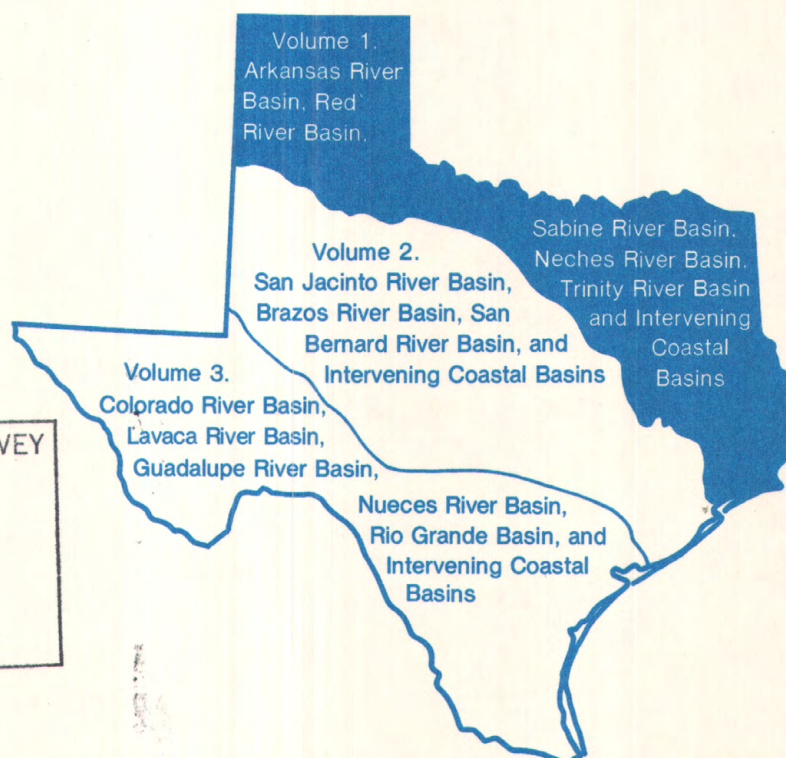




R
2001
a3
pas
793
1

Water Resources Data Texas Water Year 1993

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
RESTON, VA.

APR 29 1994

SR
LIBRARY

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-93-1

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

CALENDAR FOR WATER YEAR 1993

1992

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

1993

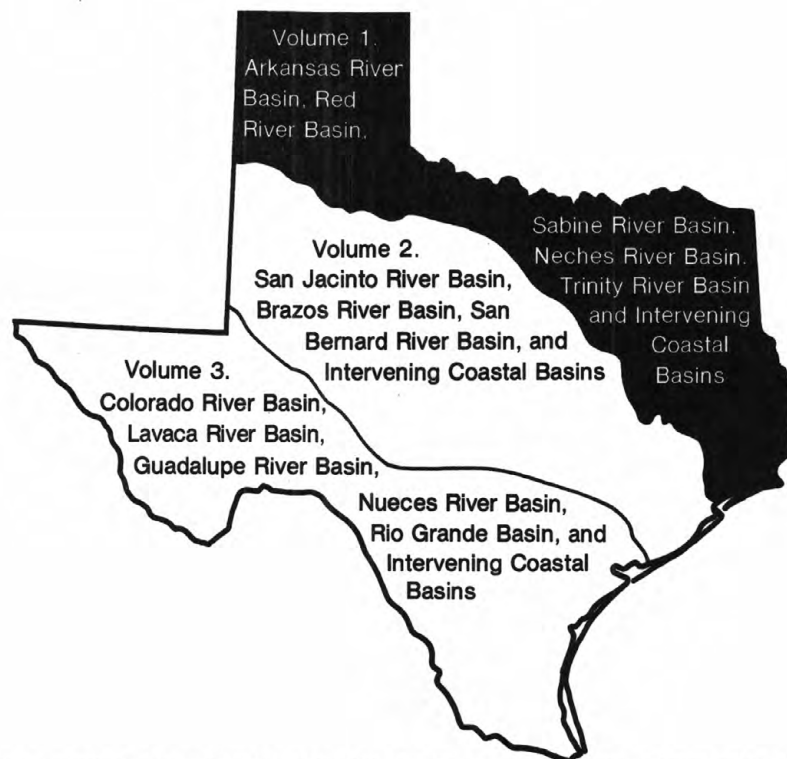
JANUARY							FEBRUARY							MARCH						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
					1	2		1	2	3	4	5	6		1	2	3	4	5	6
3	4	5	6	7	8	9	7	8	9	10	11	12	13	7	8	9	10	11	12	13
10	11	12	13	14	15	16	14	15	16	17	18	19	20	14	15	16	17	18	19	20
17	18	19	20	21	22	23	21	22	23	24	25	26	27	21	22	23	24	25	26	27
24	25	26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



Water Resources Data Texas Water Year 1993

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

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



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-93-1

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

UNITED STATES DEPARTMENT OF THE INTERIOR

BRUCE BABBITT, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

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

PREFACE

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

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

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

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

Harry C. McWreath
George B. Ozuna
Roberto Perez
William E. Reeves
H. Dean Stephens

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

District Office

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

San Antonio Subdistrict Office

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

San Angelo Field Office

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

Wichita Falls Field Office

Paul Bennett	Doris F. Tipps
W.C. Damschen	

El Paso Field Office

Donald E. White

Houston Subdistrict Office

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

Fort Worth Subdistrict Office

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

Austin Field Office

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

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

REPORT DOCUMENTATION PAGE	1. REPORT NO. USGS/WRD/HD-94/240	2.	3. Recipient's Accession No.
4. Title and Subtitle Water Resources Data--Texas, Water Year 1993, Volume 1. Arkansas River, Red River, Sabine River, Neches River, Trinity River basins and Intervening Coastal basins		5. Report Date March 1994	
7. Author(s) S.C. Gandara, E.M. McPherson, W.J. Gibbons, F.L. Andrews and B.A. Hinds		8. Performing Organization Rept. No. USGS-WDR-TX-93-1	
9. Performing Organization Name and Address U.S. Geological Survey, Water Resources Division Texas District 8011 Cameron Road, Bldg. 1 Austin, TX 78754-3898		10. Project/Task/Work Unit No.	
		11. Contract (C) or Grant (G) No. (C) (G)	
12. Sponsoring Organization Name and Address U.S. Geological Survey, Water Resources Division Texas District 8011 Cameron Road, Bldg. 1 Austin, TX 78754-3898		13. Type of Report & Period Covered Annual--Oct. 1, 1992 to Sept. 30, 1993	
15. Supplementary Notes Prepared in cooperation with Federal, State, and local agencies.		14.	
16. Abstract (limit: 200 words) Water-resources data for the 1993 water year for Texas are presented in four volumes, and consist of records of stage, discharge, and water quality of streams and canals; and stage, contents, and water quality of lakes and reservoirs; and water levels and water quality of ground-water wells. Volume 1 contains records for water discharge at 113 gaging stations; stage only at 4 gaging stations; stage and contents at 37 lakes and reservoirs; water quality at 81 gaging stations; and data for 9 partial-record and 11 flood-hydrograph partial-record stations. Also included are lists of discontinued surface-water discharge or stage-only stations and discontinued surface-water-quality stations; crest-stage and flood-hydrograph partial-record stations, reconnaissance partial-record stations, and low-flow partial-record stations. Additional water data were collected at various sites, not part of the systematic data-collection program, and are published as miscellaneous measurements. Records for a few pertinent stations in bordering States also are included. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating Federal, State, and local agencies in Texas.			
17. Document Analysis a. Descriptors *Texas, *Hydrologic data, *Surface water, *Water quality, Flow rate, Gaging Stations, Lakes, Reservoirs, Chemical analyses, Sediments, Water temperature, Sampling sites, Water levels, Water analyses b. Identifiers/Open-Ended Terms c. 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 561
		20. Security Class (This Page) Unclassified	22. Price

CONTENTS

	Page
Preface	iii
List of gaging stations, in downstream order, for which records are published	v
List of discontinued surface-water discharge or stage-only stations	x
List of discontinued surface-water-quality stations	xiii
Introduction	1
Cooperation	2
Hydrologic conditions	2
Streamflow	2
Water quality	3
Special networks and programs	6
Explanation of the records	7
Station identification numbers	7
Downstream order numbering	7
Records of stage and water discharge	7
Data collection and computation	7
Data presentation	8
Identifying estimated daily discharge	10
Accuracy of the records	10
Other records available	11
Records of surface-water quality	11
Classification of records	11
Arrangement of records	11
On-site measurements and sample collection	11
Water temperature	12
Sediment	12
Laboratory measurements	12
Data presentation	13
Remark codes	14
Access to WATSTORE data	14
Definition of terms	14
Publications of techniques of water-resources investigations	22
Gaging-station records	25
Discharge at partial-record stations and miscellaneous sites	543
Low-flow partial-record stations	543
Crest-stage partial-record stations	544
Index	545

ILLUSTRATIONS

Figure 1. Area of Texas covered by volume 1 and location of selected streamflow and water-quality stations in volume 1	4
2. Comparison of monthly mean discharges at four long-term hydrologic index gaging stations during the 1993 water year with median of the monthly mean discharges for 1951-80 water years	5

TABLES

Table 1. Streamflow at six selected stations for water year 1993	3
2. Comparison of records of discharge-weighted-average concentrations of dissolved solids for the 1993 water year	6

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

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

	Station number	Page
LOWER MISSISSIPPI RIVER BASIN		
ARKANSAS RIVER BASIN		
Arkansas River:		
Canadian River at Logan, NM (d) (c) -----	07227000	25
Revuelto Creek near Logan, NM (d) (c) -----	07227100	28
Canadian River above New Mexico-Texas State line (c) -----	07227140	30
Canadian River near Amarillo (d) (c) (b) (t) -----	07227500	31
Canadian River near Canadian (d) (c) (b) (s) -----	07228000	36
North Canadian River:		
Wolf Creek at Lipscomb (d) -----	07235000	40
RED RIVER BASIN		
Prairie Dog Town Fork Red River near Wayside (d) (c) (b) (t) (s) -----	07297910	42
Prairie Dog Town Fork Red River near Childress (d) -----	07299540	45
Groesbeck Creek at State Highway 6 near Quanah (d) -----	07299670	46
Salt Fork Red River:		
Greenbelt Lake near Clarendon (e) -----	07299840	47
Salt Fork Red River near Wellington (d) (c) (b) (t) -----	07300000	48
Salt Fork Red River at Mangum, OK (d) -----	07300500	51
Sweetwater Creek near Kelton (d) -----	07301410	52
Middle Pease River near Paducah (s) -----	07307750	53
Pease River near Childress (d) -----	07307800	54
Pease River near Vernon (d) -----	07308200	56
Red River near Burkburnett (d) (c) (b) (s) -----	07308500	57
North Wichita River (head of Wichita River):		
Bluff Creek:		
Truscott Brine Lake near Truscott (e) -----	07311669	61
North Wichita River near Truscott (d) (c) (b) -----	07311700	62
South Wichita River at low-flow dam near Guthrie (d) (c) (t) -----	07311782	65
South Wichita River below dam near Guthrie (d) -----	07311783	70
South Wichita River at Ross Ranch near Benjamin (c) -----	07311790	71
South Wichita River near Benjamin (c) (t) -----	07311800	72
Wichita River:		
Lake Kemp near Mabelle (e) -----	07312000	79
Wichita River near Mabelle (d) (c) (t) -----	07312100	80
Diversion Lake:		
South Side Canal near Dundee (d) -----	07312110	83
Beaver Creek near Electra (d) -----	07312200	84
Wichita River at Wichita Falls (d) -----	07312500	86
Wichita River near Charlie (d) (c) (b) -----	07312700	88
North Fork Little Wichita River:		
Lake Kickapoo near Archer City (e) -----	07314000	90
Little Wichita River near Archer City (d) -----	07314500	91
Lake Arrowhead near Henrietta (e) -----	07314800	92
Little Wichita River above Henrietta (d) -----	07314900	93
East Fork Little Wichita River near Henrietta (d) -----	07315200	95
Red River near Terral, OK (d) (c) (t) -----	07315500	97
Moss Lake near Gainesville (e) -----	07315950	101
Red River near Gainesville (d) -----	07316000	102
Lake Texoma near Denison (e) -----	07331500	103
Sanders Creek:		
Pat Mayse Lake near Chicota (e) -----	07335390	104
Red River at Arthur City (d) -----	07335500	105
Red River near De Kalb (d) (c) (b) (t) (s) -----	07336820	106
Red River at Index, AR (d) (c) (b) (s) -----	07337000	109
South Sulphur River at Commerce (d) -----	07342465	112
South Sulphur River near Commerce (c) (b) -----	07342470	115
Middle Sulphur River at Commerce (d) (c) (b) -----	07342480	117
Cooper Lake near Cooper (c) -----	07342495	119
South Sulphur River near Cooper (d) (c) (b) -----	07342500	128
North Sulphur River near Cooper (d) (c) (b) -----	07343000	131

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

vii

	Station number	Page
LOWER MISSISSIPPI RIVER BASIN—Continued		
RED RIVER BASIN—CONTINUED		
Red River:		
Sulphur River near Talco (d) (c) (b)	07343200	135
White Oak Creek near Talco (d) (c)	07343500	139
White Oak Creek near Omaha (c)	07343850	143
Wright Patman Lake near Texarkana (e) (c)	07344200	145
Sulphur River near Texarkana (e) (c)	07344210	162
Big Cypress Creek:		
Brushy Creek at Scroggins (d)	07344486	164
Lake Bob Sandlin near Mount Pleasant (e)	07344489	165
Big Cypress Creek near Pittsburg (e)	07344500	166
Lake O' the Pines near Jefferson (e)	07345900	167
Big Cypress Creek near Jefferson (d)	07346000	168
Black Cypress Bayou at Jefferson (d)	07346045	169
Little Cypress Creek near Ore City (d)	07346050	171
Little Cypress Creek near Jefferson (d) (c) (b)	07346070	172
WESTERN GULF OF MEXICO BASINS		
SABINE RIVER BASIN		
Sabine River:		
Cowleech Fork Sabine River at Greenville (d)	08017200	175
South Fork Sabine River near Quinlan (d)	08017300	177
Lake Tawakoni near Willis Point (e)	08017400	179
Sabine River near Willis Point (d)	08017410	180
Sabine River near Mineola (d) (c) (b)	08018500	181
Lake Fork Creek:		
Garrett Creek:		
Big Creek near Brasher (c) (b)	08018620	185
Birch Creek near Yantis (FM2297) (c) (b)	08018720	186
Caney Creek near Como (c) (b)	08018785	187
Lake Fork Reservoir near Quitman (e)	08018800	188
Lake Fork Creek near Quitman (d)	08019000	189
Big Sandy Creek near Big Sandy (d)	08019500	191
Sabine River near Gladewater (d)	08020000	193
Sabine River above Longview (e)	08020450	195
Sabine River near Beckville (d) (c) (b) (t)	08022040	196
Martin Lake near Tatum (e)	08022060	201
Martin Creek near Tatum (d)	08022070	202
Sabine River at Logansport, LA (e)	08022500	204
Toledo Bend Reservoir near Burkeville (e)	08025350	205
Sabine River at Toledo Bend Reservoir near Burkeville (d)	08025360	206
Sabine River near Burkeville (d)	08026000	207
Sabine River near Bon Wier (d) (c)	08028500	208
Big Cow Creek near Newton (d)	08029500	211
Sabine River near Ruliff (d) (c) (b) (t) (s)	08030500	212
NECHES RIVER BASIN		
Neches River:		
Lake Palestine near Frankston (e)	08031400	219
Neches River near Neches (d) (c) (b)	08032000	220
Neches River near Diboll (e)	08033000	223
Neches River near Rockland (d) (c) (b)	08033500	224
Angelina River:		
Angelina River near Alto (d)	08036500	228
Bayou Loco:		
Lake Nacogdoches near Nacogdoches (e)	08036700	229
Angelina River:		
Bayou LaNana at Nacogdoches (d)	08037050	230
Attoyac Bayou near Chireno (e)	08038000	231
Ayish Bayou near San Augustine (e)	08039100	232
Sam Rayburn Reservoir near Jasper (e)	08039300	233
B.A. Steinhagen Lake at Town Bluff (e)	08040000	234
Neches River near Town Bluff (d)	08040600	235
Neches River at Evadale (d) (c) (b) (t) (s)	08041000	236
Village Creek near Kountze (d)	08041500	241
Pine Island Bayou near Sour Lake (d)	08041700	243

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

	Station number	Page
WESTERN GULF OF MEXICO BASINS—Continued		
TAYLOR BAYOU BASIN		
Taylor Bayou near LaBelle (e) -----	08042000	244
Hillebrandt Bayou near Lovell Lake (e) -----	08042500	245
TRINITY RIVER BASIN		
West Fork Trinity River (head of Trinity River) near Jacksboro (d) -----	08042800	246
Beans Creek near Wizard Wells (d) -----	08042900	247
Bridgeport Reservoir above Bridgeport (e) -----	08043000	248
Big Sandy Creek near Bridgeport (d) (c) -----	08044000	249
Garrett Creek near Paradise (d) -----	08044135	251
Salt Creek near Paradise (d) -----	08044140	252
West Fork Trinity River near Boyd (d) -----	08044500	253
Walnut Creek at Reno (d) -----	08044800	254
Eagle Mountain Reservoir above Fort Worth (e) -----	08045000	255
Lake Worth above Fort Worth (e) -----	08045400	256
West Fork Trinity River:		
Clear Fork Trinity River near Weatherford (e) -----	08045850	257
Clear Fork Trinity River above Benbrook near Aledo (e) (c) -----	08046020	258
Bear Creek near Benbrook (c) -----	08046150	260
Benbrook Lake near Benbrook (e) (c) (b) -----	08046500	261
Clear Fork Trinity River near Benbrook (d) (c) (b) -----	08047000	280
Clear Fork Trinity River at Fort Worth (d) -----	08047500	282
West Fork Trinity River at Fort Worth (d) -----	08048000	284
West Fork Trinity River at Beach Street, Fort Worth (d) (c) (b) (t) -----	08048543	285
West Fork Trinity River:		
Village Creek at Everman (d) (c) (b) -----	08048970	297
Lake Arlington at Arlington (e) (c) (t) -----	08049200	300
Rush Creek at Woodland Park Blvd., Arlington (d) (c) (b) -----	08049240	306
West Fork Trinity River at Grand Prairie (d) (c) (b) (t) -----	08049500	314
Mountain Creek near Venus (e) (c) (b) -----	08049580	319
Bear Creek:		
Walnut Creek near Mansfield (d) (c) (b) -----	08049700	321
Joe Pool Lake near Duncanville (e) (c) (b) (t) -----	08049800	324
Mountain Creek above Duncanville (c) -----	08049850	342
Mountain Creek Lake near Grand Prairie (e) -----	08050050	343
Mountain Creek at Grand Prairie (d) -----	08050100	344
Elm Fork Trinity River at Gainesville (d) -----	08050400	345
Elm Fork Trinity River near Gainesville (c) -----	08050410	346
Isle du Bois Creek:		
Jordan Creek:		
Timber Creek near Collinsville (d) -----	08050800	348
Jordan Creek Tributary near Collinsville (c) (b) -----	08050815	350
Range Creek near Collinsville (d) (c) (b) -----	08050840	352
Range Creek above Tioga (c) (b) -----	08050842	355
Elm Fork Trinity River:		
Ray Roberts Lake near Pilot Point (e) (c) -----	08051100	357
Elm Fork Trinity River near Pilot Point (d) (c) -----	08051130	377
Clear Creek near Sanger (d) (c) (b) -----	08051500	378
Little Elm Creek near Aubrey (d) (c) (b) -----	08052700	382
Pecan Creek near Aubrey (c) -----	08052730	386
Lewisville Lake near Lewisville (e) (c) (b) (t) -----	08052800	387
Elm Fork Trinity River near Lewisville (d) (c) (b) -----	08053000	407
Denton Creek near Justin (d) -----	08053500	410
Grapevine Lake near Grapevine (e) -----	08054500	411
Elm Fork Trinity River near Carrollton (d) -----	08055500	412
Trinity River at Dallas (d) -----	08057000	414
Trinity River at Cedar Crest Blvd. (c) (t) -----	08057055	416
White Rock Creek at Greenville Avenue, Dallas (d) -----	08057200	424
Trinity River below Dallas (d) (c) (b) (t) -----	08057410	425
Prairie Creek at U.S. Highway 175, Dallas (d) -----	08057445	433
East Fork Trinity River at McKinney (d) (c) -----	08058900	434
Pilot Grove Creek:		
Sister Grove Creek near Blue Ridge (d) -----	08059400	437

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

ix

	Station number	Page
WESTERN GULF OF MEXICO BASINS—Continued		
TRINITY RIVER BASIN—Continued		
Trinity River:		
Lavon Lake near Lavon (e) -----	08060500	438
Rowlett Creek near Sachse (d) -----	08061540	439
Lake Ray Hubbard near Forney (e) -----	08061550	440
Duck Creek near Garland (d) -----	08061700	442
East Fork Trinity River near Forney (d) (c) (b) (t) -----	08061750	443
East Fork Trinity River above Seagoville (c) (b) (t) -----	08061970	447
East Fork Trinity River at Seagoville (c) (b) (t) -----	08061980	450
East Fork Trinity River near Crandall (d) (c) (b) (t) -----	08062000	458
Trinity River near Rosser (d) (c) (b) (t) -----	08062500	468
Trinity River at Trinidad (d) (c) (b) (t) (s) -----	08062700	477
Cedar Creek Reservoir near Trinidad (e) -----	08063010	487
Navarro Mills Lake near Dawson (e) -----	08063050	488
Richland Creek near Dawson (d) -----	08063100	489
Chambers Creek:		
Waxahachie Creek:		
Bardwell Lake near Ennis (e) -----	08063700	490
Waxahachie Creek near Bardwell (d) -----	08063800	491
Chambers Creek near Rice (d) (c) (b) (t) -----	08064100	492
Richland-Chambers Reservoir near Kerens (e) -----	08064550	497
Tehuacana Creek near Streetman (d) (c) (b) -----	08064700	498
Trinity River near Oakwood (d) -----	08065000	502
Upper Keechi Creek near Oakwood (d) -----	08065200	504
Trinity River near Crockett (d) (c) (b) (t) -----	08065350	505
Bedias Creek near Madisonville (d) (c) -----	08065800	515
Kickapoo Creek near Onalaska (d) -----	08066170	518
Livingston Reservoir near Goodrich (e) (c) (t) -----	08066190	519
Livingston Reservoir at outflow weir near Goodrich (d) -----	08066191	527
Trinity River:		
Long King Creek at Livingston (d) -----	08066200	528
Trinity River near Goodrich (d) -----	08066250	529
Menard Creek near Fuqua (c) -----	08066295	530
Menard Creek near Rye (d) (c) -----	08066300	531
Trinity River at Romayor (d) (c) (b) (t) (s) -----	08066500	533
Trinity River at Liberty (d) -----	08067000	537
CWA Canal near Dayton (d) -----	08067070	538
Lake Charlotte near Anahuac (e) (t) -----	08067118	539
CEDAR BAYOU BASIN		
Cedar Bayou near Crosby (e) -----	08067500	542

DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS

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

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

Station name	Station number	Drainage area (mi ²)	Period of record (water years)
Punta De Agua Creek near Channing (d)	07227448	3,568	1968-73
Canadian River at Tascosa (d)	07227470	18,536	1969-77
Dixon Creek near Borger (d)	07227920	134	1974-89
Palo Duro Creek near Spearman (d)	07233500	960	1941-42
Tierra Blanca Creek above Buffalo Lake near Umbarger (d)	07295500	1,968	1942-54 1967-73
Tierra Blanca Creek below Buffalo Lake near Umbarger (d)	07296100	2,075	1967-73
Prairie Dog Town Fork Red River near Canyon (d)	07297500	3,369	1924-26 1938-49
North Tule Draw at Reservoir near Tulia (d)	07298000	189	1939-40 1941-73
Tule Creek near Silverton (d)	07298200	1,150	1964-86
Prairie Dog Town Fork Red River near Brice (d)	07298500	6,082	1949-51 1961-63
Mulberry Creek near Brice (d)	07299000	N/A	1949-51
Prairie Dog Town Fork Red River near Lakeview (d)	07299200	6,792	1963-80
Little Red River near Turkey (d)	07299300	139	1968-81
Prairie Dog Town Fork Red River near Estelline (d)	07299500	7,293	1924-25 1938-47
Jonah Creek at Weir near Estelline (d)	07299512	65.50	1974-82
Jonah Creek below Wier near Estelline (d)	07299514	66.60	1974-76
Salt Creek near Estelline (d)	07299530	142	1974-79
Red River near Quanah (d)	07299570	8,321	1959-82
Salt Fork Red River near Clarendon (d)	07299850	457	1960-64
McClellan Creek near McLean (d)	07301200*	759	1967-80
Quitaque Creek near Quitaque (d)	07307500	293	1946-59
North Pease River near Childress (d)	07307600	1,434	1973-79
Middle Pease River near Paducah (d)	07307750	1,086	1973-79
Middle Pease River below Paducah (d)	07307760	N/A	1980-82
Pease River near Crowell (d)	07308000	3,037	1924-47
North Wichita River near Paducah (d)	07311600	540	1961-82
North Wichita River near Crowell (d)	07311622	591	1969-76
Middle Wichita River near Truscott (d)	07311648	161	1971-76
South Wichita River near Guthrie (d)	07311780	239	1971-76
South Wichita River at Ross Ranch near Benjamin (d)	07311790	499	1971-79
Wichita River near Seymour (d)	07311900	1,874	1959-79
Little Wichita River near Ringgold (d)	07315400	1,350	1959-65
Mineral Creek near Sadler (d)	07316200	26	1967-76
Bois D'Arc Creek near Randolph (d)	07332600	72	1962-85
Sanders Creek near Chicota (d)	07335400	175	1968-86
Little Pine Creek near Kanawha (d)	07336750	75.40	1968-80
Pecan Bayou near Clarksville (d)	07336800	100	1962-77
South Sulphur river near Commerce (d)	07342470	189	1979-81
Cuthand Creek near Bogata (d)	07343300	69	1956-90
Dial Branch near Bagwell (e)	07343350	1	1966-74
Buck Creek near Cookville (e)	07343900	0.78	1966-74
Sulphur River near Darden (d)	07344000	2,774	1924-56
Big Cypress Creek near Winnsboro (d)	07344482	27.2	1974-82
Lake Cypress Springs near Mt. Vernon (d)	07344484	75.0	1974-81
Boggy Creek near Daingerfield (d)	07345000	72	1943-77
Big Cypress Creek near Karnack (e)	07346085	N/A	1980-85
Frazier Creek near Linden (d)	07346140	48.0	1965-91
Sabine River near Emory (d)	08017500	888	1953-73
Grand Saline Creek near Grand Saline (d)	08018200	91.4	1968-73

Station name	Station number	Drainage area (mi ²)	Period of record (water years)
Burke Creek near Yantis (d)	08018730	33.10	1979-89
Lake Winnsboro near Winnsboro (d)	08019300	27.1	1962-
Prairie Creek near Gladewater (d)	08020200	48.90	1968-77
Sabine River near Longview (d)	08020500	2,947	1904-06
Rabbit Creek at Kilgore (d)	08020700	75.80	1964-77
Mill Creek near Henderson (d)	08020960	20.30	1979-81
Mill Creek near Longview (d)	08020980	47.90	1979-81
Tiawichi Creek near Longview (d)	08020990	62.70	1978-81
Cherokee Bayou near Elderville	08021000	120	1940-48
Murval Lake near Gary (d)	08022200	115	1958-78
Murvaul Bayou near Gary (d)	08022300	134	1958-83
Socagee Creek near Carthage (d)	08022400	82.60	1962-73
Tenaha Creek near Shelbyville (d)	08023200	97.80	1952-82
Sabine River near Milam (d)	08024400	6,508	1939-66
Palo Gaucho Bayou near Hemphill (d)	08024500	123	1952-65
Mill Creek near Burkeville (d)	08025307	18	1974-79
Cypress Creek near Buna (d)	08030000	69.20	1952-83
Cow Bayou near Mauriceville (d)	08031000	83.30	1952-86
Kickapoo Creek near Brownsboro (d)	08031200	232	1962-89
Neches River near Reese (d)	08031500	851	1924-27
Neches River near Alto (d)	08032500	1,945	1944-78
Piney Creek near Groveton (d)	08033300	79	1962-89
Striker Creek near Summerfield (d)	08033700	146	1941-49
East Fork Angelina River near Cushing (d)	08033900	158	1964-89
Mud Creek near Jacksonville (d)	08034500	376	1939-79
Mud Creek at Ponta (d)	08035000	475	1924-27
Angelina River near Lufkin (d)	08037000	1,600	1923-34
			1940-79
Arenoso Creek near San Augustine (d)	08037500	75.30	1938-40
Angelina River near Zavalla (d)	08038500	2,892	1952-65
Ayish Bayou at San Augustine (d)	08039000	15.80	1924-26
Angelina River at Horger (d)	08039500	3,486	1928-51
			1966-73
North Creek near Jacksboro (d)	08042700	21.60	1956-80
West Fork Trinity River at Bridgeport (d)	08043100	1,113	1985-89
West Fork Trinity River at Bridgeport (d)	08043500	1,147	1910-30
West Fork Trinity River at Lake Worth, Fort Worth (d)	08045500	2,069	1917-18
Clear Fork Trinity River near Aledo (d)	08046000	251	1947-75
Marine Creek at Fort Worth (d)	08048500	16.80	1950-58
Sycamore Creek at I.H. 35W, Fort Worth (d)	08048520	17.70	1970-76
Sycamore Creek Trib. above Seminary South, Fort Worth (d)	08048530	0.97	1970-76
Sycamore Creek Trib. at I.H. 35W, Fort Worth (d)	08048540	1.35	1970-76
Dry Branch at Fain Street at Fort Worth (d)	08048600	2.15	1969-76
Big Fossil Creek at Haltom City (d)	08048800*	52.8	1960-73
Little Fossil Creek at I.H. 820, Fort Worth (e)	08048820	5.64	1969-73
Little Fossil Creek at Mesquite Street, Fort Worth (d)	08048850	12.30	1969-76
Village Creek at Kennedale (d)	08048980	100	1986-89
Village Creek near Handley (d)	08049000	126	1925-30
Big Bear Creek near Grapevine (d)	08049550	29.6	1967-79
Trigg Branch at DFW Airport near Euless (d)	08049565	1.73	1983-87
Mountain Creek near Cedar Hill (d)	08049600	119	1961-84
Mountain Creek above Duncanville (e)	08049850	224	1986-87
Mountain Creek near Duncanville (e)	08049900	225	1970-90
Mountain Creek near Grand Prairie (d)	08050000	273	1925-33
Elm Fork Trinity SWS 6-O near Muenster (e)	08050200	0.77	1957-71
Elm Fork Trinity River near Muenster (d)	08050300	46	1957-73
Elm Fork Trinity River near Sanger (d)	08050500	381	1949-84
Isle Du Bois Creek near Pilot Point (d)	08051000	266	1949-84
Elm Fork Trinity River near Pilot Point (d)	08051130	692	1986-92
Elm Fork Trinity River near Denton (d)	08052000	1,084	1924-26
Little Elm Creek SWS #10 near Gunter (e)	08052630	2.10	1966-72

Station name	Station number	Drainage area (mi ²)	Period of record (water years)
Little Elm Creek near Celina (d)	08052650	46.70	1966-76
Hickory Creek at Denton (d)	08052780	129	1985-87
Denton Creek near Roanoke (d)	08054000	621	1924-27 1939-55
Denton Creek near Grapevine (d)	08055000	705	1947-91
Bachman Branch at Dallas (d)	08055700	10	1964-79
Turtle Creek at Dallas (d)	08056500	7.98	1948-91
White Rock Creek at Keller Springs Road, Dallas (d)	08057100	29.40	1962-79
White Rock Creek at White Rock Lake, Dallas, Tx (d)	08057300	100	1963-79
White Rock Creek at Scyene Road, Dallas (d)	08057400	122	1963-79
Tenmile Creek at State Hwy. 342 at Lancaster (d)	08057450	52.80	1970-79
Honey Creek SWS #11 near McKinney	08057500	2.14	1953-73
Honey Creek SWS #12 near McKinney	08058000	1.26	1953-77
Honey Creek near McKinney (d)	08058500	39	1951-73
East Fork Trinity River near McKinney (d)	08059000	190	1950-75
Sister Grove Creek near Princeton (d)	08059500	113	1949-75
East Fork Trinity River above Pilot Grove near Lavon (d)	08060000	324	1949-53
East Fork Trinity River near Lavon (d)	08061000	773	1954-89
East Fork Trinity River near Rockwall (d)	08061500	840	1924-54
Lake Ray Hubbank near forney (e)	08061550	1,071	1968-93
Duck Creek near Garland (d)	08061700	31.6	1958-92
South Mesquite Creek at Mercury Road near Mesquite (d)	08061950	23	1969-79
Cedar Creek Reservoir Spillway Outflow near Trinidad (d)	08062650	1,007	1966-82
Cedar Creek near Kemp (d)	08062800	189	1963-87
Kings Creek near Kaufman (d)	08062900	233	1963-87
Lacey Fork near Mabank (d)	08062980	118	1982-84
Cedar Creek near Mabank (d)	08063000	733	1939-66
South Twin Creek near Eustace (d)	08063003	27.40	1983-84
Cedar Creek at Trinidad (d)	08063020	1,011	1965-71
Pin Oak Creek near Hubbard (d)	08063200	17.60	1956-72
Richland Creek near Richland (d)	08063500	734	1939-88
Chambers Creek near Corsicana (d)	08064500	963	1939-84
Richland Creek near Fairfield (d)	08064600	1,957	1972-83
Catfish Creek near Tennessee Colony (d)	08064800	207	1962-89
Trinity River near Midway (d)	08065500	14,450	1939-70
Caney Creek near Madisonville (d)	08065700	112	1963-76
White Rock Creek near Trinity (d)	08066100	222	1965-71 1974-85
Big Creek near Shepherd	08066400	38.80	1966-89
Sulphur Barge Canal near Wallisville (e)	08067113	N/A	1976-82
Lost River near Wallisville (e)	08067250	N/A	1976-82
Old River (cutoff channel) near Wallisville (e)	08067255	N/A	1976-82
Anahuac Channel at Anahuac (e)	08067301	N/A	1976-82

DISCONTINUED SURFACE-WATER-QUALITY STATIONS

xiii

The following stations were discontinued as continuous-record surface-water-quality stations prior to the 1992 water year. Daily records of specific conductance, temperature, sediment, color, pH, dissolved oxygen, or chloride were collected and published for the record shown for each station.

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

Station name	Station number	Drainage area (mi ²)	Type of record	Period of record (water years)
Canadian River at Tascosa	07227470	18,536	SC, T	1948-53 1968-77
Canadian River near Canadian	07228000	22,866	SC, T	1974-81
Prairie Dog Town Fork Red River near Wayside	07297910	4,221	SC, T	1968-81
Tule Creek near Silverton	07298200	1,150	SC, T	1967-69
Prairie Dog Town Fork Red River near Brice	07298500	6,082	T	1950-51
			S	1949-51
Mulberry Creek near Brice	07299000	N/A	T, S	1949-51
Prairie Dog Town Fork Red River near Lakeview	07299200	6,792	SC, T	1968-80
			S	1979-80
Little Red River near Turkey	07299300	139	SC, T	1968-81
			S	1979-81
Jonah Creek at Weir near Estelline	07299512	65.50	SC	1974-82
Jonah Creek below Weir near Estelline	07299514	66.60	SC	1974-76
Salt Creek near Estelline	07299530	142	SC	1974-79
Prairie Dog Town Fork Red River near Childress	07299540	7,725	SC, T	1968-82
Salt Fork Red River near Hedley	07299930	744	SC, T	1956-61
Salt Fork Red River near Wellington	07300000	1,222	SC, T	1952-91
North Pease River near Childress	07307600	1,434	SC, T	1973-79
Middle Pease River near Paducah	07307750	1,086	SC	1973-79
			T	1973-77
Middle Pease River near Paducah	07307760	N/A	SC	1979-82
			T	1979-80
Pease River near Childress	07307800	2,754	SC, T	1968-82
Pease River near Crowell	07308000	3,037	SC	1942-43
Red River near Burkburnett	07308500	2,057	SC, T	1968-81
North Fork Wichita River near Paducah	07311600	540	SC, T	1967-76
North Wichita River near Crowell	07311622	591	SC	1970-76
			T	1973-74
Middle Fork Wichita River near Truscott	07311648	161	SC	1970-76
Truscott Brine Lake near Truscott	07311669	N/A	SC, T	1984-89
North Wichita River near Truscott	07311700	937	SC, T	1965-89
				1990-92
South Fork Wichita River near Guthrie	07311780	239	SC	1970-76
			T	1973-74
South Wichita River below Low-Flow Dam near Guthrie	07311783	N/A	SC, T	1986-89
South Fork Wichita River at Ross Ranch near Benjamin	07311790	499	SC	1970-79
Wichita River near Seymour	07311900	1,874	SC, T	1968-79
Beaver Creek near Electra	07312200	652	SC, T	1968-70
Wichita River at Wichita Falls	07312500	3,140	SC, T	1981-89
Wichita River near Charlie	07312700	3,439	SC, T	1967-81
Little Wichita River near Archer City	07314500	481	SC	1953-55
			T	1953-54
Little Wichita River above Henrietta	07314900	1,037	SC, T	1952-56
				1959-66
Little Wichita River near Henrietta	07315000	1,037	SC	1953-66
			T	1952-56
				1959-66
East Fork Little Wichita River near Henrietta	07315200	178	T	1953-54
Little Wichita River near Ringgold	07315400	1,350	SC	1959-62
Red River near Gainesville	07316000	N/A	SC	1944-46
				1952-64
				1966-89
			T	1952-63
				1966-89
Red River at Denison Dam near Denison	07331600	3,972	SC	1944-89
			T	1945-89

Station name	Station number	Drainage area (mi ²)	Type of record	Period of record (water years)
Little Pine Creek near Kanawha	07336750	75.40	T	1979-80
Red River near De Kalb	07336820	47,348	SC, T	1968-91
South Sulphur River near Cooper	07342500	527	SC, T	1958-66 1967-89
Sulphur River near Talco	07343200	1,365	SC, T	1966-91
White Oak Creek near Talco	07343500	494	SC, T	1967-89
Sulphur River near Darden	07344000	2,774	SC, T	1947-50
Big Cypress Creek near Pittsburg	07344500	366	SC, T	1968-89
Little Cypress Creek near Jefferson	07346070	675	SC, T	1967-91
Sabine River near Emory	08017500	888	SC, T	1952-54
Grand Saline Creek near Grand Saline	08018200	91.40	SC, T	1968-73
Sabine River near Mineola	08018500	1,357	SC, T	1967-91
Lake Fork Creek near Quitman	08019000	585	SC, T	1967-89
Big Sandy Creek near Big Spring	08019500	231	SC, T, S	1984-86
Sabine River at Logansport	08022500	4,842	SC, T	1939-45
Sabine River below Toledo Bend near Burkeville	08026000	7,482	SC, T C	1968-86 1969-75
Sabine River near Bon Weir	08028500	8,229	SC, T, C	1969-83
Cow Bayou near Mauriceville	08031000	83.30	SC, T	1952-55
Neches River near Neches	08032000	1,145	SC, T	1969-91
Neches River near Alto	08032500	1,945	SC, T	1959-69
Neches River near Diboll	08033000	2,724	SC, T	1969-81
Neches River near Rockland	08033500	3,636	SC	1941-42 1945-47
Angelina River near Lufkin	08037000	1,600	SC, T	1954-79
Angelina River below Sam Rayburn Dam near Jasper	08039400	3,449	SC, T	1964-79
Village Creek near Kountze	08041500	860	SC, T	1967-70
Pine Island Bayou near Sour Lake	08041700	336	SC, T	1968-89
Big Sandy Creek near Bridgeport	08044000	333	SC, T S	1969-77 1968-77
Clear Fork Trinity River at Fort Worth	08047500	518	SC T	1948-52 1947-62
Village Creek at Everman	08048970	84.5	SC, pH, T, DO	1989-91
Elm Fork Trinity River SWS # 6-0 near Muenster	08050200	0.77	S	1956-86
Elm Fork Trinity River near Muenster	08050300	46	SC T S	1966-67 1957-67 1957-68
Clear Creek near Sanger	08051500	295	SC T, S	1969-77 1968-77
Little Elm Creek near Celina	08052650	46.70	SC, T, S	1966-75
Little Elm Creek near Aubrey	08052700	75.50	SC, T, S	1966-75
Elm Fork Trinity River near Lewisville	08053000	1,673	SC T	1981-86 1976-81
Trinity River at Westmoreland Road, Dallas	08056400	6,074	SC, pH, T, DO	1977
Duck Creek near Garland	08061700	31.6	SC, pH, T, DO	1988-89
Cedar Creek near Mabank	08063000	733	SC, T	1956-57
Pin Oak Creek near Hubbard	08063200	17.60	SC T S	1965-72 1957-72 1956-60 1965-72
Richland Creek near Richland	08063500	734	SC, T	1967-69 1983-89
Chambers Creek near Corsicana	08064500	936	SC, T	1961-70
Richland Creek near Fairfield	08064600	1,957	SC, T	1956-66 1972-83
Trinity River near Oakwood	08065000	12,833	SC, T S	1947-81 1976-81
Bedias Creek near Madisonville	08065800	321	SC, T S	1984-87 1984-86
Long King Creek at Livingston	08066200	141	SC, T	1963-72
Trinity River near Goodrich	08066250	16,844	SC, T	1969-73
Trinity River near Moss Bluff	08067100	N/A	SC	1946-65
Old River near Cove	08067200	N/A	SC T	1946-65 1965
Trinity River at Anahuac	08067300	N/A	SC	1946-65

WATER RESOURCES DATA - TEXAS, 1993

VOLUME 1

ARKANSAS RIVER BASIN, RED RIVER BASIN, SABINE RIVER BASIN, NECHES RIVER BASIN, TRINITY RIVER BASIN, AND INTERVENING COASTAL BASINS

INTRODUCTION

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

This report series includes records of stage, discharge, and water quality of streams and canals; stage, contents, and water quality of lakes and reservoirs. Volume 1 contains records for water discharge at 113 gaging stations; stage only at 4 gaging stations; stage and contents at 37 lakes and reservoirs; and water quality at 81 gaging stations. Also included are data for 9 partial-record and 11 flood-hydrograph partial-record stations. The data in this report represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating City, State, and Federal agencies in Texas.

This series of annual reports for Texas began with the 1961 water year with a report that contained only data relating to the quantities of surface water. For the 1964 water year, a similar report was introduced that contained only data relating to water quality. Beginning with the 1975 water year, the report was changed to its present format, with data on quantities and quality of surface water contained in each of three volumes.

Prior to introduction of this series and for several water years concurrent with it, water resources data for Texas were published in U.S. Geological Survey Water-Supply Papers. Data on stream discharge and stage and on lake or reservoir contents and stage, through September 1960, were published annually under the title "Surface-Water Supply of the United

States, Parts 7 and 8." For the 1961 through 1970 water years, the data were published in two 5-year reports. Data on chemical quality, temperature, and suspended sediment for the 1941 through 1970 water years were published annually under the title "Quality of Surface Waters of the United States," and water levels for the 1935 through 1974 water years were published under the title "Ground-Water Levels in the United States." The above mentioned Water-Supply Papers may be consulted in the libraries of the principal cities of the United States and may be purchased from U.S. Geological Survey, Books and Open-File Reports, Federal Center, Bldg. 41, Box 25425, Denver, CO 80225.

Publications similar to this report are published annually by the Geological Survey for all States. These official Geological Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water Data Report TX-93-1." For archiving and general distribution, the reports for the 1971-74 water years also are identified as water-data reports. These water-data reports are for sale in paper copy or may be purchased on microfiche from the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161. Beginning with the 1990 water year, all water-data reports will also be available on Compact Disc - Read Only Memory (CD-ROM). All data reports published for the current water year for the entire Nation, including Puerto Rico and the Trust Territories, will be reproduced on a single CD-ROM disc.

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

COOPERATION

Federal agencies that assisted the Geological Survey in the collection of data in this report in the form of funds or services in 1993 are:

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

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

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

HYDROLOGIC CONDITIONS

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

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

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

The area for which water-resources data are presented in volume 1 includes the Texas Panhandle and extends across northern and eastern Texas to southeastern Texas. Normal annual precipitation in this area ranges from about 17 inches in the western part of the Texas Panhandle to more than 50 inches in the extreme southeastern part of the State. Annual runoff ranges from less than 1.0 inch in parts of the Panhandle to as much as 15 inches in southeastern Texas. The area described in volume 1 and the location of selected streamflow-gaging and water-quality stations in the area are shown in figure 1.

Streamflow

Streamflow was above normal during water year 1993 in all areas described in volume 1 except for parts of the Canadian River Basin where streamflow was normal. Streamflow for water year 1993 and streamflow for the period of record at six selected stations (fig. 1), for which data are included in volume 1, is presented in table 1.

At the four long-term hydrologic index stations in the State, streamflow during water year 1993 ranged from normal to above normal. Monthly mean discharges for water year 1993 and the median of the long-term monthly means for water years 1951-80 for the four long-term hydrologic index stations in the State are shown in figure 2. Streamflow at the hydrologic index station Neches River near Rockland was above normal (discharges within the highest 25 percent of record) during December, January, March, April, June and July, and normal for the remaining 6

months. The North Bosque River near Clifton had above-normal streamflow from December through March and normal streamflow for the remaining 8 months. The North Concho River near Carlsbad had above-normal streamflow from November through April and normal for the remaining 6 months. Streamflow for the Guadalupe River near Spring Branch was above-normal from November through March and normal for the remaining 7 months of water year 1993.

Conservation storage in 36 selected reservoirs in this area of the State, with a total combined conservation capacity of 21,624,000 acre-feet, decreased from 90 percent of capacity at the end of September 1992 to 85 percent of capacity at the end of September 1993. Records from these reservoirs indicate that storage increased in 4, decreased in 28, and remained the same in 4 during the water year.

Water Quality

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

Records of discharge-weighted-average concentrations of dissolved solids for water year 1993 are compared with those for water years 1989-93 for selected long-term daily or continuous-record water-quality stations (fig. 1) in the Arkansas, Red, Sabine, Neches, and Trinity River Basins. Results are shown in table 2.

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

Station no. and name	Discharge during 1993 water year (cubic feet per second)			Discharge during period of record (cubic feet per second)		
	Max.	Min.	Mean	Max.	Min.	Mean
<u>Arkansas River Basin</u>						
07227500 Canadian River near Amarillo, Tex.	4,300	.08	128	135,000	0 (1925, 1939-93)	290
<u>Red River Basin</u>						
07308500 Red River near Burkburnett, Tex. ^{1/}	55,000	169	2,389	166,000	0 (1961-93)	1,122
<u>Sabine River Basin</u>						
08022040 Sabine River near Beckville, Tex.	35,000	60	3,614	49,400	2.4 (1961-93)	2,478
<u>Neches River Basin</u>						
08033500 Neches River near Rockland, Tex. ^{2/}	21,700	191	3,823	49,800	1.6 (1962-93)	2,272
<u>Trinity River Basin</u>						
08057000 Trinity River at Dallas, Tex.	23,600	344	3,121	111,000	1.2 (1934-93)	1,760
08066500 Trinity River at Romayor, Tex.	63,800	720	12,170	105,000	292 (1969-93)	8,446

^{1/} National Stream Quality Accounting Network (NASQAN) site.

^{2/} Hydrologic index station.

WATER RESOURCES DATA - TEXAS, 1993

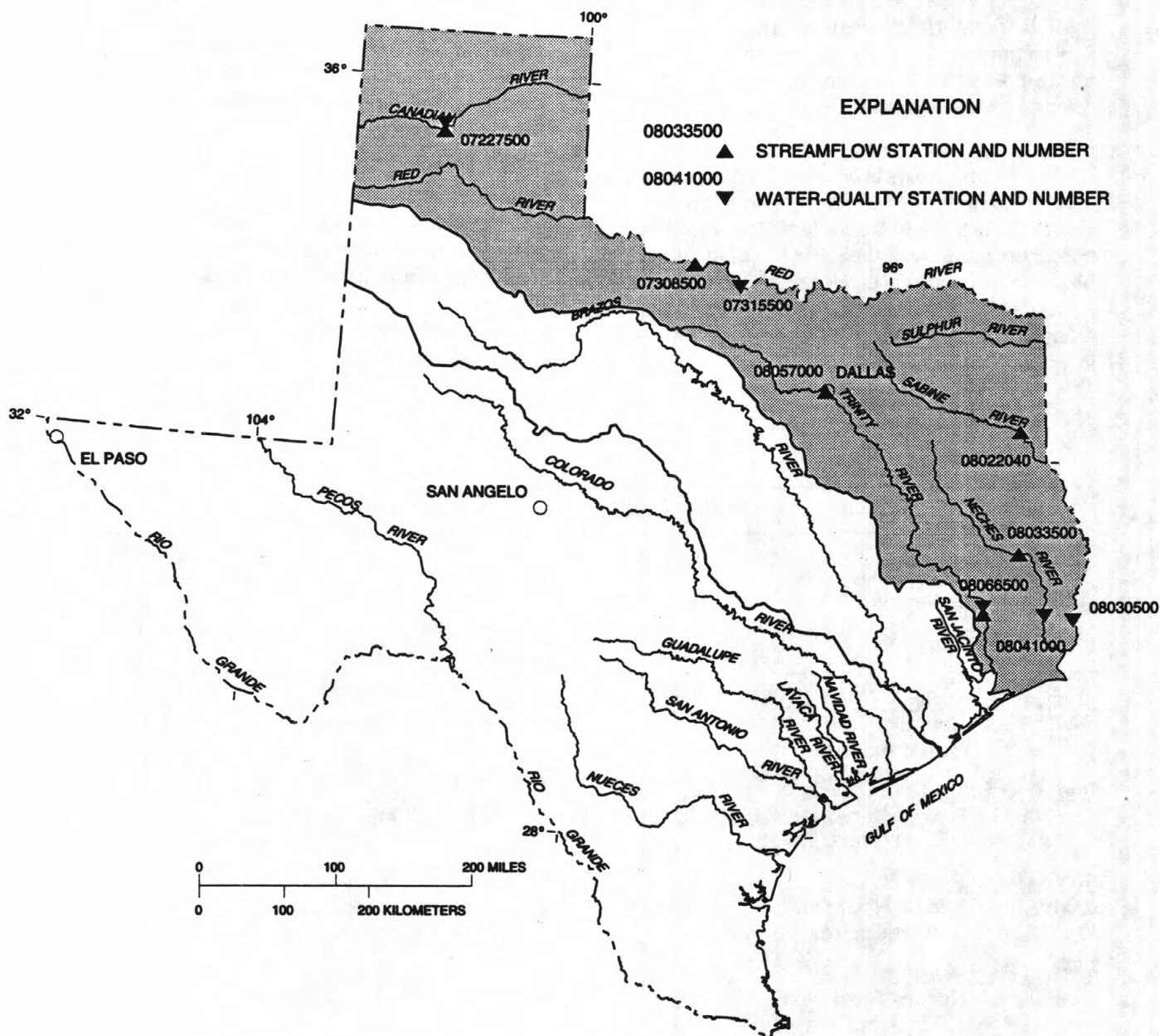
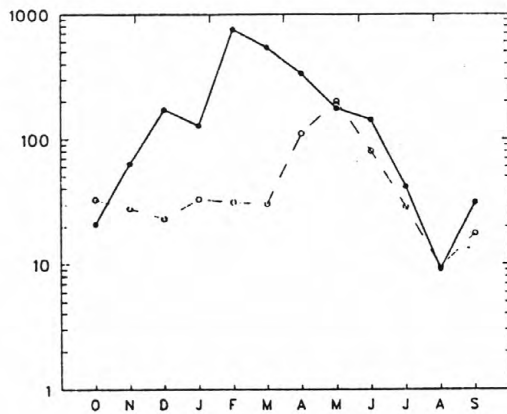


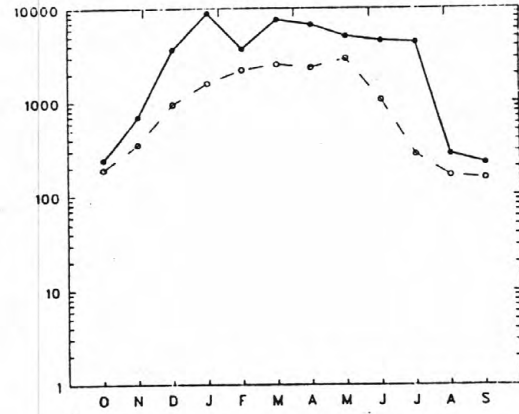
Figure 1. Area of Texas covered by volume 1 (shaded) and location of selected streamflow and water-quality stations in volume 1.

DISCHARGE, IN CUBIC FEET PER SECOND

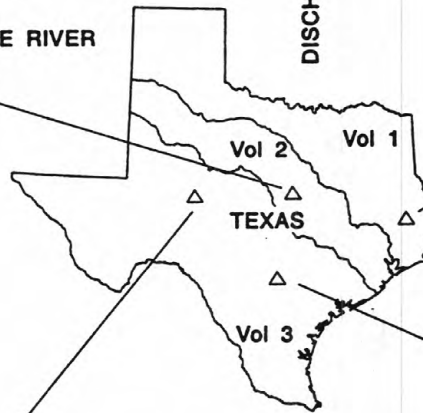


08095000 NORTH BOSQUE RIVER
NEAR CLIFTON

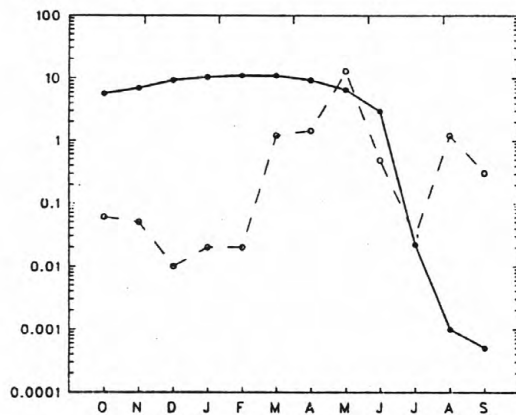
DISCHARGE, IN CUBIC FEET PER SECOND



080335000 NECHES RIVER
NEAR ROCKLAND

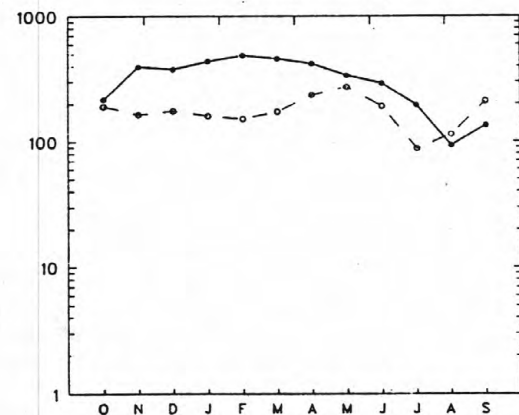


DISCHARGE, IN CUBIC FEET PER SECOND



08134000 NORTH CONCHO RIVER
NEAR CARLSBAD

DISCHARGE, IN CUBIC FEET PER SECOND



08167500 GUADALUPE RIVER
NEAR SPRING BRANCH

EXPLANATION

- MONTHLY MEAN DISCHARGE FOR 1993 WATER YEAR
- - -○- - - MEDIAN OF MONTHLY MEAN DISCHARGE FOR 1951-80 WATER YEARS

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

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

Station no. and name	Mean discharge (cubic feet per second)		Discharge-weighted-average concentration of dissolved solids (milligrams per liter)	
	1993	1989-93	1993	1989-93
Arkansas River Basin				
07227500 Canadian River near Amarillo, Tex.	128	139	1,130	1,030
Red River Basin				
07315500 Red River near Terral, Okla.	5,694	4,504	1,060	1,240
Sabine River Basin				
08030500 Sabine River near Ruliff, Tex.	10,560	11,380	64	66
Neches River Basin				
08041000 Neches River at Evadale, Tex.	8,232	9,028	87	80
Trinity River Basin				
08066500 Trinity River at Romayor, Tex.	12,170	13,190	176	178

SPECIAL NETWORKS AND PROGRAMS

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

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

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

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

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

EXPLANATION OF THE RECORDS

The surface-water records published in this report are for the 1993 water year that began October 1, 1992, and ended September 30, 1993. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, and water-quality data for surface water. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

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

Downstream Order Numbering

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

The station-identification number is assigned according to downstream order. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations.

Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for each station, such as 08057000, which appears just to the left of the station name, includes the 2-digit Part number "08" plus the 6-digit downstream-order number "057000." The Part number designates the major river basin; for example, Part "08" is the Western Gulf of Mexico basin.

Records of Stage and Water Discharge

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

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

Data Collection and Computation

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

Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage or with digital recorders that punch stage values on paper tapes at selected time intervals. Measurements of discharge are made with current meters using methods adopted by the Geological Survey as a result of experience accumulated since 1880. These methods are described in standard textbooks, in Water-Supply Paper 2175, and in U.S. Geological Survey Techniques of Water-Resources Investigations, Book 3, Chapter A6.

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

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

At some stream-gaging stations, the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an

auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

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

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

Data Presentation

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

LOCATION.—Information on locations is obtained from the most accurate maps available. The location of the gage with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given. River mileages, given for only a few stations, were determined by methods given in "River Mileage Measurement," Bulletin 14, Revision of October 1968, prepared by the Water Resources Council or were provided by the U.S. Army Corps of Engineers.

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

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

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

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

REMARKS.—All periods of estimated daily discharge record will either be identified by date in this paragraph of the station description for water-discharge stations or flagged in the daily-discharge table. (See next section, "Identifying Estimated Daily Discharge.") If a remarks statement is used to identify estimated record, the paragraph will begin with this information presented

as the first entry. The paragraph is also used to present information relative to the accuracy of the records, to special methods of computation, to conditions that affect natural flow at the station and, possibly, to other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir.

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

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

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

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

EXTREMES FOR CURRENT YEAR.—Extremes given here are similar to those for the period of record, except the peak discharge listing may include secondary peaks. For stations meeting certain criteria, all peak

discharges and stages occurring during the water year and greater than a selected base discharge are presented under this heading. The peaks greater than the base discharge, excluding the highest one, are referred to as secondary peaks. Peak discharges are not published for canals, ditches, drains, or streams for which the peaks are subject to substantial control by man. The time of occurrence for peaks is expressed in 24-hour local standard time. For example, 12:30 a.m. is 0030, and 1:30 p.m. is 1330. The minimum for the current water year appears below the table of peak data.

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

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

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

for the calendar and water years. At some stations monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversions or reservoir contents are given.

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

Identifying Estimated Daily Discharge

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

Accuracy of the Records

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

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

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

Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second for values less than 1 ft³/s; to the nearest tenth between 1.0 and 10 ft³/s; to whole numbers between 10 and 1,000 ft³/s; and to 3 significant figures for more than 1,000

ft³/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

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

Other Records Available

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

Records of Surface-Water Quality

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

Classification of Records

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

A continuing-record station is a site where data are collected on a regularly scheduled basis. Frequency may be one or more times daily, weekly, monthly, or quarterly. A partial-record station is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less

than quarterly. A miscellaneous sampling site is a location other than a continuing or partial-record station where random samples are collected to give better areal coverage to define water-quality conditions in the river basin. A careful distinction needs to be made between "continuing records", as used in this report, and "continuous recordings," which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently.

Arrangement of Records

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

On Site Measurements and Sample Collection

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

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

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

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

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

Water Temperature

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

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

Sediment

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

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

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

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

Laboratory Measurements

Sediment samples, samples for biochemical-oxygen demand (BOD), samples for indicator bacteria, and

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

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

Data Presentation

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

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

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

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

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

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

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

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

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

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

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

Remark Codes

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

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

ACCESS TO WATSTORE DATA

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

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

General inquiries about WATSTORE may be directed to:

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

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

DEFINITION OF TERMS

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

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

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

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

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

Bacteria are microscopic unicellular organisms, typically spherical, rod-like, or spiral and threadlike in

shape, often clumped into colonies. Some bacteria cause disease, while others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

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

Fecal coliform bacteria are bacteria that are present in the intestine or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms that produce blue colonies within 24 hours when incubated at 44.5 °C plus or minus 0.2 °C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal streptococcal bacteria are bacteria found also in the intestine of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35 °C plus or minus 1.0 °C on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

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

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

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

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500 °C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m³), and periphyton and benthic organisms in grams per square meter (g/m²).

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

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

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

Bottom material: See Bed material.

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

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

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

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

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

Control designates a feature downstream from the gage that determines the stage-discharge relation at

the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

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

Cubic foot per second (ft³/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Cubic-foot-per-second day [(ft³/s)/d] is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons, or 2,445 cubic meters.

Cubic feet per second per square mile [(ft³/s)/mi²] is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

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

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

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

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

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

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

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

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

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

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

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

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is computed as the sum of equivalents of polyvalent cations and is expressed as the equivalent concentration of calcium carbonate (CaCO₃).

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

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

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmen-

tal process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

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

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

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

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

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

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

water quality in the Nation's rivers through analysis of data from this and other programs; (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics; and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

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

Organism is any living entity.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meter (m^2), acre, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Milligrams of carbon per area or volume per unit time [mg C/(m².time)] for periphyton and macrophytes and [mg C/(m³.time)] for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon -14). The carbon -14 method is of greater sensitivity than the oxygen light and dark bottle method and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Sodium-adsorption-ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to

the soil. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Solute is any substance that is dissolved in water.

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

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

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

Substrate is the physical surface upon which an organism lives.

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

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

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

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

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

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

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

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

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

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

the taxonomy of a particular mayfly, *Hexagenia limbata*, is the following:

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

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

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

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

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

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

Total discharge is the total quantity of any individual constituent, as measured by dry mass or volume, that

passes through a stream cross-section per unit of time. This term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

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

Tritium Network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

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

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

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

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

PUBLICATIONS OF TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

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

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

- 1-D1. **Water temperature-Influential factors, field measurement, and data presentation**, by H.H. Stevens, Jr., J.F. Ficke, and G.F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 p.
- 1-D2. **Guidelines for collection and field analysis of ground-water samples for selected unstable constituents**, by W.W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 p.
- 2-D1. **Application of surface geophysics to ground-water investigations**, by A.A.R. Zohdy, G.P. Eaton, and D.R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 p.
- 2-D2. **Application of seismic-refraction techniques to hydrologic studies**, by F.P. Haeni: USGS--TWRI Book 2, Chapter D2. 1988. 86 p.
- 2-E1. **Application of borehole geophysics to water-resources investigations**, by W.S. Keys and L.M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 p.
- 2-E2. **Borehole geophysics applied to ground-water investigations**, by W. Scott Keys: USGS--TWRI Book 2, Chapter E2. 1990. 150 p.
- 2-F1. **Application of drilling, coring, and sampling techniques to test holes and wells**, by Eugene Shuter and Warren E. Teasdale: USGS--TWRI Book 2, Chapter F1. 1989. 97 p.
- 3-A1. **General field and office procedures for indirect discharge measurements**, by M.A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 p.
- 3-A2. **Measurement of peak discharge by the slope-area method**, by Tate Dalrymple and M.A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 p.
- 3-A3. **Measurement of peak discharge at culverts by indirect methods**, by G.L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 p.
- 3-A4. **Measurement of peak discharge at width contractions by indirect methods**, by H.F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 p.
- 3-A5. **Measurement of peak discharge at dams by indirect methods**, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 p.
- 3-A6. **General procedure for gaging streams**, by R.W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 p.
- 3-A7. **Stage measurements at gaging stations**, by T.J. Buchanan and W.P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 p.
- 3-A8. **Discharge measurements at gaging stations**, by T.J. Buchanan and W.P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 p.
- 3-A9. **Measurement of time of travel in streams by dye tracing**, by F.A. Kilpatrick, and J.F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1989. 27 p.
- 3-A10. **Discharge ratings at gaging stations**, by E.J. Kennedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 p.
- 3-A11. **Measurement of discharge by moving-boat method**, by G.F. Smoot and C.E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 p.
- 3-A12. **Fluorometric procedures for dye tracing**, by J.F. Wilson, Jr., E.D. Cobb, and F.A. Kilpatrick: USGS--TWRI Book 3, Chapter A12. 1986. 41 p.
- 3-A13. **Computations of continuous records of streamflow**, by E.J. Kennedy: USGS--TWRI Book 3, Chapter A13. 1983. 53 p.
- 3-A14. **Use of flumes in measuring discharge**, by F.A. Kilpatrick and V.R. Schneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 p.
- 3-A15. **Computation of water-surface profiles in open channels**, by Jacob Davidian: USGS--TWRI Book 3, Chapter A15. 1984. 48 p.
- 3-A16. **Measurement of discharge using tracers**, by F.A. Kilpatrick and E.D. Cobb: USGS--TWRI Book 3, Chapter A16. 1985. 52 p.
- 3-A17. **Acoustic velocity meter systems**, by Antonius Laenen: USGS--TWRI Book 3, Chapter A17. 1985. 38 p.
- 3-A18. **Determination of stream reaeration coefficients by use of tracers**, by F.A. Kilpatrick, R.E. Rathbun, N. Yotsukura, G.W. Parker, and L.L. DeLong: USGS--TWRI Book 3, Chapter A18. 1989. 52 p.
- 3-A19. **Levels of streamflow gaging stations**, by E.J. Kennedy: USGS--TWRI Book 3, Chapter A19. 1990. 27 p.
- 3-B1. **Aquifer-test design, observation, and data analysis**, by R.W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 p.

- 3-B2. **Introduction to ground-water hydraulics, a programmed text for self instruction**, by G.D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 p.
- 3-B3. **Type curves for selected problems of flow to wells in confined aquifers**, by J.E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 p.
- 3-B4. **Regression modeling of ground-water flow**, by Richard L. Cooley and Richard L. Naff: USGS--TWRI Book 3, Chapter B4. 1990. 232 p.
- 3-B5. **Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems--An introduction**, by O.L. Franke, T.E. Reilly, and G.D. Bennett: USGS--TWRI Book 3, Chapter B5. 1987. 15 p.
- 3-B6. **The principle of superposition and its application in ground-water hydraulics**, by T.E. Reilly, O.L. Franke, and G.D. Bennett: USGS--TWRI Book 3, Chapter B6. 1987. 28 p.
- 3-B7. **Analytical solutions for one-, two-, and three-dimensional solute transport in ground-water systems with uniform flow**, by Eliezer J. Wexler: USGS--TWRI Book 3, Chapter B7. 1992. 90 p.
- 3-C1. **Fluvial sediment concepts**, by H.P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 p.
- 3-C2. **Field methods for measurement of fluvial sediment**, by H.P. Guy and V.W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 p.
- 3-C3. **Computation of fluvial-sediment discharge**, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 p.
- 4-A1. **Some statistical tools in hydrology**, by H.C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 p.
- 4-A2. **Frequency curves**, by H.C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 p.
- 4-B1. **Low-flow investigations**, by H.C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 p.
- 4-B2. **Storage analyses for water supply**, by H.C. Riggs and C.H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 p.
- 4-B3. **Regional analyses of streamflow characteristics**, by H.C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 p.
- 4-D1. **Computation of rate and volume of stream depletion by wells**, by C.T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 p.
- 5-A1. **Methods for determination of inorganic substances in water and fluvial sediments**, by M.J. Fishman and L.C. Friedman: USGS--TWRI Book 5, Chapter A1. 1989. 545 p.
- 5-A2. **Determination of minor elements in water by emission spectroscopy**, by P.R. Barnett and E.C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 p.
- 5-A3. **Methods for the determination of organic substances in water and fluvial sediments**, edited by R.L. Wershaw, M.J. Fishman, R.R. Grabbe, and L.E. Lowe: USGS--TWRI Book 5, Chapter A3. 1987. 80 p.
- 5-A4. **Methods for collection and analysis of aquatic biological and microbiological samples**, by L.J. Britton and P.E. Greenson, editors: USGS--TWRI Book 5, Chapter A4. 1989. 363 p.
- 5-A5. **Methods for determination of radioactive substances in water and fluvial sediments**, by L.L. Thatcher, V.J. Janzer, and K.W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 p.
- 5-A6. **Quality assurance practices for the chemical and biological analyses of water and fluvial sediments**, by L.C. Friedman and D.E. Erdmann: USGS--TWRI Book 5, Chapter A6. 1982. 181 p.
- 5-C1. **Laboratory theory and methods for sediment analysis**, by H.P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 p.
- 6-A1. **A modular three-dimensional finite-difference ground-water flow model**, by M.G. McDonald and A.W. Harbaugh: USGS--TWRI Book 6, Chapter A1. 1988. 586 p.
- 6-A2. **Documentation of a computer program to simulate aquifer-system compaction using the modular finite-difference ground-water flow model**, by S.A. Leake and D.E. Prudic: USGS--TWRI Book 6, Chapter A2. 1991. 68 p.
- 6-A3. **A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 1: Model Description and User's Manual**, by L.J. Torak: USGS--TWRI Book 6, Chapter A3. 1993. 136 pages.
- 6-A4. **A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 2: Derivation of finite-element equations and comparisons with analytical solutions**, by R.L. Cooley: USGS--TWRI Book 6, Chapter A4. 1992. 108 pages.
- 6-A5. **A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 3: Design philosophy and programming details**, by L.J. Torak: USGS--TWRI Book 6, Chapter A5. 1993. 243 pages.
- 7-C1. **Finite difference model for aquifer simulation in two dimensions with results of numerical experiments**, by P.C. Trescott, G.F. Pinder, and S.P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 p.
- 7-C2. **Computer model of two-dimensional solute transport and dispersion in ground water**, by L.F. Konikow and J.D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 p.
- 7-C3. **A model for simulation of flow in singular and interconnected channels**, by R.W. Schaffranek, R.A. Baltzer, and D.E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1983. 110 p.
- 8-A1. **Methods of measuring water levels in deep wells**, by M.S. Garber and F.C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 p.
- 8-A2. **Installation and service manual for U.S. Geological Survey manometers**, by J.D. Craig: USGS--TWRI Book 8, Chapter A2. 1983. 57 p.
- 8-B2. **Calibration and maintenance of vertical-axis type current meters**, by G.F. Smoot and C.E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 p.

LOWER MISSISSIPPI RIVER BASIN

25

ARKANSAS RIVER BASIN

07227000 CANADIAN RIVER AT LOGAN, NM

LOCATION.--Lat 35°21'25", long 103°25'03", in NE1/4NE1/4 sec.15, T.13 N., R.33 E., Quay County, Hydrologic Unit 11080006, on left bank 1,100 ft upstream from bridge on U.S. Highway 54, 0.7 mi south of Logan, 1.4 mi upstream from Chicago, Rock Island and Pacific Railroad Co. bridge, 2.0 mi downstream from Ute Dam, 4.3 upstream from Revuelto Creek, and at mile 672.0.

DRAINAGE AREA.--11,141 mi², of which 1,100 mi² is probably noncontributing.

PERIOD OF RECORD.--June 1904 to November 1905 (gage heights and discharge measurements only), December 1908 to September 1909, February 1910, 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.

REVISED RECORDS.--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.

GAGE.--Water-stage recorder. Datum of gage is 3,667.1 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 1, 1987, same site at datum 1 ft higher. See WSP 1311 or 1731 for history of changes prior to Oct. 1, 1934.

REMARKS.--Records poor. Flow regulated by Conchas Lake, 45 mi upstream and by Ute Reservoir, 2 mi upstream. There are diversions for irrigation of about 90,000 acres upstream from station. Several observations of water temperature were made during the year. No flow at times prior to completion of Ute Dam.

AVERAGE DISCHARGE.--15 years (water years 1909, 1912-13, 1927-38), prior to completion of Conchas dam, 392 ft³/s (284,000 acre-ft/yr); 24 years (water years 1939-62) prior to completion of Ute dam, 257 ft³/s (186,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD (SINCE 1925).--Maximum discharge 219,000 ft³/s Sept. 22, 1941 (gage height, 29.3 ft, from floodmarks), from rating curve extended above 75,000 ft³/s; no flow at times prior to completion of Ute dam.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 278,000 ft³/s Sept. 30, 1904 (gage height, about 36.5 ft, site and datum used in 1909), from rating curve extended above 14,000 ft³/s, from Ninth Biennial Report of New Mexico State Engineer.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	3.9	4.2	e4.0	3.9	3.8	4.2	3.4	4.3	3.7	4.1	331
2	2.6	3.8	4.0	e4.0	3.9	3.8	4.0	3.8	3.7	3.7	4.3	331
3	2.8	3.7	4.3	e4.0	3.9	3.4	4.0	3.3	3.6	3.7	26	329
4	2.9	3.7	4.1	e4.0	3.9	3.5	4.2	3.3	3.8	3.6	8.7	329
5	3.1	3.8	4.3	e4.0	3.8	3.6	4.3	3.3	3.7	3.8	97	328
6	3.1	3.8	4.3	3.8	3.9	3.7	4.4	3.3	3.4	3.7	323	329
7	3.4	3.7	4.1	3.9	3.9	3.7	4.6	3.3	3.3	3.6	324	328
8	3.7	3.7	e3.9	3.9	3.8	3.6	3.4	3.5	4.0	3.5	324	327
9	3.5	4.0	e3.9	3.9	3.8	12	2.9	3.6	3.6	4.1	225	327
10	3.5	3.9	e4.0	3.8	3.8	4.8	3.0	3.5	3.7	5.7	7.4	326
11	3.6	4.0	e3.9	3.8	3.8	3.4	3.1	3.7	3.7	4.0	6.0	326
12	3.6	4.0	e3.8	3.9	3.8	3.4	3.2	3.6	3.7	3.7	5.4	324
13	3.8	4.0	e3.9	3.8	3.8	3.5	3.7	3.6	3.6	3.7	5.0	324
14	3.8	3.9	e3.8	3.9	3.8	3.5	5.0	3.4	3.6	3.8	4.9	324
15	3.8	3.8	e3.9	3.8	3.8	3.5	3.8	3.4	3.8	4.8	5.0	324
16	3.8	3.7	e4.0	3.8	3.8	3.5	3.3	3.4	3.7	4.1	4.9	324
17	3.8	3.8	e3.9	3.8	3.8	3.6	3.2	3.5	4.3	3.9	5.0	323
18	3.9	3.9	e3.9	3.8	3.8	3.8	3.5	3.7	4.5	3.9	4.9	323
19	3.8	4.0	e4.0	3.9	3.8	3.6	4.7	3.5	29	45	5.0	323
20	3.9	4.1	e4.0	3.9	7.3	3.6	4.3	3.5	5.2	326	5.1	323
21	3.9	4.2	e3.9	3.8	6.2	3.7	3.5	3.7	5.3	328	5.0	323
22	3.8	4.2	e4.0	3.8	3.8	3.8	3.4	3.6	4.6	326	5.0	323
23	3.9	4.1	e4.0	3.8	3.8	3.6	3.3	3.6	4.1	132	5.1	323
24	3.9	4.1	e4.0	3.8	3.5	3.6	4.7	3.6	3.9	6.4	5.1	177
25	3.9	4.0	e4.0	3.8	3.7	3.5	4.1	3.7	3.8	5.4	5.1	7.2
26	4.0	4.0	e4.0	3.8	3.6	3.7	3.5	3.5	4.5	4.7	161	5.7
27	3.9	4.2	e4.0	3.8	3.7	4.6	3.3	3.4	4.8	4.4	331	5.1
28	3.9	4.1	e4.0	3.8	3.7	4.6	3.2	3.2	4.0	4.1	333	4.8
29	3.9	4.0	e4.0	3.8	---	4.4	3.3	3.1	3.8	4.1	332	4.6
30	3.9	4.1	e4.0	3.8	---	4.4	3.1	4.2	3.7	4.3	331	4.4
31	3.9	---	e4.0	3.8	---	4.5	---	4.0	---	4.2	331	---
TOTAL	111.8	118.2	124.1	119.5	112.1	125.7	112.2	109.2	144.7	1265.6	3239.0	7700.8
MEAN	3.61	3.94	4.00	3.85	4.00	4.05	3.74	3.52	4.82	40.8	104	257
MAX	4.0	4.2	4.3	4.0	7.3	12	5.0	4.2	29	328	333	331
MIN	2.5	3.7	3.8	3.8	3.5	3.4	2.9	3.1	3.3	3.5	4.1	4.4
AC-FT	222	234	246	237	222	249	223	217	287	2510	6420	15270

e Estimated

LOWER MISSISSIPPI RIVER BASIN

ARKANSAS RIVER BASIN--Continued

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

MEAN	33.9	28.5	7.25	7.95	10.0	3.09	15.9	27.5	47.2	69.6	83.4	92.0
MAX	325	287	84.1	62.7	174	11.4	239	767	575	608	720	838
(WY)	1966	1983	1983	1992	1980	1983	1987	1987	1969	1982	1981	1969
MIN	1.30	1.19	1.24	.86	1.13	.63	.26	.64	.62	.65	1.19	1.36
(WY)	1964	1984	1984	1963	1987	1963	1963	1963	1963	1963	1963	1983

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1963 - 1993	
ANNUAL TOTAL	3992.9		13282.9		35.6	
ANNUAL MEAN	10.9		36.4		145	
HIGHEST ANNUAL MEAN					1.62	
LOWEST ANNUAL MEAN					6860	
HIGHEST DAILY MEAN	320	Jan 1	333	Aug 28	.10	Jun 18 1969
LOWEST DAILY MEAN	1.9	Sep 23	2.5	Oct 1	.10	Jan 12 1963
ANNUAL SEVEN-DAY MINIMUM	2.1	Sep 23	2.9	Oct 1	.10	Apr 16 1963
INSTANTANEOUS PEAK FLOW					219000	Sep 22 1941
INSTANTANEOUS PEAK STAGE					29.30	Sep 22 1941
ANNUAL RUNOFF (AC-FT)	7920		26350		25780	
10 PERCENT EXCEEDS	4.9		167		8.6	
50 PERCENT EXCEEDS	4.0		3.9		2.5	
90 PERCENT EXCEEDS	3.5		3.4		1.6	

27

PERIOD OF RECORD.--Water years 1957-62, and February 1992 to current year.

[illegible]

ARKANSAS RIVER BASIN

07227100 REVUELTO CREEK NEAR LOGAN, NM

LOCATION.--Lat 35°20'29", long 103°23'37", in SW1/4NW1/4 sec.24, T.13 N., R.33 E., Quay County, Hydrologic Unit 11080008, on right bank 0.3 mi upstream from bridge on State Highway 39, 1.9 mi southeast of Logan, and at mile 2.3.

DRAINAGE AREA.--786 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Elevation of gage is 3,660 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Jan. 16, 1981, at site 320 ft upstream at datum 0.56 ft higher.

REMARKS.--Records poor. Low flows supplemented by surface- and ground-water return from irrigation in the vicinity of Tucumcari. Several observations of water temperature were made during the year. No flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD (1941-47).--Maximum discharge determined, about 13,400 ft³/s Sept. 18, 1946, (gage height, 9.04 ft), at site 180 ft downstream at different datum from unpublished records collected by U.S. Bureau of Reclamation. A peak discharge of 26,100 ft³/s, date unknown (gage height, 12.9 ft), at former site and datum, was measured by slope-area method in May 1957.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.9	14	2.5	4.3	3.7	4.0	4.4	31	3.7	2.5	5.8	6.4
2	8.0	14	2.0	6.2	3.8	3.4	2.6	146	3.5	1.3	22	7.2
3	7.5	17	1.7	5.5	3.3	2.4	1.0	40	3.1	1.5	356	7.2
4	6.9	22	.78	4.3	3.0	2.1	1.5	23	2.6	3.2	470	7.5
5	6.5	20	2.9	4.3	3.4	1.8	1.6	17	4.9	1.9	318	7.0
6	6.8	18	5.2	3.7	3.4	1.9	1.6	7.4	5.4	2.0	283	10
7	6.5	22	6.2	4.5	3.4	1.9	1.6	7.4	1.9	2.5	78	26
8	11	32	22	4.3	3.2	1.9	25	6.3	1.2	3.8	39	484
9	15	15	38	7.2	3.3	1.8	10	10	.98	18	36	218
10	12	21	57	5.2	3.3	1.2	8.0	10	1.5	6.4	20	208
11	13	22	17	12	3.2	1.2	10	8.0	7.2	87	14	104
12	12	19	8.9	17	2.7	1.6	8.4	15	10	17	17	59
13	13	36	6.1	14	2.9	2.1	5.2	11	7.8	35	6.8	31
14	11	35	4.3	12	3.4	2.2	3.4	7.3	4.0	48	6.8	24
15	14	11	6.4	6.3	9.2	1.7	4.0	6.2	2.7	882	5.9	16
16	14	6.4	5.8	4.5	39	1.3	5.8	4.8	2.4	470	3.7	12
17	14	5.0	4.9	4.0	53	1.0	7.8	5.4	85	163	476	12
18	16	4.1	6.7	4.0	30	1.5	8.0	4.4	435	37	25	7.4
19	17	3.9	4.0	5.5	23	1.1	6.3	6.3	1490	18	23	8.0
20	22	3.4	3.0	9.4	7.8	.75	8.0	5.2	470	92	76	7.4
21	24	13	3.8	91	3.3	.46	8.4	5.8	360	140	34	17
22	27	26	4.1	19	2.7	.56	8.0	4.8	533	41	93	21
23	24	11	3.4	7.7	3.0	.57	5.1	3.4	103	8.9	83	15
24	18	4.9	3.1	6.3	3.0	.45	8.8	3.9	22	3.4	21	14
25	19	3.5	3.0	6.0	3.0	.29	10	6.0	5.2	2.3	11	12
26	19	6.9	2.3	6.4	2.6	.14	13	5.1	16	1.4	6.6	14
27	19	3.7	2.6	4.8	2.6	3.0	12	2.7	6.1	1.2	7.2	5.8
28	16	3.6	3.3	4.0	2.7	4.4	12	2.0	7.5	1.1	6.5	4.0
29	18	3.3	3.3	3.3	---	2.3	24	2.9	4.2	3.7	8.0	3.0
30	19	2.2	2.7	3.3	---	2.6	32	3.7	1.9	4.1	8.4	3.0
31	15	---	2.5	3.5	---	15	---	7.5	---	3.8	12	---
TOTAL	454.1	418.9	239.48	293.5	230.9	66.62	257.5	419.5	3601.78	2103.0	2572.7	1370.9
MEAN	14.6	14.0	7.73	9.47	8.25	2.15	8.58	13.5	120	67.8	83.0	45.7
MAX	27	36	57	91	53	15	32	146	1490	882	476	484
MIN	6.5	2.2	.78	3.3	2.6	.14	1.0	2.0	.98	1.1	3.7	3.0
AC-FT	901	831	475	582	458	132	511	832	7140	4170	5100	2720

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 1993, BY WATER YEAR (WY)

	MEAN	35.1	9.30	10.3	5.78	7.86	6.27	23.8	47.3	71.6	120	125	73.8
MAX	320	34.1	129	27.9	42.5	52.1	346	203	492	1203	575	515	515
(WY)	1961	1962	1960	1990	1983	1985	1970	1991	1960	1960	1981	1969	1969
MIN	.000	.056	.001	.000	.000	.003	.32	.085	.89	.42	.93	1.72	1.72
(WY)	1965	1978	1976	1965	1965	1980	1981	1976	1990	1983	1978	1978	1978

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1959 - 1993

ANNUAL TOTAL	12179.10	12028.88	44.5
ANNUAL MEAN	33.3	33.0	204
HIGHEST ANNUAL MEAN			4.72
LOWEST ANNUAL MEAN			1960
HIGHEST DAILY MEAN	1080	Aug 18	13800
LOWEST DAILY MEAN	.00	Jun 14	Oct 20 1959
ANNUAL SEVEN-DAY MINIMUM	.21	Jun 13	Oct 20 1959
INSTANTANEOUS PEAK FLOW			26700
INSTANTANEOUS PEAK STAGE			14.30
INSTANTANEOUS LOW FLOW			
ANNUAL RUNOFF (AC-FT)	24160	23860	32260
10 PERCENT EXCEEDS	61	38	58
50 PERCENT EXCEEDS	9.1	6.5	5.0
90 PERCENT EXCEEDS	2.9	1.9	.00

ARKANSAS RIVER BASIN

29

07227100 REVUELTO CREEK NEAR LOGAN, NM--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1959 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, (PER- CENT SATUR- ATION) (00301)	HARD- NESS TOTAL (MG/L AS CAC03) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
OV 12...	1430	20	1150	7.7	13.5	12.0	673	9.7	102	350	74	41
AN 27...	1110	5.9	2400	8.2	14.0	5.0	670	11.3	102	--	--	--
MAR 30...	1130	2.4	2650	8.6	13.5	14.0	662	9.1	103	440	71	63
JUN 10...	1430	1.0	2450	8.3	31.0	32.0	670	6.7	106	400	67	57
AUG 05...	1220	381	680	8.1	33.0	23.0	674	7.2	95	79	20	7.1
DATE		SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LITY LAB (MG/L AS CAC03) (90410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SiO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
NOV 12...	130	3		4.9	207	340	47	0.50	6.9	769	150	8
JAN 27...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 30...	430	9		5.9	270	660	190	0.90	8.4	1590	450	1300
JUN 10...	380	8		6.8	226	510	240	0.60	6.3	1400	310	<10
AUG 05...	110	5		2.8	155	150	22	0.40	8.7	414	210	32

ARKANSAS RIVER BASIN
07227140 CANADIAN RIVER ABOVE NEW MEXICO-TEXAS STATE LINE, NM

WATER-QUALITY RECORDS

LOCATION.--Lat 35°23'35", long 103°02'30", in SW 1/4 sec.32, T.14 N., R.37 E., Quay County, Hydrologic Unit 11080006, 0.1 mi upstream from New Mexico-Texas State line, 5.5 mi downstream from Rana Canyon, and 14.7 mi north of Glenrio.

PERIOD OF RECORD.--Water years 1969-73, 1975-86, November 1992 to September 1993.

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM HG) (00025)	OXYGEN, DIS- SOLVED OF (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	HARD- NESS TOTAL (MG/L AS CAC03) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
NOV 13...	1130	E18	4580	8.6	15.0	7.0	676	11.3	107	480	98	58
MAR 31...	0930	18	8300	8.4	12.5	14.0	670	9.7	110	540	99	72
JUN 11...	1015	3.7	6900	8.3	24.0	22.0	672	8.8	117	550	93	78
AUG 05...	0940	196	860	8.4	34.5	22.0	672	7.1	93	49	12	4.7

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY LAB (MG/L AS CAC03) (90410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SiO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
NOV 13...	730	14	6.6	253	440	920	0.70	7.9	2410	260	<10
MAR 31...	1500	28	8.6	258	460	1900	0.70	6.9	4200	410	860
JUN 11...	1400	26	9.7	247	510	1900	1.1	5.7	4150	390	<10
AUG 05...	150	9	2.4	143	110	110	0.50	7.5	483	220	35

ARKANSAS RIVER BASIN

31

07227500 CANADIAN RIVER NEAR AMARILLO, TX

LOCATION.--Lat 35°28'13", long 101°52'45", Potter County, Hydrologic Unit 11090105, on left bank at downstream side of southbound lane of bridge on U.S. Highways 87 and 287, 1,500 ft downstream from Pitcher Creek, 1.4 mi downstream from East Amarillo Creek, 1.7 mi downstream from Panhandle and Santa Fe Railway Co. bridge, 19 mi north of Amarillo, and 537.7 mi upstream from mouth.

DRAINAGE AREA.--19,445 mi², of which 4,069 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1924 to December 1925 (period no longer used in computation of average annual discharge), January 1938 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1341: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,989.16 ft above National Geodetic Vertical Datum of 1929. Jan. 16, 1924, to Dec. 31, 1925, and Apr. 3 to June 1, 1938, nonrecording gage at site of old bridge 20 ft upstream at same datum. June 2 to Dec. 5, 1938, nonrecording gage at present site and datum.

REMARKS.--Records good except those for periods of estimated daily discharges, which are poor. There is some regulation by Conchas and Ute Reservoirs in New Mexico, total capacity 439,000 acre-feet. Conchas and Bell Ranch Canals divert water from Conchas Reservoir upstream for irrigation.

AVERAGE DISCHARGE.--(Water year 1925), 707 ft³/s (512,200 acre-ft/yr).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1914 reached a stage of 24 ft; a higher stage probably occurred during a flood in October 1904, but stage is unknown; information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 14,000 ft³/s.

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 20	1000	4,300	4.92	No peak greater than base discharge.			

