharge from the flood-detention pools of 22 floodwater-retarding structures with a combined detention capacity of 11,000 acre-ft (13.6 hm<sup>3</sup>). Records furnished by the city of Weatherford show that 747 acre-ft (921,000 m<sup>3</sup>) was diverted from the lake for municipal use during the period June to September 1976. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	914.0	-
Crest of spillway.....	903.0	28,530
Invert of drop inlet (spillway).....	896.0	19,070
Invert of lowest gated outlet pipe.....	857.0	88

COOPERATION.--Records of diversions were furnished by the city of Weatherford. The capacity table is based on an April 1973 report by the Soil Conservation Service.

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

895.0	17,960
896.0	19,070
897.0	20,230

CONTENTS, IN ACRE-FEET, JUNE TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1									19920	19470	19220	18200
2									19910	19460	19170	18210
3									19900	19440	19110	18220
4									19870	19430	19080	18230
5									19860	19420	19040	18240
6									19850	19410	19000	18250
7									19840	19400	18980	18260
8									19820	19390	18960	18260
9									19800	19380	18920	18250
10									19800	19380	18880	18240
11									19800	19360	18840	18240
12									19800	19350	18810	18230
13									19790	19350	18760	18230
14									19770	19340	18740	18220
15									19740	19330	18700	18220
16									19720	19330	18630	18220
17									19710	19340	18590	18210
18									19690	19340	18550	18210
19									19660	19340	18500	18200
20									19650	19340	18450	18200
21									19630	19340	18420	18190
22									19620	19330	18360	18180
23									19610	19330	18320	18170
24									19580	19330	18290	18160
25									19560	19320	18260	18160
26									19550	19310	18240	18140
27									19540	19300	18210	18120
28									19520	19270	18190	18100
29									19500	19360	18170	18090
30									19490	19310	18180	18070
31									---	19260	18200	---
(+)									896.37	896.17	895.22	895.10
(*)									-440	-230	-1090	-100
(++)									159	178	265	145
MAX									19920	19470	19220	18260
MIN									19490	19260	18170	18070

CAL YR 1975..... MAX - MIN -  
WTR YR 1976..... MAX - MIN -

## TRINITY RIVER BASIN

407

08046500 Benbrook Lake near Benbrook, Tex.

LOCATION.--Lat 32°39'02", long 97°26'54", Tarrant County, in intake structure of Benbrook Dam on Clear Fork Trinity River, 2.5 miles (4.0 km) south of Benbrook, 3.5 miles (5.6 km) upstream from Marys Creek, and 14.6 miles (23.5 km) upstream from mouth.

DRAINAGE AREA.--429 mi<sup>2</sup> (1,111 km<sup>2</sup>).

PERIOD OF RECORD.--Contents: September 1952 to current year. Prior to October 1970, published as Benbrook Reservoir.  
Water quality: Chemical analyses: October 1969 to current year.

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

EXTREMES.--Current year: Maximum contents, 102,600 acre-ft (127 hm<sup>3</sup>) June 1 (elevation, 697.62 ft or 212.635 m); minimum, 82,200 acre-ft (101 hm<sup>3</sup>) Dec. 23 (elevation, 692.36 ft or 211.031 m).  
Period of record: Maximum contents, 185,000 acre-ft (228 hm<sup>3</sup>) June 6, 1957 (elevation, 713.35 ft or 217.429 m); minimum since lake first filled in 1957, 64,630 acre-ft (79.7 hm<sup>3</sup>) Sept. 15, 1964 (elevation, 687.18 ft or 209.452 m).

REMARKS.--The lake is formed by a rolled earthfill dam 9,130 ft (2,790 m) long including a 500-foot (150-meter) uncontrolled off-channel concrete-gravity spillway with a 100-foot (30-meter) notch in center of ogee weir section. The outlet works consist of a 13.0-foot-diameter (4.0-meter) concrete conduit controlled by two 6.5- by 13.0-foot (2.0- by 4.0-meter) broome-type gates and two 30-inch (762-millimeter) steel pipes controlled by slide gates. Deliberate impoundment began Sept. 29, 1952. From August 1950 to Sept. 28, 1952, the lake was operated as a detention basin only. The capacity table is based on a survey made in 1945. The lake was built for flood control, navigation, and low-flow regulation. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08046000. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	747.0	-
Crest of spillway.....	724.0	258,600
Crest of notch in spillway.....	710.0	164,800
Top of conservation storage.....	694.0	88,250
Crest of intake to wet wells (invert).....	656.0	6,550
Lowest gated outlet (invert).....	622.0	12

COOPERATION.--Records of elevations and contents furnished by Corps of Engineers and reviewed by Geological Survey.

REVISIONS.--WSP 1922: Drainage area.

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

692.0	80,890	696.0	95,990
694.0	88,250	698.0	104,200

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84710	83430	82520	82920	82880	82950	83240	90150	101600	87990	88590	86750
2	84640	83460	82520	82880	82810	82990	83170	89880	97800	87870	88400	86790
3	84600	83430	82480	82810	82840	82990	83170	89570	93700	88320	88320	87270
4	84560	83430	82520	82810	82810	82950	83170	89310	91140	88320	88250	87240
5	84560	83430	82520	82810	82770	82880	83170	89380	90720	88320	88170	87120
6	84490	83430	82520	82880	82700	82810	83170	89570	90300	88360	88060	87050
7	84420	83280	82520	82730	82730	82920	83320	89760	89950	88320	87990	87010
8	84380	83280	82520	82700	82730	82950	83320	89800	89800	88320	87910	86940
9	84340	83170	82520	82730	82730	83060	83320	89880	89570	88250	87800	86940
10	84300	83170	82520	82770	82810	83020	83280	89940	89350	88250	87650	86860
11	84300	83100	82520	82730	82880	83130	83240	89690	89040	88210	87500	86750
12	84230	82950	82520	82810	82880	83100	83430	89540	88780	88170	87350	86640
13	84190	82950	82520	82770	82880	83060	83500	89460	88480	88170	87240	86560
14	84120	82880	82480	82810	82950	83060	83500	89190	88290	88250	87160	86530
15	84050	82840	82440	82840	82990	82990	83650	88930	88170	88210	87010	86490
16	84010	82770	82410	82770	82990	82990	83790	88660	88210	88250	86860	86410
17	83940	82810	82330	82770	82990	83020	84120	88290	88210	88890	86820	86380
18	83860	82810	82300	82840	82950	82990	84560	88140	88400	89010	86710	86300
19	83830	82810	82300	82810	82990	83060	87760	88140	88400	89010	86640	86600
20	83750	82770	82260	82840	83100	82920	89800	88140	88400	88970	86530	86600
21	83680	82700	82260	82810	83020	82920	89950	88140	88320	88930	86450	86530
22	83720	82620	82230	82810	82990	82920	90030	88100	88360	88890	86340	86450
23	83650	82590	82260	82880	82950	82920	90180	88250	88290	88850	86230	86380
24	83650	82550	82730	82920	82950	83170	90260	88250	88250	88820	86120	86300
25	83570	82480	82840	82810	82880	83350	90220	98410	88250	89010	86000	86260
26	83540	82440	82880	82810	82880	83320	90220	101400	88250	89010	85930	86150
27	83500	82410	82950	82810	82880	83320	90220	101400	88290	88930	85860	86120
28	83430	82480	82920	82810	82880	83390	90370	101000	88210	88890	85780	86080
29	83390	82590	82920	82840	82950	83240	90450	100600	88170	88820	86040	86000
30	83390	82550	82950	82840	---	83280	90410	100000	88140	88740	86450	85970
31	83390	---	82950	82880	---	83240	---	102100	---	88660	86560	---
(†)	692.69	692.46	692.57	692.55	692.57	692.65	694.57	697.50	693.97	694.11	693.55	693.39
(*)	-1470	-840	+400	-70	+70	+290	+7170	+11690	-13960	+520	-2100	-590
MAX	84710	83460	82950	82920	83100	83390	90450	102100	101600	89010	88590	87270
MIN	83390	82410	82230	82700	82700	82810	83170	88100	88140	87870	85780	85970

CAL YR 1975..... \* -7400  
WTR YR 1976..... \* +1110

MAX 124700  
MAX 102100  
MIN 82230  
MIN 82230

† Elevation, in feet, at end of month.  
\* Change in contents, in acre-feet.

## TRINITY RIVER BASIN

08046500 Benbrook Lake near Benbrook, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
JUL 01...	1320	319	7.7	26.0	120	16	39	5.7	16
DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITU- ENTS) (MG/L)
JUL 01...	.6	3.5	128	0	22	19	.3	4.4	173

## TRINITY RIVER BASIN

409

08047000 Clear Fork Trinity River near Benbrook, Tex.

LOCATION.--Lat 32°39'54", long 97°26'30", Tarrant County, on left bank 1.5 miles (2.4 km) downstream from Benbrook Dam, 1.7 miles (2.7 km) southeast of Benbrook, 2.9 miles (4.7 km) upstream from Marys Creek, and at mile 13.1 (21.1 km) upstream from West Fork Trinity River.

DRAINAGE AREA.--431 mi<sup>2</sup> (1,116 km<sup>2</sup>).

PERIOD OF RECORD.--July 1947 to current year.

GAGE.--Water-stage recorder. Datum of gage is 604.22 ft (184.166 m) above mean sea level (Corps of Engineers bench mark).

AVERAGE DISCHARGE.--5 years (1947-52) prior to regulation by Benbrook Lake, 105 ft<sup>3</sup>/s (2,974 m<sup>3</sup>/s), 76,070 acre-ft/yr (93.8 hm<sup>3</sup>/yr); 24 years (1952-76) regulated, unadjusted, 63.9 ft<sup>3</sup>/s (1,810 m<sup>3</sup>/s), 46,300 acre-ft/yr (57.1 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 2,260 ft<sup>3</sup>/s (64.0 m<sup>3</sup>/s) June 2, 3 (gage height, 8.39 ft or 2.557 m); no flow Nov. 8, Apr. 21, June 23, 25, 26, 28, July 14, 16, 28.

Period of record: Maximum discharge, 82,900 ft<sup>3</sup>/s (2,350 m<sup>3</sup>/s) May 17, 1949 (gage height, 28.72 ft or 8.754 m), from rating curve extended above 11,000 ft<sup>3</sup>/s (312 m<sup>3</sup>/s) on basis of velocity-area studies and slope-area measurement of 82,900 ft<sup>3</sup>/s (2,350 m<sup>3</sup>/s); no flow at times most years. Maximum discharge since construction of Benbrook Dam in 1952, 4,350 ft<sup>3</sup>/s (123 m<sup>3</sup>/s) June 26, 1957 (gage height, 11.28 ft or 3.438 m).

Maximum stage since at least 1922, that of May 17, 1949.

REMARKS.--Records good. Flow regulated by Benbrook Lake (station 08046500) since September 1952. Diversion 1.0 mile (1.6 km) upstream for Pecan Valley Golf Course.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.26	1.3	.26	.18	.07	2.4	.87	130	622	6.5	1.0	2.9
2	.25	1.5	.26	.10	.05	1.7	1.2	128	2050	.42	.60	2.5
3	.25	1.5	.27	.10	.04	1.6	1.1	128	2240	5.7	.91	8.1
4	.22	1.3	.24	.10	.05	2.6	1.3	128	1410	.83	.81	2.2
5	.16	1.3	.21	.10	.05	2.6	1.1	82	290	.98	1.1	49
6	.11	1.5	.21	.10	.06	2.9	1.1	1.6	286	.78	.67	1.8
7	.18	37	.16	.10	.06	3.0	1.4	.35	237	.76	1.4	1.7
8	.23	.16	.16	.10	.06	3.0	1.2	.32	128	.78	.45	1.7
9	.25	.03	.15	.10	.06	2.5	1.1	.30	126	.39	.78	2.4
10	.67	.05	.13	.12	.07	2.5	1.2	40	125	.42	11	2.4
11	.53	.07	.13	.13	.08	3.2	1.2	135	125	.78	25	2.1
12	.37	.13	.13	.14	.10	2.1	.84	130	125	.77	12	2.8
13	.45	.16	.13	.26	.60	1.5	1.8	131	125	.40	.51	2.7
14	.50	.22	.13	.17	1.2	1.5	.96	131	91	.36	.62	2.8
15	.78	.29	.14	.16	1.2	1.6	1.0	131	1.4	.53	.78	2.2
16	.72	.32	.14	.16	1.5	1.6	3.4	132	.85	.49	.72	1.8
17	.60	.30	.14	.16	.67	1.7	2.9	134	9.5	11	.77	1.9
18	.49	.33	.16	.16	.89	.90	4.5	58	9.5	.82	13	2.2
19	.52	.41	.20	.17	.81	1.1	7.7	.43	.74	.63	.85	7.1
20	.62	.33	.16	.17	.55	.70	6.2	.35	.96	.67	1.7	2.9
21	.67	.32	.13	.17	1.1	1.6	.01	.36	.85	.72	3.8	2.5
22	.74	.36	.15	.17	1.3	1.5	.05	.34	.50	.64	5.3	2.4
23	.74	.32	.13	.20	2.1	1.4	.10	.34	.40	.68	7.6	2.1
24	.78	.31	1.3	.21	2.4	3.1	.13	.26	.45	.72	27	1.8
25	.78	.27	.45	.23	2.5	1.1	.24	16	.35	1.8	20	1.6
26	.79	.30	.11	.23	2.6	.91	.34	1.6	.39	.30	2.1	2.3
27	.95	.26	.10	.26	2.6	1.0	.45	151	.51	.53	1.3	1.6
28	1.2	.26	.10	.29	2.4	1.1	.31	328	.42	.56	1.5	1.6
29	1.2	.34	.10	.32	2.5	1.2	.66	324	4.5	.37	2.5	2.2
30	1.3	.34	.10	.32	---	.96	39	322	11	.45	2.4	1.7
31	1.3	---	.16	.27	---	1.1	---	8.7	---	.50	2.4	---
TOTAL	18.58	51.22	6.28	5.41	27.67	55.87	83.36	2773.95	8022.32	41.28	150.57	123.0
MEAN	.60	1.71	.20	.17	.95	1.80	2.78	89.5	267	1.33	4.86	4.10
MAX	1.3	.37	1.3	.32	2.6	3.2	.39	328	2240	11	27	49
MIN	.06	.03	.10	.10	.04	.70	.01	.26	.35	.30	.45	1.6
AC-FT	37	102	12	11	55	111	165	5500	15910	82	299	244
CAL YR 1975	TOTAL	66000.40	MEAN	181	MAX	3130	MIN	.03	AC-FT	130900		
WTR YR 1976	TOTAL	11359.51	MEAN	31.0	MAX	2240	MIN	.01	AC-FT	22530		

## TRINITY RIVER BASIN

08047500 Clear Fork Trinity River at Fort Worth, Tex.

LOCATION.--Lat 32°43'56", long 97°21'31", Tarrant County, at Fort Worth pumping station on left bank, 240 ft (73 m) upstream from the Texas and Pacific Railway Co. bridge in Fort Worth, 830 ft (253 m) upstream from East-West Expressway bridge, 2.5 miles (4.0 km) upstream from mouth, 5 miles (8 km) downstream from Marys Creek, and 10 miles (16 km) downstream from Benbrook Dam.

DRAINAGE AREA.--518 mi<sup>2</sup> (1,342 km<sup>2</sup>).

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

GAGE.--Water-stage recorder and concrete control. Datum of gage is 532.91 ft (162.431 m) above mean sea level. Prior to Apr. 3, 1970, various nonrecording and recording gages within 650 ft (198 m) of present site at different datums.

AVERAGE DISCHARGE.--28 years (1924-52) prior to regulation by Benbrook Lake, 112 ft<sup>3</sup>/s (3,172 m<sup>3</sup>/s), 81,140 acre-ft/yr (100 hm<sup>3</sup>/yr); 24 years (1952-76) regulated, unadjusted, 95.0 ft<sup>3</sup>/s (2,690 m<sup>3</sup>/s), 68,830 acre-ft/yr (84.9 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 2,400 ft<sup>3</sup>/s (68.0 m<sup>3</sup>/s) June 2 (gage height, 10.76 ft or 3.280 m); no flow Aug. 24.

Period of record: Maximum discharge, 107,000 ft<sup>3</sup>/s (3,030 m<sup>3</sup>/s) May 17, 1949 (gage height, 28.20 ft or 8.595 m, present datum), from rating curve extended above 16,000 ft<sup>3</sup>/s (453 m<sup>3</sup>/s) on basis of contracted-opening measurement of 107,000 ft<sup>3</sup>/s (3,030 m<sup>3</sup>/s); no flow at times most years.

Maximum stage since at least 1900, 28.20 ft (8.595 m) May 17, 1949, present datum. Flood of Apr. 25, 1922, reached a stage of 27.5 ft (8.38 m) present datum (discharge, 74,300 ft<sup>3</sup>/s or 2,100 m<sup>3</sup>/s, by slope-area measurement of peak flow); data furnished by city engineer of Fort Worth.

REMARKS.--Records good. Flow largely regulated by Benbrook Lake (station 08046500). Records furnished by city of Fort Worth show that no water was pumped from pool behind dam.

REVISIONS (WATER YEARS).--WSP 1392: 1924-25, 1927. WSP 1922: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	.87	8.9	3.6	3.2	3.7	4.6	127	431	4.6	.36	108
2	2.7	25	3.9	3.2	2.9	2.1	4.0	130	2120	3.9	.22	48
3	2.7	12	5.0	3.6	2.7	2.3	4.2	129	2370	122	.55	189
4	2.7	4.6	5.8	4.3	2.3	.85	4.4	129	1690	77	.37	26
5	2.7	2.4	5.4	4.9	2.0	.16	3.6	237	351	65	.65	42
6	2.0	2.5	4.3	5.1	2.7	.10	3.9	44	305	20	.93	21
7	1.4	20	3.6	4.8	3.2	.85	42	26	271	10	1.3	8.1
8	2.1	22	4.0	6.4	2.5	34	19	17	159	7.9	.43	7.2
9	1.6	6.4	2.9	12	3.3	9.8	8.8	12	151	6.7	.78	18
10	1.2	3.2	1.6	9.3	3.1	2.7	6.0	10	147	7.1	.17	11
11	.91	2.7	2.5	4.4	2.6	16	5.1	142	146	7.2	2.9	4.9
12	1.4	1.9	3.3	5.9	2.9	33	3.6	146	147	6.8	21	3.6
13	1.4	1.6	2.6	4.5	2.3	8.6	61	154	147	6.0	12	4.0
14	1.2	1.7	2.4	3.7	2.3	5.8	13	138	136	3.8	4.2	3.7
15	.94	1.6	2.0	3.5	2.7	3.2	7.7	134	20	7.7	2.1	1.8
16	.68	1.7	3.5	3.5	2.2	1.2	96	134	7.9	7.1	2.0	2.3
17	1.3	1.7	3.0	4.1	11	1.6	71	132	5.4	172	.19	2.7
18	1.5	2.2	3.6	5.6	7.9	1.2	127	92	37	33	.51	4.1
19	1.7	9.7	3.6	4.5	4.8	.93	363	14	126	14	.47	115
20	1.1	11	3.0	4.9	6.9	.70	275	7.7	19	8.6	2.7	49
21	.80	4.1	2.8	2.9	13	.47	33	5.8	10	8.3	2.0	14
22	.81	3.0	1.3	2.6	6.5	.70	20	4.5	7.5	7.5	.70	8.2
23	1.6	2.8	2.7	2.5	5.4	.47	16	5.4	7.2	6.2	.06	6.2
24	1.8	2.5	127	2.9	4.7	163	15	4.9	6.1	5.6	.03	4.5
25	1.2	1.4	57	4.1	4.2	22	11	265	5.5	10	22	3.2
26	1.7	2.5	17	2.9	4.0	9.9	7.7	78	4.4	21	14	1.8
27	1.3	4.0	9.5	2.6	4.3	5.9	8.1	88	4.4	7.9	6.3	.83
28	.39	3.6	7.3	2.6	4.8	10	22	275	3.9	4.7	7.7	69
29	.90	15	6.6	2.9	4.6	9.4	30	274	3.0	4.1	60	13
30	1.1	30	7.1	3.0	---	4.6	16	278	1.6	2.0	22	4.9
31	1.1	---	5.6	3.4	---	4.9	---	514	---	.82	110	---
TOTAL	45.93	203.67	318.8	134.2	125.0	360.13	1301.7	3747.3	8839.9	668.52	298.62	795.03
MEAN	1.48	6.79	10.3	4.33	4.31	11.6	43.4	121	295	21.6	9.63	26.5
MAX	2.7	36	127	12	13	163	363	514	2370	172	110	189
MIN	.39	.87	1.3	2.5	2.0	.10	3.6	4.5	1.6	.82	.03	.83
AC-FT	91	404	632	266	248	714	2580	7430	17530	1330	592	1580
CAL YR 1975 TOTAL	91037.90			MEAN 249	MAX 3390	MIN .39	AC-FT 180600					
WTR YR 1976 TOTAL	16838.80			MEAN 46.0	MAX 2370	MIN .03	AC-FT 33400					

## TRINITY RIVER BASIN

411

08048000 West Fork Trinity River at Fort Worth, Tex.

LOCATION.--Lat 32°45'39", long 97°19'56", Tarrant County, on left bank 125 ft (38 m) upstream from Texas Electric Service Co.'s concrete dam, 980 ft (299 m) downstream from centerline of Paddock Viaduct (North Main Street) at Fort Worth, 2,600 ft (792 m) downstream from Clear Fork Trinity River, and at mile 556.8 (895.9 km).

DRAINAGE AREA.--2,615 mi<sup>2</sup> (6,773 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: October 1920 to current year. Gage-height records collected in this vicinity since 1910 are contained in reports of the National Weather Service.

Water quality: Chemical and biochemical analyses: October 1967 to current year.

GAGE.--Water-stage recorder and concrete dam control with angle-iron-crested notch for flow below 50 ft<sup>3</sup>/s (1.42 m<sup>3</sup>/s). Datum of gage is 519.24 ft (158.264 m) above mean sea level (Texas Reclamation Department bench mark based on Coast and Geodetic Survey datum). Prior to Aug. 22, 1954, at site 1,200 ft (366 m) upstream at same datum. Aug. 22, 1954, to Oct. 15, 1955, at site 2,000 ft (610 m) upstream at same datum.

AVERAGE DISCHARGE.--56 years, 372 ft<sup>3</sup>/s (10.54 m<sup>3</sup>/s), 269,500 acre-ft/yr (332 hm<sup>3</sup>/yr), unadjusted.

EXTREMES.--Current year: Maximum discharge, 5,000 ft<sup>3</sup>/s (142 m<sup>3</sup>/s) May 31 (gage height, 3.55 ft or 1.082 m); minimum, 1.1 ft<sup>3</sup>/s (0.031 m<sup>3</sup>/s) Oct. 18-22, 25, 26, 29-31.

Period of record: Maximum discharge, 85,000 ft<sup>3</sup>/s (2,410 m<sup>3</sup>/s) Apr. 25, 1922 (gage height, 23.95 ft or 7.300 m, site then in use), by slope-area measurement of peak flow by city engineer of Fort Worth; maximum gage height, 25.91 ft (7.897 m) May 17, 1949, site then in use (discharge, 64,300 ft<sup>3</sup>/s or 1,820 m<sup>3</sup>/s); no flow at times.

Maximum stage since at least 1866, that of May 17, 1949. Maximum stages have been affected by levee construction, levee breaks, and channel rectification.

REMARKS.--Discharge records good. Flow is largely regulated by Lake Worth on the West Fork Trinity River and by Benbrook Lake (station 08046500) on the Clear Fork Trinity River. At times, flow is sustained by releases from the flood-detention pool of Benbrook Lake. Records furnished by city of Fort Worth show that during the year 90,050 acre-ft (111 hm<sup>3</sup>) was diverted above station for municipal and industrial uses. Many small diversions above station.

REVISIONS (WATER YEARS).--WSP 1392: 1925. WSP 1922: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.7	1.3	20	25	11	13	8.9	50	384	7.2	7.2	423
2	5.7	3.6	16	23	11	12	8.4	119	2030	6.7	7.2	131
3	5.7	9.3	13	21	10	12	8.3	147	2330	204	6.4	155
4	5.7	8.8	11	19	9.9	12	9.1	148	1860	380	5.3	75
5	6.2	8.2	11	18	9.4	11	9.0	558	462	152	5.2	30
6	7.2	6.2	12	16	9.3	11	9.3	211	378	50	4.9	37
7	7.2	5.3	11	15	9.3	10	14	43	319	27	6.3	22
8	7.2	8.2	10	14	10	22	27	30	191	18	7.2	16
9	6.7	9.3	9.1	13	11	31	22	23	155	15	7.0	18
10	6.2	8.2	8.9	14	11	28	15	19	148	17	6.0	22
11	6.2	6.7	9.3	14	11	24	12	55	148	15	4.6	16
12	6.2	4.8	9.4	12	11	34	11	144	148	14	4.9	13
13	5.3	3.6	11	10	12	34	105	213	148	14	9.6	12
14	4.4	2.8	11	9.3	12	29	30	182	147	22	12	12
15	2.8	2.5	12	8.2	11	25	18	169	58	21	11	11
16	1.9	2.8	12	8.2	11	22	143	169	20	21	8.4	11
17	1.3	3.6	12	7.7	12	19	45	169	13	709	6.7	11
18	1.1	3.6	12	7.2	16	18	236	154	23	208	5.0	11
19	1.1	4.8	12	7.7	15	17	813	49	153	37	4.2	20
20	1.3	8.8	12	8.2	15	14	586	24	61	23	3.6	92
21	1.1	9.9	13	8.2	18	13	60	17	27	18	3.6	37
22	1.3	8.2	14	8.2	19	11	35	14	19	18	4.0	20
23	1.3	7.7	14	8.2	17	10	29	13	15	16	4.0	15
24	1.6	7.2	27	8.2	16	506	32	14	15	13	2.8	13
25	1.3	6.7	91	9.3	14	136	28	57	26	12	3.2	12
26	1.1	6.7	63	9.5	13	36	22	219	21	20	7.8	11
27	1.3	6.7	44	9.6	13	19	18	65	15	20	10	11
28	1.6	7.5	36	9.3	13	13	20	145	13	14	11	39
29	1.1	8.9	31	9.7	13	15	45	255	12	11	14	37
30	1.1	18	28	10	---	13	36	277	9.0	8.8	35	23
31	1.1	---	26	11	---	10	---	1500	---	7.3	217	---
TOTAL	110.0	199.9	621.7	371.7	363.9	1180	2455.0	5252	9348.0	2119.0	445.1	1356
MEAN	3.55	6.66	20.1	12.0	12.5	38.1	81.8	169	312	68.4	14.4	45.2
MAX	7.2	18	91	25	19	506	813	1500	2330	709	217	423
MIN	1.1	1.3	8.9	7.2	9.3	10	8.3	13	9.0	6.7	2.8	11
AC-FT	218	397	1230	737	722	2340	4870	10420	18540	4200	883	2690
CAL YR 1975	TOTAL	192647.0	MEAN	528	MAX	6030	MIN	1.1	AC-FT	382100		
WTR YR 1976	TOTAL	23822.3	MEAN	65.1	MAX	2330	MIN	1.1	AC-FT	47250		



## TRINITY RIVER BASIN

08048000 West Fork Trinity River at Fort Worth, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	RIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	HARD- NESS (CA+MG) (MG/L)
OCT.									
20...	1500	1.6	556	7.5	22.0	9.8	111	3.3	200
NOV.									
13...	0930	4.0	601	7.7	18.0	8.0	84	4.9	210
DEC.									
04...	1930	11	584	7.8	13.0	9.0	85	3.5	220
JAN.									
07...	1235	21	467	7.5	5.5	10.4	83	3.4	180
FEB.									
11...	1600	9.4	588	7.9	13.0	14.6	138	5.9	220
MAR.									
03...	1350	12	630	8.1	20.5	9.8	108	5.1	230
APR.									
26...	1610	24	383	7.2	21.0	6.1	68	3.9	160
MAY									
27...	1300	76	305	7.5	22.0	5.5	62	3.4	120
JUNE									
22...	0830	20	352	7.4	25.5	6.9	86	5.9	130
JULY									
26...	1415	27	341	8.5	31.5	11.6	157	9.3	130
AUG.									
11...	0830	4.6	415	7.0	29.0	5.5	72	3.8	150
SEP.									
22...	1010	25	363	7.7	24.5	6.5	79	4.4	130

DATE	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)
OCT.									
20...	34	64	8.8	37	1.2	4.4	198	0	47
NOV.									
13...	40	71	8.8	40	1.2	5.2	212	0	51
DEC.									
04...	36	74	8.0	35	1.0	4.8	222	0	49
JAN.									
07...	27	61	6.1	24	.8	4.0	184	0	37
FEB.									
11...	39	73	8.7	36	1.1	4.4	218	0	48
MAR.									
03...	39	75	9.4	39	1.1	4.4	228	0	55
APR.									
26...	30	56	4.5	17	.6	3.8	156	0	37
MAY									
27...	16	42	3.0	13	.5	3.0	123	0	22
JUNE									
22...	13	44	4.4	18	.7	3.8	140	0	27
JULY									
26...	16	47	4.1	19	.7	3.8	144	0	31
AUG.									
11...	12	50	5.2	23	.8	4.0	164	0	32
SEP.									
22...	17	45	4.3	16	.6	4.2	138	0	27

DATE	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITU- ENTS) (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)
OCT.									
20...	43	--	4.7	307	.00	.00	.01	.71	.07
NOV.									
13...	53	.5	4.9	339	.00	.01	.04	.86	.10
DEC.									
04...	43	.3	6.3	330	.03	.01	.14	1.1	.23
JAN.									
07...	30	.2	5.1	258	.39	.03	.09	.61	.11
FEB.									
11...	43	.5	2.5	324	.00	.00	.09	.91	.13
MAR.									
03...	49	.5	2.4	347	.01	.00	.03	1.1	.08
APR.									
26...	19	.4	8.5	223	.66	.08	.25	.85	.09
MAY									
27...	13	.2	4.2	161	.34	.02	.25	.63	.13
JUNE									
22...	22	.3	5.4	194	.00	.00	.10	.83	.11
JULY									
26...	31	.3	5.7	213	.00	.00	.01	1.4	.17
AUG.									
11...	28	.3	6.7	230	.01	.01	.08	.62	.08
SEP.									
22...	21	.3	6.6	192	.10	.02	.05	.77	.07

## TRINITY RIVER BASIN

413

08048520 Sycamore Creek at Interstate Highway 35-W, Fort Worth, Tex.

LOCATION.--Lat 32°39'55", long 97°19'16", Tarrant County, on left bank at upstream side of bridge on frontage road on upstream side of Interstate Highway 35-W, 5.8 miles (9.3 km) south of Fort Worth City Hall, and 8.9 miles (14.3 km) upstream from mouth.

DRAINAGE AREA.--17.7 mi<sup>2</sup> (45.8 km<sup>2</sup>).

PERIOD OF RECORD.--October 1969 to September 1976 (discontinued as a continuous-record station; converted to a flood-hydrograph partial-record station).

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

AVERAGE DISCHARGE.--7 years, 9.45 ft<sup>3</sup>/s (0.268 m<sup>3</sup>/s), 7.25 in/yr (184 mm/yr), 6,850 acre-ft/yr (8.45 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 4,570 ft<sup>3</sup>/s (129 m<sup>3</sup>/s) Apr. 20 (elevation, 638.91 ft or 194.740 m); no flow Aug. 14-25. Period of record: Maximum discharge, 5,450 ft<sup>3</sup>/s (154 m<sup>3</sup>/s) Oct. 19, 1971 (elevation, 639.77 ft or 195.002 m); no flow at time. Flood of May 6, 1969, reached an elevation of 640.1 ft (195.10 m), from floodmarks (discharge, 5,800 ft<sup>3</sup>/s or 164 m<sup>3</sup>/s). Flood in 1908 reached an elevation of 645.9 ft (196.87 m), and flood in 1938 reached an elevation of 644.4 ft (196.41 m), from information by State Highway Department.

REMARKS.--Records good above 120 ft<sup>3</sup>/s (3.40 m<sup>3</sup>/s) and fair below. Flow is slightly affected by several small farm ponds on tributaries above station. At times, low flow may be sustained by effluents from commercial establishments. Two recording rain gages are operated in basin above this station, and one recording rain gage is located at station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.10	.41	.24	.11	.06	.38	3.6	8.3	.02	.10	52
2	.01	.21	.20	.17	.10	.05	.32	2.2	5.2	.02	.12	5.0
3	.01	1.5	.22	.13	.11	.02	.26	1.2	3.5	.80	.04	66
4	.02	.47	.19	.12	.20	.04	.24	1.0	2.4	5.5	.01	3.2
5	.02	.38	.16	.12	.14	.04	.28	10	3.1	6.1	.01	1.1
6	.02	.30	.19	.13	.13	.08	.24	9.0	5.5	1.8	.42	.52
7	.03	.19	.16	.23	.15	.96	19	4.0	3.7	.50	.11	.47
8	.04	.15	.15	.11	.15	14	2.1	4.0	1.0	.27	.03	3.2
9	.03	.12	.23	.24	.13	1.3	.64	2.1	.50	.27	.02	3.9
10	.02	.12	.30	.18	.15	.34	.40	1.5	.40	.45	.04	1.3
11	.02	.10	.25	.15	.15	15	.29	4.3	.40	.55	.68	.43
12	.02	.10	.19	.16	.15	6.9	.28	2.2	.30	.31	.07	.24
13	.02	.10	.19	.18	.15	1.2	33	6.9	.30	.47	.02	.24
14	.02	.10	3.4	.14	.16	.59	1.6	2.4	.20	1.2	0	.19
15	.02	.11	.38	.12	.13	.32	2.6	2.5	.20	3.1	0	.19
16	.02	.13	.15	.14	.13	.28	49	.79	.15	.49	0	.15
17	.02	.66	.11	.15	3.4	.24	45	.59	.14	31	0	.14
18	.02	.29	.10	.14	.64	.16	120	.47	10	2.8	0	1.1
19	.02	.68	.10	.12	.12	.15	553	.44	29	.75	0	118
20	.02	1.9	.12	.14	.99	.17	607	.38	1.8	.40	0	6.5
21	.02	.26	.19	.15	2.7	.15	10	.38	.68	.26	0	1.8
22	.01	.10	.13	.15	.15	.21	7.5	.26	.47	.16	0	.81
23	.06	.06	.12	.15	.09	.19	7.3	6.8	.67	.14	0	.55
24	.08	.06	29	.15	.07	102	6.2	1.4	.39	.20	0	.44
25	.08	.09	9.9	.16	.07	4.0	4.9	276	.40	12	0	.36
26	.06	.11	2.6	.11	.08	2.0	3.7	35	.44	2.1	1.5	.28
27	.06	.10	1.1	.08	.10	1.0	2.5	6.6	.17	.50	1.0	.24
28	.06	.15	.43	.08	.09	6.4	14	4.5	.08	.22	4.7	3.6
29	.06	2.5	1.5	.08	.09	2.6	11	3.1	.04	.14	5.5	.79
30	.06	6.9	.35	.08	---	.62	5.0	1.4	.02	.10	2.3	.62
31	.08	---	.28	.09	---	.39	---	171	---	.07	29	---
TOTAL	1.04	38.83	52.80	4.39	10.83	161.46	1507.73	566.01	79.45	151.89	45.67	273.36
MEAN	.034	1.29	1.70	.14	.37	5.21	50.3	18.3	2.65	4.90	1.47	9.11
MAX	.08	21	29	.24	3.4	102	607	276	29	80	29	118
MIN	.01	.06	.10	.08	.07	.02	.24	.26	.02	.02	0	.14
CFSM	.001	.07	.10	.007	.02	.29	2.84	1.03	.15	.28	.08	.51
IN.	.002	.08	.11	.009	.02	.34	3.17	1.19	.17	.32	.10	.57
AC-FT	2.1	77	105	8.7	21	320	2990	1120	158	301	91	542
(††)	.06	1.76	1.59	.03	.47	2.85	7.84	5.06	1.14	3.30	1.24	4.35
CAL YR 1975	TOTAL	4868.14	MEAN	13.3	MAX	796	MIN	0	CFSM	.75	IN	10.23
WTR YR 1976	TOTAL	2893.46	MEAN	7.91	MAX	607	MIN	0	CFSM	.45	IN	6.08
									AC-FT	9660	††	28.56
										5740	††	29.69

PEAK DISCHARGE (BASE, 800 FT<sup>3</sup>/S)

DATE	TIME	ELEV.	DISCHARGE	DATE	TIME	ELEV.	DISCHARGE
3-24	0700	633.58	816	5-25	1800	633.82	937
4-18	2330	636.92	2,810	5-31	0130	634.44	1,240
4-20	0030	638.91	4,570	9-19	1845	634.17	1,100
5-25	1445	635.13	1,600				

†† Weighted-mean rainfall, in inches, based on three rain gages.

## TRINITY RIVER BASIN

08048530 Sycamore Creek tributary above Seminary South Shopping Center, Fort Worth, Tex.

LOCATION.--Lat 32°41'08", long 97°19'44", Tarrant County, on right bank near entrance to culvert under Missouri, Kansas, and Texas Railroad, 0.2 mile (0.3 km) northeast of intersection of Hemphill Street and Seminary Drive in Fort Worth, 1.8 miles (2.9 km) upstream from mouth, and 4.5 miles (7.2 km) south of Fort Worth City Hall.

DRAINAGE AREA.--0.97 mi<sup>2</sup> (2.51 km<sup>2</sup>).

PERIOD OF RECORD.--October 1969 to September 1976 (discontinued as a continuous-record station; converted to a flood-hydrograph partial-record station).

GAGE.--Water-stage recorder with concrete weir and culvert control. Datum of gage is at mean sea level.

AVERAGE DISCHARGE.--7 years, 0.67 ft<sup>3</sup>/s (0.0190 m<sup>3</sup>/s), 9.38 in/yr (238 mm/yr), 485 acre-ft/yr (598,000 m<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 426 ft<sup>3</sup>/s (12.1 m<sup>3</sup>/s) Apr. 19 (elevation, 653.30 ft or 199.126 m); minimum daily, 0.01 ft<sup>3</sup>/s (0.0003 m<sup>3</sup>/s) Dec. 7, 8, Jan. 28, Feb. 5-8.

Period of record: Maximum discharge, 584 ft<sup>3</sup>/s (16.5 m<sup>3</sup>/s) Oct. 19, 1971 (elevation, 655.49 ft or 199.793 m); no flow at times in July and August 1970.

Maximum stage since 1966, about 656.0 ft (199.95 m) in August 1966 (discharge not determined), from information by local resident.

REMARKS.--Records fair below 0.20 ft<sup>3</sup>/s (0.006 m<sup>3</sup>/s) and good above. Low flow is sustained by effluent from commercial establishments above station. One recording rain gage is operated in basin above station, and one is located below station in Seminary South Shopping Center. Records of precipitation and hydrologic data for selected storms are published elsewhere in basic-data reports.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	.06	.09	.05	.03	.04	.06	.10	.35	.07	.06	7.4
2	.03	3.5	.13	.06	.02	.05	.07	.09	.15	.05	.03	2.2
3	.03	.02	.02	.06	.02	.06	.12	.09	.15	7.5	.18	4.5
4	.03	.03	.03	.06	.06	.06	.07	.07	.15	.27	.50	.32
5	.19	.02	.08	.06	.01	.02	.07	3.2	.64	.72	.63	.20
6	.02	.03	.02	.05	.01	.03	.07	1.0	.11	.06	.46	.19
7	.04	.03	.01	.08	.01	1.9	3.1	.25	.11	.06	.04	.15
8	.02	.02	.01	.49	.01	1.9	.11	.07	.11	.05	.03	.43
9	.03	.02	.05	.12	.02	.04	.09	.07	.09	.06	.03	.71
10	.03	.03	.03	.32	.03	.03	.07	.31	.09	.18	.03	.08
11	.02	.04	.03	.12	.03	1.7	.06	.07	.09	.04	.30	.06
12	.02	.03	.03	.05	.03	.15	.53	.55	.09	.04	1.0	.04
13	.02	.03	.03	.05	.03	.03	2.9	.63	.07	.03	.08	.04
14	.02	.03	.03	.05	.03	.07	.11	.06	.07	.48	.65	.36
15	.02	.04	.03	.05	.04	.05	3.5	.04	.06	.47	.10	.07
16	.03	.02	.03	.05	.04	.03	2.6	.04	.07	.16	.09	.06
17	.03	.03	.03	.06	.87	.03	6.7	.04	.09	3.6	.15	.06
18	.02	.02	.03	.03	.02	.04	13	.03	5.0	.12	.32	1.1
19	.04	.44	.03	.31	.02	.04	27	.03	4.2	.10	.07	13
20	.15	.03	.03	.53	.81	.09	6.6	.04	.09	.08	.06	.47
21	.11	.04	.03	.69	.06	.04	.32	.04	.09	.08	.22	.04
22	.02	.26	.03	.32	.05	.24	.11	.09	.07	.09	.07	.04
23	.06	.02	.03	.05	.04	.75	.54	.55	.07	.06	.07	.06
24	.04	.02	9.3	.19	.05	13	.42	.05	.09	.07	.27	.04
25	.04	.04	1.1	.14	.03	.32	.13	8.0	.11	.42	.10	.06
26	.02	.08	.11	.03	.02	.09	.11	.90	.07	.06	1.1	.04
27	.02	.02	.23	.06	.02	.09	.10	.10	.06	.06	.11	.04
28	.03	.11	.04	.01	.02	1.4	2.8	.06	.06	.05	4.4	2.0
29	.02	2.6	.05	.02	.03	.07	.86	.05	.04	.05	5.1	.04
30	.03	.12	.06	.02	---	.06	.12	.70	.03	.06	.50	.04
31	.05	---	.06	.04	---	.06	---	17	---	.08	9.2	---
TOTAL	1.26	7.78	11.81	4.22	2.46	22.55	72.34	34.32	12.47	15.22	25.95	33.84
MEAN	.041	.26	.38	.14	.085	.73	2.41	1.11	.42	.49	.84	1.13
MAX	.19	3.5	9.3	.69	.87	13	27	17	5.0	7.5	9.2	13
MIN	.02	.02	.01	.01	.01	.02	.06	.03	.03	.03	.03	.04
CFSM	.04	.27	.39	.14	.09	.75	2.48	1.14	.43	.51	.87	1.16
IN.	.05	.30	.45	.16	.09	.86	2.77	1.31	.48	.58	.99	1.30
AC-FT	2.5	15	23	8.4	4.9	45	143	68	25	30	51	67
(††)	.06	1.52	1.64	.05	.39	2.58	7.20	4.43	1.52	2.70	3.49	4.45

CAL YR 1975 TOTAL 258.64 MEAN .71 MAX 24 MIN .01 CFSM .73 IN 9.91 AC-FT 513 †† 30.90  
WTR YR 1976 TOTAL 244.22 MEAN .67 MAX 27 MIN .01 CFSM .69 IN 9.36 AC-FT 484 †† 30.03

PEAK DISCHARGE (BASE, 200 FT<sup>3</sup>/S)

DATE	TIME	ELEV.	DISCHARGE	DATE	TIME	ELEV.	DISCHARGE
4-18	2235	652.42	298	7- 3	1735	652.14	265
4-19	0115	652.08	258	8-29	1850	652.06	256
4-19	2320	653.30	426	9- 1	1155	651.65	214
5-31	0015	652.75	343	9-19	1740	652.57	318

†† Weighted-mean rainfall, in inches, based on two rain gages.

## TRINITY RIVER BASIN

415

08048540 Sycamore Creek tributary at Interstate Highway 35-W, Fort Worth, Tex.

LOCATION.--Lat 32°41'18", long 97°19'11", Tarrant County, on left bank at culvert on downstream side of access road to Interstate Highway 35-W, 0.3 mile (0.5 km) north of Seminary Drive in Fort Worth, 1.2 miles (1.9 km) upstream from mouth, and 4.3 miles (6.9 km) south of Fort Worth City Hall.

DRAINAGE AREA.--1.35 mi<sup>2</sup> (3.50 km<sup>2</sup>).

PERIOD OF RECORD.--October 1969 to September 1976 (discontinued).

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

AVERAGE DISCHARGE.--7 years, 1.15 ft<sup>3</sup>/s (0.0326 m<sup>3</sup>/s), 11.57 in/yr (294 mm/yr), 833 acre-ft/yr (1.03 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 710 ft<sup>3</sup>/s (20.1 m<sup>3</sup>/s) Apr. 19 (elevation, 624.73 ft or 190.418 m); minimum daily, 0.02 ft<sup>3</sup>/s (0.001 m<sup>3</sup>/s) Oct. 6, 14.

Period of record: Maximum discharge, 1,100 ft<sup>3</sup>/s (31.2 m<sup>3</sup>/s) Oct. 19, 1971 (elevation, 628.41 ft or 191.539 m); minimum daily, 0.01 ft<sup>3</sup>/s (0.0003 m<sup>3</sup>/s) for many days in 1970-71.

Maximum elevation since 1969, that of Oct. 19, 1971. Flood in May 1969 reached an elevation of 627.2 ft (191.17 m), from floodmarks.

REMARKS.--Records fair. Records include runoff from a shopping center. Low flows are sustained by effluents. Two recording rain gages are operated in basin above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.06	.16	.17	.06	.07	.07	.12	.19	.47	.23	.10	11
2	.06	8.6	.25	.06	.07	.09	.10	.15	.33	.19	.09	2.7
3	.04	.19	.06	.04	.07	.09	.25	.12	.31	12	.23	6.0
4	.04	.06	.06	.06	.09	.09	.12	.12	.25	.86	.69	.60
5	.20	.05	.17	.06	.07	.06	.12	4.9	1.0	1.1	.90	.32
6	.02	.09	.06	.05	.07	.06	.12	1.9	.17	.23	.63	.27
7	.05	.06	.06	.15	.07	3.0	3.5	.60	.17	.19	.09	.23
8	.23	.05	.06	.60	.07	3.1	.22	.23	.22	.19	.06	.60
9	.03	.04	.11	.32	.06	.12	.16	.19	.19	.33	.06	1.2
10	.03	.07	.07	.45	.06	.23	.15	.45	.18	.63	.06	.15
11	.03	.09	.06	.19	.12	4.2	.15	.15	.13	.22	.39	.12
12	.03	.10	.07	.09	.19	.52	.70	.72	.13	.21	1.5	.06
13	.03	.06	.06	.12	.07	.23	3.4	1.0	.13	.37	.12	.06
14	.02	.06	.06	.12	.07	.19	.19	.19	.12	1.3	.92	.52
15	.03	.09	.05	.07	.09	.19	4.0	.18	.12	1.2	.13	.12
16	.05	.06	.04	.09	.12	.15	2.7	.18	.19	.47	.12	.07
17	.06	.08	.04	.15	2.1	.15	7.3	.13	.15	5.8	.15	.05
18	.05	.08	.04	.15	.04	.32	19	.18	7.7	.27	.42	1.0
19	.09	1.1	.04	.52	.06	.15	38	.11	5.4	.19	.10	1.8
20	.33	.10	.04	.60	1.9	.12	8.2	.13	.15	.15	.08	.69
21	.28	.09	.04	.71	.15	.23	.45	.13	.12	.19	.28	.09
22	.04	.06	.04	.49	.06	.32	.27	.18	.09	.19	.10	.09
23	.21	.09	.04	.12	.06	.85	.85	.77	.09	.19	.10	.09
24	.04	.09	12	.36	.07	20	.60	.17	.23	.19	.35	.12
25	.10	.12	1.9	.28	.04	.45	.23	13	.27	1.0	.22	.09
26	.04	.27	.23	.12	.04	.12	.19	1.3	.09	.12	1.8	.19
27	.06	.07	.27	.12	.04	.12	.19	.23	.07	.09	.19	.15
28	.08	.24	.07	.03	.04	1.9	3.7	.19	.07	.12	6.7	3.0
29	.08	5.2	.07	.04	.04	.15	1.5	.17	.15	.12	6.9	.16
30	.08	.33	.07	.07	---	.09	.23	1.0	.15	.23	1.0	.12
31	.11	---	.07	.18	---	.09	---	27	---	.15	13	---
TOTAL	2.40	18.00	16.37	6.48	6.00	37.45	96.71	55.96	18.87	28.72	37.51	47.86
MEAN	.077	.60	.53	.21	.21	1.21	3.22	1.81	.63	.93	1.21	1.60
MAX	.33	8.6	.12	.71	2.1	20	38	27	7.7	12	13	18
MIN	.02	.04	.04	.03	.04	.06	.10	.11	.07	.09	.06	.05
CFSM	.06	.44	.39	.16	.16	.90	2.39	1.34	.47	.69	.90	1.19
IN.	.07	.50	.45	.18	.17	1.03	2.66	1.54	.52	.79	1.03	1.32
AC-FT	4.8	36	32	13	12	74	192	111	37	57	74	95
(††)	.06	1.56	1.64	.05	.39	2.59	7.26	4.45	1.55	2.70	3.33	4.39

CAL YR 1975	TOTAL 457.27	MEAN 1.25	MAX 42	MIN .02	CFSM .93	IN 12.59	AC-FT 907	†† 30.65
WTR YR 1976	TOTAL 372.33	MEAN 1.02	MAX 38	MIN .02	CFSM .76	IN 10.25	AC-FT 739	†† 29.97

PEAK DISCHARGE (BASE, 300 FT<sup>2</sup>/S)

DATE	TIME	ELEV.	DISCHARGE	DATE	TIME	ELEV.	DISCHARGE
11-29	2205	622.41	369	7- 3	1740	623.77	573
4-18	2240	622.76	419	8-29	1855	622.15	333
4-19	0120	622.18	337	9- 1	1200	622.40	368
4-19	2325	624.73	710	9-19	1645	622.20	340
5-31	0020	624.51	680	9-19	1745	622.76	419

†† Weighted-mean rainfall, in inches, based on two rain gages.

## TRINITY RIVER BASIN

08048600 Dry Branch at Fain Street, Fort Worth, Tex.

LOCATION.--Lat 32°46'34", long 97°17'18", Tarrant County, on right bank 30 ft (9 m) upstream from culvert on Fain Street, at intersection of Fain and Beach Streets in Fort Worth, 1.1 miles (1.8 km) upstream from mouth, and 2.9 miles (4.7 km) northeast of Tarrant County Courthouse.

DRAINAGE AREA.--2.15 mi<sup>2</sup> (5.57 km<sup>2</sup>).

PERIOD OF RECORD.--October 1968 to September 1976 (discontinued as a continuous-record station; converted to a flood-hydrograph partial-record station).

GAGE.--Water-stage recorder and concrete culvert control. Datum of gage is 537.51 ft (163.833 m) above mean sea level.

AVERAGE DISCHARGE.--8 years, 1.53 ft<sup>3</sup>/s (0.0433 m<sup>3</sup>/s), 9.66 in/yr (245 mm/yr), 1,110 acre-ft/yr (1.37 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 267 ft<sup>3</sup>/s (7.56 m<sup>3</sup>/s) May 31 (gage height, 4.39 ft or 1.338 m); no flow for many days.  
Period of record: Maximum discharge, 447 ft<sup>3</sup>/s (12.7 m<sup>3</sup>/s) July 25, 1975 (gage height, 5.86 ft or 1.786 m); no flow at times.  
Maximum stage since April 1964, 9.0 ft (2.74 m) in April 1966 at upstream side of Fain Street culvert, from information by local resident (discharge not determined).

REMARKS.--Records good above 1.0 ft<sup>3</sup>/s (0.028 m<sup>3</sup>/s) and fair below. Low flow is sustained by effluent from commercial establishments and industry above station. Two recording rain gages are operated in basin above station.

REVISIONS.--WSP 2122: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.15	.11	.10	0	0	0	.05	.84	0	0	6.0
2	0	12	.08	.02	0	0	0	.03	.22	.10	0	8.4
3	0	.73	.08	0	0	.02	0	.01	.03	6.7	0	9.3
4	0	.38	.07	0	0	.02	0	0	.02	2.4	0	.43
5	.49	.23	.06	0	0	.08	0	14	.01	.56	0	.18
6	.47	.13	.05	0	0	.02	0	2.8	.01	.01	0	.09
7	.33	.08	.05	0	0	1.8	4.6	.07	.28	.01	.01	0
8	.14	.06	.05	0	0	6.5	.11	.13	.03	.01	0	0
9	.14	.04	.04	.55	0	.03	.02	.02	0	3.7	0	.11
10	.10	.03	.01	.02	0	.01	0	.26	0	.20	0	.01
11	.02	.02	.02	0	0	4.2	0	.16	0	.06	0	.06
12	.01	.01	.03	0	0	.78	.05	2.2	0	.03	0	.05
13	.05	.01	.02	0	0	.20	4.3	1.4	0	0	0	0
14	.05	.04	.02	0	0	.17	.07	.03	.02	.55	0	0
15	.05	0	.02	0	0	.04	2.3	.02	.31	1.6	0	.17
16	.05	0	.02	.38	0	.01	6.5	.01	.02	14	0	.01
17	.05	0	.02	.03	.88	0	10	0	0	1.3	0	0
18	.03	0	.02	.01	.04	0	6.6	0	5.3	.04	0	3.1
19	.17	1.6	.02	.04	0	.35	17	0	10	.31	0	12
20	.33	.13	.02	.06	1.6	.02	7.2	0	.26	.02	.05	1.3
21	.33	.05	.03	.01	.73	0	.21	0	.14	0	.09	.12
22	.22	.05	.03	0	.08	0	.08	0	.02	0	.16	.03
23	.05	.05	.03	0	.03	0	.21	0	0	0	.38	.01
24	0	.03	17	.01	.02	16	1.6	0	.30	0	3.8	0
25	0	.03	2.4	.04	.02	.24	.03	4.6	.83	.39	.06	0
26	0	.03	.32	0	.02	.08	.02	.35	.18	.01	0	0
27	0	.03	.21	0	.02	.01	.02	.01	.03	0	0	0
28	.06	.03	.14	0	.02	1.3	3.8	0	.03	0	0	5.5
29	.21	3.9	.14	0	.01	.09	1.3	0	0	0	9.9	.10
30	.22	1.3	.14	0	---	.01	.08	9.8	0	0	1.3	.02
31	.31	---	.14	0	---	0	---	44	---	0	9.6	---
TOTAL	3.88	21.14	21.39	1.27	3.47	31.98	66.10	79.95	18.88	32.00	25.35	46.99
MEAN	.13	.70	.69	.041	.12	1.03	2.20	2.58	.63	1.03	.82	1.57
MAX	.49	12	17	.55	1.6	16	17	44	10	14	9.9	12
MIN	0	0	.01	0	0	0	0	0	0	0	0	0
CFSM	.06	.33	.32	.02	.06	.48	1.02	1.20	.29	.48	.38	.73
IN.	.07	.37	.37	.02	.06	.55	1.14	1.38	.33	.55	.44	.81
AC-FT	7.7	42	42	2.5	6.9	63	131	159	37	63	50	93
(††)	0	2.04	1.67	.14	.47	2.54	5.22	5.49	1.73	3.33	2.78	3.48

CAL YR 1975 TOTAL 643.30 MEAN 1.76 MAX 156 MIN 0 CFSM .82 IN 11.13 AC-FT 1280 †† 32.04  
WTR YR 1976 TOTAL 352.40 MEAN .96 MAX 44 MIN 0 CFSM .45 IN 6.09 AC-FT 699 †† 28.89

†† Weighted-mean rainfall, in inches, based on two rain gages.

08048850 Little Fossil Creek at Mesquite Street, Fort Worth, Tex.

LOCATION.--Lat 32°48'33", long 97°17'28", Tarrant County, on right bank at intersection of Mesquite Street and Broadway Avenue in Fort Worth, 150 ft (46 m) upstream from bridge on Alta Vista Road (Beach Street), 4.3 miles (6.9 km) northeast of county courthouse, and approximately 4.3 miles (6.9 km) upstream from Big Fossil Creek.

DRAINAGE AREA.--12.3 mi<sup>2</sup> (31.9 km<sup>2</sup>).

PERIOD OF RECORD.--October 1968 to September 1976 (discontinued as a continuous-record station; converted to a flood-hydrograph partial-record station).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 548.62 ft (167.219 m) above mean sea level.

AVERAGE DISCHARGE.--8 years, 5.70 ft<sup>3</sup>/s (0.161 m<sup>3</sup>/s), 6.29 in/yr (160 mm/yr), 4,130 acre-ft/yr (5.09 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 623 ft<sup>3</sup>/s (17.6 m<sup>3</sup>/s) May 31 (gage height, 5.64 ft or 1.719 m); no flow Oct. 3 to Nov. 1, Aug. 13-23, 25-28.

Period of record: Maximum discharge, 5,360 ft<sup>3</sup>/s (152 m<sup>3</sup>/s) July 25, 1975 (gage height, 12.22 ft or 3.725 m), from rating curve extended above 1,400 ft<sup>3</sup>/s (39.6 m<sup>3</sup>/s) on basis of contracted-opening measurement of peak flow; no flow at times each year.

Maximum stage since 1900 occurred Apr. 25, 1922 (gage height and discharge unknown), from information by local residents. The second highest flood, about 13 ft (4.0 m), occurred Apr. 21, 1942 (discharge unknown), from information by local residents. Floods in 1926, 1935, 1949, and 1955, had stages slightly less than that of the July 25, 1975, flood from newspaper articles and local residents.

REMARKS.--Records fair above 20 ft<sup>3</sup>/s (0.57 m<sup>3</sup>/s) and good below except those for period of no gage-height record, which are poor. Flow is slightly affected by several small farm ponds located on tributaries above station. Low flow is sustained at times by effluent from industrial park 2.6 miles (4.2 km) upstream. Three recording rain gages are operated in basin above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	0	.37	.40	.13	.14	.22	1.4	14	.10	.05	5.3
2	.01	3.4	.19	.30	.17	.14	.21	1.1	5.0	.08	.04	7.7
3	0	.80	.09	.30	.16	.11	.19	.85	3.2	1.1	.03	19
4	0	.45	.08	.20	.11	.11	.35	.97	2.0	3.9	.02	.84
5	0	.23	.08	.20	.12	.08	.37	26	2.1	.98	.02	.06
6	0	.19	.08	.20	.14	.04	.31	79	2.1	.57	.02	.02
7	0	.28	.08	.20	.14	.15	4.5	11	1.4	.33	1.3	.01
8	0	.24	.08	.10	.14	7.6	3.4	5.8	1.4	.24	.16	.01
9	0	.22	.08	.10	.14	2.2	.96	3.9	1.5	2.1	.06	.01
10	0	.22	.08	.10	.19	.55	.69	3.2	1.3	2.9	.02	.06
11	0	.41	.08	.10	.17	.72	.35	2.5	1.1	1.3	.01	.06
12	0	.54	.08	.10	.18	2.1	.25	2.5	.84	.68	.15	.06
13	0	.42	.08	.10	.17	.69	5.9	5.1	.62	.35	0	.06
14	0	.26	.08	.10	.10	.42	1.7	2.4	.60	1.1	0	.06
15	0	.15	.20	.10	.08	.29	.86	1.5	.60	2.0	0	.06
16	0	.11	.08	.40	.14	.22	17	1.2	.51	59	0	.06
17	0	.09	.20	.30	.63	.20	10	1.1	.35	19	0	.03
18	0	.08	.20	.20	.37	.17	25	.98	4.4	4.6	0	.35
19	0	.39	.10	.20	.26	.17	38	.98	24	2.0	0	5.6
20	0	1.2	.10	.10	.28	.19	29	.98	4.7	1.4	0	3.3
21	0	.73	.10	.10	1.7	.18	6.1	.98	1.7	.87	0	1.1
22	0	.30	.10	.10	.52	.12	3.1	.73	1.0	.73	0	.32
23	0	.20	.10	.10	.23	.08	2.1	.50	.97	.60	0	.28
24	0	.15	30	.30	.17	16	13	.45	.99	.42	.14	.26
25	0	.11	7.0	.25	.17	3.3	3.1	2.5	2.8	.31	0	.17
26	0	.11	4.0	.20	.17	2.0	1.7	3.7	1.1	.28	0	.12
27	0	.11	2.0	.19	.16	2.3	1.3	.90	.60	.31	0	.08
28	0	.13	.90	.17	.14	.47	3.0	.59	.37	.21	0	7.2
29	0	.50	.70	.14	.14	.51	7.6	.42	.25	.14	3.7	1.7
30	0	2.5	.50	.14	---	.31	2.6	5.3	.17	.10	1.9	.37
31	0	---	.40	.12	---	.22	---	207	---	.08	3.8	---
TOTAL	.03	14.52	48.21	5.61	7.22	41.78	182.86	375.53	81.67	107.78	11.42	54.25
MEAN	.001	.48	1.56	.18	.25	1.35	6.10	12.1	2.72	3.48	.37	1.81
MAX	.02	3.4	30	.40	1.7	16	38	207	24	59	3.8	19
MIN	0	0	.08	.10	.08	.04	.19	.42	.17	.08	0	.01
CFSM	0	.04	.13	.01	.02	.11	.50	.98	.22	.28	.03	.15
IN.	.00009	.04	.15	.02	.02	.13	.55	1.14	.25	.33	.03	.16
AC-FT	.06	29	96	11	14	83	363	745	162	214	23	108
(††)	.03	1.33	1.71	.13	.50	2.16	5.12	6.15	2.03	3.28	2.38	3.22

CAL YR 1975 TOTAL 2450.82 MEAN 6.71 MAX 718 MIN 0 CFSM .55 IN 7.41 AC-FT 4860 †† 30.58

WTR YR 1976 TOTAL 930.88 MEAN 2.54 MAX 207 MIN 0 CFSM .21 IN 2.82 AC-FT 1850 †† 28.04

PEAK DISCHARGE (BASE, 290 FT<sup>3</sup>/S).--May 31 (0100) 623 ft<sup>3</sup>/s (5.64 ft); July 16 (1645) 396 ft<sup>3</sup>/s (4.82 ft).

†† Weighted-mean rainfall, in inches, based on three rain gages.  
NOTE.--No gage-height record Dec. 18 to Jan. 28.



08049200 Lake Arlington at Arlington, Tex.

LOCATION (revised).--Lat 32°42'58", long 97°11'32", Tarrant County, in new pumphouse at right end of Arlington Dam on Village Creek near western boundary of Arlington, 1.5 miles (2.4 km) upstream from The Texas and Pacific Railway Co. bridge, and 7 miles (11 km) upstream from West Fork Trinity River.

DRAINAGE AREA.--143 mi<sup>2</sup> (370 km<sup>2</sup>).

PERIOD OF RECORD.--Contents: March 1957 to current year.

Water quality: Chemical analyses: October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Sept. 9, 1957, nonrecording gage at same site and datum.

EXTREMES.--Current year: Maximum contents, 49,360 acre-ft (60.9 hm<sup>3</sup>) Apr. 20 (elevation, 551.62 ft or 168.134 m); minimum, 29,300 acre-ft (36.1 hm<sup>3</sup>) Dec. 1, 2 (elevation, 541.63 ft or 165.089 m).

Period of record: Maximum contents, 56,620 acre-ft (69.8 hm<sup>3</sup>) May 1, 1966 (elevation, 554.65 ft or 169.057 m); minimum since lake first filled in April 1957, 18,110 acre-ft (22.3 hm<sup>3</sup>) Oct. 17, 1971 (elevation, 534.27 ft or 162.845 m).

REMARKS.--Lake is formed by a rolled earthfill dam 6,482 ft (1,976 m) long. The service spillway is a 10-foot-diameter (3-meter) uncontrolled circular drop inlet. The emergency spillway is an 882-foot-wide (269-meter) cut through natural ground near the right end of dam. The dam was completed and storage began Mar. 31, 1957. Capacities are based on 1955 survey. The dam was built by city of Arlington to impound water for municipal and industrial uses. Records furnished by city of Arlington show that during the period October 1975 to April 1976, when sewage plant was closed, 3,815 acre-ft (4.70 hm<sup>3</sup>) of sewage effluent was discharged into West Fork Trinity River. After April 1976, waste water was treated at the Village Creek Sewage Treatment Plant operated by the city of Fort Worth. Effluent from this sewage treatment plant is reported in station 08049500. Several small municipalities operate sewage disposal plants in basin above lake. Data derived from records furnished by the cities of Fort Worth and Mansfield and by the Tarrant County Water Control and Improvement District No. 1 show that 16,400 acre-ft (20.2 hm<sup>3</sup>) of water was diverted from Cedar Creek Reservoir (station 08063010) into Lake Arlington during the year. Water is circulated for cooling purposes from lake to generating plant of Texas Electric Service Co. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	572.0	
Crest of spillway.....	559.7	70,140
Crest of drop inlet (top of conservation pool).....	550.0	45,710
Lowest gated outlet (invert).....	505.0	180

COOPERATION.--Records of diversions furnished by city of Arlington. Capacity table furnished by Freese and Nichols, Consulting Engineers for the city of Arlington.

REVISIONS.--MSP 1922: Drainage area.

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

541.0	28,210	549.0	43,540
542.0	29,950	550.0	45,710
544.0	33,570	551.0	47,940
546.0	37,390	552.0	50,240
548.0	41,430		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34950	31310	29300	31610	34870	36110	35040	45800	47270	43410	40670	35610
2	34800	31270	29300	31610	35210	36070	35180	45670	46840	43260	40520	35590
3	34680	31220	29320	31580	35360	36060	35270	45510	46510	43480	40380	35730
4	34550	31200	29320	31580	35380	36060	35330	45450	46260	43460	40240	35670
5	34400	31150	29740	31580	35670	36060	35180	45320	46040	43330	40070	35580
6	34280	31110	29970	31630	35630	35960	34970	45600	46000	43180	39950	35440
7	34130	31090	30020	31630	35480	35790	34980	45580	46000	43050	39710	35310
8	33800	31020	30040	31610	35750	35810	35060	45490	45910	42920	39500	35190
9	33700	31860	30020	32010	35940	35920	34950	45450	45710	42900	39280	35040
10	33640	30750	30000	32180	35940	35860	34830	45380	45580	42820	39060	34950
11	33550	30640	30020	32210	35880	35880	34740	45320	45470	42730	38860	34800
12	33400	30500	30200	32560	36110	36020	34700	45230	45320	42610	38660	34640
13	33280	30400	30480	32520	36440	36110	34780	45230	45140	42540	38460	34490
14	33150	30290	30560	32610	36480	36110	34700	45160	45030	42420	38220	34360
15	33090	30200	30560	32780	36480	36070	34740	45060	44820	42310	37980	34280
16	33040	30090	30560	32980	36440	36000	34850	44950	44710	42290	37770	34080
17	32930	29990	30470	33220	36400	35900	35140	44820	44510	42780	37610	33910
18	32830	29930	30400	33480	36320	35790	35810	44710	44620	42780	37390	33780
19	32740	29880	30380	33640	36230	35650	46510	44530	44860	42670	37120	33950
20	32630	29840	30400	33700	36130	35520	48780	44380	44750	42520	36940	33910
21	32540	29770	30630	33930	36060	35350	47760	44270	44600	42420	36690	33810
22	32400	29700	30790	34120	36020	35160	47110	44120	44600	42310	36460	33800
23	32320	29630	30890	34300	36020	34980	46710	44020	44600	42140	36270	33720
24	32270	29530	31380	34450	36020	35000	46440	43910	44600	42020	36090	33660
25	32030	29510	31810	34440	36040	35500	46200	46800	44470	41960	35900	33520
26	31940	29460	31810	34360	36110	35400	46000	48350	44320	41790	35790	33400
27	31830	29420	31700	34270	36130	35230	45890	47580	44140	41620	35670	33390
28	31740	29370	31650	34780	36150	35080	45800	47090	43970	41450	35500	33350
29	31610	29370	31610	35080	36130	34980	45930	46710	43780	41330	35360	33290
30	31520	29370	31580	35080	---	34890	45860	46490	43580	41200	35290	33260
31	31430	---	31580	34980	---	34890	---	47780	---	40920	35400	---
(+)	542.83	541.67	542.91	544.75	545.35	544.70	550.07	550.93	549.02	547.75	544.97	543.83
(*)	-3520	-2060	+2210	+3400	+1150	-1240	+10970	+1920	-4200	-2660	-5520	-2140
(++)	2170	1760	1540	1510	1660	1820	1670	1910	2220	2500	3590	1910
MAX	34950	31310	31810	35080	36480	36110	48780	48350	47270	43480	40670	35730
MIN	31430	29370	29300	31580	34870	34890	34700	43910	43580	40920	35290	33260

CAL YR 1975..... \* -12300

WTR YR 1976..... \* -1690

++ 22360

++ 24260

MAX 52340

MAX 48780

MIN 29300

MIN 29300

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

++ Diversions, in acre-feet, for municipal use by city of Arlington.

TRINITY RIVER BASIN

08049200 Lake Arlington at Arlington, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	PER-CENT SATURATION	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)
JAN 26...	1535	386	8.0	8.5	11.0	93	120	11
MAY 10...	0950	321	7.8	21.0	7.5	83	110	12
AUG 27...	0805	336	8.2	29.5	6.9	91	110	10

DATE	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG)	DIS-SOLVED SODIUM (NA) (MG/L)	SODIUM ADSORPTION RATIO	DIS-SOLVED PHOSPHATE (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)
JAN 26...	38	6.0	28	1.1	4.6	132	0	40	29
MAY 10...	35	4.8	20	.8	4.3	116	0	30	19
AUG 27...	36	5.2	22	.9	4.8	124	0	30	20

DATE	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED MANGANESE (MN) (UG/L)
JAN 26...	.3	1.6	213	.00	.05	.06	0	0
MAY 10...	.3	3.3	174	.20	.07	.06	10	0
AUG 27...	.3	3.7	183	.00	.00	.02	0	10

## TRINITY RIVER BASIN

08049500 West Fork Trinity River at Grand Prairie, Tex.

LOCATION.--Lat 32°45'46", long 96°59'42", Dallas County, on left bank at upstream side of bridge on Belt Line Road, 1.3 miles (2.1 km) northeast of Grand Prairie, 3.7 miles (6.0 km) upstream from Bear Creek, 6.5 miles (10.5 km) upstream from Mountain Creek, and at mile 514.6 (828.0 km).

DRAINAGE AREA.--3,065 mi<sup>2</sup> (7,938 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: March 1925 to current year.

Water quality: Chemical analyses: October 1956 to current year. Chemical and biochemical analyses: January 1968 to current year. Water temperatures: October 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 410.42 ft (125.096 m) above mean sea level. Prior to Dec. 6, 1933, nonrecording gage at bridge on old channel 2,500 ft (762 m) southeast of present site at datum 2.56 ft (0.780 m) higher. Dec. 6, 1933, to May 24, 1956, water-stage recorder at site 440 ft (134 m) downstream from site of nonrecording gage at datum 2.56 ft (0.780 m) higher than present datum. May 25, 1956, to Apr. 18, 1957, nonrecording gage at site 1.5 miles (2.4 km) downstream at different datum. Apr. 19 to Aug. 13, 1957, nonrecording gage on bridge at present site and datum.

AVERAGE DISCHARGE.--51 years, 544 ft<sup>3</sup>/s (15.41 m<sup>3</sup>/s), 394,100 acre-ft/yr (486 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 5,230 ft<sup>3</sup>/s (148 m<sup>3</sup>/s) Apr. 19 (gage height, 17.61 ft or 5.368 m); minimum, 63 ft<sup>3</sup>/s (1.78 m<sup>3</sup>/s) Aug. 4.

Period of record: Maximum discharge, 62,000 ft<sup>3</sup>/s (1,760 m<sup>3</sup>/s) May 17, 1949 (gage height, 28.00 ft or 8.534 m, site and datum then in use), from rating curve extended above 36,000 ft<sup>3</sup>/s (1,020 m<sup>3</sup>/s); minimum observed, 3.2 ft<sup>3</sup>/s (0.091 m<sup>3</sup>/s) June 6, 1925.

Historic: Maximum stage since at least 1900, 30.6 ft (9.33 m), former site and datum, in May 1908, from information by local resident. Flood in April 1922 reached a stage of 29.0 ft (8.84 m), former site and datum, from floodmarks.

Water quality: Current year: Maximum daily specific conductance, 1,220 micromhos Feb. 2; minimum daily, 332 micromhos Apr. 20. Maximum water temperatures, 33.5°C Aug. 9; minimum, 6.5°C Jan. 8.

Period of record: Maximum daily specific conductance (1966-68, 1969-76), 1,540 micromhos Dec. 26, 1970; minimum daily, 248 micromhos Mar. 20, 1968. Maximum water temperatures, 34.0°C Aug. 9, 1970, Aug. 2, 1974; minimum, 3.0°C Jan. 9, 1973.

REMARKS.--Discharge records good except those for Apr. 19, 20 (backwater from Mountain Creek), which are fair. Flow is affected at times by three upstream reservoirs with a combined capacity of 248,600 acre-ft (307 hm<sup>3</sup>), of which 76,550 acre-ft (94.4 hm<sup>3</sup>) is for flood control. During the current year, 79,960 acre-ft (98.6 hm<sup>3</sup>) of sewage effluent was discharged into river upstream from this station by the cities of Fort Worth and Arlington. There are many diversions upstream from this station for municipal, industrial, and other uses. The river channel at this station was relocated and rectified in 1956.

REVISIONS (WATER YEARS).--WSP 628: 1925. WSP 1922: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	116	124	245	123	110	110	141	215	2520	201	95	980
2	113	182	168	112	108	118	136	277	1260	131	90	657
3	121	473	148	107	108	113	135	289	2240	220	90	760
4	116	192	142	114	110	110	132	285	2330	854	84	864
5	121	159	140	109	110	110	136	379	1350	458	88	228
6	118	141	136	119	110	100	138	1350	553	294	90	153
7	127	139	135	119	102	121	246	663	508	192	92	164
8	130	132	134	115	102	298	449	261	477	165	96	142
9	132	154	139	116	108	377	220	202	342	194	88	282
10	132	146	140	137	113	193	174	181	310	234	94	139
11	110	142	135	136	118	166	154	173	290	201	97	125
12	116	157	132	127	115	353	141	314	281	207	96	107
13	132	125	133	123	118	264	333	508	284	153	91	111
14	138	133	131	120	113	182	353	382	275	265	104	110
15	138	134	125	113	110	157	203	310	275	198	101	113
16	124	128	140	111	108	148	761	295	201	276	90	115
17	124	128	135	112	134	137	444	274	151	996	93	113
18	110	137	129	110	168	132	1350	276	290	1090	103	129
19	113	138	133	107	148	133	4530	244	800	261	94	265
20	118	171	130	116	129	134	4630	168	540	180	93	667
21	134	178	117	112	183	126	1510	152	216	143	92	268
22	118	151	131	115	165	118	639	143	183	121	82	177
23	127	133	134	115	129	123	456	137	165	115	85	154
24	130	134	294	113	113	578	416	205	151	115	116	137
25	128	136	1090	114	121	798	344	195	177	108	139	115
26	115	141	317	117	113	260	248	1170	201	115	104	121
27	115	131	187	114	110	184	212	867	154	115	120	145
28	129	123	151	113	110	191	224	561	154	115	116	400
29	122	129	130	113	113	216	431	608	151	118	136	332
30	121	272	124	108	---	175	302	534	156	95	344	192
31	126	---	123	108	---	153	---	3890	---	97	228	---
TOTAL	3814	4763	5648	3588	3499	6378	19588	15508	16985	8027	3431	8265
MEAN	123	159	182	116	121	206	653	500	566	259	111	276
MAX	138	473	1090	137	183	798	4630	3890	2520	1090	344	980
MIN	110	123	117	107	102	100	132	137	151	95	82	107
AC-FT	7570	9450	11200	7120	6940	12650	38850	30760	33690	15920	6810	16390
CAL YR 1975 TOTAL	310755				11200	71	AC-FT	616400				
WTR YR 1976 TOTAL	99494				4630	82	AC-FT	197300				

## TRINITY RIVER BASIN

421

08049500 West Fork Trinity River at Grand Prairie, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	RIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	HARD- NESS (CA+MG) (MG/L)
OCT.											
21...	1430	165	1060	7.1	21.5	10	15	4.2	47	16	160
NOV.											
12...	1505	140	1020	7.2	18.0	15	9	4.2	44	6.7	190
DEC.											
02...	1600	165	883	7.3	14.0	10	8	4.4	42	14	200
JAN.											
07...	1355	118	1040	7.2	8.5	10	6	6.5	55	4.8	190
FEB.											
11...	1450	114	1140	7.1	16.5	10	1	3.9	40	19	200
MAR.											
03...	1205	118	1160	7.3	21.5	15	9	3.1	35	17	190
APR.											
27...	1430	235	699	7.1	22.0	0	40	4.5	51	12	190
MAY											
27...	1135	940	408	7.5	22.5	20	100	5.5	62	12	120
JUNE											
23...	1835	145	772	7.1	28.0	5	15	4.0	51	9.9	180
JULY											
26...	1720	150	890	7.5	30.5	10	40	7.5	100	6.3	170
AUG.											
11...	1700	120	959	7.5	32.0	20	30	8.2	112	11	170
SEP.											
23...	1030	145	683	7.3	24.0	10	35	3.4	41	9.0	160

DATE	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)
OCT.											
21...	0	47	10	140	4.8	15	247	0	110	110	--
NOV.											
12...	0	61	9.7	130	4.1	14	255	0	96	100	1.5
DEC.											
02...	0	66	8.6	100	3.1	12	244	0	80	91	.8
JAN.											
07...	0	61	9.3	130	4.1	15	250	0	110	110	1.1
FEB.											
11...	0	62	10	150	4.7	12	274	0	140	120	2.4
MAR.											
03...	0	60	10	160	5.0	15	272	0	150	120	2.7
APR.											
27...	17	63	7.4	63	2.0	7.5	208	0	71	62	.8
MAY											
27...	11	42	4.6	31	1.2	4.8	137	0	39	30	.4
JUNE											
23...	0	59	7.9	80	2.6	13	230	0	79	68	.8
JULY											
26...	0	56	8.2	120	4.0	12	235	0	88	89	1.3
AUG.											
11...	0	52	9.4	130	4.4	15	264	0	90	100	1.7
SEP.											
23...	0	52	6.9	71	2.5	8.9	194	0	69	60	.7

DATE	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITU- ENTS) (MG/L)	TOTAL NON- FILT- RABLE RESIDUE (MG/L)	VOL. NON- FILT- RABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)
OCT.										
21...	13	568	45	16	2.9	.50	3.9	1.2	7.8	13
NOV.										
12...	12	550	20	5	6.2	.56	5.0	1.6	7.8	9.2
DEC.										
02...	8.8	488	26	13	1.8	.23	5.3	2.1	4.8	16
JAN.										
07...	11	571	10	5	6.9	.59	6.4	1.0	5.8	16
FEB.										
11...	8.9	642	6	6	1.9	1.1	7.1	14	7.8	14
MAR.										
03...	10	662	32	23	6.5	.85	6.8	3.1	7.7	4.6
APR.										
27...	8.5	386	96	14	2.0	.46	2.0	.80	1.8	6.2
MAY										
27...	3.9	223	312	40	.81	.12	.83	1.1	.74	9.3
JUNE										
23...	10	432	34	8	2.2	.50	1.7	1.3	3.3	8.2
JULY										
26...	11	501	118	51	1.9	.14	1.1	3.0	3.5	11
AUG.										
11...	12	541	56	22	3.4	1.2	3.1	1.7	6.3	8.6
SEP.										
23...	10	374	71	15	2.8	.37	1.5	1.4	2.2	9.4

## TRINITY RIVER BASIN

08049500 West Fork Trinity River at Grand Prairie, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	DIS-SOLVED ALUMINUM (AL) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED CADMIUM (CD) (UG/L)	DIS-SOLVED CHROMIUM (CR) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)
OCT. 21...	1430	10	4	450	2	3	0	5
FEB. 11...	1450	40	3	410	3	5	0	8
JUNE 23...	1835	30	4	300	0	0	0	3
AUG. 11...	1700	20	3	--	0	5	0	4

DATE	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED LITHIUM (LI) (UG/L)	DIS-SOLVED MANGANESE (MN) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED STRONTIUM (SR) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
OCT. 21...	70	0	20	80	.5	26	550	20
FEB. 11...	80	4	10	150	.0	18	500	40
JUNE 23...	10	0	10	60	.5	12	450	20
AUG. 11...	50	2	10	40	.1	13	420	20

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	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. 1975.....	3814	1040	580	5970	110	1090	110	1150	190
NOV. 1975.....	4763	954	530	6830	94	1210	100	1290	180
DEC. 1975.....	5648	850	470	7230	81	1240	88	1340	180
JAN. 1976.....	3588	1080	600	5810	110	1070	120	1190	190
FEB. 1976.....	3386	1110	620	5670	120	1070	130	1220	200
MAR. 1976.....	6378	837	470	8020	79	1360	87	1500	180
APR. 1976.....	19588	515	290	15100	37	1940	49	2610	150
MAY 1976.....	15508	532	300	12400	38	1610	51	2140	150
JUNE 1976.....	16985	506	280	12900	35	1590	48	2210	150
JULY 1976.....	8027	673	370	8080	57	1240	66	1420	160
AUG. 1976.....	3431	913	510	4710	89	824	91	844	180
SEPT 1976.....	8265	594	330	7350	46	1030	57	1280	160
TOTAL .....	99381	**	**	100000	**	15300	**	18200	**
WTD.AVG. ....	272.28	671	370	**	57	**	67	**	160

## TRINITY RIVER BASIN

423

08049500 West Fork Trinity River at Grand Prairie, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C) \* WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1010	1020	900	953	1160	1160	860	626	408	897	923	382
2	1010	1050	841	1000	1220	1170	945	757	418	934	966	404
3	1010	614	811	1020	1170	1130	1010	762	410	970	912	450
4	1020	572	835	1050	1130	1070	1030	747	390	926	912	473
5	1010	710	915	1160	1130	1070	1050	716	429	532	950	463
6	1050	878	1000	1060	1060	1100	1120	453	539	478	923	582
7	1060	914	1080	1020	1110	1160	800	465	519	534	934	688
8	1020	949	1060	1060	1190	1000	987	636	525	685	966	757
9	1050	1000	1070	1020	1160	881	606	713	611	665	1080	519
10	1000	1090	1000	1070	1170	707	746	912	680	801	983	811
11	1000	1060	1060	1120	1110	810	864	862	703	850	974	857
12	1070	996	1000	1120	1200	899	978	862	686	673	1050	913
13	1040	1000	1040	1120	1180	858	900	659	670	685	1000	900
14	1040	1020	1060	1050	1160	736	662	582	656	970	983	868
15	1000	949	1080	1070	1190	864	628	617	640	825	1010	888
16	1020	1030	1090	1020	1130	903	614	683	630	600	980	895
17	1020	1050	1060	1060	1170	970	519	679	761	456	966	878
18	987	1070	1060	1090	1190	987	500	651	650	367	955	935
19	1040	1070	1050	1100	1110	1040	370	700	500	502	950	902
20	1050	1050	996	1080	1120	1090	332	713	421	592	912	388
21	1020	1130	1000	1080	1030	1060	463	800	526	727	974	495
22	1020	1090	1050	1100	1040	1140	523	830	660	774	983	556
23	1090	1070	1040	1100	1090	1020	586	918	761	837	1000	709
24	1070	1040	877	1120	1010	600	652	933	826	897	877	846
25	1070	1000	551	1160	917	470	680	739	945	904	966	898
26	1140	982	533	1150	1050	619	686	415	937	890	950	927
27	1090	1040	600	1100	1010	729	717	423	903	904	942	958
28	1070	1030	712	1060	1080	796	723	487	878	911	909	906
29	1060	1020	797	1080	1130	914	818	467	892	863	1020	698
30	1060	1010	884	1040	---	929	648	517	921	934	700	612
31	1030	---	970	1170	---	910	---	364	---	897	595	---
MONTH	1040	983	936	1080	1120	929	734	664	650	757	943	719

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.0	21.0	13.0	13.5	13.0	22.0	20.5	20.0	25.0	30.5	33.0	26.0
2	23.5	21.0	13.5	11.5	14.0	23.0	21.0	20.5	25.5	31.0	32.0	26.5
3	22.0	21.0	14.0	9.0	14.0	23.0	21.0	23.5	25.0	29.0	31.0	---
4	22.0	19.5	14.5	9.0	16.0	23.0	20.5	24.0	24.5	28.0	31.0	26.0
5	21.5	20.0	17.0	8.5	13.5	22.0	20.5	21.5	26.0	28.0	31.0	29.0
6	23.0	20.5	15.5	9.5	12.0	22.0	22.0	22.0	26.5	30.0	31.5	29.0
7	23.0	21.5	15.0	7.0	11.5	16.0	19.0	20.0	26.0	29.5	33.0	29.0
8	24.0	23.0	15.5	6.5	13.0	14.0	21.0	21.5	27.0	29.5	33.0	29.0
9	25.5	22.0	15.0	7.0	14.5	15.0	21.0	22.0	28.0	28.5	33.5	26.5
10	25.5	21.0	14.5	9.0	17.0	15.5	21.5	24.0	28.5	28.0	33.0	27.0
11	26.5	19.5	15.0	10.0	17.0	16.5	23.0	23.5	29.0	28.0	32.0	27.0
12	27.0	17.0	15.5	10.5	19.0	18.0	24.0	26.5	28.5	29.5	32.0	26.5
13	26.5	16.5	18.0	12.0	19.5	16.0	23.0	25.5	28.5	28.5	31.5	28.0
14	26.5	15.0	18.0	13.0	19.0	16.0	23.5	23.0	28.0	29.0	31.0	28.0
15	24.5	15.5	14.5	11.5	20.0	18.0	23.0	21.5	28.0	29.0	31.5	29.0
16	23.0	17.0	13.0	11.5	21.0	17.0	22.0	24.0	29.0	27.0	---	29.0
17	21.0	18.0	11.5	11.5	20.0	18.0	21.0	24.5	29.5	27.0	32.0	29.5
18	20.5	19.0	10.0	12.0	19.0	18.5	20.0	25.0	28.0	28.0	31.5	29.5
19	20.0	18.5	10.0	12.0	19.0	21.5	20.0	25.0	27.0	29.0	31.0	28.0
20	20.5	15.5	10.5	12.0	18.5	21.0	19.0	25.5	26.0	30.5	30.5	26.0
21	21.5	14.0	10.5	12.0	16.0	20.5	21.5	26.5	27.0	31.0	30.0	28.0
22	21.5	13.0	11.0	12.0	15.5	21.0	23.0	27.0	28.5	30.5	30.0	25.5
23	23.0	12.0	11.0	14.0	16.0	20.0	23.0	27.5	29.0	31.0	30.0	26.5
24	23.0	12.0	9.5	14.5	16.0	18.5	24.0	28.0	29.0	31.0	30.0	26.5
25	18.5	12.0	8.0	13.0	16.5	19.5	22.0	23.0	29.5	30.5	30.5	28.0
26	19.0	10.5	9.0	11.5	17.0	21.0	23.0	23.0	30.0	30.5	30.0	28.0
27	20.0	9.5	9.5	10.5	19.0	21.0	23.5	23.0	31.5	31.5	30.5	28.0
28	22.0	13.0	11.0	11.5	19.0	19.0	21.0	24.5	31.5	31.5	29.5	25.0
29	20.5	16.0	10.5	---	20.0	22.0	21.0	26.0	31.5	32.0	29.5	23.0
30	20.5	14.5	11.5	---	---	19.5	21.0	26.0	32.0	31.5	29.0	24.0
31	21.0	---	11.5	13.0	---	20.0	---	22.0	---	32.0	30.0	---
MONTH	22.5	17.0	13.0	11.0	16.5	19.5	21.5	24.0	28.0	29.5	31.0	27.5



## TRINITY RIVER BASIN

08049550 Big Bear Creek near Grapevine, Tex.

LOCATION.--Lat 32°54'48", long 97°07'44", Tarrant County, at downstream side of bridge on State Highway 121, 100 ft (30 m) downstream from St. Louis Southwestern Railway Lines bridge, 3.5 miles (5.6 km) southwest of Grapevine, and 7 miles (11 km) upstream from confluence with Little Bear Creek.

DRAINAGE AREA.--29.6 mi<sup>2</sup> (76.7 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 554.00 ft (168.859 m) above mean sea level.

AVERAGE DISCHARGE.--9 years (1967-76), 7.67 ft<sup>3</sup>/s (0.217 m<sup>3</sup>/s), 3.52 in/yr (89 mm/yr), 5,560 acre-ft/yr (6.86 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 869 ft<sup>3</sup>/s (24.6 m<sup>3</sup>/s) May 31 (gage height, 10.53 ft or 3.210 m); no flow at times.