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	12	54	24	37	59	32	40	2.7	152	112	258
2	6.2	13	42	25	35	63	26	118	1.9	79	86	340
3	5.6	14	43	27	34	61	25	147	2.1	64	338	367
4	5.2	14	35	27	32	49	25	63	1.7	50	403	399
5	4.9	14	e32	25	31	44	25	33	1.5	32	216	436
6	4.5	15	e30	24	30	42	24	21	1.2	25	693	595
7	4.2	15	e29	24	31	39	35	24	.46	19	575	557
8	4.4	16	e28	e23	30	35	46	32	.26	18	901	644
9	4.7	16	e42	e21	31	32	30	39	.22	14	629	906
10	4.6	16	101	e18	33	29	25	80	.23	30	707	667
11	4.8	17	84	e20	35	27	23	96	.25	26	605	541
12	4.8	18	65	e21	36	34	20	61	.20	16	572	521
13	4.6	18	58	20	36	38	19	41	.18	15	419	587
14	4.0	18	50	23	35	36	19	32	.18	16	249	552
15	4.0	18	39	e26	50	31	18	30	.15	106	158	548
16	4.3	17	27	54	56	30	17	24	.14	390	109	566
17	4.6	17	30	56	45	27	19	23	.17	522	81	561
18	5.0	18	51	41	e52	27	20	19	17	682	62	529
19	5.6	19	66	40	65	29	16	14	2100	542	51	514
20	6.7	20	71	34	86	27	17	11	2650	431	43	521
21	7.8	35	56	52	79	26	16	42	802	365	113	534
22	8.5	35	51	61	62	39	18	31	915	272	80	533
23	8.6	31	43	78	55	54	17	19	692	321	90	537
24	9.7	35	41	63	56	38	13	36	813	574	45	552
25	11	18	34	52	54	29	10	37	517	540	30	553
26	12	16	33	43	47	24	8.9	20	380	518	27	535
27	13	18	30	47	45	22	11	12	288	328	22	559
28	13	31	28	49	44	21	59	7.1	218	194	21	386
29	14	38	30	44	---	20	44	6.4	123	138	19	228
30	14	54	26	41	---	26	31	5.1	160	87	18	212
31	14	---	22	38	---	27	---	2.7	---	105	84	---
TOTAL	225.1	636	1371	1141	1262	1085	708.9	1166.3	9688.54	6671	7558	15238
MEAN	7.26	21.2	44.2	36.8	45.1	35.0	23.6	37.6	323	215	244	508
MAX	14	54	101	78	86	63	59	147	2650	682	901	906
MIN	4.0	12	22	18	30	20	8.9	2.7	.14	14	18	212
AC-FT	446	1260	2720	2260	2500	2150	1410	2310	19220	13230	14990	30220

e Estimated

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

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1939 - 1993	
ANNUAL TOTAL	54328.7		46750.84			
ANNUAL MEAN	148		128		290	
HIGHEST ANNUAL MEAN					2351	
LOWEST ANNUAL MEAN					37.7	
HIGHEST DAILY MEAN	4110	Jun 5	2650	Jun 20	79600	Sep 23 1941
LOWEST DAILY MEAN	1.6	May 17	.14	Jun 16	.00	Aug 7 1940
ANNUAL SEVEN-DAY MINIMUM	2.7	May 11	.18	Jun 11	.00	Sep 3 1983
INSTANTANEOUS PEAK FLOW			4300	Jun 20	135000	Jul 25 1941
INSTANTANEOUS PEAK STAGE			4.92	Jun 20	15.70	Jul 25 1941
INSTANTANEOUS LOW FLOW			.08	Jun 15	.00	at times
ANNUAL RUNOFF (AC-FT)	107800		92730		209800	
10 PERCENT EXCEEDS	409		525		472	
50 PERCENT EXCEEDS	35		32		25	
90 PERCENT EXCEEDS	6.7		6.0		3.9	

07227500 CANADIAN RIVER NEAR AMARILLO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: July 1948 to October 1949, February 1950 to current year. Chemical and biochemical analyses: March 1968 to current year. Pesticide analyses: March 1968 to June 1981.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1950 to current year.

WATER TEMPERATURE: August 1949 to current year.

SUSPENDED SEDIMENT DISCHARGE: August 1949 to September 1952.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 9,180 microsiemens June 8, 1990; minimum daily, 346 microsiemens Oct. 29, 1964.

WATER TEMPERATURE (1949-76, 1988 to current year): Maximum daily, 39.0°C July 7, 1973; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 5,860 microsiemens Apr. 27; minimum daily, 790 microsiemens July 16.

WATER TEMPERATURE: Maximum daily, 24.0°C July 26, Aug. 1, 10; minimum daily, 1.0°C on several days during November, December, January, and February.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	
NOV 17...	0835	17	4760	8.3	6.0	13.9	126	0.1	600	400	
DEC 02...	0835	44	3760	--	0.5	--	--	--	450	260	
JAN 13...	0845	21	5080	8.2	1.0	13.2	103	0.5	670	440	
MAR 16...	0815	32	4330	8.4	5.5	14.4	128	1.1	550	350	
MAY 11...	0805	105	1770	8.3	10.0	11.7	114	4.1	130	0	
JUL 20...	0815	246	1390	8.3	22.0	9.6	121	0.9	100	0	
AUG 04...	0830	431	745	8.3	20.5	9.0	109	2.0	68	0	
DATE		CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
NOV 17...	130	66	810	14	1.3	190	580	1100	0.70	13	
DEC 02...	98	49	650	13	5.3	190	570	1000	0.70	9.3	
JAN 13...	160	66	780	13	6.0	230	580	1200	0.70	15	
MAR 16...	120	60	680	13	6.8	200	470	880	0.70	11	
MAY 11...	27	15	320	12	3.5	150	200	310	0.60	7.7	
JUL 20...	24	10	250	11	3.7	150	150	240	0.70	14	
AUG 04...	16	6.8	120	6	3.1	100	82	110	0.40	8.7	
DATE		SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
NOV 17...	2820	0.047	--	0.020	--	0.067	--	0.050	--	0.15	
DEC 02...	2500	--	--	--	--	--	--	--	--	--	
JAN 13...	2950	0.140	0.140	--	0.020	0.160	0.160	--	0.060	--	
MAR 16...	2350	0.110	--	--	<0.010	0.110	0.110	--	0.030	--	
MAY 11...	980	0.690	--	--	<0.010	0.690	0.690	--	0.030	--	
JUL 20...	784	0.630	--	--	<0.010	0.630	0.630	--	0.060	--	
AUG 04...	412	0.580	0.580	--	0.010	0.590	0.590	--	0.040	--	

ARKANSAS RIVER BASIN

07227500 CANADIAN RIVER NEAR AMARILLO, TX--Continued

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

		NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)
DATE											
NOV	17...	--	--	0.20	0.050	--	--	<0.010	--	2	<100
DEC	02...	--	--	--	--	--	--	--	--	--	--
JAN	13...	--	<0.20	--	--	<0.010	<0.010	--	--	--	--
MAR	16...	--	<0.20	--	--	<0.010	0.010	--	0.03	--	--
MAY	11...	0.17	0.20	--	--	<0.010	<0.010	--	--	--	--
JUL	20...	1.0	1.1	--	--	0.030	0.020	--	0.06	7	99
AUG	04...	0.26	0.30	--	--	0.050	0.040	--	0.12	--	--
DATE		CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV	17...	<1.0	<1	<1	<10	<1	20	<0.1	<1	<1.0	<10
DEC	02...	--	--	--	--	--	--	--	--	--	--
JAN	13...	--	--	--	--	--	--	--	--	--	--
MAR	16...	--	--	--	--	--	--	--	--	--	--
MAY	11...	--	--	--	--	--	--	--	--	--	--
JUL	20...	<1.0	<1	5	20	<1	<1	<0.1	<1	<1.0	5
AUG	04...	--	--	--	--	--	--	--	--	--	--
MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)	
OCT.	1992	225.1	4960	2960	1800	1200	716	630	382	660	
NOV.	1992	636	4230	2510	4320	960	1650	530	918	570	
DEC.	1992	1371	3660	2160	8010	800	2970	460	1700	490	
JAN.	1993	1141	4090	2420	7470	920	2840	520	1590	550	
FEB.	1993	1262	4060	2410	8200	910	3100	510	1740	550	
MAR.	1993	1085	4280	2540	7450	980	2860	540	1580	570	
APR.	1993	708.9	4580	2730	5220	1100	2040	580	1110	610	
MAY	1993	1166.3	3190	1880	5930	690	2170	400	1260	430	
JUNE	1993	9688.54	1370	800	20900	260	6720	170	4470	190	
JULY	1993	6671	1810	1060	19100	360	6410	230	4070	250	
AUG.	1993	7558	1540	899	18300	290	5980	190	3920	210	
SEPT	1993	15238	1500	876	36000	280	11600	190	7700	210	
TOTAL		46750.84	**	**	143000	**	49000	**	30500	**	
WTD.AVG.		128	1930	1130	**	390	**	240	**	270	

07227500 CANADIAN RIVER NEAR AMARILLO, TX--Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4830	4740	3950	4370	3880	4280	4600	4890	3110	3830	2650	2200
2	4900	4730	3620	4350	4040	4030	3940	3460	3370	2760	2240	1710
3	4910	4750	3240	4310	4130	4090	4300	1770	2030	e3370	2640	1610
4	4830	4810	3530	4180	4300	3900	4610	3530	e2400	e3980	870	1550
5	4890	4830	e3250	4170	4440	3980	4740	3060	e2600	4580	1150	1520
6	5050	4820	2960	4270	4370	4140	4930	4270	e2800	4730	1670	1700
7	5150	4700	3270	4290	4300	4170	4150	4370	e3000	5170	1420	1510
8	5300	4620	3190	4320	4270	4260	4030	5300	e3100	5340	1380	1500
9	5190	4580	3210	4180	4190	4400	4400	4920	e3300	5540	1360	1450
10	5190	4600	2950	4680	4100	4500	5050	4220	e3500	4730	1270	1580
11	5140	4600	2830	5010	4200	4610	5060	1830	e3600	3060	1130	e1570
12	4990	4780	2890	4930	4220	4460	5010	2100	e3800	3650	1330	e1440
13	5170	4630	3340	4780	4010	4530	4930	2920	e3900	3730	1350	1370
14	5270	4530	3860	4820	4100	4000	4950	3230	e3950	3360	1360	1370
15	5240	4430	4090	4170	e4060	4150	4980	3540	e4000	2960	1460	1370
16	5420	4450	4600	4070	e4020	4110	4990	3470	e4050	790	1620	1390
17	5450	4520	4730	3500	3970	4320	5020	3550	e4100	1880	1750	1420
18	5350	4490	4510	3820	3830	4440	5030	3400	e1800	2030	1870	1450
19	5300	4300	4370	e3960	4240	4570	5350	3800	930	1380	2020	1460
20	5190	4460	3610	4090	3470	4700	5010	4370	1430	1410	2090	1470
21	5080	3960	3340	4050	3410	4810	5220	2940	1160	1230	3810	1480
22	4930	3980	3510	4060	3240	4540	4070	2010	1190	1110	3010	1480
23	4870	3640	3900	3720	3970	3170	3950	3110	1130	1410	2020	1480
24	4820	e3690	3770	2940	4210	4030	4320	4350	1440	2440	1780	1490
25	4770	e3630	4130	3600	4420	4440	5220	2510	2040	1580	2200	1480
26	e4800	3770	4390	3800	4640	4620	5500	2950	1760	1420	2220	1490
27	4830	3640	4510	4090	4560	4820	5860	3740	1750	1420	2470	1490
28	4860	4420	4340	4300	4730	4920	4870	4060	2120	1550	3150	1490
29	4870	3920	4180	4680	---	4940	2950	2730	2580	1440	2800	1590
30	4770	3700	4220	5010	---	4800	4640	3170	3120	2020	2130	1510
31	4740	---	4320	4000	---	4750	---	3480	---	2420	2420	---
MEAN	5040	4360	3760	4210	4120	4370	4720	3450	2640	2780	1960	1520
MAX	5450	4830	4730	5010	4730	4940	5860	5300	4100	5540	3810	2200
MIN	4740	3630	2830	2940	3240	3170	2950	1770	930	790	870	1370

WTR YR 1993 MEAN 3580 MAX 5860 MIN 790

e Estimated

YR 1993 MEAN 3580 MAX 5860 MIN 790

e Estimated

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.0	10.0	1.0	2.0	3.0	7.0	8.0	14.0	17.0	20.0	24.0	18.0
2	12.0	6.0	2.0	4.0	5.0	6.0	8.0	8.0	16.0	22.0	22.0	20.0
3	12.0	7.0	4.0	6.0	5.0	5.0	10.0	11	18.0	e22.0	20.0	17.0
4	12.0	3.0	1.0	2.0	5.0	5.0	6.0	13.0	e15.0	e21.0	20.0	17.0
5	12.0	2.0	e2.5	3.0	3.0	3.0	7.0	16.0	e13.0	20.0	21.0	19.0
6	14.0	1.0	4.0	4.0	5.0	4.0	8.0	15.0	e18.0	21.0	20.0	19.0
7	14.0	2.0	4.0	5.0	3.0	5.0	8.0	13.0	e18.0	21.0	21.0	18.0
8	6.0	5.0	1.0	3.0	4.0	6.0	8.0	15.0	e19.0	20.0	22.0	18.0
9	7.0	5.0	1.0	1.0	8.0	7.0	7.0	13.0	e15.0	20.0	22.0	16.0
10	8.0	7.0	2.0	1.0	7.0	7.0	8.0	11.0	e16.0	21.0	24.0	18.0
11	9.0	7.0	3.0	1.0	4.0	7.0	8.0	11.0	e19.0	22.0	23.0	e18.0
12	12.0	3.0	5.0	2.0	10.0	4.0	10.0	12.0	e21.0	22.0	23.0	e18.0
13	12.0	4.0	4.0	1.0	3.0	3.0	12.0	13.0	e22.0	22.0	22.0	19.0
14	11.0	4.0	5.0	1.0	5.0	4.0	8.0	14.0	e22.0	22.0	23.0	13.0
15	12.0	5.0	2.0	2.0	e4.0	7.0	6.0	17.0	e21.0	21.0	22.0	14.0
16	8.0	6.0	2.0	2.0	e2.0	7.0	8.0	18.0	e21.0	23.0	22.0	15.0
17	7.0	7.0	3.0	3.0	1.0	4.0	8.0	16.0	e19.0	23.0	23.0	18.0
18	8.0	9.0	4.0	2.0	2.0	5.0	12.0	16.0	e18.0	22.0	21.0	19.0
19	13.0	9.0	1.0	e3.5	3.0	7.0	12.0	15.0	18.0	22.0	22.0	16.0
20	11.0	5.0	1.0	5.0	6.0	10.0	8.0	15.0	18.0	22.0	22.0	16.0
21	13.0	5.0	3.0	7.0	5.0	10.0	8.0	16.0	22.0	22.0	21.0	19.0
22	14.0	2.0	2.0	3.0	3.0	10.0	10.0	18.0	21.0	22.0	20.0	20.0
23	14.0	5.0	2.0	4.0	4.0	8.0	14.0	17.0	22.0	22.0	21.0	20.0
24	14.0	e5.0	2.0	4.0	3.0	8.0	12.0	18.0	21.0	22.0	22.0	17.0
25	14.0	e4.0	3.0	2.0	5.0	10.0	12.0	17.0	22.0	22.0	20.0	16.0
26	13.0	3.0	1.0	4.0	3.0	11.0	12.0	17.0	22.0	24.0	20.0	15.0
27	8.0	4.0	1.0	5.0	4.0	11.0	14.0	17.0	22.0	23.0	20.0	12.0
28	12.0	1.0	4.0	3.0	6.0	8.0	14.0	17.0	21.0	23.0	21.0	14.0
29	8.0	2.0	6.0	2.0	---	9.0	15.0	19.0	21.0	22.0	21.0	15.0
30	12.0	1.0	8.0	1.0	---	10.0	14.0	16.0	23.0	22.0	21.0	15.0
31	12.0	---	1.0	2.0	---	8.0	---	18.0	---	22.0	15.0	---
MEAN	11.2	4.6	2.8	2.9	4.3	7.0	9.8	15.0	19.4	21.8	21.3	17.0
MAX	14.0	10.0	8.0	7.0	10.0	11.0	15.0	19.0	23.0	24.0	24.0	20.0
MIN	6.0	1.0	1.0	1.0	1.0	3.0	6.0	8.0	13.0	20.0	15.0	12.0

WTR YR 1993 MEAN 11.5 MAX 24.0 MIN 1.0

e Estimated

ARKANSAS RIVER BASIN

07228000 CANADIAN RIVER NEAR CANADIAN, TX
(National stream-quality accounting network)

LOCATION.--Lat 35°56'06", long 100°22'13", Hemphill County, Hydrologic Unit 11090106, on left abutment at downstream side of upstream bridge on U.S. Highways 60 and 83, 600 ft downstream from Panhandle and Santa Fe Railway Co. bridge, 1.2 mi downstream from Red Deer Creek, 1.6 mi northeast of Canadian, and 433.9 mi upstream from mouth.

DRAINAGE AREA.--22,866 mi², of which 4,688 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1341: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,301.50 ft above National Geodetic Vertical Datum of 1929. 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 upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Extreme low flow is maintained by springs that enter river about 600 ft upstream from the gage. There is some regulation and diversions from Lake Meredith (07227900) 75 mi upstream. Gage-height telemeter at station via Sutron data collection platform.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--26 years (water years 1939-64) prior to completion of Lake Meredith, 549 ft³/s (397,800 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1939-64).--Maximum discharge, 122,000 ft³/s Sept. 23, 1941 (gage height, 9.8 ft), from graph based on gage readings, and from rating curves for two channels extended above 8,000 and 54,000 ft³/s; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 20.0 ft Oct. 2, 1904. Floods of May 2, 1914, and Oct. 5, 1923, reached stages of 12 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.3	18	74	86	99	121	109	145	38	35	14	.36
2	6.1	18	77	90	96	322	111	305	35	32	13	.29
3	5.9	19	76	94	90	294	122	307	32	28	46	.25
4	5.9	19	70	91	87	197	313	241	31	25	27	.23
5	5.6	19	71	88	88	143	231	187	31	21	23	.18
6	5.3	19	77	87	88	144	173	164	32	21	22	.19
7	6.0	19	83	90	87	136	147	157	29	22	21	.22
8	6.8	19	85	93	90	123	151	148	25	19	22	9.9
9	6.5	19	99	107	90	119	134	155	23	17	22	13
10	7.5	30	98	108	92	113	134	153	23	18	18	9.7
11	8.2	26	91	103	100	109	130	127	46	24	15	8.8
12	7.8	25	88	102	124	120	121	124	37	37	13	8.6
13	7.9	25	104	100	157	123	114	112	28	29	10	8.1
14	7.3	26	106	97	140	107	107	96	26	28	8.4	7.6
15	7.9	25	103	102	186	104	98	90	26	33	7.3	7.4
16	8.5	24	100	104	184	101	95	82	23	35	6.1	7.1
17	9.3	25	104	110	176	91	97	79	36	29	5.1	6.6
18	9.5	27	113	115	163	88	94	63	47	30	3.8	6.6
19	11	34	122	119	174	91	91	52	441	29	3.1	6.3
20	12	31	112	117	243	90	90	52	406	27	2.2	7.6
21	13	35	97	120	231	92	84	52	193	46	1.6	6.5
22	14	44	90	136	179	111	83	49	157	49	.83	5.4
23	14	46	86	142	145	125	85	45	144	40	1.4	5.8
24	15	47	86	138	129	123	85	44	83	33	1.6	7.1
25	15	38	84	123	113	111	81	45	121	29	1.1	16
26	15	51	82	115	104	102	81	46	95	27	.58	18
27	15	56	82	110	89	103	82	44	81	24	.57	14
28	16	57	86	103	86	103	96	42	55	20	.57	12
29	17	60	86	96	---	106	117	e41	43	16	.56	10
30	17	63	82	103	---	113	111	e40	37	14	.51	9.7
31	18	---	79	103	---	114	---	e39	---	13	.89	---
TOTAL	320.3	964	2793	3292	3630	3939	3567	3326	2424	850	312.21	213.52
MEAN	10.3	32.1	90.1	106	130	127	119	107	80.8	27.4	10.1	7.12
MAX	18	63	122	142	243	322	313	307	441	49	46	18
MIN	5.3	18	70	86	86	88	81	39	23	13	.51	.18
AC-FT	635	1910	5540	6530	7200	7810	7080	6600	4810	1690	619	424

e Estimated

ARKANSAS RIVER BASIN

37

07228000 CANADIAN RIVER NEAR CANADIAN, TX--Continued
(National stream-quality accounting network)

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1993#, BY WATER YEAR (WY)

MEAN	49.3	67.6	69.6	79.2	88.0	119	91.6	172	194	36.5	27.1	39.4
MAX	426	848	490	292	146	473	555	1022	1054	167	89.6	266
(WY)	1969	1972	1972	1972	1972	1973	1973	1977	1965	1967	1965	1970
MIN	.35	4.97	22.4	31.0	37.0	23.0	3.90	1.39	.34	.019	.019	.000
(WY)	1976	1967	1967	1977	1981	1967	1968	1966	1966	1970	1980	1983

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1965 - 1993#

ANNUAL TOTAL	28174.5	25631.03	86.0
ANNUAL MEAN	77.0	70.2	190
HIGHEST ANNUAL MEAN			35.4
LOWEST ANNUAL MEAN			12700
HIGHEST DAILY MEAN	846 Jun 10	441 Jun 19	Oct 9 1968
LOWEST DAILY MEAN	5.3 Oct 6	.18 Sep 5	Oct 11 1964
ANNUAL SEVEN-DAY MINIMUM	5.9 Oct 1	.25 Sep 1	Oct 11 1964
INSTANTANEOUS PEAK FLOW		702 Jun 19	38900 Oct 9 1968
INSTANTANEOUS PEAK STAGE		4.66 Jun 19	9.83 Apr 15 1973
INSTANTANEOUS LOW FLOW		.07 Sep 6	.00 at times
ANNUAL RUNOFF (AC-FT)	55880	50840	62310
10 PERCENT EXCEEDS	159	141	144
50 PERCENT EXCEEDS	60	55	38
90 PERCENT EXCEEDS	9.8	6.6	.62

Period of regulated streamflow.

ARKANSAS RIVER BASIN

07228000 CANADIAN RIVER NEAR CANADIAN, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: August 1966 to current year. Pesticide analyses: October 1970 to June 1982.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1974 to September 1981.

WATER TEMPERATURE: October 1974 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 4,480 microsiemens Aug. 12, 1979; minimum daily, 461 microsiemens Sept. 8, 1980.

WATER TEMPERATURE: Maximum daily, 39.0°C June 28, 1979; minimum daily, 0.0°C on many days during winter months.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TURBIDITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS TOTAL (MG/L AS CaCO3)
NOV 16...	1500	26	2770	8.2	16.0	2.1	11.1	122	0.6	K28	K34	470
MAR 15...	1425	108	2950	8.4	14.5	3.3	13.5	145	1.3	K6	K4	490
MAY 10...	1540	136	2780	8.4	20.0	6.8	10.6	126	1.9	98	90	500
JUL 19...	1450	30	2750	8.4	33.5	1.5	7.8	119	1.6	120	54	520
AUG 04...	1205	27	3060	8.3	21.0	25	9.4	113	0.5	380	290	450

DATE	HARDNESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	CARBONATE WATER DIS IT FIELD (MG/L AS CO3)	BICARBONATE WATER DIS IT FIELD (MG/L AS HCO3)	ALKALINITY WAT DIS TOT IT (MG/L AS CaCO3)	ALKALINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)
NOV 16...	240	110	47	400	8	6.2	0	279	228	220	230	640
MAR 15...	230	110	52	420	8	7.0	12	290	259	260	230	560
MAY 10...	230	120	49	400	8	6.7	11	306	269	270	200	630
JUL 19...	340	120	53	380	7	9.2	10	195	176	180	280	640
AUG 04...	260	93	52	450	9	7.5	9	217	192	190	190	740

DATE	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)
NOV 16...	3.2	18	1560	1590	--	0.020	0.020	<0.050	<0.050	0.020	0.020
MAR 15...	2.1	22	1710	1560	0.290	--	<0.010	0.290	0.290	--	0.020
MAY 10...	3.1	19	1660	1590	--	--	<0.010	--	<0.050	--	0.020
JUL 19...	3.3	13	1700	1600	--	--	<0.010	--	<0.050	--	0.040
AUG 04...	2.1	15	1800	1670	--	--	<0.010	--	<0.050	--	0.030

DATE	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)	PHOSPHORUS, DIS-SOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOSPHORUS, ORTHO TOTAL (MG/L AS P)	PHOSPHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUMINUM, DIS-SOLVED (UG/L AS AL)
NOV 16...	0.18	0.20	0.010	<0.010	<0.010	<0.010	--	9	0.63	85	20
MAR 15...	0.28	0.30	0.030	0.010	0.020	--	0.06	41	12	70	<10
MAY 10...	0.58	0.60	0.060	0.030	0.020	--	0.06	46	17	83	<10
JUL 19...	0.66	0.70	0.030	<0.010	<0.010	--	--	32	2.6	67	--
AUG 04...	0.67	0.70	0.110	<0.010	<0.010	--	--	15	1.1	79	<10

ARKANSAS RIVER BASIN

39

07228000 CANADIAN RIVER NEAR CANADIAN, TX--Continued
(National stream-quality accounting network)

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

DATE	BARIUM, DIS- SOLVED (UG/L AS BA)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
NOV 16...	300	<1	20	80	30	5	1	1	<1.0	1800	13
MAR 15...	300	<1	20	90	20	3	2	<1	<1.0	2200	12
MAY 10...	300	<1	<10	90	20	3	2	<1	<1.0	2000	17
JUL 19...	--	--	--	--	--	--	--	--	--	--	--
AUG 04...	200	<1	<10	80	20	1	1	<1	<1.0	2000	17

ARKANSAS RIVER BASIN

07235000 WOLF CREEK AT LIPSCOMB, TX

LOCATION.--Lat 36°14'19", long 100°16'31", Lipscomb County, Hydrologic Unit 11100203, on right bank at downstream side of State Highway 305, 0.3 mi north of Lipscomb, 0.6 mi downstream from Sand Creek, 2 mi upstream from Plum Creek, and 61.2 mi upstream from mouth.

DRAINAGE AREA.--697 mi², of which 222 mi² probably is noncontributing.

PERIOD OF RECORD.--October 1937 to September 1942, October 1961 to current year. Prior to 1941, monthly discharges only, published in WSP 1311.
Water-quality records.--Chemical and biochemical analyses: May 1980.

REVISED RECORDS.--WSP 1311: 1938-39, drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 2,371.29 ft above National Geodetic Vertical Datum of 1929. 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 higher.

REMARKS.--No estimated daily discharges. Records fair. There are small diversions upstream from station for irrigation and recreation.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--5 years (water years 1938-42), 39.7 ft³/s, 28,760 acre-feet/yr.

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1938-42).--Maximum discharge, 20,000 ft³/s Oct. 21, 1941 (Gage-height, 11.57 ft, present datum), from rating curve extended above 14,000 ft³/s on basis of velocity-area studies; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1890, 15.5 ft June 23, 1957, present site and datum, from flood-marks. A flood in May 1955 reached a stage of 12.1 ft, present site and datum, from information by State Department of Highways and Public Transportation.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.79	.73	1.4	2.3	3.6	9.5	12	47	5.7	4.3	6.7	1.2
2	.85	.64	1.5	2.7	3.7	13	12	64	5.6	3.7	6.1	1.0
3	.86	.73	1.5	3.1	3.6	12	12	40	5.5	3.3	8.7	.99
4	.92	.68	1.6	2.8	3.7	12	16	32	5.3	3.1	7.1	.86
5	.94	.62	1.9	2.6	4.0	12	15	27	5.4	2.9	6.7	.71
6	.98	.62	2.1	2.6	4.2	13	16	23	5.3	2.6	6.3	.83
7	1.1	.61	1.9	2.5	4.3	12	16	20	5.1	2.4	6.1	.88
8	1.1	.59	2.0	2.5	4.2	12	16	18	4.9	2.1	5.9	1.9
9	1.1	.62	2.1	3.3	4.3	12	16	17	4.4	2.0	5.5	2.4
10	1.0	.60	2.6	3.1	4.8	12	15	15	4.4	1.9	4.8	2.3
11	.99	.57	2.5	3.0	5.4	12	15	15	4.5	6.6	4.6	1.5
12	1.0	.57	2.4	3.1	5.1	12	14	15	4.4	452	4.4	1.4
13	.93	.55	3.1	3.1	5.3	12	14	13	4.2	643	4.4	1.2
14	.86	.52	4.2	3.2	5.5	12	14	12	4.2	191	4.4	1.4
15	.91	.52	3.9	2.9	6.5	12	14	11	4.9	87	3.8	1.0
16	.91	.49	3.5	2.8	6.4	12	14	11	4.5	51	3.5	.86
17	.92	.48	3.6	3.0	6.2	12	15	11	4.9	34	2.9	.76
18	.95	.53	3.6	3.0	6.5	12	14	9.5	6.2	26	2.6	.83
19	.92	.66	3.7	3.0	6.6	13	14	8.6	9.1	21	2.3	1.3
20	.95	.54	3.8	3.2	7.8	12	13	8.0	10	18	2.1	1.2
21	.93	.57	3.6	3.3	8.5	12	12	7.9	8.2	20	1.9	1.0
22	.85	.69	3.5	3.5	8.2	13	12	7.8	7.0	20	1.6	.87
23	.88	.92	3.3	3.7	8.2	13	12	7.3	6.1	17	1.9	.86
24	.86	1.1	3.1	3.7	8.2	13	12	6.9	5.6	15	1.5	.96
25	.81	1.4	3.0	3.5	8.2	13	12	6.7	5.1	13	1.3	3.0
26	.80	1.5	2.7	3.6	8.2	12	12	6.7	6.2	11	1.3	3.1
27	.78	1.2	2.7	3.4	8.2	12	12	6.4	6.3	10	1.2	3.4
28	.74	1.1	2.7	3.5	8.2	12	12	6.0	5.5	9.4	1.1	3.0
29	.74	1.2	2.7	3.5	---	12	120	5.8	4.7	8.5	1.1	2.5
30	.70	1.3	2.7	3.6	---	13	31	5.9	4.3	7.8	1.1	2.1
31	.72	---	2.5	3.6	---	12	---	5.6	---	6.9	1.1	---
TOTAL	27.79	22.85	85.4	96.7	167.6	377.5	534	490.1	167.5	1696.5	114.0	45.31
MEAN	.90	.76	2.75	3.12	5.99	12.2	17.8	15.8	5.58	54.7	3.68	1.51
MAX	1.1	1.5	4.2	3.7	8.5	13	120	64	10	643	8.7	3.4
MIN	.70	.48	1.4	2.3	3.6	9.5	12	5.6	4.2	1.9	1.1	.71
AC-FT	55	45	169	192	332	749	1060	972	332	3370	226	90
CFSM	.00	.00	.01	.01	.01	.03	.04	.03	.01	.12	.01	.00
IN.	.00	.00	.01	.01	.01	.03	.04	.04	.01	.13	.01	.00

ARKANSAS RIVER BASIN

41

07235000 WOLF CREEK AT LIPSCOMB, TX--Continued

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

MEAN	7.13	6.06	3.57	3.76	4.61	7.40	8.89	19.7	18.9	8.35	8.98	6.54
MAX	167	112	12.3	11.8	10.9	53.0	69.1	124	206	82.7	77.6	61.8
(WY)	1969	1972	1972	1969	1963	1974	1980	1979	1965	1967	1965	1963
MIN	.10	.57	.73	.55	.60	1.10	.94	.65	.74	.30	.000	.21
(WY)	1965	1979	1984	1986	1986	1986	1986	1986	1966	1974	1964	1984

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1962 - 1993#

ANNUAL TOTAL	773.59 *	3825.25	
ANNUAL MEAN	2.11	10.5	8.67
HIGHEST ANNUAL MEAN			30.5
LOWEST ANNUAL MEAN			1.44
HIGHEST DAILY MEAN	39 Jul 16	643 Jul 13	2860 May 31 1963
LOWEST DAILY MEAN	.42 Jul 13	.48 Nov 17	.00 May 24 1964
ANNUAL SEVEN-DAY MINIMUM	.52 Jul 8	.52 Nov 12	.00 Jul 22 1964
INSTANTANEOUS PEAK FLOW		1250 Jul 12	8790 May 31 1963
INSTANTANEOUS PEAK STAGE		7.61 Jul 12	10.62 May 10 1979
INSTANTANEOUS LOW FLOW		.48 Nov 16	.00 at times
ANNUAL RUNOFF (AC-FT)	1530	7590	6280
ANNUAL RUNOFF (CFSM)	.004	.022	.018
ANNUAL RUNOFF (INCHES)	.06	.30	.25
10 PERCENT EXCEEDS	3.8	14	10
50 PERCENT EXCEEDS	1.6	4.0	2.6
90 PERCENT EXCEEDS	.65	.86	.50

Period of regulated streamflow.

RED RIVER BASIN

07297910 PRAIRIE DOG TOWN FORK RED RIVER NEAR WAYSIDE, TX
(National stream-quality accounting network)

LOCATION.--Lat 34°50'15", long 101°24'49", Armstrong County, Hydrologic Unit 11120103, on left bank at downstream side of bridge on Farm Road 284, 13 mi northeast of Wayside, 26 mi south of Claude, and at mile 1.145.

DRAINAGE AREA.--4,211 mi², of which 3,281 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 2,463.74 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. There are several small diversions upstream from station. Sewage effluent is released into river above station by the city of Amarillo.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,000 ft³/s.

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Aug. 3	0230	3,460	9.39	No peak greater than base discharge.			

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	2.8	5.5	e3.0	3.7	11	5.2	12	33	.91	180	12
2	1.5	3.4	5.1	e4.0	3.4	3.6	5.8	21	19	.80	269	9.7
3	1.1	5.1	5.1	e6.0	3.0	2.8	6.0	9.0	18	.59	894	7.6
4	1.0	4.8	4.3	6.5	2.9	2.5	6.3	6.7	16	.34	128	7.3
5	1.6	5.0	e4.0	e6.0	2.8	2.8	6.9	6.1	16	.21	60	6.6
6	1.8	5.3	e3.5	e6.5	2.9	2.6	6.7	5.6	17	.16	107	55
7	2.1	5.9	e4.0	e6.0	2.8	2.5	5.0	5.6	15	.13	38	28
8	2.1	6.4	e5.0	e6.5	2.6	2.5	4.1	5.2	13	.09	147	138
9	1.7	6.5	e6.0	e4.0	3.1	2.2	4.1	17	12	.06	179	14
10	1.3	6.1	6.4	e2.0	3.7	2.0	3.4	6.4	12	.05	58	6.1
11	1.1	4.9	5.9	e1.5	e3.5	2.2	3.2	5.3	11	.51	20	4.5
12	1.0	4.6	6.0	e1.6	e3.0	e2.0	5.0	5.6	10	.68	17	3.3
13	1.0	5.7	6.1	e1.8	e3.5	e1.5	6.0	5.4	10	15	15	2.7
14	.82	6.8	e4.0	e1.6	e4.0	e2.0	14	4.5	9.5	105	13	2.3
15	.84	6.8	e3.5	e1.6	e3.0	2.2	7.7	4.1	8.6	117	14	2.4
16	.81	6.9	e4.0	e2.0	e2.5	2.0	7.0	5.0	7.8	15	13	2.3
17	.92	6.8	e4.5	e2.5	e2.0	1.7	6.5	18	18	4.9	12	2.0
18	1.1	13	e5.0	e2.0	e1.5	2.7	6.1	6.9	24	3.1	11	1.5
19	1.2	9.3	5.6	e1.8	e3.0	4.3	4.7	6.5	264	21	10	1.6
20	1.3	12	e4.5	e2.0	e4.0	3.8	4.7	4.4	32	186	9.5	1.4
21	1.3	51	5.7	e3.0	5.0	4.5	5.0	19	21	32	8.9	1.3
22	1.3	33	5.2	e4.0	6.3	6.4	5.4	209	110	13	7.2	1.1
23	1.3	16	4.9	4.8	5.0	4.6	4.9	62	5.6	6.3	47	.92
24	1.4	e13	4.8	4.7	5.0	4.3	4.9	46	3.0	4.1	27	3.0
25	1.4	e9.0	4.6	5.5	4.3	4.3	4.9	39	2.2	3.4	12	1.6
26	1.4	e8.5	5.3	5.0	3.9	4.7	3.9	36	2.7	2.9	8.8	1.6
27	1.5	e8.0	5.5	4.5	4.2	5.9	4.4	32	2.0	2.2	10	2.5
28	1.4	7.9	5.6	4.1	4.4	4.8	6.4	26	1.4	2.3	20	2.6
29	1.9	6.4	6.0	3.3	---	16	4.3	24	1.1	2.3	10	2.4
30	2.6	6.3	5.3	3.7	---	10	3.3	25	1.0	2.0	11	2.0
31	3.2	---	4.2	3.9	---	6.0	---	22	---	1.9	13	---
TOTAL	45.19	287.2	155.1	115.4	99.0	130.4	165.8	700.3	715.9	543.93	2369.4	327.32
MEAN	1.46	9.57	5.00	3.72	3.54	4.21	5.53	22.6	23.9	17.5	76.4	10.9
MAX	3.2	51	6.4	6.5	6.3	16	14	209	264	186	894	138
MIN	.81	2.8	3.5	1.5	1.5	1.5	3.2	4.1	1.0	.05	7.2	.92
AC-FT	90	570	308	229	196	259	329	1390	1420	1080	4700	649

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1993, BY WATER YEAR (WY)

	MEAN	MAX	MIN	(WY)	MEAN	MAX	MIN	(WY)	MEAN	MAX	MIN	(WY)	MEAN	MAX	MIN	(WY)	MEAN	MAX	MIN	(WY)
1968	25.7	147	.000	1976	7.54	51.9	.066	1971	4.14	20.3	.099	1971	3.90	24.7	.30	1971	3.35	17.4	.16	1976
1969	25.2	110	.000	1977	7.7	1410	.39	1983	4.14	26.1	.17	1971	6.59	26.1	.34	1971	10.9	97.5	.17	1978
1970	23.0	77.7	.000	1974	91.3	1410	.000	1974	53.6	472	.13	1978	10.9	97.5	.17	1978	58.3	304	.13	1984
1971	23.0	77.7	.000	1974	91.3	1410	.000	1974	53.6	472	.13	1978	10.9	97.5	.17	1978	58.3	304	.13	1984

SUMMARY STATISTICS

	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1968 - 1993
ANNUAL TOTAL	7327.19	5654.94	26.3
ANNUAL MEAN	20.0	15.5	137
HIGHEST ANNUAL MEAN			1.90
LOWEST ANNUAL MEAN			22700
HIGHEST DAILY MEAN	542 Mar 28	894 Aug 3	Aug 29 1968
LOWEST DAILY MEAN	.81 Oct 16	.05 Jul 10	Jul 30 1968
ANNUAL SEVEN-DAY MINIMUM	.93 Oct 11	.15 Jul 4	Jul 30 1968
INSTANTANEOUS PEAK FLOW		3460 Aug 3	58000 Aug 28 1968
INSTANTANEOUS PEAK STAGE		9.39 Aug 3	13.00 Aug 28 1968
INSTANTANEOUS LOW FLOW		.04 Jul 9	.00 Jul 1 1968
ANNUAL RUNOFF (AC-FT)	14530	11220	19070
10 PERCENT EXCEEDS	43	21	23
50 PERCENT EXCEEDS	5.3	4.9	1.8
90 PERCENT EXCEEDS	1.7	1.4	.05

07297910 PRAIRIE DOG TOWN FORK RED RIVER NEAR WAYSIDE, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1967 to current year. Chemical and biochemical analyses: October 1974 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1968 to September 1981.

WATER TEMPERATURE: October 1968 to September 1981.

INSTRUMENTATION.--Specific conductance was recorded continuously at this station from April 1968 to September 1976.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 51,100 microsiemens July 30, 1978; minimum daily, 417 microsiemens July 10, 1975.

WATER TEMPERATURE: Maximum daily, 38.0°C Oct. 14, 1968, June 13, 1975; minimum daily, 0.0°C on many days during winter months.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)
NOV 17...	1215	7.0	4970	8.8	16.0	5.4	13.6	152	0.6	68	74	1000
MAR 16...	1145	2.2	9460	8.4	17.5	1.7	12.6	147	1.7	K590	51	1500
MAY 11...	1200	5.2	5180	8.6	15.0	3.1	12.4	135	1.4	270	>500	1100
JUL 20...	1110	181	747	8.4	24.0	11000	9.0	115	2.1	>8000	K13000	62
AUG 03...	1445	613	748	8.1	21.5	12000	11.7	143	0.7	>6000	>10000	240

DATE	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	CAR-BONATE WATER DIS IT FLD AS C03	BICAR-BONATE WATER DIS IT FLD AS HC03	ALKA-LINITY WAT DIS TOT IT FLD AS CAC03	ALKA-LINITY WAT DIS FIX END FLD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
NOV 17...	820	290	69	760	10	3.4	24	192	198	200	1000	960
MAR 16...	1300	410	110	1600	18	26	10	170	156	150	1700	2100
MAY 11...	890	300	77	790	11	16	19	187	186	180	1200	1000
JUL 20...	0	19	3.5	130	7	3.4	6	106	97	97	160	60
AUG 03...	190	77	12	91	3	5.4	0	69	57	59	280	26

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)
NOV 17...	1.8	17	3440	3240	2.02	2.01	0.180	0.190	2.20	2.20	0.040	0.030
MAR 16...	1.3	18	6510	6070	--	--	--	<0.010	--	<0.050	--	0.040
MAY 11...	2.0	19	3670	3520	0.460	0.460	--	0.090	0.550	0.550	--	0.020
JUL 20...	0.60	9.8	461	449	0.940	0.940	--	0.020	0.960	0.960	--	0.040
AUG 03...	0.30	8.5	523	539	0.570	0.570	--	0.010	0.580	0.580	--	0.060

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUM-INUM, DIS-SOLVED (UG/L AS AL)
NOV 17...	0.56	0.60	0.980	0.910	0.920	0.890	2.8	16	0.30	92	10
MAR 16...	0.46	0.50	0.030	0.020	0.030	--	0.09	9	0.05	45	<10
MAY 11...	0.48	0.50	0.420	0.400	0.390	--	1.2	11	0.15	100	10
JUL 20...	5.3	5.3	2.20	0.080	0.090	--	0.28	14800	7230	99	--
AUG 03...	2.8	2.9	16.0	0.070	0.060	--	0.18	32400	53600	98	10

RED RIVER BASIN

07297910 PRAIRIE DOG TOWN FORK RED RIVER NEAR WAYSIDE, TX--Continued
(National stream-quality accounting network)

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

DATE	BARIUM, DIS- SOLVED (UG/L AS BA)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
NOV 17...	<100	<1	<10	120	40	12	<1	<1	<1.0	4800	24
MAR 16...	<100	<1	10	140	160	4	<1	<1	<1.0	8700	39
MAY 11...	<100	<1	<10	140	60	9	2	<1	<1.0	6100	26
JUL 20...	--	--	--	--	--	--	--	--	--	--	--
AUG 03...	140	<3	4	17	4	<10	<1	2	<1.0	1500	15

07299540 PRAIRIE DOG TOWN FORK RED RIVER NEAR CHILDRESS, TX

LOCATION.--Lat 34°34'09", long 100°11'37", Childress County, Hydrologic Unit 11120105, on left bank at downstream side of bridge on U.S. Highways 62 and 83, 3.1 mi downstream from Salt Creek, 10.0 mi north of Childress, and at mile 1.061.

DRAINAGE AREA.--7,725 mi², of which 4,769 mi² probably is noncontributing.

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

Water-quality records: September 1948 to April 1963, January 1969 to September 1986. Chemical and biochemical analyses: January 1978 to September 1986.

GAGE.--Water-stage recorder. Datum of gage is 1,628.4 ft above National Geodetic Vertical Datum of 1929 (from Texas State Department of Highways and Public Transportation bench mark).

REMARKS.--Records poor. Many small diversions upstream from station. Flow is affected at times by discharge from the flood-detention pools of 23 floodwater-retarding structures with a combined detention capacity of 20,010 acre-ft. These structures control runoff from 95.2 mi² in the drainage basin above station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1899, 16.9 ft in May or June 1957, from information by local residents and State Department of Highways and Public Transportation.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 7,000 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 21	0930	7,280	9.55	No other peak greater than base discharge.			

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	5.3	17	720	4.1	160	36	126	9.7	6.1	.75	31
2	3.2	5.1	21	1850	2.8	201	30	1430	2.2	4.2	11	33
3	3.6	4.1	8.5	1630	2.3	61	28	65	1.9	51	450	6.9
4	3.7	4.2	6.9	1060	1.1	20	26	18	1.3	12	1470	e6.0
5	4.9	3.7	e6.8	480	.66	14	21	17	1.2	5.2	133	e5.5
6	4.2	3.4	e4.7	815	.99	3.8	21	18	1.7	3.2	150	e5.0
7	6.6	3.1	e3.8	330	.87	2.7	17	127	1.6	1670	105	36
8	3.8	3.5	e61	332	.41	1.5	11	398	.96	387	76	2570
9	4.3	3.9	2660	512	.37	.96	9.7	642	1.1	11	11	1100
10	4.0	3.0	1330	110	158	.40	8.1	108	1.4	1.8	9.7	180
11	4.2	263	532	99	22	.20	6.8	49	1.6	.62	9.7	97
12	4.6	128	281	89	4.0	.20	5.6	36	1.1	.40	3.8	47
13	6.1	12	331	70	1.1	.26	6.8	22	.88	2.3	2.2	278
14	5.1	4.3	2030	83	14	.32	1620	13	.80	1320	2.7	52
15	4.8	4.6	274	81	1480	.26	289	8.1	.64	1050	3.2	23
16	4.2	3.1	45	72	579	.26	99	6.5	.54	125	3.2	6.6
17	4.7	3.8	74	72	68	.20	87	160	.80	63	2.7	1.4
18	5.8	953	77	70	4.7	.99	60	83	.74	7.5	2.6	1.6
19	7.9	2570	63	104	204	16	20	30	6.6	.50	.84	1.9
20	117	110	50	131	212	4.7	3.7	24	3.4	.26	.79	1.8
21	26	4230	48	94	18	8.1	3.0	20	14	.23	.64	1.8
22	6.1	398	32	68	.68	74	2.7	25	.81	93	.47	1.9
23	6.2	e170	11	56	.31	26	2.2	25	.44	38	438	2.0
24	5.8	e70	13	46	.51	2.2	1.4	30	1.7	30	155	2.0
25	6.0	e50	21	45	.73	1.5	1.0	23	20	12	35	1.8
26	5.3	e33	24	43	.60	.96	.90	5.4	215	8.2	9.7	1.8
27	5.0	e27	21	44	.63	.75	.88	2.7	37	3.2	1.4	1.8
28	5.6	e22	27	36	2.9	1.8	76	1.8	11	1.8	.73	4.3
29	7.0	e20	44	16	---	626	169	105	5.2	1.8	.51	2.0
30	7.7	e18	55	4.5	---	315	33	62	5.0	1.5	.29	2.2
31	8.4	---	40	3.7	---	65	---	26	---	1.2	45	---
TOTAL	294.5	9129.1	8212.7	9166.2	2784.76	1610.06	2695.78	3706.5	350.31	4912.01	3134.92	4505.3
MEAN	9.50	304	265	296	99.5	51.9	89.9	120	11.7	158	101	150
MAX	117	4230	2660	1850	1480	626	1620	1430	215	1670	1470	2570
MIN	2.7	3.0	3.8	3.7	.31	.20	.88	1.8	.44	.23	.29	1.4
AC-FT	584	18110	16290	18180	5520	3190	5350	7350	695	9740	6220	8940

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1993, BY WATER YEAR (WY)

	111	47.7	34.8	37.3	28.6	42.3	96.3	259	311	105	157	152
MEAN	111	47.7	34.8	37.3	28.6	42.3	96.3	259	311	105	157	152
MAX	1279	377	265	296	162	243	594	1835	1123	367	1086	470
(WY)	1987	1987	1993	1993	1987	1973	1973	1978	1985	1972	1968	1966
MIN	3.14	1.85	2.27	2.05	2.00	1.72	2.95	1.18	11.4	.66	1.56	3.39
(WY)	1985	1978	1983	1971	1974	1966	1978	1988	1970	1974	1980	1984

SUMMARY STATISTICS

	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1966 - 1993
ANNUAL TOTAL	70949.8	50502.14	
ANNUAL MEAN	194	138	115
HIGHEST ANNUAL MEAN			286
LOWEST ANNUAL MEAN			28.1
HIGHEST DAILY MEAN	4230	4230	34200
LOWEST DAILY MEAN	1.2	.20	.00
ANNUAL SEVEN-DAY MINIMUM	2.0	.24	.00
INSTANTANEOUS PEAK FLOW		7280	86400
INSTANTANEOUS PEAK STAGE		9.55	13.94
INSTANTANEOUS LOW FLOW		.06	.00
ANNUAL RUNOFF (AC-FT)	140700	100200	83630
10 PERCENT EXCEEDS	356	284	172
50 PERCENT EXCEEDS	32	8.5	7.1
90 PERCENT EXCEEDS	3.1	.81	1.0

07299670 GROESBECK CREEK AT STATE HIGHWAY 6 NEAR QUANAH, TX

LOCATION.--Lat 34°21'16", long 99°44'24", Hardeman County, Hydrologic Unit 11130101, near left bank at downstream side of bridge on State Highway 6, 2 mi downstream from confluence of North and South Groesbeck Creeks, 4 mi north of Quanah, and 9 mi upstream from mouth.

DRAINAGE AREA.--303 mi².

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 above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. There are several diversions upstream from station for farm and ranch use and for a gypsum plant. Several observations of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--The highest stage known occurred in June 1891; and the highest stage since 1891 occurred in September 1929, stages unknown. Other large floods are reported to have occurred in 1912, 1936, 1946, 1951, 1955, and 1957, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s.

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 9	1430	2,280	16.28	No other peak greater than base discharge.			

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	17	19	19	20	24	28	35	29	15	14	18
2	17	16	19	20	19	25	24	146	27	15	14	19
3	17	16	19	21	19	26	23	47	27	15	18	19
4	17	16	19	21	20	25	21	32	26	15	18	18
5	17	16	20	20	20	24	21	26	24	14	19	18
6	17	16	20	20	20	23	21	21	24	14	19	17
7	17	16	19	21	20	23	21	19	24	14	19	17
8	17	17	19	21	20	23	21	31	24	13	19	18
9	17	17	21	21	20	23	20	1480	23	13	19	17
10	18	17	21	20	23	23	19	322	25	12	18	17
11	17	17	21	20	23	23	20	88	25	12	18	17
12	17	17	21	19	23	23	20	48	25	12	18	17
13	18	17	21	19	22	21	21	42	24	12	18	19
14	17	17	22	19	22	21	29	38	23	29	18	19
15	17	16	22	19	29	22	45	35	23	46	19	18
16	18	17	21	18	39	22	33	34	22	18	19	18
17	18	17	21	18	32	22	30	43	21	14	20	18
18	17	17	21	18	29	22	24	48	20	13	20	18
19	18	20	21	20	26	23	22	36	21	13	20	18
20	18	20	20	22	26	22	20	34	21	13	20	18
21	18	27	20	22	26	21	19	35	20	13	20	18
22	18	63	19	21	24	21	18	34	21	14	20	18
23	18	38	19	21	23	21	18	36	19	14	19	18
24	18	34	19	21	22	21	18	86	20	14	19	17
25	18	26	19	21	23	21	17	50	19	14	19	17
26	17	23	19	21	23	21	17	33	18	14	18	17
27	17	21	19	21	23	21	17	30	17	14	18	17
28	17	20	18	21	23	20	18	30	16	14	18	17
29	17	20	18	20	---	61	34	28	16	14	18	17
30	17	19	19	21	---	81	45	27	15	14	17	17
31	17	---	18	20	---	43	---	28	---	14	17	---
TOTAL	538	630	614	626	659	812	704	3022	659	475	570	531
MEAN	17.4	21.0	19.8	20.2	23.5	26.2	23.5	97.5	22.0	15.3	18.4	17.7
MAX	18	63	22	22	39	81	45	1480	29	46	20	19
MIN	17	16	18	18	19	20	17	19	15	12	14	17
AC-FT	1070	1250	1220	1240	1310	1610	1400	5990	1310	942	1130	1050
CFSM	.06	.07	.07	.07	.08	.09	.08	.32	.07	.05	.06	.06
IN.	.07	.08	.08	.08	.08	.10	.09	.37	.08	.06	.07	.07

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

	34.1	8.12	8.15	6.91	7.28	8.61	13.7	27.5	36.7	13.0	9.27	46.3
MEAN	34.1	8.12	8.15	6.91	7.28	8.61	13.7	27.5	36.7	13.0	9.27	46.3
MAX	393	21.0	43.0	24.3	26.3	37.1	97.1	163	423	116	53.4	286
(WY)	1984	1993	1992	1992	1992	1990	1976	1987	1991	1975	1969	1974
MIN	.68	1.33	1.48	1.33	1.35	1.18	1.12	1.74	1.54	.10	.000	.39
(WY)	1969	1969	1969	1971	1971	1971	1969	1967	1967	1964	1964	1968

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1963 - 1993

	9004	9840	18.3
ANNUAL TOTAL	9004	9840	18.3
ANNUAL MEAN	24.6	27.0	65.5
HIGHEST ANNUAL MEAN			2.97
LOWEST ANNUAL MEAN			1991
HIGHEST DAILY MEAN	299	1480	9570
LOWEST DAILY MEAN	16	12	.00
ANNUAL SEVEN-DAY MINIMUM	16	13	.00
INSTANTANEOUS PEAK FLOW		2280	18000
INSTANTANEOUS PEAK STAGE		16.28	24.78
INSTANTANEOUS LOW FLOW		12	.00
ANNUAL RUNOFF (AC-FT)	17860	19520	13260
ANNUAL RUNOFF (CFSM)	.081	.089	.060
ANNUAL RUNOFF (INCHES)	1.11	1.21	.82
10 PERCENT EXCEEDS	28	30	18
50 PERCENT EXCEEDS	20	20	5.8
90 PERCENT EXCEEDS	17	16	1.4

07299840 GREENBELT LAKE NEAR CLARENDON, TX

LOCATION.--Lat 35°00'02", long 100°53'40", Donley County, Hydrologic Unit 11120201, on upstream side near right end of dam on Salt Fork Red River and 4.3 mi north of Clarendon.

DRAINAGE AREA.--457 mi², of which 191 mi² probably is noncontributing.

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Freese and Nichols, Inc., Consulting Engineers bench mark).

REMARKS.--The lake is formed by a rolled earthfill dam 5,800 ft 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 wide and located at the left end of dam, designed to discharge 184,000 ft³/s at an elevation of 2,684.0 ft. A morning-glory-type drop inlet with a 26-foot 8.5-inch-diameter opening at crest discharges into a 7- by 7-foot concrete conduit. The outlet works consists of a 36-inch pipe that is controlled by two 20-inch valves that control the discharge into a stilling basin and to a water treatment plant. The capacity table, dated April 1964, is based on Geological Survey topographic maps dated 1962. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	2,686.0	-
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 provided by Greenbelt Municipal and Industrial Water Authority.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 44,650 acre-ft June 26-28, 1975 (elevation, 2,655.71 ft); minimum, 2,950 acre-ft Aug. 29, 30, 1967 (elevation, 2,607.37 ft).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 34,030 acre-ft Mar 30 at 1500 hours (elevation, 2,648.76 ft); minimum, 29,610 acre-ft Sept. 20 (elevation, 2,645.39 ft).

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

2,645.0	29,120	2,648.0	32,990
2,646.0	30,370	2,649.0	34,360
2,647.0	31,660		

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33610	32960	32960	33360	33700	33880	33990	33850	33630	32630	31600	30620
2	33570	32950	32990	33410	33700	33920	33990	33910	33590	32630	31570	30450
3	33540	32870	32950	33330	33670	33920	33960	33920	33580	32590	31620	30540
4	33500	32870	32960	33430	33690	33910	33960	33920	33510	32550	31580	30460
5	33470	32870	33000	33440	33690	33910	33950	33920	33460	32510	31580	30430
6	33430	32840	33000	33460	33720	33910	33960	33920	33410	32470	31580	30400
7	33320	32870	33030	e33460	33720	33920	33950	33910	33370	32480	31560	30490
8	33320	32870	33060	e33470	33720	33940	33940	33910	33310	32430	31560	30490
9	33290	32870	33040	e33470	33740	33920	33940	33940	33250	32340	31530	30490
10	33290	32840	33060	e33470	33760	33910	33920	33940	33220	32300	31520	30460
11	33260	32760	33090	e33460	33740	33890	33920	33870	33200	32260	31480	30380
12	33240	32800	33090	e33440	33720	33850	33910	33890	33140	32210	31430	30320
13	33220	32820	33100	e33460	33740	33880	33880	33890	33130	32100	31400	30190
14	33180	32820	33150	e33480	33740	33910	33920	33870	33090	32180	31320	30230
15	33170	32800	33170	e33510	33770	33940	33940	33870	33030	32170	31310	30210
16	33100	32820	33180	e33510	33780	33920	33940	33850	32990	32140	31260	30170
17	33090	32800	33210	e33500	33780	33880	33960	33910	32980	32130	31200	30030
18	33070	32860	33240	e33500	33780	33890	33950	33870	33000	32090	31130	30110
19	33090	32860	33220	e33610	33840	33940	33920	33880	33060	32030	31110	e30010
20	33090	32900	33250	e33620	33830	33920	33890	33850	33030	32030	31080	e29970
21	33070	32950	33260	e33630	33830	33940	33880	33760	33220	32030	30990	e29920
22	33070	33030	33250	e33630	33850	33960	33880	33920	33020	31980	30960	e29860
23	33060	33000	33250	e33650	33830	33990	33850	33890	32980	31950	31000	e29810
24	33060	32960	33220	e33660	33830	33990	33840	33880	32950	31890	30990	e29740
25	33060	33030	33250	33680	33830	33980	33810	33870	32910	31890	30910	e29700
26	33040	33040	33280	33670	33830	33980	33800	33830	32860	31820	30890	e29680
27	33040	33040	33260	33670	33840	33980	33780	33810	32820	31780	30850	e29660
28	33040	33060	33290	33630	33870	33980	33840	33760	32750	31650	30800	e29630
29	33020	33060	33310	33660	---	34020	33850	33740	32680	31670	30770	e29620
30	33000	32990	33290	33660	---	34020	33850	33700	32680	31650	30670	e29610
31	32990	---	33260	33670	---	34000	---	33670	---	31570	30640	---
MAX	33610	33060	33310	33680	33870	34020	33990	33940	33630	32630	31620	30620
MIN	32990	32760	32950	33330	33670	33850	33780	33670	32680	31570	30640	29610
(↑)	2648.00	2648.00	2648.20	2648.50	2648.64	2648.74	2648.63	2648.56	2647.96	2646.93	2646.21	2645.39
(Φ)	-660	0	+270	+410	+200	+130	-150	-180	-990	-1110	-930	-1030
(↑↑)	331	269	268	274	255	271	282	299	410	488	478	363

CAL YR 1992 MAX 36270 MIN 32760 (Φ) -290 (↑↑) 3614
WTR YR 1993 MAX 34020 MIN 29610 (Φ) -4040 (↑↑) 3988

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

(Φ) Change in contents, in acre-feet.

(↑↑) Divisions, in acre-feet, for municipal and industrial use by Greenbelt Municipal Water Authority.

e Estimated

RED RIVER BASIN

07300000 SALT FORK RED RIVER NEAR WELLINGTON, TX

LOCATION.--Lat 34°57'27", long 100°13'14", Collingsworth County, Hydrologic Unit 11120202, near center of stream at downstream side of bridge on U.S. Highway 83, 4 mi downstream from Fort Worth and Denver (Burlington) Railway Co. bridge, 4.5 mi south of Lutie, and 7.2 mi north of Wellington.

DRAINAGE AREA.--1,222 mi², of which 209 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 1,941.41 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. There are several small diversions upstream from gage for irrigation. There is some regulation for municipal use by Greenbelt Lake (station 07299840) capacity 59,10 acre-ft, 42 mi upstream.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--14 years (water years 1953-66) prior to completion of Greenbelt Lake, 72.6 ft³/s (52,600 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1953-66).--Maximum discharge, 146,000 ft³/s May 16, 1957 (gage height, 19.00 ft), from rating curve extended above 11,000 ft³/s on basis of slope-area measurement of 63,400 ft³/s; minimum, 0.1 ft³/s June 19, 1952.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.1	14	28	63	53	77	33	27	18	151	4.5	10
2	9.1	14	28	119	53	115	23	167	15	48	5.1	7.0
3	9.4	15	28	173	51	56	23	120	12	68	13	5.8
4	9.1	15	25	113	44	30	23	54	9.9	33	11	6.0
5	9.0	15	22	86	42	25	22	32	9.0	20	11	6.0
6	9.4	15	21	87	42	25	28	23	11	1020	12	6.2
7	9.3	13	47	95	44	29	33	64	8.2	3030	11	6.3
8	9.3	13	44	93	43	31	29	1210	6.2	87	9.8	6.9
9	9.4	13	52	139	43	29	27	486	5.9	21	9.8	7.4
10	8.5	13	42	72	59	31	26	246	7.5	8.2	9.8	7.1
11	8.1	14	34	59	61	30	23	130	7.5	6.2	8.2	6.6
12	8.4	14	35	84	49	31	22	86	6.8	5.6	6.7	6.3
13	8.5	14	41	80	47	34	20	62	6.2	5.6	6.3	6.7
14	8.8	15	62	77	43	38	64	45	6.2	155	5.6	6.4
15	9.9	15	63	93	93	42	138	37	6.8	30	5.4	6.4
16	9.9	14	65	81	92	42	56	28	6.8	13	5.3	6.2
17	10	13	71	82	29	37	40	35	7.5	9.1	4.6	6.2
18	12	15	79	83	17	39	30	60	8.3	8.6	4.6	6.6
19	12	26	70	79	47	51	19	49	46	8.2	5.0	16
20	12	18	59	86	90	58	12	41	44	6.1	5.2	6.6
21	11	83	53	157	52	50	9.6	45	23	7.3	5.5	5.1
22	12	91	57	115	45	66	9.9	36	20	6.3	6.8	4.5
23	11	50	53	83	38	75	11	549	25	5.7	8.0	4.3
24	11	59	48	68	34	51	13	164	11	6.1	6.8	4.7
25	12	45	50	58	33	41	13	54	6.2	5.6	6.1	5.2
26	12	37	51	52	30	34	13	33	8.8	5.0	5.5	5.2
27	13	32	52	54	28	34	13	17	21	4.6	5.6	5.1
28	14	31	55	61	41	38	24	11	8.8	11	6.2	5.1
29	14	30	57	61	---	39	139	12	4.8	13	6.7	5.2
30	14	31	60	56	---	108	37	17	153	5.6	13	5.1
31	15	---	52	56	---	66	---	13	---	4.8	15	---
TOTAL	330.2	787	1504	2665	1343	1452	973.5	3953	530.4	4808.6	239.1	192.2
MEAN	10.7	26.2	48.5	86.0	48.0	46.8	32.4	128	17.7	155	7.71	6.41
MAX	15	91	79	173	93	115	139	1210	153	3030	15	16
MIN	8.1	13	21	52	17	25	9.6	11	4.8	4.6	4.5	4.3
AC-FT	655	1560	2980	5290	2660	2880	1930	7840	1050	9540	474	381

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

	MEAN	33.1	28.6	26.2	30.2	34.4	40.7	61.3	121	131	28.3	28.1	31.4
MAX	279	213	92.4	86.0	64.5	127	505	468	962	155	301	113	
(WY)	1987	1987	1992	1993	1988	1979	1977	1977	1989	1993	1968	1981	
MIN	4.28	8.03	3.59	10.5	10.9	8.15	6.10	2.61	8.17	2.65	1.68	2.22	
(WY)	1981	1981	1984	1971	1967	1972	1971	1971	1970	1970	1970	1984	

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1967 - 1993#

ANNUAL TOTAL	22415.9	18778.0	
ANNUAL MEAN	61.2	51.4	49.5
HIGHEST ANNUAL MEAN			115
LOWEST ANNUAL MEAN			10.5
HIGHEST DAILY MEAN	1420	3030	14200
LOWEST DAILY MEAN	6.8	4.3	.40
ANNUAL SEVEN-DAY MINIMUM	7.9	4.9	.73
INSTANTANEOUS PEAK FLOW		16600	62100
INSTANTANEOUS PEAK STAGE		9.17	13.80
INSTANTANEOUS LOW FLOW		3.4	.33
ANNUAL RUNOFF (AC-FT)	44460	37250	35870
10 PERCENT EXCEEDS	91	83	65
50 PERCENT EXCEEDS	30	23	16
90 PERCENT EXCEEDS	9.0	6.1	4.3

Period of regulated streamflow.

07300000 SALT FORK RED RIVER NEAR WELLINGTON, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: February 1951 to October 1954, October 1967 to current year. Chemical and biochemical analyses: October 1974 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: June 1952 to September 1954, October 1967 to September 1991 (discontinued).

WATER TEMPERATURE: June 1952 to September 1954, October 1967 to September 1991 (discontinued).

INSTRUMENTATION.--From September 1968 to September 1974, specific conductance was continuously recorded at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 4,510 microsiemens Dec. 20, 1990; minimum daily, 330 microsiemens July 30, 1982.

WATER TEMPERATURE: Maximum daily, 40.0°C July 20, 1981; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 4,510 microsiemens Dec. 20; minimum daily, 1,100 microsiemens May 30.

WATER TEMPERATURE: Maximum daily, 34.5.0°C July 18; minimum daily, 0.0°C Jan. 29.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAI, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCI FECAI, KF AGAR (COLS. PER 100 ML)	
NOV 16...	1200	15	3330	8.0	14.0	11.7	122	0.1	K28	120	
JAN 12...	1205	87	2860	8.2	5.0	14.7	123	1.8	K30	52	
MAR 15...	1115	43	2800	8.2	12.0	13.5	135	0.5	K14	K17	
MAY 10...	1205	357	2460	8.2	18.0	9.1	102	0.9	K590	290	
JUL 19...	1120	9.0	3210	8.0	29.5	8.4	118	0.7	160	76	
AUG 02...	1210	6.8	3260	8.0	25.0	7.3	94	0.6	>300	230	
DATE		HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
NOV 16...	1700	1500	530	87	200	2	0.70	160	1500	280	
JAN 12...	1200	980	340	79	220	3	4.5	200	1000	280	
MAR 15...	1100	920	310	76	200	3	3.9	170	1000	270	
MAY 10...	960	790	260	76	200	3	5.9	180	850	240	
JUL 19...	1600	1400	490	89	200	2	4.1	160	1500	270	
AUG 02...	1600	1400	490	82	200	2	4.1	150	1500	260	
DATE		FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	
NOV 16...	0.60	19	2720	1.87	--	0.030	--	1.90	--		
JAN 12...	0.50	21	2070	1.08	1.08	--	0.020	1.10	1.10		
MAR 15...	0.50	20	1990	1.20	--	--	<0.010	1.20	1.20		
MAY 10...	0.70	19	1760	0.350	--	--	<0.010	0.350	0.350		
JUL 19...	0.50	20	2680	1.58	1.58	--	0.020	1.60	1.60		
AUG 02...	0.60	19	2650	1.78	1.78	--	0.020	1.80	1.80		

RED RIVER BASIN

07300000 SALT FORK RED RIVER NEAR WELLINGTON, TX--Continued

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

DATE	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)
NOV 16...	0.050	--	--	--	<0.20	<0.010	--	--	<0.010
JAN 12...	--	0.050	0.55	0.60	--	--	<0.010	<0.010	--
MAR 15...	--	0.040	--	<0.20	--	--	<0.010	<0.010	--
MAY 10...	--	0.040	0.36	0.40	--	--	<0.010	<0.010	--
JUL 19...	--	0.100	0.20	0.30	--	--	<0.010	<0.010	--
AUG 02...	--	0.100	--	<0.20	--	--	0.010	<0.010	--

07300500 SALT FORK RED RIVER AT MANGUM, OK

LOCATION.--Lat 34°51'30", long 99°30'30", in SW 1/4 SE 1/4 sec.34. T.5 N., R.22 W., Greer County, Hydrologic Unit 11120202, near left bank on downstream side of pier of bridge on State Highway 34, 0.5 mi south of Mangum, 13.0 mi downstream from Fish Creek, and at mile 35.5.

DRAINAGE AREA.--1,566 mi², of which 209 mi² is probably noncontributing.

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

REVISED RECORDS.--WSP 1211: Drainage area. WSP 1241: 1938.

GAGE.--Water-stage recorder. Datum of gage is 1,490.87 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation). Apr. 11, 1905 to June 30, 1906, nonrecording gage at site 0.2 mi upstream at different datum. Oct. 1, 1937 to Nov. 8, 1938, nonrecording gage at present site and datum.

REMARKS.--Records fair.

PEAK DISCHARGES FOR CURRENT YEAR.--peak discharges greater than base discharge of 6,000 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Apr. 28	2330	11,700	11.61	July 7	1700	17,300	13.53
May 9	0400	11,500	11.52				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	9.5	64	82	82	92	119	95	94	70	30	47
2	1.1	9.8	60	97	86	108	91	425	84	185	29	43
3	1.2	11	57	134	89	132	83	477	77	131	106	56
4	1.1	11	55	167	90	118	159	366	75	105	87	33
5	1.1	11	58	138	90	101	94	239	70	89	67	27
6	1.1	11	60	110	88	91	73	191	68	77	52	23
7	1.1	11	66	102	87	89	68	169	65	8710	46	23
8	.98	12	69	101	85	86	72	2500	63	1640	45	26
9	1.0	13	93	123	82	84	62	3210	58	419	40	25
10	1.2	13	92	126	112	84	56	e350	56	143	35	23
11	1.2	25	86	132	110	83	52	e240	55	99	31	22
12	1.2	23	81	105	105	78	50	e190	53	77	26	20
13	1.3	17	82	99	99	79	47	e170	51	66	23	23
14	1.2	16	101	101	101	81	129	e150	48	508	20	23
15	1.4	16	103	111	152	83	132	e140	45	679	15	22
16	1.6	16	109	99	166	85	125	e250	43	293	14	19
17	1.8	16	103	100	169	84	119	e200	40	136	16	18
18	2.1	19	109	90	167	82	94	e170	39	86	16	17
19	2.6	39	119	100	146	89	78	148	60	69	13	18
20	3.2	38	119	112	126	84	66	137	94	58	12	16
21	4.1	139	114	115	120	84	61	122	123	57	11	20
22	4.8	188	107	112	116	100	55	111	118	59	8.7	19
23	5.4	180	88	131	94	92	50	116	96	55	7.5	15
24	5.9	201	86	119	84	98	49	415	83	50	7.8	14
25	6.6	185	81	104	84	94	47	302	76	40	8.4	14
26	7.0	108	75	96	83	83	45	190	73	37	8.0	14
27	7.8	82	74	87	83	76	42	140	74	32	7.0	14
28	8.1	76	74	87	86	72	769	122	80	30	6.5	13
29	8.2	73	74	93	---	77	1300	112	71	31	6.3	12
30	8.7	68	77	93	---	111	203	104	67	40	8.3	12
31	9.3	---	76	85	---	105	---	103	---	39	29	---
TOTAL	104.58	1637.3	2612	3351	2982	2805	4390	11654	2099	14110	831.5	671
MEAN	3.37	54.6	84.3	108	106	90.5	146	376	70.0	455	26.8	22.4
MAX	9.3	201	119	167	169	132	1300	3210	123	8710	106	56
MIN	.98	9.5	55	82	82	72	42	95	39	30	6.3	12
AC-FT	207	3250	5180	6650	5910	5560	8710	23120	4160	27990	1650	1330

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 1993, BY WATER YEAR (WY)

	MEAN	80.4	28.2	35.4	45.6	51.9	48.3	86.4	277	238	64.1	31.8	45.2
MAX	919	196	148	199	196	183	490	1389	1602	575	301	315	
(WY)	1961	1987	1992	1960	1949	1969	1973	1957	1941	1953	1968	1986	
MIN	.000	.000	.000	.000	.000	.12	.000	.000	.000	.000	.000	.000	
(WY)	1941	1940	1940	1940	1953	1971	1955	1953	1952	1963	1943	1939	

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1938 - 1993

ANNUAL TOTAL	33181.28	47247.38	86.1	1941
ANNUAL MEAN	90.7	129	277	1940
HIGHEST ANNUAL MEAN			12.3	1940
LOWEST ANNUAL MEAN			22600	May 28 1978
HIGHEST DAILY MEAN	2530	Jun 6	.00	Oct 2 1937
LOWEST DAILY MEAN	.98	Oct 8	.00	Aug 14 1938
ANNUAL SEVEN-DAY MINIMUM	1.1	Oct 3	.00	May 16 1957
INSTANTANEOUS PEAK FLOW			17300	Jul 7
INSTANTANEOUS PEAK STAGE			13.53	Jul 7
ANNUAL RUNOFF (AC-FT)	65820	93720	62350	Jun 16 1938
10 PERCENT EXCEEDS	171	162	120	
50 PERCENT EXCEEDS	63	77	16	
90 PERCENT EXCEEDS	3.6	8.4	.00	

07301410 SWEETWATER CREEK NEAR KELTON, TX

LOCATION.--Lat 35°28'23", long 100°07'14", Wheeler County, Hydrologic Unit 11120302, near center of stream at downstream side of bridge on Farm Road 592, 5 mi north of Kelton, 8 mi upstream from Texas-Oklahoma State line, and 8.5 mi northeast of Wheeler.

DRAINAGE AREA.--287 mi², of which 20 mi² probably is noncontributing.

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

Water-quality records.--Chemical analyses: October 1969 to June 1985.

GAGE.--Water-stage recorder. Elevation of gage is 2,230 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are fair. There are many small diversions upstream from station for ranch use. Gage-height telemeter at station via Sutron data collection platform.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1882, about 20 ft May 16, 1957.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 2	2100	110	8.74	No peak greater than base discharge.			

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.85	2.5	10	11	14	21	21	25	9.5	5.8	2.2	1.4
2	.85	2.6	11	13	13	29	20	65	9.1	5.4	2.3	1.4
3	.85	3.1	10	16	13	27	20	73	8.8	4.9	3.5	1.2
4	.84	3.1	10	15	12	23	23	39	8.8	4.5	3.0	1.2
5	.85	3.2	10	14	12	20	23	32	8.8	4.0	2.7	1.1
6	.87	3.3	11	13	13	19	22	27	9.1	4.3	2.5	1.0
7	.88	3.4	11	13	13	19	22	23	8.5	5.4	2.4	1.0
8	.94	3.6	12	13	13	18	21	29	8.0	4.2	2.2	2.0
9	1.0	3.7	13	17	13	17	19	29	7.9	3.6	2.1	1.5
10	1.1	3.8	12	17	18	17	18	25	7.9	3.6	1.8	1.2
11	1.1	4.0	11	16	18	17	17	22	8.0	3.4	1.6	1.0
12	1.1	4.0	11	16	18	17	17	21	7.6	3.4	1.4	.92
13	1.2	4.2	12	15	20	17	16	18	7.2	3.5	1.2	.92
14	1.2	4.3	14	15	19	18	21	17	6.9	3.7	1.1	.88
15	1.2	4.5	15	15	23	18	25	15	7.1	4.2	.99	.92
16	1.2	4.6	14	14	24	17	21	14	6.7	4.1	.94	.92
17	1.3	5.1	14	14	22	16	19	18	6.4	3.6	.86	.83
18	1.4	5.3	14	14	22	17	18	32	6.6	3.5	.77	.83
19	1.6	6.7	14	14	24	28	17	19	17	3.3	.72	.79
20	1.7	6.9	14	14	33	28	15	16	24	3.2	.64	.74
21	1.7	7.6	14	16	27	23	14	15	14	3.0	.57	.66
22	1.7	8.9	13	17	21	34	14	14	10	3.0	.50	.62
23	1.7	8.3	13	17	19	35	14	15	8.5	3.5	.47	.58
24	1.8	8.9	13	15	18	27	14	13	7.5	3.2	.88	.62
25	1.9	8.4	13	14	19	23	13	12	7.2	3.0	1.6	.62
26	2.0	7.7	12	14	18	21	12	12	7.4	2.8	1.6	.58
27	2.0	10	12	14	18	20	12	11	7.3	2.7	1.5	.58
28	2.1	10	12	14	18	20	14	10	6.5	2.6	1.4	.50
29	2.2	10	11	14	---	21	31	e9.8	5.7	2.5	1.4	.45
30	2.5	10	11	14	---	27	33	e9.7	5.4	2.4	1.3	.39
31	2.5	---	11	14	---	24	---	e9.6	---	2.3	1.7	---
TOTAL	44.13	171.7	378	452	515	678	566	690.1	263.4	112.6	47.84	27.35
MEAN	1.42	5.72	12.2	14.6	18.4	21.9	18.9	22.3	8.78	3.63	1.54	.91
MAX	2.5	10	15	17	33	35	33	73	24	5.8	3.5	2.0
MIN	.84	2.5	10	11	12	16	12	9.6	5.4	2.3	.47	.39
AC-FT	88	341	750	897	1020	1340	1120	1370	522	223	95	54
IN.	.01	.02	.05	.06	.07	.09	.08	.10	.04	.02	.01	.00

e Estimated

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

	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MEAN	8.57	10.7	11.8	13.0	16.1	18.3	20.6	25.4	20.1	5.22	4.87	7.00																			
MAX	42.1	34.5	19.3	24.3	29.6	35.3	74.6	196	86.3	32.3	42.7	40.9																			
(WY)	1987	1975	1992	1987	1987	1988	1970	1977	1965	1967	1963	1988																			
MIN	.30	1.05	3.11	5.87	7.25	9.09	8.72	3.38	2.80	.44	.000	.027																			
(WY)	1985	1985	1984	1984	1981	1977	1971	1971	1966	1974	1964	1984																			

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1963 - 1993

ANNUAL TOTAL	4168.48	3946.12	
ANNUAL MEAN	11.4	10.8	13.4
HIGHEST ANNUAL MEAN			26.8
LOWEST ANNUAL MEAN			4.89
HIGHEST DAILY MEAN	74 May 23	73 May 3	1820 May 21 1977
LOWEST DAILY MEAN	.84 Oct 4	.39 Sep 30	.00 Jul 29 1964
ANNUAL SEVEN-DAY MINIMUM	.86 Oct 1	.53 Sep 24	.00 Jul 29 1964
INSTANTANEOUS PEAK FLOW		110 May 2	2890 May 20 1977
INSTANTANEOUS PEAK STAGE		8.74 May 2	15.73 May 20 1977
INSTANTANEOUS LOW FLOW		.34 Sep 30	.00 Jul 29 1964
ANNUAL RUNOFF (AC-FT)	8270	7830	9730
ANNUAL RUNOFF (INCHES)	.58	.55	.68
10 PERCENT EXCEEDS	22	22	21
50 PERCENT EXCEEDS	10	10	10
90 PERCENT EXCEEDS	1.2	.97	.88

RED RIVER BASIN

53

07307750 MIDDLE PEASE RIVER NEAR PADUCAH, TX.

LOCATION.--Lat 34°12'31", long 100°18'03", Cottle County, Hydrologic Unit 11120104, on left bank at downstream side of bridge on U.S. Highway 62 and 83, 11.8 mi north of Paducah, and 13.4 mi upstream from mouth.

DRAINAGE AREA.--1,086 mi², of which 65 mi² probably is noncontributing.

PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: May 1973 to September 1979.

WATER TEMPERATURE: May 1973 to September 1979.

SEDIMENT RECORDS: January 1992 to September 1992.

EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 4,910 microsiemens Feb. 12, 1975; minimum daily, 802 microsiemens June 10, 1979.

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

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	TEMPER- ATURE WATER (DEG C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. STIEVE DIAM. % FINER THAN .062 MM
JAN 22...	1345	20	11.5	182	9.6	37
MAR 05...	0945	20	6.5	41	2.2	74
APR 13...	1745	0.59	26.0	2	0.00	67

RED RIVER BASIN

07307800 PEASE RIVER NEAR CHILDRESS, TX

LOCATION.--Lat 34°13'39", long 100°04'24", Cottle County, Hydrologic Unit 11130105, near right bank at downstream side of bridge on Farm Road 104, 0.8 mi upstream from Catfish Creek, 4.4 mi downstream from confluence of North and Middle Forks, 17 mi southeast of Childress, and 71.0 mi upstream from mouth.

DRAINAGE AREA.--2,754 mi², of which 559 mi² probably is noncontributing.

PERIOD OF RECORD.--December 1959 to September 1962 (average discharge for 1961-62 water years excluded from average annual discharge computations), and October 1967 to current year.

Water-quality records.--Chemical analyses: July 1968 to September 1982

GAGE.--Water-stage recorder. Datum of gage is 1,492.98 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 21, 1959, nonrecording gage at same site and datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. There are three small diversions for irrigation above station. Flow is affected at times by discharge from the flood-detention pools of six flood-water-retarding structures with a combined detention capacity of 1,360 acre-ft. These structures control runoff from 6.27 mi² in the Kent Creek drainage basin.

AVERAGE DISCHARGE.--2 years (water years 1961-62), 89.6 ft³/s (0.55 in/yr), 64,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD (WATER YEARS 1960-62).--Maximum discharge, 19,000 ft³/s June 9, 1960 (gage height, 13.59 ft), from rating curve extended above 4,000 ft³/s on basis of runoff comparisons with nearby stations.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1909, 22 ft June 1, 1957; flood in May 1935 reached a stage of 18 ft and was the second highest, from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,200 ft³/s.

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
July 14	0830	563	8.58	No peak greater than base discharge.			

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e5.1	6.7	14	29	54	62	71	73	6.5	3.1	3.0	9.0
2	e5.0	7.1	13	47	51	76	52	88	5.7	3.3	6.8	5.3
3	e5.0	6.7	13	72	51	80	45	86	4.2	3.1	45	4.0
4	e5.0	7.2	12	63	51	70	34	83	3.9	2.5	26	3.0
5	e5.0	7.7	14	63	49	59	33	60	3.9	1.9	8.4	2.6
6	5.1	8.8	17	54	47	51	34	38	4.1	1.7	9.6	1.9
7	5.1	9.3	14	51	40	47	31	31	6.4	1.7	22	2.8
8	5.1	10	14	50	37	42	26	76	6.3	1.4	29	4.4
9	5.6	11	25	60	39	39	26	113	6.7	1.5	9.9	4.4
10	5.7	12	25	56	73	33	25	144	8.6	1.9	5.8	3.4
11	5.7	17	23	56	53	31	23	109	9.3	1.6	4.7	3.1
12	6.2	19	23	51	48	30	23	83	8.5	1.5	4.1	3.2
13	6.5	14	22	49	50	32	22	62	5.9	8.4	3.3	5.3
14	6.1	13	31	56	49	31	60	42	5.5	336	3.2	3.8
15	6.2	14	31	57	86	31	99	31	5.4	231	2.8	3.2
16	5.7	14	27	60	94	32	113	23	5.4	75	2.5	3.3
17	6.2	14	42	65	84	27	96	24	6.5	26	2.5	3.2
18	6.5	16	40	55	54	34	81	36	7.0	13	2.9	3.3
19	7.2	31	34	60	44	40	72	25	6.6	7.0	2.9	3.1
20	7.8	22	34	73	52	39	53	21	7.3	4.7	2.5	3.0
21	7.1	134	31	69	39	39	39	18	6.4	3.5	2.4	3.4
22	7.0	125	30	89	27	41	32	15	15	3.0	2.1	3.2
23	6.6	61	27	98	21	36	28	18	7.8	2.5	1.8	3.2
24	6.9	43	26	83	19	37	26	14	5.4	1.9	2.0	3.4
25	6.8	33	25	77	18	33	22	8.0	4.8	1.9	6.2	3.0
26	6.5	24	23	70	17	31	23	6.9	6.1	1.5	3.5	3.2
27	6.9	23	23	64	18	31	23	6.8	8.2	1.2	2.4	3.3
28	7.0	20	22	59	36	32	27	6.7	4.0	5.9	2.2	3.4
29	6.5	18	23	56	---	44	88	7.8	3.4	7.5	1.9	3.0
30	6.5	14	22	56	---	101	84	11	2.9	3.2	2.6	3.1
31	7.7	---	21	53	---	86	---	7.8	---	1.8	8.8	---
TOTAL	191.3	755.5	741	1901	1301	1397	1411	1368.0	187.7	760.2	232.8	107.5
MEAN	6.17	25.2	23.9	61.3	46.5	45.1	47.0	44.1	6.26	24.5	7.51	3.58
MAX	7.8	134	42	98	94	101	113	144	15	336	45	9.0
MIN	5.0	6.7	12	29	17	27	22	6.7	2.9	1.2	1.8	1.9
AC-FT	379	1500	1470	3770	2580	2770	2800	2710	372	1510	462	213
CFSM	.00	.01	.01	.03	.02	.02	.02	.02	.00	.01	.00	.00
IN.	.00	.01	.01	.03	.02	.02	.02	.02	.00	.01	.00	.00

e Estimated

RED RIVER BASIN

55

07307800 PEASE RIVER NEAR CHILDRESS, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1993, BY WATER YEAR (WY)

MEAN	98.7	24.3	18.2	21.3	24.0	31.8	45.3	92.5	199	41.1	46.9	84.1
MAX	895	153	132	158	170	181	215	341	766	172	257	380
(WY)	1984	1987	1992	1992	1992	1973	1973	1982	1985	1979	1968	1989
MIN	1.68	3.04	3.74	2.70	2.83	2.78	3.32	5.99	4.08	.28	.13	1.23
(WY)	1981	1978	1979	1971	1971	1971	1974	1975	1970	1980	1980	1980

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1968 - 1993

ANNUAL TOTAL	37158.3	10354.0	60.5
ANNUAL MEAN	102	28.4	144
HIGHEST ANNUAL MEAN			16.2
LOWEST ANNUAL MEAN			1987
HIGHEST DAILY MEAN	2930	Apr 15	336
LOWEST DAILY MEAN	4.4	Jul 21	1.2
ANNUAL SEVEN-DAY MINIMUM	4.6	Jul 20	1.6
INSTANTANEOUS PEAK FLOW			563
INSTANTANEOUS PEAK STAGE			8.58
INSTANTANEOUS LOW FLOW			.71
ANNUAL RUNOFF (AC-FT)	73700	20540	43860
ANNUAL RUNOFF (CFSM)	.046	.013	.028
ANNUAL RUNOFF (INCHES)	.63	.18	.37
10 PERCENT EXCEEDS	237	70	88
50 PERCENT EXCEEDS	34	18	8.8
90 PERCENT EXCEEDS	6.4	3.0	1.4

07308200 PEASE RIVER NEAR VERNON, TX

LOCATION.--Lat 34°10'45", long 99°16'40", Wilbarger County, Hydrologic Unit 11130105, near left bank at downstream side of bridge on U. S. Highway 283, 1.9 mi north of Vernon, and 10 mi upstream from mouth.

DRAINAGE AREA.--3,488 mi², of which 55 mi² probably is noncontributing.

PERIOD OF RECORD.--December 1959 to September 1982, and March 1992 to current year. October 1982 to September 1987, annual maximums.

Water-quality records.--Chemical analyses: November 1967 to September 1981.

GAGE.--Water-stage recorder. Datum of gage is 1,166.03 ft above National Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. There are four small diversions for irrigation above station. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 07307800.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1890, 24 ft in 1891. The flood in September 1936 reached a stage of 23.5 ft, and the flood of June 2, 1957, reached a stage of 22.0 ft, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft³/s.

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 21	1900	3,540	12.61	Mar. 30	0500	3,220	12.39

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.9	10	68	46	85	250	e125	218	89	57	7.9	32
2	6.6	9.5	63	49	81	359	e95	1180	83	54	8.1	8.4
3	6.2	9.7	59	57	79	214	e90	795	79	51	36	11
4	6.3	8.3	53	61	77	172	e93	358	66	48	20	4.5
5	6.0	8.2	50	77	76	151	e90	250	62	46	13	2.2
6	5.6	8.2	51	90	75	137	e88	229	63	45	30	1.8
7	3.8	9.2	49	88	74	130	e86	e197	73	41	28	1.6
8	3.0	11	48	82	72	129	e85	e175	73	39	22	3.4
9	3.8	14	129	80	71	122	e83	e167	60	35	15	2.5
10	3.2	101	115	76	120	115	e81	e160	66	32	10	2.0
11	3.2	584	82	79	131	109	e79	e151	79	30	12	1.5
12	3.9	105	72	86	110	103	e77	267	94	31	7.8	1.6
13	4.6	60	104	86	99	100	e75	289	77	34	4.9	2.5
14	3.8	49	622	82	90	99	e212	213	63	233	3.8	2.3
15	3.6	50	301	75	877	94	e293	186	58	872	3.2	2.2
16	3.1	49	140	75	831	91	e219	162	53	517	2.5	1.3
17	3.2	46	109	80	293	86	e157	141	49	234	2.2	1.3
18	3.6	54	97	79	199	86	e143	151	48	121	1.9	1.2
19	4.1	109	86	88	187	88	136	244	46	84	1.6	1.3
20	5.3	65	84	133	175	89	108	157	139	64	1.5	1.1
21	6.3	1740	82	143	155	91	86	128	213	53	1.6	1.1
22	6.8	1500	76	138	141	90	83	115	86	49	1.7	.88
23	7.4	562	70	124	137	90	82	104	58	41	1.9	1.0
24	9.2	301	62	122	130	89	76	344	52	33	1.5	.97
25	9.6	218	60	119	128	89	65	374	731	26	1.2	.90
26	8.8	141	57	107	119	85	65	198	544	20	1.0	.80
27	8.8	113	56	101	110	83	53	133	116	14	.97	.63
28	9.9	97	55	95	107	84	54	112	82	12	1.1	.52
29	8.7	85	56	89	---	213	230	102	71	11	.95	.45
30	7.4	75	57	87	---	e2100	427	176	62	10	2.0	.36
31	11	---	48	86	---	e478	---	130	---	8.4	56	---
TOTAL	182.7	6192.1	3061	2780	4829	6216	3636	7606	3435	2945.4	301.32	93.31
MEAN	5.89	206	98.7	89.7	172	201	121	245	114	95.0	9.72	3.11
MAX	11	1740	622	143	877	2100	427	1180	731	872	56	32
MIN	3.0	8.2	48	46	71	83	53	102	46	8.4	.95	.36
AC-FT	362	12280	6070	5510	9580	12330	7210	15090	6810	5840	598	185

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1993, BY WATER YEAR (WY)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	
MEAN	120	41.2	19.3	23.0	28.2	48.1	81.7	225	317	122	73.3	205																						
MAX	1057	206	98.7	116	172	269	359	777	1041	1185	395	895																						
(WY)	1961	1963	1993	1973	1993	1973	1973	1977	1979	1975	1979	1965																						
MIN	.000	.000	.000	.000	.000	.000	.000	6.12	20.7	.000	.000	.20																						
(WY)	1964	1971	1971	1971	1971	1971	1971	1961	1970	1964	1980	1980																						

SUMMARY STATISTICS

FOR 1993 WATER YEAR

WATER YEARS 1961 - 1993

ANNUAL TOTAL	41277.83	
ANNUAL MEAN	113	107 e
HIGHEST ANNUAL MEAN		211
LOWEST ANNUAL MEAN		12.6
HIGHEST DAILY MEAN	2100	16100
LOWEST DAILY MEAN	.36	.00
ANNUAL SEVEN-DAY MINIMUM	.66	.00
INSTANTANEOUS PEAK FLOW	3540	40500
INSTANTANEOUS PEAK STAGE	12.61	20.15
INSTANTANEOUS LOW FLOW	.25	.00
ANNUAL RUNOFF (AC-FT)	81870	77430
10 PERCENT EXCEEDS	216	167
50 PERCENT EXCEEDS	75	12
90 PERCENT EXCEEDS	2.3	.00

e See PERIOD OF RECORD paragraph in manuscript.