Period of record: Maximum discharge, 2,600 ft<sup>3</sup>/s (73.6 m<sup>3</sup>/s) May 6, 1969 (gage height, 14.35 ft or 4.374 m); no flow at times each year.

Maximum stage since at least 1930, about 20 ft (6.1 m) on Sept. 21, 1964, from information by local residents.

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

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		0	.02	.33	.23	.24	.69	.42	12	0	0	3.0
2		0	.03	.30	.22	.21	.67	.36	1.3	0	0	.08
3		0	.03	.28	.22	.20	.69	.37	.18	0	0	4.6
4		0	.03	.26	.26	.19	.78	.47	.08	0	0	.09
5		0	.04	.28	.22	.17	.67	18	.06	0	0	0
6		0	.04	.30	.20	.15	.66	207	.04	0	0	0
7		0	.05	.30	.20	.18	.70	4.9	.04	0	0	0
8		0	.06	.26	.21	.53	.94	.22	.03	0	0	0
9		0	.07	.28	.23	.47	1.2	.07	.02	0	0	0
10		0	.09	.30	.23	.56	1.0	.05	.02	0	0	0
11		0	.10	.30	.23	.48	.94	.03	.02	0	0	0
12		0	.13	.30	.22	.40	.97	.51	.02	0	0	0
13		0	.15	.33	.25	.31	1.0	.39	.01	0	0	0
14		0	.17	.30	.26	.22	1.1	.03	.01	0	0	0
15		0	.15	.28	.24	.24	.96	.03	.01	0	0	0
16		0	.17	.30	.24	.23	2.4	.03	.01	0	0	0
17		0	.20	.33	.25	.22	3.8	.02	.01	.03	0	0
18		0	.22	.35	.26	.24	15	.01	.02	.02	0	0
19		0	.24	.28	.24	.25	13	.01	.02	.02	0	1.2
20		0	.25	.30	.26	.25	17	.01	.34	.02	0	2.4
21		0	.29	.30	.30	.22	2.3	.01	.04	.01	0	.02
22		0	.30	.33	.24	.22	.12	.01	.03	.01	0	0
23		0	.30	.33	.24	.25	.04	.02	.02	0	0	0
24		0	.53	.33	.23	.51	.59	4.0	.01	0	0	0
25		0	1.2	.35	.23	.88	1.3	.10	.01	0	0	0
26		0	1.6	.33	.24	1.3	.12	.04	.01	0	0	0
27		0	.97	.28	.23	1.3	.04	.04	.01	0	0	0
28		.01	.68	.26	.24	1.2	.17	.03	0	0	0	1.1
29		.02	.49	.24	.23	1.1	.40	.02	0	0	0	.21
30		.03	.40	.24	---	.88	.53	1.1	0	0	0	.01
31		---	.33	.24	---	.80	---	449	---	0	64	---
TOTAL	0	.06	9.33	9.19	6.85	14.40	69.78	689.30	103.35	.11	64	12.71
MEAN	0	.002	.30	.30	.24	.46	2.33	22.2	3.45	.004	2.06	.42
MAX	0	.03	1.6	.35	.30	1.3	17	449	89	.03	64	4.6
MIN	0	0	.02	.24	.20	.15	.04	.01	0	0	0	0
AC-FT	0	.1	19	18	14	29	138	1370	205	.2	127	25
CAL YR 1975	TOTAL	3176.26	MEAN 8.70	MAX 671	MIN 0	AC-FT 6300						
WTR YR 1976	TOTAL	979.08	MEAN 2.68	MAX 449	MIN 0	AC-FT 1940						

PEAK DISCHARGE (BASE, 600 FT<sup>3</sup>/S).--May 31 (0900) 869 ft<sup>3</sup>/s (10.53 ft).

## TRINITY RIVER BASIN

425

08049600 Mountain Creek near Cedar Hill, Tex.

LOCATION.--Lat 32°35'03", long 97°01'23", Dallas County, on left bank at downstream side of county road bridge, 3.5 miles (5.6 km) downstream from Texas and New Orleans Railroad Co. bridge, 4.5 miles (7.2 km) southwest of Cedar Hill, and 12 miles (19 km) upstream from Mountain Creek Lake Dam.

DRAINAGE AREA.--119 mi<sup>2</sup> (308 km<sup>2</sup>).

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

Water quality: Chemical and biochemical analyses: September 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 478.31 ft (145.789 m) above mean sea level. Prior to Nov. 25, 1960, nonrecording gage at same site and datum.

AVERAGE DISCHARGE.--16 years, 52.5 ft<sup>3</sup>/s (1.487 m<sup>3</sup>/s), 38,040 acre-ft/yr (46.9 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 24,800 ft<sup>3</sup>/s (702 m<sup>3</sup>/s) Apr. 19 (gage height, 25.09 ft or 7.647 m); no flow for many days.

Period of record: Maximum discharge, 28,300 ft<sup>3</sup>/s (801 m<sup>3</sup>/s) May 7, 1969 (gage height, 25.10 ft or 7.650 m), from rating curve extended above 14,000 ft<sup>3</sup>/s (396 m<sup>3</sup>/s); no flow at times each year.

Maximum stage since at least 1910, 30 ft (9.1 m) May 25, 1922, from information by local resident.

REMARKS.--Discharge records good except those below 10 ft<sup>3</sup>/s (0.28 m<sup>3</sup>/s) from May 16 to July 4, which are fair. At end of year, flow from 14.2 mi<sup>2</sup> (36.8 km<sup>2</sup>) above this station was affected at times by discharge from the flood-detention pools of three floodwater-retarding structures with combined detention capacity of 5,550 acre-ft (6.84 hm<sup>3</sup>).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					0	0	.40	77	343	.64	.45	23
2					0	0	.21	76	65	.58	.24	40
3					0	0	.14	74	29	.92	.14	215
4					.03	0	.14	72	18	3.8	.09	150
5					.12	0	.14	64	11	2.8	.04	24
6					.09	0	.12	84	6.8	8.1	.02	11
7					.06	0	.47	59	3.4	3.0	.01	6.7
8					.06	.16	2.3	54	1.4	1.4	0	3.6
9					.06	1.3	1.8	47	1.3	1.0	0	2.0
10					.06	.64	1.1	42	1.2	.78	0	1.2
11					.05	.34	.64	40	1.1	.97	0	.64
12					.04	.52	.47	43	1.1	1.0	0	.36
13					.03	.30	.34	105	1.1	1.1	0	.25
14					.01	.18	.44	43	1.1	1.4	0	.19
15					0	.16	.58	24	.84	.94	0	.18
16					0	.10	3.5	17	.77	.97	0	.15
17					0	.06	6.0	12	.70	234	0	.13
18					0	.05	206	8.4	.84	164	0	.11
19					0	.04	10200	6.2	2.3	44	0	.23
20					0	.04	695	4.2	6.8	20	0	1.5
21					0	.03	138	3.2	4.0	10	0	.65
22					0	.03	98	2.3	3.0	5.7	0	.31
23					0	.02	89	1.8	2.2	2.8	0	.20
24					0	.34	86	1.2	1.5	1.0	0	.13
25					0	1.9	82	58	1.5	32	0	.08
26					0	1.6	79	1880	1.1	60	0	.05
27					0	.69	78	108	1.0	29	0	.04
28					0	.77	78	57	.92	11	0	.03
29					0	2.5	81	36	1.0	3.8	0	.03
30					---	1.3	78	11	.70	1.7	0	.02
31		---			---	.68	---	779	---	.78	0	---
TOTAL	0	0	0	0	.61	13.75	12006.79	3894.3	514.17	674.88	1.06	521.78
MEAN	0	0	0	0	.021	.44	400	126	17.1	21.8	.034	17.4
MAX	0	0	0	0	.12	2.5	10200	1880	343	234	.48	215
MIN	0	0	0	0	0	0	.12	1.2	.70	.58	0	.02
AC-FT	0	0	0	0	1.2	27	23820	7720	1020	1340	2.1	1030

CAL YR 1975 TOTAL 17697.33 MEAN 46.8 MAX 2150 MIN 0 AC-FT 33910

WTR YR 1976 TOTAL 17627.34 MEAN 48.2 MAX 10200 MIN 0 AC-FT 34960

PEAK DISCHARGE (BASE, 1,500 FT<sup>3</sup>/S).--Apr. 19 (0630) 24,800 ft<sup>3</sup>/s (25.09 ft); May 26 (0700) 4,690 ft<sup>3</sup>/s (20.49 ft).

## TRINITY RIVER BASIN

08049600 Mountain Creek near Cedar Hill, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	BIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)
FEB. 11...	1200	.27	1820	7.4	15.0	40	1	4.9	48	5.2	540	290
APR. 27...	1600	98	556	7.3	20.5	0	100	7.9	87	1.3	150	60
MAY 27...	1000	130	641	7.9	20.5	10	200	7.6	84	3.2	190	92
JUNE 23...	1730	9.6	1160	7.4	25.5	5	7	5.6	70	1.6	340	170
JULY 26...	1630	55	619	7.4	28.0	50	280	7.2	92	2.8	160	75
SEP. 23...	1200	.23	821	7.5	19.5	10	7	5.9	66	1.6	240	110

DATE	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SIO2) (MG/L)
FEB. 11...	190	15	200	3.8	12	308	0	570	110	.6	10
APR. 27...	53	3.5	41	1.5	21	106	0	150	14	.7	7.7
MAY 27...	71	3.9	43	1.3	20	123	0	160	21	.7	9.3
JUNE 23...	120	9.5	110	2.6	25	206	0	370	41	.8	8.3
JULY 26...	57	4.7	45	1.5	28	106	0	180	16	.7	7.5
SEP. 23...	86	6.3	65	1.8	19	158	0	230	30	.6	7.3

DATE	DIS- SOLVED SOLIDS (SUM OF CONSTITU- ENTS) (MG/L)	TOTAL NON- FILT- RABLE RESIDUE (MG/L)	VOL. NON- FILT- RABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
FEB. 11...	1260	6	6	.00	.00	.07	1.2	.10	16	0	.1
APR. 27...	343	264	79	.45	.02	.08	.69	.17	6.2	5	.0
MAY 27...	390	596	96	1.0	.07	.15	.95	.15	10	1	.0
JUNE 23...	788	9	3	.00	.00	.01	.43	.04	5.6	0	.0
JULY 26...	391	480	84	.07	.00	.01	.98	.14	11	1	.0
SEP. 23...	522	12	10	.01	.00	.03	.56	.03	5.9	0	.0

## TRINITY RIVER BASIN

427

08049600 Mountain Creek near Cedar Hill, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)
FEB. 11...	1200	20	1	320	0	0	0	3
JUNE 23...	1730	30	1	310	0	0	0	7

DATE	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
FEB. 11...	80	0	50	30	.0	4	2000	0
JUNE 23...	0	0	40	30	.2	4	1700	10

## TRINITY RIVER BASIN

08049700 Walnut Creek near Mansfield, Tex.

LOCATION.--Lat 32°34'51", long 97°06'06", Tarrant County, on right bank at downstream side of bridge on county road, 2.6 miles (4.2 km) northeast of Mansfield, 3.3 miles (5.3 km) downstream from Texas and New Orleans Railroad Co. bridge, and 10.2 miles (16.4 km) upstream from mouth.

DRAINAGE AREA.--62.8 mi<sup>2</sup> (162.7 km<sup>2</sup>).

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

GAGE.--Water-stage recorder and concrete control. Datum of gage is 531.08 ft (161.873 m) above mean sea level.

AVERAGE DISCHARGE.--16 years, 17.0 ft<sup>3</sup>/s (0.481 m<sup>3</sup>/s), 3.68 in/yr (93 mm/yr), 12,320 acre-ft/yr (15.2 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 6,090 ft<sup>3</sup>/s (172 m<sup>3</sup>/s) Apr. 19 (gage height, 26.88 ft or 8.193 m); no flow for many days. Period of record: Maximum discharge, 7,420 ft<sup>3</sup>/s (210 m<sup>3</sup>/s) June 4, 1973 (gage height, 28.60 ft or 8.717 m); no flow at times in 1960-74 and 1976.

REMARKS.--Records good. During the current year, the city of Mansfield diverted 544 acre-ft (0.671 hm<sup>3</sup>) from the Cedar Creek Reservoir pipeline to Fort Worth for municipal use and discharged about 318 acre-ft (0.392 hm<sup>3</sup>) of sewage effluent into a tributary 2.5 miles (4.0 km) upstream from station. Recording rain gage located at station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.19	0	.26	.32	.22	.11	.35	3.5	30	.30	.06	148
2	.14	0	.19	.35	.26	.11	.35	2.8	12	.26	.02	6.0
3	.12	0	.12	.17	.22	.13	.43	2.3	7.6	.34	0	66
4	.07	0	.12	.18	.26	.15	.55	2.3	6.2	1.1	0	7.5
5	.02	0	.19	.15	.22	.14	.36	7.4	5.3	.26	0	.60
6	.02	0	.19	.26	.16	.14	.34	28	4.5	.13	0	.19
7	.03	0	.19	.15	.16	.26	6.3	8.4	4.3	.10	0	.16
8	.02	0	.30	.15	.16	5.8	1.6	4.6	4.1	.10	0	.14
9	.01	0	.30	.19	.19	.80	.63	3.3	3.6	.14	0	.16
10	.01	0	.30	.27	.19	.35	.35	2.9	3.0	.21	0	.16
11	0	0	.12	.19	.19	.43	.30	2.8	2.5	.19	0	.14
12	0	0	.08	.16	.19	2.2	.30	3.5	2.2	.09	0	.14
13	0	0	.08	.14	.16	.40	.59	6.1	2.0	.23	0	.14
14	0	0	.08	.14	.08	.27	.26	3.0	1.8	.59	0	.16
15	0	0	.10	.22	.08	.22	.19	2.9	1.5	.14	0	.16
16	0	0	.08	.19	.07	.23	13	2.3	1.3	.20	0	.19
17	0	0	.04	.21	1.3	.24	1.2	1.9	1.2	.83	0	.14
18	0	0	.07	.19	.34	.23	25	1.6	1.4	13	0	.10
19	0	0	.10	.19	.14	.23	3360	1.5	3.9	1.5	0	.69
20	0	.04	.05	.26	.12	.25	111	1.4	1.7	.53	0	.39
21	0	.04	.06	.26	.52	.22	23	1.4	1.1	.28	0	.19
22	0	.04	.06	.19	.14	.19	11	1.3	.78	.17	0	.14
23	0	.04	.06	.19	.10	.24	8.1	1.1	.69	.12	0	.10
24	0	.04	6.2	.22	.08	9.0	6.7	1.0	.60	.11	0	.07
25	0	.04	2.1	.26	.08	1.3	5.4	96	.78	.20	0	.05
26	0	.03	.26	.26	.08	.54	4.4	631	.60	.36	0	.02
27	0	.02	.22	.19	.11	.33	3.9	27	.60	.17	0	.34
28	0	.04	.27	.19	.13	4.8	4.0	14	.52	.17	0	.12
29	0	.10	.29	.22	.12	1.8	6.1	9.5	.39	.14	3.2	.12
30	0	.22	.13	.22	---	.59	4.5	7.2	.34	.10	.52	.08
31	0	---	.26	.22	---	.43	---	378	---	.09	.12	---
TOTAL	.63	.65	12.87	6.50	6.07	32.13	3600.20	1260.0	106.50	104.32	3.92	232.39
MEAN	.020	.022	.42	.21	.21	1.04	120	40.6	3.55	3.37	.13	7.75
MAX	.19	.22	6.2	.35	1.3	9.0	3360	631	30	83	3.2	148
MIN	0	0	.04	.14	.07	.11	.19	1.0	.34	.09	0	.02
CFSM	0	0	.006	.003	.003	.02	1.91	.65	.06	.05	.002	.12
IN.	.0004	.0004	.008	.004	.004	.02	2.13	.75	.06	.06	.002	.14
AC-FT	1.2	1.3	26	13	12	64	7140	2500	211	207	7.8	461
CAL YR 1975	TOTAL	9721.96	MEAN 26.6	MAX 1520	MIN 0	CFSM .42	IN 5.76	AC-FT 19280				
WTR YR 1976	TOTAL	5366.18	MEAN 14.7	MAX 3360	MIN 0	CFSM .23	IN 3.18	AC-FT 10640				

PEAK DISCHARGE (BASE, 700 FT<sup>3</sup>/S)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
4-19	0800	26.88	6,090	5-31	1100	14.06	737
5-26	0815	17.16	1,350	9-1	1200	14.29	777

## TRINITY RIVER BASIN

429

08049900 Mountain Creek near Duncanville, Tex.

LOCATION.--Lat 32°39'43", long 96°58'56", Dallas County, at downstream side of bridge on Farm Road 1382, 2.3 miles (3.7 km) downstream from Walnut Creek, 4.5 miles (7.2 km) west of Duncanville, and 5.5 miles (8.8 km) upstream from Mountain Creek Lake Dam.

DRAINAGE AREA.--225 mi<sup>2</sup> (583 km<sup>2</sup>).

PERIOD OF RECORD.--Elevation: October 1970 to current year.

Water quality: Chemical and biochemical analyses: July 1974 to current year.

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

EXTREMES.--Current year: Maximum elevation, 469.83 ft (143.204 m) Apr. 19; minimum, 455.00 ft (138.684 m) Aug. 31.

Period of record: Maximum elevation, 469.83 ft (143.204 m) Apr. 19, 1976; minimum daily, 454.20 ft (138.440 m) Aug. 26, 1974.

REMARKS.--Elevation records good. This station is used to aid in the operation of Mountain Creek Lake. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see Mountain Creek near Cedar Hill (station 08049600). During the current year, the following discharge measurement was made: Apr. 19, 23,700 ft<sup>3</sup>/s or 671 m<sup>3</sup>/s (469.13 ft or 142.991 m).

ELEVATION, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	455.38	455.07	455.61	455.87	456.05	455.77	455.86	458.63	459.44	456.10	455.98	459.74
2	455.35	455.11	455.64	455.88	456.05	455.75	455.75	458.56	458.42	456.05	455.94	458.30
3	455.34	455.12	455.64	455.88	456.05	455.75	455.74	458.50	457.70	456.12	455.87	460.35
4	455.32	455.15	455.65	455.88	456.05	455.75	455.70	458.45	457.31	456.48	455.82	458.57
5	455.31	455.16	455.67	455.88	456.05	455.74	455.68	458.53	457.86	457.01	455.76	457.50
6	455.31	455.17	455.67	455.88	456.06	455.73	455.68	459.22	457.14	456.54	455.74	456.79
7	455.30	455.19	455.68	455.88	456.06	455.85	455.89	458.48	456.88	456.32	455.71	456.40
8	455.28	455.21	455.69	455.89	456.08	456.23	456.44	458.23	456.77	456.21	455.68	456.13
9	455.25	455.21	455.69	455.90	456.09	456.24	456.25	458.03	456.65	456.18	455.65	455.98
10	455.24	455.21	455.70	455.93	456.11	456.04	456.05	457.90	456.54	456.21	455.61	455.88
11	455.22	455.22	455.69	455.96	456.13	455.89	455.91	457.85	456.46	456.21	455.57	455.80
12	455.21	455.22	455.69	456.00	455.99	455.90	455.80	458.65	456.41	456.19	455.53	455.74
13	455.19	455.22	455.73	456.02	455.79	455.93	455.76	458.64	456.36	456.18	455.49	455.70
14	455.17	455.22	455.76	456.03	455.70	455.85	455.73	457.97	456.30	456.22	455.45	455.66
15	455.15	455.22	455.77	456.04	455.66	455.80	455.74	457.37	456.32	456.21	455.41	455.62
16	455.14	455.23	455.77	456.05	455.65	455.76	456.73	456.98	456.30	456.25	455.39	455.60
17	455.11	455.24	455.77	456.06	455.71	455.73	456.76	456.73	456.26	460.44	455.35	455.61
18	455.12	455.27	455.77	456.06	455.78	455.70	460.00	456.57	456.39	458.81	455.32	455.66
19	455.10	455.31	455.76	456.08	455.78	455.69	464.92	456.47	456.55	458.03	455.29	455.85
20	455.09	455.32	455.83	456.08	455.77	455.68	460.56	456.41	456.41	457.29	455.25	456.16
21	455.07	455.34	455.86	456.08	455.72	455.67	459.43	456.37	456.34	456.71	455.22	455.95
22	455.07	455.35	455.87	456.08	455.76	455.66	459.10	456.37	456.27	456.39	455.19	455.80
23	455.07	455.37	455.89	456.09	455.80	455.65	458.94	456.37	456.21	456.18	455.17	455.70
24	455.06	455.38	456.17	456.11	455.81	455.95	458.87	456.35	456.25	456.05	455.15	455.64
25	455.06	455.41	456.50	456.11	455.82	456.45	458.79	459.05	456.34	456.33	455.12	455.60
26	455.05	455.42	456.20	456.10	455.83	456.20	458.73	460.47	456.34	458.16	455.09	455.60
27	455.05	455.46	455.93	456.08	455.84	456.04	458.69	459.14	456.30	457.66	455.06	455.66
28	455.06	455.48	455.82	456.07	455.82	456.13	458.73	458.76	456.24	456.96	455.04	455.66
29	455.06	455.56	455.81	456.03	455.78	456.40	458.77	458.30	456.19	456.46	455.02	455.65
30	455.06	455.59	455.82	456.03	---	456.23	458.70	458.45	456.15	456.21	455.01	455.63
31	455.07	---	455.84	456.03	---	456.02	---	461.92	---	456.06	455.15	---
MAX	455.38	455.59	456.50	456.11	456.13	456.45	464.92	461.92	459.44	460.44	455.98	460.35
MIN	455.05	455.07	455.61	455.87	455.65	455.65	455.68	456.35	456.15	456.05	455.01	455.60
CAL YR 1975	MAX	465.48	MIN	455.07								
WTR YR 1976	MAX	464.92	MIN	455.01								



## TRINITY RIVER BASIN

08049900 Mountain Creek near Duncanville, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

		SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	BIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	
DATE	TIME											
OCT. 21...	1530	540	6.9	20.0	5	45	6.0	65	2.9	180	40	
NOV. 12...	1430	594	7.2	16.0	10	45	5.6	56	2.5	220	58	
DEC. 02...	1450	643	7.2	12.5	20	15	3.6	34	3.8	240	38	
JAN. 07...	1445	1240	7.5	5.0	20	15	7.6	59	2.7	310	0	
FEB. 11...	1300	1440	8.4	13.5	0	15	14.2	135	6.1	360	44	
MAR. 03...	1130	1370	8.2	19.5	5	30	8.5	91	4.1	330	2	
APR. 27...	1530	633	7.1	19.5	0	100	7.2	77	1.7	180	79	
MAY 27...	1100	544	7.6	20.0	20	200	7.2	78	3.8	190	83	
JUNE 23...	1815	1230	7.5	24.0	5	10	5.4	66	3.1	430	190	
JULY 26...	1530	786	7.2	26.5	10	220	6.8	86	2.3	240	150	
AUG. 11...	1830	700	7.3	28.5	5	3	5.1	66	3.9	210	77	
SEP. 23...	1110	562	7.2	21.0	20	50	2.6	30	2.8	150	25	
		DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	
DATE												
OCT. 21...	60	6.1	33	1.1	5.6	166	0	100	16	--	6.3	
NOV. 12...	78	6.9	37	1.1	6.2	201	0	110	17	.7	6.9	
DEC. 02...	83	7.4	43	1.2	7.0	243	0	97	21	.6	8.5	
JAN. 07...	110	7.8	150	3.7	10	400	0	200	78	.5	12	
FEB. 11...	120	15	190	4.4	8.7	368	10	340	89	.6	1.8	
MAR. 03...	110	13	180	4.3	9.6	398	0	280	83	.7	2.4	
APR. 27...	64	5.1	45	1.5	21	124	0	170	20	.7	8.5	
MAY 27...	67	4.3	33	1.1	14	124	0	130	17	.6	9.6	
JUNE 23...	140	20	98	2.1	9.5	293	0	330	69	.6	11	
JULY 26...	85	6.0	62	1.8	17	110	0	240	35	.7	8.1	
AUG. 11...	73	6.1	54	1.6	18	160	0	180	24	.7	8.2	
SEP. 23...	51	4.9	50	1.8	11	150	0	86	39	.5	7.8	
		DIS- SOLVED SOLIDS (SUM OF CONSTITU- ENTS) (MG/L)	TOTAL NON- FILT- RABLE RESIDUE (MG/L)	VOL. NON- FILT- RABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
DATE												
OCT. 21...	310	65	13	.00	.00	.01	.67	.08	7.6	3		.0
NOV. 12...	362	62	12	.00	.00	.03	.63	.08	11	0		.1
DEC. 02...	387	26	2	.00	.00	.01	.63	.07	12	0		.1
JAN. 07...	765	20	6	.33	.04	1.0	1.3	2.0	17	0		.1
FEB. 11...	958	28	14	.00	.00	.04	.96	.65	8.6	1		.0
MAR. 03...	875	45	21	.00	.00	.05	1.4	.99	9.6	3		.0
APR. 27...	395	256	40	.45	.02	.08	.66	.08	5.9	3		.0
MAY 27...	337	928	296	.75	.05	.12	.85	.19	11	1		.1
JUNE 23...	824	22	4	.16	.01	.04	.65	.14	4.6	0		.1
JULY 26...	508	378	68	.12	.01	.01	.81	.14	11	1		.0
AUG. 11...	444	44	8	.01	.00	.02	.77	.07	2.6	0		.1
SEP. 23...	324	71	18	.20	.03	.09	.90	.24	7.8	0		.1

## TRINITY RIVER BASIN

431

08049900 Mountain Creek near Duncanville, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)
OCT. 21...	1530	0	1	120	0	0	0	0
FEB. 11...	1300	60	4	420	0	5	0	0
JUNE 23...	1815	30	2	280	0	0	0	0
AUG. 11...	1830	40	1	--	0	0	0	2

DATE	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
OCT. 21...	10	0	7	0	.5	0	710	0
FEB. 11...	20	0	40	10	.0	2	1300	10
JUNE 23...	0	0	30	10	.1	3	1500	10
AUG. 11...	0	2	20	50	.1	3	800	10

## TRINITY RIVER BASIN

08050050 Mountain Creek Lake near Grand Prairie, Tex.

LOCATION.--Lat 32°43'55", long 96°56'35", Dallas County, at right end of spillway in Mountain Creek Dam on Mountain Creek, 2.5 miles (4.0 km) upstream from Texas and Pacific Railway Co. bridge, and 3.7 miles (6.0 km) southeast of Grand Prairie.

DRAINAGE AREA.--295 mi<sup>2</sup> (764 km<sup>2</sup>).

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

Water quality: Chemical analyses: October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Oct. 21, 1960, nonrecording gage at powerplant at same datum.

EXTREMES.--Current year: Maximum contents, 23,650 acre-ft (29.2 hm<sup>3</sup>) May 31 (elevation, 457.28 ft or 139.379 m); minimum, 17,560 acre-ft (21.7 hm<sup>3</sup>) Mar. 14 (elevation, 454.85 ft or 138.638 m).

Period of record: Maximum contents, 25,790 acre-ft (31.8 hm<sup>3</sup>) May 7, 1969 (elevation, 458.02 ft or 139.604 m); minimum, 14,120 acre-ft (17.4 hm<sup>3</sup>) Oct. 18, 1972 (elevation, 453.25 ft or 138.151 m).

REMARKS.--The lake is formed by a rolled earthfill dam 5,800 ft (1,770 m) long, including a controlled spillway with six 34- by 27-foot (10- by 8-meter) tainter gates. The dam was completed in December 1936 and deliberate impoundment began on Mar. 24, 1937. The lake was built and is operated by Dallas Power and Light Co. to supply cooling water for their generating plant. The capacity curve is based on a survey made in 1963. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see Mountain Creek near Cedar Hill (station 08049600). Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	467.0	-
Top of gates.....	458.0	25,720
Top of dry weather conservation pool.....	457.0	22,840
Top of wet weather conservation pool.....	456.0	20,260
Crest of spillway (sill of tainter gates).....	431.0	0

COOPERATION.--The capacity curve was furnished by the Dallas Power and Light Company.

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

454.0	15,670	457.0	22,840
455.0	17,890	458.0	25,720
456.0	20,260		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19980	18860	18130	18290	17940	17780	18170	20440	22450	22450	21960	20650
2	19930	18880	18100	18270	17890	17780	18170	20880	22760	22380	21830	20900
3	19880	18840	18100	18220	18010	17780	18130	20930	22900	22580	21730	21160
4	19860	18840	18130	18220	17850	17780	18150	21110	22960	22710	21650	21340
5	19830	18840	18100	18250	17850	17760	18150	20700	23210	22710	21600	21420
6	19790	18880	18060	18200	17820	17760	18130	19670	23270	22660	21500	21450
7	19790	18770	18060	18130	17850	17740	18250	19930	23300	22660	21450	21370
8	19720	18880	18060	18130	17890	17960	18360	20070	23270	22630	21400	21320
9	19720	18670	18030	18130	17910	18030	18150	20190	23240	22610	21290	21290
10	19720	18670	18030	18130	17960	18030	17960	20290	23210	22660	21220	21240
11	19670	18580	18030	18130	17940	18030	18200	20390	23160	22660	21110	21160
12	19620	18480	18010	18130	18060	17850	18390	20600	23100	22610	21030	21110
13	19550	18440	18010	18130	18010	17580	18270	20850	23010	22610	20930	21030
14	19480	18390	18010	18100	17870	17800	18410	20930	23010	22580	20850	21010
15	19410	18360	17960	18100	17870	18010	18440	21010	22900	22610	20780	20960
16	19360	18360	17940	18100	17850	17820	18440	20980	22930	22810	20670	20960
17	19290	18340	17820	18080	17850	17910	18410	20960	22930	22170	20620	20930
18	19260	18320	17890	18080	17850	17940	19290	20960	23100	22070	20520	21030
19	19240	18390	17850	18060	17820	17780	19950	20900	23070	22070	20440	21140
20	19240	18290	17800	18060	17820	17580	20880	20900	23040	22070	20390	21160
21	19190	18220	17800	18060	17820	17580	20800	20880	22980	22070	20290	21110
22	19170	18200	17800	18170	17820	17850	20420	20850	22930	22010	20240	21060
23	19190	18200	17780	18130	17820	17910	20850	21010	22900	21990	20140	21010
24	18960	18150	18250	18010	17820	18030	20620	20980	22810	21960	20090	20960
25	18960	18130	18320	18030	17820	17800	20780	21140	22810	22120	20020	20930
26	19080	18100	18320	18010	17800	17670	21160	22120	22790	22200	20000	20880
27	18980	18060	18410	18010	17800	17740	21220	21470	22740	22220	19900	20880
28	18910	18080	18340	17980	17800	18290	21340	21760	22680	22220	19860	20900
29	18880	18100	18320	17980	17800	18220	20390	21960	22660	22170	19860	20880
30	18860	18150	18340	18010	---	18200	20310	22220	22500	22120	19810	20850
31	18910	---	18390	17980	---	18170	---	22380	---	22010	19790	---
(+)	455.43	455.11	455.21	455.04	454.95	455.12	456.02	456.82	456.87	456.68	455.80	456.23
(*)	-1180	-760	+240	-410	-200	+390	+2140	+2070	+120	-490	-2220	+1060
MAX	19980	18880	18410	18290	18060	18290	21340	22380	23300	22810	21960	21450
MIN	18860	18060	17780	17980	17800	17580	17960	19670	22450	21960	19790	20650

CAL YR 1975..... \* -2000

MAX 24140

MIN 17780

WTR YR 1976..... \* +760

MAX 23300

MIN 17580

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

TRINITY RIVER BASIN

433

08050050 Mountain Creek Lake near Grand Prairie, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
JUL 12...	1030	439	7.6	28.0	150	57	54	4.3	26
DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SIO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)
JUL 12...	.9	6.8	116	0	90	14	.5	1.5	254

## TRINITY RIVER BASIN

08050100 Mountain Creek at Grand Prairie, Tex.

LOCATION.--Lat 32°44'52", long 96°55'33", Dallas County, on right bank at downstream side of downstream bridge on Jefferson Street, 1,000 ft (305 m) upstream from bridge on U.S. Highway 80, 1.2 miles (1.9 km) upstream from Texas and Pacific Railroad Co. bridge, 1.5 miles (2.4 km) downstream from Mountain Creek Lake Dam, and 4.4 miles (7.1 km) east of Grand Prairie.

DRAINAGE AREA.--298 mi<sup>2</sup> (772 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 407.31 ft (124.148 m) above mean sea level.

AVERAGE DISCHARGE.--16 years, 107 ft<sup>3</sup>/s (3.030 m<sup>3</sup>/s), 77,520 acre-ft/yr (95.6 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 38,100 ft<sup>3</sup>/s (1,080 m<sup>3</sup>/s) Apr. 19 (gage height, 24.21 ft or 7.379 m); minimum daily, 0.05 ft<sup>3</sup>/s (0.001 m<sup>3</sup>/s) Mar. 18-22, Apr. 11-13, 15.

Period of record: Maximum discharge, 38,100 ft<sup>3</sup>/s (1,080 m<sup>3</sup>/s) Apr. 19, 1976 (gage height, 24.21 ft or 7.379 m); maximum gage height, 24.62 ft (7.504 m) May 7, 1969; no flow in 1964, 1972-74.

REMARKS.--Records good. Flow regulated by Mountain Creek Lake (station 08050050).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.27	.15	.22	.08	.14	.09	.09	.48	1050	.15	1.1	8.2
2	.27	.15	.21	.09	.18	.09	.07	.35	5.3	.34	1.1	4.0
3	.36	.18	.20	.07	.21	.09	.14	.25	2.4	.65	1.2	243
4	.51	.18	.16	.13	.21	.09	.21	.21	1.8	1.7	1.2	2.9
5	.63	.17	.18	.21	.22	.09	.09	364	4.8	.82	1.0	.75
6	.50	.15	.13	.18	.24	.09	.09	796	3.8	.60	.63	.51
7	.42	2.1	.13	.10	.31	.25	.56	1.0	1.8	.50	.71	.57
8	.44	1.6	.15	.18	.28	2.0	.56	1.0	1.1	.48	.72	.45
9	.44	.31	.16	.21	.30	.41	.11	.59	.58	.57	.72	.54
10	1.2	.20	.14	.15	.34	.18	.07	.25	.46	1.2	.77	.76
11	1.3	.23	.13	.09	.30	.14	.05	.18	.44	1.4	.79	.69
12	.71	.13	.10	.09	.36	.14	.05	1.6	.52	1.2	.81	.57
13	.42	.39	.10	.07	.30	.14	.05	2.2	.59	.72	.80	.49
14	.34	.75	.10	.07	.30	.14	.07	.22	.51	.93	.74	.42
15	.32	.61	.08	.07	.30	.09	.05	.16	.57	.65	.72	.43
16	.31	.55	.16	.07	.30	.09	.56	.11	.78	1.9	.73	.38
17	.34	.54	.19	.07	1.4	.07	.81	.11	.78	458	.82	.35
18	.30	.54	.37	.07	.90	.05	11	.10	3.8	398	.67	.44
19	.35	.54	.30	.07	.49	.05	20200	.10	2.3	114	.65	1.4
20	.50	.56	.21	.07	.41	.05	9870	.09	.97	2.4	1.1	1.3
21	.42	.84	.21	.07	.55	.05	536	.08	.62	1.2	1.3	.66
22	.33	.87	.21	.07	.41	.05	551	.08	.55	.94	1.2	.78
23	.23	.93	.21	.07	.30	.09	8.6	.11	.78	.84	1.1	.67
24	.22	.62	1.6	.07	.21	1.3	3.8	.52	1.0	.55	1.4	.65
25	.18	.71	1.6	.07	.11	.56	1.8	.55	.69	1.8	2.7	.62
26	1.2	.54	.35	.09	.11	.14	1.6	1360	.35	3.6	2.4	.70
27	.18	.67	.18	.14	.11	.09	1.1	1210	.21	1.5	2.4	.82
28	.18	.35	.09	.17	.09	1.3	537	.98	.16	1.2	2.5	1.3
29	.16	.34	.09	.18	.09	1.0	248	.21	.15	1.3	2.8	1.1
30	.15	.31	.09	.14	---	.14	1.0	3.6	.13	1.1	3.0	.77
31	.15	---	.11	.11	---	.09	---	1470	---	1.1	2.7	---
TOTAL	13.33	16.21	8.16	3.32	9.47	9.15	31974.53	5215.13	1087.94	1001.34	40.48	276.22
MEAN	.43	.54	.26	.11	.33	.30	1066	168	36.3	32.3	1.31	9.21
MAX	1.3	2.1	1.6	.21	1.4	2.0	20200	1470	1050	458	3.0	243
MIN	.15	.13	.08	.07	.09	.05	.05	.08	.13	.15	.63	.35
AC-FT	26	32	16	6.6	19	18	63420	10340	2160	1990	80	548
CAL YR 1975	TOTAL	55694.95	MEAN 153	MAX 8620	MIN .06	AC-FT 110500						
WTR YR 1976	TOTAL	39655.28	MEAN 108	MAX 20200	MIN .05	AC-FT 78660						

## TRINITY RIVER BASIN

435

08050500 Elm Fork Trinity River near Sanger, Tex.

LOCATION.--Lat 33°23'11", long 97°05'05", Denton County, on right bank on downstream side of pier of bridge on Farm Road 455, 4.1 miles (6.6 km) downstream from Spring Creek, 5.0 miles (8.0 km) upstream from Isle du Bois Creek, and 5.4 miles (8.7 km) northeast of Sanger.

DRAINAGE AREA.--381 mi<sup>2</sup> (987 km<sup>2</sup>).

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

Water quality: Chemical and biochemical analyses: October 1969 to current year. Sediment records: January 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 553.72 ft (168.774 m) above mean sea level. Prior to May 7, 1955, at site 500 ft (150 m) downstream at same datum.

AVERAGE DISCHARGE.--27 years, 149 ft<sup>3</sup>/s (4.220 m<sup>3</sup>/s), 108,000 acre-ft/yr (133 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 5,230 ft<sup>3</sup>/s (148 m<sup>3</sup>/s) May 31 (gage height, 22.18 ft or 6.760 m); minimum, 1.0 ft<sup>3</sup>/s (0.028 m<sup>3</sup>/s) Sept. 18.

Period of record: Maximum discharge, 50,000 ft<sup>3</sup>/s (1,420 m<sup>3</sup>/s) Oct. 31, 1974 (gage height, 29.10 ft or 8.870 m); no flow at times.

Maximum stage since at least 1903, 30.7 ft (9.36 m) in May 1908, from information by local residents. Flood of May 18, 1935, reached a stage of 29.7 ft (9.05 m), from floodmarks.

REMARKS.--Discharge records good. Flow is affected at times by discharge from the flood-detention pools of 41 floodwater-retarding structures with combined capacity of 26,790 acre-ft (33.0 hm<sup>3</sup>). These structures control runoff from 94.7 mi<sup>2</sup> (245.3 km<sup>2</sup>) in the Elm Fork Trinity River watershed. Records furnished by the city of Gainesville show that 2,160 acre-ft (2.66 hm<sup>3</sup>) of sewage effluent was discharged into the river above station.

REVISIONS.--WSP 1922: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.9	10	15	9.3	7.9	7.6	7.9	15	2700	13	12	119
2	9.2	12	7.0	9.2	7.8	7.6	7.6	14	613	21	11	14
3	8.9	12	6.5	9.0	7.7	7.6	7.6	13	252	20	10	7.7
4	8.6	13	5.9	8.9	7.6	7.9	7.6	13	111	15	9.2	7.0
5	8.2	12	5.9	8.3	7.6	7.9	7.4	13	77	14	8.3	5.3
6	7.9	10	5.9	8.2	7.4	7.7	7.3	170	60	14	7.6	3.9
7	7.6	9.3	6.3	8.2	7.3	7.6	7.5	79	48	13	7.1	3.0
8	7.3	9.3	6.6	8.0	7.5	9.6	8.6	35	46	13	6.5	2.4
9	6.9	9.0	7.4	7.7	7.9	20	12	21	36	12	6.0	23
10	6.3	8.5	7.5	7.6	7.4	14	12	15	36	12	5.4	32
11	5.6	7.5	7.3	7.8	8.0	13	10	14	31	14	4.9	8.3
12	5.1	6.8	8.1	8.2	7.8	29	8.7	86	27	14	4.5	4.9
13	4.6	6.2	7.8	8.3	8.0	18	8.1	567	24	14	4.0	3.5
14	4.1	5.9	8.3	9.4	8.4	11	7.8	99	20	13	3.7	2.7
15	4.4	6.3	7.9	7.9	8.1	9.2	7.3	50	18	13	3.4	2.1
16	21	6.1	7.6	8.2	8.2	8.9	8.3	33	16	37	3.1	1.7
17	14	7.3	7.8	8.1	8.5	8.5	17	22	18	178	2.9	1.3
18	12	6.6	8.1	8.0	9.8	8.2	28	16	71	32	2.8	1.9
19	11	6.8	8.1	8.4	11	8.2	92	15	199	36	2.6	12
20	9.4	9.8	8.7	8.7	8.4	8.2	1070	14	48	37	2.5	108
21	8.6	12	8.7	8.9	13	8.0	141	14	27	18	2.4	37
22	7.8	9.0	9.0	9.3	10	7.9	62	14	19	14	2.3	11
23	7.0	7.8	8.7	8.9	8.7	7.8	42	340	15	13	2.2	6.8
24	6.3	7.6	12	8.7	8.0	7.9	36	675	15	12	2.2	4.9
25	6.6	7.7	33	8.5	7.9	12	30	116	15	12	2.1	4.0
26	10	7.6	46	8.2	7.8	10	20	73	15	11	2.1	3.2
27	9.9	7.7	25	7.7	7.6	8.7	15	101	14	10	2.0	2.7
28	8.7	8.2	15	7.7	7.6	8.4	14	43	14	10	2.5	2.2
29	10	10	12	7.8	7.6	8.7	22	27	14	9.7	5.7	2.0
30	11	20	10	7.9	---	8.6	20	33	14	13	7.0	1.6
31	11	---	9.7	7.9	---	8.3	---	3130	---	14	6.2	---
TOTAL	268.9	272.0	342.8	258.9	240.5	316.0	1744.7	5870	4613	671.7	154.2	439.1
MEAN	8.67	9.07	11.1	8.35	8.29	10.2	58.2	189	154	21.7	4.97	14.6
MAX	21	20	46	9.4	13	29	1070	3130	2700	178	12	119
MIN	4.1	5.9	5.9	7.6	7.3	7.6	7.3	13	14	9.7	2.0	1.3
AC-FT	533	540	680	514	477	627	3460	11640	9150	1330	306	871

CAL YR 1975 TOTAL 68245.3 MEAN 187 MAX 4870 MIN 4.1 AC-FT 135400  
WTR YR 1976 TOTAL 15191.8 MEAN 41.5 MAX 3130 MIN 1.3 AC-FT 30130

PEAK DISCHARGE (BASE, 4,000 FT<sup>3</sup>/S).--May 31 (1730) 5,230 ft<sup>3</sup>/s (22.18 ft).



## TRINITY RIVER BASIN

08050500 Elm Fork Trinity River near Sanger, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICHO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	RIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	HARD- NESS (CA+MG) (MG/L)
OCT 20...	1630	9.2	946	7.3	17.0	10	10	7.4	76	1.1	240
DEC 04...	1730	5.7	876	7.6	10.5	20	8	9.2	82	1.9	250
FEB 12...	0920	5.2	954	7.8	12.0	0	4	8.5	79	2.8	270
APR 26...	1750	18	508	7.2	20.0	0	70	6.3	68	2.6	170
JUN 22...	1145	17	491	7.3	23.5	15	40	6.8	82	2.8	160
AUG 11...	1040	4.9	611	7.6	27.0	5	12	5.4	68	1.6	180

DATE	TIME	NON- CAL- BONATE NFS5 (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)
OCT 20...	0	82	7.5	120	3.4	7.0	450	0	51	44	--	--
DEC 04...	0	89	6.9	110	3.0	5.8	430	0	61	40	.4	.4
FEB 12...	0	96	8.3	110	2.9	3.8	414	0	58	68	.4	.4
APR 26...	7	59	4.6	35	1.2	5.0	194	0	36	35	.5	.5
JUN 22...	11	54	5.1	36	1.3	4.5	177	0	23	47	.3	.3
AUG 11...	0	65	4.7	59	1.9	4.8	288	0	31	33	.4	.4

DATE	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NON- FILT- RABLE RESIDUE (MG/L)	VOL. NON- FILT- RABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ORGANIC CARRON (C) (MG/L)
OCT 20...	14	548	31	11	.85	.00	.01	.80	1.5	6.0
DEC 04...	15	540	17	4	2.2	.08	.02	1.4	2.0	17
FEB 12...	8.0	557	26	8	.78	.02	.07	.77	1.8	3.8
APR 26...	12	283	107	0	1.6	.19	.21	.79	.38	5.6
JUN 22...	9.0	267	76	9	.94	.05	.16	.83	.50	7.4
AUG 11...	10	350	26	4	.59	.01	.04	.66	.52	2.4

DATE	TIME	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)
OCT. 20...	1630	1	4	270	0	0	0	0
FEB. 12...	0920	40	2	220	0	5	2	0
JUNE 22...	1145	40	3	100	1	0	0	2
AUG. 11...	1040	10	3	--	2	0	0	2

DATE	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
OCT. 20...	20	0	10	20	.7	3	640	0
FEB. 12...	20	0	10	70	.0	4	650	0
JUNE 22...	10	0	0	10	.0	4	450	10
AUG. 11...	0	2	0	10	.0	2	400	10

## TRINITY RIVER BASIN

437

08051000 Isle du Bois Creek near Pilot Point, Tex.

LOCATION.--Lat 33°24'23", Long 97°00'45", Denton County, on left bank at downstream side of bridge on Farm Road 372, 2.4 miles (3.9 km) downstream from Wolf Creek, 3.0 miles (4.8 km) west of Pilot Point, and 6.3 miles (10.1 km) upstream from mouth.

DRAINAGE AREA.--266 mi<sup>2</sup> (689 km<sup>2</sup>).

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

Water quality: Chemical analyses: November 1961 to April 1963. Sediment records: February 1966 to September 1975.

GAGE.--Water-stage recorder. Datum of gage is 555.48 ft (169.310 m) above mean sea level (Corps of Engineers bench mark). Prior to Feb. 8, 1958, water-stage recorder at site 1.0 mile (1.6 km) upstream at datum 4.22 ft (1.286 m) higher.

AVERAGE DISCHARGE.--27 years, 118 ft<sup>3</sup>/s (3.342 m<sup>3</sup>/s), 6.02 in/yr (153 mm/yr), 85,490 acre-ft/yr (106 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 3,000 ft<sup>3</sup>/s (85.0 m<sup>3</sup>/s) June 1 (gage height, 18.71 ft or 5.703 m); minimum, 0.03 ft<sup>3</sup>/s (0.001 m<sup>3</sup>/s) Aug. 28.

Period of record: Maximum discharge, 40,000 ft<sup>3</sup>/s (1,130 m<sup>3</sup>/s) Oct. 31, 1974 (gage height, 29.43 ft or 8.970 m, present site and datum); no flow at times most years.

Maximum stage since at least 1900, 30.4 ft (9.27 m) in May 1908, present site and datum, from information by local resident.

REMARKS.--Discharge records good. No known diversion above station.

REVISIONS (WATER YEARS).--WSP 1512: 1950. WSP 1922: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.47	.33	1.6	.98	.39	.52	.76	8.8	2210	114	1.6	6.7
2	.47	.97	1.3	.88	.39	.56	.68	7.2	833	1180	1.7	15
3	.47	1.5	1.2	.79	.39	.55	.66	4.1	128	354	1.6	6.0
4	.47	1.5	1.3	.62	.39	.49	.83	2.8	57	62	1.4	4.0
5	.47	1.1	1.6	.62	.39	.40	.83	2.7	30	50	1.5	3.0
6	.47	.98	1.7	.62	.39	.36	.67	412	37	180	1.4	2.5
7	.47	.97	1.7	.54	.39	.39	.76	766	22	32	1.6	2.0
8	.51	1.0	1.7	.47	.39	2.0	.86	109	57	11	1.6	2.0
9	.53	1.1	1.9	.39	.49	2.4	.84	28	73	5.4	1.6	5.0
10	.48	1.2	1.9	.39	.47	1.7	.65	15	20	13	1.3	10
11	.48	1.0	1.9	.47	.47	1.3	.54	8.3	9.6	11	1.4	6.0
12	.47	1.0	1.9	.47	.54	1.2	.54	41	5.8	81	1.4	3.5
13	.39	1.0	2.0	.53	.54	1.1	.49	511	4.2	24	1.3	2.5
14	.27	1.1	2.1	.53	.54	1.1	.51	376	3.2	8.4	1.3	2.0
15	.31	1.1	2.1	.62	.54	1.1	.41	70	2.9	3.8	1.1	1.5
16	.27	1.0	2.0	.53	.54	.87	.94	26	2.2	504	.92	1.2
17	.22	.78	1.9	.39	.98	.79	1.2	12	2.5	1740	.77	1.0
18	.17	.84	1.9	.39	1.6	.80	5.4	6.6	23	989	.54	2.0
19	.17	.79	1.9	.39	.88	.75	53	4.1	470	68	.45	5.0
20	.17	.70	2.1	.39	.70	.79	823	2.9	122	28	.32	20
21	.17	.70	2.1	.47	.98	.70	885	2.0	36	12	.25	10
22	.17	.70	2.2	.47	1.8	.59	79	1.6	15	6.9	.16	6.0
23	.27	.70	2.3	.47	1.2	.54	28	36	7.6	4.2	.10	4.0
24	.27	.79	2.7	.54	.88	.73	52	261	4.3	3.0	.13	3.0
25	.27	.79	3.2	.62	.62	.96	88	229	2.9	2.7	.13	2.5
26	.27	.79	2.0	.54	.54	.90	29	251	2.5	2.7	.10	2.2
27	.27	.85	2.0	.45	.45	.71	11	924	1.9	2.1	.05	1.9
28	.47	.95	2.0	.39	.40	.75	7.3	195	1.6	1.9	.33	10
29	.50	1.6	1.5	.39	.48	.81	9.7	47	1.6	2.0	4.4	6.0
30	.40	2.1	1.2	.39	---	.82	7.4	33	1.2	1.7	7.6	4.5
31	.37	---	1.1	.39	---	.65	---	599	---	1.7	1.6	---
TOTAL	11.16	29.93	58.0	16.13	18.76	27.33	2089.97	4992.1	4187.0	5499.5	39.65	151.0
MEAN	.36	1.00	1.87	.52	.65	.88	69.7	161	140	177	1.28	5.03
MAX	.53	2.1	3.2	.98	1.8	2.4	885	924	2210	1740	7.6	20
MIN	.17	.33	1.1	.39	.39	.36	.41	1.6	1.2	1.7	.05	1.0
CFSM	.001	.003	.007	.001	.002	.003	.26	.61	.53	.67	.004	.02
IN.	.002	.004	.008	.002	.003	.004	.29	.70	.59	.77	.006	.02
AC-FT	22	59	115	32	37	54	4150	9900	8300	10910	79	300

CAL YR 1975 TOTAL 50285.73 MEAN 138 MAX 3960 MIN .03 CFSM .52 IN 7.03 AC-FT 99740  
WTR YR 1976 TOTAL 17120.53 MEAN 46.8 MAX 2210 MIN .05 CFSM .18 IN 2.39 AC-FT 33960

PEAK DISCHARGE (BASE, 2,500 FT<sup>3</sup>/S).--June 1 (1500) 3,000 ft<sup>3</sup>/s (18.71 ft).

## TRINITY RIVER BASIN

08051500 Clear Creek near Sanger, Tex.

LOCATION.--Lat 33°20'21", long 97°10'51", Denton County, at the downstream side of left abutment of main channel bridge on Interstate Highway 35, 600 ft (180 m) downstream from Duck Creek, 1.3 miles (2.1 km) upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, and 1.7 miles (2.7 km) south of Sanger.

DRAINAGE AREA.--295 mi<sup>2</sup> (764 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: March 1949 to current year.

Water quality: Specific conductance: May 1968 to current year. Water temperatures: May 1968 to current year. Sediment records: May 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 582.23 ft (177.464 m) above mean sea level (Corps of Engineers bench mark). Prior to Apr. 18, 1975, water-stage recorder at site 950 ft (290 m) downstream at datum 5.00 ft (1.524 m) higher.

AVERAGE DISCHARGE.--27 years, 79.7 ft<sup>3</sup>/s (2.257 m<sup>3</sup>/s), 57,740 acre-ft/yr (71.2 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 858 ft<sup>3</sup>/s (24.3 m<sup>3</sup>/s) Apr. 20 (gage height, 11.80 ft or 3.600 m); no flow at times.

Period of record: Maximum discharge, 18,200 ft<sup>3</sup>/s (515 m<sup>3</sup>/s) Sept. 13, 1950 (gage height, 24.80 ft or 7.559 m); no flow at times most years.

Historic: Maximum stage since at least 1880, 31.5 ft (9.60 m) in May 1908, from information by Gulf, Colorado, and Santa Fe Railway Co. Flood in May 1935 reached a stage of 29.0 ft (8.84 m), from information by State Highway Department.

Water quality: Current year: Maximum daily specific conductance, 1,230 micromhos July 13; minimum daily, 229 micromhos July 20. Maximum water temperatures, 34.0°C July 31; minimum, 4.0°C Jan. 3, 4. Maximum daily sediment concentrations, 2,600 mg/l Apr. 20; minimum daily, no flow on many days. Maximum sediment loads, 2,270 tons Apr. 20; minimum daily, 0 tons on several days.

Period of record: Maximum daily specific conductance (1972-76), 1,680 micromhos Sept. 4, 1973; minimum daily, 182 micromhos July 29, 1973. Maximum water temperatures (1968-70, 1972-76), 39.0°C June 28, 1969; minimum, freezing point Jan. 9, 1970. Maximum daily sediment concentrations, 7,370 mg/l May 12, 1972; no flow for many days. Maximum daily sediment loads, 79,000 tons May 7, 1969; minimum daily, 0 tons on many days.

REMARKS.--Discharge records good. No appreciable diversion above station. Flow is affected at times by discharge from flood-detention pools of 51 floodwater-retarding structures with combined detention capacity of 38,850 acre-ft (47.9 hm<sup>3</sup>). These structures control runoff from 149 mi<sup>2</sup> (386 km<sup>2</sup>) in the Clear Creek watershed.

REVISIONS (WATER YEARS).--WSP 1512: 1950, 1955. WSP 1922: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.1	7.2	11	12	10	8.4	7.1	13	216	4.6	.90	0
2	5.9	8.1	10	12	10	8.9	7.0	12	82	6.9	.55	0
3	5.5	9.9	10	11	9.8	8.7	7.1	11	31	5.7	.35	0
4	5.7	8.8	10	9.8	9.8	8.1	8.6	11	20	5.1	.20	0
5	5.9	7.8	11	10	9.5	8.5	8.8	12	16	5.5	.20	0
6	6.1	7.4	11	12	9.3	8.0	8.1	37	13	5.1	.13	0
7	6.1	7.2	11	12	9.4	8.0	9.2	28	12	4.0	.13	0
8	6.2	7.1	11	9.3	9.4	11	21	17	12	3.5	.13	0
9	5.7	7.2	11	7.6	10	15	18	14	11	3.7	.16	0
10	7.0	6.9	11	9.8	10	13	13	13	9.4	4.8	.16	2.5
11	7.2	6.8	11	16	10	11	9.9	14	8.7	5.3	.13	6.5
12	7.1	6.5	11	13	9.9	11	8.5	22	8.1	6.9	.10	2.0
13	6.9	6.7	11	12	10	11	8.1	79	7.7	5.9	.10	.59
14	6.9	6.6	12	11	10	9.8	7.9	31	7.2	5.1	.07	.07
15	7.6	7.0	11	11	10	10	8.1	20	6.8	6.7	.04	0
16	12	7.8	11	10	10	9.5	10	16	7.3	7.4	.04	0
17	11	7.6	11	10	11	8.4	13	13	8.3	20	.03	0
18	8.9	7.8	10	10	12	8.1	15	12	81	15	.03	2.9
19	8.2	8.8	9.5	10	11	8.2	25	11	235	56	.01	3.6
20	8.1	9.5	11	11	10	8.2	275	10	58	45	0	5.5
21	8.0	9.1	12	11	12	8.0	73	10	20	21	0	8.8
22	7.9	9.0	12	10	9.8	7.6	28	10	13	9.7	0	5.5
23	8.2	8.6	12	10	8.9	7.5	24	38	11	7.0	0	2.9
24	8.3	8.5	14	11	8.6	8.2	19	80	8.8	5.2	0	1.5
25	7.6	8.9	24	11	8.6	10	16	25	7.9	4.5	0	.76
26	7.3	8.9	26	9.8	8.6	10	14	21	7.2	15	0	.25
27	7.8	9.1	19	9.3	8.5	8.8	13	18	6.4	8.8	0	.03
28	8.2	9.2	15	9.1	8.0	8.4	12	15	5.9	5.2	0	.03
29	7.1	11	14	10	8.3	8.5	14	14	5.4	3.0	0	.01
30	6.7	13	13	10	---	8.0	15	20	4.8	1.8	0	0
31	7.0	---	12	10	---	7.3	---	226	---	1.6	0	---
TOTAL	228.2	248.0	388.5	330.7	282.4	285.1	716.4	873	940.9	305.0	3.46	43.44
MEAN	7.36	8.27	12.5	10.7	9.74	9.20	23.9	28.2	31.4	9.84	.11	1.45
MAX	12	13	26	16	12	15	275	226	235	56	.90	8.8
MIN	5.5	6.5	9.5	7.6	8.0	7.3	7.0	10	4.8	1.6	0	0
AC-FT	453	492	771	656	560	565	1420	1730	1870	605	6.9	86
CAL YR 1975 TOTAL	45077.60			MEAN 124	MAX 2210	MIN 5.5	AC-FT 89410					
WTR YR 1976 TOTAL	4645.10			MEAN 12.7	MAX 275	MIN 0	AC-FT 9210					

PEAK DISCHARGE (BASE, 3,000 FT<sup>3</sup>/S).--No peak above base.

## TRINITY RIVER BASIN

439

08051500 Clear Creek near Sanger, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SUS- PENDE SEDI- MENT (MG/L)	SUS- PENDE SEDI- MENT DIS- CHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM
APR 20...	1830	206	17.0	3270	1820	50	65
MAY 31...	1800	240	23.0	2660	1730	59	70
JUN 19...	1800	192	26.0	603	312	65	82
JUL 20...	1200	4.6	27.0	1160	15	75	87
SEP 19...	1815	1.7	26.0	302	1.4	81	83
20...	1800	9.4	25.0	228	5.8	90	92

DATE	SUS. SED. FALL DIAM. % FINER THAN .008 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM	SUS. SED. FALL DIAM. % FINER THAN .500 MM
APR 20...	73	85	88	91	94	98	100
MAY 31...	83	94	97	98	99	99	100
JUN 19...	85	91	92	92	94	97	98
JUL 20...	94	97	98	98	99	99	100
SEP 19...	85	90	91	93	95	98	98
20...	93	95	96	96	97	98	100

## TRINITY RIVER BASIN

08051500 Clear Creek near Sanger, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1050	798	722	652	717	626	915	594	290	872	637	---
2	1060	798	712	684	698	627	775	615	326	1040	516	---
3	1040	795	711	670	694	647	811	646	410	1120	655	---
4	1110	803	704	674	723	626	838	707	487	815	674	---
5	1060	801	687	686	707	659	817	736	565	1040	680	---
6	1040	795	687	672	709	---	877	626	612	795	682	---
7	1060	683	734	763	740	---	822	455	699	937	676	---
8	1050	634	761	768	722	621	763	437	673	1050	670	---
9	1040	798	796	779	709	625	483	576	717	924	612	---
10	617	687	695	768	709	621	649	686	737	---	663	625
11	608	712	764	782	696	634	573	733	751	693	657	476
12	609	703	693	676	708	672	635	762	782	920	664	425
13	608	699	679	674	715	---	751	343	833	1230	616	441
14	608	693	487	672	739	658	807	418	891	1180	679	450
15	614	703	675	734	748	---	785	501	996	839	685	---
16	615	695	695	676	788	---	837	536	962	687	696	---
17	615	716	693	709	762	---	810	621	1060	340	702	---
18	728	707	667	---	767	---	665	646	505	380	697	466
19	742	712	694	694	747	---	652	706	264	372	699	273
20	748	712	687	696	759	---	314	756	332	229	---	284
21	719	707	687	690	772	---	337	886	413	282	---	417
22	717	703	675	694	758	---	424	902	494	353	---	717
23	724	694	681	696	752	---	520	537	569	420	---	1100
24	712	709	---	694	757	---	587	356	628	506	---	---
25	676	746	---	694	754	---	649	371	691	590	---	836
26	720	739	---	698	750	---	666	575	762	844	---	717
27	747	---	---	693	750	---	658	480	809	326	---	822
28	803	---	---	692	788	---	817	653	---	376	---	801
29	793	---	---	720	692	---	715	718	776	471	---	803
30	777	---	671	732	---	---	750	730	875	525	---	---
31	803	---	657	730	---	---	---	432	---	605	---	---
MONTH	802	728	697	705	736	---	690	605	652	692	---	---

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.0	20.0	10.0	5.0	11.0	17.0	28.5	22.0	24.5	21.0	32.0	---
2	22.0	21.0	11.0	7.0	10.0	18.0	10.0	20.0	27.0	29.0	27.0	---
3	21.0	21.0	10.0	4.0	13.0	19.0	15.5	22.0	27.0	25.0	26.0	---
4	21.0	19.0	9.0	4.0	12.0	17.0	19.0	23.0	27.0	28.0	26.0	---
5	24.0	18.0	11.0	6.0	15.0	20.0	20.0	18.5	26.5	27.0	26.0	---
6	22.0	17.0	10.0	6.0	14.0	---	13.0	20.5	25.5	28.0	26.0	---
7	21.0	19.0	11.0	8.0	16.0	---	17.0	17.0	26.0	29.0	32.0	---
8	21.0	21.0	12.0	5.0	18.0	19.0	20.0	22.0	27.0	28.0	30.0	---
9	24.0	20.0	10.0	6.0	19.0	16.0	20.5	22.0	27.5	25.0	30.0	---
10	22.0	18.0	11.0	8.0	17.0	18.0	25.0	24.5	27.0	25.0	29.0	25.0
11	21.0	17.0	8.0	10.0	16.0	17.0	24.0	27.0	28.0	25.0	29.0	26.0
12	18.0	17.0	10.0	9.0	19.0	16.0	23.5	24.0	28.0	30.0	29.0	25.0
13	19.0	15.0	8.0	11.0	20.0	---	23.5	22.0	28.0	27.0	29.5	25.0
14	22.0	16.0	9.0	10.0	18.0	15.0	25.0	20.0	28.0	27.5	31.0	24.0
15	21.0	14.0	11.0	11.0	16.0	---	25.0	21.5	24.0	27.0	31.5	---
16	23.0	14.0	10.0	9.0	17.0	---	24.0	25.0	27.5	24.0	27.0	---
17	19.0	13.0	8.0	10.0	19.0	---	19.5	25.0	28.5	27.0	28.0	---
18	20.0	11.0	7.0	---	15.0	---	24.0	25.0	24.0	29.0	28.0	27.0
19	21.0	12.0	9.0	9.0	16.0	---	24.0	25.0	26.0	27.5	24.0	26.0
20	22.0	10.0	9.0	9.0	16.0	---	17.0	25.5	27.0	27.0	---	25.0
21	20.0	11.0	9.0	8.0	18.0	---	20.0	26.5	27.0	28.5	---	23.0
22	21.0	9.0	12.0	10.0	20.0	---	23.0	25.0	28.0	29.0	---	28.0
23	20.0	8.0	8.0	8.0	19.0	---	22.0	25.0	28.0	27.0	---	26.0
24	18.0	11.0	---	10.0	19.0	---	25.0	25.5	28.0	31.0	---	25.0
25	19.0	10.0	---	9.0	17.0	---	20.0	24.0	27.5	28.5	---	26.0
26	17.0	9.0	---	9.0	18.0	---	22.0	20.0	30.5	28.0	---	26.0
27	17.0	---	---	10.0	17.0	---	22.5	23.0	30.0	28.0	---	25.5
28	19.0	---	---	8.0	18.0	---	19.0	22.0	---	28.0	---	24.0
29	20.0	---	---	10.0	19.0	---	19.5	25.0	31.0	28.0	---	---
30	18.0	---	7.0	12.0	---	---	19.5	26.5	30.0	28.0	---	---
31	19.0	---	7.0	11.0	---	---	---	23.0	---	34.0	---	---
MONTH	20.5	15.0	9.5	8.5	16.5	---	21.0	23.0	27.5	27.5	---	---

## TRINITY RIVER BASIN

441

08051500 Clear Creek near Sanger, Tex.--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	OCTOBER			NOVEMBER			DECEMBER		
	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	6.1	37	.61	7.2	104	2.0	11	92	2.7
2	5.9	36	.57	6.1	123	2.7	10	83	2.2
3	5.5	40	.71	9.9	88	2.4	10	69	1.9
4	5.7	120	1.8	6.8	96	2.3	10	74	2.0
5	5.9	54	.86	7.8	87	1.8	11	37	1.1
6	6.1	39	.64	7.4	95	1.9	11	30	.89
7	6.1	35	.58	7.2	133	2.5	11	26	.77
8	6.2	60	1.0	7.1	96	1.8	11	16	.48
9	5.7	70	1.1	7.2	92	1.8	11	17	.50
10	7.0	76	1.3	6.9	114	2.1	11	22	.65
11	7.2	88	1.7	6.8	102	1.9	11	16	.48
12	7.1	77	1.5	6.5	130	2.3	11	32	.95
13	6.9	75	1.4	6.7	98	1.8	11	31	.92
14	6.9	72	1.3	6.6	75	1.3	12	24	.78
15	7.6	62	1.3	7.0	94	1.8	11	24	.71
16	12	54	1.7	7.8	71	1.5	11	32	.95
17	11	67	2.1	7.6	100	2.1	11	31	.92
18	8.9	44	1.1	7.8	62	1.3	10	21	.57
19	8.2	74	1.6	8.8	33	.78	9.5	26	.67
20	8.1	70	1.5	9.5	80	2.1	11	33	.94
21	8.0	40	.86	9.1	62	1.5	12	28	.91
22	7.4	60	1.3	9.0	87	2.1	12	18	.54
23	8.2	32	.71	8.6	71	1.6	12	22	.71
24	8.3	45	1.0	8.5	34	.78	14	20	.76
25	7.6	60	1.2	8.9	70	1.7	24	25	1.6
26	7.3	110	2.2	8.9	26	.62	26	35	2.5
27	7.8	72	1.5	9.1	25	.61	19	30	1.5
28	8.2	120	2.7	9.2	20	.50	15	25	1.0
29	7.1	108	2.1	11	25	.74	14	20	.76
30	6.7	113	2.0	13	60	2.1	13	14	.49
31	7.0	98	1.9	---	---	---	12	20	.65
TOTAL	228.2	---	41.74	248.0	---	50.53	388.5	---	32.58

DAY	JANUARY			FEBRUARY			MARCH		
	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	12	18	.58	10	33	.89	8.4	14	.32
2	12	3	.10	10	13	.35	8.9	12	.29
3	11	8	.24	9.8	13	.34	8.7	6	.14
4	9.8	8	.21	9.8	17	.45	8.1	11	.24
5	10	50	1.4	9.5	14	.36	8.5	14	.32
6	12	22	.71	9.3	17	.43	8.0	12	.26
7	12	7	.23	9.4	14	.36	8.0	10	.22
8	9.3	40	1.0	9.4	16	.41	11	8	.24
9	7.6	10	.21	10	20	.54	15	12	.49
10	9.2	15	.40	10	20	.54	13	5	.18
11	16	60	2.6	10	26	.70	11	16	.48
12	13	9	.32	9.9	22	.59	11	15	.45
13	12	12	.39	10	46	1.2	11	12	.36
14	11	4	.12	10	27	.73	9.8	10	.26
15	11	8	.24	10	9	.24	10	10	.27
16	10	10	.27	10	8	.22	9.5	12	.31
17	10	16	.43	11	14	.42	8.4	15	.34
18	10	15	.41	12	14	.45	8.1	15	.33
19	10	10	.27	11	10	.30	8.2	12	.27
20	11	14	.42	10	18	.49	8.2	10	.22
21	11	35	1.0	12	35	1.1	8.0	15	.32
22	10	16	.43	9.8	15	.40	7.6	18	.37
23	10	8	.22	8.9	10	.24	7.5	10	.20
24	11	6	.18	8.6	21	.49	8.2	12	.27
25	11	13	.39	8.6	12	.28	10	15	.41
26	9.8	16	.42	8.6	18	.42	10	20	.54
27	9.3	13	.33	8.5	18	.41	8.8	12	.29
28	9.1	14	.34	8.0	26	.56	8.4	10	.23
29	10	26	.70	8.3	22	.49	8.5	8	.18
30	10	13	.35	---	---	---	8.0	10	.22
31	10	39	1.1	---	---	---	7.3	12	.24
TOTAL	336.7	---	16.01	282.4	---	14.40	285.1	---	9.26



## TRINITY RIVER BASIN

08051500 Clear Creek near Sanger, Tex.--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

APRIL				MAY				JUNE			
DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)		
1	7.1	14	.27	13	25	.86	216	1990	1350		
2	7.1	28	.53	12	22	.71	82	520	115		
3	7.1	19	.36	11	16	.48	31	450	38		
4	8.6	18	.42	11	32	.95	20	220	12		
5	8.8	24	.64	12	26	.84	16	100	4.3		
6	8.1	18	.39	37	170	17	13	30	1.1		
7	9.2	22	.55	28	36	2.7	12	38	1.2		
8	21	70	4.0	17	42	1.9	12	28	.91		
9	14	45	2.2	14	14	.53	11	17	.50		
10	13	39	1.4	13	11	.39	9.4	18	.46		
11	9.9	28	.75	14	9	.34	8.7	13	.31		
12	8.5	30	.69	22	67	7.5	8.1	12	.26		
13	8.1	22	.48	79	668	162	7.7	18	.37		
14	7.9	20	.43	31	270	23	7.2	12	.23		
15	8.1	15	.33	20	70	3.8	6.8	10	.18		
16	1	17	.46	16	32	1.4	7.3	20	.39		
17	13	18	.63	13	26	.91	8.3	20	.45		
18	15	26	1.1	12	27	.87	81	484	176		
19	25	121	21	11	24	.71	235	1160	908		
20	275	2600	2270	10	22	.59	58	250	39		
21	73	1350	266	10	16	.43	20	38	2.1		
22	28	220	17	10	18	.49	13	20	.70		
23	24	64	4.1	38	299	46	11	13	.39		
24	19	47	2.4	80	737	184	8.8	10	.24		
25	16	37	1.6	25	270	18	7.9	22	.47		
26	14	33	1.2	21	170	9.6	7.2	10	.19		
27	13	28	.98	18	70	3.4	6.4	11	.19		
28	12	18	.58	15	30	1.2	5.9	12	.19		
29	14	37	1.4	14	29	1.1	5.4	22	.32		
30	15	18	.73	20	50	2.7	4.8	17	.22		
31	---	---	---	226	2570	1650	---	---	---		
TOTAL	716.4	---	2602.67	873	---	2144.42	940.9	---	2653.67		

JULY				AUGUST				SEPTEMBER	
DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	4.6	22	.27	.90	9	.02	0	---	---
2	6.9	35	.65	.55	2	0	0	---	---
3	5.7	15	.23	.35	5	0	0	---	---
4	5.1	14	.19	.20	4	0	0	---	---
5	5.5	28	.42	.20	4	0	0	---	---
6	5.1	15	.21	.13	9	0	0	---	---
7	4.0	14	.15	.13	20	.01	0	---	---
8	3.5	2	.02	.13	24	.01	0	---	---
9	3.7	14	.14	.16	27	.01	0	---	---
10	4.8	10	.13	.16	20	.01	2.5	100	.68
11	5.3	2	.03	.13	20	.01	6.5	150	2.6
12	6.9	13	.24	.10	29	.01	2.0	44	.24
13	5.9	2	.03	.10	22	.01	.59	31	.05
14	5.1	2	.03	.07	21	0	.07	10	0
15	6.7	45	.81	.04	21	0	0	---	---
16	7.4	19	.38	.04	25	0	0	---	---
17	20	170	9.2	.03	8	0	0	---	---
18	15	120	4.9	.03	9	0	2.9	120	.94
19	56	408	107	.01	8	0	3.6	320	3.1
20	45	600	73	0	---	---	5.5	250	3.7
21	21	370	21	0	---	---	8.8	60	1.4
22	9.7	200	5.2	0	---	---	5.5	26	.39
23	7.0	70	1.3	0	---	---	2.9	28	.22
24	5.2	17	.24	0	---	---	1.5	29	.12
25	4.5	14	.17	0	---	---	.76	34	.07
26	15	143	13	0	---	---	.25	33	.02
27	8.8	150	3.6	0	---	---	.03	2	0
28	5.2	95	1.3	0	---	---	.03	2	0
29	3.0	46	.37	0	---	---	.01	4	0
30	1.8	10	.05	0	---	---	0	---	---
31	1.6	6	.03	0	---	---	---	---	---
TOTAL	305.0	---	244.29	3.46	---	.09	43.44	---	13.53
YEAR	4645.10		7823.19						

08052630 Little Elm Creek subwatershed No. 10 near Gunter, Tex.

LOCATION.--Lat 33°24'33", long 96°48'41", Grayson County, near center of dam on Walnut Fork tributary to Little Elm Creek, 1.6 miles (2.6 km) upstream from mouth, and 4.7 miles (7.6 km) southwest of Gunter.

DRAINAGE AREA.--2.10 mi<sup>2</sup> (5.44 km<sup>2</sup>).

PERIOD OF RECORD.--April 1966 to September 1976 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 615.51 ft (187.607 m) above mean sea level (Soil Conservation Service bench mark).

AVERAGE INFLOW.--10 years, 1,070 acre-ft/yr (1.32 hm<sup>3</sup>/yr).

AVERAGE OUTFLOW.--10 years, 976 acre-ft/yr (1.20 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum outflow, 22.7 ft<sup>3</sup>/s (0.64 m<sup>3</sup>/s) Apr. 20 (gage height, 22.48 ft or 6.852 m); no outflow for many days. Maximum inflow, 1,020 ft<sup>3</sup>/s (28.9 m<sup>3</sup>/s), average for 5-minute interval, Apr. 19, computed and adjusted as explained below; no inflow at times.

Period of record: Maximum outflow, 31.9 ft<sup>3</sup>/s (0.90 m<sup>3</sup>/s) Apr. 30, 1966, and Oct. 31, 1974; maximum gage height, 28.24 ft (8.608 m) Oct. 31, 1974; no flow at times each year. Maximum inflow, 3,240 ft<sup>3</sup>/s (91.8 m<sup>3</sup>/s), average for 5-minute interval, May 30, 1967, computed from outflow and change in pool contents and adjusted for rainfall on pool surface during time of peak inflow; no inflow at times each year.

REMARKS.--Records good. Dam was completed Mar. 16, 1966, and storage began in April 1966. Pool is formed by rolled earthfill dam 1,588 ft (484 m) long, with a 130-foot-wide (40-meter) spillway at left end of dam with crest at gage height 29.2 ft (8.90 m). Outlet structure is a 2.0- by 4.0-foot (0.6- by 1.2-meter) uncontrolled concrete drop-inlet structure with crest at gage height 20.00 ft (6.096 m) and connected to a 24-inch (610-millimeter) concrete pipe with invert at gage height 13.0 ft (3.96 m). There is also a 12-inch (305-millimeter) controlled slide gate used as a water-supply outlet that is connected to the drop inlet at gage height 13.5 ft (4.11 m). Pool capacity is 868 acre-ft (1.07 hm<sup>3</sup>) at spillway crest, 159 acre-ft (0.196 hm<sup>3</sup>) at crest of drop inlet, and 40 acre-ft (0.049 hm<sup>3</sup>) at controlled slide gate. Capacity table is based on Soil Conservation Service map prepared prior to construction and adjusted for borrow by the Geological Survey. Recording rain gage located at station. Records of precipitation and hydrologic data for selected storms are published elsewhere in basic-data report.

REVISIONS.--WSP 2122: Drainage area.

POOL WATER BUDGET, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
Inflow 1/	0	2.6	1.6	0	0.3	1.0	211	183	26.9	23.8	2.3	6.0
Outflow	0	0	0	0	0	0	148	162	39.8	11.4	0	0
(+)	-10.6	-4.2	-1.8	-4.5	-5.2	-3.5	+68.1	+22.0	-29.4	+3	-14.0	-6.0
(++)	.04	1.33	1.22	.08	.55	1.84	8.01	7.23	2.05	3.92	2.36	2.27

CAL YR 1975: Inflow 890      Outflow 844      + -59.6  
WTR YR 1976: Inflow 458      Outflow 361      + +11.2

PEAK INFLOW (BASE, 100 FT<sup>3</sup>/S)

DATE	TIME	DISCHARGE
4-19	1320	*106
4-19	1940	*1,020
5- 6	0450	*217

1/ Inflow adjusted for rainfall on pool and pool losses.  
+ Change in contents, in acre-feet.  
++ Rainfall, in inches.  
\* Average for 5-minute interval.

## TRINITY RIVER BASIN

08052650 Little Elm Creek near Celina, Tex.

LOCATION.--Lat 33°21'55", long 96°49'25", Collin County, on left bank at downstream side of bridge on Farm Road 455, 3.6 miles (5.8 km) northwest of Celina, and 10 miles (16 km) upstream from Mustang Creek.

DRAINAGE AREA.--46.7 mi<sup>2</sup> (121.0 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: February 1966 to September 1976 (discontinued).

Water quality: Specific conductance: October 1966 to September 1975. Water temperatures: February 1966 to September 1975. Sediment records: February 1966 to September 1975.

GAGE.--Water-stage recorder. Datum of gage is 582.4 ft (177.5 m) above mean sea level (State Highway Department bench mark).

AVERAGE DISCHARGE.--10 years, 36.4 ft<sup>3</sup>/s (1.031 m<sup>3</sup>/s), 10.58 in/yr (269 mm/yr), 26,370 acre-ft/yr (32.5 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 1,140 ft<sup>3</sup>/s (32.3 m<sup>3</sup>/s) Apr. 20 (gage height, 10.81 ft or 3.295 m); no flow Oct. 1 to Apr. 17, July 1, July 29 to Sept. 30.

Period of record: Maximum discharge, 5,340 ft<sup>3</sup>/s (151 m<sup>3</sup>/s) May 31, 1967 (gage height, 13.32 ft or 4.060 m); no flow for many days each year.

Water quality: Period of record: Maximum water temperatures (1966-69), 31.0°C June 20, 1969; minimum, freezing point Jan. 1, 1969. Maximum daily sediment concentrations, 2,730 mg/l Apr. 8, 1975; no flow for many days. Maximum daily sediment loads, 15,200 tons Apr. 28, 1966; minimum daily, 0 tons on many days.

REMARKS.--Discharge records fair. Small diversions for irrigation above station. Four standard and two recording rain gages are located in basin above station. At end of year, flow from 29.1 mi<sup>2</sup> (75.4 km<sup>2</sup>) above this station was affected at times by discharge from the flood-detention pools of 13 floodwater-retarding structures with combined detention capacity of 8,160 acre-ft (10.1 hm<sup>3</sup>). One structure was built during the current year and has a drainage area of 0.68 mi<sup>2</sup> (1.76 km<sup>2</sup>) and a detention capacity of 206 acre-ft (0.254 hm<sup>3</sup>).

REVISIONS.--WSP 2122: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							0	2.5	293	0		
2							0	1.6	78	.98		
3							0	.96	44	11		
4							0	.50	25	13		
5							0	.28	16	10		
6							0	288	23	6.9		
7							0	161	15	4.5		
8							0	93	8.6	2.9		
9							0	51	5.4	2.3		
10							0	31	3.3	1.6		
11							0	18	2.2	3.4		
12							0	89	1.5	1.7		
13							0	192	.79	.68		
14							0	77	.24	.26		
15							0	50	.06	.05		
16							0	33	3.4	70		
17							0	20	2.5	72		
18							17	12	4.3	38		
19							249	7.6	79	21		
20							553	5.0	40	12		
21							265	3.1	19	7.7		
22							195	2.1	10	4.7		
23							119	109	6.5	2.8		
24							95	20	4.2	1.9		
25							59	20	2.9	1.3		
26							32	236	2.1	.71		
27							16	156	1.4	.15		
28							9.4	45	.82	.02		
29							7.0	24	.29	0		
30							4.3	47	.04	0		
31		---			---		---	269	---	0		---
TOTAL	0	0	0	0	0	0	1620.7	2064.64	692.54	291.55	0	0
MEAN	0	0	0	0	0	0	54.0	66.6	23.1	9.40	0	0
MAX	0	0	0	0	0	0	553	288	293	72	0	0
MIN	0	0	0	0	0	0	0	.28	.04	0	0	0
CFSM	0	0	0	0	0	0	1.16	1.43	.49	.20	0	0
IN.	0	0	0	0	0	0	1.29	1.64	.55	.23	0	0
AC-FT	0	0	0	0	0	0	3210	4100	1370	578	0	0
CAL YR 1975	TOTAL	12965.69	MEAN 35.5	MAX 1290	MIN 0	CFSM .76	IN 10.33	AC-FT 25720				
WTR YR 1976	TOTAL	4669.43	MEAN 12.8	MAX 553	MIN 0	CFSM .27	IN 3.72	AC-FT 9260				

## TRINITY RIVER BASIN

445

08052700 Little Elm Creek near Aubrey, Tex.

LOCATION.--Lat 33°17'00", long 96°53'33", Denton County, on left bank at downstream side of bridge on Farm Road 1385, 1.5 miles (2.4 km) upstream from Mustang Creek, 5.5 miles (8.8 km) east of Aubrey, and 18 miles (29 km) upstream from Lewisville Dam.

DRAINAGE AREA.--75.5 mi<sup>2</sup> (195.5 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: June 1956 to September 1976 (discontinued).

Water quality: Chemical analyses: January 1968. Specific conductance: December 1966 to September 1975. Water temperatures: February 1966 to September 1975. Sediment records: February 1966 to September 1975.

GAGE.--Water-stage recorder. Datum of gage is 534.76 ft (162.995 m) above mean sea level (State Highway Department bench mark).

AVERAGE DISCHARGE.--20 years, 45.6 ft<sup>3</sup>/s (1.291 m<sup>3</sup>/s), 8.20 in/yr (208 mm/yr), 33,040 acre-ft/yr (40.7 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 1,720 ft<sup>3</sup>/s (48.7 m<sup>3</sup>/s) May 27 (gage height, 14.80 ft or 4.511 m); no flow for many days.

Period of record: Maximum discharge, 7,920 ft<sup>3</sup>/s (224 m<sup>3</sup>/s) Oct. 31, 1974 (gage height, 17.04 ft or 5.194 m); maximum gage height, 17.34 ft (5.285 m) Apr. 26, 1957; no flow at times each year.

Historic: Maximum stage since about 1900, 18.2 ft (5.55 m) in May 1941, from information by local residents.

Water quality: Period of record: Maximum specific conductance (1966-68, 1971-74), 1,380 micromhos Jan. 24, Feb. 25, 1967; minimum daily, 195 micromhos June 4, 1968. Maximum water temperatures (1966-68, 1971-74), 33.0°C June 16, 1968; minimum, freezing point Feb. 22, 1968. Maximum daily sediment concentrations, 4,750 mg/l Aug. 13, 1966; no flow for many days. Maximum daily sediment loads, 17,900 tons May 31, 1967; minimum daily, 0 tons on many days.

REMARKS.--Discharge records fair. Small diversions for irrigation above station. Ten rain gages, six standard and four recording gages, are operated in basin above station. At end of year, flow from 36.4 mi<sup>2</sup> (94.3 km<sup>2</sup>) above this station was affected at times by discharge from the flood-detention pools of 17 floodwater-retarding structures with combined detention capacity of 10,460 acre-ft (12.9 hm<sup>3</sup>). One structure was built during the current year and has a drainage area of 0.68 mi<sup>2</sup> (1.76 km<sup>2</sup>) and a detention capacity of 206 acre-ft (0.254 hm<sup>3</sup>).

REVISIONS (WATER YEARS).--WRD Texas 1970: 1969.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1				0	.05	0	.01	3.8	571	0		24		
2				0	.02	0	0	2.6	198	0		6.5		
3				0	.01	0	0	1.7	92	.61		2.9		
4				0	.01	0	.01	1.0	53	11		.93		
5				0	.04	0	.01	1.0	24	11		.23		
6				0	.06	0	.09	417	23	7.9		.02		
7				0	.03	0	.12	272	18	5.1		0		
8				0	.01	.06	.09	122	11	3.3		0		
9				0	.02	.23	.06	61	6.9	2.0		0		
10				0	.02	.39	.05	34	4.6	1.7		0		
11				0	.05	.27	.06	16	2.7	27		0		
12				0	.09	.21	.02	9.0	1.7	4.7		0		
13				0	.08	.09	.01	333	.97	10		0		
14				0	.09	.10	0	116	.50	4.4		0		
15				0	.07	.16	0	61	.22	1.8		0		
16				0	.08	.13	.02	37	.04	39		0		
17				0	.13	.08	.17	19	.96	136		0		
18				0	.11	.08	9.6	9.0	3.3	64		0		
19				0	.13	.09	117	5.6	75	30		0		
20				0	.12	.08	615	4.0	58	15		0		
21				0	.18	.05	316	2.9	27	8.4		0		
22				0	.13	.01	254	1.9	12	5.8		0		
23				0	.12	.01	166	299	7.6	4.0		0		
24				0	.10	.02	121	118	5.1	2.3		0		
25				0	.05	.02	87	47	3.2	1.3		0		
26				0	.07	.02	45	135	2.0	1.1		0		
27				0	.04	.05	19	914	1.2	.34		0		
28				.04	.01	.09	9.4	123	.66	.13		0		
29				.09	0	.07	7.0	57	.26	.03		0		
30				.08	---	.05	5.1	35	.08	0		0		
31		---		.07	---	.01	---	759	---	0	---	---		
TOTAL	0	0	0	.28	1.92	2.37	1771.82	4017.5	1203.99	440.21	0	34.58		
MEAN	0	0	0	.009	.066	.077	59.1	130	40.1	14.2	0	1.15		
MAX	0	0	0	.09	.18	.39	615	914	571	136	0	24		
MIN	0	0	0	0	0	0	0	1.0	.04	0	0	0		
CFSM	0	0	0	0	0	.001	.78	1.72	.53	.19	0	.02		
IN.	0	0	0	.0001	.0009	.001	.87	1.98	.59	.22	0	.02		
AC-FT	0	0	0	.6	3.8	4.7	3510	7970	2390	873	0	69		
CAL YR 1975	TOTAL	16920.92	MEAN	46.4	MAX	1650	MIN	0	CFSM	.61	IN	8.34	AC-FT	33560
WTR YR 1976	TOTAL	7472.67	MEAN	20.4	MAX	914	MIN	0	CFSM	.27	IN	3.68	AC-FT	14820

## TRINITY RIVER BASIN

08052800 Lewisville Lake near Lewisville, Tex.

LOCATION.--Lat 33°04'09", long 96°57'51", Denton County, in intake structure of Lewisville Dam on Elm Fork Trinity River, 2 miles (3 km) upstream from bridge on State Highway 121, 2.4 miles (3.9 km) northeast of Lewisville, 12 miles (19 km) upstream from Denton Creek, and at mile 30.0 (48.3 km).

DRAINAGE AREA.--1,660 mi<sup>2</sup> (4,299 km<sup>2</sup>).

PERIOD OF RECORD.--Contents: November 1954 to current year. Prior to October 1970, published as Garza-Little Elm Reservoir near Lewisville.

Water quality: Chemical analyses: October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to May 17, 1955, nonrecording gage at site 4,000 ft (1,220 m) upstream at same datum.

EXTREMES.--Current year: Maximum contents, 461,300 acre-ft (569 hm<sup>3</sup>) June 21 (elevation, 514.86 ft or 156.929 m); minimum, 336,900 acre-ft (415 hm<sup>3</sup>) Apr. 16 (elevation, 508.77 ft or 155.073 m).

Period of record: Maximum contents, 1,146,000 acre-ft (1.41 km<sup>3</sup>) June 3, 1957 (elevation, 535.57 ft or 163.242 m); minimum since initial filling in 1957, 307,200 acre-ft (379 hm<sup>3</sup>) Feb. 29, 1964 (elevation, 507.00 ft or 154.534 m).

REMARKS.--The lake is formed by a rolled earthfill dam 32,888 ft (10,024 m) long, including a 560-foot (171-meter) uncontrolled off-channel concrete-gravity spillway with ogee weir section. Deliberate impoundment began Nov. 1, 1954, and the dam was completed in August 1955. The controlled low-flow outlet works consist of a 16.0-foot-diameter (4.9-meter) conduit that is controlled by three 6.5- by 13.0-foot (2.0- by 4.0-meter) broome-type gates and two 60-inch (1,524-millimeter) steel pipes with service valves. The lake was built for flood control and water conservation. The city of Dallas derives most of its water for municipal use from this lake. The capacity table is based on a survey made in 1960. Inflow is affected at times by discharge from the flood-detention pools of 118 floodwater-retarding structures with combined detention capacity of 81,670 acre-ft (101 hm<sup>3</sup>). These structures control runoff from 298 mi<sup>2</sup> (772 km<sup>2</sup>) in the Elm Fork Trinity River, Clear, Little Elm, and Hickory Creeks watersheds. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	560.0	-
Crest of spillway.....	532.0	989,700
Top of conservation pool.....	515.0	464,500
Lowest intakes to wet wells (invert).....	481.0	44,080
Invert of three broome-type gates.....	448.0	33

COOPERATION.--Records furnished by Corps of Engineers and reviewed by the Geological Survey.

REVISIONS.--WSP 1922: Drainage area.

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

508.0	323,800	514.0	441,600
510.0	358,300	516.0	488,200
512.0	397,600		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	414000	394600	378300	367800	353400	346000	341100	369600	439400	451600	445200	408500
2	412600	394800	377900	367200	353000	345600	340300	369500	449600	451400	444100	408500
3	411600	394800	377500	366500	352500	345300	340400	368900	452500	453200	442500	408300
4	410900	394400	377100	365100	351900	345300	341300	368100	453000	453200	440700	408300
5	410500	393600	376700	364600	351900	345600	341000	370000	453000	453000	439600	407200
6	409600	392700	376500	364200	351600	345100	340800	375800	452800	452100	438200	406600
7	408900	392500	376000	364800	350700	346000	341100	378700	453700	451600	436000	406100
8	408300	392100	375800	363700	350400	347000	341100	380100	453000	450700	435800	405700
9	408100	392100	375000	362600	350000	346300	340400	380900	452300	449600	434400	405000
10	407600	391300	374000	362600	349800	346300	340100	380700	451400	450300	433100	404200
11	406800	391300	373600	361800	349700	346900	340100	380500	450000	450300	430200	402900
12	406100	389800	373300	361400	349500	347400	339900	383100	449300	450300	429300	401800
13	405500	388600	372100	360900	349100	346700	339800	385900	448400	449800	426600	401200
14	405000	388000	372100	360300	348800	345800	339200	388000	447300	448900	426100	400300
15	404800	387100	372500	360200	348400	346500	339100	388800	447300	448200	424400	399100
16	404200	386500	371700	359800	348600	345500	339100	388600	445700	449600	423000	398000
17	403300	386300	371700	359300	348600	344800	342000	388200	444600	452300	422400	397200
18	402500	385500	370600	358500	348300	343700	343400	387300	450900	457600	421100	396500
19	401600	386100	368000	358700	347900	343500	350900	386500	457800	458300	419500	397200
20	401000	385500	368000	358200	349000	343900	360200	385900	461100	457600	418000	396500
21	400100	384500	368000	357800	348600	343500	365900	385500	460400	457100	417300	396100
22	399500	383300	368000	357100	347900	343000	368100	384100	460400	456000	415300	395000
23	399500	382500	367800	356700	347200	342000	368900	389000	460400	455100	414000	394600
24	399300	381500	368900	356700	346500	342900	370200	392300	458300	454400	413500	393600
25	398000	381900	368500	356700	346900	342500	370200	395200	458100	453700	412900	392900
26	396700	380100	368000	355800	346700	343000	369600	398600	456900	452800	411300	392300
27	396300	379100	367400	355100	346500	342200	369300	405700	455800	452100	409800	392100
28	396500	378100	368900	354800	346300	342500	370800	407600	454800	450300	408300	391500
29	395700	380100	368500	354400	346200	342500	370400	407800	453900	449100	407400	390800
30	395000	379100	368000	354400	---	341600	370000	409800	453000	447800	406300	390000
31	394600	---	367800	353700	---	341600	---	427000	---	446200	408500	---
(†)	511.86	511.10	510.51	509.74	509.31	509.05	510.63	513.35	514.50	514.20	512.51	511.64
(+)	-20500	-15500	-11300	-14100	-7500	-4600	+28400	+57000	+26000	-6800	-37700	-18500
(††)	1060	784	815	840	877	893	814	831	1070	1150	1650	1020
MAX	414000	394800	378300	367800	353400	347400	370800	427000	461100	458300	445200	408500
MIN	394600	378100	367400	353700	346200	341600	339100	368100	439400	446200	406300	390000

CAL YR 1975..... \* -104500

WTR YR 1976..... \* -25100

†† 10150

†† 11800

MAX 614400

MAX 461100

MIN 367400

MIN 339100

† Elevation, in feet, at end of month.

+ Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal use by cities of Denton and Lewisville.

## TRINITY RIVER BASIN

447

08052800 Lewisville Lake near Lewisville, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	PERCENT SATURATION	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)
JAN 28...	1105	395	8.2	7.0	11.5	94	140	26
MAY 11...	1150	397	8.4	22.0	9.8	111	150	29
AUG 27...	1400	351	8.4	28.5	8.2	106	120	22

DATE	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG)	DIS-SOLVED SODIUM (NA) (MG/L)	SODIUM ADSORPTION RATIO	DIS-SOLVED PHOSPHATE (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)
JAN 28...	49	4.5	22	.8	3.7	140	0	32	28
MAY 11...	50	4.9	23	.8	3.8	142	0	35	30
AUG 27...	40	4.5	22	.9	4.0	112	3	33	27

DATE	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED MANGANESE (MN) (UG/L)
JAN 28...	.3	5.4	214	.11	.00	.03	0	0
MAY 11...	.3	3.1	220	.08	.01	.03	0	0
AUG 27...	.3	5.2	194	.00	.00	.01	10	30



DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	193	138	158	145	163	70	102	68	107	319	359	237
2	157	140	164	144	163	85	140	68	166	302	371	203
3	113	132	203	144	163	79	130	103	224	303	408	202
4	121	105	231	145	164	57	136	157	208	287	400	202
5	105	115	214	145	151	100	89	172	222	237	388	202
6	149	142	196	169	141	47	88	243	228	195	388	201
7	169	108	196	202	141	47	90	128	203	233	386	214
8	119	108	196	206	141	54	89	124	194	265	386	250
9	121	110	195	217	141	47	86	123	244	259	423	238
10	142	118	195	261	145	47	82	123	337	218	529	227
11	149	150	196	249	158	45	89	168	335	192	469	226
12	150	143	195	220	155	47	102	250	322	191	469	226
13	151	144	196	209	140	113	100	280	294	203	469	240
14	152	143	196	209	139	181	94	210	275	213	465	255
15	125	143	197	202	139	150	104	191	314	214	463	274
16	102	142	197	190	139	136	93	200	360	209	460	344
17	102	141	196	190	139	153	89	200	314	193	460	348
18	102	165	197	184	133	146	142	238	366	189	444	304
19	101	188	197	192	105	124	118	240	252	185	447	250
20	120	188	198	200	74	112	103	210	192	241	468	220
21	154	195	198	177	54	111	95	210	209	288	447	234
22	121	222	198	172	54	120	85	267	234	286	426	233
23	107	188	168	179	53	136	71	266	258	285	445	233
24	107	198	144	179	55	117	74	230	257	300	362	225
25	107	229	147	180	56	94	72	154	264	298	293	220
26	107	224	145	180	49	83	71	167	285	274	318	220
27	141	198	145	174	48	71	70	138	285	300	359	220
28	167	187	157	162	56	60	72	125	307	325	375	221
29	143	196	167	162	56	50	73	201	328	325	361	209
30	144	180	144	163	---	67	71	208	327	352	318	200
31	138	---	144	162	---	70	---	205	---	388	271	---
TOTAL	4079	4774	5670	5713	3315	2819	2820	5667	7915	8069	12627	7078
MEAN	132	159	183	184	114	90.9	94.0	183	264	260	407	236
MAX	193	229	231	261	164	181	142	280	366	388	529	348
MIN	101	105	144	144	48	45	70	68	107	185	271	200
AC-FT	8090	9470	11250	11330	6580	5590	5590	11240	15700	16000	25050	14040
CAL YR 1975	TOTAL	329647	MEAN 903	MAX 4440	MIN 42	AC-FT 653900						
WTR YR 1976	TOTAL	70546	MEAN 193	MAX 529	MIN 45	AC-FT 139900						

## TRINITY RIVER BASIN

449

08053500 Denton Creek near Justin, Tex.

LOCATION.--Lat 33°07'08", long 97°17'25", Denton County, on right bank at downstream side of bridge on Farm Road 156, 100 ft (30 m) upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 2.2 miles (3.5 km) north of Justin, 3.0 miles (4.8 km) upstream from Olivers Creek, 12.9 miles (20.8 km) upstream from Harriet Creek, and 32.9 miles (52.9 km) upstream from Grapevine Dam.

DRAINAGE AREA.--400 mi<sup>2</sup> (1,036 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: October 1949 to current year.

Water quality: Sediment records: February 1966 to September 1975.

GAGE.--Water-stage recorder. Datum of gage is 606.66 ft (184.910 m) above mean sea level.

AVERAGE DISCHARGE.--27 years, 83.8 ft<sup>3</sup>/s (2.373 m<sup>3</sup>/s), 60,710 acre-ft/yr (74.9 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 866 ft<sup>3</sup>/s (24.5 m<sup>3</sup>/s) May 6 (gage height, 7.60 ft or 2.316 m); no flow at times.

Period of record: Maximum discharge, 29,800 ft<sup>3</sup>/s (844 m<sup>3</sup>/s) May 24, 1957 (gage height, 17.64 ft or 5.377 m); no flow at times in 1949-65, 1967-74, and 1976.

Flood in May 1935 was the highest since 1908 and reached a stage of 20.6 ft (6.28 m) at site about 1,500 ft (457 m) upstream, from information by local resident. Flood in May 1908 reached a stage about 1.0 ft (0.30 m) higher than flood in May 1935, from information by local resident.

REMARKS.--Discharge records good. Several small diversions above station. Flow is affected at times by discharge from the flood-detention pools of 83 floodwater-retarding structures with combined detention capacity of 51,950 acre-ft (64.1 hm<sup>3</sup>). These structures control runoff from 194 mi<sup>2</sup> (502 km<sup>2</sup>) in the Denton Creek watershed.

REVISIONS (WATER YEARS).--WSP 1732: 1950(M). WSP 1922: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	13	15	16	12	9.5	9.8	20	227	6.3	.36	0
2	6.1	15	11	15	12	9.8	9.4	18	200	7.3	.14	0
3	9.3	19	11	15	11	9.7	9.0	16	101	3.9	.07	8.7
4	13	17	11	14	11	9.6	9.0	14	57	4.0	.02	8.4
5	16	13	11	13	11	9.6	9.6	13	38	6.9	0	6.8
6	21	12	13	14	10	9.0	9.0	304	28	6.3	0	2.6
7	22	11	14	15	10	9.1	13	80	23	4.8	0	1.2
8	22	10	16	14	10	11	44	42	20	3.4	0	.50
9	20	9.3	14	14	10	14	27	29	18	3.1	0	.20
10	20	8.3	22	14	10	15	18	23	15	3.1	0	46
11	21	7.8	23	16	11	14	14	23	13	4.3	0	11
12	19	7.2	22	14	11	14	13	36	12	8.1	0	4.6
13	17	6.9	23	15	11	14	10	340	10	6.8	0	2.1
14	17	5.4	24	14	11	13	10	144	9.0	7.0	0	1.4
15	22	5.8	24	13	11	13	10	76	7.7	6.5	0	.77
16	27	6.1	23	14	11	12	16	48	7.5	5.2	0	.43
17	26	7.4	22	14	12	12	30	33	7.9	40	0	.20
18	18	8.6	22	14	13	11	31	24	45	36	0	.05
19	15	9.3	20	13	12	11	45	19	143	20	0	.03
20	14	12	22	14	11	11	647	16	74	19	0	.04
21	13	11	24	14	11	11	255	14	37	9.2	0	0
22	12	7.5	23	13	14	11	138	13	22	4.9	0	4.6
23	12	6.6	23	13	9.9	10	70	13	14	3.3	0	2.9
24	13	10	25	13	9.3	13	53	23	11	2.6	0	1.6
25	11	9.6	34	13	8.8	18	46	62	9.0	2.2	0	1.1
26	9.5	9.5	31	12	9.0	16	31	37	7.9	1.8	0	.50
27	12	9.8	24	12	9.0	12	22	25	6.9	1.9	0	.20
28	13	9.2	19	11	9.0	11	21	17	5.9	2.6	0	.13
29	14	11	18	12	9.2	10	23	15	5.2	1.8	0	.04
30	13	13	16	12	---	10	25	16	4.2	1.1	0	0
31	13	---	16	12	---	9.8	---	438	---	.67	0	---
TOTAL	486.7	301.2	620	422	310.2	363.2	1667.2	1991	1179.2	234.47	.61	106.09
MEAN	15.7	10.0	20.0	13.6	10.7	11.7	55.6	64.2	39.3	7.56	.020	3.54
MAX	27	19	34	16	14	18	647	438	227	40	.36	46
MIN	6.1	5.4	11	11	8.8	9.0	9.0	13	4.2	.67	0	0
AC-FT	965	597	1230	837	615	720	3310	3950	2340	465	1.2	210

CAL YR 1975 TOTAL 44802.20 MEAN 123 MAX 2190 MIN 3.0 AC-FT 88870  
WTR YR 1976 TOTAL 7681.87 MEAN 21.0 MAX 647 MIN 0 AC-FT 15240

PEAK DISCHARGE (BASE, 3,000 FT<sup>3</sup>/S).--No peak above base.

## TRINITY RIVER BASIN

08054500 Grapevine Lake near Grapevine, Tex.

LOCATION.--Lat 32°58'21", long 97°03'22", Tarrant County, in intake structure of Grapevine Dam on Denton Creek, 2.7 miles (4.3 km) north-east of Grapevine, 4.3 miles (6.9 km) upstream from bridge on State Highway 121, and 11.7 miles (18.8 km) upstream from mouth.

DRAINAGE AREA.--695 mi<sup>2</sup> (1,800 km<sup>2</sup>).

PERIOD OF RECORD.--Contents: July 1952 to current year. Prior to October 1970, published as Grapevine Reservoir.  
Water quality: Chemical analyses: October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to May 16, 1953, nonrecording gage at site 1,000 ft (305 m) upstream at present datum.

EXTREMES.--Current year: Maximum contents, 166,400 acre-ft (205 hm<sup>3</sup>) Oct. 1 (elevation, 532.93 ft or 162.437 m); minimum, 134,000 acre-ft (165 hm<sup>3</sup>) Apr. 15 (elevation, 527.95 ft or 160.919 m).  
Period of record: Maximum contents, 445,800 acre-ft (550 hm<sup>3</sup>) June 6, 1957 (elevation, 560.80 ft or 170.932 m); minimum since lake first filled in 1957, 114,000 acre-ft (141 hm<sup>3</sup>) Mar. 6, 1964 (elevation, 523.33 ft or 159.511 m).

REMARKS.--The lake is formed by a rolled earthfill dam 12,850 ft (3,917 m) long, including a 500-foot (150-meter) uncontrolled off-channel concrete-gravity spillway with an ogee weir section. The dam was completed in June 1952 and deliberate impoundment began July 3, 1952. The controlled outlet works consist of a 13.0-foot-diameter (4.0-meter) concrete conduit that is controlled by two 6.5- by 13.0-foot (2.0- by 4.0-meter) broome-type gates and two 30-inch (762-millimeter) steel pipes with service valves. The capacity table used since April 1972 is based on a survey made in October 1966. The lake was built for flood control, navigation, and water conservation. The city of Dallas uses part of this water for their municipal supply. Inflow is affected at times by discharge from the flood-detention pools of 86 floodwater-retarding structures with a combined detention capacity of 57,050 acre-ft (70.3 hm<sup>3</sup>). These structures control runoff from 211 mi<sup>2</sup> (546 km<sup>2</sup>) in the Denton Creek watershed. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	588.0	-
Crest of spillway.....	560.0	425,500
Top of conservation pool.....	535.0	181,100
Lowest intake to wet wells (invert).....	500.5	22,140
Invert of two broome-type gates.....	475.0	100

COOPERATION.--Records furnished by Corps of Engineers and reviewed by the Geological Survey.

REVISIONS.--WSP 1922: Drainage area.

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

527.0	128,400	532.0	160,000
528.0	134,300	533.0	166,800
530.0	146,800		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	146100	155600	150500	148800	144900	141300	136100	141100	157800	156400	154100	149000
2	145700	154800	150400	148600	144700	141000	135700	140700	158300	156300	153700	149100
3	145200	155700	150300	148300	144500	140700	135700	140600	158500	156200	153500	149000
4	144800	155500	150300	148100	144500	140700	136200	140300	158700	156100	153300	148900
5	144400	155200	150400	147900	144400	140300	135900	141400	158700	156000	153100	148800
6	144200	155000	150300	147800	144300	140000	135800	144200	158700	155800	152900	148800
7	143900	154700	150200	147700	144200	140000	135700	143300	158600	155500	152900	148500
8	143600	154500	150100	147600	144100	140100	135700	143400	158500	155300	152700	148200
9	143000	154300	150000	147400	144000	139700	135600	143500	158300	155300	152600	148100
10	142700	154000	149900	147400	143900	139500	135400	143500	158200	155400	152500	147900
11	142400	153700	149900	147300	144000	139500	135300	143500	158000	155400	152200	147700
12	142000	153400	149900	147200	144000	139200	135100	143500	157900	155300	151900	147500
13	141700	152900	149900	147100	144000	139100	135000	147100	157700	155300	151600	147100
14	141500	152500	149900	147000	144000	139200	134900	148100	157500	155400	151400	146900
15	141000	152300	149800	146800	144000	139400	134700	148200	157400	155400	151200	147000
16	140600	152100	149700	146800	143900	139100	134800	148200	157100	155300	151000	147000
17	140500	152000	149500	146600	143900	138800	135000	148100	156900	155100	150800	146800
18	139800	151800	149300	146400	143900	138700	135800	148000	157600	155500	150500	147000
19	139400	151600	149300	146400	143800	138700	137200	148000	158100	155700	150400	148200
20	139000	151700	149100	146200	144100	138400	140300	147900	158200	155700	150100	148200
21	138500	151600	149100	146100	143800	138300	141100	147900	158100	155500	149900	148000
22	138200	151300	149000	146000	143300	138000	141200	147900	157900	155300	149700	147800
23	137900	150900	148700	145900	143000	137800	141500	148800	157700	155300	149600	147600
24	137500	150800	149000	145900	142700	137800	141900	149000	157700	155300	149400	147500
25	137300	150700	149300	145800	142400	137800	141600	149200	157700	155400	149200	147400
26	136900	150500	149300	145700	142200	137500	141400	149300	157500	155200	149000	147200
27	136700	150300	149200	145400	141900	137200	141200	149300	157300	155100	149000	147200
28	136500	150400	149100	145200	141700	137100	141300	149300	157200	154900	148800	147300
29	136300	150800	149100	145200	141400	137000	141400	149100	157100	154600	148800	147100
30	136000	150600	149000	145100	---	136600	141300	149300	156700	154300	148600	147000
31	135700	---	148700	144900	---	136400	---	155600	---	154300	148800	---
(†)	531.36	530.60	530.30	529.71	529.16	528.34	529.14	531.35	531.52	531.15	530.31	530.03
(*)	-10700	-5100	-1900	-3800	-3500	-5000	+4900	+14300	+1100	-2400	-5500	-1800
(††)	92	75	72	78	75	82	78	87	99	103	156	92
MAX	166100	155800	150500	148800	144900	141300	141900	171400	158700	156400	154100	149100
MIN	135700	150300	148700	144900	141400	136400	134700	140300	156700	154300	148600	146800
CAL YR 1975.....	* -53800			†† 980			MAX 216300	MIN 148700				
WTR YR 1976.....	* -19400			†† 1090			MAX 171400	MIN 134700				

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal use by city of Grapevine.

## TRINITY RIVER BASIN

451

08054500 Grapevine Lake near Grapevine, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA, MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
MAR 16...	1610	395	8.1	13.5	160	32	53	6.6	19
DATE	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SiO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
MAR 16...	.7	3.6	156	0	34	24	.5	5.9	224

## TRINITY RIVER BASIN

08055000 Denton Creek near Grapevine, Tex.

LOCATION.--Lat 32°59'13", long 97°00'45", Denton County, on left bank at downstream side of left pier of bridge on State Highway 121, 1.3 miles (2.1 km) downstream from Bakers Branch, 4.1 miles (6.6 km), revised, downstream from Grapevine Dam, 5.0 miles (8.0 km) north-east of Grapevine, and 6.1 miles (9.8 km) upstream from mouth.

DRAINAGE AREA.--705 mi<sup>2</sup> (1,826 km<sup>2</sup>).

PERIOD OF RECORD.--October 1947 to current year.

GAGE.--Water-stage recorder. Datum of gage is 439.11 ft (133.841 m) above mean sea level.

AVERAGE DISCHARGE.--5 years (1947-52) prior to regulation, 140 ft<sup>3</sup>/s (3.965 m<sup>3</sup>/s), 101,400 acre-ft/yr (125 hm<sup>3</sup>/yr); 24 years (1952-76) regulated, unadjusted, 148 ft<sup>3</sup>/s (4.191 m<sup>3</sup>/s), 107,200 acre-ft/yr (132 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 354 ft<sup>3</sup>/s (10.0 m<sup>3</sup>/s) May 6 (gage height, 8.41 ft or 2.563 m); minimum daily, 14 ft<sup>3</sup>/s (0.40 m<sup>3</sup>/s) Sept. 21-24, 29, 30.

Period of record: Maximum discharge, 13,900 ft<sup>3</sup>/s (394 m<sup>3</sup>/s) Feb. 26, 1948 (gage height, 30.38 ft or 9.260 m), from rating curve extended above 6,000 ft<sup>3</sup>/s (170 m<sup>3</sup>/s) on basis of conveyance-slope study; no flow at times. Maximum discharge since construction of Grapevine Dam in 1952, 6,430 ft<sup>3</sup>/s (182 m<sup>3</sup>/s) Sept. 21, 1964 (gage height, 26.50 ft or 8.077 m).

Flood in May 1908 was slightly higher than the flood in April 1942, which reached a stage of 35.9 ft (10.94 m), from floodmarks, from information by local resident.

REMARKS.--Records good. Flow regulated by Grapevine Lake since July 1952 (see preceding page). Much of flow is used by city of Dallas for municipal supply (see station 08055500).

REVISIONS.--WSP 1922: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82	69	20	61	59	123	113	102	25	35	44	49
2	88	71	20	61	59	123	72	122	24	35	45	46
3	107	71	20	61	54	123	72	82	24	37	47	47
4	94	71	20	61	20	124	94	20	24	38	47	46
5	94	72	20	48	21	90	72	49	24	41	46	33
6	93	73	20	34	21	122	71	117	24	53	47	20
7	96	74	19	31	21	123	83	27	25	53	47	21
8	98	75	18	31	21	126	93	24	24	53	48	21
9	100	76	18	36	22	124	93	23	26	53	49	24
10	100	79	18	59	22	123	93	23	26	53	56	23
11	100	76	18	58	22	125	93	23	26	56	71	22
12	101	76	18	59	23	126	106	44	26	63	70	23
13	102	70	18	59	23	70	113	48	27	52	67	22
14	103	66	18	59	23	26	104	24	26	35	65	24
15	103	53	17	59	23	23	121	23	27	35	62	24
16	104	53	17	59	23	29	102	22	28	36	62	24
17	103	54	17	59	23	36	23	22	28	37	59	24
18	104	42	16	59	51	44	116	22	37	36	58	25
19	104	20	16	60	91	62	74	21	34	36	56	29
20	105	19	16	59	92	72	69	21	32	37	54	22
21	107	19	16	59	91	91	94	21	31	40	53	14
22	108	19	45	59	92	115	125	21	31	36	53	14
23	109	18	84	59	104	118	122	27	32	36	49	14
24	108	18	80	60	119	122	109	31	32	41	54	14
25	74	18	62	60	122	120	90	24	32	55	57	15
26	65	18	61	59	122	120	89	25	32	39	55	16
27	66	18	61	59	122	121	88	22	33	40	50	16
28	67	18	61	60	122	121	108	21	34	40	50	15
29	67	18	61	60	123	124	107	21	35	41	49	14
30	68	19	61	60	---	125	88	22	35	44	50	14
31	68	---	61	60	---	125	---	72	---	43	50	---
TOTAL	2888	1452	1017	1728	1731	3116	2797	1166	864	1329	1670	715
MEAN	93.2	48.4	32.8	55.7	59.7	101	93.2	37.6	28.8	42.9	53.9	23.8
MAX	109	80	84	61	123	126	122	122	37	63	71	49
MIN	65	18	16	31	20	23	23	20	24	35	44	14
AC-FT	5730	2860	2020	3430	3430	6180	5550	2310	1710	2640	3310	1420
CAL YR 1975	TOTAL	112942	MEAN	309	MAX	1910	MIN	11	AC-FT	224000		
WTR YR 1976	TOTAL	20473	MEAN	55.9	MAX	126	MIN	14	AC-FT	40610		

## TRINITY RIVER BASIN

453

08055500 Elm Fork Trinity River near Carrollton, Tex.

LOCATION.--Lat 32°57'57", long 96°56'39", Dallas County, near left bank at downstream side of bridge on Sandy Lake Road, 40 ft (12 m) upstream from Carrollton Dam, 0.3 mile (0.5 km) downstream from Denton Creek, 1.0 mile (1.6 km) upstream from St. Louis Southwestern Railway Lines bridge, 2.3 miles (3.7 km) northwest of Carrollton, and at mile 18.2 (29.3 km).

DRAINAGE AREA.--2,459 mi<sup>2</sup> (6,369 km<sup>2</sup>).

PERIOD OF RECORD.--January 1907 to current year. Monthly discharge only for some periods, published in WSP 1312. Prior to November 1923, published as "near Dallas".

GAGE.--Water-stage recorder and concrete control. Datum of gage is 433.40 ft (132.100 m) above mean sea level. Prior to November 1923, nonrecording gage at site 15.5 miles (24.9 km) downstream at different datum. Nov. 1, 1923, to Nov. 13, 1934, nonrecording gage, and Nov. 14, 1934, to July 6, 1938, water-stage recorder at present site and datum. July 7, 1938, to Apr. 14, 1939, nonrecording gage at site 9.3 miles (15.0 km) downstream at datum 22.94 ft (6.992 m) lower. Apr. 15, 1939, to Sept. 30, 1955, water-stage recorder at site 8.5 miles (13.7 km) downstream at datum 22.94 ft (6.992 m) lower.

AVERAGE DISCHARGE.--69 years, 789 ft<sup>3</sup>/s (22.34 m<sup>3</sup>/s), 571,600 acre-ft/yr (705 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 992 ft<sup>3</sup>/s (28.1 m<sup>3</sup>/s) May 6 (gage height, 2.50 ft or 0.762 m); minimum daily, 21 ft<sup>3</sup>/s (0.60 m<sup>3</sup>/s) May 28.

Period of record: Maximum gage height, about 17 ft (5.2 m) May 25, 1908, present site and datum, from information by local resident, estimated discharge, 145,000 ft<sup>3</sup>/s (4,110 m<sup>3</sup>/s), at site 8.5 miles (13.7 km) downstream (from information by Corps of Engineers); maximum gage height subsequent to 1908, 14.5 ft (4.42 m) Apr. 26, 1942, present site and datum, from observation by National Weather Service; discharge at site 8.5 miles (13.7 km) downstream, 90,700 ft<sup>3</sup>/s (2,570 m<sup>3</sup>/s); no flow at times. Flood in 1866 reached about the same stage as flood of May 25, 1908.

REMARKS.--Records good. Flow largely regulated by Lewisville Lake (station 08052800) since November 1954 and by Grapevine Lake (station 08054500) since July 1952. Records furnished by Dallas show that during the year 99,440 acre-ft (123 hm<sup>3</sup>) was diverted from pool at gage and 70,900 acre-ft (87.4 hm<sup>3</sup>) was diverted from river channel 14 miles (23 km) downstream for municipal use. About 2,730 acre-ft (3.37 hm<sup>3</sup>) was returned from a water treatment plant to the river below this station. Records furnished by the Dallas Power and Light Co. show that during the year 4,230 acre-ft (5.22 hm<sup>3</sup>) was diverted from pool at gage into North Lake for cooling water at electric generating plant.

REVISIONS (WATER YEARS).--WSP 788: 1924. WSP 1148: Drainage area at former site. WSP 1632: 1908(M). WSP 1922: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	124	97	67	62	91	174	214	60	67	185	179	106
2	97	75	74	61	72	194	192	100	51	153	171	49
3	85	67	103	69	83	192	112	83	164	150	206	58
4	107	68	129	77	54	167	164	91	143	137	193	32
5	74	55	123	48	30	186	118	144	128	78	184	100
6	80	124	116	33	49	148	139	533	172	69	175	100
7	147	70	118	105	55	160	121	77	131	70	166	75
8	88	65	96	130	48	150	137	85	131	126	160	85
9	79	49	103	94	41	116	106	88	147	167	156	85
10	98	41	98	172	51	160	104	58	293	101	229	46
11	114	91	90	167	67	161	111	88	283	69	190	27
12	103	100	97	122	77	132	125	209	255	65	214	24
13	109	97	94	117	59	161	98	368	231	97	194	36
14	120	95	103	107	42	185	99	100	186	110	199	51
15	121	83	100	109	48	145	102	116	227	111	194	73
16	71	85	103	86	42	87	84	148	330	121	185	128
17	81	45	84	94	45	121	24	133	248	86	204	164
18	86	62	104	98	72	120	264	152	476	68	190	115
19	71	80	96	111	92	109	64	181	199	85	152	76
20	57	115	102	141	74	109	77	130	97	106	209	62
21	131	123	85	113	46	115	62	130	90	188	199	78
22	111	167	103	104	30	159	102	176	171	183	164	65
23	96	134	139	109	82	180	79	245	216	153	176	72
24	100	115	146	111	126	131	99	355	159	140	181	62
25	106	165	119	123	61	120	70	119	120	164	58	44
26	55	159	91	121	121	143	48	140	142	111	119	45
27	45	129	84	100	154	115	47	240	144	127	130	73
28	117	117	88	108	165	85	44	21	154	167	152	60
29	78	138	113	69	164	78	103	89	171	164	140	39
30	98	113	61	89	---	108	60	163	181	150	130	36
31	71	---	58	98	---	162	---	456	---	200	94	---
TOTAL	2921	2944	3087	3148	2141	4373	3169	5078	5507	3901	5293	2066
MEAN	94.2	98.1	99.6	102	73.8	141	106	164	184	126	171	68.9
MAX	147	167	146	172	165	194	264	533	476	200	229	164
MIN	45	41	58	33	30	78	24	21	51	65	58	24
AC-FT	5790	5840	6120	6240	4250	8670	6290	10070	10920	7740	10500	4100
CAL YR 1975	TOTAL	447446	MEAN	1226	MAX	5730	MIN	41	AC-FT	887500		
WTR YR 1976	TOTAL	43628	MEAN	119	MAX	533	MIN	21	AC-FT	86540		



## TRINITY RIVER BASIN

08055700 Bachman Branch at Dallas, Tex.

LOCATION.--Lat 32°51'37", long 96°50'13", Dallas County, on left bank at downstream side of bridge on Midway Road in Dallas, 1,300 ft (396 m) south of Northwest Highway (Loop 12), 1.5 miles (2.4 km) upstream from Bachman Lake Dam, and 6.0 miles (9.7 km) northwest of Dallas City Hall.

DRAINAGE AREA.--10.0 mi<sup>2</sup> (25.9 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. From May 1, 1970, to Feb. 28, 1974, at site 2,300 ft (700 m) upstream at same datum.

AVERAGE DISCHARGE.--13 years, 9.27 ft<sup>3</sup>/s (0.263 m<sup>3</sup>/s), 12.59 in/yr (320 mm/yr), 6,720 acre-ft/yr (8.29 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 2,340 ft<sup>3</sup>/s (66.3 m<sup>3</sup>/s) June 18 (elevation, 456.05 ft or 139.004 m); minimum, 0.08 ft<sup>3</sup>/s (0.002 m<sup>3</sup>/s) Oct. 2, 3, 8, 9, 12, 15.

Period of record: Maximum discharge, 16,000 ft<sup>3</sup>/s (453 m<sup>3</sup>/s) Apr. 28, 1966 (elevation, 467.97 ft or 142.637 m), from rating curve extended above 4,000 ft<sup>3</sup>/s (113 m<sup>3</sup>/s) on basis of contracted-opening measurements of 5,300, 9,200, and 16,000 ft<sup>3</sup>/s (150, 261, and 453 m<sup>3</sup>/s); no flow at times most years.

Maximum stage since at least 1900, that of Apr. 28, 1966. Flood of Oct. 8, 1962, the second highest flood since 1900, reached an elevation of 465.6 ft (141.91 m), discharge 9,200 ft<sup>3</sup>/s (261 m<sup>3</sup>/s).

REMARKS.--Records good. Flow is slightly affected by several small channel dams above station. Two recording rain gages are operated in the basin above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.17	.25	.64	.67	1.5	1.2	1.9	3.3	7.3	1.2	.84	14
2	.13	5.0	.59	.63	1.5	1.2	1.9	3.2	6.1	1.3	.89	2.9
3	.13	1.3	.58	.72	1.4	1.3	4.5	3.0	5.3	4.3	.84	29
4	.18	.92	.67	.89	1.4	3.5	2.3	3.0	4.3	28	.84	2.2
5	.14	.89	.79	1.0	2.9	1.6	1.9	4.0	3.4	6.7	.84	1.8
6	.14	.78	.74	.97	1.7	1.3	1.7	7.0	3.3	2.2	.84	1.9
7	.15	.84	.67	1.0	1.6	9.5	4.8	5.4	2.9	1.3	.84	1.7
8	.13	.81	.67	1.1	1.7	3.0	3.0	4.7	2.9	1.2	.73	1.6
9	.19	.77	.68	1.1	1.8	3.7	2.0	4.3	2.6	13	.78	5.5
10	.13	.81	.70	1.5	2.2	2.7	1.9	4.1	2.6	2.6	.84	1.7
11	.12	.94	.70	1.1	2.3	4.3	1.9	3.8	3.4	24	.73	1.4
12	.12	.86	.69	1.2	2.2	4.4	1.9	3.5	2.6	3.1	.71	1.7
13	.18	.87	.73	1.3	2.4	2.6	10	8.8	2.7	3.3	.76	1.5
14	.24	.94	.69	1.2	2.0	3.0	2.4	4.0	2.3	2.3	.74	1.5
15	.13	1.0	.88	1.1	2.0	2.6	1.9	3.8	2.5	2.3	.74	1.5
16	.15	1.1	.75	1.2	1.8	2.6	30	3.5	3.0	130	.73	1.4
17	.18	1.0	.73	1.0	1.4	2.6	17	3.2	2.4	2.4	.73	1.5
18	.09	1.1	.73	1.0	2.3	2.5	43	2.9	123	2.6	.68	7.0
19	.10	2.0	.68	1.2	1.5	2.3	197	2.1	4.4	2.3	.64	6.9
20	.10	1.7	.80	1.6	7.8	2.7	36	2.0	2.8	1.3	.68	8.4
21	.15	1.0	.89	.88	2.9	2.0	5.8	2.2	2.5	1.3	.73	1.7
22	.17	.90	.73	.96	1.3	1.9	4.6	2.6	2.3	1.2	.68	1.7
23	.24	.78	.72	1.0	1.2	1.9	4.4	3.2	2.2	1.1	.78	1.5
24	.24	.87	19	1.4	1.2	33	55	8.2	2.0	.94	6.3	1.5
25	.25	.98	4.6	2.0	1.4	4.4	5.1	10	2.1	8.8	.73	1.3
26	.15	1.1	1.3	1.0	1.2	3.1	4.1	128	1.6	2.1	.59	2.9
27	.21	1.1	.98	1.0	1.3	2.5	3.6	7.6	1.5	1.9	.59	2.2
28	.51	1.2	.76	1.0	1.2	1.4	13	4.5	1.4	1.3	.54	32
29	.21	1.9	.80	1.1	1.3	2.9	8.0	4.0	1.3	1.1	.59	.96
30	.23	3.8	.83	1.2	---	2.1	3.6	27	1.1	1.2	.63	.78
31	.26	---	.84	1.3	---	2.1	---	97	---	.89	32	---
TOTAL	5.52	37.51	45.56	34.32	69.0	155.5	474.2	533.2	207.8	257.23	59.58	141.64
MEAN	.18	1.25	1.47	1.11	2.38	5.02	15.8	17.2	6.93	8.30	1.92	4.72
MAX	.51	5.0	.19	2.0	14	33	197	128	123	130	.32	.32
MIN	.09	.25	.58	.63	1.2	1.2	1.7	2.0	1.1	.89	.54	.78
CFSM	.02	.13	.15	.11	.24	.50	1.58	1.72	.69	.83	.19	.47
IN.	.02	.14	.17	.13	.26	.58	1.76	1.98	.77	.96	.22	.53
AC-FT	11	74	90	68	137	308	941	1060	412	510	118	281
(††)	0	.99	1.46	.22	1.12	2.58	6.44	6.15	1.77	4.12	1.73	3.26
CAL YR 1975	TOTAL	2801.57	MEAN 7.68	MAX 362	MIN .09	CFSM .77	IN 10.42	AC-FT 5560	†† 28.42			
WTR YR 1976	TOTAL	2021.06	MEAN 5.52	MAX 197	MIN .09	CFSM .55	IN 7.52	AC-FT 4010	†† 29.84			

PEAK DISCHARGE (BASE, 1,000 FT<sup>3</sup>/S)

DATE	TIME	ELEV.	DISCHARGE	DATE	TIME	ELEV.	DISCHARGE
4-19	0320	454.17	1,630	6-18	0945	456.05	2,340
5-6	0515	452.52	1,090	7-16	1450	455.47	2,100
5-26	1845	455.96	2,300				

†† Weighted-mean rainfall, in inches, based on two rain gages.

## TRINITY RIVER BASIN

455

08056500 Turtle Creek at Dallas, Tex.

LOCATION.--Lat 32°48'26", long 96°48'08", Dallas County, on left bank 68 ft (21 m) upstream from Hall Street Dam, 210 ft (64 m) upstream from Hall Street in Dallas, and 2.0 miles (3.2 km) north of Dallas County Courthouse.

DRAINAGE AREA.--7.98 mi<sup>2</sup> (20.67 km<sup>2</sup>).

PERIOD OF RECORD.--Annual maximums, water years 1948-51, October 1951 to current year. Daily discharge records for April 1948 to September 1951, published in WSP 1392, are unreliable and should not be used.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 428.13 ft (130.494 m) above mean sea level. Prior to Dec. 17, 1951, at site 52 ft (16 m) upstream at same datum.

AVERAGE DISCHARGE.--25 years, 8.16 ft<sup>3</sup>/s (0.231 m<sup>3</sup>/s), 13.89 in/yr (353 mm/yr), 5,910 acre-ft/yr (7.29 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 3,400 ft<sup>3</sup>/s (96.3 m<sup>3</sup>/s) Apr. 19 (gage height, 6.95 ft or 2.118 m); minimum daily, 0.34 ft<sup>3</sup>/s (0.010 m<sup>3</sup>/s) Oct. 19.

Period of record: Maximum discharge, 12,200 ft<sup>3</sup>/s (346 m<sup>3</sup>/s) Apr. 28, 1966 (gage height, 10.54 ft or 3.213 m), from rating curve extended above 2,460 ft<sup>3</sup>/s (69.7 m<sup>3</sup>/s) on basis of contracted-opening measurement of 12,200 ft<sup>3</sup>/s (346 m<sup>3</sup>/s); no flow at times most years.

Maximum stage since at least 1903, that of April 28, 1966.

REMARKS.--Records good. Flow slightly affected by eight small channel dams above station. Five recording rain gages are operated in basin above station.

REVISIONS (WATER YEARS).--See PERIOD OF RECORD.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP				
1	.50	.58	.96	2.1	1.6	1.4	1.6	2.3	6.9	1.4	1.0	95				
2	.81	31	.82	1.9	1.2	1.5	1.9	1.6	5.2	1.3	.98	6.0				
3	.77	2.4	.76	2.0	1.1	1.5	4.1	1.5	4.8	30	1.0	55				
4	.75	.97	.91	2.4	1.4	2.5	3.4	1.6	4.5	9.1	.99	4.2				
5	.76	.94	1.5	2.2	1.7	2.6	2.1	51	3.6	7.6	1.2	2.4				
6	.82	1.3	1.1	1.9	1.5	1.1	1.5	18	2.8	1.9	1.1	1.9				
7	.77	1.3	1.0	2.4	1.2	31	9.3	2.7	9.5	1.5	.97	1.7				
8	.48	1.1	.98	4.1	1.2	42	3.8	2.7	3.7	1.8	.99	2.3				
9	.42	1.1	.99	2.0	1.6	4.1	1.8	2.2	2.9	28	.99	12				
10	.40	.78	1.0	2.4	1.6	2.9	1.7	2.4	2.3	5.3	.95	2.5				
11	.44	.84	1.1	2.9	1.5	12	1.9	1.9	2.1	3.1	.97	1.7				
12	.44	1.2	1.2	3.8	1.7	7.1	1.8	34	2.1	2.6	.88	1.1				
13	.46	2.0	1.1	2.3	1.9	3.5	22	11	1.9	1.5	.92	.99				
14	.48	1.4	1.1	1.6	1.8	2.2	2.9	3.3	1.9	1.5	1.2	.92				
15	.75	1.2	1.3	1.5	2.0	1.8	5.5	2.1	1.9	4.1	.82	1.1				
16	.50	1.0	1.1	1.4	1.5	1.4	39	1.6	3.9	84	.82	1.1				
17	.39	1.0	1.1	1.4	21	1.7	4.4	1.2	2.4	4.1	.83	1.1				
18	.40	.95	1.2	1.5	2.3	1.9	64	1.0	91	6.0	.82	26				
19	.34	3.2	1.6	2.4	2.1	1.8	350	1.1	6.7	3.1	.93	11				
20	.42	2.9	1.5	3.0	14	1.5	30	1.3	2.3	1.6	.82	12				
21	.52	.80	1.4	1.3	6.0	1.4	6.2	1.3	1.9	1.6	.84	1.7				
22	.59	.79	1.4	1.2	1.4	1.6	5.2	1.1	2.1	1.5	.76	1.4				
23	.54	1.1	1.9	1.3	1.1	2.5	4.7	93	2.1	1.4	3.9	1.2				
24	.83	1.1	52	3.7	1.1	32	38	10	2.6	1.0	50	1.0				
25	.51	1.2	13	4.4	1.3	3.4	2.6	25	4.1	1.1	2.5	.98				
26	.43	1.2	3.2	1.3	1.4	2.5	2.6	120	2.0	1.1	1.4	15				
27	.43	.82	2.5	1.1	1.3	1.6	2.6	9.2	1.5	1.3	1.0	4.7				
28	.42	1.1	2.0	1.1	1.4	31	24	4.0	1.3	1.8	.92	17				
29	.41	7.6	2.3	1.3	1.4	3.7	8.4	3.2	1.4	1.1	.90	1.5				
30	.46	9.4	2.1	1.3	---	1.9	2.4	73	1.3	1.2	.93	.95				
31	.60	---	2.2	2.0	---	1.9	---	116	---	1.3	70	---				
TOTAL	16.84	82.27	106.32	65.2	80.3	209.0	649.4	600.3	182.7	213.9	152.33	285.44				
MEAN	.54	2.74	3.43	2.10	2.77	6.74	21.6	19.4	6.09	6.90	4.91	9.51				
MAX	.83	31	52	4.4	21	42	350	120	91	84	70	95				
MIN	.34	.58	.76	1.1	1.1	1.1	1.5	1.0	1.3	1.0	.76	.92				
CFSM	.07	.34	.43	.26	.35	.84	2.71	2.43	.76	.86	.62	1.19				
IN.	.08	.38	.50	.30	.37	.97	3.03	2.80	.85	1.00	.71	1.33				
AC-FT	33	163	211	129	159	415	1290	1190	362	424	302	566				
(††)	.07	1.41	1.51	.33	.86	2.99	6.74	6.95	1.67	2.87	2.33	4.47				
CAL YR 1975	TOTAL	3013.42	MEAN	8.26	MAX	367	MIN	.34	CFSM	1.04	IN	14.05	AC-FT	5980	††	29.66
WTR YR 1976	TOTAL	2644.00	MEAN	7.22	MAX	350	MIN	.34	CFSM	.90	IN	12.32	AC-FT	5240	††	32.20

PEAK DISCHARGE (BASE, 1,200 FT<sup>3</sup>/S)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
4-19	0245	6.95	3,400	5-30	2315	4.72	1,440
5-23	2215	4.80	1,500	8-31	1645	4.65	1,380
5-26	1845	5.62	2,180				

†† Weighted-mean rainfall, in inches, based on five rain gages.

## TRINITY RIVER BASIN

08057000 Trinity River at Dallas, Tex.

LOCATION (revised).--Lat 32°46'31", long 96°49'18", Dallas County, on right bank (levee) 90 ft (27 m) downstream from Commerce Street viaduct in Dallas, 5.2 miles (8.4 km) downstream from confluence of West and Elm Forks, and at mile 500.3 (805.0 km).

DRAINAGE AREA.--6,106 mi<sup>2</sup> (15,815 km<sup>2</sup>).

PERIOD OF RECORD.--October 1898 to December 1899 (gage heights only published in WSP 28 and 37), July 1903 to current year.

GAGE.--Water-stage recorder. Datum of gage is 368.02 ft (112.172 m) above mean sea level. Oct. 1, 1898, to Dec. 31, 1899, nonrecording gage at site 2 miles (3 km) upstream at different datum. July 1, 1903, to July 20, 1930, nonrecording gage at present site and datum. July 21, 1930, to Sept. 30, 1932, nonrecording gage at site 6 miles (10 km) downstream at datum 3.08 ft (0.939 m) lower.

AVERAGE DISCHARGE.--73 years, 1,503 ft<sup>3</sup>/s (42.56 m<sup>3</sup>/s), 1,089,000 acre-ft/yr (1.34 km<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 22,400 ft<sup>3</sup>/s (634 m<sup>3</sup>/s) Apr. 20 (gage height, 37.41 ft or 11.403 m); minimum daily, 139 ft<sup>3</sup>/s (3.94 m<sup>3</sup>/s) Nov. 13.

Period of record: Maximum discharge, 184,000 ft<sup>3</sup>/s (5,210 m<sup>3</sup>/s) May 25, 1908 (gage height, 52.6 ft or 16.03 m), from rating curve extended above 109,000 ft<sup>3</sup>/s (3,090 m<sup>3</sup>/s); minimum observed for periods 1903-6, 1920-75, 1.2 ft<sup>3</sup>/s (0.034 m<sup>3</sup>/s) July 4, 1953, result of storage behind temporary dam 4 miles (6 km) upstream.

Maximum stage since at least 1840, that of May 25, 1908. Flood in 1866 reached about the same stage.

REMARKS.--Records good except those for Oct. 1-19 and May 15-25, which are fair. At times flow is affected by storage in seven upstream reservoirs, combined capacity 1,703,700 acre-ft (2.10 km<sup>3</sup>) of which 846,200 acre-ft (1.04 km<sup>3</sup>) is for flood control. The city of Dallas reported the diversion for municipal use during the current year of 166,200 acre-ft (205 hm<sup>3</sup>) of water from the Elm Fork, 23,284 acre-ft (28.7 hm<sup>3</sup>) from Lake Tawakoni (on Sabine River), the purchase of 9,510 acre-ft (11.7 hm<sup>3</sup>) from North Texas Municipal Water District (from the East Fork), and the return of 144,700 acre-ft (178 hm<sup>3</sup>) of sewage effluent to river 4 miles (6 km) downstream from station. The Trinity River Authority reported a discharge of 47,760 acre-ft (58.9 hm<sup>3</sup>) of sewage effluent into the river above the station. For other diversions and effluent returns above station see records for stations 08048000, 08049200, and 08049500.

REVISIONS (WATER YEARS).--WSP 850: 1903-6 (monthly and annual means). WSP 1732: 1937(M). WSP 1922: Drainage area. WRD Texas 1973: 1972.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	183	151	347	245	231	212	210	394	8470	252	229	2190
2	190	295	196	204	197	227	241	434	3150	210	191	1660
3	185	563	177	194	194	217	250	452	2730	301	175	1370
4	181	267	167	202	209	219	224	435	2890	1060	203	1790
5	178	188	169	194	202	239	219	1190	2180	969	193	554
6	184	179	158	197	179	231	171	4260	804	485	183	315
7	189	196	170	202	179	298	299	3080	793	297	184	301
8	198	142	169	204	187	884	609	1320	718	224	171	268
9	190	148	161	214	202	665	344	474	511	430	169	578
10	191	166	170	229	220	299	231	321	444	688	174	372
11	181	171	154	235	220	258	204	281	423	503	220	240
12	174	166	150	279	217	464	176	489	441	699	220	217
13	177	139	157	235	220	411	398	1580	428	370	215	216
14	175	144	155	241	212	264	538	880	384	493	217	211
15	175	158	153	231	204	290	308	600	369	370	234	199
16	185	152	163	225	209	236	1040	450	306	844	224	198
17	179	149	180	214	350	121	828	400	279	1550	213	268
18	170	150	151	212	329	195	2560	380	1150	2040	233	324
19	162	156	166	217	303	182	12200	400	1450	824	180	736
20	170	171	165	245	297	170	19400	350	1100	333	195	783
21	180	189	148	256	423	159	9810	310	345	273	225	586
22	173	164	152	220	297	159	4690	290	264	266	163	336
23	180	179	159	222	239	164	1890	380	244	270	170	262
24	173	154	607	222	220	641	1450	1100	229	234	514	236
25	160	152	1740	229	232	1200	904	700	245	306	328	230
26	154	157	863	237	225	399	504	2300	281	340	191	247
27	157	163	389	222	210	273	388	5770	245	245	185	299
28	169	153	297	202	214	465	730	1590	190	224	184	505
29	175	159	277	207	213	413	1550	932	191	220	192	555
30	167	320	287	204	---	232	655	856	188	210	322	307
31	157	---	270	209	---	202	---	6800	---	222	627	---
TOTAL	5462	5641	8667	6849	6834	10489	63021	39198	31442	15752	7124	16353
MEAN	176	188	280	221	236	338	2101	1264	1048	508	230	545
MAX	198	563	1740	279	423	1200	19400	6800	8470	2040	627	2190
MIN	154	139	148	194	179	159	171	281	188	210	163	198
AC-FT	10830	11190	17190	13580	13560	20800	125000	77750	62370	31240	14130	32440
CAL YR 1975	TOTAL	869960	MEAN	2383	MAX	25400	MIN	139	AC-FT	1726000		
WTR YR 1976	TOTAL	216832	MEAN	592	MAX	19400	MIN	139	AC-FT	430100		

## TRINITY RIVER BASIN

457

08057100 White Rock Creek at Keller Springs Road, Dallas, Tex.

LOCATION.--Lat 32°58'13", long 96°48'19", Dallas County, on left bank at downstream side of bridge on Keller Springs Road, 0.5 mile (0.8 km) upstream from St. Louis Southwestern Railway Lines bridge, 0.9 mile (1.4 km) upstream from Spanky Branch, and 13 miles (21 km) north of Dallas County Courthouse.

DRAINAGE AREA.--29.4 mi<sup>2</sup> (76.1 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Oct. 25, 1961, nonrecording gage at same site and datum.

AVERAGE DISCHARGE.--15 years, 18.4 ft<sup>3</sup>/s (0.521 m<sup>3</sup>/s), 8.50 in/yr (216 mm/yr), 13,330 acre-ft/yr (16.4 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 1,080 ft<sup>3</sup>/s (30.6 m<sup>3</sup>/s) May 31 (elevation, 550.53 ft or 167.802 m); no flow at times.  
Period of record: Maximum discharge, 37,900 ft<sup>3</sup>/s (1,070 m<sup>3</sup>/s) Sept. 21, 1964 (elevation, 574.51 ft or 175.111 m), from rating curve extended above 5,000 ft<sup>3</sup>/s (142 m<sup>3</sup>/s) on basis of contracted-opening measurement of 37,900 ft<sup>3</sup>/s (1,070 m<sup>3</sup>/s); no flow for many days most years.  
Maximum elevation since at least 1886, that of Sept. 21, 1964. Flood of Apr. 19, 1942, reached an elevation of 569.6 ft (173.61 m), from information by local resident.

REMARKS.--Records good. The Preston Trail Golf Club 0.5 mile (0.8 km) upstream diverted 33.9 acre-ft (41,800 m<sup>3</sup>) during year for irrigation. Flow is slightly affected by two small floodwater-retarding structures above station. Three recording rain gages are operated in the basin above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.08	0	.26	.38	.54	.63	3.1	2.4	24	.27	1.0	63
2	.04	.28	.22	.38	.54	.32	2.4	1.5	13	.56	.83	3.4
3	.03	.53	.22	.38	.50	.26	1.6	1.0	7.9	.97	.52	2.7
4	.03	.45	.26	.38	.38	.22	8.0	.76	5.5	2.0	.30	1.3
5	.06	.59	3.2	.38	.32	.32	2.5	13	3.4	4.7	.29	.74
6	.13	.63	1.0	.38	.38	.63	2.1	142	3.0	9.8	.20	.47
7	.06	.70	.54	1.1	.40	4.1	4.2	26	2.1	1.5	.19	.36
8	.03	.63	.53	.58	.38	10	2.7	20	2.0	1.49	.27	.25
9	.02	.61	.96	.81	.37	5.6	8.6	19	1.0	1.3	.28	.21
10	.01	.33	1.2	.45	.40	3.4	11	20	.69	9.4	.18	.14
11	0	.40	.97	.38	.52	3.6	7.6	16	.35	17	.17	.09
12	0	.21	1.0	.38	.52	4.3	3.4	24	.32	26	.08	.08
13	0	.07	.67	.37	.31	1.3	2.3	42	.52	4.9	.03	.07
14	0	.05	.67	.34	.47	1.5	1.2	23	.21	3.9	.01	.05
15	0	.15	.49	.35	.62	.97	.86	19	.03	6.5	0	.06
16	0	.16	.38	.38	.62	.53	3.6	15	.12	33	0	.08
17	0	.15	.34	.38	1.5	.52	2.0	9.8	.08	13	0	.09
18	.10	.08	.22	.49	.53	.45	26	2.9	23	7.1	0	.15
19	.06	.05	.19	.59	.60	.38	33	7.5	55	20	0	.35
20	.01	.09	.19	.51	1.1	.45	52	8.3	24	2.3	0	.22
21	0	.10	.19	.45	1.5	.63	12	5.3	14	1.7	0	.08
22	0	.12	.19	.45	.45	.63	3.9	12	13	1.5	0	.04
23	0	.15	.19	.45	.45	.54	1.9	53	8.2	1.1	0	.05
24	0	.20	.84	.62	.63	1.1	8.6	45	9.5	1.2	0	.08
25	0	.20	.99	.63	.63	.34	1.7	27	12	26	0	.07
26	0	.15	.47	.63	.38	.72	1.1	143	13	4.8	0	.06
27	0	.13	.39	.54	.45	.52	1.2	72	12	1.1	0	.15
28	0	.16	.38	.52	.54	3.6	2.7	29	6.2	1.2	0	.93
29	0	.42	.38	.45	.63	3.9	19	22	.58	1.0	0	.33
30	0	.54	.38	.45	---	4.3	5.1	23	.39	1.90	0	.22
31	0	---	.38	.50	---	5.6	---	224	---	1.0	0	---
TOTAL	.66	8.53	18.29	15.08	16.48	61.36	235.36	1068.46	255.09	206.19	4.35	75.82
MEAN	.021	.28	.59	.49	.57	1.98	7.85	34.5	8.50	6.65	.14	2.53
MAX	.13	.83	3.2	1.1	1.5	10	52	224	55	33	1.0	.63
MIN	0	0	.19	.34	.31	.22	.86	.76	.03	.23	0	.04
CFSM	.0007	.010	.02	.02	.02	.07	.27	1.17	.29	.23	.005	.09
IN.	.0008	.01	.02	.02	.02	.08	.30	1.35	.32	.26	.006	.10
AC-FT	1.3	.17	.36	.30	.33	1.22	4.67	21.20	5.06	4.09	8.6	150
(+)	0	1.34	1.30	.18	.71	3.23	5.17	7.32	1.80	3.26	1.18	2.48
CAL YR 1975	TOTAL	6449.96	MEAN	17.7	MAX	1500	MIN	0	CFSM	.60	IN	8.16
WTR YR 1976	TOTAL	1965.67	MEAN	5.37	MAX	224	MIN	0	CFSM	.18	IN	2.49
									AC-FT	3900	+	27.98

PEAK DISCHARGE (BASE, 1,500 FT<sup>3</sup>/S).--No peak above base.

++ Weighted-mean rainfall, in inches, based on three rain gages.

## TRINITY RIVER BASIN

08057200 White Rock Creek at Greenville Avenue, Dallas, Tex.

LOCATION.--Lat 32°53'21", long 96°45'23", Dallas County, on left bank 20 ft (6 m) downstream from bridge on Greenville Avenue in Dallas, 1.1 miles (1.8 km) downstream from Texas and New Orleans Railroad Co. bridge, 1.2 miles (1.9 km) downstream from Cottonwood Creek, 2.9 miles (4.7 km) upstream from White Rock Lake, and 8.2 miles (13.2 km) northeast of Dallas County Courthouse.

DRAINAGE AREA.--66.4 mi<sup>2</sup> (172.0 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Oct. 24, 1961, nonrecording gage at same site and datum.

AVERAGE DISCHARGE.--15 years, 57.9 ft<sup>3</sup>/s (1.640 m<sup>3</sup>/s), 11.84 in/yr (301 mm/yr), 41,950 acre-ft/yr (51.7 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 2,530 ft<sup>3</sup>/s (71.6 m<sup>3</sup>/s) July 16 (elevation, 483.19 ft or 147.276 m); minimum daily, 0.30 ft<sup>3</sup>/s (0.008 m<sup>3</sup>/s) Oct. 16.

Period of record: Maximum discharge, 38,100 ft<sup>3</sup>/s (1,080 m<sup>3</sup>/s) Sept. 21, 1964 (elevation, 490.43 ft or 149.483 m); minimum daily, 0.01 ft<sup>3</sup>/s (0.0003 m<sup>3</sup>/s) July 8, 1970, June 27, July 14, 1971.

Maximum elevation since at least 1886, that of Sept. 21, 1964.

REMARKS.--Records good. Some regulation at low flow by on- and off-channel dams from which many small diversions are made. The city of Dallas reported that the Royal Oaks Country Club, 0.1 mile (0.2 km) upstream, diverted 40.4 acre-ft (49,800 m<sup>3</sup>) during the water year. Six recording rain gages were operated in basin above station during the year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP				
1	.93	2.4	6.4	5.9	6.2	6.0	9.3	25	51	6.0	5.0	48				
2	1.2	5.4	6.0	5.7	5.6	5.9	8.9	22	34	5.3	3.9	15				
3	1.2	8.6	5.7	5.6	5.4	5.6	20	21	28	17	2.8	36				
4	1.5	6.2	5.5	5.2	5.6	19	35	19	24	79	2.9	9.4				
5	2.3	5.4	7.3	5.2	12	7.7	12	144	26	67	2.8	6.6				
6	1.6	5.4	7.2	5.2	5.9	5.2	9.3	298	21	12	2.7	6.2				
7	1.8	5.2	5.9	4.9	5.1	32	21	46	19	9.5	4.6	6.1				
8	1.5	5.2	5.2	5.5	5.7	114	12	34	17	8.4	3.9	5.6				
9	1.2	5.5	5.0	5.7	6.3	13	7.6	28	15	19	2.4	8.1				
10	1.3	5.4	5.8	6.4	6.5	9.6	7.1	26	14	18	2.7	6.2				
11	1.6	5.3	5.9	5.7	9.1	12	8.1	23	13	57	2.5	4.7				
12	2.2	5.0	5.2	5.1	13	17	6.4	101	12	22	2.4	4.6				
13	2.2	5.4	6.0	5.3	13	8.6	38	73	13	14	2.2	3.4				
14	1.3	5.6	6.1	5.2	7.1	9.6	8.3	38	11	9.7	2.4	3.1				
15	.71	4.9	5.9	5.2	6.7	7.9	7.0	26	9.3	13	3.4	3.2				
16	.30	5.6	5.5	5.5	6.2	6.9	91	22	10	269	2.7	3.2				
17	.94	5.7	5.0	5.1	51	6.5	10	19	9.8	25	1.7	3.1				
18	1.4	4.7	6.5	5.4	7.4	6.4	125	18	342	39	4.1	58				
19	2.6	9.4	7.7	7.3	5.7	7.0	345	17	61	37	12	27				
20	1.9	9.4	28	9.3	35	6.1	154	17	25	12	1.9	37				
21	1.0	5.1	21	5.4	20	6.1	42	16	18	10	1.7	7.1				
22	1.3	4.1	13	5.1	7.2	5.2	32	16	15	11	2.8	5.0				
23	1.4	4.7	4.1	4.2	13	5.2	28	158	14	8.0	7.2	4.6				
24	2.2	4.2	107	7.3	6.7	90	130	116	14	7.1	28	4.6				
25	2.0	5.4	32	12	5.9	15	29	91	16	77	3.2	4.3				
26	2.9	4.9	8.2	5.8	5.4	12	25	339	11	16	2.5	16				
27	2.6	5.6	7.6	5.1	5.7	9.7	23	135	11	7.6	3.4	8.5				
28	2.4	6.1	5.9	5.4	5.4	57	87	37	8.3	6.9	2.2	78				
29	1.8	11	5.4	5.5	6.2	15	63	28	6.1	6.5	3.5	6.7				
30	1.9	30	5.4	5.3	---	9.5	31	75	6.4	4.6	3.0	5.4				
31	2.2	---	6.0	5.9	---	9.6	---	463	---	4.0	99	---				
TOTAL	51.38	245.4	357.4	181.4	294.0	540.3	1425.0	2491	874.9	897.6	225.5	434.7				
MEAN	1.66	8.18	11.5	5.85	10.1	17.4	47.5	80.4	29.2	29.0	7.27	14.5				
MAX	2.9	54	107	12	51	114	345	463	342	269	99	78				
MIN	.30	2.4	4.1	4.2	5.1	5.2	6.4	16	6.1	4.0	1.7	3.1				
CFSM	.03	.12	.17	.09	.15	.26	.72	1.21	.44	.44	.11	.22				
IN.	.03	.14	.20	.10	.16	.30	.80	1.40	.49	.50	.13	.24				
AC-FT	102	487	709	360	583	1070	2830	4940	1740	1780	447	862				
(††)	.02	1.34	1.37	.26	.83	2.92	5.17	7.04	1.90	3.55	1.35	2.36				
CAL YR 1975	TOTAL	19864.00	MEAN	54.4	MAX	3410	MIN	.30	CFSM	.82	IN	11.13	AC-FT	39400	††	29.63
WTR YR 1976	TOTAL	8018.58	MEAN	21.9	MAX	463	MIN	.30	CFSM	.33	IN	4.49	AC-FT	15900	††	28.11

PEAK DISCHARGE (BASE, 2,900 FT<sup>3</sup>/S).--No peak above base.

†† Weighted-mean rainfall, in inches, based on six rain gages.

## TRINITY RIVER BASIN

459

08057300 White Rock Creek at White Rock Lake, Dallas, Tex.

LOCATION.--Lat 32°48'31", long 96°43'32", Dallas County, on right bank 500 ft (150 m) upstream from right end of White Rock Lake spillway, 1,500 ft (457 m) upstream from bridge on Garland Road (State Highway 78) in Dallas, and 10.3 miles (16.6 km) upstream from mouth.

DRAINAGE AREA.--100 mi<sup>2</sup> (259 km<sup>2</sup>).

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

GAGE.--Water-stage recorder and flat-crested concrete dam. Datum of gage is at mean sea level.

AVERAGE DISCHARGE.--14 years, 80.0 ft<sup>3</sup>/s (2.266 m<sup>3</sup>/s), 10.86 in/yr (276 mm/yr), 57,960 acre-ft/yr (71.5 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 2,960 ft<sup>3</sup>/s (83.8 m<sup>3</sup>/s) Apr. 19 (elevation, 459.60 ft or 140.086 m); no flow at times.

Period of record: Maximum discharge, 28,300 ft<sup>3</sup>/s (801 m<sup>3</sup>/s) Sept. 21, 1964 (elevation, 465.60 ft or 141.915 m); no flow at times each year.

Maximum elevation since 1910, that of Sept. 21, 1964. Flood of Apr. 20, 1942, reached an elevation of 465.2 ft (141.79 m), from information by city of Dallas.

REMARKS.--Records poor below 50 ft<sup>3</sup>/s (1.42 m<sup>3</sup>/s) and fair above. Discharge is outflow of White Rock Lake (capacity, 10,700 acre-ft or 13.2 hm<sup>3</sup> in 1970 at spillway crest). Storage in White Rock Lake began in 1910 and has been used at times by city of Dallas as a source of municipal water supply. Records furnished by city of Dallas show that during year 3.4 acre-ft (4,190 m<sup>3</sup>) was diverted from the lake for irrigation. Seven recording rain gages are operated in the basin above this station. A lake sedimentation survey by the Soil Conservation Service was made in October 1970.

REVISIONS (WATER YEARS).--WRD Texas 1974: 1968-70(M), 1972-73(M).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			0	8.1	3.3	9.0	8.6	38	257	7.0	6.1	17
2			0	6.9	3.1	9.0	8.6	14	116	7.0	5.1	35
3			0	6.1	2.5	8.5	8.8	15	69	50	4.1	75
4			0	5.5	2.1	20	9.6	9.5	63	85	3.3	63
5			0	4.9	2.1	12	9.6	98	47	400	2.7	18
6			0	4.7	1.9	8.0	8.8	643	35	200	2.3	10
7			0	4.3	2.0	40	8.6	233	23	20	2.1	8.6
8			.30	3.9	1.9	170	9.3	70	30	15	1.7	7.8
9			.68	3.9	2.0	20	8.6	41	18	9.6	1.3	7.6
10			.68	3.9	2.2	15	7.7	34	12	30	.68	6.1
11			.68	3.9	2.5	20	7.3	36	10	30	.30	5.3
12			1.1	3.9	2.8	25	7.1	63	9.1	55	0	4.5
13			1.1	3.9	3.1	13	11	257	8.6	14	0	4.1
14			1.5	3.7	3.3	15	10	121	7.8	9.6	0	3.3
15			1.3	3.7	3.3	12	9.2	48	7.8	9.6	0	2.9
16			1.3	3.5	3.4	11	99	49	7.8	404	0	2.5
17			.89	3.5	5.1	10	42	27	7.8	448	0	2.1
18			.89	3.5	7.7	10	309	9.2	452	153	0	2.7
19			.68	3.5	7.1	11	1480	8.9	348	100	0	8.6
20			1.7	3.7	6.8	10	350	8.6	84	41	0	10
21			2.5	3.7	12	10	98	8.6	18	18	0	9.1
22			2.9	3.7	8.3	10	34	8.3	10	12	0	7.8
23			3.1	3.6	7.6	10	18	65	9.1	9.6	0	6.9
24			30	3.8	7.1	14	241	493	9.1	9.1	.42	6.3
25			143	4.7	6.3	30	71	145	10	9.6	.48	5.7
26			84	4.3	6.3	14	15	356	9.6	14	.10	5.1
27			41	3.8	6.1	12	11	730	9.3	11	0	25
28			23	3.7	5.9	100	45	146	8.6	8.8	0	45
29			11	3.7	5.7	100	157	75	7.6	7.8	0	10
30			8.8	3.7	---	14	72	76	7.2	7.1	0	8.0
31		---	8.3	3.7	---	9.1	---	1060	---	6.5	.44	---
TOTAL	0	0	370.40	131.4	133.5	771.6	3174.8	4986.1	1711.4	2201.3	31.12	423.0
MEAN	0	0	11.9	4.24	4.60	24.9	106	161	57.0	71.0	1.00	14.1
MAX	0	0	143	8.1	12	170	1480	1060	452	448	6.1	75
MIN	0	0	0	3.5	1.9	8.0	7.1	8.3	7.2	6.5	0	2.1
CFSM	0	0	.12	.04	.05	.25	1.06	1.61	.57	.71	.01	.14
IN.	0	0	.14	.05	.05	.29	1.18	1.85	.64	.82	.01	.16
AC-FT	0	0	735	261	265	1530	6300	9890	3390	4370	62	839
(††)	.02	1.34	1.43	.29	.82	3.09	5.64	7.00	1.85	3.84	1.37	2.57
CAL YR 1975 TOTAL	31384.75											
WTR YR 1976 TOTAL	13934.62											
MEAN	86.0											
MAX	5010											
MIN	0											
CFSM	.86											
IN	11.68											
AC-FT	62250											
††	29.76											
WTR YR 1976 TOTAL	13934.62											
MEAN	38.1											
MAX	1480											
MIN	0											
CFSM	.38											
IN	5.18											
AC-FT	27640											
††	29.26											

†† Weighted-mean rainfall, in inches, based on seven rain gages.



## TRINITY RIVER BASIN

08057400 White Rock Creek at Scyene Road, Dallas, Tex.

LOCATION.--Lat 32°45'57", long 96°43'49", Dallas County, on left bank 30 ft (9 m) downstream from Texas and New Orleans Railroad Co. bridge, 125 ft (38 m) downstream from Scyene Road (State Highway 352) in Dallas, 4.5 miles (7.2 km) east of Dallas County Courthouse, and 5.8 miles (9.3 km) upstream from mouth.

DRAINAGE AREA.--122 mi<sup>2</sup> (316 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Dec. 7, 1962, nonrecording gage 30 ft (9 m) upstream at same datum.

AVERAGE DISCHARGE.--14 years, 111 ft<sup>3</sup>/s (3.144 m<sup>3</sup>/s), 12.36 in/yr (314 mm/yr), 80,420 acre-ft/yr (99.2 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 9,550 ft<sup>3</sup>/s (270 m<sup>3</sup>/s) Apr. 19 (elevation, 401.68 ft or 122.432 m); minimum daily, 1.6 ft<sup>3</sup>/s (0.045 m<sup>3</sup>/s) June 17.

Period of record: Maximum discharge, 30,200 ft<sup>3</sup>/s (855 m<sup>3</sup>/s) Sept. 21, 1964 (elevation, 404.30 ft or 123.231 m), from rating curve extended above 20,000 ft<sup>3</sup>/s (566 m<sup>3</sup>/s) on basis of contracted-opening measurement of 30,200 ft<sup>3</sup>/s (855 m<sup>3</sup>/s); minimum daily, 0.4 ft<sup>3</sup>/s (0.011 m<sup>3</sup>/s) Aug. 2, 3, 1964.

Maximum elevation since at least 1886, 409.2 ft (124.72 m) May 26, 1908 (affected by backwater from the Trinity River); maximum discharge since at least 1886, that of Sept. 21, 1964; the second highest discharge occurred Apr. 20, 1942, 28,000 ft<sup>3</sup>/s (793 m<sup>3</sup>/s), from Geological Survey Open-File Report "Frequency and Extent of Flooding on Lower White Rock Creek at Dallas, Tex."

REMARKS.--Records good. Flow partly regulated by White Rock Lake (capacity, 10,700 acre-ft or 13.2 hm<sup>3</sup>, at normal level) 4.5 miles (7.2 km) upstream. The Dallas Power and Light Co. reported diversion of 1,350 acre-ft (1.66 hm<sup>3</sup>) to off-channel reservoir at generating plant 0.8 mile (1.3 km) upstream from station. Low flow is sustained by wastewater. Seven recording rain gages (fourteen prior to Sept. 30, 1972) above station and one at station have been operated in basin since 1962.

REVISIONS (WATER YEARS).--WSP 2122: Drainage area. WRD Texas 1973: 1972.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	2.7	2.6	22	9.8	18	27	64	394	7.1	23	163
2	2.3	45	2.4	31	9.7	18	22	38	143	4.7	22	70
3	2.5	5.4	2.4	31	9.9	19	24	35	95	92	16	86
4	2.7	3.1	2.4	24	9.5	22	25	34	70	95	12	106
5	2.5	2.4	3.0	16	22	15	28	171	59	497	11	29
6	2.4	2.2	2.4	16	12	3.7	25	667	52	297	11	8.8
7	2.4	2.1	2.1	18	11	52	24	297	50	76	12	28
8	2.5	2.1	2.1	22	11	475	30	93	47	34	10	29
9	2.7	2.1	2.1	17	12	178	29	50	42	121	9.5	34
10	2.9	2.1	2.1	17	12	56	25	44	31	86	8.2	28
11	2.3	2.3	2.3	16	13	40	23	41	21	83	7.5	20
12	2.3	2.5	2.4	15	13	73	19	58	15	113	7.5	14
13	2.4	2.6	2.5	13	10	69	88	296	13	67	7.5	12
14	2.4	2.7	2.5	4.2	3.6	26	33	131	13	47	7.0	12
15	2.4	2.7	2.5	3.0	3.2	23	28	64	11	48	9.1	11
16	3.2	2.7	2.6	2.8	3.1	44	199	49	2.1	258	5.7	10
17	3.6	2.5	2.6	2.7	29	20	87	26	1.6	532	5.2	9.5
18	3.7	2.7	2.7	4.0	15	15	579	2.7	608	165	4.9	14
19	3.4	7.3	2.7	8.6	13	6.6	3160	6.9	381	180	4.4	25
20	3.4	4.9	2.6	10	33	3.3	701	1.7	119	91	5.8	31
21	5.3	2.1	2.3	8.7	86	13	279	3.2	48	71	4.7	50
22	10	2.2	2.3	8.7	58	13	116	8.5	16	63	3.3	39
23	6.5	2.3	2.4	8.7	23	12	65	144	14	46	9.7	34
24	3.4	2.7	77	10	7.0	89	351	603	21	38	105	32
25	2.6	3.7	134	15	20	68	129	214	31	34	22	20
26	2.4	4.3	39	8.3	23	48	55	403	23	38	8.8	22
27	2.4	4.4	16	8.9	21	44	37	810	18	29	6.1	29
28	2.5	4.7	34	8.9	20	237	74	203	17	47	4.6	54
29	2.4	9.2	44	3.5	19	169	189	84	11	43	4.0	62
30	2.4	21	29	3.2	---	79	93	120	11	33	3.8	42
31	2.7	---	22	9.1	---	34	---	1310	---	27	55	---
TOTAL	99.5	158.2	451.0	386.3	532.0	1982.6	6569	6072.0	2377.7	3362.8	426.3	1124.3
MEAN	3.21	5.27	14.5	12.5	18.3	64.0	219	196	79.3	108	13.8	37.5
MAX	10	45	134	31	86	475	3160	1310	608	532	105	163
MIN	2.3	2.0	2.1	2.7	3.1	3.3	19	1.7	1.6	4.7	3.3	8.8
CFSM	.03	.04	.12	.10	.15	.52	1.80	1.61	.65	.89	.11	.31
IN	.03	.05	.14	.12	.16	.60	2.00	1.85	.72	1.03	.13	.34
AC-FT	197	314	895	766	1060	3930	13030	12040	4720	6670	846	2230
(††)	.01	1.37	1.42	.28	.80	3.22	5.73	7.03	1.82	3.72	1.19	2.41

CAL YR 1975 TOTAL 42328.1 MEAN 116 MAX 5180 MIN 2.0 CFSM .95 IN 12.91 AC-FT 83960 †† 29.67  
WTR YR 1976 TOTAL 23541.7 MEAN 64.3 MAX 3160 MIN 1.6 CFSM .53 IN 7.18 AC-FT 46690 †† 28.90

†† Weighted-mean rainfall, in inches, based on eight rain gages.

## TRINITY RIVER BASIN

461

08057410 Trinity River below Dallas, Tex.

LOCATION.--Lat 32°42'27", long 96°44'08", Dallas County, on left bank at downstream side of bridge on South Loop Highway 12, 1.0 mile (1.6 km) downstream from White Rock Creek, 1.5 miles (2.4 km) upstream from Fivemile Creek, 6.4 miles (10.3 km) southeast of Dallas County Courthouse in Dallas, and at mile 491.8 (791.3 km).

DRAINAGE AREA.--6,278 mi<sup>2</sup> (16,260 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: November 1956 to September 1961 (monthly records only), October 1961 to current year.  
 Water quality: Chemical and biochemical analyses: October 1967 to current year. Pesticide analyses: October 1971 to current year. Water temperatures: October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 365.89 ft (111.523 m) above mean sea level.

AVERAGE DISCHARGE.--19 years (1957-76), 1,704 ft<sup>3</sup>/s (48.26 m<sup>3</sup>/s), 1,235,000 acre-ft/yr (1.52 km<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 21,400 ft<sup>3</sup>/s (606 m<sup>3</sup>/s) Apr. 20 (gage height, 26.89 ft or 8.196 m); minimum, 279 ft<sup>3</sup>/s (7.90 m<sup>3</sup>/s) Oct. 26.

Period of record: Maximum discharge, 65,700 ft<sup>3</sup>/s (1,860 m<sup>3</sup>/s) May 27, 1957 (gage height, 32.02 ft or 9.760 m); minimum daily, 131 ft<sup>3</sup>/s (3.71 m<sup>3</sup>/s) Dec. 9, 1956.

Historic: Flood of May 25, 1908, reached a stage of 41.1 ft (12.53 m), from information by Corps of Engineers, and is the highest since that time. Floods in 1866 and 1908 reached about same stage at Dallas.

Water quality: Current year: Maximum daily specific conductance, 1,090 micromhos Dec. 10; minimum daily, 309 micromhos Apr. 19.

Maximum water temperatures, 31.5°C Aug. 2, 14; minimum, 8.0°C Jan. 8.

Period of record: Maximum daily specific conductance (1967-68, 1972-76), 1,090 micromhos Dec. 10, 1975; minimum daily, 309 micromhos Apr. 19, 1976. Maximum water temperatures (1967-68, 1973-76), 32.0°C Aug. 14, 1975; minimum, 4.0°C Jan. 10, 1968.

REMARKS.--Discharge records good. Flow is affected at times by eight upstream reservoirs having a combined capacity of 1,714,400 acre-ft (2.11 km<sup>3</sup>), of which 846,200 acre-ft (1.04 km<sup>3</sup>) is for flood control. Several cities within the Fort Worth-Dallas metroplex divert water for municipal use and return it to the river as sewage effluents above this station. Low flows are sustained by sewage effluents.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	386	341	561	464	454	466	537	648	9890	595	600	2520
2	393	514	436	458	464	478	561	561	6250	583	594	2500
3	385	755	399	456	450	472	541	612	3170	681	575	1730
4	377	526	379	450	458	464	555	601	3050	1520	578	2380
5	370	412	381	480	482	480	566	922	2590	1520	574	1120
6	377	387	368	472	444	462	506	4370	1070	1300	568	675
7	386	420	364	470	430	512	566	3780	970	884	562	658
8	414	355	382	472	424	1470	897	1220	914	636	538	645
9	394	335	375	488	450	1280	727	796	779	770	542	945
10	397	372	377	488	466	772	545	733	716	1200	556	837
11	386	389	375	482	464	593	502	674	688	917	568	605
12	360	383	364	534	462	753	495	791	690	1120	560	554
13	368	366	355	510	456	784	669	1890	660	835	576	556
14	365	353	354	496	442	571	856	1320	646	872	568	541
15	369	368	359	480	424	580	649	920	636	815	571	551
16	387	357	369	480	438	571	1250	804	604	1040	570	554
17	373	367	393	452	573	521	1280	777	565	2180	587	592
18	354	371	371	446	625	500	2510	716	1450	2660	591	648
19	339	380	376	462	553	492	10300	733	2430	1540	539	1230
20	355	403	369	491	518	471	19200	641	1780	878	558	1240
21	369	392	349	516	748	449	17400	563	851	718	593	1150
22	371	362	356	472	591	459	9260	544	662	706	538	735
23	375	362	374	472	512	464	3480	584	633	687	518	626
24	378	371	703	458	476	846	1740	1560	619	630	918	596
25	342	364	1850	498	472	1490	1230	1210	665	631	760	569
26	331	370	1290	502	496	823	777	2010	659	765	581	551
27	342	355	706	488	470	626	599	6800	604	650	558	664
28	365	349	584	472	452	791	578	2920	575	618	577	834
29	374	348	547	454	450	989	1880	1310	558	617	544	1010
30	361	520	540	450	---	679	1070	1080	560	613	625	692
31	358	---	488	440	---	569	---	6780	---	592	1010	---
TOTAL	11501	11947	15494	14753	14144	20877	81726	48870	45934	29773	18597	28508
MEAN	371	398	500	476	488	673	2724	1576	1531	960	600	950
MAX	414	755	1850	534	748	1490	19200	6800	9890	2660	1010	2520
MIN	331	335	349	440	424	449	495	544	558	583	518	541
AC-FT	22810	23700	30730	29260	28050	41410	162100	96930	91110	59050	36890	56550
CAL YR 1975	TOTAL	1030198	MEAN	2822	MAX	20500	MIN	331	AC-FT	2043000		
WTR YR 1976	TOTAL	342124	MEAN	935	MAX	19200	MIN	331	AC-FT	678600		

## TRINITY RIVER BASIN

08057410 Trinity River below Dallas, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)
OCT. 22...	1010	310	1000	6.8	22.5	60	15	.7	8	24	160	0
NOV. 12...	1030	320	1020	7.0	18.5	70	20	.9	10	36	150	0
DEC. 03...	1000	355	1000	7.0	14.5	50	20	1.6	17	25	170	0
JAN. 08...	1100	430	1010	7.2	7.5	50	10	1.0	8	28	170	0
FEB. 11...	1010	415	1020	7.0	17.0	100	15	.0	0	32	160	0
MAR. 03...	1015	422	991	7.3	21.5	90	15	.0	0	23	160	0
APR. 29...	1010	505	778	6.9	21.5	10	20	4.1	46	13	190	10
MAY 25...	1800	1180	672	7.3	23.0	50	40	3.2	37	31	160	9
JUNE 23...	1620	555	814	6.9	27.5	20	30	3.7	47	25	150	0
JULY 27...	1315	530	814	6.8	30.0	20	30	2.0	27	12	150	0
AUG. 12...	0945	430	868	6.8	29.5	60	10	.0	0	25	140	0
SEP. 23...	1315	570	694	7.1	25.0	25	15	.9	11	14	140	0

DATE	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	SODIUM ADSORPTION RATIO	DISSOLVED PHOSPHORUS (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SiO2) (MG/L)
OCT. 22...	53	7.6	140	4.8	15	258	0	110	96	--	14
NOV. 12...	47	6.9	140	5.0	19	282	0	110	95	2.1	15
DEC. 03...	54	7.3	130	4.4	16	273	0	110	95	1.7	13
JAN. 08...	54	7.3	130	4.4	18	266	0	130	94	1.5	11
FEB. 11...	50	7.7	140	4.9	15	284	0	120	92	1.9	9.7
MAR. 03...	52	7.1	130	4.5	15	278	0	110	92	2.8	12
APR. 28...	66	6.4	78	2.5	9.6	221	0	100	61	1.1	9.8
MAY 25...	58	4.6	63	2.1	8.0	189	0	81	55	1.0	7.7
JUNE 23...	53	5.2	85	3.0	14	198	0	110	67	1.3	13
JULY 27...	51	6.2	100	3.5	18	216	0	110	73	1.8	12
AUG. 12...	47	6.2	110	4.0	15	238	0	94	86	2.1	11
SEP. 23...	47	5.2	75	2.8	13	201	0	78	57	1.2	13

DATE	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NON-FILTERABLE RESIDUE (MG/L)	VOL. NON-FILTERABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)	METHYLENE BLUE ACTIVE SUBSTANCE (MG/L)
OCT. 22...	564	52	32	.96	.34	8.5	3.5	8.5	7.5	9	1.0
NOV. 12...	574	56	40	.83	.17	10	5.0	9.0	26	19	1.3
DEC. 03...	562	46	26	1.1	.20	11	5.0	7.5	30	59	1.8
JAN. 08...	577	34	24	2.1	.31	13	7.0	6.5	28	43	1.7
FEB. 11...	578	45	32	.01	.06	13	1.0	11	4.2	15	2.2
MAR. 03...	558	48	48	.39	.22	10	8.0	8.0	33	13	2.0
APR. 28...	441	41	10	1.6	.26	4.8	5.2	2.9	5.8	6	.7
MAY 25...	371	102	20	.75	.18	6.5	2.6	2.7	5.7	6	.3
JUNE 23...	447	58	21	1.6	.21	8.0	3.0	4.4	18	0	.4
JULY 27...	478	50	22	1.5	.35	5.3	7.7	4.5	14	0	.8
AUG. 12...	490	38	24	.00	.19	8.7	6.3	6.3	2.3	9	.5
SEP. 23...	389	32	13	.92	.18	6.1	2.4	3.8	14	4	.1

## TRINITY RIVER BASIN

453

08057410 Trinity River below Dallas, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

		DIS-SOLVED ALUMINUM (AL) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED CADMIUM (CD) (UG/L)	DIS-SOLVED CHROMIUM (CR) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)					
DATE	TIME												
OCT. 22...	1010	40	6	500	4	21	0	20					
FEB. 11...	1010	200	7	470	3	10	0	56					
JUNE 23...	1620	90	4	320	1	0	0	12					
AUG. 12...	0945	90	8	--	2	15	0	14					
		DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED LITHIUM (LI) (UG/L)	DIS-SOLVED MANGANESE (MN) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED STRONTIUM (SR) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)				
DATE	TIME												
OCT. 22...	130	0	10	80	.6	55	490	40					
FEB. 11...	160	10	10	120	.1	37	500	50					
JUNE 23...	80	0	20	60	.2	48	450	30					
AUG. 12...	130	7	20	90	.1	110	400	30					
DATE	TIME	TOTAL PCB (UG/L)	PCB IN BOTTOM MATERIAL (UG/KG)	POLY-CHLORINATED NAPHTHALENES (UG/L)	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL CHLORDANE (UG/L)	CHLORDANE IN BOTTOM MATERIAL (UG/KG)	TOTAL DDD (UG/L)	DDD IN BOTTOM MATERIAL (UG/KG)	TOTAL DDE (UG/L)	DDE IN BOTTOM MATERIAL (UG/KG)	
OCT. 22...	1010	--	0	--	--	.0	--	610	--	3.0	--	15	
NOV. 12...	1030	.0	--	--	.00	--	.2	--	.00	--	.00	--	
FEB. 11...	1010	.0	53	.00	.00	.0	.1	170	.00	2.5	.00	21	
JUNE 23...	1620	.0	18	.00	.00	.0	.1	19	.00	.0	.00	2.6	
SEP. 23...	1315	.0	38	.00	.00	.0	.0	46	.00	5.6	.00	3.2	
DATE	TIME	TOTAL DDT (UG/L)	DDT IN BOTTOM MATERIAL (UG/KG)	TOTAL DIAZINON (UG/L)	TOTAL DIELDRIN (UG/L)	DIELDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL ENDRIN (UG/L)	ENDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL ETHION (UG/L)	TOTAL HEPTACHLOR (UG/L)	HEPTACHLOR IN BOTTOM MATERIAL (UG/KG)	TOTAL HEPTACHLOR EPOXIDE (UG/L)	HEPTACHLOR EPOXIDE IN BOTTOM MATERIAL (UG/KG)
OCT. 22...	--	.0	--	--	54	--	.0	--	--	.0	--	16	
NOV. 12...	.00	--	.75	.04	--	.00	--	.00	.00	--	.03	--	
FEB. 11...	.00	.0	.31	.02	30	.00	.0	.00	.00	.0	.00	.0	
JUNE 23...	.00	.0	.47	.02	.0	.00	.0	.00	.00	.0	.00	.0	
SEP. 23...	.00	2.3	.43	.01	5.0	.00	.0	.00	.00	.0	.00	.0	
DATE	TIME	TOTAL LINDANE (UG/L)	LINDANE IN BOTTOM MATERIAL (UG/KG)	TOTAL MALATHION (UG/L)	TOTAL METHYL PARATHION (UG/L)	METHYL TRIETHION (UG/L)	TOTAL PARATHION (UG/L)	TOTAL TOXAPHENE (UG/L)	TOXAPHENE IN BOTTOM MATERIAL (UG/KG)	TOTAL TRIETHION (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)
OCT. 22...	--	.0	--	--	--	--	--	0	--	--	--	--	--
NOV. 12...	.09	--	.08	.00	.00	.00	0	--	.00	.35	.12	.00	
FEB. 11...	.02	.0	.01	.00	.00	.00	0	0	.00	4.2	.02	.00	
JUNE 23...	--	.0	.04	.00	.00	.00	0	0	.00	.12	.11	.00	
SEP. 23...	.03	.0	.24	.00	.00	.00	0	0	.00	.34	.00	.00	

## TRINITY RIVER BASIN

08057410 Trinity River below Dallas, Tex.--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	11501	956	546	16700	85	2640	110	3430	160
NOV. 1975.....	11947	955	540	17300	85	2730	110	3610	160
DEC. 1975.....	15494	832	470	19600	71	2970	97	4070	160
JAN. 1976.....	14753	942	530	21000	83	3320	110	4380	160
FEB. 1976.....	13694	937	530	19500	83	3060	110	4040	160
MAR. 1976.....	20877	778	440	24800	65	3660	91	5140	150
APR. 1976.....	81726	477	270	60700	32	6960	57	12600	140
MAY 1976.....	48870	555	320	42000	40	5280	66	8710	140
JUNE 1976.....	45934	548	310	39000	39	4860	65	8090	140
JULY 1976.....	29773	643	360	29300	50	4010	76	6090	150
AUG. 1976.....	18597	840	470	23800	72	3610	98	4930	160
SEPT 1976.....	28508	666	380	29100	53	4040	79	6050	150
TOTAL .....	341674	**	**	343000	**	47100	**	71100	**
WTD.AVG. ....	936.09	654	370	**	51	**	77	**	150

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C); WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	970	1010	894	833	936	871	885	725	393	896	800	595
2	978	950	974	860	874	953	882	687	415	896	740	420
3	879	949	1000	896	978	1050	827	735	553	700	844	574
4	938	842	891	862	1070	965	800	871	459	563	877	459
5	900	783	913	855	831	941	812	804	446	471	894	512
6	893	815	906	889	961	900	941	497	525	457	832	552
7	922	892	915	978	950	847	957	458	620	557	867	636
8	930	963	927	987	949	507	926	520	603	696	840	740
9	872	910	1030	926	936	648	845	600	662	739	809	816
10	915	914	1090	957	948	822	821	750	743	523	867	583
11	945	1000	1050	911	991	800	727	758	750	585	884	700
12	938	1030	1030	918	1050	774	800	838	755	570	857	814
13	922	1040	1050	926	1050	800	941	719	730	635	851	795
14	934	1000	979	982	1030	814	878	614	712	640	867	882
15	962	970	935	1000	974	800	818	643	789	659	850	910
16	950	950	1030	933	1000	761	614	664	781	830	844	892
17	942	922	1040	1010	950	914	685	686	821	600	905	939
18	960	1000	923	1000	899	875	500	814	650	481	942	766
19	983	1040	970	896	949	961	309	782	514	489	894	501
20	1060	957	979	1000	960	978	364	784	520	566	942	748
21	938	1080	950	945	740	937	407	800	540	693	850	595
22	950	1040	901	926	793	945	487	825	719	767	760	720
23	962	1000	1070	970	820	1010	376	826	743	800	842	768
24	950	957	800	938	1010	656	622	460	827	794	775	800
25	955	1070	600	970	1010	729	554	531	798	760	705	820
26	962	1060	555	926	900	609	776	536	821	723	848	838
27	1070	1040	573	978	881	650	780	450	850	800	909	784
28	1030	1010	610	926	1010	719	784	465	882	855	910	862
29	1060	987	648	957	913	558	592	587	966	889	920	885
30	983	716	781	1040	---	724	664	608	958	896	800	921
31	1030	---	822	1000	---	953	---	392	---	900	700	---
MONTH	958	961	898	942	944	822	712	659	685	691	846	728

## TRINITY RIVER BASIN

465

08057410 Trinity River below Dallas, Tex.--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.0	23.0	14.0	15.5	14.0	23.0	22.0	20.0	23.0	30.0	---	28.0
2	24.5	---	16.0	14.0	16.5	22.0	19.5	21.0	24.5	29.0	31.5	25.5
3	23.0	23.0	16.5	12.0	17.0	23.0	20.5	17.5	25.5	---	30.0	27.0
4	23.0	23.0	17.0	11.0	18.5	23.0	---	22.5	24.5	28.0	29.0	28.5
5	---	23.0	19.0	10.5	15.0	21.0	20.5	23.0	25.5	28.5	29.5	29.5
6	23.5	23.5	18.0	13.0	13.5	---	23.0	21.5	---	28.0	---	29.5
7	24.5	23.0	---	9.5	---	18.0	21.5	20.5	26.5	28.0	31.0	28.0
8	24.0	24.0	18.0	8.0	13.0	13.5	20.0	---	26.5	28.5	---	28.5
9	25.0	---	18.0	10.5	16.5	13.5	21.0	---	26.5	29.0	31.0	29.5
10	25.5	23.0	18.0	12.0	19.5	15.0	21.0	24.5	26.5	28.0	31.0	26.5
11	26.5	23.0	18.5	13.0	19.5	18.0	22.0	23.5	28.0	28.0	30.5	---
12	28.0	20.5	19.0	14.5	21.0	18.5	23.0	25.0	28.0	27.0	30.5	26.5
13	26.5	19.5	19.5	16.5	21.5	---	23.5	24.0	---	28.0	30.5	27.0
14	26.5	18.5	20.5	15.0	20.5	15.5	23.0	23.5	28.0	28.5	31.5	29.5
15	26.0	18.0	18.0	14.5	20.0	18.0	23.5	23.5	28.0	28.5	31.0	30.5
16	24.5	---	16.5	14.5	23.0	16.0	21.5	23.5	28.0	28.5	30.5	29.0
17	23.5	20.5	15.5	13.5	---	19.0	23.0	23.5	28.0	---	30.5	30.0
18	---	21.5	13.0	14.0	20.5	20.0	---	25.5	28.5	28.0	30.5	29.0
19	23.0	22.0	13.5	15.5	20.0	20.0	19.5	23.5	27.0	28.0	29.5	27.0
20	23.5	18.0	13.5	15.5	20.0	22.0	19.5	24.0	---	28.5	30.0	28.0
21	23.0	16.5	---	15.5	16.5	20.0	20.5	---	25.5	28.5	---	28.0
22	24.0	16.0	13.5	16.0	13.5	18.5	23.0	25.0	28.5	29.0	30.0	28.0
23	24.0	---	15.5	16.5	18.0	20.0	20.5	25.0	28.0	29.0	29.0	28.0
24	25.0	15.0	13.5	16.5	18.0	20.0	23.0	24.0	28.0	30.5	---	28.5
25	---	14.5	---	16.5	18.0	19.5	23.0	26.0	28.0	---	28.5	---
26	21.0	14.0	10.5	14.0	---	20.5	23.0	23.0	28.5	29.0	29.5	28.0
27	22.0	14.0	12.0	13.5	20.5	---	---	22.5	---	29.5	30.0	28.5
28	23.5	14.5	---	14.5	19.0	20.0	23.0	21.5	29.5	30.0	---	27.0
29	23.0	19.0	12.0	16.0	20.0	19.0	21.0	24.0	29.5	30.5	30.5	26.5
30	23.0	16.0	13.0	17.0	---	19.5	20.0	25.5	30.0	30.5	29.5	28.0
31	23.0	---	13.5	15.5	---	21.0	---	22.5	---	---	29.0	---
MONTH	24.0	19.5	16.0	14.0	18.0	19.0	21.5	23.0	27.0	29.0	30.0	28.0



## TRINITY RIVER BASIN

08057445 Prairie Creek at U.S. Highway 175, Dallas, Tex.

LOCATION.--Lat 32°42'17", long 96°40'11", Dallas County, on left bank at downstream side of the downstream access road bridge on U.S. Highway 175, 3.4 miles (5.5 km) upstream from mouth, and 9.0 miles (14.5 km) southeast of Dallas City Hall.