RED RIVER BASIN

57

07308500 RED RIVER NEAR BURKBURNETT, TX

LOCATION.--Lat 34°06'36", long 98°31'53", Cotton County, Okla., Hydrologic Unit 11130102, on left bank at downstream side of bridge on U.S. Highways 277 and 281, 2.5 mi northeast of Burkburnett, and at mile 933.

DRAINAGE AREA.--20,570 mi², of which 5,936 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1924 to August 1925 (monthly discharge only), December 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 952.57 ft above National Geodetic Vertical Datum of 1929. July 11, 1924, to Aug. 31, 1925, nonrecording gage at site 1,000 ft downstream at same datum. Dec. 16, 1959, to Jan. 11, 1960, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Records fair. There are many small diversions upstream from station for irrigation, but total amounts are unknown.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 3, 1957, reached a stage of 13.54 ft, from levels to floodmarks. According to local residents, higher stages occurred in 1891 and June 1941.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 9,000 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	1400	17,100	9.46	May 1	0200	10,300	8.54
Dec. 15	0400	12,700	8.99	May 3	0200	19,500	9.39
Feb. 16	0300	12,500	8.97	May 12	1230	55,000	11.57
Mar. 30	1600	19,600	9.72	July 10	0530	9,960	7.83
Apr. 29	1500	13,000	8.82	July 17	0600	11,600	8.09

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	245	245	1500	1490	1120	3760	3280	8500	3120	912	483	470
2	252	249	1310	1380	1130	4760	2660	9790	2320	889	506	827
3	251	245	1170	1270	1110	2940	2490	15100	2100	745	588	790
4	248	249	998	1190	1070	2300	2540	9630	1950	672	796	615
5	247	254	912	1440	1010	2440	1920	4800	1890	620	2160	742
6	250	256	880	1810	977	2620	1710	3610	1740	676	5750	581
7	242	252	919	1870	967	2380	2180	2800	1710	626	2780	437
8	237	268	897	1600	970	2190	1880	2630	1790	587	1730	392
9	225	279	1110	1520	974	2200	1560	17700	3310	1310	1230	392
10	218	289	1860	1420	1020	2130	1370	40200	1780	8370	1020	403
11	212	2230	2550	1500	1080	2040	1050	41600	1550	3720	850	564
12	217	3100	2170	1990	1500	1940	940	51100	1370	2590	712	675
13	220	1500	1930	1830	1670	1900	965	26200	1310	2070	618	528
14	213	911	4920	1640	1550	1830	3250	6440	1280	1790	611	524
15	203	786	10200	1520	5650	1790	6620	3530	1060	2200	599	416
16	189	632	5830	1430	11000	1770	4990	2570	904	5190	610	409
17	189	440	3710	1410	5330	1600	4330	2070	715	8280	611	385
18	195	383	2480	1340	3190	1500	2620	1760	633	3790	603	357
19	205	3740	1960	1300	2170	1510	2470	3160	576	2470	571	303
20	224	2790	1710	1740	1810	1520	2060	2510	623	1670	537	290
21	232	1410	1710	1860	1740	1580	1800	1850	3730	1300	520	284
22	251	13900	1800	2230	1860	1740	1680	1480	2950	1070	494	248
23	250	14000	1760	2480	1870	2400	1520	1500	1800	939	461	225
24	254	6130	1620	2220	1970	2530	1320	1550	1260	838	477	213
25	252	5230	1560	1810	2620	2760	1070	3380	993	761	451	195
26	246	7930	1590	1590	2630	3110	948	4890	3740	737	581	183
27	246	4980	2780	1500	2250	2880	843	3460	4170	689	482	257
28	257	3400	1630	1420	2180	2630	937	3030	2670	610	440	304
29	240	2670	1660	1280	---	2650	8350	2380	1440	564	421	240
30	244	1980	1730	1230	---	13500	8680	2010	962	548	402	203
31	258	---	1620	1170	---	6800	---	2580	---	508	415	---
TOTAL	7212	80728	68476	49480	62418	87700	78033	283810	55446	57741	28509	12452
MEAN	233	2691	2209	1596	2229	2829	2601	9155	1848	1863	920	415
MAX	258	14000	10200	2480	11000	13500	8680	51100	4170	8370	5750	827
MIN	189	245	880	1170	967	1500	843	1480	576	508	402	183
AC-FT	14310	160100	135800	98140	123800	174000	154800	562900	110000	114500	56550	24700

RED RIVER BASIN

07308500 RED RIVER NEAR BURKBURNETT, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1993, BY WATER YEAR (WY)

MEAN	1667	692	526	454	522	716	829	2385	3091	817	544	1213
MAX	14900	4960	4435	2040	3024	3552	5987	12470	13480	5947	2107	4244
(WY)	1987	1987	1992	1992	1987	1987	1973	1977	1991	1975	1979	1965
MIN	21.9	.96	2.98	5.53	8.37	7.97	.15	11.4	148	.058	1.29	32.2
(WY)	1971	1971	1971	1971	1971	1971	1971	1971	1970	1970	1964	1983

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1961 - 1993	
ANNUAL TOTAL	631616		872005		1122	
ANNUAL MEAN	1726		2389		4424	
HIGHEST ANNUAL MEAN					178	
LOWEST ANNUAL MEAN					121000	
HIGHEST DAILY MEAN	23000	Jun 8	51100	May 12		Oct 22 1983
LOWEST DAILY MEAN	189	Oct 16	183	Sep 26	.00	Jul 19 1964
ANNUAL SEVEN-DAY MINIMUM	202	Oct 13	202	Oct 13	.00	Jul 19 1964
INSTANTANEOUS PEAK FLOW			55000	May 12	166000	Oct 21 1983
INSTANTANEOUS PEAK STAGE			11.57	May 12	16.90	Oct 21 1983
INSTANTANEOUS LOW FLOW			169	Sep 26	.00	Jul 19 1964
ANNUAL RUNOFF (AC-FT)	1253000		1730000		813000	
10 PERCENT EXCEEDS	3530		4230		2220	
50 PERCENT EXCEEDS	1190		1500		278	
90 PERCENT EXCEEDS	251		251		47	

07308500 RED RIVER NEAR BURKBURNETT, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: May 1968 to September 1974. Chemical and biochemical analyses: October 1974 to current year. Pesticide analyses: October 1973 to September 1982.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1968 to September 1981.

WATER TEMPERATURE: July 1968 to September 1981.

INSTRUMENTATION.--From December 1968 to September 1979, specific conductance was continuously recorded at this station.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 17,400 microsiemens July 30, 1972; minimum daily, 889 microsiemens Sept. 24, 1970.

WATER TEMPERATURE: Maximum daily, 35.5°C June 29, 1980; minimum daily, 0.0°C on many days during winter months.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)	
NOV 18...	0930	336	5600	8.4	15.0	35	9.7	101	1.5	>600	870	1100	
MAR 17...	0915	1580	5890	8.2	8.0	36	13.5	119	1.0	K16	K34	1300	
MAY 12...	1010	54500	1060	8.0	17.0	1100	8.7	93	1.6	2000	3000	270	
JUL 21...	0920	1320	4090	8.3	27.0	270	9.6	126	0.8	74	400	1000	
AUG 05...	0920	2530	4680	7.8	26.0	160	8.0	103	3.5	K280	4500	1100	
DATE		HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	CAR-BONATE WATER DIS IT FIELD (MG/L AS C03)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HC03)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CAC03)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
NOV 18...	970	300	94	830	11	1.9	12	187	173	170	970	1300	
MAR 17...	1100	310	120	830	10	7.9	0	250	205	200	1100	1200	
MAY 12...	180	78	19	99	3	6.1	0	119	98	97	200	150	
JUL 21...	870	290	67	540	7	8.3	0	158	130	130	810	820	
AUG 05...	970	270	93	660	9	8.0	0	108	88	89	950	920	
DATE		FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)
NOV 18...	0.60	7.7	3310	3620	0.860	0.870	0.030	0.040	0.910	0.910	0.030	0.020	
MAR 17...	0.40	8.9	3980	3710	1.29	1.29	--	0.010	1.30	1.30	--	0.020	
MAY 12...	0.30	9.2	662	622	0.220	--	--	<0.010	0.220	0.220	--	0.080	
JUL 21...	0.40	12	2770	2630	0.850	--	--	<0.010	0.850	0.850	--	0.030	
AUG 05...	0.40	8.4	3200	2970	--	--	--	<0.010	--	<0.050	--	0.040	
DATE		NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	
NOV 18...	0.87	0.90	0.150	0.020	0.020	0.050	0.06	105	95		76	20	
MAR 17...	0.68	0.70	0.080	<0.010	<0.010	--	--	362	1540		28	<10	
MAY 12...	0.32	0.40	0.050	0.040	0.030	--	0.09	38400	5650000		5	40	
JUL 21...	1.3	1.3	0.480	0.070	0.040	--	0.12	363	1290		97	--	
AUG 05...	1.6	1.6	0.240	0.020	<0.010	--	--	506	3460		99	<10	

RED RIVER BASIN

07308500 RED RIVER NEAR BURKBURNETT, TX--Continued

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

DATE	BARIUM, DIS- SOLVED (UG/L AS BA)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
NOV 18...	100	<1	<10	60	10	3	2	4	<1.0	4000	38
MAR 17...	200	<1	40	80	20	3	<1	<1	<1.0	4300	37
MAY 12...	140	<3	21	13	7	<10	2	<1	<1.0	760	<6
JUL 21...	--	--	--	--	--	--	--	--	--	--	--
AUG 05...	200	<1	<10	60	10	2	<1	4	<1.0	3600	30

07311669 TRUSCOTT BRINE LAKE NEAR TRUSCOTT, TX

LOCATION.--Lat 33°47'52", long 99°50'11", Knox County, Hydrologic Unit 11130204, in gage house on top and near center of dam on Bluff Creek, 3.0 mi northeast of Truscott, and 3.6 mi upstream from mouth.

DRAINAGE AREA.--26.2 mi².

PERIOD OF RECORD.--October 1984 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers benchmark).

REMARKS.--The lake is formed by a rolled-filled earthen structure with a 2-foot thick blanket of soil cement normal to the upstream slope. The dam is 16,080 ft long with a maximum height of 107 ft above the streambed. The uncontrolled spillway is a saddle-type sodded spillway on right end of dam 1,000 ft wide. Elevation-spillway discharge points furnished by U.S. Army Corps of Engineers show a discharge of 13,200 and 35,400 ft³/s at elevations of 1,502.00 and 1,508.00 ft, respectively. The lake is operated and maintained by the U.S. Army Corps of Engineers for the purpose of storage and evaporation of water pumped from the South and Middle Wichita Rivers as part of Red River Chloride project. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	1,512.5	-
Crest of spillway.....	1,499.0	107,000

COOPERATION.--The area and capacity tables 1-A and 1-C are provided by the U.S. Army Corps of Engineers, Tulsa District.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 37,080 acre-ft June 20, 1993 (elevation, 1,469.26 ft); minimum, 1,190 acre-ft Oct. 18, 19, 1984 (elevation, 1,429.47 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 37,080 acre-ft June 20 at 2200 hours (elevation, 1,469.26 ft); minimum, 31,690 acre-ft Nov. 7 (elevation, 1,466.00 ft).

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

1,466.0	31,690	1,469.0	36,630
1,467.0	33,290	1,470.0	38,360
1,468.0	34,990		

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32270	31890	32380	32490	32990	34350	35010	35750	36720	e36440	36170	36160
2	32280	31870	32350	32500	32990	34400	34980	35770	36720	36360	36160	36170
3	32270	31870	32330	32540	33020	34430	34970	35780	36660	36190	36280	36140
4	32230	31830	32310	32550	33030	34410	35020	35750	36660	36170	36280	36140
5	32220	31750	32300	32590	33030	34380	34990	35730	36660	36280	36260	36110
6	32230	31720	32300	32600	33050	34410	35040	35730	36660	36140	36220	36090
7	32140	31690	32280	32650	33070	34460	35090	35820	36650	36170	36210	36090
8	32070	31710	32330	32650	33080	34430	35080	35950	36650	36170	36180	36090
9	32100	31750	32380	32680	33130	34460	35040	36430	36650	36170	36170	36070
10	32070	31850	32380	32680	33210	34430	35090	36430	36750	36170	36140	36070
11	32040	31820	32350	32690	33230	34380	35080	36430	36890	36160	36110	36040
12	32030	31820	32380	32730	33240	34360	34990	36460	36870	36170	36090	36000
13	31950	31830	32410	32700	33270	34360	35090	36440	36920	36530	36060	36070
14	32060	31850	32440	32730	33410	34380	35210	36430	36910	36610	36020	36000
15	32040	31880	32460	32750	33810	34380	35240	36460	36890	36610	35990	35950
16	31990	31910	32470	32780	33850	34480	35240	36440	36870	36580	35950	35920
17	31980	31950	32490	32760	33830	34460	35280	36390	36890	36600	35940	35920
18	31950	31980	32510	32780	33830	34490	35300	36360	36850	36610	35900	35870
19	31880	31980	32520	32880	33850	34540	35330	36360	36910	36600	35890	35950
20	31950	32030	32540	32940	33950	34560	35260	36340	37080	36560	35850	35920
21	31950	32350	32550	32910	34000	34580	35260	36360	e37030	36510	35820	35890
22	31950	32390	32540	32910	34000	34630	35260	36340	e36940	36510	35750	35920
23	31990	32460	32520	32910	34000	34640	35250	36840	e36850	36480	35730	35900
24	32040	32440	32500	32920	34000	34680	35240	36840	e36800	36410	36220	35850
25	31950	32380	32490	32920	34050	34680	35240	36800	e36730	36430	36330	35890
26	31980	32350	32490	32940	34030	34690	35230	36770	e36660	36340	36310	35870
27	31930	32360	32480	32940	34050	34690	35210	36770	e36630	36310	36280	35730
28	32030	32380	32510	32910	34130	34690	35670	36680	e36600	36290	36280	35750
29	31980	32390	32480	32910	---	35020	35720	36680	e36530	36280	36210	35770
30	31960	32380	32470	32910	---	35020	35680	36720	e36460	36240	36190	35720
31	31910	---	32520	32940	---	35020	---	36720	---	36210	36170	---
MAX	32280	32460	32550	32940	34130	35020	35720	36840	37080	36610	36330	36170
MIN	31880	31690	32280	32490	32990	34350	34970	35730	36460	36140	35730	35720
(†)	1466.14	1466.43	1466.52	1466.78	1467.51	1468.05	1468.44	1469.05	1468.90	1468.75	1468.73	1468.40
(Φ)	-390	+470	+140	+420	+1190	+890	+660	+1040	-260	-250	-40	-450

CAL YR 1992 MAX 33230 MIN 24540 (Φ) +7990
WTR YR 1993 MAX 37080 MIN 31690 (Φ) +3420

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

e Estimated

07311700 NORTH WICHITA RIVER NEAR TRUSCOTT, TX

LOCATION.--Lat 33°49'14", long 99°47'10", Foard-Knox County line, Hydrologic Unit 11130204, near right bank at downstream side of bridge on State Highway 6, 4.5 mi north of Truscott, about 47.6 mi upstream from confluence with South Wichita River, and 188.4 mi upstream from mouth.

DRAINAGE AREA.--937 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1952-57 (occasional low-flow measurements), December 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,351.78 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 2, 1960, nonrecording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. There is one small diversion for irrigation upstream from station. Gage-height telemeter (DCP) at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900 occurred in September 1919; the next highest flood occurred in May 1954, from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 10	1100	2,820	15.92	Aug. 25	0300	1,650	13.46

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	32	37	35	34	194	46	99	40	22	20	37
2	30	31	36	36	34	156	41	124	36	21	21	36
3	30	30	36	37	35	83	42	93	35	20	82	35
4	29	31	36	36	35	63	73	78	33	19	82	36
5	28	31	36	34	35	54	48	57	32	18	48	30
6	28	32	37	34	34	50	49	48	34	18	37	28
7	29	35	38	35	35	50	46	42	33	17	35	26
8	28	36	38	35	35	48	38	47	32	17	34	54
9	29	36	47	37	36	46	37	1560	34	17	31	41
10	27	37	43	37	58	45	37	2060	44	17	27	31
11	28	38	39	36	68	45	37	342	351	17	24	25
12	27	38	37	35	49	40	37	156	83	18	22	23
13	29	38	39	35	43	39	36	103	56	110	20	25
14	28	37	52	34	43	40	107	78	40	461	19	34
15	27	38	52	34	613	40	111	66	36	121	19	30
16	27	38	44	e34	382	40	76	59	32	71	18	25
17	27	38	41	e32	152	40	59	54	31	49	17	24
18	29	42	40	e32	88	40	49	93	33	38	16	24
19	31	60	39	e38	72	41	42	96	33	34	16	24
20	33	57	37	e54	e60	41	38	57	288	31	16	24
21	32	545	37	52	e51	41	37	47	65	29	15	23
22	32	383	36	e45	47	41	37	45	52	28	15	23
23	32	167	36	e41	43	41	36	127	45	27	15	22
24	32	79	36	e37	42	42	36	230	40	24	247	21
25	32	57	36	35	42	41	35	68	36	23	834	22
26	30	46	36	35	40	41	35	56	34	22	193	22
27	29	42	35	35	40	40	34	48	33	20	79	21
28	30	40	36	35	41	41	44	42	29	20	52	21
29	30	38	35	34	---	70	210	42	26	20	41	20
30	32	38	36	33	---	160	139	107	23	20	37	21
31	32	---	35	34	---	70	---	57	---	20	37	---
TOTAL	917	2190	1198	1136	2287	1823	1692	6181	1719	1389	2169	828
MEAN	29.6	73.0	38.6	36.6	81.7	58.8	56.4	199	57.3	44.8	70.0	27.6
MAX	33	545	52	54	613	194	210	2060	351	461	834	54
MIN	27	30	35	32	34	39	34	42	23	17	15	20
AC-FT	1820	4340	2380	2250	4540	3620	3360	12260	3410	2760	4300	1640
IN.	.04	.09	.05	.05	.09	.07	.07	.25	.07	.06	.09	.03

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1993, BY WATER YEAR (WY)

	115	30.0	25.7	24.4	28.5	32.3	47.2	113	147	43.3	74.6	115
MAX	1170	73.0	120	68.5	149	102	275	771	730	317	1266	818
(WY)	1984	1993	1992	1992	1992	1990	1990	1987	1992	1975	1966	1965
MIN	3.90	10.4	11.8	8.23	6.16	5.49	7.61	16.4	11.9	.72	1.17	3.51
(WY)	1964	1968	1964	1965	1965	1965	1964	1965	1970	1964	1964	1968

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1961 - 1993

ANNUAL TOTAL	46401	23529	66.5
ANNUAL MEAN	127	64.5	193
HIGHEST ANNUAL MEAN			17.2
LOWEST ANNUAL MEAN			1983
HIGHEST DAILY MEAN	4370	2060	19400
LOWEST DAILY MEAN	27	15	.02
ANNUAL SEVEN-DAY MINIMUM	28	16	.13
INSTANTANEOUS PEAK FLOW		2820	28900
INSTANTANEOUS PEAK STAGE		15.92	21.96
INSTANTANEOUS LOW FLOW		15	.01
ANNUAL RUNOFF (AC-FT)	92040	46670	48180
ANNUAL RUNOFF (INCHES)	1.84	.93	.96
10 PERCENT EXCEEDS	143	83	66
50 PERCENT EXCEEDS	52	37	19
90 PERCENT EXCEEDS	30	22	7.3

RED RIVER BASIN

63

07311/00 NORTH WICHITA RIVER NEAR TRUSCOTT, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: February 1954 to March 1959, July 1968 to December 1989, September 1990 to June 1992. Sediment analyses: April 1978 to December 1989. Chemical and biochemical analyses: September 1990 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1968 to December 1989, September 1990 to June 1992.

WATER TEMPERATURE: July 1968 to December 1989, September 1990 to June 1992.

INSTRUMENTATION.--From August 1968 to December 1989, September 1990 to September 1991, specific conductance was recorded continuously at this station. From June 1982 to December 1989, September 1990 to September 1991, water temperature was recorded continuously at this station.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 35,800 microsiemens Oct. 9, 1982; minimum, 400 microsiemens June 7, 8, 1985.

WATER TEMPERATURE: Maximum, 39.0°C Aug. 21, 23, 1969, Aug. 22, 1973; minimum, 0.0°C on many days during winter months.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	
NOV 13...	1220	38	14100	8.1	10.5	12.3	120	2400	2200	670	170	2400	
JAN 15...	1140	34	13200	7.9	5.0	13.5	116	2400	2200	670	170	2100	
MAR 19...	1150	41	12200	8.1	11.0	12.2	121	2000	1900	500	190	1900	
MAY 07...	1055	42	11100	8.0	23.5	9.1	117	2000	1900	540	160	1900	
JUL 22...	1225	53	12800	8.0	30.0	8.1	117	2500	2400	700	180	2100	
AUG 17...	1040	17	16700	7.9	27.5	8.5	118	2400	2400	700	170	2600	
DATE		SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)
NOV 13...	21	1.2	140	2200	3600	1.1	5.5	9130	0.770	--	0.030	--	
JAN 15...	19	12	170	2100	3300	0.70	8.0	8470	1.48	1.48	--	0.020	
MAR 19...	18	13	150	2200	3000	0.60	3.7	7900	0.690	--	--	<0.010	
MAY 07...	18	12	150	2000	2700	0.90	3.8	7410	--	--	--	<0.010	
JUL 22...	18	11	100	2200	3000	0.50	4.1	8260	--	--	--	<0.010	
AUG 17...	23	13	87	2400	4200	<0.10	2.1	10100	--	--	--	<0.010	
DATE		NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P)	ARSENIC DIS-SOLVED (UG/L AS AS)
NOV 13...	0.800	--	0.100	--	--	--	<0.20	<0.010	--	--	<0.010	--	1
JAN 15...	1.50	1.50	--	0.040	--	<0.20	--	--	0.070	<0.010	--	--	--
MAR 19...	0.690	0.690	--	0.040	--	<0.20	--	--	<0.010	<0.010	--	--	--
MAY 07...	--	<0.050	--	0.040	0.16	0.20	--	--	<0.010	<0.010	--	--	--
JUL 22...	--	<0.050	--	0.120	0.38	0.50	--	--	<0.010	<0.010	--	--	4
AUG 17...	--	<0.050	--	0.120	--	<0.20	--	--	<0.010	<0.010	--	--	--

RED RIVER BASIN

07311700 NORTH WICHITA RIVER NEAR TRUSCOTT, TX--Continued

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

[illegible]

RED RIVER BASIN

65

07311782 SOUTH WICHITA RIVER AT LOW FLOW DAM NEAR GUTHRIE, TX

LOCATION.--Lat 33°37'19", long 100°12'31", King County, Hydrologic Unit 11130205, on right bank 1.0 mi downstream from ranch road crossing, 2.9 mi upstream from Willow Creek, 6.6 mi east of Guthrie, and 91.5 mi upstream from confluence with North Wichita River.

DRAINAGE AREA.--223 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1984 to September 1985, May 1987 to current year (discharge to 07311669 Truscott Brine Lake near Truscott).

GAGE.--Water-stage recorder. Datum of gage is 1,590.0 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Discharge represents flow diverted by pumping from South Wichita River at Low Flow dam near Guthrie (station 07311782) via pipeline to Truscott Brine Lake near Truscott (station 07311669). Flow is determined from digital recorder monitoring flowmeter in pipeline. From May 1987 to current year, specific conductivity and discharge values collected at this station have been used for computation of water quality loads for station 07311669. Gage-height telemeter at station.

COOPERATION.--Flow data furnished by the U.S. Army Corps of Engineers, Tulsa District.

PEAK DISCHARGES FOR CURRENT YEAR.--Not determined.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.4	6.3	.00	5.1	7.1	9.3	4.5	9.1	7.8	6.3	5.4	6.8
2	7.3	7.6	.00	5.5	7.5	9.8	4.1	5.6	6.1	6.2	4.7	5.9
3	5.7	6.1	.00	5.6	8.2	9.5	6.2	7.9	6.1	5.3	5.1	5.8
4	7.4	7.6	.00	7.7	7.3	.00	6.2	9.4	6.0	5.8	4.6	5.8
5	5.7	6.1	.00	6.4	6.3	3.3	8.2	6.1	6.1	5.5	5.3	5.8
6	7.6	7.7	.00	8.2	6.1	9.8	9.5	6.0	6.0	5.5	5.9	2.2
7	6.6	6.1	.00	9.8	7.0	9.8	8.7	6.0	5.4	4.5	5.9	3.2
8	6.5	7.9	.00	8.7	8.9	7.3	7.5	5.9	4.1	5.3	5.9	3.9
9	5.5	7.1	.00	7.7	6.1	6.2	6.2	4.6	6.0	5.7	5.9	5.9
10	7.3	6.7	.00	8.4	4.6	9.7	6.1	4.9	5.5	4.7	4.6	5.8
11	7.1	8.1	.00	6.6	9.8	9.0	6.1	9.8	.00	4.9	5.8	5.8
12	6.0	6.3	.00	8.9	9.8	7.8	4.2	8.6	5.8	5.1	5.8	5.8
13	7.2	7.7	.00	7.7	9.8	8.4	2.4	6.0	8.7	3.9	5.8	4.4
14	6.3	6.9	4.1	5.4	7.0	7.1	9.6	6.0	6.6	8.0	5.8	2.2
15	6.4	7.0	9.8	9.8	9.8	7.7	10	6.0	6.5	7.1	5.8	3.9
16	7.2	7.9	9.8	7.6	9.7	8.4	8.9	6.0	8.7	5.8	5.1	5.8
17	6.9	6.1	8.7	7.1	9.8	7.0	10	1.5	8.6	5.7	5.8	7.9
18	6.5	8.1	8.1	7.8	9.8	8.6	10	5.5	6.1	5.8	5.8	7.6
19	5.8	9.4	7.8	7.5	9.7	8.2	9.9	9.6	6.3	5.8	5.8	5.2
20	4.4	7.9	7.3	3.2	9.7	9.4	6.1	6.1	6.3	5.8	3.7	5.4
21	5.8	9.5	.00	.00	9.7	7.1	6.1	4.6	5.9	5.3	5.4	5.8
22	8.7	9.5	.00	.00	9.7	7.3	6.1	6.1	6.3	6.0	5.5	5.7
23	6.1	9.4	.00	5.6	9.7	6.1	6.1	5.1	6.3	5.9	5.5	5.7
24	7.8	9.4	.00	9.8	6.7	6.1	6.1	4.1	6.3	5.9	2.7	5.4
25	6.0	9.6	.00	4.9	9.7	6.0	6.1	6.2	6.6	5.8	.00	.00
26	7.8	9.3	.00	.00	7.4	8.2	6.1	.52	6.1	4.4	.00	.00
27	4.5	7.5	.00	.00	8.7	10	6.1	.00	5.7	5.6	.00	3.3
28	8.0	8.4	.00	.00	7.7	7.9	5.3	2.2	5.6	4.8	.00	5.7
29	8.2	8.0	5.0	5.9	---	6.2	4.1	9.1	5.6	5.5	.00	8.8
30	6.1	3.2	9.7	10	---	6.1	8.2	7.2	6.0	5.9	.00	5.9
31	8.1	---	8.4	7.8	---	6.1	---	6.4	---	5.4	.00	---
TOTAL	206.9	228.4	78.70	188.70	233.3	233.40	204.7	182.12	183.10	173.2	127.60	151.40
MEAN	6.67	7.61	2.54	6.09	8.33	7.53	6.82	5.87	6.10	5.59	4.12	5.05
MAX	8.7	9.6	9.8	10	9.8	10	10	9.8	8.7	8.0	5.9	8.8
MIN	4.4	3.2	.00	.00	4.6	.00	2.4	.00	.00	3.9	.00	.00
AC-FT	410	453	156	374	463	463	406	361	363	344	253	300
CAL YR 1992	TOTAL	2600.54	MEAN	7.11	MAX	12	MIN	.00	AC-FT	5160		
WTR YR 1993	TOTAL	2191.52	MEAN	6.00	MAX	10	MIN	.00	AC-FT	4350		

07311782 SOUTH WICHITA RIVER AT LOW FLOW DAM NEAR GUTHRIE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1984 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1984 to current year. October 1986 to April 1987 published under station 07311783.
WATER TEMPERATURE: October 1984 to current year. October 1986 to April 1987 published under station 07311783.

INSTRUMENTATION.--Since October 1984, specific conductance and water temperature are recorded continuously at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 41,500 microsiemens Aug. 4, 1989; minimum, 200 microsiemens July 3, 1986.
WATER TEMPERATURE: Maximum, 33.0°C Aug. 2, 7, 8, 1985; minimum, 0.0°C Dec. 23, 1989, Dec. 22, 1990.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 39,800 microsiemens July 29; minimum, 12,000 microsiemens Feb. 16.
WATER TEMPERATURE: Maximum, 32.5°C June 22, July 29, and 31; minimum 4.5°C Feb. 18.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
DEC 15...	1125	9.8	29200	8.0	3500	3300	990	240	6400
JAN 25...	1345	4.9	31300	8.0	3500	3300	1000	240	6300
DATE		SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
DEC 15...	47	32	140	2600	9700	1.5	8.3	20100	
JAN 25...	46	28	140	2600	9300	1.8	8.3	19600	
MONTH YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT. 1992	206.9	31500	21000	11800	10400	5800	2800	1570	*
NOV. 1992	228.4	28600	19000	11700	9300	5730	2600	1620	*
DEC. 1992	78.70	29200	19400	4130	9500	2020	2700	569	*
JAN. 1993	188.70	30100	20100	10200	9900	5020	2700	1390	*
FEB. 1993	233.3	26800	17700	11200	8600	5420	2500	1570	*
MAR. 1993	233.40	29000	19300	12100	9400	5930	2700	1670	*
APR. 1993	204.7	27100	18000	9920	8700	4820	2500	1390	*
MAY 1993	182.12	29800	19800	9750	9700	4780	2700	1330	*
JUNE 1993	183.10	31300	21000	10400	10400	5120	2800	1380	*
JULY 1993	173.2	36900	24900	11600	12600	5880	3100	1450	*
AUG. 1993	127.60	37800	25600	8800	12900	4460	3100	1080	*
SEPT 1993	151.55	37100	25000	10200	12700	5180	3100	1270	*
TOTAL	2191.67	**	**	122000	**	60200	**	16300	**
WTD.AVG.	6.0	30800	20600	**	10000	**	2800	**	**

RED RIVER BASIN

67

07311782 SOUTH WICHITA RIVER AT LOW FLOW DAM NEAR GUTHRIE, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	31600	31300	31400	31000	30500	30900	---	---	---	30100	29700	29900
2	31600	31000	31400	31000	30100	30800	---	---	---	30100	29800	30000
3	31500	31000	31200	31000	30600	30900	---	---	---	30200	29700	30000
4	31700	31200	31300	31100	30900	31000	---	---	---	30000	29600	29900
5	31400	31200	31300	31500	31000	31300	---	---	---	30100	29900	30000
6	31800	31100	31500	31500	31000	31200	---	---	---	31000	29800	30000
7	31700	31500	31600	31000	30600	30800	---	---	---	30100	29800	30000
8	31600	31300	31500	30800	30400	30600	---	---	---	30000	29600	29900
9	31500	31400	31400	30500	30400	30500	---	---	---	30900	29500	29800
10	31900	31400	31600	30400	30100	30300	---	---	---	30900	30100	30400
11	32000	31700	31800	30500	30200	30300	---	---	---	30800	29800	30300
12	32000	31500	31900	30600	30400	30500	---	---	---	30500	30400	30500
13	32100	31600	31800	30400	30200	30300	---	---	---	30600	30400	30500
14	31800	31600	31700	30300	30200	30300	29200	28900	29000	30500	30400	30500
15	31800	31600	31700	30600	30200	30400	29200	28900	29100	30800	30100	30300
16	31700	31300	31600	30700	30300	30500	28800	28400	28600	30600	29700	30400
17	31900	31600	31700	30600	30400	30500	30500	28300	29000	30500	30400	30500
18	31900	31500	31700	30500	27800	30100	30600	28400	29500	30600	30300	30300
19	31900	31700	31800	30200	29100	30000	28800	28400	28600	30400	29500	30000
20	31900	31700	31800	30200	29800	30100	29100	28700	28900	30500	29800	29900
21	31900	31700	31800	29800	20200	25400	---	---	---	---	---	---
22	31900	31600	31800	26900	22800	25300	---	---	---	---	---	---
23	31800	31600	31600	22800	21000	21700	---	---	---	29200	28400	29700
24	31700	31100	31300	23100	21000	21900	---	---	---	29000	28700	28900
25	31400	31200	31300	25100	23100	24000	---	---	---	30000	29000	29500
26	31400	31000	31300	26700	25200	26000	---	---	---	---	---	---
27	31300	31000	31200	27900	26700	27400	---	---	---	---	---	---
28	31200	30900	31100	28200	27900	28100	---	---	---	---	---	---
29	31400	30700	31200	28300	28000	28200	30300	29900	30100	30800	30600	30700
30	31400	31100	31200	28500	28200	28400	29900	29700	29800	30800	30600	30700
31	31200	30800	31000	---	---	---	30100	29700	30000	30900	30400	30700
MONTH	32100	30700	31500	31500	20200	28900	---	---	---	---	---	---

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	30500	30200	30300	28900	27000	27500	28200	26400	26800	29800	29000	29500
2	30500	30100	30300	27900	24400	26200	29700	26900	28400	30500	28900	29100
3	30700	30300	30500	27300	22600	23100	30600	28400	28800	29900	29000	29300
4	31100	30700	30800	---	---	---	30400	29200	29400	29900	29400	29700
5	31300	30800	31000	25800	24300	25300	30300	29500	29700	29500	29100	29300
6	31200	30800	31000	27100	25800	26600	30500	29700	30000	29500	29100	29300
7	31200	30800	30900	27700	27000	27500	30500	30200	30300	29700	29300	29500
8	31000	30800	30900	28300	27700	28100	30500	30000	30100	30300	29500	29900
9	31200	30900	31100	28700	28000	28400	30900	30000	30400	30200	27200	28200
10	31900	30700	31100	29100	28100	28800	30900	30400	30600	29700	29000	29400
11	31100	30600	31000	29600	29000	29300	31200	30400	30700	29400	26000	28100
12	31100	29200	30100	30000	29400	29800	31200	30600	30800	26100	25800	26000
13	30700	28000	28300	30400	29900	30100	31600	30700	31100	26600	26000	26200
14	29400	28000	29000	30600	30100	30300	30700	26100	29500	27100	26400	26800
15	28000	20900	24800	29800	29600	29700	26100	15100	17800	30000	27100	28000
16	21600	12000	13600	29900	29600	29700	16700	15100	15800	30000	28500	29100
17	17100	12800	14800	30500	29800	30200	19900	16700	18400	31100	28900	29400
18	20800	17100	19200	30300	29800	30100	23700	19900	21900	29900	28900	29300
19	23200	20900	22200	30400	30100	30200	25700	23700	24900	30600	29400	30000
20	24500	23200	24000	30300	29900	30000	26500	25700	26100	30500	30000	30200
21	25500	24500	25100	30400	29300	29700	27600	26400	27100	31000	30100	30300
22	26800	25500	26000	29600	29100	29500	28300	27500	28000	30800	30000	30200
23	27300	26200	27000	32000	29400	30100	28700	28200	28400	30900	30300	30600
24	27500	27300	27400	31500	29600	30100	29900	28600	29100	31100	30000	30600
25	28000	27400	27700	30600	29800	30100	29900	29100	29600	31700	30600	31000
26	29000	27700	28300	30600	30200	30500	31000	29500	29800	31500	31000	31200
27	28900	27900	28200	31500	30400	30600	30200	29900	30000	---	---	---
28	28100	27900	28000	31800	30800	31100	30200	30000	30100	33900	31100	32200
29	---	---	---	31700	25800	30300	30900	29800	29900	34500	33700	34000
30	---	---	---	29500	26000	28600	30700	29800	28900	34800	33700	34300
31	---	---	---	29400	27400	28800	---	---	---	34900	34000	34500
MONTH	31900	12000	27200	---	---	---	31600	15100	27700	---	---	---

07311782 SOUTH WICHITA RIVER AT LOW FLOW DAM NEAR GUTHRIE, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	35600	34400	35000	35400	34900	35100	38900	37900	38600	---	---	e38000
2	35200	33400	34300	35800	35100	35400	---	---	e38000	---	---	e38000
3	34000	32700	33300	36300	35300	35700	38200	37000	37900	37200	36400	36800
4	35300	33100	34000	36200	35700	35900	38100	37000	37300	37100	36500	36800
5	35100	34000	34500	36700	35900	36200	37800	36900	37300	36900	36300	36600
6	35400	34700	35000	37100	36100	36500	37600	36500	36900	37000	36300	36800
7	36800	35300	35800	37200	36500	36800	36900	36200	36600	37300	36600	37000
8	36400	35300	35600	37700	36800	37100	36800	36200	36600	37100	36500	36800
9	36400	34700	35400	37600	36900	37300	37100	36200	36600	37800	36900	37200
10	36000	34100	34500	37900	37100	37600	38200	36300	37000	38000	37200	37600
11	34100	27600	29900	38200	37200	37600	37500	36500	37000	37800	37000	37500
12	29400	19100	22200	38500	37500	37900	38200	36600	37200	---	---	e37400
13	21400	19000	19800	38200	37400	37800	38600	37300	37800	---	---	e37000
14	24400	21400	22600	37300	36900	37200	38000	37100	37700	38000	35900	36600
15	24700	21800	23500	36900	35200	36000	38400	37300	37800	37900	36300	36600
16	28900	24400	26700	36800	35500	36100	38400	37700	38000	36900	36100	36600
17	28900	27200	27800	---	---	e36500	38700	37600	38100	38200	35800	36500
18	30000	28800	29400	---	---	e36800	38900	38000	38300	36300	35600	36000
19	32400	30000	31000	---	---	e37000	39200	38200	38400	37500	35600	36500
20	32600	31400	32100	---	---	e37000	39100	38200	38600	38300	35500	35800
21	33700	32300	32900	---	---	e37000	39100	37900	38700	36800	36100	36400
22	33600	32600	33300	---	---	e37000	39600	38800	39100	38500	36400	36700
23	34600	32900	33600	---	---	e36500	39000	38700	38800	37100	36400	36800
24	35400	33400	34100	36800	35900	36300	39200	38700	38900	37100	36600	36800
25	34200	33400	33700	37100	36200	36500	---	---	---	---	---	---
26	33800	33100	33400	37700	36300	36900	---	---	---	---	---	---
27	34100	33000	33500	38000	36700	37100	---	---	---	39500	37300	38100
28	34200	33400	33700	38100	37000	37500	---	---	---	39600	38900	39200
29	34300	33800	34100	39800	37600	38400	---	---	---	39000	37100	37800
30	35500	34100	34600	39600	38000	38600	---	---	---	37700	37000	37400
31	---	---	---	39300	38200	38900	---	---	---	---	---	---
MONIH	36800	19000	31600	---	---	36900	---	---	---	---	---	---

e Estimated

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

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

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN				
		FEBRUARY			MARCH			APRIL			MAY					
1	14.0	9.5	11.5	12.5	9.0	10.5	17.5	13.5	15.5	23.0	18.5	20.5				
2	14.0	11.0	12.5	14.5	11.0	12.5	17.5	15.0	16.5	19.0	16.0	17.5				
3	12.5	11.5	12.0	15.0	11.0	13.0	18.5	15.0	16.5	22.5	16.5	19.5				
4	12.0	10.5	11.0	---	---	---	16.0	13.5	15.0	24.0	18.0	20.5				
5	11.0	10.0	10.5	15.0	11.5	12.5	16.5	14.0	15.0	24.5	21.0	22.5				
6	12.5	8.5	10.5	13.5	11.0	12.5	18.5	13.5	16.0	26.5	20.5	23.5				
7	12.5	9.0	11.0	16.0	10.5	13.0	20.0	16.0	17.5	26.0	20.5	23.5				
8	13.5	10.0	12.0	17.5	12.0	14.5	19.0	15.5	17.5	26.0	21.5	24.0				
9	14.0	11.5	12.5	18.5	14.0	16.5	20.0	14.5	17.0	23.5	21.0	22.5				
10	16.0	13.0	14.5	17.5	14.0	16.0	21.0	15.5	18.5	23.0	20.0	21.5				
11	12.5	10.0	11.5	16.0	13.5	15.0	22.0	17.0	19.5	19.5	17.5	18.5				
12	12.5	8.5	10.5	13.5	10.0	12.0	22.0	18.5	20.5	20.5	17.0	18.5				
13	14.0	9.5	11.5	12.5	8.5	10.5	24.0	19.0	21.5	24.0	17.0	21.0				
14	11.5	10.0	11.0	12.5	8.0	10.5	20.0	13.0	17.5	25.5	18.5	22.0				
15	10.5	8.0	9.5	16.0	10.5	13.0	16.5	12.0	14.0	28.5	20.5	24.5				
16	8.5	6.0	7.0	18.0	12.5	15.0	16.5	14.5	15.5	28.5	20.5	25.0				
17	6.0	5.0	5.5	15.0	12.5	14.0	21.0	15.0	17.5	27.0	20.5	24.5				
18	8.0	4.5	6.0	13.5	12.0	13.0	22.5	17.0	20.0	25.5	22.0	24.0				
19	11.0	6.5	8.5	13.5	12.5	13.0	23.5	18.5	21.0	26.0	21.0	23.5				
20	14.5	9.5	12.0	14.5	13.0	13.5	22.0	17.5	19.5	25.5	21.0	23.5				
21	14.5	11.5	13.0	14.0	12.5	13.5	22.0	16.5	19.0	26.0	21.0	23.0				
22	15.5	12.0	13.5	17.5	13.5	15.0	21.0	17.0	19.0	25.5	22.0	23.5				
23	15.0	11.5	13.0	18.5	13.5	16.0	20.0	18.0	19.0	28.5	22.0	24.5				
24	12.0	11.0	11.0	21.5	14.5	17.5	22.0	17.5	20.0	28.0	23.5	25.5				
25	13.5	10.0	11.5	20.5	16.5	18.5	23.0	18.0	20.5	27.5	23.0	24.5				
26	13.5	10.0	11.5	19.5	16.5	18.0	22.0	18.5	20.5	25.5	23.0	24.0				
27	11.0	9.5	10.5	18.0	16.0	17.0	21.0	19.0	20.0	---	---	---				
28	10.0	9.5	10.0	20.0	15.5	17.5	22.0	19.0	21.0	28.0	24.0	25.0				
29	---	---	---	20.0	16.0	18.0	23.0	19.5	21.5	28.0	23.5	25.5				
30	---	---	---	18.5	14.5	17.0	23.0	19.5	21.0	29.5	23.0	26.0				
31	---	---	---	18.0	14.5	16.5	---	---	---	29.0	24.5	26.5				
MONTH	16.0	4.5	11.0	21.5	8.0	14.5	24.0	12.0	18.5	29.5	16.0	23.0				
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN				
		JUNE				JULY				AUGUST				SEPTEMBER		
1	27.5	23.5	25.0	29.0	26.0	27.5	30.5	27.0	28.0	24.0	22.5	23.0				
2	30.0	23.5	26.0	29.5	25.5	27.0	29.0	25.5	27.5	26.5	22.5	24.0				
3	29.5	23.5	26.5	28.5	25.0	26.5	27.0	24.5	26.0	27.5	23.0	25.0				
4	28.5	23.0	25.5	28.5	25.0	26.5	27.5	24.0	25.5	27.5	22.5	25.0				
5	26.0	22.5	24.5	29.5	24.5	27.0	29.5	24.5	26.5	27.0	22.5	25.0				
6	27.0	23.5	25.0	30.0	25.0	27.5	27.5	25.0	25.5	26.0	23.0	24.0				
7	28.0	24.0	25.5	29.5	25.5	27.0	27.5	24.0	25.5	26.5	24.0	25.5				
8	29.0	24.0	26.0	29.5	25.0	27.0	29.5	24.5	26.5	26.0	23.5	24.5				
9	27.0	22.0	23.5	29.0	24.5	27.0	30.5	25.0	27.5	26.0	22.0	24.0				
10	28.5	21.5	24.0	29.0	24.5	26.5	31.5	25.5	28.0	26.5	22.5	25.0				
11	---	---	---	30.5	25.0	27.5	31.5	26.0	28.5	26.5	23.0	24.5				
12	29.5	24.5	26.5	29.5	26.5	28.0	31.5	26.0	28.5	25.5	23.5	24.5				
13	29.5	25.0	27.0	30.0	26.0	28.0	31.0	26.0	28.5	24.5	23.0	24.0				
14	31.0	25.0	27.0	28.0	25.0	27.0	30.0	25.5	27.5	24.5	19.5	21.5				
15	29.5	26.0	27.0	30.5	25.5	27.5	30.0	25.0	27.5	22.5	19.0	21.0				
16	29.0	25.5	27.0	30.5	24.5	27.5	29.5	25.5	27.0	22.5	18.5	20.5				
17	27.5	25.0	26.0	31.5	25.5	28.5	29.5	25.0	27.0	24.0	20.0	22.0				
18	27.5	24.5	26.0	31.0	26.0	28.5	29.5	25.5	27.0	24.5	21.0	22.5				
19	29.0	24.0	26.5	31.5	26.5	29.0	29.0	25.0	27.0	27.0	22.0	24.5				
20	30.5	25.0	27.5	30.5	26.0	28.0	28.5	25.0	26.5	27.0	23.0	25.0				
21	31.5	25.5	28.0	30.5	26.0	28.0	30.0	24.5	27.0	27.0	24.0	25.5				
22	32.5	25.5	28.5	31.0	26.0	28.0	29.0	25.0	26.5	27.5	24.0	25.5				
23	31.0	26.0	28.5	31.0	26.5	28.5	28.0	25.0	26.0	27.5	24.5	26.0				
24	30.5	26.0	28.0	31.5	26.5	29.0	30.0	25.0	27.0	27.5	24.5	26.0				
25	32.0	26.5	28.5	32.0	26.5	29.0	---	---	---	---	---	---				
26	29.5	25.5	27.5	31.0	27.0	28.5	---	---	---	---	---	---				
27	31.0	25.5	28.0	31.0	25.0	27.5	---	---	---	23.5	21.5	23.0				
28	30.5	25.5	28.0	32.0	25.5	28.5	---	---	---	23.0	21.0	22.0				
29	30.5	26.0	28.0	32.5	26.5	29.0	---	---	---	23.0	20.5	22.0				
30	31.0	26.0	28.0	32.0	27.0	29.0	---	---	---	23.0	20.0	21.5				
31	---	---	---	32.5	26.5	29.0	---	---	---	---	---	---				
MONTH	32.5	21.5	26.5	32.5	24.5	28.0	31.5	24.0	27.0	27.5	18.5	24.0				
YEAR	32.5	4.5	19.0													

07311783 SOUTH WICHITA RIVER BELOW DAM NEAR GUTHRIE, TX

LOCATION.--Lat 33°37'19", Long 100°12'31", King County, Hydrologic Unit 11130205, on right bank 1.1 mi downstream from ranch road crossing, 2.8 mi upstream from Willow Creek, 6.6 mi east of Guthrie, and 91.4 mi upstream from confluence with North Wichita River.

DRAINAGE AREA.--223 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1985 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,590.0 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Diversions from station 07311782 via pipeline to station 07311669 began in May 1987. Specific conductance and water temperature for October 1986 to April 1987 were collected at station 07311782, but are published at this station and are used for computation of water quality loads at this station. Mini-monitor was installed at this station in May 1987, and specific conductivity values for this probe are used to compute water quality loads since that time. Continuous temperature and specific conductance records were discontinued September 30, 1989. Gage-height telemeter (DCP) at station via Sutron data collection platform.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1950, 20.8 ft in May 1954, at station 07311780 located about 1.1 mi upstream.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.05	.05	6.2	.13	.05	.38	1.9	.05	.06	.04	.04	.03
2	.05	.08	6.5	1.0	.09	5.6	3.8	.04	.06	.03	.03	.03
3	.05	.06	6.5	1.6	.13	.42	.79	.05	.05	.03	.07	.04
4	.06	.06	6.4	.74	.13	13	.47	.06	.05	.03	.03	.04
5	.06	.06	6.2	.56	.13	9.9	.22	.06	.05	.03	.03	.05
6	.07	.09	6.1	.06	.13	.07	.05	.06	.04	.03	.03	.04
7	.05	.07	6.2	.09	.14	.09	.05	.07	.04	.02	.03	1.3
8	.06	.12	6.4	.13	.25	.13	.05	.07	.05	.02	.04	1.4
9	.06	.20	7.0	.09	.25	.61	.05	2.4	.04	.02	.05	.04
10	.05	.20	6.5	.06	4.3	.13	.05	8.1	.06	.02	.05	.05
11	.05	.17	6.6	.06	.26	.07	.05	.05	24	.02	.05	.04
12	.05	.14	6.6	.06	.05	.86	.05	5.7	.01	.01	.05	.04
13	.07	.18	6.5	.13	.08	.05	4.2	.05	.99	.03	.05	.04
14	.06	.16	4.5	.11	.14	.06	17	.08	1.2	.01	.05	1.8
15	.07	.16	.10	.18	33	.06	14	.14	.98	.01	.06	1.6
16	.06	.17	.13	.20	20	.09	2.0	.14	.04	.02	.05	.04
17	.06	.15	.17	.20	1.9	.07	.07	4.6	.04	.01	.05	.04
18	.09	.18	.26	.18	.16	.06	.06	2.7	.03	.01	.05	.04
19	.09	.14	.23	.14	.05	.06	.06	.06	.04	.01	.05	.04
20	.24	.17	.25	2.7	.06	.06	.05	.06	.04	.02	.05	.03
21	2.2	2.7	3.6	7.6	.06	.06	.05	.06	.04	.02	.05	.04
22	.05	6.9	6.3	7.1	.06	5.8	.06	.06	.04	.02	.05	.04
23	.05	.81	6.4	3.1	.13	.05	.06	.07	.03	.03	.05	.04
24	.05	.10	6.4	.05	.13	.06	.39	3.3	.03	.03	.20	.04
25	.05	.05	6.6	.05	.13	.05	.49	.23	.04	.03	3.3	.03
26	.05	.05	7.0	5.5	.13	.05	.47	4.5	.04	.03	4.2	2.5
27	.05	.06	7.2	6.8	.13	.05	.45	6.4	.03	.03	4.0	1.6
28	.05	.06	7.3	6.8	.13	.05	1.3	5.2	.03	.04	4.0	.04
29	.05	.08	3.6	2.9	---	.06	4.2	.06	.03	.04	4.0	.04
30	.06	.82	.17	.06	---	3.0	.33	.06	.03	.04	4.0	.04
31	.06	---	.18	.05	---	1.3	---	.05	---	.04	1.9	---
TOTAL	4.12	14.24	144.09	48.43	62.20	41.49	53.58	38.88	33.90	0.77	26.66	11.14
MEAN	.13	.47	4.65	1.56	2.22	1.34	1.79	1.25	1.13	.025	.86	.37
MAX	2.2	6.9	7.3	7.6	33	13	17	8.1	24	.04	4.2	2.5
MIN	.05	.05	.10	.05	.05	.05	.05	.04	.03	.01	.03	.03
AC-FT	8.2	28	286	96	123	82	106	77	67	1.5	53	22

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1993, BY WATER YEAR (WY)

MEAN	6.83	2.15	3.62	4.18	4.54	2.33	2.45	9.02	5.60	21.6	3.39	11.4
MAX	30.6	8.51	9.34	9.16	17.8	5.20	9.16	53.2	13.8	154	14.9	49.6
(WY)	1987	1987	1992	1990	1992	1992	1990	1987	1991	1986	1991	1991
MIN	.030	.046	.028	.073	.077	.016	.074	.043	1.13	.025	.055	.016
(WY)	1989	1988	1989	1989	1989	1991	1989	1988	1993	1993	1992	1990

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1986 - 1993

ANNUAL TOTAL	1934.71	479.50	6.45
ANNUAL MEAN	5.29	1.31	20.8
HIGHEST ANNUAL MEAN			.75
LOWEST ANNUAL MEAN			
HIGHEST DAILY MEAN	142 May 11	33 Feb 15	3520 Jul 3 1986
LOWEST DAILY MEAN	.02 Sep 24	.01 Jul 12	.00 Jan 4 1986
ANNUAL SEVEN-DAY MINIMUM	.04 Sep 24	.01 Jul 14	.01 Sep 15 1990
INSTANTANEOUS PEAK FLOW		141 Mar 22	13100 Jul 3 1986
INSTANTANEOUS PEAK STAGE		5.25 Mar 22	19.01 Jul 3 1989
INSTANTANEOUS LOW FLOW		.01 Jul 12	.00 Jan 4 1986
ANNUAL RUNOFF (AC-FT)	3840	951	4670
10 PERCENT EXCEEDS	12	5.6	8.9
50 PERCENT EXCEEDS	2.9	.06	.09
90 PERCENT EXCEEDS	.05	.03	.03

RED RIVER BASIN

71

07311790 SOUTH WICHITA RIVER AT ROSS RANCH NEAR BENJAMIN, TX

LOCATION.--Lat 33°39'18", long 100°00'49", King County, Hydrologic Unit 11130205, on left bank 170 ft (52 m) upstream from ranch road, 1.6 mi (2.6 km) downstream from Ox Yoke Creek, 13.7 mi (22.0 km) northwest of Benjamin, and 64.5 mi (103.8 km) upstream from mouth.

PERIOD OF RECORD.--Chemical analyses: August 1970 to September 1979, March 1988 to current year. Sediment analyses: April 1978 to September 1979.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1970 to September 1979.

INSTRUMENTATION.--From October 1970 to September 1979, specific conductance was continuously recorded at this station.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 51,000 microsiemens July 28, 1978; minimum, 1,500 microsiemens May 28, 1975.

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

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 01...	0835	3.6	15400	20.0	2900	2800	760	240	2600
NOV 03...	1245	3.5	14800	13.5	2800	2800	740	240	2400
JAN 25...	1640	8.3	10700	8.0	2600	2400	710	190	1700
MAR 08...	1230	16	7180	11.5	2100	2000	510	210	880
MAY 28...	1650	8.5	9470	27.0	2700	2600	700	230	1400

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
OCT 01...	21	19	74	2800	4200	1.0	<8.6	10700
NOV 03...	20	19	81	2700	3700	0.90	0.50	9850
JAN 25...	15	13	140	2200	2600	0.70	3.7	7500
MAR 08...	8	13	150	2100	1400	0.50	0.90	5200
MAY 28...	12	16	93	2100	2100	0.60	1.1	6600

RED RIVER BASIN

07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX

LOCATION.--Lat 33°38'39", long 99°48'02", Knox County, Hydrologic Unit 11130205, on right bank at upstream side of bridge on State Highway 6, 2 mi downstream from Panhandle and Santa Fe Railway Co. bridge, 4 mi north of Benjamin, and 41 mi upstream from confluence with North Wichita River.

DRAINAGE AREA.--584 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1952-57 (occasional low-flow measurements), December 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,334.23 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 2, 1960, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. There are low flow diversions upstream on the South Wichita River at Low Flow Dam near Guthrie (station 07311782) to evaporation lake (station 07311669). There were other minor diversions upstream from station during the year. Gage-height telemeter at station via Sutron data collection platform (DCP).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1903 occurred in September 1919 (stage and discharge unknown), from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Feb. 15	1000	1,640	13.56	July 14	0800	1,240	12.12

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.9	5.1	15	12	9.8	252	23	27	11	9.2	.00	26
2	3.3	3.0	13	10	8.1	123	21	29	9.0	8.3	.00	18
3	3.3	3.1	12	9.8	6.9	72	20	19	7.6	7.2	.94	15
4	3.0	3.0	18	8.7	6.3	52	19	17	6.8	6.0	7.1	12
5	2.9	3.0	20	9.0	6.4	41	18	14	6.2	5.4	3.3	9.8
6	2.9	3.0	21	11	6.0	42	18	12	5.6	4.8	.66	8.5
7	2.9	3.0	18	10	7.3	45	17	10	5.3	4.7	.00	6.6
8	2.6	3.3	18	9.4	6.5	42	15	9.3	4.8	4.7	.00	12
9	2.8	3.3	20	10	6.9	39	15	414	12	3.8	.00	13
10	2.8	3.4	19	8.7	45	34	14	45	8.7	2.9	.00	9.0
11	2.4	3.7	19	8.8	13	30	12	28	275	2.3	.00	6.6
12	2.6	3.9	18	8.8	10	31	13	28	79	1.8	.00	5.4
13	2.6	3.7	19	8.0	11	30	13	21	46	80	.00	7.3
14	2.6	3.7	28	7.5	18	29	e88	17	31	508	.00	13
15	2.6	3.6	26	7.7	1040	29	e49	15	24	29	.00	12
16	2.4	3.1	24	7.8	202	25	e38	14	20	22	.00	8.2
17	2.3	3.0	20	7.7	117	22	33	12	18	15	.00	6.9
18	2.4	3.9	17	7.5	80	23	27	13	16	11	.00	5.1
19	2.6	7.3	14	8.9	55	27	23	12	15	9.1	.00	2.4
20	2.8	5.5	13	14	46	26	18	12	19	7.6	.00	.01
21	2.8	265	12	13	36	24	16	12	16	5.7	.00	.25
22	2.9	121	11	9.9	30	25	15	9.9	15	4.6	.00	.00
23	3.0	46	11	10	28	23	15	37	14	3.5	.00	.00
24	3.0	31	11	12	28	21	14	38	12	3.0	.00	.00
25	3.3	25	16	12	29	21	12	12	11	7.0	174	16
26	3.7	21	16	10	24	19	11	13	13	3.6	55	8.7
27	3.3	19	17	8.3	23	19	11	14	17	1.3	29	4.4
28	3.3	18	16	7.5	26	19	13	12	13	.48	19	1.0
29	3.3	16	16	9.1	---	103	330	11	13	.00	9.8	.00
30	3.3	15	15	13	---	286	42	12	11	.00	4.8	.00
31	4.0	---	13	11	---	32	---	12	---	.00	11	---
TOTAL	91.6	651.6	526	301.1	1925.2	1606	973	951.2	755.0	771.98	314.60	227.16
MEAN	2.95	21.7	17.0	9.71	68.8	51.8	32.4	30.7	25.2	24.9	10.1	7.57
MAX	4.0	265	28	14	1040	286	330	414	275	508	174	26
MIN	2.3	3.0	11	7.5	6.0	19	11	9.3	4.8	.00	.00	.00
AC-FT	182	1290	1040	597	3820	3190	1930	1890	1500	1530	624	451
IN.	.01	.04	.03	.02	.12	.10	.06	.06	.05	.05	.02	.01

e Estimated

RED RIVER BASIN

73

07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1993, BY WATER YEAR (WY)

MEAN	80.1	18.4	13.1	12.5	18.3	21.5	31.5	75.1	88.6	23.1	38.0	77.5
MAX	656	65.1	77.5	60.3	172	88.7	187	256	458	162	360	502
(WY)	1984	1987	1992	1992	1992	1970	1990	1989	1990	1986	1966	1966
MIN	.17	1.14	.73	.68	1.39	.97	.073	.92	1.49	.013	.000	.034
(WY)	1980	1988	1989	1989	1989	1989	1989	1988	1976	1965	1963	1983

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1961 - 1993	
ANNUAL TOTAL	28105.5		9094.44		41.5	
ANNUAL MEAN	76.8		24.9		107	
HIGHEST ANNUAL MEAN					11.2	
LOWEST ANNUAL MEAN					8260	
HIGHEST DAILY MEAN	1860	Jun 9	1040	Feb 15		Oct 20 1983
LOWEST DAILY MEAN	2.3	Oct 17	.00	Jul 29	.00	Aug 31 1961
ANNUAL SEVEN-DAY MINIMUM	2.5	Oct 11	.00	Aug 7	.00	Aug 12 1962
INSTANTANEOUS PEAK FLOW			1640	Feb 15	14900	Jun 1 1990
INSTANTANEOUS PEAK STAGE			13.56	Feb 15	17.07	Jun 1 1990
INSTANTANEOUS LOW FLOW			.00	many days	.00	at times
ANNUAL RUNOFF (AC-FT)	55750		18040		30090	
ANNUAL RUNOFF (INCHES)	1.79		.58		.97	
10 PERCENT EXCEEDS	144		37		47	
50 PERCENT EXCEEDS	28		12		7.4	
90 PERCENT EXCEEDS	3.3		2.1		.46	

07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: July 1949 to March 1959, July 1966 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1967 to current year.

WATER TEMPERATURE: October 1967 to current year.

INSTRUMENTATION.--Since August 1968, specific conductance and water temperature was recorded continuously at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 48,900 microsiemens May 13, 1971; minimum, 427 microsiemens Sept. 11, 1989.

WATER TEMPERATURE: Maximum, 39.0°C July 31, 1989; minimum, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 17,900 microsiemens Oct. 29; minimum, 700 microsiemens, July 14.

WATER TEMPERATURE: Maximum, 37.0°C July 23-25; minimum, 0.5°C Nov. 27, Dec. 6, and Feb. 18.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, (PER-CENT SATUR-ATION)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	
NOV 13...	1015	3.7	15800	8.0	9.0	11.3	107	3300	3200	830	300	2600	
JAN 15...	1020	7.7	15900	8.0	4.5	13.0	112	3100	2900	780	280	2700	
MAR 19...	1015	27	8520	8.1	11.5	11.9	118	2500	2400	570	270	1100	
MAY 07...	0920	10	8480	8.0	22.0	9.1	112	2600	2500	590	270	1100	
JUL 22...	1045	4.8	9460	8.1	29.0	7.6	106	2500	2300	660	200	1200	
DATE		SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS-FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)
NOV 13...	20	1.8	130	2900	4400	0.90	1.6	11100	--	--	0.020	--	--
JAN 15...	21	17	170	2600	4200	0.70	2.7	10700	--	--	--	0.020	--
MAR 19...	10	17	160	2400	1700	0.30	3.7	6160	0.087	--	--	<0.010	--
MAY 07...	9	19	120	2500	1700	0.70	5.7	6260	0.260	0.260	--	0.010	--
JUL 22...	11	22	140	2400	1800	0.50	6.0	6370	--	--	--	<0.010	--
DATE		NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P)	ARSENIC DIS-SOLVED (UG/L AS AS)
NOV 13...	<0.050	--	0.080	--	--	--	<0.20	<0.010	--	--	<0.010	--	2
JAN 15...	--	<0.050	--	0.010	--	<0.20	--	--	<0.010	<0.010	--	--	--
MAR 19...	0.087	0.087	--	0.040	--	<0.20	--	--	<0.010	<0.010	--	--	--
MAY 07...	0.270	0.270	--	0.040	--	<0.20	--	--	<0.010	<0.010	--	--	--
JUL 22...	--	<0.050	--	0.100	0.20	0.30	--	--	<0.010	<0.010	--	--	11
DATE		BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)	
NOV 13...	<100	<2.0	<2	<1	<10	<2	30	<0.1	<1	<1.0	<10		
JAN 15...	--	--	--	--	--	--	--	--	--	--	--	--	
MAR 19...	--	--	--	--	--	--	--	--	--	--	--	--	
MAY 07...	--	--	--	--	--	--	--	--	--	--	--	--	
JUL 22...	91	<1.0	<1	1	<3	<1	13	<0.1	<1	<1.0	8		

RED RIVER BASIN

75

07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX--Continued

MONTH YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT. 1992	91.6	16700	11400	2820	4500	1120	2700	667	*
NOV. 1992	651.6	7440	5000	8800	1700	3040	1400	2520	1700
DEC. 1992	526	13700	9350	13300	3600	5040	2400	3350	*
JAN. 1993	301.1	14200	9690	7870	3700	3020	2400	1960	*
FEB. 1993	1925.2	4130	2760	14300	910	4720	830	4340	980
MAR. 1993	1606	5600	3740	16200	1200	5340	1100	4900	1300
APR. 1993	973	6160	4120	10800	1400	3600	1200	3230	1400
MAY 1993	951.2	5480	3660	9410	1200	3110	1100	2830	1300
JUNE 1993	755.0	5580	3740	7620	1300	2570	1100	2240	1300
JULY 1993	771.98	4180	2810	5850	970	2020	800	1670	950
AUG. 1993	314.60	5310	3540	3010	1200	982	1100	917	1300
SEPT 1993	227.16	7480	5010	3070	1700	1040	1500	903	1700
TOTAL	9094.44	**	**	103000	**	35600	**	29500	**
WTD.AVG.	25	6250	4200	**	1400	**	1200	**	1400

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	15500	15300	15400	17000	16300	16700	9190	8050	8950	15100	14700	14900
2	15700	15400	15500	17000	16700	16600	9600	8140	9350	15700	15000	15300
3	15900	15600	15700	16400	16200	16300	9920	9600	9750	16000	15400	15700
4	16000	15500	15800	16300	16200	16300	10700	9920	10300	16900	16100	16500
5	16000	15800	15900	16400	16200	16300	11700	10700	11200	17200	16900	17000
6	16000	15800	15900	16300	15700	16100	12300	11800	12100	17200	16700	17100
7	16100	15700	15900	16400	15600	16000	12200	11400	11800	17000	16400	16800
8	16300	15900	16100	16200	15300	15800	12200	11400	11800	17000	16500	16800
9	16200	15900	16100	16000	15300	15800	12200	11600	11900	16600	16300	16400
10	16300	16100	16200	16000	15600	15800	11600	10700	11000	16900	16500	16700
11	16500	16100	16300	15900	15800	15900	11700	10500	10800	16600	16100	16400
12	16600	16200	16400	15800	15500	15700	15000	11900	13600	16400	15500	16000
13	16900	16400	16600	15900	15500	15700	15300	14400	15000	16700	16000	16300
14	17100	16600	16800	15900	15200	15500	15200	13000	14100	16200	15700	16000
15	17300	16700	17000	15800	15200	15400	14700	11200	13100	16400	15500	15900
16	17300	17100	17200	15800	15000	15300	16000	14300	15400	16200	15600	15900
17	17600	16800	17300	15900	15000	15300	16500	16000	16200	16400	16100	16200
18	17600	16600	17300	16000	15500	15600	16100	15700	15900	16400	16200	16400
19	17400	16600	17100	16000	10700	12800	15900	15700	15800	16800	6500	12600
20	17300	16400	17000	14800	12400	13300	16000	15800	15900	7600	6900	7220
21	17300	16400	17000	14400	2160	6530	16000	15900	15900	12800	7700	11000
22	17200	16200	16900	6770	2390	3730	16000	15800	15900	13000	12700	12900
23	17200	16200	16900	9990	7450	8660	15900	15700	15800	13200	12800	13000
24	17200	16300	16900	7930	7490	7720	16000	15700	15900	13400	13100	13300
25	17400	16500	17100	7380	7060	7250	16600	16000	16200	13100	12600	12900
26	17400	16900	17300	7460	7160	7300	16700	16300	16500	12700	12400	12500
27	17700	17000	17500	7670	7460	7600	16700	15800	16300	12600	12400	12500
28	17800	17000	17500	8070	7660	7870	16500	15800	16200	12400	12200	12300
29	17900	17400	17700	8380	7960	8210	16300	15600	16000	12300	12200	12300
30	17600	17100	17400	8790	8370	8610	15900	14900	15500	12100	11800	12000
31	17200	16400	17000	---	---	---	15100	14600	14900	11700	11400	11500
MONTH	17900	15300	16700	17000	2160	12900	16700	8050	13800	17200	6500	14500

07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	11800	11500	11600	6300	2500	3360	6900	5700	6380	6200	3800	5230
2	12100	11800	11900	5210	3400	4360	7600	6900	7140	4800	4000	4390
3	13200	12100	12600	5460	4920	5260	7900	7500	7680	---	---	e5200
4	14400	13300	13800	5770	5580	5650	8100	7800	7890	---	---	e6500
5	15000	14400	14700	5910	5680	5770	8400	8100	8150	---	---	e7500
6	15200	15000	15100	6130	5820	5460	8800	8300	8540	---	---	e8300
7	15400	15200	15300	6130	6030	6270	9200	8800	8960	9000	8500	8670
8	15400	14100	15300	6470	6270	6400	9400	9100	9220	9200	8600	8890
9	15200	13400	14800	6900	6450	6730	9500	9300	9390	9000	1600	3290
10	13000	3950	8390	7210	6900	7060	9800	9400	9540	3800	2800	3240
11	6030	3950	4510	7510	7200	7330	9900	9600	9750	---	---	e5200
12	11600	6320	9000	7810	7300	7540	10200	9700	9860	---	---	e6500
13	13700	11700	12900	8010	7800	7890	10300	9900	10000	---	---	e7200
14	13900	2570	12300	8310	7900	8060	9900	2900	5390	---	---	e7900
15	2770	1390	1860	8310	8200	8280	6500	3600	4600	---	---	e8100
16	5350	2770	4530	8500	8200	8360	7500	6700	7150	---	---	e8300
17	5000	4270	4760	8700	8500	8600	7500	6500	7040	---	---	e8500
18	5800	5000	5440	8700	8300	8520	6400	6000	6140	---	---	e8700
19	6500	5800	6120	8400	8200	8290	6900	6100	6370	---	---	e8800
20	7200	6600	6940	8300	8000	8170	8400	6800	7510	---	---	e8900
21	7600	7200	7420	8300	8200	8280	9000	8300	8660	---	---	e9200
22	7700	7500	7580	8300	7800	8060	9200	8800	9000	9600	9200	9420
23	7700	7500	7570	8400	8100	8230	9700	9100	9370	9800	1300	8370
24	7700	6600	7260	8600	8300	8420	10400	9700	9940	---	---	e5200
25	7600	6900	7290	8800	8400	8560	10700	10100	10300	---	---	e7400
26	7800	7500	7690	9000	8600	8760	10700	10300	10500	---	---	e10000
27	8000	7800	7870	8900	8800	8830	10600	10300	10400	---	---	e10300
28	7800	6900	7500	9100	8800	8940	10400	6200	10100	---	---	e10600
29	---	---	---	9200	2000	8010	5200	1500	3740	---	---	e10600
30	---	---	---	3800	1800	2800	5700	5000	5410	---	---	e10700
31	---	---	---	5600	3900	4600	---	---	---	---	---	e10700
MONTH	15400	1390	9360	9200	1800	7120	10700	1500	8140	9800	1300	7800

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	---	---	e10800	11200	10400	10800	---	---	---	---	---	e5000
2	12200	11200	11700	11000	10200	10600	---	---	---	---	---	e6000
3	12300	11900	12100	10800	9900	10300	---	---	e12000	---	---	e7000
4	12600	12200	12400	10600	9200	10000	12500	10700	11800	---	---	e8000
5	12700	12100	12400	---	---	e10500	---	---	e12000	---	---	e8500
6	12900	10800	12100	---	---	e11000	---	---	e12000	---	---	e8800
7	13200	12200	12900	---	---	e12000	---	---	---	---	---	e9000
8	13400	10900	12500	14400	12600	13300	---	---	---	---	---	e8000
9	13400	1800	8640	14500	12700	13600	---	---	---	---	---	e8000
10	---	---	e8000	14800	12900	13800	---	---	---	---	---	e8200
11	12100	1000	2320	14900	13100	13900	---	---	---	---	---	e8400
12	5300	1600	2880	14500	13500	14000	---	---	---	---	---	e8600
13	6200	4000	5080	14000	1100	13200	---	---	---	---	---	e9000
14	6200	4400	5550	2400	700	1610	---	---	---	---	---	e7500
15	---	---	e6000	2300	1200	1610	---	---	---	---	---	e8000
16	---	---	e7200	2100	1700	1810	---	---	---	---	---	e8500
17	8000	7600	7780	5300	2000	3290	---	---	---	---	---	e9000
18	8300	7800	7970	---	---	e6000	---	---	---	---	---	e9400
19	8400	6600	7620	---	---	e8000	---	---	---	---	---	e9800
20	---	---	e7000	---	---	e9000	---	---	---	---	---	e10000
21	---	---	e7700	---	---	e9500	---	---	---	---	---	e9000
22	8600	7300	7970	---	---	e10400	---	---	---	---	---	---
23	9100	8400	8770	---	---	e10400	---	---	---	---	---	---
24	9300	8900	9130	---	---	e10500	---	---	---	---	---	---
25	9200	9100	9200	11800	9600	10900	11200	1900	3860	13300	3800	7000
26	11600	8900	9450	---	---	e11200	8200	6400	7440	---	---	e6500
27	11300	10300	10600	---	---	e11800	6900	5900	6200	---	---	e6000
28	11300	10600	10900	---	---	e11800	6300	5800	6020	---	---	e6500
29	11600	11000	11300	---	---	---	6300	6000	6080	---	---	---
30	11200	10700	11000	---	---	---	6400	4800	6030	---	---	---
31	---	---	---	---	---	---	6500	4700	5760	---	---	---
MONTH	13400	1000	8970	14900	700	9810	12500	1900	8110	13300	3800	7990
YEAR	17900	700	10600									

e Estimated

RED RIVER BASIN

77

07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	24.5	16.5	20.0	17.5	14.0	16.0	8.5	2.5	5.5	7.5	5.5	6.0
2	24.5	15.0	19.5	15.0	12.0	13.5	8.5	2.5	5.5	7.0	5.5	6.0
3	24.0	15.5	19.5	13.5	8.5	11.0	9.0	4.5	7.0	10.5	7.0	8.5
4	24.5	15.5	19.5	13.0	6.0	8.5	8.0	3.5	5.0	10.5	8.5	10.0
5	24.5	15.5	19.5	11.0	4.0	7.0	3.5	1.5	2.0	8.5	6.5	7.0
6	24.5	16.5	20.0	12.5	7.0	9.5	7.0	.5	3.5	7.5	6.5	7.0
7	22.0	14.5	18.0	13.0	6.5	9.5	6.0	2.0	4.5	9.0	8.0	8.5
8	19.5	11.5	15.0	16.5	9.5	12.5	7.0	4.0	5.5	9.0	8.0	8.5
9	20.0	12.5	15.5	19.0	14.0	16.5	11.0	7.0	8.5	8.0	6.5	8.0
10	21.0	14.5	17.0	21.5	16.5	19.0	10.0	5.5	8.0	6.5	4.5	5.0
11	21.0	14.0	17.0	19.5	12.0	16.5	9.5	4.5	7.0	5.0	4.5	4.5
12	23.0	15.5	18.5	14.0	8.5	11.0	11.0	6.5	8.5	6.5	5.0	5.5
13	24.0	17.5	20.0	12.5	6.0	9.5	11.0	6.5	9.5	6.0	4.5	5.0
14	24.0	18.5	20.5	13.0	6.5	10.0	7.0	3.5	4.5	5.5	5.0	5.5
15	23.5	17.5	20.0	14.0	7.5	11.0	6.5	2.0	4.5	6.5	5.0	5.5
16	18.5	15.0	17.0	16.0	9.5	12.5	5.0	2.0	4.0	7.5	6.5	7.0
17	19.0	13.0	15.5	18.5	12.5	14.5	6.0	1.5	4.0	7.0	6.5	6.5
18	18.5	14.5	16.0	16.0	14.0	15.0	9.0	3.5	6.5	6.5	5.5	6.0
19	19.0	16.0	17.5	15.0	13.0	14.0	9.5	6.5	8.5	5.5	4.5	5.0
20	20.0	18.0	19.0	13.5	10.0	12.0	6.5	4.0	5.5	6.5	3.5	5.0
21	20.5	19.0	19.5	12.0	6.0	9.5	9.5	5.0	7.0	9.0	3.5	6.5
22	21.0	18.5	19.5	7.5	3.0	5.5	10.5	6.0	8.5	10.0	4.0	7.5
23	21.5	19.0	20.5	10.5	5.5	8.0	9.5	5.5	7.5	12.0	6.5	9.0
24	22.0	19.5	21.0	10.0	4.0	8.0	6.5	2.5	5.0	8.0	2.5	5.5
25	22.0	19.5	21.0	6.0	1.0	3.5	7.0	4.5	6.0	8.0	2.5	5.5
26	20.5	18.5	19.5	5.5	2.0	4.0	7.0	4.0	5.5	9.0	2.0	6.0
27	19.5	16.5	18.0	6.0	.5	3.5	8.0	4.5	6.5	10.0	4.0	7.5
28	19.5	16.5	18.0	7.0	1.0	4.0	10.0	7.5	8.5	9.0	5.5	8.0
29	19.0	16.5	18.0	7.0	2.0	4.5	13.0	10.0	11.0	7.5	4.0	5.5
30	16.5	14.5	15.5	7.5	2.5	5.5	14.0	12.5	13.0	8.0	3.5	5.5
31	18.0	14.0	16.0	---	---	---	14.0	7.5	10.5	10.5	3.0	7.0
MONTH	24.5	11.5	18.5	21.5	.5	10.0	14.0	.5	6.5	12.0	2.0	6.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	12.0	5.5	9.0	9.5	5.5	7.5	18.5	11.0	14.5	24.0	16.5	20.5
2	13.0	6.5	10.0	13.5	6.5	9.5	18.5	10.0	14.5	17.5	14.0	15.5
3	10.5	7.5	9.0	12.5	8.0	10.0	20.5	13.0	16.0	23.0	14.0	17.5
4	9.5	7.0	8.5	13.5	9.0	11.0	16.0	11.5	14.0	26.0	17.0	21.5
5	8.5	6.5	7.5	14.5	6.5	10.5	16.0	10.0	13.0	24.5	20.5	22.5
6	11.0	4.0	8.0	11.0	7.0	9.0	20.5	11.0	15.5	27.5	18.5	23.0
7	11.5	4.5	8.5	14.5	6.5	10.0	21.5	15.0	18.0	28.5	21.0	24.0
8	12.5	5.5	9.5	17.5	10.0	14.0	20.0	11.5	16.0	28.0	20.0	23.5
9	13.0	8.5	11.0	19.5	12.0	15.5	21.5	10.5	16.0	23.0	16.5	19.0
10	15.0	10.5	12.5	17.5	11.0	14.0	23.5	13.0	18.0	21.5	17.0	19.0
11	10.0	5.5	7.5	14.5	9.0	12.0	25.0	14.5	20.0	20.5	18.0	19.0
12	10.0	3.0	6.5	9.5	4.5	7.0	26.0	16.5	21.5	22.0	17.0	19.0
13	11.5	4.0	8.5	12.0	1.5	6.5	25.5	17.5	21.5	27.0	16.0	21.0
14	9.5	4.0	7.0	14.0	4.0	9.0	20.0	10.5	12.5	29.0	17.5	22.5
15	4.5	3.5	4.0	17.5	8.0	12.5	16.5	7.5	11.5	26.0	20.5	23.0
16	5.5	3.0	4.0	19.5	10.5	15.0	17.5	11.5	14.5	25.5	22.5	24.0
17	3.5	1.0	2.5	13.5	8.0	11.0	24.0	13.0	18.0	24.0	22.0	23.0
18	3.5	.5	2.0	12.0	9.5	11.0	25.5	15.0	20.0	23.5	21.5	22.5
19	6.0	3.5	4.5	12.0	11.0	11.5	25.5	16.0	20.5	28.5	20.0	23.5
20	8.5	6.5	7.0	13.0	10.5	11.5	22.0	15.0	18.5	24.5	21.0	22.0
21	9.5	8.5	9.0	13.5	9.5	11.5	21.5	14.0	17.5	26.5	20.5	23.0
22	14.0	9.0	10.5	18.0	12.0	14.5	22.5	14.0	18.0	25.5	19.5	22.5
23	11.5	6.5	9.5	20.0	9.5	14.5	21.0	16.0	18.5	29.5	13.0	22.5
24	7.5	5.5	6.5	23.5	11.5	17.5	26.5	15.0	20.5	27.5	17.5	22.5
25	12.5	5.5	8.5	22.5	14.0	18.0	26.5	15.5	21.0	29.0	22.5	25.5
26	10.5	3.5	7.5	21.0	12.0	16.5	26.0	15.0	20.5	27.0	21.0	24.0
27	7.0	5.0	6.0	17.0	12.5	15.0	21.5	15.5	19.0	26.5	23.5	24.5
28	6.5	5.0	5.5	23.0	13.0	17.5	26.0	17.0	21.0	29.5	24.0	26.0
29	---	---	---	23.5	13.5	18.0	21.0	17.5	19.5	29.0	22.0	25.5
30	---	---	---	17.0	10.0	13.5	24.0	17.5	21.0	31.0	21.5	25.5
31	---	---	---	18.5	10.5	14.5	---	---	---	30.5	23.0	27.0
MONTH	15.0	.5	7.5	23.5	1.5	12.5	26.5	7.5	17.5	31.0	13.0	22.5

RED RIVER BASIN

07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	30.0	21.5	25.5	33.0	24.0	27.5	---	---	---	23.0	19.5	21.0
2	31.0	20.5	25.5	32.0	23.0	26.5	---	---	---	25.5	22.0	23.5
3	32.0	21.5	26.5	28.5	22.5	24.5	27.5	20.5	24.0	25.5	23.0	24.5
4	29.0	21.0	25.0	26.5	22.5	24.0	31.5	24.0	26.0	24.0	21.0	22.5
5	26.5	19.5	23.0	31.5	23.0	25.5	34.0	22.5	27.0	22.0	20.0	21.0
6	29.5	22.5	25.5	29.5	23.5	25.5	24.0	20.0	22.0	22.5	19.5	21.0
7	29.5	23.5	25.5	32.0	23.0	26.0	---	---	---	34.0	20.0	24.5
8	31.5	22.5	26.0	30.5	21.5	25.5	---	---	---	24.0	20.0	22.0
9	25.5	19.5	22.5	31.5	21.0	25.0	---	---	---	31.0	18.0	23.5
10	30.0	18.5	23.0	32.0	21.0	25.5	---	---	---	31.0	19.0	24.5
11	---	---	e24.0	30.5	21.5	25.5	---	---	---	24.5	20.0	22.5
12	---	---	e25.5	28.5	22.5	25.5	---	---	---	25.5	21.0	22.5
13	---	---	e26.0	29.0	22.5	25.5	---	---	---	23.5	18.0	22.0
14	---	---	e26.0	27.5	22.5	25.0	---	---	---	24.5	14.5	18.5
15	---	---	e26.0	31.0	25.5	28.5	---	---	---	27.0	14.0	19.0
16	---	---	e26.0	30.0	26.0	28.0	---	---	---	25.5	13.0	19.0
17	---	---	e25.0	28.5	26.5	27.5	---	---	---	24.5	16.5	20.0
18	---	---	e25.0	27.5	26.5	27.0	---	---	---	26.5	17.0	21.0
19	---	---	e25.5	26.5	25.5	26.0	---	---	---	26.5	20.0	23.5
20	---	---	e26.5	26.0	24.5	25.5	---	---	---	30.5	20.0	23.5
21	---	---	e27.0	26.0	24.5	25.5	---	---	---	---	---	---
22	33.5	24.5	28.5	36.5	24.0	29.0	---	---	---	---	---	---
23	33.0	24.0	28.5	37.0	24.0	29.0	---	---	---	---	---	---
24	32.5	24.0	27.5	37.0	23.0	28.5	---	---	---	28.0	22.0	25.0
25	31.5	25.0	28.0	37.0	24.0	29.5	27.0	19.0	24.0	25.5	18.0	22.5
26	30.5	24.5	27.0	36.5	22.5	28.5	31.5	23.0	27.0	25.0	16.5	21.0
27	33.0	23.5	28.0	33.5	20.0	25.0	32.0	24.5	28.0	21.5	13.0	17.0
28	33.0	24.0	28.0	33.5	22.5	27.0	33.0	24.0	28.0	29.5	13.0	19.5
29	34.0	24.0	28.0	---	---	---	31.5	24.0	26.5	---	---	---
30	33.0	24.0	27.5	---	---	---	27.0	21.5	25.5	---	---	---
31	---	---	---	---	---	---	22.0	19.5	20.0	---	---	---
MONIH	34.0	18.5	26.0	37.0	20.0	26.5	34.0	19.0	25.5	34.0	13.0	22.0
YEAR	37.0	.5	16.0									

e Estimated

07312000 LAKE KEMP NEAR MABELLE, TX

LOCATION.--Lat 33°45'30", long 99°09'03", Baylor County, Hydrologic Unit 11130206, in outlet gate tower near center of dam on Wichita River, 6.2 mi north of Mabelle, 13 mi northeast of Seymour, and 126.7 mi upstream from mouth.

DRAINAGE AREA.--2,086 mi².

LAKE-CONTENT RECORDS

PERIOD OF RECORD.--October 1922 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 1, 1972, nonrecording gage at different site and at datum 2.40 ft higher.

REMARKS.--The lake is formed by a rolled earthfill dam 8,890 ft 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 3,000-foot-wide uncontrolled spillway is located approximately 600 ft 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-in by 13 ft with a 13-foot-diameter 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, oil field operation, municipal, and industrial uses. The capacity table is based on a resurvey made in 1973. Data collection platform at station. Figures given herein represents total contents. 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 provided by the U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 420,900 acre-ft June 30, 1941 (elevation, 1,152.0 ft), present datum; minimum since first appreciable storage, 26,160 acre-ft June 30, 1953 (elevation, 1,108.0 ft), present datum.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 282,900 acre-ft May 18 (elevation, 1,144.93 ft); minimum, 216,000 acre-ft Nov. 6-8 (elevation, 1,140.38 ft).

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

1,140.0	210,900	1,142.0	238,200	1,144.0	268,000
1,141.0	224,200	1,143.0	252,800	1,145.0	284,000

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	231900	218300	231500	241100	244300	276200	257500	263000	276000	264200	245600	222600
2	231200	218600	231500	240800	244600	279800	257100	262700	275000	264000	244000	222300
3	230900	217200	231600	242400	244000	281300	257400	262400	275000	263100	244200	221800
4	230500	216900	231200	241100	244600	281000	257100	263000	273100	262400	243300	220700
5	230100	216200	231200	241000	244600	280300	257800	263100	272500	261000	242300	220300
6	230400	216000	231300	241700	244800	280300	258700	263000	271500	261000	241600	220200
7	229000	216000	231500	241100	244900	280000	258400	263300	273000	260200	241100	219300
8	228400	216500	231600	241400	244900	279400	258000	263600	275000	259300	240500	219300
9	228200	216700	232700	241800	244600	278400	258400	270200	275400	258300	239700	219000
10	227400	217000	232700	241800	246200	276600	258100	274900	275900	258300	239100	218600
11	226900	217400	232600	241600	245600	274700	258000	279000	277000	257100	238100	218500
12	226400	216800	233200	242100	245200	274400	258100	280200	277600	255700	237800	218800
13	226900	216600	235400	241700	245800	271700	256800	281000	276800	255500	236700	219000
14	226600	216200	239400	241600	247700	270400	258000	281800	276500	255200	235400	218900
15	225600	216400	239500	241400	258600	269000	258600	281800	275500	256800	235100	219400
16	224800	216400	240000	241400	264400	267400	259000	281600	274700	256000	233700	219200
17	224200	216400	239800	241400	268000	266600	259500	282100	273900	256600	232900	219200
18	223900	218600	240000	241300	268500	265600	259800	282200	272300	255500	232500	219800
19	224200	219300	239800	242400	268600	264400	260100	281400	271400	254900	230900	222100
20	223900	218900	240000	243000	268800	263100	259200	280500	270600	254800	230600	220300
21	223900	223800	240100	243600	266800	261900	259200	280800	269900	254300	229200	220600
22	223500	227700	240600	243300	266000	261200	259200	280500	269300	253300	228100	220200
23	223400	229400	240100	243500	264000	261200	259200	280000	269200	252800	227700	219900
24	223300	232300	240600	243300	267100	261600	257800	279400	268000	251900	227000	219900
25	223100	231100	240600	243500	267800	259900	258600	279500	268000	251200	226200	219400
26	222900	231500	240700	243700	266600	258000	257700	278400	267100	249700	226300	218900
27	221800	231300	240700	243900	266500	256600	257500	278100	266600	248900	225600	218200
28	221300	231300	241400	244200	266900	256400	259500	277300	266000	248000	224800	217200
29	220900	231600	241600	243600	---	256100	260100	276500	265400	247100	224100	216800
30	219900	231800	242000	244200	---	257500	261200	277000	265400	246200	224100	216100
31	219400	---	241100	244000	---	257700	---	276000	---	245500	223100	---
MAX	231900	232300	242000	244200	268800	281300	261200	282200	277600	264200	245600	222600
MIN	219400	216000	231200	240800	244000	256100	256800	262400	265400	245500	223100	216100
(†)	1140.64	1141.54	1142.20	1142.40	1143.93	1143.32	1143.55	1144.50	1143.83	1142.50	1140.92	1140.39
(Φ)	-12600	+12400	+9300	+2900	+22900	-9200	+3500	+14800	-10600	-19900	-22400	-7000
CAL YR 1992	MAX	327700	MIN	216000	(Φ)	-45400						
WTR YR 1993	MAX	282200	MIN	216000	(Φ)	-15900						

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

(Φ) Change in contents, in acre-feet.

07312100 WICHITA RIVER NEAR MABELLE, TX

LOCATION.--Lat 33°45'36", long 99°08'33", Baylor County, Hydrologic Unit 11130206, near left bank at downstream side of bridge on U.S. Highways 183 and 283, 0.3 mi downstream from Lake Kemp Dam, 6.2 mi north of Mabelle, and 13 mi north-east of Seymour.

DRAINAGE AREA.--2,086 mi², all of which is above Lake Kemp Dam.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1952-58 (occasional discharge measurements), October 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,062.72 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Lake Kemp (station 07312000) 0.3 mi upstream. Water is released from Lake Kemp to supply Lake Diversion, 12.5 mi downstream. Water from Lake Diversion is released for mining, recreation, and for irrigation in the vicinity of Wichita Falls.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	143	175	1.5	1.5	1.0	429	145	61	249	123	314	201
2	143	95	1.3	1.4	1.1	147	145	27	249	122	314	199
3	143	96	1.3	1.4	1.2	246	144	1.8	248	121	314	200
4	142	96	1.2	1.4	1.2	390	143	1.8	322	122	314	199
5	145	39	1.2	1.4	1.2	392	141	1.7	367	122	287	200
6	145	1.8	1.1	1.4	1.2	396	86	1.7	365	122	272	200
7	145	1.8	1.1	1.4	1.2	397	55	1.6	365	104	271	200
8	144	1.7	1.1	1.5	1.2	519	55	1.7	368	145	271	201
9	144	1.7	1.4	1.5	1.2	721	55	15	370	145	271	200
10	147	1.7	1.2	1.4	1.2	750	55	1.9	369	144	241	200
11	145	1.6	1.3	1.4	1.3	800	57	1.7	370	145	220	200
12	146	1.6	1.3	1.4	1.2	842	275	1.7	370	145	220	199
13	81	1.7	7.0	75	1.3	837	594	1.7	381	85	220	174
14	1.5	1.6	16	134	3.0	840	409	1.6	399	64	220	2.9
15	57	1.7	2.0	59	42	838	104	1.6	400	188	220	1.6
16	96	1.7	1.8	1.6	2.9	830	2.7	1.6	397	201	218	1.4
17	93	1.6	1.7	1.6	2.0	819	2.4	1.5	398	230	217	1.4
18	94	2.5	1.6	1.6	326	819	2.3	1.6	397	229	233	1.3
19	94	2.8	1.7	2.2	821	822	2.2	155	400	230	243	1.2
20	95	1.8	1.7	2.1	728	825	2.3	251	401	229	241	1.3
21	95	14	1.6	1.7	661	829	2.2	247	400	229	241	1.2
22	95	12	1.6	1.5	658	832	84	246	388	229	241	1.2
23	95	2.1	1.6	1.6	656	365	138	245	232	229	241	1.2
24	95	3.2	1.6	1.5	598	3.8	138	246	206	228	243	75
25	95	2.0	1.7	1.4	385	613	141	247	134	228	241	126
26	138	1.8	1.6	1.4	382	1170	135	248	124	256	270	126
27	230	1.8	1.6	1.4	382	1130	134	250	123	276	289	126
28	272	1.7	1.6	1.2	385	285	89	250	122	301	289	156
29	273	1.6	1.6	1.3	---	51	61	250	124	316	288	178
30	273	1.6	1.5	1.3	---	---	3.2	60	250	314	289	180
31	273	---	1.7	1.2	---	87	---	251	---	314	238	---
TOTAL	4277.5	570.1	66.2	309.7	6047.4	18028.0	3457.1	3264.2	9162	5936	7991	3554.7
MEAN	138	19.0	2.14	9.99	216	582	115	105	305	191	258	118
MAX	273	175	16	134	821	1170	594	251	401	316	314	201
MIN	1.5	1.6	1.1	1.2	1.0	3.2	2.2	1.5	122	64	217	1.2
AC-FT	8480	1130	131	614	12000	35760	6860	6470	18170	11770	15850	7050

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

MEAN	138	119	43.8	66.4	70.0	155	172	160	300	320	246	168
MAX	952	1271	247	648	769	659	659	1246	1810	923	490	915
(WY)	1987	1987	1987	1992	1992	1968	1968	1990	1992	1967	1967	1986
MIN	.66	.39	.42	.60	.51	.50	.89	6.53	2.59	140	30.9	1.66
(WY)	1985	1974	1974	1979	1979	1989	1981	1977	1989	1975	1978	1974

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1960 - 1993

ANNUAL TOTAL	160556.04		62663.9						
ANNUAL MEAN	439		172			164			
HIGHEST ANNUAL MEAN						522			1987
LOWEST ANNUAL MEAN						59.9			1981
HIGHEST DAILY MEAN	3530	Jun 24	1170	Mar 26	3530				Jun 24 1992
LOWEST DAILY MEAN	.84	Sep 7	1.0	Feb 1	.09				May 8 1989
ANNUAL SEVEN-DAY MINIMUM	.94	Sep 2	1.2	Jan 31	.14				May 7 1989
INSTANTANEOUS PEAK FLOW			1180	Mar 25	4290				Mar 24 1976
INSTANTANEOUS PEAK STAGE			5.50	Mar 25	10.47				Mar 24 1976
INSTANTANEOUS LOW FLOW			.92	Feb 1	.09				May 8 1989
ANNUAL RUNOFF (AC-FT)	318500		124300		118500				
10 PERCENT EXCEEDS	1180		396		414				
50 PERCENT EXCEEDS	144		124		11				
90 PERCENT EXCEEDS	1.5		1.4		.72				

RED RIVER BASIN

81

07312100 WICHITA RIVER NEAR MABELLE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: December 1965 to May 1993 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1968 to May 1993 (discontinued).

WATER TEMPERATURE: July 1968 to May 1993 (discontinued).

INSTRUMENTATION.--From 1968 to 1975, specific conductance was continuously recorded at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 7,110 microsiemens May 13, 14, 1980; minimum daily, 561 microsiemens May 28, 1975.

WATER TEMPERATURE: Maximum daily, 32.0°C Sept. 4, 1972, June 26, July 5, 1975; minimum daily, 0.0°C Dec. 20, 1973, Feb. 9, 17, 1980.

EXTREMES FOR OCTOBER TO MAY.--

SPECIFIC CONDUCTANCE: Maximum daily, 4,700 microsiemens Feb. 11, 14; minimum daily, 1,510 microsiemens Nov. 22.

WATER TEMPERATURE: Maximum daily, 22.0°C Oct. 2, May 26, 31; minimum daily, 4.0°C Feb. 16.

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

		DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	
DEC 14...		0915	3.6	1270	5.5	230	140	59	21	160
JAN 19...		1200	1.5	4640	6.0	940	780	250	77	690
DATE		SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	
DEC 14...		5	6.1	94	150	210	0.20	7.9	671	
JAN 19...		10	6.7	170	790	980	0.90	10	2900	
MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1992	4277.5	4090	2460	28500	920	10600	620	7130	740
NOV.	1992	570.1	4080	2460	3790	920	1410	620	947	740
DEC.	1992	66.2	3760	2270	405	850	152	570	101	680
JAN.	1993	309.7	4330	2620	2190	990	825	650	542	780
FEB.	1993	6047.4	4110	2470	40400	930	15100	620	10100	740
MAR.	1993	18028.0	3980	2390	116000	890	43200	600	29300	720
APR.	1993	3457.1	4070	2450	22800	910	8520	610	5730	740
MAY	1993	3264.2	4140	2500	22000	930	8230	620	5500	750
JUNE	1993	9162	*	*	*	*	*	*	*	*
JULY	1993	5936	*	*	*	*	*	*	*	*
AUG.	1993	7991	*	*	*	*	*	*	*	*
SEPT	1993	3554.7	*	*	*	*	*	*	*	*
TOTAL		62663.9	**	**	236000	**	88100	**	59400	**
WTD.AVG.		172	2320	1400	**	520	**	350	**	420

RED RIVER BASIN

07312100 WICHITA RIVER NEAR MABELLE, TX--Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4010	4110	4550	4600	4630	3950	4060	4160	---	---	---	---
2	4010	4130	4600	4560	4650	4110	4060	4140	---	---	---	---
3	4040	4130	4600	4560	4690	4510	4060	4540	---	---	---	---
4	4050	4130	4620	4570	4700	4080	4060	4510	---	---	---	---
5	4050	4140	4620	4600	4670	4030	4060	4620	---	---	---	---
6	4050	4520	4610	4600	4660	3970	4070	4610	---	---	---	---
7	4060	4500	4610	4590	4670	3900	4090	4610	---	---	---	---
8	4060	4380	4590	4590	4680	3870	4090	4610	---	---	---	---
9	4060	4490	4280	4540	4680	3830	4090	2080	---	---	---	---
10	4070	4450	4500	4600	4610	3920	4090	3550	---	---	---	---
11	4060	4380	4540	4550	4700	3920	4110	4320	---	---	---	---
12	4070	4610	4510	4570	4670	3970	4090	4500	---	---	---	---
13	4060	4440	4400	4590	4670	3950	4070	4580	---	---	---	---
14	4550	4530	1640	4190	4700	3940	4070	4490	---	---	---	---
15	4600	4520	2710	4180	850	3940	4160	4630	---	---	---	---
16	4090	4600	3740	4520	1350	3940	4300	4620	---	---	---	---
17	4090	4600	4490	4560	4060	3960	4400	4630	---	---	---	---
18	4090	4620	4450	4590	2680	3950	4270	4550	---	---	---	---
19	4090	3340	4520	4560	4070	3950	4490	4560	---	---	---	---
20	4100	4450	4570	4140	4240	3950	e4450	4110	---	---	---	---
21	4110	4100	4600	4030	4240	3950	e4450	4120	---	---	---	---
22	4110	1510	4560	4410	4260	3950	e4200	4120	---	---	---	---
23	4110	3840	4600	4490	4260	3950	e4000	4120	---	---	---	---
24	4110	3600	4610	4590	4250	4370	e4000	4130	---	---	---	---
25	4110	4310	4620	4570	4200	4470	e4000	4130	---	---	---	---
26	4120	4440	4600	4550	4220	3970	e4000	4130	---	---	---	---
27	4110	4600	4600	4600	4200	3970	e4000	4130	---	---	---	---
28	4120	4490	4570	4630	4200	3980	e4080	4140	---	---	---	---
29	4130	4490	4540	4660	---	4000	e4150	4140	---	---	---	---
30	4120	4540	4600	4680	---	4350	4150	4150	---	---	---	---
31	4130	---	4630	4670	---	4360	---	4140	---	---	---	---
MEAN	4110	4230	4380	4520	4160	4030	4140	4250	---	---	---	---
MAX	4600	4620	4630	4680	4700	4510	4490	4630	---	---	---	---
MIN	4010	1510	1640	4030	850	3830	4000	2080	---	---	---	---

e Estimated

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.0	e18.0	8.0	7.0	10.0	8.0	13.0	e17.0	---	---	---	---
2	22.0	17.0	8.0	8.0	10.0	8.0	13.0	17.0	---	---	---	---
3	21.0	17.0	10.0	12.0	13.0	10.0	13.0	13.0	---	---	---	---
4	21.0	16.0	10.0	10.0	12.0	8.0	13.0	17.0	---	---	---	---
5	21.0	16.0	7.0	9.0	10.0	8.0	14.0	20.0	---	---	---	---
6	21.0	12.0	8.0	11.0	9.0	8.0	13.0	20.0	---	---	---	---
7	21.0	11.0	8.0	11.0	9.0	9.0	14.0	20.0	---	---	---	---
8	20.0	12.0	9.0	11.0	11.0	9.0	13.0	20.0	---	---	---	---
9	20.0	16.0	11.0	12.0	12.0	10.0	13.0	20.0	---	---	---	---
10	19.0	18.0	10.0	6.0	14.0	10.0	14.0	15.0	---	---	---	---
11	19.0	19.0	10.0	7.0	13.0	10.0	14.0	16.0	---	---	---	---
12	19.0	10.0	11.0	8.0	7.0	9.0	15.0	15.0	---	---	---	---
13	20.0	11.0	14.0	7.0	8.0	9.0	15.0	16.0	---	---	---	---
14	18.0	11.0	7.0	8.0	11.0	9.0	14.0	16.0	---	---	---	---
15	18.0	10.0	8.0	7.0	6.0	9.0	13.0	19.0	---	---	---	---
16	19.0	13.0	8.0	9.0	4.0	9.0	13.0	18.0	---	---	---	---
17	19.0	15.0	9.0	9.0	7.0	9.0	14.0	20.0	---	---	---	---
18	18.0	16.0	9.0	9.0	4.0	10.0	16.0	20.0	---	---	---	---
19	18.0	14.0	12.0	7.0	7.0	9.0	16.0	18.0	---	---	---	---
20	19.0	e13.0	9.0	7.0	7.0	10.0	e16.0	21.0	---	---	---	---
21	19.0	12.0	11.0	7.0	7.0	10.0	e16.0	21.0	---	---	---	---
22	19.0	6.0	12.0	9.0	8.0	10.0	e16.0	21.0	---	---	---	---
23	19.0	10.0	10.0	11.0	8.0	10.0	e16.0	21.0	---	---	---	---
24	19.0	12.0	8.0	6.0	8.0	12.0	e17.0	20.0	---	---	---	---
25	19.0	8.0	9.0	9.0	8.0	14.0	e17.0	21.0	---	---	---	---
26	19.0	7.0	8.0	8.0	8.0	11.0	e17.0	22.0	---	---	---	---
27	19.0	6.0	9.0	10.0	7.0	11.0	e17.0	21.0	---	---	---	---
28	20.0	6.0	12.0	10.0	7.0	12.0	e17.0	21.0	---	---	---	---
29	19.0	7.0	15.0	10.0	---	13.0	e17.0	21.0	---	---	---	---
30	18.0	8.0	15.0	9.0	---	14.0	17.0	21.0	---	---	---	---
31	18.0	---	10.0	9.0	---	12.0	---	22.0	---	---	---	---
MEAN	19.4	12.2	9.8	8.8	8.7	10.0	14.9	19.0	---	---	---	---
MAX	22.0	19.0	15.0	12.0	14.0	14.0	17.0	22.0	---	---	---	---
MIN	18.0	6.0	7.0	6.0	4.0	8.0	13.0	13.0	---	---	---	---

e Estimated

RED RIVER BASIN

83

07312110 SOUTH SIDE CANAL NEAR DUNDEE, TX

LOCATION.--Lat 33°48'50", long 98°55'57", Archer County, Hydrologic Unit 11130206, on left bank, 125 ft downstream from Lake Diversion headgates, and 5.3 mi northwest of Dundee.

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

GAGE.--Water-stage recorder. Datum of gage is 1,039.70 ft above National Geodetic Vertical Datum of 1929 (Wichita County Water Improvement District benchmark).

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Water diverted from Lake Diversion is used for mining, industrial, recreation, and irrigation uses. Several observations of water temperature were made during the year.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97	88	.00	.00	.00	.17	55	55	102	e191	188	188
2	97	48	.00	.00	.00	.01	57	45	101	e190	187	188
3	97	46	.00	.00	.00	.01	57	31	120	e190	187	187
4	97	44	.00	.00	.00	.01	56	32	133	e190	188	137
5	98	36	.00	.00	.00	.00	51	32	141	e190	190	137
6	98	36	.00	.00	.00	.00	43	31	147	e190	189	135
7	95	35	.00	.00	.00	.00	39	31	142	e186	195	136
8	91	31	.00	.00	.00	.00	38	31	158	e182	183	134
9	92	13	.00	.00	.00	.00	39	33	164	e182	164	121
10	92	1.2	.00	.00	.00	.00	39	31	170	e182	163	120
11	92	1.3	.00	.00	.00	.00	41	31	172	e182	163	122
12	92	1.4	.00	.00	.00	.00	40	31	176	e182	163	122
13	93	1.4	.01	.00	.00	.00	41	31	172	e182	170	122
14	92	1.4	.00	.00	.00	.00	44	32	172	e181	189	76
15	91	1.1	.00	.00	.16	.00	45	31	174	e181	188	73
16	90	1.0	.00	.00	.05	4.1	56	31	176	e181	185	78
17	90	1.0	.00	.00	.01	16	56	31	179	e181	186	87
18	89	1.1	.00	.00	.01	16	56	31	178	e181	195	87
19	89	1.1	.00	.00	.01	16	55	63	180	e181	199	86
20	88	.43	.00	.00	.01	16	53	92	179	e180	196	87
21	88	.04	.00	.00	.02	16	43	94	180	e180	194	85
22	94	.01	.00	.00	.01	16	43	97	180	e180	195	84
23	98	.00	.00	.00	.01	17	45	98	180	e180	202	85
24	98	.00	.00	.00	.09	17	52	99	181	e180	203	84
25	101	.00	.00	.00	.02	18	53	100	181	e180	203	84
26	115	.00	.00	.00	.01	18	53	101	180	e181	202	84
27	115	.00	.00	.00	.00	19	52	101	181	e183	201	84
28	116	.00	.00	.00	.01	39	53	101	181	e186	202	83
29	117	.00	.00	.00	---	54	54	102	181	186	195	83
30	115	.00	.00	.00	---	56	54	102	182	190	184	83
31	102	---	.00	.00	---	54	---	102	---	188	189	---
TOTAL	3019	389.48	0.01	0.00	0.42	392.30	1463	1853	4943	5699	5838	3262
MEAN	97.4	13.0	.000	.000	.015	12.7	48.8	59.8	165	184	188	109
MAX	117	88	.01	.00	.16	56	57	102	182	191	203	188
MIN	88	.00	.00	.00	.00	.00	38	31	101	180	163	73
AC-FT	5990	773	.02	.00	.8	778	2900	3680	9800	11300	11580	6470

e Estimated

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

	MEAN	66.1	12.2	14.8	20.2	14.3	22.1	58.3	75.8	125	208	183	118
MAX	141	41.0	76.3	66.1	52.2	75.6	150	218	240	344	282	219	
(WY)	1978	1978	1978	1989	1975	1980	1972	1984	1984	1974	1980	1983	
MIN	3.10	.000	.000	.000	.000	.000	2.56	17.6	20.1	124	50.8	45.2	
(WY)	1977	1985	1985	1985	1985	1985	1979	1982	1982	1992	1989	1986	

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1972 - 1993

ANNUAL TOTAL	26430.75	26859.21	77.0
ANNUAL MEAN	72.2	73.6	120
HIGHEST ANNUAL MEAN			46.6
LOWEST ANNUAL MEAN			374
HIGHEST DAILY MEAN	196	203	374
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
ANNUAL RUNOFF (AC-FT)	52430	53280	55760
10 PERCENT EXCEEDS	139	186	203
50 PERCENT EXCEEDS	83	53	48
90 PERCENT EXCEEDS	.00	.00	.22

07312200 BEAVER CREEK NEAR ELECTRA, TX

LOCATION.--Lat 33°54'21", long 98°54'17", Wichita County, Hydrologic Unit 11130207, near right bank at downstream side of bridge on Farm Road 2326, 6.5 mi northwest of Kanay, 8 mi upstream from Wichita River, and 9 mi south of Electra.

DRAINAGE AREA.--652 mi².

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

Water-quality records.--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 above National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation reference point).

REMARKS.--Records fair except for estimated daily discharges, which are poor. Some regulation by Santa Rosa Lake (capacity, 11,570 acre-ft) about 30 miles upstream. There are several diversions above station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1925, 36.0 ft, probably occurred Oct. 2, 1941 (partly caused by breaching of Santa Rosa Dam to avoid its failure), from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 22	1400	1,180	21.03	Mar. 30	1750	2,720	26.42
Dec. 15	0400	1,890	23.56	Apr. 5	0030	1,660	23.46
Feb. 16	0800	4,520	29.60	Apr. 15	1730	1,060	20.71
Feb. 26	0000	1,090	20.38	May 3	0315	2,120	24.82
Mar. 2	0740	3,500	27.76	May 11	0400	3,540	28.19

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	7.7	11	19	13	1630	1050	68	28	e9.1	e14	38
2	10	7.6	9.6	17	13	3330	423	1370	25	e9.2	e20	28
3	10	7.1	9.2	17	13	2070	426	1820	23	e9.1	41	16
4	9.9	7.1	8.8	17	13	682	1010	658	21	e9.1	47	14
5	9.9	7.0	8.3	18	13	514	1210	227	19	8.8	22	13
6	9.9	7.2	8.2	15	13	440	534	154	17	8.9	18	13
7	9.7	7.0	8.1	15	12	355	348	121	16	e12	17	13
8	10	6.7	8.1	15	12	269	258	106	e28	10	17	21
9	9.8	6.1	155	18	12	206	207	1250	41	9.3	16	32
10	9.8	6.3	164	23	16	156	161	3120	76	e8.7	13	18
11	10	7.6	46	19	26	124	124	3180	e42	e8.5	13	13
12	10	10	22	18	23	110	98	1240	30	e8.6	13	12
13	10	6.8	216	18	16	94	87	684	e21	8.9	13	12
14	9.8	6.4	1270	16	15	90	484	641	e19	11	13	40
15	9.7	6.4	1580	15	2280	87	1020	682	e20	e17	12	33
16	9.4	6.5	403	14	4290	83	561	613	e21	23	12	16
17	9.4	6.5	114	14	2800	76	261	361	e21	e16	12	12
18	9.3	7.1	74	14	752	70	192	214	e22	e17	12	12
19	9.4	375	57	31	564	70	150	146	e21	e16	13	12
20	9.1	87	46	174	568	70	118	112	e20	13	12	12
21	9.2	181	38	84	603	67	88	85	e37	e14	12	12
22	8.9	1020	36	43	531	83	74	72	e29	17	11	12
23	8.7	576	32	31	313	100	67	65	e19	15	12	12
24	9.1	227	29	26	261	75	59	57	e13	e14	13	11
25	8.1	210	26	20	1240	67	53	48	11	e14	31	11
26	7.9	82	26	18	663	60	44	43	14	e13	14	11
27	8.1	32	22	17	241	55	40	39	e10	13	11	11
28	7.8	15	22	16	175	53	38	37	9.2	14	12	11
29	7.9	15	22	16	---	92	158	36	e9.1	e14	12	11
30	7.9	12	21	15	---	2320	140	34	9.2	e13	20	11
31	7.9	---	20	13	---	2580	---	31	---	e12	28	---
TOTAL	286.6	2959.1	4512.3	806	15491	16078	9483	17314	691.5	386.2	526	493
MEAN	9.25	98.6	146	26.0	553	519	316	559	23.0	12.5	17.0	16.4
MAX	10	1020	1580	174	4290	3330	1210	3180	76	23	47	40
MIN	7.8	6.1	8.1	13	12	53	38	31	9.1	8.5	11	11
AC-FT	568	5870	8950	1600	30730	31890	18810	34340	1370	766	1040	978
CFSM	.01	.15	.22	.04	.85	.80	.48	.86	.04	.02	.03	.03
IN.	.02	.17	.26	.05	.88	.92	.54	.99	.04	.02	.03	.03

e Estimated

RED RIVER BASIN

85

07312200 BEAVER CREEK NEAR ELECTRA, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1993, BY WATER YEAR (WY)

MEAN	127	39.9	31.8	22.3	53.6	85.1	68.0	142	124	68.5	42.6	122
MAX	1108	319	385	185	553	592	760	921	618	727	388	1107
(WY)	1987	1973	1992	1985	1993	1961	1990	1987	1992	1975	1966	1986
MIN	.14	.82	.71	.27	.84	.65	.89	3.10	3.37	1.84	1.35	1.14
(WY)	1964	1966	1971	1966	1963	1965	1982	1988	1966	1964	1983	1983

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1961 - 1993

ANNUAL TOTAL	56067.8	69026.7	77.3
ANNUAL MEAN	153	189	296
HIGHEST ANNUAL MEAN			11.4
LOWEST ANNUAL MEAN			11000
HIGHEST DAILY MEAN	4560 Jun 9	4290 Feb 16	May 29 1987
LOWEST DAILY MEAN	1.8 Aug 22	6.1 Nov 9	May 11 1962
ANNUAL SEVEN-DAY MINIMUM	2.8 Aug 19	6.8 Nov 4	May 11 1962
INSTANTANEOUS PEAK FLOW		4520 Feb 16	11700 Mar 17 1961
INSTANTANEOUS PEAK STAGE		29.60 Feb 16	34.94 May 29 1987
INSTANTANEOUS LOW FLOW		6.0 Nov 9	.00 at times
ANNUAL RUNOFF (AC-FT)	111200	136900	55980
ANNUAL RUNOFF (CFSM)	.23	.29	.12
ANNUAL RUNOFF (INCHES)	3.20	3.94	1.61
10 PERCENT EXCEEDS	338	532	120
50 PERCENT EXCEEDS	27	19	5.4
90 PERCENT EXCEEDS	6.5	8.9	.70

RED RIVER BASIN

07312500 WICHITA RIVER AT WICHITA FALLS, TX

LOCATION.--Lat 33°54'34", long 98°32'00", Wichita County, Hydrologic Unit 11130206, near center of stream at downstream side of bridge on Beverly Drive in Wichita Falls, 4 mi upstream from Fort Worth and Denver Railway Co. bridge, 8.4 mi upstream from Holliday Creek, and 55.3 mi upstream from mouth.

DRAINAGE AREA.--3,140 mi², of which 2,086 mi² is above Lake Kemp Dam.

PERIOD OF RECORD.--February 1901 to January 1902 (monthly discharge only, published in WSP 1311, 1901 water year no longer used in computation of average discharge because of poor accuracy of record. October 1910 to December 1911 (gage heights only), March 1938 to current year.
Water-quality records.--Chemical analyses: April 1966 to July 1975. Chemical and biochemical analyses: November 1981 to August 1989. Sediment analyses: April 1966 to July 1975. Specific Conductance: October 1981 to September 1989. Water temperature: October 1981 to September 1989.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 924.26 ft above National Geodetic Vertical Datum of 1929. February 1900 to February 1902 and Oct. 1, 1910, to Dec. 31, 1911, nonrecording gages at site 4 mi downstream at different datum. Mar. 30, 1938, to Dec. 1, 1959, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Records good. Flow from 2,086 mi² above this station is regulated by Lake Kemp (capacity 603,000 acre-ft) 71 mi upstream. Since completion of Lake Kemp in 1923, no outflow has been permitted to pass over the spillway. Water is diverted from Lake Diversion (capacity 40,000 acre-ft) 41 mi upstream for the irrigation of 42,000 acres under permit in the vicinity of Wichita Falls. During the current water year, the Wichita County Water Improvement District No. 2 diverted 53,280 acre-ft from Lake Diversion for mining, industrial, irrigation, and for recreational uses. Gage-height telemeter at station via Sutron data collection platform (DCP).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 50,000 ft³/s June 8, 1915, computed by Vernon L. Sullivan, engineer for Big Wichita River Irrigation Co.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85	106	115	86	56	2490	3530	240	188	116	84	152
2	85	94	101	86	54	3640	2530	897	163	110	83	154
3	84	103	92	82	53	4220	841	2310	147	107	120	156
4	81	97	86	78	52	4630	1030	2350	129	110	133	146
5	84	85	79	74	51	3850	1670	994	141	118	152	130
6	84	80	76	74	51	1960	1560	376	153	145	133	114
7	83	76	71	74	51	1450	735	289	164	144	122	80
8	85	79	69	70	50	1290	499	340	238	121	145	88
9	87	78	124	75	49	1160	404	2150	287	106	135	123
10	83	75	318	71	52	1050	340	3190	336	89	123	131
11	80	66	286	78	48	982	298	3120	379	84	100	127
12	78	58	144	82	51	920	256	3240	343	87	104	107
13	81	57	225	73	63	894	223	3120	342	92	89	121
14	86	57	1490	70	60	859	495	1260	330	101	75	434
15	84	58	2240	67	1490	845	1390	904	317	110	57	299
16	85	59	2150	64	2970	835	1610	906	308	111	61	165
17	84	58	844	63	3500	822	801	795	320	108	68	109
18	78	55	509	62	4030	815	434	536	320	103	70	90
19	78	270	437	74	3630	821	343	374	319	110	69	94
20	78	512	228	167	1690	820	311	315	306	107	79	93
21	77	325	154	296	1460	809	254	318	287	103	82	83
22	74	1620	136	187	1460	842	215	304	303	97	82	78
23	75	1810	125	132	1350	855	194	330	298	92	89	74
24	79	870	117	109	1140	782	177	285	274	75	109	54
25	78	594	112	97	1530	304	168	255	280	65	96	54
26	78	614	106	83	2360	206	160	240	243	62	108	53
27	78	446	103	74	2080	183	143	228	203	68	107	57
28	87	377	98	69	1170	173	140	218	166	65	94	56
29	105	347	94	66	---	180	188	207	138	71	85	54
30	106	181	91	62	---	1770	258	207	128	68	97	54
31	111	---	89	60	---	3330	---	198	---	75	126	---
TOTAL	2601	9307	10909	2805	30601	43787	21197	30496	7550	3020	3077	3530
MEAN	83.9	310	352	90.5	1093	1412	707	984	252	97.4	99.3	118
MAX	111	1810	2240	296	4030	4630	3530	3240	379	145	152	434
MIN	74	55	69	60	48	173	140	198	128	62	57	53
AC-FT	5160	18460	21640	5560	60700	86850	42040	60490	14980	5990	6100	7000

RED RIVER BASIN

87

07312500 WICHITA RIVER AT WICHITA FALLS, TX--Continued

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

MEAN	439	217	124	95.1	154	197	240	557	496	242	234	337
MAX	4017	1784	1091	859	1252	1412	1450	4105	4475	1201	2791	2619
(WY)	1942	1973	1992	1992	1992	1993	1990	1941	1941	1975	1950	1950
MIN	55.1	34.9	25.3	22.5	28.7	26.9	37.3	52.0	71.0	60.6	61.9	64.6
(WY)	1983	1982	1979	1974	1982	1975	1989	1988	1944	1986	1986	1981

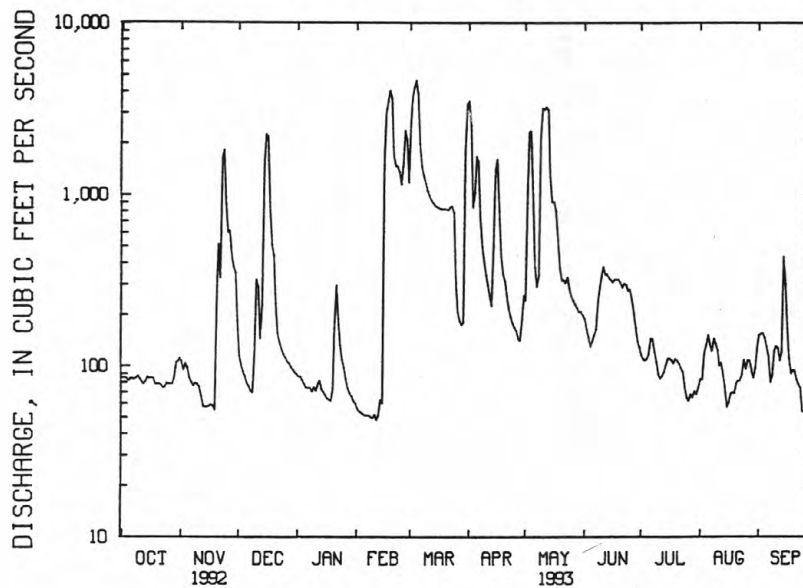
SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1939 - 1993

ANNUAL TOTAL	247565		168880									
ANNUAL MEAN	676		463							278		
HIGHEST ANNUAL MEAN										977		1941
LOWEST ANNUAL MEAN										64.3		1983
HIGHEST DAILY MEAN	4280	Jun 11	4630	Mar 4	17300	Oct 3	1941					
LOWEST DAILY MEAN	55	Nov 18	48	Feb 11	7.7	Apr 9	1978					
ANNUAL SEVEN-DAY MINIMUM	57	Nov 12	50	Feb 5	11	Mar 6	1975					
INSTANTANEOUS PEAK FLOW			4700	Mar 4	17800	Oct 3	1941					
INSTANTANEOUS PEAK STAGE			15.94	Mar 4	24.00	Oct 3	1941					
INSTANTANEOUS LOW FLOW			46	Feb 12	.00	Oct 11	1960					
ANNUAL RUNOFF (AC-FT)	491000		335000		201500							
10 PERCENT EXCEEDS	1950		1450		570							
50 PERCENT EXCEEDS	247		126		84							
90 PERCENT EXCEEDS	84		65		37							



— 07312500 WICHITA RIVER AT WICHITA FALLS, TX
MEAN DAILY DISCHARGE (CFS), FROM THE DCP

RED RIVER BASIN

07312700 WICHITA RIVER NEAR CHARLIE, TX

LOCATION.--Lat 34°03'11", long 98°17'47", Clay County, Hydrologic Unit 11130206, on right bank at upstream side of bridge on Farm Road 810, 3.0 mi southeast of Charlie, and 5.7 mi northwest of Petrolia.

DRAINAGE AREA.--3,439 mi², of which 2,086 mi² is above Lake Kemp Dam and 143 mi² is above Lake Wichita Dam.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 872.71 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for estimated daily discharges, which are poor. For statement regarding regulation and diversions, see station 07312500. Records furnished by the city of Wichita Falls show that 15,455 acre-ft was returned to river above this station as sewage effluent. Station is a special periodic water-quality station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122	177	302	131	101	e3050	2950	530	e318	242	113	188
2	128	164	216	124	99	3900	3420	1570	279	220	126	221
3	126	130	187	127	98	4120	2930	1910	240	210	136	220
4	126	139	168	122	99	4380	1570	2300	217	210	245	216
5	117	127	153	120	98	4760	1650	2190	207	219	208	198
6	123	112	142	118	97	4860	1890	1110	218	227	231	177
7	132	103	135	116	97	3390	1780	630	221	262	217	149
8	117	99	132	117	97	1820	1160	536	215	244	203	127
9	113	101	239	125	105	1650	855	2840	487	223	215	161
10	115	98	425	147	207	1530	718	4560	566	191	206	170
11	116	98	482	121	186	1440	629	3920	495	148	186	177
12	119	90	360	137	157	1350	568	3520	492	132	162	171
13	119	82	246	140	156	1300	513	3540	452	145	150	158
14	110	80	908	124	166	1260	585	3470	445	151	131	668
15	115	79	1870	118	1080	1210	1170	e2500	435	182	122	721
16	108	80	2080	113	2400	1180	1640	e1880	419	182	109	386
17	109	82	1960	114	2670	1180	1730	e1730	435	170	118	232
18	115	81	1080	113	3090	1160	1150	e1380	423	173	115	174
19	120	288	783	122	3620	1160	733	e957	439	167	110	158
20	115	532	641	251	3760	1260	593	e738	488	182	109	160
21	105	601	398	325	e2140	1180	518	e652	458	174	117	184
22	105	1330	306	408	e1370	1190	465	e613	458	201	119	142
23	104	1790	262	272	e1290	1270	428	e658	437	162	125	129
24	101	1640	228	197	e1200	1200	403	e730	399	149	138	126
25	103	1010	212	161	e1140	1080	373	e572	382	132	158	116
26	103	831	189	142	e1410	630	351	e495	519	122	140	118
27	103	768	176	129	e1800	509	339	e446	352	120	154	122
28	102	603	167	122	e1920	473	329	e411	286	116	154	118
29	145	535	157	115	---	450	1000	e375	239	110	140	114
30	154	481	151	105	---	797	637	e356	220	110	139	110
31	156	---	143	102	---	2060	---	e327	---	115	154	---
TOTAL	3646	12331	14898	4678	30653	56799	33077	47446	11241	5391	4750	6111
MEAN	118	411	481	151	1095	1832	1103	1531	375	174	153	204
MAX	156	1790	2080	408	3760	4860	3420	4560	566	262	245	721
MIN	101	79	132	102	97	450	329	327	207	110	109	110
AC-FI	7230	24460	29550	9280	60800	112700	65610	94110	22300	10690	9420	12120

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1993, BY WATER YEAR (WY)

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MEAN	407	339	212	191	279	413	357	586	675	296	249	444														
MAX	2032	2194	1556	1005	1411	1832	2377	3094	2736	1330	750	2598														
(WY)	1987	1973	1992	1992	1992	1993	1990	1990	1987	1992	1971	1986														
MIN	101	63.2	51.5	46.1	54.4	70.2	61.2	103	147	92.5	112	126														
(WY)	1971	1982	1979	1974	1980	1972	1989	1988	1971	1972	1986	1983														

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1968 - 1993

ANNUAL TOTAL	298422	231021	
ANNUAL MEAN	815	633	370
HIGHEST ANNUAL MEAN			986
LOWEST ANNUAL MEAN			125
HIGHEST DAILY MEAN	4470	4860	7740
LOWEST DAILY MEAN	79	79	24
ANNUAL SEVEN-DAY MINIMUM	82	82	29
INSTANTANEOUS PEAK FLOW		4940	7760
INSTANTANEOUS PEAK STAGE		18.87	25.80
INSTANTANEOUS LOW FLOW		76	24
ANNUAL RUNOFF (AC-FT)	591900	458200	268400
10 PERCENT EXCEEDS	2000	1780	901
50 PERCENT EXCEEDS	479	217	146
90 PERCENT EXCEEDS	123	110	67

07312700 WICHITA RIVER NEAR CHARLIE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1967 to September 1981, October 1989 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1967 to September 1981.

WATER TEMPERATURE: October 1967 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD

SPECIFIC CONDUCTANCE: Maximum daily, 10,000 microsiemens Apr. 25, 1972; minimum daily, 384 microsiemens Aug. 16, 1971.

WATER TEMPERATURE: Maximum daily, 34.5°C July 25, 1981; minimum daily, 0.0°C on many days during winter months.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)
NOV 18...	1235	81	4840	8.1	15.5	11.1	117	1.5	1000	780
JAN 14...	0930	123	4240	8.2	5.0	13.4	109	0.4	870	650
MAR 18...	0935	1170	3260	7.9	11.5	10.7	102	0.8	630	520
MAY 13...	1025	3540	737	7.8	18.5	7.8	86	2.6	180	83
JUL 21...	1150	172	4960	8.4	29.0	8.3	113	4.8	1100	910
AUG 05...	1145	220	4210	8.2	27.0	9.4	123	3.5	850	710

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY MAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)
NOV 18...	240	100	660	9	1.6	230	550	1200	0.70	7.1
JAN 14...	200	91	570	8	7.4	220	350	1100	0.50	8.0
MAR 18...	160	57	420	7	7.1	110	470	650	0.20	7.0
MAY 13...	46	15	76	2	6.2	94	49	140	0.20	10
JUL 21...	250	110	690	9	8.3	170	610	1200	0.40	5.7
AUG 05...	200	85	550	8	7.2	140	510	1000	0.50	6.5

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)
NOV 18...	2900	2.65	--	0.050	--	2.70	--	0.020	--
JAN 14...	2470	1.20	1.20	--	0.100	1.30	1.30	--	1.20
MAR 18...	1840	0.340	--	--	<0.010	0.340	0.340	--	0.030
MAY 13...	400	0.180	--	--	<0.010	0.180	0.180	--	0.040
JUL 21...	2980	0.660	0.660	--	0.020	0.680	0.680	--	0.030
AUG 05...	2450	0.830	0.830	--	0.020	0.850	0.850	--	0.040

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS P04)
NOV 18...	0.78	--	--	0.80	0.900	--	--	0.820	--
JAN 14...	--	0.40	1.6	--	--	0.600	0.640	--	2.0
MAR 18...	--	0.27	0.30	--	--	0.040	0.040	--	0.12
MAY 13...	--	0.66	0.70	--	--	0.060	0.060	--	0.18
JUL 21...	--	0.67	0.70	--	--	0.120	0.120	--	0.37
AUG 05...	--	0.26	0.30	--	--	0.200	0.180	--	0.55

RED RIVER BASIN

07314000 LAKE KICKAPOO NEAR ARCHER CITY, TX

LOCATION.--Lat 33°39'47", long 98°46'43", Archer County, Hydrologic Unit 11130209, on intake tower near left end of dam on North Fork Little Wichita River, 8.2 mi south of Mankins, and 9.2 mi northwest of Archer City.

DRAINAGE AREA.--275 mi².

PERIOD OF RECORD.--February 1946 to current year. Prior to October 1965, monthend contents only.
Water-quality records.--Chemical analyses: October 1969 to September 1984.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Nonrecording gage read twice daily prior to Feb. 17, 1974, once daily thereafter. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by city of Wichita Falls). Prior to Oct. 8, 1946, water-stage recorder at same site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam 8,200 ft long, including a 483-foot-wide 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 conduits. The dam and lake are owned by the city of Wichita Falls, which uses the water for their municipal supply. The capacity table is based on Geological Survey topographic maps, dated 1929. The capacity curve, dated November 1946, was entitled "Lake Kickapoo Area & Capacity Curve". Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	1,062.0	-
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 provided by the city of Wichita Falls.

EXTREMES (at 0800) FOR PERIOD OF RECORD.--Maximum contents, 134,300 acre-ft Aug. 2, 1950 (elevation, 1,049.2 ft); minimum observed since first filling in July 1950, 35,660 acre-ft June 30, 1953 (elevation, 1,029.8 ft).

EXTREMES (at 0800) FOR CURRENT YEAR.--Maximum contents, 111,850 acre-ft May 9, 10 (elevation, 1,045.9 ft); minimum, 93,010 acre-ft Sept. 7-10 (elevation, 1,042.9 ft).

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

1,042.0	87,700	1,044.0	99,700	1,046.0	112,500
1,043.0	93,600	1,045.0	106,000	1,048.0	126,000

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY OBSERVATION AT 08:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	103500	99700	105400	106600	106000	109000	106600	108600	108000	106600	99090	94210
2	103500	99700	105400	107300	106000	109900	106600	109900	108000	105400	99090	94210
3	102800	99700	105400	107300	106000	109900	106600	109200	108000	106000	99090	93600
4	102800	99700	105400	106000	106000	109900	106600	109200	108000	106000	99090	93600
5	102200	99700	104700	106600	106000	109900	106600	108600	108000	106000	99090	93600
6	101600	99700	105400	106600	106000	109900	106600	108600	108000	105400	98480	93600
7	101600	99700	105400	106600	106000	109200	106600	108600	107300	105400	98480	93010
8	101600	99700	105400	106600	106000	109200	106600	111200	108000	104700	98480	93010
9	101600	98480	105400	106600	106000	109200	106000	111800	108600	104700	98480	93010
10	101000	97870	105400	106600	106000	109200	106000	111800	109900	104700	98480	93010
11	101000	97870	105400	106600	106000	108600	106000	113200	109900	104700	97870	93600
12	101000	97870	105400	106600	106000	108600	107300	112500	109900	104700	97870	93600
13	101000	97260	105400	106600	105400	108600	106600	112500	109200	104700	97870	93600
14	101000	97260	106000	106600	105400	108000	107300	118800	108600	103500	97870	93600
15	101000	97260	107300	106600	105400	108000	108600	110600	108600	103500	97260	95430
16	101000	96650	107300	106600	111200	108000	108600	110600	108600	102800	97260	95430
17	101000	96650	107300	106600	111200	107300	108600	109200	108600	102800	97260	95430
18	100300	96650	107300	106000	111200	107300	108000	109200	108600	102200	96650	95430
19	100300	96650	107300	106000	111200	107300	108000	108600	108600	102200	96650	95420
20	100300	96650	107300	106600	111200	107300	108000	108600	108000	102200	96040	95420
21	100300	97260	106000	106600	111200	107300	107300	108600	107300	102200	96040	94820
22	99700	102200	105400	106600	110600	107300	108600	108000	107300	102200	95430	94820
23	99700	104700	107300	106600	109200	108000	108000	108000	108000	102200	95430	94820
24	99700	105400	107300	106600	108600	107300	108000	108000	107300	102200	95430	94820
25	99700	105400	107300	106000	108600	107300	107300	108000	106600	102200	95430	94820
26	101000	106000	107300	106000	108600	107300	107300	108000	106600	101000	95430	93600
27	99090	105400	107300	106000	109200	107300	107300	108000	106600	101000	95430	93600
28	100300	105400	107300	106000	109200	107300	107300	108000	106600	101000	94210	93600
29	99700	105400	107300	106000	---	107300	107300	108000	106600	99700	94210	93600
30	99090	106000	107300	106000	---	107300	107300	108000	106600	99700	94210	94820
31	99700	---	107300	106000	---	107300	---	108000	---	99090	94210	---
MAX	103500	106000	107300	107300	111200	109900	108600	118800	109900	106600	99090	95430
MIN	99090	96650	104700	106000	105400	107300	106000	108000	106600	99090	94210	93010
(†)	1044.0	1045.0	1045.2	1045.0	1045.5	1045.2	1045.2	1045.3	1045.1	1043.9	1043.1	1043.2
(Φ)	-3300	+6300	+1300	-1300	+3200	-1900	0	+700	-1400	-7510	-4880	+610
(††)	411	706	39.4	323	1238	810	474	811	1513	1614	1481	1441

CAL YR 1992 MAX 121200 MIN 95430 (Φ) +11260 (††) 8350
WTR YR 1993 MAX 118800 MIN 93010 (Φ) -8180 (††) 10861

(†) Elevation, in feet, at end of month.
(Φ) Change in contents, in acre-feet.
(††) Diversions, in acre-feet, for municipal use.

07314500 LITTLE WICHITA RIVER NEAR ARCHER CITY, TX

LOCATION.--Lat 33°39'45", long 98°36'46", Archer County, Hydrologic Unit 11130209, on left bank at downstream side of bridge on State Highway 79, 1.5 mi downstream from confluence of North and Middle Forks, and 4.8 mi north of Archer City.

DRAINAGE AREA.--481 mi², of which 275 mi² is above Lake Kickapoo.

PERIOD OF RECORD.--May 1932 to January 1956, August 1966 to current year.

Water-quality records.--Chemical analyses: January 1953 to January 1956. Water temperatures: January 1953 to January 1956. Sediment records: May 1968 to September 1975.

REVISED RECORDS.--WSP 827: 1932-35. WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 934.72 ft above National Geodetic Vertical Datum of 1929. Aug. 17, 1954, to Jan. 6, 1956, nonrecording gage at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Some regulation by Lake Kickapoo (station 07314000) on North Fork Little Wichita River. Records furnished by the city of Wichita Falls show that 10,861 acre-ft was diverted from Lake Kickapoo for municipal use by the city during the current year.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--13 years (water years 1933-45) 110 ft³/s (79,700 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1933-45).--Maximum discharge, 17,900 ft³/s Oct. 31, 1941 (gage height, 21.80 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1930 reached a stage of about 28 ft, from information by State Department of Highways and Public Transportation.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.09	.09	.93	3.7	.46	447	61	13	9.3	.42	.00	.00
2	.08	.06	1.1	6.4	.27	1160	28	145	4.5	.38	.02	.00
3	.08	.02	.74	1.6	.11	1560	5.1	297	3.6	.39	.21	.00
4	.06	.01	.86	.69	.06	1520	19	212	3.4	.31	.14	.00
5	.04	.03	.75	20	.07	1070	153	141	4.0	.24	.19	.00
6	.03	.03	.76	5.0	.08	638	67	104	2.8	.20	.18	.00
7	.04	.03	1.0	1.0	.06	264	27	86	1.5	.13	.14	.00
8	.05	.03	.50	.49	.42	169	25	91	80	.21	.23	.00
9	.03	.04	.43	.37	.31	120	42	810	580	.23	.21	.02
10	.02	.04	.89	16	.22	96	12	e1950	976	.23	.26	.00
11	.01	.04	2.6	14	.13	70	4.1	e3030	1070	.23	.19	.00
12	.00	.04	.97	2.2	41	53	2.8	e3000	458	.25	.09	.00
13	.00	.04	1.8	6.2	12	67	1.9	e2130	182	.28	.00	.14
14	.00	.06	235	6.8	2.1	58	28	1200	118	e.62	.00	48
15	.02	.06	443	1.3	291	23	269	520	82	e.83	.00	137
16	.03	.07	114	.68	831	16	237	163	60	e.77	.00	27
17	.02	.07	53	.50	884	11	103	105	48	e.70	.00	8.3
18	.04	.07	36	.37	641	17	70	84	41	e.64	.00	4.5
19	.05	18	23	.65	456	8.1	58	68	23	e.52	.00	3.4
20	.08	124	31	36	248	8.3	58	43	14	e.47	.00	3.0
21	.08	35	18	55	171	8.3	53	22	8.9	e.39	.00	1.5
22	.07	399	8.8	30	128	12	26	16	6.4	e.35	.00	1.5
23	.08	618	5.8	12	93	42	21	30	3.4	e.31	.00	1.8
24	.08	103	3.8	17	79	45	18	69	2.1	e.26	.00	.69
25	.08	53	3.2	17	226	25	18	33	1.5	e.17	.00	.38
26	.08	60	2.2	4.2	483	13	11	17	1.2	e.08	.00	.17
27	.06	17	2.7	1.3	205	7.3	5.7	10	.82	e.08	.00	.08
28	.08	6.7	1.2	.62	136	5.9	4.6	6.8	.69	e.05	.00	.32
29	.11	4.5	.66	.41	---	3.8	4.3	4.0	.57	.03	.00	.61
30	.24	1.9	.50	.27	---	2.1	10	2.8	.49	.03	.00	.33
31	.13	---	.46	.15	---	35	---	17	---	.00	.00	---
TOTAL	1.86	1440.93	995.65	261.90	4929.29	7574.8	1442.5	14419.6	3787.17	9.80	1.86	238.74
MEAN	.060	48.0	32.1	8.45	176	244	48.1	465	126	.32	.060	7.96
MAX	.24	618	443	55	884	1560	269	3030	1070	.83	.26	137
MIN	.00	.01	.43	.15	.06	2.1	1.9	2.8	.49	.00	.00	.00
AC-FT	3.7	2860	1970	519	9780	15020	2860	28600	7510	19	3.7	474

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1993#, BY WATER YEAR (WY)

	MEAN	61.9	16.8	24.0	15.3	24.2	44.0	44.5	171	128	25.0	48.6	74.1
MAX	771	160	194	154	176	309	637	1224	944	282	1337	624	
(WY)	1982	1987	1992	1990	1993	1990	1990	1982	1985	1950	1930	1989	
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	
(WY)	1953	1946	1946	1953	1947	1950	1971	1984	1953	1974	1967	1954	

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1946 - 1993#
ANNUAL TOTAL	36913.02	35104.10	
ANNUAL MEAN	101	96.2	56.0
HIGHEST ANNUAL MEAN			252
LOWEST ANNUAL MEAN			2.49
HIGHEST DAILY MEAN	3250	3030	9550
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.01	.00	.00
INSTANTANEOUS PEAK FLOW		3290	20100
INSTANTANEOUS PEAK STAGE		24.65	27.03
INSTANTANEOUS LOW FLOW		.00	.00
ANNUAL RUNOFF (AC-FT)	73220	69630	40570
10 PERCENT EXCEEDS	216	175	68
50 PERCENT EXCEEDS	3.5	1.8	.32
90 PERCENT EXCEEDS	.06	.01	.00

See period of record paragraph.

07314800 LAKE ARROWHEAD NEAR HENRIETTA, TX

LOCATION.--Lat 33°45'51", long 98°22'17", Clay County, Hydrologic Unit 11130209, at intake tower near center of dam on Little Wichita River, 2.3 mi upstream from Lake Creek, 11 mi southwest of Henrietta, and 12.3 mi southeast of Wichita Falls.

DRAINAGE AREA.--822 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 0.40 ft below National Geodetic Vertical Datum of 1929.

REMARKS.--The lake is formed by a rolled earthfill dam 15,900 ft long, including an uncontrolled reinforced concrete ogee spillway 1,581 ft 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 inlets that can be used for controlled releases. The dam was built by the city of Wichita Falls to impound water for municipal, industrial, and recreational uses. 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 provided by Homer Hunter and Associates and Biggs and Mathews, Consulting Engineers, for the city of Wichita Falls. Area-capacity curves provided by Homer Hunter and Associates. Record of diversions provided by the city of Wichita Falls.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 287,500 acre-ft May 4, 1990 (gage height, 927.92 ft); minimum since first appreciable storage, 4,640 acre-ft Aug. 31 to Sept. 4, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 280,000 acre-ft May 16 at 2400 hours (gage height, 927.48 ft); minimum, 225,300 acre-ft Nov. 17, 18 (gage height, 924.01 ft).

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

924.0	225,300	926.0	255,700	928.0	288,900
925.0	240,100	927.0	272,000		

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	236800	228700	230800	232600	232700	250700	259900	e256100	e258900	257500	244900	232100
2	235600	229000	230600	232900	232700	254100	260200	e256200	e258700	256800	244600	229900
3	235300	227700	230300	233000	232600	257300	259500	e256400	e258600	255700	244800	231400
4	e235300	227500	229600	232400	232600	260700	258900	e257000	258400	255400	244300	231100
5	e235100	227300	230000	232300	232400	263600	259700	e257400	258700	255200	243200	230600
6	e235000	227400	229700	232400	232600	265100	259700	e257700	258700	254300	243200	230000
7	e234800	227000	229700	232300	232600	265100	259200	e257900	258400	253900	242900	230200
8	e234500	226800	230800	232600	232400	264900	259200	e258100	261500	253600	242900	230000
9	e234200	227000	230300	232000	232300	264100	259400	e258300	267200	252700	242300	230000
10	e233900	227000	230300	232100	232600	263300	258700	e259900	268900	252100	242000	228600
11	e233600	227100	230300	232700	231800	261600	259100	e262800	269200	251400	241500	228900
12	e233300	226400	230300	232600	231800	262300	259500	e265800	268500	251400	240900	228700
13	e233000	226500	230800	232400	231800	262600	258600	e271000	266900	251100	240400	229200
14	e232700	226200	231100	232600	232100	262600	259500	e276000	265700	250800	239200	231200
15	e232400	226100	232300	232300	233600	261500	259400	e278000	264400	250700	238400	231500
16	e232000	225800	232300	232400	236200	261100	260000	e280000	263400	251100	238100	232300
17	e231600	225300	233000	232300	238600	261100	259700	e279000	262900	250500	238100	231800
18	e231400	226100	232700	232100	241200	261100	260200	e275000	262300	250200	238000	232400
19	e231100	226100	232000	232900	242000	261100	259500	e271000	261800	249600	237800	232400
20	e230800	226100	232900	233200	243200	261100	258600	e268000	261500	249900	237100	233300
21	e230500	228000	232900	233200	242800	261000	258700	e265100	261100	250400	236800	234100
22	e230200	229300	233000	233500	243400	261800	258600	e262400	260800	250400	235900	233300
23	e229900	230500	232300	232600	242400	262100	258700	e261500	260500	250000	234800	232700
24	e229600	232000	233200	233000	244100	261900	256800	e260800	260000	249900	234100	232600
25	e229300	230800	232300	233200	244500	261300	257500	e260800	259700	249400	234100	231800
26	e229300	230900	232600	233200	245400	261600	257300	e261100	259500	248800	233800	234800
27	e229200	230800	232700	233200	246000	261500	256800	e260500	259200	248000	234500	234100
28	e229200	230900	232900	232300	246800	261500	256500	e260300	259100	247500	232700	233000
29	229200	230800	233200	232700	---	261500	256200	e259900	258300	247200	232400	233900
30	228900	230900	233000	232700	---	260300	256000	e259500	257900	246800	232100	234200
31	228600	---	231700	232900	---	260300	---	e259100	---	246100	233300	---
MAX	236800	232000	233200	233500	246800	265100	260200	280000	269200	257500	244900	234800
MIN	228600	225300	229600	232000	231800	250700	256000	256100	257900	246100	232100	228600
(+)	924.23	924.39	924.44	924.52	925.43	926.29	926.02	926.21	926.14	925.39	924.55	924.61
(Φ)	-8800	+2300	+800	+1200	+13900	+13500	-4300	+3100	-1200	-11800	-12800	+900
(++)	1462	684	478	202	775	360	872	551	501	1454	1981	524

CAL YR 1992 MAX 276500 MIN 225300 (Φ) -26900 (++) 8481
WTR YR 1993 MAX 280000 MIN 225300 (Φ) -3200 (++) 9844

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

(Φ) Change in contents, in acre-feet.

(++) Diversions, in acre-feet, for municipal use by the City of Wichita Falls.

e Estimated

RED RIVER BASIN

93

07314900 LITTLE WICHITA RIVER ABOVE HENRIETTA, TX

LOCATION.--Lat 33°49'36", long 98°14'23", Clay County, Hydrologic Unit 11130209, on right bank at downstream side of bridge on U.S. Highways 822 and 287, 1.0 mi downstream from Duck Creek, 2.8 mi west of Henrietta, 6.6 mi upstream from Turkey Creek, and 7.6 mi upstream from Dry Fork Little Wichita River.

DRAINAGE AREA.--1,037 mi².

PERIOD OF RECORD.--January 1953 to current year. Prior to October 1974, published as "near Henrietta".

Water-quality records.--Chemical analyses: December 1952 to January 1956, November 1959 to September 1966. January 1968 to September 1985.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 831.57 ft above National Geodetic Vertical Datum of 1929. Prior to June 26, 1953, nonrecording gage. Prior to July 11, 1975, at site 2.6 mi downstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Flow largely regulated by Lake Arrowhead, 39 mi upstream (capacity, 262,100 acre-feet). The city of Wichita Falls diverted 10,861 acre-ft from Lake Kickapoo, and 9,844 acre-ft from Lake Arrowhead for municipal uses, and returned 15,455 acre-ft as sewage effluent and filter plant wash water to the Wichita River below station 07312500 at Wichita Falls and above station 07312700 near Charlie. The city of Henrietta diverted 519 acre-ft from pool at gage for municipal use. Records of diversions were furnished by the cities of Wichita Falls and Henrietta respectively.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--13 years (water years 1954-66) prior to completion of Lake Arrowhead, 124 ft³/s (89,840 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1954-66).--Maximum discharge, 6,390 ft³/s May 2, 1957; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1908 reached a stage of 21 ft at former site, from information by State Department of Highways and Public Transportation.

REVISIONS.--Revised daily and monthly discharge, in cubic feet per second, for October 1991, are given in table below. These figures supercede those published in WDR TX-92-1.

Oct. 1.....	.27	Oct. 3.....	.45	Oct. 5.....	.00	Oct. 7.....	.00
2.....	.45	4.....	.16	6.....	.00	8.....	.00
MONTH	TOTAL	MEAN	MAX	MIN	AC-FT		
OCTOBER 1991	400.33	12.9	203	.00	794		

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	8.5	.00	2.6	432	15	20	25	27	19	.00
2	17	.00	6.3	.00	1.9	909	8.4	99	60	32	15	.00
3	28	.00	4.7	.00	1.3	788	11	97	41	23	5.7	.00
4	31	.00	3.3	.00	.62	218	57	54	23	53	.61	.00
5	34	.00	2.3	.00	3.6	61	31	89	18	50	.00	.00
6	30	.00	2.2	.00	7.0	143	31	95	13	30	.00	.00
7	16	.00	2.2	.03	10	362	124	47	34	22	.00	.00
8	9.4	.00	1.9	12	8.8	427	37	203	86	19	.00	.00
9	5.4	.00	5.1	12	7.2	394	16	1280	218	17	.00	.00
10	3.2	.00	6.9	10	6.3	279	8.8	2700	582	14	.00	.00
11	1.7	.00	7.6	7.4	8.0	149	11	2560	1120	10	.00	.00
12	.46	.00	9.0	7.3	17	125	8.0	2340	1340	7.0	.00	.00
13	.02	.00	11	6.0	15	42	8.6	2260	1420	5.2	.00	.00
14	.00	.00	50	5.4	13	70	13	2250	1150	3.9	.00	14
15	.00	.00	33	4.3	180	202	8.9	2280	681	2.9	.00	8.4
16	.00	.00	30	2.9	325	224	6.4	2270	462	2.2	.00	1.2
17	.00	.00	16	1.9	298	34	6.5	2120	375	1.1	.00	.13
18	.00	.00	22	1.6	105	16	18	1660	248	.27	.00	.00
19	.00	.00	17	2.2	46	101	61	696	163	.00	.00	.00
20	.00	.00	13	12	28	44	40	412	85	.00	.00	.00
21	.00	.67	8.9	16	19	19	14	254	52	.00	15	.00
22	.00	32	4.1	14	14	29	5.1	252	36	.00	20	.00
23	.00	24	1.9	12	12	30	11	308	34	.00	20	.00
24	.00	35	.63	12	10	50	45	122	56	.00	20	.00
25	.00	21	.75	12	69	42	36	90	47	.00	15	.00
26	.00	14	.26	9.4	75	21	13	76	32	.00	5.1	.00
27	.00	15	.00	7.3	54	15	5.6	79	24	.00	2.9	.00
28	.00	12	.00	5.8	38	33	6.5	77	16	.00	1.8	.00
29	.00	11	.00	4.8	---	73	30	75	15	.00	.40	.00
30	.00	11	.00	4.0	---	106	26	57	24	17	.02	.00
31	.00	---	.00	3.0	---	36	---	39	---	19	.00	---
TOTAL	176.18	175.67	268.54	185.33	1375.32	5474	712.8	24961	8480	355.57	140.53	23.73
MEAN	5.68	5.86	8.66	5.98	49.1	177	23.8	805	283	11.5	4.53	.79
MAX	34	35	50	16	325	909	124	2700	1420	53	20	14
MIN	.00	.00	.00	.00	.62	15	5.1	20	13	.00	.00	.00
AC-FT	349	348	533	368	2730	10860	1410	49510	16820	705	279	47

RED RIVER BASIN

07314900 LITTLE WICHITA RIVER ABOVE HENRIETTA, TX--Continued

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

MEAN	33.9	14.8	26.9	17.4	34.1	100	101	249	234	35.5	3.53	59.4
MAX	329	141	251	131	275	937	2169	2272	1652	549	37.8	549
(WY)	1982	1987	1992	1992	1987	1990	1990	1982	1992	1992	1971	1989
MTN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1968	1967	1967	1967	1967	1967	1971	1971	1977	1968	1967	1967
SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR					FOR 1993 WATER YEAR				WATER YEARS 1967 - 1993#		
ANNUAL TOTAL	88656.76					42328.67				75.8		
ANNUAL MEAN	242					116				498		
HIGHEST ANNUAL MEAN										2.30		
LOWEST ANNUAL MEAN										10500		
HIGHEST DAILY MEAN	5800					2700				May 3 1990		
LOWEST DAILY MEAN	.00					.00				Oct 16 1966		
ANNUAL SEVEN-DAY MINIMUM	.00					.00				Oct 19 1966		
INSTANTANEOUS PEAK FLOW						2930				May 3 1990		
INSTANTANEOUS PEAK STAGE						23.30				May 3 1990		
INSTANTANEOUS LOW FLOW						.00				at times		
ANNUAL RUNOFF (AC-FT)	175900					83960				54950		
10 PERCENT EXCEEDS	505					209				61		
50 PERCENT EXCEEDS	11					10				.00		
90 PERCENT EXCEEDS	.00					.00				.00		

Period of regulated streamflow.

RED RIVER BASIN

95

07315200 EAST FORK LITTLE WICHITA RIVER NEAR HENRIETTA, TX

LOCATION.--Lat 33°48'46", Long 98°05'05", Clay County, Hydrologic Unit 11130209, at downstream side of bridge on U.S. Highway 82, 5.8 mi upstream from Little Wichita River, 6.4 mi east of Henrietta, and 8.9 mi west of Ringgold.

DRAINAGE AREA.--178 mi².

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

REVISED RECORDS.--WDR TX-72-1: 1966(M).

GAGE.--Water-stage recorder. Datum of gage is 825.32 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. There are no known diversions upstream from this station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1941 reached a stage of 28.8 ft, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft³/s.

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Feb. 17	0530	1,410	19.93	May 9	2300	10,400	a/27.76
Mar. 3	0400	1,670	a/20.59	June 10	1600	2,470	22.18

a/ From highwater mark.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.15	.11	.66	1.2	1.9	462	13	20	4.3	.96	.01	.00
2	.14	.10	.61	1.3	1.7	e1230	11	81	3.8	.84	.01	.00
3	.13	.08	.60	1.3	1.5	1350	10	43	3.5	.75	14	.00
4	.11	.06	.59	1.4	1.6	170	10	23	3.3	.66	1.8	.00
5	.11	.05	.60	1.3	1.6	50	10	13	3.0	.58	.57	.00
6	.10	.05	.64	1.4	1.8	35	10	8.4	2.4	.53	.25	.00
7	.09	.06	.66	1.3	1.7	28	11	6.0	2.2	.48	.17	.00
8	.10	.06	.68	1.4	1.8	25	11	4.8	64	.44	.12	.00
9	.10	.06	1.2	1.7	1.7	22	10	2380	462	.38	.09	.00
10	.09	.07	1.3	1.8	1.8	19	9.5	4980	1650	.35	.04	.00
11	.09	.08	1.2	2.3	1.8	17	8.5	1880	1250	.32	.02	.00
12	.08	.08	1.3	3.7	1.7	15	7.5	247	105	.31	.01	.00
13	.07	.08	5.1	5.9	2.0	14	6.9	48	28	.29	.00	.16
14	.07	.09	223	9.0	2.3	16	6.8	29	16	.30	.00	325
15	.07	.10	462	6.7	300	16	7.2	20	11	.30	.00	112
16	.07	.11	109	3.8	1220	15	8.5	16	7.8	.28	.00	8.3
17	.07	.11	23	2.9	1250	14	9.6	13	6.3	.26	.00	1.7
18	.08	.13	13	2.3	171	14	7.8	11	5.7	.23	.00	.63
19	.08	.36	8.5	2.5	36	13	6.4	9.8	4.3	.21	.00	.27
20	.08	.60	5.8	16	26	15	5.1	9.0	3.7	.18	.00	.13
21	.08	3.8	4.2	40	22	17	4.3	9.0	3.5	.16	.00	.03
22	.09	169	3.5	25	18	90	3.9	9.1	3.3	.14	.00	.00
23	.08	66	2.9	13	15	159	3.5	9.7	2.8	.13	.00	.00
24	.08	18	2.3	8.5	15	72	3.3	10	2.4	.11	.00	.00
25	.10	6.4	2.0	5.7	224	35	3.0	9.1	2.1	.10	.00	.00
26	.10	3.0	1.7	3.9	100	24	2.8	8.5	1.8	.07	.00	.00
27	.10	1.6	1.5	3.2	50	18	2.9	7.6	1.5	.05	.00	.00
28	.10	1.1	1.5	2.5	29	18	3.1	7.2	1.3	.04	.00	.00
29	.11	.89	1.5	2.2	---	16	38	9.7	1.2	.03	.00	.00
30	.11	.74	1.4	2.1	---	14	34	7.0	1.1	.02	.00	.00
31	.12	---	1.3	1.9	---	14	---	5.3	---	.02	.00	---
TOTAL	2.95	272.97	883.24	177.2	3500.9	4017	278.6	9934.2	3657.3	9.52	17.09	448.22
MEAN	.095	9.10	28.5	5.72	125	130	9.29	320	122	.31	.55	14.9
MAX	.15	169	462	40	1250	1350	38	4980	1650	.96	14	325
MIN	.07	.05	.59	1.2	1.5	13	2.8	4.8	1.1	.02	.00	.00
AC-FT	5.9	541	1750	351	6940	7970	553	19700	7250	.19	.34	889
CFSM	.00	.05	.16	.03	.70	.73	.05	1.80	.68	.00	.00	.08
IN.	.00	.06	.18	.04	.73	.84	.06	2.08	.76	.00	.00	.09

e Estimated

RED RIVER BASIN

07315200 EAST FORK LITTLE WICHITA RIVER NEAR HENRIETTA, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1993, BY WATER YEAR (WY)

MEAN	43.4	10.9	24.5	14.2	20.0	51.8	46.9	113	77.7	7.37	4.48	14.6
MAX	902	97.3	303	139	143	295	686	453	508	123	41.3	102
(WY)	1982	1974	1992	1985	1987	1985	1990	1989	1992	1973	1973	1980
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1979	1972	1966	1966	1966	1967	1971	1971	1971	1971	1969	1979

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1965 - 1993
ANNUAL TOTAL	33458.56	23199.19	
ANNUAL MEAN	91.4	63.6	35.9
HIGHEST ANNUAL MEAN			128
LOWEST ANNUAL MEAN			3.04
HIGHEST DAILY MEAN	5070 May 23	4980 May 10	16900 Oct 13 1981
LOWEST DAILY MEAN	.05 Nov 5	.00 Aug 13	.00 Oct 16 1964
ANNUAL SEVEN-DAY MINIMUM	.06 Nov 4	.00 Aug 13	.00 Oct 16 1964
INSTANTANEOUS PEAK FLOW		10400 May 9	32500 Oct 13 1981
INSTANTANEOUS PEAK STAGE		27.76 May 9	31.70 Oct 13 1981
INSTANTANEOUS LOW FLOW		.00 at times	.00 at times
ANNUAL RUNOFF (AC-FT)	66370	46020	25980
ANNUAL RUNOFF (CFSM)	.51	.36	.20
ANNUAL RUNOFF (INCHES)	6.99	4.85	2.74
10 PERCENT EXCEEDS	129	37	22
50 PERCENT EXCEEDS	3.4	1.8	.15
90 PERCENT EXCEEDS	.10	.00	.00

RED RIVER BASIN

97

07315500 RED RIVER NEAR TERRAL, OK

LOCATION.--Lat 33°52'43", long 97°56'03", Jefferson County, Hydrologic Unit 11130201, on left bank at downstream side of bridge abutment on U.S. Highway 81, 0.5 mi downstream from Chicago, Rock Island, and Railroad Co. bridge, 1.2 mi south of Terral, 3.6 mi downstream from Little Wichita River, and at mile 872.

DRAINAGE AREA.--28,723 mi², of which 5,936 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 770.31 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 12, 1939, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. There are many small diversions upstream from station for irrigation, oil field operations, and for municipal uses. Gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 19, 1935, reached a stage of 27.2 ft, although floods in 1891 and on May 1, 1908, are reported to have reached about the same stage.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 21,000 ft³/s.

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 23	0200	33,700	16.47	Apr. 16	0600	29,700	15.59
Dec. 15	1500	33,600	16.46	May 3	0900	35,000	16.82
Feb. 16	2400	37,700	16.52	May 10	2300	84,100	21.14
Mar. 2	1400	27,300	15.31	May 13	0800	71,700	20.00
Mar. 31	0700	46,200	17.43				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	572	506	3560	2840	2290	10800	14600	12900	5630	3080	743	514
2	561	509	3070	2600	2200	26100	11200	16400	5880	2290	736	519
3	554	497	2890	2600	2120	21600	9950	28500	5390	1870	707	556
4	553	465	2600	2450	2200	15000	8610	23700	5090	1590	737	742
5	544	442	2230	2220	2380	10600	7900	17800	4730	1390	800	824
6	535	446	1940	1950	2310	9920	7200	10400	4450	1270	966	759
7	516	446	1750	2300	2020	9790	6450	7270	4370	1150	3400	874
8	505	445	1660	2920	1930	8110	5970	5970	4200	1100	3270	927
9	497	440	1730	2740	1790	6770	5610	38800	4200	1010	2440	836
10	484	451	3280	2580	1690	6230	4420	74500	5300	949	1800	706
11	464	447	7920	2850	2000	5840	3890	76600	6130	4920	1350	673
12	458	3760	7500	3410	2170	5160	3690	68000	5950	4080	1100	628
13	460	11500	5340	3780	2350	4730	3330	65100	4970	2860	914	747
14	462	6050	10400	4060	2850	4450	2800	30800	4310	2430	801	3310
15	459	3030	30500	3530	8770	4390	13700	22100	3900	2170	727	2980
16	435	2310	23700	2910	32000	4280	27700	15400	3330	2000	689	1920
17	427	2150	13700	2500	32100	4050	23800	12600	2930	2970	653	1060
18	427	2010	8690	2350	20600	3760	11500	10600	2720	6160	613	758
19	439	2000	6180	2300	11400	3440	6820	8820	2420	3910	605	602
20	452	7890	5360	2550	10200	3520	5610	8770	2040	2990	592	552
21	449	12400	5060	4730	9120	3620	4600	7390	2410	2310	570	580
22	442	18300	4670	6470	7250	4200	3930	6410	6190	1850	559	593
23	438	29800	4110	5050	6730	4420	3440	6720	8090	1570	548	586
24	446	20000	3560	4950	6640	5020	3080	7760	5100	1290	543	496
25	447	14100	3200	4350	7920	5870	2830	7150	3520	1090	547	445
26	438	14000	3020	3930	10600	5360	2640	9170	3510	964	540	470
27	437	15200	2970	3630	8100	4760	2550	10200	6090	900	532	566
28	446	7220	2930	3070	6780	4320	2310	7760	7120	867	610	431
29	434	4480	2840	2600	---	4160	2340	7490	4480	839	578	417
30	430	3730	2760	2470	---	20900	11200	6680	3880	816	530	412
31	491	---	2790	2360	---	39300	---	6270	---	771	522	---
TOTAL	14702	185024	181910	99050	208510	270470	223670	638030	138330	63456	29722	25483
MEAN	474	6167	5868	3195	7447	8725	7456	20580	4611	2047	959	849
MAX	572	29800	30500	6470	32100	39300	27700	76600	8090	6160	3400	3310
MIN	427	440	1660	1950	1690	3440	2310	5970	2040	771	522	412
AC-FT	29160	367000	360800	196500	413600	536500	443600	1266000	274400	125900	58950	50550

RED RIVER BASIN

07315500 RED RIVER NEAR TERRAL, OK--Continued

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

MEAN	3186	1508	1127	902	1258	1809	2519	6760	6071	1687	1110	2020
MAX	23900	9713	11810	5306	9320	12560	18080	43580	37460	8077	9267	9653
(WY)	1987	1987	1992	1992	1987	1990	1990	1957	1941	1950	1950	1986
MIN	108	102	91.2	76.5	136	66.1	142	134	517	158	155	109
(WY)	1953	1940	1939	1940	1953	1940	1971	1971	1966	1964	1970	1956

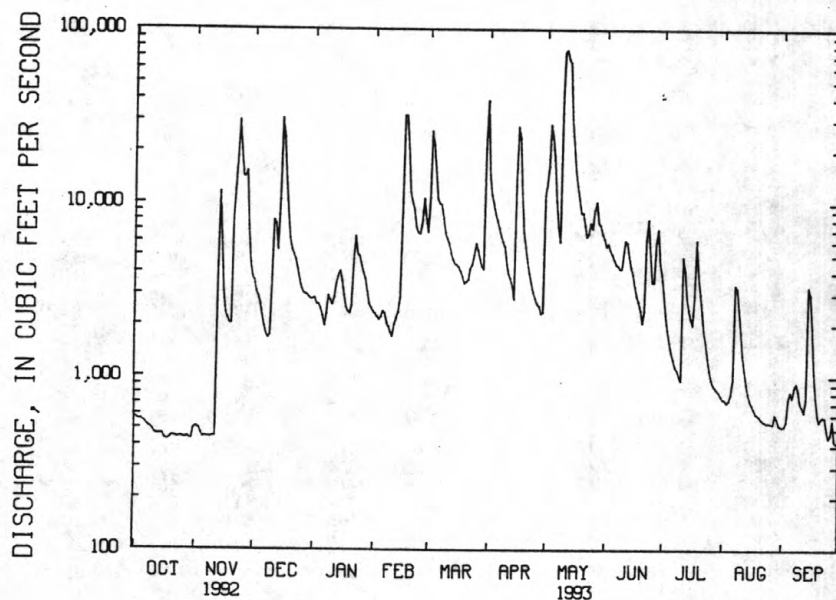
SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1939 - 1993

ANNUAL TOTAL	1854921			2078357								
ANNUAL MEAN	5068			5694								
HIGHEST ANNUAL MEAN										2500		
LOWEST ANNUAL MEAN										8925		1987
HIGHEST DAILY MEAN										523		1953
LOWEST DAILY MEAN	65500	Jun 9		76600	May 11					211000	May 30	1987
ANNUAL SEVEN-DAY MINIMUM	427	Oct 17		412	Sep 30					46	Mar 20	1940
INSTANTANEOUS PEAK FLOW	439	Oct 16		439	Oct 16					47	Mar 18	1940
INSTANTANEOUS PEAK STAGE				84100	May 10					225000	May 30	1987
INSTANTANEOUS LOW FLOW				21.14	May 10					33.60	Oct 22	1983
ANNUAL RUNOFF (AC-FT)	3679000			412	Sep 30					43	Mar 15	1939
10 PERCENT EXCEEDS	10900			4122000						1811000		
50 PERCENT EXCEEDS	3000			11900						5390		
90 PERCENT EXCEEDS	529			2970						572		
				497						170		



07315500 RED RIVER NR TERRAL, OK
MEAN DAILY DISCHARGE (CFS), FROM THE DCP

RED RIVER BASIN

99

07315500 RED RIVER NEAR TERRAL, OK--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1967 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1967 to current year.

WATER TEMPERATURE: October 1967 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 13,000 microsiemens June 15, 1984; minimum daily, 255 microsiemens Jan. 1, 1985.

WATER TEMPERATURE: Maximum daily, 35.0°C Aug. 13, 16, 17, 1983; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 5,690 microsiemens Aug. 16; minimum daily, 740 microsiemens Nov. 22.

WATER TEMPERATURE: Maximum daily, 33.0°C July 29, Aug. 20, 21; minimum daily, 5.0°C Dec. 14, Feb. 16.

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

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
FEB 18...	1140	6780	1120	2.5	250	150	67	21	130
DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	
FEB 18...	4	4.9	100	140	200	0.20	8.0	632	
MONTH YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT. 1992	14702	4870	2900	115000	1100	43800	700	27700	850
NOV. 1992	185024	1470	801	400000	280	140600	200	97400	250
DEC. 1992	181910	1800	987	485000	350	171400	240	117900	300
JAN. 1993	99050	3610	2080	555000	770	205200	500	134300	620
FEB. 1993	208510	2030	1110	626000	390	221400	270	152400	340
MAR. 1993	270470	2150	1190	867000	420	308900	290	210900	360
APR. 1993	223670	1890	1030	623000	360	219200	250	151700	320
MAY 1993	638030	1280	683	1177000	230	404600	170	287600	210
JUNE 1993	138330	2140	1170	438000	410	154700	290	106600	360
JULY 1993	63456	3430	1970	337000	720	124200	480	81500	590
AUG. 1993	29722	4790	2850	229000	1100	87200	690	55100	830
SEPT 1993	25483	3010	1710	117000	620	42900	410	28400	510
TOTAL	2078357	**	**	5970000	**	2124000	**	1452000	**
WTD.AVG.	5694	1930	1060	**	380	**	260	**	320

RED RIVER BASIN

07315500 RED RIVER NEAR TERRAL, OK--Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4410	4980	2330	2870	3900	2140	e1110	1950	2000	e1850	e4700	4450
2	4470	e5200	2550	3180	1970	1440	1200	1380	2100	2130	e4600	e4590
3	4600	e3000	2810	3170	e2320	1260	1470	1310	1880	e2690	4520	4760
4	e4620	810	3020	3060	e2670	1310	e1720	1310	e1980	e3250	4660	e3500
5	4640	e1900	e3380	3170	e3010	1650	1980	1270	e2100	3860	e4680	e3620
6	4640	e3000	3740	3850	3350	2090	1760	1500	2200	e3700	e4700	3820
7	4650	e4100	4100	4900	3880	1780	2040	1820	2120	3540	e3500	3620
8	4640	5030	4230	4990	3920	2200	2010	1880	2220	3560	e4600	4170
9	4670	5260	4190	4960	3910	2360	e2060	810	e2370	3600	5330	3270
10	4750	5440	3440	4600	3460	2330	2100	930	2540	3820	4960	e3400
11	4730	e5180	1690	e4010	3890	2380	e2300	910	1730	3400	5110	e3550
12	4820	4910	2000	3420	3930	3850	2510	900	2130	e2300	5320	3650
13	4840	1190	e1960	3290	4110	e2890	2440	980	2000	2430	5460	4180
14	4940	e1100	1910	4000	e3410	e2940	2740	1210	2370	2460	e5540	1680
15	4960	1010	1000	3430	2710	2980	3130	1410	e2500	e2750	e5600	1800
16	5010	1290	840	3780	1220	2970	1290	1640	2680	3050	5690	1610
17	4930	1330	810	e4020	e1620	3130	1200	1770	2780	e3400	5540	3300
18	e4960	1690	910	4260	2020	3350	1820	1850	e2850	e3750	e5460	2880
19	4990	2100	1210	4230	e1720	e3460	1840	1950	2920	e4100	5380	e3200
20	4990	e1440	1730	4200	1410	3580	2080	2440	e3400	4440	5120	3500
21	5040	780	2050	3850	e1680	3650	2500	2290	3900	e4420	e4990	3240
22	5100	740	2380	2310	e1950	3380	2930	2380	e2650	4410	4870	3220
23	5160	1280	e2660	2570	2280	3250	3040	e2140	1340	3950	4880	3190
24	5060	1280	2940	3440	2270	3090	3070	1880	1670	e4050	4720	e3250
25	e5040	e1380	e3010	3560	e2070	3040	3120	2180	2090	e4200	4650	3320
26	5020	1470	3080	3250	1870	2920	3130	1750	2500	4340	4740	3910
27	5200	1190	3020	3240	2300	3020	2940	2420	e2100	e4470	4780	3140
28	5060	1310	3010	3700	e2220	e3020	3060	1850	e1700	e4600	4840	3680
29	5060	5070	e2800	4140	---	3010	3290	1780	1440	4740	e4490	3920
30	5120	2080	2600	3980	---	3040	1900	e1860	1570	4930	4130	4320
31	5310	---	2940	4000	---	1020	---	1950	---	e4800	4260	---
MEAN	4880	2550	2530	3720	2680	2660	2260	1670	2260	3640	4900	3460
MAX	5310	5440	4230	4990	4110	3850	3290	2440	3900	4930	5690	4760
MIN	4410	740	810	2310	1220	1020	1110	810	1340	1850	3500	1610

WTR YR 1993 MEAN 3110 MAX 5690 MIN 740

e Estimated

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.0	18.0	e8.0	14.0	11.0	e9.0	e16.0	21.0	25.0	e29.0	e31.0	27.0
2	19.0	15.0	9.0	14.0	11.0	9.0	15.0	18.0	26.0	29.0	e30.0	e28.0
3	20.0	e14.5	10.0	11.0	e12.0	10.0	13.0	18.5	27.5	e29.0	30.0	28.5
4	e20.0	14.0	7.0	10.0	e12.0	10.0	e13.0	20.0	e27.0	e28.0	29.5	e29.0
5	20.0	e14.0	e6.5	10.0	e11.0	12.0	13.0	20.0	e26.5	28.0	e29.0	e29.0
6	21.0	e14.0	6.0	10.0	e13.0	12.0	13.0	19.5	e26.0	e28.0	e29.0	30.0
7	20.0	e13.5	8.0	10.0	13.0	12.0	16.0	21.0	25.5	28.5	e30.0	29.0
8	18.0	13.0	10.0	9.0	10.0	13.0	16.0	20.5	23.0	29.0	e30.0	25.5
9	16.0	16.0	10.0	9.0	14.0	15.0	e15.5	18.5	e24.0	29.5	30.0	27.5
10	18.0	20.0	e9.0	9.0	13.0	15.0	15.0	18.0	25.0	28.5	30.5	e27.5
11	22.0	20.0	8.0	e8.5	10.0	13.0	e17.0	17.5	25.5	29.0	30.5	e27.5
12	22.0	18.0	11.0	8.0	9.0	8.0	19.0	18.0	e26.0	e29.0	31.0	27.5
13	21.0	15.0	e8.0	e7.0	8.0	e8.0	22.0	18.5	27.0	29.5	31.0	26.5
14	19.0	e15.0	5.0	6.0	e8.5	e7.0	15.0	20.0	29.0	26.5	e31.0	20.5
15	24.0	15.0	7.0	6.0	9.0	7.0	12.0	e21.0	e29.0	e27.0	e31.0	20.5
16	18.0	15.0	8.0	7.0	5.0	15.0	11.0	23.5	29.5	28.0	e32.0	22.5
17	17.0	16.0	7.0	e7.0	e7.5	15.0	13.5	24.0	29.0	e28.0	32.0	28.0
18	e17.0	18.0	8.0	7.0	10.0	14.0	15.0	23.5	e28.0	e29.0	e32.0	25.0
19	18.0	18.0	10.0	7.0	e10.0	e13.0	17.5	23.0	27.0	e30.0	32.0	e27.5
20	20.0	e18.0	7.0	7.0	10.0	12.0	17.0	21.5	e28.0	30.5	33.0	29.5
21	21.0	18.0	8.0	7.0	e10.0	14.0	16.0	21.0	29.0	e30.0	e33.0	29.0
22	22.0	11.0	10.0	9.0	e9.5	16.0	16.0	22.5	e29.0	29.0	32.5	29.5
23	24.0	12.0	e11.0	e10.0	9.0	16.0	17.0	e22.5	29.0	30.0	31.0	29.5
24	22.0	12.0	12.0	11.0	10.0	20.0	17.5	22.5	29.5	e30.0	30.5	e27.0
25	e22.0	e12.0	e10.5	8.0	e10.0	22.0	19.5	e23.0	28.0	e30.0	29.5	26.0
26	23.0	11.5	9.0	10.0	10.0	15.0	22.0	23.5	29.0	30.0	30.0	24.5
27	22.0	11.0	11.0	e10.5	9.0	17.0	21.0	24.5	e29.0	e31.0	30.0	24.5
28	23.0	7.0	11.0	11.0	e9.0	e17.0	20.0	23.5	e29.0	e32.0	31.0	25.5
29	23.0	11.0	e10.5	8.0	---	17.0	21.0	24.0	29.5	33.0	e29.0	27.0
30	19.0	7.0	10.0	8.0	---	e17.0	20.0	e24.0	29.5	32.5	28.5	25.0
31	20.0	---	6.0	9.0	---	17.0	---	24.0	---	e31.0	24.0	---
MEAN	20.4	14.4	8.8	9.0	10.1	13.5	16.5	21.3	27.5	29.4	30.4	26.8
MAX	24.0	20.0	12.0	14.0	14.0	22.0	22.0	24.5	29.5	33.0	33.0	30.0
MIN	16.0	7.0	5.0	6.0	5.0	7.0	11.0	17.5	23.0	26.5	24.0	20.5

WTR YR 1993 MEAN 19.0 MAX 33.0 MIN 5.0

e Estimated

RED RIVER BASIN

101

07315950 MOSS LAKE NEAR GAINESVILLE, TX

LOCATION.--Lat 33°46'26", long 97°12'50", Cooke County, Hydrologic Unit 11130201, on top of upstream side of dam adjacent to guardrail of roadway about 250 ft from right end of Fish Creek dam on Fish Creek, 1.6 mi upstream from Bearhead Creek, 3.7 mi upstream from mouth, and 10 mi northwest of Gainesville.

DRAINAGE AREA.--65.0 mi².

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

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Apr. 20, 1979, recording gage at site about 150 ft upstream at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 1,460 ft long. The dam was completed and storage began Dec. 2, 1966. An uncontrolled morning-glory-type spillway with a 7- by 7-foot opening is designed to discharge 2,500 ft³/s at a 10-foot head. A 400-foot-wide spillway has been cut through natural ground, and is located about 100 ft to 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. 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.....	740.0	-
Top of design flood pool.....	736.0	55,230
Crest of spillway.....	725.0	36,440
Crest of spillway morning-glory type (top of conservation pool)...	715.0	23,210
Lowest gated outlet (invert).....	666.0	78

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 50,990 acre-ft Oct. 13, 1981 (elevation, 733.72 ft); minimum since lake filled in May 1968, 11,490 acre-ft Jan. 18, 1990 (elevation, 702.08 ft, from graph).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 36,100 acre-ft May 9 at 1600 hours (elevation, 724.77 ft); minimum, 21,760 acre-ft Sep. 13 (elevation, 713.67 ft).

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

713.0	21,040	721.0	30,690
717.0	25,550	725.0	36,440

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23010	22690	22920	23420	23280	25190	23410	23580	23280	23110	22400	21950
2	23000	22700	22920	23390	23290	24490	23420	23510	23270	23090	22400	21950
3	22980	22670	22970	23440	23280	24070	23430	23460	23260	23030	22410	21970
4	22980	22660	22920	23410	23270	23800	23450	23430	23230	23010	22380	21950
5	22970	22660	22920	23410	23260	23700	23420	23390	23230	22970	22340	21930
6	22970	22660	22910	23390	23240	23600	23420	23420	23220	22930	22310	21920
7	22880	22660	22910	23390	23220	23540	23440	23390	23180	22920	22300	21900
8	22880	22660	22910	23380	23240	23500	23410	25440	23340	22910	22300	21860
9	22880	22670	23000	23390	23260	23510	23410	35250	23450	22910	22290	21850
10	22870	22680	23060	23410	23280	23440	23390	31460	23960	22910	22270	21810
11	22870	22740	23030	23420	23230	23380	23390	27420	23750	22900	22240	21810
12	22870	22730	23040	23500	23220	23340	23390	25040	23620	22880	22210	21780
13	22880	22690	24190	23430	23210	23310	23410	24260	23530	22860	22190	21850
14	22850	22690	25400	23430	23210	23300	23580	23910	23460	22850	22140	22410
15	22800	22730	24550	23420	25050	23350	23520	23730	23390	22820	22120	22420
16	22770	22730	24080	23390	24420	23370	23500	23610	23340	22810	22100	22410
17	22760	22730	24110	23390	24010	23360	23470	23540	23310	22790	22070	22400
18	22750	22740	23920	23340	23690	23320	23500	23460	23290	22780	22040	22380
19	22760	22800	23820	23440	23650	23720	23440	23420	23280	22760	22010	22410
20	22730	22810	23760	23660	23590	23690	23380	23380	23270	22750	21990	22420
21	22730	22910	23700	23660	23450	23620	23360	23360	23270	22710	21960	22420
22	22710	22960	23680	23620	23370	24140	23340	23340	23270	22680	21920	22400
23	22710	22990	23640	23530	23360	23960	23360	23360	23240	22660	21850	22400
24	22710	23010	23550	23450	23460	23840	23340	23350	23220	22620	21970	22380
25	22710	22970	23520	23410	23810	23720	23320	23310	23170	22580	21970	22360
26	22710	22930	23490	23390	23670	23640	23310	23320	23210	22550	21960	22320
27	22700	22920	23490	23390	23580	23580	23300	23310	23220	22520	21940	22320
28	22700	22920	23490	23390	23550	23510	23450	23300	23210	22510	21920	22300
29	22690	22910	23520	23350	---	23520	23730	23310	23130	22480	21890	22300
30	22690	22900	23520	23320	---	23490	23640	23320	23110	22450	21870	22270
31	22760	---	23430	23280	---	23410	---	23290	---	22440	21950	---
MAX	23010	23010	25400	23660	25050	25190	23730	35250	23960	23110	22410	22420
MIN	22690	22660	22910	23280	23210	23300	23300	23290	23110	22440	21850	21780
(†)	714.59	714.72	715.19	715.06	715.30	715.17	715.37	715.07	714.91	714.30	713.85	714.15
(Φ)	-260	+140	+530	-150	+270	-140	+230	-350	-180	-670	-490	+320
CAL YR 1992	MAX	25400	MIN	22660	(Φ)	+50						
WTR YR 1993	MAX	35250	MIN	21780	(Φ)	-750						

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

RED RIVER BASIN

07316000 RED RIVER NEAR GAINESVILLE, TX

LOCATION.--Lat 33°43'40", long 97°09'35", in SW 1/4 sec.36, T.9 S., R.1 E., Love County, OK, Hydrologic Unit 11130201, on downstream right bank at end of bridge on Interstate 35, 0.2 mi downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 5.0 mi downstream from Fish Creek, 4.5 mi southwest of Thackerville, OK, 7.0 mi north of Gainesville, and at mile 791.5.