DRAINAGE AREA.--9.03 mi<sup>2</sup> (23.39 km<sup>2</sup>).

PERIOD OF RECORD.--October 1975 to September 1976.

GAGE.--Water-stage recorder. Datum of gage is 390.00 ft (118.872 m) above mean sea level.

EXTREMES.--Current year: Maximum discharge, 1,970 ft<sup>3</sup>/s (55.8 m<sup>3</sup>/s) Apr. 19 (gage height, 22.38 ft or 6.821 m); no flow Oct. 1 to Nov. 1.

REMARKS.--Records poor prior to Nov. 16 and good thereafter. Four recording rain gages were operated in basin above station during the year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			.25	.21	.06	.51	.23	1.5	3.5	.02	.05	45
2		3.0	.33	.12	.08	.55	.21	1.2	1.8	.12	.05	9.0
3		4.0	.29	.16	.11	.54	.18	.98	1.1	.71	.05	21
4		6.0	.25	.16	.14	.66	2.9	.87	2.1	.37	.05	6.3
5		3.0	.29	.14	.12	.65	1.4	2.9	3.2	.64	.05	1.9
6		.15	.29	.11	.12	.69	.45	163	17	14	.05	1.5
7		.08	.33	.11	.14	1.2	.47	9.6	3.5	1.5	.05	1.7
8		.08	.38	.12	.14	.87	.78	5.8	2.2	.41	.05	1.3
9		.08	.38	.12	.11	6.4	.44	2.4	1.5	4.4	.05	1.1
10		.08	.45	.14	.11	.91	.43	2.6	1.1	7.6	.05	1.3
11		.08	.33	.16	.08	.65	.46	2.4	.86	1.1	.06	1.4
12		.08	.38	.14	.10	1.1	.48	2.8	.68	1.5	.05	1.2
13		.08	.45	.12	.10	.61	1.2	16	.54	.73	.05	.73
14		.08	.52	.12	.12	.42	1.5	4.3	.45	.31	.05	.98
15		.08	.38	.11	.13	.34	1.7	2.2	.38	.13	.05	.90
16		.08	.52	.11	.08	.34	8.4	2.2	.32	12	.04	.95
17		.08	.38	.11	.91	.31	4.9	1.8	.28	5.8	.04	.86
18		.08	.25	.12	1.5	.28	34	1.2	186	3.5	.03	24
19		.12	.18	.11	.44	.36	540	.85	8.6	20	.03	37
20		.14	.29	.12	.35	.33	86	.74	.16	.60	.03	39
21		.12	.29	.11	2.3	.36	4.6	.71	.12	.51	.03	5.4
22		.12	.29	.12	.57	.30	2.0	.69	.14	.12	.03	1.2
23		.12	.21	.12	.32	.29	1.2	.64	.14	.05	.03	.73
24		.12	23	.12	.32	6.6	27	114	.17	.05	1.6	.60
25		.11	28	.08	.25	3.8	4.3	20	.02	.10	.08	.56
26		.09	1.1	.08	.24	.69	1.9	88	.02	.08	.03	.66
27		.09	.52	.09	.22	.45	1.4	44	.02	.05	.03	.56
28		.09	.38	.07	.21	31	1.5	3.3	.02	.04	.03	.52
29		.12	.21	.06	.38	6.5	4.8	1.2	.02	.04	.04	.46
30		.25	.29	.05	---	.78	3.2	4.1	.02	.05	.04	.05
31		---	.29	.08	---	.46	---	266	---	.04	.08	---
TOTAL	0	37.50	61.50	3.59	9.75	155.08	738.03	857.94	264.76	246.85	2.95	207.86
MEAN	0	1.25	1.98	.12	.34	5.00	24.6	27.7	8.83	7.96	.095	6.93
MAX	0	30	28	.21	2.3	87	540	266	186	71	1.6	45
MIN	0	0	.18	.05	.06	.28	.18	.69	.02	.02	.03	.05
CFSM	0	.14	.22	.01	.04	.55	2.72	3.07	.98	.88	.01	.77
IN.	0	.15	.25	.01	.04	.64	3.04	3.53	1.09	1.02	.01	.86
AC-FT	0	74	122	7.1	19	308	1460	1700	525	490	5.9	412
(††)	-	2.82	1.66	.20	.95	4.78	7.39	10.74	5.09	4.22	1.35	5.67

WTR YR 1976 TOTAL 2585.81 MEAN 7.07 MAX 540 MIN 0 CFSM .78 IN 10.65 AC-FT 5130

PEAK DISCHARGE (BASE, 900 FT<sup>3</sup>/S)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
4-19	1045	22.38	1,970	5-31	0200	18.60	944
5-23	2300	18.38	902	6-18	1200	20.34	1,300

†† Weighted-mean rainfall, in inches, based on four rain gages.

NOTE.--No gage-height record Oct. 1 to Nov. 16.

## TRINITY RIVER BASIN

467

08057450 Tenmile Creek at State Highway 342 at Lancaster, Tex.

LOCATION.--Lat 32°34'42", long 96°45'21", Dallas County, on left bank at downstream side of bridge on State Highway 342, 0.1 mile (0.2 km) downstream from Missouri, Kansas, and Texas Railroad bridge, 0.5 mile (0.8 km) downstream from Deep Branch, 1.0 mile (1.6 km) south of Lancaster, and 14.1 miles (22.7 km) upstream from mouth.

DRAINAGE AREA.--52.8 mi<sup>2</sup> (136.8 km<sup>2</sup>).

PERIOD OF RECORD.--October 1969 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is at mean sea level.

AVERAGE DISCHARGE.--7 years, 38.1 ft<sup>3</sup>/s (1.079 m<sup>3</sup>/s) 9.80 in/yr (249 mm/yr), 27,600 acre-ft/yr (34.0 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 10,700 ft<sup>3</sup>/s (303 m<sup>3</sup>/s) Apr. 19 (elevation, 465.68 ft or 141.939 m), from rating curve extended as explained below; minimum, 0.58 ft<sup>3</sup>/s (0.016 m<sup>3</sup>/s) Aug. 28, 29.

Period of record: Maximum discharge, 12,900 ft<sup>3</sup>/s (365 m<sup>3</sup>/s) Sept. 27, 1973 (elevation, 466.00 ft or 142.037 m, from floodmarks), from rating curve extended above 5,100 ft<sup>3</sup>/s (144 m<sup>3</sup>/s) on basis of contracted-opening measurement of peak flow; no flow at times. Maximum elevation since 1942, 468.4 ft (142.77 m) June 1, 1964 (discharge not determined), from information by Corps of Engineers. Other outstanding floods occurred in 1908, 1942, 1949, 1957, and 1966 (elevations and discharges unknown) according to the Corps of Engineers. The flood of May 6, 1969, reached an elevation of 466.0 ft (142.04 m), from floodmarks at downstream side of bridge, and a discharge of 12,900 ft<sup>3</sup>/s (365 m<sup>3</sup>/s), on the basis of a contracted-opening measurement of peak flow.

REMARKS.--Records good. Flow is slightly regulated by numerous small stock ponds above station. Low flows are partly sustained by effluent from the municipalities of Duncanville and De Soto. Five recording rain gages are operated in basin above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP				
1	1.3	1.6	2.0	1.7	1.5	1.6	2.6	25	51	16	6.2	125				
2	.99	17	1.4	1.8	1.7	1.5	2.2	23	37	9.8	4.9	22				
3	.88	6.1	1.1	1.6	1.4	1.5	2.1	22	31	189	4.5	40				
4	1.1	1.6	1.4	1.5	1.6	1.6	4.4	20	28	104	4.0	15				
5	1.5	1.3	2.0	1.5	1.5	1.9	2.8	69	39	34	3.5	8.5				
6	1.3	1.4	2.4	1.4	2.8	1.8	2.9	82	34	24	3.2	6.3				
7	1.3	1.4	2.0	1.3	1.6	2.9	14	30	25	19	2.8	5.5				
8	1.5	1.3	4.0	1.0	1.4	78	10	28	23	18	2.5	4.8				
9	1.6	1.8	3.7	1.1	1.4	9.7	3.9	24	21	36	2.4	4.6				
10	1.7	1.2	3.8	1.5	1.5	3.8	3.4	23	19	31	2.0	4.0				
11	1.7	1.3	3.4	1.5	1.5	4.8	2.3	24	17	29	1.7	3.8				
12	1.7	1.1	2.9	1.3	1.5	14	2.2	79	17	25	1.6	3.7				
13	1.4	1.1	2.8	1.4	1.4	3.3	2.7	98	16	18	1.5	3.3				
14	.95	1.5	3.1	1.2	1.5	2.8	3.4	29	15	17	1.2	6.3				
15	.89	1.8	3.0	1.5	1.5	2.8	2.4	24	14	22	1.2	6.6				
16	.77	1.6	3.5	1.6	1.5	2.1	21	21	13	24	1.1	3.3				
17	.81	3.0	3.2	1.7	10	2.2	4.2	19	12	49	4.9	3.0				
18	.84	1.2	2.5	1.8	7.1	2.2	134	17	40	28	1.7	82				
19	.94	1.2	2.5	1.4	2.2	2.1	3130	16	29	21	.92	77				
20	1.3	2.0	2.0	1.2	1.7	2.1	265	15	16	17	.92	43				
21	1.0	1.5	1.5	1.3	11	1.6	64	14	14	15	.92	15				
22	1.5	1.2	1.7	1.4	2.4	1.6	45	14	12	14	.80	10				
23	1.7	1.2	1.6	1.4	1.5	1.6	38	17	12	13	.91	8.8				
24	1.8	1.6	33	1.2	1.5	31	35	23	52	12	3.1	8.2				
25	1.4	2.1	21	2.0	1.5	9.2	29	28	95	35	1.4	8.4				
26	1.9	2.3	3.8	1.4	1.5	3.5	27	52	21	21	1.0	10				
27	2.4	1.9	2.2	1.1	1.4	2.4	26	32	16	12	1.5	11				
28	1.2	1.7	2.1	1.3	1.4	31	27	15	15	10	.98	34				
29	1.4	2.0	1.8	1.4	1.6	12	49	13	14	8.6	12	11				
30	1.2	9.3	2.1	1.4	---	4.9	28	11	14	7.9	7.8	8.1				
31	1.5	---	1.8	1.4	---	3.5	---	526	---	7.6	86	---				
TOTAL	41.47	75.3	125.3	44.3	70.1	245.0	3983.5	1433	762	886.9	169.15	592.2				
MEAN	1.34	2.51	4.04	1.43	2.42	7.90	133	46.2	25.4	28.6	5.46	19.7				
MAX	2.4	17	33	2.0	11	78	3130	526	95	189	.86	125				
MIN	.77	1.1	1.1	1.0	1.4	1.5	2.1	11	12	7.6	.80	3.0				
CFSM	.03	.05	.08	.03	.05	.15	2.52	.87	.48	.54	.10	.37				
IN.	.03	.05	.09	.03	.05	.17	2.81	1.01	.54	.62	.12	.42				
AC-FT	82	149	249	88	139	486	7900	2840	1510	1760	336	1170				
(††)	.10	1.45	2.21	.17	.86	3.57	9.65	6.47	3.15	4.04	1.99	5.96				
CAL YR 1975	TOTAL	13321.07	MEAN	36.5	MAX	1820	MIN	.77	CFSM	.69	IN	9.39	AC-FT	26420	††	33.26
WTR YR 1976	TOTAL	8428.22	MEAN	23.0	MAX	3130	MIN	.77	CFSM	.44	IN	5.94	AC-FT	16720	††	39.62

PEAK DISCHARGE (BASE, 700 FT<sup>3</sup>/S)

DATE	TIME	ELEV.	DISCHARGE	DATE	TIME	ELEV.	DISCHARGE
4-19	0615	465.68	10,700	7-3	2230	454.55	1,790
5-12	2330	449.25	894	8-31	1900	449.06	868
5-31	0445	454.62	1,800	9-18	2230	449.96	992
6-24	2345	447.80	700				

†† Weighted-mean rainfall, in inches, based on five rain gages.

## TRINITY RIVER BASIN

08058000 Honey Creek subwatershed No. 12 near McKinney, Tex.

LOCATION.--Lat 33°18'20", long 96°40'12", Collin County, near center of dam on unnamed tributary of Honey Creek, 0.5 mile (0.8 km) west of Farm Road 543, and 7.8 miles (12.6 km) northwest of McKinney.

DRAINAGE AREA.--1.26 mi<sup>2</sup> (3.26 km<sup>2</sup>).

PERIOD OF RECORD.--September 1952 to current year.

GAGE.--Water-stage recorder and concrete drop inlet. Datum of gage is 623.00 ft (189.890 m) above mean sea level (levels by Soil Conservation Service).

AVERAGE INFLOW.--24 years, 537 acre-ft/yr (662,000 m<sup>3</sup>/yr).

AVERAGE OUTFLOW.--24 years, 459 acre-ft/yr (566,000 m<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum outflow, 7.3 ft<sup>3</sup>/s (0.21 m<sup>3</sup>/s) May 23 (gage height, 16.12 ft or 4.913 m); no outflow most of year. Maximum inflow, 229 ft<sup>3</sup>/s (6.49 m<sup>3</sup>/s), average for 5-minute interval, May 23, computed and adjusted as explained below; no inflow for many days.

Period of record: Maximum outflow, 766 ft<sup>3</sup>/s (21.7 m<sup>3</sup>/s) May 26, 1957 (gage height, 29.23 ft or 8.909 m); no outflow at times each year. Maximum inflow, 1,490 ft<sup>3</sup>/s (42.2 m<sup>3</sup>/s), average for 15-minute interval, May 21, 1957, computed from change in pool contents and adjusted for rainfall on pool surface during time of peak inflow; no inflow for many days each year.

REMARKS.--Records fair. The pool is formed by a rolled earthfill dam, 1,253 ft (382 m) long with a spillway located at right end of dam. The dam was completed Jan. 11, 1952, but no appreciable storage began until April 1952. The first outflow occurred on May 12, 1954. The outlet structure consists of an uncontrolled 30-inch (762-millimeter) square concrete drop-inlet structure that is connected to a 12-inch (305-millimeter) concrete outlet pipe. The spillway crest is at gage height 27.0 ft (8.23 m); crest of drop-inlet structure is at gage height 14.99 ft (4.569 m); and invert at bottom of outlet pipe is at gage height 5.0 ft (1.52 m). There is also an 8-inch (203-millimeter) controlled outlet pipe connected to the drop inlet at gage height 5.0 ft (1.52 m). Pool capacity is 477 acre-ft (588,000 m<sup>3</sup>) at the spillway crest, 104 acre-ft (128,000 m<sup>3</sup>) at the crest of drop inlet, and zero acre-ft at the controlled outlet pipe. The area and capacity tables presently in use are based on a sedimentation survey completed by the Soil Conservation Service in July 1969. The dam was built by the Soil Conservation Service for flood control and conservation. A recording rain gage is located at station.

## POOL WATER BUDGET, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
Inflow 1/	0	0.9	2.6	1.2	1.1	1.6	20.3	64.7	8.9	2.0	1.8	2.6
Outflow	0	0	0	0	0	0	0	40.2	4.7	0	0	0
(+)	-8.7	-4.0	-1.0	-3.9	-3.4	-1.3	+19.2	+25.2	-6.2	-7.5	-8.1	-5.1
(++)	.10	1.10	1.34	.13	.69	2.91	4.38	7.26	1.52	1.82	3.14	1.74
CAL YR 1975: Inflow	567											
			Outflow	531		+ -36.5		++ 25.88				
WTR YR 1976: Inflow	108			44.9		+ -4.8		++ 26.13				

PEAK INFLOW (BASE, 100 FT<sup>3</sup>/S).--May 6 (0415) \*102 ft<sup>3</sup>/s; May 23 (0855) \*229 ft<sup>3</sup>/s.

1/ Inflow adjusted for rainfall on pool and pool losses.

++ Change in contents, in acre-feet.

++ Rainfall, in inches.

\* Average for 5-minute interval.

## 469

LOCATION.--Lat 33°14'38", long 96°36'31", Collin County, on left bank at downstream side of bridge on State Highways 5 and 121, 750 ft (229 m) downstream from Honey Creek, 1.2 miles (1.9 km) upstream from Southern Pacific Railway Co. bridge, 1.7 miles (2.7 km) upstream from Clemons Creek, 3.3 miles (5.3 km) north of McKinney, 26.1 miles (42.0 km) upstream from Lavon Dam, and 86.5 miles (139.2 km) upstream from mouth.

EXTREMES.--Current year: Maximum discharge, 877 ft<sup>3</sup>/s (24.8 m<sup>3</sup>/s) May 6 (gage height, 13.89 ft or 4.234 m); no flow for many days.  
Maximum stage since 1913, about 28 ft (8.5 m) in April 1942, from Texas Highway Department employee.

REMARKS.--Records good. At end of year, flow from 89.1 mi<sup>2</sup> (230.8 km<sup>2</sup>) above this station was affected at times by discharge from the flood-detention pools of 49 floodwater-retarding structures with a combined detention capacity of 26,080 acre-ft (32.2 hm<sup>3</sup>).

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.01	.82	1.3	1.2	1.4	1.6	7.5	150	9.6	2.1	1.2
2	.01	.08	.84	1.2	1.2	1.4	1.4	6.2	111	21	1.8	1.3
3	.01	.09	.80	1.2	1.3	2.7	1.4	5.0	59	18	1.5	1.2
4	.01	.07	.76	1.1	1.2	2.6	1.4	4.2	41	14	1.4	1.2
5	.02	.07	.76	1.1	1.2	1.9	1.4	13	69	13	1.3	.60
6	.02	.07	.81	1.1	1.2	1.7	1.4	506	57	13	1.3	.03
7	.02	.07	.81	1.1	1.2	1.6	1.4	224	36	13	1.3	0
8	.05	.08	.89	.99	1.3	8.5	1.3	123	31	12	1.2	0
9	.04	.07	.87	1.0	1.3	5.3	1.3	67	26	11	1.1	0
10	.04	.03	1.1	1.1	1.3	3.5	1.3	40	20	11	.98	0
11	.03	.03	1.1	1.2	1.3	2.7	1.3	26	17	21	.82	0
12	.03	.01	1.1	1.2	1.5	2.4	1.3	23	14	18	.75	0
13	.02	.01	1.1	1.3	1.5	2.0	1.2	327	13	11	.77	0
14	.02	.04	1.1	1.3	1.5	2.0	1.2	167	12	8.6	.61	0
15	.01	.07	1.1	1.3	1.4	2.2	1.1	94	12	7.8	.87	0
16	.01	.07	1.1	1.3	1.3	2.1	1.0	55	12	62	.45	0
17	.01	.08	1.0	1.3	1.4	2.1	1.0	30	12	219	.01	0
18	.01	.08	1.1	1.3	1.4	2.0	12	17	18	73	0	0
19	.01	.11	1.1	1.2	1.4	1.9	127	13	69	38	0	0
20	.01	.20	1.2	1.2	1.5	1.8	511	11	39	17	0	.40
21	.01	.23	1.2	1.2	1.5	1.7	157	9.3	25	11	0	.01
22	.01	.16	1.2	1.2	1.6	1.7	87	8.1	19	9.2	0	0
23	.01	.13	1.2	1.2	1.5	1.6	64	108	17	7.4	0	0
24	.01	.23	1.2	1.3	1.5	1.6	112	87	15	6.2	0	0
25	.02	.45	1.9	1.3	1.4	1.9	51	27	14	5.0	0	0
26	.02	.47	2.6	1.2	1.4	2.1	28	60	13	4.8	0	0
27	.01	.58	2.4	1.3	1.4	1.9	16	240	12	4.9	0	0
28	.01	.62	1.9	1.3	1.5	1.7	11	83	11	4.3	.99	0
29	.01	.70	1.4	1.2	1.4	2.0	12	52	9.8	3.7	1.1	0
30	.01	.79	1.4	1.2	---	1.8	9.6	38	9.6	3.1	.24	0
31	.01	---	1.4	1.1	---	1.6	---	107	---	2.5	.33	---
TOTAL	.52	5.70	37.26	37.29	39.8	71.4	1219.6	2578.3	963.4	673.1	20.92	5.94
MEAN	.017	.19	1.20	1.20	1.37	2.30	40.7	83.2	32.1	21.7	.67	.20
MAX	.05	.79	2.6	1.3	1.6	8.5	511	506	150	219	2.1	1.3
MIN	.01	.01	.76	.99	1.2	1.4	1.0	4.2	9.6	2.5	0	0
AC-FT	1.0	11	74	74	79	142	2420	5110	1910	1340	41	12
WTR YR 1976	TOTAL	5653.23	MEAN	15.4	MAX	511	MIN	0	AC-FT	11210		

## TRINITY RIVER BASIN

08059400 Sister Grove Creek near Blue Ridge, Tex.

LOCATION.--Lat 33°17'40", long 96°28'58", Collin County, on left bank at upstream side of highway embankment of bridge on Farm Road 545, 3.5 miles (5.6 km) upstream from Hatler Branch, 4.8 miles (7.7 km) west of Blue Ridge, 7.4 miles (11.9 km) upstream from Stiff Creek, 14.7 miles (23.7 km) upstream from mouth, and 24.7 miles (39.7 km) upstream from Lavon Dam.

DRAINAGE AREA.--83.1 mi<sup>2</sup> (215.2 km<sup>2</sup>).

PERIOD OF RECORD.--July 1975 to September 1976.

GAGE.--Water-stage recorder. Datum of gage is 536.29 ft (163.461 m) above mean sea level.

EXTREMES.--July to September 1975: Maximum discharge during period, 290 ft<sup>3</sup>/s (8.21 m<sup>3</sup>/s) July 3 (gage height, 8.11 ft or 2.472 m); minimum, 0.01 ft<sup>3</sup>/s (0.0003 m<sup>3</sup>/s) Sept. 5.

Water year 1976: Maximum discharge, 358 ft<sup>3</sup>/s (10.1 m<sup>3</sup>/s) May 6 (gage height, 8.87 ft or 2.704 m); no flow for many days.

Maximum stage since about 1900, 20.7 ft (6.31 m) probably in July 1913. From information furnished by the Texas Highway Department. The probable date is from published records for discontinued station 08059500 located 9.7 miles (15.6 km) downstream.

REMARKS.--Records good. At end of year, flow from 47.4 mi<sup>2</sup> (122.8 km<sup>2</sup>) above this station was affected at times by discharge from the flood-detention pools of 34 floodwater-retarding structures with a combined detention capacity of 12,710 acre-ft (15.7 hm<sup>3</sup>).

DISCHARGE, IN CUBIC FEET PER SECOND, JULY TO SEPTEMBER 1975  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1										33	3.7	.35
2										22	2.0	.15
3										67	1.7	.08
4										61	1.9	.05
5										36	1.5	.02
6										26	1.4	.22
7										18	1.4	.30
8										14	1.5	.59
9										12	2.4	.52
10										17	1.1	.30
11										23	.59	.18
12										15	.46	.09
13										9.8	.30	.22
14										7.6	.18	.30
15										6.0	.15	.26
16										5.2	.30	.26
17										4.6	.82	.82
18										4.0	1.5	1.5
19										3.4	1.9	1.0
20										3.1	1.0	.91
21										2.7	1.0	.91
22										2.7	1.1	.74
23										2.7	.74	.59
24										2.9	.91	.35
25										4.9	1.1	.26
26										6.0	.74	.15
27										5.2	.74	.10
28										7.6	3.1	.10
29										8.0	3.4	.08
30										4.0	1.9	.05
31										4.6	.91	---
TOTAL										439.0	41.44	11.45
MEAN										14.2	1.34	.38
MAX										67	3.7	1.5
MIN										2.7	.15	.02
AC-FT										871	82	23

WTR YR 1975 TOTAL - MEAN - MAX - MIN - AC-FT -

## TRINITY RIVER BASIN

471

08059400 Sister Grove Creek near Blue Ridge, Tex.--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	0	2.4	1.9	1.5	1.4	2.1	3.0	16	30	.80	15
2	.07	.07	2.5	1.6	1.4	1.2	1.6	2.4	15	58	.58	12
3	.30	2.0	2.3	1.2	1.6	1.1	1.6	1.9	10	25	.30	10
4	.23	1.4	2.0	1.2	1.7	1.1	1.7	1.5	8.2	13	.15	7.8
5	.13	.91	2.4	1.1	1.5	.82	1.8	2.7	7.0	7.1	.98	6.8
6	.15	.52	2.4	1.2	1.2	.66	1.9	16.1	6.3	5.1	.04	5.5
7	.04	.46	2.0	1.3	1.2	.82	1.6	52	6.4	5.5	.41	4.0
8	.04	.22	1.9	1.1	1.4	18	1.6	2.4	5.9	4.2	3.6	2.9
9	.07	.35	1.5	1.2	1.5	12	1.5	14	4.7	5.8	1.4	2.0
10	.06	.35	1.7	1.3	1.7	6.4	1.5	15	4.1	12	.55	1.3
11	.04	.35	1.6	1.5	2.0	4.0	1.3	11	3.6	8.7	.17	1.0
12	.02	.30	1.6	1.6	2.2	3.4	1.0	12	3.1	9.0	.06	.53
13	.01	.25	1.7	2.2	2.2	2.7	.87	7.2	2.6	9.1	.01	.30
14	0	.48	2.0	1.6	2.0	2.4	1.3	4.9	2.7	7.0	0	.09
15	0	.74	2.6	1.6	1.9	2.4	1.1	2.0	2.6	5.3	0	.03
16	0	1.0	2.4	1.7	2.0	2.2	.64	21	3.3	44	0	0
17	0	1.2	2.5	1.3	2.0	2.1	.87	17	3.5	40	0	0
18	0	1.3	2.2	1.3	2.7	1.8	1.2	12	5.5	22	0	0
19	0	1.5	2.3	1.5	2.9	1.7	23	4.9	10	13	0	.01
20	0	1.7	2.2	1.7	2.0	1.7	55	4.3	7.5	8.9	0	61
21	0	1.5	2.2	1.7	2.0	1.5	13	7.2	4.0	6.2	0	79
22	0	1.5	2.0	2.2	2.4	1.3	5.2	6.6	3.3	5.1	0	48
23	0	1.5	2.2	2.4	2.2	1.1	3.0	7.2	2.8	3.9	0	37
24	0	1.4	2.9	2.2	1.5	1.6	64	15	2.5	3.7	0	14
25	0	1.6	4.4	2.0	1.2	2.6	14	11	14	3.4	0	8.1
26	0	1.5	4.5	1.5	1.2	2.4	6.4	11	9.5	4.3	0	5.4
27	0	1.6	3.5	1.4	1.4	1.9	3.6	29	5.7	5.0	0	3.9
28	0	1.6	2.2	1.5	2.0	1.9	2.4	17	4.2	4.3	0	2.6
29	0	2.6	1.9	1.3	1.9	2.4	3.2	12	3.5	2.8	0	2.2
30	0	2.4	1.4	1.3	---	2.4	4.2	9.7	22	1.9	44	1.9
31	0	---	1.7	1.6	---	3.0	---	13	---	1.3	24	---
TOTAL	1.21	31.71	71.5	48.2	52.5	90.50	222.38	694.4	199.5	374.6	76.20	332.30
MEAN	.039	1.06	2.31	1.55	1.81	2.92	7.41	22.3	6.65	12.1	2.46	11.1
MAX	.30	2.4	4.5	2.4	2.9	18	64	163	22	58	44	79
MIN	0	0	1.5	1.1	1.2	.66	.64	1.5	2.5	1.3	0	0
AC-FT	2.4	63	142	96	104	180	441	1370	396	743	151	659

CAL YR 1975 TOTAL - MEAN - MAX - MIN - AC-FT -  
WTR YR 1976 TOTAL 2191.06 MEAN 5.99 MAX 163 MIN 0 AC-FT 4350



## TRINITY RIVER BASIN

08060500 Lavon Lake near Lavon, Tex.

LOCATION.--Lat 33°01'54", long 96°28'56", Collin County, in right abutment of spillway in dam on East Fork Trinity River, 3,850 ft (1,170 m) upstream from St. Louis Southwestern Railway Lines bridge, 4,000 ft (1,200 m) upstream from bridge on State Highway 78, 2.9 miles (4.7 km) west of Lavon, and at mile 55.9 (89.9 km).

DRAINAGE AREA.--770 mi<sup>2</sup> (1,990 km<sup>2</sup>).

PERIOD OF RECORD.--Contents: September 1953 to current year. Prior to October 1970, published as Lavon Reservoir.  
Water quality: Chemical analyses: October 1969 to September 1974.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Jan. 20, 1954, nonrecording gage in the approach channel at same datum.

EXTREMES.--Current year: Maximum contents, 123,400 acre-ft (152 hm<sup>3</sup>) Oct. 1 (elevation, 470.10 ft or 143.286 m); minimum, 80,150 acre-ft (98.8 hm<sup>3</sup>) Apr. 17 (elevation, 465.96 ft or 142.025 m).

Period of record: Maximum contents, 462,800 acre-ft (571 hm<sup>3</sup>) May 26, 1957 (elevation, 491.90 ft or 149.931 m); minimum since lake first filled in 1957, 80,150 acre-ft (98.8 hm<sup>3</sup>) Apr. 17, 1976 (elevation, 465.96 ft or 142.025 m).

REMARKS.--The lake is formed by a rolled earthfill dam 18,860 ft (5,749 m) long, including a 568-foot (173-meter) gated spillway with twelve 40.0- by 28.0-foot (12.2- by 8.5-meter) tainter gates. The original dam was 9,499 ft (2,895 m) long, but conservation capacity was increased to the present size in December 1975. Deliberate impoundment began Sept. 14, 1953, and the dam was completed in October 1953. The low-flow outlets consist of five 36-inch-diameter (914-millimeter) controlled sluice gates. The capacity table is based on Table No. 9 (Design Memo 1970 Conditions). The lake was designed for flood control and water conservation. Water for municipal supply can be released down to elevation 453.0 ft (138.07 m). Inflow is affected at times by the flood-detention pools of 145 floodwater-retarding structures with combined detention capacity of 68,030 acre-ft (83.9 hm<sup>3</sup>). These structures control runoff from 238 mi<sup>2</sup> (616 km<sup>2</sup>) in the Elm Fork Trinity River, Little Elm, and Clear Creeks watersheds. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	514.0	-
Design flood.....	509.0	921,200
Top of tainter gates.....	503.5	748,200
Top of conservation pool.....	492.0	456,500
Crest of spillway (sill of tainter gates).....	475.5	178,300
Lowest gated outlet (invert).....	453.0	12,700

COOPERATION.--Records furnished by the Corps of Engineers and reviewed by the Geological Survey.

REVISIONS.--WSP 1922: Drainage area.

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

465.0	72,760	470.0	115,900
466.0	80,460	472.0	136,800
468.0	97,230		

CONTENTS, IN ACRE-Feet, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	123200	114000	102100	97230	89880	85140	82860	85630	97230	95120	107000	93210
2	122700	115000	101900	96440	89710	84890	82700	85680	97410	95210	106300	93300
3	122300	115000	101700	96350	89120	84650	82460	84890	97580	99640	105700	93380
4	122000	114700	101500	95820	89540	84400	82300	84480	97500	102500	105300	93380
5	121600	114500	101300	95300	89540	83910	82140	85460	97410	103900	104600	93300
6	121300	113900	101300	95210	89290	83830	82980	86120	97410	104600	104400	93130
7	120900	113800	101200	95120	88780	84070	81980	87110	97320	104800	104000	92780
8	120500	113700	101200	94690	88620	85870	81820	87950	97230	105400	103500	92440
9	120400	114000	100700	94340	88370	85380	81580	88280	96880	105400	103200	92350
10	120200	113400	100400	94420	88370	85220	81420	88530	96610	105400	102700	91750
11	119800	113300	100100	94160	88370	85300	81260	88870	96080	107000	101900	91240
12	119600	112900	99900	93900	88280	85870	80940	89290	95730	107000	101300	90900
13	119200	112200	99810	94160	88110	85630	80860	89710	95210	107000	100800	90560
14	119000	112000	99810	93640	87950	85300	80460	90900	94860	106600	100400	90300
15	118900	111600	99720	93300	87700	85140	80460	91070	94950	106500	99900	90050
16	118500	111500	99370	93210	87530	84650	80220	91410	94510	107000	99190	89790
17	118200	111300	99010	92870	87860	84240	80460	91410	93990	107500	99010	89630
18	117800	111000	98740	92440	87610	83990	81820	91410	94860	109100	98470	89460
19	117300	111200	98300	92870	87450	83910	82620	91410	95730	109900	97940	89460
20	117100	110800	98300	92350	87530	83910	83590	90470	96000	110400	97410	90130
21	116700	110600	97940	92090	87450	83910	84070	90300	95910	110500	96970	90130
22	116300	110100	97670	92610	87030	83590	84400	90300	95650	110300	96350	90130
23	116200	109900	97590	91580	86870	83510	84560	92090	95210	110200	95910	90130
24	116100	109600	98120	91580	86620	83750	84650	94340	95210	110100	95560	90130
25	116000	109500	97940	91580	86370	83510	84970	94340	95300	109700	95210	89880
26	115400	109000	97760	91150	86120	83510	84810	94600	95300	109300	94770	89960
27	115200	108600	97410	90640	85870	83430	85140	94950	95300	108800	94420	90130
28	115200	108100	97670	90560	85630	83750	85630	95300	95030	108500	94080	90220
29	114900	108100	97320	90390	85380	83510	85960	95470	94690	108000	93820	89880
30	114500	108700	97850	90300	---	83590	85550	95470	94510	107600	93560	89540
31	114300	---	96700	90130	---	83020	---	96440	---	107200	93210	---
(+)	469.18	468.60	467.94	467.18	466.61	466.32	466.63	467.91	467.69	469.10	467.54	467.11
(*)	-9000	-5600	-12000	-6570	-4750	-2360	+2530	+10890	-1930	+12690	-13990	-3670
(††)	4820	4100	5240	5540	3730	4040	4110	4340	5620	5370	8310	4790
MAX	123200	115000	102100	97230	89880	85870	85960	96440	97580	110500	107000	93380
MIN	114300	108100	96700	90130	85380	83020	80220	84480	93990	95120	93210	89460
CAL YR 1975.....	*	-151300		††	56660		MAX	322800		MIN	96700	
WTR YR 1976.....	*	-33760		††	60010		MAX	123200		MIN	80220	

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal and industrial use by North Texas Municipal Water District.

## TRINITY RIVER BASIN

473

08060500 Lavon Lake near Lavon, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG)	DISSOLVED SODIUM (NA) (MG/L)
OCT 02...	1150	325	7.9	20.0	140	13	50	2.7	12
DATE	SODIUM ADSORPTION RATIO	DISSOLVED PHOSPHATE SODIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT 02...	.4	3.4	150	0	26	8.1	.3	9.6	186

## TRINITY RIVER BASIN

08061000 East Fork Trinity River near Lavon, Tex.

LOCATION.--Lat 33°01'25", long 96°28'31", Collin County, on left bank at downstream side of St. Louis Southwestern Railway Lines bridge, 150 ft (46 m) upstream from bridge on State Highway 78, 3,550 ft (1,082 m) downstream from Lavon Dam, 2.5 miles (4.0 km) west of Lavon, and at mile 54.9 (88.3 km).

DRAINAGE AREA.--773 mi<sup>2</sup> (2,002 km<sup>2</sup>).

PERIOD OF RECORD.--October 1953 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 429.58 ft (130.936 m) above mean sea level. Prior to Oct. 1, 1969, at site 150 ft (46 m) downstream at same datum.

AVERAGE DISCHARGE.--23 years, 383 ft<sup>3</sup>/s (10.85 m<sup>3</sup>/s), 277,500 acre-ft/yr (342 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 52 ft<sup>3</sup>/s (1.47 m<sup>3</sup>/s) July 16 (gage height, 9.60 ft or 2.926 m); no flow for many days. Period of record: Maximum discharge, 39,000 ft<sup>3</sup>/s (1,100 m<sup>3</sup>/s) May 26, 27, 1957, from records of released flow from Lavon Lake furnished by Corps of Engineers; maximum gage height, 17.34 ft (5.285 m) May 26, 1957; no flow at times each year. Maximum stage since at least 1894, 22.3 ft (6.80 m) in 1913 and in April 1942, from information by St. Louis Southwestern Railway Lines and local residents.

REMARKS.--Records fair. Flow is regulated by Lavon Lake (station 08060500).

REVISIONS.--WSP 1922: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						0	.01	0	.01	0		
2						0	0	0	0	0		
3						0	0	0	0	.01		
4						0	0	0	0	.16		
5						0	0	0	0	.07		
6						0	0	1.5	0	.07		
7						0	0	.03	0	.01		
8						12	0	.01	0	0		
9						19	0	0	0	0		
10						12	0	0	0	0		
11						6.0	0	0	0	2.0		
12						2.0	0	0	0	.56		
13						.22	0	0	0	.03		
14						.07	0	0	0	0		
15						.03	0	0	0	0		
16						0	.01	0	0	1.5		
17						0	.03	0	0	.56		
18						0	.22	0	0	.07		
19						0	6.9	0	.07	.03		
20						0	2.5	0	0	0		
21						0	.11	0	0	0		
22						0	.03	0	0	0		
23						0	.01	.11	0	0		
24						.01	.03	.16	0	0		
25						.11	.03	.03	0	0		
26						.07	.01	.01	0	0		
27						.03	0	.56	0	0		
28						.56	0	.03	0	0		
29						.22	0	0	0	0		
30					---	.03	0	0	0	0		
31		---			---	.01	---	.11	---	0		---
TOTAL	0	0	0	0	0	52.36	9.89	2.55	.10	5.07	0	0
MEAN	0	0	0	0	0	1.69	.33	.082	.003	.16	0	0
MAX	0	0	0	0	0	19	6.9	1.5	.07	2.0	0	0
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	0	0	104	20	5.1	.2	10	0	0
CAL YR 1975	TOTAL	256944.11	MEAN	704	MAX	3060	MIN	0	AC-FT	509600		
WTR YR 1976	TOTAL	69.97	MEAN	.1	MAX	19	MIN	0	AC-FT	139		

## TRINITY RIVER BASIN

475

08061540 Rowlett Creek near Sachse, Tex.

LOCATION.--Lat 32°57'35", long 96°36'51", Dallas County, on left bank at downstream side of bridge on State Highway 78, 150 ft (46 m) downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 250 ft (76 m) downstream from Spring Creek, and 1.5 miles (2.4 km) southwest of Sachse.

DRAINAGE AREA.--120 mi<sup>2</sup> (311 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 450.00 ft (137.160 m) above mean sea level.

AVERAGE DISCHARGE.--8 years, 86.6 ft<sup>3</sup>/s (2.453 m<sup>3</sup>/s), 9.80 in/yr (249 mm/yr), 62,740 acre-ft/yr (77.4 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 1,760 ft<sup>3</sup>/s (49.8 m<sup>3</sup>/s) Aug. 31 (gage height, 15.58 ft or 4.749 m); minimum, 0.24 ft<sup>3</sup>/s (0.007 m<sup>3</sup>/s) Feb. 12.

Period of record: Maximum discharge, 24,700 ft<sup>3</sup>/s (700 m<sup>3</sup>/s) Dec. 9, 1971 (gage height, 28.35 ft or 8.641 m); no flow Aug. 24 to Sept. 2, 1969.

Maximum stage since at least 1942, 35.4 ft (10.79 m) in 1942, from information by Texas Highway Department.

REMARKS.--Records good. No known diversion above station. The North Texas Municipal Water District reported the discharge of 3,270 acre-ft (4.03 hm<sup>3</sup>) of sewage effluent into a tributary above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	8.1	11	7.8	6.2	5.8	8.8	19	79	12	3.3	255
2	2.2	27	8.2	7.1	6.6	4.5	8.8	14	48	20	3.9	22
3	2.2	18	7.1	6.5	5.2	3.7	9.2	11	35	98	2.6	20
4	2.1	4.9	6.4	7.6	4.5	5.2	27	10	28	42	2.0	10
5	2.3	4.8	7.0	7.1	4.8	9.6	14	84	96	118	1.9	6.3
6	3.7	4.2	8.1	8.4	7.6	6.6	11	443	50	47	1.5	3.9
7	3.8	3.8	7.9	7.9	4.9	8.4	9.8	57	30	18	3.3	3.9
8	3.6	3.2	7.4	7.6	5.6	133	17	30	27	13	2.6	2.2
9	3.0	4.2	8.2	6.6	6.0	23	12	21	21	12	3.0	2.7
10	3.6	5.4	6.9	5.9	5.4	11	9.1	18	18	15	2.3	2.9
11	5.7	5.3	7.1	7.2	2.1	8.0	9.7	17	18	65	1.8	2.5
12	5.1	5.5	9.6	7.3	6.3	33	9.5	62	13	81	1.5	2.8
13	5.6	5.2	7.6	7.7	4.5	12	20	130	14	25	1.6	3.2
14	4.8	5.9	7.4	5.8	4.5	9.6	14	40	12	16	1.4	2.9
15	6.2	6.3	8.0	6.0	4.5	10	10	25	11	15	1.5	2.2
16	6.4	6.3	7.5	5.7	5.8	8.4	46	14	9.8	231	2.4	2.0
17	6.4	7.0	7.3	5.3	15	7.7	17	16	8.3	50	2.2	1.8
18	5.1	6.6	7.5	6.1	23	7.3	108	12	194	38	2.0	1.8
19	6.3	5.9	8.5	6.0	7.7	6.2	331	9.9	318	35	2.7	21
20	7.8	13	8.0	7.9	11	7.2	155	10	47	15	2.5	21
21	5.9	9.0	8.4	7.5	34	5.6	42	9.0	24	11	1.7	9.3
22	4.5	6.8	8.3	7.2	9.6	5.7	24	8.3	18	8.7	1.7	4.9
23	6.8	6.4	7.6	6.1	7.7	5.8	20	314	15	6.6	2.0	2.8
24	6.9	5.4	36	4.9	6.6	62	71	180	15	6.5	7.6	2.8
25	5.9	5.8	62	8.3	5.8	22	25	65	16	19	3.7	1.8
26	7.1	6.1	18	7.1	5.8	12	17	271	14	14	2.6	6.5
27	8.2	5.3	11	6.5	5.2	9.3	15	209	11	6.8	1.6	11
28	7.8	5.4	8.2	6.1	5.8	28	37	52	10	4.5	4.2	36
29	7.3	5.1	7.7	5.9	5.5	25	101	36	9.4	3.3	4.5	10
30	7.3	23	7.7	6.1	---	11	29	35	7.3	2.9	3.6	6.1
31	7.3	---	7.3	5.0	---	9.8	---	637	---	3.4	173	---
TOTAL	164.1	228.9	338.9	208.2	227.2	516.4	1227.9	2863.2	1216.8	1052.7	252.2	481.3
MEAN	5.29	7.63	10.9	6.72	7.83	16.7	40.9	92.4	40.6	34.0	8.14	16.0
MAX	8.2	27	62	8.4	34	133	331	637	318	231	173	255
MIN	2.1	3.2	6.4	4.9	2.1	3.7	8.8	8.3	7.3	2.9	1.4	1.8
AC-FT	325	454	672	413	451	1020	2440	5680	2410	2090	500	955
CAL YR 1975	TOTAL	30829.6	MEAN 84.5	MAX 6130	MIN 1.2	AC-FT 61150						
WTR YR 1976	TOTAL	8777.8	MEAN 24.0	MAX 637	MIN 1.4	AC-FT 17410						

PEAK DISCHARGE (BASE, 2,000 FT<sup>3</sup>/S).--No peak above base.

## TRINITY RIVER BASIN

08061550 Lake Ray Hubbard near Forney, Tex.

LOCATION.--Lat 32°48'00", long 96°29'45", Kaufman County, near right end of spillway in Forney Dam on East Fork Trinity River, 0.5 mile (0.8 km) upstream from Duck Creek, 1.8 miles (2.9 km) upstream from bridge on Interstate Highway 20, 3.8 miles (6.1 km) northwest of Forney, 24 miles (39 km) downstream from Lavon Dam, and at mile 31.8 (51.2 km).

DRAINAGE AREA.--1,071 mi<sup>2</sup> (2,774 km<sup>2</sup>).

PERIOD OF RECORD.--Contents: January 1968 to current year.

Water quality: Chemical analyses: October 1969 to current year.

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

EXTREMES.--Current year: Maximum contents, 470,600 acre-ft (580 hm<sup>3</sup>) July 16 (elevation, 434.64 ft or 132.478 m); minimum, 417,100 acre-ft (514 hm<sup>3</sup>) Apr. 16 (elevation, 432.15 ft or 131.719 m).

Period of record: Maximum contents, 500,900 acre-ft (618 hm<sup>3</sup>) June 4, 1973 (elevation, 435.98 ft or 132.887 m); minimum since first appreciable filling following closure of gates on Mar. 22, 1970, 371,000 acre-ft (457 hm<sup>3</sup>) July 23, 1971 (elevation, 429.85 ft or 131.018 m).

REMARKS.--The lake is formed by a rolled earthfill dam 12,500 ft (3,810 m) long, including a 664-foot (202-meter) gated spillway with fourteen 40- by 28-foot (12- by 9-meter) tainter gates. Closure was made in September 1967, but the gates were not closed until Mar. 22, 1970. Low-flow releases are made through three 4.5- by 6.75-foot (1.4- by 2.06-meter) sluiceways. Flow in each sluiceway is controlled by three sluice gates. The lake was built by the city of Dallas for municipal water supply. During the current year, the city of Dallas reported a total of 25,989 acre-ft (32.0 hm<sup>3</sup>) diverted from the lake for industrial and municipal uses, 2,695 acre-ft (3.32 hm<sup>3</sup>) by Dallas Power and Light Co., and 46 acre-ft (56,700 m<sup>3</sup>) by the Eastern Hills Country Club of Garland. The North Texas Municipal Water District reported 4,087 acre-ft (5.04 hm<sup>3</sup>) of sewage effluent returned to lake. At end of year, flow from 44.5 mi<sup>2</sup> (115.3 km<sup>2</sup>) above this station and below Lavon Lake (station 08060500) was partly controlled by 14 floodwater-retarding structures with a combined capacity of 14,470 acre-ft (17.8 hm<sup>3</sup>) below the flood-spillway crests, of which 1,950 acre-ft (2.40 hm<sup>3</sup>) is sediment-pool capacity. The capacity in these pools allocated to sediment storage will be used for conservation storage until eliminated by sedimentation. The area and capacity tables are based on surveys made in 1953 and 1959. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	450.0	-
Design flood.....	440.5	611,500
Top of tainter gates.....	437.5	536,700
Top of conservation pool.....	435.5	489,900
Crest of spillway (sill of tainter gates).....	409.5	83,130
Lowest gated outlet (invert).....	388.0	80

COOPERATION.--Record of diversions furnished by the city of Dallas. The area and capacity tables furnished by Forrest and Cotton, Consulting Engineers for the city of Dallas.

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

432.0	414,000	434.0	456,500
433.0	435,000	435.0	478,600

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	454100	438600	432200	432000	427400	420200	421100	441100	468200	464000	462200	450200
2	452800	440900	432000	432000	427400	419800	420200	440700	468200	462900	462000	450000
3	451700	440900	431800	431600	426900	419800	420700	440500	468200	465300	460900	451700
4	451100	440500	431400	430100	426700	420700	420200	439400	467900	466400	459800	451300
5	450600	440100	432800	429000	426500	420200	420000	442000	468200	466400	460200	451300
6	450000	439900	432800	429000	426500	420700	419600	447600	467900	465900	460200	450800
7	449500	440100	432200	429000	425700	420900	419600	446900	467900	465300	458700	450400
8	448900	439200	432600	429200	425900	425000	420000	446500	467500	464600	458500	450200
9	448900	441600	431800	428200	425300	422900	419200	446300	467000	464600	457800	450800
10	448900	439200	431100	428800	425700	422900	418800	446500	466400	464400	457400	448700
11	448200	441400	431100	429200	425700	423400	418800	446100	466200	467700	456500	448000
12	448000	438600	430700	428600	425500	425000	418200	446700	465700	467900	455800	447400
13	447200	436400	430300	429000	425500	422900	418200	447400	465500	467900	455200	447400
14	447400	434500	431400	429000	424800	422900	417300	447800	464400	467500	454500	446900
15	447800	434700	431800	428600	424000	425500	417300	447200	465700	467300	454100	446700
16	446700	434100	431100	428800	424200	421900	417100	447400	464400	470600	453700	446500
17	445900	435200	432800	428400	424200	420900	419800	446900	463700	469300	453700	446100
18	445000	434500	429700	427600	424200	420200	420900	446500	466600	468600	453200	446900
19	444100	436400	429200	428400	424000	420200	435600	446300	466800	468200	452400	446900
20	443500	435600	430100	428600	423600	421300	439900	446100	465900	467700	451900	448000
21	442900	434700	429500	428400	423600	420700	439400	446100	465300	467300	451500	446500
22	441400	433300	429500	428000	423400	420200	438200	445700	464600	466600	451100	445900
23	442000	432600	429500	427600	422900	418600	439200	453200	464000	466600	450400	445400
24	444600	430500	432200	428200	422700	421100	441800	456300	465900	466400	450000	444800
25	442200	430700	432000	430300	422300	419600	442400	456500	465300	466200	449500	444100
26	440100	431600	431800	428200	422300	423400	441100	460200	464800	465300	448900	444800
27	440700	431400	431400	427600	421700	420900	440300	461500	464800	464800	448700	445900
28	440900	431400	432200	427600	421300	421900	442200	460900	464400	464200	448200	444800
29	440300	432800	432000	427600	420900	423400	442000	460000	463700	464000	448500	443700
30	439600	432400	431100	427400	---	421900	442200	463300	464000	463100	448200	443300
31	438200	---	431100	427400	---	422100	---	467700	---	462600	448000	---
(†)	433.15	432.88	432.82	432.64	432.33	432.39	433.34	434.51	434.34	434.28	433.61	433.39
(*)	-15700	-5800	-1300	-3700	-6500	+1200	+20100	+25500	-3700	-1400	-14600	-4700
(††)	4817	1557	372	212	5187	4742	3948	1780	1115	2431	1401	1169
MAX	454100	441600	432800	432000	427400	425500	442400	467700	468200	470600	462200	451700
MIN	438200	430500	429200	427400	420900	418600	417100	439400	463700	462600	448000	443300

CAL YR 1975..... \* -37700

†† 17680

MAX 487700

MIN 429200

WTR YR 1976..... \* -10600

†† 28731

MAX 470600

MIN 417100

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal, industrial, and irrigation uses.

TRINITY RIVER BASIN

477

08061550 Lake Ray Hubbard near Forney, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA, MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG)	DISSOLVED SODIUM (NA) (MG/L)
JAN 26...	1330	317	7.9	7.5	130	7	46	3.0	13
DATE	SODIUM ADSORPTION RATIO	DISSOLVED PHOSPHATE (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SiO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
JAN 26...	.5	3.5	146	0	26	8.4	.4	4.3	177



## TRINITY RIVER BASIN

08061700 Duck Creek near Garland, Tex.

LOCATION.--Lat 32°49'59", long 96°35'43", Dallas County, on right bank at downstream side of bridge on Belt Line Road, 6.0 miles (9.7 km) southeast of Garland, and 7.7 miles (12.4 km) upstream from mouth.

DRAINAGE AREA.--31.6 mi<sup>2</sup> (81.8 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 430.02 ft (131.070 m) above mean sea level. Prior to Oct. 1, 1962, at datum 4.00 ft (1.219 m) higher.

AVERAGE DISCHARGE.--18 years, 26.4 ft<sup>3</sup>/s (0.748 m<sup>3</sup>/s), 11.35 in/yr (288 mm/yr), 19,130 acre-ft/yr (23.6 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 4,680 ft<sup>3</sup>/s (133 m<sup>3</sup>/s) Apr. 19 (gage height, 17.12 ft or 5.218 m); no flow at times. Period of record: Maximum discharge, 16,000 ft<sup>3</sup>/s (453 m<sup>3</sup>/s) July 27, 1962 (gage height, 20.80 ft or 6.340 m, present datum); no flow at times.

Maximum stage since about 1895, 21.5 ft (6.55 m), present datum, June 13, 1949, from information by local residents.

REMARKS.--Records good except those for May to July, which are fair. Flow slightly regulated by several small on-channel dams. Small diversion for irrigation of golf course above station. Low flows may be sustained by effluents from city of Garland. One recording rain gage at station and three above are operated in basin.

REVISIONS.--WSP 1922: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	5.8	2.0	2.4	1.0	2.5	4.9	16	79	2.1	61
2	0	105	2.7	.65	1.0	.35	2.2	3.5	8.4	10	1.5	12
3	0	15	1.5	.37	.50	.33	2.2	3.1	8.4	32	2.0	56
4	0	4.1	.80	.30	.70	.29	6.1	2.8	7.9	86	.51	8.8
5	0	2.3	3.9	.28	4.5	2.1	3.3	126	11	110	1.3	3.0
6	0	1.7	2.5	.26	2.2	.79	2.0	290	8.1	12	5.1	1.7
7	0	1.6	.79	.31	1.1	22	3.3	21	5.1	8.0	4.2	1.1
8	0	2.0	.79	.50	.80	284	4.1	6.9	4.3	5.9	1.1	.78
9	0	1.6	.90	.76	.40	15	2.0	5.1	4.5	36	.64	.72
10	0	1.3	.91	1.9	.40	5.7	1.2	5.5	4.1	55	.50	.57
11	0	.80	1.3	1.6	.30	4.0	.82	5.5	4.1	173	1.3	.32
12	.26	1.1	1.2	1.6	.31	20	.72	64	3.7	37	.60	.22
13	.40	1.0	1.5	1.3	.59	3.0	42	94	3.1	13	3.3	0
14	.40	.70	1.9	1.4	.90	3.2	3.2	4.9	2.7	10	1.3	0
15	.15	.40	.67	1.4	.79	2.4	1.8	3.4	3.1	14	.77	.10
16	0	1.4	1.5	1.4	.49	1.9	55	2.4	2.9	155	.50	.39
17	.15	1.3	1.4	1.5	22	1.4	3.2	2.0	2.7	49	.02	.82
18	0	.80	.96	1.5	8.0	1.0	203	1.7	139	77	.82	3.8
19	0	2.4	.85	1.5	1.9	.96	1130	1.7	11	107	1.0	45
20	0	13	1.5	3.4	2.7	.78	182	1.6	6.9	8.6	.50	12
21	0	2.6	1.0	1.7	39	.54	19	1.5	5.3	6.2	.55	3.6
22	0	1.5	1.1	1.0	2.6	.52	11	1.4	4.1	5.3	.41	1.0
23	0	1.1	1.2	.80	1.4	.36	8.5	1.3	4.3	4.9	.10	.42
24	0	.80	95	1.1	.84	85	144	580	4.1	4.3	2.4	.06
25	0	.80	64	8.6	.53	8.5	10	45	5.1	4.2	1.8	0
26	0	.80	5.9	2.8	.40	2.9	6.2	190	4.8	3.6	.71	.94
27	0	1.6	2.5	1.5	.40	1.8	4.9	100	4.3	3.4	.40	9.6
28	0	2.2	1.7	1.3	.40	.67	45	71	3.4	3.0	.24	40
29	0	2.2	1.3	1.0	.50	15	48	60	3.5	2.8	.23	5.0
30	0	33	1.1	.90	---	3.9	7.6	66	3.4	2.5	.20	1.4
31	0	---	1.0	1.3	---	2.9	---	702	---	2.1	.45	---
TOTAL	1.36	204.10	209.17	45.93	98.05	658.62	1954.84	2468.2	299.3	1119.8	36.55	270.34
MEAN	.044	6.80	6.75	1.48	3.38	21.2	65.2	79.6	9.98	36.1	1.18	9.01
MAX	.40	105	95	8.6	39	284	1130	702	139	173	5.1	61
MIN	0	0	.67	.26	.30	.29	.72	1.3	2.7	2.1	.02	0
CFSM	.001	.22	.21	.05	.11	.67	2.06	2.52	.32	1.14	.04	.29
IN.	.002	.24	.25	.05	.12	.78	2.30	2.91	.35	1.32	.04	.32
AC-FT	2.7	405	415	91	194	1310	3880	4900	594	2220	.72	536
(††)	0	2.00	1.47	.27	.85	3.86	6.17	8.27	2.12	5.80	.71	2.44

CAL YR 1975 TOTAL 10201.57 MEAN 27.9 MAX 1630 MIN 0 CFSM .88 IN 12.01 AC-FT 20230 †† 30.23  
WTR YR 1976 TOTAL 7366.26 MEAN 20.1 MAX 1130 MIN 0 CFSM .64 IN 8.67 AC-FT 14610 †† 33.96

PEAK DISCHARGE (BASE, 2,000 FT<sup>3</sup>/S).--Apr. 19 (0500) 4,680 ft<sup>3</sup>/s (17.12 ft); May 31 (0300) 3,030 ft<sup>3</sup>/s (16.19 ft).

†† Weighted-mean rainfall, in inches, based on four rain gages.

## TRINITY RIVER BASIN

479

08061750 East Fork Trinity River near Forney, Tex.

LOCATION.--Lat 32°46'26", long 96°30'13", Kaufman County, on right bank 130 ft (40 m) downstream from bridge on Interstate Highway 20, 0.2 mile (0.3 km) downstream from Duck Creek, 1.9 miles (3.1 km) downstream from Lake Ray Hubbard Dam, 2.5 miles (4.0 km) upstream from Texas and Pacific Railroad Co. bridge, 2.6 miles (4.2 km) northwest of Forney, and at mile 30.8 (49.6 km).

DRAINAGE AREA.--1,118 mi<sup>2</sup> (2,896 km<sup>2</sup>), of which 1,071 mi<sup>2</sup> (2,774 km<sup>2</sup>) is above Lake Ray Hubbard.

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

GAGE.--Water-stage recorder. Datum of gage is 377.86 ft (115.17 m) above mean sea level (from State Highway Department bridge plans). Prior to Aug. 26, 1975, recording gage at same datum located at site 126 ft (38 m) upstream and 868 ft (265 m) to left.

EXTREMES.--Current year: Maximum discharge, 5,140 ft<sup>3</sup>/s (146 m<sup>3</sup>/s) Apr. 19 (gage height, 11.19 ft or 3.411 m); minimum, 18 ft<sup>3</sup>/s (0.51 m<sup>3</sup>/s) Sept. 26.

Period of record: Maximum discharge, 27,100 ft<sup>3</sup>/s (767 m<sup>3</sup>/s) June 4, 1973 (gage height, 15.87 ft or 4.837 m); minimum, 15 ft<sup>3</sup>/s (0.42 m<sup>3</sup>/s) Sept. 3, 1973.

REMARKS.--Records good. Flow is regulated by Lake Ray Hubbard (station 08061550). Low flow is sustained by sewage effluent from the city of Garland. Records furnished by the city of Garland show that 18,650 acre-ft (23.0 hm<sup>3</sup>) of sewage effluent was discharged into Duck Creek which enters East Fork Trinity River 0.2 miles (0.3 km) upstream from this station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	29	43	28	27	29	39	43	226	26	26	30
2	31	40	35	26	28	41	36	30	111	85	24	73
3	32	110	32	26	31	34	34	27	83	61	25	65
4	31	41	30	26	31	31	34	25	64	125	25	97
5	30	32	30	26	31	31	43	26	51	401	25	56
6	31	29	32	28	32	30	40	710	70	455	27	31
7	32	27	31	32	32	30	35	219	55	80	30	25
8	32	27	30	28	30	379	39	91	84	55	28	24
9	33	27	30	27	29	183	41	52	62	41	27	23
10	33	27	29	27	31	61	36	38	43	57	27	22
11	32	29	28	27	31	45	33	35	36	119	26	21
12	31	29	29	27	30	62	32	34	33	276	27	20
13	31	29	28	29	30	63	59	282	30	78	27	20
14	33	29	27	28	29	43	79	92	29	50	28	22
15	32	29	29	27	29	40	47	46	31	39	28	22
16	31	28	28	27	29	36	76	34	31	357	25	22
17	31	29	28	26	31	35	88	29	30	1380	25	22
18	30	30	26	26	44	35	280	28	171	633	27	22
19	29	30	26	27	43	36	1930	26	154	466	27	47
20	29	34	26	28	35	35	748	25	67	220	28	60
21	30	36	25	28	59	32	258	25	42	161	27	50
22	31	31	24	29	59	32	112	24	33	49	24	34
23	30	29	25	28	35	34	49	27	30	36	24	27
24	31	29	27	27	32	71	315	907	29	35	25	23
25	29	29	193	28	31	146	126	133	32	33	26	21
26	28	33	85	33	30	60	50	220	35	30	28	20
27	29	29	38	32	30	41	35	490	31	29	26	23
28	30	27	30	31	29	101	31	113	27	30	23	34
29	30	27	28	30	28	247	143	71	27	30	22	55
30	29	38	29	29	---	81	85	49	26	28	21	41
31	30	---	29	28	---	46	---	956	---	28	22	---
TOTAL	953	993	1130	869	966	2170	4953	4907	1773	5493	800	1052
MEAN	30.7	33.1	36.5	28.0	33.3	70.0	165	158	59.1	177	25.8	35.1
MAX	33	110	193	33	59	379	1930	956	226	1380	30	97
MIN	28	27	24	26	27	29	31	24	26	26	21	20
AC-FT	1890	1970	2240	1720	1920	4300	9820	9730	3520	10900	1590	2090
CAL YR 1975	TOTAL	359338	MEAN	984	MAX	11900	MIN	24	AC-FT	712700		
WTR YR 1976	TOTAL	26059	MEAN	71.2	MAX	1930	MIN	20	AC-FT	51690		

08061950 South Mesquite Creek at Mercury Road near Mesquite, Tex.

LOCATION.--Lat 32°43'32", long 96°34'12", Dallas County, on left bank at downstream side of bridge on Mercury Road, 3.3 miles (5.3 km) southeast of Mesquite, and 3.6 miles (5.8 km) upstream from mouth.

DRAINAGE AREA.--23.0 mi<sup>2</sup> (59.6 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 389.91 ft (118.845 m) above mean sea level.

AVERAGE DISCHARGE.--8 years, 23.8 ft<sup>3</sup>/s (0.674 m<sup>3</sup>/s), 14.05 in/yr (357 mm/yr), 17,240 acre-ft/yr (21.3 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 7,330 ft<sup>3</sup>/s (208 m<sup>3</sup>/s) Apr. 19 (gage height, 11.67 ft or 3.557 m); no flow Oct. 1 to Nov. 1. Period of record: Maximum discharge, 9,000 ft<sup>3</sup>/s (255 m<sup>3</sup>/s) June 4, 1973 (gage height, 12.10 ft or 3.688 m); no flow at times. Maximum stage since about 1918, 14.3 ft (4.36 m) Apr. 27, 1957 (discharge not determined), from information by Corps of Engineers. Floods in April 1942, April 1958, and in 1962 reached stages almost as high as that of flood of Apr. 27, 1957, from information by Corps of Engineers.

REMARKS.--Records good except those below 0.1 ft<sup>3</sup>/s (0.003 m<sup>3</sup>/s) in January and February, which are fair. Flow is slightly affected by numerous small stock ponds. Three recording rain gages are operated in basin above station.

REVISIONS (WATER YEARS).--WRD Texas 1974: 1972(M).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP				
1		0	.66	.19	.05	.27	.78	1.9	22	.87	.58	112				
2		87	.07	.23	.03	.30	.48	1.0	5.6	.37	.41	26				
3		13	.06	.22	.03	.31	.38	.61	2.6	.84	.80	72				
4		.15	.06	.11	.02	.26	5.1	.50	1.5	249	.78	12				
5		.05	.09	.05	.06	.35	2.8	53	3.9	346	.80	1.1				
6		.09	.21	.03	.13	.34	1.1	582	1.7	87	.61	.39				
7		.10	.08	.06	.09	.32	.48	19	14	2.2	4.7	.36				
8		.07	.06	.04	.07	259	3.5	5.1	2.7	.53	1.9	.19				
9		.08	.08	.03	.24	11	1.4	2.5	.74	11	.76	.13				
10		.09	.07	.02	.08	1.1	.39	1.5	.32	40	.73	.16				
11		.11	.10	.02	.06	.40	.24	1.2	.24	193	.60	.11				
12		.09	.06	.02	.08	2.8	.18	3.3	.26	86	.58	.17				
13		.11	.07	.03	.04	.61	3.3	60	.16	6.1	.86	.18				
14		.11	.08	.03	.04	.21	2.4	3.4	.10	3.9	1.3	.09				
15		.11	.09	.03	.03	.28	.53	1.7	.14	5.1	.99	.10				
16		.13	.08	.03	.04	.31	20	.79	.35	120	1.0	.13				
17		.11	.10	.03	8.2	.24	4.2	.67	1.0	70	.83	.14				
18		.10	.11	.05	5.8	.32	125	.29	430	16	.70	.08				
19		.09	.09	.05	.43	.44	2240	.17	60	330	.71	50				
20		1.3	.06	.05	.38	.43	299	.15	4.7	6.7	.62	63				
21		.36	.04	.05	14	.64	14	.16	1.5	4.2	.44	5.6				
22		.16	.03	.03	.90	.50	4.6	.13	1.0	2.6	.74	.94				
23		.11	.03	.04	.63	.46	2.6	70	.68	2.1	.68	.38				
24		.07	41	.04	.37	40	149	654	3.1	1.9	5.8	.17				
25		.07	78	.81	.32	6.5	7.2	45	36	1.4	4.2	.15				
26		.06	3.0	.16	.29	1.3	3.0	204	3.8	1.5	1.0	.24				
27		.08	.81	.04	.30	.90	1.6	179	1.1	1.4	.60	1.3				
28		.07	.54	.04	.30	119	1.4	9.0	.52	.93	.70	7.7				
29		.06	.31	.03	.29	26	41	3.6	.46	.81	.93	2.3				
30		8.1	.24	.03	---	3.2	5.0	10	.37	.68	.99	.66				
31		---	.20	.03	---	1.5	---	952	---	.63	.89	---				
TOTAL	0	112.03	126.48	2.62	33.30	479.29	2940.66	2865.67	600.54	1675.92	37.23	357.77				
MEAN	0	3.73	4.08	.085	1.15	15.5	98.0	92.4	20.0	54.1	1.20	11.9				
MAX	0	87	78	.81	14	259	2240	952	430	346	5.8	112				
MIN	0	0	.03	.02	.02	.21	.18	.13	.10	.37	.41	.08				
CFSM	0	.16	.18	.003	.05	.67	4.26	4.02	.87	2.35	.05	.52				
IN.	0	.18	.20	.004	.05	.78	4.76	4.63	.97	2.71	.06	.58				
AC-FT	0	222	251	5.2	66	951	5830	5680	1190	3320	74	710				
(††)	.09	2.50	1.52	.12	.85	3.30	9.62	8.42	3.40	5.56	.89	5.32				
CAL YR 1975	TOTAL	6043.14	MEAN	16.6	MAX	1280	MIN	0	CFSM	.72	IN	9.77	AC-FT	11990	††	26.20
WTR YR 1976	TOTAL	9231.51	MEAN	25.2	MAX	2240	MIN	0	CFSM	1.10	IN	14.93	AC-FT	18310	††	41.59

PEAK DISCHARGE (BASE, 800 FT<sup>3</sup>/S)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
4-19	1030	11.67	7,330	7- 4	0145	8.23	946
5- 6	0830	8.67	1,300	7- 5	0530	8.11	865
5-24	0430	9.56	2,330	7-11	2215	8.04	820
5-31	0645	9.92	2,910	7-19	0515	8.56	1,200
6-18	1615	8.98	1,600				

†† Weighted-mean rainfall, in inches, based on three rain gages.

## TRINITY RIVER BASIN

481

08062000 East Fork Trinity River near Crandall, Tex.

LOCATION (revised).--Lat 32°38'19", long 96°29'17", Kaufman County, on right bank 15 ft (5 m) downstream from downstream eastbound bridge on U.S. Highway 175, 0.7 mile (1.1 km) downstream from Mustang Creek, 1.8 miles (2.9 km) northwest of Crandall, 4.0 miles (6.4 km) upstream from Buffalo Creek, and at mile 11.0 (17.7 km).

DRAINAGE AREA.--1,256 mi<sup>2</sup> (3,253 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: June 1949 to current year.

Water quality: Chemical and biochemical analyses: October 1967 to current year. Water temperatures: October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 343.69 ft (104.757 m) above mean sea level.

AVERAGE DISCHARGE.--4 years (1949-53) prior to regulation by Lavon Lake, 652 ft<sup>3</sup>/s (18.46 m<sup>3</sup>/s), 472,400 acre-ft/yr (582 hm<sup>3</sup>/yr); 23 years (1953-76) regulated, 624 ft<sup>3</sup>/s (17.67 m<sup>3</sup>/s), 452,100 acre-ft/yr (557 hm<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 9,800 ft<sup>3</sup>/s (278 m<sup>3</sup>/s) Apr. 20 (gage height, 16.95 ft or 5.166 m, from graph based on gage readings); minimum, 16 ft<sup>3</sup>/s (0.45 m<sup>3</sup>/s) Sept. 11, 12.

Period of record: Maximum discharge, 33,000 ft<sup>3</sup>/s (935 m<sup>3</sup>/s) May 28, 1957 (gage height, 22.81 ft or 6.952 m); no flow at times.

Water quality: Current year: Maximum daily specific conductance, 765 micromhos Aug. 18; minimum daily, 243 micromhos Apr. 19.

Maximum water temperatures, 29.0°C on several days during summer months; minimum, 2.0°C Jan. 7.

Period of record: Maximum daily specific conductance, 1,010 micromhos Nov. 23, 1968; minimum daily, 201 micromhos Oct. 20, 1971.

Maximum water temperatures, 33.0°C on several days during summer months of 1969 and 1974; minimum, 1.5°C Jan. 11, 1973.

REMARKS.--Discharge records good. Flow largely regulated by Lavon Lake (station 08060500) since September 1953 and Lake Ray Hubbard (station 08061550) since Mar. 22, 1970. At end of year, flow from 39.2 mi<sup>2</sup> (101.5 km<sup>2</sup>) above this station and below Lake Ray Hubbard was affected at times by discharge from the flood-detention pools of 20 floodwater-retarding structures with combined detention capacity of 11,760 acre-ft (14.5 hm<sup>3</sup>) below spillway crests. Records furnished by the city of Forney show that 3,990 acre-ft (4.92 hm<sup>3</sup>) of sewage effluent was returned to a tributary below Lake Ray Hubbard and above station; records furnished by the North Texas Municipal Water District show that 5,420 acre-ft (6.68 hm<sup>3</sup>) of sewage effluent was returned to tributaries above station from the Mesquite and Chandler's Landing sewage treatment plants.

REVISIONS.--WSP 1922: Drainage area. WRD-TX-75: 1974.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	39	62	40	43	44	52	152	2170	46	32	17
2	44	37	54	38	40	46	46	111	497	74	30	102
3	44	160	47	36	41	57	42	89	213	104	29	124
4	44	42	45	36	44	49	41	71	142	566	30	158
5	44	40	43	36	44	48	49	63	152	558	29	74
6	44	34	40	36	44	45	49	785	147	666	29	41
7	44	33	40	40	46	44	45	1690	143	219	29	27
8	43	33	39	42	46	183	44	412	227	93	31	26
9	43	33	38	39	46	476	49	193	108	78	28	24
10	43	34	40	39	46	115	46	140	75	110	26	23
11	41	34	46	40	49	66	42	113	57	109	26	18
12	40	37	47	39	47	56	40	97	50	512	26	18
13	40	38	39	41	45	69	42	270	46	178	26	20
14	40	38	37	42	45	61	75	201	42	95	26	22
15	40	40	36	42	45	49	67	107	42	77	25	24
16	38	38	38	40	46	46	64	81	43	70	25	22
17	37	44	39	40	48	44	98	65	42	945	24	23
18	36	34	39	40	65	43	149	53	219	1200	27	24
19	36	35	40	40	61	45	5090	47	682	855	24	63
20	37	40	39	46	52	43	7590	45	189	415	24	171
21	38	49	40	41	65	42	2260	40	98	175	24	120
22	38	48	39	41	84	39	795	38	72	103	23	42
23	39	49	38	41	59	41	598	50	60	49	22	30
24	38	43	43	44	44	51	644	1010	54	42	24	24
25	36	41	183	44	48	120	720	1020	108	42	29	21
26	36	40	166	45	47	91	382	612	98	46	26	21
27	38	42	75	47	49	57	227	691	72	34	24	48
28	38	36	48	44	48	48	170	346	56	34	23	27
29	38	36	40	41	44	265	212	128	53	34	23	49
30	39	37	39	43	---	115	209	78	51	33	24	48
31	39	---	39	44	---	69	---	1260	---	33	21	---
TOTAL	1239	1336	1598	1267	1436	2567	19937	10058	6008	7595	809	1451
MEAN	40.0	44.5	51.5	40.9	49.5	82.8	665	324	200	245	26.1	48.4
MAX	44	160	183	47	84	476	7590	1690	2170	1200	32	171
MIN	36	33	36	36	40	39	40	38	42	33	21	17
AC-FT	2460	2650	3170	2510	2850	5090	39550	19950	11920	15060	1600	2880
C&L YR 1975	TOTAL	384563	MEAN	1054	MAX	14100	MIN 33	AC-FT	762800			
WTR YR 1976	TOTAL	55301	MEAN	151	MAX	7590	MIN 17	AC-FT	109700			

## TRINITY RIVER BASIN

08062000 East Fork Trinity River near Crandall, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)
OCT 22...	1120	35	628	6.9	20.0	50	10	.0	0	26	130	0
NOV 12...	1140	36	673	6.9	17.0	60	15	.0	0	27	110	0
DEC 03...	1130	56	693	7.0	11.0	40	8	1.4	13	19	160	0
JAN 08...	1200	34	613	6.9	4.0	60	20	.8	6	43	110	0
FEB 10...	1155	48	614	6.9	14.0	80	25	.0	0	56	110	0
MAR 02...	0930	45	683	7.3	19.5	90	30	.0	0	54	100	0
APR 28...	1100	165	337	6.9	20.0	0	40	3.2	35	9.3	110	0
MAY 25...	1700	630	294	7.3	22.0	20	100	2.5	28	7.3	110	2
JUN 23...	1505	38	528	6.9	27.0	60	7	2.1	27	19	140	0
JUL 27...	1520	25	551	6.9	30.0	30	30	.0	0	19	130	0
AUG 12...	1100	23	627	7.1	28.5	40	13	.0	0	25	110	0
SEP 23...	1415	30	580	7.2	24.5	80	15	.0	0	29	110	0
DATE	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SiO2) (MG/L)	
OCT 22...	45	4.4	64	2.4	12	222	0	41	44	--	13	
NOV 12...	38	3.6	72	3.0	10	242	0	32	54	2.4	13	
DEC 03...	55	5.0	59	2.0	10	231	0	58	57	1.1	9.8	
JAN 08...	37	3.6	55	2.3	10	216	0	50	39	2.5	12	
FEB 10...	36	4.0	66	2.8	9.0	222	0	44	42	2.3	8.3	
MAR 02...	37	2.5	70	3.0	12	256	0	28	53	2.9	10	
APR 28...	40	1.9	21	.9	4.4	144	0	27	14	.8	8.1	
MAY 25...	42	1.6	13	.5	4.3	133	0	23	16	.5	7.6	
JUN 23...	50	3.2	40	1.5	6.8	202	0	44	30	.8	9.3	
JUL 27...	47	3.6	49	1.9	8.0	224	0	31	34	2.0	12	
AUG 12...	39	3.3	59	2.4	12	264	0	25	43	2.8	13	
SEP 23...	40	3.2	58	2.4	9.2	219	0	34	42	2.9	11	
DATE	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NON-FILTERABLE RESIDUE (MG/L)	VOL. NON-FILTERABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)	METHYLENE BLUE ACTIVE SUBSTANCE (MG/L)	
OCT 22...	334	24	15	.01	.00	14	2.0	9.6	11	17	1.8	
NOV 12...	344	60	28	.01	.01	14	3.0	11	22	22	1.8	
DEC 03...	369	22	10	.14	.01	13	3.0	6.4	24	10	.9	
JAN 08...	316	36	26	.15	.01	17	3.0	9.8	27	16	2.2	
FEB 10...	323	47	38	.00	.01	12	4.0	8.8	21	43	1.7	
MAR 02...	342	44	44	.00	.01	17	12	11	34	90	1.5	
APR 28...	188	92	12	.10	.01	2.3	1.0	1.6	6.0	6	.4	
MAY 25...	174	272	202	.34	.06	.73	1.1	.58	8.2	1	.1	
JUN 23...	289	40	28	.00	.00	7.1	2.0	4.4	13	0	.3	
JUL 27...	297	108	63	.00	.01	9.4	2.6	5.9	17	22	1.1	
AUG 12...	328	40	32	.00	.01	15	6.0	8.6	16	15	.9	
SEP 23...	308	68	64	.00	.01	11	4.0	8.3	24	24	.2	

## TRINITY RIVER BASIN

483

08062000 East Fork Trinity River near Crandall, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	DIS-SOLVED ALUMINUM (AL) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED CADMIUM (CD) (UG/L)	DIS-SOLVED CHROMIUM (CR) (UG/L)	DIS-SOLVED CORALIT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)
OCT. 22...	1120	20	2	340	2	7	0	18
FEB. 10...	1155	120	3	330	3	10	0	41
JUNE 23...	1505	90	3	290	0	0	0	4
AUG. 12...	1100	60	3	--	0	13	0	8

DATE	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED LITHIUM (LI) (UG/L)	DIS-SOLVED MANGANESE (MN) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED STRONTIUM (SR) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
OCT. 22...	160	4	1	60	.6	22	560	9
FEB. 10...	230	14	10	70	.0	28	550	50
JUNE 23...	120	0	10	190	.4	7	750	10
AUG. 12...	80	8	10	110	.1	11	520	20

MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICROMHOS)	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. 1975.....	1239	586	310	1030	40	135	38	128	130
NOV. 1975.....	1336	606	320	1140	43	155	40	144	130
DEC. 1975.....	1598	579	300	1310	40	171	38	164	130
JAN. 1976.....	1267	599	310	1070	42	143	39	135	130
FEB. 1976.....	1392	569	300	1130	39	145	37	140	130
MAR. 1976.....	2567	491	260	1840	30	206	32	224	130
APR. 1976.....	19937	275	160	8570	8	432	18	962	120
MAY 1976.....	10058	366	210	5580	15	404	24	652	130
JUNE 1976.....	6008	389	220	3510	18	291	26	415	130
JULY 1976.....	7595	379	210	4350	17	342	25	511	130
AUG. 1976.....	809	678	350	766	51	112	45	97	140
SEPT 1976.....	1451	513	270	1070	32	126	34	132	130
TOTAL .....	55257	**	**	31400	**	2660	**	3700	**
WTD.AVG. ....	151.39	379	210	**	18	**	25	**	130



## TRINITY RIVER BASIN

08062000 East Fork Trinity River near Crandall, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	532	550	603	506	595	650	572	400	290	537	521	700
2	574	570	722	500	604	683	614	430	358	570	518	527
3	585	500	713	493	552	670	601	500	400	520	550	606
4	592	443	670	490	617	675	650	520	410	420	600	550
5	575	411	651	489	612	670	673	550	418	390	650	536
6	582	470	604	491	587	760	589	400	450	330	735	520
7	590	550	646	489	629	656	500	320	400	400	740	536
8	606	575	600	613	565	400	614	300	378	450	740	537
9	600	600	700	500	631	300	587	370	400	577	752	527
10	595	637	706	507	614	450	562	400	450	573	654	511
11	623	650	600	498	609	500	558	450	500	662	630	536
12	600	670	642	550	565	526	514	500	560	400	627	541
13	604	680	631	600	584	600	491	420	578	355	650	530
14	590	698	650	653	569	656	450	400	586	628	700	513
15	646	657	692	660	575	648	409	440	537	543	745	516
16	533	664	670	673	613	592	413	460	570	625	752	527
17	627	689	649	669	613	648	350	500	626	310	760	502
18	600	693	658	663	570	650	300	550	420	291	765	529
19	580	689	614	662	547	652	243	560	390	300	760	450
20	570	649	643	670	552	652	251	570	430	370	756	400
21	585	661	617	672	582	650	247	580	470	400	600	430
22	628	689	609	672	581	654	300	600	500	450	640	520
23	619	685	593	703	457	654	290	610	528	459	670	580
24	604	642	620	662	498	650	284	360	602	648	700	550
25	585	660	450	577	477	450	350	290	628	670	722	532
26	558	685	400	654	486	520	340	354	634	529	619	492
27	563	669	385	662	450	580	350	370	628	573	650	534
28	568	661	521	668	657	600	337	368	630	580	680	542
29	573	657	575	517	614	321	360	364	600	543	744	525
30	568	620	585	665	---	450	380	507	550	589	742	522
31	500	---	646	633	---	550	---	350	---	470	742	---
MONTH	586	622	615	596	573	584	439	445	497	489	681	527

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	---	10.0	12.0	10.0	---	16.0	17.0	24.0	28.0	28.0	---
2	22.0	19.0	11.0	7.0	11.0	---	16.0	20.0	24.0	28.0	28.0	26.0
3	22.0	20.0	12.0	7.0	12.0	---	16.0	20.0	23.0	28.0	28.0	26.0
4	22.0	20.0	11.0	6.0	12.0	---	16.0	22.0	24.0	29.0	28.0	27.0
5	22.0	20.0	11.0	5.0	11.0	---	17.0	22.0	25.0	29.0	28.0	27.0
6	21.0	20.0	12.0	5.0	13.0	---	18.0	20.0	25.0	28.0	28.0	26.0
7	21.0	20.0	14.0	2.0	13.0	11.0	20.0	21.0	24.0	28.0	28.0	26.0
8	22.0	19.0	14.0	3.0	14.0	11.0	20.0	22.0	25.0	27.0	28.0	26.0
9	22.0	19.0	14.0	6.0	15.0	10.0	21.0	22.0	24.0	27.0	28.0	26.0
10	21.0	20.0	14.0	9.0	15.0	12.0	18.0	21.0	24.0	27.0	28.0	27.0
11	21.0	17.0	13.0	9.0	14.0	16.0	21.0	22.0	24.0	27.0	29.0	27.0
12	21.0	18.0	14.0	10.0	15.0	16.0	22.0	21.0	25.0	25.0	28.0	27.0
13	21.0	18.0	14.0	9.0	16.0	15.0	24.0	22.0	25.0	26.0	28.0	27.0
14	21.0	17.0	12.0	10.0	17.0	15.0	24.0	23.0	25.0	27.0	28.0	29.0
15	21.0	17.0	12.0	10.0	18.0	14.0	24.0	24.0	26.0	27.0	28.0	28.0
16	21.0	12.0	11.0	10.0	18.0	14.0	22.0	21.0	25.0	27.0	28.0	28.0
17	21.0	12.0	10.0	9.0	17.0	15.0	22.0	22.0	25.0	25.0	28.0	27.0
18	22.0	11.0	12.0	10.0	17.0	16.0	18.0	24.0	---	25.0	---	27.0
19	---	11.0	12.0	10.0	17.0	16.0	16.0	22.0	---	26.0	28.0	27.0
20	20.0	12.0	12.0	10.0	16.0	17.0	18.0	23.0	---	27.0	28.0	27.0
21	20.0	11.0	5.0	10.0	16.0	17.0	20.0	22.0	---	27.0	28.0	25.0
22	20.0	10.0	5.0	10.0	17.0	16.0	20.0	23.0	---	27.0	28.0	22.0
23	21.0	10.0	7.0	10.0	17.0	16.0	21.0	22.0	25.0	28.0	28.0	24.0
24	20.0	10.0	8.0	9.0	15.0	---	22.0	20.0	26.0	28.0	28.0	24.0
25	19.0	10.0	8.0	9.0	14.0	---	18.0	20.0	26.0	28.0	28.0	24.0
26	19.0	10.0	7.0	9.0	16.0	---	18.0	20.0	26.0	28.0	28.0	24.0
27	19.0	10.0	7.0	10.0	17.0	---	17.0	20.0	26.0	28.0	28.0	22.0
28	19.0	10.0	7.0	10.0	16.0	---	18.0	21.0	27.0	29.0	28.0	22.0
29	19.0	10.0	10.0	10.0	17.0	15.0	18.0	22.0	27.0	29.0	27.0	22.0
30	19.0	10.0	10.0	11.0	---	---	17.0	25.0	27.0	29.0	26.0	22.0
31	19.0	---	13.0	10.0	---	---	---	---	---	29.0	27.0	---
MONTH	20.5	14.5	10.5	8.5	15.0	---	19.5	21.5	25.0	27.5	28.0	25.5

08062500 Trinity River near Rosser, Tex.

LOCATION.--Lat 32°25'36", Long 96°27'44", Ellis-Kaufman County line, on left bank at downstream side of left pier of bridge on State Highway 34, 2.5 miles (4.0 km) south of Rosser, 8.5 miles (13.7 km) downstream from East Fork Trinity River, and at mile 451.4 (726.3 km).

DRAINAGE AREA.--8,146 mi<sup>2</sup> (21,098 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: July 1924 to September 1925, October 1938 to current year. Monthly discharge only for some periods, published in WSP 1312.

Water quality: Chemical analyses: October 1954 to current year. Chemical, biochemical and pesticide analyses: January 1968 to current year. Water temperatures: October 1954 to current year.

GAGE.--Water-stage recorder. Datum of gage is 302.65 ft (92.248 m) above mean sea level. July 25, 1924, to Sept. 30, 1925, nonrecording gage at abandoned lock and dam No. 7, 1.7 miles (2.7 km) upstream from present site at datum 6.94 ft (2.115 m) higher.

AVERAGE DISCHARGE.--39 years, 2,602 ft<sup>3</sup>/s (73.69 m<sup>3</sup>/s), 1,885,000 acre-ft/yr (2.32 km<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 39,600 ft<sup>3</sup>/s (1,120 m<sup>3</sup>/s) Apr. 20 (gage height, 33.44 ft or 10.193 m); minimum, 308 ft<sup>3</sup>/s (8.72 m<sup>3</sup>/s) Oct. 6.

Period of record: Maximum discharge not determined, occurred Apr. 23 or 24, 1942, following numerous breaks in levee system along both banks (maximum gage height, 41.55 ft or 12.664 m) Apr. 22, 1942, just prior to levee breaks; maximum daily discharge, 133,000 ft<sup>3</sup>/s (3,770 m<sup>3</sup>/s) Apr. 23, 1942; minimum, 32 ft<sup>3</sup>/s (0.91 m<sup>3</sup>/s) for several days in 1924-25.

Historic: Flood in May 1908 reached a stage of about 33 ft (10.1 m), present site and datum, from information by Corps of Engineers (discharge believed to have been about the same as that of Apr. 23 or 24, 1942).

Water quality: Current year: Maximum daily specific conductance, 1,010 micromhos Nov. 22; minimum daily, 206 micromhos Apr. 20. Maximum water temperatures, 31.0°C Aug. 1, 2; minimum, 6.0°C Jan. 8, 9.

Period of record: Maximum daily specific conductance, 2,990 micromhos Oct. 13, 1956; minimum daily, 200 micromhos July 30, 1962. Maximum water temperatures, 36.0°C July 1, 1955; minimum, 1.0°C on several days during December and January of most years.

REMARKS.--Discharge records good. Flow is affected by storage in 15 upstream reservoirs having a combined capacity of 3,572,000 acre-ft (4.40 km<sup>3</sup>), of which 1,138,000 acre-ft (1.40 km<sup>3</sup>) is for flood control. A levee system constructed in 1916 extends several miles upstream and downstream from station. At end of year, flow from 76.7 mi<sup>2</sup> (198.7 km<sup>2</sup>) above this station and below stations Trinity River at Dallas (station 08057000) and Lake Ray Hubbard near Forney (station 08061550), may be affected at times by outflow from 38 floodwater-retarding structures having a combined detention capacity of 22,690 acre-ft (28.0 hm<sup>3</sup>) below flood-spillway crests. The cities of Fort Worth and Dallas and several small cities divert considerable water for municipal use, of which about 60 percent is returned as sewage effluents which sustain low flows at this site.

REVISIONS.--WSP 1922: Drainage area.

DISCHARGE\* IN CUBIC FEET PER SECOND\* WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	346	386	577	478	443	446	597	1990	11000	679	607	1940
2	351	388	606	442	455	469	558	1500	10300	726	598	5920
3	355	723	487	436	461	481	570	1310	7000	707	583	3180
4	349	906	450	434	445	488	566	1270	4140	1840	573	2830
5	349	618	442	424	455	471	570	1230	3590	2470	585	2400
6	328	476	428	465	478	490	580	3100	2920	2410	576	1050
7	340	437	409	442	448	466	529	6610	1680	1930	573	709
8	356	454	416	445	436	717	669	5090	1580	1100	566	695
9	383	386	434	460	427	2220	928	2130	1450	816	537	654
10	368	356	428	476	452	1610	718	1400	1170	1240	547	967
11	378	389	427	470	462	820	564	1230	1050	1400	547	746
12	376	394	433	469	473	659	526	1130	981	1250	568	601
13	351	388	429	504	465	814	523	2210	961	1580	561	556
14	366	379	422	487	459	790	729	2900	917	1060	573	561
15	368	371	388	477	446	600	876	1880	897	1040	566	542
16	381	385	403	459	425	595	728	1350	890	968	561	564
17	403	375	408	457	442	573	1500	1140	830	1700	559	556
18	383	388	427	435	634	531	1790	1040	892	3400	583	607
19	368	390	410	417	633	512	17700	964	3280	3420	580	1070
20	351	404	422	442	569	508	37500	959	3340	2020	515	1470
21	371	436	413	477	580	485	29700	853	1950	1140	537	1730
22	393	440	390	493	737	467	23800	792	1020	891	568	1170
23	398	413	400	456	608	482	18100	773	829	794	515	794
24	403	411	437	450	523	498	9890	1810	787	735	515	670
25	398	407	1140	445	477	1220	4900	3210	1150	668	897	626
26	371	395	2060	469	477	1670	3390	6500	1040	749	704	588
27	358	403	1300	484	488	851	2290	5960	851	791	554	642
28	373	402	694	473	468	645	1850	6730	756	670	534	737
29	393	399	555	456	456	1150	2190	3330	708	626	542	940
30	403	411	534	448	---	1190	2910	1790	694	620	527	959
31	390	---	515	439	---	757	---	4990	---	615	620	---
TOTAL	11501	13110	17284	14209	14322	23675	167741	77171	68653	40055	17871	36474
MEAN	371	437	558	458	494	764	5591	2489	2288	1292	576	1216
MAX	403	906	2060	504	737	2220	37500	6730	11000	3420	897	5920
MIN	328	356	388	417	425	446	523	773	694	615	515	542
AC-FT	22810	26000	34280	28180	28410	46960	332700	153100	136200	79450	35450	72350
CAL YR 1975	TOTAL	1507798	MEAN	4131	MAX	43400	MIN	323	AC-FT	2991000		
WTR YR 1976	TOTAL	502066	MEAN	1372	MAX	37500	MIN	328	AC-FT	995800		

## TRINITY RIVER BASIN

08062500 Trinity River near Rosser, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)
OCT 22...	1305	300	987	6.9	21.5	60	10	.2	2	17	170	0
NOV 12...	1220	420	889	6.9	19.0	50	6	.6	6	14	150	0
DEC 03...	1220	485	838	7.2	14.0	40	10	.6	6	13	160	0
JAN 08...	1245	435	934	7.3	5.5	30	8	3.6	29	9.6	160	0
FEB 10...	0930	425	991	7.1	15.0	140	20	.4	4	21	150	0
MAR 02...	1045	427	962	7.3	20.5	100	7	.3	3	16	150	0
APR 21...	1415	29800	292	7.8	18.0	--	--	--	--	--	110	15
28...	1145	1740	481	6.9	21.0	0	90	2.1	23	13	150	7
MAY 25...	1600	3100	373	7.4	22.0	20	150	2.4	27	19	120	4
JUN 23...	1320	700	547	6.9	27.5	10	30	3.6	46	17	150	27
JUL 27...	1615	760	797	7.1	31.0	10	10	4.0	54	10	160	0
AUG 12...	1145	510	879	7.2	30.5	40	30	2.2	29	20	150	0
SEP 23...	1600	760	569	7.3	25.0	20	25	3.0	37	16	130	0

DATE	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	SODIUM ADSORPTION RATIO	DISSOLVED PHOSPHATE (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SiO2) (MG/L)
OCT 22...	54	7.1	120	4.1	15	284	0	100	86	--	15
NOV 12...	50	6.4	110	3.9	13	262	0	93	78	1.8	13
DEC 03...	51	7.0	95	3.3	10	269	0	84	61	1.8	11
JAN 08...	53	6.7	120	4.1	13	268	0	110	78	1.6	11
FEB 10...	49	6.6	120	4.3	14	284	0	110	89	1.9	11
MAR 02...	51	6.1	130	4.6	14	292	0	100	83	2.6	11
APR 21...	41	1.5	12	.5	3.8	114	0	34	7.5	.3	6.3
28...	54	3.4	33	1.2	5.5	173	0	52	28	.6	9.5
MAY 25...	43	2.4	26	1.0	4.5	138	0	36	20	.5	6.0
JUN 23...	53	3.8	45	1.6	7.5	148	0	63	36	.6	8.1
JUL 27...	56	5.4	90	3.1	12	240	0	90	68	1.3	13
AUG 12...	48	5.9	110	4.0	12	252	0	92	83	1.9	8.9
SEP 23...	44	4.7	54	2.1	9.5	174	0	64	41	.8	10

## TRINITY RIVER BASIN

487

08062500 Trinity River near Rosser, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NON- FILT- RABLE RESIDUE (MG/L)	VOL. NON- FILT- RABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 22...	538	44	26	.01	.00	16	.00	9.2	20	10	.9
NOV 12...	494	23	9	.00	.01	12	2.0	8.0	17	10	1.0
DEC 03...	453	22	0	.14	.31	11	3.0	6.7	23	8	1.1
JAN 08...	525	16	6	1.6	.26	13	6.0	6.6	19	5	2.1
FEB 10...	543	57	40	.00	.01	16	7.0	10	18	15	1.3
MAR 02...	542	36	36	.00	.00	12	6.0	7.3	24	2	.4
APR 21...	163	--	--	--	--	--	--	--	--	--	--
APR 28...	271	272	32	.20	.35	2.3	1.4	1.1	7.0	4	.1
MAY 25...	206	488	80	.62	.15	1.8	1.3	1.5	8.9	1	.1
JUN 23...	291	74	16	1.0	.28	2.7	1.3	1.6	10	0	.0
JUL 27...	454	38	17	.61	.22	6.2	1.6	4.5	12	2	.5
AUG 12...	487	57	30	.14	.14	9.9	3.1	6.3	9.8	1	.2
SEP 23...	314	60	39	.44	.23	4.4	2.3	2.2	8.4	1	.2

DATE	TIME	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)
OCT 22...	1305	7	6	460	2	4	0	22
FEB 10...	0930	70	9	440	3	25	0	21
JUN 23...	1320	0	7	120	1	1	0	3
AUG 12...	1145	40	6	--	0	0	0	6

DATE	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
OCT 22...	180	0	10	140	.6	52	540	4
FEB 10...	250	10	10	130	.0	35	450	50
JUN 23...	220	0	10	0	.2	10	390	0
AUG 12...	110	0	10	80	.1	22	400	10

## TRINITY RIVER BASIN

08062500 Trinity River near Rosser, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	TOTAL PCB (UG/L)	PCB IN BOTTOM MATERIAL (UG/KG)	POLY-CHLORINATED NAPHTHALENES (UG/L)	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL CHLOR-DANE (UG/L)	CHLOR-DANE IN BOTTOM MATERIAL (UG/KG)	TOTAL DDD (UG/L)	DDD IN BOTTOM MATERIAL (UG/KG)	TOTAL DDE (UG/L)	DDE IN BOTTOM MATERIAL (UG/KG)
OCT 22...	1305	.0	15	--	.00	.0	.0	46	.00	.8	.00	2.5
FEB 10...	0930	.0	23	.00	.00	.0	.3	41	.00	1.3	.00	4.5
JUN 23...	1320	.0	33	.00	.00	.0	.0	39	.00	1.4	.00	2.8
SEP 23...	1600	.0	17	.00	.00	.0	.0	17	.00	.5	.00	1.3

DATE	TOTAL DDT (UG/L)	DDT IN BOTTOM MATERIAL (UG/KG)	TOTAL DI-AZINON (UG/L)	TOTAL DI-ELDRIN (UG/L)	DI-ELDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL ENDRIN (UG/L)	ENDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL HEPTA-ETHION (UG/L)	TOTAL HEPTA-CHLOR (UG/L)	HEPTA-CHLOR IN BOTTOM MATERIAL (UG/KG)	TOTAL HEPTA-CHLOR EPOXIDE (UG/L)	HEPTA-CHLOR EPOXIDE IN BOTTOM MATERIAL (UG/KG)
OCT 22...	.00	.0	.34	.01	5.2	.00	.0	.00	.00	.0	.03	.1
FEB 10...	.00	.0	.21	.04	11	.00	.0	.00	.00	.0	.00	1.4
JUN 23...	.00	.0	.27	.01	.0	.00	.0	.00	.00	.0	.00	.0
SEP 23...	.00	.0	.28	.01	.0	.00	.0	.00	.00	.0	.00	.0

DATE	TOTAL LINDANE (UG/L)	LINDANE IN BOTTOM MATERIAL (UG/KG)	TOTAL MALATHION (UG/L)	TOTAL METHYL PARATHION (UG/L)	TOTAL METHYL TRIETHION (UG/L)	TOTAL PARATHION (UG/L)	TOTAL TOXAPHENE (UG/L)	TOXAPHENE IN BOTTOM MATERIAL (UG/KG)	TOTAL TRIETHION (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)
OCT 22...	.00	.0	.00	.00	.00	.00	0	0	.00	.11	.01	.00
FEB 10...	.00	.0	.01	.00	.00	.00	0	0	.00	.49	.19	.00
JUN 23...	.00	.0	.09	.00	.00	.00	0	39	.00	.00	.10	.01
SEP 23...	.02	.0	.42	.00	.00	.00	0	0	.00	.01	.17	.00

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	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. 1975.....	11501	892	490	15400	78	2430	99	3060	150
NOV. 1975.....	13110	885	490	17400	77	2740	98	3460	150
DEC. 1975.....	17284	785	440	20400	66	3080	86	4010	150
JAN. 1976.....	14209	888	490	18900	78	2980	97	3740	150
FEB. 1976.....	13866	877	490	18300	76	2860	96	3600	150
MAR. 1976.....	23675	709	390	25200	57	3660	77	4910	150
APR. 1976.....	167741	334	180	83700	16	7080	32	14500	130
MAY 1976.....	77171	482	270	55800	31	6470	50	10300	140
JUNE 1976.....	68653	467	260	48300	29	5460	48	8870	140
JULY 1976.....	40055	545	300	32800	38	4160	57	6190	140
AUG. 1976.....	17871	832	460	22400	71	3440	92	4420	150
SEPT 1976.....	36474	579	320	31600	42	4160	62	6060	150
TOTAL .....	501610	**	**	390000	**	48500	**	73100	**
WTD.AVG. ....	1374.27	519	290	**	36	**	54	**	140

## TRINITY RIVER BASIN

489

08062500 Trinity River near Rosser, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	828	949	650	659	913	877	663	476	320	794	823	500
2	860	926	871	747	933	930	776	500	344	830	844	455
3	901	850	782	786	929	847	813	555	388	855	832	447
4	908	700	878	830	881	835	847	558	400	500	800	507
5	915	697	920	800	822	899	854	600	439	386	760	455
6	890	907	927	878	917	900	787	500	448	400	823	458
7	908	833	909	872	937	925	735	453	496	450	867	487
8	880	743	900	934	941	820	844	387	554	500	823	567
9	805	760	888	878	891	600	910	453	599	600	844	603
10	850	818	870	933	913	550	914	502	605	550	851	729
11	901	886	865	918	881	687	899	539	640	500	823	759
12	890	834	880	911	848	766	835	579	663	550	809	561
13	880	859	920	918	921	810	793	587	646	587	857	642
14	954	974	947	896	929	709	728	558	732	507	894	688
15	873	996	931	903	903	736	857	544	713	587	832	791
16	853	915	940	836	921	791	828	579	707	619	814	800
17	880	958	955	926	929	785	600	637	765	550	857	849
18	915	983	909	918	881	761	531	623	759	477	840	862
19	912	886	975	930	965	736	300	640	500	454	838	849
20	905	827	1000	941	754	810	206	645	436	438	857	602
21	962	926	962	903	835	822	275	650	533	461	867	588
22	890	1010	1000	885	910	860	307	700	493	528	851	618
23	853	900	975	941	801	888	335	720	521	623	884	580
24	908	983	924	974	689	854	319	700	622	697	912	583
25	934	1000	700	885	793	700	417	694	700	719	800	670
26	919	970	600	957	801	667	395	450	683	761	838	688
27	901	930	550	961	880	629	452	400	659	774	735	711
28	905	991	545	918	881	572	491	350	732	761	712	755
29	966	1000	572	872	870	649	493	400	772	696	786	775
30	877	900	636	878	---	449	574	450	794	794	837	759
31	819	---	657	922	---	524	---	300	---	818	912	---
MONTH	892	897	840	887	878	754	626	540	589	605	833	645

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.5	20.5	12.0	11.0	10.0	18.0	18.0	19.0	23.0	30.0	31.0	25.5
2	21.0	21.0	12.0	12.0	11.0	20.0	17.0	18.5	23.0	28.0	31.0	24.0
3	21.0	20.0	12.0	9.0	12.0	20.0	19.0	20.0	24.5	28.5	29.5	24.0
4	20.5	20.0	13.0	8.0	13.0	20.5	20.0	20.5	25.0	28.0	27.0	26.0
5	20.0	19.0	15.0	9.0	13.0	19.0	19.5	21.0	24.5	27.0	28.5	26.5
6	20.0	20.0	15.5	8.5	10.0	15.5	18.0	20.0	23.5	---	29.0	28.0
7	21.0	20.0	14.0	6.5	9.0	18.0	19.0	19.5	24.5	---	30.0	26.5
8	21.0	21.0	15.0	6.0	12.0	17.0	18.5	19.0	25.0	---	30.0	27.0
9	22.0	22.0	15.0	6.0	11.0	13.0	20.0	19.0	25.0	---	30.5	28.0
10	23.0	20.0	14.0	8.0	13.0	11.0	20.0	20.0	25.5	---	30.5	26.0
11	24.0	20.0	14.5	9.0	15.0	15.0	20.0	22.0	26.0	---	30.0	25.0
12	24.5	19.0	15.0	9.0	16.0	16.0	21.0	23.5	27.0	---	30.0	24.0
13	25.0	16.5	16.0	13.0	17.0	14.5	22.0	23.5	26.0	27.0	30.0	24.5
14	24.5	15.0	17.0	10.0	18.5	13.0	22.0	22.0	27.0	26.0	30.0	25.0
15	24.0	15.0	16.0	---	19.0	14.5	22.0	20.5	26.5	27.0	29.5	26.0
16	23.0	16.0	13.0	---	20.0	14.0	21.0	21.5	26.5	27.0	29.5	27.0
17	21.0	17.0	12.0	---	20.0	14.0	22.0	22.0	27.0	27.0	29.5	27.0
18	20.5	18.0	11.0	---	18.0	15.0	19.5	21.0	27.0	26.0	29.5	28.0
19	20.0	18.5	10.0	---	17.0	17.0	19.0	---	25.0	26.0	29.0	27.0
20	20.0	18.0	10.0	---	18.0	19.0	15.0	---	25.0	26.5	29.0	25.5
21	20.0	15.0	10.0	---	16.0	18.0	18.0	---	25.0	28.0	29.0	21.0
22	20.0	14.0	10.0	10.0	13.5	18.0	18.0	---	25.0	28.0	30.0	23.5
23	20.5	12.0	10.0	11.0	13.0	20.0	20.0	---	25.0	29.0	28.0	23.5
24	23.0	12.0	11.0	13.0	13.0	19.0	21.0	---	26.0	29.5	28.0	25.0
25	22.0	11.0	9.0	14.0	13.0	19.0	20.0	---	26.0	30.0	28.0	25.0
26	17.0	11.0	8.0	13.0	13.0	19.0	20.0	---	28.0	30.0	28.0	25.0
27	19.0	13.0	9.0	10.0	15.0	18.0	20.0	---	28.0	30.0	29.5	25.0
28	21.0	12.0	9.0	10.0	16.0	19.0	19.0	---	29.0	30.0	29.0	24.0
29	20.5	15.0	10.0	10.5	17.0	18.5	18.0	---	29.5	30.0	28.5	24.5
30	20.0	15.0	10.0	10.5	---	17.0	18.0	---	30.0	30.0	28.0	22.0
31	20.0	---	10.5	12.0	---	15.5	---	---	---	30.0	27.0	---
MONTH	21.5	17.0	12.0	---	14.5	17.0	19.5	---	26.0	---	29.0	25.5



08062650 Cedar Creek Reservoir spillway outflow near Trinidad, Tex.

LOCATION.--Lat 32°14'18", long 96°08'38", Henderson County, near center of channel at downstream side of bridge on State Highway 274, 0.2 mile (0.3 km) downstream from Cedar Creek Reservoir Spillway, 1.8 miles (2.9 km) upstream from mouth of cut channel at Trinity River, and 7.6 miles (12.2 km) north of Trinidad.

DRAINAGE AREA.--1,007 mi<sup>2</sup> (2,608 km<sup>2</sup>), that of Cedar Creek Reservoir.

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

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to July 9, 1966, nonrecording gage at same site and datum. Auxiliary water-stage recorder 6,000 ft (1,830 m) downstream from base gage at same datum.

AVERAGE DISCHARGE.--11 years, 619 ft<sup>3</sup>/s (17.53 m<sup>3</sup>/s), 448,500 acre-ft/yr (553 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 74,800 ft<sup>3</sup>/s (2,120 m<sup>3</sup>/s) Apr. 20 (elevation, 296.06 ft or 90.239 m); no flow at times.  
Period of record: Maximum discharge, 110,000 ft<sup>3</sup>/s (3,120 m<sup>3</sup>/s) June 4, 1973 (elevation, 300.75 ft or 91.669 m); no flow at times each year except 1971.

REMARKS.--Records fair. Except for a small amount of local runoff and seepage around gates, all flow is water released from Cedar Creek Reservoir (station 08063010).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.22	.50	.50	.30	1.0	.30	.22	4070	.15	0	2220
2	0	.50	1.5	.30	.30	1.0	.30	.50	1040	.15	1.5	5400
3	0	.30	1.5	.30	.30	1.0	.30	.50	.22	296	3.0	1920
4	0	.22	1.5	.50	.50	1.0	.30	.15	.22	8460	1.5	3550
5	0	.22	1.5	.50	.50	.50	.30	.22	.22	1550	.30	296
6	0	.15	1.0	.50	.30	.30	.30	4410	.50	1780	.15	.30
7	0	.15	1.0	.30	.50	.50	.30	3180	.30	.15	.50	.30
8	0	.15	2.0	.50	.50	.50	.50	4960	.15	.10	.50	.15
9	0	.15	1.5	.30	.50	.15	.30	1330	.10	148	.22	.15
10	0	.10	1.5	.50	.50	.15	.30	.22	.05	.10	.50	1.0
11	0	.10	1.5	.50	.50	.15	.30	445	.05	592	.50	.15
12	0	.05	1.5	.50	.50	.15	.30	1630	.10	.05	.15	.05
13	0	.05	2.0	.50	.50	.15	.30	5770	.10	.05	.15	.05
14	0	0	1.5	.30	.50	.22	.30	.30	.10	0	.05	.10
15	0	0	1.0	.30	1.0	.30	.30	.22	.15	0	0	.10
16	0	0	.50	.30	1.0	.22	.50	.22	.22	.05	0	.05
17	0	0	.50	.30	1.5	.30	.30	.30	.50	666	0	.05
18	0	0	.50	.30	.30	.30	1.0	.15	1.0	1330	0	.05
19	0	0	.50	.30	.30	.30	15000	.50	12900	.10	.30	.10
20	.15	0	.50	.30	.30	.30	52700	.22	2960	.05	.10	371
21	.15	0	.50	.50	.30	.30	4380	.15	.30	1410	0	1190
22	.15	0	.50	.50	.30	.30	5230	.15	.22	.15	0	.15
23	.30	.05	.50	.50	.30	.30	5440	.296	.22	.05	.10	.05
24	.30	.05	1.0	.50	.30	.50	1630	1700	.22	.05	.22	.10
25	.22	.05	.30	.30	.30	.30	2920	2000	.816	.05	.10	.05
26	.22	.10	.30	.22	.50	.50	222	2780	.519	.05	.05	.15
27	.22	.22	.30	.22	.50	.50	1780	3860	.22	0	0	.30
28	.30	.30	.30	.30	.50	.30	2370	.22	.15	0	0	.50
29	.22	.30	.30	.30	.50	.30	7840	.15	.10	0	.05	.15
30	.22	.50	.30	.30	---	.22	.30	.22	.10	0	.15	.05
31	.22	---	.50	.30	---	.30	---	3110	---	0	.15	---
TOTAL	2.67	3.93	28.30	11.74	14.10	12.31	99418.80	37615.39	22310.51	16233.30	10.24	14951.10
MEAN	.086	.13	.91	.38	.49	.40	3314	1213	744	524	.33	498
MAX	.30	.50	2.0	.50	1.5	1.0	52700	5770	12900	8460	3.0	5400
MIN	0	0	.30	.22	.30	.15	.30	.15	.05	0	0	.05
AC-FT	5.3	7.8	56	23	28	24	197200	74610	44250	32200	20	29660
CAL YR 1975 TOTAL	205739.03			MEAN 564	MAX 21000	MIN 0	AC-FT 408100					
WTR YR 1976 TOTAL	190612.39			MEAN 521	MAX 52700	MIN 0	AC-FT 378100					

## TRINITY RIVER BASIN

491

08062700 Trinity River at Trinidad, Tex.

LOCATION.--Lat 32°08'05", long 96°06'20", Navarro-Henderson County line, on left bank at pumping station of Texas Power and Light Co., near southwest boundary of Trinidad, 0.5 mile (0.8 km) downstream from St. Louis Southwestern Railway Lines bridge, 0.9 mile (1.4 km) downstream from bridge on State Highway 31, 8 miles (13 km) upstream from Cedar Creek, and at mile 391.2 (629.4 km).

DRAINAGE AREA.--8,538 mi<sup>2</sup> (22,113 km<sup>2</sup>), not including 1,007 mi<sup>2</sup> (2,608 km<sup>2</sup>) upstream from Cedar Creek Reservoir.

PERIOD OF RECORD.--Discharge: October 1964 to current year. Records of gage height collected in this vicinity for period October 1913 to September 1915 are contained in reports of Corps of Engineers, and records collected since October 1915 are contained in reports of the National Weather Service.

Water quality: Chemical and biochemical analyses: October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 239.21 ft (72.911 m) above mean sea level. Prior to May 3, 1967, at site 0.9 mile (1.4 km) upstream at datum 1.28 ft (0.390 m) higher.

AVERAGE DISCHARGE.--12 years, 3,941 ft<sup>3</sup>/s (111.6 m<sup>3</sup>/s), 2,855,000 acre-ft/yr (3.52 km<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 49,800 ft<sup>3</sup>/s (1,410 m<sup>3</sup>/s) Apr. 20 (gage height, 41.23 ft or 12.567 m); minimum, 379 ft<sup>3</sup>/s (10.7 m<sup>3</sup>/s) Oct. 21.  
Period of record: Maximum discharge, 83,000 ft<sup>3</sup>/s (2,350 m<sup>3</sup>/s) May 8, 1969 (gage height, 44.10 ft or 13.442 m); minimum daily, 312 ft<sup>3</sup>/s (8.84 m<sup>3</sup>/s) Aug. 9, 1972.  
Maximum stage since at least 1908, 49.8 ft (15.18 m) Apr. 25, 1942 (present site and datum), from records of the National Weather Service. Flood in 1908 reached a stage of 48.3 ft (14.72 m), present site and datum, from records of the National Weather Service.

REMARKS.--Discharge records good. For regulation by upstream reservoirs, see Trinity River near Rosser (station 08062500). The spillway outflow from Cedar Creek Reservoir (station 08062650) enters the Trinity River 13 miles (21 km) upstream from station. At end of year, flow from 126 mi<sup>2</sup> (326 km<sup>2</sup>) above this station and below Trinity River at Dallas (station 08057000) and Lake Ray Hubbard near Forney (station 08061550) was affected at times by discharge from the flood-detention pools of 62 floodwater-retarding structures with a combined capacity of 38,690 acre-ft (47.7 hm<sup>3</sup>) below the flood-spillway crests. Many diversions above station for municipal supply for cities of Fort Worth, Dallas, and several small towns. Sewage effluent from the Fort Worth-Dallas area maintains low flows.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	406	418	418	512	411	438	853	3460	6990	762	599	1310
2	415	422	568	463	406	431	655	2200	9540	867	584	7240
3	421	438	654	429	409	437	584	1540	9520	1030	579	9340
4	426	645	539	402	417	459	592	1350	9120	6260	562	10400
5	420	970	470	395	409	486	589	1480	5360	7120	546	9790
6	424	722	446	395	413	475	604	6520	4000	6700	553	4910
7	413	516	435	413	435	473	595	5460	2880	3740	552	1590
8	409	457	423	411	420	1370	553	8300	1750	2380	548	972
9	423	467	410	406	402	1250	639	8640	1580	1480	535	858
10	435	433	420	413	397	2060	923	3570	1460	1230	516	799
11	434	393	425	433	409	1640	781	1680	1240	1780	507	961
12	427	404	424	437	431	964	603	1600	1110	1800	514	853
13	423	424	428	440	438	744	539	7320	1030	1430	528	701
14	409	418	425	467	437	854	523	4980	1000	1670	530	632
15	403	411	412	463	435	856	694	3400	958	1260	540	610
16	407	395	400	435	428	667	950	2120	938	1180	534	592
17	415	411	394	420	510	624	850	1450	923	1640	531	586
18	425	406	393	415	597	613	2160	1250	992	3000	525	574
19	420	406	413	399	576	555	7840	1110	7980	4250	550	608
20	402	420	417	390	694	537	32100	1020	11200	3410	556	953
21	386	422	409	390	595	530	33300	990	6510	3240	504	2280
22	390	454	409	418	568	504	33200	894	2610	1620	498	1520
23	426	456	399	444	760	482	35400	821	1230	965	531	1110
24	437	442	400	424	656	500	32500	2420	951	844	501	816
25	437	428	469	535	530	549	27800	3110	1780	765	484	699
26	442	431	1140	415	469	1210	21400	6380	3460	694	830	648
27	413	412	2080	426	452	1740	13800	9270	1590	735	727	705
28	393	410	1490	431	465	1040	8400	8910	1070	814	551	794
29	393	415	837	435	452	736	8660	7040	885	685	510	767
30	415	417	602	424	---	1090	5690	4290	802	622	522	884
31	431	---	530	413	---	1250	---	4740	---	608	516	---
TOTAL	12920	13863	17679	13293	14021	25564	273777	117715	100459	64581	17063	64502
MEAN	417	462	570	429	483	825	9126	3797	3349	2083	550	2150
MAX	442	970	2080	535	760	2060	35400	9270	11200	7120	830	10400
MIN	386	393	393	390	397	431	523	821	802	608	484	574
AC-FT	25630	27500	35070	26370	27810	50710	543000	233500	199300	128100	33840	127900
CAL YR 1975 TOTAL		1821551		MEAN 4991		MAX 43100		MIN 386		AC-FT 3613000		
WTR YR 1976 TOTAL		735437		MEAN 2009		MAX 35400		MIN 386		AC-FT 1459000		

## TRINITY RIVER BASIN

08062700 Trinity River at Trinidad, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	RIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	HARD- NESS (CA+MG) (MG/L)
OCT.									
23...	1345	422	996	7.0	21.5	3.0	34	19	170
NOV.									
10...	1625	413	937	7.3	20.5	4.6	51	20	170
DEC.									
03...	1500	648	1010	7.2	13.0	2.8	26	22	170
JAN.									
06...	1225	397	793	7.2	8.0	5.7	48	9.6	160
FEB.									
09...	1615	399	962	7.2	13.0	4.7	44	17	170
MAR.									
01...	1535	515	853	7.4	19.5	2.5	27	9.6	170
APR.									
28...	1315	4400	329	6.9	21.0	4.4	49	6.8	110
MAY									
25...	1430	2870	674	7.4	25.0	1.7	20	36	170
JUNE									
23...	1145	1100	521	6.8	27.5	2.9	37	17	140
JULY									
28...	1035	800	693	7.1	30.5	3.2	43	16	160
AUG.									
12...	1345	480	888	7.0	31.0	2.9	39	32	150
SEP.									
20...	1355	1150	793	7.4	27.5	3.6	46	56	150

DATE	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)
OCT.									
23...	0	56	7.1	130	4.4	17	265	0	99
NOV.									
10...	0	58	7.1	120	4.0	15	254	0	97
DEC.									
03...	0	55	6.9	120	4.1	15	270	0	110
JAN.									
06...	0	55	5.9	79	2.7	10	230	0	87
FEB.									
09...	0	53	8.3	120	4.0	13	282	0	100
MAR.									
01...	0	57	6.5	96	3.2	11	256	0	92
APR.									
28...	11	40	3.0	18	.7	4.6	124	0	32
MAY									
25...	8	60	5.0	66	2.2	8.0	198	0	82
JUNE									
23...	1	49	3.9	45	1.7	7.5	168	0	59
JULY									
28...	0	57	4.9	70	2.4	10	202	0	84
AUG.									
12...	0	52	5.7	110	3.9	15	232	0	95
SEP.									
20...	0	52	5.7	95	3.3	10	225	0	81

DATE	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)
OCT.									
23...	95	--	16	551	.73	.19	15	.00	8.3
NOV.									
10...	85	1.5	13	522	1.8	.60	9.0	2.0	5.1
DEC.									
03...	93	1.9	15	550	.33	.06	14	2.0	7.5
JAN.									
06...	65	.9	12	428	2.3	.49	9.7	7.3	4.4
FEB.									
09...	78	2.6	10	524	.76	.08	17	2.0	7.2
MAR.									
01...	73	1.7	9.6	473	.91	.29	12	4.0	5.9
APR.									
28...	17	.5	6.3	183	.78	.11	.91	.79	.44
MAY									
25...	51	1.0	9.5	380	1.5	.45	4.3	1.3	2.5
JUNE									
23...	36	.7	8.0	292	.94	.46	1.8	1.5	1.4
JULY									
28...	54	1.1	11	392	2.9	.46	2.6	1.8	2.5
AUG.									
12...	87	1.7	4.0	485	2.4	.83	6.1	4.9	6.3
SEP.									
20...	70	1.2	11	437	2.2	.60	6.7	1.8	4.3

TRINITY RIVER BASIN

493

08062800 Cedar Creek near Kemp, Tex.

LOCATION (revised).--Lat 32°30'11", long 96°06'43", Kaufman County, on left bank at downstream side of bridge on Farm Road 1836, 3.6 miles (5.8 km) upstream from Williams Creek, 8.1 miles (13.0 km) northeast of Kemp, and at mile 51.5 (82.9 km).

DRAINAGE AREA.--189 mi<sup>2</sup> (490 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 341.48 ft (104.083 m) above mean sea level.

AVERAGE DISCHARGE.--13 years, 125 ft<sup>3</sup>/s (3,540 m<sup>3</sup>/s), 90,560 acre-ft/yr (112 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 14,900 ft<sup>3</sup>/s (422 m<sup>3</sup>/s) Apr. 19 (gage height, 16.35 ft or 4.983 m); no flow for many days.

Period of record: Maximum discharge, 29,000 ft<sup>3</sup>/s (821 m<sup>3</sup>/s) Apr. 26, 1966 (gage height, 16.00 ft or 4.877 m, from recording gage; 16.8 ft or 5.12 m, from outside gage from inside-outside gage relationship); no flow at times each year.

Maximum stage since at least 1889, about 20.5 ft (6.25 m) in 1945, from information by State Highway Department and local residents.

REMARKS.--Records good. At end of year, flow from 49.8 mi<sup>2</sup> (129.0 km<sup>2</sup>) above this station was affected at times by discharge from the flood-detention pools of 16 floodwater-retarding structures with a combined detention capacity of 17,390 acre-ft (21.4 hm<sup>3</sup>) below the flood-spillway crests. Flow is also affected at times by storage in Terrell Municipal Lake, capacity 8,300 acre-ft (10.2 hm<sup>3</sup>). Records furnished by the city of Terrell show that during the current year 3,220 acre-ft (3.97 hm<sup>3</sup>) was diverted from Terrell Municipal Lake and Lake Tawakoni (on the Sabine River) for municipal use and 1,530 acre-ft (1.89 hm<sup>3</sup>) of sewage effluent was returned to a tributary of Kings Creek that enters downstream from this station. A recording rain gage is located at this station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				0	.54	.41	.10	406	351	13	.54	12
2				0	.40	.26	.06	237	205	11	.49	8.2
3				0	.32	.17	.11	148	32	11	.44	299
4				0	.28	.09	.03	76	16	160	.43	755
5				0	.23	.10	.02	56	12	308	.39	183
6				0	.07	.10	.03	631	8.9	68	.33	12
7				0	0	.11	.02	1010	7.3	27	.27	5.0
8				0	0	.40	.03	868	6.1	21	.24	3.0
9				0	0	.159	.01	474	4.9	15	.15	2.0
10				0	0	.70	.01	205	3.9	14	.11	1.3
11				0	0	.18	0	141	3.0	63	.09	.86
12				0	0	.12	0	108	2.0	242	.06	.56
13				0	.26	.12	0	199	1.1	124	.04	.47
14				0	.80	.12	0	197	.47	41	.02	.45
15				0	.12	.12	0	513	.10	22	.02	.43
16				0	.08	9.7	.48	378	.04	27	0	.27
17				0	.19	6.7	2.4	133	.55	137	0	.19
18				0	.19	3.8	223	55	4.1	191	0	.17
19				0	.11	1.5	5930	30	623	477	0	.14
20				0	.07	.94	7550	22	1250	989	0	222
21				0	.07	.39	2490	18	488	131	0	163
22				0	.33	.28	1600	14	82	21	0	40
23				0	.65	.13	1350	12	42	12	0	12
24				0	.80	.53	1290	128	27	8.1	0	6.9
25				0	.81	.48	1210	44	25	6.3	0	5.5
26				0	.63	1.9	1080	217	32	5.0	0	3.7
27				0	.49	2.4	1020	326	32	4.2	0	2.9
28				0	.38	.81	957	373	22	3.3	.08	2.1
29				0	.43	.25	925	97	18	2.1	.02	1.5
30				.06	---	.31	788	29	15	1.1	0	.98
31		---		.25	---	.13	---	209	---	.70	0	---
TOTAL	0	0	0	.31	8.25	366.49	26416.30	7354	3314.46	3155.80	3.72	1744.62
MEAN	0	0	0	.010	.28	11.6	881	237	110	102	.12	58.2
MAX	0	0	0	.25	.81	159	7550	1010	1250	989	.54	755
MIN	0	0	0	0	0	.09	0	12	.04	.70	0	.14
AC-FT	0	0	0	.6	16	727	52400	14590	6570	6260	7.4	3460
CAL YR 1975	TOTAL	35872.35	MEAN	98.3	MAX	3770	MIN	0	AC-FT	71150		
WTR YR 1976	TOTAL	42363.95	MEAN	116	MAX	7550	MIN	0	AC-FT	84030		

PEAK DISCHARGE (BASE, 2,000 FT<sup>3</sup>/S).--Apr. 19 (2100) 14,900 ft<sup>3</sup>/s (16.35 ft).

## TRINITY RIVER BASIN

08062900 Kings Creek near Kaufman, Tex.

LOCATION (revised).--Lat 32°30'48", Long 96°19'44", Kaufman County, on left bank at downstream side of bridge on Farm Road 1388, 3.6 miles (5.8 km) upstream from Big Cottonwood Creek, 4.8 miles (7.7 km) downstream from Big Brushy Creek, and 5.3 miles (8.5 km) south of Kaufman.

DRAINAGE AREA.--233 mi<sup>2</sup> (603 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 343.24 ft (104.620 m) above mean sea level (State Highway Department bench mark).

AVERAGE DISCHARGE.--13 years, 166 ft<sup>3</sup>/s (4.701 m<sup>3</sup>/s), 120,300 acre-ft/yr (148 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 56,200 ft<sup>3</sup>/s (1,590 m<sup>3</sup>/s) Apr. 19 (gage height, 26.19 ft or 7.983 m); no flow at times.

Period of record: Maximum discharge, 56,200 ft<sup>3</sup>/s (1,590 m<sup>3</sup>/s) Apr. 19, 1976 (gage height, 26.19 ft or 7.983 m), from rating curve extended above 50,000 ft<sup>3</sup>/s (1,420 m<sup>3</sup>/s); no flow at times most years.

Maximum stage since at least 1942, that of Apr. 19, 1976. Flood in 1949 reached a stage of 23.1 ft (7.04 m), from information by State Highway Department.

REMARKS.--Records good. During the year, the city of Terrell diverted 3,220 acre-ft (3.97 hm<sup>3</sup>) from Cedar Creek and returned 1,530 acre-ft (1.89 hm<sup>3</sup>) of sewage effluent into the creek above this station. The city of Kaufman diverted 283 acre-ft (0.349 hm<sup>3</sup>) of sewage effluent into the creek above this station as a result of water obtained outside this basin. At end of year, flow from 37.1 mi<sup>2</sup> (96.1 km<sup>2</sup>) above this station was affected at times by discharge from the flood-detention pools of 25 floodwater-retarding structures with a combined detention capacity of 12,060 acre-ft (14.9 hm<sup>3</sup>). A recording rain gage is located at the station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	1.3	2.4	1.1	2.4	2.4	.02	169	949	2.0	3.5	103
2	1.9	2.3	1.7	1.3	2.2	2.6	0	130	141	1.5	2.5	93
3	2.0	3.1	1.9	.52	2.2	2.5	.06	105	50	2.3	1.9	113
4	1.9	2.9	2.1	.02	1.9	3.8	.08	85	14	4.2	1.6	187
5	2.0	3.7	2.9	1.5	2.7	4.2	.13	84	7.2	17	1.7	66
6	2.1	6.8	3.2	3.9	4.2	2.9	.06	775	4.7	44	1.9	16
7	2.1	5.6	2.7	1.3	3.9	3.4	.04	4890	3.2	12	4.1	7.1
8	2.0	2.7	2.0	1.1	3.4	32	.10	1640	2.5	7.1	2.9	6.1
9	1.9	1.9	1.8	2.2	2.8	108	.30	279	1.4	6.3	3.0	6.3
10	1.8	.86	1.9	2.7	2.6	16	.22	172	.74	3.9	.49	5.9
11	1.8	.99	1.9	4.9	2.4	2.1	.30	126	.22	3.2	.13	6.0
12	1.7	1.1	1.8	5.4	2.3	8.1	.39	105	.08	8.5	.05	6.2
13	1.6	.66	2.0	5.7	2.8	11	.30	213	.03	34	.01	6.2
14	1.5	1.4	1.9	5.1	2.7	.49	.19	112	.21	11	.04	5.8
15	1.3	1.8	2.6	4.9	2.6	.01	.78	64	.21	7.1	0	5.2
16	1.1	2.9	2.4	4.2	2.9	0	3.0	33	.11	5.4	.01	5.6
17	1.1	1.8	.99	4.0	3.4	0	5.3	18	.03	334	.06	6.0
18	1.1	1.3	.04	2.0	4.3	0	178	10	220	356	.02	6.1
19	1.1	1.6	0	2.6	3.2	0	24800	6.5	867	93	.02	6.7
20	.99	1.4	0	3.8	3.9	0	18200	3.4	302	81	.06	11
21	1.0	1.4	0	3.2	5.6	0	3510	2.3	73	36	1.2	90
22	1.1	1.3	0	2.4	7.3	0	1310	1.6	39	14	1.6	35
23	1.4	1.4	0	1.5	5.0	0	658	1.6	38	6.3	1.5	15
24	1.4	1.4	0	3.4	3.1	0	531	330	11	3.8	1.4	8.0
25	1.2	1.5	0	2.9	2.5	3.5	871	225	12	3.1	.65	6.0
26	1.1	1.4	0	2.5	2.5	8.7	403	502	33	275	2.6	5.9
27	1.1	1.1	.46	2.2	2.5	2.1	323	307	13	71	1.7	5.5
28	1.1	1.3	2.2	1.9	2.6	14	274	160	6.5	25	1.8	6.4
29	.92	2.3	1.2	1.8	2.5	2.4	253	68	3.7	7.7	1.5	6.1
30	.85	2.9	.72	2.2	---	.54	225	33	2.6	4.9	1.4	7.2
31	.93	---	.68	2.4	---	.06	---	855	---	2.9	1.9	---
TOTAL	45.09	62.11	87.03	84.64	92.4	230.80	51547.27	11505.4	2795.43	1483.2	41.24	853.3
MEAN	1.45	2.07	2.81	2.73	3.19	7.45	1718	371	93.2	47.8	1.33	28.4
MAX	2.1	6.8	46	5.7	7.3	108	24800	4890	949	356	4.1	187
MIN	.85	.66	0	.02	1.9	0	0	1.6	.03	1.5	0	5.2
AC-FT	89	123	173	168	183	458	102200	22820	5540	2940	82	1690
CAL YR 1975 TOTAL	48020.03			MEAN 132	MAX 8370	MIN 0	AC-FT 95250					
WTR YR 1976 TOTAL	68827.91			MEAN 188	MAX 24800	MIN 0	AC-FT 136500					

PEAK DISCHARGE (BASE, 3,000 FT<sup>3</sup>/S).--Apr. 19 (1900) 56,200 ft<sup>3</sup>/s (26.19 ft); May 7 (0630) 7,150 ft<sup>3</sup>/s (19.64 ft).

08063010 Cedar Creek Reservoir near Trinidad, Tex.

LOCATION (revised).--Lat 32°14'35", long 96°08'26", Henderson County, inside pumphouse on lower level, 1,000 ft (305 m) north of spillway, 5.5 miles (8.8 km) upstream from Joe B. Hogsett Dam on Cedar Creek, and 8.0 miles (12.9 km) northwest of Trinidad.

DRAINAGE AREA.--1,007 mi<sup>2</sup> (2,608 km<sup>2</sup>).

PERIOD OF RECORD.--Contents: January 1965 to current year.

Water quality: Chemical analyses: October 1969 to current year.

GAGE (revised).--Water-stage recorder. Datum of gage is at mean sea level. Prior to May 15, 1972, at unfinished pumphouse at same site and datum. May 16, 1972, to Sept. 8, 1975, at site 0.25 mile (0.40 km) north and upstream from pumphouse at same datum.

EXTREMES.--Current year: Maximum contents, 687,100 acre-ft (847 hm<sup>3</sup>) July 3 (elevation, 322.23 ft or 98.216 m); minimum, 598,500 acre-ft (738 hm<sup>3</sup>) Mar. 4 (elevation, 319.51 ft or 97.387 m).

Period of record: Maximum contents, 722,000 acre-ft (890 hm<sup>3</sup>) June 4, 1973 (elevation, 323.24 ft or 98.524 m); minimum since first appreciable storage in 1966, 332,900 acre-ft (410 hm<sup>3</sup>) Mar. 19, 1967 (elevation, 309.42 ft or 94.311 m).

REMARKS.--The reservoir is formed by a rolled earthfill dam 17,539 ft (5,346 m) long. The spillway is located on the right bank 5.5 miles (8.8 km) upstream from the dam and discharges into the Trinity River through a cut channel 2 miles (3 km) long. Deliberate impoundment began July 2, 1965, and the dam was completed in February 1966. The spillway is 474 ft (144 m) long and has eight 40- by 24-foot (12- by 7-meter) radial gates and two automatically operated 40- by 8.5-foot (12- by 2.6-meter) hinged gates. Low-flow releases may be made downstream through a 5.0-foot-diameter (1.5-meter) conduit through the dam. The dam is the property of Tarrant County Water Control and Improvement District No. 1 and was built for municipal and industrial supply and for recreational purposes. The area and capacity tables were based on a survey during the period 1940-58. During the current year, records furnished by Tarrant County Water Control and Improvement District No. 1 show that a total of 19,630 acre-ft (24.2 hm<sup>3</sup>) was diverted from the reservoir for municipal and industrial uses by lakeside developments and by the cities of Arlington, Fort Worth, Mansfield, Kemp, Trinidad, and Mabank. Flow is also affected at times by discharge from the flood-detention pools of 72 floodwater-retarding structures with the combined detention capacity of 49,810 acre-ft (61.4 hm<sup>3</sup>). Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	340.0	-
Top of radial gates.....	325.0	785,100
Top of automatic gates.....	322.5	696,400
Top of conservation pool.....	322.0	679,200
Crest of spillway (automatic gates).....	314.0	441,000
Crest of spillway (radial gates).....	302.0	197,800
Lowest gated outlet (invert).....	263.5	430

COOPERATION.--Records of diversions furnished by the Tarrant County Water Control and Improvement District No. 1. The area and capacity tables were furnished by Freese, Nichols, and Endress, Consulting Engineers, for Tarrant County Water Control and Improvement District No. 1.

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

319.0	582,600	321.0	646,000
320.0	613,800	322.5	696,400

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	636700	625700	615800	611000	603800	602000	619300	675200	678200	674900	677200	681600
2	634800	626700	615400	611600	603500	601700	617700	676900	677600	674600	676600	676600
3	634100	626700	615100	610100	602000	601000	618700	677600	677900	687100	675200	681600
4	633800	627700	615100	608800	602000	602000	619000	677200	677200	680900	673900	679900
5	633500	627400	615100	607900	601700	602300	618700	677200	677200	683000	672900	680900
6	632800	626400	615100	609200	601700	603200	618700	677900	676600	679900	672600	680900
7	632200	626100	614800	610700	601400	605700	618700	678200	676200	679200	671900	680300
8	631500	625700	614500	606700	601400	617000	618000	678200	675900	678900	671300	680300
9	631900	626700	614200	604800	600400	616400	617700	678900	675200	677600	670600	680300
10	631500	625100	613200	606700	600400	616700	617000	680600	674600	678200	669300	678200
11	630900	625400	612900	605700	601000	617400	617000	680300	673600	677900	668900	677200
12	630900	624800	612300	604500	600700	617700	617000	678900	672300	678200	667900	676600
13	629900	623200	611600	605400	600400	617000	616100	678200	672600	679600	666900	676600
14	629600	621600	613200	604500	599800	616700	616100	676900	672300	679900	666000	675900
15	629900	620900	613500	604200	600400	616400	618700	678200	674600	679900	665000	675600
16	629300	620600	612000	603800	601400	616400	617700	680300	672600	679200	665000	674900
17	629300	620300	613200	602900	606700	615800	621600	678900	671900	681300	664600	674600
18	627000	620600	610400	602300	605700	615400	637300	678900	677900	680300	664000	674200
19	626400	621200	609800	604200	604800	615400	666900	678200	675900	680600	662600	673900
20	625100	620600	609800	602900	605100	615400	665600	678600	675900	683300	662300	681300
21	624500	620300	609200	602600	606700	616400	680300	678600	677900	681300	661600	679600
22	625100	619000	609500	602000	604500	616700	679900	678200	677600	681300	661000	679600
23	626400	617700	608500	601400	603500	615800	676600	677900	676900	681300	659600	678900
24	627400	617700	611600	607600	602000	618000	678600	677900	675900	680900	658600	678600
25	627000	617000	611600	607900	603200	618000	678200	678200	679200	681300	658300	677900
26	627000	615800	611600	606000	602900	619000	680600	677600	677600	680300	657300	678600
27	626400	615800	611000	605100	602900	619600	679600	675900	677200	679900	656700	679200
28	627400	615400	612900	604800	602600	619600	679200	677200	677200	678900	655300	678600
29	627000	617000	612000	604500	602300	621200	671300	676600	676600	678200	655700	677900
30	626700	617000	610400	604200	---	620900	674600	676600	676900	677900	655000	677200
31	624500	---	609800	603800	---	620300	---	677200	---	677600	657600	---
(+)	320.33	320.10	319.87	319.68	319.63	320.20	321.86	321.94	321.93	321.95	321.35	321.94
(*)	-11900	-7500	-7200	-6000	-1500	+18000	+54300	+2600	+300	+700	-20000	+19600
(††)	576	880	4189	5366	3273	1208	713	332	559	544	1253	737
MAX	636700	627700	615800	611600	606700	621200	680600	680600	679200	687100	677200	681600
MIN	624500	615400	608500	601400	599800	601000	616100	675200	671900	674600	655000	673900

CAL YR 1975..... \* -66400      †† 8390      MAX 684700      MIN 608500  
WTR YR 1976..... \* +40800      †† 19630      MAX 687100      MIN 599800

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal use by private lakeside water companies and nearby cities.



## TRINITY RIVER BASIN

08063010 Cedar Creek Reservoir near Trinidad, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG)	DISSOLVED SODIUM (NA) (MG/L)
JAN 28...	0950	232	8.0	9.0	70	16	21	4.3	16
DATE	SODIUM ADSORPTION RATIO	DISSOLVED PHOSPHATE (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SiO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
JAN 28...	.8	4.0	66	0	24	18	.2	1.9	122

08063050 Navarro Mills Lake near Dawson, Tex.

LOCATION.--Lat 31°57'27", long 96°41'21", Navarro County, in left abutment of spillway of Navarro Mills Dam on Richland Creek, 1.7 miles (2.7 km) upstream from bridge on State Highway 31, 3.0 miles (4.8 km) upstream from St. Louis Southwestern Railway Lines bridge, 4.2 miles (6.8 km) upstream from Post Oak Creek, 4.6 miles (7.4 km) north of Dawson, and at mile 63.9 (102.8 km).

DRAINAGE AREA.--320 mi<sup>2</sup> (829 km<sup>2</sup>).

PERIOD OF RECORD.--Contents: August 1962 to current year. Prior to October 1970, published as Navarro Mills Reservoir.  
Water quality: Chemical analyses: October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers). Prior to Oct. 8, 1962, nonrecording gage in low-water channel at same datum.

EXTREMES.--Current year: Maximum contents, 91,830 acre-ft (113 hm<sup>3</sup>) July 7 (elevation, 429.43 ft or 130.890 m); minimum, 48,700 acre-ft (60.0 hm<sup>3</sup>) Mar. 23 (elevation, 421.44 ft or 128.455 m).

Period of record: Maximum contents, 183,300 acre-ft (226 hm<sup>3</sup>) May 18, 1968 (elevation, 440.36 ft or 134.222 m); minimum since initial filling in May 1965, 48,700 acre-ft (60.0 hm<sup>3</sup>) Mar. 23, 1976 (elevation, 421.44 ft or 128.455 m).

REMARKS.--The lake is formed by a rolled earthfill dam 7,570 ft (2,310 m) long, including an off-channel 240-foot (73-meter) gated spillway with six 40.0- by 29.0-foot (12.2- by 8.8-meter) tainter gates. From Aug. 27, 1962, to Mar. 14, 1963, the lake was operated as a detention basin only. Deliberate impoundment began Mar. 15, 1963, and the dam was completed in September 1963. The low-flow outlet works consist of two 36-inch-diameter (914-millimeter) gate-controlled conduits. The lake was built for flood control and water conservation. The capacity table prior to September 1976 is based on a survey made in February 1956 by the Corps of Engineers. Capacity table after Aug. 31, 1976, is based on a sedimentation survey made in September 1972. Inflow is affected at times by discharge from the flood-detention pools of 44 floodwater-retarding structures with combined detention capacity of 23,800 acre-ft (29.3 hm<sup>3</sup>). These structures control runoff from 78.2 mi<sup>2</sup> (202.5 km<sup>2</sup>) in the Richland Creek watershed. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	457.0	-
Design flood.....	451.9	a335,800 b329,500
Top of gates (top of flood control storage pool).....	443.0	a212,200 b206,200
Top of conservation pool.....	424.5	a63,300 b56,960
Crest of spillway.....	414.0	a22,100 b18,840
Lowest gated outlet (invert).....	400.0	a2,370 b1,150

a Oct. 1 to Aug. 31  
b Sept. 1-30.

COOPERATION.--Records furnished by the Corps of Engineers and reviewed by the Geological Survey.

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

September 1-30		Oct. 1 to Aug. 31	
424.2	55,450	421.0	46,740
424.4	56,460	422.0	51,250
424.6	57,470	423.0	55,940
424.8	58,490	424.0	60,820

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56520	54090	51940	51810	50470	49150	51250	64500	79790	65780	65890	56660
2	56370	54190	51900	51670	50430	49110	51160	63580	79910	65530	65630	56860
3	56290	54280	51900	51530	50380	49060	51070	63630	78500	66250	65470	57220
4	56130	54190	51900	51530	50380	49110	51110	63430	75730	78380	65370	57620
5	56090	54090	51990	51440	50330	49060	51210	63110	73660	79970	65220	58080
6	56040	54000	51900	51440	50240	49020	51110	62560	71290	90240	65060	57980
7	55940	53900	51850	51440	50110	49200	51210	62980	68510	90440	65010	57880
8	55840	53900	51850	51300	50110	49610	51070	68560	67980	87510	64860	57320
9	55750	53760	51760	51250	50020	49420	51070	68770	67930	84410	64700	56960
10	55610	53620	51710	51250	50020	49380	51070	68350	67720	81470	64500	56810
11	55510	53530	51710	51250	49970	49470	51020	67350	67610	78380	64290	56660
12	55420	53340	51620	51250	49970	49380	50980	66700	67560	75510	64190	56560
13	55280	53150	51620	51210	49920	49290	50930	66820	67560	73100	64040	56510
14	55140	53010	51620	51160	49880	49290	50880	66250	67350	71080	63840	56460
15	55090	52870	51620	51160	49830	49330	51020	65170	67350	70050	63630	56360
16	54990	52830	51530	50980	49790	49150	51160	63990	67350	69840	63530	56310
17	54800	52730	51440	50930	49880	49110	51440	63280	67350	72660	63430	56210
18	54660	52730	51340	50880	49740	49110	50280	63230	67290	72990	63330	56160
19	54520	52830	51250	50880	49700	49110	63180	63180	67400	72000	63180	56310
20	54370	52730	51250	50840	49830	49020	65170	63230	67240	69630	63070	56360
21	54280	52550	51160	50790	49740	48930	65530	63180	67140	67350	62970	56260
22	54230	52450	51070	50750	49560	48790	65630	63180	67030	65780	62820	56160
23	54420	52410	51070	50650	49470	48750	66350	63230	66880	65840	62720	56060
24	54420	52320	51250	51160	49330	50380	67030	63180	66930	65780	62620	55960
25	54560	52220	51710	51110	49330	51340	67190	66300	67930	66510	62520	55850
26	54520	52080	51850	51020	49290	51530	66930	75620	68240	67030	62420	56410
27	54470	51940	51850	50880	49240	51530	65780	76820	68880	66980	62320	56460
28	54420	51990	51900	50790	49200	51570	64350	77220	67980	66880	62170	56360
29	54370	52180	51850	50750	49150	51440	65730	77100	66720	66820	62070	56310
30	54230	52040	51810	50750	---	51440	65580	76640	65780	66560	62420	56210
31	54090	---	51760	50650	---	51340	---	78910	---	66150	62570	---
(+)	422.61	422.17	422.11	421.87	421.54	422.02	424.94	427.37	424.98	425.05	424.35	424.35
(*)	-2570	-2050	-280	-1110	-1500	+2190	+14240	+13330	-13130	+370	-3580	-6360
(††)	473	390	389	426	378	410	410	424	444	476	619	452
MAX	56520	54280	51990	51810	50470	51570	67190	78910	79910	90440	65890	58080
MIN	54090	51940	51070	50650	49150	48750	50880	63180	65780	65530	62070	55850
CAL YR 1975.....	* -11640		†† 4570		MAX 136400		MIN 51070					
WTR YR 1976.....	* -450		†† 5290		MAX 90440		MIN 48750					

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal use by cities of Dawson and Corsicana.

## TRINITY RIVER BASIN

08063050 Navarro Mills Lake near Dawson, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTENNBER 1976

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
JUL 15...	1000	305	7.7	27.0	110	13	40	2.9	14
DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
JUL 15...	.6	3.8	120	0	33	10	.4	6.6	170

## TRINITY RIVER BASIN

499

08063100 Richland Creek near Dawson, Tex.

LOCATION.--Lat 31°56'18", long 96°40'52", Navarro County, at downstream side of bridge on State Highway 31, 1.3 miles (2.1 km) upstream from St. Louis Southwestern Railway Lines bridge, 1.7 miles (2.7 km), downstream from Navarro Mills Dam, 2.5 miles (4.0 km) upstream from Post Oak Creek, and 3.6 miles (5.8 km) northeast of Dawson.

DRAINAGE AREA.--333 mi<sup>2</sup> (862 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 370.52 ft (112.934 m) above mean sea level. Prior to Nov. 21, 1960, nonrecording gage at same site and datum.

AVERAGE DISCHARGE.--16 years, 161 ft<sup>3</sup>/s (4.560 m<sup>3</sup>/s), 116,600 acre-ft/yr (144 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 1,800 ft<sup>3</sup>/s (51.0 m<sup>3</sup>/s) July 8 (gage height, 16.93 ft or 5.160 m); minimum, 0.06 ft<sup>3</sup>/s (0.002 m<sup>3</sup>/s) Oct. 2, 3.

Period of record: Maximum discharge, 25,500 ft<sup>3</sup>/s (722 m<sup>3</sup>/s) July 3, 1961 (gage height, 22.50 ft or 6.858 m), from rating curve extended above 14,000 ft<sup>3</sup>/s (396 m<sup>3</sup>/s); no flow at times. Maximum discharge since completion of Navarro Mills Dam in 1963, 3,850 ft<sup>3</sup>/s (109 m<sup>3</sup>/s) Nov. 24, 1974 (gage height, 19.85 ft or 6.050 m).

Maximum stage since about 1895, about 28 ft (8.5 m) June 19, 1929, from information by local residents. Floods in 1946 and 1957 reached a stage of about 23 ft (7.0 m), from information by local residents.

REMARKS.--Records fair except those below 1.0 ft<sup>3</sup>/s (0.028 m<sup>3</sup>/s), which are poor. Flow is regulated since Mar. 15, 1963, by Navarro Mills Lake (station 08063050). There are diversions from Navarro Mills Lake for municipal use. At end of year, flow from 1.28 mi<sup>2</sup> (3.32 km<sup>2</sup>) below Navarro Mills Lake and above this station was partly affected at times by discharge from the flood-detention pool of one floodwater-retarding structure with a capacity of 382 acre-ft (471,000 m<sup>3</sup>).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.13	4.4	.22	.66	15	1.2	1.6	752	28	5.4	203	2.8
2	.13	10	.19	.66	12	1.2	1.1	562	3.7	4.6	9.4	1.1
3	.69	9.9	.15	.61	8.6	1.2	1.1	1.9	695	5.0	7.5	.78
4	.13	9.6	.28	.61	8.7	1.4	1.1	.83	1340	70	7.1	1.4
5	.17	9.3	.51	.66	5.0	1.5	1.4	4+	1320	8.2	6.9	.58
6	.19	8.9	.51	.61	7.8	1.2	1.4	165	1310	219	6.9	.21
7	.17	9.0	.56	.77	7.8	1.5	1.5	7.3	1290	986	5.9	6.6
8	2.8	7.1	.66	.71	7.7	6.3	1.5	2.8	747	1790	6.9	137
9	39	9.1	.61	1.2	7.5	2.6	1.3	1.5	8.7	1770	6.7	225
10	52	10	.66	1.5	7.5	.66	1.2	264	7.5	1750	6.5	1.1
11	24	10	.66	1.5	7.7	.31	1.1	1100	6.8	1720	6.5	.70
12	14	11	.61	1.3	7.5	.34	1.2	1120	6.1	1560	6.5	.61
13	14	12	.66	3.9	7.5	.32	3.7	288	5.4	1360	6.5	.57
14	14	13	.66	.51	7.5	.35	1.2	403	6.0	1360	6.5	.98
15	15	13	.77	.28	7.7	.35	1.0	737	5.4	1340	6.5	.92
16	16	13	.71	.31	7.4	.35	2.5	724	4.7	1230	6.3	.77
17	16	13	.58	.51	7.5	.35	1.3	452	4.7	46	4.2	1.3
18	18	11	.55	.47	4.6	.35	132	1.5	5.9	12	.28	.94
19	18	.25	.47	.35	.37	.35	333	.95	6.5	446	.19	1.1
20	14	.13	.47	.43	.61	.35	15	.83	5.1	1340	.15	1.2
21	9.4	.11	.47	.83	1.2	.35	5.0	.71	4.5	1320	.13	1.1
22	13	.11	.56	1.0	1.1	.47	2.2	.71	4.9	943	.22	1.2
23	10	.11	.56	17	1.1	.56	1.5	.66	4.9	8.4	.19	1.6
24	10	.11	1.6	43	1.1	64	13	.61	5.1	6.7	.17	1.7
25	11	.11	1.1	15	1.1	10	1.9	9.1	6.0	5.9	.17	1.4
26	16	.15	.61	15	1.1	3.8	112	453	5.4	41	.22	1.9
27	9.6	.15	.66	15	1.2	3.7	663	21	6.5	7.3	.25	1.9
28	9.7	.17	.56	15	1.2	1.8	1040	3.3	382	6.1	.25	1.5
29	9.7	.17	.61	15	1.2	1.5	431	1.8	718	5.9	.25	1.5
30	9.6	.35	.66	15	---	1.6	364	504	550	39	.53	1.2
31	9.2	---	.66	15	---	2.1	---	275	---	223	.42	---
TOTAL	368.01	192.22	18.54	184.38	159.28	112.06	3138.8	7909.50	8493.8	19668.5	314.22	400.66
MEAN	11.9	6.41	.80	5.95	5.44	3.61	105	255	283	634	10.1	13.4
MAX	52	13	1.6	43	15	64	1040	1120	1340	1790	203	225
MIN	.09	.11	.15	.28	.37	.31	1.0	.61	3.7	4.6	.13	.21
AC-FT	730	381	37	366	316	222	6230	15690	16850	39010	623	795

CAL YR 1975 TOTAL 91173.78 MEAN 250 MAX 2010 MIN .03 AC-FT 180800  
WTR YR 1976 TOTAL 40959.97 MEAN 112 MAX 1790 MIN .09 AC-FT 61240

## TRINITY RIVER BASIN

08063500 Richland Creek near Richland, Tex.

LOCATION.--Lat 31°57'00", long 96°25'17", Navarro County, at downstream side of bridge on U.S. Highway 75 (Interstate Highway 45), 800 ft (240 m) downstream from Texas and New Orleans Railroad Co. bridge, 1.0 mile (1.6 km) north of Richland, 3.5 miles (5.6 km) downstream from Pin Oak Creek, and at mile 36.7 (59.1 km).

DRAINAGE AREA.--734 mi<sup>2</sup> (1,901 km<sup>2</sup>).

PERIOD OF RECORD.--December 1924 to February 1925 (discharge measurements and gage heights only), March 1939 to current year.

GAGE.--Water-stage recorder with low-water concrete control. Sometime during the high flow period of Apr. 19 to July 30, 1976, the concrete control undercut, cracked, and settled; it was not repaired. Datum of gage is 299.12 ft (91.172 m) above mean sea level. Dec. 11, 1924, to Feb. 11, 1925, nonrecording gage at site 800 ft (240 m) upstream. Mar. 17, 1939, to Feb. 14, 1958, water-stage recorder at site 50 ft (15 m) upstream. Feb. 15, 1958, to Jan. 28, 1959, nonrecording gage at present site. June 8, 1955, to Feb. 14, 1958, and since Feb. 6, 1959, supplementary water-stage recorder in overflow channel 3,900 ft (1,190 m) to right of main channel gage. All gages at present datum.

AVERAGE DISCHARGE.--23 years (1939-62) prior to regulation by Navarro Mills Lake, 404 ft<sup>3</sup>/s (11.44 m<sup>3</sup>/s), 292,700 acre-ft/yr (361 hm<sup>3</sup>/yr); 14 years (1962-76) regulated, 367 ft<sup>3</sup>/s (10.39 m<sup>3</sup>/s), 265,900 acre-ft/yr (328 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 8,360 ft<sup>3</sup>/s (237 m<sup>3</sup>/s) Apr. 20 (gage height, 21.76 ft or 6.632 m); maximum gage height, 21.80 ft (6.645 m) Apr. 20; minimum, 0.01 ft<sup>3</sup>/s (0.0003 m<sup>3</sup>/s) Aug. 30.

Period of record: Maximum discharge, 58,900 ft<sup>3</sup>/s (1,670 m<sup>3</sup>/s) May 12, 1948 (gage height, 24.16 ft or 7.364 m); no flow at times. Maximum stage since at least 1899, 25.5 ft (7.77 m) in December 1913 (discharge not determined), from information by Texas and New Orleans Railroad Co.

REMARKS.--Records good. Since October 1962, flow is partly regulated by Navarro Mills Lake (station 08063050) located 25 miles (40 km) upstream. Flow is also affected at times by discharge from the flood-detention pools of 70 floodwater-retarding structures with combined detention capacity of 40,650 acre-ft (50.1 hm<sup>3</sup>). These structures control runoff from 138 mi<sup>2</sup> (357 km<sup>2</sup>).

REVISIONS.--WSP 1922: Drainage area.

DISCHARGE, in CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	10	1.5	2.9	17	1.5	7.9	1270	3640	313	163	169
2	1.4	12	1.7	2.1	16	1.3	4.4	446	2110	62	54	108
3	1.2	66	2.4	1.5	15	1.0	4.2	539	497	52	9.2	78
4	.4	97	2.7	1.2	12	1.0	63	224	986	797	7.4	56
5	.66	38	3.7	.88	8.9	1.5	28	149	1050	1260	6.0	46
6	.31	20	4.7	.69	8.6	3.5	15	2140	971	729	8.4	27
7	.14	14	4.1	.64	7.4	1.9	7.8	1820	909	554	7.7	18
8	.08	13	3.7	.48	7.0	464	5.0	777	865	1150	7.1	12
9	.04	13	2.9	.41	7.0	875	2.7	446	287	1540	6.5	126
10	.02	13	2.7	.43	7.0	250	1.2	256	47	2170	6.5	145
11	24	12	2.6	.46	7.0	97	1.0	606	36	1810	6.5	22
12	32	11	2.0	.38	7.0	53	1.2	1500	29	1490	6.5	10
13	21	11	.76	.30	7.2	33	1.3	3080	22	1080	6.2	6.9
14	16	12	1.0	.21	7.1	19	1.2	2660	17	1210	6.2	5.4
15	14	12	1.5	.19	6.8	13	1.0	1070	13	1100	6.2	4.3
16	14	13	1.0	.22	6.9	9.4	16	802	9.4	1460	5.9	3.4
17	15	14	.08	.29	30	6.7	61	665	5.6	3520	5.9	2.6
18	14	14	.04	.71	505	4.6	1210	230	3.5	1620	5.9	2.3
19	15	14	.04	1.2	173	3.3	5420	56	3140	449	5.1	23
20	15	11	.04	1.1	71	2.4	7290	32	3030	758	3.1	14
21	14	9.8	.06	.85	38	1.6	3240	24	447	955	2.4	10
22	13	7.2	.07	.66	21	1.8	1070	20	258	873	2.2	8.3
23	11	5.3	.08	.64	12	1.0	717	17	144	469	2.0	6.6
24	12	3.7	.85	.84	6.4	248	1390	15	66	140	1.8	5.5
25	20	2.4	.92	298	3.5	1040	2230	12	604	79	1.6	4.4
26	85	1.5	65	308	1.7	659	791	1600	1660	58	1.5	4.0
27	42	1.0	44	97	1.6	345	661	3400	815	46	1.2	4.1
28	20	1.0	16	59	1.6	136	1140	1090	459	39	.90	4.5
29	14	1.5	8.8	37	1.5	60	2580	471	565	33	.46	3.8
30	13	3.0	5.8	26	---	23	3020	322	576	30	.17	3.8
31	12	---	4.0	20	---	13	---	1990	---	51	4.7	---
TOTAL	462.25	456.4	184.74	864.28	1014.2	4370.5	31480.9	28279	23311.5	25897	354.23	933.9
MEAN	14.3	15.2	5.96	27.9	35.0	141	1049	912	777	835	11.4	31.1
MAX	85	97	65	308	505	1040	7290	3400	3690	3520	163	169
MIN	.02	1.0	.04	.19	1.5	1.0	1.0	12	3.5	30	.17	2.3
AC-FT	877	905	366	1710	2010	8670	62440	56090	46240	51370	703	1850
CAL YR 1975	TOTAL	201662.01	MEAN	552	MAX	9190	MIN	0	AC-FT	400000		
WTR YR 1976	TOTAL	117588.90	MEAN	321	MAX	7290	MIN	.02	AC-FT	233200		

08063700 Bardwell Lake near Ennis, Tex.

LOCATION.--Lat 32°15'00", long 96°38'49", Ellis County, in intake structure of Bardwell Dam on Waxahachie Creek, 5 miles (8 km) south of Ennis, and 5.6 miles (9.0 km) upstream from mouth.

DRAINAGE AREA.--178 mi<sup>2</sup> (461 km<sup>2</sup>).

PERIOD OF RECORD.--Contents: November 1965 to current year. Prior to October 1970, published as Bardwell Reservoir.  
Water quality: Chemical analyses: October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (Corps of Engineers bench mark). Prior to Apr. 25, 1966, nonrecording gage on intake structure at same datum.

EXTREMES.--Current year: Maximum contents, 72,680 acre-ft (89.6 hm<sup>3</sup>) Apr. 26 (elevation, 425.63 ft or 129.732 m); minimum, 48,430 acre-ft (59.7 hm<sup>3</sup>) Mar. 4 (elevation, 419.14 ft or 127.754 m).  
 Period of record: Maximum contents, 103,300 acre-ft (127 hm<sup>3</sup>) May 19, 1969 (elevation, 432.35 ft or 131.780 m); minimum since initial filling, 45,840 acre-ft (56.5 hm<sup>3</sup>) Sept. 4, 1967 (elevation, 418.35 ft or 127.513 m).

REMARKS.--The lake is formed by a rolled earthfill dam 15,400 ft (4,690 m) long, including a 350-foot (107-meter) uncontrolled off-channel concrete gravity spillway with ogee weir section. Deliberate impoundment began Nov. 20, 1965, and the dam was completed Mar. 27, 1966. The controlled low-flow outlet works consist of a 10.0-foot-diameter (3.0-meter) concrete conduit with two 5.0- by 10.0-foot (1.5- by 3.0-meter) sluice gates. The lake was built for flood control and water conservation. The capacity table is based on a survey completed in 1962. Flow from 81.4 mi<sup>2</sup> (210.8 km<sup>2</sup>) above this lake is modified by Lake Waxahachie, with a capacity of 13,500 acre-ft (16.6 hm<sup>3</sup>), at spillway elevation. During the current year, the city of Waxahachie diverted 2,120 acre-ft (2.61 hm<sup>3</sup>) from Lake Waxahachie and returned 1,680 acre-ft (2.07 hm<sup>3</sup>) to Bardwell Lake. Inflow is affected at times by discharge from the flood-detention pools of 23 floodwater-retarding structures with combined detention capacity of 15,370 acre-ft (19.0 hm<sup>3</sup>). These structures control runoff from 52.4 mi<sup>2</sup> (135.7 km<sup>2</sup>) in the Chambers Creek watershed. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	460.0	-
Design flood.....	455.9	268,400
Crest of spillway (top of flood-control pool).....	439.0	140,000
Top of conservation pool.....	421.0	54,900
Lowest gated outlet (invert).....	391.0	1,320

COOPERATION.--Records furnished by the Corps of Engineers and reviewed by the Geological Survey.

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

419.0	47,950	424.0	66,100
420.0	51,350	426.0	74,200
422.0	58,500		

CONTENTS, IN ACRE-Feet, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
 INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51400	50260	49360	49630	49090	48620	48960	66500	69560	55940	53800	57760
2	51660	50550	49360	49530	49060	48650	48860	64430	68880	55870	53690	62580
3	51560	50550	49330	49530	48960	48620	49020	62350	66770	56300	53620	64350
4	51490	50520	49360	49460	49020	48790	49020	60020	64580	56520	53510	65870
5	51420	50450	49400	49400	49160	48790	48990	58130	62240	56560	53410	66340
6	51340	50420	49400	49460	48990	48690	48990	58610	59980	56560	53340	66570
7	51310	50340	49400	49430	48920	48790	49130	59160	57540	55940	53300	65480
8	51310	50310	49430	49360	48860	48960	49160	59720	55470	54970	53370	63120
9	51240	50450	49290	49260	48860	48960	49090	59980	54760	54830	53160	60690
10	51210	50240	49230	49290	48890	48920	49020	59980	54790	54940	53060	58130
11	51140	50340	49260	49360	48960	48920	49020	58500	54870	54900	52920	56230
12	51110	50040	49290	49290	48960	49020	48990	56410	54900	54900	52450	55120
13	51070	50010	49260	49430	48960	48890	48960	56230	54870	55400	52740	54620
14	51000	49900	49290	49360	48960	48820	48960	56090	54900	55400	52640	54580
15	51000	49840	49330	49290	48960	49130	49130	55170	55040	55580	52570	54580
16	50930	49800	49290	49290	48960	48790	49020	55010	55040	55760	52500	54580
17	50830	49800	49290	49260	49130	48720	49160	54760	55040	56340	52460	54580
18	50730	49770	49130	49190	49060	48690	50140	54870	55220	56520	52390	54510
19	50660	49970	49090	49400	48990	48690	63000	54900	55400	56230	52250	55190
20	50550	49870	49090	49290	49130	48760	66810	54970	55400	55510	52180	55620
21	50490	49730	49020	49260	49290	48690	68080	55040	55370	54940	52110	55620
22	50490	49570	49020	49230	48920	48690	69280	55080	55330	54540	52010	55510
23	50520	49460	48990	49190	48860	48620	70410	55220	55300	54510	51900	55510
24	50730	49460	49600	49290	48760	48920	71470	55040	55690	54440	51830	55510
25	50590	49400	49630	49430	48790	48960	72410	56490	56120	54440	51800	55440
26	50490	49290	49630	49230	48790	49060	72130	63890	56120	54400	51690	55760
27	50490	49230	49530	49160	48760	49060	70700	65240	56160	54330	51630	55800
28	50490	49230	49730	49130	48720	49060	69120	66100	56120	54120	51560	55800
29	50450	49460	49630	49130	48720	49060	68760	66770	56120	54050	51520	55190
30	50340	49400	49570	49130	---	48990	68400	66570	56090	53970	51420	54940
31	50350	---	49570	49130	---	48960	---	68680	---	53900	51490	---
(†)	419.71	419.43	419.48	419.35	419.23	419.30	424.58	424.65	421.34	420.73	420.04	421.02
(*)	-1450	-950	+170	-440	-410	+240	+19440	+280	-12590	-2190	-2410	+3450
(††)	143	122	130	133	121	144	146	146	128	140	201	146
MAX	51800	50550	49730	49630	49290	49130	72410	68680	69560	56560	53800	66570
MIN	50350	49230	48990	49130	48720	48620	48860	54760	54760	53900	51420	54510

CAL YR 1975.....

\* -5330

†† 1640

MAX 84860

MIN 48990

WTR YR 1976.....

\* +3140

†† 1700

MAX 72410

MIN 48620

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal use by city of Ennis.



## TRINITY RIVER BASIN

08063700 Bardwell Lake near Ennis, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
JUN 02...	1720	296	7.7	24.0	120	4	44	1.4	11
DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
JUN 02...	.4	3.0	136	0	18	8.6	.4	6.0	159

## 503

LOCATION.--Lat 32°14'36", long 96°38'24", Ellis County, on right bank 0.8 mile (1.3 km) downstream from Bardwell Dam, 3.6 miles (5.8 km) southeast of Bardwell, 3.8 miles (6.1 km) downstream from bridge on State Highway 34, and 4.1 miles (6.6 km) upstream from mouth.

EXTREMES.--Current year: Maximum discharge, 1,120 ft<sup>3</sup>/s (31.7 m<sup>3</sup>/s) May 5 (gage height, 14.98 ft or 4.566 m); no flow Feb. 5, 6.  
Period of record: Maximum discharge, 2,960 ft<sup>3</sup>/s (83.8 m<sup>3</sup>/s) Feb. 9, 1965 (gage height, 17.55 ft or 5.35 m); no flow at times most years.

REMARKS.--Records good. Flow is regulated by Bardwell Lake (station 08063700) 0.8 mile (1.3 km) upstream.

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.7	1.7	2.2	1.1	1.8	.26	.23	.91	6.4	4.4	6.7	9.8
2	3.4	1.7	2.4	1.1	1.7	.27	.22	1000	469	4.4	6.7	7.9
3	3.4	1.6	2.5	1.2	1.7	.30	.31	983	1060	4.7	6.7	6.1
4	3.4	1.4	1.9	1.2	.18	.33	.26	1030	1059	4.6	6.7	5.2
5	3.4	1.4	1.8	1.2		.28	.21	1090	1040	4.3	6.7	4.9
6	3.5	1.3	1.6	1.1		.30	.19	140	1020	4.3	6.6	4.8
7	3.1	1.3	1.8	1.0		.32	.21	4.4	1010	204	6.6	524
8	3.0	1.4	1.8	1.1	.20	.41	.20	2.2	885	388	6.6	1050
9	3.1	1.3	1.7	1.2	.22	.33	.18	2.0	316	182	6.6	1040
10	2.9	1.3	1.6	1.3	.46	.33	.19	84	3.9	7.4	6.7	1030
11	2.9	1.5	1.7	1.2	.21	.32	.19	658	4.0	4.7	6.6	750
12	3.0	1.6	1.8	1.3	.21	.30	.22	1060	4.0	4.7	6.7	436
13	3.0	1.7	1.8	1.2	.21	.27	.27	247	3.9	5.8	6.7	186
14	2.8	1.6	1.9	1.3	.24	.22	.23	145	4.0	4.9	6.7	5.7
15	2.7	1.9	1.6	1.3	.26	.21	.24	312	4.1	6.0	6.7	4.9
16	2.7	1.9	1.3	1.4	.25	.18	.31	18	4.1	7.5	6.7	4.6
17	2.8	1.8	1.5	1.4	.27	.17	.23	67	4.1	7.4	6.8	4.7
18	2.7	1.9	1.4	1.5	.24	.17	.64	5.0	4.1	7.6	6.6	4.6
19	2.7	1.9	1.2	1.4	.24	.17	.62	2.3	4.1	10	6.3	4.8
20	2.7	1.8	.96	1.4	.25	.19	.40	2.2	4.1	257	5.6	4.9
21	2.6	1.8	1.0	1.5	.28	.17	.25	2.4	4.1	254	4.8	3.5
22	2.6	1.9	1.0	1.4	.20	.15	.24	2.5	4.1	130	4.7	1.4
23	2.6	1.9	1.0	1.4	.19	.14	.33	2.7	4.2	7	4.9	1.8
24	2.2	2.1	1.2	1.4	.14	.26	.33	125	4.5	7.2	4.7	3.5
25	2.1	2.4	.90	1.3	.20	.19	.22	134	4.3	6.7	4.1	3.4
26	2.2	2.2	.99	1.3	.22	.22	411	7.3	4.2	6.8	3.8	4.4
27	1.4	2.3	1.2	1.7	.23	.20	894	6.3	4.2	6.8	3.5	4.3
28	1.7	2.3	1.1	2.1	.24	.22	944	6.5	4.2	6.8	3.2	58
29	1.6	2.2	1.0	2.0	.26	.23	469	6.5	4.2	6.9	3.4	107
30	1.6	2.3	1.0	2.0	---	.19	399	376	4.2	6.7	3.6	51
31	1.6	---	1.0	2.0	---	.23	---	126	---	6.7	3.9	---
TOTAL	84.9	53.6	45.85	43.0	10.65	7.53	3233.51	8841.3	6943.0	1674.0	176.8	5327.2
MEAN	2.74	1.79	1.48	1.39	.37	.24	108	285	231	54.0	5.70	178
MAX	3.8	2.4	2.5	2.1	1.8	.41	994	1090	1060	388	6.8	1050
MIN	1.6	1.3	.90	1.0	0	.14	.18	2.0	3.9	4.3	3.2	1.4
AC-FT	168	166	91	85	21	15	6410	17540	13770	3320	351	10570

CAL YR 1975	TOTAL	40150.73	MEAN	110	MAX	1500	MIN	.70	AC-FT	79640
WTR YR 1976	TOTAL	26441.34	MEAN	72.2	MAX	1090	MIN	0	AC-FT	52450

## TRINITY RIVER BASIN

08064500 Chambers Creek near Corsicana, Tex.

LOCATION.--Lat 32°06'29", long 96°22'14", Navarro County, near center of channel at downstream side of downstream bridge on State Highway 31, 430 ft (131 m) upstream from St. Louis Southwestern Railway Lines bridge, 6,000 ft (1,829 m) upstream from city of Corsicana diversion dam, 5.3 miles (8.5 km) east of Corsicana, and at mile 23.0 (37.0 km).