DRAINAGE AREA.--30,782 mi² of which 5,936 mi² probably is noncontributing.

PERIOD OF RECORD.--May 1936 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISID RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 627.91 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 17, 1939, and Feb. 13, 1965 to Nov. 14, 1966, nonrecording gage at same site and datum.

REMARKS.--Records poor. Flow slightly regulated by Lake Kemp (station 07312000 in Texas), since 1943 by Lake Altus (station 07302500 in Oklahoma), since 1946 by Lake Kickapoo (station 07314000 in Texas), since 1967 by Lake Arrowhead (station 07314800 in Texas), and since 1968 by Moss Lake (station 07315950 in Texas). U.S. Army Corps of Engineers satellite telemeter at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 24,000 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 23	1800	24,300	18.21	Apr. 1	0900	33,400	20.09
Dec. 16	1100	29,600	19.35	May 4	0400	24,400	18.27
Feb. 17	1600	33,100	20.03	May 11	1100	117,000	30.99
Mar. 3	0800	25,000	18.41				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	563	390	e5300	2920	2430	11600	29100	11000	6590	4080	e1040	740
2	536	613	e5000	2930	2330	20300	14200	15900	6050	3320	e968	718
3	524	623	e4600	2860	2280	23900	10200	19100	6000	e2440	e961	744
4	512	456	e4050	2720	e2260	17100	e9000	23100	5850	e2200	e968	731
5	500	423	e3700	2740	e2400	12000	e8000	18500	5170	e2030	1030	728
6	486	408	e3100	2590	e2380	8430	e7200	15700	4790	e1950	e1060	771
7	472	391	e2800	2340	e2350	8020	e6600	15200	4270	e1920	e1210	948
8	504	377	2060	e2000	e2300	8340	e6300	14600	4260	e1920	e1740	920
9	491	377	2110	2520	e2050	7870	e6000	43700	4900	e1940	e2570	984
10	475	375	2730	3000	e2080	7110	e5600	87700	8120	e1980	1780	1050
11	461	387	2860	2900	e2200	6760	e5300	114000	8140	e2220	2200	1010
12	449	460	7750	2880	e2400	6420	e5000	102000	9130	2750	1750	887
13	435	484	9350	3180	e2700	6100	4760	79100	7130	4430	1460	864
14	412	8010	13100	3640	e3500	5410	4920	62800	6100	3370	1280	1890
15	410	7420	21300	4000	4780	4850	5010	32100	4680	e2350	1150	3620
16	402	4310	28100	4020	19600	4620	9640	24600	4020	e2080	1030	5810
17	400	2770	20800	3460	31300	4420	16200	20200	3450	e2040	958	4250
18	394	2160	13900	2870	22700	4290	14700	17400	2910	e2300	904	2650
19	379	2080	8500	2600	14300	4180	11000	14900	2650	3520	855	1460
20	373	2140	6660	2950	8780	3800	8960	12300	e2400	5320	826	1070
21	374	4320	6030	3830	7450	3560	7960	11300	e2240	3460	810	1760
22	375	13900	5790	4400	7260	4070	7070	10100	e2160	e2400	790	2020
23	377	20400	5670	7360	6810	5210	5860	8340	3060	e2050	767	1500
24	376	21100	5060	6260	6830	6460	4880	10700	7360	e1790	877	1020
25	377	14200	4380	5340	8510	5570	4300	13700	7110	e1650	782	821
26	375	10200	3760	4880	11000	5610	4230	10700	4370	e1570	773	762
27	375	11100	3440	4220	12200	5920	4210	12400	3370	e1420	746	735
28	375	10900	3290	3770	10200	5110	4250	13600	4020	e1180	718	876
29	371	e7200	3170	3390	---	4450	5060	9500	7120	e1190	697	881
30	371	e6100	3080	2870	---	4060	6020	8210	5800	e1160	716	653
31	371	---	2980	2580	---	19200	---	7500	---	e1100	798	---
TOTAL	13295	154074	214420	108020	205380	244740	241530	859950	153220	73130	34214	42873
MEAN	429	5136	6917	3485	7335	7895	8051	27740	5107	2359	1104	1429
MAX	563	21100	28100	7360	31300	23900	29100	114000	9130	5320	25700	5810

e Estimated

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

MEAN	3979	1964	1590	1200	1687	2598	3440	8291	8178	2129	1290	2337
MAX	31080	14020	14990	7152	9984	14690	27400	47780	43510	9857	12940	12880
(WY)	1942	1942	1992	1985	1987	1987	1990	1957	1941	1950	1950	1986
MIN	119	137	125	82.4	151	90.5	153	204	640	166	163	108
(WY)	1953	1955	1940	1940	1953	1940	1971	1971	1966	1964	1970	1956

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1937 - 1993

ANNUAL TOTAL	2139979		2344846			
ANNUAL MEAN	5847		6424		3227	
HIGHEST ANNUAL MEAN					11890	1987
LOWEST ANNUAL MEAN					651	1953
HIGHEST DAILY MEAN	63400	Jun 10	114000	May 11	232000	May 31 1987
LOWEST DAILY MEAN	371	Oct 29	371	Oct 29	48	Jan 18 1940
ANNUAL SEVEN-DAY MINIMUM	374	Oct 25	374	Oct 25	48	Jan 18 1940
INSTANTANEOUS PEAK FLOW			117000	May 11	265000	May 31 1987
INSTANTANEOUS PEAK STAGE			30.99	May 11	40.08	May 31 1987
ANNUAL RUNOFF (AC-FT)	4245000		4651000		2338000	
10 PERCENT EXCEEDS	14000		14000		7120	
50 PERCENT EXCEEDS	3730		3450		797	
90 PERCENT EXCEEDS	497		496		210	

07331500 LAKE TEXOMA NEAR DENISON, TX

LOCATION.--Lat 33°49'05", Long 96°34'20", in NE1/4 sec.33, T.8 S., R.7 E., Bryan County, OK, Hydrologic Unit 11130210, in control tower of Denison Dam on Red River, 1.2 mi upstream from Shawnee Creek, 1.8 mi upstream from Sand Creek, 4.0 mi northwest of Denison, 6.0 mi southwest of Colbert, and at mile 725.9.

DRAINAGE AREA.--39,719 mi², of which 5,936 mi² is probably noncontributing.

PERIOD OF RECORD.--July 1942 to current year. Monthend contents only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Mar. 30, 1944, non-recording gage at same site and datum. Prior to Oct. 1, 1948, supplementary nonrecording gage in Cumberland pool at the same datum.

REMARKS.--The Lake is formed by a rolled earthfill dam. The controlled outlet consists of eight 20-foot-diameter conduits and the uncontrolled outlet is a concrete, ogee-type weir spillway. Flow was diverted through conduits July 27, 1942; regulated storage began Oct. 31, 1943; power pool was first filled March 15, 1945. Capacity, based on 1969 survey, 5,312,000 acre-ft at elevation 640.0 ft, crest of spillway, 2,643,000 acre-ft at elevation 617.0 ft maximum power pool; 1,031,000 acre-ft at elevation 590.0 ft, minimum power pool, in Denison pool. Dead storage 11,000 acre-ft at elevation 610.0 ft in Cumberland pool. When contents are below 2,105,000 acre-ft, the reservoir is divided into two pools by protective levees around the Cumberland oil field on the Washita River arm with bottom outlet channel for the upper pool (known as Cumberland pool) at elevation 610 ft. At higher elevations the two pools are considered as being at a common level, contents being computed from gage in Denison pool. Figures given herein represent total contents of both pools. Lake is used principally for flood control and power development. Revised capacity table, based on survey in 1969, used since Oct. 1, 1977. U.S. Army Corps of Engineers' satellite telemeter at station.

COOPERATION.--Records provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 6,028,000 acre-ft May 6, 1990 (elevation, 644.76 ft); minimum since power pool was first filled, 1,565,100 acre-ft Sept. 16, 1964; minimum elevation, 599.96 ft Mar. 1, 2, 1957.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 4,427,000 acre-ft, May 16 (elevation, 633.49 ft); minimum, 2,496,000 acre-ft Nov. 8 (elevation, 615.24 ft).

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

614.0	2,399,000	626.0	3,538,000	638.0	5,029,000
620.0	2,920,000	632.0	4,240,000	645.0	6,066,000

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2569000	2510000	2816000	2828000	2637000	2903000	2679000	2623000	3484000	2831000	2720000	2539000
2	2569000	2505000	2797000	2817000	2624000	2959000	2704000	2649000	3428000	2828000	2715000	2538000
3	2571000	2513000	2783000	2810000	2618000	3015000	2700000	2659000	3366000	2822000	2700000	2539000
4	2572000	2504000	2775000	2802000	2615000	3033000	2703000	2679000	3307000	2817000	2689000	2536000
5	2573000	2501000	2763000	2790000	2606000	3016000	2694000	2692000	3240000	2813000	2685000	2533000
6	2570000	2498000	2757000	2778000	2597000	2975000	2672000	2706000	3175000	2805000	2668000	2532000
7	2576000	2499000	2759000	2767000	2591000	2925000	2668000	2704000	3109000	2802000	2657000	2525000
8	2565000	2500000	2752000	2751000	2585000	2879000	2653000	2711000	3065000	2797000	2648000	2531000
9	2562000	2501000	2757000	2753000	2577000	2842000	2647000	3040000	3017000	2797000	2643000	2531000
10	2561000	2499000	2754000	2736000	2574000	2804000	2645000	3315000	3008000	2798000	2640000	2527000
11	2560000	2506000	2747000	2730000	2570000	2767000	2641000	3656000	3020000	2799000	2639000	2520000
12	2556000	2512000	2742000	2728000	2558000	2749000	2636000	3986000	3008000	2799000	2636000	2515000
13	2553000	2520000	2771000	2721000	2550000	2724000	2631000	4219000	2991000	2799000	2633000	2525000
14	2550000	2533000	2903000	2711000	2547000	2703000	2657000	4374000	2971000	2804000	2626000	2564000
15	2538000	2552000	2992000	2708000	2603000	2688000	2660000	4421000	2943000	2807000	2619000	2593000
16	2533000	2565000	3095000	2700000	2669000	2682000	2650000	4421000	2921000	2807000	2614000	2616000
17	2533000	2577000	3167000	2694000	2758000	2666000	2655000	4399000	2903000	2806000	2607000	2635000
18	2533000	2584000	3202000	2687000	2840000	2646000	2655000	4361000	2888000	2805000	2601000	2646000
19	2528000	2602000	3205000	2681000	2879000	2643000	2659000	4300000	2875000	2806000	2595000	2653000
20	2527000	2608000	3186000	2690000	2884000	2642000	2646000	4232000	2860000	2813000	2589000	2664000
21	2525000	2631000	3160000	2689000	2877000	2639000	2639000	4158000	2848000	2815000	2582000	2665000
22	2524000	2650000	3123000	2687000	2859000	2647000	2638000	4085000	2838000	2814000	2573000	2665000
23	2522000	2693000	3083000	2696000	2835000	2641000	2636000	4030000	2827000	2809000	2562000	2667000
24	2517000	2771000	3043000	2689000	2826000	2643000	2635000	3967000	2823000	2800000	2577000	2666000
25	2516000	2814000	3013000	2690000	2872000	2642000	2630000	3912000	2823000	2790000	2564000	2669000
26	2517000	2824000	2978000	2686000	2885000	2638000	2623000	3852000	2829000	2782000	2562000	2670000
27	2513000	2830000	2943000	2682000	2877000	2635000	2614000	3789000	2828000	2772000	2559000	2664000
28	2510000	2840000	2905000	2678000	2862000	2634000	2610000	3738000	2830000	2763000	2554000	2659000
29	2509000	2844000	2879000	2669000	---	2631000	2618000	3684000	2834000	2748000	2551000	2657000
30	2507000	2828000	2854000	2660000	---	2625000	2616000	3621000	2834000	2738000	2549000	2652000
31	2504000	---	2840000	2649000	---	2635000	---	3556000	---	2728000	2543000	---
MAX	2576000	2844000	3205000	2828000	2885000	3033000	2704000	4421000	3484000	2831000	2720000	2670000
MIN	2504000	2498000	2742000	2649000	2547000	2625000	2610000	2623000	2823000	2728000	2543000	2515000
(+)	615.34	619.03	619.15	617.06	619.38	616.91	616.68	626.16	619.09	617.94	615.83	617.10
(Φ)	-65000	+324000	+12000	-191000	+213000	-227000	-19000	+940000	-722000	-106000	-185000	+109000
CAL YR 1992	MAX	3820000	MIN	2498000	(Φ)	+1041						
WTR YR 1993	MAX	4421000	MIN	2498000	(Φ)	+83000						

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

RED RIVER BASIN

07335390 PAT MAYSE LAKE NEAR CHICOTA, TX

LOCATION.--Lat 33°51'09", long 95°32'40", Lamar County, Hydrologic Unit 11140101, on upstream side of dam on Sanders Creek, 2,800 ft to right of outlet channel, 2.0 mi southeast of Chicota, and 4.6 mi upstream from mouth.

DRAINAGE AREA.--175 mi².

PERIOD OF RECORD.--October 1967 to current year. Prior to October 1970, published as Pat Mayse Reservoir.
Water-quality records.--Chemical analyses: October 1969 to September 1984.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to May 10, 1968, nonrecording gage at present site and datum. Digital recorder was put in operation Sept. 12, 1988.

REMARKS.--The lake is formed by a rolled earthfill dam about 7,080 ft long, including a spillway 100 ft 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 concrete conduit through the dam. Two low-flow pipes, with 24- and 12-inch diameters, provide 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. Water is diverted from the lake for municipal and industrial uses by the city of Paris. Any resultant effluent is discharged into Pine Creek below Lake Crook (capacity, 11,010 acre-ft), 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).	450.6	122,100
Streambed.....	393.0	0

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 208,000 acre-ft Dec. 11, 12, 1971 (elevation, 462.87 ft); minimum since conservation pool was first reached on Apr. 20, 1968, 100,900 acre-ft Nov. 10, 1978 (elevation, 446.80 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 149,200 acre-ft Mar. 3 at 0800 hours (elevation, 454.91 ft); minimum, 113,700 acre-ft Sept. 30 (elevation, 449.16 ft).

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

449.0	112,800	452.0	130,600	454.0	143,200
450.0	118,600	453.0	136,800	455.0	149,800
451.0	124,500				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	125000	122100	121800	128600	129000	144500	135200	133100	130000	125300	119800	116100
2	124800	122000	121000	128400	128700	148500	134800	132900	129700	125000	119600	115900
3	124700	121700	120900	128600	128700	148800	134000	132400	129400	124900	119600	116000
4	124600	121500	120800	128300	129600	147500	134200	132000	128900	124600	119500	115800
5	124600	121300	120800	128200	131000	146100	134000	131600	128700	124400	119300	115700
6	124400	121100	120600	128100	131200	144700	133600	131300	128600	124400	119300	115600
7	124200	121100	120600	127900	131200	143500	133500	130900	128200	124100	119000	115400
8	124000	120900	120600	127800	131000	142300	133200	130700	128000	124000	118900	115300
9	123800	120900	121100	127900	130700	141100	132900	138300	127900	123700	118900	115200
10	123600	121500	121000	127800	130800	139900	132500	142600	128000	123700	118800	115000
11	123600	121800	121100	127800	131200	138800	132200	144000	128000	123500	118600	114900
12	123500	121700	120800	127800	131200	137900	131900	143500	127900	123300	118500	114700
13	123300	121700	121500	127900	131000	136900	131500	142400	127700	123100	118300	115000
14	123100	121600	123700	127800	130700	136200	133000	141400	127500	122900	118200	115000
15	123200	121500	127700	127800	133500	135700	134400	140300	127200	122800	117900	114900
16	122900	121500	130500	127700	136600	137100	134800	139300	127000	122600	117800	114800
17	122700	121400	131500	127700	137600	140000	134300	138300	126900	122500	117700	114700
18	122600	121300	131500	127500	137100	139500	134200	137200	126700	122300	117500	114500
19	122500	121600	131200	127400	136400	140600	133700	136500	126500	122100	117400	114500
20	122500	121600	131000	128000	136100	143500	133200	135700	126300	122000	117300	114500
21	122500	122200	130800	128700	135400	145100	132900	134800	126200	121800	116900	114500
22	122400	121800	130700	128900	134800	144200	132400	134400	126100	121600	116900	114400
23	122300	121800	130400	128900	134200	143100	132000	133800	125900	121400	116700	114400
24	122300	121300	130000	129600	133900	142200	131600	133400	125700	121200	117100	114300
25	122200	121200	129700	130200	137900	141200	131400	132900	126000	121000	116900	114200
26	122200	121300	129600	130200	143300	140200	131100	132400	126000	120800	116800	114200
27	122100	121500	129300	129900	142900	139300	130700	131900	126000	120600	116600	114000
28	122100	121600	129400	129700	141900	138400	130700	131300	125800	120500	116500	113900
29	122000	121700	129300	129500	---	137500	132400	131200	125600	120100	116300	113800
30	121900	121800	129200	129300	---	137000	133300	130800	125500	120100	116300	113700
31	121900	---	128800	129100	---	136100	---	130400	---	120000	116200	---
MAX	125000	122200	131500	130200	143300	148800	135200	144000	130000	125300	119800	116100
MIN	121900	120900	120600	127400	128700	135700	130700	130400	125500	120000	116200	113700
(†)	450.57	450.54	451.70	451.76	453.80	452.89	452.44	451.96	451.17	450.24	449.59	449.16
(Φ)	-3300	-100	+7000	+300	+12800	-5800	-2800	-2900	-4900	-5500	-3800	-2500
CAL YR 1992	MAX	151100	MIN	120600	(Φ)	-23600						
WTR YR 1993	MAX	148800	MIN	113700	(Φ)	-11500						

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

a/ Also occurred Dec. 12, 1956.

RED RIVER BASIN

07336820 RED RIVER NEAR DE KALB, TX

LOCATION ---Lat 33°40'59", long 94°41'39", Bowie County, Hydrologic Unit 11140106, on right bank at downstream side of bridge on U.S. Highway 259, 4.8 mi upstream from North Mill Creek, 13 mi north of De Kalb, and at mile 556.9.

DRAINAGE AREA---47,348 mi², of which 5,936 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

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

GAGE---Water-stage recorder. Datum of gage is 302.92 ft above National Geodetic Vertical Datum of 1929.

REMARKS---No estimated daily discharges. Records good. At times, flood peaks may be affected by Lake Texoma (station 07331500) located approximately 169 mi upstream, and low flows may be affected by releases for the generation of electric power. Storage and/or releases from Lake Hugo on the Kiamichi River, a tributary to the Red River about 45 mi upstream, may also affect flows. Gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD---Maximum discharge since 1957, 205,000 ft³/s June 1957 (gage height, 32.2 ft), from rating curve extended above 186,500 ft³/s. The greatest flood since 1936 occurred in February 1938, stage unknown.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3520	2820	24000	28900	15500	45100	14300	27600	57000	10600	7410	3870
2	3550	2850	21200	25700	15200	60700	19500	28700	56700	10100	7440	3860
3	3100	2860	20100	21300	14900	65000	26100	23900	55300	11200	7500	3660
4	2690	2820	19400	23500	16400	52400	27500	19600	55100	10500	9860	3320
5	2530	2640	17300	25100	17800	52100	27700	17700	56800	9160	12300	3620
6	2750	2490	15000	24600	19100	59000	31100	22800	56800	8860	9390	3280
7	2710	2600	13400	26000	19400	61100	35800	26900	56100	8680	6930	3240
8	2430	2870	11700	25600	17600	60700	36700	30800	53000	8520	6650	3170
9	2370	2990	11400	22100	16000	53000	36400	37100	51800	7730	6580	3080
10	2750	2700	12700	20200	14800	42800	31500	81200	52700	6770	6190	3050
11	3140	2550	16800	19700	15100	35400	26800	113000	52200	6500	5700	3290
12	3350	2270	21300	20400	18600	33800	19900	82400	51000	6220	5550	2810
13	3330	2380	23800	21400	22000	32000	17000	53200	53700	5950	5280	2550
14	2850	2670	29400	21400	22000	26800	16100	48100	49500	5650	4790	3130
15	2500	2940	49700	21200	21300	22800	19300	52100	45600	5470	4390	4110
16	3020	3490	64100	19600	28900	21500	28500	57000	44200	5560	4480	4010
17	3200	4030	66600	17900	43300	27700	37500	60800	39400	5530	4560	5680
18	3890	3200	64100	17200	41600	31800	44000	63400	34700	5470	4670	7370
19	4950	2450	62800	16900	39600	26900	48700	61700	28700	5320	4560	7880
20	3570	3060	66800	17600	42000	26900	51400	58400	25800	5350	4400	7780
21	2720	3800	71100	22100	44400	33800	45700	57100	23000	5370	4320	7270
22	2320	7720	68300	30800	47100	35500	37600	58100	19700	5270	4240	5880
23	2330	8560	64800	32700	45600	29000	30100	57200	17100	5170	4220	6580
24	2760	11400	61900	32300	42900	28700	20500	58200	15100	5200	4160	8040
25	2810	19400	57200	31500	42700	33300	17000	56600	14200	5850	4210	7790
26	2800	24400	48600	28500	46700	31800	15800	56700	13900	6820	4560	6180
27	2830	29100	41800	23400	48100	26600	19100	59000	14300	7100	4490	4860
28	3330	29500	40900	19400	46100	24800	23100	57900	15400	7350	4100	4780
29	3090	27600	40800	17500	---	22200	22400	57800	14400	7400	4250	4930
30	2760	25300	39200	16500	---	17400	22300	59000	12400	7430	4170	5240
31	2740	---	34900	16000	---	14800	---	57600	---	7420	3880	---
TOTAL	92690	243460	1201100	707000	824700	1135400	849400	1601600	1135600	219520	175230	144310
MEAN	2990	8115	38750	22810	29450	36630	28310	51660	37850	7081	5653	4810
MAX	4950	29500	71100	32700	48100	65000	51400	113000	57000	11200	12300	8040
MIN	2320	2270	11400	16000	14800	14800	14300	17700	12400	5170	3880	2550
AC-FI	183900	482900	2382000	1402000	1636000	2252000	1685000	3177000	2252000	435400	347600	286200

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1993, BY WATER YEAR (WY)

	MEAN	1995	13990	13830	11470	14780	19800	18970	25200	27200	9416	5072	5612
MAX	39980	53170	45440	49500	31000	48590	62330	125500	67360	35030	14250	24010	
(WY)	1982	1975	1972	1992	1969	1987	1990	1990	1987	1982	1992	1974	
MIN	1783	2105	1608	1699	2876	2492	3005	4707	2909	2598	1418	1368	
(WY)	1979	1980	1978	1981	1976	1980	1981	1972	1988	1972	1972	1988	

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1968 - 1993

ANNUAL TOTAL	8962520		8330010		14460	
ANNUAL MEAN	24490		22820		30100	1990
HIGHEST ANNUAL MEAN					4690	1980
LOWEST ANNUAL MEAN					278000	May 7 1990
HIGHEST DAILY MEAN	73600	Jun 10	113000	May 11	254	Nov 29 1979
LOWEST DAILY MEAN	2270	Nov 12	2270	Nov 12	529	Aug 31 1972
ANNUAL SEVEN-DAY MINIMUM	2600	Oct 4	2600	Oct 4	279000	May 6 1990
INSTANTANEOUS PEAK FLOW			114000	May 11	34.42	May 6 1990
INSTANTANEOUS PEAK STAGE			27.94	May 11	213	Nov 30 1979
INSTANTANEOUS LOW FLOW			2150	Oct 23		
ANNUAL RUNOFF (AC-FT)	17780000		16520000		10470000	
10 PERCENT EXCEEDS	52300		56700		40100	
50 PERCENT EXCEEDS	21000		17600		6740	
90 PERCENT EXCEEDS	3080		3010		2100	

07336820 RED RIVER NEAR DE KALB, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: October 1970 to July 1981. Sediment analyses: November 1979 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January 1968 to September 1991.

WATER TEMPERATURE: January 1968 to September 1991.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,140 microsiemens July 13, 1980; minimum daily, 114 microsiemens Oct. 31, 1984.

WATER TEMPERATURE (1968-89): Maximum daily, 4.0°C on several days during July and August of 1969 and 1970; minimum daily, 0.0°C Jan. 11, 1977.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	
OCT 28...	1655	3530	1230	7.9	21.0	9.0	102	1.9	310	130	80	26	
DEC 17...	1350	67100	384	7.6	7.0	10.6	88	1.9	100	50	29	7.0	
FEB 11...	1420	15000	965	8.3	11.0	11.2	103	2.2	240	120	63	20	
MAR 30...	1430	16900	726	8.2	16.0	10.0	104	1.2	190	85	51	16	
MAY 19...	1600	61400	940	8.0	21.5	7.3	84	1.6	250	130	66	21	
JUL 13...	1130	5910	878	8.4	30.0	8.1	109	2.0	260	110	67	22	
DATE		SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)
OCT 28...	120	3	4.8	170	160	180	0.30	1.8	677	--	--	--	0.020
DEC 17...	35	2	3.6	52	50	49	0.10	5.3	211	0.140	--	--	0.090
FEB 11...	100	3	4.0	120	130	150	0.20	7.1	550	0.360	0.360	--	--
MAR 30...	67	2	2.9	110	100	100	0.20	7.6	411	0.330	--	--	--
MAY 19...	90	2	3.8	120	150	140	0.20	6.7	551	0.360	0.360	--	--
JUL 13...	80	2	4.1	150	130	110	0.30	3.1	509	--	--	--	--
DATE		NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)
OCT 28...	--	<0.050	--	<0.010	--	0.60	--	--	0.60	0.100	--	--	--
DEC 17...	--	0.230	--	0.120	--	0.38	--	--	0.50	0.130	--	--	--
FEB 11...	0.020	0.380	0.380	--	0.020	--	0.18	0.20	--	--	0.030	0.020	0.020
MAR 30...	<0.010	0.330	0.330	--	0.020	--	0.28	0.30	--	--	<0.010	0.020	0.020
MAY 19...	0.030	0.390	0.390	--	0.040	--	0.26	0.30	--	--	0.020	0.020	0.020
JUL 13...	<0.010	--	<0.050	--	0.020	--	0.18	0.20	--	--	<0.010	0.040	0.040
DATE		PHOS-PHORUS ORTHO TOTAL (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. STEVE DIAM. % FINER THAN .062 MM	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)
OCT 28...	<0.010	--	34	324	85	--	--	--	--	--	--	--	--
DEC 17...	0.120	--	1040	188000	83	1	65	<0.5	<1.0	<5	<3	<10	<10
FEB 11...	--	0.06	177	7170	64	--	--	--	--	--	--	--	--
MAR 30...	--	0.06	611	27900	89	--	--	--	--	--	--	--	--
MAY 19...	--	0.06	656	109000	81	--	--	--	--	--	--	--	--
JUL 13...	--	0.12	30	479	92	1	150	<0.5	<1.0	<5	<3	<10	<10

RED RIVER BASIN

07336820 RED RIVER NEAR DE KALB, TX--Continued

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

DATE	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 28...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 17...	75	<10	5	21	<0.1	<10	<10	<1	<1.0	260	<6	6
FEB 11...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 30...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 19...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 13...	6	<10	10	4	0.9	<10	<10	<1	<1.0	700	<6	5

07337000 RED RIVER AT INDEX, ARK
(National stream-quality accounting network station)

LOCATION.--Lat 33°33'07", long 94°02'28", in NW1/4, SW1/4 sec.7, T.14 S., R.28 W., Miller County, Hydrologic Unit 11140106, near right bank at downstream side of southbound bridge on U.S. Highway 71 at Index, 2.2 mi south of Ogden, 20.6 mi upstream from Little River, and at river mile 485.3.

DRAINAGE AREA.--48,030 mi², of which 5,936 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1936 to current year. Gage-height records collected at same site since 1917 are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 246.87 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 12, 1939, nonrecording gage, and Dec. 12, 1939, to July 19, 1979, water-stage recorder, at site 500 ft downstream at present datum.

REMARKS.--No estimated daily discharges. Water-discharge records good. Some regulation since Oct. 31, 1943, by Lake Texoma (Texas), 241 mi upstream, capacity, 5,392,900 acre-ft, since Sept. 28, 1967, by Pat Mayse Lake (Texas), capacity, 352,700 acre-ft, and since Jan. 18, 1974, by Hugo Lake (Oklahoma) capacity, 966,700 acre-ft. Satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 297,000 ft³/s Feb 23, 1938 (gage height, 34.25 ft); minimum, 378 ft³/s Nov. 28, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 109,000 ft³/s May 12 (gage height, 19.15 ft); minimum, 2,180 ft³/s Oct. 11.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4350	2880	24500	39500	13900	47900	15600	25700	64000	11300	7000	4670
2	3430	2960	23200	32700	13300	54200	15000	31100	63200	9450	7030	4510
3	3400	2990	20700	28200	12800	67700	21600	31700	62700	8720	7060	4470
4	3150	2960	19400	25700	12500	66300	29800	27100	60800	9390	7310	4380
5	2730	2960	18700	34900	13400	57500	31500	22100	61100	9400	8830	4070
6	2420	2880	17000	36400	15100	58800	31900	19800	61500	7920	12800	3980
7	2360	2700	15000	31300	16400	62900	34900	26300	60300	7560	11500	4080
8	2480	2610	13400	29200	17000	63400	37900	33000	58900	7360	8600	3800
9	2420	2740	12500	27400	15500	61900	37900	38600	56000	7220	8040	3780
10	2190	3040	12500	23800	13700	54400	36700	52000	55200	6660	7830	3710
11	2180	3100	13300	21300	12500	45700	32800	84900	55900	5820	7490	3610
12	2550	2950	16200	20400	12100	40400	28200	105000	54500	5450	6880	3650
13	2980	2740	20000	20600	15200	39100	21700	87000	54300	5250	6570	3690
14	3160	2560	22100	21200	19000	36200	19000	63600	56000	5020	6310	3440
15	3080	2630	36800	20900	19800	31300	19900	58300	50500	4800	5880	3450
16	2650	2870	61000	20400	22000	28900	25100	62000	47500	4640	5250	4100
17	2470	3200	67300	18600	34100	29700	34700	66500	45100	4640	5190	4560
18	2950	3900	65700	17200	43200	35600	41200	70700	39800	4690	5220	5180
19	3110	4050	62200	16900	40000	36800	45200	73300	34800	4660	5340	7290
20	4580	3530	64000	16800	40700	36300	48700	70400	28900	4590	5350	8710
21	4300	4400	70000	17600	42000	40500	49200	67100	25300	4560	5170	8770
22	3330	6130	73200	22600	45000	44400	43700	65800	22300	4640	5060	8420
23	2620	8610	71000	31900	46600	40800	38200	65200	19000	4630	4950	7070
24	2320	10600	68600	33000	44700	34500	31800	65500	16400	4530	4890	7060
25	2500	12200	67600	32700	45400	34000	23700	65200	14500	4530	4860	8570
26	2800	19600	65200	30800	50500	37800	19500	62400	13500	4780	4770	9210
27	2870	25000	57700	26900	51400	35500	17700	62600	12900	5770	5050	7570
28	2840	29500	52500	21700	49700	30700	20900	64000	13000	6350	5230	6300
29	2950	28800	50500	17900	---	28700	26000	63200	14000	6730	4910	5960
30	3360	26500	49100	15800	---	25400	25700	64200	13300	6880	4810	6010
31	2990	---	45700	14500	---	19400	---	65300	---	6990	4890	---
TOTAL	91520	231590	1276600	768800	777500	1326700	905700	1759600	1235200	194930	200070	164070
MEAN	2952	7720	41180	24800	27770	42800	30190	56760	41170	6288	6454	5469
MAX	4580	29500	73200	39500	51400	67700	49200	105000	64000	11300	12800	9210
MIN	2180	2560	12500	14500	12100	19400	15000	19800	12900	4530	4770	3440
AC-FT	181500	459400	2532000	1525000	1542000	2632000	1796000	3490000	2450000	386600	396800	325400

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

	MEAN	8526	10310	10070	10200	13990	14890	18700	24200	22370	9556	5215	5559
MAX	41690	47140	47910	52290	67760	67730	78110	121000	94400	33990	39230	30340	
(WY)	1946	1975	1992	1992	1938	1945	1942	1990	1957	1989	1950	1950	
MIN	586	618	618	586	1366	965	2096	4199	3098	1162	1025	909	
(WY)	1940	1940	1940	1940	1940	1940	1956	1972	1988	1944	1944	1944	

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1937 - 1993

ANNUAL TOTAL	8743140	8932280											
ANNUAL MEAN	23890	24470											
HIGHEST ANNUAL MEAN										12790			
LOWEST ANNUAL MEAN										4383			1990
HIGHEST DAILY MEAN										286000		Feb 23	1938
LOWEST DAILY MEAN										384		Nov 28	1956
ANNUAL SEVEN-DAY MINIMUM										397		Oct 19	1956
ANNUAL RUNOFF (AC-FT)	17340000	17720000								9264000			
10 PERCENT EXCEEDS	52100	62100								33800			
50 PERCENT EXCEEDS	19600	17600								5600			
90 PERCENT EXCEEDS	3090	3090								2040			

RED RIVER BASIN

07337000 RED RIVER AT INDEX, ARK--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1947-1956, April 1980 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January to September 1981.

WATER TEMPERATURE: January to September 1981.

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

DATE	TIME	AGENCY COL- LECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANA- LYZING SAMPLE (CODE NUMBER) (00028)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)
NOV 17.	1440	80513	80020	3050	955	8.4	14.5	16	12.7	125	K80
JAN 20.	1445	80513	80020	18000	900	8.0	7.0	47	11.9	99	180
MAR 17.	1435	80513	80020	30400	870	8.0	10.5	96	11.2	101	140
APR 29.	0700	80513	80020	22600	725	8.0	17.0	99	8.5	89	37
JUN 10.	1400	80513	80020	52100	725	7.7	24.5	120	7.4	90	36
JUL 13.	1505	80513	80020	6420	865	8.5	32.0	130	5.8	81	K5

DATE	TIME	STREP- TOCOCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CAC03) (00900)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L) (00904)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)
NOV 17.	1440	K39	250	73	68	19	95	45	3	5.0
JAN 20.	1445	520	230	120	59	19	99	48	3	4.3
MAR 17.	1435	K330	220	110	57	19	81	44	2	3.4
APR 29.	0700	K270	180	87	47	15	62	42	2	3.0
JUN 10.	1400	130	210	110	58	17	64	39	2	3.5
JUL 13.	1505	K4	270	120	73	22	81	39	2	4.6

DATE	TIME	ALKA- LINITY WAT DIS TOT FET FIELD MG/L AS CAC03 (00418)	CAR- BONATE WATER DIS IT FIELD AS C03 (00452)	BICAR- BONATE WATER DIS IT FIELD AS HC03 (00453)	ALKA- LINITY WAT DIS TOT IT FIELD AS CAC03 (39086)	SULFATE DIS- SOLVED (MG/L AS S04) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS S102) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
NOV 17.	1440	174	0	215	176	110	120	0.30	5.6	554
JAN 20.	1445	102	0	124	102	140	150	0.30	5.5	549
MAR 17.	1435	111	0	137	112	120	130	0.10	6.6	533
APR 29.	0700	93	0	113	93	95	91	0.20	5.9	394
JUN 10.	1400	100	0	124	102	110	110	0.20	6.6	445
JUL 13.	1505	152	1	183	152	130	110	0.20	1.4	543

RED RIVER BASIN

111

07337000 RED RIVER AT INDEX, ARK--Continued
(National stream-quality accounting network station)

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

DATE	TIME	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
NOV 17.	1440	530	4560	0.75	--	0.030	<0.050	0.020	0.68	0.70
JAN 20.	1445	541	26700	0.75	0.320	0.040	0.360	0.060	0.44	0.50
MAR 17.	1435	487	43700	0.72	0.420	0.020	0.440	0.040	0.56	0.60
APR 29.	0700	377	24000	0.54	--	<0.010	0.280	0.030	0.57	0.60
JUN 10.	1400	432	62600	0.61	--	<0.010	0.380	0.040	0.26	0.30
JUL 13.	1505	514	9410	0.74	--	<0.010	<0.050	0.030	0.17	0.20
DATE	TIME	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)
NOV 17.	1440	0.120	<0.010	0.010	20	150	<3	29	13	10
JAN 20.	1445	0.110	0.030	0.040	<10	120	<3	36	10	13
MAR 17.	1435	0.230	0.020	0.020	--	--	--	--	--	--
APR 29.	0700	0.150	0.030	0.010	30	95	<3	39	6	6
JUN 10.	1400	0.040	0.030	0.020	--	--	--	--	--	--
JUL 13.	1505	0.600	0.010	<0.010	50	170	<3	41	10	160
DATE	TIME	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 17.	1440	<10	1	<1	<1.0	660	<6	300	2470	84
JAN 20.	1445	<10	<1	<1	<1.0	640	<6	178	8650	68
MAR 17.	1435	--	--	--	--	--	--	528	43300	69
APR 29.	0700	<10	1	<1	<1.0	460	<6	673	41100	54
JUN 10.	1400	--	--	--	--	--	--	1140	160000	48
JUL 13.	1505	<10	<1	<1	<1.0	680	<6	1640	28400	44

RED RIVER BASIN

07342465 SOUTH SULPHUR RIVER AT COMMERCE, TX

LOCATION.--Lat 33°12'42", long 95°54'30", Hunt County, Hydrologic Unit 11140301, on right bank at downstream side of bridge on south-bound State Highway 50, 13 mi. upstream from Dunbar Creek, and 2.8 mi. south of Commerce.

DRAINAGE AREA.--150 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1991 to current year.

GAGE.--Water-stage recorder. Datum of gage is 460.74 ft above National Geodetic Vertical Datum of 1929. Gage-height telemeter at station.

REMARKS.--No estimated daily discharges. Records good.

PEAK DISCHARGES FOR 1992 WATER YEAR.--Peak discharges greater than base discharge of 2,700 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 28	2330	7,980	25.12	May 18	1200	3,950	17.75
Nov. 17	0715	2,880	15.06	May 24	1745	3,890	17.61
Dec. 9	2115	7,810	24.98	June 8	1215	4,470	19.15
Dec. 21	1430	6,350	23.36	June 29	0345	7,740	24.92
Mar. 9	1015	4,890	20.27	July 28	1445	3,490	16.60
May 12	1815	10,100	26.72	July 31	1130	3,760	17.27

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,700 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 15	1200	3,360	16.27	Apr. 14	1930	3,810	17.41
Feb. 15	2015	3,170	15.80	Apr. 30	0915	4,110	18.18
Feb. 25	1200	4,930	20.31				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.07	3.1	2.6	15	789	2.1	274	.77	.02	.00	.00
2	.00	.03	2.2	3.4	8.4	1790	1.7	187	.63	.01	.00	.00
3	.00	.01	1.5	2.5	90	296	1.7	64	.49	.01	.00	.00
4	.00	.00	1.4	2.1	1100	93	319	30	.45	.01	.00	.00
5	.00	.00	.94	1.5	761	39	172	18	.41	.01	.00	.00
6	.00	.00	.93	1.3	347	22	46	13	.42	.01	.00	.00
7	.00	.02	.86	1.4	175	14	129	9.7	.30	.01	.06	.00
8	.00	.02	.85	1.5	72	9.8	199	7.2	.26	.01	.09	.00
9	.00	.02	13	80	32	6.7	55	43	.44	.00	.01	.00
10	.00	.02	78	234	31	4.7	18	683	1.9	.00	.00	.00
11	.00	.01	52	95	196	3.2	7.8	243	46	.00	.00	.00
12	.01	2.5	21	56	115	3.6	3.9	49	131	.00	.00	.00
13	.02	34	13	66	36	2.5	2.3	48	34	.00	.00	.00
14	.02	19	378	33	17	1.8	1590	27	11	.00	.00	.00
15	.02	8.3	2740	14	1260	1.8	3210	15	5.6	.19	.00	.00
16	.05	3.6	1820	7.9	2310	1230	398	10	2.8	.01	.00	.00
17	.03	1.7	238	4.4	385	1590	84	6.7	1.7	.00	.00	.00
18	.02	.89	75	7.7	86	157	39	4.6	1.2	.00	.00	.00
19	.01	1.2	62	18	36	232	33	3.4	27	.00	.00	.00
20	.01	2.1	205	295	21	996	315	2.7	4.5	.00	.00	.00
21	.00	42	60	311	14	280	49	2.4	1.6	.00	.00	.00
22	.00	106	23	111	10	153	17	2.0	.95	.00	.00	.00
23	.00	119	13	48	6.5	205	8.8	3.1	.54	.00	.00	.00
24	.01	46	8.6	357	4.3	105	5.5	15	.32	.00	.00	.00
25	.00	86	5.7	184	2890	40	4.1	6.8	.19	.00	.00	.00
26	.00	66	3.4	56	3050	20	3.0	3.1	.11	.00	.00	.01
27	.00	24	2.1	23	221	11	2.5	2.3	.09	.00	.00	.00
28	.00	13	1.7	13	68	7.0	2.0	1.8	.04	.00	.00	.01
29	.00	7.0	1.6	68	---	4.8	1980	1.5	.03	.00	.00	.00
30	.00	4.5	1.5	67	---	3.8	3040	1.3	.01	.00	.00	.05
31	.05	---	1.9	30	---	2.9	---	1.1	---	.00	.00	---
TOTAL	0.25	586.99	5829.28	2195.3	13357.2	8114.6	11738.4	1778.7	274.75	0.29	0.16	0.07
MEAN	.008	19.6	188	70.8	477	262	391	57.4	9.16	.009	.005	.002
MAX	.05	119	2740	357	3050	1790	3210	683	131	.19	.09	.05
MIN	.00	.00	.85	1.3	4.3	1.8	1.7	1.1	.01	.00	.00	.00
AC-FT	.5	1160	11560	4350	26490	16100	23280	3530	545	.6	.3	.1
CFSM	.00	.13	1.25	.47	3.18	1.75	2.61	.38	.06	.00	.00	.00
IN.	.00	.15	1.45	.54	3.31	2.01	2.91	.44	.07	.00	.00	.00

RED RIVER BASIN

113

07342465 SOUTH SULPHUR RIVER AT COMMERCE, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1993, BY WATER YEAR (WY)

MEAN	211	106	496	147	316	304	211	396	221	79.3	16.0	.091
MAX	423	193	804	224	477	346	391	734	433	159	32.0	.18
(WY)	1992	1992	1992	1992	1993	1992	1993	1992	1992	1992	1992	1992
MIN	.008	19.6	188	70.8	161	262	30.7	57.4	9.16	.009	.005	.002
(WY)	1993	1993	1993	1993	1992	1993	1992	1993	1993	1993	1993	1993

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1992 - 1993

ANNUAL TOTAL	71359.39	43875.99	209	
ANNUAL MEAN	195	120	297	1992
HIGHEST ANNUAL MEAN			120	1993
LOWEST ANNUAL MEAN				
HIGHEST DAILY MEAN	5450 May 12	3210 Apr 15	5680	Oct 29 1991
LOWEST DAILY MEAN	.00 Sep 28	.00 Oct 1	.00	Oct 2 1991
ANNUAL SEVEN-DAY MINIMUM	.00 Sep 28	.00 Oct 1	.00	Oct 7 1991
INSTANTANEOUS PEAK FLOW		4930 Feb 25	10100	May 12 1992
INSTANTANEOUS PEAK STAGE		20.31 Feb 25	26.72	May 12 1992
INSTANTANEOUS LOW FLOW		.00 Oct 1	.00	at times
ANNUAL RUNOFF (AC-FT)	141500	87030	151300	
ANNUAL RUNOFF (CFSM)	1.30	.80	1.39	
ANNUAL RUNOFF (INCHES)	17.70	10.88	18.92	
10 PERCENT EXCEEDS	494	205	435	
50 PERCENT EXCEEDS	10	2.0	7.2	
90 PERCENT EXCEEDS	.02	.00	.00	

RED RIVER BASIN

07342465 SOUTH SULPHUR RIVER AT COMMERCE, TX--Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	1550	952	220	44	18	9.5	1.8	78	132	519	.44
2	.00	214	1150	366	29	11	8.0	1.7	131	40	87	.42
3	.01	61	834	122	21	9.6	7.3	1.8	144	18	214	1.1
4	.01	29	158	61	16	804	6.0	1.7	64	11	75	.67
5	.02	17	60	39	13	945	5.9	1.3	25	6.9	23	.47
6	.01	12	33	28	10	289	12	1.1	23	5.0	15	.30
7	.00	9.9	21	24	10	82	14	1.1	47	3.9	7.6	.21
8	.00	7.2	16	21	7.3	42	14	.76	2330	3.4	4.7	.15
9	.00	5.9	3900	18	5.8	2690	12	.66	684	2.7	3.6	.16
10	.00	5.0	2980	16	5.0	1960	8.7	.55	121	2.5	2.9	.17
11	.00	3.9	401	13	4.5	160	7.2	44	796	2.0	2.4	.28
12	.00	3.5	1490	11	384	64	254	5450	355	1.7	2.7	.22
13	.00	3.1	454	13	335	39	233	2700	70	1.3	5.2	.13
14	.00	2.7	159	52	84	27	53	144	27	1.2	3.9	.08
15	.00	2.4	72	62	44	21	23	635	14	5.5	3.9	.05
16	.00	8.3	41	29	25	17	14	138	9.0	71	5.0	.05
17	.00	1970	28	17	15	199	9.8	548	6.1	16	3.4	.07
18	.00	499	22	631	10	2230	7.8	3330	4.3	16	2.6	.17
19	.00	652	71	984	7.0	738	11	2860	3.1	14	2.1	.06
20	.00	267	1910	216	4.8	112	105	1530	106	6.4	1.7	.02
21	.00	101	5320	101	3.5	55	40	255	48	5.0	1.2	.02
22	.00	45	2160	753	50	37	22	81	21	3.4	.80	.03
23	.00	23	1690	346	725	25	13	96	9.0	2.6	.76	.03
24	.00	15	280	105	190	20	8.6	2710	5.1	1.9	.59	.03
25	.00	10	103	50	1250	18	5.8	1300	54	1.6	.46	.02
26	.79	8.3	66	35	1130	36	4.5	505	489	1.2	.59	.02
27	131	6.6	108	1030	157	30	3.2	131	703	1.7	.78	.01
28	2760	5.7	216	995	63	18	2.6	53	1380	1600	.45	.00
29	5680	9.5	119	373	34	14	2.8	99	4400	444	.31	.00
30	3460	254	68	141	---	12	2.0	94	852	163	.30	.00
31	1080	---	43	74	---	10	---	42	---	2330	.38	---
TOTAL	13111.87	5801.0	24925	6946	4676.9	10732.6	919.7	22757.47	12998.6	4914.9	991.32	5.38
MEAN	423	193	804	224	161	346	30.7	734	433	159	32.0	.18
MAX	5680	1970	5320	1030	1250	2690	254	5450	4400	2330	519	1.1
MIN	.00	2.4	16	11	3.5	9.6	2.0	.55	3.1	1.2	.30	.00
AC-FT	26010	11510	49440	13780	9280	21290	1820	45140	25780	9750	1970	.11
CFSM	2.82	1.29	5.36	1.49	1.08	2.31	.20	4.89	2.89	1.06	.21	.00
IN.	3.25	1.44	6.18	1.72	1.16	2.66	.23	5.64	3.22	1.22	.25	.00

SUMMARY STATISTICS

FOR 1992 WATER YEAR

ANNUAL TOTAL	108780.74
ANNUAL MEAN	297
HIGHEST DAILY MEAN	5680 Oct 29
LOWEST DAILY MEAN	.00 Oct 2
ANNUAL SEVEN-DAY MINIMUM	.00 Oct 7
INSTANTANEOUS PEAK FLOW	10100 May 12
INSTANTANEOUS PEAK STAGE	26.72 May 12
INSTANTANEOUS LOW FLOW	.00 Oct 2
ANNUAL RUNOFF (AC-FT)	215800
ANNUAL RUNOFF (CFSM)	1.98
ANNUAL RUNOFF (INCHES)	26.98
10 PERCENT EXCEEDS	680
50 PERCENT EXCEEDS	16
90 PERCENT EXCEEDS	.04

RED RIVER BASIN

115

07342470 SOUTH SULPHUR RIVER NEAR COMMERCE, TX

WATER QUALITY RECORDS

LOCATION.--Lat 33°13'11", long 95°51'45", Hunt County, Hydrologic Unit 11140301, at State Highway 11, 0.7 mi upstream from St. Louis Southwestern Railroad bridge, 1.8 mi downstream from Dunbar Creek, and 3.0 mi southeast of Commerce.

DRAINAGE AREA.--189².

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1987 to current year.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CaCO3)
OCT 07...	1010	1.7	798	8.2	21.0	13	32	8.2	93	5.9	80
MAR 19...	1150	98	307	7.6	12.0	100	71	12.4	116	2.0	120
MAY 05...	1117	23	455	7.4	22.0	35	51	8.0	93	3.2	160
JUN 21...	1150	4.2	417	8.7	25.0	35	120	7.0	86	4.7	94
JUN 24...	1301	3.9	559	8.6	30.0	21	15	6.4	86	5.7	110
AUG 10...	0925	3.4	500	7.7	28.5	23	32	6.9	90	4.6	89
DATE	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
OCT 07...	0	27	3.0	140	7	7.1	180	89	54	0.40	4.7
MAR 19...	4	40	3.9	20	0.8	3.0	110	34	11	0.20	9.0
MAY 05...	11	55	4.8	29	1	3.6	150	48	17	0.30	9.6
JUN 21...	0	32	3.3	46	2	4.8	110	56	25	0.30	7.3
JUN 24...	0	36	3.9	82	3	6.1	130	73	43	0.30	7.1
AUG 10...	0	30	3.4	68	3	5.9	110	63	38	0.30	6.5
DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
OCT 07...	431	79	24	55	10.8	--	0.170	--	11.0	--	0.170
MAR 19...	195	154	30	124	1.35	1.35	--	0.050	1.40	1.40	--
MAY 05...	269	104	52	52	2.71	2.71	--	0.090	2.80	2.80	--
JUN 21...	258	806	27	779	3.65	3.65	--	0.050	3.70	3.70	--
JUN 24...	367	59	8	51	7.36	7.36	--	0.040	7.40	7.40	--
AUG 10...	304	385	24	361	4.14	4.14	--	0.060	4.20	4.20	--
DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	
OCT 07...	--	0.53	--	--	0.70	2.80	--	--	2.50	--	
MAR 19...	0.140	--	0.66	0.80	--	--	0.130	0.120	--	0.37	
MAY 05...	0.120	--	0.68	0.80	--	--	0.210	0.180	--	0.55	
JUN 21...	0.150	--	0.55	0.70	--	--	0.400	0.400	--	1.2	
JUN 24...	0.050	--	0.55	0.60	--	--	0.790	0.800	--	2.5	
AUG 10...	0.120	--	0.88	1.0	--	--	0.570	0.560	--	1.7	

RED RIVER BASIN

07342470 SOUTH SULPHUR RIVER NEAR COMMERCE, TX--Continued

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

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
OCT 07...	19	--	--	--	--	--	--	--	--	--
MAR 19...	11	--	--	--	--	--	--	--	--	--
MAY 05...	7.8	2	61	<0.5	<1.0	<5	<3	<10	22	<10
JUN 21...	11	6	46	<0.5	<1.0	<5	<3	<10	7	<10
JUN 24...	12	4	48	<0.5	<1.0	<5	<3	<10	11	<10
AUG 10...	12	4	40	<0.5	<1.0	<5	<3	<10	6	<10
DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 07...	--	--	--	--	--	--	--	--	--	--
MAR 19...	--	--	--	--	--	--	--	--	--	--
MAY 05...	5	24	<0.1	<10	<10	<1	<1.0	530	<6	24
JUN 21...	5	6	<0.1	<10	<10	<1	<1.0	340	7	7
JUN 24...	9	2	<0.1	30	<10	<1	<1.0	360	<6	10
AUG 10...	8	1	0.2	20	<10	<1	<1.0	250	6	12

RED RIVER BASIN

07342480 MIDDLE SULPHUR RIVER AT COMMERCE, TX

LOCATION.--Lat 33°15'59", long 95°54'55", Hunt County, Hydrologic Unit 11140301, at right end of bridge on State Highway 11 at downstream side of highway embankment, 1.5 mi upstream from Willow Creek and 1.5 mi northwest of Post Office in Commerce.

DRAINAGE AREA.--44.1 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1991 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage not determined.

REMARKS.--No estimated daily discharge. Records good. Gage-height telemeter and rain gage at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.02	.24	.79	5.1	270	.64	33	.26	.00	.00	.00
2	.00	.01	.19	.75	3.1	654	.48	12	.27	.00	.00	.00
3	.00	.01	.10	.80	51	58	.49	6.5	.25	.00	.00	.00
4	.00	.00	.08	.74	472	16	278	4.1	.22	.00	.00	.00
5	.00	.00	.06	.67	189	7.9	84	2.8	.20	.00	.00	.00
6	.00	.00	.06	.63	67	4.7	17	2.1	.18	.00	.00	.00
7	.00	.00	.05	.56	30	3.1	75	1.6	.15	.00	.00	.00
8	.00	.00	.04	.48	13	2.1	107	1.3	.15	.00	.00	.00
9	.00	.00	7.6	67	6.8	1.7	22	4.5	.16	.00	.00	.00
10	.00	.00	21	85	14	1.3	7.3	9.2	.20	.00	.00	.00
11	.00	.00	12	24	69	.91	3.3	10	.17	.00	.00	.00
12	.00	.02	4.5	25	30	.75	1.8	3.9	50	.00	.00	.00
13	.00	.01	2.3	17	9.3	.66	1.1	2.4	9.6	.00	.00	.00
14	.00	.01	161	7.2	4.5	.54	964	2.0	2.3	.00	.00	.00
15	.00	.00	901	3.7	492	.51	1600	1.4	1.1	.00	.00	.00
16	.01	.00	695	2.0	919	1020	55	1.0	.65	.00	.00	.00
17	.01	.00	52	1.5	62	381	18	.85	.50	.00	.00	.00
18	.00	.00	12	1.3	15	28	11	.61	.34	.00	.00	.00
19	.00	.01	34	3.4	7.1	73	13	.51	.32	.00	.00	.00
20	.00	.02	161	164	4.5	259	20	.46	.39	.00	.00	.00
21	.00	.12	26	107	3.7	62	5.8	.41	.37	.00	.00	.00
22	.00	.13	9.3	32	2.4	30	3.2	.36	.31	.00	.00	.00
23	.00	.02	4.7	18	1.6	35	2.5	.38	.27	.00	.00	.00
24	.00	4.3	2.5	186	1.2	16	2.0	.59	.27	.00	.00	.00
25	.00	7.7	1.2	58	1270	8.4	1.7	.53	.17	.00	.00	.00
26	.00	5.2	.68	18	817	4.8	1.5	.39	.07	.00	.00	.00
27	.00	3.9	.46	7.5	37	2.7	1.4	.34	.04	.00	.00	.00
28	.00	1.9	.40	4.0	12	1.8	1.3	.30	.01	.00	.00	.00
29	.00	.77	.39	29	---	1.3	809	.29	.00	.00	.00	.00
30	.00	.37	.41	27	---	1.1	1020	.27	.00	.00	.00	.00
31	.00	---	.60	11	---	.91	---	.25	---	.00	.00	---
TOTAL	0.02	24.52	2110.86	904.02	4608.3	2947.18	5127.51	104.34	68.92	0.00	0.00	0.00
MEAN	.001	.82	68.1	29.2	165	95.1	171	3.37	2.30	.000	.000	.000
MAX	.01	7.7	901	186	1270	1020	1600	33	50	.00	.00	.00
MIN	.00	.00	.04	.48	1.2	.51	.48	.25	.00	.00	.00	.00
AC-FT	.04	49	4190	1790	9140	5850	10170	207	137	.00	.00	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1993, BY WATER YEAR (WY)

MEAN	51.9	31.1	162	55.2	112	113	86.5	125	64.2	43.8	15.8	.001
MAX	104	61.4	257	81.1	165	130	171	247	126	87.6	31.6	.003
(WY)	1992	1992	1992	1992	1993	1992	1993	1992	1992	1992	1992	1992
MIN	.001	.82	68.1	29.2	60.5	95.1	2.02	3.37	2.30	.000	.000	.000
(WY)	1993	1993	1993	1993	1992	1993	1992	1993	1993	1993	1993	1993

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1992 - 1993

ANNUAL TOTAL	25642.86	15895.67	71.7
ANNUAL MEAN	70.1	43.5	99.8
HIGHEST ANNUAL MEAN			43.5
LOWEST ANNUAL MEAN			1992
HIGHEST DAILY MEAN	2230	May 12	1992
LOWEST DAILY MEAN	.00	Aug 29	1991
ANNUAL SEVEN-DAY MINIMUM	.00	Sep 8	1991
INSTANTANEOUS PEAK FLOW		3620	Apr 14
INSTANTANEOUS PEAK STAGE		15.50	Apr 14
INSTANTANEOUS LOW FLOW		.00	Oct 1
ANNUAL RUNOFF (AC-FT)	50860	31530	51950
10 PERCENT EXCEEDS	150	53	143
50 PERCENT EXCEEDS	2.1	.37	1.2
90 PERCENT EXCEEDS	.00	.00	.00

RED RIVER BASIN

07342480 MIDDLE SULPHUR RIVER AT COMMERCE, TX --Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1987 to current year.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	
JAN 13...	1347	15	430	7.9	7.0	110	22	11.8	97	0.8	150	33	
MAR 19...	1550	25	207	7.4	12.0	110	47	12.8	120	3.0	110	11	
MAY 06...	1131	2.0	456	7.6	20.0	55	15	8.6	96	1.8	190	16	
JUN 21...	1529	0.33	333	7.6	25.0	65	19	6.9	84	3.5	130	16	
24...	1031	0.28	355	7.5	27.0	57	21	6.3	80	3.5	140	18	
DATE		CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)
JAN 13...	54	4.5	29	1	3.8	120	73	18	0.20	12	268	77	
MAR 19...	39	3.1	14	0.6	3.0	99	30	8.0	0.10	9.4	168	79	
MAY 06...	67	5.4	21	0.7	3.5	170	44	13	0.20	10	270	70	
JUN 21...	45	4.0	15	0.6	5.0	110	40	7.0	0.30	8.8	194	45	
24...	49	4.4	17	0.6	5.0	120	48	7.1	0.30	8.8	215	44	
DATE		RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L AS N)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	
JAN 13...	23	54	0.130	0.130	0.010	0.140	0.140	0.050	0.75	0.80	0.130		
MAR 19...	23	56	0.320	0.320	0.020	0.340	0.340	0.090	0.51	0.60	0.100		
MAY 06...	42	28	0.160	0.160	0.010	0.170	0.170	0.060	0.54	0.60	0.090		
JUN 21...	11	34	0.087	--	<0.010	0.087	0.087	0.080	0.52	0.60	0.110		
24...	5	39	0.150	--	<0.010	0.150	0.150	0.090	0.61	0.70	0.100		
DATE		PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	
JAN 13...	0.130	0.40	12	--	--	--	--	--	--	--	--	--	
MAR 19...	0.100	0.31	12	--	--	--	--	--	--	--	--	--	
MAY 06...	0.070	0.21	9.4	3	79	<0.5	<1.0	<5	<3	<10	34		
JUN 21...	0.090	0.28	12	4	58	<0.5	<1.0	<5	<3	<10	28		
24...	0.080	0.25	9.7	4	63	<0.5	<1.0	<5	<3	<10	21		
DATE		LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	
JAN 13...	--	--	--	--	--	--	--	--	--	--	--	--	
MAR 19...	--	--	--	--	--	--	--	--	--	--	--	--	
MAY 06...	<10	<4	5	0.1	<10	<10	<1	<1.0	490	<6	12		
JUN 21...	<10	<4	18	<0.1	<10	<10	<1	<1.0	370	<6	14		
24...	<10	<4	10	<0.1	<10	<10	<1	<1.0	410	<6	19		

RED RIVER BASIN

119

07342495 COOPER LAKE NEAR COOPER, TX

WATER-QUALITY RECORDS

LOCATION.--Lat 33°20'00", long 95°37'30", Delta-Hopkins County line, Hydrologic Unit 11140301, in control room near center of dam on South Sulphur River, about 4.0 mi southeast of Cooper, and at river mile 23.2.

DRAINAGE AREA.--479.0 mi².

PERIOD OF RECORD.--Chemical and Biochemical analyses: September 1992 to current year.

REVISED RECORDS.--Due to a computation error discovered after publication of Phytoplankton analyses for the period of October 1991 to September 1992, revised data for these analyses are included in this report.

331938095374701 - COOPER LAKE SITE AC

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

DATE	TIME	RESER- VOIR STORAGE (AC-FT)	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
JAN										
25...	1530	289000	1.00	206	7.8	8.0	1.60	8.9	76	K15
25...	1535	--	10.0	206	7.8	8.0	--	8.7	75	--
25...	1539	--	20.0	207	7.7	8.0	--	8.6	74	--
25...	1542	--	30.0	206	7.7	8.0	--	8.6	74	--
25...	1546	--	43.0	208	7.6	8.0	--	8.4	72	--
MAY										
19...	1418	284000	1.00	217	8.0	23.5	1.20	6.3	75	K1
19...	1422	--	10.0	217	7.6	22.5	--	5.6	66	--
19...	1427	--	20.0	217	7.3	22.0	--	5.0	58	--
19...	1432	--	30.0	218	7.1	21.0	--	3.8	43	--
19...	1437	--	42.0	226	6.9	20.5	--	1.1	12	--
SEP										
13...	1433	252000	1.00	233	7.6	27.0	1.10	5.5	71	200
13...	1436	--	10.0	234	7.5	27.0	--	4.8	62	--
13...	1439	--	20.0	233	7.4	27.0	--	4.9	63	--
13...	1442	--	30.0	233	7.4	26.5	--	4.9	62	--
13...	1446	--	40.0	234	7.4	26.5	--	4.8	61	--

DATE	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)
JAN									
25...	K1	74	0	25	2.8	9.6	0.5	3.7	82
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	74	0	25	2.9	9.2	0.5	3.7	82
MAY									
19...	K1	76	0	26	2.7	11	0.5	2.9	76
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	--	77	0	26	2.9	11	0.5	3.0	82
SEP									
13...	K8	86	0	29	3.2	12	0.6	3.5	91
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	86	0	29	3.2	12	0.6	3.3	91

DATE	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)
JAN									
25...	11	5.3	0.20	0.50	108	0.180	0.180	0.020	0.200
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	9.7	5.3	0.20	0.50	107	0.180	0.180	0.020	0.200
MAY									
19...	16	6.7	0.20	1.1	112	--	--	<0.010	--
19...	--	--	--	--	--	--	--	<0.010	--
19...	--	--	--	--	--	--	--	<0.010	--
19...	--	--	--	--	--	--	--	--	--
19...	15	6.8	0.20	2.5	118	0.042	0.042	0.010	0.052
SEP									
13...	14	6.9	0.20	1.0	125	--	--	0.030	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	14	7.2	0.20	1.0	125	--	--	0.030	--

RED RIVER BASIN

07342495 COOPER LAKE NEAR COOPER, TX--Continued

331938095374701 - COOPER LAKE SITE AC--Continued

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

DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN									
25...	0.200	0.010	0.29	0.30	0.010	<0.010	--	6	1
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	0.200	0.020	0.28	0.30	<0.010	<0.010	--	7	4
MAY									
19...	<0.050	0.020	0.28	0.30	0.030	<0.010	--	5	8
19...	<0.050	0.030	0.37	0.40	0.020	<0.010	--	<10	<10
19...	<0.050	0.930	0.37	1.3	0.350	0.360	1.1	930	630
19...	--	--	--	--	--	--	--	--	--
19...	0.052	0.290	0.41	0.70	0.040	0.020	0.06	22	660
SEP									
13...	<0.050	0.050	0.35	0.40	0.010	0.010	0.03	12	5
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	<0.050	0.070	0.33	0.40	0.020	0.020	0.06	5	34

332110095422201 - COOPER LAKE SITE BC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
25...	1606	1.00	224	7.9	8.5	9.3	81
25...	1609	10.0	225	7.7	8.5	8.6	75
25...	1611	15.0	224	7.7	8.5	8.5	74
25...	1614	22.0	225	7.8	8.5	8.5	74
MAY							
19...	1500	1.00	215	8.1	25.5	6.8	85
19...	1504	10.0	216	7.1	22.5	3.3	39
19...	1508	20.0	236	7.1	21.0	1.0	11
SEP							
13...	1724	1.00	234	7.7	26.5	5.7	73
13...	1727	10.0	236	7.5	26.0	5.0	63
13...	1730	20.0	238	7.3	26.5	4.2	54

331818095422501 - COOPER LAKE SITE CC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)
JAN												
25...	1637	1.00	207	7.5	8.5	0.80	7.8	68	49	K17	74	0
25...	1641	10.0	207	7.4	8.5	--	7.1	62	--	--	--	--
25...	1644	20.0	209	7.3	8.0	--	5.6	48	--	--	--	--
25...	1648	35.0	209	7.4	8.0	--	5.9	51	--	--	74	0
MAY												
19...	1549	1.00	215	8.5	25.5	0.90	8.2	102	K1	K1	76	0
19...	1556	10.0	217	7.7	22.0	--	6.2	72	--	--	--	--
19...	1604	20.0	226	6.8	19.0	--	0.8	9	--	--	--	--
19...	1611	33.0	230	6.7	18.0	--	0.8	9	--	--	80	0
SEP												
13...	1647	1.00	237	7.4	27.0	0.70	4.3	55	K440	61	86	0
13...	1651	10.0	236	7.4	27.0	--	4.0	51	--	--	--	--
13...	1656	20.0	236	7.3	27.0	--	3.8	49	--	--	--	--
13...	1702	27.0	237	7.3	27.0	--	3.7	48	--	--	89	0

RED RIVER BASIN

121

07342495 COOPER LAKE NEAR COOPER, TX--Continued

331818095422501 - COOPER LAKE SITE CC--Continued

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

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINIT- WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)
JAN												
25...	25	2.8	9.5	0.5	3.7	78	13	5.4	0.20	1.8	109	0.220
25...	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--
25...	25	2.7	10	0.5	3.7	79	14	5.5	0.20	3.4	113	0.260
MAY												
19...	26	2.7	11	0.5	2.8	82	16	6.5	0.20	1.0	115	--
19...	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--	--
19...	28	2.4	9.7	0.5	2.7	93	6.7	5.8	0.20	8.6	126	--
SEP												
13...	29	3.2	12	0.6	3.5	95	14	6.8	0.20	0.90	127	--
13...	--	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--	--
13...	30	3.3	12	0.6	3.6	95	14	7.1	0.20	1.3	129	--

DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN												
25...	0.220	0.010	0.230	0.230	0.030	0.27	0.30	0.020	<0.010	--	13	12
25...	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--
25...	0.260	0.010	0.270	0.270	0.110	0.29	0.40	0.020	0.010	0.03	24	51
MAY												
19...	--	<0.010	--	<0.050	0.020	2.3	2.3	0.040	0.020	0.06	14	26
19...	--	<0.010	--	<0.050	0.050	0.35	0.40	0.050	0.020	0.06	10	30
19...	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	<0.010	--	<0.050	1.20	1.2	2.4	0.670	0.550	1.7	1800	630
SEP												
13...	--	<0.010	--	<0.050	0.090	0.81	0.90	0.020	0.020	0.06	<3	15
13...	--	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--	--
13...	--	<0.010	--	<0.050	0.110	0.39	0.50	0.030	0.020	0.06	9	38

332019095441901 - COOPER LAKE SITE DC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
25...	1729	1.00	309	7.7	8.5	8.6	75
25...	1735	12.0	418	7.5	8.0	7.2	62
MAY							
19...	1632	1.00	214	7.8	25.0	6.6	81
19...	1636	5.00	222	7.1	23.0	2.3	27
19...	1641	10.0	267	7.0	21.0	0.8	9
SEP							
13...	1618	1.00	249	7.5	26.0	5.5	69
13...	1621	5.00	252	7.4	25.5	4.6	58
13...	1624	10.0	252	7.4	26.0	4.5	57

331838095465601 - COOPER LAKE SITE EC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAY								
20...	1344	1.00	197	7.3	24.5	0.40	6.8	83
20...	1348	5.00	196	7.1	23.0	--	5.3	63
20...	1352	10.0	205	6.7	21.5	--	0.4	5

RED RIVER BASIN

07342495 COOPER LAKE NEAR COOPER, TX--Continued

331630095462901 - COOPER LAKE SITE FC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)
MAY											
20...	1411	1.00	212	7.2	24.0	0.15	6.2	75	76	0	27
20...	1415	5.00	216	7.0	23.0	--	3.0	36	--	--	--
20...	1419	11.0	339	7.0	19.5	--	0.4	4	120	0	43

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
MAY										
20...	2.2	9.4	0.5	3.0	82	13	5.6	0.30	3.9	114
20...	--	--	--	--	--	--	--	--	--	--
20...	2.9	19	0.8	2.7	120	31	12	0.20	7.7	192

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, DIS- SOLVED (MG/L AS PO4)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
MAY										
20...	<0.010	<0.050	0.020	0.38	0.40	0.030	0.020	0.06	27	14
20...	--	--	--	--	--	--	--	--	--	--
20...	<0.010	<0.050	0.120	0.88	1.0	0.040	0.030	0.09	45	410

331718095480601 - COOPER LAKE SITE GC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAY								
20...	1306	1.00	227	7.0	24.0	0.10	3.8	46
20...	1314	7.00	302	7.0	21.5	--	2.8	32

RED RIVER BASIN

123

07342495 COOPER LAKE NEAR COOPER, TX—Continued

Cooper Lake Site AC (331938095374701)

Phytoplankton Analyses October 1992 to September 1993

Date	1-25-93
Time	1529

TOTAL CELLS/mL	7,502
NUMBER OF SPECIES	15
DEPTH COLLECTED (ft.)	2.55

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	8
<i>Melosira varians</i>	111
Order Pennales	
<i>Fragilaria crotonensis</i>	89
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	893
<i>Chlamydomonas</i> sp.	30
<i>Gloeocystis major</i>	60
<i>Pediastrum duplex</i>	60
<i>Scenedesmus quadricauda</i>	60
<i>Staurastrum</i> sp.	30
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	4,762
<i>Chroococcus limneticus</i>	357
<i>Merismopedia tenuissima</i>	714
EUGLENOPHYTA	
<i>Trachelomonas</i> sp.	119
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	149
<i>Cryptomonas ovata</i>	60

RED RIVER BASIN

07342495 COOPER LAKE NEAR COOPER, TX—Continued

Cooper Lake Site AC (331938095374701)

Phytoplankton Analyses October 1992 to September 1993

Date	5-19-93
Time	1417

TOTAL CELLS/mL	15,982
NUMBER OF SPECIES	15
DEPTH COLLECTED (ft.)	1.9

OrganismsCells/mL

BACILLARIOPHYTA

Order Centrales

Cyclotella ocellata

660

Melosira varians

282

Stephanodiscus astraea

70

CHLOROPHYTA

Ankistrodesmus falcatus

298

Chlamydomonas sp.

60

Pediastrum duplex

179

Scenedesmus quadricauda

60

Unknown filamentous Chlorophyta

119

CYANOPHYTA

Aphanizomenon flos-aquae

625

Aphanocapsa delicatissima

11,011

Chroococcus limneticus

476

Merismopedia glauca

714

Merismopedia tenuissima

595

EUGLENOPHYTA

Trachelomonas sp.

595

CRYPTOPHYTA

Cryptomonas erosa

238

RED RIVER BASIN

125

07342495 COOPER LAKE NEAR COOPER, TX—Continued

Cooper Lake Site FC (331630095462901)

Phytoplankton Analyses October 1992 to September 1993

Date	5-20-93
Time	1410

TOTAL CELLS/mL	11,429
NUMBER OF SPECIES	17
DEPTH COLLECTED (ft.)	0.25

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella meneghiniana</i>	1,420
<i>Melosira varians</i>	336
Order Pennales	
<i>Fragilaria crotonensis</i>	327
<i>Navicula</i> sp.	218
<i>Synedra ulna</i>	109
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	327
<i>Chlamydomonas</i> sp.	30
<i>Closterium diana</i>	30
<i>Pediastrum duplex</i>	60
<i>Scenedesmus bijuga</i>	30
<i>Scenedesmus quadricauda</i>	298
<i>Staurastrum</i> sp.	60
CYANOPHYTA	
<i>Aphanizomenon flos-aquae</i>	893
<i>Aphanocapsa delicatissima</i>	4,166
<i>Chroococcus limneticus</i>	238
<i>Merismopedia tenuissima</i>	2,619
EUGLENOPHYTA	
<i>Trachelomonas</i> spp.	268

Cooper Lake Site AC (331938095374701)

Phytoplankton Analyses October 1992 to September 1993

Date	9-13-93
Time	1433

TOTAL CELLS/mL	41,188
NUMBER OF SPECIES	32
DEPTH COLLECTED (ft.)	1.85

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	138
<i>Melosira varians</i>	189
Order Pennales	
<i>Cocconies placentula</i>	9
<i>Fragilaria crotonensis</i>	97
<i>Fragilaria vaucherie</i>	26
<i>Gomphonema parvulum</i>	9
<i>Meridion circulare</i>	9
<i>Navicula cuspidata</i>	88
<i>Navicula viridula</i>	26
<i>Nitzschia palea</i>	449
CHLOROPHYTA	
<i>Actinastrum gracilimum</i>	59
<i>Ankistrodesmus falcatus</i>	89
<i>Chlamydomonas</i> sp.	357
<i>Gloeocystis major</i>	59
<i>Pediastrum duplex</i>	238
<i>Scenedesmus opoliensis</i>	89
<i>Scenedesmus quadricauda</i>	30
<i>Selenastrum Westii</i>	119
<i>Staurastrum</i> sp.	59
CYANOPHYTA	
<i>Anabaena spiroides</i>	1,190
<i>Aphanocapsa delicatissima</i>	6,543
<i>Aphanocapsa elachista</i>	7,435
<i>Chroococcus limneticus</i>	238
<i>Chroococcus minimus</i>	119
<i>Lyngbya contorta</i>	8,357
<i>Merismopedia tenuissima</i>	4,996
<i>Oscillatoria angustissima</i>	8,952
<i>Spirulina major</i>	30
CHRYSOPHYTA	
<i>Mallomonas</i> sp.	178
EUGLENOPHYTA	
<i>Trachelomonas</i> spp.	892
PYRRHOPHYTA	
<i>Peridinium pusillum</i>	30
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	89

07342495 COOPER LAKE NEAR COOPER, TX—Continued

Cooper Lake Site AC (331938095374701)

Phytoplankton Analyses October 1991 to September 1992

Date	9-15-92
Time	1518

TOTAL CELLS/mL	11,486
NUMBER OF SPECIES	18
DEPTH COLLECTED (ft.)	1.6

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	5
<i>Melosira varians</i>	24
Order Pennales	
<i>Diatoma vulgare</i>	32
<i>Navicula</i> sp.	24
<i>Synedra ulna</i>	32
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	625
<i>Chlamydomonas</i> sp.	179
<i>Pediastrum duplex</i>	149
<i>Scenedesmus bijuga</i>	30
<i>Staurastrum</i> sp.	30
CHRY SOPHYTA	
<i>Mallomonas</i> sp.	60
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	6,845
<i>Chroococcus limneticus</i>	952
<i>Merismopedia tenuissima</i>	1,428
EUGLENOPHYTA	
<i>Euglena</i> sp.	149
<i>Trachelomonas</i> spp.	446
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	357
<i>Cryptomonas ovata</i>	119

07342500 SOUTH SULPHUR RIVER NEAR COOPER, TX

LOCATION.--Lat 33°21'23", long 95°35'41", Delta County, Hydrologic Unit 11140301, on levee on left bank 110 ft downstream from bridge on State Highways 19 and 154, 1.0 mi downstream from Big Creek, 1.0 mi upstream from Brushy Creek, 4.5 mi downstream from Doctors Creek, and 5.6 mi southeast of Cooper.

DRAINAGE AREA.--527 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1942 to current year. Monthly discharge only for some periods, published in WSP 1311.

GAGE.--Water-stage recorder. Datum of gage is 371.91 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 15, 1985, at site 360 ft to right and 90 ft upstream at same datum. Oct. 1, 1970, at datum 3.00 ft higher. May 9, 1942, to Nov. 8, 1949, nonrecording gage, and Nov. 9, 1949, to May 13, 1955, water-stage recorder at site 1,060 ft to right of present gage. Gage-height telemeter at station.

REMARKS.--No estimated daily discharge. Records good. Construction of Cooper Dam, 13.4 miles upstream from station, was begun during the 1988 water year. Deliberate impoundment began Sept. 28, 1991.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--49 years (water years 1943-91), 416 ft³/s (10.72 in/yr), 301,400 acre-ft/yr.

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1943-1991).--Maximum discharge 47,200 ft³/s May 13, 1982 (gage height, 27.21 ft, from floodmark in gage well); no flow at times.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	8.0	337	818	784	891	1600	96	8.4	4.4	3.7	1.6
2	4.2	4.4	107	813	782	713	1600	353	8.0	4.4	3.8	1.6
3	4.0	3.9	108	813	796	247	1600	978	7.7	5.3	4.5	1.7
4	3.7	3.7	105	868	1040	783	1940	1200	6.3	5.1	4.6	1.5
5	3.6	4.0	106	640	883	1250	1680	1200	6.1	4.5	4.4	1.3
6	1.1	3.9	106	190	818	1600	1620	1190	6.1	4.2	3.9	1.2
7	1.9	3.6	105	454	780	1600	1620	1190	6.1	4.0	4.2	1.2
8	6.1	3.9	65	454	762	1590	1640	1200	6.1	3.5	4.5	1.3
9	4.9	3.9	14	528	751	1590	1610	1330	6.3	3.5	4.1	1.6
10	4.8	4.6	12	550	752	1580	1590	1600	8.3	3.8	3.9	1.5
11	4.7	5.1	10	489	768	1570	1590	1240	7.1	4.0	4.0	1.1
12	4.5	78	8.8	672	753	1570	1490	1220	7.2	4.2	3.9	.88
13	4.3	546	8.6	851	742	1560	1270	1210	7.8	4.2	3.3	.99
14	4.2	819	379	821	736	1560	1710	1200	7.4	4.3	3.2	1.2
15	4.1	813	1620	810	1170	1560	1240	1190	6.9	4.6	3.1	1.0
16	4.7	800	524	805	1020	1520	146	1190	6.7	4.6	3.2	.72
17	4.5	802	125	802	128	389	245	1180	6.5	4.6	3.0	.51
18	4.4	803	242	824	297	148	519	1180	6.1	4.8	2.8	.38
19	4.3	807	832	834	757	674	759	1180	6.2	4.8	2.9	.50
20	4.2	810	844	1140	753	886	1180	1110	6.4	4.9	2.7	.58
21	4.3	815	837	916	750	753	1170	708	6.4	5.1	2.4	.43
22	4.4	822	826	849	746	813	1170	483	3.8	4.9	2.2	.57
23	4.3	799	822	822	745	1310	1170	479	1.9	4.3	1.9	.50
24	4.2	803	818	866	745	1610	1170	479	3.6	4.8	1.7	.39
25	4.3	803	814	818	1630	1620	1170	477	3.9	4.8	1.8	.49
26	4.3	791	812	802	485	1610	1160	476	4.2	4.9	2.5	1.7
27	4.2	786	812	794	243	1610	1160	477	4.2	5.2	2.5	1.1
28	4.4	783	815	790	464	1600	1160	311	4.1	5.3	2.0	.51
29	4.4	784	815	790	---	1600	1490	16	4.2	5.3	1.4	.33
30	4.6	657	815	788	---	1600	370	13	4.4	5.2	1.4	.33
31	4.5	---	814	785	---	1600	---	10	---	4.4	1.6	---
TOTAL	130.3	14170.0	14658.4	23196	21080	39007	37839	26166	178.4	141.9	95.1	28.71
MEAN	4.20	472	473	748	753	1258	1261	844	5.95	4.58	3.07	.96
MAX	6.1	822	1620	1140	1630	1620	1940	1600	8.4	5.3	4.6	1.7
MIN	1.1	3.6	8.6	190	128	148	146	10	1.9	3.5	1.4	.33
AC-FT	258	28110	29070	46010	41810	77370	75050	51900	354	281	189	57
CFSM	.01	.90	.90	1.42	1.43	2.39	2.39	1.60	.01	.01	.01	.00
IN.	.01	1.00	1.03	1.64	1.49	2.75	2.67	1.85	.01	.01	.01	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1993#, BY WATER YEAR (WY)

	MEAN	46.4	265	350	705	613	2013	1035	453	292	422	604	2.93
MAX	88.5	472	473	748	753	2768	1261	844	579	839	1205	4.91	
(WY)	1992	1993	1993	1993	1993	1992	1993	1993	1992	1992	1992	1992	1992
MIN	4.20	57.8	227	662	478	1258	810	62.6	5.95	4.58	3.07	.96	
(WY)	1993	1992	1992	1992	1992	1993	1992	1992	1993	1993	1993	1993	1993

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1992 - 1993#

ANNUAL TOTAL	256246.66	176690.81	
ANNUAL MEAN	700	484	568
HIGHEST ANNUAL MEAN			652
LOWEST ANNUAL MEAN			484
HIGHEST DAILY MEAN	4240	1940	4240
LOWEST DAILY MEAN	.00	.33	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.48	.00
INSTANTANEOUS PEAK FLOW		2510	5500
INSTANTANEOUS PEAK STAGE		16.92	19.12
INSTANTANEOUS LOW FLOW		.33	.00
ANNUAL RUNOFF (AC-FT)	508300	350500	411800
ANNUAL RUNOFF (CFSM)	1.33	.92	1.08
ANNUAL RUNOFF (INCHES)	18.09	12.47	14.65
10 PERCENT EXCEEDS	1970	1390	1600
50 PERCENT EXCEEDS	179	128	107
90 PERCENT EXCEEDS	3.8	1.9	.55

Period of regulated streamflow.

07342500 SOUTH SULPHUR RIVER NEAR COOPER, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1958 to September 1966, October 1967 to current year. Chemical and biochemical analyses: December 1979 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1958 to September 1966, October 1967 to September 1989.

WATER TEMPERATURE: October 1958 to September 1966, October 1967 to September 1989.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 4,710 microsiemens Aug. 14, 1973; minimum daily, 82 microsiemens July 2, 1976, July 12, 1988.

WATER TEMPERATURE: Maximum daily, 36.0°C Aug. 6, 1960, Aug. 10, 1962; minimum daily, 0.0°C on many days during winter months.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	HARDNESS TOTAL (MG/L AS CaCO3)
OCT 27...	1630	4.1	238	7.1	21.5	25	23	7.8	89	1.7	91
DEC 16...	1050	501	203	7.6	8.0	30	83	11.4	97	2.9	68
JAN 26...	1030	802	202	7.6	8.0	20	3.4	12.8	108	0.3	79
FEB 09...	1540	755	200	7.9	10.0	25	3.1	13.0	116	1.8	74
MAY 20...	1125	1180	187	7.4	21.0	20	0.90	8.8	100	1.6	85
SEP 14...	0930	2.0	256	7.6	23.5	16	3.4	6.0	71	2.1	98

DATE	HARDNESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY WAT DIS FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS Cl)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
OCT 27...	2	31	3.4	13	0.6	3.4	89	23	10	0.20	1.8
DEC 16...	0	24	1.9	17	0.9	3.0	79	17	9.2	0.30	5.1
JAN 26...	0	27	2.8	9.8	0.5	3.6	81	11	5.3	0.20	0.50
FEB 09...	0	25	2.8	10	0.5	3.5	82	12	6.0	0.20	0.40
MAY 20...	6	29	2.9	12	0.6	3.7	79	16	6.9	0.20	0.64
SEP 14...	3	33	3.6	13	0.6	3.4	95	20	8.1	0.30	1.2

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L)	RESIDUE VOLATILE, SUSPENDED (MG/L)	RESIDUE FIXED NON FILTERABLE (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRATE DIS-SOLVED (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)
OCT 27...	139	1	1	0	0.032	--	0.020	--	0.052	--	0.020
DEC 16...	125	244	31	213	0.150	--	0.050	--	0.200	--	0.070
JAN 26...	110	16	<1	--	0.190	0.190	--	0.020	0.210	0.210	--
FEB 09...	110	21	15	6	0.100	0.100	--	0.020	0.120	0.120	--
MAY 20...	120	22	14	8	0.057	0.057	--	0.020	0.077	0.077	--
SEP 14...	141	23	8	15	0.110	0.110	--	0.020	0.130	0.130	--

DATE	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)	PHOSPHORUS DIS-SOLVED (MG/L AS P)	PHOSPHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOSPHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DIS-SOLVED (MG/L AS P04)
OCT 27...	--	0.58	--	--	0.60	0.110	--	--	0.050	--
DEC 16...	--	0.43	--	--	0.50	0.090	--	--	0.090	--
JAN 26...	0.010	--	0.29	0.30	--	--	0.020	0.020	--	0.06
FEB 09...	0.020	--	0.28	0.30	--	--	0.010	<0.010	--	--
MAY 20...	0.130	--	1.1	1.2	--	--	0.010	0.010	--	0.03
SEP 14...	0.100	--	0.40	0.50	--	--	0.030	0.030	--	0.09

RED RIVER BASIN

07342500 SOUTH SULPHUR RIVER NEAR COOPER, TX--Continued

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

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
OCT 27...	7.0	--	--	--	--	--	--	--	--	--
DEC 16...	9.3	3	37	<0.5	2.0	<5	<3	<10	63	<10
JAN 26...	--	2	42	<0.5	<1.0	<5	<3	<10	16	<10
FEB 09...	7.5	--	--	--	--	--	--	--	--	--
MAY 20...	7.2	2	40	<0.5	<1.0	<5	<3	10	42	<10
SEP 14...	6.6	3	47	<0.5	<1.0	<5	<3	<10	<3	<10
DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 27...	--	--	--	--	--	--	--	--	--	--
DEC 16...	<4	24	<0.1	<10	<10	<1	2.0	230	<6	20
JAN 26...	<4	<1	<0.1	<10	<10	<1	<1.0	220	<6	<3
FEB 09...	--	--	--	--	--	--	--	--	--	--
MAY 20...	<4	7	<0.1	<10	<10	<1	<1.0	210	<6	50
SEP 14...	11	2	<0.1	<10	<10	<1	<1.0	240	<6	<3

RED RIVER BASIN

131

07343000 NORTH SULPHUR RIVER NEAR COOPER, TX

LOCATION.--Lat 33°28'29", long 95°35'15", Lamar County, Hydrologic Unit 11140301, on left bank at downstream side of highway embankment near left end of downstream bridge on State Highways 19 and 24, 2.3 mi upstream from Auds Creek, 5.5 mi upstream from Hickory Creek, 8.7 mi northeast of Cooper, and 15.6 mi upstream from mouth.

DRAINAGE AREA.--276 mi².

WATER-DISCHARGE RECORDS

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

Water-quality records.--Chemical analyses: July 1950 to September 1958, January 1967 to September 1988.

GAGE.--Water-stage recorder. Datum of gage is 372.42 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Nov. 8, 1949, nonrecording gage, Nov. 8, 1949, to May 21, 1960, water-stage recorder at site 50 ft upstream at datum 9.00 ft higher, and from May 22, 1960, to Sept. 30, 1970, at datum 5.00 ft higher.

REMARKS.--Records fair. In 1928-29, the channel was rectified for a distance of 28 mi upstream and 18 mi downstream from this station. Gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 2, 1944, reached a stage of 35.6 ft, present datum, and flood in 1932 reached about same stage, from information by U.S. Army Corps of Engineers and local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 20,000 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Feb. 25	1115	25,800	21.09	No other peak greater than base discharge.			