DRAINAGE AREA.--963 mi<sup>2</sup> (2,494 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: March 1939 to current year.

Water quality: Chemical analyses: September 1961 to current year. Water temperatures: September 1961 to September 1970.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 294.28 ft (89.696 m) above mean sea level.

AVERAGE DISCHARGE.--37 years, 458 ft<sup>3</sup>/s (12.97 m<sup>3</sup>/s), 331,800 acre-ft/yr (409 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 12,500 ft<sup>3</sup>/s (354 m<sup>3</sup>/s) Apr. 21 (gage height, 24.25 ft or 7.391 m); minimum, 1.0 ft<sup>3</sup>/s (0.028 m<sup>3</sup>/s) Nov. 14, 15.

Period of record: Maximum discharge, 48,000 ft<sup>3</sup>/s (1,360 m<sup>3</sup>/s) May 3, 1944; maximum gage height, 28.10 ft (8.565 m) May 3, 1958; no flow at times.

Maximum stage since at least 1870, 30 ft (9.1 m) Aug. 27, 1887, from information by local residents. Flood in December 1913 reached a stage of 27.5 ft (8.38 m), from information by local residents.

REMARKS.--Discharge records good. Since November 1965, flow from 178 mi<sup>2</sup> (461 km<sup>2</sup>) has been affected by Bardwell Lake (station 08063700). In addition, flow from 291 mi<sup>2</sup> (754 km<sup>2</sup>) is affected by discharge from the flood-detention pools of 99 floodwater-retarding structures with a combined detention capacity of 83,950 acre-ft (104 hm<sup>3</sup>). During year, records furnished by the city of Corsicana show that 67.2 acre-ft (82,900 m<sup>3</sup>) was diverted for municipal supply from pool in which gage is located. Daily discharge given in the following table does not include water diverted by the city. During the current year, records furnished by the city of Ennis show that 1,208 acre-ft (1.49 hm<sup>3</sup>) of sewage effluent was returned to the creek above the gage.

REVISIONS.--WSP 1922: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.1	2.6	1.8	7.3	5.3	5.3	10	1070	3600	41	18	565
2	6.2	3.6	3.3	5.9	5.6	4.9	9.5	1340	2780	46	15	4370
3	6.0	5.5	4.6	4.5	6.4	4.6	9.1	1300	1960	40	13	7060
4	5.6	13	3.3	4.0	6.6	6.2	9.1	1270	1790	1650	12	5390
5	6.2	9.4	3.7	4.0	5.9	7.1	9.8	1360	1610	2770	12	3430
6	6.3	7.6	4.0	4.2	5.4	3.5	8.0	2120	1500	1650	11	1930
7	6.6	6.1	3.7	4.1	5.0	4.8	7.3	1440	1420	577	11	784
8	6.2	4.7	3.7	3.8	6.7	6.9	6.8	894	1430	707	11	1500
9	4.3	3.5	3.2	3.7	7.6	4.2	6.3	954	1070	625	10	1650
10	4.0	1.9	2.6	3.7	6.7	6.3	20	384	395	788	9.1	1540
11	3.8	1.8	2.6	3.2	6.9	5.5	27	519	210	464	8.4	1430
12	3.7	1.7	2.4	3.6	4.4	3.5	16	1300	124	186	8.2	862
13	3.4	1.3	2.8	4.4	2.7	19	11	1880	73	124	8.1	578
14	3.0	1.1	3.7	4.0	10	12	9.1	876	46	404	7.6	151
15	2.7	1.1	4.1	4.0	8.3	9.2	7.3	654	28	177	7.3	78
16	2.4	1.2	4.2	3.9	4.9	7.3	12	566	17	226	6.9	66
17	2.0	1.4	3.8	3.3	6.5	6.1	10	316	13	176	7.0	57
18	1.6	1.6	2.5	3.5	5.8	5.4	172	162	295	198	7.0	50
19	1.5	1.8	2.1	3.7	5.0	4.5	4540	62	420	220	6.9	53
20	1.7	2.5	2.2	3.4	5.2	4.2	6400	43	211	394	7.3	77
21	1.7	3.0	2.2	3.5	8.6	3.7	9760	36	107	407	6.6	96
22	1.6	3.2	2.9	3.7	7.6	3.5	5840	32	62	377	6.0	86
23	2.4	2.4	3.3	3.8	7.0	3.4	3120	29	44	122	5.8	53
24	4.9	2.3	4.8	4.0	6.6	18	1560	50	42	56	5.4	40
25	5.7	2.0	16	8.1	6.5	212	949	458	1190	47	4.5	35
26	4.8	2.2	42	5.7	6.2	325	670	1880	626	81	4.8	33
27	3.5	2.1	23	4.6	6.1	113	1190	4400	208	53	4.7	192
28	3.7	2.6	16	4.2	6.2	53	1380	7000	105	33	3.7	94
29	3.4	3.2	15	3.9	5.9	29	1410	5160	61	26	3.8	174
30	2.9	2.6	12	4.0	---	17	499	1700	43	22	4.5	195
31	2.8	---	9.1	4.9	---	12	---	2260	---	21	4.8	---
TOTAL	121.7	99.0	210.6	132.6	181.6	1157.7	37678.3	41515	21480	12708	251.4	32619
MEAN	3.93	3.30	6.79	4.28	6.26	37.3	1256	1339	716	410	8.11	1087
MAX	7.1	13	42	8.1	10	325	9760	7000	3600	2770	18	7060
MIN	1.5	1.1	1.8	3.2	2.7	3.4	6.3	29	13	21	3.7	33
AC-FT	241	196	418	263	360	2300	74730	82340	42610	25210	499	64700

CAL YR 1975 TOTAL 245610.73 MEAN 673 MAX 12400 MIN .82 AC-FT 487200  
WTR YR 1976 TOTAL 148154.90 MEAN 405 MAX 9760 MIN 1.1 AC-FT 293900

PEAK DISCHARGE (BASE, 13,000 FT<sup>3</sup>/S).--No peak above base.

## TRINITY RIVER BASIN

505

08064500 Chambers Creek near Corsicana, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPF- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
OCT. 07...	0920	6.5	820	7.8	17.0	240	100	87	6.1	74
NOV. 11...	0940	2.0	656	7.9	19.0	200	41	73	5.1	58
DEC. 16...	0920	4.3	790	8.6	12.5	230	33	83	6.3	70
JAN. 27...	1100	4.7	945	8.1	8.0	270	72	96	7.1	90
MAR. 11...	1149	53	957	7.7	11.0	250	78	88	7.1	110
APR. 21...	1700	9440	295	7.8	20.5	120	31	45	1.5	11
JUNE 04...	1020	1770	333	7.7	24.0	130	12	48	1.8	14
JULY 15...	1400	187	318	7.7	28.0	120	9	45	2.2	15
AUG. 27...	1308	6.9	659	7.8	28.0	200	51	71	4.9	54

DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SI02) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT. 07...	2.1	4.0	170	0	150	77	.6	6.6	489
NOV. 11...	1.8	5.5	198	0	76	58	.5	8.8	383
DEC. 16...	2.0	6.6	224	10	83	77	.7	11	458
JAN. 27...	2.4	4.5	240	0	130	99	.4	6.2	552
MAR. 11...	3.0	4.7	209	0	170	92	1.1	4.8	581
APR. 21...	.4	3.2	107	0	43	4.9	.5	9.2	171
JUNE 04...	.5	3.2	140	0	29	9.9	.4	6.2	182
JULY 15...	.6	4.5	137	0	25	12	.4	12	184
AUG. 27...	1.7	4.5	179	0	79	55	.5	8.4	366

08064600 Richland Creek near Fairfield, Tex.

LOCATION.--Lat 31°57'05", long 96°05'52", Freestone County, near center of channel on downstream side of bridge on Farm Road 488, 5.4 miles (8.7 km), revised, upstream from mouth, 9.0 miles (14.5 km) downstream from Chambers Creek, and 16 miles (26 km) north of Fairfield.

DRAINAGE AREA.--1,957 mi<sup>2</sup> (5,069 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: March 1972 to current year.

Water quality: Chemical analyses: April 1956 to September 1966, March 1972 to current year. Water temperatures: April 1956 to September 1966, March 1972 to current year.

GAGE.--Nonrecording gage. Datum of gage is 230.83 ft (70.357 m) above mean sea level.

EXTREMES.--Discharge: Current year: Maximum discharge observed, 17,400 ft<sup>3</sup>/s (493 m<sup>3</sup>/s) Apr. 22 (gage height, 27.81 ft or 8.476 m); minimum daily, 6.9 ft<sup>3</sup>/s (0.20 m<sup>3</sup>/s) Dec. 1.

Period of record: Maximum discharge observed, 29,500 ft<sup>3</sup>/s (835 m<sup>3</sup>/s) Apr. 26, 1973 (gage height, 28.76 ft or 8.766 m); minimum daily, 0.02 ft<sup>3</sup>/s (0.001 m<sup>3</sup>/s) July 26, Aug. 26 to Sept. 2, 1972.

Historic: Flood in December 1971 reached a stage of 31.5 ft (9.60 m), from floodmark.

Water quality: Current year: Maximum daily specific conductance, 2,150 micromhos Oct. 16; minimum daily, 164 micromhos June 20. Maximum water temperatures, 33.5°C Aug. 8; minimum, 5.5°C Jan. 8.

Period of record: Maximum daily specific conductance, 22,000 micromhos Aug. 22, 1956; minimum daily, 157 micromhos Apr. 25, 1957. Maximum water temperatures, 37.0°C Aug. 14, 1961; minimum, freezing point Jan. 3, 4, 1959.

REMARKS.--Discharge records fair above 100 ft<sup>3</sup>/s (2.83 m<sup>3</sup>/s) and good below. Flow is partly regulated by Navarro Mills Lake (station 08063050) on Richland Creek and Bardwell Lake (station 08063700) on Waxahachie Creek. At end of year, flow from 433 mi<sup>2</sup> (1,120 km<sup>2</sup>) above this station affected at times by discharge from the flood-detention pools of 172 floodwater-retarding structures with combined detention capacity of 126,170 acre-ft (156 hm<sup>3</sup>). Five structures were built during the current year and have a combined detention capacity of 3,340 acre-ft (4.12 hm<sup>3</sup>).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	22	6.9	28	35	16	70	4050	4830	880	119	29
2	42	20	7.4	21	32	14	47	3470	5590	458	225	1050
3	14	23	9.7	18	30	12	34	2520	7060	209	173	1110
4	11	40	10	14	24	11	30	1760	5600	181	85	2650
5	10	136	11	13	29	12	128	1480	4510	1670	59	4670
6	9.7	90	10	12	25	16	114	1740	3400	4320	51	4620
7	10	54	9.4	12	22	33	66	4900	2700	2950	45	3070
8	11	36	10	11	20	743	47	3750	2560	1680	43	1140
9	11	28	10	11	19	1620	36	1920	2210	2170	45	1460
10	12	22	11	11	18	1030	29	1610	1110	2640	43	1770
11	12	19	11	11	20	430	26	800	570	2790	40	1680
12	10	18	11	11	20	252	38	1550	303	2530	39	1450
13	13	17	9.7	11	20	188	35	3220	236	1920	36	1100
14	29	15	9.7	11	16	115	27	5700	215	1660	34	579
15	28	13	10	11	14	71	23	4070	194	1810	32	253
16	22	14	10	11	30	50	30	3020	183	1970	33	130
17	19	15	10	11	28	39	154	1700	202	2540	35	107
18	17	16	8.5	11	239	31	991	1100	215	2070	34	87
19	18	17	9.4	10	328	26	3810	577	343	2140	33	81
20	22	18	9.4	10	194	23	5990	305	4090	1180	31	79
21	21	17	8.2	10	92	19	10900	236	3730	1690	28	103
22	20	15	7.2	9.7	59	15	15500	183	637	1720	26	139
23	25	14	7.9	10	47	15	7950	162	368	1570	21	129
24	26	14	9.7	11	40	71	4410	195	126	841	16	93
25	31	13	16	67	32	1130	3390	249	124	308	15	65
26	35	12	76	315	25	1980	3660	540	2060	193	14	46
27	77	11	68	210	24	1280	1680	4000	2600	211	14	181
28	78	10	86	112	22	578	2130	8970	1580	210	11	289
29	49	9.1	57	73	16	306	2900	9300	895	169	7.9	174
30	33	7.9	41	54	---	173	4590	6480	840	124	11	227
31	26	---	35	43	---	105	---	2320	---	100	13	---
TOTAL	761.7	756.0	606.1	1173.7	1524	10404	68835	81877	59081	44904	1411.9	28561
MEAN	24.6	25.2	19.6	37.9	52.6	336	2295	2641	1969	1449	45.5	952
MAX	78	136	86	315	328	1980	15500	9300	7060	4320	225	4670
MIN	9.7	7.9	6.9	9.7	14	11	23	162	124	100	7.9	29
AC-FT	1510	1500	1200	2330	3020	20640	136500	162400	117200	89070	2800	56650
CAL YR 1975	TOTAL	510395.3	MEAN	1398	MAX	24800	MIN	2.7	AC-FT	1012000		
WTR YR 1976	TOTAL	299895.4	MEAN	819	MAX	15500	MIN	6.9	AC-FT	594800		

## TRINITY RIVER BASIN

507

08064600 Richland Creek near Fairfield, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPF- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
OCT 07...	1425	10	974	7.8	21.0	240	69	85	6.9	100
NOV 11...	1530	20	582	7.6	19.0	170	45	61	5.4	46
DEC 16...	1500	9.6	942	8.0	12.0	260	65	91	8.6	93
JAN 26...	1300	349	493	7.6	10.0	150	37	54	4.7	35
FEB 29...	1730	17	783	7.8	20.5	220	58	77	7.1	73
MAR 31...	1737	97	449	7.7	20.5	150	41	53	4.4	28
APR 22...	1000	16700	287	7.9	20.5	110	12	42	1.8	9.8
MAY 31...	1325	4440	331	8.0	25.5	130	17	47	2.2	14
JUN 03...	0957	7520	299	7.6	24.5	120	14	44	1.8	10
JUL 14...	1300	1610	325	7.7	27.0	120	16	43	3.0	16
AUG 26...	1304	15	883	7.9	30.0	250	62	88	7.8	74
SEP 30...	1720	230	396	8.1	24.0	140	20	52	3.2	22

DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SI02) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
OCT 07...	2.8	5.1	209	0	94	140	.7	8.1	543
NOV 11...	1.5	6.0	158	0	67	49	.5	9.9	323
DEC 16...	2.5	8.8	241	0	100	110	.7	9.6	541
JAN 26...	1.2	4.4	143	0	51	44	.4	8.1	272
FEB 29...	2.1	6.5	199	0	97	79	.5	8.9	447
MAR 31...	1.0	5.6	133	0	63	25	.4	11	256
APR 22...	.4	4.8	122	0	30	4.9	.4	11	165
MAY 31...	.5	3.5	134	0	36	11	.5	8.6	189
JUN 03...	.4	4.2	126	0	29	7.3	.3	11	170
JUL 14...	.6	3.8	126	0	33	14	.4	7.8	183
AUG 26...	2.0	4.6	232	0	100	86	.9	6.5	482
SEP 30...	.8	5.2	150	0	36	23	.2	9.9	225



## TRINITY RIVER BASIN

08064600 Richland Creek near Fairfield, Tex.--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	761.7	841	480	977	100	207	92	189	230
NOV. 1975.....	755	619	350	713	60	122	75	152	180
DEC. 1975.....	606.1	817	466	756	95	156	90	147	230
JAN. 1976.....	1173.7	656	370	1170	67	211	74	236	190
FEB. 1976.....	1508	455	260	1050	32	124	53	214	150
MAR. 1976.....	10404	379	210	6020	18	515	42	1180	140
APR. 1976.....	68835	281	160	29600	9	1600	27	5050	110
MAY 1976.....	81877	314	180	39200	10	2190	33	7190	120
JUNE 1976.....	59081	301	170	27200	10	1620	31	4890	120
JULY 1976.....	44904	323	180	22200	11	1240	34	4040	120
AUG. 1976.....	1411.9	688	390	1480	73	277	81	309	200
SEPT 1976.....	28561	325	180	14200	11	860	34	2620	120
TOTAL .....	299879.2	**	**	145000	**	9170	**	26300	**
WTD.AVG. ....	821.59	315	140	**	11	**	33	**	120

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	792	872	819	907	509	787	483	287	274	343	653	813
2	781	747	850	920	497	822	536	292	303	378	618	302
3	821	683	864	933	519	875	594	323	296	426	640	282
4	865	747	877	974	544	892	640	329	335	452	487	300
5	875	528	898	1000	536	910	472	315	334	282	534	305
6	922	500	909	1020	566	769	478	309	338	300	573	324
7	938	615	902	1030	595	700	489	247	334	298	603	363
8	1040	574	881	1050	640	500	565	327	343	331	658	347
9	1060	579	909	1070	673	300	607	358	350	333	653	307
10	1010	582	910	1080	680	297	603	388	363	332	677	300
11	1010	599	919	1080	716	335	665	407	407	304	702	292
12	1010	598	927	1090	738	404	703	361	489	324	733	280
13	978	610	930	1090	759	541	816	284	560	318	797	312
14	1070	618	935	1120	747	523	829	254	585	353	828	314
15	1250	620	939	1130	750	566	802	296	589	247	843	352
16	2150	625	954	1200	700	570	743	320	622	320	849	374
17	1240	630	962	1250	683	586	482	350	713	328	843	400
18	1060	643	970	1260	284	612	290	380	605	246	828	414
19	1020	648	979	1200	383	636	223	396	412	282	814	492
20	996	643	996	1160	363	693	237	426	164	362	812	513
21	911	644	983	1170	376	712	239	496	189	365	805	535
22	1060	670	966	1120	432	814	285	546	257	353	814	530
23	753	676	960	1130	485	875	305	560	298	338	805	690
24	685	690	958	1170	541	650	310	546	354	369	840	500
25	646	703	912	750	587	413	313	454	225	408	865	489
26	655	719	848	500	619	368	305	289	240	441	878	516
27	606	735	854	460	660	333	327	279	257	498	878	479
28	659	771	548	450	744	343	310	315	288	540	871	512
29	502	821	685	603	782	372	286	332	328	575	901	389
30	526	809	740	552	---	408	267	341	341	606	891	402
31	729	---	901	514	---	448	---	300	---	642	898	---
MONTH	923	663	893	967	590	582	473	358	373	377	761	414

## TRINITY RIVER BASIN

509

08064600 Richland Creek near Fairfield, Tex.--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.0	21.0	13.0	11.5	11.0	23.0	23.0	20.0	24.0	30.5	30.0	27.0
2	23.0	21.0	13.0	11.0	13.0	23.0	23.0	20.5	25.5	30.0	32.0	29.0
3	22.0	22.0	14.0	8.5	14.0	23.0	23.0	23.0	26.5	29.0	31.5	25.5
4	22.0	21.0	14.5	8.0	15.0	24.0	20.5	23.5	28.0	28.5	29.5	---
5	22.0	20.5	18.5	6.5	13.0	18.0	20.5	23.0	25.5	25.5	30.0	27.0
6	23.0	21.0	14.0	9.0	11.0	18.0	21.0	22.0	26.5	27.0	32.0	28.0
7	23.0	23.0	13.5	7.0	10.0	15.5	19.5	21.5	26.5	28.0	30.0	28.0
8	24.0	21.5	16.0	5.5	14.0	14.0	21.5	21.5	26.0	29.0	33.5	28.5
9	25.0	23.5	14.0	6.0	15.5	14.0	28.0	21.5	26.5	28.0	33.0	28.0
10	25.0	20.5	15.0	9.5	18.5	14.5	---	23.5	27.0	26.5	33.0	27.0
11	---	20.5	17.0	11.0	18.5	15.0	---	23.5	28.0	28.0	32.0	25.5
12	24.0	18.0	18.5	9.0	19.5	18.0	---	25.0	28.5	28.5	31.5	25.0
13	25.0	15.0	16.5	15.5	21.0	14.5	---	23.0	28.0	28.0	32.0	27.0
14	25.5	15.5	20.0	13.0	19.0	14.5	---	22.5	29.5	28.0	30.0	27.0
15	25.5	15.0	14.5	12.0	20.0	18.0	---	17.0	30.5	28.0	30.5	28.5
16	23.5	16.0	15.0	13.0	21.5	14.0	---	17.0	30.5	28.5	30.5	29.5
17	23.0	18.5	13.0	11.5	20.0	18.0	---	23.5	30.0	28.0	33.0	28.5
18	20.0	19.0	10.0	13.5	18.0	19.5	---	23.5	29.0	26.0	30.5	25.5
19	20.5	19.5	9.0	14.0	19.0	21.5	---	24.5	26.5	28.5	30.0	25.5
20	22.0	16.5	10.0	13.0	19.5	20.0	---	25.5	25.5	29.5	30.5	26.5
21	21.5	14.0	9.5	13.0	16.0	17.0	---	26.5	26.5	27.0	29.0	25.0
22	22.0	13.0	11.0	11.0	14.5	23.0	---	24.5	28.0	28.0	28.5	25.5
23	23.0	10.5	11.5	15.0	16.5	23.0	24.0	26.0	28.0	28.5	32.0	26.0
24	24.0	13.0	10.0	15.5	16.0	20.0	---	28.5	29.5	29.0	31.0	26.0
25	19.5	11.5	8.5	14.5	16.5	21.5	22.0	24.5	26.0	28.5	31.0	26.5
26	17.0	11.0	9.5	13.0	19.0	21.0	23.0	23.5	25.5	29.0	32.0	24.5
27	20.0	10.0	10.0	13.0	19.0	19.0	24.0	22.5	26.5	30.0	31.5	25.0
28	21.5	13.5	10.0	13.0	19.5	18.5	23.0	23.5	28.5	31.5	28.5	24.0
29	21.5	19.0	11.0	13.5	20.5	22.0	21.0	23.5	30.0	32.0	28.0	24.5
30	22.0	14.0	11.0	14.0	---	19.0	20.0	24.0	30.0	31.5	28.5	24.0
31	22.0	---	11.5	9.5	---	20.5	---	25.5	---	30.5	28.0	---
MONTH	22.5	17.5	13.0	11.5	17.0	19.0	---	23.0	27.5	28.5	30.5	26.5

## TRINITY RIVER BASIN

08064700 Tehuacana Creek near Streetman, Tex.

LOCATION.--Lat 31°50'54", long 96°17'23", Freestone County, on downstream side of bridge on U.S. Highway 75, 2.8 miles (4.5 km) southeast of Streetman, 3.1 miles (5.0 km) downstream from Chicago, Rock Island, and Pacific Railroad Co. bridge, 3.8 miles (6.1 km) upstream from Caney Creek, and 25 miles (40 km) upstream from mouth.

DRAINAGE AREA.--142 mi<sup>2</sup> (368 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: April 1968 to current year.

Water quality: Chemical analyses: February 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 287.58 ft (87.654 m) above mean sea level.

AVERAGE DISCHARGE.--8 years, 76.9 ft<sup>3</sup>/s (2.178 m<sup>3</sup>/s), 7.35 in/yr (187 mm/yr), 55,710 acre-ft/yr (68.7 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 4,670 ft<sup>3</sup>/s (132 m<sup>3</sup>/s) Apr. 19 (gage height, 22.82 ft or 6.956 m); no flow for many days.  
Period of record: Maximum discharge, 23,100 ft<sup>3</sup>/s (654 m<sup>3</sup>/s) May 10, 1968 (gage height, 25.00 ft or 7.620 m); no flow at times most years.  
Maximum stage since at least 1932, that of May 10, 1968. Flood in September 1932 reached a stage of about 24 ft (7.3 m), from information by State Highway Department.

REMARKS.--Discharge records good except those below 5.0 ft<sup>3</sup>/s (0.142 m<sup>3</sup>/s), which are fair, and those for July 22 to Aug. 25, which are poor.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.12	0	.74	.24	.36	5.5	120	2120	13	.82	.62
2	.01	.15	0	.70	.20	.45	4.4	35	262	11	.70	.18
3	.01	2.1	0	.55	.20	.45	4.5	20	66	10	.65	.26
4	.1	3.7	3	.42	.18	.59	201	15	38	72	.60	7.7
5	.1	.13	0	.34	.22	.42	36	26	26	59	.54	3.1
6	.02	.64	0	.31	.20	.55	42	1.50	21	423	.49	2.1
7	.02	.01	0	.31	.18	.51	16	778	19	150	.47	1.1
8	.03	0	0	.22	.10	554	8.8	753	18	29	.45	.45
9	.03	0	0	.13	.18	247	6.3	117	18	19	.43	.32
10	.03	0	0	.24	.17	33	5.1	106	17	16	.41	.19
11	.03	0	0	.24	.17	16	3.8	48	17	11	.37	.14
12	.03	0	0	.24	.15	11	3.2	42	16	9.4	.35	.09
13	.03	0	0	.24	.15	8.8	2.8	2790	14	8.5	.34	.07
14	.02	0	0	.24	.17	6.7	2.7	790	14	8.1	.32	.05
15	.02	0	0	.24	.20	5.9	2.7	149	14	7.9	.31	.04
16	.02	0	.11	.20	.20	5.1	393	70	40	82	.30	.04
17	.01	0	.23	.14	3.4	4.2	229	47	25	74	.29	.07
18	.01	0	.19	.18	157	4.0	2510	36	34	34	.38	.05
19	0	0	.17	.17	27	3.7	4330	29	1090	13	.24	.04
20	0	.11	.33	.17	8.8	3.2	956	28	256	7.8	.25	.09
21	0	.09	.39	.17	5.1	2.7	254	26	50	5.8	.23	.07
22	.02	.66	.65	.17	3.2	2.6	57	24	25	5.0	.22	.04
23	.32	.05	.79	.17	2.2	2.6	31	22	17	4.0	.21	.03
24	.32	.04	1.5	.17	1.5	264	2670	21	15	3.5	.21	.02
25	2.4	.02	23	7.5	.93	446	562	24	82	2.7	.20	.02
26	3.5	.02	23	2.5	.66	128	82	420	85	2.3	.21	.07
27	2.2	.01	12	.99	.39	110	27	91	209	1.8	.20	.29
28	.98	0	9.6	.66	.39	26	41	43	56	1.5	.20	.65
29	.31	0	5.5	.62	.39	14	3220	31	26	1.3	.26	.56
30	.04	0	2.2	.48	---	9.4	1010	25	16	1.1	.28	2.0
31	.13	---	.93	.31	---	6.8	---	557	---	1.0	8.0	---
TOTAL	11.11	6.70	80.59	19.80	213.95	1918.03	16717.3	9133	4707	1087.7	18.97	125.39
MEAN	.34	.22	2.60	.64	7.38	61.9	557	295	157	35.1	.61	4.18
MAX	3.5	3.7	23	7.5	157	554	4330	2790	2120	423	8.0	.62
MIN	0	0	0	.13	.15	.36	2.7	15	14	1.0	.20	.02
CFSM	.002	.001	.02	.004	.05	.44	3.92	2.08	1.11	.25	.004	.03
IN	.003	.002	.02	.005	.06	.50	4.38	2.39	1.23	.28	.005	.03
AC-FT	22	13	160	39	424	3800	33160	18120	9340	2160	38	249

CAL YR 1975 TOTAL 24834.25 MEAN 68.0 MAX 4350 MIN 0 CFSM .48 IN 6.51 AC-FT 49260  
WTR YR 1976 TOTAL 34039.54 MEAN 93.0 MAX 4330 MIN 0 CFSM .65 IN 8.92 AC-FT 67520

PEAK DISCHARGE (BASE, 2,500 FT<sup>3</sup>/S)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
4-19	0915	22.82	4,670	5-6	0630	21.55	2,990
4-24	0600	22.36	3,920	5-13	1330	22.44	4,040
4-29	1245	22.65	4,380	6-1	0600	21.98	3,380

NOTE.--No gage-height record for period July 22 to Aug. 25. Water below orifice; discharge estimated.

## TRINITY RIVER BASIN

511

08064700 Tehuacana Creek near Streetman, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPF- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
OCT. 08...	1140	.03	2230	8.3	20.0	460	320	110	46	280
DEC. 17...	0950	.22	2130	7.8	8.0	460	250	110	44	270
JAN. 27...	1438	.93	800	7.4	9.5	170	70	42	17	89
MAR. 10...	1240	29	300	7.0	11.5	73	23	19	6.1	29
APR. 20...	1650	1030	220	6.9	20.0	57	10	15	4.8	18
JUNE 03...	1321	61	308	7.0	25.5	83	19	22	6.9	25
JULY 14...	1800	8.3	922	7.6	26.0	220	87	56	19	100
AUG. 26...	1503	.21	3170	7.8	31.0	750	410	170	79	430

DATE	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTIT- TUENTS) (MG/L)
OCT. 08...	5.7	7.5	172	0	310	430	.6	3.9	1270
DEC. 17...	5.5	5.8	250	0	190	440	.5	8.8	1190
JAN. 27...	2.9	8.0	128	0	74	140	.4	11	445
MAR. 10...	1.5	4.2	60	0	29	39	.4	8.1	164
APR. 20...	1.0	4.5	57	0	17	24	.3	10	122
JUNE 03...	1.2	5.0	78	0	26	35	.3	9.3	168
JULY 14...	2.9	5.5	160	0	86	160	.3	14	520
AUG. 26...	6.8	6.5	411	0	370	640	.6	14	1910

## TRINITY RIVER BASIN

08064800 Catfish Creek near Tennessee Colony, Tex.

LOCATION.--Lat 31°52'51", long 95°52'07", Anderson County, on left bank 35 ft (11 m), revised, downstream from bridge on U.S. Highway 287, 2 miles (3 km) upstream from Beaver Creek, 3.5 miles (5.6 km) northwest of Tennessee Colony, 12 miles (19 km) downstream from Coon Creek Lake, and 12 miles (19 km) upstream from mouth.

DRAINAGE AREA.--207 mi<sup>2</sup> (536 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 234.93 ft (71.607 m) above mean sea level.

AVERAGE DISCHARGE.--14 years, 104 ft<sup>3</sup>/s (2.945 m<sup>3</sup>/s), 6.82 in/yr (173 mm/yr), 75,350 acre-ft/yr (92.9 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 1,260 ft<sup>3</sup>/s (35.7 m<sup>3</sup>/s) June 20 (gage height, 11.04 ft or 3.365 m); minimum daily, 8.1 ft<sup>3</sup>/s (0.23 m<sup>3</sup>/s) Aug. 16.

Period of record: Maximum discharge, 7,550 ft<sup>3</sup>/s (214 m<sup>3</sup>/s) May 11, 1968 (gage height, 15.90 ft or 4.846 m); minimum daily, 0.8 ft<sup>3</sup>/s (0.023 m<sup>3</sup>/s) Aug. 19-21, 1964.

Maximum stage since 1927, 22 ft (6.7 m) in June 1944 as a result of dam failure at Coon Creek Lake, from information by local residents.

REMARKS.--Records fair. Some regulation upstream by Coon Creek Lake. No known diversion above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	54	38	85	83	59	98	157	140	200	37	31
2	12	41	51	75	79	58	82	193	153	130	33	60
3	11	46	49	70	76	55	72	189	172	100	30	96
4	11	45	44	75	72	54	66	151	169	90	28	134
5	11	46	43	73	70	55	65	121	139	105	26	160
6	10	44	43	61	65	65	79	170	108	112	24	148
7	10	39	48	55	64	79	77	184	93	123	23	116
8	10	36	54	58	64	111	74	253	83	121	21	86
9	11	33	54	63	55	128	71	271	73	108	20	66
10	11	32	51	57	51	160	65	274	64	96	19	53
11	11	31	51	56	50	238	60	250	55	89	18	44
12	11	30	50	65	51	222	54	191	47	87	16	35
13	11	27	51	70	54	158	50	179	40	92	12	28
14	11	28	50	68	56	126	47	181	35	106	9.7	23
15	11	28	50	67	59	106	44	243	31	109	8.5	20
16	12	23	49	66	61	90	55	279	29	111	8.1	19
17	12	22	51	60	66	83	70	241	28	243	8.4	18
18	13	21	48	60	79	79	89	180	75	553	10	18
19	13	21	45	55	90	68	125	134	800	552	12	18
20	12	26	42	55	99	63	152	102	1200	374	11	19
21	12	29	37	60	95	63	196	82	800	254	11	31
22	12	41	36	68	91	65	209	69	550	173	12	49
23	28	43	36	72	99	64	187	61	350	128	12	59
24	38	38	42	71	99	80	162	73	250	102	11	49
25	54	34	69	71	86	113	136	93	300	86	11	38
26	62	33	86	83	73	132	126	129	450	75	11	33
27	69	33	106	101	66	168	122	131	600	67	12	41
28	67	32	121	111	63	161	106	127	500	60	12	67
29	57	31	120	101	61	146	169	122	350	53	13	102
30	57	33	106	90	---	128	155	110	270	46	14	130
31	57	---	95	87	---	111	---	121	---	41	19	---
TOTAL	739	1014	1816	2209	2077	3288	3063	5061	7954	4586	512.7	1791
MEAN	23.8	33.8	58.6	71.3	71.6	106	102	163	265	148	16.5	59.7
MAX	69	54	121	111	99	238	209	279	1200	553	37	160
MIN	10	21	36	55	50	54	44	61	28	41	8.1	18
AC-FT	1470	2010	3600	4380	4120	6520	6080	10040	15780	9100	1020	3550

CAL YR 1975 TOTAL 44122.0 MEAN 121 MAX 1840 MIN 10 AC-FT 87520  
WTR YR 1976 TOTAL 34110.7 MEAN 93.2 MAX 1200 MIN 8.1 AC-FT 67660

PEAK DISCHARGE (BASE, 1,400 FT<sup>3</sup>/S).--No peak above base.

NOTE.--No gage-height record June 18 to July 4.

## TRINITY RIVER BASIN

513

08065000 Trinity River near Oakwood, Tex.

LOCATION.--Lat 31°38'54", long 95°47'21", Anderson-Freestone County line, on left bank at downstream side of bridge on U.S. Highways 79 and 84, 1.5 miles (2.4 km) upstream from Missouri Pacific Railroad Co. bridge, 6 miles (10 km) northeast of Oakwood, and at mile 313.4 (504.3 km).

DRAINAGE AREA.--12,833 mi<sup>2</sup> (33,237 km<sup>2</sup>).

PERIOD OF RECORD.--October 1923 to September 1924 (monthly discharge only), October 1924 to current year. Records of January 1905 to September 1923, published in WSP 850 and 878, have been found unreliable and should not be used. Gage-height records collected in this vicinity since 1904 are contained in reports of the National Weather Service.

GAGE.--Water-stage recorder. Datum of gage is 175.06 ft (53.358 m) above mean sea level. Prior to July 15, 1932, nonrecording gage at site 1.5 miles (2.4 km) downstream at datum 1.06 ft (0.323 m) lower. July 15, 1932, to Oct. 7, 1934, nonrecording gage at present site and datum.

AVERAGE DISCHARGE.--30 years (1923-53) unregulated, 5,045 ft<sup>3</sup>/s (142.9 m<sup>3</sup>/s), 3,655,000 acre-ft/yr (4.51 km<sup>3</sup>/yr); 23 years (1953-76) regulated, 4,568 ft<sup>3</sup>/s (129.4 m<sup>3</sup>/s), 3,310,000 acre-ft/yr (4.08 km<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 43,300 ft<sup>3</sup>/s (1,230 m<sup>3</sup>/s) Apr. 25 (gage height, 43.68 ft or 13.314 m); minimum daily, 480 ft<sup>3</sup>/s (13.6 m<sup>3</sup>/s) Oct. 18.

Period of record: Maximum discharge, 153,000 ft<sup>3</sup>/s (4,330 m<sup>3</sup>/s) Apr. 29, 1942 (gage height, 51.64 ft or 15.740 m); minimum observed, 28 ft<sup>3</sup>/s (0.79 m<sup>3</sup>/s) Aug. 24, 1925.

Flood in May 1890 reached a stage of 53 ft or 16.2 m (discharge, about 180,000 ft<sup>3</sup>/s or 5,100 m<sup>3</sup>/s) and was the highest since that date, from information in local newspapers. Flood of June 4, 1908, reached a stage of 52.2 ft (15.91 m), present site and datum, from information by the National Weather Service (discharge, about 164,000 ft<sup>3</sup>/s or 4,640 m<sup>3</sup>/s).

REMARKS.--Records fair. Twenty-one major reservoirs with a capacity of 4,200,000 acre-ft (5.18 km<sup>3</sup>), of which 1,362,000 acre-ft (1.68 km<sup>3</sup>) is flood control, partly regulate the flow. Flow is also affected at times by discharge from the flood-detention pools of 241 floodwater-retarding structures with combined detention capacity of 180,780 acre-ft (223 hm<sup>3</sup>). Records furnished by Industrial Generating Co., Fairfield, show that during the current year 7,784 acre-ft (9.60 hm<sup>3</sup>) was diverted into Fairfield Lake from the Trinity River about 34 miles (55 km) upstream.

REVISIONS (WATER YEARS).--WSP 1442: 1934. See also PERIOD OF RECORD. WSP 1922: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	516	650	600	925	690	671	1710	26600	13700	2800	819	655
2	487	646	600	845	651	648	1570	23800	14300	2370	781	1050
3	491	635	612	761	636	628	1190	20900	14900	1950	831	6680
4	507	644	721	701	620	598	943	14900	15600	1770	863	10100
5	503	644	825	688	617	633	858	8810	16000	5010	770	11300
6	507	928	755	661	610	781	1010	6100	16100	9900	704	12300
7	505	1170	654	662	596	1400	993	9120	14700	11200	672	12600
8	501	944	648	648	585	2100	944	11400	11100	10900	628	10200
9	488	746	633	648	611	3800	883	12400	7290	7400	654	5520
10	483	650	624	648	652	4800	808	13200	5110	5310	649	3330
11	496	637	580	647	654	3800	914	11800	3670	4660	631	2930
12	508	597	560	665	653	2600	1090	7380	2410	4780	609	2900
13	504	552	570	674	652	2000	952	6580	1780	5020	596	2740
14	497	548	570	721	652	1400	801	10500	1540	4240	594	2120
15	498	564	574	728	652	1200	718	12500	1420	3850	599	1600
16	493	552	584	710	652	1240	743	12600	1350	3790	599	1170
17	483	552	572	675	659	1140	1120	10400	1280	3830	606	901
18	480	540	554	636	723	932	2040	6340	1300	4460	600	811
19	484	530	564	628	1430	858	4680	3720	4330	5690	591	782
20	498	540	574	673	1900	833	10200	2500	10100	7260	587	831
21	500	550	591	670	1590	777	12900	1880	12900	6600	598	896
22	482	560	597	642	1250	734	14500	1600	14100	5720	599	2040
23	717	570	570	644	1020	700	17400	1430	13100	4980	558	2760
24	853	610	568	773	930	947	28400	1300	7860	3560	542	2130
25	1410	618	693	801	947	1330	41400	2590	6380	2380	563	1510
26	1150	600	755	889	912	2520	41800	3890	12000	1480	541	1150
27	1080	600	907	1400	792	4210	38600	7780	13200	1140	549	1130
28	966	600	1790	1270	714	4540	34700	10800	11800	1020	778	1060
29	850	600	2180	974	678	3450	33100	12100	7680	1080	789	1290
30	755	600	1650	821	---	2160	29700	12900	4190	1060	649	1310
31	676	---	1140	751	---	1560	---	13300	---	905	650	---
TOTAL	19368	19177	23815	23579	23728	54990	326667	301120	261190	136115	20199	105796
MEAN	625	639	768	761	818	1774	10890	9714	8706	4391	652	3527
MAX	1410	1170	2180	1400	1900	4800	41800	26600	16100	11200	863	12600
MIN	480	530	554	628	585	598	718	1300	1280	905	541	655
AC-FT	38420	38040	47240	46770	47060	109100	647900	597300	518100	270000	40060	209800
CAL YR 1975	TOTAL	2479465	MEAN	6793	MAX	48400	MIN	480	AC-FT	4918000		
WTR YR 1976	TOTAL	1315744	MEAN	3595	MAX	41800	MIN	480	AC-FT	2610000		



## TRINITY RIVER BASIN

08065200 Upper Keechi Creek near Oakwood, Tex.

LOCATION.--Lat 31°34'11", long 95°53'17", Leon County, at right bank 20 ft (6 m) downstream from bridge on U.S. Highway 79, 1.9 miles (3.1 km) upstream from Missouri Pacific Railroad Co. bridge, 2 miles (3 km) southwest of Oakwood, 11 miles (18 km) upstream from Buffalo Creek, and 21 miles (34 km) upstream from mouth.

DRAINAGE AREA.--150 mi<sup>2</sup> (388 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: April 1962 to current year.

Water quality: Chemical analyses: June 1962 to April 1964, November 1967 to September 1975.

GAGE.--Water-stage recorder. Datum of gage is 240.11 ft (73.186 m) above mean sea level.

AVERAGE DISCHARGE.--14 years, 84.3 ft<sup>3</sup>/s (2.387 m<sup>3</sup>/s), 7.63 in/yr (194 mm/yr), 61,080 acre-ft/yr (75.3 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 14,400 ft<sup>3</sup>/s (408 m<sup>3</sup>/s) June 1 (gage height, 15.23 ft or 4.642 m); minimum, 0.51 ft<sup>3</sup>/s (0.014 m<sup>3</sup>/s) Sept. 16-18.

Period of record: Maximum discharge, 24,000 ft<sup>3</sup>/s (680 m<sup>3</sup>/s) May 16, 1965 (gage height, 14.91 ft or 4.545 m), and Apr. 25, 1966, from rating curve extended above 5,800 ft<sup>3</sup>/s (164 m<sup>3</sup>/s); maximum gage height, 15.46 ft (4.712 m) Oct. 31, 1974; no flow at times. Maximum stage since 1900, about 21 ft (6.4 m) in 1932, from information by local residents.

REMARKS.--Discharge records good. No known diversions or regulation above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	.94	7.5	12	17	15	14	36	1120	5530	31	6.8	4.9		
2	.83	6.8	11	25	15	13	30	522	1860	27	6.2	5.0		
3	.72	11	9.4	20	14	13	28	112	894	23	5.7	11		
4	.72	13	9.0	16	14	12	27	60	362	33	5.1	14		
5	.66	10	8.6	15	14	29	30	50	81	51	4.4	9.8		
6	.77	9.2	13	14	14	45	39	141	56	101	3.9	6.9		
7	.77	8.5	8.0	15	14	49	32	289	44	101	3.4	4.5		
8	1.0	7.3	6.8	14	13	128	32	704	37	44	2.9	3.4		
9	1.1	6.7	7.1	13	14	184	29	531	33	38	2.8	2.3		
10	1.0	6.4	7.4	14	14	184	25	628	30	76	2.4	1.7		
11	.83	5.5	7.5	15	14	91	23	410	27	91	2.2	1.3		
12	.88	5.3	7.6	15	14	43	21	343	24	52	1.8	1.0		
13	.88	5.2	8.1	15	14	32	20	828	22	39	1.5	.88		
14	.94	3.7	8.7	15	16	31	19	1610	20	33	1.4	.77		
15	.94	3.5	11	14	14	29	18	1090	18	30	1.4	.72		
16	1.1	4.5	17	13	14	26	45	527	17	35	1.5	.61		
17	1.1	8.6	12	12	15	23	102	123	15	64	1.4	.51		
18	1.1	6.0	9.9	12	41	21	198	59	30	40	1.2	1.7		
19	1.1	5.4	8.6	13	42	20	363	46	1550	30	1.1	6.4		
20	1.1	6.2	8.6	26	28	19	1390	38	2250	25	1.2	5.9		
21	1.0	6.5	8.4	27	34	20	958	35	1100	21	1.3	11		
22	1.1	5.9	9.6	21	31	19	601	32	492	18	1.1	7.0		
23	.68	5.6	9.2	19	22	17	198	30	94	16	.86	4.6		
24	.75	6.2	13	18	19	65	238	29	59	15	.69	3.2		
25	149	6.6	63	22	16	189	1030	27	110	14	.64	2.4		
26	198	7.0	59	25	15	555	865	36	311	13	.66	19		
27	152	7.0	38	21	14	561	392	41	273	11	.63	110		
28	47	7.3	26	18	14	521	78	42	77	10	.60	82		
29	21	8.3	22	17	14	174	1160	33	50	9.3	.56	73		
30	14	10	19	16	---	57	2100	27	38	8.4	.58	32		
31	9.9	---	17	15	---	46	---	274	---	7.5	2.3	---		
TOTAL	754.48	210.7	475.5	532	532	3230	10127	9837	15504	1107.2	68.22	427.49		
MEAN	24.3	7.02	15.3	17.2	18.3	104	338	317	517	35.7	2.20	14.2		
MAX	198	13	63	27	42	561	2100	1610	5530	101	6.8	110		
MIN	.66	3.5	6.8	12	13	12	18	27	15	7.5	.56	.51		
CFSM	.16	.05	.10	.11	.12	.69	2.25	2.11	3.45	.24	.01	.09		
IN.	.19	.05	.12	.13	.13	.80	2.51	2.44	3.84	.27	.02	.11		
AC-FT	1500	418	943	1060	1060	6410	20090	19510	30750	2200	135	848		
CAL YR 1975	TOTAL	30930.28	MEAN	84.7	MAX	4530	MIN	.66	CFSM	.56	IN	7.67	AC-FT	61350
WTR YR 1976	TOTAL	42805.59	MEAN	117	MAX	5530	MIN	.51	CFSM	.78	IN	10.62	AC-FT	84900

PEAK DISCHARGE (BASE, 2,000 FT<sup>3</sup>/S)

DATE	TIME	G.H.T.	DISCHARGE
4-30	0700	13.16	2,970
6-1	1000	15.23	14,400
6-20	0400	13.14	2,910

TRINITY RIVER BASIN

515

08065200 Upper Keechi Creek near Oakwood, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPF- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
AUG. 24...	1505	.73	422	7.0	31.0	110	74	25	11	30
DATE		SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RINE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)
AUG. 24...		1.3	3.8	41	0	75	49	.2	25	239

## TRINITY RIVER BASIN

08065350 Trinity River near Crockett, Tex.  
(National stream-quality accounting network)

LOCATION.--Lat 31°20'08", long 95°39'27", Houston-Leon County Line, on right bank 30 ft (9 m) downstream from bridge on State Highway 7, 7.1 miles (11.4 km) downstream from Upper Keechi Creek, 11.9 miles (19.1 km) west of Crockett, and at mile 265.2 (426.7 km).

DRAINAGE AREA.--13,911 mi<sup>2</sup> (36,029 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: January 1964 to current year.

Water quality: Chemical analyses: February 1964 to current year. Chemical and biochemical analyses: October 1967 to current year. Pesticide analyses: October 1971 to current year. Water temperatures: February 1964 to September 1971, March 1975 to current year. Sediment records: October 1967 to September 1968.

GAGE.--Water-stage recorder. Datum of gage is 136.59 ft (41.633 m) above mean sea level.

AVERAGE DISCHARGE.--12 years, 6,174 ft<sup>3</sup>/s (174.8 m<sup>3</sup>/s), 4,473,000 acre-ft/yr (5.52 km<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 42,300 ft<sup>3</sup>/s (1,200 m<sup>3</sup>/s) May 1 (gage height, 48.03 ft or 14.640 m); minimum daily, 573 ft<sup>3</sup>/s (16.2 m<sup>3</sup>/s) Oct. 19.

Period of record: Maximum discharge, 78,000 ft<sup>3</sup>/s (2,210 m<sup>3</sup>/s) May 15, 1969 (gage height, 52.24 ft or 15.923 m); minimum, 275 ft<sup>3</sup>/s (7.79 m<sup>3</sup>/s) Aug. 13, 1964.

Historic: Maximum stage since at least 1900, 56.1 ft (17.10 m) Apr. 30 or May 1, 1942, from information by State Highway Department.

Water quality: Current year: Maximum daily specific conductance, 978 micromhos Aug. 31; minimum daily, 172 micromhos June 27.

Maximum daily water temperatures, 32.5°C Aug. 1, 9, 10, 15; minimum, 5.0°C Dec. 21-24. Maximum daily pH, 8.9 units Aug. 4, 5; minimum, 7.0 units on several days during October, December, and January. Maximum daily dissolved oxygen, 17.0 mg/l Aug. 5; minimum, 0 mg/l Apr. 20.

Period of record: Maximum daily specific conductance, 2,370 micromhos Sept. 22, 1964; minimum daily, 148 micromhos Apr. 27, 1966. Maximum water temperatures, 37.0°C July 4, 1970; minimum, 4.0°C Jan. 30, 1966. Maximum daily pH (1975-76), 8.9 units Aug. 4, 5, 1976; minimum, 7.0 units on several days during October and December 1975 and January 1976. Maximum daily dissolved oxygen (1975-76), 17.0 mg/l Aug. 5, 1976; minimum, 0 mg/l Apr. 20, 1976.

REMARKS.--Discharge records fair. For statement regarding regulation by upstream reservoirs and by Soil Conservation Service floodwater-retarding structures, see station No. 08065000. Flow also affected by Houston County Lake near Crockett (capacity, 19,500 acre-ft or 24.0 km<sup>3</sup>). Diversions above station for irrigation, municipal, and industrial uses. Specific conductance, temperature, pH, and DO are recorded continuously at this station since Mar. 11, 1975.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	681	881	734	1480	1050	836	2480	41800	18300	6020	1240	810
2	661	812	744	1220	982	819	2210	37300	20100	3840	1130	817
3	636	815	732	1120	929	799	1910	34000	21300	3140	1080	1870
4	620	822	738	1040	907	782	1520	30500	21200	2710	1120	7040
5	630	808	860	974	888	828	1260	26100	19800	2610	1140	9780
6	623	807	948	958	884	1470	1180	17400	18900	4950	1060	11400
7	622	1070	887	928	885	1750	1280	9270	18300	9250	971	12300
8	624	1280	812	894	871	2650	1280	10300	17200	11300	926	12700
9	624	1100	776	870	855	3440	1220	13000	14100	11600	871	10500
10	615	888	755	863	866	4880	1150	14400	9560	9200	874	5950
11	600	777	740	870	862	6120	1060	15300	6460	6640	886	3540
12	599	740	701	870	849	5120	1130	13800	4730	5560	841	3070
13	607	683	675	876	840	3910	1260	10900	3360	5650	799	3000
14	611	630	683	885	844	2810	1150	10700	2520	5530	776	2780
15	604	623	693	887	863	2140	980	12800	2120	4770	763	2190
16	597	647	709	891	879	1750	938	15000	1920	4500	764	1680
17	593	652	726	898	898	1630	1040	15300	1790	4750	773	1260
18	577	652	717	882	981	1460	1550	12500	1690	4810	779	990
19	573	650	697	852	1120	1240	2640	7850	2360	5420	758	876
20	576	673	690	938	1870	1150	6350	4670	7270	6760	747	953
21	590	675	699	1040	2190	1100	10700	3230	12600	7610	735	1120
22	597	662	711	991	1900	1030	13500	2480	17200	6820	743	1090
23	704	669	723	931	1550	959	15900	2120	17600	6150	764	2210
24	987	682	722	900	1290	1100	18300	1900	16600	5150	744	2710
25	1640	708	813	1100	1190	2020	23600	1790	12100	3880	675	2150
26	2110	706	960	1130	1190	2690	29200	3170	8410	2750	692	1580
27	1790	683	1050	1270	1090	4360	33300	4260	12600	1940	675	1640
28	1650	705	1310	1720	967	5540	37000	7530	14300	1570	676	1720
29	1590	709	2200	1620	875	5800	40800	10600	13800	1430	926	1780
30	1420	729	2530	1320	---	4840	41800	12500	10300	1450	984	1770
31	1100	---	1990	1120	---	3440	---	14400	---	1400	846	---
TOTAL	26451	22938	28725	32338	31365	78463	297688	416870	348490	159160	26758	111276
MEAN	853	765	927	1043	1082	2531	9923	13450	11620	5134	863	3709
MAX	2110	1280	2530	1720	2190	6120	41800	41800	21300	11600	1240	12700
MIN	573	623	675	852	840	782	938	1790	1690	1400	675	810
AC-FT	52470	45500	56980	64140	62210	155600	590500	826900	691200	315700	53070	220700
CAL YR 1975 TOTAL	2788212	MEAN	7639	MAX	44900	MIN	573	AC-FT	5530000			
WTR YR 1976 TOTAL	1580522	MEAN	4318	MAX	41800	MIN	573	AC-FT	3135000			

## TRINITY RIVER BASIN

517

08065350 Trinity River near Crockett, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	IMMEDIATE COLIFORM (COL. PER 100 ML)
OCT 23...	0830	600	893	7.5	20.0	30	20	3.3	36	>8.7	4400
NOV 18...	1100	605	730	7.3	16.5	30	25	4.0	41	16	2100
JAN 07...	1115	820	657	7.5	8.0	10	25	8.1	68	19	3000
22...	0940	880	737	7.3	10.0	30	20	6.4	57	17	700
FEB 26...	1155	1130	660	7.3	14.7	50	60	3.9	38	>20	2900
APR 07...	1100	1350	607	7.3	19.4	30	30	3.3	35	16	7300
27...	1000	33500	294	7.4	21.2	40	120	4.2	47	2.1	2500
MAY 12...	1020	14200	333	7.5	21.0	70	150	4.8	53	22	4900
JUN 17...	1130	1800	567	8.0	27.0	40	20	7.1	90	3.4	7300
JUL 28...	1120	1550	404	7.7	30.4	50	40	6.6	88	4.8	7300
AUG 18...	1000	730	766	8.0	30.5	30	20	6.5	87	3.2	--
SEP 15...	0830	2300	357	7.7	25.7	40	100	6.6	82	5.7	7300

DATE	FECAL COLIFORM (COL. PER 100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	SODIUM ADSORPTION RATIO	DISSOLVED PHOSPHATE (K) (MG/L)	BICARBONATE (HCO3) (MG/L)
OCT 23...	50	300	160	0	50	8.0	110	3.8	9.0	197
NOV 18...	34	34	150	0	49	6.6	77	2.7	8.4	199
JAN 07...	10	50	150	40	49	7.2	61	2.2	7.0	137
22...	140	290	150	9	48	6.8	76	2.7	8.0	169
FEB 26...	54	34	130	25	42	6.7	70	2.6	7.5	131
APR 07...	46	36	140	47	46	6.6	55	2.0	7.0	116
27...	190	470	100	9	37	3.0	11	.5	5.0	117
MAY 12...	170	180	110	22	37	3.6	19	.8	4.1	104
JUN 17...	20	20	170	29	60	5.6	42	1.4	5.0	175
JUL 28...	30	32	130	28	46	4.2	25	.9	5.0	128
AUG 18...	--	--	170	16	59	6.3	79	2.6	8.5	192
SEP 15...	66	130	120	16	43	2.8	22	.9	4.8	126

DATE	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SiO2) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NON-FILTERABLE RESIDUE (MG/L)	VOL. NON-FILTERABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)
OCT 23...	0	84	95	--	15	515	469	32	5	4.2
NOV 18...	0	66	77	1.2	15	430	398	32	1	2.4
JAN 07...	0	73	66	.7	12	380	344	31	12	2.4
22...	0	79	77	.5	12	422	391	34	13	.58
FEB 26...	0	70	71	.9	13	406	346	117	28	1.7
APR 07...	0	66	60	.7	12	338	312	57	9	2.0
27...	0	24	13	.4	8.7	176	160	338	56	.37
MAY 12...	0	34	21	.3	8.1	198	178	302	58	1.1
JUN 17...	0	55	43	.5	10	338	307	48	2	2.6
JUL 28...	0	39	26	.4	9.5	228	219	81	17	1.8
AUG 18...	0	69	77	1.0	11	434	405	21	7	3.9
SEP 15...	0	33	20	.5	8.9	225	197	245	65	1.4

## TRINITY RIVER BASIN

08065350 Trinity River near Crockett, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)	SUS- PENDE SEDI- MENT (MG/L)	SUS- PENDE SEDI- MENT DIS- CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
OCT. 23...	.54	2.4	1.7	4.8	10	1	.1	75	121	18
NOV. 18...	.13	1.2	2.7	3.4	7.2	0	.2	21	34	82
JAN. 07...	.10	1.5	2.6	1.3	9.8	2	.2	17	38	80
JAN. 22...	.04	4.9	3.6	3.1	8.0	2	.2	15	36	66
FEB. 26...	.14	3.7	1.0	2.8	12	22	.1	85	259	96
APR. 07...	.23	.71	1.7	1.2	13	3	.1	28	102	94
APR. 27...	.04	.09	.78	.38	9.0	0	.0	254	23000	82
MAY 12...	.14	.50	.60	.44	11	4	.1	--	--	--
JUNE 17...	.01	.00	.98	.56	6.2	0	.1	46	224	91
JULY 28...	.00	.01	.76	.33	3.4	2	.1	77	322	93
AUG. 18...	.38	.10	1.4	2.5	5.0	0	.1	19	37	95
SEP. 15...	.01	.02	.82	.62	3.8	2	.0	202	1250	99

DATE	TIME	DIS- SOLVED ALUM- INIUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)
OCT. 23...	0830	2	7	6	330	2	0	<10	0	0
JAN. 07...	1115	90	3	3	190	1	0	<10	0	0
APR. 07...	1100	420	6	5	140	1	1	30	0	0
JULY 28...	1120	40	6	5	90	0	0	20	0	0

DATE	DIS- SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)
OCT. 23...	0	5	5	810	30	72	0	20	60
JAN. 07...	0	2	2	780	20	9	4	10	150
APR. 07...	0	58	3	2100	740	36	16	20	190
JULY 28...	0	4	3	2600	0	9	0	10	70

DATE	DIS- SOLVED MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
OCT. 23...	20	.0	.0	24	0	0	630	80	10
JAN. 07...	20	.1	.0	10	0	0	480	10	10
APR. 07...	20	.2	.2	7	0	0	460	30	30
JULY 28...	20	.3	.2	4	0	0	440	20	20

08065350 Trinity River near Crockett, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	TOTAL PCB (UG/L)	POLY- CHLO- RINATED NAPH- THA- LENES (UG/L)	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL CHLOR- DANE (UG/L)	CHLOR- DANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDD (UG/L)	DDD IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDE (UG/L)	DDE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDT (UG/L)
OCT 23...	0830	.0	--	.00	--	.0	--	.00	--	.00	--	.00
NOV 18...	1100	--	--	ND	--	ND	--	ND	--	ND	--	ND
JAN 07...	1115	.0	.00	.00	--	.0	--	.00	--	.00	--	.00
FEB 26...	1155	--	--	ND	--	ND	--	ND	--	ND	--	ND
APR 07...	1100	.0	.00	.00	--	.0	--	.00	--	.00	--	.00
JUN 17...	1130	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND
JUL 28...	1120	--	--	--	--	--	--	--	--	--	--	--
AUG 23...	1000	--	--	ND	--	ND	--	ND	--	ND	--	ND

DATE	DDT IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DI- AZINON (UG/L)	DI- AZINON IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DI- ELDRIN (UG/L)	DI- ELDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ENDRIN (UG/L)	ENDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ETHION (UG/L)	ETHION IN BOTTOM MA- TERIAL (UG/KG)	TOTAL HEPTA- CHLOR (UG/L)	HEPTA- CHLOR IN BOTTOM MA- TERIAL (UG/KG)
OCT 23...	--	.17	--	.00	--	.00	--	.03	--	.00	--
NOV 18...	--	ND	--	ND	--	ND	--	ND	--	ND	--
JAN 07...	--	.13	--	.00	--	.00	--	.00	--	.00	--
FEB 26...	--	ND	--	ND	--	ND	--	ND	--	ND	--
APR 07...	--	.07	--	.00	--	.00	--	.00	--	.01	--
JUN 17...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JUL 28...	--	--	--	--	--	--	--	--	--	--	--
AUG 23...	--	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	TOTAL HEPTA- CHLOR EPOXIDE (UG/L)	HEPTA- CHLOR EPOXIDE IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL LINDANE (UG/L)	LINDANE IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL MALA- THION (UG/L)	MALA- THION IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL METH- OXY- CHLOR (UG/L)	METHOX- YCHLOR IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL METHYL PARA- THION (UG/L)	METHYL PARA- THION IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL METHYL TRI- THION (UG/L)
OCT 23...	.00	--	.01	--	.00	--	--	--	.00	--	.00
NOV 18...	ND	--	ND	--	ND	--	ND	--	ND	--	ND
JAN 07...	.00	--	.00	--	.02	--	--	--	.00	--	.00
FEB 26...	ND	--	ND	--	ND	--	ND	--	ND	--	ND
APR 07...	.00	--	.00	--	.00	--	--	--	.00	--	.00
JUN 17...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JUL 28...	--	--	--	--	--	--	--	--	--	--	--
AUG 23...	ND	--	ND	--	ND	--	ND	--	ND	--	ND

DATE	METHYL TRI- THION IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL PARA- THION (UG/L)	PARA- THION IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL TOX- APHENE (UG/L)	TOX- APHENE IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	TRI- THION IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL ATRA- ZINE (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)
OCT 23...	--	.00	--	0	--	.00	--	--	.68	.05	.00
NOV 18...	--	ND	--	ND	--	ND	--	ND	ND	ND	ND
JAN 07...	--	--	--	0	--	--	--	--	.00	.04	.00
FEB 26...	--	ND	--	ND	--	ND	--	ND	ND	ND	ND
APR 07...	--	.00	--	0	--	.00	--	--	.00	.00	.00
JUN 17...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JUL 28...	--	--	--	--	--	--	--	--	.00	.03	.00
AUG 23...	--	ND	--	ND	--	ND	--	ND	ND	ND	ND



## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

## PERIPHYTON

Date	Length of exposure (days)	Biomass (g/m <sup>2</sup> )		Chlorophyll <sup>a</sup> (mg/m <sup>2</sup> )	Chlorophyll <sup>b</sup> (mg/m <sup>2</sup> )	Biomass pigment ratio	Sampling method
NOV. 18	26	Dry weight	Ash weight	0.0	0.0	2500	Polyethylene strip
OCT. 23, 1975 0830 HOURS				NOV. 18, 1975 1100 HOURS			
PHYTOPLANKTON 13,000 CELLS/ML				PHYTOPLANKTON 41,000 CELLS/ML			
_ORGANISM_NAME		CELLS/ML	PER_CENT	_ORGANISM_NAME		CELLS/ML	PER_CENT
CHLOROPHYTA							
.CHLOROPHYCEAE							
..CHLOROCOCCALES							
...COELASTRACEAE							
...COELASTRUM							
...HYDRODICTYACEAE							
...PEDIASTRUM							
...MICRACTINIACEAE							
...MICRACTINIUM							
...OCCYSTACEAE							
...ANKISTRODESMUS							
...DICTYOSPHAERIUM							
...KIRCHNERIELLA							
...TETRAEDRON							
...SCENEDESMACEAE							
...ACTINASTRUM							
...CRUCIGENIA							
...SCENEDESMUS							
...TETRASPORALES							
...PALMELLACEAE							
...GLOEOCYSTIS							
CHRYSTOPHYTA							
.BACILLARIOPHYCEAE							
..CENTRALES							
...COSCINODISCAEAE							
...CYCLOTELLA							
...MELOSIRA							
...PENNALES							
...GOMPHONEMACEAE							
...GOMPHONEMA							
...NAVICULACEAE							
...NAVICULA							
...NITZSCHIAEAE							
...NITZSCHIA							
CYANOPHYTA							
.MYXOPHYCEAE							
..CHROOCOCCALES							
...CHROOCOCCACEAE							
...AGMENELLUM							
...ANACYSTIS							
...OSCILLATORIALES							
...OSCILLATORIAEAE							
...OSCILLATORIA							
EUGLENOPHYTA							
.EUGLENOPHYCEAE							
..EUGLENALES							
...EUGLENACEAE							
...PHACUS							
...TRACHELOMONAS							
CHLOROPHYTA							
.CHLOROPHYCEAE							
..CHLOROCOCCALES							
...HYDRODICTYACEAE							
...PEDIASTRUM							
...MICRACTINIACEAE							
...MICRACTINIUM							
...OCCYSTACEAE							
...ANKISTRODESMUS							
...DICTYOSPHAERIUM							
...KIRCHNERIELLA							
...TETRAEDRON							
...SCENEDESMACEAE							
...ACTINASTRUM							
...CRUCIGENIA							
...SCENEDESMUS							
...TETRASPORALES							
...PALMELLACEAE							
...GLOEOCYSTIS							
CHRYSTOPHYTA							
.BACILLARIOPHYCEAE							
..CENTRALES							
...COSCINODISCAEAE							
...CYCLOTELLA							
...MELOSIRA							
...PENNALES							
...NITZSCHIAEAE							
...NITZSCHIA							
...XANTHOPHYCEAE							
...HETEROCOCCALES							
...CHLOROTHECIACEAE							
...OPHIOCYTIUM							
CYANOPHYTA							
.MYXOPHYCEAE							
..CHROOCOCCALES							
...CHROOCOCCACEAE							
...AGMENELLUM							
...ANACYSTIS							
...OSCILLATORIALES							
...OSCILLATORIAEAE							
...LYNGBYA							
EUGLENOPHYTA							
.EUGLENOPHYCEAE							
..EUGLENALES							
...EUGLENACEAE							
...EUGLENA							

08065350 Trinity River near Crockett, Tex.--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

JAN. 7, 1976 1115 HOURS

PHYTOPLANKTON 690 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...OCCYSTACEAE		
....ANKISTRODESMUS		0
....CHODATELLA	24	3
....SCENEDESMACEAE		
....SCENEDESMUS	95	14
...VOLVOCALES		
...CHLAMYDOMONADACEAE		
...CHLAMYDOMONAS	71	10
CHRYSTOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCAEAE		
....CYCLOTELLA	120	17
....MELOSIRA	210	31
..PENNALES		
...NAVICULACEAE		
....GYROSIGMA		0
....NAVICULA	71	10
...NITZSCHIAEAE		
....NITZSCHIA	71	10
....SURIPELLACEAE		
....SURIPELLA	24	3

JAN. 22, 1976 1345 HOURS

PHYTOPLANKTON 85,000 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...OCCYSTACEAE		
....ANKISTRODESMUS	46,000	54
....DICTYOSPHAERIUM	4,700	6
....OOCYSTIS	4,700	6
....SCENEDESMACEAE		
....ACTINASTRUM	4,700	6
....SCENEDESMUS	5,900	7
CHRYSTOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCAEAE		
....CYCLOTELLA	8,200	10
..PENNALES		
...FRAGILARIACEAE		
....SYNEDRA	3,500	4
...NAVICULACEAE		
....NAVICULA	1,200	1
...NITZSCHIAEAE		
....NITZSCHIA	5,900	7
....SURIPELLACEAE		
....SURIPELLA		0

FEB. 26, 1976 1155 HOURS

PHYTOPLANKTON 3,900 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...CHARACIACEAE		
....SCHROEDERIA	32	1
...OCCYSTACEAE		
....ANKISTRODESMUS	230	6
....DICTYOSPHAERIUM		0
....SCENEDESMACEAE		
....ACTINASTRUM		0
....SCENEDESMUS	190	5
CHRYSTOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCAEAE		
....CYCLOTELLA	97	2
....MELOSIRA	65	2
..PENNALES		
...CYMBELLACEAE		
....CYMBELLA		0
....EPITHEMIA		0
...FRAGILARIACEAE		
....SYNEDRA	65	2
...GOMPHONEMATACEAE		
....GOMPHONEMA	97	2
...NAVICULACEAE		
....DIPLONEIS		0
....GYROSIGMA		0
....NAVICULA	130	3
...NITZSCHIAEAE		
....NITZSCHIA	420	11
....SURIPELLACEAE		
....SURIPELLA		0
CYANOPHYTA		
..MYXOPHYCEAE		
...OSCILLATORIALES		
...NOSTOCACEAE		
....ANABAENA		0
...OSCILLATORIAEAE		
....OSCILLATORIA	2,600	65
EUGLENOPHYTA		
..EUGLENOPHYCEAE		
...EUGLENALES		
....EUGLENACEAE		
....PHACUS		0
....TRACHELOMONAS	32	1

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

APR. 7, 1976 1100 HOURS

PHYTOPLANKTON 2,100 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...OCCYSTACEAE		
....ANKISTRODESMUS	710	33
....DICTYOSPHAERIUM		0
....OOCYSTIS	180	8
....TETRAEDRON		0
....SCENEDESMACEAE		
....SCENEDESMUS	180	8
....TETRASTRUM		0
..VOLVOCALES		
...CHLAMYDOMONADACEAE		
...CHLAMYDOMONAS	45	2
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
....CYCLOTELLA	220	10
....MELOSIRA	270	12
..PENNALES		
...CYMBELLACEAE		
...CYMBELLA	45	2
...NITZSCHACEAE		
...NITZSCHIA	450	21
CYANOPHYTA		
..MYXOPHYCEAE		
...OSCILLATORIALES		
...OSCILLATORIAEAE		
...OSCILLATORIA		0
EUGLENOPHYTA		
..EUGLENOPHYCEAE		
..EUGLENALES		
...EUGLENACEAE		
....EUGLENA	45	2
....TRACHELOMONAS		0

MAY 12, 1976 1020 HOURS

PHYTOPLANKTON 3,800 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...HYDRODICTYACEAE		
....PEDIASTRUM	570	15
...OCCYSTACEAE		
....ANKISTRODESMUS	390	10
....DICTYOSPHAERIUM	500	13
....TETRAEDRON	35	1
....SCENEDESMACEAE		
....CRUCIGENIA	280	7
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
....CYCLOTELLA	280	7
....MELOSIRA	71	2
..PENNALES		
...FRAGILARIACEAE		
...SYNEDRA	35	1
...GOMPHONEMATACEAE		
...GOMPHONEMA		0
...NAVICULACEAE		
...NAVICULA	71	2
...NITZSCHACEAE		
...NITZSCHIA	710	19
CYANOPHYTA		
..MYXOPHYCEAE		
...CHROOCOCCALES		
...CHROOCOCCACEAE		
....AGMENELLUM	280	7
...OSCILLATORIALES		
...NOSTOCACEAE		
....ANABAENA	390	10
...OSCILLATORIAEAE		
...OSCILLATORIA	140	4
EUGLENOPHYTA		
..EUGLENOPHYCEAE		
..EUGLENALES		
...EUGLENACEAE		
....EUGLENA	35	1

JUNE 17, 1976 1130 HOURS

PHYTOPLANKTON 7,800 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...HYDRODICTYACEAE		
....PEDIASTRUM	270	3
...MICRACTINIACEAE		
...MICRACTINIUM	670	9
...OCCYSTACEAE		
....ANKISTRODESMUS	270	3
....DICTYOSPHAERIUM	1,300	17
....KIRCHNERIELLA	100	1
....OOCYSTIS	270	3
...SCENEDESMACEAE		
...ACTINASTRUM	1,500	19
...CRUCIGENIA	270	3
...SCENEDESMUS	940	12
...TETRASTRUM	330	4
..VOLVOCALES		
...CHLAMYDOMONADACEAE		
...CHLAMYDOMONAS		0
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
....CYCLOTELLA	470	6
....MELOSIRA	740	9
..PENNALES		
...NITZSCHACEAE		
...NITZSCHIA	400	5
CYANOPHYTA		
..MYXOPHYCEAE		
...CHROOCOCCALES		
...CHROOCOCCACEAE		
....ANACYSTIS	130	2
EUGLENOPHYTA		
..EUGLENOPHYCEAE		
..EUGLENALES		
...EUGLENACEAE		
....PHACUS		0
....TRACHELOMONAS	67	1

JULY 28, 1976 1120 HOURS

PHYTOPLANKTON 6,200 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...OCCYSTACEAE		
....ANKISTRODESMUS	67	1
....SELENASTRUM	34	1
...SCENEDESMACEAE		
...SCENEDESMUS	340	5
..TETRASPORALES		
...COCCOMYXACEAE		
....ELAKATOTHRIX	34	1
..VOLVOCALES		
...CHLAMYDOMONADACEAE		
...CHLAMYDOMONAS		0
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
....MELOSIRA	830	13
..PENNALES		
...NITZSCHACEAE		
...NITZSCHIA	240	4
CYANOPHYTA		
..MYXOPHYCEAE		
...OSCILLATORIALES		
...NOSTOCACEAE		
....ANABAENA	390	6
...APHANIZOMENON	710	12
...OSCILLATORIAEAE		
...OSCILLATORIA	3,000	49
...RIVULARIACEAE		
...RAPHIIDIOPSIS	510	8

## TRINITY RIVER BASIN

523

08065350 Trinity River near Crockett, Tex.--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

AUG. 18, 1976 1000 HOURS

SEP. 15, 1976 0830 HOURS

PHYTOPLANKTON 53,000 CELLS/ML

PHYTOPLANKTON 4,100 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT	ORGANISM NAME	CELLS/ML	PER_CENT
CHLOROPHYTA			CHLOROPHYTA		
..CHLOROPHYCEAE			..CHLOROPHYCEAE		
..CHLOROCOCCALES			..CHLOROCOCCALES		
..COELASTRACEAE			..OCCYSTACEAE		
..COELASTRUM	1,800	3	..DICTYOSPHAERIUM		0
..HYDRODICTYACEAE			..SCENEDESMACEAE		
..PEDIASTRUM	2,100	4	..ACTINASTRUM		0
..MIRACTINIACEAE			..VOLVOCALES		
..GOLENKINIA		0	..CHLAMYDOMONADACEAE		
..MIRACTINIUM	1,500	3	..CHLAMYDOMONAS	140	3
..OCCYSTACEAE			..PHACOTACEAE		
..TETRAEDRON	1,200	2	..PHACOTUS	69	2
..SCENEDESMACEAE			CHRYSPHYTA		
..CRUCIGENIA	1,200	2	..BACILLARIOPHYCEAE		
..SCENEDESMUS	600	1	..CENTRALES		
..VOLVOCALES			..COSCINODISCACEAE		
..CHLAMYDOMONADACEAE			..MELOSIRA	280	7
..CHLAMYDOMONAS		0	..PENNALES		
CHRYSPHYTA			..NITZSCHACEAE		
..BACILLARIOPHYCEAE			..NITZSCHIA	140	3
..CENTRALES			CYANOPHYTA		
..COSCINODISCACEAE			..MYXOPHYCEAE		
..CYCLOTELLA	300	1	..CHROOCOCCALES		
..MELOSIRA	1,000	2	..CHROOCOCCACEAE		
..PENNALES			..ANACYSTIS		0
..FRAGILARIACEAE			..OSCILLATORIALES		
..ASTERIONELLA	750	1	..OSCILLATORIA		
..NITZSCHACEAE			..OSCILLATORIA	3,400	83
..NITZSCHIA	450	1	EUGLENOPHYTA		
CYANOPHYTA			..EUGLENOPHYCEAE		
..MYXOPHYCEAE			..EUGLENES		
..CHROOCOCCALES			..EUGLENACEAE		
..CHROOCOCCACEAE			..TRACHELOMONAS	69	2
..ANACYSTIS	1,200	2			
..OSCILLATORIALES					
..OSCILLATORIA					
..LYNGBYA	15,000	28			
..OSCILLATORIA	25,000	48			

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	26451	724	380	27400	74	5260	74	5260	150
NOV. 1975.....	22938	769	410	25200	80	4950	80	4960	150
DEC. 1975.....	28725	790	420	32500	83	6410	81	6310	150
JAN. 1976.....	32338	707	370	32600	71	6230	74	6480	150
FEB. 1976.....	30490	615	330	26800	59	4850	64	5230	150
MAR. 1976.....	78463	512	270	57100	45	9480	52	11000	140
APR. 1976.....	297688	317	170	135000	22	17900	28	22700	110
MAY 1976.....	416870	321	170	191000	21	23800	29	32300	110
JUNE 1976.....	348490	298	160	149000	20	18600	26	24500	100
JULY 1976.....	159160	366	190	83500	25	10900	34	14700	130
AUG. 1976.....	26758	748	400	28600	77	5560	77	5570	150
SEPT 1976.....	111276	399	210	63700	31	9240	38	11400	140
TOTAL .....	1579647	**	**	852000	**	123000	**	150000	**
WTD.AVG. ....	4327.8	377	200	**	29	**	35	**	130

## TRINITY RIVER BASIN

08065350 Trinity River near Crockett, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	735	684	712	668	629	649	822	808	813	861	826	838
2	776	710	749	726	671	701	820	803	809	829	804	815
3	824	778	798	768	729	751	807	786	799	806	600	710
4	834	802	822	770	753	764	785	758	774	597	587	591
5	800	728	764	755	746	749	797	755	769	602	590	595
6	740	717	724	755	741	747	837	801	819	615	581	600
7	770	741	749	771	746	763	837	804	822	---	---	598
8	784	772	779	813	769	792	829	806	817	---	---	602
9	---	---	788	814	809	812	857	841	851	---	---	595
10	---	---	796	857	814	842	842	826	836	---	---	590
11	---	---	805	857	817	842	825	802	810	---	---	593
12	---	---	814	818	807	811	831	810	823	598	590	592
13	---	---	823	828	817	825	833	826	830	637	598	621
14	---	---	829	824	808	816	827	805	818	663	635	648
15	---	---	835	822	807	812	804	782	789	696	659	669
16	842	838	840	835	822	829	783	701	781	736	699	717
17	839	836	838	820	738	779	762	613	722	764	738	748
18	866	837	848	738	665	732	720	612	690	778	762	771
19	882	867	874	661	628	641	770	722	750	768	755	760
20	897	883	890	782	665	724	785	702	766	774	754	767
21	897	886	893	804	784	799	796	712	789	755	727	747
22	898	874	878	796	744	768	789	702	772	750	730	739
23	900	880	893	754	719	740	781	700	774	783	752	768
24	881	820	846	725	718	722	774	761	768	782	752	766
25	873	759	829	752	719	725	764	752	759	714	644	677
26	737	540	598	775	753	765	750	730	739	707	671	695
27	572	448	506	777	772	775	739	730	734	771	709	746
28	594	484	553	781	768	771	739	730	734	778	765	775
29	597	544	562	820	782	805	739	730	735	850	769	810
30	585	543	563	823	807	814	925	730	828	856	767	829
31	627	586	609	---	---	---	920	865	888	763	540	631
MONTH	---	---	768	857	628	769	925	612	787	861	540	697

DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	541	523	533	768	761	766	536	488	513	279	271	274
2	573	529	543	772	763	768	559	518	545	277	273	275
3	637	574	592	770	688	736	581	512	541	273	263	268
4	682	637	658	734	683	703	673	586	643	281	263	270
5	742	685	712	755	731	745	654	536	582	316	281	300
6	778	745	765	769	721	751	562	535	537	363	---	330
7	778	757	767	706	---	500	607	564	592	---	---	350
8	760	751	754	---	---	400	614	574	599	---	---	340
9	772	760	767	---	---	300	570	529	545	---	---	320
10	772	764	768	686	---	500	535	493	504	353	---	310
11	763	745	757	750	341	627	530	248	461	348	308	330
12	755	736	741	366	329	339	586	575	580	---	---	340
13	768	756	765	523	369	418	673	589	622	---	---	340
14	783	768	778	702	531	643	738	680	710	---	---	350
15	798	777	786	701	650	687	782	742	764	---	---	360
16	809	799	804	643	499	557	781	750	767	---	---	340
17	811	---	800	495	468	479	748	686	713	---	---	330
18	---	---	700	484	467	474	732	668	685	---	---	340
19	---	---	610	521	485	500	769	717	745	---	---	370
20	---	---	375	562	522	539	766	471	578	417	414	416
21	---	---	300	615	564	591	444	281	342	444	418	432
22	---	---	375	660	620	641	266	232	242	463	445	453
23	---	---	450	691	660	676	273	258	266	493	464	476
24	---	---	525	696	661	686	268	---	270	536	494	516
25	639	576	608	658	546	649	280	268	274	556	538	550
26	695	643	668	585	419	528	282	279	280	614	555	580
27	748	698	723	564	411	489	284	280	282	672	292	536
28	779	749	766	553	401	478	292	283	287	628	299	442
29	781	767	774	451	373	402	291	279	282	383	278	337
30	---	---	---	478	452	470	285	279	282	306	271	282
31	---	---	---	490	471	479	---	---	---	357	309	330
MONTH	---	---	661	772	329	565	782	232	501	---	---	371

08065350 Trinity River near Crockett, Tex.--Continued

## SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	285	273	279	339	284	296	544	510	527	855	822	833
2	314	277	296	369	341	353	601	548	573	922	841	872
3	284	234	259	410	372	397	634	602	621	900	798	847
4	289	247	268	417	398	408	662	635	650	854	363	599
5	283	245	261	450	421	430	696	655	660	356	282	319
6	318	284	302	684	289	498	731	697	713	301	269	284
7	344	320	333	303	253	287	737	729	734	287	268	276
8	365	346	356	348	306	330	745	731	740	330	288	310
9	389	364	377	322	292	307	732	690	710	356	332	341
10	405	389	398	403	325	354	690	625	658	384	358	371
11	406	398	404	437	372	412	700	625	653	393	385	389
12	417	399	407	368	350	361	740	702	724	386	333	357
13	454	417	435	351	328	344	754	740	746	340	331	336
14	493	457	477	374	313	331	788	759	772	365	332	350
15	536	494	512	392	328	371	791	786	789	375	350	363
16	573	538	557	438	330	400	807	788	796	411	375	392
17	602	572	576	472	399	446	799	763	773	439	411	425
18	610	590	601	409	400	405	790	766	776	472	439	457
19	595	364	482	---	---	390	767	754	760	492	474	484
20	412	278	351	---	---	370	848	770	813	545	492	519
21	406	231	309	---	---	350	849	838	843	558	510	531
22	222	199	205	---	---	350	846	825	836	685	561	621
23	292	220	269	---	---	370	844	827	834	664	563	605
24	274	258	263	421	364	400	851	830	843	824	610	728
25	313	265	287	359	350	355	834	822	827	828	529	610
26	369	217	326	370	355	360	846	814	827	530	464	508
27	225	172	197	400	374	387	879	851	865	563	460	523
28	241	175	210	422	400	411	907	878	899	552	412	484
29	249	227	238	449	424	436	903	855	872	452	411	438
30	281	249	263	479	452	465	854	840	846	447	427	437
31	---	---	---	510	478	496	978	847	903	---	---	---
MONTH	610	172	350	684	253	383	978	510	761	922	268	487

## PH (UNITS), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	8.0	7.8	7.8	7.1	7.1	7.1	7.5	7.3	7.5	7.5	7.4	7.5
2	8.1	7.7	7.9	7.2	7.1	7.2	7.3	7.3	7.3	7.4	7.3	7.4
3	8.4	7.9	8.1	7.2	7.2	7.2	7.6	7.3	7.4	7.3	7.2	7.2
4	8.3	7.9	8.1	7.2	7.2	7.2	7.5	7.3	7.4	7.3	7.3	7.3
5	8.3	7.9	8.1	7.3	7.1	7.2	---	7.4	7.4	7.3	7.2	7.3
6	8.6	8.0	8.3	7.3	7.2	7.3	7.5	7.4	7.4	7.3	7.3	7.3
7	8.5	8.0	8.3	7.3	7.2	7.3	---	7.3	7.4	---	---	7.3
8	8.1	7.8	7.9	7.3	7.3	7.3	7.3	7.3	7.3	---	---	7.3
9	---	---	7.8	7.4	7.3	7.3	7.3	7.2	7.3	---	---	7.3
10	---	---	7.7	7.4	7.3	7.3	7.5	7.2	7.3	---	---	7.3
11	---	---	7.8	7.4	7.3	7.3	7.5	7.3	7.4	---	---	7.3
12	---	---	7.6	7.4	7.2	7.4	7.5	7.3	7.4	7.3	7.3	7.3
13	---	---	7.7	7.3	7.3	7.3	7.4	7.3	7.4	7.3	7.3	7.3
14	---	---	7.6	7.3	7.2	7.3	7.5	7.3	7.4	7.3	7.2	7.3
15	---	---	7.6	7.3	7.2	7.2	7.3	7.2	7.3	7.5	7.2	7.3
16	7.6	7.3	7.5	7.3	7.2	7.3	7.3	7.0	7.2	7.5	7.3	7.4
17	7.6	7.4	7.5	7.3	7.2	7.3	7.3	7.2	7.2	7.5	7.3	7.4
18	7.7	7.5	7.6	7.3	7.2	7.2	7.2	7.2	7.2	7.4	7.3	7.4
19	7.6	7.5	7.6	7.3	7.2	7.2	7.2	---	7.2	7.5	7.3	7.4
20	7.6	7.5	7.5	7.4	7.3	7.3	7.2	7.2	7.2	7.3	7.2	7.3
21	7.6	7.5	7.5	7.4	7.3	7.3	7.3	7.2	7.3	7.3	7.0	7.2
22	7.5	7.4	7.5	7.3	7.3	7.3	7.3	7.3	7.3	7.6	7.3	7.4
23	7.7	7.5	7.6	7.3	7.2	7.3	7.4	7.3	7.3	7.8	7.3	7.5
24	7.6	7.5	7.6	7.3	7.2	7.2	7.4	7.3	7.3	7.7	7.6	7.6
25	7.5	7.2	7.4	7.3	7.3	7.3	7.3	7.3	7.3	7.6	---	7.4
26	7.2	7.0	7.1	8.5	7.3	7.4	7.3	7.3	7.3	7.4	7.3	7.3
27	7.1	7.0	7.1	7.4	7.3	7.4	7.4	7.3	7.3	7.4	7.3	7.3
28	7.1	7.0	7.0	7.6	7.3	7.4	7.4	7.3	7.3	7.6	7.3	7.3
29	7.1	7.0	7.1	7.7	7.6	7.7	7.4	7.3	7.3	8.3	7.4	7.7
30	7.1	7.0	7.1	7.7	7.5	7.6	7.5	7.3	7.4	8.5	7.5	7.8
31	7.1	7.0	7.1	---	---	---	7.5	7.4	7.5	7.7	7.4	7.6
MONTH	---	---	7.6	8.5	7.1	7.3	7.6	7.0	7.3	8.5	7.0	7.4