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	4.0	4.7	36	39	5870	29	153	11	16	.09	.00
2	.69	3.6	4.1	28	e39	1640	28	115	27	8.4	.10	.00
3	.59	1.9	3.4	25	e3450	385	41	61	20	5.0	.49	.10
4	.52	1.0	3.7	84	e4640	182	1340	43	11	3.2	.82	.17
5	.53	.62	2.4	57	e823	116	343	35	7.9	2.2	.53	.11
6	.58	.44	2.3	37	e304	87	136	30	6.3	1.6	.19	.07
7	.82	.58	2.5	29	e174	71	341	26	5.7	1.2	.40	.05
8	2.2	.62	2.7	28	e119	59	402	22	5.6	.85	.55	.04
9	2.2	.77	172	297	87	49	121	1580	435	.65	.28	.04
10	1.5	3.4	154	417	309	40	70	3130	645	.48	.17	.03
11	1.0	47	28	126	791	34	51	236	833	.32	.11	.03
12	.94	107	15	247	201	31	42	212	884	.22	.08	.03
13	.80	49	19	174	100	29	37	205	154	.23	.08	.62
14	.63	10	2340	78	75	22	4950	84	78	.21	.08	1.3
15	.55	5.4	8430	50	5040	23	1430	45	53	.18	.04	2.5
16	.68	3.9	1320	40	1410	3480	308	29	42	.16	.03	2.4
17	.59	2.6	332	34	205	444	151	24	35	.14	.03	1.6
18	.70	2.0	145	61	81	166	101	22	29	.11	.02	.99
19	.59	3.2	599	78	53	212	76	19	38	.09	.02	.72
20	.60	15	477	1730	44	2000	57	17	44	.08	.02	.58
21	.60	52	138	519	37	376	43	16	34	.07	.02	.41
22	.56	400	91	199	26	200	35	15	33	.07	.02	.29
23	.61	61	79	118	18	237	31	13	27	.06	.01	.23
24	.66	32	58	1310	17	132	28	23	23	.06	.01	.19
25	.62	227	39	213	9780	91	26	17	18	.06	.01	.94
26	.60	33	32	103	812	68	23	13	38	.05	.01	3.9
27	.59	13	27	71	247	54	17	10	89	.05	.01	3.1
28	.54	8.6	27	53	192	48	16	9.4	49	.05	.01	1.9
29	.60	6.4	42	52	---	45	3270	9.1	27	.05	.01	1.1
30	.68	5.6	56	47	---	43	543	64	19	.07	.01	.80
31	.67	---	50	42	---	35	---	14	---	.06	.01	---
TOTAL	24.84	1100.63	14695.8	6383	29113	16269	14086	6291.5	3721.5	41.97	4.26	24.24
MEAN	.80	36.7	474	206	1040	525	470	203	124	1.35	.14	.81
MAX	2.2	400	8430	1730	9780	5870	4950	3130	884	16	.82	3.9
MIN	.52	.44	2.3	25	17	22	16	9.1	5.6	.05	.01	.00
AC-FT	49	2180	29150	12660	57750	32270	27940	12480	7380	83	8.4	48
CFSM	.00	.13	1.72	.75	3.77	1.90	1.70	.74	.45	.00	.00	.00
IN.	.00	.15	1.98	.86	3.92	2.19	1.90	.85	.50	.01	.00	.00

e Estimated

RED RIVER BASIN

07343000 NORTH SULPHUR RIVER NEAR COOPER, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1993, BY WATER YEAR (WY)

MEAN	223	225	263	204	365	331	407	471	327	98.3	19.0	122
MAX	1784	1406	1527	1172	1483	1223	3017	2461	1792	872	160	584
(WY)	1972	1958	1992	1950	1950	1968	1966	1982	1989	1976	1971	1973
MIN	.000	.000	.000	.16	.81	4.43	2.97	2.43	.28	.000	.000	.000
(WY)	1953	1956	1956	1964	1976	1954	1972	1972	1988	1954	1952	1952

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1950 - 1993

ANNUAL TOTAL	122873.01	91755.74	254
ANNUAL MEAN	336	251	541
HIGHEST ANNUAL MEAN			49.4
LOWEST ANNUAL MEAN			1957
HIGHEST DAILY MEAN	13000	9780	40900
LOWEST DAILY MEAN	.44	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.60	.01	.00
INSTANTANEOUS PEAK FLOW		25800	90600
INSTANTANEOUS PEAK STAGE		21.09	36.16
INSTANTANEOUS LOW FLOW		.00	.00
ANNUAL RUNOFF (AC-FT)	243700	182000	183800
ANNUAL RUNOFF (CFSM)	1.22	.91	.92
ANNUAL RUNOFF (INCHES)	16.56	12.37	12.49
10 PERCENT EXCEEDS	644	380	276
50 PERCENT EXCEEDS	42	23	11
90 PERCENT EXCEEDS	.97	.07	.00

07343000 NORTH SULPHUR RIVER NEAR COOPER, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: July 1950 to September 1958, January 1967 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1968 to September 1990.

WATER TEMPERATURES: October 1968 to September 1990.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 3,000 microsiemens July 2, 3, 1988; minimum daily, 191 microsiemens Oct. 12, Dec. 10, 1971.

WATER TEMPERATURES: Maximum daily, 39.0°C June 1, 1977; minimum daily, 0.0°C on many days during winter months.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	
OCT 27...	1155	0.67	1570	7.5	22.0	9.2	107	1.5	360	230	110	20	
DEC 15...	1350	12000	189	7.8	17.0	9.6	101	1.4	84	10	30	2.1	
FEB 09...	1040	89	634	8.0	10.0	11.8	106	1.4	230	52	81	6.7	
APR 08...	1510	303	494	8.3	16.0	10.3	106	1.6	190	36	66	5.8	
MAY 17...	1600	26	610	8.3	28.5	8.8	116	1.5	170	57	59	6.6	
JUL 12...	1500	0.03	918	8.4	36.0	8.0	119	1.0	210	120	66	11	
DATE		SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)
OCT 27...	190	4	3.4	130	460	130	0.40	0.90	991	--	--	--	0.010
DEC 15...	11	0.5	2.3	74	20	4.2	0.30	8.0	123	0.670	--	--	0.040
FEB 09...	44	1	2.6	180	110	24	0.30	8.3	385	0.350	0.350	--	--
APR 08...	30	1	2.6	150	81	17	0.30	7.4	303	0.340	0.340	--	--
MAY 17...	55	2	2.7	120	140	31	0.40	1.7	372	1.08	1.08	--	--
JUL 12...	120	4	5.4	95	240	73	0.50	2.0	577	--	--	--	--
DATE		NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)
OCT 27...	--	<0.050	--	<0.010	--	0.40	--	--	0.40	0.070	--	--	--
DEC 15...	--	0.710	--	0.030	--	0.37	--	--	0.40	0.190	--	--	--
FEB 09...	0.010	0.360	0.360	--	0.020	--	0.18	0.20	--	--	0.140	--	--
APR 08...	0.010	0.350	0.350	--	0.010	--	0.49	0.50	--	--	0.040	--	--
MAY 17...	0.020	1.10	1.10	--	0.020	--	0.18	0.20	--	--	0.030	--	--
JUL 12...	<0.010	--	<0.050	--	0.030	--	0.47	0.50	--	--	0.020	--	--
DATE		PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)
OCT 27...	--	0.020	--	--	--	--	--	--	--	--	--	--	--
DEC 15...	--	0.080	--	2	23	<0.5	2.0	<5	<3	<10	250	--	--
FEB 09...	0.030	--	0.09	--	--	--	--	--	--	--	--	--	--
APR 08...	0.020	--	0.06	--	--	--	--	--	--	--	--	--	--
MAY 17...	<0.010	--	--	--	--	--	--	--	--	--	--	--	--
JUL 12...	0.020	--	0.06	<1	86	<0.5	1.0	<5	<3	<10	130	--	--

RED RIVER BASIN

07343000 NORTH SULPHUR RIVER NEAR COOPER, TX--Continued

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

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 2/...	--	--	--	--	--	--	--	--	--	--	--
DEC 15...	10	<4	44	3.1	<10	<10	<1	<1.0	350	<6	14
FEB 09...	--	--	--	--	--	--	--	--	--	--	--
APR 08...	--	--	--	--	--	--	--	--	--	--	--
MAY 17...	--	--	--	--	--	--	--	--	--	--	--
JUL 12...	<10	33	28	0.5	<10	<10	<1	<1.0	1500	<6	9

RED RIVER BASIN

135

07343200 SULPHUR RIVER NEAR TALCO, TX

LOCATION.--Lat 33°23'10", long 95°07'56", Franklin County, Hydrologic Unit 11140302, at downstream side of highway embankment near right end of bridge on U.S. Highway 271, 2.2 mi northwest of Talco, 3.2 mi downstream from Mustang Creek, and 162 mi upstream from mouth.

DRAINAGE AREA.--1,365 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1956 to current year.

REVISED RECORDS.--WDR TX-76-1(P).

GAGE.--Water-stage recorder. Datum of gage is 290.82 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. The River Crest Stream Electric Generating Plant diverts water (amount unknown) upstream from station. Deliberate impoundment of water in Cooper Lake (station 07342500) began on Sept. 28, 1991. Flow may be slightly affected at times by discharge from the flood-detention pools of 14 floodwater-retarding structures with a combined detention capacity of 8,210 acre-ft. These structures control runoff from 23.4 mi² in the Auds and Depot Creek drainage basin. Gage-height telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--35 years (water years 1957-1991) prior to regulation by Cooper Lake, 1,408 ft³/s (14.01 in/yr), 1,020,000 acre-ft/yr.

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1957-91).--Maximum discharge, 77,000 ft³/s Dec. 11, 1971 (gage height, 29.40 ft, from floodmark); no flow at times in 1957, 1964-65, 1970, and 1979-80.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in 1908 and 1914 each reached a stage of 27.5 ft, and flood in 1945 reached a stage of 26.5 ft, from information by local residents.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	18	868	1070	989	2490	1670	2990	73	13	3.1	1.0
2	48	27	616	1080	956	7950	1690	1160	44	10	3.3	1.0
3	44	38	328	1030	939	6710	1700	673	32	8.3	3.3	1.3
4	42	32	205	2260	1460	3580	2040	931	33	7.2	3.1	1.6
5	39	22	174	3840	4310	2060	4040	1210	32	6.4	2.9	1.8
6	34	16	165	2660	3260	1810	3310	1270	25	5.8	2.6	1.9
7	29	14	163	1410	2200	1930	2360	1250	18	5.4	2.4	2.4
8	31	15	161	977	1640	1960	2330	1240	16	5.1	2.7	2.6
9	33	17	384	905	1340	1920	2460	1260	22	4.8	2.6	1.9
10	27	18	1250	1800	1210	1880	2060	4430	349	4.5	3.2	1.7
11	24	116	1140	2000	1400	1850	1850	7150	510	4.2	4.0	1.5
12	22	218	698	1570	1660	1830	1750	4430	1210	4.1	3.4	1.4
13	21	351	411	1720	1360	1800	1660	2860	946	3.9	3.0	1.4
14	17	514	974	1670	1150	1790	1900	2050	271	3.7	2.6	1.7
15	14	824	8880	1390	1330	1800	7990	1590	101	3.7	2.4	1.7
16	13	907	18600	1190	6850	2980	7260	1390	53	3.4	2.2	3.5
17	12	894	9710	1070	6090	7380	3690	1310	34	3.4	1.9	5.4
18	12	874	4900	1550	2890	4540	1680	1260	23	3.2	1.7	4.8
19	14	933	2700	1610	1420	2150	1110	1230	20	3.2	1.6	4.1
20	15	1860	2870	2160	1280	3510	988	1210	16	3.2	1.5	3.3
21	16	2380	2750	4630	1200	5890	1280	1150	19	3.1	1.4	2.7
22	19	3590	1900	3240	1100	3790	1330	871	18	3.0	1.3	2.4
23	33	4570	1500	2020	1020	2260	1310	606	16	2.8	1.3	2.2
24	32	3000	1320	1770	983	1940	1300	565	14	2.6	1.2	1.9
25	25	2540	1180	2290	3060	1930	1280	521	12	2.5	1.1	1.6
26	21	2090	1080	1680	11300	1880	1270	504	11	2.3	1.2	1.5
27	19	1540	1030	1330	7090	1830	1250	485	9.7	2.2	1.2	1.4
28	18	1170	995	1150	3640	1760	1240	488	13	2.1	1.2	1.6
29	17	1020	985	1060	---	1740	1500	440	22	2.7	1.1	1.8
30	17	953	1000	1030	---	1730	4800	211	19	3.2	1.1	2.2
31	16	---	1040	1020	---	1700	---	120	---	3.0	1.0	---
TOTAL	769	30561	69977	54182	73127	88370	70098	46855	3981.7	136.0	66.6	65.3
MEAN	24.8	1019	2257	1748	2612	2851	2337	1511	133	4.39	2.15	2.18
MAX	48	4570	18600	4630	11300	7950	7990	7150	1210	13	4.0	5.4
MIN	12	14	161	905	939	1700	988	120	9.7	2.1	1.0	1.0
AC-FT	1530	60620	138800	107500	145000	175300	139000	92940	7900	270	132	130
CFSM	.02	.75	1.65	1.28	1.91	2.09	1.71	1.11	.10	.00	.00	.00
IN.	.02	.83	1.91	1.48	1.99	2.41	1.91	1.28	.11	.00	.00	.00

RED RIVER BASIN

07343200 SULPHUR RIVER NEAR TALCO, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1993#, BY WATER YEAR (WY)

MEAN	972	1472	3786	1835	2217	3532	1627	1398	966	1584	917	105
MAX	1920	1924	5315	1922	2612	4213	2337	1511	1799	3164	1832	208
(WY)	1992	1992	1992	1992	1993	1992	1993	1993	1992	1992	1992	1992
MIN	24.8	1019	2257	1748	1837	2851	917	1285	133	4.39	2.15	2.18
(WY)	1993	1993	1993	1993	1992	1993	1992	1992	1993	1993	1993	1993

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1992 - 1993#	
ANNUAL TOTAL	627176		438188.6		1705	
ANNUAL MEAN	1714		1201		2207	
HIGHEST ANNUAL MEAN					1201	
LOWEST ANNUAL MEAN					31200	
HIGHEST DAILY MEAN	18600	Dec 16	18600	Dec 16	1.0	Oct 30 1991
LOWEST DAILY MEAN	12	Oct 17	1.0	Aug 31	1.1	Aug 31 1993
ANNUAL SEVEN-DAY MINIMUM	14	Oct 15	1.1	Aug 27	1.0	Aug 27 1993
INSTANTANEOUS PEAK FLOW			21100	Dec 16	35800	Oct 30 1992
INSTANTANEOUS PEAK STAGE			25.46	Dec 16	25.53	Oct 30 1992
INSTANTANEOUS LOW FLOW			1.0	Sep 1	1.0	Sep 1 1993
ANNUAL RUNOFF (AC-FT)	1244000		869100		1235000	
ANNUAL RUNOFF (CFSM)	1.26		.88		1.25	
ANNUAL RUNOFF (INCHES)	17.09		11.94		16.97	
10 PERCENT EXCEEDS	4400		2980		4410	
50 PERCENT EXCEEDS	846		616		784	
90 PERCENT EXCEEDS	39		2.2		3.5	

Period of regulated streamflow.

07343200 SULPHUR RIVER NEAR TALCO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: January 1965 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: January 1968 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1966 to September 1991.

WATER TEMPERATURE: October 1966 to September 1991.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,800 microsiemens Feb. 17, 1976; minimum daily, 65 microsiemens Jan. 15, 1989.

WATER TEMPERATURE (1966-89): Maximum daily, 39.0°C Aug. 13, 1987; minimum daily, 0.0°C on many days during winter months.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)
DEC 18...	0840	5690	156	8.8	6.0	100	63	11.6	93	1.8	62	3
FEB 10...	1317	1200	279	7.7	10.0	--	--	11.3	102	2.0	120	12
APR 01...	1730	1670	229	8.7	14.5	--	--	11.3	112	1.8	93	3
MAY 21...	1145	1180	225	8.1	20.0	--	--	7.2	79	1.8	87	0
JUL 15...	1330	3.7	711	8.0	30.0	13	8.7	6.2	83	0.7	230	55
SEP 14...	1623	1.8	864	8.5	24.0	11	16	7.5	90	2.1	250	77

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)
DEC 18...	22	1.7	7.6	0.4	3.3	59	14	3.7	0.20	6.5	95	108
FEB 10...	41	3.6	16	0.6	3.5	100	28	9.5	0.20	2.6	168	--
APR 01...	32	3.1	13	0.6	3.3	90	20	8.2	0.20	0.70	135	--
MAY 21...	30	3.0	12	0.6	2.9	88	18	7.7	0.20	0.90	128	--
JUL 15...	80	7.8	58	2	3.6	180	130	43	0.40	5.7	437	23
SEP 14...	86	9.3	78	2	4.5	180	170	63	0.40	5.6	524	35

DATE	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)
DEC 18...	7	101	0.090	--	0.070	--	0.160	--	0.060	--	0.34	--
FEB 10...	--	--	0.110	0.110	--	0.010	0.120	0.120	--	0.010	--	0.89
APR 01...	--	--	--	--	--	<0.010	--	<0.050	--	0.030	--	0.37
MAY 21...	--	--	0.090	0.090	--	0.010	0.100	0.100	--	0.030	--	0.37
JUL 15...	7	16	0.053	--	--	<0.010	0.053	0.053	--	0.040	--	0.26
SEP 14...	15	20	--	--	--	<0.010	--	<0.050	--	0.050	--	0.25

DATE	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC, DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)
DEC 18...	--	0.40	0.230	--	--	0.210	--	6.3	2	31	<0.5
FEB 10...	0.90	--	--	0.160	<0.010	--	--	--	--	--	--
APR 01...	0.40	--	--	<0.010	0.010	--	0.03	--	--	--	--
MAY 21...	0.40	--	--	0.040	0.010	--	0.03	--	--	--	--
JUL 15...	0.30	--	--	0.020	0.020	--	0.06	5.1	1	110	<0.5
SEP 14...	0.30	--	--	0.010	<0.010	--	--	6.1	1	110	<0.5

RED RIVER BASIN

07343200 SULPHUR RIVER NEAR TALCO, TX--Continued

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

DATE	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)
DEC 18...	2.0	<5	<3	<10	64	<10	<4	9	<0.1	<10	<10
FEB 10...	--	--	--	--	--	--	--	--	--	--	--
APR 01...	--	--	--	--	--	--	--	--	--	--	--
MAY 21...	--	--	--	--	--	--	--	--	--	--	--
JUL 15...	<1.0	<5	<3	<10	<3	<10	13	30	<0.1	<10	<10
SEP 14...	2.0	<5	<3	<10	6	<10	18	12	<0.1	<10	<10
DATE	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PCN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
DEC 18...	<1	<1.0	190	<6	6	--	--	--	--	--	--
FEB 10...	--	--	--	--	--	--	--	--	--	--	--
APR 01...	--	--	--	--	--	--	--	--	--	--	--
MAY 21...	--	--	--	--	--	--	--	--	--	--	--
JUL 15...	<1	<1.0	1000	<6	<3	--	--	--	--	--	--
SEP 14...	<1	<1.0	1100	<6	15	<1	<1.0	<0.1	<1.0	0.6	2.7
DATE	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	MIREX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PER- THANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
DEC 18...	--	--	--	--	--	--	--	--	--	--	--
FEB 10...	--	--	--	--	--	--	--	--	--	--	--
APR 01...	--	--	--	--	--	--	--	--	--	--	--
MAY 21...	--	--	--	--	--	--	--	--	--	--	--
JUL 15...	--	--	--	--	--	--	--	--	--	--	--
SEP 14...	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<1.00	<10

RED RIVER BASIN

139

07343500 WHITE OAK CREEK NEAR TALCO, TX

LOCATION.--Lat 33°19'20", long 95°05'33", Titus County, Hydrologic Unit 11140300, near center of main channel at downstream side of bridge on U.S. Highway 271, 0.8 mi downstream from Lewis Creek, 2.4 mi upstream from Ripley Creek, 2.7 mi south of Talco, and 38.4 mi upstream from mouth.

DRAINAGE AREA.--494 mi².

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1711: Elevation of historical maximum.

GAGE.--Water-stage recorder. Datum of gage is 286.45 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. There are several small diversions upstream from station for municipal supply. The cities of Sulphur Springs and Mount Vernon discharged sewage effluent into tributaries above this station. Gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, 22.9 ft Mar. 31, 1945, from floodmarks and from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 9,000 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 23	0430	11,700	18.18	Dec. 17	2000	14,000	18.38

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.5	10	e80	212	274	4030	134	582	76	9.2	2.5	2.3
2	4.9	11	68	212	264	3880	121	650	51	8.6	2.4	2.2
3	4.5	13	60	217	222	3640	109	768	35	7.9	3.5	1.9
4	4.1	20	49	1820	270	3090	201	670	26	7.8	3.1	2.0
5	3.8	14	40	4910	666	2560	710	272	21	7.6	2.4	2.3
6	3.6	16	35	4950	1030	1810	1180	142	18	6.9	2.2	2.6
7	3.5	13	33	3840	1200	907	1210	111	16	6.2	2.2	2.6
8	3.8	8.9	31	2800	1240	389	1250	96	15	5.6	7.6	2.6
9	3.5	6.5	72	1740	896	262	1050	89	16	5.1	7.3	2.6
10	3.0	5.9	329	1240	544	215	949	223	19	4.5	7.4	3.2
11	2.8	6.5	593	1310	422	183	833	554	19	4.2	9.8	3.2
12	2.7	8.7	597	1420	466	e166	563	805	22	3.9	18	2.9
13	2.6	12	428	1440	442	157	262	823	34	3.6	16	2.8
14	2.5	26	343	1330	344	e152	249	567	54	3.6	11	3.4
15	2.6	38	3290	929	340	e149	994	259	63	3.8	7.9	3.9
16	3.3	31	11600	609	947	596	1640	167	40	3.9	6.1	4.2
17	3.1	23	11300	379	1420	1720	1810	109	e24	3.8	4.7	4.0
18	19	17	6760	688	1590	3060	1980	79	e16	3.5	3.8	3.9
19	52	23	4490	1440	1580	2970	1900	65	e12	3.0	3.4	3.7
20	47	254	3580	2060	1330	2710	1200	55	e11	2.7	3.1	3.3
21	26	651	3100	2300	655	2480	549	83	e13	2.6	2.6	3.4
22	13	e4510	2730	2340	330	2190	458	96	17	2.6	2.2	3.7
23	7.6	e9230	2070	2060	245	1750	397	57	17	2.6	1.8	3.8
24	5.3	e2750	1660	1740	198	1370	224	54	19	2.6	1.5	6.0
25	3.9	e1710	1050	1240	954	776	145	52	20	2.3	1.4	6.7
26	3.6	e1080	e494	870	3410	461	118	47	15	2.1	1.4	5.9
27	2.9	e533	e310	681	6970	313	105	49	14	2.2	1.4	5.1
28	2.8	e306	e248	520	5680	236	91	45	13	2.8	1.6	4.3
29	2.8	e180	e227	349	---	193	125	37	12	3.4	1.6	3.7
30	3.0	e111	216	281	---	165	332	31	11	3.4	1.5	3.5
31	4.1	---	211	261	---	148	---	48	---	3.1	1.7	---
TOTAL	252.8	21618.5	56094	46188	33929	42728	20889	7685	739	135.1	143.1	105.7
MEAN	8.15	721	1809	1490	1212	1378	696	248	24.6	4.36	4.62	3.52
MAX	52	9230	11600	4950	6970	4030	1980	823	76	9.2	18	6.7
MIN	2.5	5.9	31	212	198	148	91	31	11	2.1	1.4	1.9
AC-FT	501	42880	111300	91610	67300	84750	41430	15240	1470	268	284	210
CFSM	.02	1.46	3.66	3.02	2.45	2.79	1.41	.50	.05	.01	.01	.01
IN.	.02	1.63	4.22	3.48	2.55	3.22	1.57	.58	.06	.01	.01	.01

e Estimated

RED RIVER BASIN

07343500 WHITE OAK CREEK NEAR TALCO, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1993, BY WATER YEAR (WY)

MEAN	195	524	729	501	773	726	855	852	376	236	52.8	111
MAX	1744	2984	3986	3222	3593	3491	3784	3166	2620	3743	898	1064
(WY)	1982	1975	1972	1980	1950	1990	1957	1990	1981	1992	1992	1950
MIN	.000	.34	1.12	1.82	7.58	11.8	4.97	7.35	.83	.35	.000	.000
(WY)	1979	1976	1966	1964	1976	1956	1956	1988	1988	1956	1978	1969

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1950 - 1993

ANNUAL TOTAL	370361.3		230507.2		485	
ANNUAL MEAN	1012		632		1160	1992
HIGHEST ANNUAL MEAN					68.6	1956
LOWEST ANNUAL MEAN					38000	Dec 11 1971
HIGHEST DAILY MEAN	15500	Jul 19	11600	Dec 16		Aug 8 1954
LOWEST DAILY MEAN	2.5	Oct 14	1.4	Aug 25	.00	Aug 8 1954
ANNUAL SEVEN-DAY MINIMUM	2.8	Oct 10	1.5	Aug 24	.00	Dec 11 1971
INSTANTANEOUS PEAK FLOW			14000	Dec 16	48000	Dec 11 1971
INSTANTANEOUS PEAK STAGE			18.38	Dec 16	21.20	Dec 11 1971
INSTANTANEOUS LOW FLOW			1.3	Aug 25	.00	at times
ANNUAL RUNOFF (AC-FT)	734600		457200		351600	
ANNUAL RUNOFF (CFSM)	2.05		1.28		.98	
ANNUAL RUNOFF (INCHES)	27.89		17.36		13.35	
10 PERCENT EXCEEDS	2740		1810		1280	
50 PERCENT EXCEEDS	161		54		35	
90 PERCENT EXCEEDS	8.8		2.7		1.0	

07343500 WHITE OAK CREEK NEAR TALCO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1967 to June 1989. Chemical and biochemical analyses: November 1982 to September 1985, and October 1991 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1967 to September 1989.

WATER TEMPERATURES: October 1967 to September 1989.

INSTRUMENTATION.--From October 1967 to September 1989 specific conductance and water temperature were recorded continuously at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,220 micromhos June 15, 1972; minimum daily 33 micromhos May 16, 1969.

WATER TEMPERATURE: Maximum daily, 37.0°C July 18, Aug. 3, 15, 1975, and Aug. 7, 1986; minimum daily, 0.0°C on several days during January 1968, 1970, 1978, and 1984.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CAC03)
OCT 29...	1640	2.8	506	6.8	21.0	40	43	6.2	70	1.8	99
DEC 14...	1040	240	65	6.4	7.0	220	30	11.5	95	2.1	17
FEB 12...	1220	474	136	7.5	10.0	160	30	9.8	87	2.2	65
APR 01...	1145	135	320	7.3	16.0	--	37	8.2	84	1.2	83
MAY 20...	1545	54	330	7.3	22.0	120	43	5.4	62	1.7	88
JUL 14...	1000	3.5	644	7.6	29.0	54	18	2.6	34	1.2	150
DATE	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)
OCT 29...	20	24	9.6	57	2	11	79	82	47	0.40	5.6
DEC 14...	2	5.1	0.92	4.5	0.5	5.0	15	7.9	5.1	0.10	5.6
FEB 12...	27	15	6.8	25	1	4.6	38	51	24	<0.10	8.2
APR 01...	37	19	8.7	29	1	5.1	46	64	28	0.20	6.9
MAY 20...	38	21	8.6	28	1	7.0	50	57	30	0.20	9.9
JUL 14...	31	35	16	70	2	8.6	120	93	69	0.40	7.1
DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
OCT 29...	284	21	12	9	2.83	--	0.070	--	2.90	--	0.060
DEC 14...	43	53	7	46	0.130	--	0.050	--	0.180	--	0.060
FEB 12...	159	62	32	30	0.380	0.380	--	0.020	0.400	0.400	--
APR 01...	192	64	6	58	0.730	0.730	--	0.030	0.760	0.760	--
MAY 20...	197	100	28	72	0.960	0.960	--	0.010	0.970	0.970	--
JUL 14...	374	29	9	20	--	--	--	<0.010	--	<0.050	--

RED RIVER BASIN

07343500 WHITE OAK CREEK NEAR TALCO, TX--Continued

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

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)
OCT 29...	--	0.94	--	--	1.0	0.540	--	--	0.350	--
DEC 14...	--	0.64	--	--	0.70	0.360	--	--	0.300	--
FEB 12...	0.070	--	0.43	0.50	--	--	0.090	0.080	--	0.25
APR 01...	0.060	--	0.44	0.50	--	--	0.310	0.170	--	0.52
MAY 20...	0.060	--	0.64	0.70	--	--	0.080	0.070	--	0.21
JUL 14...	0.040	--	0.56	0.60	--	--	0.060	0.060	--	0.18
DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
OCT 29...	11	--	--	--	--	--	--	--	--	--
DEC 14...	11	1	14	<0.5	1.0	<5	<3	<10	130	<10
FEB 12...	12	--	--	--	--	--	--	--	--	--
APR 01...	11	--	--	--	--	--	--	--	--	--
MAY 20...	14	<1	71	<0.5	<1.0	<5	<3	<10	270	<10
JUL 14...	11	2	98	<0.5	1.0	<5	<3	<10	50	<10
DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 29...	--	--	--	--	--	--	--	--	--	--
DEC 14...	<4	5	<0.1	<10	<10	<1	<1.0	65	<6	6
FEB 12...	--	--	--	--	--	--	--	--	--	--
APR 01...	--	--	--	--	--	--	--	--	--	--
MAY 20...	5	280	<0.1	<10	<10	<1	<1.0	180	<6	<3
JUL 14...	8	550	0.4	<10	<10	<1	<1.0	340	<6	12

07343850 WHITE OAK CREEK NEAR OMAHA, TX

LOCATION.--Lat 33°16'30", long 94°44'30", Morris County, Hydrologic Unit 11140303, at bridge, on U.S Highway 259, 6.2 mi north of Omaha, and 10.5 mi upstream from mouth.

DRAINAGE AREA.--772 mi².

PERIOD OF RECORD.--Occasional discharge measurements: February 1965 to August 1967.

Water-quality records.--Chemical and biochemical analyses: October 1968 to September 1977, and October 1991 to September 1992.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CAC03)
NOV 06...	1216	17	510	7.8	11.5	55	14	9.6	88	1.4	120
MAR 31...	1120	412	264	7.2	17.0	--	34	6.6	69	1.2	65
MAY 20...	1100	165	294	7.3	21.0	100	53	5.2	59	1.8	77
JUL 14...	1330	6.4	500	7.6	30.5	65	45	5.0	68	1.3	130
SEP 15...	1600	14	621	7.8	22.0	45	48	5.8	67	2.1	130
DATE	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS-FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)
NOV 06...	32	27	12	54	2	8.9	85	79	61	0.30	7.5
MAR 31...	29	15	6.7	24	1	4.1	36	47	28	<0.10	6.7
MAY 20...	22	18	7.6	26	1	6.0	55	41	33	0.20	9.8
JUL 14...	28	29	13	54	2	6.1	98	58	62	0.30	11
SEP 15...	20	27	15	68	3	7.0	110	74	76	0.30	4.4
DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
NOV 06...	301	21	15	6	--	--	0.020	--	<0.050	--	0.050
MAR 31...	155	62	5	57	0.240	--	--	<0.010	0.240	0.240	--
MAY 20...	179	168	32	136	0.700	0.700	--	0.010	0.710	0.710	--
JUL 14...	294	90	17	73	0.190	--	--	<0.010	0.190	0.190	--
SEP 15...	338	382	26	356	0.150	--	--	<0.010	0.150	0.150	--
DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P04)
NOV 06...	--	0.55	--	--	0.60	0.080	--	--	0.050	--	--
MAR 31...	0.060	--	0.54	0.60	--	--	<0.010	0.040	--	0.12	--
MAY 20...	0.070	--	0.53	0.60	--	--	0.060	0.050	--	0.15	--
JUL 14...	0.070	--	0.53	0.60	--	--	0.060	0.050	--	0.15	--
SEP 15...	0.090	--	0.41	0.50	--	--	0.040	0.030	--	0.09	--

07343850 WHITE OAK CREEK NEAR OMAHA, TX--Continued

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

[illegible]

RED RIVER BASIN

145

07344200 WRIGHT PATMAN LAKE NEAR TEXARKANA, TX

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: March 1967 to September 1984 and February 1992 to current year.

REVISED RECORDS.--Due to a computation error discovered after publication of Phytoplankton analyses for the period October 1991 to September 1992, revised data for these analyses are included in this report.

331838094095901 - WRIGHT PATMAN LAKE AC

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

DATE	TIME	RESER- VOIR STORAGE (AC-FT)	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
JAN										
27...	1155	440000	1.00	153	7.4	10.0	0.80	8.6	77	K9
27...	1204	--	10.0	162	7.3	8.5	--	8.3	72	--
27...	1207	--	20.0	163	7.3	8.5	--	8.2	71	--
27...	1211	--	33.0	162	7.3	8.5	--	8.2	71	--
MAY										
18...	0943	351000	1.00	231	8.6	24.5	1.10	7.6	93	K1
18...	0949	--	10.0	230	8.6	24.5	--	7.6	93	--
18...	0955	--	20.0	232	8.4	24.0	--	6.9	83	--
18...	1001	--	29.0	225	7.8	22.0	--	3.5	41	--
SEP										
02...	0928	267000	1.00	208	8.7	30.0	0.40	4.5	60	220
02...	0933	--	10.0	208	8.5	30.0	--	3.8	51	--
02...	0938	--	20.0	208	8.4	30.0	--	3.6	48	--
02...	0943	--	27.0	209	8.3	30.0	--	3.7	50	--

DATE	STREP- TOCOCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)
JAN									
27...	K5	46	11	15	2.0	7.9	0.5	3.1	35
27...	--	--	--	--	--	--	--	--	--
27...	--	49	9	16	2.1	8.7	0.5	3.1	40
MAY									
18...	K1	72	5	24	2.9	11	0.6	2.9	67
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	75	9	25	3.0	12	0.6	3.1	66
SEP									
02...	K12	76	8	25	3.3	14	0.7	3.4	68
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	--	76	8	25	3.3	15	0.7	3.4	68

DATE	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)
JAN									
27...	17	8.5	<0.10	6.0	81	0.065	0.065	0.020	0.085
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	19	9.3	<0.10	6.6	89	0.043	0.043	0.020	0.063
MAY									
18...	21	11	0.20	1.2	115	--	--	<0.010	--
18...	--	--	--	--	--	--	--	<0.010	--
18...	--	--	--	--	--	--	--	--	--
18...	22	11	0.20	0.50	116	--	--	<0.010	--
SEP									
02...	13	12	0.20	8.4	120	--	--	<0.010	--
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	13	12	0.20	8.8	122	--	--	<0.010	--

RED RIVER BASIN

07344200 WRIGHT PATMAN LAKE NEAR TEXARKANA, TX--Continued

331838094095901 - WRIGHT PATMAN LAKE AC--Continued

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

DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN									
27...	0.085	0.020	0.28	0.30	0.050	0.050	0.15	56	4
27...	--	--	--	--	--	--	--	--	--
27...	0.063	0.020	0.28	0.30	0.050	0.040	0.12	97	6
MAY									
18...	<0.050	0.140	0.36	0.50	0.040	0.020	0.06	18	20
18...	<0.050	0.020	0.38	0.40	0.010	<0.010	--	20	<10
18...	--	--	--	--	--	--	--	--	--
18...	<0.050	0.020	0.38	0.40	<0.010	<0.010	--	14	<1
SEP									
02...	<0.050	0.020	0.38	0.40	0.020	0.030	0.09	3	4
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	<0.050	0.040	0.36	0.40	0.050	0.030	0.09	6	37

332142094115001 - WRIGHT PATMAN LAKE BC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)
JAN									
27...	1237	1.00	120	7.2	9.0	9.2	80	--	--
27...	1242	10.0	132	7.3	8.0	8.5	72	--	--
27...	1246	16.0	135	7.3	8.0	8.5	72	--	--
MAY									
18...	1027	1.00	201	9.1	26.0	8.4	105	<0.010	<0.050
18...	1032	5.00	202	9.0	26.0	8.4	105	--	--
18...	1038	12.0	193	7.8	24.5	6.0	73	<0.010	<0.050
SEP									
02...	1005	1.00	197	9.2	31.5	6.2	85	<0.010	<0.050
02...	1010	8.00	197	9.0	31.0	4.6	63	<0.010	<0.050

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN								
27...	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--
MAY								
18...	0.020	0.38	0.40	<0.010	<0.010	--	10	<10
18...	--	--	--	--	--	--	--	--
18...	0.090	0.31	0.40	0.010	<0.010	--	20	<10
SEP								
02...	0.020	0.38	0.40	0.020	0.010	0.03	<10	<10
02...	0.020	0.38	0.40	0.010	0.010	0.03	<10	<10

RED RIVER BASIN

147

07344200 WRIGHT PATMAN LAKE NEAR TEXARKANA, TX--Continued

331935094112901 - WRIGHT PATMAN LAKE CC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)
JAN								
27...	1310	1.00	135	7.8	10.5	9.9	90	--
27...	1314	10.0	135	7.1	8.5	8.7	75	--
27...	1317	20.0	138	7.1	8.5	8.3	72	--
27...	1321	26.0	137	7.1	8.5	8.3	72	--
MAY								
18...	1059	1.00	206	8.9	24.5	8.4	103	<0.010
18...	1104	10.0	212	8.4	24.0	7.0	85	--
18...	1109	23.0	201	7.2	22.0	3.2	37	<0.010
SEP								
02...	1033	1.00	197	9.1	30.5	5.5	74	<0.010
02...	1037	10.0	197	8.9	30.5	4.4	59	--
02...	1042	18.0	197	8.8	30.5	4.1	55	<0.010

DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN								
27...	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--
MAY								
18...	<0.050	0.020	0.38	0.40	0.020	<0.010	10	<10
18...	--	--	--	--	--	--	--	--
18...	<0.050	0.160	0.24	0.40	<0.010	<0.010	20	140
SEP								
02...	<0.050	0.020	0.38	0.40	0.010	<0.010	20	10
02...	--	--	--	--	--	--	--	--
02...	<0.050	0.020	0.28	0.30	<0.010	<0.010	<10	<10

331706094130501 - WRIGHT PATMAN LAKE DC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
27...	1347	1.00	183	7.1	10.5	8.1	73
27...	1352	10.0	171	7.2	8.5	8.1	70
27...	1357	20.0	170	7.2	8.5	8.1	70
27...	1402	34.0	169	7.3	8.5	8.0	69
MAY							
18...	1130	1.00	246	7.9	23.5	6.4	77
18...	1133	10.0	245	7.8	23.0	6.1	72
18...	1137	20.0	231	7.4	21.5	3.8	44
18...	1141	30.0	231	7.5	21.5	3.8	44
SEP							
02...	1104	1.00	214	8.2	29.5	3.7	49
02...	1107	10.0	214	8.0	29.5	3.4	45
02...	1110	20.0	215	8.0	29.5	3.3	44
02...	1115	27.0	219	7.8	29.5	3.0	40

RED RIVER BASIN

07344200 WRIGHT PATMAN LAKE NEAR TEXARKANA, TX--Continued

331519094141101 - WRIGHT PATMAN LAKE EC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
JAN												
27...	1427	1.00	173	7.3	9.5	0.70	8.3	73	26	K18	52	12
27...	1433	10.0	171	7.4	8.5	--	8.2	71	--	--	--	--
27...	1439	24.0	170	7.4	8.5	--	7.9	68	--	--	49	10
MAY												
18...	1203	1.00	254	8.2	24.0	1.16	6.9	83	--	--	81	8
18...	1210	10.0	253	7.4	23.0	--	4.6	55	--	--	--	--
18...	1217	19.0	255	7.3	22.5	--	3.6	42	--	--	81	2
SEP												
02...	1220	1.00	225	8.6	31.0	0.50	8.2	112	130	K6	86	2
02...	1225	10.0	230	8.2	29.5	--	3.0	40	--	--	--	--
02...	1232	17.0	231	8.3	29.5	--	2.4	32	--	--	83	7

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)
JAN												
27...	17	2.4	10	0.6	3.1	40	22	11	0.10	6.9	97	0.060
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	16	2.3	9.8	0.6	3.1	39	20	10	<0.10	6.9	92	0.064
MAY												
18...	27	3.3	13	0.6	3.2	73	26	12	0.20	0.30	129	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	27	3.3	12	0.6	3.1	79	24	12	0.20	0.90	130	--
SEP												
02...	29	3.3	15	0.7	3.4	84	12	12	0.20	9.9	136	--
02...	--	--	--	--	--	--	--	--	--	--	--	--
02...	28	3.2	15	0.7	3.4	76	12	12	0.20	9.9	129	--

DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN												
27...	0.060	0.010	0.070	0.070	0.010	0.29	0.30	0.040	0.030	0.09	51	10
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	0.064	0.010	0.074	0.074	0.030	0.37	0.40	0.040	0.030	0.09	120	47
MAY												
18...	--	<0.010	--	<0.050	0.020	0.28	0.30	<0.010	<0.010	--	6	15
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	<0.010	--	<0.050	0.180	0.32	0.50	0.020	0.010	0.03	20	200
SLP												
02...	--	<0.010	--	<0.050	0.090	0.41	0.50	0.060	0.040	0.12	13	150
02...	--	--	--	--	--	--	--	--	--	--	--	--
02...	--	<0.010	--	<0.050	0.020	0.38	0.40	0.040	0.030	0.09	10	12

331533094210901 - WRIGHT PATMAN LAKE GC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
JAN												
27...	1615	1.00	210	7.2	9.0	0.60	7.4	65	44	44	64	13
27...	1622	10.0	211	7.2	9.0	--	7.4	65	--	--	--	--
27...	1628	23.0	211	7.2	9.0	--	7.6	66	--	--	64	13
MAY												
18...	1600	1.00	244	7.3	22.5	0.50	5.4	63	72	130	83	0
18...	1605	10.0	247	7.3	22.5	--	5.4	63	--	--	--	--
18...	1610	19.0	249	7.4	22.5	--	5.5	65	--	--	88	2
SLP												
02...	1445	1.00	286	8.0	32.5	0.50	6.7	94	K1100	110	99	5
02...	1450	10.0	284	7.4	30.0	--	1.9	25	--	--	--	--
02...	1458	17.0	283	7.5	30.0	--	1.8	24	--	--	99	3

RED RIVER BASIN

149

07344200 WRIGHT PATMAN LAKE NEAR TEXARKANA, TX--Continued

331533094210901 - WRIGHT PATMAN LAKE GC--Continued

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

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)
JAN												
27...	21	2.9	13	0.7	3.2	51	28	12	0.10	6.5	118	0.038
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	21	2.9	13	0.7	3.1	51	29	12	0.10	6.4	118	0.054
MAY												
18...	29	2.6	11	0.5	3.3	84	19	8.3	0.20	4.2	130	0.390
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	31	2.6	10	0.5	3.3	86	19	7.9	0.20	4.4	132	0.410
SEP												
02...	33	4.0	21	0.9	4.0	94	14	20	0.30	11	164	--
02...	--	--	--	--	--	--	--	--	--	--	--	--
02...	33	4.0	20	0.9	3.8	96	13	19	0.30	11	162	--
DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN												
27...	0.038	0.020	0.058	0.058	0.020	0.28	0.30	0.040	0.030	0.09	86	8
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	<0.010	0.054	0.054	0.010	0.29	0.30	0.040	0.030	0.09	49	10
MAY												
18...	0.390	0.010	0.400	0.400	0.030	0.27	0.30	0.040	0.030	0.09	13	12
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	0.410	0.010	0.420	0.420	0.030	0.37	0.40	0.050	0.030	0.09	18	13
SEP												
02...	--	<0.010	--	<0.050	0.020	0.38	0.40	0.070	0.060	0.18	17	37
02...	--	--	--	--	--	--	--	--	--	--	--	--
02...	--	<0.010	--	<0.050	0.040	0.46	0.50	0.070	0.060	0.18	29	150

RED RIVER BASIN

07344200 WRIGHT PATMAN LAKE NEAR TEXARKANA, TX—Continued

Wright Patman Lake Site AC (331838094095901)

Phytoplankton Analyses October 1992 to September 1993

Date	1-27-93
Time	1154

TOTAL CELLS/mL	6,875
NUMBER OF SPECIES	12
DEPTH COLLECTED (ft.)	1.3

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	50
<i>Melosira varians</i>	516
Order Pennales	
<i>Asterionella formosa</i>	52
<i>Fragilaria crotonensis</i>	104
<i>Nitzschia linearis</i>	52
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	238
<i>Chlamydomonas</i> sp.	179
<i>Gloeocystis major</i>	60
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	3,571
EUGLENOPHYTA	
<i>Trachelomonas</i> spp.	952
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	744
<i>Cryptomonas ovata</i>	357

07344200 WRIGHT PATMAN LAKE NEAR TEXARKANA, TX—Continued

Wright Patman Lake Site GC (331533094210901)

Phytoplankton Analyses October 1992 to September 1993

Date	1-27-93
Time	1614

TOTAL CELLS/mL	3,155
NUMBER OF SPECIES	9
DEPTH COLLECTED (ft.)	0.95

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	30
Order Pennales	
<i>Fragilaria crotonensis</i>	10
<i>Gomphonema acuminatum</i>	10
<i>Gyrosigma scalpoides</i>	10
<i>Synedra ulna</i>	60
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	119
<i>Chlamydomonas</i> sp.	119
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	2,678
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	119

Wright Patman Lake Site AC (331838094095901)

Phytoplankton Analyses October 1992 to September 1993

Date	5-18-93
Time	0942
<hr/>	
TOTAL CELLS/mL	37,766
NUMBER OF SPECIES	18
DEPTH COLLECTED (ft.)	1.8
<hr/>	

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella meneghiniana</i>	122
<i>Melosira varians</i>	288
<i>Stephanodiscus astraea</i>	7
Order Pennales	
<i>Asterionella formosa</i>	96
<i>Fragilaria crotonensis</i>	256
<i>Navicula</i> sp.	32
<i>Synedra ulna</i>	32
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	1,042
<i>Chlamydomonas</i> sp.	208
<i>Pediastrum duplex</i>	60
<i>Scenedesmus quadricauda</i>	89
CYANOPHYTA	
<i>Anabaena flos-aquae</i>	18,719
<i>Anabaena spiroides</i>	10,803
<i>Aphanocapsa delicatissima</i>	4,464
<i>Chroococcus limneticus</i>	119
<i>Merismopedia tenuissima</i>	714
EUGLENOPHYTA	
<i>Trachelomonas</i> spp.	179
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	536

07344200 WRIGHT PATMAN LAKE NEAR TEXARKANA, TX—Continued

Wright Patman Lake Site GC (331533094210901)

Phytoplankton Analyses October 1992 to September 1993

Date	5-18-93
Time	1359

TOTAL CELLS/mL	7,053
NUMBER OF SPECIES	15
DEPTH COLLECTED (ft.)	0.85

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella meneghiniana</i>	50
<i>Melosira varians</i>	245
<i>Stephanodiscus astraea</i>	2
Order Pennales	
<i>Fragilaria crotonensis</i>	260
<i>Navicula</i> spp.	65
<i>Synedra ulna</i>	32
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	208
<i>Chlamydomonas</i> spp.	60
<i>Pediastrum duplex</i>	30
<i>Scenedesmus quadricauda</i>	60
CYANOPHYTA	
<i>Anabaena flos-aquae</i>	89
<i>Aphanizomenon flos-aquae</i>	2,976
<i>Aphanocapsa delicatissima</i>	2,678
EUGLENOPHYTA	
<i>Trachelomonas</i> spp.	149
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	149

Wright Patman Lake Site AC (331838094095901)

Phytoplankton Analyses October 1992 to September 1993

Date	9-2-93
Time	0928

TOTAL CELLS/mL	65,485
NUMBER OF SPECIES	28
DEPTH COLLECTED (ft.)	0.7

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	11
<i>Melosira varians</i>	18
Order Pennales	
<i>Diatoma hiemale</i>	5
<i>Fragilaria crotonensis</i>	77
<i>Fragilaria vaucherie</i>	36
<i>Meridion circulare</i>	15
<i>Navicula cuspidata</i>	5
<i>Nitzschia palea</i>	514
<i>Pinnularia</i> sp.	5
<i>Synedra ulna</i>	10
<i>Tabellaria fenestrata</i>	15
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	1,011
<i>Chlamydomonas</i> sp.	208
<i>Cosmarium</i> sp.	30
<i>Scenedesmus opoliensis</i>	89
<i>Scenedesmus quadricauda</i>	89
<i>Staurastrum</i> sp.	30
CYANOPHYTA	
<i>Anabaena spiroides</i>	2,320
<i>Aphanizomenon flos-aquae</i>	2,974
<i>Aphanocapsa delicatissima</i>	5651
<i>Aphanocapsa elachista</i>	4758
<i>Chroococcus limneticus</i>	2439
<i>Lyngbya contorta</i>	20640
<i>Merismopedia tenuissima</i>	14870
<i>Oscillatoria angustissima</i>	8922
<i>Spirulina major</i>	89
CHRYSOPHYTA	
<i>Mallomonas</i> sp.	59
EUGLENOPHYTA	
<i>Trachelomonas</i> spp.	595

07344200 WRIGHT PATMAN LAKE NEAR TEXARKANA, TX—Continued

Wright Patman Lake Site GC (331533094210901)

Phytoplankton Analyses October 1992 to September 1993

Date	9-2-93
Time	1445
<hr/>	
TOTAL CELLS/mL	299,512
NUMBER OF SPECIES	25
DEPTH COLLECTED (ft.)	0.75
<hr/>	

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	2,773
<i>Melosira varians</i>	1,185
Order Pennales	
<i>Diatoma hiemale</i>	474
<i>Fragilaria crotonensis</i>	237
<i>Fragilaria vaucherie</i>	1,184
<i>Navicula cuspidata</i>	237
<i>Nitzschia palea</i>	6,157
<i>Pinnularia</i> sp.	237
<i>Synedra ulna</i>	237
<i>Tabellaria fenestrata</i>	474
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	2,639
<i>Chlamydomonas</i> sp.	5,278
<i>Cosmarium</i> sp.	1,319
<i>Pediastrum duplex</i>	1,319
<i>Scenedesmus opoliensis</i>	3,958
<i>Selenastrum Westii</i>	2,639
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	105,555
<i>Aphanocapsa elachista</i>	13,194
<i>Chroococcus limneticus</i>	21,111
<i>Lyngbya contortum</i>	65,972
<i>Merismopedia tenuissima</i>	52,778
<i>Spirulina major</i>	2,639
CHRYSOPHYTA	
<i>Mallomonas</i> sp.	1,319
EUGLENOPHYTA	
<i>Trachelomonas</i> spp.	5,278
PYRRHOPHYTA	
<i>Peridinium pusillum</i>	1,319

07344200 WRIGHT PATMAN LAKE NEAR TEXARKANA, TX—Continued

Wright Patman Lake Site AC (331838094095901)

Phytoplankton Analyses October 1991 to September 1992

Date	2-20-92
Time	0918
<hr/>	
TOTAL CELLS/mL	12,441
NUMBER OF SPECIES	16
DEPTH COLLECTED (ft.)	0.4
<hr/>	

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Aulacoseira granulata</i>	112
<i>Cyclotella ocellata</i>	52
<i>Melosira varians</i>	153
Order Pennales	
<i>Achnanthes</i> sp.	173
<i>Fragilaria vaucherie</i>	86
<i>Synedra ulna</i>	86
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	202
<i>Cosmarium</i> sp.	29
<i>Stigeoclonium</i> sp.	576
<i>Ulothrix cylindricum</i>	3,226
<i>Ulothrix variables</i>	4,147
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	2,880
<i>Chroococcus limneticus</i>	230
EUGLENOPHYTA	
<i>Euglena</i> sp.	86
<i>Trachelomonas</i> sp.	173
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	230

07344200 WRIGHT PATMAN LAKE NEAR TEXARKANA, TX—Continued

Wright Patman Lake Site GC (331533094210901)

Phytoplankton Analyses October 1991 to September 1992

Date	2-20-92
Time	1546

TOTAL CELLS/mL	4,121
NUMBER OF SPECIES	18
DEPTH COLLECTED (ft.)	0.4

Organisms	Cells/mL
BACILLARIOPHYTA	
Order Centrales	
<i>Aulacoseira granulata</i>	25
<i>Cyclotella ocellata</i>	39
<i>Melosira varians</i>	23
Order Pennales	
<i>Achnanthes lewisiana</i>	53
<i>Cymbella cymbiformis</i>	53
<i>Gyrosigma</i> sp.	15
<i>Meridian circulare</i>	8
<i>Navicula capitata</i>	60
<i>Navicula</i> sp.	8
<i>Pinnularia singularis</i>	8
<i>Synedra ulna</i>	113
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	173
<i>Chlamydomonas</i> sp.	29
<i>Stigeoclonium</i> sp.	288
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	2,880
EUGLENOPHYTA	
<i>Euglena</i> sp.	86
<i>Trachelomonas</i> sp.	58
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	202

RED RIVER BASIN

07344200 WRIGHT PATMAN LAKE NEAR TEXARKANA, TX—Continued

Wright Patman Lake Site AC (331838094095901)

Phytoplankton Analyses October 1991 to September 1992

Date	6-10-92
Time	0940

TOTAL CELLS/mL	52,169
NUMBER OF SPECIES	16
DEPTH COLLECTED (ft.)	1.4

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	684
CHLOROPHYTA	
<i>Chlamydomonas</i> sp.	208
<i>Cosmarium</i> sp.	30
<i>Gloeocystis gigas</i>	30
<i>Pediastrum duplex</i>	89
<i>Scenedesmus quadricauda</i>	119
CYANOPHYTA	
<i>Anabaena affinis</i>	8,184
<i>Anabaena spiroides</i>	31,694
<i>Aphanocapsa delicatissima</i>	6,250
<i>Aphanizomenon flos-aquae</i>	1,934
<i>Chroococcus limneticus</i>	893
<i>Chroococcus minimus</i>	60
CHRYSTOPHYTA	
<i>Mallomonas</i> sp.	30
EUGLENOPHYTA	
<i>Euglena</i> sp.	536
<i>Trachelomonas</i> sp.	565
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	863

07344200 WRIGHT PATMAN LAKE NEAR TEXARKANA, TX—Continued

Wright Patman Lake Site GC (331533094210901)

Phytoplankton Analyses October 1991 to September 1992

Date	6-10-92
Time	1659
<hr/>	
TOTAL CELLS/mL	12,886
NUMBER OF SPECIES	16
DEPTH COLLECTED (ft.)	0.6
<hr/>	

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	208
Order Pennales	
<i>Fragilaria crotonensis</i>	357
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	119
<i>Chlamydomonas</i> sp.	149
<i>Cosmarium</i> sp.	30
<i>Scenedesmus bijuga</i>	30
<i>Scenedesmus quadricauda</i>	30
<i>Staurastrum</i> sp.	30
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	6,250
<i>Aphanizomenon flos-aquae</i>	446
<i>Chroococcus limneticus</i>	238
<i>Chroococcus minimus</i>	119
<i>Merismopedia tenuissima</i>	4,583
EUGLENOPHYTA	
<i>Trachelomonas</i> sp.	89
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	119
<i>Cryptomonas ovata</i>	89

07344200 WRIGHT PATMAN LAKE NEAR TEXARKANA, TX—Continued

Wright Patman Lake Site AC (331838094095901)

Phytoplankton Analyses October 1991 to September 1992

Date	8-20-92
Time	1130

TOTAL CELLS/mL	20,148
NUMBER OF SPECIES	20
DEPTH COLLECTED (ft.)	1.7

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
<i>Cyclotella ocellata</i>	19
<i>Melosira varians</i>	219
Order Pennales	
<i>Fragilaria vaucherie</i>	357
CHLOROPHYTA (Green algae)	
<i>Ankistrodesmus falcatus</i>	387
<i>Ankistrodesmus spiralis</i>	60
<i>Chlamydomonas</i> sp.	268
<i>Scenedesmus bijuga</i>	60
<i>Scenedesmus quadricauda</i>	119
CHRYSOPHYTA (Golden-brown algae)	
<i>Mallomonas</i> sp.	30
CYANOPHYTA (Blue-green algae)	
<i>Anabaena spiroides</i>	149
<i>Aphanocapsa delicatissima</i>	3,869
<i>Aphanizomenon flos-aquae</i>	6,398
<i>Chroococcus limneticus</i>	833
<i>Merismopedia chondroidea</i>	714
<i>Merismopedia tenuissima</i>	3,809
<i>Oscillatoria subbrevis</i>	1,934
EUGLENOPHYTA (Euglenoids)	
<i>Euglena</i> sp.	179
<i>Trachelomonas</i> spp.	238
CRYPTOPHYTA (Cryptomonads)	
<i>Cryptomonas erosa</i>	179
<i>Cryptomonas ovata</i>	327

07344200 WRIGHT PATMAN LAKE NEAR TEXARKANA, TX—Continued

Wright Patman Lake Site GC (331533094210901)

Phytoplankton Analyses October 1991 to September 1992

Date	8-20-92
Time	1825

TOTAL CELLS/mL	7,205
NUMBER OF SPECIES	15
DEPTH COLLECTED (ft.)	1.1

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Pennales	
<i>Fragilaria crotonensis</i>	64
<i>Fragilaria vaucherie</i>	319
<i>Gyrosigma</i> sp.	64
CHLOROPHYTA (Green algae)	
<i>Ankistrodesmus falcatus</i>	149
<i>Ankistrodesmus spiralis</i>	60
<i>Chlamydomonas</i> sp.	89
<i>Cosmarium</i> sp.	30
CYANOPHYTA (Blue-green algae)	
<i>Anabaena spiroides</i>	536
<i>Aphanocapsa delicatissima</i>	3,274
<i>Chroococcus limneticus</i>	119
<i>Merismopedia tenuissima</i>	238
<i>Oscillatoria subbrevis</i>	1,786
EUGLENOPHYTA (Euglenoids)	
<i>Euglena</i> sp.	60
<i>Trachelomonas</i> spp.	238
CRYPTOPHYTA (Cryptomonads)	
<i>Cryptomonas erosa</i>	179

LOCATION.--Lat 33°18'20", long 94°09'03", Bowie County, Hydrologic Unit 11140302, on downstream side of highway embankment near left end of downstream (northbound) bridge on U.S. Highway 59, 0.4 mi downstream from Texarkana Dam, 1.4 mi upstream from Elliott Creek, 11.7 mi southwest of Texarkana, and at mile 44.1.

DRAINAGE AREA.--3,443 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1985 to current year (midnight elevations). August 1937 to July 1953 and October 1953 to September 1979 (daily gage heights); January to December 1933, January 1937 to December 1942, and January 1945 to September 1979 (discharge measurements); January to December 1939 and January 1945 to September 1979 (daily discharges) published by U.S. Army Corps of Engineers; October 1979 to September 1985 (daily discharges).
Water-quality records.--Chemical and biochemical analyses: January 1983 to September 1985.

GAGE.--Water-stage recorder. Datum of gage is 180.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Elevation records good.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,100 ft³/s June 16 to July 5, 1981; maximum gage height, 32.57 ft June 15, 1981; no flow June 25, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 94,000 ft³/s Apr. 4, 1945; maximum stage, 47.23 ft Apr. 14, 1945; no flow on various occasions.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 212.29 ft at 1500 hours Dec. 27; minimum, 189.45 ft Aug. 24.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY OBSERVATION AT 24:00 VALUES

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	201.41	195.20	210.52	212.06	211.38	211.19	211.54	205.74	196.98	191.42	189.55	189.55	
2	201.55	193.82	210.95	210.72	211.24	211.19	211.53	205.99	197.08	191.36	189.54	193.91	
3	201.58	192.33	211.10	209.34	211.48	211.26	211.43	206.10	197.03	191.31	189.55	196.60	
4	201.52	191.67	211.13	208.08	211.41	211.41	211.34	206.16	193.96	191.26	189.56	194.35	
5	201.44	191.11	211.15	200.78	211.39	211.49	210.19	204.60	193.93	191.31	189.58	190.35	
6	201.40	191.12	211.18	197.23	211.31	211.55	209.86	203.59	193.93	191.26	189.56	189.73	
7	201.36	191.09	210.62	197.24	211.24	211.61	209.80	203.22	193.94	190.95	189.55	189.70	
8	200.18	191.12	208.47	199.50	211.19	211.68	209.70	203.00	193.94	190.92	189.55	189.68	
9	198.97	191.14	206.09	202.85	211.21	211.67	208.42	203.11	191.67	190.95	189.56	189.67	
10	198.40	191.17	202.96	205.60	211.18	211.65	207.65	203.53	191.64	190.97	189.57	189.66	
11	198.33	191.19	200.67	209.60	211.10	211.61	207.18	203.40	191.65	189.80	189.65	189.65	
12	198.24	191.42	198.85	212.00	210.10	211.59	206.85	203.30	191.67	189.81	189.58	189.63	
13	196.57	191.63	197.82	212.01	209.80	211.53	206.58	203.26	191.62	189.85	189.62	189.62	
14	195.87	191.49	199.15	211.98	209.69	211.53	206.45	203.26	191.57	189.83	189.60	189.61	
15	195.85	191.32	204.69	211.94	209.71	211.56	208.31	203.14	191.64	189.75	189.53	189.62	
16	195.83	191.31	206.63	211.97	209.70	211.57	209.06	203.13	191.60	189.75	189.55	189.62	
17	195.81	191.33	208.71	211.98	209.59	211.47	209.33	203.02	191.57	189.75	189.55	189.58	
18	195.79	191.36	210.96	212.25	209.55	211.46	209.48	203.04	191.55	189.75	189.54	189.59	
19	195.77	191.43	211.49	212.25	209.51	211.45	208.12	203.04	191.52	189.70	189.53	189.57	
20	195.75	193.39	211.74	212.25	209.55	211.51	207.37	205.47	191.57	189.71	189.50	189.56	
21	195.73	193.87	211.96	212.22	209.46	211.49	206.87	206.13	191.58	189.68	189.50	189.56	
22	195.71	195.83	212.13	212.22	209.42	211.46	205.22	206.22	191.55	189.66	189.49	189.56	
23	195.48	198.49	212.20	212.20	209.41	211.46	202.21	206.27	191.54	189.65	189.48	189.58	
24	195.32	200.86	212.22	212.18	209.42	211.52	198.62	206.27	191.53	189.65	189.45	189.55	
25	195.32	203.95	212.24	212.15	209.59	211.53	195.12	202.43	191.52	189.70	189.48	189.50	
26	195.30	204.77	212.25	212.12	210.96	211.55	193.52	200.53	191.51	189.72	189.47	189.65	
27	195.28	205.01	212.26	212.10	211.14	211.58	196.28	198.23	191.50	189.60	189.49	189.60	
28	195.25	205.19	212.27	211.54	211.12	211.59	199.12	198.25	191.51	189.63	189.45	189.65	
29	195.23	207.73	212.26	211.44	---	211.60	202.11	197.08	191.51	189.62	189.45	189.63	
30	195.21	208.48	212.23	211.40	---	211.58	204.97	197.03	191.51	189.60	189.50	189.62	
31	195.19	---	212.13	211.34	---	211.55	---	197.00	---	189.57	189.47	---	
MAX	201.58	208.48	212.27	212.25	211.48	211.68	211.54	206.27	197.08	191.42	189.65	196.60	
MIN	195.19	191.09	197.82	197.23	209.41	211.19	193.52	197.00	191.50	189.57	189.45	189.50	
CAL YR 1992	MAX 212.27	MIN 189.12											
WTR YR 1993	MAX 212.27	MIN 189.45											

RED RIVER BASIN

163

07344210 SULPHUR RIVER NEAR TEXARKANA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: January 1983 to September 1985, and October 1991 to current year.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	
JAN 28...	0930	9140	150	7.3	8:0	110	17	12.6	106	0.8	49	11	
MAY 18...	1215	3120	217	8.6	24.0	30	3.9	8.6	103	1.9	78	8	
SEP 03...	1015	611	214	8.9	30.0	35	3.0	7.8	104	7.9	70	0	
DATE		CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)
JAN 28...	16	2.1	8.8	0.5	3.2	38	16	9.3	0.10	6.9	86	9	
MAY 18...	26	3.1	13	0.6	2.8	70	22	12	0.20	0.27	122	15	
SEP 03...	23	3.1	14	0.7	3.4	72	13	12	0.20	7.5	120	19	
DATE		RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L AS N)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	
JAN 28...		<1	--	0.068	0.068	0.010	0.078	0.078	0.020	0.38	0.40	0.050	
MAY 18...		31	0	--	--	<0.010	--	<0.050	0.040	0.36	0.40	<0.010	
SEP 03...		6	13	--	--	<0.010	--	<0.050	0.030	0.77	0.80	0.070	
DATE		PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	
JAN 28...		0.040	0.12	9.4	1	35	<0.5	1.0	<5	<3	<10	140	
MAY 18...		<0.010	--	9.4	1	44	<0.5	<1.0	<5	<3	<10	27	
SEP 03...		0.030	0.09	20	4	12	<0.5	<1.0	<5	<3	<10	<3	
DATE		LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	
JAN 28...		<10	<4	4	<0.1	<10	<10	<1	<1.0	140	<6	<3	
MAY 18...		<10	<4	1	0.1	<10	<10	<1	<1.0	230	<6	5	
SEP 03...		<10	<4	<1	<0.1	<10	<10	<1	<1.0	220	<6	<3	

07344486 BRUSHY CREEK AT SCROGGINS, TX

LOCATION.--Lat 32°58'32", long 95°11'03", Franklin County, Hydrologic Unit 11140305, at downstream side of highway embankment near left end of bridge on Farm Road 115, 0.1 mi north of Scroggins, 0.3 mi downstream from Briary Creek, 2.5 mi upstream from South Brushy Creek, and 9.5 mi upstream from mouth.

DRAINAGE AREA.--23.4 mi².

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

REVISED RECORDS.--WDR TX-89-1 1983-88 (M).

GAGE.--Water-stage recorder. Datum of gage is 343.90 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those below 5.0 ft³/s and those for estimated daily discharges, which are poor. Several observations of water temperature were made during the year.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 15	0845	928	12.86	Jan. 4	1215	1,440	13.17

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	41	3.2	11	15	76	8.1	22	5.9	2.6	1.3	1.4
2	2.9	24	2.7	10	14	137	6.5	17	4.3	2.1	1.7	1.1
3	2.9	9.0	2.9	12	14	45	6.4	15	3.3	1.8	5.0	1.2
4	2.8	5.4	2.6	462	35	30	54	13	2.9	1.7	2.6	1.5
5	2.8	4.2	2.3	163	38	24	35	11	2.7	1.6	2.0	1.4
6	2.8	3.6	3.2	56	31	20	20	12	2.6	1.4	1.8	1.3
7	3.0	3.6	3.3	43	20	18	65	11	2.4	1.3	3.1	1.3
8	2.9	3.5	2.8	40	16	17	104	9.4	2.2	1.4	7.4	1.3
9	3.1	4.0	55	94	14	15	29	11	1.9	1.3	1.7	1.3
10	2.7	7.1	28	127	20	12	18	57	2.1	1.2	1.1	2.2
11	2.5	14	9.9	43	24	9.8	12	18	2.7	1.2	.96	2.1
12	2.6	12	6.5	53	14	53	9.3	15	3.7	1.2	.83	.68
13	2.9	8.1	6.0	35	11	30	8.0	14	3.5	1.0	.98	.87
14	2.9	5.2	88	25	11	18	215	10	2.7	.95	1.0	31
15	2.7	4.5	578	21	93	15	194	8.1	2.1	.90	1.0	18
16	16	4.2	185	18	117	77	47	6.4	e1.9	.83	1.1	.47
17	8.5	4.3	54	17	32	65	32	5.4	e2.1	.87	1.1	.30
18	4.1	4.4	33	107	22	29	27	5.2	e2.3	.75	1.4	.54
19	3.6	20	29	95	e18	24	23	5.6	e3.6	.81	.77	1.0
20	3.7	191	103	132	e15	127	20	4.5	e13	1.5	.65	1.6
21	3.4	62	47	64	e14	47	17	4.2	e38	1.1	.74	2.4
22	3.2	209	32	34	12	34	15	4.2	24	1.2	.47	2.9
23	3.3	34	26	29	11	30	15	3.9	13	1.2	.55	3.0
24	3.2	46	20	96	10	22	14	12	6.8	1.2	.64	3.7
25	3.3	41	16	35	275	20	13	12	5.2	1.1	.81	3.1
26	3.2	13	14	24	120	19	12	6.6	29	1.3	.91	23
27	3.6	7.1	13	21	40	14	11	4.6	11	1.3	.96	12
28	4.3	4.9	12	18	30	13	10	4.7	6.4	1.3	1.1	3.1
29	4.8	4.3	19	22	---	14	54	19	4.3	1.3	1.0	2.3
30	23	3.6	18	21	---	14	43	14	3.3	1.3	1.0	2.2
31	13	---	15	16	---	11	---	13	---	1.3	1.1	---
TOTAL	146.7	798.0	1430.4	1944	1086	1079.8	1137.3	368.8	208.9	40.01	46.77	128.26
MEAN	4.73	26.6	46.1	62.7	38.8	34.8	37.9	11.9	6.96	1.29	1.51	4.28
MAX	23	209	578	462	275	137	215	57	38	2.6	7.4	31
MIN	2.5	3.5	2.3	10	10	9.8	6.4	3.9	1.9	.75	.47	.30
AC-FT	291	1580	2840	3860	2150	2140	2260	732	414	.79	.93	254
CFSM	.20	1.14	1.97	2.68	1.66	1.49	1.62	.51	.30	.06	.06	.18
IN.	.23	1.27	2.27	3.09	1.73	1.72	1.81	.59	.33	.06	.07	.20

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 1993, BY WATER YEAR (WY)

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MEAN	12.1	13.4	31.3	20.6	27.8	28.8	21.1	28.2	17.7	7.64	3.03	4.51			
MAX	80.5	26.6	103	62.7	47.5	66.1	54.9	68.2	70.0	32.2	17.4	41.7			
(WY)	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MIN	.68	2.51	2.99	6.33	10.8	8.15	4.96	1.64	.26	.092	.003	.14			
(WY)	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1979 - 1993

ANNUAL TOTAL	8533.3	8414.94	
ANNUAL MEAN	23.3	23.1	18.0
HIGHEST ANNUAL MEAN			32.2
LOWEST ANNUAL MEAN			5.53
HIGHEST DAILY MEAN	705	578	1640
LOWEST DAILY MEAN	2.3	.30	.00
ANNUAL SEVEN-DAY MINIMUM	2.8	.66	.00
INSTANTANEOUS PEAK FLOW		1440	7520
INSTANTANEOUS PEAK STAGE		13.17	14.39
INSTANTANEOUS LOW FLOW		.24	.00
ANNUAL RUNOFF (AC-FT)	16930	16690	13020
ANNUAL RUNOFF (CFSM)	1.00	.99	.77
ANNUAL RUNOFF (INCHES)	13.57	13.38	10.43
10 PERCENT EXCEEDS	40	53	30
50 PERCENT EXCEEDS	9.2	8.5	6.9
90 PERCENT EXCEEDS	3.3	1.1	.44

07344489 LAKE BOB SANDLIN NEAR MOUNT PLEASANT, TX

LOCATION.--Lat 33°04'48", Long 95°00'07", Titus County, Hydrologic Unit 11140305, in control room in left abutment of service spillway at left end of Fort Sherman Dam on Big Cypress Creek, 1.7 mi upstream from Tankersley Creek, 3.5 mi upstream from bridge on U.S. Highway 271, 5.7 mi southwest of the county courthouse in Mount Pleasant, and 129.2 mi upstream from mouth.

DRAINAGE AREA.--239 mi².

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Apr. 12, 1978, a nonrecording gage was located at same site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam 10,800 ft long, including spillways. Deliberate impoundment began Aug. 8, 1977, and dam was completed by April 1978. The spillway is an excavated channel cut through natural ground. The spillway is 4,500 ft wide, located to the left of the left end of the dam. The service spillway is 289.5 ft wide with 160 ft of net flow width controlled by four 40- by 22.5-foot tainter gates. The dam was built, and is owned, maintained, and operated by the Titus County Fresh Water Supply District No. 1 to provide water for municipal use. Flow from 75.0 mi² above this station is controlled by Lake Cypress Springs on Big Cypress Creek and 36.0 mi² is controlled by Montecello Reservoir on Blundell Creek, a tributary to Big Cypress Creek. There is a stage telemeter (DCP) at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-ft)
Top of dam.....	349.0	-
Crest of uncontrolled spillway.....	341.3	251,000
Crest of gated spillway.....	316.5	64,790
Lowest gated outlet (invert).....	294.5	3,300

COOPERATION.--Area and capacity tables were compiled by Forest and Cotton, Inc., Consulting Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 222,800 acre-ft Mar. 17, 1987 (elevation, 338.49 ft); minimum, 516 acre-ft Aug. 8-17, 1977 (elevation, 290.00 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 216,100 acre-ft Jan. 4 at 0800 hours (elevation, 337.79 ft); minimum, 190,700 acre-ft Sept. 13,14 (elevation, 335.03 ft).

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

335.0	190,400	337.0	208,600
336.0	199,400	338.0	218,100

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	211500	209300	213400	213200	212900	214000	213700	213600	213800	212000	202200	194300
2	211400	209000	213400	213100	213100	213600	213500	213400	213700	211800	202000	194000
3	211400	208900	213500	213200	213400	213600	213900	212900	213700	211500	202000	193600
4	211300	208600	213500	214300	213400	214100	213700	212500	213600	211400	202000	193400
5	211100	208200	213600	213900	213600	214200	213600	212200	213500	211200	201700	193200
6	210900	208200	213400	213400	213600	213700	214700	212300	213400	210900	201200	192700
7	211000	208000	213300	213000	213400	213700	215200	212200	213300	210700	201600	192400
8	210500	207900	212900	213400	213400	213700	214200	212300	213300	210400	201300	192300
9	210200	208000	213600	213600	213300	213600	214200	213700	213200	210000	201200	191900
10	210100	208200	213600	213300	213500	213300	214000	213000	213300	209700	201100	191500
11	209900	208400	213500	213500	213600	213600	214100	213100	213500	209500	201100	191100
12	209700	208400	213300	213300	213100	214100	214300	213100	213500	209100	201000	190800
13	209400	208400	213200	213400	213300	213800	214400	213000	213400	208800	200500	190700
14	209200	208300	214400	213400	213400	213500	215100	213200	213300	208500	200000	192500
15	208800	208200	213300	213500	214200	213600	214100	213200	213200	208100	199900	192200
16	209500	208200	213800	213600	213900	214200	214400	213300	213000	207900	199500	191800
17	209400	208100	213600	213500	213400	213700	213700	213300	212800	207500	199200	191700
18	209300	208100	213900	213200	213400	213900	213400	213300	212700	207200	199000	191500
19	209100	210400	213700	213400	213500	214800	213200	213400	212800	206900	198800	191400
20	208900	211500	213600	212700	213900	214000	213200	213400	213000	206600	198300	191400
21	208800	214100	213500	213000	213900	214200	213300	213400	213200	206300	198000	191200
22	208800	214300	213300	213300	214000	214500	213300	213300	213200	205900	197600	191000
23	208800	213900	213400	214400	213900	213800	213500	213400	213000	205400	197200	191000
24	208700	213300	213600	214200	214000	214000	213600	213800	212800	205000	196600	190800
25	208600	213300	213500	213800	213600	214000	213800	213500	213200	204600	196500	190800
26	208500	213100	213600	214000	213800	213900	214400	213300	212800	204300	196200	191900
27	208300	212900	213500	214000	213400	213800	214400	213300	212700	203800	195900	192100
28	208100	213000	213700	213800	213600	213800	214300	213400	212400	203500	195500	191900
29	208500	213300	213700	213100	---	213900	213700	213600	212400	203100	195100	191800
30	208300	213300	213700	213200	---	214200	213600	213700	212200	202900	194800	191600
31	208600	---	213500	213100	---	214100	---	213900	---	202500	194600	---
MAX	211500	214300	214400	214400	214200	214800	215200	213900	213800	212000	202200	194300
MIN	208100	207900	212900	212700	212900	213300	213200	212200	212200	202500	194600	190700
(†)	337.00	337.50	337.52	337.47	337.53	337.58	337.53	337.56	337.38	336.34	335.47	335.13
(Φ)	-3100	+4700	+200	-400	+500	+500	-500	+300	-1700	-9700	-7900	-3000

CAL YR 1992 MAX 218200 MIN 207900 (Φ) +400
WTR YR 1993 MAX 215200 MIN 190700 (Φ) -20100

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

RED RIVER BASIN

07344500 BIG CYPRESS CREEK NEAR PITTSBURG, TX
(Flood-hydrograph partial-record Station)

LOCATION.--Lat 33°01'15", long 94°52'55", Camp-Titus County line, Hydrologic Unit 11140305, near center of stream at downstream side of bridge on State Highway 11, 0.5 mi upstream from Louisiana & Arkansas Railway Co. bridge, 1.4 mi upstream from Williamson Creek, 5.2 mi east of Pittsburg, 19.2 mi downstream from Lake Bob Sandlin, and 110.0 mi upstream from mouth.

DRAINAGE AREA.--366 mi².

PERIOD OF RECORD.--March 1943 to January 1963 (published as Cypress Creek near Pittsburg), October 1967 to September 1989. October 1989 to current year, (peaks above base discharge). Gage-height records collected at this site from September 1963 to December 1967, are published in reports by the U.S. Army Corps of Engineers. Water-quality records.--Chemical analyses: March 1965 to August 1989. Chemical and biochemical analyses: January 1983 to September 1985.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 247.49 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 12, 1954, water-stage recorder at site 1,900 ft downstream at present datum.

REMARKS.--Records good. Flow partly regulated by Lake Cypress Springs (station 07344484) since July 1970, and by Monticello Reservoir (on Blundell Creek) since August 1972. Flow largely regulated by Lake Bob Sandlin (station 07344489) since August 1977. Sewage effluent was returned to a tributary above this station by the city of Mount Pleasant, and sewage effluent was returned to a tributary below this station by the city of Pittsburg. Gage-height telemeter at station.

AVERAGE DISCHARGE.--24 years (water years 1944-62, 1968-72), prior to combined regulation by Lake Cypress Springs and Monticello Reservoir, 327 ft³/s (12.13 in/yr), 236,900 acre-ft/yr; 17 years (water years 1973-89) regulated, 255 ft³/s (184,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58,500 ft³/s Mar. 30, 1945 (gage height, 28.3 ft, from floodmark, and adjusted to present site on basis of record for flood of Apr. 27, 1958), from rating curve extended above 20,000 ft³/s; no flow Aug. 20 to Oct 3, 1954, July 19 to Nov. 4, 1956. Maximum stage since at least 1895, that of Mar. 30, 1945.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in January 1938 reached a stage of about 25 ft, present site, adjusted as explained above, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 15	2200	15,600	19.51	Feb. 26	0600	5,460	15.16
Dec. 21	1300	3,620	14.12	Mar. 3	0500	2,880	13.70
Jan. 5	0500	8,310	16.66	Mar. 17	1000	3,800	14.23
Jan. 21	1400	2,760	13.63	Apr. 15	1500	4,130	14.42

07345900 LAKE O' THE PINES NEAR JEFFERSON, TX

LOCATION.--Lat 32°45'04", long 94°29'59", Marion County, Hydrologic Unit 11140305, on left bank 1,500 ft upstream from left end of Ferrell's Bridge Dam on Big Cypress Creek, on Farm Road 726, 9.0 mi west of Jefferson, and 80.1 mi upstream from mouth.

DRAINAGE AREA.--850 mi².

PERIOD OF RECORD.--August 1957 to current year.

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Nov. 12, 1957, non-recording gage at same site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam 10,600 ft long, including a 200-foot-wide 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 conduits that are controlled by two 8.0- by 12.5-foot electrically driven broome-type gates. The low-flow outlet works consist of a controlled 14-inch pipe. Flow over the spillway is discharged into a 2,000-foot-long rectified channel and then into Cypress Creek. The capacity table is based on a survey made in 1950. The lake was built for conservation, flood control, and water supply. During the current year, an unknown amount of water was diverted from the lake for municipal and industrial uses. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	277.0	-
Crest of spillway.....	249.5	842,100
Top of conservation pool.....	228.5	254,900
Crest of intake to wet well (14 in).....	202.5	5,760
Lowest gated outlet (invert).....	200.0	2,860

COOPERATION.--Records provided by the U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 694,360 acre-ft May 5, 1966 (elevation, 245.41 ft); minimum since December 1959, 210,100 acre-ft Oct. 6, 1984 (elevation, 225.98 ft).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 385,300 acre-ft Dec. 23, 24 (elevation, 234.69 ft); minimum daily, 242,500 acre-ft Mar. 15 (elevation, 227.83 ft).

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

227.0	227,600	230.0	283,700	233.0	346,500
228.0	245,600	231.0	303,800	234.0	369,100
229.0	264,300	232.0	324,800	235.0	392,700

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	263500	255000	270000	357700	343200	267500	257100	257800	273700	291300	273500	269400
2	261200	254500	267100	353400	337900	268100	254500	258600	273500	289600	273100	269100
3	259200	254500	262800	348100	331400	266800	254300	258600	273300	288500	275800	268900
4	257500	254300	260100	346100	325800	266400	256700	258000	272700	286500	276600	268300
5	256000	254100	258000	349900	322400	265000	258200	257500	272500	285300	276000	267300
6	255000	253700	256300	360000	320300	264300	259700	257300	272300	284700	277200	266800
7	254100	253400	254300	367800	317800	262200	263100	257300	271900	284300	278000	266400
8	253500	253000	253500	371400	314000	258200	265600	256700	271600	284100	278600	266000
9	252800	253500	255200	372800	309400	254300	266200	259000	271800	284100	279000	265600
10	252200	254100	256300	373300	306300	250600	266000	260500	271600	283900	278800	265200
11	251900	254300	256900	371200	301200	247800	267100	262000	271400	283100	278200	264300
12	251500	256700	257500	370100	297700	246000	266900	265000	271600	282300	277800	262900
13	251100	256500	258400	369600	295300	244300	265400	267700	271900	281700	277600	262400
14	251500	256700	265400	369600	293300	243400	265400	270800	272100	281500	277400	263500
15	251100	256700	285300	368900	290900	242500	263900	271900	271900	281100	277200	263100
16	254800	256700	301400	367800	286900	245400	262600	271000	271600	280500	276800	264100
17	253700	256700	338600	365700	283100	245400	263900	270200	271200	279900	276600	263700
18	253200	256900	353700	365000	280700	244900	265400	270800	271000	279900	276200	264300
19	252400	260700	364100	365000	278400	250000	266800	270400	274300	279700	275800	262400
20	251900	262800	371400	365200	275800	256700	265600	270000	285700	279300	275400	262600
21	251500	265400	376100	367500	273300	262400	263100	270000	291900	278800	274900	262400
22	251300	266900	381300	370500	270600	270400	261600	270000	294900	278200	274300	262400
23	251100	268300	385300	371000	266600	275100	260300	270400	294300	277600	273500	262200
24	250900	269400	385300	370500	261800	275800	259700	270600	293300	276800	272900	262800
25	250800	269600	384100	367800	261100	273500	260100	271000	295500	276200	272500	263300
26	250800	269600	381500	363400	261800	270400	259200	271400	296300	275800	272100	264300
27	250800	269800	377500	359500	262800	267900	258200	272100	295700	275600	271800	264500
28	250400	270000	373300	357900	264700	264700	257500	272700	294900	275200	271400	264100
29	252800	270200	369600	355500	---	262400	258200	273500	294100	274700	270600	263300
30	253400	270400	365900	352500	---	260900	258200	274300	292700	274300	270200	262400
31	252800	---	361800	347800	---	259200	---	274100	---	273900	270000	---
MAX	263500	270400	385300	373300	343200	275800	267100	274300	296300	291300	279000	269400
MIN	250400	253000	253500	346100	261100	242500	254300	256700	271000	273900	270000	262200
(†)	228.39	229.32	233.68	233.06	229.02	228.73	228.68	229.51	230.45	229.50	229.30	228.90
(Φ)	-17500	+17600	+91400	-14000	-83100	-5500	-1000	+15900	+18600	-18800	-3900	-7600

CAL YR 1992 MAX 389300 MIN 250400 (Φ) +87500
WTR YR 1993 MAX 385300 MIN 242500 (Φ) -6100

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

07346000 BIG CYPRESS CREEK NEAR JEFFERSON, TX

LOCATION.--Lat 32°44'58", long 94°29'55", Marion County, Hydrologic Unit 11140306, on left bank 950 ft downstream from Ferrell's Bridge Dam, 7.6 mi upstream from French Creek, and 8.5 mi west of Jefferson.

DRAINAGE AREA.--850 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1924 to September 1959 (published as Cypress Creek), October 1979 to current year. Records of stage and discharge for the period October 1959 to September 1979 published by the U.S. Army Corps of Engineers, New Orleans District.

GAGE.--Water-stage recorder. Datum of gage is 180.00 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers benchmark). Prior to Nov. 2, 1933, staff gage, and Nov. 2, 1933, to Dec. 8, 1955, water-stage recorder, at site about 950 ft upstream at datum 3.70 ft higher. After Dec. 9, 1955, at site about 550 ft downstream or at present site at datum 180.00 ft lower.

REMARKS.--No estimated daily discharges. Records good. Flow completely regulated by Lake O' the Pines (station 07345900), 950 ft upstream, since August 1957. Gage-height telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--33 years (water years 1925-57), prior to completion of Ferrell's Bridge Dam, 660 ft/s (478,500 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION, (WATER YEARS, 1925-57).--Maximum discharge, 57,100 ft/s Apr. 1, 1945 (gage height, 28.78 ft, site and datum then in use), from rating curve extended above 29000 ft/s; no flow at times.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1590	74	2160	2650	2760	2570	1330	380	145	589	27	76
2	1040	66	2710	2640	2750	2620	727	381	145	588	28	79
3	708	62	2360	2640	2750	2630	489	501	145	587	28	40
4	526	61	1530	2660	2740	2620	227	706	144	586	27	39
5	295	60	834	2640	2770	2620	80	616	144	439	27	37
6	205	37	671	2640	2810	2610	71	434	145	223	27	38
7	202	36	453	2660	2800	2610	200	308	114	93	30	39
8	133	36	65	2670	2790	2600	423	155	35	32	28	39
9	69	35	44	2700	2780	2600	647	151	50	32	28	39
10	67	35	43	2700	2780	2590	900	157	50	31	28	40
11	65	35	41	2680	2760	2360	945	151	50	30	28	46
12	65	46	40	2680	2710	1650	1190	150	52	30	28	48
13	67	37	39	2670	2700	1160	1780	149	62	30	28	44
14	68	35	47	2650	2680	1040	1840	149	57	30	28	36
15	68	35	373	2660	2710	1010	1850	150	49	30	27	35
16	73	34	563	2660	2700	1220	1840	160	49	30	27	35
17	69	34	395	2650	2660	2020	1840	162	48	30	27	35
18	68	34	45	2670	2640	2470	1850	155	48	30	26	34
19	67	39	22	2660	2620	2160	1850	146	48	29	26	34
20	67	196	22	2660	2630	1510	1850	145	139	29	26	33
21	66	384	101	2680	2640	1140	1840	145	252	28	27	38
22	67	409	404	2670	2610	1050	1560	146	241	26	27	43
23	67	526	810	2660	2590	1220	1030	146	383	26	27	43
24	67	853	1520	2680	2580	2040	731	145	577	26	37	42
25	67	1090	1940	2710	2600	2520	681	145	600	26	46	44
26	67	1110	2280	2740	2580	2550	672	145	642	26	46	48
27	67	1120	2590	2770	2550	2550	557	145	617	26	46	44
28	67	1120	2630	2780	2560	2540	398	145	599	26	46	42
29	66	1120	2690	2780	---	2140	379	145	593	26	46	109
30	68	1330	2690	2770	---	1720	378	145	590	28	46	180
31	66	---	2670	2760	---	1650	---	145	---	27	36	---
TOTAL	6247	10089	32782	83240	75250	63790	30155	6903	6813	3789	979	1479
MEAN	202	336	1057	2685	2687	2058	1005	223	227	122	31.6	49.3
MAX	1590	1330	2710	2780	2810	2630	1850	706	642	589	46	180
MIN	65	34	22	2640	2550	1010	71	145	35	26	26	33
AC-FT	12390	20010	65020	165100	149300	126500	59810	13690	13510	7520	1940	2930

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 1993#, BY WATER YEAR (WY)

MEAN	189	371	692	880	1303	1258	1082	863	998	452	235	117
MAX	647	2690	1946	2685	2687	2645	2669	2979	3209	3057	2349	482
(WY)	1980	1958	1958	1993	1993	1988	1990	1958	1958	1958	1958	1958
MIN	3.35	4.82	4.13	4.16	127	290	137	32.4	32.5	19.9	16.2	8.70
(WY)	1981	1989	1982	1981	1981	1981	1981	1992	1987	1980	1982	1980

SUMMARY STATISTICS

	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1958 - 1993#
ANNUAL TOTAL	321934	321516	
ANNUAL MEAN	880	881	702
HIGHEST ANNUAL MEAN			1859
LOWEST ANNUAL MEAN			108
HIGHEST DAILY MEAN	3210	2810	4500
LOWEST DAILY MEAN	22	22	.00
ANNUAL SEVEN-DAY MINIMUM	28	26	1.4
INSTANTANEOUS PEAK FLOW		2850	3220
INSTANTANEOUS PEAK STAGE		19.41	19.97
INSTANTANEOUS LOW FLOW		21	.00
ANNUAL RUNOFF (AC-FT)	638600	637700	508800
10 PERCENT EXCEEDS	2630	2670	2550
50 PERCENT EXCEEDS	474	157	187
90 PERCENT EXCEEDS	35	29	22

Period of regulated streamflow.

RED RIVER BASIN

169

07346045 BLACK CYPRESS BAYOU AT JEFFERSON, TX

LOCATION.--Lat 32°46'40", long 94°21'26", Marion County, Hydrologic Unit 11140306 near center of channel at downstream side of bridge on U.S. Highway 59, 1.1 mi north of Jefferson, 2.0 mi upstream from Texas and Pacific Railway Co. bridge, and 5.2 mi upstream from mouth.

DRAINAGE AREA.--365 mi².

PERIOD OF RECORD.--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 U.S. Army Corps of Engineers as "Black Cypress Creek at Jefferson". September 1964 to August 1968 operated as low-flow partial-record station only. Water-quality records.--Chemical analyses: October 1967 to September 1981.

GAGE.--Water-stage recorder. Datum of gage is 171.47 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers benchmark).

REMARKS.--Records good except those for estimated daily discharges, which are fair. No known regulation or diversion in vicinity of the gage. Gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1938, 22.42 ft Apr. 29, 1958, from records by U.S. Army Corps of Engineers.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 18	2300	4,840	16.73	No other peak greater than base discharge.			