## TRINITY RIVER BASIN

08065350 Trinity River near Crockett, Tex.--Continued

PH (UNITS), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	7.5	7.2	7.4	7.4	7.4	7.4	7.3	7.2	7.3	7.4	7.3	7.3
2	7.6	7.2	7.4	7.4	7.4	7.4	7.3	7.2	7.3	7.4	7.3	7.3
3	7.5	7.3	7.3	7.4	7.3	7.4	7.3	7.3	7.3	7.4	7.3	7.3
4	7.6	7.3	7.4	7.4	7.3	7.4	7.4	7.3	7.4	7.3	7.2	7.3
5	7.5	7.3	7.4	7.5	7.4	7.4	7.4	7.3	7.3	7.3	7.2	7.2
6	7.5	7.5	7.5	7.5	7.4	7.4	7.3	7.2	7.3	7.3	7.1	7.2
7	7.5	7.5	7.5	7.4	---	7.4	7.3	7.3	7.3	7.3	7.1	7.2
8	7.6	7.5	7.5	---	---	7.5	7.4	7.3	7.3	7.3	7.2	7.2
9	7.6	7.5	7.6	---	---	7.4	7.3	7.2	7.3	7.4	7.3	7.3
10	7.5	7.5	7.5	7.4	---	7.5	7.3	7.3	7.3	7.4	7.3	7.4
11	7.5	7.4	7.5	7.7	7.4	7.5	7.4	7.3	7.3	7.5	7.4	7.4
12	7.5	7.4	7.4	7.5	7.4	7.4	7.4	7.4	7.4	---	---	7.4
13	7.5	7.5	7.5	7.4	7.4	7.4	7.4	7.4	7.4	---	---	7.4
14	7.5	7.5	7.5	7.4	7.4	7.4	7.4	7.4	7.4	---	---	7.3
15	7.5	7.4	7.4	7.4	7.3	7.4	7.5	7.4	7.5	---	---	7.3
16	7.4	7.4	7.4	7.4	7.3	7.3	7.5	7.4	7.5	---	---	7.4
17	7.4	---	7.4	7.4	7.3	7.3	7.5	7.4	7.5	---	---	7.4
18	---	---	7.5	7.3	7.2	7.3	7.4	7.4	7.4	---	---	7.4
19	---	---	7.4	7.3	7.2	7.3	7.4	7.3	7.3	---	---	7.4
20	---	---	7.4	7.3	7.2	7.2	7.3	7.2	7.2	7.5	7.4	7.5
21	---	---	7.5	7.3	7.2	7.3	7.5	7.3	7.4	7.5	7.5	7.5
22	---	---	7.4	7.3	7.2	7.3	7.6	7.5	7.5	7.5	7.5	7.5
23	---	---	7.5	7.3	7.2	7.2	7.6	7.5	7.5	7.5	7.5	7.5
24	---	---	7.4	7.3	7.2	7.3	7.5	7.5	7.5	7.6	7.5	7.5
25	7.5	7.4	7.5	7.3	7.2	7.2	7.5	7.4	7.4	7.6	7.5	7.5
26	7.5	7.2	7.4	7.3	7.2	7.2	7.4	7.4	7.4	7.6	7.5	7.5
27	7.4	7.4	7.4	7.3	7.2	7.3	7.4	7.4	7.4	7.8	7.3	7.5
28	7.5	7.4	7.5	7.4	7.3	7.4	7.4	7.4	7.4	7.7	7.3	7.5
29	7.5	7.5	7.5	7.4	7.3	7.4	7.4	7.4	7.4	7.8	7.4	7.5
30	---	---	---	7.4	7.4	7.4	7.4	7.3	7.4	7.8	7.7	7.8
31	---	---	---	7.4	7.3	7.3	---	---	---	7.6	7.4	7.5
MONTH	---	---	7.4	7.7	7.2	7.4	7.6	7.2	7.4	---	---	7.4
DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	7.5	7.5	7.5	7.7	7.6	7.6	8.8	8.6	8.7	7.8	7.5	7.6
2	7.5	7.5	7.5	7.7	7.6	7.6	8.7	8.4	8.6	7.8	7.7	7.7
3	7.7	7.5	7.6	7.7	7.6	7.7	8.5	8.1	8.3	7.7	7.5	7.6
4	7.7	7.5	7.6	7.7	7.7	7.7	8.9	8.5	8.6	7.4	7.2	7.3
5	7.7	7.5	7.6	7.7	7.7	7.7	8.9	8.7	8.8	7.5	7.4	7.5
6	7.5	7.5	7.5	7.8	7.4	7.6	8.7	8.2	8.5	7.5	7.4	7.5
7	7.5	7.5	7.5	7.9	7.7	7.8	8.5	8.2	8.3	7.4	7.4	7.4
8	7.5	7.5	7.5	7.8	7.6	7.7	8.4	8.1	8.3	7.4	7.4	7.4
9	7.5	7.5	7.5	7.8	7.5	7.7	8.3	8.0	8.1	7.4	7.3	7.4
10	7.6	7.5	7.6	7.6	7.5	7.6	8.4	8.0	8.2	7.4	7.3	7.4
11	7.7	7.6	7.7	7.7	7.5	7.5	8.4	8.0	8.2	7.6	7.4	7.5
12	7.7	7.7	7.7	7.7	7.6	7.7	8.4	7.9	8.2	7.7	7.6	7.6
13	7.7	7.7	7.7	7.7	7.6	7.7	8.2	7.8	8.0	7.7	7.6	7.6
14	7.7	7.7	7.7	7.7	7.7	7.7	8.2	7.8	8.0	7.7	7.6	7.7
15	7.8	7.7	7.8	7.7	7.6	7.7	7.9	7.8	7.8	7.7	7.6	7.7
16	7.9	7.8	7.8	7.7	7.6	7.7	7.8	7.7	7.7	7.7	7.6	7.6
17	8.2	7.8	7.9	7.6	7.3	7.4	8.3	7.7	7.7	7.7	7.6	7.7
18	8.1	8.0	8.0	7.6	7.5	7.5	8.2	7.9	8.1	7.7	7.6	7.7
19	8.0	7.5	7.8	---	---	7.5	8.5	8.0	8.2	7.7	7.6	7.7
20	7.8	7.5	7.7	---	---	7.4	8.2	7.7	7.8	7.7	7.7	7.7
21	7.9	7.6	7.7	---	---	7.5	8.1	7.7	7.9	7.7	7.6	7.7
22	7.9	7.8	7.9	---	---	7.5	8.3	7.8	8.0	7.8	7.7	7.8
23	7.7	7.5	7.6	---	---	7.4	8.2	7.9	7.9	7.8	7.7	7.7
24	7.6	7.4	7.5	7.5	7.3	7.4	8.3	7.8	7.9	7.7	7.2	7.4
25	7.6	7.4	7.5	7.6	7.5	7.6	8.4	8.0	8.2	7.3	7.1	7.2
26	7.9	7.6	7.7	7.6	7.6	7.6	8.4	8.1	8.2	7.4	7.1	7.2
27	8.0	7.9	7.9	7.7	---	7.7	8.3	7.9	8.1	7.4	7.1	7.2
28	7.9	7.6	7.7	7.7	---	7.7	8.2	7.8	8.0	7.3	7.1	7.2
29	7.7	7.6	7.7	7.8	7.7	7.7	8.1	7.9	8.0	7.3	7.3	7.3
30	7.7	7.6	7.6	8.0	7.8	7.9	7.9	7.7	7.8	7.5	7.2	7.3
31	---	---	---	8.8	7.9	8.3	7.7	7.6	7.6	---	---	---
MONTH	8.2	7.4	7.7	8.8	---	7.6	8.9	7.6	8.1	7.8	7.1	7.5

## TRINITY RIVER BASIN

527

08065350 Trinity River near Crockett, Tex.--Continued

## TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	24.0	22.5	22.5	21.0	20.0	20.0	13.0	12.0	13.0	10.0	9.0	9.5
2	23.5	22.0	22.5	20.5	20.5	20.5	12.5	11.5	12.0	10.5	10.0	10.0
3	23.0	21.5	22.0	21.5	20.5	20.5	12.5	11.5	12.0	10.0	9.0	9.5
4	22.5	20.5	21.5	21.0	20.0	20.5	12.5	11.5	12.0	9.0	8.0	8.5
5	22.5	20.0	21.0	20.5	20.0	20.0	13.5	12.5	13.0	8.0	7.5	8.0
6	22.0	20.0	21.0	20.5	20.0	20.0	14.0	13.5	14.0	8.5	8.0	8.0
7	22.0	20.0	21.0	20.5	19.5	20.0	13.5	13.0	13.5	---	---	8.0
8	21.5	20.5	21.0	21.0	20.0	20.5	13.5	13.0	13.0	---	---	7.5
9	---	---	20.0	21.5	20.5	21.0	13.0	12.5	12.5	---	---	7.0
10	---	---	20.0	21.0	20.0	20.5	13.0	12.0	12.5	---	---	7.5
11	---	---	22.0	20.5	19.5	20.0	13.5	12.5	13.0	---	---	8.0
12	---	---	22.0	19.5	18.0	19.5	14.0	13.0	13.5	9.0	8.5	8.5
13	---	---	21.0	17.5	16.0	17.0	15.0	10.5	14.0	10.5	9.0	10.0
14	---	---	22.0	16.5	15.5	16.0	16.0	15.0	15.5	11.0	10.0	10.5
15	---	---	24.0	16.0	15.0	15.5	16.0	15.0	15.5	10.5	10.0	10.0
16	25.0	24.0	24.5	16.5	15.0	15.5	15.0	10.0	14.5	10.5	9.5	10.0
17	24.5	23.0	24.0	16.5	15.5	16.0	14.0	12.5	13.5	10.5	9.5	10.0
18	23.5	22.0	22.5	17.0	16.0	16.0	12.5	11.0	12.0	10.5	9.5	10.0
19	22.5	21.0	21.5	18.0	16.5	17.0	11.0	10.0	10.5	11.0	10.0	10.5
20	22.0	20.5	21.0	17.0	16.0	16.5	10.5	5.5	9.5	11.0	10.5	10.5
21	21.5	20.5	21.0	16.0	14.5	15.0	10.0	5.0	9.5	10.5	10.0	10.0
22	21.5	20.5	20.5	14.5	13.0	14.0	9.5	5.0	8.5	11.0	9.5	10.0
23	22.0	20.5	21.0	13.5	12.0	12.5	9.5	5.0	9.0	11.0	10.0	10.5
24	22.0	21.5	22.0	13.0	11.5	12.0	9.0	5.0	8.0	12.0	10.5	11.5
25	22.0	20.0	21.0	12.0	11.0	11.5	9.0	8.5	8.5	14.5	12.0	13.0
26	20.0	19.0	19.5	11.5	10.5	11.5	8.0	6.5	7.0	12.5	11.0	12.0
27	19.0	18.5	18.5	11.0	10.0	10.5	7.0	6.5	7.0	11.0	10.0	10.5
28	19.5	18.5	19.0	11.5	10.5	11.0	7.0	6.5	7.0	10.5	9.5	10.0
29	20.5	19.5	20.0	13.5	11.5	12.5	7.0	6.5	6.5	11.0	9.5	10.0
30	20.5	19.5	20.0	14.0	13.0	13.5	9.0	6.5	8.0	11.5	9.5	10.5
31	20.5	19.5	20.0	---	---	---	9.5	8.5	9.0	10.5	10.5	10.5
MONTH	---	---	21.5	21.5	10.0	16.5	16.0	5.0	11.0	14.5	7.5	9.5

DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	11.0	9.5	10.0	18.5	17.0	17.5	19.0	17.5	18.0	19.5	19.0	19.0
2	11.0	9.5	10.0	19.5	18.0	19.0	19.0	18.0	18.5	19.5	18.5	19.0
3	11.0	10.0	10.0	20.5	19.0	19.5	18.5	18.5	18.5	20.0	19.0	19.5
4	12.5	11.0	11.5	21.0	20.0	20.5	19.0	18.5	19.0	20.5	20.0	20.0
5	12.5	11.0	11.5	20.0	18.5	19.5	19.0	19.0	19.0	20.5	20.5	20.5
6	12.0	11.0	11.5	18.5	17.0	18.0	20.0	19.0	19.0	22.0	20.5	21.0
7	11.0	10.0	10.5	17.0	16.0	16.5	19.5	19.0	19.5	22.0	18.0	20.0
8	11.5	9.5	10.5	16.0	15.0	15.5	20.0	18.5	19.5	22.5	16.0	19.0
9	12.0	10.5	11.0	15.0	14.0	14.5	21.0	19.0	20.0	25.0	16.0	20.5
10	13.5	12.0	12.5	14.0	13.0	13.5	21.0	19.5	20.0	26.5	19.5	22.0
11	14.5	13.5	14.0	14.0	12.5	13.5	22.0	20.0	21.0	21.5	21.0	21.0
12	15.5	14.0	14.5	14.0	12.5	13.5	23.0	19.5	21.0	---	---	21.0
13	16.0	14.5	15.5	14.0	13.0	13.5	22.0	21.0	21.5	---	---	20.5
14	16.5	15.5	16.0	13.5	13.0	13.5	22.5	21.5	22.0	---	---	21.0
15	17.5	16.5	17.0	14.5	13.5	14.0	22.5	22.0	22.0	---	---	21.5
16	18.0	17.0	17.5	15.0	14.0	14.5	22.0	21.5	21.5	---	---	21.5
17	18.0	---	17.5	14.5	13.5	14.0	22.5	21.0	21.5	---	---	22.0
18	---	---	17.5	15.0	13.5	14.5	22.0	21.0	21.5	---	---	22.0
19	---	---	17.0	16.5	14.5	15.5	22.0	21.0	21.5	---	---	22.0
20	---	---	17.0	18.0	16.5	17.0	21.5	20.0	21.0	22.5	22.0	22.5
21	---	---	16.5	18.5	17.0	17.5	20.0	19.0	19.5	24.0	22.5	23.0
22	---	---	16.0	18.5	17.0	18.0	20.5	20.0	20.5	24.5	23.0	23.5
23	---	---	16.0	19.0	17.5	18.5	22.5	20.5	21.0	25.0	24.0	24.5
24	---	---	15.5	18.5	18.0	18.0	23.0	20.5	21.5	26.0	24.5	25.0
25	14.5	14.5	14.5	18.5	18.0	18.0	22.0	21.5	22.0	25.5	25.0	25.5
26	15.5	14.0	14.5	19.0	18.0	18.5	22.0	21.5	21.5	25.0	24.5	25.0
27	16.5	14.5	15.5	19.0	18.0	18.5	21.5	21.0	21.5	25.0	23.0	24.5
28	17.0	15.5	16.0	18.5	18.0	18.0	21.5	21.5	21.5	23.5	22.5	23.0
29	17.5	16.5	17.0	19.5	18.0	18.5	21.5	20.5	21.0	23.0	22.0	22.5
30	---	---	---	19.5	18.0	18.5	20.5	19.5	20.0	22.5	22.0	22.5
31	---	---	---	18.5	17.5	18.0	---	---	---	23.0	22.0	22.5
MONTH	---	---	14.5	21.0	12.5	16.5	23.0	17.5	20.5	---	---	22.0

## TRINITY RIVER BASIN

08065350 Trinity River near Crockett, Tex.--Continued

## TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	23.0	23.0	23.0	29.0	28.5	28.5	32.5	30.5	31.5	28.5	28.0	28.5
2	24.0	23.0	23.5	29.5	28.5	29.0	32.0	31.0	31.5	28.0	27.0	27.5
3	25.0	23.5	24.0	29.5	28.5	29.0	31.5	30.5	31.0	27.5	27.0	27.5
4	25.0	25.0	25.0	29.0	28.5	29.0	31.0	30.0	30.5	27.0	26.0	26.5
5	25.5	25.0	25.5	28.5	28.0	28.5	31.0	29.5	30.0	26.0	25.5	25.5
6	26.0	25.5	26.0	29.0	28.0	28.5	31.5	29.5	30.5	26.0	25.0	25.5
7	26.0	26.0	26.0	27.5	27.0	27.5	31.5	30.0	31.0	27.0	26.0	26.5
8	26.5	25.5	26.0	27.5	27.0	27.5	32.0	30.5	31.5	27.0	26.5	27.0
9	26.5	25.5	26.0	27.5	27.0	27.5	32.5	31.0	31.5	27.5	26.5	27.0
10	26.5	25.5	26.0	27.5	27.0	27.5	32.5	31.0	31.5	27.5	27.0	27.5
11	26.5	25.5	26.0	28.0	27.0	27.5	32.0	31.0	31.5	27.0	26.0	26.5
12	27.0	26.0	26.5	28.0	27.5	27.5	31.5	30.5	31.0	26.5	26.0	26.0
13	27.5	26.5	27.0	28.0	27.5	27.5	32.0	30.5	31.0	26.5	25.5	26.0
14	28.0	26.5	27.5	27.5	27.0	27.5	32.0	30.5	31.5	26.5	25.5	26.0
15	28.5	27.5	28.0	28.0	27.0	27.5	32.5	30.5	31.5	27.0	25.5	26.5
16	29.5	28.0	29.0	28.5	27.5	28.0	32.0	30.5	31.0	27.0	26.0	26.5
17	30.0	28.5	29.0	28.0	27.5	27.5	32.0	30.5	31.0	27.5	26.5	27.0
18	29.5	28.5	29.0	27.5	27.0	27.0	31.5	30.5	31.0	27.5	26.5	27.0
19	28.5	26.0	27.0	---	---	27.0	31.5	30.0	30.5	27.0	26.5	27.0
20	26.0	25.5	25.5	---	---	27.5	31.0	29.5	30.5	27.0	26.5	26.5
21	26.0	25.0	25.5	---	---	28.0	31.0	29.5	30.0	26.5	25.5	26.0
22	26.0	25.5	26.0	---	---	28.5	31.0	28.0	29.5	26.5	25.0	25.5
23	26.5	26.0	26.0	---	---	28.5	31.0	29.0	29.5	26.0	24.5	25.5
24	26.5	26.0	26.5	29.0	29.0	29.0	31.0	29.0	29.0	26.5	25.0	25.5
25	27.0	26.5	26.5	30.0	28.5	29.0	30.5	29.5	29.5	26.5	25.5	26.0
26	27.0	25.0	26.5	30.5	29.0	29.5	31.0	29.0	30.0	26.5	25.5	26.0
27	25.5	24.5	25.0	30.5	29.0	29.5	31.0	29.0	30.0	26.0	25.0	25.5
28	27.0	25.5	26.0	31.0	29.5	30.5	31.0	29.5	30.0	25.5	24.0	24.5
29	28.0	26.5	27.0	31.5	30.0	30.5	30.0	29.5	29.5	24.0	23.0	23.5
30	29.0	27.5	28.0	32.0	30.0	31.0	29.5	29.0	29.5	24.0	22.5	23.0
31	---	---	---	32.0	30.5	31.0	29.0	28.5	29.0	---	---	---
MONTH	30.0	23.0	26.5	32.0	27.0	28.5	32.5	26.0	30.5	28.5	22.5	26.0

## DISSOLVED OXYGEN (DO), MG/L, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	10.4	7.7	8.2	3.3	2.8	3.0	6.2	5.4	5.7	5.6	5.3	5.5
2	10.6	7.3	8.7	3.1	2.8	3.0	5.9	5.2	5.5	5.4	4.9	5.2
3	12.4	8.4	10.1	3.2	2.5	2.9	6.7	5.2	5.9	5.8	5.1	5.5
4	11.7	8.1	9.8	3.3	2.5	2.8	6.4	5.5	5.8	6.8	5.1	6.3
5	11.3	8.0	9.4	3.3	2.6	2.8	5.8	5.1	5.5	7.0	6.2	6.7
6	13.4	9.0	10.9	4.1	3.1	3.5	5.2	4.8	5.0	7.0	6.7	6.8
7	12.4	8.9	10.3	3.9	3.2	3.5	4.9	4.3	4.6	---	---	7.3
8	8.8	7.5	8.0	3.4	2.9	3.1	4.4	4.1	4.2	---	---	7.8
9	---	---	7.5	3.6	2.8	3.1	4.7	4.0	4.3	---	---	8.3
10	---	---	7.1	3.8	2.5	2.9	4.9	3.1	4.3	---	---	8.8
11	---	---	6.8	4.3	2.5	3.3	4.9	4.3	4.5	---	---	9.3
12	---	---	6.5	5.3	3.2	3.5	4.5	3.9	4.2	9.7	7.8	9.6
13	---	---	6.2	6.3	4.7	5.3	4.4	3.9	4.0	8.4	7.1	7.7
14	---	---	5.9	6.4	4.9	5.4	4.6	3.8	4.1	8.3	6.8	7.4
15	---	---	5.6	6.3	4.9	5.4	4.1	3.7	3.9	7.9	6.4	7.0
16	6.4	3.9	5.3	6.3	5.0	5.6	5.8	3.8	4.8	7.6	6.1	6.7
17	7.0	3.6	5.0	6.7	5.3	5.8	5.2	4.1	4.5	7.6	5.8	6.5
18	7.2	4.0	5.2	6.8	5.2	5.3	5.9	4.5	5.2	7.4	5.7	6.3
19	7.1	4.1	5.2	5.3	4.4	4.7	6.5	5.3	5.9	7.2	5.9	6.3
20	7.2	4.2	5.3	5.8	4.4	5.0	7.0	5.8	6.3	7.1	5.8	6.2
21	6.0	3.6	4.5	5.7	4.6	5.0	7.4	6.2	6.7	7.0	5.9	6.3
22	5.0	3.3	3.7	5.9	4.8	5.2	7.8	6.5	7.0	7.3	6.1	6.6
23	5.2	2.8	3.2	6.3	5.1	5.6	8.4	6.1	7.5	7.3	6.0	6.5
24	3.8	3.0	3.4	6.3	5.4	5.8	8.1	6.0	7.3	6.5	5.8	6.0
25	3.0	1.2	2.2	6.7	5.7	5.9	7.7	7.2	7.5	9.3	5.8	7.0
26	2.8	2.2	2.4	7.2	5.4	6.2	7.2	6.6	6.9	6.7	5.9	6.3
27	3.8	2.2	2.7	7.1	6.3	6.5	8.8	6.6	7.9	7.2	6.0	6.6
28	3.9	2.4	3.0	6.7	5.3	6.4	8.8	6.6	7.9	7.2	5.8	6.1
29	3.9	3.7	3.8	6.2	5.5	6.0	6.8	6.6	6.7	7.2	5.9	6.5
30	4.0	3.5	3.8	6.0	5.4	5.6	6.8	6.4	6.6	6.5	5.1	5.8
31	3.4	2.8	3.0	---	---	---	6.4	5.6	5.8	5.4	4.9	5.2
MONTH	---	---	5.9	7.2	2.5	4.6	8.8	3.1	5.7	9.7	4.9	6.8

## TRINITY RIVER BASIN

529

08065350 Trinity River near Crockett, Tex.--Continued

DISSOLVED OXYGEN (DO), MG/L, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	5.7	5.4	5.5	4.5	3.3	4.0	3.3	3.1	3.2	5.0	4.7	4.9
2	6.1	5.7	5.9	4.0	2.4	3.3	3.4	2.9	3.2	5.1	4.8	4.9
3	6.2	5.7	5.7	3.1	2.2	2.5	3.4	3.1	3.2	4.9	4.6	4.8
4	6.4	5.9	6.1	3.3	2.3	2.7	3.5	2.9	3.2	4.5	4.0	4.2
5	5.8	---	5.3	3.2	2.5	2.8	3.4	2.9	3.2	4.0	3.1	3.6
6	6.3	5.3	5.8	3.6	2.8	3.0	3.6	3.0	3.2	3.1	3.0	3.0
7	6.8	5.8	6.3	7.7	2.7	4.3	3.9	3.2	3.6	---	---	3.4
8	8.3	6.5	7.4	7.5	5.5	6.2	5.0	3.6	4.2	---	---	3.6
9	9.3	7.6	8.3	5.8	4.6	5.3	4.6	3.7	4.1	---	---	3.8
10	8.6	7.0	7.8	6.9	3.2	5.4	4.8	3.7	4.1	---	---	4.0
11	7.1	5.8	6.7	6.5	1.9	3.1	5.1	3.8	4.3	5.1	3.5	4.0
12	6.6	5.1	5.5	6.8	6.2	6.5	8.1	3.7	5.5	---	---	4.2
13	6.0	4.8	5.2	6.2	5.0	5.8	4.7	3.4	4.0	---	---	4.3
14	6.2	4.4	5.3	4.9	3.9	4.1	4.7	3.1	3.9	---	---	4.5
15	4.3	2.5	3.4	3.9	3.5	3.7	5.5	3.4	4.4	---	---	5.0
16	2.5	2.0	2.3	4.5	3.4	3.9	4.3	3.2	3.9	---	---	4.9
17	---	---	3.0	5.5	4.5	5.1	5.6	3.0	4.2	---	---	4.6
18	---	---	3.5	5.8	5.5	5.6	4.1	2.8	3.4	---	---	4.5
19	---	---	4.0	5.6	5.0	5.4	2.6	.4	1.5	---	---	4.8
20	---	---	4.3	5.0	4.4	4.8	.2	0	.1	5.3	4.8	5.0
21	---	---	4.2	4.7	4.2	4.4	2.0	.1	1.5	6.7	5.3	5.7
22	---	---	4.4	4.4	3.8	4.1	4.1	2.0	3.3	6.0	5.7	5.8
23	---	---	3.9	4.3	3.5	3.9	10.8	1.9	5.5	6.1	5.9	6.0
24	---	---	4.0	4.0	3.7	3.9	11.8	4.1	6.0	5.9	5.5	5.8
25	3.9	3.7	3.8	4.3	3.5	3.6	9.8	4.1	4.9	5.7	5.3	5.5
26	4.1	3.6	3.9	4.7	4.1	4.3	4.2	4.0	4.1	5.7	5.1	5.4
27	5.2	4.0	4.5	4.3	2.9	3.8	4.4	4.1	4.2	6.0	1.0	3.5
28	6.2	4.2	5.1	3.0	2.5	2.7	4.8	4.4	4.5	4.9	.7	2.0
29	5.9	4.7	5.2	3.4	2.9	3.2	5.2	4.8	5.0	5.1	1.4	3.0
30	---	---	---	2.8	2.5	2.7	4.9	4.8	4.9	5.9	5.1	5.3
31	---	---	---	3.3	2.8	3.1	---	---	---	5.0	3.0	4.0
MONTH	---	---	5.0	7.7	1.9	4.1	11.8	0	3.8	---	---	4.5
DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	5.2	5.0	5.1	5.0	4.8	4.9	13.3	10.0	11.7	6.5	5.2	5.6
2	5.2	4.7	5.0	5.4	4.9	5.2	16.9	9.2	12.4	6.0	4.8	5.3
3	5.2	4.6	4.9	5.6	5.4	5.5	15.3	7.4	10.5	6.3	3.1	4.9
4	5.0	4.4	4.7	5.8	5.6	5.7	16.8	9.8	14.2	1.8	.1	.2
5	5.0	4.7	4.9	6.2	5.6	5.9	17.0	8.9	13.0	2.7	.1	1.3
6	4.7	4.6	4.6	5.8	.9	3.6	10.8	5.8	8.8	2.8	2.1	2.4
7	4.6	4.5	4.6	5.5	4.1	4.8	7.7	5.5	6.6	3.2	2.9	3.1
8	4.5	4.4	4.5	4.0	2.7	3.4	9.6	6.3	8.4	3.1	2.6	2.8
9	4.8	4.5	4.7	4.3	2.5	3.8	8.4	5.7	6.8	3.0	2.6	2.7
10	5.3	4.8	5.1	2.9	2.2	2.6	10.7	6.6	8.4	3.8	3.0	3.5
11	6.0	5.2	5.6	4.7	1.6	2.7	10.3	6.6	8.4	5.6	3.5	4.5
12	6.1	6.0	6.0	5.6	4.8	5.3	10.5	6.0	8.0	6.8	5.7	6.4
13	6.1	5.9	6.0	15.1	5.3	7.0	8.5	6.1	7.4	7.0	6.4	6.7
14	6.1	5.9	6.0	11.9	7.2	8.7	10.6	6.2	8.1	7.0	6.6	6.9
15	6.3	6.0	6.2	10.7	6.0	7.4	9.3	6.0	7.3	6.7	6.6	6.6
16	7.0	6.0	6.5	7.7	6.4	6.8	8.1	5.2	6.4	6.6	6.5	6.5
17	8.1	6.5	6.7	8.5	4.7	6.4	8.5	5.9	6.8	7.1	6.5	6.8
18	7.3	6.7	6.9	8.1	6.8	7.4	9.0	5.8	7.1	7.3	6.7	6.9
19	6.7	5.3	6.0	---	---	7.0	10.6	6.6	8.4	7.4	6.6	7.0
20	5.4	4.0	4.5	---	---	6.5	8.4	4.3	5.9	7.3	6.8	7.1
21	4.7	2.7	3.7	---	---	6.0	8.6	4.9	6.2	7.2	6.5	6.9
22	5.4	4.9	5.3	---	---	5.0	9.1	3.2	6.8	8.4	6.9	7.5
23	5.2	4.0	4.4	---	---	4.0	10.5	5.8	6.5	7.7	6.4	7.0
24	4.4	4.1	4.3	3.8	1.3	2.4	11.8	7.3	7.6	6.5	.4	2.3
25	4.6	4.2	4.4	5.4	3.9	4.8	12.7	8.5	10.2	2.1	.5	1.2
26	5.1	4.1	4.5	5.6	5.4	5.5	12.7	8.8	10.4	4.9	.8	2.8
27	5.6	5.1	5.4	6.5	5.5	5.6	12.5	8.6	10.1	4.4	1.4	2.6
28	5.2	4.3	4.7	6.9	6.4	6.6	11.7	7.9	9.3	4.5	1.3	2.6
29	4.9	4.5	4.7	8.0	6.7	7.3	9.8	8.1	8.7	5.1	4.5	4.8
30	5.1	4.8	4.9	8.5	7.1	7.8	8.5	6.3	7.4	6.8	3.9	5.1
31	---	---	---	13.5	7.7	10.3	7.0	5.7	6.3	---	---	---
MONTH	8.1	2.7	5.2	15.1	.9	5.7	17.0	3.2	8.5	8.4	.1	4.7

## TRINITY RIVER BASIN

08065700 Caney Creek near Madisonville, Tex.

LOCATION.--Lat 30°56'12", Long 95°56'07", Madison County, near center of span at downstream side of pier of bridge on U.S. Highway 190, 0.2 mile (0.3 km) downstream from Mustang Creek, 1.5 miles (2.4 km) southwest of Madisonville, and 13.2 miles (21.2 km) upstream from Bedias Creek.

DRAINAGE AREA.--112 mi<sup>2</sup> (290 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 213.74 ft (65.148 m) above mean sea level.

AVERAGE DISCHARGE.--13 years, 62.9 ft<sup>3</sup>/s (1.781 m<sup>3</sup>/s), 7.63 in/yr (194 mm/yr), 45,570 acre-ft/yr (56.2 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 3,020 ft<sup>3</sup>/s (85.5 m<sup>3</sup>/s) May 31 (gage height, 15.92 ft or 4.852 m); no flow for many days.  
Period of record: Maximum discharge, 15,000 ft<sup>3</sup>/s (425 m<sup>3</sup>/s) Apr. 12, 1969 (gage height, 17.76 ft or 5.413 m); no flow at times each year.

Maximum stages since 1900, 22 ft (6.7 m) in 1929 and 21.4 ft (6.52 m) in November 1946, from information by local residents.

REMARKS.--Records fair. No diversion above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			0	.03	.58	.90	5.1	274	2010	3.1	.16	.79
2			0	.03	.64	.80	3.3	35	963	2.3	.13	.66
3			0	.02	.64	.78	2.9	17	133	2.1	.10	1.4
4			0	.02	.83	.74	2.8	10	26	2.8	.08	.75
5			0	.02	1.1	.71	9.0	7.1	15	6.7	.07	.38
6			0	.01	1.3	.70	22	5.5	9.8	103	.07	.25
7			0	.02	1.4	2.0	7.3	108	7.4	25	.07	.20
8			0	.01	1.4	12	4.6	240	5.9	11	.06	.10
9			0	.01	1.2	277	3.3	57	5.2	13	.07	.06
10			0	0	1.0	197	2.4	419	4.4	26	.06	.06
11			0	0	.90	19	1.8	244	4.0	98	.04	.04
12			0	0	.80	9.5	1.6	42	3.3	27	.03	.02
13			0	.01	.70	6.3	1.5	175	2.8	13	.02	.01
14			0	.02	.60	5.1	1.4	290	2.8	42	.01	0
15			0	.03	.60	4.6	1.5	60	2.4	18	0	0
16			0	.03	3.0	4.5	79	22	2.3	7.4	0	0
17			0	.03	17	4.1	164	13	2.3	3.8	0	0
18			0	.02	27	3.8	34	8.3	2.3	2.6	0	0
19			0	.04	3.6	3.8	32	6.3	10	2.5	0	0
20			0	.26	2.2	3.4	116	4.8	330	2.4	0	.27
21			0	.64	24	4.5	194	4.2	242	9.7	0	4.5
22			0	.92	8.8	4.9	34	3.9	17	4.1	0	1.7
23			0	.97	2.5	4.8	10	3.8	8.7	2.0	0	.39
24			0	.97	1.8	17	5.2	6.7	5.4	1.3	0	.15
25			.05	50	1.4	53	109	9.2	5.2	1.0	0	.11
26			.10	112	1.2	29	89	133	16	.69	0	.80
27			.10	18	1.1	11	16	190	72	.53	0	.92
28			.06	3.9	1.0	5.8	6.4	32	58	.45	0	.32
29			.04	1.5	.95	4.6	674	12	8.9	.37	0	.10
30			.05	.83	---	8.1	1330	6.7	4.8	.29	0	.95
31		---	.04	.55	---	14	---	1360	---	.21	.69	---
TOTAL	0	0	.44	190.89	109.24	713.43	2963.1	3799.5	3979.9	432.34	1.66	147.59
MEAN	0	0	.014	6.16	3.77	23.0	98.8	123	133	13.9	.054	4.92
MAX	0	0	.10	112	27	277	1330	1360	2010	103	.69	.92
MIN	0	0	0	0	.58	.70	1.4	3.8	2.3	.21	0	0
CFSM	0	0	0	.06	.03	.21	.88	1.10	1.19	.12	0	.04
IN.	0	0	.0001	.06	.04	.24	.98	1.26	1.32	.14	.0006	.05
AC-FT	0	0	.9	379	217	1420	5880	7540	7890	858	3.3	293

CAL YR 1975 TOTAL 27116.06 MEAN 74.3 MAX 2800 MIN 0 CFSM .66 IN 9.01 AC-FT 53780  
WTR YR 1976 TOTAL 12338.09 MEAN 33.7 MAX 2010 MIN 0 CFSM .30 IN 4.10 AC-FT 24470

PEAK DISCHARGE (BASE, 1,400 FT<sup>3</sup>/S).--Apr. 29 (2400) 2,170 ft<sup>3</sup>/s (15.64 ft); May 31 (2400) 3,020 ft<sup>3</sup>/s (15.92 ft).

## TRINITY RIVER BASIN

531

08065800 Bédias Creek near Madisonville, Tex.

LOCATION.--Lat 30°53'03", long 95°46'39", Madison-Walker County line, on right bank at downstream side of bridge on U.S. Highways 75 and 190, 0.5 mile (0.8 km) upstream from Interstate Highway 45, 1.5 miles (2.4 km) downstream from Caney Creek, and 9.5 miles (15.3 km) southeast of Madisonville.

DRAINAGE AREA.--321 mi<sup>2</sup> (831 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 150.00 ft (45.720 m) above mean sea level.

AVERAGE DISCHARGE.--9 years, 232 ft<sup>3</sup>/s (6.570 m<sup>3</sup>/s), 9.82 in/yr (249 mm/yr), 168,100 acre-ft/yr (207 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 6,140 ft<sup>3</sup>/s (174 m<sup>3</sup>/s) June 2 (gage height, 19.11 ft or 5.825 m); minimum, 0.01 ft<sup>3</sup>/s (0.0003 m<sup>3</sup>/s) Oct. 20-22.

Period of record: Maximum discharge, 33,800 ft<sup>3</sup>/s (957 m<sup>3</sup>/s) Sept. 14, 1974 (gage height, 25.07 ft or 7.641 m); no flow at times. Maximum stage since at least 1910, 34 ft (10.4 m) in May 1922 (discharge unknown), from information by local resident.

REMARKS.--Records good. No diversion above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.28	.32	.17	.62	2.5	2.2	143	1920	3460	12	.72	.45
2	.21	.36	.11	.53	1.3	1.8	81	1630	5160	8.5	.41	.24
3	.24	.40	.52	.37	.81	1.5	35	327	3060	6.4	.40	.17
4	.22	.36	.68	.24	.63	1.2	21	73	1590	5.1	.40	16
5	.17	.31	.62	.21	.62	1.1	24	47	352	4.7	.40	28
6	.13	.28	.62	.21	60	1.1	99	33	77	5.8	.36	6.1
7	.10	.68	.62	.21	90	1.5	213	156	51	99	.36	2.2
8	.08	1.9	.54	.20	51	19	137	567	38	57	.36	1.0
9	.08	1.9	.43	.20	16	100	59	628	29	25	.30	.61
10	.07	1.6	.33	.19	7.5	445	34	541	23	28	.23	.51
11	.06	1.2	.27	.19	4.7	460	22	642	19	46	.21	.37
12	.05	1.1	.25	.18	3.2	99	15	782	16	96	.21	.30
13	.04	1.0	.27	.28	2.2	44	11	559	13	56	.25	.27
14	.02	.84	.28	.29	1.6	25	9.1	776	12	24	.28	.22
15	.02	.69	.25	.32	1.3	17	7.5	797	10	49	.28	5.0
16	.02	.45	.40	.34	.90	12	65	285	10	33	.28	3.7
17	.02	.45	.38	.34	.98	9.3	374	77	9.8	33	.23	2.1
18	.02	.45	.19	.32	163	7.5	644	46	9.9	19	.20	.82
19	.02	.45	.13	.35	368	6.3	482	31	9.3	13	.18	.63
20	.02	.45	.09	.79	182	5.3	290	23	9.1	7.5	.17	10
21	.01	.33	.11	1.3	68	4.6	513	17	159	6.0	.15	2.5
22	.01	.24	.25	2.4	93	3.8	626	13	227	12	.15	1.8
23	.29	.19	.28	1.6	107	3.1	267	11	49	11	.13	4.8
24	.10	.14	.37	1.7	41	3.3	68	10	22	10	.11	2.3
25	1.1	.13	.50	3.5	19	7.3	42	16	15	5.8	.10	1.1
26	7.2	.12	.79	115	9.7	144	146	182	30	3.8	.72	12
27	4.9	.11	2.8	295	5.9	87	161	542	34	2.5	.93	78
28	4.0	.09	1.9	91	4.0	39	57	860	58	2.0	.48	214
29	1.4	.09	1.2	23	3.0	22	268	538	73	1.5	.33	145
30	.62	.13	.89	9.5	---	24	889	74	22	1.1	.18	49
31	.43	---	.62	4.3	---	78	---	789	---	.81	.15	---
TOTAL	21.93	16.76	16.86	554.68	1308.84	1675.9	5802.6	12992	14647.1	684.51	9.66	589.19
MEAN	.71	.56	.54	17.9	45.1	54.1	193	419	488	22.1	.31	19.6
MAX	7.2	1.9	2.8	295	368	460	889	1920	5160	99	.93	214
MIN	.01	.09	.09	.18	.62	1.1	7.5	10	9.1	.81	.10	.17
CFSM	.002	.001	.001	.06	.14	.17	.60	1.31	1.52	.07	0	.06
IN.	.003	.002	.002	.06	.15	.19	.67	1.51	1.70	.08	.001	.07
AC-FT	43	33	33	1100	2600	3320	11510	25770	29050	1360	19	1170
CAL YR 1975	TOTAL	70405.90	MEAN	193	MAX	4860	MIN	.01	CFSM	.60	IN	8.16
WTR YR 1976	TOTAL	38320.03	MEAN	105	MAX	5160	MIN	.01	CFSM	.33	IN	4.44
									AC-FT	139700		
									AC-FT	76010		

PEAK DISCHARGE (BASE, 3,000 FT<sup>3</sup>/S).--June 2 (0200) 6,140 ft<sup>3</sup>/s (19.11 ft).



## TRINITY RIVER BASIN

08066100 White Rock Creek near Trinity, Tex.

LOCATION.--Lat 31°03'06", long 95°22'40", Trinity County, on right bank 3.9 miles (6.3 km) upstream from Little White Rock Creek, 4.1 miles (6.6 km) upstream from Tantabogue Creek, 7.3 miles (11.7 km) north of Trinity, and 16.1 miles (25.9 km) upstream from mouth.

DRAINAGE AREA.--222 mi<sup>2</sup> (575 km<sup>2</sup>). Prior to June 1974, 228 mi<sup>2</sup> (591 km<sup>2</sup>).

PERIOD OF RECORD.--December 1965 to current year. Peak discharge, supplemental peak discharges, and discharge measurements only October 1971 to May 1974 (low stages affected by storage in Livingston Reservoir).

GAGE.--Water-stage recorder. Datum of gage is 124.30 ft (37.887 m) above mean sea level. Prior to June 19, 1974, at site 1.9 miles (3.1 km) downstream at same datum.

AVERAGE DISCHARGE.--7 years (1966-71, 1974-76), 98.0 ft<sup>3</sup>/s (2.775 m<sup>3</sup>/s), 5.99 in/yr (152 mm/yr), 71,000 acre-ft/yr (87.5 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, about 3,500 ft<sup>3</sup>/s (99.1 m<sup>3</sup>/s) Apr. 30 (gage height, about 19.0 ft or 5.79 m); minimum daily, 0.02 ft<sup>3</sup>/s (0.001 m<sup>3</sup>/s) Sept. 11-15.

Period of record: Maximum discharge, 16,700 ft<sup>3</sup>/s (473 m<sup>3</sup>/s) Mar. 25, 1973 (gage height, 31.22 ft or 9.516 m, present site); no flow at times.

REMARKS.--Records fair. No known diversions.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.27	3.7	1.6	7.0	5.3	13	.60	1410	1300	30	2.2	1.0
2	.23	4.9	1.6	6.0	4.2	12	50	234	1930	20	1.9	.30
3	.20	61	2.0	5.1	3.8	12	40	91	462	15	1.6	.20
4	.17	79	3.7	4.2	3.7	11	30	57	88	12	1.3	.15
5	.15	32	3.2	3.7	3.7	10	25	41	53	20	1.1	.10
6	.15	14	2.7	3.5	3.5	10	22	33	37	30	1.0	.08
7	.12	8.5	2.4	3.3	3.3	13	20	240	29	40	.90	.06
8	.12	6.3	1.8	2.8	3.0	34	18	668	24	30	.80	.05
9	.16	4.9	1.8	2.4	2.8	120	16	324	20	20	.70	.04
10	.17	3.9	1.8	2.5	2.8	110	14	709	17	15	.65	.03
11	.17	3.0	1.8	2.8	2.8	49	12	886	15	12	.60	.02
12	.17	2.7	1.7	2.7	2.7	30	11	246	13	20	.55	.02
13	.17	2.0	1.7	2.5	2.7	22	10	819	12	16	.50	.02
14	.17	1.7	2.0	2.4	2.7	18	9.4	1230	10	14	.45	.02
15	.17	1.5	2.4	2.2	2.5	16	8.8	552	9.8	12	.40	.02
16	.18	1.5	2.8	2.2	2.5	13	9.4	139	10	10	.37	.03
17	.26	1.6	2.8	2.7	8.8	12	9.4	74	11	47	.35	.04
18	.28	1.6	2.8	3.1	385	11	9.4	52	10	198	.32	.04
19	.26	1.8	2.8	2.7	410	10	10	38	215	90	.30	.03
20	.23	1.9	2.8	3.1	110	10	12	29	500	27	.27	.10
21	.20	1.6	2.8	3.0	136	10	16	25	200	14	.25	2.5
22	.20	1.5	2.7	3.8	260	10	32	22	80	9.0	.22	.98
23	.51	1.4	2.7	3.8	110	9.8	18	19	50	8.2	.20	.75
24	1.6	1.2	3.8	4.4	44	13	13	17	30	8.8	.18	.50
25	39	1.4	7.6	90	27	110	12	16	20	8.3	.17	.27
26	70	1.4	8.5	161	22	150	10	16	50	5.5	.17	.17
27	43	1.5	7.0	58	18	220	8.5	17	150	4.6	.15	1.5
28	20	1.5	7.0	21	16	100	7.3	32	250	3.9	.10	11
29	11	1.5	6.0	11	14	50	619	35	100	3.4	.08	50
30	6.4	1.7	6.3	7.3	---	25	2560	20	50	3.0	.06	14
31	4.6	---	10	6.0	---	80	---	226	---	2.5	.50	---
TOTAL	200.31	252.2	110.6	436.2	1612.8	1313.8	3692.2	8317	5745.8	749.2	18.34	84.02
MEAN	6.46	8.41	3.57	14.1	55.6	42.4	123	268	192	24.2	.59	2.80
MAX	70	79	10	161	410	220	2560	1410	1930	198	2.2	50
MIN	.12	1.2	1.6	2.2	2.5	9.8	7.3	16	9.8	2.5	.06	.02
CFSM	.03	.04	.02	.06	.25	.19	.55	1.21	.86	.11	.002	.01
IN.	.03	.04	.02	.07	.27	.22	.62	1.39	.96	.13	.003	.01
AC-FT	397	500	219	865	3200	2610	7320	16500	11400	1490	36	167

CAL YR 1975 TOTAL 50052.94 MEAN 137 MAX 4810 MIN .12 CFSM .62 IN 8.39 AC-FT 99280  
WTR YR 1976 TOTAL 22532.47 MEAN 61.6 MAX 2560 MIN .02 CFSM .28 IN 3.78 AC-FT 44690

PEAK DISCHARGE (BASE, 1,500 FT<sup>3</sup>/S)

DATE	TIME	G.H.T.	DISCHARGE
4-30	about 0800	19.0	about 3,500
6- 2	0800	16.92	2,150

## TRINITY RIVER BASIN

533

08066170 Kickapoo Creek near Onalaska, Tex.

LOCATION.--Lat 30°54'25", long 95°05'18", Polk County, on right bank 114 ft (35 m) downstream from old bridge site, 1.2 miles (1.9 km) downstream from Magnolia Creek, 6.2 miles (10.0 km) upstream from Rocky Creek, 7.3 miles (11.7 km) northeast of Onalaska, and 15.9 miles (25.6 km) upstream from mouth.

DRAINAGE AREA.--57.0 mi<sup>2</sup> (147.6 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 139.85 ft (42.626 m) above mean sea level.

AVERAGE DISCHARGE.--10 years (1966-76), 42.1 ft<sup>3</sup>/s (1.192 m<sup>3</sup>/s), 10.03 in/yr (255 mm/yr), 30,500 acre-ft/yr (37.6 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 2,250 ft<sup>3</sup>/s (63.7 m<sup>3</sup>/s) Jan. 25 (gage height, 11.80 ft or 3.600 m); minimum daily, 0.50 ft<sup>3</sup>/s (0.014 m<sup>3</sup>/s) for many days.  
Period of record: Maximum discharge, 16,000 ft<sup>3</sup>/s (453 m<sup>3</sup>/s) June 13, 1973 (gage height, 26.0 ft or 7.92 m); minimum, 0.01 ft<sup>3</sup>/s (0.0003 m<sup>3</sup>/s) July 19, 20, 1971.

REMARKS.--Records good except those for discharges below 1.0 ft<sup>3</sup>/s (0.028 m<sup>3</sup>/s), which are poor. No diversion above station. Low flow is sustained by sewage effluent.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.80	3.1	13	9.4	15	6.2	18	15	174	1.8	.80	1.6
2	.69	46	6.4	8.0	12	5.8	10	7.6	27	1.4	.73	1.4
3	.77	315	4.6	7.0	11	5.4	8.0	4.5	10	1.2	.50	1.2
4	.80	48	3.8	5.4	11	5.1	11	3.1	5.0	1.2	.50	1.2
5	.80	21	3.4	4.8	14	6.4	12	2.4	2.9	1.2	.50	3.3
6	.93	14	3.3	4.8	125	5.8	9.6	1.8	2.0	1.1	.50	1.7
7	.93	11	3.2	5.4	29	38	6.2	587	2.3	1.1	.50	1.3
8	2.2	8.8	2.7	4.7	18	150	5.7	205	1.8	1.4	.50	1.1
9	.80	8.0	2.4	4.1	15	52	4.6	35	1.4	2.0	.50	1.0
10	.80	6.9	2.4	3.9	13	21	3.5	331	1.1	1.7	.50	.74
11	.80	6.4	3.4	3.9	12	14	3.1	76	1.0	1.5	.50	.65
12	.80	5.3	3.9	3.9	12	11	3.0	30	.92	1.3	.50	.55
13	.80	4.5	4.0	3.9	11	9.2	2.4	468	.76	1.2	.50	.50
14	.80	3.0	3.8	3.9	9.6	8.7	2.2	112	.70	1.2	.50	3.1
15	.92	2.6	4.5	3.7	8.6	11	2.9	40	.60	1.2	.50	11
16	.84	2.5	11	3.3	8.2	11	3.6	22	3.5	29	.50	4.6
17	1.1	2.4	10	2.9	23	8.0	3.4	14	2.2	35	.50	2.0
18	.73	2.4	7.3	2.8	50	6.8	3.0	11	59	16	.50	1.3
19	.55	2.4	3.8	2.8	19	6.4	3.3	8.0	198	6.6	.50	.87
20	.56	3.4	3.2	9.3	12	6.3	19	6.7	57	3.3	.50	.80
21	.59	2.7	3.1	8.5	199	6.3	14	5.8	13	2.5	.50	.80
22	.59	2.3	2.9	5.4	43	5.4	9.3	4.2	4.1	1.9	.50	.77
23	3.2	2.2	2.8	4.4	20	4.7	5.9	3.8	3.5	1.5	.50	.65
24	1.7	2.2	98	4.2	14	18	3.1	3.5	2.3	1.4	1.7	.58
25	273	2.2	143	782	12	30	4.7	3.1	2.2	3.0	1.9	.50
26	74	7.1	37	94	9.8	28	3.2	4.2	2.1	1.8	.90	.88
27	17	5.9	18	35	8.3	20	2.3	3.7	1.8	1.4	.77	7.5
28	9.3	3.9	22	25	7.6	11	1.8	3.2	5.1	1.4	2.8	62
29	6.3	3.5	44	21	7.1	11	85	2.7	2.9	1.2	4.1	15
30	4.6	21	20	18	---	94	40	2.3	2.3	1.0	2.1	4.7
31	3.9	---	12	16	---	53	---	31	---	.91	2.5	---
TOTAL	361.50	569.7	502.9	1111.4	749.2	669.5	303.8	2047.6	590.48	128.41	28.80	133.29
MEAN	11.7	19.0	16.2	35.9	25.8	21.6	10.1	66.1	19.7	4.14	.93	4.44
MAX	223	315	143	782	199	150	85	587	198	35	4.1	62
MIN	.55	2.2	2.4	2.8	7.1	4.7	1.8	1.8	.60	.91	.50	.50
CFSM	.21	.33	.28	.63	.45	.38	.18	1.16	.35	.07	.02	.08
IN.	.24	.37	.33	.73	.49	.44	.20	1.34	.39	.08	.02	.09
AC-FT	717	1130	998	2200	1490	1330	603	4060	1170	255	57	264

CAL YR 1975 TOTAL 20339.65 MEAN 55.7 MAX 1880 MIN .55 CFSM .98 IN 13.27 AC-FT 40340  
WTR YR 1976 TOTAL 7196.58 MEAN 19.7 MAX 782 MIN .50 CFSM .35 IN 4.70 AC-FT 14270

PEAK DISCHARGE (BASE, 2,500 FT<sup>3</sup>/S).--No peak above base.

## TRINITY RIVER BASIN

08066190 Livingston Reservoir near Goodrich, Tex.

LOCATION.--Lat 30°38'00", long 95°00'36", Polk-San Jacinto County line, on upstream wingwall at left end of gated spillway at Livingston Dam on Trinity River, 4.4 miles (7.1 km) northwest of Goodrich, 7 miles (11 km) southwest of Livingston, 11.7 miles (18.8 km) upstream from Long King Creek, and at mile 129.2 (207.9 km).

DRAINAGE AREA.--16,583 mi<sup>2</sup> (42,950 km<sup>2</sup>).

PERIOD OF RECORD.--Contents: September 1968 to current year.

Water quality: Chemical analyses: October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Trinity River Authority). Prior to Feb. 26, 1969, temporary nonrecording gages at site about 200 ft (61 m) upstream and at same datum.

EXTREMES.--Current year: Maximum contents, 1,902,000 acre-ft (2.35 km<sup>3</sup>) June 2, 3 (elevation, 132.35 ft or 40.340 m); minimum, 1,725,000 acre-ft (2.13 km<sup>3</sup>) Sept. 1 (elevation, 130.23 ft or 39.694 m).

Period of record: Maximum contents, 1,923,000 acre-ft (2.37 km<sup>3</sup>) Mar. 25, 1973 (elevation, 132.60 ft or 40.416 m); minimum since deliberate impoundment began on June 26, 1969, 149,600 acre-ft (184 hm<sup>3</sup>) Dec. 5, 1969 (elevation, 98.52 ft or 30.029 m).

REMARKS.--The reservoir is formed by an earthfill dam 14,400 ft (4,390 m) long, including a controlled spillway. The dam was completed Sept. 29, 1968, and deliberate impoundment began June 26, 1969. The spillway is a concrete gravity structure 646 ft (197 m) long with a net opening of 480 ft (146 m). The spillway has twelve 40- by 35-foot (12- by 11-meter) tainter gates and is located near the left end of dam. The outlet works for low-flow releases are located in a vertical concrete multi-gated inlet tower. There are five gated openings at various elevations located in the tower and all discharge into a 10-foot-diameter (3-meter) concrete conduit through the dam. The inlet tower is located 1,700 ft (518 m) to the right of the right spillway abutment. For statement regarding regulation by upstream reservoirs, see Trinity River near Oakwood (station 08065000). At end of year, flow from 604 mi<sup>2</sup> (1,564 km<sup>2</sup>) above this station was partly controlled by 243 floodwater-retarding structures with a combined capacity of 217,060 acre-ft (268 hm<sup>3</sup>) below the flood-spillway crests, of which 181,620 acre-ft (224 hm<sup>3</sup>) is conservation-pool capacity. Five structures were built during the current year and have a combined capacity below flood-spillway crests of 3,710 acre-ft (4.57 hm<sup>3</sup>) of which 3,344 acre-ft (4.12 hm<sup>3</sup>) is conservation-pool capacity. The capacity in these pools allocated to sediment storage will be used for conservation storage until eliminated by sedimentation. The capacity tables are based on Geological Survey topographic maps. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	145.0	
Design flood.....	135.0	2,136,000
Top of tainter gates.....	134.0	2,046,000
Top of conservation pool.....	131.0	1,788,000
Crest of spillway (sill of tainter gates).....	99.0	157,900
Lowest gated outlet (invert).....	58.0	335

COOPERATION.--Capacity tables furnished by the Trinity River Authority.

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

130.2	1,723,000
131.5	1,830,000
132.4	1,906,000

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1762000	1776000	1768000	1795000	1797000	1791000	1820000	1854000	1898000	1826000	1785000	1728000
2	1757000	1790000	1766000	1801000	1795000	1791000	1813000	1854000	1902000	1809000	1783000	1730000
3	1754000	1797000	1766000	1794000	1792000	1786000	1808000	1858000	1899000	1793000	1783000	1727000
4	1752000	1797000	1768000	1788000	1790000	1788000	1806000	1854000	1892000	1768000	1779000	1729000
5	1751000	1794000	1768000	1783000	1799000	1790000	1803000	1854000	1883000	1764000	1776000	1741000
6	1748000	1790000	1774000	1785000	1801000	1788000	1798000	1862000	1875000	1766000	1778000	1758000
7	1746000	1787000	1773000	1788000	1794000	1788000	1793000	1880000	1866000	1776000	1775000	1777000
8	1744000	1785000	1772000	1780000	1791000	1798000	1793000	1852000	1859000	1793000	1772000	1794000
9	1745000	1785000	1770000	1774000	1788000	1798000	1788000	1832000	1849000	1808000	1770000	1810000
10	1746000	1783000	1768000	1776000	1788000	1799000	1787000	1823000	1832000	1810000	1768000	1809000
11	1744000	1780000	1767000	1780000	1791000	1809000	1783000	1820000	1813000	1808000	1762000	1797000
12	1743000	1779000	1767000	1778000	1790000	1824000	1781000	1817000	1798000	1801000	1761000	1790000
13	1741000	1775000	1767000	1782000	1788000	1823000	1779000	1843000	1791000	1795000	1758000	1787000
14	1741000	1768000	1769000	1779000	1787000	1822000	1777000	1844000	1787000	1795000	1756000	1787000
15	1744000	1764000	1777000	1777000	1785000	1823000	1773000	1839000	1789000	1794000	1753000	1786000
16	1746000	1766000	1776000	1780000	1784000	1818000	1769000	1834000	1808000	1798000	1752000	1785000
17	1744000	1766000	1778000	1777000	1784000	1805000	1773000	1830000	1803000	1799000	1753000	1784000
18	1739000	1766000	1774000	1772000	1790000	1803000	1779000	1826000	1803000	1799000	1753000	1781000
19	1737000	1768000	1769000	1776000	1788000	1798000	1781000	1820000	1818000	1798000	1749000	1779000
20	1733000	1772000	1772000	1783000	1787000	1804000	1796000	1810000	1823000	1798000	1748000	1784000
21	1731000	1768000	1770000	1782000	1805000	1801000	1798000	1806000	1826000	1803000	1744000	1785000
22	1730000	1766000	1766000	1780000	1802000	1797000	1803000	1803000	1834000	1804000	1744000	1783000
23	1734000	1764000	1766000	1779000	1800000	1795000	1807000	1797000	1833000	1806000	1742000	1782000
24	1738000	1764000	1784000	1779000	1797000	1797000	1818000	1794000	1839000	1809000	1739000	1782000
25	1772000	1760000	1791000	1801000	1807000	1797000	1819000	1793000	1836000	1808000	1738000	1781000
26	1776000	1764000	1790000	1801000	1802000	1804000	1815000	1798000	1828000	1802000	1735000	1785000
27	1778000	1760000	1788000	1798000	1800000	1801000	1821000	1807000	1828000	1794000	1731000	1789000
28	1780000	1757000	1798000	1796000	1794000	1804000	1825000	1808000	1828000	1788000	1730000	1813000
29	1783000	1757000	1798000	1798000	1792000	1813000	1843000	1812000	1834000	1785000	1728000	1813000
30	1780000	1772000	1795000	1797000	---	1824000	1849000	1823000	1830000	1785000	1727000	1809000
31	1778000	---	1793000	1798000	---	1823000	---	1868000	---	1784000	1726000	---
(†)	130.87	130.80	131.05	131.12	131.04	131.42	131.73	131.95	131.50	130.95	130.24	131.25
(*)	+20000	-6000	+21000	+5000	-6000	+31000	+26000	+19000	-38000	-46000	-58000	+83000
MAX	1783000	1797000	1798000	1801000	1807000	1824000	1849000	1880000	1902000	1826000	1785000	1813000
MIN	1730000	1757000	1766000	1772000	1784000	1786000	1769000	1793000	1787000	1764000	1726000	1727000
CAL YR 1975.....	* -23000				MAX	1859000	MIN	1730000				
WTR YR 1976.....	* +51000				MAX	1902000	MIN	1726000				

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

## TRINITY RIVER BASIN

535

08066190 Livingston Reservoir near Goodrich, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)
JAN 15...	1130	386	7.8	10.0	10.9	96	130	19
AUG 18...	1225	315	8.6	30.0	9.4	125	100	6

DATE	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	SODIUM ADSORPTION RATIO	DISSOLVED PHOSPHORUS (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN 15...	47	3.9	24	.9	4.2	140	0	37	26
AUG 18...	35	3.1	21	.9	3.4	99	8	27	21

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SiO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN 15...	.2	6.0	217	.13	.00	.06	0	0
AUG 18...	.3	7.5	175	.01	.01	.15	30	20

## TRINITY RIVER BASIN

08066191 Livingston Reservoir at Outflow Weir near Goodrich, Tex.

LOCATION.--Lat 30°37'55", long 95°01'11", San Jacinto County, at end of conduit into stilling basin, 1,700 ft (518 m) to right of right spillway abutment, 4.8 miles (7.7 km) northwest of Goodrich, 11.7 miles (18.8 km) upstream from Long King Creek, and at mile 129.2 (207.9 km).

DRAINAGE AREA.--16,583 mi<sup>2</sup> (42,950 km<sup>2</sup>).

PERIOD OF RECORD.--August 1969 to current year.

GAGE (revised).--Water-stage recorder and concrete control. Datum of gage is at mean sea level (levels by Trinity River Authority). Oct. 1, 1974, to Jan. 30, 1976, staff gage and control only.

AVERAGE DISCHARGE.--7 years, 257 ft<sup>3</sup>/s (7.278 m<sup>3</sup>/s), 186,200 acre-ft/yr (230 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum daily discharge, 2,000 ft<sup>3</sup>/s (56.6 m<sup>3</sup>/s) Dec. 29 to Jan. 4; maximum elevation not determined; no flow Oct. 1, 2.  
Period of record: Maximum daily discharge, 3,400 ft<sup>3</sup>/s (96.3 m<sup>3</sup>/s) May 2, 1974; maximum elevation, about 93.0 ft (29.35 m) June 14, 1973 (backwater from Trinity River); no flow for many days.

REMARKS.--Records fair except those for October through January, which are poor. For details concerning outlet works, see Livingston Reservoir (station 08066190). The purpose of this station is to record selective withdrawal releases at outflow weir, crest 61.90 ft (18.867 m). These releases do not constitute the total flow from Livingston Reservoir since flow through tainter gates is not included in these totals.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	1400	540	2000	1440	1900	1740	340	330	350	31	24
2	0	1400	540	2000	1440	1890	1760	340	330	345	30	24
3	170	1670	540	2000	1440	1890	1760	340	330	340	28	24
4	250	1800	540	2000	1450	1880	1770	340	330	340	29	24
5	250	1800	540	1900	1450	1860	1760	340	330	335	29	26
6	250	1800	540	1800	1450	1870	1750	340	330	304	31	27
7	250	1800	540	1800	1450	1870	1750	340	330	321	31	27
8	250	1800	600	1600	1450	1880	1760	340	330	327	31	27
9	250	1800	700	1400	1450	1870	1760	340	330	330	34	32
10	250	1800	700	1400	1450	1880	1490	340	330	344	34	39
11	250	1550	700	1400	1450	1900	1320	340	330	358	33	41
12	250	1270	700	1200	1460	1900	1320	340	816	359	29	38
13	250	930	700	950	1460	1890	1020	340	329	174	31	28
14	250	800	700	950	1460	1900	863	340	331	41	32	24
15	250	670	700	950	1470	1910	858	340	325	37	30	25
16	380	600	700	950	1470	1890	861	340	326	33	31	27
17	250	540	700	950	1470	1880	861	340	327	31	30	26
18	640	540	700	950	1460	1900	860	340	326	32	28	25
19	750	540	700	950	1460	1920	861	340	325	33	27	26
20	700	540	700	950	1460	1920	1150	340	327	34	25	25
21	650	540	700	1040	1660	1900	1300	330	338	34	26	24
22	580	540	700	1120	1840	1900	1300	328	355	35	27	23
23	550	540	700	1120	1840	1810	1120	332	359	38	27	25
24	550	540	700	1120	1850	1770	975	332	359	40	27	26
25	860	540	700	1300	1870	1770	975	326	359	43	28	26
26	1250	540	700	1450	1870	1770	570	326	359	42	28	26
27	1250	540	700	1450	1870	1760	340	328	359	41	28	26
28	1350	540	1130	1440	1880	1760	340	330	359	36	27	26
29	1400	540	2000	1430	1890	1770	340	338	359	31	26	26
30	1400	540	2000	1430	---	1770	340	336	355	29	24	26
31	1400	---	2000	1430	---	1760	---	330	---	30	24	---
TOTAL	17130	30450	24810	42430	45660	57540	34874	10436	10623	4867	896	813
MEAN	553	1015	800	1369	1574	1856	1162	337	354	157	28.9	27.1
MAX	1400	1800	2000	2000	1890	1920	1770	340	816	359	34	41
MIN	0	540	540	950	1440	1760	340	326	325	29	24	23
AC-FT	33980	60400	49210	84160	90570	114100	69170	20700	21070	9650	1780	1610
CAL YR 1975	TOTAL	73190	MEAN	201	MAX	2000	MIN	0	AC-FT	14520		
WTR YR 1976	TOTAL	280529	MEAN	766	MAX	2000	MIN	0	AC-FT	556400		

## TRINITY RIVER BASIN

537

08066200 Long King Creek at Livingston, Tex.

LOCATION.--Lat 30°42'58", long 94°57'31", Polk County, on right bank 64 ft (20 m) downstream from centerline of bridge on U.S. Highway 190, 2 miles (3 km) west of Livingston, 2 miles (3 km) upstream from Choates Creek, and 14.8 miles (23.8 km) upstream from mouth.

DRAINAGE AREA.--141 mi<sup>2</sup> (365 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 100.12 ft (30.517 m) above mean sea level.

AVERAGE DISCHARGE.--13 years, 95.5 ft<sup>3</sup>/s (2.705 m<sup>3</sup>/s), 9.20 in/yr (234 mm/yr), 69,190 acre-ft/yr (85.3 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 3,720 ft<sup>3</sup>/s (105 m<sup>3</sup>/s) May 6 (gage height, 13.87 ft or 4.228 m); minimum, 1.9 ft<sup>3</sup>/s (0.054 m<sup>3</sup>/s) Sept. 13.

Period of record: Maximum discharge, 26,500 ft<sup>3</sup>/s (750 m<sup>3</sup>/s) Nov. 5, 1973 (gage height, 27.06 ft or 8.248 m); no flow at times. Maximum stage since at least 1870, about 41 ft (12.5 m) in May 1929.

REMARKS.--Records good. No diversion above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	14	58	54	29	29	101	36	1190	25	4.0	4.0
2	5.3	216	36	87	29	29	57	27	292	170	3.7	6.1
3	5.0	1530	28	77	28	29	41	21	132	53	3.7	5.4
4	5.0	537	24	51	27	27	57	18	77	49	3.6	4.5
5	5.3	81	20	40	26	27	74	17	65	41	3.3	4.7
6	5.3	51	19	38	229	84	59	658	62	49	3.1	3.6
7	5.3	41	18	41	105	156	39	1500	58	57	4.9	3.2
8	4.9	35	18	45	49	445	34	814	50	39	4.3	3.4
9	5.4	32	17	40	40	154	31	228	50	41	4.1	4.9
10	5.3	28	17	36	36	73	26	428	67	29	3.6	4.7
11	5.3	24	22	36	33	51	26	186	38	29	3.1	3.6
12	5.2	22	20	35	32	44	25	68	35	32	2.8	2.9
13	5.0	21	19	34	32	40	25	845	28	91	2.8	2.4
14	5.0	20	18	33	30	38	25	454	23	80	2.7	2.1
15	5.0	19	23	30	29	38	24	102	30	47	2.6	2.4
16	7.4	18	35	26	29	38	24	59	250	29	2.7	2.3
17	7.2	18	66	26	29	33	22	41	170	29	3.1	2.1
18	7.0	18	47	26	42	29	22	32	72	35	3.1	2.1
19	6.3	18	30	26	44	27	23	27	93	31	3.0	2.2
20	6.0	21	25	34	32	27	31	24	283	57	3.7	3.4
21	5.9	21	23	67	211	27	31	22	101	30	3.5	5.5
22	5.7	20	21	45	147	26	25	20	80	50	3.1	4.1
23	7.4	19	20	36	56	25	21	19	65	22	3.0	3.5
24	9.4	17	319	32	42	26	33	17	58	11	5.3	3.1
25	170	17	1130	98	36	36	55	16	51	14	7.1	3.1
26	437	21	209	172	34	61	24	17	45	14	3.4	3.6
27	82	32	88	55	33	46	20	17	42	8.4	2.8	13
28	33	25	118	40	31	36	18	16	88	5.7	2.9	78
29	39	21	333	36	30	298	65	14	59	5.0	4.0	62
30	22	29	113	33	---	293	59	13	32	4.7	3.6	21
31	17	---	69	29	---	379	---	75	---	4.1	3.4	---
TOTAL	939.9	2986	3003	1458	1550	2671	1117	5831	3686	1181.9	110.0	266.9
MEAN	30.3	99.5	96.9	47.0	53.4	86.2	37.2	188	123	38.1	3.55	8.90
MAX	437	1530	1130	172	229	445	101	1500	1190	170	7.1	78
MIN	4.9	14	17	26	26	25	18	13	23	4.1	2.6	2.1
CFSM	.21	.71	.69	.33	.38	.61	.26	1.33	.87	.27	.03	.06
IN.	.25	.79	.79	.38	.41	.70	.29	1.54	.97	.31	.03	.07
AC-FT	1860	5920	5960	2890	3070	5300	2220	11570	7310	2340	218	529

CAL YR 1975 TOTAL 50855.6 MEAN 139 MAX 2940 MIN 4.9 CFSM .99 IN 13.42 AC-FT 100900  
WTR YR 1976 TOTAL 24800.7 MEAN 67.8 MAX 1530 MIN 2.1 CFSM .48 IN 6.54 AC-FT 49190

PEAK DISCHARGE (BASE, 2,300 FT<sup>3</sup>/S).--May 6 (2200) 3,720 ft<sup>3</sup>/s (13.87 ft).



## TRINITY RIVER BASIN

08066250 Trinity River near Goodrich, Tex.

LOCATION.--Lat 30°34'19", long 94°56'55", Polk-San Jacinto County line, on left bank 40 ft (12 m) downstream from downstream bridge on U.S. Highway 59, 0.2 mile (0.3 km) downstream from Long King Creek, 3.0 miles (4.8 km) southeast of Goodrich, and at mile 117.3 (188.7 km).

DRAINAGE AREA.--16,844 mi<sup>2</sup> (43,626 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 40.00 ft (12.192 m) above mean sea level.

AVERAGE DISCHARGE.--10 years (1966-76), 7,497 ft<sup>3</sup>/s (212.3 m<sup>3</sup>/s), 5,432,000 acre-ft/yr (6.70 km<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 48,000 ft<sup>3</sup>/s (1,360 m<sup>3</sup>/s) May 8 (gage height, 35.35 ft or 10.775 m); minimum daily, 576 ft<sup>3</sup>/s (16.3 m<sup>3</sup>/s) Oct. 23 (regulation by Livingston Reservoir).

Period of record: Maximum discharge, 96,200 ft<sup>3</sup>/s (2,720 m<sup>3</sup>/s) June 14, 1973 (gage height, 46.36 ft or 14.131 m); minimum daily, 191 ft<sup>3</sup>/s (5.41 m<sup>3</sup>/s) Aug. 6, 1971 (regulation by Livingston Reservoir).

Maximum stage since at least 1929, 52.0 ft (15.85 m) in May 1942, from information by State Highway Department and local residents.

REMARKS.--Records fair. Regulated since Sept. 29, 1968, by Livingston Reservoir (station 08066190), capacity 2,046,000 acre-ft (2.52 km<sup>3</sup>), 11.9 miles (19.1 km) upstream. No diversions between Livingston Reservoir and gaging station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	900	1420	656	2200	1600	1940	5470	35200	23000	11700	1030	1050
2	898	1580	638	2280	1590	1940	5260	36200	32500	11800	1030	1060
3	883	3970	617	2240	1590	1930	5200	37000	32000	11900	1180	1040
4	781	3670	602	2130	1580	1940	5600	38600	31600	11900	1180	1040
5	787	2390	601	2060	1570	1920	5900	39200	30600	10800	1180	1040
6	790	2000	598	1940	1570	1920	5500	38700	27600	6200	1170	1030
7	790	1890	597	1960	1830	2070	4090	39700	26300	3830	1170	1030
8	784	1850	606	1880	1640	2630	2990	46000	22100	3670	1160	1490
9	776	1860	734	1630	1600	2420	2830	39700	21600	4310	1160	4320
10	776	1840	769	1550	1600	2110	2360	29900	20600	7790	1150	7150
11	776	1730	776	1510	1580	2020	2070	24800	17300	8990	1140	7350
12	776	1400	776	1440	1580	2270	2040	21400	12400	9020	1140	6190
13	776	1080	776	1230	1570	2840	1890	20900	7570	8000	1130	3980
14	776	842	776	1120	1580	2910	1660	20900	4750	5830	1130	3040
15	786	761	770	1070	1580	3340	1620	20000	2980	5410	1120	2190
16	809	660	787	1020	1570	4390	1590	19600	3630	4950	1110	1690
17	788	628	828	1010	1570	4420	1400	18400	3600	4940	1100	1590
18	772	622	828	1000	1550	3940	1350	16500	3320	4930	1090	1560
19	783	622	800	1000	1570	2740	1330	15300	3050	4940	1080	1560
20	758	628	787	1010	1580	2330	1300	13900	3590	4960	1080	1570
21	660	605	777	1130	1920	2300	2820	9670	6220	4970	1080	1570
22	606	595	771	1450	2200	2280	6880	4860	9670	5170	1070	1560
23	576	588	771	1440	2010	2160	10300	4470	14000	5670	1070	1560
24	588	583	967	1470	1950	1950	13600	3490	15500	5660	1070	1550
25	1090	578	2740	1660	1950	2040	17200	2760	16100	5680	1080	1550
26	2500	584	1890	2050	1940	2240	19200	2120	15200	5650	1070	1560
27	1940	593	1550	1810	1930	2690	19900	2370	13200	5250	1060	1620
28	1600	595	1770	1720	1930	2690	22000	3290	12000	3770	1050	1680
29	1470	598	3340	1660	1940	3200	27100	4400	12000	2250	1060	2340
30	1450	624	2630	1640	---	4080	33000	4640	11800	1520	1050	3270
31	1420	---	2290	1620	---	5210	---	7750	---	1140	1040	---
TOTAL	29865	37386	33818	48930	49670	82860	233450	621720	455780	192600	34230	69230
MEAN	963	1246	1091	1578	1713	2673	7782	20060	15190	6213	1104	2308
MAX	2500	3970	3340	2280	2200	5210	33000	46000	32500	11900	1180	7350
MIN	576	578	597	1000	1550	1920	1300	2120	2980	1140	1030	1030
AC-FT	59240	74160	67080	97050	98520	164400	463000	1233000	904000	382000	67900	137300
CAL YR 1975	TOTAL	3471375	MEAN	9511	MAX	44900	MIN	576	AC-FT	6885000		
WTR YR 1976	TOTAL	1889539	MEAN	5163	MAX	46000	MIN	576	AC-FT	3748000		

## TRINITY RIVER BASIN

539

08066300 Menard Creek near Rye, Tex.

LOCATION.--Lat 30°28'52", long 94°46'46", Liberty County, on left bank 20 ft (6 m) downstream from bridge on State Highway 146, 2.3 miles (3.7 km) northwest of Rye, and about 6 miles (10 km) upstream from mouth.

DRAINAGE AREA.--152 mi<sup>2</sup> (394 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: December 1965 to current year.

Water quality: Chemical analyses: April 1966 to current year.

GAGE (revised).--Water-stage recorder. Datum of gage is 62.32 ft (18.995 m) above mean sea level. September 1974 to August 1976, wire-weight gage read twice daily.

AVERAGE DISCHARGE.--10 years (1966-76), 104 ft<sup>3</sup>/s (2.945 m<sup>3</sup>/s), 9.29 in/yr (236 mm/yr), 75,350 acre-ft/yr (92.9 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 1,120 ft<sup>3</sup>/s (31.7 m<sup>3</sup>/s) Dec. 31 (gage height, 18.00 ft or 5.486 m); minimum daily, 14 ft<sup>3</sup>/s (0.40 m<sup>3</sup>/s) Aug. 15.

Period of record: Maximum discharge, 9,660 ft<sup>3</sup>/s (274 m<sup>3</sup>/s) May 8, 1969 (gage height, 30.33 ft or 9.245 m), from rating curve extended above 5,600 ft<sup>3</sup>/s (159 m<sup>3</sup>/s); minimum daily, 2.6 ft<sup>3</sup>/s (0.074 m<sup>3</sup>/s) Nov. 1, 1967.

Flood in September 1961 reached a stage of about 34 ft (10.4 m), from information by local resident.

REMARKS.--Discharge records poor. No known diversions above station. Minor regulation by Bear Foot Lake on Mill Creek 0.5 mile (0.8 km) upstream.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	91	82	750	80	61	64	95	203	47	22	19
2	36	147	104	398	76	60	60	93	432	43	20	21
3	36	566	98	409	73	58	56	65	511	40	18	20
4	36	587	82	353	70	57	57	51	806	62	16	20
5	35	911	73	462	68	58	118	46	402	106	15	20
6	35	664	68	398	67	60	116	42	172	113	17	20
7	34	353	66	262	66	63	155	201	127	111	16	21
8	33	218	63	205	66	82	88	823	110	155	16	20
9	33	171	62	163	65	136	60	552	93	114	16	20
10	32	134	60	136	64	218	47	846	78	179	16	20
11	31	108	58	114	63	165	44	640	65	125	16	20
12	30	91	57	104	62	106	49	322	58	98	16	18
13	30	76	57	104	62	90	45	375	52	143	16	20
14	29	67	57	95	62	88	44	381	50	125	15	22
15	29	60	58	91	61	95	44	353	48	91	14	20
16	38	55	80	88	60	95	44	415	78	88	15	19
17	65	52	98	85	60	88	44	282	136	111	21	18
18	52	48	95	83	60	82	70	159	232	118	24	19
19	45	50	85	82	71	76	90	111	359	91	26	22
20	43	62	76	80	95	70	88	88	438	70	26	27
21	42	62	65	79	86	65	79	70	302	62	25	25
22	41	60	57	85	130	62	66	55	252	57	24	22
23	48	58	50	95	142	62	52	44	192	52	23	21
24	44	57	52	88	108	76	44	42	118	51	22	20
25	60	55	188	104	79	160	44	65	104	46	23	20
26	132	62	214	132	67	140	44	73	91	41	27	21
27	238	85	312	125	65	127	57	70	85	36	24	32
28	648	63	353	114	64	98	50	61	75	31	22	37
29	476	57	214	101	62	82	46	44	75	27	23	52
30	204	57	232	91	---	73	60	40	64	22	19	61
31	119	---	917	85	---	67	---	52	---	24	19	---
TOTAL	2791	5127	4133	5555	2154	2820	1925	6556	5808	2479	612	717
MEAN	90.0	171	133	179	74.3	91.0	64.2	211	194	80.0	19.7	23.9
MAX	648	911	917	750	142	218	155	846	806	179	27	61
MIN	29	48	50	79	60	57	44	40	48	22	14	18
AC-FT	5540	10170	8200	11020	4270	5590	3820	13000	11520	4920	1210	1420

CAL YR 1975 TOTAL 80762 MEAN 221 MAX 1430 MIN 29 AC-FT 160200  
WTR YR 1976 TOTAL 40677 MEAN 111 MAX 917 MIN 14 AC-FT 80680

PEAK DISCHARGE (BASE, 1,000 FT<sup>3</sup>/S).--Dec. 31 (1800) 1,120 ft<sup>3</sup>/s (18.00 ft); May 8 (0600) 1,010 ft<sup>3</sup>/s (17.40 ft).

## TRINITY RIVER BASIN

08066300 Menard Creek near Rye, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DIS- CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICRO- MHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA+MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG)	DIS-SOLVED SODIUM (NA) (MG/L)
DEC 05...	1010	75	131	5.5	12.0	19	11	5.9	1.0	14
JAN 16...	1115	85	96	6.4	11.5	17	8	5.0	1.0	9.2
MAR 01...	1230	60	138	6.6	17.0	22	10	6.5	1.3	15
APR 09...	1125	60	99	6.3	16.5	16	6	5.0	.8	9.8
JUL 01...	1320	46	86	6.9	24.5	19	6	5.5	1.3	7.2
SEP 15...	1640	19	222	6.7	25.5	30	20	9.4	1.5	27

DATE	SODIUM ADSORPTION RATIO	DIS-SOLVED PO-TAS- SIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SiO2) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
DEC 05...	1.4	1.2	9	0	3.4	28	.2	14	72
JAN 16...	1.0	.8	11	0	4.0	16	.2	13	55
MAR 01...	1.4	1.0	14	0	3.4	30	.1	12	76
APR 09...	1.1	1.1	12	0	4.2	18	.2	11	56
JUL 01...	.7	.9	16	0	3.4	13	.1	11	50
SEP 15...	2.2	1.4	12	0	1.8	56	.1	14	117

## TRINITY RIVER BASIN

541

08066400 Big Creek near Shepherd, Tex.

LOCATION.--Lat 30°30'59", long 94°59'06", San Jacinto County, on left bank at downstream side of downstream bridge on U.S. Highway 59, 1.5 miles (2.4 km) northeast of Shepherd, and 11.6 miles (18.7 km) upstream from mouth.

DRAINAGE AREA.--38.8 mi<sup>2</sup> (100.5 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: January 1966 to current year.

Water quality: Chemical analyses: December 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is 94.90 ft (28.926 m) above mean sea level.

AVERAGE DISCHARGE.--10 years, 26.5 ft<sup>3</sup>/s (0.750 m<sup>3</sup>/s), 9.28 in/yr (236 mm/yr), 19,200 acre-ft/yr (23.7 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 1,070 ft<sup>3</sup>/s (30.3 m<sup>3</sup>/s) May 7 (gage height, 14.47 ft or 4.410 m); minimum, 4.4 ft<sup>3</sup>/s (0.12 m<sup>3</sup>/s) Sept. 14.  
 Period of record: Maximum discharge, 22,000 ft<sup>3</sup>/s (623 m<sup>3</sup>/s) June 13, 1973 (gage height, 25.69 ft or 7.830 m); minimum daily, 1.0 ft<sup>3</sup>/s (0.028 m<sup>3</sup>/s) Aug. 7, 1967.  
 Maximum stage since at least 1949, that of June 13, 1973. Flood in 1957 reached 20.3 ft (6.19 m), from information by local resident.

REMARKS.--Discharge records good. No known regulation.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	18	28	34	19	15	17	17	367	13	8.2	8.4
2	11	25	19	38	18	15	16	15	220	13	8.0	9.2
3	11	150	17	30	18	15	15	13	71	13	8.0	8.7
4	11	70	17	25	18	15	16	12	46	15	7.7	18
5	11	36	17	24	18	15	18	12	38	19	7.7	16
6	11	28	17	24	18	15	19	12	33	24	7.5	9.4
7	11	25	17	30	17	21	16	467	33	16	7.2	6.7
8	11	23	16	26	16	45	18	332	29	15	7.0	6.3
9	11	22	16	23	17	29	16	78	26	27	7.0	6.8
10	11	21	16	23	17	21	15	118	23	22	7.5	6.0
11	11	19	15	23	17	19	14	84	22	18	7.2	5.0
12	11	18	15	23	16	18	14	76	20	16	7.2	4.7
13	11	17	15	23	16	17	14	285	19	15	7.0	4.7
14	11	16	15	21	16	18	14	92	18	15	7.0	12
15	11	16	15	19	16	20	13	50	18	14	7.0	13
16	17	17	18	19	16	19	13	35	74	14	6.7	8.7
17	16	16	24	19	15	16	15	28	53	22	6.7	6.8
18	13	16	17	18	15	16	14	24	43	20	6.5	6.3
19	12	16	16	18	14	16	15	22	30	15	6.5	6.2
20	12	18	16	24	14	16	19	20	28	13	10	8.7
21	12	17	15	27	36	17	19	19	22	12	7.4	16
22	12	15	15	21	25	15	14	18	20	12	6.6	10
23	14	15	15	20	18	14	13	16	19	11	6.5	7.6
24	15	15	35	20	17	15	13	15	18	11	10	6.9
25	56	15	125	47	16	20	15	15	17	12	21	6.5
26	116	16	41	34	16	53	14	16	17	12	10	6.7
27	38	17	29	23	16	27	12	19	17	11	8.1	21
28	26	15	65	20	16	21	12	15	16	10	9.0	34
29	22	16	205	20	16	21	20	13	15	9.5	9.5	30
30	20	30	56	19	---	22	26	12	14	9.0	8.2	13
31	19	---	41	19	---	19	---	69	---	8.5	7.9	---
TOTAL	586	758	988	754	507	625	469	2019	1386	457.0	251.8	323.3
MEAN	18.9	25.3	31.9	24.3	17.5	20.2	15.6	65.1	46.2	14.7	8.12	10.8
MAX	116	150	205	47	36	53	26	467	367	27	21	34
MIN	11	15	15	18	14	14	12	12	14	8.5	6.5	4.7
CFSM	.49	.65	.82	.63	.45	.52	.40	1.68	1.19	.38	.21	.28
IN.	.56	.73	.95	.72	.49	.60	.45	1.94	1.33	.44	.24	.31
AC-FT	1160	1500	1960	1500	1010	1240	930	4000	2750	906	499	641

CAL YR 1975 TOTAL 15009.0 MEAN 41.1 MAX 499 MIN 11 CFSM 1.06 IN 14.39 AC-FT 29770  
 WTR YR 1976 TOTAL 9124.1 MEAN 24.9 MAX 467 MIN 4.7 CFSM .64 IN 8.75 AC-FT 18100

PEAK DISCHARGE (BASE, 350 FT<sup>3</sup>/S)

DATE	TIME	G.HT.	DISCHARGE
5-7	1800	14.47	1,070
5-13	1400	11.06	363
6-1	1700	11.91	471

## TRINITY RIVER BASIN

08066400 Big Creek near Shepherd, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (CA, MG)	NON-CARBONATE HARDNESS (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG)	DIS-SOLVED SODIUM (NA) (MG/L)
DEC. 05...	1135	16	76	5.9	13.5	11	4	3.1	.7	6.9
JAN. 15...	1030	20	85	6.2	9.0	15	6	4.0	1.3	7.5
APR. 06...	1455	20	80	7.0	17.5	11	1	3.9	.3	7.5
MAY 19...	1145	22	81	6.6	17.5	10	0	2.7	.8	7.1
SEP. 15...	1340	20	72	6.5	22.5	14	4	3.8	1.0	6.8
19...	1120	7.2	84	7.4	23.5	14	2	3.7	1.2	8.2

DATE	SODIUM ADSORPTION RATIO	DIS-SOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SI02) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)
DEC. 05...	.9	1.0	8	0	2.9	12	.1	16	47
JAN. 15...	.8	.8	12	0	3.8	13	.1	16	52
APR. 06...	1.0	.9	12	0	3.1	12	.0	16	50
MAY 19...	1.0	.9	14	0	4.5	12	.0	16	51
SEP. 15...	.8	1.3	12	0	3.0	11	.1	15	48
19...	.9	1.1	15	0	2.5	13	.2	16	53

## TRINITY RIVER BASIN

543

08066500 Trinity River at Romayor, Tex.  
(National stream-quality accounting network)

LOCATION.--Lat 30°25'30", long 94°51'02", Liberty County, near right bank on downstream side of pier of bridge on State Highway 105, 1.9 miles (3.1 km) south of Romayor, 1.9 miles (3.1 km) downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 3.7 miles (6.0 km) downstream from Big Creek, and at mile 94.3 (151.7 km).

DRAINAGE AREA.--17,186 mi<sup>2</sup> (44,512 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: May 1924 to current year. Monthly discharge only for some periods, published in WSP 1312.

Water quality: Chemical analyses: October 1945 to November 1949, February 1950 to September 1951, April 1953 to current year. Chemical, biochemical, and pesticide analyses: February 1968 to current year. Water temperatures: February 1950 to September 1951, April 1953 to January 1959, March 1961 to current year. Sediment records: April 1968 to September 1971, October 1974 to September 1975.

GAGE (revised).--Nonrecording gage. Datum of gage is 35.92 ft (10.948 m) above mean sea level. Prior to September 1943, nonrecording gage at datum 53.57 ft (16.328 m) higher at railroad bridge 1.9 miles (3.1 km) upstream. September 1943 to Sept. 15, 1975, water-stage recorder at present site and datum.

AVERAGE DISCHARGE.--44 years (1924-68) unregulated, 7,155 ft<sup>3</sup>/s (202.6 m<sup>3</sup>/s), 5,184,000 acre-ft/yr (6.39 km<sup>3</sup>/yr); 8 years (1968-76) flow regulated by Livingston Reservoir, 7,799 ft<sup>3</sup>/s (220.9 m<sup>3</sup>/s), 5,650,000 acre-ft/yr (6.97 km<sup>3</sup>/yr).

EXTREMES.--Discharge: Current year: Maximum discharge, 47,900 ft<sup>3</sup>/s (1,360 m<sup>3</sup>/s) May 8 (gage height, 24.80 ft or 7.559 m); minimum daily, 771 ft<sup>3</sup>/s (21.8 m<sup>3</sup>/s) Oct. 24.

Period of record: Maximum discharge, 111,000 ft<sup>3</sup>/s (3,140 m<sup>3</sup>/s) May 9, 1942 (gage height, 35.8 ft or 10.91 m, from floodmarks, present site and datum); minimum, 102 ft<sup>3</sup>/s (2.89 m<sup>3</sup>/s) Aug. 24, 25, 1956.

Historic: Maximum stage since at least 1908, that of May 9, 1942.

Water quality: Current year: Maximum daily specific conductance, 458 micromhos May 3, 4; minimum daily, 203 micromhos Dec. 26. Period of record: Maximum daily specific conductance (1945-50, 1953-76), 3,800 micromhos Oct. 30, 1956; minimum daily, 103 micromhos Nov. 9, 1946. Maximum water temperatures (1953-58, 1961-74), 37.0°C July 18, 27, 1953; minimum, 3.0°C Jan. 18, 1956, Jan. 15, 16, 1968.