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	191	95	566	635	669	493	599	222	e111	227	1.2	2.0
2	119	149	458	615	605	678	535	217	104	178	1.1	1.9
3	89	158	379	599	546	759	472	219	97	149	8.8	1.8
4	72	156	325	592	502	831	439	225	91	126	26	1.8
5	61	174	281	621	477	930	425	230	84	103	18	1.7
6	53	182	253	636	467	841	412	232	75	83	40	1.5
7	47	166	234	711	461	768	420	225	67	67	110	1.5
8	41	154	224	1050	453	707	500	209	60	55	130	1.4
9	37	145	237	1550	449	628	520	192	56	50	109	1.2
10	34	134	283	1680	449	538	519	196	50	42	80	1.0
11	31	128	303	1550	449	459	517	206	44	33	60	.97
12	28	169	308	1360	449	429	499	201	39	27	49	.85
13	25	186	341	1240	449	407	467	227	38	24	43	.73
14	23	207	383	1190	449	380	446	e260	38	20	36	.65
15	20	252	957	1180	449	629	455	e350	43	18	29	.62
16	31	308	1670	1060	459	799	453	455	63	16	23	.85
17	50	324	2790	909	474	785	437	467	80	14	19	2.4
18	52	314	4420	899	501	720	463	383	74	13	15	2.8
19	43	301	4250	1090	557	772	505	293	62	11	13	2.8
20	41	325	3140	1300	564	1020	548	230	186	9.9	10	2.7
21	43	349	2320	1520	574	1430	560	191	478	9.2	9.2	2.6
22	41	408	1770	1530	590	1650	512	162	864	8.0	7.7	2.4
23	41	547	1440	1470	576	1680	435	146	1020	7.1	5.8	2.3
24	41	789	1190	1450	518	1630	378	136	943	6.0	4.6	2.1
25	39	1110	1250	1390	452	1470	345	129	770	4.5	3.6	1.9
26	39	1270	1180	1250	395	1250	317	123	e1000	3.4	2.7	13
27	38	1150	1020	1070	355	1030	278	115	e820	2.7	2.3	35
28	37	985	891	925	375	874	242	e110	645	2.2	2.2	38
29	36	827	791	825	---	771	226	e100	398	1.8	2.1	39
30	53	691	722	779	---	708	226	e96	291	1.6	2.1	74
31	76	---	670	733	---	652	---	e100	---	1.5	2.1	---
TOTAL	1572	12153	35046	33409	13713	26718	13150	6647	8691	1313.9	865.5	241.47
MEAN	50.7	405	1131	1078	490	862	438	214	290	42.4	27.9	8.05
MAX	191	1270	4420	1680	669	1680	599	467	1020	227	130	74
MIN	20	95	224	592	355	380	226	96	38	1.5	1.1	.62
AC-FI	3120	24110	69510	66270	27200	53000	26080	13180	17240	2610	1720	479
CFSM	.14	1.11	3.10	2.95	1.34	2.36	1.20	.59	.79	.12	.08	.02
IN.	.16	1.24	3.57	3.40	1.40	2.72	1.34	.68	.89	.13	.09	.02

e Estimated

RED RIVER BASIN

07346045 BLACK CYPRESS BAYOU AT JEFFERSON, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1993, BY WATER YEAR (WY)

MEAN	59.5	253	549	502	635	726	610	475	297	86.2	47.5	54.4
MAX	415	1344	2157	1508	1612	1606	2006	1934	1321	576	623	581
(WY)	1974	1975	1988	1991	1975	1990	1973	1991	1974	1992	1979	1974
MIN	.009	13.6	62.1	99.0	156	159	109	50.8	4.68	.97	.060	.000
(WY)	1979	1984	1990	1971	1981	1986	1971	1984	1984	1978	1969	1969

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1969 - 1993

ANNUAL TOTAL	186385		153519.87		356	
ANNUAL MEAN	509		421		647	1991
HIGHEST ANNUAL MEAN					78.3	1971
LOWEST ANNUAL MEAN					10700	Dec 28 1987
HIGHEST DAILY MEAN	4420	Dec 18	4420	Dec 18	.00	Aug 10 1969
LOWEST DAILY MEAN	15	Sep 1	.62	Sep 15	.00	Aug 10 1969
ANNUAL SEVEN-DAY MINIMUM	19	Aug 27	.81	Sep 10	.00	Aug 10 1969
INSTANTANEOUS PEAK FLOW			4840	Dec 18	11600	Dec 28 1987
INSTANTANEOUS PEAK STAGE			16.73	Dec 18	19.34	Dec 28 1987
INSTANTANEOUS LOW FLOW			.50	Sep 15	.00	at times
ANNUAL RUNOFF (AC-FT)	369700		304500		258200	
ANNUAL RUNOFF (CFSM)	1.40		1.15		.98	
ANNUAL RUNOFF (INCHES)	19.00		15.65		13.27	
10 PERCENT EXCEEDS	1180		1060		876	
50 PERCENT EXCEEDS	322		230		164	
90 PERCENT EXCEEDS	43		2.8		1.4	

07346050 LITTLE CYPRESS CREEK NEAR ORE CITY, TX

LOCATION.--Lat 32°40'21", long 94°45'03", Upshur County, Hydrologic Unit 11140307, on right bank at downstream side of bridge on U.S. Highway 259, 4 mi downstream from Clear Creek, 9 mi south of Ore City, and 12 mi north of Longview.

DRAINAGE AREA.--383 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 232.67 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. No known diversions above station. During the year, the city of Gilmer discharged a small amount of sewage effluent into a tributary above this station. Several observations of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--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, or 1.3 ft lower than the flood of March 1945 at a point 6 mi upstream, from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 17	0330	7,630	13.83	Jan. 6	1800	3,460	11.96

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e17	317	460	326	492	1420	329	196	341	421	e6.0	1.6
2	e16	332	349	322	441	1560	299	277	319	275	e5.8	.97
3	e15	292	250	306	397	1300	270	302	272	115	7.4	1.2
4	e14	226	185	476	374	1050	259	278	182	80	14	1.0
5	e14	201	152	944	377	944	255	240	114	56	38	.94
6	e14	166	139	2630	390	840	234	193	77	46	35	.90
7	14	99	127	2970	388	721	250	144	59	40	123	.85
8	17	65	118	2270	393	610	364	114	50	35	487	.75
9	17	55	149	1700	411	523	400	96	45	30	449	.57
10	16	53	263	1670	433	437	387	126	40	27	220	.04
11	17	58	271	1650	445	357	429	156	37	24	82	.08
12	16	107	259	1930	419	372	482	186	35	22	31	.08
13	15	254	283	1660	370	426	464	296	42	19	16	.10
14	14	325	363	1360	338	386	420	536	52	17	9.2	.28
15	14	378	1940	1180	378	373	427	764	55	16	6.0	.41
16	30	423	4580	1020	793	564	393	723	51	e15	3.7	2.9
17	55	425	7060	864	944	835	370	541	42	e14	4.4	7.4
18	60	314	4810	803	1060	817	438	327	35	e13	6.3	6.0
19	57	160	2910	854	1300	790	563	180	31	e12	6.5	4.2
20	46	417	2260	960	1090	945	644	130	607	e11	5.9	3.4
21	34	622	1650	1420	904	972	589	168	1380	e11	4.8	1.9
22	30	811	1220	1630	748	902	467	241	1570	e10	3.6	.09
23	28	829	1010	1480	616	998	332	267	1450	e9.6	2.3	.75
24	26	843	862	1290	500	982	240	170	1050	e9.0	1.5	2.2
25	15	881	742	1110	518	902	197	110	816	e8.6	1.5	2.7
26	14	870	641	953	809	819	176	142	927	e8.1	1.4	3.1
27	14	815	553	829	832	716	151	253	834	e7.8	1.3	4.9
28	15	727	478	744	995	598	120	469	518	e7.2	1.3	6.7
29	26	635	417	678	---	510	113	657	388	e7.0	1.6	6.7
30	203	551	375	615	---	438	166	585	428	e6.6	1.5	5.6
31	340	---	342	552	---	375	---	424	---	e6.3	1.5	---
TOTAL	1223	12251	35218	37196	17155	23482	10228	9291	11847	1379.2	1578.5	68.31
MEAN	39.5	408	1136	1200	613	757	341	300	395	44.5	50.9	2.28
MAX	340	881	7060	2970	1300	1560	644	764	1570	421	487	7.4
MIN	14	53	118	306	338	357	113	96	31	6.3	1.3	.04
AC-FT	2430	24300	69850	73780	34030	46580	20290	18430	23500	2740	3130	135
CFSM	.10	1.07	2.97	3.13	1.60	1.98	.89	.78	1.03	.12	.13	.01
IN.	.12	1.19	3.42	3.61	1.67	2.28	.99	.90	1.15	.13	.15	.01

e Estimated

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

	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	
MEAN	37.9	179	365	351	467	572	578	474	217	59.5	25.6	60.4																				
MAX	407	1508	1965	1275	1321	1478	3007	1834	905	426	392	614																				
(WY)	1974	1975	1988	1991	1975	1987	1966	1968	1974	1992	1979	1974																				
MIN	.000	1.10	3.70	25.6	55.8	40.9	54.3	23.9	2.09	.005	.000	.000																				
(WY)	1964	1966	1990	1964	1964	1966	1971	1984	1971	1984	1984	1963																				

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1963 - 1993

ANNUAL TOTAL	148411	160917.01	286
ANNUAL MEAN	405	441	599
HIGHEST ANNUAL MEAN			35.7
LOWEST ANNUAL MEAN			1975
HIGHEST DAILY MEAN	7060	7060	21000
LOWEST DAILY MEAN	10	.04	.00
ANNUAL SEVEN-DAY MINIMUM	13	.22	.00
INSTANTANEOUS PEAK FLOW		7630	23500
INSTANTANEOUS PEAK STAGE		13.83	20.20
INSTANTANEOUS LOW FLOW		.02	.00
ANNUAL RUNOFF (AC-FT)	294400	319200	207100
ANNUAL RUNOFF (CFSM)	1.06	1.15	.75
ANNUAL RUNOFF (INCHES)	14.41	15.63	10.14
10 PERCENT EXCEEDS	929	1000	754
50 PERCENT EXCEEDS	186	267	70
90 PERCENT EXCEEDS	26	4.6	.15

07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX

LOCATION (REVISED).--Lat 32°42'46", long 94°20'45", Marion County, Hydrologic Unit 11140307, at downstream side of upstream bridge on U.S. Highway 59, 0.3 mi downstream from Texas and Pacific Railway Co. bridge, 3.3 mi downstream from Grays Creek, 3.5 mi south of Jefferson, and 6.8 mi upstream from mouth.

DRAINAGE AREA.--675 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1946 to current year.

GAGE.--Water-stage recorder. Datum of gage is 174.60 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 19, 1947, nonrecording gage at upstream side of bridge at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. There are no known diversions above station, but some sewage effluent is discharged into tributaries that enter Little Cypress Creek above this station. Gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1944 reached a stage of 21.1 ft.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	345	898	878	1090	1350	1070	448	485	1100	5.9	3.5
2	49	391	876	829	996	1480	942	524	574	903	6.2	3.6
3	41	419	841	787	918	1570	852	524	622	717	7.8	4.5
4	37	443	795	819	850	1760	799	514	600	569	7.7	3.9
5	32	447	733	984	793	2050	775	522	523	476	6.4	3.2
6	28	440	671	966	752	2140	737	532	451	371	6.2	2.5
7	27	418	597	954	722	1940	724	535	396	233	67	2.1
8	25	379	508	1060	697	1660	873	522	319	149	263	1.7
9	24	331	457	1510	673	1440	890	488	233	110	188	1.4
10	23	277	452	3020	667	1270	831	516	179	88	158	1.3
11	23	221	428	3640	687	1120	778	470	146	73	194	1.1
12	23	e221	414	3350	688	1110	742	406	137	61	235	.92
13	21	e246	405	2860	684	1230	723	380	195	52	255	.77
14	21	e325	427	2490	698	1160	724	377	198	45	199	.94
15	21	e390	1310	2340	815	1070	779	373	149	39	93	1.0
16	35	e422	2530	2310	1350	1220	805	382	133	34	42	1.0
17	39	e418	2760	2150	1420	1710	832	421	134	30	26	1.3
18	55	e395	3460	1960	1290	1610	844	499	135	27	18	1.6
19	66	e372	5190	1830	1300	1490	820	622	129	24	14	1.7
20	81	460	6690	1740	1290	1820	771	728	1420	21	11	1.7
21	88	579	5880	1680	1290	2160	712	759	3960	18	9.3	6.7
22	87	799	4580	1540	1350	2030	677	676	4480	17	7.6	10
23	80	969	3700	1450	1460	1950	685	493	4350	15	6.6	8.4
24	68	1060	3130	1490	1430	1870	729	355	3400	13	5.7	7.1
25	53	1070	2580	1720	1410	1730	769	341	2690	12	5.0	6.4
26	43	1050	2110	1920	1570	1610	781	369	2400	11	4.4	7.4
27	38	1040	1730	1890	1500	1540	730	378	2130	9.9	4.1	12
28	36	1010	1450	1720	1370	1490	643	343	1940	8.9	4.0	10
29	36	960	1240	1520	---	1400	547	321	1660	7.9	3.7	8.3
30	173	924	1090	1360	---	1320	476	338	1330	7.2	3.5	8.9
31	328	---	967	1210	---	1220	---	398	---	6.5	3.5	---
TOTAL	1763	16821	58899	53977	29760	48520	23060	14554	35498	5248.4	1860.6	124.93
MEAN	56.9	561	1900	1741	1063	1565	769	469	1183	169	60.0	4.16
MAX	328	1070	6690	3640	1570	2160	1070	759	4480	1100	263	12
MIN	21	221	405	787	667	1070	476	321	129	6.5	3.5	.77
AC-FT	3500	33360	116800	107100	59030	96240	45740	28870	70410	10410	3690	248
CFSM	.08	.83	2.81	2.58	1.57	2.32	1.14	.70	1.75	.25	.09	.01
IN.	.10	.93	3.25	2.97	1.64	2.67	1.27	.80	1.96	.29	.10	.01

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1993, BY WATER YEAR (WY)

	MEAN	303	643	723	910	990	1037	1032	428	125	48.8	102
MAX	927	2709	3391	2664	2853	2367	4584	4212	2354	689	667	941
(WY)	1950	1958	1961	1991	1950	1969	1966	1958	1957	1992	1979	1979
MIN	.000	.017	.53	8.33	91.5	100	117	61.6	4.67	.24	.000	.000
(WY)	1953	1957	1957	1957	1964	1966	1972	1971	1971	1964	1956	1952

SUMMARY STATISTICS

	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1947 - 1993
ANNUAL TOTAL	281732	290085.93	
ANNUAL MEAN	770	795	535
HIGHEST ANNUAL MEAN			1260
LOWEST ANNUAL MEAN			67.3
HIGHEST DAILY MEAN	6690	Dec 20	32700
LOWEST DAILY MEAN	20	Aug 31	.00
ANNUAL SEVEN-DAY MINIMUM	22	Oct 9	.00
INSTANTANEOUS PEAK FLOW			35500
INSTANTANEOUS PEAK STAGE			22.28
INSTANTANEOUS LOW FLOW			.00
ANNUAL RUNOFF (AC-FT)	558800	575400	387300
ANNUAL RUNOFF (CFSM)	1.14	1.18	.79
ANNUAL RUNOFF (INCHES)	15.53	15.99	10.76
10 PERCENT EXCEEDS	2330	1880	1370
50 PERCENT EXCEEDS	370	516	177
90 PERCENT EXCEEDS	43	6.9	1.2

07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: June 1964 to current year. Pesticide analyses: January 1968 to June 1981.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1967 to September 1990.

WATER TEMPERATURE: October 1967 to September 1990.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,350 microsiemens Nov. 9, 1969; minimum, 20 microsiemens Mar. 29, 30, 1989. WATER TEMPERATURE (1967-87, 1989-90): Maximum, 32.5°C on several days during July and August 1987; minimum, 0.0°C on several days during winter months of 1983, 1985.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	HARDNESS TOTAL (MG/L AS CaCO3)	HARDNESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)
NOV 05...	1338	442	112	6.5	13.0	7.8	74	1.5	20	13	5.0	1.9
DEC 16...	1525	2730	69	6.3	9.0	9.0	78	--	13	7	3.0	1.4
FEB 10...	1520	701	136	7.0	11.0	9.1	84	1.6	26	16	6.0	2.7
APR 01...	1145	1040	125	6.6	15.0	7.9	79	1.4	27	11	6.5	2.6
JUL 14...	1440	45	148	6.9	26.0	7.8	96	0.2	30	0	6.6	3.2
SEP 16...	1640	1.0	182	6.9	22.0	7.6	87	2.5	31	6	6.5	3.5

DATE	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY WATER DIS-FIX END CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	NITROGEN, NITRATE (MG/L AS N)	NITROGEN, NITRATE DIS-SOLVED (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)
NOV 05...	11	1	5.2	7.0	15	16	<0.10	14	72	--	--	0.010
DEC 16...	5.8	0.7	3.1	6.0	11	9.0	<0.10	9.9	48	--	--	0.050
FEB 10...	14	1	2.4	10	19	20	<0.10	17	88	0.089	0.089	--
APR 01...	11	0.9	3.0	16	15	15	<0.10	8.1	72	--	--	--
JUL 14...	16	1	3.6	31	11	15	0.10	24	102	0.390	--	--
SEP 16...	18	1	5.5	25	20	23	0.20	16	109	0.061	--	--

DATE	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)	PHOSPHORUS DIS-SOLVED (MG/L AS P)
NOV 05...	--	<0.050	--	0.030	--	0.47	--	--	0.50	0.090	--
DEC 16...	--	<0.050	--	0.900	--	0.0	--	--	0.60	0.070	--
FEB 10...	0.010	0.099	0.099	--	0.030	--	0.27	0.30	--	--	0.030
APR 01...	<0.010	--	<0.050	--	0.040	--	0.36	0.40	--	--	<0.010
JUL 14...	<0.010	0.390	0.390	--	0.050	--	0.85	0.90	--	--	0.090
SEP 16...	<0.010	0.061	0.061	--	0.080	--	0.32	0.40	--	--	0.010

DATE	PHOSPHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOSPHORUS ORTHO TOTAL (MG/L AS P)	PHOSPHATE, DIS-SOLVED (MG/L AS PO4)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYLLIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHROMIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
NOV 05...	--	0.060	--	--	--	--	--	--	--	--	--
DEC 16...	--	0.060	--	<1	37	<0.5	<1.0	<5	<3	<10	530
FEB 10...	0.020	--	0.06	--	--	--	--	--	--	--	--
APR 01...	0.020	--	0.06	<1	57	<0.5	<1.0	<5	<3	10	540
JUL 14...	0.080	--	0.25	<1	65	<0.5	<1.0	<5	6	<10	1500
SEP 16...	<0.010	--	--	<1	76	<0.5	<1.0	<5	<3	<10	230

RED RIVER BASIN

07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX--Continued

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

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 05...	--	--	--	--	--	--	--	--	--	--	--
DEC 16...	<10	7	110	<0.1	<10	<10	<1	<1.0	49	<6	26
FEB 10...	--	--	--	--	--	--	--	--	--	--	--
APR 01...	<10	10	70	<0.1	<10	<10	<1	2.0	98	<6	16
JUL 14...	<10	13	230	--	<10	<10	<1	1.0	120	<6	23
SEP 16...	<10	13	760	<0.1	<10	<10	<1	<1.0	140	<6	7

SABINE RIVER MAIN STEM

08017200 COWLEECH FORK SABINE RIVER AT GREENVILLE, TX

LOCATION.--Lat 33°07'58", long 96°04'36", Hunt County, Hydrologic Unit 12010001, on left bank 103 ft downstream from centerline of downstream bridge on Interstate Highway 30 (U.S. Highway 67), 0.3 mi downstream from Horse Creek, 0.9 mi downstream from Louisiana and Arkansas Railroad Co. bridge, 1.8 mi east of Greenville, and at mile 558.3.

DRAINAGE AREA.--77.7 mi².

PERIOD OF RECORD.--February 1959 to current year. Prior to October 1963, published as Sabine River at Greenville.

REVISED RECORDS.--WSP 1732: Drainage area. WSP 2122: 1960, 1963-65.

GAGE.--Water-stage recorder. Datum of gage is 485.07 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. The city of Greenville diverted water from city lakes upstream from gage and from Lake Tawakoni for municipal use. Sewage effluent is returned to a tributary downstream from gage. Extreme low flow is largely sustained by return water from water treatment plant upstream. Several observations of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1895, 22 ft in May 1935, from information by local resident and city engineer of Greenville. Flood of July 3, 1913, reached a stage of 20 ft, from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Feb. 16	0015	3,070	16.10	Apr. 14	2100	5,410	16.80
Feb. 25	1900	3,920	16.37	Apr. 29	1300	5,710	a/16.88

a/ From graph

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	3.0	.21	5.4	10	502	9.3	e44	1.8	1.4	.31	.14
2	.00	.58	.15	5.2	8.0	781	8.5	e23	1.8	1.4	.43	.23
3	.00	.20	.14	4.6	56	56	10	e18	1.7	1.4	2.5	1.4
4	.00	.14	.13	4.4	890	29	211	e14	2.0	1.3	1.4	1.2
5	.00	.09	.13	4.2	206	21	52	e12	2.0	1.3	1.2	1.0
6	.00	.05	.12	3.9	77	17	22	9.7	1.7	1.3	2.9	.95
7	.00	.04	.14	3.7	31	15	88	8.6	1.7	1.3	9.6	.93
8	.00	.03	.24	3.5	18	13	82	8.0	1.7	1.2	2.4	.75
9	.00	.03	1.9	104	13	12	27	13	2.6	1.3	1.7	.51
10	.00	.27	2.1	88	30	11	16	170	6.7	1.3	1.6	.47
11	.00	1.5	.54	22	53	9.7	12	17	3.8	1.3	1.6	.57
12	.00	2.0	.19	21	20	11	10	8.3	21	1.3	1.6	.97
13	.00	.70	.15	17	13	9.6	9.3	6.6	2.9	1.3	1.6	1.4
14	.00	.32	161	11	9.4	9.2	2230	4.8	1.8	1.3	1.6	1.1
15	.00	.21	1530	8.0	906	8.9	2040	3.6	1.6	1.3	1.4	.51
16	4.4	.19	609	6.3	1290	311	56	3.0	1.5	1.3	1.6	.39
17	.20	.14	38	5.4	43	115	23	2.7	1.5	1.3	1.1	.52
18	.12	5.6	15	6.2	20	25	16	2.4	1.4	1.3	.95	.65
19	.07	22	60	8.5	15	59	13	2.2	1.5	1.2	.95	.65
20	.05	4.3	114	185	13	561	397	2.1	1.6	1.1	.95	.65
21	.04	2.7	18	66	12	59	29	1.9	1.4	.95	1.2	.63
22	.03	2.2	11	24	10	67	15	1.8	1.3	.86	1.5	.63
23	.02	1.2	7.9	18	8.8	97	12	9.7	1.2	.77	1.6	.81
24	.02	6.7	6.1	237	8.1	33	e9.9	8.0	1.1	.88	1.6	.66
25	.02	11	4.9	39	2210	22	e8.5	2.8	1.0	.87	1.7	.55
26	.02	4.8	4.0	17	1080	16	e7.8	2.1	1.2	.74	1.2	1.1
27	.02	2.0	3.6	12	42	16	e7.3	1.7	1.4	.83	.79	.29
28	.03	1.2	3.4	9.1	26	12	e7.0	1.6	1.3	.83	.42	.21
29	.04	.61	3.5	32	---	11	e3500	1.6	1.3	.53	.29	.21
30	.07	.25	3.5	27	---	10	e1120	1.5	1.4	.33	.22	.20
31	.09	---	5.8	15	---	9.8	---	1.6	---	.32	.17	---
TOTAL	5.24	74.05	2604.84	1013.4	7118.3	2929.2	10048.6	407.3	74.9	33.81	48.08	20.28
MEAN	.17	2.47	84.0	32.7	254	94.5	335	13.1	2.50	1.09	1.55	.68
MAX	4.4	22	1530	237	2210	781	3500	170	21	1.4	9.6	1.4
MIN	.00	.03	.12	3.5	8.0	8.9	7.0	1.5	1.0	.32	.17	.14
AC-11	10	147	5170	2010	14120	5810	19930	808	149	67	95	40
CFSM	.00	.03	1.08	.42	3.27	1.22	4.31	.17	.03	.01	.02	.01
IN.	.00	.04	1.25	.49	3.41	1.40	4.81	.20	.04	.02	.02	.01

e Estimated

WESTERN GULF OF MEXICO BASINS

SABINE RIVER MAIN STEM--Continued

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

MEAN	50.2	43.0	91.6	56.7	83.9	96.6	98.5	137	65.2	21.9	6.52	32.4
MAX	354	206	573	193	273	390	431	540	353	264	95.2	258
(WY)	1972	1975	1972	1969	1970	1984	1966	1982	1981	1989	1977	1974
MIN	.003	.17	.11	.24	.67	.57	.85	.33	.032	.023	.000	.012
(WY)	1979	1980	1990	1986	1981	1986	1971	1988	1988	1991	1985	1983

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1960 - 1993	
ANNUAL TOTAL	28697.19		24378.00		65.2	
ANNUAL MEAN	78.4		66.8		140	
HIGHEST ANNUAL MEAN					15.9	
LOWEST ANNUAL MEAN					9730	
HIGHEST DAILY MEAN	3090	May 18	3500	Apr 29	9730	May 13 1982
LOWEST DAILY MEAN	.00	Aug 26	.00	Oct 1	.00	Aug 4 1964
ANNUAL SEVEN-DAY MINIMUM	.00	Sep 27	.00	Oct 1	.00	Aug 4 1972
INSTANTANEOUS PEAK FLOW			5710	Apr 29	15300	May 13 1982
INSTANTANEOUS PEAK STAGE			16.88	Apr 29	18.47	May 13 1982
INSTANTANEOUS LOW FLOW					.00	at times
ANNUAL RUNOFF (AC-FT)	56920		48350		47240	
ANNUAL RUNOFF (CFSM)	1.01		.86		.84	
ANNUAL RUNOFF (INCHES)	13.74		11.67		11.40	
10 PERCENT EXCEEDS	114		56		55	
50 PERCENT EXCEEDS	2.0		2.0		1.5	
90 PERCENT EXCEEDS	.02		.13		.05	

SABINE RIVER BASIN

177

08017300 SOUTH FORK SABINE RIVER NEAR QUINLAN, TX

LOCATION.--Lat 32°53'52", long 96°15'11", Hunt County, Hydrologic Unit 12010001, on right bank at downstream side of bridge on Farm Road 1565, 2.4 mi upstream from Dry Creek, 6.2 mi upstream from Bearpen Creek, 7 mi southwest of Quinlan, and 25 mi upstream from mouth.

DRAINAGE AREA.--78.7 mi².

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

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 461.0 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. The city of Royse City discharged sewage effluent into the river above this station. Several observations of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1890, 21 ft July 29, 1902, from information by local resident. Flood of Apr. 27, 1957, reached a stage of 17.76 ft, from floodmarks.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Feb. 25	1115	4,990	16.53	Apr. 29	1945	3,650	16.30

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	21	e1.3	6.4	7.0	134	2.5	64	3.5	.52	.00	.00
2	.00	16	e.72	7.5	5.5	319	2.3	28	1.0	.27	.00	.00
3	.00	3.3	e.51	6.1	38	60	3.3	14	.57	.29	.00	.00
4	.00	.97	e.52	5.5	564	30	262	6.4	.42	.30	.00	.00
5	.00	.16	e.32	5.1	204	20	59	4.1	.36	.25	.00	.00
6	.00	.10	e.25	4.2	57	16	20	2.8	.31	.22	.00	.00
7	.00	.11	e.30	3.4	27	13	113	2.1	.27	.23	3.3	.00
8	.00	.05	e.43	3.1	15	11	147	1.2	.35	.26	1.6	.00
9	.00	.03	e20	40	11	9.7	30	23	.40	.27	.55	.00
10	.00	.05	e2.4	87	11	12	14	83	6.9	.23	.25	.00
11	.00	14	e.49	24	16	8.1	6.0	14	33	.24	.15	.00
12	.00	13	e.14	28	11	14	3.1	5.1	562	.29	.09	.00
13	.00	8.2	e.07	23	7.3	24	2.7	2.6	76	.30	.04	.00
14	.09	2.9	e147	10	5.8	17	729	1.2	14	.35	.02	.00
15	.38	1.3	e2170	6.1	351	15	1400	.66	5.7	.35	.01	.00
16	150	.86	e826	4.2	769	18	96	.39	2.9	.28	.00	.00
17	15	.51	e65	3.1	86	22	21	.29	2.1	.18	.00	.00
18	.86	.23	29	2.9	29	17	11	.24	2.7	.11	.00	.00
19	.12	52	18	3.5	18	16	12	.36	11	.06	.00	.00
20	.09	279	45	241	14	109	155	.41	6.1	.05	.00	.00
21	.06	114	26	91	12	42	27	.25	2.9	.03	.00	.00
22	.04	341	17	30	8.9	234	9.2	.24	1.4	.01	.00	.00
23	.03	50	11	15	7.4	259	4.8	3.9	.84	.00	.00	.00
24	.04	88	7.9	122	5.5	39	2.9	313	.66	.00	.00	.00
25	.04	106	5.5	32	2020	17	2.2	28	.58	.00	.00	.00
26	.02	24	3.9	14	560	8.9	.95	6.1	98	.00	.00	.00
27	.01	11	3.0	9.0	60	5.9	.33	2.4	19	.00	.00	.01
28	.01	6.9	2.5	6.7	29	4.8	.31	1.2	3.5	.00	.00	.01
29	.02	4.9	3.4	14	---	4.0	1470	.74	1.7	.00	.00	.00
30	.03	e2.1	3.9	20	---	3.5	1110	9.3	.90	.00	.00	.00
31	.04	---	4.2	10	---	3.4	---	30	---	.00	.00	---
TOTAL	166.88	1161.67	3415.75	877.8	4949.4	1506.3	5716.59	648.98	859.06	5.09	6.01	0.02
MEAN	5.38	38.7	110	28.3	177	48.6	191	20.9	28.6	.16	.19	.001
MAX	150	341	2170	241	2020	319	1470	313	562	.52	3.3	.01
MIN	.00	.03	.07	2.9	5.5	3.4	.31	.24	.27	.00	.00	.00
AC-FT	331	2300	6780	1740	9820	2990	11340	1290	1700	10	12	.04
CFSM	.07	.49	1.40	.36	2.25	.62	2.42	.27	.36	.00	.00	.00
IN.	.08	.55	1.61	.41	2.34	.71	2.70	.31	.41	.00	.00	.00

e Estimated

SABINE RIVER BASIN

08017300 SOUTH FORK SABINE RIVER NEAR QUINLAN, TX--Continued

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

MEAN	95.5	43.7	94.6	61.4	112	110	128	151	100	29.6	5.73	28.0
MAX	656	243	459	277	556	572	693	674	1128	490	96.8	353
(WY)	1982	1982	1972	1974	1983	1977	1966	1979	1981	1981	1974	1974
MIN	.000	.000	.000	.000	.000	.11	.062	.038	.000	.000	.000	.000
(WY)	1964	1964	1964	1976	1976	1972	1971	1988	1977	1964	1965	1963

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1960 - 1993	
ANNUAL TOTAL	25499.82		19313.55		79.8	
ANNUAL MEAN	69.7		52.9		164	
HIGHEST ANNUAL MEAN					13.9	
LOWEST ANNUAL MEAN					13300	
HIGHEST DAILY MEAN	2200	Jun 29	2170	Dec 15	.00	Jun 16 1981
LOWEST DAILY MEAN	.00	May 6	.00	Oct 1	.00	Oct 21 1959
ANNUAL SEVEN-DAY MINIMUM	.00	Sep 30	.00	Oct 1	.00	Oct 21 1959
INSTANTANEOUS PEAK FLOW			4990	Feb 25	23000	Jun 16 1981
INSTANTANEOUS PEAK STAGE			16.53	Feb 25	18.77	Apr 5 1986
INSTANTANEOUS LOW FLOW			.00	Oct 1	.00	at times
ANNUAL RUNOFF (AC-FT)	50580		38310		57830	
ANNUAL RUNOFF (CFSM)	.89		.67		1.01	
ANNUAL RUNOFF (INCHES)	12.05		9.13		13.78	
10 PERCENT EXCEEDS	156		86		56	
50 PERCENT EXCEEDS	2.4		2.7		.30	
90 PERCENT EXCEEDS	.02		.00		.00	

SABINE RIVER MAIN STEM

179

08017400 LAKE TAWAKONI NEAR WILLS POINT, TX

LOCATION.--Lat 32°48'31", long 95°55'10", Van-Zandt County, Hydrologic Unit 12010001, in stairwell at left end of spillway of Iron Bridge Dam on Sabine River, 750 ft upstream from bridge on Farm Road 47, 3.8 mi upstream from McBee Creek, 9.0 mi northeast of Wills Point, and at mile 514.5.

DRAINAGE AREA.--756 mi².

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

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

REMARKS.--The lake is formed by a rolled earthfill dam 29,500 ft long, including a 480-foot uncontrolled concrete ogee spillway. Outlet works consist of two 4- by 6-foot sluice gates and two 20-inch 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 a 1956 survey. Diversions are made for municipal use by the city of Dallas and various other users in the Sabine River basin. The lake was built for water conservation. 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.....	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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,130,000 acre-ft May 1, 1966 (elevation, 442.58 ft); minimum since lake first filled in May 1965, 802,700 acre-ft Oct. 21, 1972 (elevation, 433.65 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,008,216 acre-ft Feb. 27 at 0800 hours (elevation, 439.45 ft); minimum, 843,400 acre-ft Sept. 30 (elevation, 434.86 ft).

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

434.0	814,300	437.0	918,200	439.0	991,200
435.0	848,200	438.0	954,300	440.0	1,029,000
436.0	882,800				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	902600	892000	891300	943800	944600	997700	948500	980900	935200	929400	894100	867600
2	901500	892300	889200	943500	943800	998800	946000	978300	934100	928600	894100	866500
3	900100	890800	888100	944200	946400	995800	946000	972800	933300	927900	893800	866500
4	899400	892700	889200	943500	952900	989800	952100	966900	932300	926100	894500	864500
5	898700	890600	886300	942000	958700	982000	950700	963200	931500	925400	893000	863100
6	897600	889500	886000	941700	959900	973500	949300	961300	930100	924300	892300	862000
7	893400	887400	885600	941700	957600	972800	954300	958800	929400	923200	895500	860700
8	896200	886300	884200	941300	956200	970900	956200	956200	927900	922100	894500	860700
9	893400	884600	887000	944200	954700	968400	954700	959100	929000	921800	894500	858900
10	895200	887000	887700	944600	955100	965000	952900	958800	929400	920300	893400	857500
11	892300	890600	887000	944900	954300	963500	952500	956200	930500	919300	892300	855400
12	892000	887400	886300	945600	952500	962400	951400	955100	934800	918500	891300	853400
13	891300	885600	886700	944600	951400	958400	950700	952900	937300	917100	890200	856100
14	890200	884900	904000	943800	949300	954300	962100	951100	938400	916400	889200	858600
15	893800	883800	924300	943100	955100	953200	972400	949300	936600	915000	887400	855800
16	897600	882800	945600	942000	964700	954000	978300	948200	935200	913600	886300	854400
17	895900	882400	945600	944200	968000	951800	975700	948900	934100	912900	885300	853000
18	894800	881700	945600	943500	965800	948200	970900	947100	933700	911400	884200	852000
19	894500	889200	948500	944600	963200	950700	971300	944600	932600	910700	883100	851600
20	893400	889200	950700	946400	961300	954000	970600	942800	933300	909700	881700	852300
21	891600	892700	951100	947800	960200	955100	967200	938800	933300	908300	880700	851300
22	890200	892300	950300	948200	957600	956200	963500	936200	935900	906800	879000	850200
23	889200	892000	949600	950300	954000	961000	962100	938800	935200	905400	877900	849600
24	889200	894500	948500	948900	962400	960200	958800	940600	934400	904000	876900	848500
25	890200	895900	947800	948200	990100	959100	957300	940200	934800	902600	875500	848500
26	891300	894100	946400	947400	1007000	957600	954700	939100	933300	901200	874500	850200
27	892000	892000	946000	946700	1007000	955800	952900	938400	933000	899800	873400	847500
28	892700	890900	946000	946700	1001000	955100	951100	937300	932600	899100	872400	846500
29	892700	892700	946000	946400	---	954000	965400	938100	931500	897600	870000	844800
30	892300	890200	946000	945600	---	954300	978000	938400	930500	896200	869300	843800
31	892000	---	944900	944900	---	950700	---	936600	---	895200	869300	---
MAX	902600	895900	951100	950300	1007000	998800	978300	980900	938400	929400	895500	867600
MIN	889200	881700	884200	941300	943800	948200	946000	936200	927900	895200	869300	843800
(↑)	436.26	436.21	437.74	437.74	439.25	437.90	438.64	437.51	437.34	436.35	435.61	434.87
(Φ)	-13800	-1800	+54700	0	+56100	-50300	+27300	-41400	-6100	-35300	-25900	-25500
CAL YR 1992	MAX	1019000	MIN	881700	(Φ)	-44100						
WTR YR 1993	MAX	1007000	MIN	843800	(Φ)	-62000						

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

SABINE RIVER MAIN STEM

08017410 SABINE RIVER NEAR WILLS POINT, TX

LOCATION.--Lat 32°48'22", long 95°55'09", Van Zandt County, Hydrologic Unit 12010001, on right bank at downstream side of bridge on Farm Road 47, 750 ft downstream from Iron Bridge Dam that forms Lake Tawakoni, 3.6 mi upstream from McBee Creek, 9.0 mi northeast of Wills Point, and at mile 514.3.

DRAINAGE AREA.--756 mi².

PERIOD OF RECORD.--October 1970 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 370.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those below 20.0 ft³/s, which are fair, and those for estimated daily discharges, which are poor. Flow regulated by Lake Tawakoni (see station 08017400) 750 ft upstream. Several observations of water temperature were obtained during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since construction of Iron Bridge Dam in 1960, about 21,000 ft³/s May 1, 1966, from theoretical rating curve of flow over dam 750 ft upstream.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	74	.16	362	192	3390	733	1980	115	5.5	6.6	6.3
2	2.7	28	1.6	170	170	3420	343	2020	22	6.1	6.8	6.4
3	3.9	25	.13	158	179	3390	195	1810	11	7.3	7.0	7.2
4	3.7	16	13	341	445	3060	446	1480	11	7.4	7.3	6.3
5	3.1	.27	5.1	229	685	2590	541	1300	28	7.1	6.6	6.3
6	2.5	.19	.15	118	921	2230	359	1160	7.5	7.1	7.4	6.5
7	22	.19	.15	106	775	2000	385	1030	7.9	7.3	53	6.6
8	40	.17	.15	106	675	1720	736	901	7.1	7.0	94	6.7
9	.35	.18	2.7	177	596	1470	655	875	25	6.8	5.7	6.8
10	.47	.17	13	552	550	1350	492	1320	55	6.8	4.4	6.8
11	.38	.23	.83	260	682	1150	446	1010	62	6.7	4.3	6.8
12	.36	28	.14	245	732	1270	406	881	145	6.6	4.3	7.0
13	.37	.19	.13	331	432	1290	367	792	79	6.6	4.5	8.2
14	.42	.15	284	195	389	779	644	615	84	6.6	4.5	20
15	3.9	.16	991	148	507	569	1370	483	74	6.4	4.7	9.4
16	8.5	.15	508	135	1120	548	1720	422	47	6.4	4.4	9.1
17	1.0	.16	324	113	1300	595	1790	375	26	6.3	4.2	9.5
18	.04	.17	298	242	1320	453	1610	383	13	6.3	3.6	9.6
19	.04	60	400	213	1120	422	1410	390	13	7.5	3.9	9.8
20	.05	466	e840	365	1010	600	1590	256	19	10	4.2	9.6
21	.04	106	e695	322	973	649	1440	195	24	9.9	4.3	9.5
22	.04	257	e605	301	856	664	1160	149	13	9.7	4.4	9.9
23	.04	36	e555	351	691	807	956	118	8.4	9.4	4.4	10
24	.03	7.7	e690	622	552	781	817	170	7.2	10	4.4	10
25	.03	37	e755	302	1880	747	788	200	13	10	4.2	10
26	.03	22	e500	278	3730	667	644	155	42	10	5.0	11
27	.15	1.6	e460	256	4170	572	516	117	10	10	5.5	10
28	.02	.16	e545	236	3780	494	451	98	5.9	8.8	5.3	11
29	15	.15	e370	349	---	454	859	102	5.6	6.8	5.5	11
30	167	1.2	e345	263	---	436	1460	101	5.5	6.8	5.6	10
31	5.0	---	453	206	---	621	---	226	---	6.8	6.4	---
TOTAL	284.26	1168.19	9655.24	8052	30432	39188	25329	21114	986.1	236.0	296.4	267.3
MEAN	9.17	38.9	311	260	1087	1264	844	32.9	7.61	9.56	8.91	
MAX	167	466	991	622	4170	3420	1790	2020	145	10	94	20
MIN	.02	.15	.13	106	170	422	195	98	5.5	5.5	3.6	6.3
AC-FT	564	2320	19150	15970	60360	77730	50240	41880	1960	468	588	530

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1993, BY WATER YEAR (WY)

	MEAN	223	361	454	277	541	662	710	945	682	181	38.1	58.5
MAX	1726	2539	3377	1561	2482	1911	2090	3888	2825	1229	332	868	
(WY)	1974	1975	1992	1974	1975	1990	1986	1990	1989	1981	1979	1974	
MIN	.21	.76	.16	3.43	1.87	2.84	1.31	6.83	.81	.56	.12	.25	
(WY)	1991	1979	1991	1976	1976	1976	1971	1987	1972	1972	1986	1987	

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1971 - 1993

ANNUAL TOTAL	232542.29	137008.49	427
ANNUAL MEAN	635	375	1064
HIGHEST ANNUAL MEAN			107
LOWEST ANNUAL MEAN			20000
HIGHEST DAILY MEAN	4640	4170	20000
LOWEST DAILY MEAN	.02 Oct 28	.02 Oct 28	.00 May 4 1990
ANNUAL SEVEN-DAY MINIMUM	.04 Oct 20	.04 Oct 20	.00 Oct 1 1971
INSTANTANEOUS PEAK FLOW		4250	20600
INSTANTANEOUS PEAK STAGE		14.46	19.11
INSTANTANEOUS LOW FLOW		.00 Oct 31	.00 May 4 1990
ANNUAL RUNOFF (AC-FT)	461200	271800	309100
10 PERCENT EXCEEDS	1980	1120	1280
50 PERCENT EXCEEDS	280	55	23
90 PERCENT EXCEEDS	.38	.38	.21

SABINE RIVER MAIN STEM

181

08018500 SABINE RIVER NEAR MINEOLA, TX

LOCATION.--Lat 32°36'49", long 95°29'08", Wood County, Hydrologic Unit 12010001, on left bank at downstream side of highway embankment 3 ft downstream from left end of bridge on U.S. Highway 69, 3.5 mi south of Mineola, 4.5 mi upstream from Missouri Pacific Railway Lines bridge, 16.2 mi upstream from Lake Fork Creek, and at mile 461.1.

DRAINAGE AREA.--1,357 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--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.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 304.16 ft above National Geodetic Vertical Datum of 1929. May 12, 1939, to Dec. 11, 1955, at site 55 ft 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 downstream from bridge. All gages at present datum.

REMARKS.--No estimated daily discharges. Records good. Since October 1960, flow partly regulated by Lake Tawakoni (see station 08017400), capacity 936,200 acre-ft, 53 mi upstream, and since September 1962, by Lake Holbrook (capacity, 7,990 acre-ft), located on Keys Creek, a tributary to the Sabine River 8.0 mi upstream. Flow may also be slightly affected at times by discharge from one floodwater-retarding structure with a detention capacity of 3,570 acre-ft. This structure controls runoff from a 9.70 mi² area in the Mill Creek drainage basin.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--20 years (water years 1940-59) prior to regulation by Lake Tawakoni, (station 08017400) 1,054 ft³/s (763,600 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1940-59).--Maximum discharge 76,000 ft³/s Apr. 1, 1945 (gage height, 24.00 ft); maximum gage height, 24.37 ft June 8, 1943; no flow at times. Maximum stage since at least 1890, that of June 8, 1943.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	510	112	471	600	6450	725	1630	145	75	6.4	6.8
2	12	527	89	583	495	6360	757	1920	225	50	6.2	7.4
3	12	561	77	615	424	5940	807	2120	208	35	5.9	8.2
4	11	482	68	1510	525	5700	750	2200	106	27	6.4	8.7
5	11	222	62	2880	940	5330	704	2180	63	23	8.8	8.7
6	10	115	60	2910	1380	4860	924	2140	47	20	11	8.8
7	9.1	74	57	2540	1770	4300	1090	2070	39	18	19	8.7
8	10	48	66	1880	1920	3790	1130	1910	41	16	217	8.7
9	10	34	82	1410	1820	3450	1250	1680	39	15	679	8.9
10	9.9	32	167	1980	1520	2990	1450	1660	32	15	1050	9.3
11	29	37	354	2230	1250	2540	1520	1690	33	14	940	9.2
12	29	41	381	2430	1140	2460	1280	1930	70	14	324	8.7
13	19	40	248	2410	1110	2390	980	2230	314	13	75	8.3
14	14	35	252	2020	1080	2250	856	2420	415	13	35	18
15	11	48	1640	1450	1140	2070	1320	2280	233	12	26	51
16	17	53	2980	1000	2120	1950	1610	1720	151	11	21	51
17	23	40	4940	643	2730	1650	1800	1140	123	11	18	40
18	138	31	8410	540	3210	1270	1940	811	99	10	15	43
19	161	41	6890	696	3280	1090	1990	827	79	9.9	13	29
20	84	371	4630	1090	2930	1180	2070	630	106	9.7	11	21
21	45	956	3040	1650	2430	1400	2240	551	203	9.5	10	18
22	28	1470	2340	2040	2030	1620	2290	410	279	8.9	9.4	16
23	21	1860	2220	2160	1640	1800	2270	294	209	8.3	8.9	15
24	17	2050	2020	1870	1340	1750	2220	230	119	7.9	8.4	14
25	15	1970	1520	1320	1340	1590	2110	196	123	7.6	7.9	13
26	13	1440	1100	1060	2060	1420	1790	219	1060	7.1	7.5	15
27	13	935	806	822	2840	1260	1350	255	894	6.8	7.1	20
28	13	494	629	615	4410	1130	1080	226	429	6.4	6.8	21
29	13	246	542	532	---	1010	963	182	215	6.0	6.8	19
30	31	152	503	529	---	893	1270	160	115	6.3	6.8	18
31	150	---	483	604	---	793	---	168	---	6.9	6.9	---
TOTAL	991.0	14915	46768	44490	49474	82686	42536	38079	6214	493.3	3574.2	532.4
MEAN	32.0	497	1509	1435	1767	2667	1418	1228	207	15.9	115	17.7
MAX	161	2050	8410	2910	4410	6450	2290	2420	1060	75	1050	51
MIN	9.1	31	57	471	424	793	704	160	32	6.0	5.9	6.8
AC-FT	1970	29580	92760	88250	98130	164000	84370	75530	12330	978	7090	1060

SABINE RIVER MAIN STEM

08018500 SABINE RIVER NEAR MINEOLA, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1993#, BY WATER YEAR (WY)

MEAN	270	794	1129	802	1294	1581	1386	2109	1111	253	61.5	69.9
MAX	2158	5296	5873	2707	4334	4175	4086	6934	4083	1626	419	616
(WY)	1974	1975	1992	1974	1975	1969	1990	1968	1973	1992	1979	1974
MIN	3.42	9.88	10.9	28.8	53.4	110	31.8	29.6	5.72	4.87	.071	.048
(WY)	1988	1990	1990	1981	1976	1981	1971	1988	1971	1969	1987	1987

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1968 - 1993#	
ANNUAL TOTAL	472496.0		330752.9		903	
ANNUAL MEAN	1291		906		1904	
HIGHEST ANNUAL MEAN					222	
LOWEST ANNUAL MEAN					1968	
HIGHEST DAILY MEAN	11700	Mar 12	8410	Dec 18	36200	Dec 11 1971
LOWEST DAILY MEAN	9.1	Oct 7	5.9	Aug 3	.00	Aug 13 1970
ANNUAL SEVEN-DAY MINIMUM	10	Oct 4	6.3	Jul 28	.00	Sep 15 1971
INSTANTANEOUS PEAK FLOW			9100	Dec 18	37700	Dec 11 1971
INSTANTANEOUS PEAK STAGE			18.03	Dec 18	21.53	Dec 11 1971
INSTANTANEOUS LOW FLOW					.00	at times
ANNUAL RUNOFF (AC-FT)	937200		656000		654000	
10 PERCENT EXCEEDS	3570		2260		2730	
50 PERCENT EXCEEDS	528		314		147	
90 PERCENT EXCEEDS	19		9.2		6.9	

Period of regulated streamflow.

SABINE RIVER MAIN STEM

183

08018500 SABINE RIVER NEAR MINEOLA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1967 to current year. Biochemical analyses: October 1973 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1967 to September 1991.

WATER TEMPERATURE: October 1967 to September 1991.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 11,400 microsiemens June 3, 1971; minimum daily, 64 microsiemens May 5, 1990.

WATER TEMPERATURE: Maximum daily, 36.0°C Aug. 21, 1984; minimum daily, 0.0°C Jan. 15, Feb. 1, 1979.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 6,180 microsiemens Nov. 13; minimum daily, 96 microsiemens Nov. 26.

WATER TEMPERATURE: Maximum daily, 29.0°C July 7, Aug. 8; minimum daily, 4.0°C Dec. 26.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)
OCT 05...	1500	11	474	7.6	19.0	8.0	87	1.8	110	50
NOV 30...	1730	138	335	7.5	7.0	10.2	85	1.0	74	44
JAN 25...	1600	1200	244	7.4	9.0	10.0	86	0.8	83	40
MAR 17...	1336	1760	273	7.5	11.0	11.4	104	1.4	77	23
APR 27...	1615	1230	231	7.6	20.0	8.5	94	2.0	70	10
JUN 24...	1120	119	638	7.4	28.5	6.8	89	3.5	110	66
DATE	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY DIS FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
OCT 05...	32	6.3	50	2	4.5	56	54	78	0.20	11
NOV 30...	19	6.5	30	2	5.2	30	49	47	0.10	12
JAN 25...	23	6.2	23	1	3.8	43	37	30	0.10	7.9
MAR 17...	23	4.8	20	1	3.5	54	33	26	<0.10	3.9
APR 27...	22	3.6	13	0.7	6.4	60	20	17	0.20	2.2
JUN 24...	30	8.3	78	3	5.6	43	71	120	0.20	12
DATE	SOLIDS, SUM OF CON-SITI-UENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	
OCT 05...	270	--	--	0.040	--	<0.050	--	0.030	--	
NOV 30...	187	0.090	--	0.040	--	0.130	--	0.070	--	
JAN 25...	158	0.130	0.130	--	0.030	0.160	0.160	--	0.060	
MAR 17...	147	0.096	--	--	<0.010	0.096	0.096	--	0.060	
APR 27...	121	0.160	0.160	--	0.020	0.180	0.180	--	0.070	
JUN 24...	352	0.280	0.280	--	0.010	0.290	0.290	--	0.110	

SABINE RIVER MAIN STEM

08018500 SABINE RIVER NEAR MINEOLA, TX--Continued

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

DATE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)
OCT 05...	0.57	--	--	0.60	0.100	--	--	0.040	--
NOV 30...	0.53	--	--	0.60	0.110	--	--	0.080	--
JAN 25...	--	0.54	0.60	--	--	0.090	0.050	--	0.15
MAR 17...	--	0.54	0.60	--	--	0.020	0.020	--	0.06
APR 27...	--	0.43	0.50	--	--	0.020	0.020	--	0.06
JUN 24...	--	0.49	0.60	--	--	0.030	0.030	--	0.09

SABINE RIVER BASIN

185

08018620 BIG CREEK AT FARM ROAD 1567 NEAR BRASHEAR, TX

LOCATION.--Lat 33°01'07", long 95°45'17", Hopkins County, Hydrologic Unit 12010003, on Farm Road 1567 bridge, over center of channel at downstream side of bridge, 2.5 mi upstream from Sand Branch, and 7.1 mi south of Farm Road 2653 and Interstate Highway 30 intersection at Brashear.

DRAINAGE AREA.--15.3 mi².

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

REMARKS.--Water-quality samples and associated discharge data were collected for selected storm events from sites at mouths of agricultural basins. This study is in cooperation with the Texas Agriculture Extension Service, Texas Stabilization and Conservation Service, Texas State Soil and Water Conservation Board, and the United States Soil Conservation Service to evaluate the effectiveness of agricultural demonstration projects utilizing new or improved management practices aimed at reducing nonpoint pollution.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)
DEC 14...	1253	117	113	6.7	11.0	9.2	85	10	49000
15...	1420	584	56	6.9	9.0	--	--	2.6	43000
29...	1333	0.12	287	7.3	13.5	9.5	92	1.3	K62
FEB 03...	1742	1.5	280	7.4	10.0	--	--	2.1	K520
APR 29...	1134	132	252	7.4	20.0	7.4	83	0.8	K690000
MAY 19...	1539	0.16	735	7.1	20.5	5.4	61	2.4	310

DATE	STREP-TOCOCCEI, KF AGAR (COLS. PER 100 ML)	ALKALINITY, WAT DIS FIX END FIELD CAC03 (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)
DEC 14...	91000	25	0.530	0.530	0.040	0.570	0.570	0.210
15...	98000	16	0.140	0.140	0.030	0.170	0.170	0.130
29...	<100	62	0.056	0.056	0.020	0.076	0.076	0.050
FEB 03...	K440	56	0.130	0.130	0.050	0.180	0.180	0.110
APR 29...	66000	38	0.820	0.820	0.030	0.850	0.850	0.670
MAY 19...	400	59	0.110	--	<0.010	0.110	0.110	0.100

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS P04)
DEC 14...	--	1.7	1.9	--	--	0.710	0.690	2.1
15...	--	0.77	0.90	--	--	0.260	0.240	0.74
29...	--	0.65	0.70	--	--	0.090	0.070	0.21
FEB 03...	0.69	--	--	0.80	0.140	0.090	--	--
APR 29...	1.5	--	--	2.2	1.10	0.950	--	--
MAY 19...	0.60	--	--	0.70	0.060	0.040	--	--

SABINE RIVER BASIN

08018720 BIRCH CREEK AT FARM ROAD 2297 NEAR YANTIS, TX

LOCATION.--Lat 33°01'31", long 95°38'19", Hopkins County, Hydrologic Unit 12010003, on Farm Road 2297 bridge, over center of channel at downstream side of bridge, 0.96 mi upstream from Gideon Creek, and 7.5 mi northwest of State Highway 154 and Farm Road 17 intersection in Yantis.

DRAINAGE AREA.--17.5 mi².

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

REMARKS.--Water-quality samples and associated discharge data were collected for selected storm events from sites at mouths of agricultural basins. This study is in cooperation with the Texas Agriculture Extension Service, Texas Stabilization and Conservation Service, Texas State Soil and Water Conservation Board, and the United States Soil Conservation Service to evaluate the effectiveness of agricultural demonstration projects utilizing new or improved management practices aimed at reducing nonpoint pollution.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-WF (COLS./100 ML)
DEC									
14...	1545	167	351	6.7	11.0	9.6	89	2.8	27000
15...	1701	225	127	6.9	9.0	--	--	3.0	56000
29...	1205	9.7	571	7.1	14.0	10.1	99	0.9	620
FEB									
03...	1813	21	606	7.1	10.5	--	--	1.5	K220
APR									
29...	1317	146	348	7.0	18.0	6.7	72	5.0	210000
MAY									
19...	1443	6.3	472	6.8	21.5	7.4	85	1.5	420
DATE		STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)
DEC									
14...		64000	20	0.690	0.690	0.040	0.730	0.730	0.180
15...		98000	16	0.490	0.490	0.060	0.550	0.550	0.280
29...		850	32	0.790	0.790	0.020	0.810	0.810	0.070
FEB									
03...		K190	31	0.650	0.650	0.030	0.680	0.680	0.060
APR									
29...		34000	24	0.890	0.890	0.040	0.930	0.930	0.320
MAY									
19...		240	38	0.300	0.300	0.010	0.310	0.310	0.120
DATE		NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS P04)
DEC									
14...		--	0.82	1.0	--	--	0.220	0.240	0.74
15...		--	0.92	1.2	--	--	0.640	0.630	1.9
29...		--	0.53	0.60	--	--	0.060	0.050	0.15
FEB									
03...		0.64	--	--	0.70	0.100	0.070	--	--
APR									
29...		1.9	--	--	2.2	0.520	0.230	--	--
MAY									
19...		0.78	--	--	0.90	0.160	0.100	--	--

SABINE RIVER BASIN

187

08018785 CANEY CREEK AT FARM ROAD 269 NEAR COMO, TX

LOCATION.--Lat 33°00'10", long 95°23'40", Hopkins County, Hydrologic Unit 12010003, on Farm Road 269 bridge, over center of channel at downstream side of bridge, 3.6 mi upstream from Briar Branch, and 6.1 mi southeast of the water tower in Como.

DRAINAGE AREA.--7.47 mi².

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

REMARKS.--Water-quality samples and associated discharge data were collected for selected storm events from sites at mouths of agricultural basins. This study is in cooperation with the Texas Agriculture Extension Service, Texas Stabilization and Conservation Service, Texas State Soil and Water Conservation Board, and the United States Soil Conservation Service to evaluate the effectiveness of agricultural demonstration projects utilizing new or improved management practices aimed at reducing nonpoint pollution.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)
DEC 14...	1724	786	150	6.7	9.0	9.0	79	3.8	K95000
15...	0956	1230	62	6.7	6.0	--	--	--	K71000
29...	1010	3.1	402	7.0	14.0	8.7	85	1.1	380
FEB 03...	1924	2.3	393	7.1	10.0	--	--	2.4	1900
APR 29...	0930	89	274	7.1	17.5	8.6	91	7.0	330000
MAY 19...	1319	1.8	201	6.9	20.5	6.9	78	7.2	K60

DATE	STREP-TOCOC CI, KF AGAR (COLS. PER 100 ML)	ALKA-LINITY, WAT DIS FIX END FIELD CAC03 (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)
DEC 14...	K190000	21	0.390	0.390	0.040	0.430	0.430	0.250
15...	K150000	12	0.300	0.300	0.030	0.330	0.330	0.170
29...	900	28	0.230	0.230	0.020	0.250	0.250	0.060
FEB 03...	830	33	0.430	0.430	0.030	0.460	0.460	0.070
APR 29...	63000	13	0.420	0.420	0.030	0.450	0.450	0.680
MAY 19...	K100	18	0.920	0.920	0.080	1.00	1.00	0.250

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS P04)
DEC 14...	--	1.0	1.3	--	--	0.590	0.550	1.7
15...	--	0.73	0.90	--	--	0.530	0.530	1.6
29...	--	0.64	0.70	--	--	0.060	0.050	0.15
FEB 03...	0.73	--	--	0.80	0.220	0.080	--	--
APR 29...	1.7	--	--	2.4	0.480	0.370	--	--
MAY 19...	1.7	--	--	1.9	0.710	0.570	--	--

08018800 LAKE FORK RESERVOIR NEAR QUITMAN, TX

LOCATION.--Lat 32°48'48", long 95°31'40", Wood County, Hydrologic Unit 12010003, in room at left end of gated concrete spillway structure of Lake Fork Dam on Lake Fork Creek, 2,000 ft upstream from bridge on State Highway 182, 2.3 mi upstream from Alum Branch, and 4.4 mi west-northwest of the county courthouse in Quitman.

DRAINAGE AREA.--490 mi².

PERIOD OF RECORD.--October 1979 to current year.

Water-quality records.--Chemical analyses: October 1980 to September 1984.

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

REMARKS.--The lake is formed by a rolled earthfill dam 12,660 ft long, including a 260-foot gated concrete spillway. The outlet works consist of two 5- 8-foot low flow sluice gates, five 40- by 20-foot tainter gates, and two 5- by 6-foot sluice gates that open into a wet well where there are two 36-inch and one 10-inch valve-controlled and metered-outlet pipes. Deliberate impoundment began June 29, 1979, and closure of the dam was completed in January 1980. The lake was built for water conservation and is owned by the Sabine River Authority. No known diversions were made from the lake this year. Flow is affected at times by discharge from the flood-detention pools of 21 floodwater-retarding structures with a combined detention capacity of 20,270 acre-ft. These structures control runoff 60 mi² above the lake. 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.....	419.5	1,270,000
Top of tainter gates.....	405.0	732,900
Crest of gated spillway.....	385.0	291,900
Invert of upper sluice gate.....	383.0	260,400
Invert of lower sluice gate.....	360.5	43,120
Invert of sluice gate in two center pieces.....	360.0	40,620

COOPERATION.--Area and capacity tables were prepared and provided by URS/Forest and Cotton, Inc., Consulting Engineers for the Sabine River Authority. Observed elevations for the period Oct. 31, 1979, to Jan. 31, 1980, were provided by the Sabine River Authority.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 737,300 acre-ft May 4, 1990 (elevation, 405.15 ft); minimum observed, 46,140 acre-ft Dec. 11-14, 1979 (elevation, 361.10 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 699,710 acre-ft Feb. 25 at 2100 hours (elevation 403.85 ft); minimum, 595,800 acre-ft Oct. 14 (elevation, 399.98).

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

399.0	571,300	401.0	622,100	403.0	675,800
400.0	596,300	402.0	648,500	404.0	703,900

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	602000	601500	610700	661600	661100	680600	669500	677200	666800	662200	642700	631900
2	601500	605600	610500	661100	661100	679800	668200	674200	666300	661600	641700	631300
3	601200	602000	610200	662200	663500	673600	669000	675800	666000	660800	642200	631300
4	600700	601000	611000	667600	666800	671200	674200	676900	666300	660000	642500	630500
5	600400	599700	610000	676400	670400	670100	673400	677200	665500	659500	641900	629700
6	599900	599400	609700	674700	671500	669500	672500	678100	664600	658400	641700	629200
7	601000	598600	609500	672800	672300	669000	675800	678600	664900	657800	645400	628700
8	598900	598100	609200	671200	672500	668500	677200	679800	664100	657300	644600	628900
9	598400	598100	611800	677500	672800	667600	675000	673900	665200	656700	644600	627400
10	598400	598400	612300	677500	674200	668200	672800	674700	664400	656500	644000	627100
11	597600	599900	612300	676700	675800	669500	672800	675000	666300	655600	643800	626000
12	597400	599700	612300	676900	675000	672000	669300	673900	666500	655100	643200	625500
13	596800	598900	612300	675000	675300	669800	668200	672500	666300	654300	643000	625500
14	596300	598900	623900	672000	674700	669300	673600	671200	666300	653700	642700	628900
15	599900	598900	652600	670400	684500	670100	677200	670400	665700	652900	642200	627900
16	601000	598400	661900	668500	685100	671700	675800	669800	665500	652400	641700	627400
17	600400	597900	663500	667600	684000	673100	675000	669000	665200	651800	641100	626600
18	600200	598100	664600	669300	680300	673400	673100	669500	664900	651800	640600	626000
19	599400	603000	671700	670600	678600	677200	672000	668700	664900	651000	640100	626000
20	599200	606100	677200	675800	677800	681400	671200	668200	665700	650200	639300	626000
21	599200	610000	677500	676400	676900	681200	670900	667900	666300	649400	638700	625500
22	598900	611000	676700	674700	675800	681400	669000	667100	665700	648800	638000	625200
23	599200	611800	675800	673100	673900	679500	667100	667600	665200	647700	637200	625000
24	599200	612000	672500	673100	673400	677200	666500	668200	664900	647000	636600	624700
25	598900	612500	670900	671200	699200	676400	667900	667900	666800	646400	635800	624700
26	598600	612300	668700	670400	693200	675300	668200	667600	664900	645600	635300	627400
27	598400	612300	667100	668500	687100	673600	667900	667100	664400	645400	634800	626000
28	598100	611500	665700	667100	681700	672500	667600	667100	663500	644800	634000	625500
29	601500	611800	664900	665500	---	671500	674700	667900	663500	644000	633200	625200
30	601500	611300	664100	663500	---	672300	677200	667600	662700	644000	632900	624700
31	601700	---	663800	661600	---	670400	---	667600	---	643500	632700	---
MAX	602000	612500	677500	677500	699200	681400	677200	679800	666800	662200	645400	631900
MIN	596300	597900	609200	661100	661100	667600	666500	667100	662700	643500	632700	624700
(↑)	400.21	400.58	402.56	402.48	403.21	402.80	403.05	402.70	402.52	401.81	401.40	401.10
(Φ)	-800	+9600	+52500	-2200	+20100	-11300	+6800	-9600	-4900	-19200	-10800	-8000
CAL YR 1992	MAX	712000	MIN	596300	(Φ)	-9300						
WTR YR 1993	MAX	699200	MIN	596300	(Φ)	+22200						

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

SABINE RIVER BASIN

189

08019000 LAKE FORK CREEK NEAR QUITMAN, TX

LOCATION.--Lat 32°45'47", long 95°27'46", Wood County, Hydrologic Unit 12010003, at downstream side of highway embankment near left end of bridge on State Highway 37, 0.3 mi downstream from Dry Creek, 2.4 mi south of Quitman, and 23.4 mi upstream from mouth.

DRAINAGE AREA.--585 mi².

PERIOD OF RECORD.--June 1924 to April 1926, February 1939 to current year. Discharge from 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 records.--Chemical analyses: December 1961 to August 1989. Specific Conductance: November 1967 to September 1989. Water Temperature: December 1967 to September 1989.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 317.42 ft above National Geodetic Vertical Datum of 1929. From June 27, 1924, to Apr. 30, 1926, a nonrecording gage was located at site 1,000 ft downstream at same datum. Prior to Sept. 5, 1978, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Records good. Since May 1962, flow from 31.0 mi² above this station has been controlled by Lake Quitman (capacity, 7,440 acre-ft) on Dry Creek, a tributary above this station and below Lake Fork Reservoir. Construction of Lake Fork Dam and Reservoir (capacity, 675,800 acre-ft), located about 5 mi upstream from this station, began in 1975. Deliberate impoundment began June 29, 1979, and the dam was completed in January 1980. Lake Fork Reservoir controls runoff from 490 mi² above this station. The city of Quitman discharged a small amount of sewage effluent into a tributary above this station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--41 years (water years 1925, 1940-79), prior to regulation by Lake Fork Reservoir, 432 ft³/s (313,000 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1925, 1940-79).--Maximum discharge, 75,600 ft³/s Mar. 30, 1945 (gage height, 29.85 ft, from floodmark), from rating curve extended above 49,000 ft³/s; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in July 1895 reached a stage of about 25.9 ft, from information by local resident.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	133	35	482	1200	3910	353	388	29	23	18	21
2	21	128	31	85	469	4080	337	391	31	23	18	21
3	21	33	28	75	86	4030	305	367	32	22	18	21
4	21	20	26	84	181	3680	139	351	30	21	18	21
5	21	17	26	89	194	1860	200	337	29	21	18	21
6	21	15	25	1700	200	997	630	330	29	21	18	21
7	21	13	26	2570	149	727	789	325	28	21	20	22
8	21	13	26	1860	106	482	1070	321	28	21	21	22
9	21	12	67	1630	86	386	1270	330	27	21	19	22
10	21	13	134	1510	80	332	1280	839	28	21	18	21
11	21	16	72	1760	114	103	1260	1230	28	21	19	21
12	21	18	52	1780	91	165	1230	1260	32	21	19	21
13	23	18	45	1570	70	196	967	1060	31	21	19	21
14	21	17	109	1470	62	101	814	833	28	21	19	27
15	22	15	1590	1380	297	75	1540	491	28	21	19	32
16	48	13	1970	1320	1380	80	1480	340	27	21	19	22
17	38	15	1450	1280	1660	100	1390	320	26	21	20	20
18	24	13	1030	1260	1700	87	1150	295	25	21	20	20
19	22	30	719	1380	1620	80	965	103	25	21	20	20
20	22	415	655	1580	1240	308	923	38	29	21	20	20
21	21	318	884	1720	917	743	901	29	34	20	20	20
22	21	383	1180	1640	832	901	859	26	66	21	20	20
23	21	361	1230	1480	804	1140	494	24	37	21	20	20
24	21	244	1210	1380	788	1480	104	24	30	21	20	20
25	21	238	1190	1370	1480	1320	40	26	31	21	20	20
26	22	136	1170	1320	8750	931	35	23	49	21	20	25
27	23	75	1160	1290	7160	822	31	21	33	24	20	25
28	22	55	951	1260	4270	796	28	21	28	25	20	22
29	34	45	790	1260	---	788	94	25	26	22	20	21
30	174	39	751	1260	---	767	267	46	24	18	21	21
31	55	---	740	1250	---	480	---	43	---	18	21	---
TOTAL	907	2861	19372	40095	35986	31947	20945	10257	928	657	602	651
MEAN	29.3	95.4	625	1293	1285	1031	698	331	30.9	21.2	19.4	21.7
MAX	174	415	1970	2570	8750	4080	1540	1260	66	25	21	32
MIN	21	12	25	75	62	75	28	21	24	18	18	20
AC-F I	1800	5670	38420	79530	71380	63370	41540	20340	1840	1300	1190	1290

SABINE RIVER BASIN

08019000 LAKE FORK CREEK NEAR QUITMAN, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1993#, BY WATER YEAR (WY)

MEAN	40.9	271	545	431	800	780	513	708	365	192	83.1	24.3
MAX	247	1551	2853	1478	2326	2938	1991	2807	1280	1596	940	167
(WY)	1982	1989	1992	1991	1986	1990	1990	1990	1986	1992	1992	1992
MIN	1.23	2.92	9.31	4.43	14.1	31.6	4.29	13.1	8.51	1.43	.13	.76
(WY)	1983	1981	1982	1981	1981	1981	1981	1988	1984	1985	1980	1982

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1980 - 1993#	
ANNUAL TOTAL	272320		165208		394	
ANNUAL MEAN	744		453		1006	1992
HIGHEST ANNUAL MEAN					43.2	1984
LOWEST ANNUAL MEAN						
HIGHEST DAILY MEAN	13800	Mar 10	8750	Feb 26	23600	May 18 1989
LOWEST DAILY MEAN	12	Nov 9	12	Nov 9	.00	Aug 23 1980
ANNUAL SEVEN-DAY MINIMUM	14	Nov 5	14	Nov 5	.00	Aug 23 1980
INSTANTANEOUS PEAK FLOW			9920	Feb 26	24200	May 18 1989
INSTANTANEOUS PEAK STAGE			18.35	Feb 26	21.75	May 18 1989
INSTANTANEOUS LOW FLOW			12	Nov 9	.00	at times
ANNUAL RUNOFF (AC-FT)	540100		327700		285600	
10 PERCENT EXCEEDS	1700		1370		1130	
50 PERCENT EXCEEDS	417		35		31	
90 PERCENT EXCEEDS	21		20		3.4	

Period of regulated streamflow.

SABINE RIVER BASIN

191

08019500 BIG SANDY CREEK NEAR BIG SANDY, TX

LOCATION.--Lat 32°36'14", long 95°05'29", Upshur County, Hydrologic Unit 12010002, on downstream side of highway embankment near left end of bridge on State Highway 155, 0.5 mi upstream from St. Louis Southwestern Railway Lines bridge, 1.6 mi northeast of Big Sandy, and 6.5 mi upstream from mouth.

DRAINAGE AREA.--231 mi².

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

Water-quality records.--Chemical analyses: March 1961 to September 1986. Chemical and biochemical analyses: October 1984 to September 1986.

REVISED RECORDS.--WSP 1732: 1941(M), 1945-46, 1956, drainage area. WSP 1922: 1944(M), 1945-46.

GAGE.--Water-stage recorder. Datum of gage is 278.38 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 5, 1940, nonrecording gage, and Oct. 5, 1940, to Nov. 26, 1951, water-stage recorder at site 1.3 mi upstream at datum 3.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Since June 1962, streamflow has been affected by Lake Winnsboro, about 27 miles upstream (capacity 8,100 acre-ft, drainage area 27.1 mi²) and by several other smaller lakes. Several observations of water temperature were made during the year.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 17	1900	3,980	16.28	Jan. 7	0100	3,260	15.55
Jan. 4	2400	2,100	14.03				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	197	211	219	254	e1080	210	204	133	e87	e21	32
2	39	281	169	214	242	e1040	195	288	129	e71	e20	33
3	38	305	149	211	e235	e846	184	313	117	e64	e20	35
4	37	288	138	968	e231	e678	189	327	107	e60	21	36
5	36	250	131	1500	e235	e560	203	268	97	e57	22	37
6	36	212	129	2250	e250	e486	206	205	91	e53	22	37
7	35	145	124	2700	e282	e425	238	170	84	e48	35	37
8	35	106	122	1540	312	e364	330	148	78	e44	108	37
9	35	90	153	1070	318	e319	342	134	74	e41	131	39
10	34	89	180	1180	302	e283	327	171	72	e37	104	41
11	34	112	187	1030	283	e247	407	253	77	e33	77	42
12	36	238	190	1090	255	e242	387	413	116	e31	61	43
13	33	243	209	1090	232	e263	294	444	116	e29	48	46
14	31	181	265	849	e223	e255	249	418	111	e28	38	64
15	30	162	1290	645	e286	e266	273	286	109	e27	33	104
16	47	140	1890	518	e716	e369	285	199	102	e26	30	116
17	89	119	3300	420	e734	e379	706	160	94	e25	28	95
18	104	104	3230	369	e903	316	1090	141	91	e24	28	93
19	97	100	1830	395	e915	286	738	146	100	e25	27	96
20	93	213	1180	455	e726	366	475	169	154	e26	25	91
21	73	257	852	658	e571	407	334	260	184	e27	25	85
22	60	351	642	941	e457	442	262	254	180	e27	24	80
23	53	503	516	875	e363	562	220	169	162	e28	23	80
24	49	775	474	763	e297	578	201	244	e163	e29	23	85
25	47	764	454	581	e443	458	180	352	e166	e29	24	82
26	45	712	390	452	e685	371	155	159	e151	e28	25	89
27	43	537	326	393	e555	322	135	140	e135	e26	27	122
28	43	367	282	396	e761	283	125	172	e128	e24	28	143
29	48	313	253	360	---	262	165	165	e136	e23	29	e131
30	109	272	235	311	---	243	210	149	e117	e22	30	e109
31	141	---	223	281	---	224	---	131	---	e22	30	---
TOTAL	1671	8426	19724	24724	12066	13222	9315	7052	3574	1121	1187	2160
MEAN	53.9	281	636	798	431	427	310	227	119	36.2	38.3	72.0
MAX	141	775	3300	2700	915	1080	1090	444	184	87	131	143
MIN	30	89	122	211	223	224	125	131	72	22	20	32
AC-FT	3310	16710	39120	49040	23930	26230	18480	13990	7090	2220	2350	4280

e Estimated

SABINE RIVER BASIN

08019500 BIG SANDY CREEK NEAR BIG SANDY, TX--Continued

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

MEAN	58.9	132	224	238	282	318	327	323	173	74.3	33.5	51.3
MAX	448	884	884	798	915	1746	1068	977	704	390	150	441
(WY)	1950	1975	1988	1993	1950	1945	1973	1953	1946	1992	1979	1974
MIN	8.38	19.2	24.6	32.3	59.7	47.5	42.2	35.1	9.61	6.99	4.65	8.51
(WY)	1957	1956	1957	1957	1967	1966	1956	1984	1984	1984	1984	1956

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1940 - 1993	
ANNUAL TOTAL	102210		104242		186	
ANNUAL MEAN	279		286		415	
HIGHEST ANNUAL MEAN					40.6	
LOWEST ANNUAL MEAN					17900	
HIGHEST DAILY MEAN	3300	Dec 17	3300	Dec 17	3.5	Mar 31 1945
LOWEST DAILY MEAN	30	Oct 15	20	Aug 2	4.0	Jul 24 1984
ANNUAL SEVEN-DAY MINIMUM	33	Oct 9	21	Jul 30	24000	Aug 16 1984
INSTANTANEOUS PEAK FLOW			3980	Dec 17	a/24.10	Mar 31 1945
INSTANTANEOUS PEAK STAGE			16.28	Dec 17	3.5	Mar 31 1945
INSTANTANEOUS LOW FLOW			20	Aug 2	134600	*
ANNUAL RUNOFF (AC-FT)	202700		206800		418	
10 PERCENT EXCEEDS	627		693		80	
50 PERCENT EXCEEDS	149		169		17	
90 PERCENT EXCEEDS	43		29			

a/ Maximum stage since at least 1875.

* Occured on July 24, Aug. 7-8, 1984.

SABINE RIVER MAIN STEM

193

08020000 SABINE RIVER NEAR GLADEWATER, TX

LOCATION.--Lat 32°31'37", long 94°57'36", Gregg County, Hydrologic Unit 12010002, on right bank 46 ft downstream from bridge on U.S. Highway 271, 0.4 mi downstream from Glade Creek, 1.2 mi southwest of Gladewater, and at mile 397.5.

DRAINAGE AREA.--2,791 mi².

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

REVISED RECORDS.--WSP 1732: Drainage area. WDR TX-73-1: 1972.

GAGE.--Water-stage recorder. Datum of gage is 243.85 ft above National Geodetic Vertical Datum of 1929 (Texas Reclamation Department benchmark based on Geological Survey datum). Prior to Oct. 13, 1933, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow partially regulated by Lake Tawakoni (station 08017400), capacity 936,200 acre-ft, by Lake Fork Creek Reservoir (station 08018800), capacity 675,800 acre-ft, and by five tributary reservoirs with a total combined capacity of 42,370 acre-ft. There are many diversions above station for oil field operations and municipal supply. Several observations of water temperature were obtained during the year. A rain gage and gage-height telemeter are located at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--28 years (water years 1933-60) prior to regulation by Lake Tawakoni, 2,012 ft³/s (1,458,000 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1933-60).--Maximum discharge, 138,000 ft³/s Apr. 2, 1945 (gage height, 44.16 ft, from floodmark), from rating curve extended above 91,000 ft³/s; minimum, 5.6 ft³/s Aug. 16, 1939. Maximum stage since at least 1892, that of Apr. 2, 1945.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1914 reached a stage of about 41.7 ft (discharge, 85,900 ft³/s), from information by local resident.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e143	774	1000	3130	2830	4880	2590	2140	623	695	77	56
2	e130	1170	745	2560	2580	5480	2210	2170	606	536	75	53
3	e120	1340	633	2200	2440	6000	1850	2340	559	438	68	50
4	e116	1310	587	2720	2350	6580	1640	2500	541	365	62	50
5	e112	1140	558	4820	2130	7390	1680	2650	523	313	60	51
6	108	960	528	5540	1870	8420	1660	2740	442	273	100	49
7	108	718	503	5990	1870	9410	1590	2780	364	244	139	48
8	114	509	490	e6470	2050	10000	1940	2780	315	225	267	47
9	123	393	574	e6900	2270	10200	2370	2730	284	205	326	46
10	134	338	760	e7100	2450	9820	2570	2750	264	188	404	46
11	139	368	807	e7140	2580	9180	2670	2780	256	174	690	45
12	135	711	826	e7090	2560	8610	2810	2840	319	163	907	46
13	128	1250	873	e7010	2360	7880	2930	2930	432	155	900	47
14	129	995	1000	6850	2080	7250	3010	3030	460	146	599	63
15	136	686	3730	6660	2070	6710	3150	3140	548	143	316	110
16	162	512	5600	6450	3100	6410	3120	3240	617	139	186	160
17	203	427	5990	6210	3620	6150	3080	3300	531	133	136	178
18	252	382	6270	5970	3840	5740	3290	3270	424	127	113	189
19	288	411	6550	5650	4000	5240	3600	3010	398	122	99	183
20	290	1060	6790	5370	4240	4790	3760	2450	1000	115	88	161
21	337	1470	6890	5070	4480	4370	3800	1830	1920	111	80	e152
22	315	2030	7110	4770	4670	4030	3780	1350	2610	108	73	e145
23	259	2410	7390	4600	4830	3730	3720	1060	2270	107	66	e139
24	215	2590	7420	4530	4890	3580	3660	922	1700	102	61	e135
25	187	2760	7200	4510	4930	3570	3600	1000	1200	98	59	e136
26	171	2870	6840	4510	5010	3570	3510	896	1060	93	55	e136
27	160	2910	6410	4460	4850	3570	3290	708	1060	86	52	e134
28	146	2790	5960	4310	4670	3550	2930	690	1330	81	50	e132
29	191	2360	5400	4040	---	3470	2540	727	1340	79	50	e143
30	638	1620	4700	3650	---	3280	2380	697	993	76	52	e142
31	586	---	3890	3210	---	2970	---	641	---	76	52	---
TOTAL	6275	39264	114024	159490	91620	185830	84730	66091	24989	5916	6262	3072
MEAN	202	1309	3678	5145	3272	5995	2824	2132	833	191	202	102
MAX	638	2910	7420	7140	5010	10200	3800	3300	2610	695	907	189
MIN	108	338	490	2200	1870	2970	1590	641	256	76	50	45
AC-FT	12450	77880	226200	316300	181700	368600	168100	131100	49570	11730	12420	6090

e Estimated

SABINE RIVER MAIN STEM

08020000 SABINE RIVER NEAR GLADEWATER, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1993#, BY WATER YEAR (WY)

MEAN	407	1205	2367	1978	2579	3206	2890	4085	1966	607	185	293
MAX	3361	7839	10580	6693	9664	9717	9644	17100	6745	3950	1291	2566
(WY)	1974	1975	1972	1992	1975	1992	1990	1966	1973	1992	1992	1974
MIN	29.4	86.9	101	199	319	316	241	188	49.0	17.9	18.1	27.0
(WY)	1964	1964	1966	1964	1981	1967	1971	1988	1971	1964	1964	1985

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1961 - 1993#	
ANNUAL TOTAL	1149024		787563		1811	
ANNUAL MEAN	3139		2158		3831	
HIGHEST ANNUAL MEAN					232	
LOWEST ANNUAL MEAN					1992	
HIGHEST DAILY MEAN	18500	Mar 15	10200	Mar 9	51000	May 22 1989
LOWEST DAILY MEAN	108	Oct 6	45	Sep 11	7.4	Jul 20 1971
ANNUAL SEVEN-DAY MINIMUM	114	Oct 3	46	Sep 7	9.5	Jul 16 1971
INSTANTANEOUS PEAK FLOW			10300	Mar 9	52300	May 22 1989
INSTANTANEOUS PEAK STAGE			31.72	Mar 9	38.98	Apr 30 1966
INSTANTANEOUS LOW FLOW			44	Sep 11		
ANNUAL RUNOFF (AC-FT)	2279000		1562000		1312000	
10 PERCENT EXCEEDS	7880		5990		5240	
50 PERCENT EXCEEDS	1520		1060		533	
90 PERCENT EXCEEDS	259		91		54	

Period of regulated streamflow.

195

LOCATION.--Lat 32°28'47", long 94°48'15", Gregg County, Hydrologic Unit 12010002, on left bank at city of Longview pumping station at the end of Swinging Bridge Road, 1.4 mi southwest of the intersection of Swinging Bridge Road and Farm Road 2206 in Longview, 2.5 mi downstream from Hawkins Creek, 2.6 mi upstream from U.S. Highway 259, and at mile 357.4.

PERIOD OF RECORD.--August 1983 to current year (operated as a low-flow station only).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 230.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Daily discharges above 500 ft³/s are not published. Flow partially regulated by Lake Tawakoni (station 08017400), capacity 936,200 acre-ft, by Lake Fork Reservoir (station 08018800), capacity 675,800 acre-ft, and by five tributary reservoirs with a combined capacity of 42,370 acre-ft. There are many diversions above station for municipal, industrial supply, and for oil field operations.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 31.64 ft May 10, 1990; minimum daily discharge, 0.50 ft³/s Sept. 4, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 27.01 ft Mar. 12 at 2200 hours; minimum daily discharge, 34 ft³/s Sep. 11.

[illegible]

SABINE RIVER MAIN STEM

08022040 SABINE RIVER NEAR BECKVILLE, TX

LOCATION.--Lat 32°19'38", long 94°21'12", Panola County, Hydrologic Unit 12010002, at downstream side of highway embankment near right end of downstream bridge on U.S. Highway 59, 0.9 mi upstream from Eightmile Creek, 6.0 mi upstream from Farm Road 1794, 8.4 mi northeast of Beckville, 12.4 mi downstream from State Highway 43, and at mile 327.0.

DRAINAGE AREA.--3,589 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1938 to current year. Prior to October 1978, published as "near Tatum" (station 08022000).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 190.00 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1978, at site 12.4 mi upstream at datum 14.18 ft higher. Prior to Sept. 21, 1945, non-recording gage.

REMARKS.--No estimated daily discharges. Records good. Eight major upstream reservoirs, with a combined capacity of 1,701,000 acre-ft, largely regulate the flow. There are several diversions above this station and below Lake Tawakoni for municipal, industrial and for oil field operations. Low flows are sustained by sewage effluents that are returned to the river above the station. For statement regarding regulation by Soil Conservation Service flood-water-retarding structures, see station 08018500. A rain gage and gage-height telemeter are located at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--22 years (water years 1939-60) prior to regulation by Lake Tawakoni, 2,663 ft³/s (1,929,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD PRIOR TO REGULATION (WATER YEARS 1939-60).--Maximum discharge, 123,000 ft³/s Apr. 4, 1945 (gage height, 33.80 ft), site and datum then in use, from graph based on gage readings, from rating curve extended above 66,000 ft³/s on basis of partly estimated discharge measurement of 88,900 ft³/s; minimum observed, 2.4 ft³/s Aug. 11, 1964.

Maximum stage since at least 1984, that of Apr. 4, 1945.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1884 reached a stage of about 2 ft lower than flood of Apr. 4, 1945. These dates and gage heights are based on information for stations near Tatum (08022000) and at Logansport, La. (08022500).

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	282	1360	2600	7200	5140	9140	4500	3920	954	3200	93	88
2	249	1530	1920	6460	4640	10100	4180	4010	892	2280	95	88
3	219	1600	1410	5420	4110	9480	3710	3910	843	1650	83	78
4	182	1510	1120	4450	3740	8560	3330	3610	795	1270	87	85
5	166	1490	960	5250	3570	8230	3320	3500	724	999	118	94
6	164	1380	881	6020	3510	8050	3160	3510	664	813	99	79
7	161	1230	827	6310	3340	7920	3100	3570	626	660	137	81
8	164	1050	790	6760	3090	8010	4270	3610	537	543	637	80
9	228	863	806	7260	3040	8290	4730	3580	472	468	837	80
10	235	679	1200	8290	3160	8530	4560	3850	420	427	494	70
11	211	568	1400	9080	3450	8970	4150	4130	392	366	424	72
12	202	532	1350	9470	3680	9990	4030	4000	481	323	470	65
13	200	764	1290	9620	3650	11400	3980	3800	593	342	699	67
14	193	1190	1310	9630	3460	12200	4050	3770	610	351	904	62
15	187	1320	4090	9420	6290	12200	4550	3730	609	294	887	67
16	194	1090	9610	9160	8350	12000	4790	3790	638	236	658	121
17	292	852	10800	8850	8380	12000	4620	3860	677	222	435	122
18	306	682	10400	9250	7390	12200	4390	3940	705	205	284	151
19	285	591	9780	10300	6500	11600	4290	4000	674	189	204	182
20	306	895	9160	10800	5980	11000	4390	4000	2840	173	169	197
21	335	2050	8620	11000	5670	10800	4590	3700	16500	154	147	207
22	330	2950	8270	10700	5650	10700	4700	3000	33300	157	131	202
23	360	3730	8180	9970	5610	10000	4710	2260	25500	142	121	169
24	354	3890	8300	8930	5980	9000	4690	1770	19500	139	104	137
25	322	3570	8350	8140	7620	7760	4580	1480	16100	161	102	134
26	297	3470	8300	7290	8220	6540	4490	1400	13500	152	93	130
27	257	3460	8310	6530	7770	5720	4470	1360	11100	129	94	201
28	232	3420	8340	6130	7460	5240	4290	1160	8440	107	87	266
29	236	3320	8360	5900	---	4970	4100	1020	5550	110	95	182
30	452	3120	8160	5740	---	4830	4020	1020	4190	104	83	153
31	1230	---	7800	5560	---	4720	---	1020	---	99	92	---
TOTAL	8831	54156	162694	244890	148450	280150	126740	95280	168826	16465	8963	3710
MEAN	285	1805	5248	7900	5302	9037	4225	3074	5628	531	289	124
MAX	1230	3890	10800	11000	8380	12200	4790	4130	33300	3200	904	266
MIN	161	532	790	4450	3040	4720	3100	1020	392	99	83	62
AC-FT	17520	107400	322700	485700	294500	555700	251400	189000	334900	32660	17780	7360

SABINE RIVER MAIN STEM

197

08022040 SABINE RIVER NEAR BECKVILLE, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1993#, BY WATER YEAR (WY)

MEAN	540	1548	3138	3075	3874	4233	3963	4849	2979	913	282	439
MAX	4325	8221	9866	10960	11930	12240	11330	21010	11580	3834	1725	3434
(WY)	1974	1975	1975	1992	1975	1992	1990	1966	1989	1992	1979	1974
MIN	42.5	82.1	144	239	448	445	355	317	77.5	32.1	36.7	33.8
(WY)	1964	1964	1966	1964	1964	1967	1971	1972	1971	1964	1969	1985

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1961 - 1993#

ANNUAL TOTAL	1575772		1319155		2478	
ANNUAL MEAN	4305		3614		4857	1992
HIGHEST ANNUAL MEAN					311	1964
LOWEST ANNUAL MEAN					48100	May 2 1966
HIGHEST DAILY MEAN	17500	Jan 4	33300	Jun 22	2.4	Aug 11 1964
LOWEST DAILY MEAN	161	Oct 7	62	Sep 14	3.8	Aug 7 1964
ANNUAL SEVEN-DAY MINIMUM	183	Oct 3	69	Sep 9	49400	May 2 1966
INSTANTANEOUS PEAK FLOW			35000	Jun 22	38.87	Mar 30 1989
INSTANTANEOUS PEAK STAGE			31.71	Jun 22		
INSTANTANEOUS LOW FLOW			60	Sep 14		
ANNUAL RUNOFF (AC-FT)	3126000		2617000		1796000	
10 PERCENT EXCEEDS	11700		9160		7210	
50 PERCENT EXCEEDS	2020		2260		851	
90 PERCENT EXCEEDS	358		126		82	

Period of regulated streamflow.