REMARKS.--Discharge records poor. Regulated since Sept. 28, 1968, by Livingston Reservoir (station 08066190), capacity 1,788,000 acre-ft (2.20 km<sup>3</sup>), 35 miles (56 km) upstream. No large diversions between Livingston Reservoir and gaging station.

REVISIONS (WATER YEARS).--WSP 1392: 1932, 1935. WSP 1922: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	924	1660	1100	2460	1640	2000	5420	33700	16900	11900	1100	1150
2	896	1800	973	2610	1660	2000	5260	35200	31500	11900	1150	1150
3	886	3400	878	3030	1680	2000	5180	36400	33200	11900	1240	1150
4	886	4090	810	2500	1680	2000	5620	37500	32800	11900	1210	1140
5	886	3680	780	2280	1680	2000	5920	38100	31800	11600	1200	1120
6	882	2980	775	2270	1680	2000	5530	38400	29100	7710	1200	1120
7	878	2380	775	2230	1800	2000	5000	41000	27600	4640	1200	1110
8	873	2160	775	2040	1840	2400	4020	47200	24900	4020	1190	1240
9	864	2020	775	1830	1740	2640	2910	42100	23100	4320	1190	2980
10	855	1910	864	1660	1710	2440	2540	30900	21100	6830	1190	5950
11	846	1750	949	1600	1710	2240	2280	28000	17800	9000	1190	6960
12	842	1460	924	1580	1710	2130	2100	23900	13800	9600	1190	6450
13	842	1230	878	1410	1700	2540	1950	22200	9010	8940	1190	4580
14	842	1050	855	1240	1660	2860	1730	22800	5830	6320	1180	3190
15	842	949	864	1170	1670	2950	1630	21300	3780	5650	1180	2370
16	882	864	864	1160	1680	4200	1600	20500	3730	5300	1180	1910
17	954	819	878	1160	1680	4560	1580	19600	4220	5070	1180	1800
18	934	819	910	1160	1660	4240	1560	17200	3880	5010	1160	2580
19	919	819	939	1160	1670	3090	1530	15500	3830	5010	1160	2760
20	910	810	924	1160	1680	2380	1510	14000	3730	5010	1150	2230
21	886	855	900	1170	1710	2340	2540	10700	5470	5010	1150	1760
22	851	819	882	1450	2040	2340	5560	5950	8870	5070	1160	1520
23	810	810	873	1600	2170	2240	9300	4790	13200	5530	1180	1700
24	771	810	855	1560	2150	2040	12300	4220	15400	5590	1180	1660
25	864	810	1760	1630	2080	2280	15500	3160	16300	5590	1160	1700
26	2040	824	2780	2010	2020	2480	17800	2760	16400	5590	1160	1760
27	2730	910	2500	1990	2000	2820	18800	2670	13800	5360	1160	1760
28	2270	900	2580	1780	2000	2860	21100	3300	11900	4070	1160	1860
29	2270	878	3490	1730	2000	3000	26000	4090	12100	2500	1160	2040
30	1910	1000	3100	1680	---	4030	30900	4430	11900	1730	1150	2940
31	1710	---	2650	1660	---	4430	---	6420	---	1210	1150	---
TOTAL	34755	45266	39860	53970	52100	83530	224670	637990	466950	198880	36400	71640
MEAN	1121	1509	1286	1741	1797	2695	7489	20580	15570	6415	1174	2388
MAX	2730	4090	3490	3030	2170	4560	30900	47200	33200	11900	1240	6960
MIN	771	810	775	1160	1640	2000	1510	2670	3730	1210	1100	1110
AC-FT	68940	89790	79060	107000	103300	165700	445600	1265000	926200	394500	72200	142100
CAL YR 1975 TOTAL	3640697			MEAN 9975	MAX 45800	MIN 771	AC-FT 7221000					
WTR YR 1976 TOTAL	1946011			MEAN 5317	MAX 47200	MIN 771	AC-FT 3860000					



## TRINITY RIVER BASIN

08066500 Trinity River at Romayor, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	PER- CENT SATUR- ATION	BIO- CHEM- ICAL OXYGEN DEMAND 5 DAY (MG/L)	
OCT 01...	1100	960	373	8.0	24.0	20	8	8.6	101	2.6	
NOV 05...	1100	3850	272	6.7	20.0	100	60	8.5	92	1.8	
DEC 09...	1130	730	375	6.9	13.5	30	10	10.0	45	1.5	
JAN 06...	1015	2370	338	6.6	8.5	30	20	11.8	100	1.2	
FEB 19...	1145	1620	399	6.7	14.5	10	10	9.7	94	1.6	
MAR 09...	1115	2640	334	6.7	14.5	70	55	9.2	89	2.4	
APR 07...	1100	4980	425	7.1	18.5	20	25	9.6	102	1.9	
MAY 11...	1215	29000	402	6.9	22.0	30	25	9.1	103	1.3	
JUN 09...	0830	24000	353	6.8	24.5	30	15	8.1	96	1.9	
JUL 06...	1115	8500	331	7.5	27.0	40	10	7.8	99	1.7	
AUG 23...	1300	1160	344	7.5	28.0	30	9	10.2	131	3.4	
SEP 21...	1130	1600	340	7.2	25.5	40	8	7.6	95	1.0	
DATE	TIME	FECAL COLI- FORM (COL. PER 100 ML)	STREP- TOCOC- CI (COL- ONIES PER 100 ML)	HARD- NESS (CA+MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	
OCT 01...	2200	10	37	130	14	44	3.9	22	.9	3.6	
NOV 05...	11000	290	420	88	22	29	3.6	18	.8	3.2	
DEC 09...	2200	50	30	120	22	43	3.5	23	.9	3.5	
JAN 06...	3100	46	74	100	17	35	3.3	21	.9	3.4	
FEB 19...	180	6	4	130	23	46	4.2	25	.9	3.8	
MAR 09...	12000	410	2000	110	24	39	3.3	22	.9	3.2	
APR 07...	680	72	44	120	20	43	4.1	29	1.1	4.2	
MAY 11...	820	60	60	110	17	39	4.1	30	1.2	4.4	
JUN 09...	2600	8	16	110	12	37	3.7	23	1.0	4.5	
JUL 06...	3000	35	100	100	15	36	3.4	21	.9	4.4	
AUG 23...	3200	14	22	110	8	38	3.3	21	.9	4.3	
SEP 21...	750	32	62	110	11	38	3.8	22	.9	4.4	
DATE	TIME	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SiO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITU- TENTS) (MG/L)	TOTAL NON- FILT- RABLE RESIDUE (MG/L)	VOL. NON- FILT- RABLE RESIDUE (MG/L)
OCT 01...	136	0	27	26	--	6.6	222	200	20	4	
NOV 05...	80	0	23	30	.3	7.9	160	155	140	17	
DEC 09...	122	0	25	30	.3	8.2	183	197	14	4	
JAN 06...	102	0	27	26	.4	7.0	200	173	37	15	
FEB 19...	133	0	32	30	.3	6.7	242	214	15	11	
MAR 09...	107	0	26	29	.4	7.1	206	183	122	32	
APR 07...	127	0	38	32	.5	3.1	230	217	55	7	
MAY 11...	118	0	40	35	.4	6.1	254	217	61	14	
JUN 09...	116	0	33	26	.5	11	206	196	51	21	
JUL 06...	109	0	28	23	.2	8.6	196	179	36	4	
AUG 23...	122	0	25	24	.3	8.7	178	185	17	3	
SEP 21...	122	0	25	24	.3	8.7	188	187	15	6	

## TRINITY RIVER BASIN

545

08066500 Trinity River at Romayor, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)	SUS- PENDE SEDI- MENT (MG/L)	SUS- PENDE SEDI- MENT DIS- CHARGE (T/DAY)	SUS. SEC. SIEVE DIAM. 9 FINER THAN .062 MM
OCT.										
01...	.02	.00	.01	.84	.14	7.4	--	30	78	44
NOV.										
05...	.12	.00	.01	.74	.42	13	--	100	1040	98
DEC.										
09...	.02	.01	.00	.67	.08	4.6	--	18	35	80
JAN.										
06...	.13	.01	.00	.59	.07	6.2	--	22	141	97
FEB.										
19...	.06	.01	.07	.71	.04	4.0	--	22	96	90
MAR.										
09...	.07	.01	.07	.47	.10	10	--	87	620	99
APR.										
07...	.01	.00	.01	.54	.09	14	--	31	417	97
MAY										
11...	.25	.01	.03	.71	.18	8.0	--	164	12400	34
JUNE										
09...	.18	.01	.01	.54	.15	7.9	--	76	4930	21
JULY										
06...	.67	.01	.06	.64	.32	5.0	4	17	390	98
AUG.										
23...	.01	.00	.02	.84	.24	7.9	--	15	47	96
SEP.										
21...	.16	.02	.02	.78	.23	6.0	--	12	52	81

DATE	TIME	DIS- SOLVED ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)
NOV.										
05...	1100	0	2	1	0	0	0	<10	0	0
MAR.										
09...	1115	20	2	1	50	0	0	24	0	0
JULY										
06...	1115	50	6	4	40	0	0	15	0	0
SEP.										
21...	1130	50	9	7	70	0	0	20	0	0

DATE	DIS- SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)
NOV.									
05...	0	1	0	1900	80	8	2	5	60
MAR.									
09...	0	3	2	2300	0	0	0	0	140
JULY									
06...	0	2	0	490	20	3	0	10	80
SEP.									
21...	0	2	1	410	20	2	3	10	100

DATE	DIS- SOLVED MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
NOV.									
05...	60	.2	.2	0	0	0	280	30	0
MAR.									
09...	10	.1	.0	0	0	0	250	20	20
JULY									
06...	10	.3	.3	0	0	0	330	40	20
SEP.									
21...	0	.4	.3	2	0	0	300	140	20

## TRINITY RIVER BASIN

08066500 Trinity River at Romayor, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	TOTAL PCB (UG/L)	PCB IN BOTTOM MA- TERIAL (UG/KG)	POLY- CHLO- RINATED NAPH- THA- LENES (UG/L)	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL CHLOR- DANE (UG/L)	CHLOR- DANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDD (UG/L)	DDD IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDE (UG/L)	DDE IN BOTTOM MA- TERIAL (UG/KG)
NOV. 05...	1100	.0	0	--	.00	.0	.0	0	.00	.0	.00	.0
MAR. 09...	1115	.0	0	.00	.00	.0	.0	0	.00	.0	.00	.0
JULY 06...	1115	.0	0	.00	.00	.0	.0	0	.00	.0	.00	.0
SEP. 21...	1130	.0	0	.00	.00	.0	.0	0	.00	.0	.00	.0

DATE	TOTAL DDT (UG/L)	DDT IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DI- AZINON (UG/L)	TOTAL DI- ELDRIN (UG/L)	DI- ELDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ENDRIN (UG/L)	ENDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL HEPTA- CHLOR ETHION (UG/L)	TOTAL HEPTA- CHLOR MA- TERIAL (UG/KG)	TOTAL HEPTA- CHLOR EPOXIDE (UG/L)	HEPTA- CHLOR EPOXIDE IN BOT- TOM MA- TERIAL (UG/KG)	
NOV. 05...	.00	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00	.0
MAR. 09...	.00	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00	.0
JULY 06...	.00	.0	.01	.00	.0	.00	.0	.00	.00	.0	.00	.0
SEP. 21...	.00	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00	.0

DATE	TOTAL LINDANE (UG/L)	LINDANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL MALA- THION (UG/L)	TOTAL METHYL PARA- THION (UG/L)	TOTAL METHYL TRI- THION (UG/L)	TOTAL PARA- THION (UG/L)	TOTAL TOX- APHENE (UG/L)	TOX- APHENE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)
NOV. 05...	.00	.0	.00	.00	.00	.00	0	0	.00	.00	.00	.00
MAR. 09...	.00	.0	.00	.00	.00	.00	0	0	.00	.00	.00	.00
JULY 06...	.00	.0	.00	.00	.00	.00	0	0	.00	.06	.02	.00
SEP. 21...	.00	.0	.00	.00	.00	.00	0	0	.00	.03	.01	.00

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

## PERIPHYTON

Date	Length of exposure (days)	Biomass (g/m <sup>2</sup> )		Chlorophyll a (mg/m <sup>2</sup> )	Chlorophyll b (mg/m <sup>2</sup> )	Biomass pigment ratio	Sampling method
		Dry weight	Ash weight				
OCT. 01	27	38	32	3.5	0.2	1400	Polyethylene strip
NOV. 05	35	3.9	3.6	.3	.0	890	Polyethylene strip
DEC. 09	34	11	9.1	1.6	.0	980	Polyethylene strip
JAN. 06	28	16	13	1.7	.0	1600	Polyethylene strip
APR. 07	28	5.3	2.4	.8	.2	3500	Polyethylene strip

08066500 Trinity River at Romayor, Tex.--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 to SEPTEMBER 1976

OCT. 1, 1975 1100 HOURS

PHYTOPLANKTON 140,000 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OCCYSTACEAE		
....ANKISTRODESMUS	910	1
....OOCYSTIS	3,600	3
...SCENEDESMACEAE		
....CRUCIGENIA	1,800	1
....SCENEDESMUS	1,800	1
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
....CYCLOTELLA	3,200	2
..PENNALES		
...NITZSCHIAEAE		
....NITZSCHIA	5,400	4
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
...CHROOCOCCACEAE		
....AGMENELLUM	58,000	43
...OSCILLATORIALES		
....NOSTOCACEAE		
....ANABAENOPSIS	24,000	17
...OSCILLATORIAEAE		
....OSCILLATORIA	23,000	17
...RIVULARIAEAE		
....RAPHIDIOPSIS	15,000	11

NOV. 5, 1975 1100 HOURS

PHYTOPLANKTON 6,900 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...CHARACIACEAE		
....SCHROEDERIA	180	3
...OCCYSTACEAE		
....ANKISTRODESMUS	91	1
....DICTYOSPHAERIUM	180	3
....KIRCHNERIELLA	91	1
....OOCYSTIS	180	3
....TREUBARIA	45	1
...SCENEDESMACEAE		
....ACTINASTRUM	720	10
....CRUCIGENIA	360	5
....SCENEDESMUS	820	12
..VOLVOCALES		
...CHLAMYDOMONADACEAE		
....CHLAMYDOMONAS	91	1
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
....CYCLOTELLA	91	1
....MELOSIRA	450	7
..PENNALES		
...ACHNANTHACEAE		
....COCCONEIS	45	1
...FRAGILARIAEAE		
....FRAGILARIA	45	1
...GOMPHONEMATAEAE		
....GOMPHONEMA	45	1
...NAVICULACEAE		
....GYROSIGMA	45	1
...NITZSCHIAEAE		
....NITZSCHIA	720	10
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
...CHROOCOCCACEAE		
....AGMENELLUM	360	5
...OSCILLATORIALES		
....NOSTOCACEAE		
....ANABAENOPSIS	1,800	26
...OSCILLATORIAEAE		
....PHORMIDIUM	360	5
...SPIRULINA	180	3

DEC. 9, 1975 1130 HOURS

PHYTOPLANKTON 18,000 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...HYDRODICTYACEAE		
....PEDIASTRUM	920	5
...OCCYSTACEAE		
....ANKISTRODESMUS	800	4
....KIRCHNERIELLA	570	3
....TETRAEDRON		0
...SCENEDESMACEAE		
....CRUCIGENIA		0
....SCENEDESMUS	4,800	27
....TETRASTRUM		0
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
....CYCLOTELLA	1,900	11
....MELOSIRA	3,200	18
..PENNALES		
...NAVICULACEAE		
....GYROSIGMA		0
....NAVICULA	110	1
...NITZSCHIAEAE		
....NITZSCHIA	920	5
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
...CHROOCOCCACEAE		
....AGMENELLUM	4,600	25
....ANACYSTIS		0
...OSCILLATORIALES		
....OSCILLATORIAEAE		
....OSCILLATORIA		0
EUGLENOPHYTA		
..EUGLENOPHYCEAE		
..EUGLENALES		
...EUGLENACEAE		
....TRACHELOMONAS	110	1

JAN. 6, 1976 1015 HOURS

PHYTOPLANKTON 4,800 CELLS/ML

ORGANISM_NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OCCYSTACEAE		
....ANKISTRODESMUS	160	3
...SCENEDESMACEAE		
....ACTINASTRUM	650	14
....SCENEDESMUS		0
...ZYGNEMATALES		
....DESMIDIACEAE		
....EUASTRUM		0
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
....CYCLOTELLA	320	7
....MELOSIRA	320	7
..PENNALES		
...CYMBELLACEAE		
....AMPHORA		0
....CYMBELLA	81	2
...FRAGILARIAEAE		
....SYNEDRA	81	2
...NAVICULACEAE		
....GYROSIGMA		0
....NAVICULA	81	2
...PINNULARIA		0
...NITZSCHIAEAE		
....NANTZSCHIA		0
....NITZSCHIA	1,100	24
...SURIPELLACEAE		
....SURIPELLA		0
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
...CHROOCOCCACEAE		
....AGMENELLUM	1,900	41
....ANACYSTIS		0
....ANACYSTIS INCERTA		0

## TRINITY RIVER BASIN

08066500 Trinity River at Romayor, Tex.--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

FEB. 19, 1976 1145 HOURS

PHYTOPLANKTON 4,000 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
..OCCYSTACEAE		
....ANKISTRODESUS	97	2
....DICTYOSPHAERIUM	0	0
....KIRCHNERIELLA	97	2
....SCENEDESMACEAE		
....SCENEDESMUS	190	5
....TETRASTRUM	390	10
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
..COSCINODISCACEAE		
....CYCLOTELLA	780	20
....MELOSIRA	1,500	37
..PENNALES		
..CYMBELLACEAE		
....AMPHORA		0
....CYMBELLA		0
..NAVICULACEAE		
....GYROSIGMA		0
....NAVICULA	190	5
..NITZSCHACEAE		
....NITZSCHIA		0
....NITZSCHIA	780	20
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
..CHROOCOCCACEAE		
....AGMENELLUM		0
..OSCILLATORIALES		
..OSCILLATORIA		0
EUGLENOPHYTA		
..CRYPTOPHYCEAE		
..CRYPTOMONIDALES		
..CRYPTOMONODACEAE		
....CRYPTOMONAS		0
..EUGLENACEAE		
....EUGLENALES		
....EUGLENACEAE		0
....EUGLENA		0
....TRACHELOMONAS		0

MAR. 9, 1976 1115 HOURS

PHYTOPLANKTON 6,800 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
..OCCYSTACEAE		
....OCCYSTIS	450	7
..ZYGNEMATALES		
....DESMIDIACEAE		
....EUASTRUM	110	2
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
..COSCINODISCACEAE		
....CYCLOTELLA	450	7
....MELOSIRA	2,300	33
..PENNALES		
..FRAGILARIACEAE		
....SYNEDRA	110	2
..GOMPHONEMACEAE		
....GOMPHONEMA	110	2
....NAVICULACEAE		
....NAVICULA	230	3
....STAUROISEIS	110	2
..NITZSCHACEAE		
....NITZSCHIA	110	2
....NITZSCHIA	560	8
CYANOPHYTA		
..MYXOPHYCEAE		
..OSCILLATORIALES		
..OSCILLATORIA	2,300	33

APR. 7, 1976 1100 HOURS

PHYTOPLANKTON 26,000 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
..COELASTRACEAE		
....COELASTRUM		0
..MICRACITINACEAE		
....MICRACITINUM		0
..OCCYSTACEAE		
....ANKISTRODESUS	320	1
....DICTYOSPHAERIUM		0
....KIRCHNERIELLA		0
....OCCYSTIS	850	3
....TETRAEDRON		0
....WESTELLA		0
..SCENEDESMACEAE		
....ACTINASTRUM	1,300	5
....CHUCIGENIA	1,600	6
....SCENEDESMUS	3,000	11
....TETRASTRUM	430	2
..VOLVOCALES		
..CHLAMYDOMONADACEAE		
....CHLAMYDOMONAS		0
..VOLVOCAEAE		
....PANDORINA		0
..ZYGNEMATALES		
....DESMIDIACEAE		
....COSMARUM		0
....EUASTRUM		0
CHRYSOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
..COSCINODISCACEAE		
....CYCLOTELLA	210	1
....MELOSIRA	11,000	43
..PENNALES		
..CYMBELLACEAE		
....CYMBELLA		0
..DIATOMACEAE		
....DIATOMA		0
..FRAGILARIACEAE		
....SYNEDRA		0
..GOMPHONEMACEAE		
....GOMPHONEMA		0
....NAVICULACEAE		
....CALONEIS		0
....GYROSIGMA		0
..NITZSCHACEAE		
....NITZSCHIA		0
....NITZSCHIA		0
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
..CHROOCOCCACEAE		
....AGMENELLUM		0
....ANACYSTIS	3,200	12
..OSCILLATORIALES		
..OSCILLATORIA		
....OSCILLATORIA	3,700	14
EUGLENOPHYTA		
..CRYPTOPHYCEAE		
..CRYPTOMONIDALES		
..CRYPTOMONODACEAE		
....CRYPTOMONAS		0
..EUGLENOPHYCEAE		
....EUGLENALES		
....EUGLENACEAE		
....TRACHELOMONAS		0
PYRRHOPHYTA		
..DINOPHYCEAE		
....PERIDINIALES		
....PERIDINIACEAE		
....PERIDINIUM		0

## TRINITY RIVER BASIN

549

08066500 Trinity River at Romayor, Tex.--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

MAY 11, 1976 1215 HOURS

JULY 6, 1976 1115 HOURS

PHYTOPLANKTON 21,000 CELLS/ML

PHYTOPLANKTON 53,000 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT	ORGANISM NAME	CELLS/ML	PER_CENT
CHLOROPHYTA			CHLOROPHYTA		
..CHLOROPHYCEAE			..CHLOROPHYCEAE		
..CHLOROCOCCALES			..CHLOROCOCCALES		
..OCCYSTACEAE			..CHARACIACEAE		0
..DICTYOSPHAERIUM	420	2	..SCHROEDERIA		
..TETRAEDRON	300	1	..HYDRODICTYACEAE		
..SCENEDESMACEAE			..PEDIASTHUM		0
..SCENEDESMUS	2,100	10	..OCCYSTACEAE		
..TETRASTRUM	470	2	..ANKISTHODESMUS		0
CHRYSOPHYTA			..TETRAEDRON		0
..BACILLARIOPHYCEAE			..TREURARIA		0
..CENTRALES			..SCENEDESMACEAE		
..COSCINODISCACEAE			..CRUCIGENIA	430	1
..CYCLOTELLA	240	1	..SCENEDESMUS	1,900	4
..MELOSIRA	1,200	6	..VOLVOCALES		
..PENNALES			..CHLAMYDOMONADACEAE		
..NITZSCHIAEAE			..CARTERIA		0
..NITZSCHIA	180	1	..PHACOTACEAE		
..SURIRELLACEAE			..PTEROMONAS		0
..SURIRELLA		0	..VOLVOCAEAE		
..CHRYSOPHYCEAE			..PANDORINA	1,700	3
..CHRYDOMONADALES			CHRYSOPHYTA		
..OCHROMONADACEAE			..BACILLARIOPHYCEAE		
..OCHROMONAS		0	..CENTRALES		
CYANOPHYTA			..COSCINODISCACEAE		
..MYXOPHYCEAE			..CYCLOTELLA	1,500	3
..CHROOCOCCALES			..PENNALES		
..CHROOCOCCACEAE			..FRAGILARIACEAE		0
..AGMENELLUM	360	2	..SYNEDRA		
..OSCILLATORIALES			..NITZSCHIAEAE		
..RIVULARIACEAE			..NITZSCHIA	540	1
..RAPHIIDIOPSIS	15,000	74	..CHRYSOPHYCEAE		
EUGLENOPHYTA			..CHRYDOMONADALES		
..EUGLENOPHYCEAE			..OCHROMONADACEAE		
..EUGLENALES			..OCHROMONAS		0
..EUGLENACEAE			CYANOPHYTA		
..EUGLENA		0	..MYXOPHYCEAE		

JUNE 9, 1976 0830 HOURS

PHYTOPLANKTON 20,000 CELLS/ML

ORGANISM NAME	CELLS/ML	PER_CENT	ORGANISM NAME	CELLS/ML	PER_CENT
CHLOROPHYTA			CHLOROPHYTA		
..CHLOROPHYCEAE			..CHLOROPHYCEAE		
..CHLOROCOCCALES			..CHLOROCOCCALES		
..OCCYSTACEAE			..OCCYSTACEAE		
..ANKISTHODESMUS	140	1	..ANKISTHODESMUS		
..TETRAEDRON	280	1	..TETRAEDRON		
..SCENEDESMACEAE			..SCENEDESMACEAE		
..SCENEDESMUS	3,900	19	..SCENEDESMUS		
..TETRASTRUM	840	4	..TETRASTRUM		
..VOLVOCALES			..VOLVOCALES		
..CHLAMYDOMONADACEAE			..CHLAMYDOMONADACEAE		
..CHLAMYDOMONAS	140	1	..CHLAMYDOMONAS		
..VOLVOCAEAE			..VOLVOCAEAE		
..PANDORINA	2,300	11	..PANDORINA		
CHRYSOPHYTA			CHRYSOPHYTA		
..BACILLARIOPHYCEAE			..BACILLARIOPHYCEAE		
..CENTRALES			..CENTRALES		
..COSCINODISCACEAE			..COSCINODISCACEAE		
..CYCLOTELLA	1,800	9	..CYCLOTELLA		
..PENNALES			..PENNALES		
..NAVICULACEAE			..NAVICULACEAE		
..NAVICULA	2,200	11	..NAVICULA		
..NITZSCHIAEAE			..NITZSCHIAEAE		
..NITZSCHIA	350	2	..NITZSCHIA		
CYANOPHYTA			CYANOPHYTA		
..MYXOPHYCEAE			..MYXOPHYCEAE		
..CHROOCOCCALES			..CHROOCOCCALES		
..CHROOCOCCACEAE			..CHROOCOCCACEAE		
..AGMENELLUM	3,400	17	..AGMENELLUM		
..ANACYSTIS	5,000	25	..ANACYSTIS		
EUGLENOPHYTA			EUGLENOPHYTA		
..EUGLENOPHYCEAE			..EUGLENOPHYCEAE		
..EUGLENALES			..EUGLENALES		
..EUGLENACEAE			..EUGLENACEAE		
..PHACUS		0	..PHACUS		



## TRINITY RIVER BASIN

08066500 Trinity River at Romayor, Tex.--Continued

## QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976--Continued

AUG. 23, 1976 1300 HOURS

PHYTOPLANKTON 270,000 CELLS/ML

_ORGANISM__NAME_____	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...COELASTRACEAE		
...COELASTRUM	8,400	3
...OCCYSTACEAE		
...DICTYOSPHAERIUM	4,800	2
...TETRAEDRON	1,600	1
CHRYSTOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
...CYCLOTELLA		0
..PENNALES		
...FRAGILARIACEAE		
...ASTERIONELLA	4,400	2
...NAVICULACEAE		
...NAVICULA		0
...NITZSCHIA		0
...NITZSCHIA		0
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
...CHROOCOCCACEAE		
...AGMENELLUM	37,000	14
...OSCILLATORIALES		
...NOSTOCACEAE		
...ANABAENA	46,000	17
...OSCILLATORIA		
...LYNGBYA	43,000	16
...OSCILLATORIA	120,000	45

SEP. 21, 1976 1130 HOURS

PHYTOPLANKTON 190,000 CELLS/ML

_ORGANISM__NAME_____	CELLS/ML	PER_CENT
CHLOROPHYTA		
..CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OCCYSTACEAE		
...DICTYOSPHAERIUM	1,700	1
...KIRCHNERIELLA		0
...TETRAEDRON		0
...SCENEDESMACEAE		
...SCENEDESMUS	3,500	2
CHRYSTOPHYTA		
..BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
...MELOSIRA	1,700	1
..PENNALES		
...NITZSCHIA		
...NITZSCHIA	1,700	1
CYANOPHYTA		
..MYXOPHYCEAE		
..CHROOCOCCALES		
...CHROOCOCCACEAE		
...AGMENELLUM	92,000	49
...ANACYSTIS	21,000	11
...OSCILLATORIALES		
...NOSTOCACEAE		
...ANABAENOPSIS	11,000	6
...OSCILLATORIA		
...LYNGBYA	8,600	5
...OSCILLATORIA	42,000	22
...RIVULARIACEAE		
...RAPHIDIOPSIS	3,900	2

## MONTHLY AND ANNUAL MEANS AND LOADS FOR WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	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. 1975.....	34755	346	190	17800	27	2490	30	2830	100
NOV. 1975.....	45266	328	180	22000	25	3070	28	3480	98
DEC. 1975.....	39860	315	170	18500	24	2610	27	2940	95
JAN. 1976.....	53970	352	190	27900	27	3950	31	4470	110
FEB. 1976.....	50100	387	210	28500	30	4030	34	4560	120
MAR. 1976.....	83530	402	220	49400	31	6970	35	7870	120
APR. 1976.....	224670	428	230	142000	33	19900	37	22500	130
MAY 1976.....	637990	421	230	396000	32	55800	37	63000	130
JUNE 1976.....	466950	352	190	242000	27	33900	31	38500	110
JULY 1976.....	198880	331	180	96500	25	13600	29	15500	100
AUG. 1976.....	36400	345	190	18700	26	2590	30	2960	100
SEPT 1976.....	71640	325	180	34400	25	4830	28	5470	98
TOTAL .....	1944011	**	**	1090000	**	154000	**	174000	**
WTD.AVG. ....	5326.05	382	210	**	29	**	33	**	110

## TRINITY RIVER BASIN

551

08066500 Trinity River at Romayor, Tex.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C) \* WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	373	358	355	306	385	400	400	440	372	331	346	336
2	379	330	353	299	389	404	417	450	361	337	355	329
3	376	287	340	316	392	406	423	458	360	336	351	330
4	379	260	348	325	386	403	393	458	358	335	347	333
5	386	255	359	334	387	403	381	450	362	334	347	332
6	381	268	360	336	386	402	410	452	357	330	347	334
7	379	298	362	344	394	404	411	444	352	332	347	332
8	378	340	363	364	391	387	411	408	360	332	348	331
9	378	347	368	364	386	336	417	406	356	329	347	326
10	378	358	376	358	380	351	421	407	356	333	346	320
11	378	361	373	363	386	366	423	405	352	324	345	323
12	379	362	374	366	388	392	425	417	356	315	345	318
13	379	362	375	365	388	407	427	415	357	330	344	322
14	379	366	379	363	387	405	427	387	356	331	344	323
15	378	371	377	366	386	404	426	398	357	331	343	324
16	376	370	373	369	388	412	425	403	356	333	341	326
17	373	371	365	372	388	407	427	408	302	332	343	329
18	366	370	370	374	390	426	421	400	305	330	342	325
19	370	370	368	372	394	418	413	375	308	331	343	317
20	375	366	367	374	392	415	410	393	325	330	345	324
21	378	367	373	372	382	415	414	396	316	332	341	329
22	378	366	382	369	372	416	427	391	336	332	343	331
23	378	367	378	375	359	419	429	388	341	332	344	333
24	374	366	383	372	377	418	430	383	346	332	345	332
25	375	371	300	374	392	398	431	389	344	331	342	332
26	310	370	203	365	397	402	432	392	342	329	342	329
27	262	369	230	350	399	396	436	383	340	332	342	327
28	273	368	245	355	399	404	435	391	338	331	342	325
29	280	370	255	362	400	414	437	391	335	343	343	324
30	317	362	269	375	---	388	440	389	332	346	342	321
31	350	---	301	380	---	411	---	380	---	337	346	---
MONTH	362	348	343	357	388	401	421	408	345	332	345	327

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.0	20.0	12.0	---	---	17.0	15.0	19.0	---	25.0	---	27.0
2	20.0	---	14.0	14.0	---	---	17.0	20.0	22.0	26.0	29.0	27.0
3	22.0	20.0	12.0	9.0	9.0	17.0	17.0	20.0	24.0	27.0	28.0	27.0
4	18.0	---	14.0	---	14.0	17.0	---	20.0	24.0	---	27.0	---
5	---	20.0	15.0	7.0	14.0	17.0	17.0	20.0	24.0	27.0	27.0	---
6	20.0	20.0	---	9.0	10.0	15.0	17.0	21.0	---	27.0	27.0	---
7	22.0	18.0	---	---	9.0	---	18.0	---	24.0	25.0	28.0	28.0
8	22.0	20.0	14.0	5.0	---	15.0	18.0	19.0	24.0	26.0	---	28.0
9	24.0	---	14.0	5.0	14.0	12.0	17.0	---	24.0	25.0	28.0	28.0
10	24.0	20.0	12.0	9.0	12.0	12.0	18.0	20.0	24.0	25.0	---	27.0
11	25.0	18.0	14.0	---	14.0	15.0	---	22.0	24.0	---	28.0	25.0
12	---	18.0	---	14.0	15.0	17.0	19.0	22.0	25.0	---	28.0	---
13	25.0	14.0	18.0	14.0	15.0	15.0	20.0	21.0	---	27.0	28.0	25.0
14	24.0	---	---	10.0	15.0	---	20.0	20.0	25.0	27.0	29.0	26.0
15	---	15.0	19.0	10.0	---	15.0	20.0	19.0	25.0	27.0	---	26.0
16	22.0	---	18.0	10.0	17.0	14.0	20.0	---	25.0	---	27.0	27.0
17	22.0	18.0	12.0	9.0	17.0	---	20.0	21.0	---	---	28.0	27.0
18	20.0	18.0	10.0	---	---	15.0	---	20.0	26.0	---	27.0	27.0
19	---	18.0	8.0	12.0	17.0	17.0	20.0	21.0	25.0	27.0	26.0	---
20	20.0	15.0	10.0	---	17.0	17.0	20.0	22.0	---	27.0	25.0	---
21	22.0	15.0	---	10.0	14.0	---	20.0	22.0	25.0	26.0	26.0	25.0
22	---	12.0	10.0	9.0	---	15.0	20.0	22.0	25.0	27.0	---	23.0
23	22.0	---	10.0	9.0	10.0	15.0	20.0	---	26.0	28.0	27.0	25.0
24	24.0	15.0	---	12.0	12.0	17.0	20.0	22.0	25.0	27.0	26.0	25.0
25	22.0	10.0	---	---	14.0	17.0	---	---	---	---	27.0	25.0
26	---	10.0	7.0	10.0	14.0	17.0	20.0	24.0	---	28.0	27.0	---
27	18.0	---	7.0	9.0	14.0	15.0	20.0	24.0	---	28.0	27.0	25.0
28	20.0	14.0	---	9.0	14.0	---	20.0	20.0	25.0	28.0	27.0	---
29	20.0	19.0	11.0	9.0	---	17.0	20.0	22.0	26.0	28.0	---	24.0
30	20.0	---	9.0	9.0	---	17.0	18.0	---	25.0	28.0	27.0	24.0
31	18.0	---	10.0	12.0	---	15.0	---	20.0	---	28.0	27.0	---
MONTH	21.5	---	---	---	---	15.5	19.0	21.0	---	---	27.0	---

## TRINITY RIVER BASIN

08067000 Trinity River at Liberty, Tex.

LOCATION.--Lat 30°03'27", long 94°49'05", Liberty County, near center of channel at upstream side of upstream bridge on U.S. Highway 90 in Liberty, 345 ft (105 m) downstream from Texas and New Orleans Railroad Co. bridge, and at mile 40.3 (64.8 km).

DRAINAGE AREA.--17,468 mi<sup>2</sup> (45,242 km<sup>2</sup>).

PERIOD OF RECORD.--October 1938 to September 1940 (gage heights, discharge measurements, and some records of daily discharge), October 1940 to current year (high-water records only). Gage-height records collected in this vicinity since 1903 are contained in reports of the National Weather Service.

GAGE.--Water-stage recorder. Datum of gage is 3.04 ft (0.927 m) below mean sea level, adjustment of 1973; not adjusted for land-surface subsidence. Prior to Mar. 13, 1973, nonrecording gage at site 105 ft (32 m) downstream at same datum.

EXTREMES.--Current year: Maximum daily discharge, 44,000 ft<sup>3</sup>/s (1,250 m<sup>3</sup>/s) May 10; maximum gage height, 27.68 ft (8.437 m) May 10; minimum discharge not determined (affected by tides); minimum gage height observed, 3.95 ft (1.204 m) Nov. 21, 22.  
Period of record: Maximum discharge, 114,000 ft<sup>3</sup>/s (3,230 m<sup>3</sup>/s) May 12, 1942 (gage height, 29.38 ft or 8.955 m); minimum not determined (affected by tides); minimum gage height observed, 2.32 ft (0.707 m) Nov. 24, 1970.  
Maximum stage since at least 1903, that of May 12, 1942. Flood of May 8-11, 1922, reached a stage of 28.6 ft (8.72 m), present datum, from observation by the National Weather Service at nonrecording gage on railroad bridge upstream.

REMARKS.--Records poor. Discharge below 10,000 ft<sup>3</sup>/s (283 m<sup>3</sup>/s) not published. Published discharges are estimated using records for Trinity River near Romayor (station 08066500), intervening area computation, and discharge measurements. Flow regulated by Livingston Reservoir (station 08066190) 88.9 miles (143.0 km) upstream. Many diversions above station for municipal supplies, industrial use, and irrigation.

REVISIONS.--WSP 1922: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							---	28500	---	12200		
2							---	32000	20000	12000		
3							---	34000	30000	12000		
4							---	35000	32500	12000		
5							---	36000	34000	12000		
6							---	37000	34000	11500		
7							---	38000	32000	---		
8							---	41000	30000	---		
9							---	43000	28000	---		
10							---	44000	26000	---		
11							---	38000	23000	---		
12							---	33000	19000	---		
13							---	29000	15000	---		
14							---	26000	11000	---		
15							---	24000	---	---		
16							---	23000	---	---		
17							---	22000	---	---		
18							---	21000	---	---		
19							---	18500	---	---		
20							---	17000	---	---		
21							---	15000	---	---		
22							---	12000	---	---		
23							---	---	---	---		
24							---	---	13000	---		
25							12000	---	15000	---		
26							15000	---	16000	---		
27							17000	---	16000	---		
28							18000	---	14000	---		
29							21000	---	13000	---		
30							25000	---	12500	---		
31							---	---	---	---		
TOTAL	---			---			---	---	---	---		
MEAN	---			---			---	---	---	---		
MAX	---			---			---	---	---	---		
MIN	---			---			---	---	---	---		
AC-FT	---			---			---	---	---	---		
CAL YR 1975	TOTAL -	MEAN -	MAX -	MIN -	AC-FT -							
WTR YR 1976	TOTAL -	MEAN -	MAX -	MIN -	AC-FT -							

## TRINITY RIVER BASIN

553

08067080 Devers Canal near Liberty, Tex.

LOCATION.--Lat 29°57'58", long 94°43'17", Liberty County, in flume over Farm Road 563, 250 ft (76 m) downstream from pump plant No. 2, and 8 miles (13 km) southeast of Liberty.

PERIOD OF RECORD.--March to December 1971 (elevation and discharge measurements only), January 1972 to current year (monthly discharge only).

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

REMARKS.--Records fair. Discharge is computed from pump record and verified by elevation record and discharge measurements. Flow is diverted from Trinity River at pump plant No. 1 through a canal 4.7 miles (7.6 km) to pump plant No. 2, located 250 ft (76 m) upstream from station. Water is furnished by the Trinity River Authority for irrigation.

## MONTHLY DISCHARGE, IN ACRE-FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

MONTH	PUMPAGE IN ACRE-FEET
OCTOBER.....	0
NOVEMBER.....	853
DECEMBER.....	0
CAL YR 1975.....	92,783
JANUARY.....	0
FEBRUARY.....	0
MARCH.....	7,260
APRIL.....	14,910
MAY.....	19,430
JUNE.....	15,420
JULY.....	11,780
AUGUST.....	15,320
SEPTEMBER.....	7,250
WTR YR 1976.....	92,223

08067500 Cedar Bayou near Crosby, Tex.

LOCATION.--Lat 29°58'21", long 94°59'08", Liberty County, on left bank at downstream side of bridge on U.S. Highway 90 and 6.6 miles (10.6 km) northeast of Crosby.

DRAINAGE AREA.--64.9 mi<sup>2</sup> (168.1 km<sup>2</sup>).

PERIOD OF RECORD.--Discharge: March to August 1946, March 1963 to February 1964, May to August 1971 (discharge measurements only), October 1971 to current year.

Water quality: Chemical, biochemical, and pesticide analyses: May 1971 to current year.

GAGE.--Water-stage recorder. Datum of gage is 31.31 ft (9.543 m) above mean sea level.

AVERAGE DISCHARGE.--5 years, 83.0 ft<sup>3</sup>/s (2.351 m<sup>3</sup>/s), 60,130 acre-ft/yr (74.1 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 1,560 ft<sup>3</sup>/s (44.2 m<sup>3</sup>/s) June 1 (gage height, 20.39 ft or 6.215 m); minimum daily, 0.31 ft<sup>3</sup>/s (0.009 m<sup>3</sup>/s) July 3.

Period of record: Maximum discharge, 2,870 ft<sup>3</sup>/s (81.3 m<sup>3</sup>/s) June 13, 1973 (gage height, 24.91 ft or 7.593 m); minimum daily, 0.01 ft<sup>3</sup>/s (0.0003 m<sup>3</sup>/s) May 20, July 30, 1974.

REMARKS.--Discharge records fair. Low flow is sustained from industrial effluent and drainage from irrigated lands.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.0	11	17	22	14	2.6	2.4	26	1170	3.0	18	6.9
2	5.8	25	9.4	229	11	2.6	1.8	15	1160	15	14	7.0
3	5.5	98	6.2	610	6.1	2.6	4.8	11	537	.31	15	6.2
4	6.4	68	4.3	200	4.0	2.6	2.9	12	278	.43	7.0	4.7
5	5.5	29	3.6	70	3.8	2.6	2.2	8.2	118	3.3	7.2	4.8
6	4.5	16	96	42	3.9	2.8	2.9	4.7	37	9.5	15	4.8
7	5.1	11	94	34	4.0	3.6	6.1	106	19	7.2	17	6.7
8	4.3	9.2	34	23	3.6	14	3.4	606	9.0	4.1	20	5.9
9	2.9	8.6	20	16	3.6	71	.93	237	8.1	12	15	4.0
10	2.1	7.0	13	15	3.6	16	2.5	85	7.4	53	18	4.0
11	1.6	4.8	9.0	11	3.6	7.6	2.7	335	7.5	71	15	4.3
12	1.4	5.0	6.5	11	3.6	1.8	4.5	129	7.1	38	19	3.3
13	1.2	4.0	5.2	8.3	3.2	1.0	12	300	4.0	32	12	3.2
14	2.2	2.6	5.0	7.1	3.2	.84	15	264	2.5	64	7.7	4.2
15	2.7	1.9	4.5	5.7	3.2	1.1	3.6	75	11	86	7.7	4.0
16	3.5	1.6	3.8	5.1	3.2	3.7	.97	33	60	62	7.7	4.9
17	5.3	1.6	4.7	5.3	3.4	2.5	2.1	22	43	94	7.9	5.3
18	7.5	1.4	4.7	4.1	3.3	3.4	3.3	9.5	28	55	11	4.4
19	3.8	1.6	3.8	3.0	3.2	.60	85	9.4	14	36	7.9	4.2
20	2.6	1.8	3.4	3.5	3.2	.94	231	4.7	9.6	45	7.8	292
21	2.6	1.6	4.6	11	4.3	1.2	498	6.4	5.4	29	6.1	511
22	1.7	1.4	3.4	7.2	5.3	3.4	102	5.5	3.5	14	5.8	110
23	5.6	1.4	3.7	3.9	3.6	3.4	30	1.3	4.5	4.8	5.7	42
24	22	1.6	38	3.6	3.2	3.4	12	4.0	4.3	18	5.0	24
25	100	2.9	462	221	3.0	9.9	14	5.0	4.7	15	8.2	21
26	577	12	199	238	3.0	17	15	5.0	3.7	12	5.3	17
27	277	30	65	63	3.0	3.6	9.0	3.4	1.7	16	5.3	38
28	90	12	40	29	2.8	4.8	7.2	5.2	3.2	12	6.4	64
29	39	12	64	19	2.7	7.0	41	4.7	4.5	6.0	15	46
30	23	12	43	16	---	6.4	55	3.7	4.3	4.8	10	29
31	15	---	27	16	---	3.3	---	65	---	9.1	7.4	---
TOTAL	1232.8	396.0	1297.8	1952.8	121.6	207.28	1173.30	2401.7	3570.0	831.54	330.1	1286.8
MEAN	39.8	13.2	41.9	63.0	4.19	6.69	39.1	77.5	119	26.8	10.6	42.9
MAX	577	98	462	610	14	71	498	606	1170	94	20	511
MIN	1.2	1.4	3.4	3.0	2.7	.60	.93	1.3	1.7	.31	5.0	3.2
AC-FT	2450	785	2570	3870	241	411	2330	4760	7080	1650	655	2550
(††)	4.70	1.89	3.10	3.42	.20	1.70	3.21	4.27	4.14	3.42	.53	8.97
CAL YR 1975	TOTAL	24094.69	MEAN	66.0	MAX	1170	MIN	.89	AC-FT	47790	††	41.09
WTR YR 1976	TOTAL	14801.72	MEAN	40.4	MAX	1170	MIN	.31	AC-FT	29360	††	39.55

†† Rainfall, in inches, at gaging station.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	IMME- DIATE COLI- FORM (COL. PER 100 ML)	FECAL COLI- FORM (COL. PER 100 ML)	STREP- TOCOCCI (COL- ONIES PER 100 ML)	HARD- NESS (CA/MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	SODIUM AD- SORP- TION RATIO
NOV									
11...	6700	620	170	--	--	--	--	--	--
24...	2400	4	18	360	140	120	14	140	3,2
DEC									
16...	13000	140	130	--	--	--	--	--	--
JAN									
21...	4000	230	160	--	--	--	--	--	--
MAR									
01...	2000	120	190	380	150	130	13	160	3,6
23...	460	52	86	--	--	--	--	--	--
MAY									
03...	1500	180	82	--	--	--	--	--	--
JUN									
08...	9000	150	90	120	17	41	3.8	44	1,8
30...	12000	500	230	--	--	--	--	--	--
JUL									
14...	44000	900	2800	99	0	33	3.9	44	1.9
AUG									
25...	40000	290	310	--	--	--	--	--	--
SEP									
20...	90000	8000	12000	--	--	--	--	--	--

[illegible]



## CEDAR BAYOU BASIN

08067500 Cedar Bayou near Crosby, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	VOL. NON- FILT- RABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
NOV 11...	15	.06	.01	.01	1.1	.18	6.6	--	.1
24...	7	.10	.01	.01	.55	.44	7.6	6	.3
DEC 16...	3	.07	.01	.06	.58	.28	9.0	--	.1
JAN 21...	3	.09	.01	.05	.95	.19	6.4	--	.1
MAR 01...	20	.00	.00	.01	.40	.10	4.0	--	.1
23...	0	.11	.02	.08	.66	.37	6.4	--	.1
MAY 03...	18	.33	.02	.01	1.4	.22	9.1	--	.2
JUN 08...	7	.39	.06	.04	1.1	.11	9.0	16	.1
30...	15	.11	.00	.09	1.1	.30	2.4	--	.1
JUL 14...	28	.13	.01	.08	1.2	.09	11	7	.1
AUG 25...	24	.04	.01	.04	2.9	.17	4.8	--	.1
SEP 20...	68	.89	.01	.05	1.6	.51	6.4	--	.1

DATE	TIME	DIS- SOLVED ALUM- INUM (AL) (UG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)
NOV. 24...	1145	20	2	100	0	2	0	2
MAR. 01...	1015	--	--	70	--	--	--	--
JUNE 08...	0945	60	1	100	0	0	0	3
JULY 14...	1130	40	2	60	0	0	0	5

DATE	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
NOV. 24...	10	0	0	60	1.0	0	640	50
MAR. 01...	--	--	--	--	--	--	--	--
JUNE 08...	60	6	0	0	.0	0	200	50
JULY 14...	100	0	0	0	.3	2	220	10

08067500 Cedar Bayou near Crosby, Tex.--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	TOTAL PCB (UG/L)	PCB IN BOTTOM MA- TERIAL (UG/KG)	POLY- CHLO- RINATED NAPH- THA- LENES (UG/L)	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL CHLOR- DANE (UG/L)	CHLOR- DANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDD (UG/L)	DDD IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DDE (UG/L)	DDE IN BOTTOM MA- TERIAL (UG/KG)
NOV. 24...	1145	.0	0	--	.00	.0	.0	1	.00	.3	.00	.8
MAR. 01...	1015	.0	0	.00	.00	.1	.0	0	.00	.5	.00	.0
JULY 14...	1130	.0	--	.00	.00	--	.0	--	.00	--	.00	--
DATE	TOTAL DDT (UG/L)	DDT IN BOTTOM MA- TERIAL (UG/KG)	TOTAL DI- AZINON (UG/L)	TOTAL DI- ELDRIN (UG/L)	DI- ELDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ENDRIN (UG/L)	ENDRIN IN BOTTOM MA- TERIAL (UG/KG)	TOTAL ETHION (UG/L)	TOTAL HEPTA- CHLOR (UG/L)	HEPTA- CHLOR IN BOTTOM MA- TERIAL (UG/KG)	TOTAL HEPTA- CHLOR EPOXIDE (UG/L)	HEPTA- CHLOR EPOXIDE IN BOT- TOM MA- TERIAL (UG/KG)
NOV. 24...	.00	.9	.00	.00	.9	.00	.0	.00	.00	.0	.00	.1
MAR. 01...	.00	.7	.00	.00	.8	.00	.0	.00	.00	.0	.00	.0
JULY 14...	.00	--	.00	.01	--	.00	--	.00	.00	--	.00	--
DATE	TOTAL LINDANE (UG/L)	LINDANE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL MALA- THION (UG/L)	TOTAL METHYL PARA- THION (UG/L)	TOTAL METHYL TRI- THION (UG/L)	TOTAL PARA- THION (UG/L)	TOTAL TOX- APHENE (UG/L)	TOX- APHENE IN BOTTOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)
NOV. 24...	.00	.0	.00	.00	.00	.00	0	0	.00	.00	.00	.00
MAR. 01...	.00	.0	.00	.00	.00	.00	0	0	.00	.00	.00	.00
JULY 14...	.00	--	.00	.00	.00	.00	0	--	.00	.00	.00	.00



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 stations during water year 1976

Discharge measurements made at flow-partial-record stations during water year 1976						
Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
Arkansas River basin						
07227700	Chicken Creek near Amarillo, Tex.	Lat 35°28'29", long 101°45'35", Potter County, about 1.5 miles northeast of LX Ranch headquarters and about 18 miles northeast of Amarillo.	(c)	1953-76	2-12-76 9- 9-76	1.6 .57
Red River basin						
07299750	Wanderers Creek at Odell, Tex.	Lat 34°20'50", long 99°25'15", Wilbarger County, at county road bridge and 0.25 mile northwest of Odell Post Office.	199	1949-50, 1952-76	1-28-76 7-15-76	5.9 1.8
07299890	Lelia Lake Creek below Bell Creek near Hedley, Tex.	Lat 34°56'08", long 100°41'46", Donley County, 150 ft downstream from county road crossing, 1.0 mile downstream from mouth of Bell Creek, and about 5 miles north of Hedley.	74	1964-76	1- 8-76 8-27-76	4.4 .66
07303300	Elm Creek near Shamrock, Tex.	Lat 35°07'21", long 100°17'07", Collingsworth County, at county road bridge, 1,500 ft downstream from Fort Worth and Denver (Burlington) Railway Company bridge, and about 6 miles southwest of Shamrock.	(c)	1947-76	1- 8-76 8-27-76	1.9 .92
07307500	Quitague Creek near Quitague, Tex.	Lat 34°14'24", long 101°07'03", Floyd County, at W. F. Saul's Ranchhouse, 0.7 mile upstream from Turkey Creek, 1.8 miles downstream from Wilson Creek, and 9.7 miles southwest of Quitague.	d293	1945-59+, 1960-76	1- 6-76 8-24-76	2.2 0
07307700	Roaring Springs near Roaring Springs, Tex.	Lat 33°51'12", long 100°51'53", Motley County, 3.5 miles south of Roaring Springs.	(c)	1937 1943-76	1- 5-76 8- 2-76	1.2 .91
07346160	Frazier Creek near McLeod, Tex.	Lat 32°54'37", long 94°07'16", Cass County, at bridge on Farm Road 125 and 3.3 miles southwest of McLeod.	199	1964-76	10-14-75 11-24-75 7-29-76	2.0 70 6.0
Sabine River basin						
08019400	Big Sandy Creek near Winnsboro, Tex.	Lat 32°52'33", long 95°20'23", Wood County, at bridge on State Highway 37, 0.8 mile downstream from Lake Winnsboro Dam, 1.7 miles upstream from Indian Creek, 6 miles southwest of Winnsboro (discontinued).	27.2	1974-76	10-15-75 11-25-75 2-18-76	0 .14 5.4
Neches River basin						
08031300	Flat Creek below Lake Athens near Athens, Tex.	Lat 32°12'19", long 95°43'29", Henderson County, downstream from Flat Creek Dam and 7.7 miles east of Athens (discontinued).	21.6	1963-76	12- 3-75 1-14-76 8-25-76	.02 .06 .02
Trinity River basin						
08065975	Harmon Creek near Huntsville, Tex.	Lat 30°49'12", long 95°29'09", Walker County, at end of county road, 2.2 miles east of Farm Road 980, 7.6 miles northeast of Huntsville, and about 9 miles southwest of Riverside.	89.2	1973-76	12- 8-75 2-26-76 4- 6-76 5-19-76 7- 2-76 8-10-76 9-14-76	7.9 7.5 68 10 6.6 5.6 6.2
08066210	Long King Creek near Goodrich, Tex.	Lat 30°36'16", long 94°57'26", Polk County, at bridge on Farm Road 1988, 0.7 mile west of Goodrich, and 4.5 miles upstream from mouth.	220	1973-76	10- 8-75 1-15-76 2-25-76 4- 6-76 7- 1-76 8-11-76 9-15-75	19 57 63 111 38 15 13

\* Operated as a continuous-record station.

c Not applicable.

d Of which 258 sq mi is probably noncontributing.

## 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 or 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 1976

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Elevation (feet)	Discharge (cfs)
Sabine River basin							
08018000	Sabine River near Golden, Tex.	Lat 32°43'13", long 95°38'06", Van Zandt County, on right bank at downstream side of bridge on Farm Road 17, 0.5 mile downstream from Simpsons Creek, 2.3 miles upstream from Cottonwood Creek, 4.3 miles southwest of Golden, and at mile 481.0.	1,123	1924-26, 1976	4-21-76	347.55	-
08018300	Sabine River at U.S. Highway 80 near Mineola, Tex.	Lat 32°40'22", long 95°34'18", Smith County, near right bank at downstream side of downstream bridge on U.S. Highway 80, 0.6 mile upstream from Texas and Pacific Railroad bridge, 1.3 miles upstream from Dry Creek, 2.8 miles downstream from Grand Saline Creek, 3.4 miles west of Mineola, and at mile 471.9.	1,147	1976	4-21-76	338.88	-
08018600	Sabine River near Lindale, Tex.	Lat 32°36'04", long 95°23'28", Smith County, near right bank at downstream side of bridge on Farm Road 1804, 4.2 miles upstream from Lake Fork Creek, 6.0 miles northeast of Lindale, 6.8 miles downstream from Missouri Pacific Railroad bridge, and at mile 448.8.	-	1976	4-22-76	a314.8	-
08019200	Sabine River near Hawkins, Tex.	Lat 32°33'35", long 95°12'23", Wood County, on left bank at upstream side of bridge on State Highway 14, 1.9 miles south of Hawkins, 2.1 miles upstream from East Mill Creek, 3.4 miles downstream from Lynn Creek, and at mile 427.4.	-	1976	5-12-76	299.81	-
08020500	Sabine River near Longview, Tex.	Lat 32°28'05", long 94°46'50", Gregg County, on left bank at downstream side of upstream bridge on U.S. Highway 259, 0.5 mile upstream from Missouri Pacific Railroad bridge, 2.6 miles upstream from Rabbit Creek, 3.2 miles southwest of Longview, 5.2 miles downstream from Hawkins Creek, and at mile 372.8.	-	1904-06, 1923-32, 1976	4-30-76	255.35	-
08022040	Sabine River near Beckville, Tex.	Lat 32°19'40", long 94°21'15", Panola County, on right bank at downstream side of downstream bridge on U.S. Highway 59, 0.9 mile upstream from Eightmile Creek, 6.0 miles upstream from Farm Road 1794 bridge, 8.4 miles northeast of Beckville, and at mile 327.0.	3,589	1976	5- 6-76	215.30	-
Trinity River basin							
08048550	Dry Branch at Blandin Street, Fort Worth, Tex.	Lat 32°47'19", long 97°18'22", Tarrant County, at culvert on Blandin Street in north Fort Worth and 2.8 miles upstream from mouth.	1.08	1969-76	5-31-76	f588.11	398
08048820	Little Fossil Creek at Interstate Highway 820, Fort Worth, Tex.	Lat 32°50'22", long 97°19'20", Tarrant County, at culvert on south access road to Interstate Highway 820 and 5.7 miles north of Tarrant County courthouse, Fort Worth.	5.64	1969-76	5-31-76	f613.59	451
08055580	Joes Creek at Royal Lane, Dallas, Tex.	Lat 32°53'43", long 96°41'36", Dallas County, at culvert on Royal Lane in northwest Dallas and 4.9 miles upstream from mouth.	1.94	1973-76	3-26-75 5-26-76	512.08 511.96	e1,230 1,170
08055600	Joes Creek at Dallas, Tex.	Lat 32°51'41", long 96°52'27", Dallas County, at bridge on State Highway 114, Dallas, and 0.9 mile upstream from mouth.	7.51	1962-76	5-26-76	422.92	1,180
08057020	Coombs Creek at Sylvan Avenue, Dallas, Tex.	Lat 32°46'01", long 96°50'07", Dallas County, at bridge on Sylvan Avenue, Dallas, and 1.2 miles upstream from mouth.	4.75	1965-76	8-21-75 4-19-76	420.14 421.22	e1,160 1,580
08057050	Cedar Creek at Bonnie View Road, Dallas, Tex.	Lat 32°44'50", long 96°47'44", Dallas County, at bridge on Bonnie View Road, Dallas, and 0.9 mile upstream from mouth.	9.42	1965-76	4-19-76	403.30	6,400

a From floodmark.

e Revised.

f Flow did not reach bottom of intakes.

Annual maximum stage and (or) discharge during water year 1976--Continued							
Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Elevation (feet)	Discharge (cfs)
Trinity River basin--Continued							
08057120	Spanky Branch at McCallum Lane, Dallas, Tex.	Lat 32°57'58", long 96°48'11", Dallas County, at bridge on McCallum Lane, Dallas, and 0.5 mile upstream from mouth.	6.77	1962-76	6-18-75	555.35	470
08057130	Rush Branch at Arapaho Road, Dallas, Tex.	Lat 32°57'45", long 96°47'44", Dallas County, near drop-inlet structure at upstream side of Arapaho Road in north Dallas.	1.22	1973-76	6-18-76	595.11	484
08057140	Cottonwood Creek at Forest Lane, Dallas, Tex.	Lat 32°54'33", long 96°45'54", Dallas County, at bridge on Forest Lane, Dallas, and 0.2 mile upstream from Floyd Branch.	8.50	1962-76	5-26-76	505.46	1,370
08057160	Floyd Branch at Forest Lane, Dallas, Tex.	Lat 32°54'33", long 96°45'34", Dallas County, at bridge on Forest Lane, Dallas, and 0.3 mile upstream from mouth.	4.17	1962-76	5-23-76	503.09	1,030
08057320	Ash Creek at Highland Road, Dallas, Tex.	Lat 32°48'18", long 96°43'04", Dallas County, at bridge on Highland Road, Dallas, and 0.4 mile upstream from mouth.	6.92	1963-76	4-19-76	424.46	4,690
08057415	Elam Creek at Seco Boulevard, Dallas, Tex.	Lat 32°44'14", long 96°41'36", Dallas County, at bridge on Seco Boulevard in southeast Dallas.	1.25	1973-76	4-19-76	467.57	1,260
08057418	Fivemile Creek at Kiest Boulevard, Dallas, Tex.	Lat 32°42'19", long 96°51'32", Dallas County, at bridge on Kiest Boulevard, Dallas, and 10.9 miles upstream from mouth.	7.65	1974-76	9-20-74 5-27-75 4-19-76	522.09 514.54 521.04	6,370 1,590 5,560
08057420	Fivemile Creek at U.S. Highway 77, Dallas, Tex.	Lat 32°41'15", long 96°49'22", Dallas County, at bridge on U.S. Highway 77, Dallas, 0.2 mile upstream from Woody Branch, and 8.0 miles upstream from mouth.	13.2	1965-76	4-19-76	473.29	9,310
08057425	Woody Branch at U.S. Highway 77, Dallas, Tex.	Lat 32°40'58", long 96°49'22", Dallas County, at bridge on U.S. Highway 77, Dallas, and 0.4 mile upstream from mouth.	11.5	1965-76	5-27-75 4-19-76	469.11 478.91	e3,900 9,350
08057430	Fivemile Creek at Lancaster Road, Dallas, Tex.	Lat 32°40'49", long 96°47'10", Dallas County, at bridge on Lancaster Road, Dallas, and 6.7 miles upstream from mouth.	37.9	1965-76	4-19-76	436.57	10,600
08057435	Newton Creek at Interstate Highway 635, Dallas, Tex.	Lat 32°39'19", long 96°44'41", Dallas County, at bridge on Interstate Highway 635 in south-east Dallas and 2.2 miles upstream from mouth.	5.91	1974-76	1-10-74 7-25-75 4-19-76	e436.87 e436.22 438.75	1,710 1,540 2,230
08057440	Whites Branch at Interstate Highway 635, Dallas, Tex.	Lat 32°39'26", long 96°44'25", Dallas County, at bridge on Interstate Highway 635 in south-east Dallas and 0.2 mile upstream from mouth.	2.53	1974-76	9-16-74 7-25-75 4-19-76	431.43 431.24 432.48	c858 c747 1,770
08057442	Prairie Creek at Jennie Lee Street, Dallas, Tex.	Lat 32°45'16", long 96°39'58", Dallas County, at bridge on Jennie Lee Street in east Dallas and 8.2 miles upstream from mouth.	3.16	1976	4-19-76	477.92	-
08057447	Hattfields Branch at at Seagoville Road, Dallas, Tex.	Lat 32°42'34", long 96°39'36", Dallas County, at bridge on Seagoville Road in east Dallas and 2.5 miles upstream from mouth.	2.10	1976	4-19-76	438.64	-
08061620	Duck Creek at Buckingham Road, Garland, Tex.	Lat 32°55'53", long 96°39'55", Dallas County, at dam 200 ft upstream from Buckingham Road in north Garland and 17.5 miles upstream from mouth.	8.05	1969-76	5-23-76	563.09	3,100
08061920	South Mesquite Creek at State Highway 352, Mesquite, Tex.	Lat 32°46'09", long 96°37'18", Dallas County, at bridge on State Highway 352 in west Mesquite and 9.6 miles upstream from mouth.	13.4	1969-76	4-19-76	446.86	8,680

c Not previously published.  
e Revised.



Measurements of streamflow at points other than gaging stations or partial-record stations are given in the following table:

Discharge measurements made at miscellaneous sites during water year 1976						
Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
Trinity River basin						
East Fork Trinity River	Trinity River	Lat 32°45'04", long 96°30'32", Kaufman County, at Texas and Pacific Railroad Company bridge, 175 ft upstream from Scyene Road, 2.5 miles downstream from Interstate Highway 20, and 2.3 miles west of Forney, Tex.	-	-	11-18-75	28
South Mesquite Creek	East Fork Trinity River	Lat 32°42'06", long 96°31'56", Dallas County, 600 ft upstream from confluence with East Fork Trinity River, 3,500 ft downstream from the Mesquite sewage treatment plant outfall, and 4.3 miles north of Seagoville, Tex.	-	-	11-20-75	6.7
East Fork Trinity River	Trinity River	Lat 32°42'02", long 96°31'51", Dallas County, just below mouth of South Mesquite Creek, 1.6 miles downstream from North Mesquite Creek, and 4.2 miles north of Seagoville, Tex.	-	-	11-20-75	41
.....Do.....	.....do.....	Lat 32°39'54", long 96°31'26", Dallas County, at downstream side of bridge on Malloy Bridge Road, 1.9 miles northeast of Seagoville, Tex., 3.3 miles downstream from South Mesquite Creek, and 4.0 miles upstream from U.S. Highway 175.	-	-	11-20-75	29
.....Do.....	.....do.....	Lat 32°35'48", long 96°28'59", Kaufman County, 1,200 ft downstream from Farm Road 3039 bridge and 3.0 miles southwest of Crandall, Tex.	-	-	11-18-75	49
.....Do.....	.....do.....	Lat 32°33'40", long 96°28'21", Kaufman County, 2,000 ft to right past end of Farm Road 1389, 5.0 miles southwest of Crandall, Tex., and 6.0 miles above mouth.	-	-	11-20-75	36
.....Do.....	.....do.....	Lat 32°29'51", long 96°29'53", Kaufman County, 1,300 ft upstream from confluence with Trinity river and 3.6 miles northwest of Rosser, Tex.	-	-	11-22-75	50
Clear Fork Trinity River	.....do.....	Lat 32°39'10", long 97°26'50", Tarrant County, 300 ft downstream from low-flow conduit through Benbrook Dam and 2.4 miles south of Benbrook, Tex.	-	-	7- 1-76	9.5

Page	Page
Accuracy of field data and computed results.....	19
Acre-foot, definition of.....	4
Agencies other than Geological Survey, records collected by.....	20
Algae, definition of.....	4
Angelina River, below Paper Mill Creek near Herty.....	368
below Sam Rayburn Dam near Jasper.....	373-375
near Alto.....	358
near Lufkin.....	359-362
Arkansas River basin, gaging-station records in.....	27-62
low-flow partial-record station in.....	559
Artificial substrate, definition of.....	12
Ash Creek at Highland Road, Dallas.....	561
Ash mass, definition of.....	5
Attoyac Bayou near Chireno.....	369
Ayish Bayou near San Augustine.....	370
B. A. Steinhagen Lake at Town Bluff.....	376
Bachman Branch at Dallas.....	454
Bacteria, definition of.....	5
Bardwell Lake near Ennis.....	501-502
Bayou LaNana, at Nacogdoches.....	363
near Nacogdoches.....	364-365
Beaver Creek near Electra.....	168
Bed material, definition of.....	5
Bedias Creek near Madisonville.....	531
Benbrook Lake near Benbrook.....	407-408
Big Bear Creek near Grapevine.....	424
Big Cow Creek near Newton.....	323
Big Creek near Shepherd.....	541-542
Big Cypress Creek, near Pittsburg.....	245-248
near Winnsboro.....	242
Big Sandy Creek (Sabine River basin) near Big Sandy.....	282-283
Big Sandy Creek (Trinity River basin) near Bridgeport.....	399-403
Big Sandy Creek (Sabine River basin) near Winnsboro.....	559
Biochemical oxygen demand (BOD), definition of.....	5
Biomass, definition of.....	5
Biomass pigment ration, definition of.....	6
Black Cypress Bayou at Jefferson.....	254-255
Blue-green algae, definition of.....	10
Boggy Creek near Daingerfield.....	249
Bois d'Arc Creek near Randolph.....	209
Bowles Creek near Selman City.....	354
Bridgeport Reservoir above Bridgeport.....	397-398
Canadian River, above New Mexico-Texas State line.....	30-35
at Logan, N. Mex.....	27
at Tascosa.....	36-40
near Amarillo.....	41-45
near Canadian.....	49-59
Caney Creek near Madisonville.....	530
Catfish Creek near Tennessee Colony.....	512
Cedar Bayou near Crosby.....	554
Cedar Creek, at Bonnie View Road, Dallas.....	560
near Kemp.....	493
Cedar Creek Reservoir, near Trinidad.....	495-496
spillway outflow near Trinidad.....	490
Cells/volume, definition of.....	6
Cfs-days, definition of.....	6
Chambers Creek near Corsicana.....	504-505
Chemical oxygen demand (COD), definition of.....	6
Chicken Creek near Amarillo.....	559
China Creek at Electra.....	127
Chlorophyll, definition of.....	6
Clear Creek near Sanger.....	438-442
Clear Fork Trinity River, at Fort Worth.....	410
near Benbrook.....	409
Coliform organisms, definition of.....	6
Collection, and computation of data.....	15
and examination of data.....	20
Color unit, definition of.....	6
Contents, definition of.....	6
Control, definition of.....	7
Coombs Creek at Sylvan Avenue at Dallas.....	560
Cooperation.....	2
Cottonwood Creek at Forest Lane, Dallas.....	561
Cow Bayou near Mauriceville.....	335
Cowleech Fork Sabine River at Greenville.....	263
Crest-stage partial-record station, definition of.....	19
Cubic foot per second, definition of.....	7
Cubic foot per second, per square mile, definition of.....	324
Cypress Creek near Buna.....	324
Data, accuracy of field, and computed results.....	19
collection and computation of.....	15
collection and examination of.....	20
other available.....	20
Definition of terms.....	4
Denton Creek, near Grapevine.....	452
near Justin.....	449
Devers Canal near Liberty.....	553
Diatoms, definition of.....	10
Discharge, at partial-record stations and miscellaneous sites.....	559
definition of.....	7
measurements at miscellaneous sites.....	562
Dissolved, definition of.....	7
Dissolved oxygen, definition of.....	7
Diversity index, definition of.....	7
Dixon Creek near Borger.....	48
Downstream order and station number.....	13
Drainage area, definition of.....	7
Drainage basin, definition of.....	8
Dry Branch, at Blandin Street, Fort Worth.....	560
at Fain Street, Fort Worth.....	416
Dry Creek near Quitman.....	276
Dry mass, definition of.....	6
Duck creek, at Buckingham Road, Garland.....	561
near Garland.....	478
Eagle Mountain Reservoir above Fort Worth.....	405
East Fork Angelina River near Cushing.....	355
East Fork Little Wichita River near Henrietta.....	181-182
East Fork Trinity River, near Crandall.....	481-484
near Forney.....	479
near Lavan.....	474
near McKinney.....	469
Elam Creek at Seco Boulevard, Dallas.....	561
Ellison Creek Reservoir near Lone Star.....	250-251
Elm Creek near Shamrock.....	559
Elm Fork Trinity River, near Carrollton.....	453
near Lewisville.....	448
near Sanger.....	435-436
Explanation, of stage and water-discharge records.....	15
of surface-water quality records.....	20
Fecal coliform bacteria, definition of.....	5
Fecal streptococcal bacteria, definition of.....	5
Fivemile Creek, at Kiest Boulevard, Dallas.....	561
at Lancaster Road, Dallas.....	561
at U.S. Highway 77, Dallas.....	561
Flat Creek below Lake Athens near Athens.....	559
Floyd Branch at Forest Lane, Dallas.....	561
Frazier Creek, near Linden.....	262
near McLeod.....	559
Gage height, definition of.....	8
Gaging station, definition of.....	8
Gaging-station records.....	27
Grand Saline Creek near Grand Saline.....	270
Grapevine Lake near Grapevine.....	450-451
Green algae, definition of.....	10
Greenbelt Lake near Clarendon.....	96-97
Groesbeck Creek at State Highway 6 near Quanah.....	95
Hardness, definition of.....	8
Harmon Creek near Huntsville.....	559
Hatfields Branch at Seagoville Road, Dallas.....	561
Hillebrandt Bayou near Lovell Lake.....	393
Honey Creek subwatershed No. 12 near McKinney.....	468
Hydrologic bench-mark station.....	14
Hydrologic conditions.....	3
Instantaneous discharge, definition of.....	7
Introduction.....	1
Isle du Bois Creek near Pilot Point.....	437
Joels Creek, at Dallas.....	560
at Royal Lane, Dallas.....	560
Jonah Creek, at mouth near Estelline.....	87
at weir near Estelline.....	81-83
below weir near Estelline.....	84-86
Kickapoo Creek (Neches River basin) near Brownsboro.....	338
Kickapoo Creek (Trinity River basin) near Onalaska.....	533
Kings Creek near Kaufman.....	494
Lake Arlington at Arlington.....	418-419
Lake Arrowhead near Henrietta.....	177-178
Lake Athens near Athens.....	339
Lake Cherokee near Longview.....	290-291
Lake Cypress Springs near Mount Vernon.....	243-244
Lake Fork Creek near Quitman.....	277-280
Lake Kemp near Mabelle.....	163
Lake Kickapoo near Archer City.....	174-175
Lake Meredith near Sanford.....	46-47
Lake O' the Pines near Jefferson.....	252-253
Lake Palestine near Frankston.....	340
Lake Ray Hubbard near Forney.....	476-477
Lake Tawakoni near Willis Point.....	265-266
Lake Texoma near Denison.....	198
Lake Tyler near Whitehouse.....	356

	Page		Page
Lake Weatherford near Weatherford.....	406	Natural substrates, definition of.....	12
Lake Winnsboro near Winnsboro.....	281	Navarro Mills Lake near Dawson.....	497-498
Lakes and reservoirs:		ND, definition of.....	8
Arlington, Lake, at Arlington.....	418-419	Neches River, at Evadale.....	378-386
Arrowhead, Lake, near Henrietta.....	177-178	at Town Bluff.....	377
Athens, Lake, near Athens.....	339	near Alto.....	344-345
B. A. Steinhagen Lake at Town Bluff.....	376	near Chandler.....	336-337
Bardwell Lake near Ennis.....	501-502	near Diboll.....	346-349
Benbrook Lake near Benbrook.....	407-408	near Neches.....	341-343
Bridgeport Reservoir above Bridgeport.....	397-398	near Rockland.....	351-353
Cedar Creek Reservoir near Trinidad.....	495-496	Neches River basin, gaging-station records in.....	336-389
Cherokee, Lake, near Longview.....	290-291	low-flow partial-record station in.....	559
Cypress Springs, Lake, near Mount Vernon.....	243-244	Newton Creek at Interstate Highway 635, Dallas.....	561
Eagle Mountain Reservoir above Fort Worth.....	405	North Creek near Jacksboro.....	395
Ellison Creek Reservoir near Lone Star.....	250-251	North Creek subwatershed No. 28-A near Jermyn.....	394
Grapevine Lake near Grapevine.....	450-451	North Fork Red River near Shamrock.....	110-111
Greenbelt Lake near Clarendon.....	96-97	North Fork Wichita River, near Crowell.....	142-144
Kemp, Lake, near Mabelle.....	163	near Paducah.....	139-141
Kickapoo, Lake, near Archer City.....	174-175	near Truscott.....	148-150
Lavon Lake near Lavon.....	472-473	North Pease River, near Childress.....	114-116
Lewisville Lake near Lewisville.....	446-447	near Kirkland.....	117
Livingston Reservoir near Goodrich.....	534-535	North Sulphur River near Cooper.....	228-230
MacKenzie Reservoir near Silverton.....	69-70	Organic mass, definition of.....	6
Martin Lake near Tatum.....	297-298	Organism, definition of.....	8
Meredith, Lake, near Sanford.....	46-47	Organism count/area, definition of.....	9
Moss Lake near Gainesville.....	188-189	Organisms count/volume, definition of.....	20
Mountain Creek Lake near Grand Prairie.....	432-433	Other data available.....	9
Murvaul Lake near Gary.....	300-301		
Navarro Mills Lake near Dawson.....	497-498	Palo Duro Creek near Spearman.....	60-61
O' the Pines, Lake, near Jefferson.....	252-253	Paper Mill Creek near Herty.....	366-367
Palestine, Lake, near Frankston.....	340	Partial-record station, definition of.....	9
Pat Mayse Lake near Chicota.....	210-211	Partial-record stations, low flow.....	559
Ray Hubbard, Lake, near Forney.....	476-477	Particle size, definition of.....	9
Sam Rayburn Reservoir near Jasper.....	371-372	Particle-size classification, definition of.....	210-211
Tawakoni, Lake, near Willis Point.....	265-266	Pat Mayse Lake near Chicota.....	122-124
Texoma, Lake, near Denison.....	198	Pease River, near Childress.....	125-126
Toledo Bend Reservoir near Burkeville.....	311	Pecan Bayou near Clarksville.....	216-217
Tyler, Lake, near Whitehouse.....	356	Percent composition, definition of.....	9
Weatherford, Lake, near Weatherford.....	406	Periphyton, definition of.....	15
Winnsboro, Lake, near Winnsboro.....	281	Pesticide program, definition of.....	10
Wright Patman Lake near Texarkana.....	240-241	Pesticides, definition of.....	10
Lavon Lake near Lavon.....	472-473	Phytoplankton, definition of.....	10
Lelia Lake Creek below Bell Creek near Hedley.....	559	Picocurie, definition of.....	389-391
Lewisville Lake near Lewisville.....	446-447	Pine Island Bayou near Sour Lake.....	350
Little Cypress Creek, near Jefferson.....	257-261	Piney Creek near Groveton.....	10
near Ore City.....	256	Plankton, definition of.....	10
Little Elm Creek, near Aubrey.....	445	Polychlorinated biphenyls, definition of.....	561
near Celina.....	444	Prairie Creek, at Jennie Lee Street, Dallas.....	466
subwatershed No. 10 near Gunter.....	443	at U.S. Highway 175, Dallas.....	286-287
Little Fossil Creek, at Interstate Highway 820, Fort Worth.....	560	near Gladewater.....	80
at Mesquite Street, Fort Worth.....	417	near Estelline.....	79
Little Pine Creek near Kanawha.....	214-215	below Mountain Creek near Estelline.....	91-93
Little Red River near Turkey.....	75-77	near Childress.....	78
Little Wichita River, above Henrietta.....	179-180	near Estelline.....	72-74
near Archer City.....	176	near Lakeview.....	63-68
Livingston Reservoir, at outflow weir near Goodrich.....	536	near Wayside.....	22
near Goodrich.....	534-535	Publications.....	24
Long King Creek, at Livingston.....	537	Publications of techniques of water-resources investigations.....	559
near Goodrich.....	559	Quitague Creek near Quitague.....	288-289
Low-flow partial-record measurements.....	559	Rabbit Creek at Kilgore.....	15
Low-flow partial-record stations, definition of.....	19	Radiochemical program.....	20
MacKenzie Reservoir near Silverton.....	69-70	Records of discharge collected by agencies other than the Geological Survey.....	213
Martin Creek near Tatum.....	299	Red River, at Arthur City.....	199-208
Martin Lake near Tatum.....	297-298	at Denison Dam near Denison.....	224
McClellan Creek near McLean.....	108-109	at Index, Ark.....	128-138
Mean concentration, definition of.....	11	near Burkburnett.....	218-223
Mean discharge, definition of.....	7	near De Kalb.....	190-195
Menard Creek near Rye.....	539-540	near Gainesville.....	94
Methylene blue active substance, definition of.....	8	near Quanah.....	183-187
Micrograms per gram, definition of.....	8	near Terra, Okla.....	63-262
Micrograms per liter, definition of.....	8	Red River basin, gaging-station records in.....	559
Middle Fork Wichita River near Truscott.....	145-147	low-flow partial-record stations in.....	559
Middle Pease River, near Kirkland.....	121	Reservoirs. See lakes and reservoirs.....	28-29
near Paducah.....	118-120	Reuelto Creek near Logan, N. Mex.....	499
Mill Creek near Burkeville.....	305-310	Richland Creek, near Dawson.....	506-509
Mineral Lake near Sadler.....	196-197	near Fairfield.....	500
Miscellaneous measurements.....	562	near Richland.....	559
Moss Lake near Gainesville.....	188-189	Roaring Springs near Roaring Springs.....	475
Mountain Creek, at Grand Prairie.....	434	Rowlett Creek near Sachse.....	11
near Cedar Hill.....	425-427	Runoff in inches, definition of.....	561
near Duncanville.....	429-431	Rush Branch at Arapaho Road, Dallas.....	303
Mountain Creek Lake near Grand Prairie.....	432-433	Sabine River, at Logansport, La.....	312-313
Mud Creek near Jacksonville.....	357	at Toledo Bend Reservoir near Burkeville.....	
Murvaul Bayou near Gary.....	302		
Murvaul Lake near Gary.....	300-301		
National stream-quality accounting network, definition of.....	14		

Page	Page
Sabine River, at U.S. Highway 80 near Mineola.....	560
near Beckville.....	560
near Bon Wier.....	319-322
near Burkeville.....	314-318
near Gladewater.....	284-285
near Golden.....	560
near Lindale.....	560
near Longview.....	560
near Mineola.....	271-275
near Ruliff.....	325-334
near Tatum.....	292-296
near Wills Point.....	267-269
Sabine River basin, gaging-station records in.....	263-335
low-flow partial-record stations in.....	559
Salt Creek near Estelline.....	88-90
Salt Fork Red River, at Mangum, Okla.....	107
near Wellington.....	98-106
Sam Rayburn Reservoir, near Jasper.....	371-372
Sanders Creek near Chicota.....	212
Sediment, collection and examination.....	22
definition of.....	11
Sister Grove Creek near Blue Ridge.....	470-471
Sodium adsorption ratio, definition of.....	11
Solutes, definition of.....	11
South Fork Sabine River near Quinlan.....	264
South Fork Wichita River, at Ross Ranch near Benjamin.....	154-156
near Benjamin.....	157-159
near Guthrie.....	151-153
South Mesquite Creek, at Mercury Road near Mesquite.....	480
at State Highway 352, Mesquite.....	561
South Side Canal near Dundee.....	167
South Sulphur River near Cooper.....	225-227
Spanky Branch at McCallum Lane at Dallas.....	561
Special networks and programs.....	14
Specific conductance, definition of.....	12
Stage-discharge relation, definition of.....	12
Station number and downstream order.....	13
Streamflow, definition of.....	12
Substrate, definition of.....	12
Sulphur River near Talco.....	231-235
Suspended sediment, definition of.....	11
Suspended-sediment concentration, definition of.....	11
Suspended-sediment discharge, definition of.....	11
Suspended-sediment load, definition of.....	11
Sweetwater Creek near Kelton.....	112-113
Sycamore Creek, at Interstate Highway 35-W, Fort Worth.....	413
Sycamore Creek tributary, above Seminary South Shopping Center, Fort Worth.....	414
at Interstate Highway 35-W, Fort Worth.....	415
Taxonomy, definition of.....	13
Taylor Bayou near LaBelle.....	392
Taylor Bayou basin, gaging-station records in.....	392-393
Tehuacana Creek near Streetman.....	510-511
Temperature, collection and examination.....	21
Tenaha Creek near Shelbyville.....	304
Tennile Creek at State Highway 342 at Lancaster.....	467
Terms, definition of.....	4
Time-weighted average, definition of.....	12
Toledo Bend Reservoir near Burkeville.....	311
Tons per acre-foot, definition of.....	12
Tons per day, definition of.....	12
Total coliform bacteria, definition of.....	5
Total (in tables of chemical analyses), definition of.....	13
Total load, definition of.....	13
Total organism count, definition of.....	9
Total sediment discharge, definition of.....	11
Trinity River, at Dallas.....	456
at Liberty.....	552
at Romayor.....	543-551
at Trinidad.....	491-492
below Dallas.....	461-465
near Crockett.....	516-529
near Goodrich.....	538
near Oakwood.....	513
near Rosser.....	485-489
Trinity River basin, crest-stage partial-record stations in.....	560
discharge measurements at miscellaneous sites in.....	562
gaging-station records in.....	394-553
low-flow partial-record stations in.....	559
Tule Creek near Silverton.....	71
Turtle Creek at Dallas.....	455
Upper Keechi Creek near Oakwood.....	514-515
Village Creek near Kountze.....	387-388
Walnut Creek near Mansfield.....	428
Wanderers Creek at Odell.....	559
Water analysis.....	21
Water temperature.....	21
Waxahachie Creek near Bardwell.....	503
Weighted average, definition of.....	13
West Fork Trinity River, at Fort Worth.....	411-412
at Grand Prairie.....	420-423
near Boyd.....	404
near Jacksboro.....	396
Wet mass, definition of.....	6
White Oak Creek, near Omaha.....	239
near Talco.....	236-238
White Rock Creek, at Greenville Avenue, Dallas.....	458
at Keller Springs Road, Dallas.....	457
at Scyene Road, Dallas.....	460
at White Rock Lake, Dallas.....	459
near Trinity.....	532
Whites Branch at Interstate Highway 635, Dallas.....	561
Wichita River, at Wichita Falls.....	169
near Charlie.....	170-173
near Mabelle.....	164-166
near Seymour.....	160-162
Wolf Creek at Lipscomb.....	62
Woody Branch at U.S. Highway 77, Dallas.....	561
Wright Patman Lake near Texarkana.....	240-241
WRD, definition of.....	13
WSP, definition of.....	13
Zooplankton, definition of.....	10





# FACTORS FOR CONVERTING ENGLISH UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the English units published herein to the International System of Units (SI). Subsequent reports will contain both the English and SI unit equivalents in the station manuscript descriptions until such time that all data will be published in SI units.

Multiply English units	By	To obtain SI units
<i>Length</i>		
inches (in)	$2.54 \times 10^1$	millimeters (mm)
	$2.54 \times 10^{-2}$	meters (m)
feet (ft)	$3.048 \times 10^{-1}$	meters (m)
miles (mi)	$1.609 \times 10^0$	kilometers (km)
<i>Area</i>		
acres	$4.047 \times 10^3$	square meters (m <sup>2</sup> )
	$4.047 \times 10^{-1}$	*hectares (ha)
	$4.047 \times 10^{-1}$	square hectometers (hm <sup>2</sup> )
	$4.047 \times 10^{-3}$	square kilometers (km <sup>2</sup> )
square miles (mi <sup>2</sup> )	$2.590 \times 10^0$	square kilometers (km <sup>2</sup> )
<i>Volume</i>		
gallons (gal)	$3.785 \times 10^0$	**liters (l)
	$3.785 \times 10^0$	cubic decimeters (dm <sup>3</sup> )
	$3.785 \times 10^{-3}$	cubic meters (m <sup>3</sup> )
million gallons (10 <sup>6</sup> gal)	$3.785 \times 10^3$	cubic meters (m <sup>3</sup> )
	$3.785 \times 10^{-3}$	cubic hectometers (hm <sup>3</sup> )
cubic feet (ft <sup>3</sup> )	$2.832 \times 10^1$	cubic decimeters (dm <sup>3</sup> )
	$2.832 \times 10^{-2}$	cubic meters (m <sup>3</sup> )
cfs-days [(ft <sup>3</sup> /s) · d]	$2.447 \times 10^3$	cubic meters (m <sup>3</sup> )
	$2.447 \times 10^{-3}$	cubic hectometers (hm <sup>3</sup> )
acre-feet (acre-ft)	$1.233 \times 10^3$	cubic meters (m <sup>3</sup> )
	$1.233 \times 10^{-3}$	cubic hectometers (hm <sup>3</sup> )
	$1.233 \times 10^{-6}$	cubic kilometers (km <sup>3</sup> )
<i>Flow</i>		
cubic feet per second (ft <sup>3</sup> /s)	$2.832 \times 10^1$	liters per second (l/s)
	$2.832 \times 10^1$	cubic decimeters per second (dm <sup>3</sup> /s)
	$2.832 \times 10^{-2}$	cubic meters per second (m <sup>3</sup> /s)
gallons per minute (gal/min)	$6.309 \times 10^{-2}$	liters per second (l/s)
	$6.309 \times 10^{-2}$	cubic decimeters per second (dm <sup>3</sup> /s)
	$6.309 \times 10^{-5}$	cubic meters per second (m <sup>3</sup> /s)
million gallons per day (mgal/d)	$4.381 \times 10^1$	cubic decimeters per second (dm <sup>3</sup> /s)
	$4.381 \times 10^{-2}$	cubic meters per second (m <sup>3</sup> /s)
<i>Mass</i>		
tons (short)	$9.072 \times 10^{-1}$	tonnes (t)

\*The unit hectare is approved for use with the International System (SI) for a limited time. See NBS Special Bulletin 330, p.15, 1972 edition.

\*\*The unit liter is accepted for use with the International System (SI). See NBS Special Bulletin 330, p. 13, 1972 edition.



THE INTERIOR

300 East 8th Avenue  
Austin TX 78701

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE \$300

Special 4th Class  
Book Rate

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF THE INTERIOR  
INT 413