08022040 SABINE RIVER NEAR BECKVILLE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: February 1952 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: March 1968 to June 1981.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: February 1952 to current year.

WATER TEMPERATURE: February 1952 to current year.

REMARKS.--Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request. Formerly published as 08022000 Sabine River near Tatum.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 3,040 microsiemens Jan. 13, 1966; minimum daily, 53 microsiemens Mar. 31, 1979, Mar. 30, 1989.

WATER TEMPERATURE: Maximum daily, 38.0°C July 8, 1969; minimum daily, 0.0°C on several days during December 1983.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,270 microsiemens Sep. 18; minimum daily, 60 microsiemens June 22.

WATER TEMPERATURE: Maximum daily, 35.5°C Aug. 20 and 21; minimum daily, 8.0°C Dec. 3.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	
OCT 07...	1315	163	391	7.9	22.0	8.9	103	1.7	63	0	18	4.5	
DEC 02...	1030	2000	251	7.1	8.0	10.5	88	1.0	49	24	13	4.0	
JAN 27...	1300	6520	183	7.3	9.0	10.1	87	0.9	44	22	11	3.9	
MAR 30...	1340	4830	220	7.4	16.0	9.9	101	1.2	50	14	13	4.1	
JUL 13...	1310	335	365	8.4	27.0	8.2	103	0.2	67	5	19	4.6	
SEP 15...	1030	61	844	7.6	23.0	8.0	93	3.3	72	0	20	5.3	
DATE		SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)
OCT 07...	53	3	4.5	69	33	57	0.20	12	224	0.720	--	0.010	
DEC 02...	25	2	5.0	25	32	35	0.10	12	141	0.260	--	0.040	
JAN 27...	18	1	3.6	22	29	26	0.10	11	117	0.160	0.160	--	
MAR 30...	18	1	3.5	36	27	25	0.10	6.3	120	0.130	--	--	
JUL 13...	45	2	3.3	62	30	54	0.20	17	214	0.600	0.600	--	
SEP 15...	140	7	5.0	130	69	130	0.30	4.7	457	0.220	0.220	--	
DATE		NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	
OCT 07...	--	0.730	--	0.020	--	0.48	--	--	0.50	0.200	--		
DEC 02...	--	0.300	--	0.100	--	0.50	--	--	0.60	0.200	--		
JAN 27...	0.030	0.190	0.190	--	0.050	--	0.35	0.40	--	--	0.090		
MAR 30...	<0.010	0.130	0.130	--	0.050	--	0.35	0.40	--	--	<0.010		
JUL 13...	0.010	0.610	0.610	--	0.040	--	0.46	0.50	--	--	0.040		
SEP 15...	0.010	0.230	0.230	--	0.210	--	0.39	0.60	--	--	0.050		

SABINE RIVER MAIN STEM

199

08022040 SABINE RIVER NEAR BECKVILLE, TX--Continued

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

DATE	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 07...	--	0.130	--	--	--	--	--	--	--	--	--
DEC 02...	--	0.120	--	--	--	--	--	--	--	--	--
JAN 27...	0.040	--	0.12	--	--	--	--	--	--	--	--
MAR 30...	0.020	--	0.06	<1	48	<0.5	2.0	<5	<3	<10	150
JUL 13...	0.040	--	0.12	<1	75	<0.5	<1.0	<5	<3	<10	530
SEP 15...	0.030	--	0.09	1	62	2	<1.0	<5	<3	<10	16
OCT 07...	--	--	--	--	--	--	--	--	--	--	--
DEC 02...	--	--	--	--	--	--	--	--	--	--	--
JAN 27...	--	--	--	--	--	--	--	--	--	--	--
MAR 30...	10	6	35	<0.1	<10	<10	<1	2.0	150	<6	6
JUL 13...	<10	12	150	<0.1	<10	<10	<1	<1.0	250	<6	11
SEP 15...	<10	10	130	<0.1	10	<10	<1	<1.0	340	<6	<3
MONTH YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG)	
OCT. 1992	8831	449	247	5890	71	1700	39	928	71		
NOV. 1992	54156	237	131	19200	34	4940	24	3480	45		
DEC. 1992	162694	154	85	37400	21	9260	16	7090	31		
JAN. 1993	244890	164	91	60100	22	14800	17	11400	33		
FEB. 1993	148450	197	109	43800	27	11000	20	8170	39		
MAR. 1993	280150	172	95	72000	24	17800	18	13700	35		
APR. 1993	126740	214	118	40500	30	10200	22	7500	42		
MAY 1993	95280	213	118	30300	30	7660	22	5620	42		
JUNE 1993	168826	111	62	28100	15	6870	12	5410	23		
JULY 1993	16465	268	148	6580	39	1740	26	1150	49		
AUG. 1993	8963	375	206	5000	58	1400	34	817	63		
SEPT 1993	3710	731	399	4000	130	1340	48	481	80		
TOTAL	1319155	**	**	353000	**	88800	**	65700	**		
WTD.AVG.	3614	179	99	**	25	**	18	**	35		

SABINE RIVER MAIN STEM

08022040 SABINE RIVER NEAR BECKVILLE, TX--Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	330	410	240	180	200	190	220	220	270	250	530	550
2	340	300	250	190	200	150	210	220	240	200	520	580
3	340	220	290	200	200	160	220	220	250	180	520	580
4	360	240	340	210	210	160	230	220	280	200	540	610
5	370	200	390	200	230	150	220	230	270	210	520	630
6	390	220	410	160	220	150	240	240	280	220	550	670
7	400	290	370	130	220	140	230	220	290	250	590	680
8	430	300	380	110	230	140	190	200	300	260	690	710
9	440	380	380	e110	250	150	210	200	300	280	500	680
10	450	390	330	120	320	150	260	200	310	300	350	690
11	510	350	280	130	270	150	220	200	340	320	300	700
12	560	360	310	140	250	150	210	210	370	340	330	830
13	520	390	260	140	240	160	220	200	400	360	e300	880
14	530	330	250	150	240	170	230	200	390	390	280	880
15	540	270	180	160	220	170	210	210	350	420	310	840
16	550	230	140	160	190	170	210	210	350	430	260	1000
17	720	230	120	160	180	170	210	200	320	430	220	1250
18	780	230	110	160	170	170	200	190	300	420	240	1270
19	680	250	110	160	160	180	210	190	280	420	260	1150
20	510	250	120	160	170	180	210	200	110	440	280	1050
21	440	190	130	160	180	180	210	210	70	450	310	900
22	410	210	140	170	180	180	200	220	60	460	350	800
23	420	180	140	170	180	180	200	220	80	470	370	740
24	380	180	130	180	180	190	200	230	90	470	390	600
25	350	200	140	200	180	200	200	230	100	460	420	490
26	340	240	130	200	170	210	210	240	110	480	450	420
27	350	230	130	180	180	210	210	250	130	490	480	410
28	350	220	140	e190	170	220	210	240	180	520	480	500
29	360	200	150	e190	---	220	210	230	200	540	510	420
30	400	220	160	e200	---	210	220	250	150	540	510	430
31	430	---	170	200	---	210	---	270	---	530	520	---
MEAN	451	264	220	167	207	175	214	218	239	372	415	731
MAX	780	410	410	210	320	220	260	270	400	540	690	1270
MIN	330	180	110	110	160	140	190	190	60	60	220	410

WTR YR 1993 MEAN 306 MAX 1270 MIN 60

e Estimated

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.5	20.0	9.5	11.0	10.0	11.0	16.0	20.0	23.5	27.0	30.5	29.0
2	22.5	19.5	9.0	11.0	10.5	11.5	17.0	20.5	23.5	27.0	30.0	29.5
3	20.0	19.5	8.0	12.0	10.5	12.0	16.0	20.5	24.5	27.5	29.5	29.0
4	24.0	17.0	9.5	12.0	10.5	12.0	16.0	19.0	25.5	28.0	29.0	26.5
5	20.5	16.0	9.0	11.5	10.5	12.0	15.0	20.5	26.5	28.0	29.0	26.0
6	23.0	15.0	9.0	11.0	10.5	12.0	15.0	21.0	29.0	28.0	29.0	26.5
7	23.0	14.5	9.0	11.5	11.5	12.5	15.0	22.0	27.0	28.5	27.0	26.0
8	22.0	13.5	8.5	11.0	12.0	13.5	15.0	22.0	27.0	29.0	26.0	26.5
9	20.0	13.5	10.0	---	12.0	14.0	16.0	21.0	27.0	31.0	29.0	29.0
10	22.0	14.5	10.0	10.0	11.0	14.5	17.0	21.0	27.5	29.0	28.0	27.0
11	22.0	15.0	10.5	9.0	12.0	13.5	18.0	21.5	27.0	29.0	29.0	26.0
12	21.5	15.0	10.0	10.0	11.5	12.5	17.5	21.5	21.5	29.0	30.0	26.5
13	22.0	13.0	10.5	9.0	12.0	13.0	18.0	22.0	26.5	32.0	---	27.0
14	---	13.5	11.0	9.0	11.5	11.5	18.5	21.0	26.5	29.0	30.0	27.0
15	21.5	14.5	10.0	9.0	12.0	11.0	17.0	21.0	29.5	29.5	30.0	22.5
16	21.0	14.0	9.5	9.0	11.5	11.5	17.0	22.5	28.0	29.0	30.0	22.0
17	21.0	15.0	10.0	9.0	10.5	12.0	17.0	21.5	28.0	29.5	30.0	25.0
18	19.5	14.5	10.0	10.0	10.0	11.5	18.0	21.5	28.0	30.0	30.5	21.0
19	17.5	15.0	10.0	9.0	9.0	12.0	17.5	22.0	28.0	30.0	30.5	26.5
20	18.0	15.0	10.0	9.5	10.5	13.0	18.5	21.0	26.0	33.0	35.5	25.0
21	19.0	16.0	10.0	10.5	11.0	13.5	17.0	21.0	23.5	30.0	35.5	26.5
22	19.5	14.5	11.0	11.0	10.5	13.5	18.5	21.0	24.0	30.0	29.0	29.0
23	19.0	14.0	11.0	11.5	11.5	14.5	19.0	21.5	24.5	30.0	30.0	26.5
24	19.5	13.5	10.5	10.5	10.5	15.5	20.0	22.0	26.0	29.5	29.5	28.0
25	19.5	13.0	10.0	11.5	12.5	15.5	19.5	21.5	26.0	30.0	29.0	27.0
26	20.5	12.0	10.0	10.0	12.0	16.0	20.0	23.0	25.0	30.0	29.0	27.0
27	20.5	10.5	10.0	9.0	11.0	16.0	19.0	23.5	25.0	32.5	29.0	25.5
28	20.0	10.5	11.0	---	11.5	16.0	19.5	23.5	25.0	29.5	29.0	23.0
29	20.5	10.0	12.0	---	---	17.0	20.0	23.0	26.0	30.5	28.5	26.5
30	19.5	10.0	12.5	---	---	17.0	21.0	24.0	27.0	31.0	27.5	24.0
31	21.0	---	10.5	11.5	---	17.5	---	26.0	---	30.5	29.0	---
MEAN	20.7	14.4	10.0	10.3	11.1	13.5	17.6	21.7	26.1	29.6	29.6	26.2
MAX	24.0	20.0	12.5	12.0	12.5	17.5	21.0	26.0	29.5	33.0	35.5	29.5
MIN	17.5	10.0	8.0	9.0	9.0	11.0	15.0	19.0	21.5	27.0	26.0	21.0

WTR YR 1993 MEAN 19.3 MAX 35.5 MIN 8.0

08022060 MARTIN LAKE NEAR TATUM, TX

LOCATION.--Lat 32°15'42", long 94°34'23", Rusk County, Hydrologic Unit 12010002, on retaining wall, 30 ft to right of intake to generating plant No. 1, 1.9 mi upstream from Martin Dam on Martin Creek, 5.8 mi southwest of Tatum, and 21.9 mi upstream from mouth.

DRAINAGE AREA.--130 mi².

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

Water-quality records.--Chemical analyses: October 1974 to September 1984.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to May 15, 1976, non-recording gage near left end of dam 1.9 mi downstream at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 8,675 ft long, including a 1,000-foot uncontrolled spillway. Deliberate impoundment began in April 1974. The uncontrolled 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 tainter gates located near the left end of the dam. The low-flow outlet works consist of a 3.0-by 5.0-foot conduit with a sluice gate located in one of the gate piers. There is an 8-inch pipe with sluice gate. The area and capacity tables are based on an aerial survey made in October 1971. There are no known diversions. 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.....	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.--Area and capacity tables provided by Forrest and Cotton, Consulting Engineers, for Texas Utilities Services, Inc.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 118,000 acre-ft Mar. 29, 1989 (elevation, 313.00 ft); minimum since first appreciable storage, 54,380 acre-ft Oct. 25, 1988 (elevation, 300.87 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 83,500 acre-ft June 21 at 1200 hours (elevation, 307.17 ft); minimum, 61,650 acre-ft Oct. 29 (elevation, 302.61 ft).

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

302.0	59,030	305.0	72,580	307.0	82,620
303.0	63,360	306.0	77,500	308.0	87,960
304.0	67,880				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64790	63580	66190	76950	77650	77600	79170	77750	77400	77800	73790	69410
2	64560	63540	66190	77050	77700	76950	79220	78100	77400	77850	73500	69220
3	64380	63230	66140	77200	77750	76850	77100	76900	77350	77700	73360	68990
4	64210	63180	65920	77700	77250	77100	76900	76950	77300	77600	73210	68890
5	64020	63100	66010	77100	76900	77350	77250	77000	77250	77500	73020	68660
6	63850	63010	66010	77400	77100	76950	77400	77050	77150	77350	73210	68520
7	63820	62920	66010	78000	77250	77150	77650	77050	77100	77350	73160	68380
8	63710	62830	66010	77900	77350	77300	77550	76950	77050	77250	73070	68200
9	63540	62790	66280	77550	77400	77450	78050	77250	77000	77200	73070	68010
10	63450	62790	66320	78860	77600	77400	78200	77500	76900	77150	72830	67830
11	63320	62830	66320	77300	77600	77600	78460	77550	76850	77100	72730	67690
12	63230	62870	66320	77300	77650	78510	78460	77550	76750	77000	72580	67550
13	63100	62870	66370	77500	77700	77750	78610	77500	76650	76950	72390	67410
14	62920	62790	67690	77700	77750	78200	77050	77500	76550	76900	72250	67460
15	62830	62830	76500	77850	79630	77300	76350	77450	76500	76850	72100	67320
16	63010	62700	77250	78000	77700	78100	76550	77400	76550	76250	71960	67190
17	62830	62660	77500	78200	76900	77700	76750	77300	76750	76100	71770	67090
18	62700	62610	77750	77650	77150	78000	76850	78560	77150	75950	71670	67000
19	62610	63010	77900	77250	77400	77500	76850	77450	77500	75850	71440	67000
20	62520	64070	76850	77450	77650	77200	77300	77600	81740	75760	71290	66960
21	62390	65190	77000	78100	77000	78200	76800	77750	78050	75660	71250	66870
22	62300	65780	77150	77600	77200	77250	76850	77950	78000	75460	71060	66780
23	62260	65870	77800	76500	77250	77900	76900	78150	77500	75260	70870	66690
24	62170	66280	78100	76700	77300	78200	76950	78310	77400	75070	70680	66590
25	62090	66320	78200	76850	77050	78460	76900	78310	77850	74870	70540	66370
26	62000	66280	76850	77000	77000	78710	76900	78100	77450	74770	70300	66910
27	61820	66320	76400	77100	77350	78910	76900	77900	77850	74570	70110	66730
28	61740	66320	76600	77200	77250	78960	76850	77750	77400	74480	69970	66640
29	62520	66320	76700	77300	---	79120	77050	77550	77550	74280	69880	66550
30	63010	66280	76850	77450	---	79270	77150	78150	77650	74130	69690	66460
31	63100	---	76850	77550	---	79220	---	77400	---	73990	69500	---
MAX	64790	66320	78200	78860	79630	79270	79220	78560	81740	77850	73790	69410
MIN	61740	62610	65920	76500	76900	76850	76350	76900	76500	73990	69500	66370
(↑)	302.94	303.65	305.87	306.01	305.95	306.34	305.93	305.98	306.03	305.29	304.35	303.69
(Φ)	-1930	+3180	+10570	+700	-300	+1970	-2070	+250	+250	-3660	-4490	-3040
CAL YR 1992	MAX	79070	MIN	61740	(Φ)	-300						
WTR YR 1993	MAX	81740	MIN	61740	(Φ)	+1430						

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

(Φ) Change in contents, in acre-feet.

SABINE RIVER BASIN

08022070 MARTIN CREEK NEAR TATUM, TX

LOCATION.--Lat 32°17'44", long 94°29'29", Panola County, Hydrologic Unit 1201002, on right bank, 35 ft downstream from right abutment, 360 ft to right of bridge on State Highway 149, 50 ft upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 1.7 mi upstream from Hogan Creek, 2.0 mi southeast of Tatum, 5.0 mi downstream from Martin Lake, and 15.0 mi upstream from mouth.

DRAINAGE AREA.--148 mi².

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

REVISED RECORDS.--WDR TX-76-1: 1975; WDR TX-91-1: 1989 & 1990.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 240.26 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 31, 1978, at site 50 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow is largely regulated by Martin Lake, located 5 mi upstream. Peak discharge from rating extended above 10,400 ft³/s. Several observations of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORDS.--The third highest stage since 1948 occurred in April 1969 and reached a stage of 18.15 ft. A flood in April 1957 reached a stage of 13.95 ft, from information by State Department of Highways and Public Transportation.

REVISIONS.--The maximum discharges for water years 1988 thru 1992 have been revised using a redefined rating extended above 10,400 ft³/s superseding figures published in reports for 1988 thru 1992. Revised maximums are:

1988: 8,640 ft³/s, Dec. 28 at 1230 hours (gage height, 15.20)
 1989: 28,400 ft³/s, Mar. 29 at 2200 hours (gage height, 19.52)
 1990: 15,700 ft³/s, May 13 at 0300 hours (gage height, 17.05)
 1991: 13,100 ft³/s, Apr. 15 at 0015 hours (gage height, 16.44)
 1992: 6,340 ft³/s, Jan. 28 at 0330 hours (gage height, 14.58)

Revised daily discharges in feet cubed per second for days in water years 1988 thru 1992 are as follows:

WATER YEAR 1988

Dec. 27.....3180
 28.....7390

	TOTAL	MEAN	MAX	MIN	AC-FT
December 1987.....	19852	640	7390	12	39380
CAL YR 1987.....	43192.2	118	7390	1.7	85670
WTR YR 1988.....	46015.1	126	7390	1.3	91270

WATER YEAR 1989

Mar. 29.....16700
 30.....e10400
 May 17.....4260
 June 5.....9190
 6.....3530
 8.....2990

	TOTAL	MEAN	MAX	MIN	AC-FT
March 1989.....	32408	1045	16700	11	64280
May 1989.....	10560.2	341	4260	6.5	20950
June 1989.....	27739.8	925	9190	9.5	55020
WTR YR 1989.....	97724.5	268	16700	5.0	193800

WATER YEAR 1990

May 12.....4390
 13.....7650
 20.....686

	TOTAL	MEAN	MAX	MIN	AC-FT
May 1990.....	19116	617	7650	10	37290
CAL YR 1989.....	96107.9	263	16700	1.1	190600
WTR YR 1990.....	52842.7	145	7650	1.1	104800

WATER YEAR 1991

Nov. 10.....4190
 Jan. 10.....4630
 Apr. 14.....9880
 15.....5240
 29.....4740

	TOTAL	MEAN	MAX	MIN	AC-FT
November 1990.....	9697.5	323	4190	8.5	19230
January 1991.....	22106	713	4630	27	43850
April 1991.....	32953	1098	9880	19	65630
CAL YR 1990.....	67315.4	184	7650	5.4	133500
WTR YR 1991.....	102132.4	280	9880	5.9	202600

WATER YEAR 1992

Jan. 28.....3270

	TOTAL	MEAN	MAX	MIN	AC-FT
January 1992.....	14704	474	3270	21	29170
CAL YR 1991.....	112840.6	309	9880	6.6	223800
WTR YR 1992.....	67875.6	185	3270	4.8	134600

SABINE RIVER BASIN

203

08022070 MARTIN CREEK NEAR TATUM, TX--Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.7	29	e8.8	24	20	633	21	40	247	21	5.1	4.2
2	5.0	18	8.5	25	20	2890	20	46	20	18	5.0	4.5
3	5.1	11	7.9	23	19	1380	592	428	13	16	5.0	4.5
4	4.9	9.1	8.9	133	42	254	750	391	12	15	5.1	4.6
5	5.2	10	9.0	773	611	36	574	31	11	14	5.4	4.7
6	5.5	8.8	9.3	1050	217	92	67	19	11	12	6.2	4.7
7	5.4	9.3	10	124	29	329	86	16	11	11	9.9	4.8
8	6.8	8.4	9.8	86	23	35	1610	15	11	11	8.8	5.0
9	5.9	8.9	23	649	21	25	591	15	9.4	10	6.5	5.0
10	5.9	9.6	21	1070	23	24	59	56	7.0	9.7	5.7	5.3
11	6.6	10	13	584	26	49	26	22	35	9.7	5.4	4.9
12	6.6	18	11	1040	21	1600	23	16	223	9.4	6.1	4.8
13	6.2	12	10	510	19	2230	22	15	22	9.1	5.5	4.8
14	7.5	10	27	107	19	262	250	13	14	8.6	5.3	5.5
15	7.2	9.5	811	30	151	232	1560	12	13	8.5	5.3	4.9
16	11	9.6	316	26	2520	663	343	11	13	8.5	5.3	4.3
17	8.2	9.8	1050	24	1800	188	31	9.9	14	7.7	5.3	4.2
18	8.2	10	165	1360	583	484	21	10	16	5.6	5.3	4.3
19	6.9	e26	31	1180	55	48	18	179	21	5.3	5.1	4.4
20	7.5	e26	53	1430	30	1120	51	757	9470	5.1	5.1	4.9
21	6.9	e20	875	307	58	374	39	68	22900	5.3	5.2	4.7
22	6.7	e31	92	52	426	240	428	14	2160	5.2	5.3	4.6
23	6.8	e25	59	1120	60	654	74	11	1310	5.2	5.2	4.9
24	7.0	e22	46	427	20	76	21	15	613	5.1	4.3	4.9
25	7.0	e22	30	43	543	29	18	17	583	5.0	2.9	5.1
26	6.9	e14	33	27	905	27	17	13	1620	5.0	2.5	7.3
27	7.4	e11	1340	24	801	24	15	11	642	4.9	2.5	7.8
28	7.9	e9.7	187	23	66	23	14	12	376	4.9	2.7	6.0
29	10	e9.3	32	26	---	22	19	26	357	5.0	3.1	5.5
30	60	e9.0	25	26	---	24	23	14	38	5.0	3.6	5.5
31	18	---	23	22	---	23	---	169	---	5.1	3.9	---
TOTAL	274.9	436.0	5345.2	12345	9128	14090	7383	2471.9	40792.4	270.9	157.6	150.6
MEAN	8.87	14.5	172	398	326	455	246	79.7	1360	8.74	5.08	5.02
MAX	60	31	1340	1430	2520	2890	1610	757	22900	21	9.9	7.8
MIN	4.7	8.4	7.9	22	19	22	14	9.9	7.0	4.9	2.5	4.2
AC-FT	545	865	10600	24490	18110	27950	14640	4900	80910	537	313	299

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1993#, BY WATER YEAR (WY)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MEAN	18.6	41.8	155	175	297	223	162	155	196	22.9	11.8	7.83							
MAX	151	323	640	713	880	1045	1098	617	1360	198	119	37.4							
(WY)	1992	1991	1988	1991	1983	1989	1991	1990	1993	1976	1977	1979							
MIN	1.40	2.15	3.72	3.07	12.2	5.46	4.12	5.84	3.51	1.85	1.65	1.37							
(WY)	1981	1978	1981	1981	1981	1986	1981	1977	1978	1977	1982	1980							

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1975 - 1993#

ANNUAL TOTAL	47896.7	92845.5	
ANNUAL MEAN	131	254	
HIGHEST ANNUAL MEAN			121
LOWEST ANNUAL MEAN			280
HIGHEST DAILY MEAN	3270	22900	21.6
LOWEST DAILY MEAN	4.7	2.5	.42
ANNUAL SEVEN-DAY MINIMUM	5.1	3.0	.91
INSTANTANEOUS PEAK FLOW		31900	31900
INSTANTANEOUS PEAK STAGE		20.09	a/20.09
INSTANTANEOUS LOW FLOW		2.3	.25
ANNUAL RUNOFF (AC-FT)	95000	184200	87650
10 PERCENT EXCEEDS	445	612	279
50 PERCENT EXCEEDS	13	17	9.9
90 PERCENT EXCEEDS	6.0	5.0	2.7

Period of regulated streamflow.

a/ Maximum stage since at least 1948.

SABINE RIVER MAIN STEM

08022500 SABINE RIVER AT LOGANSPOUT, LA

LOCATION.--Lat 31°58'20", long 94°00'22", De Soto Parish, Louisiana-Shelby County, Texas State line at Logansport, Hydrologic Unit 12010004, on left bank just upstream from bridge on U.S. Highway 84, 3 mi upstream from Bayou Castor, 111 mi upstream from Toledo Bend Dam, and at mile 267.1.

DRAINAGE AREA.--4,842 mi².

PERIOD OF RECORD.--Gage-height record March 1968 to current year. Daily discharge record July 1903 to February 1968.

REVISED RECORDS.--WSP 1312: 1903-6 (monthly and annual means). WSP 1732: 1929(M), 1933(M).

GAGE.--Water-stage recorder. Datum of gage is 147.72 ft above National Geodetic Vertical Datum of 1929. July 1, 1903, to Sept. 30, 1956, nonrecording gage. Oct. 1, 1956, to Jan. 16, 1964, water-stage recorder 4,600 ft upstream. Jan. 16, 1964, to Dec. 10, 1968, water-stage recorder 4,700 ft upstream. All gages to present datum except prior to Dec. 31, 1906 when datum was 2.00 ft lower.

REMARKS.--Gage-height records good, except those for missing periods, which were not published. Station discontinued as a daily streamflow station on Mar. 1, 1968, due to backwater from storage in Toledo Bend Reservoir (station 08025350). Ten major reservoirs, with a combined capacity of 1,824,000 acre-ft, largely regulate the flow. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08018500. Numerous diversions above station for oil field operations, municipal, and industrial uses. Gage-height telemeter at station.

AVERAGE DISCHARGE.--64 years (water years 1904-67), 3,208 ft³/s (2,324,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height (1968-91), 34.78 ft Apr. 16, 1991; minimum since initial filling of Toledo Bend Reservoir in June 1968, 16.85 ft Nov. 9, 1987. Maximum discharge (1903-67), 92,000 ft³/s Apr. 8, 1945 (gage height, 44.07 ft, from floodmark); minimum, 16 ft³/s Sept. 26-28, Oct. 3, 4, 1939. Maximum stage since at least 1884, that of Apr. 8, 1945.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1884 reached a stage of 39.4 ft, present site and datum.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 33.12 ft June 25 at 1530 hours; minimum, 17.39 ft at 0730 on Sept. 27.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.24	20.11	20.27	23.52	24.30	23.66	25.02	24.24	22.75	27.53	22.59	20.07
2	20.19	20.42	20.11	23.53	24.14	23.94	25.18	24.39	22.90	26.63	22.55	19.95
3	20.20	19.95	20.13	23.50	23.94	24.06	25.18	24.26	23.07	25.95	22.59	19.71
4	20.20	20.10	19.70	23.15	23.71	24.10	24.83	24.30	22.72	25.54	22.51	19.63
5	20.16	20.15	19.83	23.12	23.55	24.38	24.95	24.06	22.71	25.32	22.56	19.52
6	20.16	20.10	19.83	23.19	23.47	24.60	25.18	23.94	22.82	25.12	22.14	19.40
7	20.35	20.11	19.75	23.39	23.44	24.55	25.48	23.91	22.96	24.90	22.37	19.30
8	---	20.10	19.83	23.62	23.34	24.36	25.83	23.98	22.77	24.66	22.38	19.24
9	---	20.03	19.83	23.91	23.20	24.20	26.08	23.72	22.71	24.45	22.43	19.16
10	---	19.98	19.80	23.99	23.12	23.94	26.26	23.48	22.52	24.42	21.26	18.97
11	---	19.94	19.86	24.27	22.88	24.06	26.23	23.56	22.58	24.16	21.42	18.92
12	---	19.96	19.96	24.39	22.86	24.72	26.10	23.41	22.46	24.01	21.35	19.07
13	---	19.91	19.90	24.50	22.79	25.27	25.72	23.42	22.50	23.90	20.94	19.08
14	---	19.91	20.03	24.63	22.71	25.74	25.42	23.38	22.47	23.82	20.76	18.46
15	---	19.94	21.28	24.70	22.68	26.26	25.19	23.36	22.43	23.59	21.16	18.32
16	---	19.95	22.26	24.67	22.94	26.66	25.19	23.31	22.47	23.43	---	18.37
17	---	19.87	22.62	24.66	23.28	26.91	25.28	23.28	22.47	23.50	---	18.17
18	---	19.83	22.80	24.72	23.67	27.07	25.38	23.22	22.39	23.36	---	18.23
19	---	19.98	23.16	25.07	24.10	27.06	25.31	23.15	22.39	23.27	---	18.24
20	---	19.86	23.50	25.54	24.23	27.24	24.92	23.20	22.78	23.20	21.20	18.08
21	---	20.10	23.88	25.94	23.95	27.24	24.83	23.25	23.45	23.16	21.15	17.95
22	---	20.23	24.03	26.11	23.60	27.16	24.88	23.40	24.16	23.16	21.20	17.83
23	---	20.51	24.20	26.26	23.24	27.11	25.08	23.20	28.37	23.18	21.16	17.73
24	---	20.64	24.12	26.07	22.94	27.04	24.88	22.98	32.52	23.11	21.03	17.64
25	---	20.55	24.02	25.91	22.96	26.82	24.50	22.98	32.98	23.03	20.88	17.66
26	---	20.39	23.91	25.71	22.99	26.60	24.42	22.99	32.38	22.84	20.57	17.57
27	---	20.39	23.86	25.49	23.11	26.30	24.32	22.95	31.44	22.79	20.55	17.76
28	19.78	20.44	23.76	25.20	23.28	25.94	24.30	22.95	30.59	22.75	20.55	17.71
29	19.85	20.43	23.72	24.87	---	25.63	24.11	22.87	29.56	22.60	20.38	17.69
30	19.91	20.31	23.68	24.63	---	25.46	23.95	22.91	28.50	22.67	20.36	17.82
31	20.16	---	23.55	24.46	---	25.31	---	22.59	---	22.60	20.14	---
MAX	---	20.64	24.20	26.26	24.30	27.24	26.26	24.39	32.98	27.53	---	20.07
MIN	---	19.83	19.70	23.12	22.68	23.66	23.95	22.59	22.39	22.60	---	17.57

08025350 TOLEDO BEND RESERVOIR NEAR BURKEVILLE, TX

LOCATION.--Lat 31°10'25", long 93°33'57". Newton County, Hydrologic Unit 12010004, in powerhouse at right end of Toledo Bend Dam on Sabine River, 15 mi northeast of Burkeville, and at mile 156.5.

DRAINAGE AREA.--7,178 mi².

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Sabine River Authority). Prior to July 20, 1967, nonrecording gage at same site and datum. July 20, 1967, to June 30, 1973, recording gage at right end of spillway 1.6 mi north of present site and at same datum.

REMARKS.--The reservoir is formed by a rolled earthfill dam. Closure of embankment completed and deliberate impoundment began Oct. 3, 1966. The reservoir is operated for hydro-electric power generation and water conservation. Releases during high inflow periods are controlled by eleven 40- x 28-foot tainter gates. An 8.33- x 12-foot gated conduit through the dam is used for low-flow releases. Two additional 20-inch-diameter conduits, that bypass the larger conduit, may also be used for low-flow releases. Water for turbines is admitted through four 16.75- x 29-foot penstocks and controlled by vertically operated caterpillar-type gates. The capacity table is based on U.S. Geological Survey topographic maps. For statement regarding regulation by upstream reservoirs, see station 08020000. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	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 the Sabine River Authority.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 4,840,000 acre-ft May 18, 1989 (elevation, 173.95 ft); minimum since initial filling of reservoir in June 1968, 3,290,000 acre-ft Nov. 14, 15, 1987 (elevation, 164.78 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 4,642,000 acre-ft June 29 at 1500 hours to June 30 at 1400 hours (elevation, 172.90 ft); minimum, 3,324,000 acre-ft Sept. 30 (elevation, 165.01 ft).

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

164.0	3,175,000	168.0	3,788,000	172.0	4,476,000
166.0	3,473,000	170.0	4,123,000	173.0	4,660,000

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3786000	3746000	3738000	4092000	4358000	4024000	4585000	4376000	4193000	4621000	4089000	3734000
2	3774000	3718000	3737000	4091000	4345000	4055000	4524000	4385000	4166000	4620000	4089000	3710000
3	3770000	3811000	3724000	4096000	4333000	4062000	4528000	4374000	4158000	4603000	4062000	3705000
4	3766000	3777000	3746000	4142000	4318000	4072000	4568000	4351000	4172000	4572000	4053000	3689000
5	3761000	3745000	3726000	4123000	4310000	4080000	4531000	4351000	4172000	4533000	4023000	3673000
6	3759000	3743000	3716000	4123000	4290000	4092000	4511000	4329000	4158000	4529000	4023000	3649000
7	3724000	3734000	3713000	4146000	4262000	4106000	4570000	4297000	4139000	4493000	4021000	3631000
8	3743000	3724000	3703000	4158000	4245000	4111000	4623000	4266000	4144000	4480000	4019000	3614000
9	3734000	3721000	3713000	4187000	4217000	4109000	4618000	4297000	4140000	4447000	4014000	3592000
10	3750000	3724000	3708000	4207000	4194000	4132000	4588000	4262000	4146000	4417000	4004000	3575000
11	3740000	3724000	3706000	4215000	4194000	4140000	4596000	4264000	4139000	4381000	3987000	3550000
12	3734000	3738000	3702000	4219000	4166000	4280000	4574000	4262000	4147000	4352000	3970000	3521000
13	3716000	3726000	3692000	4227000	4147000	4264000	4557000	4245000	4146000	4318000	3961000	3495000
14	3710000	3721000	3695000	4212000	4123000	4278000	4583000	4241000	4144000	4280000	3960000	3540000
15	3721000	3719000	3770000	4200000	4113000	4292000	4555000	4224000	4140000	4280000	3958000	3506000
16	3748000	3708000	3803000	4198000	4104000	4383000	4550000	4219000	4123000	4245000	3946000	3485000
17	3740000	3708000	3818000	4184000	4089000	4412000	4518000	4210000	4123000	4233000	3935000	3464000
18	3732000	3708000	3821000	4213000	4070000	4433000	4494000	4233000	4109000	4247000	3920000	3446000
19	3719000	3703000	3854000	4252000	4046000	4453000	4507000	4227000	4130000	4231000	3908000	3429000
20	3718000	3735000	3870000	4335000	4023000	4504000	4511000	4227000	4158000	4227000	3892000	3419000
21	3719000	3726000	3887000	4365000	4055000	4524000	4491000	4226000	4198000	4207000	3884000	3404000
22	3718000	3735000	3904000	4385000	4040000	4561000	4467000	4198000	4234000	4191000	3870000	3381000
23	3716000	3740000	3958000	4395000	4038000	4583000	4429000	4213000	4259000	4172000	3859000	3369000
24	3711000	3745000	3972000	4410000	4006000	4588000	4415000	4236000	4315000	4165000	3869000	3351000
25	3708000	3751000	4016000	4428000	4038000	4586000	4429000	4241000	4392000	4147000	3851000	3345000
26	3706000	3756000	4026000	4406000	4013000	4577000	4412000	4238000	4474000	4151000	3837000	3364000
27	3710000	3745000	4045000	4404000	4004000	4575000	4386000	4226000	4574000	4140000	3821000	3352000
28	3702000	3730000	4052000	4404000	4004000	4555000	4358000	4215000	4623000	4123000	3806000	3346000
29	3700000	3730000	4063000	4406000	---	4546000	4365000	4215000	4642000	4108000	3790000	3342000
30	3724000	3740000	4074000	4390000	---	4562000	4335000	4210000	4634000	4103000	3758000	3324000
31	3711000	---	4108000	4369000	---	4561000	---	4227000	---	4092000	3751000	---
MAX	3786000	3811000	4108000	4428000	4358000	4588000	4623000	4385000	4642000	4621000	4089000	3734000
MIN	3700000	3703000	3692000	4091000	4004000	4024000	4335000	4198000	4109000	4092000	3751000	3324000
(↑)	167.52	167.70	169.91	171.40	169.30	172.46	171.21	170.60	172.86	169.82	167.77	165.01
(Φ)	-79000	+29000	+368000	+261000	-365000	+557000	-226000	-108000	+407000	-542000	-341000	-427000
CAL YR 1992	MAX	4679000	MIN	3692000	(Φ)	+349000						
WTR YR 1993	MAX	4642000	MIN	3324000	(Φ)	-466000						

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

SABINE RIVER MAIN STEM

08025360 SABINE RIVER AT TOLEDO BEND RESERVOIR NEAR BURKEVILLE, TX

LOCATION.--Lat 31°10'25", Long 93°33'57", Newton County, Hydrologic Unit 12010005, in powerhouse at right end of Toledo Bend Dam, 10 mi upstream from Sabine River near Burkeville gage, and at mile 156.5.

DRAINAGE AREA.--7,178 mi².

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

Water-quality records.--Chemical and biochemical analyses: October 1967 to September 1986.

GAGE.--Water-stage recorders. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Sabine River Authority).

REMARKS.--No estimated daily discharges. Records poor. Daily discharges are a combination of releases from various outlets at the dam. Discharges for releases through the turbines are computed using scroll case differential pressure relationships and operation logs. Tainter gate releases, low-flow sluiceway releases, bypass gate releases, and turbine leakages are based on discharge measurements and operation logs.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 114,000 ft³/s May 19, 1989; minimum daily (estimated), 30 ft³/s Oct. 1-4, 1972.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3210	217	4020	7540	14900	7060	14600	14300	3850	23100	204	7520
2	3240	1420	3870	7430	15000	7480	14500	14800	2550	17900	4630	7490
3	134	1390	3820	7290	14800	10600	14600	14800	2710	14000	5650	7510
4	134	3160	3860	7410	14700	8950	14600	14800	2630	14000	5480	7480
5	1510	3530	3990	7520	14700	7360	14600	14700	204	13900	5320	7650
6	1510	3310	4100	7310	15100	4940	14800	14600	204	14100	5730	7790
7	1360	3320	4030	7350	14800	7360	14600	14800	2550	14500	174	7600
8	1460	3290	4050	7400	15000	7430	19700	14600	2550	14000	174	7470
9	1390	3570	3940	7310	15100	7170	26300	14700	1940	14200	5230	7460
10	134	2640	3930	7670	15100	6610	24900	14700	3410	14200	5690	7470
11	134	3560	134	6360	15000	7840	19900	13500	2980	14100	5560	7460
12	1440	2670	3860	10000	15100	7910	19800	7180	174	14300	5970	7720
13	1450	2720	3820	11100	15100	7370	19800	7030	174	14300	6330	7720
14	1480	2700	3780	14800	15300	7150	19800	7020	2760	14200	174	7420
15	1510	2680	5310	14700	15300	7150	19800	7110	2720	14200	174	7660
16	1440	2710	7510	14500	15300	7090	19800	7090	2740	5820	5670	7700
17	134	2800	7480	14500	15400	7210	14600	6240	2550	204	5720	7660
18	134	2680	7570	14400	15300	7390	14700	4560	2880	204	5440	7640
19	1470	2720	7520	14500	15200	7360	14700	3800	174	5510	5760	7730
20	1470	2680	7490	14600	15300	6280	14800	3600	174	5580	5890	7630
21	1430	2720	7430	14600	15200	12700	14600	3830	2950	5620	5130	7900
22	1440	2630	7300	14300	15500	14900	14900	3770	6720	5660	202	7900
23	1450	2550	7500	12700	15200	18000	14900	3920	6920	5580	174	7010
24	134	3920	7300	15200	15100	20200	14700	3720	10800	204	174	8110
25	134	3900	7580	15300	15100	20000	14600	3600	14400	204	5770	174
26	1410	3880	7310	15300	15600	19800	14700	3550	14300	5150	7440	174
27	1350	3900	7400	14900	15200	19800	14500	4500	13100	5610	7520	155
28	1350	3880	7540	15000	9460	19800	14900	4040	22300	5820	7230	144
29	1260	3860	7430	15100	---	16700	10500	4200	25200	6050	7400	144
30	1500	3900	7340	14800	---	14800	14300	3540	24700	5660	7530	144
31	164	---	7560	14800	---	14400	---	3710	---	204	7390	---
TOTAL	36366	88907	175774	365690	417860	338810	493500	256310	181314	288080	140930	183635
MEAN	1173	2964	5670	11800	14920	10930	16450	8268	6044	9293	4546	6121
MAX	3240	3920	7580	15300	15600	20200	26300	14800	25200	23100	7530	8110
MIN	134	217	134	6360	9460	4940	10500	3540	174	204	174	144
AC-FT	72130	176300	348600	725300	828800	672000	978900	508400	359600	571400	279500	364200

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

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MEAN	1111	1775	5659	9364	10020	9748	8214	8305	6659	5034	3607	2962										
MAX	6809	6567	17720	27680	20510	21450	19270	22170	24960	18790	6732	7323										
(WY)	1992	1974	1975	1974	1975	1992	1991	1991	1989	1989	1976	1991										
MIN	59.0	50.7	74.5	90.0	339	231	247	311	1999	1004	764	424										
(WY)	1976	1976	1976	1978	1981	1972	1978	1984	1982	1988	1984	1983										

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1972 - 1993

ANNUAL TOTAL	2703928	2967176	6021	1975
ANNUAL MEAN	7388	8129	10070	1981
HIGHEST ANNUAL MEAN			1588	1981
LOWEST ANNUAL MEAN			114000	May 19 1989
HIGHEST DAILY MEAN	37000	Mar 8	26300	Apr 9
LOWEST DAILY MEAN	134	Sep 13	134	Oct 3
ANNUAL SEVEN-DAY MINIMUM	731	Apr 27	1010	Oct 23
ANNUAL RUNOFF (AC-FT)	5363000	5885000	4362000	
10 PERCENT EXCEEDS	14800	15100	14800	
50 PERCENT EXCEEDS	3930	7310	3880	
90 PERCENT EXCEEDS	164	843	130	

08026000 SABINE RIVER NEAR BURKEVILLE, TX

LOCATION.--Lat 31°03'50", long 93°31'10". Newton County, Texas-Vernon Parish, Louisiana State line, Hydrologic Unit 12010005, near left edge of low-water channel at downstream side of bridge on State Highway 63, about 200 ft downstream from Pearl Creek, 10 mi northeast of Burkeville, 16 mi downstream from Bayou Toro, and at mile 139.7.

DRAINAGE AREA.--7,482 mi².

PERIOD OF RECORD.--September 1955 to current year. Published as "below Toledo Bend near Burkeville" for period 1955-75. Water-quality records.--Chemical and biochemical analyses: May 1968 to September 1986. Pesticide analyses: October 1972 to September 1981.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 60.59 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 23, 1958, nonrecording gage at current site. Prior to Jan. 1, 1989, at datum 10.00 ft higher.

REMARKS.-- No estimated daily discharges. Records good. Flow regulated by Toledo Bend Reservoir (station 08025350) 16.8 mi upstream, capacity, 4,660,000 acre-ft. National Weather Service rain gage and gage-height telemeters at gage.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--11 years (water years 1956-66) prior to completion of Toledo Bend Reservoir, 4,653 ft³/s (3,371,000 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1956-66).--Maximum discharge, 52,900 ft³/s May 15, 1957 (gage height, 32.43 ft); minimum, 60 ft³/s Sept. 26-30, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1860: Flood in May 1884 reached a stage of 45.9 ft, current datum, from information by local resident. Flood of Apr. 15, 1945, reached a stage of 45.8 ft, current datum. Flood of May 23, 1953, reached a stage of 45.3 ft, current datum, from floodmarks.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3300	699	3830	7430	14300	8030	15500	14500	4120	24300	506	7350
2	3230	971	3840	7400	14200	9280	15300	15600	3740	20400	2690	7280
3	1730	1680	3750	7380	14200	10200	14500	15600	2810	15400	5270	7360
4	243	2190	3700	7670	14200	11600	15600	14900	2990	14000	5140	7500
5	700	4380	3960	7880	14200	7770	16200	14600	1980	14000	5090	7580
6	1470	3580	3990	7590	14600	6570	15500	14600	498	14100	5280	7480
7	1450	3300	4040	7910	14400	5910	15100	14700	1570	14300	2800	7660
8	1420	3290	3880	8550	14500	7270	21100	14700	2740	14200	549	7610
9	1440	3350	3130	8040	14400	7230	28200	14500	2330	14100	2810	7750
10	912	2720	5290	7890	14400	6840	29400	14800	3120	14200	5380	7810
11	203	2900	1910	6920	14500	7540	24700	14800	3530	14500	5560	7810
12	608	3380	2830	8320	14500	8610	20800	9320	2190	14500	5550	7870
13	1340	2720	4030	11700	14500	8820	20000	7290	484	14500	5670	7810
14	1400	2710	3890	13700	14600	8060	19800	7110	1440	14400	2620	7770
15	1420	2630	5550	14700	14800	7450	19800	7280	3140	14400	406	7750
16	1460	2810	10100	14500	14800	7990	18500	7220	2990	8970	3050	7910
17	969	2660	8890	14300	14800	8250	14900	7210	2830	3150	5400	7870
18	186	2630	8100	14300	14700	8030	14400	4820	3190	644	5470	7790
19	637	2450	7790	14800	14600	7650	14500	4560	1850	3830	5580	7830
20	1450	2850	7680	16700	14700	7910	14500	3640	519	5830	5480	7720
21	1440	3210	7700	17400	14600	11100	14200	4270	1360	5950	5330	7760
22	1370	4160	7760	16500	14800	15100	14500	4580	6630	6010	2820	7920
23	1500	3490	7720	13100	14700	18700	14500	3710	7170	6050	407	7330
24	1030	3760	8330	14700	14500	21400	14500	4020	9210	2620	336	8110
25	208	4660	8470	14800	14600	20700	14500	4230	14300	518	3140	3050
26	490	3780	8250	14800	15200	20100	14400	4280	14500	3480	7000	556
27	1470	4090	7740	14500	15200	19500	14300	3990	14100	5850	7350	444
28	1450	3820	7680	14400	11800	19500	14700	4160	19400	5700	7090	409
29	1490	3740	7520	14600	---	18300	11600	4510	23900	5790	7100	376
30	1510	3750	7490	14300	---	15100	13600	4120	24700	6430	7300	344
31	1220	---	7580	14300	---	14500	---	3840	---	2710	7350	---
TOTAL	38746	92360	186420	371080	405300	355010	509100	267460	183331	304832	135524	189809
MEAN	1250	3079	6014	11970	14470	11450	16970	8628	6111	9833	4372	6327
MAX	3300	4660	10100	17400	15200	21400	29400	15600	24700	24300	7350	8110
MIN	186	699	1910	6920	11800	5910	11600	3640	484	518	336	344
AC-FT	76850	183200	369800	736000	803900	704200	1010000	530500	363600	604600	268800	376500

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

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MEAN	1156	1734	5535	8570	9137	9729	8565	8357	6470	4764	3262	2821															
MAX	6846	6737	17940	28510	21470	22180	26530	23660	25310	23750	6662	7099															
(WY)	1992	1974	1975	1974	1975	1969	1969	1991	1989	1989	1976	1991															
MIN	82.5	86.2	247	484	266	485	231	471	400	292	91.7	77.6															
(WY)	1968	1968	1968	1968	1968	1968	1971	1967	1970	1967	1967	1967															

SUMMARY STATISTICS

	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1967 - 1993#
ANNUAL TOTAL	2837238	3038972	
ANNUAL MEAN	7752	8326	5827
HIGHEST ANNUAL MEAN			10730
LOWEST ANNUAL MEAN			548
HIGHEST DAILY MEAN	36300	29400	111000
LOWEST DAILY MEAN	186	186	38
ANNUAL SEVEN-DAY MINIMUM	1050	1050	41
INSTANTANEOUS PEAK FLOW		29700	116000
INSTANTANEOUS PEAK STAGE		34.18	47.45
ANNUAL RUNOFF (AC-FT)	5628000	6028000	4222000
10 PERCENT EXCEEDS	16300	15100	15300
50 PERCENT EXCEEDS	4210	7430	2940
90 PERCENT EXCEEDS	1320	1440	243

Period of regulated streamflow.

SABINE RIVER MAIN STEM

08028500 SABINE RIVER NEAR BON WIER, TX

LOCATION.--Lat 30°44'49", long 93°36'30", Beauregard Parish, Louisiana-Newton County, Texas State line, Hydrologic Unit 12010005, near left bank at downstream side of bridge on U.S. Highway 190, 0.7 mi upstream from Quicksand Creek, 0.8 mi upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 2.0 mi east of Bon Wier, 2.4 mi upstream from Caney Creek, and at mile 97.7.

DRAINAGE AREA.--8,229 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--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.

REVISED RECORDS.--WSP 1342: 1953. WSP 1442: 1924, 1926-27(M), 1929(M), 1939. WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 33.42 ft above National Geodetic Vertical Datum of 1929. Prior to July 8, 1931, nonrecording gage at site 0.8 mi downstream at datum 13.00 ft higher. July 8, 1931, to Oct. 15, 1958, nonrecording gage at present site at datum 13.00 ft higher. Oct. 16, 1958, to Sept. 30, 1975, water-stage recorder at present site at datum 13.00 ft higher. Oct. 1, 1975, to Dec. 31, 1988, at present site at datum 10.00 ft higher.

REMARKS.--No estimated daily discharges, records good. Since October 1966, flow regulated by Toledo Bend Reservoir (station 08025350) 58.8 mi upstream. Gage-height telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--43 years (water years 1924-66) prior to completion of Toledo Bend Reservoir, 6,846 ft³/s (4,960,000 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1924-66).--Maximum discharge, 115,000 ft³/s May 19, 1953 (gage height, 38.70 ft, current datum); minimum, 160 ft³/s Sept. 29, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1833, 43.5 ft 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 39 ft. 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.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3560	1440	3960	7530	15300	12000	17000	14500	4760	23600	2780	7430
2	3320	1200	3980	7310	15200	15600	17200	16500	4880	23000	1010	7390
3	3180	1510	3920	7190	15100	17300	16700	17800	4220	19800	3630	7330
4	1840	2000	3840	7150	15100	16700	17800	17000	3640	15900	5590	7370
5	707	2870	3720	7650	15000	14000	20000	15900	3650	14700	5490	7380
6	788	4000	3860	7840	15200	10500	19400	15400	2200	14500	5530	7320
7	1470	3530	3880	7970	15500	7970	18500	15200	1130	14400	5610	7380
8	1520	3370	3870	10600	15400	8380	23800	15300	2360	14500	2640	7430
9	1510	3310	3970	10900	15400	8760	29300	15200	3320	14400	943	7300
10	1510	3380	4620	9690	15300	8640	30800	15600	3070	14300	3790	7410
11	1140	2860	5480	8920	15400	8260	31200	16800	3810	16300	5710	7420
12	575	3150	2580	7820	15500	10100	29100	14700	3950	15500	5810	7380
13	742	3400	3330	10100	15400	11700	25500	9880	2280	14800	5880	7500
14	1420	3090	4100	11700	15400	11300	22300	8350	997	14700	5760	7570
15	1510	2960	4990	13800	15500	10100	21200	8110	2300	14600	2560	7420
16	1570	2830	11500	14400	15700	10200	20800	8060	3610	13400	874	7480
17	1610	2870	12500	14200	15800	12200	18800	7940	3510	8650	3830	7520
18	1270	2790	10500	14200	15800	11500	16300	7180	3370	3390	5620	7510
19	609	2750	9040	14400	15600	10600	15600	7050	3680	1380	5740	7520
20	766	2920	8330	16500	15600	9910	15500	6560	2460	4740	5720	7560
21	1490	4060	8040	20100	15600	11500	15300	5210	2150	6260	5800	7400
22	1510	5720	7970	20000	15600	16400	15100	5240	3920	6350	5540	7610
23	1470	6250	7900	18100	15600	19400	15200	5220	8000	6400	2690	7630
24	1530	4980	8150	16200	15400	22100	15100	4900	11400	6370	901	7030
25	1210	4950	8990	16600	15500	22800	15000	5470	13800	2730	692	7020
26	548	5100	9200	16400	16400	22100	15000	5580	15800	1030	4250	2670
27	592	4430	9040	16100	16800	21300	14800	5320	16600	4200	7120	974
28	1380	4390	8670	15700	16000	20600	14800	5020	16900	6100	7370	749
29	1450	4130	8230	15600	---	20300	14800	5290	20500	6060	7210	675
30	1530	4000	7850	15600	---	18800	12200	5430	22900	6290	7280	598
31	1630	---	7620	15400	---	16900	---	4810	---	6570	7450	---
TOTAL	44957	104240	203630	395670	435100	437920	574100	310520	195167	334920	140820	190976
MEAN	1450	3475	6569	12760	15540	14130	19140	10020	6506	10800	4543	6366
MAX	3560	6250	12500	20100	16800	22800	31200	17800	22900	23600	7450	7630
MIN	548	1200	2580	7150	15000	7970	12200	4810	997	1030	692	598
AC-FT	89170	206800	403900	784800	863000	868600	1139000	615900	387100	664300	279300	378800

SABINE RIVER MAIN STEM

209

08028500 SABINE RIVER NEAR BON WIER, TX--Continued

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

MEAN	1679	2490	6885	10120	11000	11350	10140	9568	7481	5668	3789	3295
MAX	7315	8913	21420	30930	23200	24470	27370	28150	26340	31490	7288	8247
(WY)	1992	1987	1983	1974	1975	1992	1969	1991	1989	1989	1976	1991
MIN	188	217	822	1000	746	1288	634	1186	663	621	211	206
(WY)	1968	1968	1981	1981	1968	1981	1971	1971	1970	1967	1967	1967

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1967 - 1993#
ANNUAL TOTAL	3238297	3368020	
ANNUAL MEAN	8848	9227	
HIGHEST ANNUAL MEAN			6937
LOWEST ANNUAL MEAN			12670
HIGHEST DAILY MEAN			1172
LOWEST DAILY MEAN			1172
HIGHEST DAILY MEAN	39400	Mar 9	31200
LOWEST DAILY MEAN	548	Oct 26	548
ANNUAL SEVEN-DAY MINIMUM	1170	Oct 23	1170
INSTANTANEOUS PEAK FLOW			31400
INSTANTANEOUS PEAK STAGE			32.90
ANNUAL RUNOFF (AC-FT)	6423000	6680000	5025000
10 PERCENT EXCEEDS	19700	16900	17000
50 PERCENT EXCEEDS	4910	7500	3920
90 PERCENT EXCEEDS	1530	1510	721

Period of regulated streamflow.

SABINE RIVER MAIN STEM

08028500 SABINE RIVER NEAR BON WIER, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to current year. Chemical and biochemical analyses: October 1969 to May 1973. Sediment analyses: April 1957 to September 1962.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1969 to June 1983.

WATER TEMPERATURE: November 1969 to June 1983.

COLOR: November 1969 to June 1983.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 407 microsiemens Aug. 31, 1978; minimum daily, 34 microsiemens Feb. 3, 1983.

WATER TEMPERATURE: Maximum daily, 33.0°C July 17, 1978, and July 14, 26, 1980; minimum daily, 4.0°C Feb. 2, 1980.

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

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT							
02...	1700	3770	132	25.0	30	17	20
08...	1415	1310	138	24.0	35	17	15
16...	1545	1460	148	25.5	70	19	16
21...	1435	1290	150	23.0	23	19	16
28...	1725	1340	153	23.0	30	19	16
NOV							
03...	1240	1240	158	22.0	60	21	19
11...	1645	3130	150	24.0	40	19	16
18...	1710	3200	142	25.0	40	18	16
24...	1455	5180	139	--	70	19	15
DEC							
02...	1135	4480	144	15.0	30	18	17
12...	1530	2020	134	13.0	40	17	16
16...	1235	12200	86	14.0	60	10	10
23...	1300	7900	127	15.0	40	15	15
31...	1450	7580	127	15.5	30	15	14
JAN							
08...	1355	11000	105	13.0	60	12	12
12...	1730	7920	115	13.5	50	15	13
21...	1720	20700	107	15.0	60	13	13
27...	1545	16100	131	14.0	30	16	16
FEB							
01...	1535	15300	135	14.0	20	17	16
11...	1650	15600	136	16.0	30	17	16
18...	1740	15800	136	14.0	30	17	16
26...	1550	16600	137	13.5	30	18	16
MAR							
05...	1205	13700	109	14.0	50	14	13
13...	1405	12000	119	11.5	40	15	14
19...	1515	10500	117	16.0	50	15	14
24...	1435	22500	106	15.5	70	13	13
31...	1540	16700	133	17.0	40	16	17
APR							
06...	1830	19100	119	16.0	40	19	15
13...	1900	24400	121	19.0	40	20	16
22...	1855	15100	140	18.0	30	23	18
29...	1640	14800	143	20.0	20	24	19
MAY							
05...	1040	15800	137	21.0	30	20	16
11...	0750	16900	131	20.0	30	19	16
19...	1745	7450	114	23.0	30	16	14
28...	1700	5750	149	24.0	20	21	17
JUN							
05...	1645	4210	152	27.0	40	21	17
10...	1908	3820	147	27.0	40	20	16
19...	1455	4210	148	26.0	40	20	16
28...	1120	16400	129	26.0	50	18	14
30...	2015	23300	140	27.0	40	20	17
JUL							
11...	1818	16700	131	28.0	50	19	14
13...	1903	14800	140	30.0	30	20	15
24...	1735	6750	144	30.0	40	20	16
29...	2005	6170	140	31.0	30	19	16
AUG							
10...	1730	5310	140	31.0	30	17	14
21...	1830	6050	145	30.0	25	19	15
26...	1830	6170	144	30.0	30	19	15
SEP							
04...	1930	7440	145	30.0	30	19	16
10...	1255	7400	149	28.0	25	19	16
16...	1905	7540	149	26.0	30	19	16
25...	1400	7290	149	27.0	30	19	16
30...	1420	587	201	27.0	60	25	18

08029500 BIG COW CREEK NEAR NEWTON, TX

LOCATION.--Lat 30°49'08", long 93°47'07", Newton County, Hydrologic Unit 12010005, near center of span at downstream side of bridge on State Highway 87, 2.6 mi southwest of Newton, 5.0 mi downstream from Melhones Creek, and 8.0 mi upstream from White Oak Creek.

DRAINAGE AREA.--128 mi².

PERIOD OF RECORD.--April 1952 to current year.

GAGE.--Water-stage recorder. Datum of gage is 134.69 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 19, 1957, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. No known diversion above station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1907, 27.5 ft in April 1922, from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,100 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 16	0900	2,960	15.77	May 10	2400	1,200	14.32
Mar. 2	2200	1,780	15.12	June 22	0500	1,910	15.23
Mar. 17	0400	1,150	14.20	June 24	1500	3,650	16.02
Apr. 8	2100	1,890	15.21				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	167	69	110	112	187	121	138	122	149	75	51
2	44	264	68	103	109	1340	106	211	90	126	57	46
3	44	174	67	100	106	996	107	157	79	112	51	42
4	44	163	66	121	103	254	593	109	74	104	49	40
5	44	148	67	287	104	167	609	95	71	100	49	39
6	43	82	67	194	115	139	229	92	68	91	62	38
7	43	65	66	280	119	124	249	93	66	85	52	37
8	43	60	65	799	105	116	1400	88	64	80	48	37
9	46	59	113	376	99	110	1250	86	62	76	60	36
10	47	58	278	244	101	105	359	775	61	73	70	37
11	47	57	170	246	120	134	208	723	71	201	92	37
12	46	78	97	188	117	679	170	176	151	144	60	36
13	46	156	83	168	101	619	151	124	122	87	51	36
14	46	116	79	135	96	237	144	110	79	75	47	42
15	45	72	604	124	96	160	153	104	69	79	45	63
16	48	64	2070	119	120	544	148	92	68	138	43	105
17	77	61	760	111	142	895	126	84	64	113	42	64
18	78	60	235	107	109	289	120	168	72	85	42	53
19	55	60	175	267	99	185	117	237	99	73	42	49
20	51	193	159	649	97	162	112	171	634	66	54	49
21	50	335	154	743	99	205	111	105	1440	63	49	49
22	49	346	152	309	97	193	107	89	1700	60	54	48
23	48	196	133	184	89	662	100	83	1130	58	69	45
24	48	116	202	158	86	454	99	90	2280	56	52	43
25	48	112	197	147	107	211	98	95	1280	53	46	42
26	48	99	265	126	180	166	95	97	551	51	53	41
27	47	82	217	121	144	141	93	101	628	50	65	41
28	47	75	152	118	108	127	87	134	619	49	54	41
29	47	71	129	119	---	119	87	281	384	49	61	40
30	61	70	125	131	---	119	101	143	209	49	69	39
31	103	---	117	122	---	133	---	135	---	100	58	---
TOTAL	1578	3659	7201	7006	3080	9972	7450	5186	12407	2695	1721	1366
MEAN	50.9	122	232	226	110	322	248	167	414	86.9	55.5	45.5
MAX	103	346	2070	799	180	1340	1400	775	2280	201	92	105
MIN	43	57	65	100	86	105	87	83	61	49	42	36
AC-FT	3130	7260	14280	13900	6110	19780	14780	10290	24610	5350	3410	2710
CFSM	.40	.95	1.81	1.77	.86	2.51	1.94	1.31	3.23	.68	.43	.36
IN.	.46	1.06	2.09	2.04	.90	2.90	2.17	1.51	3.61	.78	.50	.40

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

	MEAN	63.2	104	160	176	212	168	161	156	115	72.0	55.1	63.6
MAX	243	440	489	645	743	345	533	817	414	426	221	353	
(WY)	1974	1987	1983	1974	1984	1990	1953	1953	1993	1989	1973	1961	
MIN	17.4	27.3	39.3	42.2	58.6	57.5	29.4	31.7	16.6	14.2	14.5	17.3	
(WY)	1957	1968	1982	1982	1968	1955	1971	1971	1971	1971	1956	1956	

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1953 - 1993

ANNUAL TOTAL	64124	63321	125
ANNUAL MEAN	175	173	246
HIGHEST ANNUAL MEAN			46.1
LOWEST ANNUAL MEAN			1973
HIGHEST DAILY MEAN	2070	2280	9720
LOWEST DAILY MEAN	39	36	10
ANNUAL SEVEN-DAY MINIMUM	44	37	11
INSTANTANEOUS PEAK FLOW		3650	20200
INSTANTANEOUS PEAK STAGE		16.02	19.45
ANNUAL RUNOFF (AC-FT)	127200	125600	90520
ANNUAL RUNOFF (CFSM)	1.37	1.36	.98
ANNUAL RUNOFF (INCHES)	18.64	18.40	13.26
10 PERCENT EXCEEDS	300	288	222
50 PERCENT EXCEEDS	103	100	62
90 PERCENT EXCEEDS	48	46	27

SABINE RIVER MAIN STEM

08030500 SABINE RIVER NEAR RULIFF, TX
(Radiochemical and national stream-quality accounting network)

LOCATION.--Lat 30°18'13", long 93°44'37", Calcasieu Parish, Louisiana-Newton County, Texas State line, Hydrologic Unit 12010005, at downstream side of bridge on State Highway 12, 2.4 mi north of Ruliff, 4.2 mi upstream from the Kansas City Southern Railway Co. bridge, 4.5 mi downstream from Cypress Creek, and at mile 40.2.

DRAINAGE AREA.--9,329 mi².

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1282: 1941(M), 1942. WSP 1442: 1925-29, 1937-39, 1943. WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 5.92 ft below National Geodetic Vertical Datum of 1929. Prior to Mar. 1, 1941, nonrecording gage at Kansas City Southern Railway Co. bridge, 4.2 mi downstream and at datum 7.98 ft higher than current datum. Mar. 1, 1941, to Dec. 8, 1948, nonrecording gage at present site and at datum 10.00 ft higher than current datum. Dec. 9, 1948, to Dec. 31, 1989, recording gage at present site and at datum 10.00 ft higher than current datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow is partly regulated by Toledo Bend Reservoir (station 08025350) 116.3 mi upstream. Gage-height telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--42 years (water years 1925-66) prior to completion of Toledo Bend Reservoir, 8,422 ft³/s (6,102,000 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1925-66).--Maximum discharge, 121,000 ft³/s May 22, 1953, (gage-height, 29.98 ft, current datum); minimum, 270 ft³/s Sept. 27-30, Oct. 1-3, 17-20, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1835, 32.2 ft 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 29.5 ft, present site and datum, from information by local resident.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2620	e1650	5340	11800	e16100	17600	18000	14500	6430	19100	6380	7250
2	3260	e1530	4980	11100	15800	19900	17200	15200	5980	19700	6100	7410
3	3370	e1320	4770	10600	15700	21700	16600	16000	5690	20500	3840	7520
4	3340	e1330	4740	10400	15600	25400	17500	16600	5350	20600	2800	7560
5	3020	e1690	4670	10300	15500	27500	17900	17000	4530	19600	4090	7570
6	1790	e2130	4490	10400	15500	25400	18500	16800	4010	17800	5110	7610
7	1160	e2630	4410	12000	15400	21700	20700	16200	3440	16200	5500	7630
8	1440	e3120	4440	13900	15400	18300	26000	15600	2290	15000	5660	7630
9	1670	e3330	4760	15300	15500	15400	27800	15100	1950	14200	5180	7640
10	1690	e3400	5580	16400	15800	13000	30000	15100	2780	13900	3110	7630
11	1710	3420	6200	16900	16000	11600	34200	15100	3070	13600	2550	7580
12	1630	3330	7010	16800	16000	10800	36100	15300	3220	13500	4140	7580
13	1220	3140	6910	15900	15900	10500	34100	15100	3580	13500	5220	7580
14	947	e3350	5460	e14600	15800	10900	30400	15400	3400	13700	5670	7630
15	1250	e3220	5750	e13600	15800	11800	26500	14600	2250	13900	5850	7670
16	1600	e3090	7740	e13500	16300	12700	23300	12900	1800	14000	5280	7690
17	1700	e3050	10200	e13900	16200	12800	21000	11400	2800	13900	3010	7650
18	1730	2980	11200	14600	16100	12700	19600	10300	3350	13700	2380	7650
19	1710	2930	16600	15400	16100	12900	18600	9650	3460	12600	4000	7680
20	1290	3090	18500	17300	16300	13400	17500	8990	4820	9050	5060	7640
21	978	3400	18400	18900	16300	13500	16600	8530	7380	5900	5560	7640
22	1290	4800	17000	19500	16000	13200	15900	8030	10100	5810	5730	7620
23	1590	6690	15200	21200	15900	14200	15400	7210	12800	6280	5790	7610
24	1600	7970	13600	23000	15800	15600	15200	6660	13500	6590	5210	e7740
25	1610	8880	12700	e22900	16400	17100	15100	6230	13800	6710	3010	e7230
26	1610	8720	12500	e20200	17000	19000	14600	6120	15300	6220	1640	e7380
27	1190	8000	12800	e18400	17100	20900	14600	6320	16900	3840	2120	e6060
28	868	7240	13200	e17400	17100	21300	14800	6460	19200	2990	4460	e2700
29	1100	6480	13200	17100	---	20600	14500	6310	20300	4540	5970	e1580
30	1440	5840	13000	e16500	---	19600	14500	6100	19600	5620	6680	1100
31	e1580	---	12500	e16300	---	18800	---	6310	---	6060	7060	---
TOTAL	53003	121750	297850	486100	448400	519800	622700	361120	223080	368610	144160	208460
MEAN	1710	4058	9608	15680	16010	16770	20760	11650	7436	11890	4650	6949
MAX	3370	8880	18500	23000	17100	27500	36100	17000	20300	20600	7060	7740
MIN	868	1320	4410	10300	15400	10500	14500	6100	1800	2990	1640	1100
AC-FT	105100	241500	590800	964200	889400	1031000	1235000	716300	442500	731100	285900	413500

e Estimated

SABINE RIVER MAIN STEM

213

08030500 SABINE RIVER NEAR RULIFF, TX--Continued
(Radiochemical and national stream-quality accounting network)

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

MEAN	2393	3252	8454	12090	12710	13210	12140	10760	8933	6829	4378	3839
MAX	7222	11850	22070	32800	27990	27480	33240	29510	26240	42320	7982	10530
(WY)	1992	1987	1983	1974	1974	1969	1969	1991	1989	1989	1975	1973
MIN	292	327	1366	1422	1559	2287	1030	1505	1428	805	382	333
(WY)	1968	1968	1981	1981	1968	1981	1971	1971	1970	1967	1967	1967

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1967 - 1993#

ANNUAL TOTAL	3409063		3855033									
ANNUAL MEAN	9314		10560							8229		
HIGHEST ANNUAL MEAN										14210		1975
LOWEST ANNUAL MEAN										1959		1967
HIGHEST DAILY MEAN	44900	Mar 8	36100	Apr 12	108000	Jul 6	1989					
LOWEST DAILY MEAN	868	Oct 28	868	Oct 28	278	Oct 28	1967					
ANNUAL SEVEN-DAY MINIMUM	1340	Oct 27	1340	Oct 27	282	Oct 9	1967					
INSTANTANEOUS PEAK FLOW			36600	Apr 12	109000	Jul 6	1989					
INSTANTANEOUS PEAK STAGE			25.29	Apr 12	29.15	Jul 6	1989					
ANNUAL RUNOFF (AC-FT)	6762000		7646000		5962000							
10 PERCENT EXCEEDS	17800		18900		18900							
50 PERCENT EXCEEDS	6770		9050		5040							
90 PERCENT EXCEEDS	2170		2050		1200							

Period of regulated streamflow.

08030500 SABINE RIVER NEAR RULIFF, TX--Continued
(Radiochemical and national stream-quality accounting network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: September 1945 to September 1946, October 1947 to current year. Chemical and biochemical analyses: February 1968 to current year. Pesticide analyses: January 1968 to May 1982. Radiochemical analyses: October 1969 to current year. Sediment analyses: October 1974 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: September 1945 to September 1946, October 1947 to current year.

WATER TEMPERATURE: October 1947 to current year.

pH: July 1968 to May 1975

COLOR: November 1969 to December 1975.

DISSOLVED OXYGEN: July 1968 to May 1975.

CHLORIDE: July 1968 to September 1968.

INSTRUMENTATION.--From October 31, 1992 to September 30, 1993 a water-quality monitor continuously recorded specific conductance and water temperature at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 779 microsiemens Aug. 31, 1966; minimum, 27 microsiemens Feb. 16, 1984.

WATER TEMPERATURE: Maximum, 36.0°C Aug. 14, 1962; minimum, 1.0°C Jan. 28, 1948.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, (less than 30 percent estimated record) 329 microsiemens Aug. 5; minimum daily, 63 microsiemens April 11.

WATER TEMPERATURE: Maximum daily, 31.5°C Aug. 5; minimum daily, 5.5°C Mar. 13.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)
JAN 21...	1130	17600	110	6.6	12.0	11	8.6	79	0.9	550	440
APR 26...	1528	14700	134	6.7	20.0	15	7.8	85	1.2	88	130
AUG 03...	1157	3740	132	6.9	30.0	5.5	6.0	79	0.6	2500	170
31...	1403	7140	136	7.4	29.5	9.3	6.4	84	1.3	130	150

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
JAN 21...	25	10	6.0	2.3	11	1	2.4	0	18	15	14
APR 26...	27	9	6.3	2.6	14	1	2.8	0	21	18	17
AUG 03...	33	15	8.3	3.0	13	1	2.4	0	22	18	17
31...	30	13	7.2	3.0	15	1	3.4	0	21	18	19

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)
JAN 21...	15	<0.10	8.7	76	69	0.090	0.090	0.010	0.100	0.100
APR 26...	16	0.10	7.2	89	77	--	--	<0.010	--	<0.050
AUG 03...	19	0.10	8.5	86	82	--	--	<0.010	--	<0.050
31...	18	0.10	6.4	82	83	--	--	<0.010	--	<0.050

DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
JAN 21...	0.060	0.24	0.30	0.050	0.050	0.040	0.12	23	1090	56
APR 26...	0.030	0.37	0.40	0.020	<0.010	<0.010	--	20	794	92
AUG 03...	0.020	0.28	0.30	0.020	<0.010	<0.010	--	22	222	91
31...	0.040	0.26	0.30	0.030	0.030	0.020	0.06	35	675	87

SABINE RIVER MAIN STEM

215

08030500 SABINE RIVER NEAR RULIFF, TX--Continued
(Radiochemical and national stream-quality accounting network)

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

		ALUM- INUM, DIS- SOLVED (UG/L AS AL)	BARIUM, DIS- SOLVED (UG/L AS BA)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)
DATE											
JAN	21...	120	41	<3	130	<4	32	<10	2	<1	<1.0
APR	26...	20	47	<3	100	<4	69	<10	2	<1	<1.0
AUG	03...	20	47	<3	100	6	42	<10	1	<1	<1.0
	31...	170	41	<3	73	5	16	<10	2	<1	<1.0
DATE		STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ Y-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ Y-90)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)
JAN	21...	78	<6	<0.6	1.3	2.2	0.8	2.0	0.8	0.04	0.05
APR	26...	88	<6	--	--	--	--	--	--	--	--
AUG	03...	100	<6	--	--	--	--	--	--	--	--
	31...	97	<6	<0.6	0.8	3.6	0.8	3.1	0.8	0.06	0.04
MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1992	53003	9	6	824	1.2	173	1.2	172		2
NOV.	1992	121750	126	77	25400	16	5240	15	5090		26
DEC.	1992	297850	110	67	54200	14	11100	13	10700		24
JAN.	1993	486100	108	66	87000	14	17800	13	17100		24
FEB.	1993	448400	141	86	105000	18	21700	18	21300		28
MAR.	1993	519800	104	64	90100	13	18400	13	17700		23
APR.	1993	622700	107	66	111000	14	22800	13	21900		23
MAY	1993	361120	116	71	69700	15	14300	14	13800		25
JUNE	1993	223080	109	67	40500	14	8320	13	8040		23
JULY	1993	368610	106	65	64800	13	13200	13	12700		23
AUG.	1993	144160	86	52	20200	11	4270	11	4280		15
SEPT	1993	208460	*	*	*	*	*	*	*	*	*
TOTAL		3855033	**	**	669000	**	137000	**	133000		**
WTD.AVG.		10560	105	64	**	13	**	13	**		22

SABINE RIVER MAIN STEM

08030500 SABINE RIVER NEAR RULIFF, TX--Continued
(Radiochemical and national stream-quality accounting network)

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	148	139	144	139	134	136	118	116	116
2	---	---	---	142	135	138	141	138	140	122	117	119
3	---	---	---	139	130	136	140	133	136	125	121	124
4	---	---	---	130	125	127	142	134	138	128	125	127
5	---	---	---	127	117	122	143	136	139	126	125	126
6	---	---	---	138	127	132	147	137	141	127	125	126
7	---	---	---	151	102	125	147	137	141	126	119	122
8	---	---	---	151	144	146	146	138	141	120	110	116
9	---	---	---	159	147	150	147	135	139	110	99	104
10	---	---	---	147	135	140	139	126	130	99	89	95
11	---	---	---	144	135	138	133	124	127	90	88	89
12	---	---	---	143	133	138	126	117	123	91	88	90
13	---	---	---	147	133	138	117	108	112	94	91	93
14	---	---	---	146	133	139	115	108	110	99	93	96
15	---	---	---	147	133	140	123	115	121	108	99	104
16	---	---	---	164	138	151	124	115	120	116	108	112
17	---	---	---	163	145	153	115	102	109	122	115	119
18	---	---	---	153	140	147	102	86	92	125	122	123
19	---	---	---	140	131	138	86	81	84	127	124	125
20	---	---	---	137	129	133	87	81	84	126	115	121
21	---	---	---	151	128	138	93	87	90	115	102	107
22	---	---	---	144	116	132	100	93	97	102	94	98
23	---	---	---	121	105	114	106	100	103	94	92	93
24	---	---	---	118	92	101	110	106	108	93	90	91
25	---	---	---	108	93	98	114	109	112	95	90	92
26	---	---	---	116	104	109	115	113	114	102	94	98
27	---	---	---	126	114	120	114	109	111	109	101	106
28	---	---	---	126	114	119	109	104	107	114	109	112
29	---	---	---	128	119	121	107	104	106	118	114	116
30	198	165	177	135	125	129	111	107	109	121	117	119
31	191	144	157	---	---	---	116	110	114	122	118	120
MONTH	198	144	167	164	92	132	147	81	117	128	88	110

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	124	120	122	152	145	148	135	124	129	151	147	149
2	124	120	123	149	124	136	135	119	128	149	136	143
3	125	123	124	124	84	103	132	122	127	141	135	138
4	126	123	125	84	67	75	126	115	122	140	135	137
5	127	125	126	74	65	68	120	104	113	144	135	141
6	128	125	126	89	71	78	114	100	107	142	131	135
7	129	125	127	91	84	88	104	89	98	132	130	131
8	128	125	127	98	89	95	91	72	80	130	117	124
9	129	127	128	107	85	96	77	65	71	121	116	118
10	130	127	128	118	107	114	74	65	69	127	121	125
11	146	127	137	124	116	121	74	63	69	126	116	119
12	147	143	145	129	123	126	81	71	77	117	113	115
13	148	144	145	137	110	128	92	78	84	115	109	111
14	150	145	147	125	107	115	99	85	93	109	101	104
15	152	145	148	113	99	105	109	86	99	101	94	97
16	151	146	148	109	101	105	116	104	111	99	93	96
17	150	147	148	115	105	109	125	111	119	103	98	100
18	152	146	149	114	97	104	130	118	123	104	101	102
19	152	148	150	101	91	97	131	118	127	109	104	107
20	154	147	150	105	93	101	133	118	128	108	102	104
21	154	149	151	111	98	106	137	124	131	102	90	99
22	156	149	152	116	101	110	139	126	133	90	86	87
23	162	153	157	102	90	97	141	130	136	94	87	92
24	162	148	156	101	93	98	144	131	137	101	94	98
25	160	153	157	101	93	98	143	132	139	97	95	96
26	161	151	157	101	93	98	145	126	139	99	96	98
27	156	150	152	108	99	103	126	114	119	97	93	95
28	155	145	150	115	107	110	138	116	124	100	93	96
29	---	---	---	121	111	117	148	138	145	96	92	94
30	---	---	---	126	115	121	155	145	151	108	94	103
31	---	---	---	133	122	127	---	---	---	107	96	104
MONTH	162	120	141	152	65	106	155	63	114	151	86	112

SABINE RIVER MAIN STEM

217

08030500 SABINE RIVER NEAR RULIFF, TX--Continued
(Radiochemical and national stream-quality accounting network)

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	98	95	96	94	89	91	123	114	119	---	---	---
2	99	93	96	102	92	96	133	122	127	---	---	---
3	99	93	96	97	90	92	175	133	146	---	---	---
4	104	97	101	95	93	94	290	174	231	---	---	---
5	106	100	104	97	93	96	329	290	309	---	---	---
6	106	99	102	103	96	99	318	223	282	---	---	---
7	114	106	110	100	97	98	223	187	194	---	---	---
8	126	113	120	101	99	100	187	174	180	---	---	---
9	139	126	134	103	99	101	177	152	167	---	---	---
10	215	139	174	106	101	104	152	134	141	---	---	---
11	219	174	201	110	106	108	144	132	141	---	---	---
12	174	127	141	111	106	109	133	118	126	---	---	---
13	147	113	130	109	106	108	119	109	114	---	---	---
14	140	135	136	110	106	108	127	109	116	---	---	---
15	138	126	132	107	105	106	137	127	132	---	---	---
16	138	124	129	111	107	109	137	115	121	---	---	---
17	187	138	158	112	110	111	---	---	---	---	---	---
18	222	182	205	112	110	111	---	---	---	---	---	---
19	236	200	222	114	110	112	---	---	---	---	---	---
20	214	167	197	116	113	115	---	---	---	---	---	---
21	182	126	150	123	116	120	---	---	---	---	---	---
22	138	89	115	126	119	122	---	---	---	---	---	---
23	98	89	93	130	122	127	---	---	---	---	---	---
24	114	89	100	130	127	128	---	---	---	---	---	---
25	116	86	101	131	126	128	---	---	---	---	---	---
26	91	85	89	127	125	126	---	---	---	---	---	---
27	98	87	93	130	127	128	---	---	---	---	---	---
28	98	90	94	132	127	130	---	---	---	---	---	---
29	97	85	90	132	120	125	---	---	---	---	---	---
30	90	86	88	123	112	121	---	---	---	---	---	---
31	---	---	---	114	110	111	---	---	---	---	---	---
MONTH	236	85	127	132	89	111	329	109	165	---	---	---
YEAR	329	63	121									

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	23.4	22.6	23.2	13.1	12.3	12.7	15.6	15.0	15.4
2	---	---	---	22.6	21.7	22.2	13.7	13.1	13.5	15.0	14.0	14.4
3	---	---	---	21.8	21.2	21.6	13.8	13.6	13.7	14.1	13.7	13.9
4	---	---	---	21.4	18.9	20.2	14.1	13.8	14.0	14.8	14.1	14.5
5	---	---	---	18.9	17.1	18.0	14.1	13.9	14.1	14.7	14.4	14.6
6	---	---	---	17.1	15.6	16.4	13.9	13.3	13.7	14.4	13.6	13.9
7	---	---	---	15.6	15.0	15.2	13.4	13.1	13.3	13.6	13.0	13.2
8	---	---	---	15.5	15.1	15.3	13.1	12.7	12.9	13.0	12.7	12.8
9	---	---	---	15.8	15.1	15.5	13.1	12.8	13.0	12.9	12.7	12.8
10	---	---	---	16.9	15.8	16.4	13.3	13.0	13.2	12.9	12.8	12.9
11	---	---	---	17.9	16.9	17.5	13.3	13.1	13.1	12.8	12.4	12.6
12	---	---	---	18.8	17.9	18.4	13.1	12.5	12.7	12.5	12.3	12.4
13	---	---	---	18.5	17.8	18.2	12.7	12.5	12.6	12.5	12.3	12.4
14	---	---	---	17.8	17.1	17.5	13.8	12.6	13.1	12.4	12.3	12.4
15	---	---	---	17.1	16.1	16.6	14.1	13.8	14.0	12.3	12.0	12.1
16	---	---	---	16.1	15.7	15.9	14.1	13.6	13.9	12.2	11.9	12.1
17	---	---	---	16.2	15.4	15.8	13.6	12.7	13.2	12.3	12.0	12.2
18	---	---	---	16.7	16.0	16.4	12.7	12.0	12.3	12.9	12.3	12.6
19	---	---	---	17.4	16.5	17.0	12.4	11.8	12.0	13.3	12.9	13.2
20	---	---	---	18.0	17.4	17.7	13.3	12.4	12.9	14.8	12.7	13.6
21	---	---	---	18.3	17.9	18.1	13.8	13.3	13.5	16.1	14.1	15.1
22	---	---	---	18.1	17.4	17.9	14.4	13.8	14.1	15.3	14.4	14.9
23	---	---	---	17.4	16.3	16.8	15.3	14.4	14.8	15.3	14.7	15.1
24	---	---	---	16.4	15.4	15.9	15.4	15.1	15.3	15.2	14.7	15.0
25	---	---	---	15.4	14.6	15.0	15.1	14.4	14.8	14.8	13.1	13.9
26	---	---	---	14.6	13.7	14.2	14.4	13.4	13.9	13.4	12.6	13.0
27	---	---	---	13.7	12.8	13.3	13.4	13.2	13.3	12.6	12.1	12.4
28	---	---	---	12.8	12.0	12.3	13.6	13.2	13.4	12.9	12.2	12.5
29	---	---	---	12.0	11.7	11.8	14.3	13.6	14.0	13.0	12.7	12.9
30	---	---	---	12.3	11.8	12.0	15.0	14.3	14.7	13.7	12.5	12.7
31	23.5	22.8	23.1	---	---	---	15.5	15.0	15.3	12.8	12.2	12.5
MONTH	23.5	22.8	23.1	23.4	11.7	16.7	15.5	11.8	13.6	16.1	11.9	13.4

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	12.9	12.4	12.7	12.1	11.9	12.0	17.1	16.4	16.8	20.4	20.1	20.2
2	13.3	12.8	13.0	13.0	12.1	12.5	16.4	15.9	16.2	20.1	19.7	19.9
3	13.4	12.9	13.1	13.8	12.9	13.4	16.1	15.7	15.9	20.0	19.3	19.7
4	13.5	13.1	13.2	14.8	13.4	13.9	16.1	15.6	15.9	20.4	19.5	19.9
5	13.1	12.8	13.0	14.6	13.6	14.1	16.0	15.3	15.7	20.5	20.1	20.3
6	12.9	12.1	12.5	14.3	13.4	13.8	15.3	14.8	15.0	21.0	20.5	20.7
7	12.2	11.7	12.0	14.7	13.6	14.1	15.2	14.8	15.0	21.5	20.8	21.1
8	12.5	12.0	12.3	14.9	14.0	14.5	15.9	15.2	15.6	21.9	21.2	21.5
9	12.7	12.2	12.5	15.5	14.7	15.1	16.1	15.4	15.8	22.3	21.6	21.9
10	12.7	12.6	12.7	16.1	14.9	15.5	16.5	15.5	16.1	22.3	22.0	22.2
11	13.6	12.5	12.9	15.4	11.2	13.7	17.1	16.3	16.7	22.1	20.9	21.4
12	13.5	13.2	13.3	11.9	7.0	8.6	17.8	16.8	17.3	21.3	20.6	20.9
13	13.2	12.8	13.0	8.9	5.6	7.2	18.4	17.6	18.0	21.3	20.4	20.9
14	13.2	13.0	13.2	10.9	5.8	8.3	18.5	18.2	18.4	21.9	21.0	21.3
15	13.3	12.8	13.0	11.4	8.8	10.4	18.2	17.3	17.8	22.8	21.7	22.1
16	14.0	13.3	13.6	12.0	11.1	11.5	17.3	16.6	17.0	23.7	22.8	23.1
17	13.7	12.9	13.3	13.2	12.0	12.6	16.9	16.5	16.8	24.2	23.5	23.7
18	12.9	12.2	12.6	13.6	13.1	13.3	17.2	16.4	16.9	24.2	24.0	24.1
19	12.2	11.4	11.7	13.9	13.4	13.6	18.0	17.1	17.5	24.1	23.7	24.0
20	12.0	11.3	11.6	14.0	13.7	13.8	18.4	17.9	18.2	23.9	23.3	23.6
21	13.5	12.0	12.8	14.0	13.8	13.9	18.2	17.6	18.0	23.6	22.9	23.2
22	14.0	13.5	13.7	14.0	13.7	13.9	17.8	17.2	17.5	23.2	23.0	23.1
23	13.7	13.3	13.5	14.2	14.0	14.2	17.8	17.1	17.5	23.7	23.1	23.4
24	13.4	13.0	13.3	14.2	14.0	14.2	18.6	17.6	18.1	23.7	23.4	23.5
25	13.1	12.9	13.0	15.3	14.2	14.7	19.4	18.5	19.0	23.6	23.3	23.4
26	13.2	12.8	13.0	15.9	15.2	15.6	20.2	19.2	19.7	23.3	22.8	23.0
27	12.9	12.2	12.5	16.0	15.4	15.7	20.0	19.6	19.8	22.8	21.7	22.0
28	12.2	11.9	12.1	16.3	15.6	16.0	20.1	19.6	19.8	22.7	21.8	22.2
29	---	---	---	16.7	16.1	16.4	20.0	19.8	19.9	23.5	22.4	22.9
30	---	---	---	17.2	16.7	17.0	20.5	19.7	20.1	24.3	23.5	23.9
31	---	---	---	17.5	16.9	17.2	---	---	---	25.3	24.2	24.8
MONTH	14.0	11.3	12.8	17.5	5.6	13.6	20.5	14.8	17.4	25.3	19.3	22.2
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	25.6	25.0	25.3	26.6	25.9	26.3	30.5	30.0	30.4	---	---	---
2	25.9	25.1	25.5	26.7	26.1	26.4	30.5	30.0	30.3	---	---	---
3	26.5	25.5	26.0	26.8	26.1	26.5	30.5	29.5	30.0	---	---	---
4	27.0	26.2	26.6	26.8	26.2	26.5	31.2	30.0	30.5	---	---	---
5	27.7	26.5	27.1	27.1	26.4	26.8	31.3	30.3	30.8	---	---	---
6	28.2	27.4	27.8	27.4	26.7	27.1	30.5	30.3	30.4	---	---	---
7	28.5	27.8	28.1	27.8	27.1	27.5	30.4	29.9	30.2	---	---	---
8	28.3	27.6	28.0	27.7	27.2	27.4	30.0	29.8	29.9	---	---	---
9	28.7	27.8	28.3	27.6	27.0	27.3	30.0	29.0	29.7	---	---	---
10	29.5	28.3	28.9	27.5	27.1	27.3	29.9	28.6	29.2	---	---	---
11	29.2	28.3	28.8	28.0	27.3	27.6	30.8	29.5	30.0	---	---	---
12	28.6	27.9	28.3	28.0	27.5	27.8	30.7	30.1	30.4	---	---	---
13	28.1	27.5	27.8	28.2	27.5	27.9	30.6	30.2	30.4	---	---	---
14	28.3	27.1	27.7	28.5	27.8	28.1	30.5	30.1	30.3	---	---	---
15	28.6	27.2	27.9	28.3	27.9	28.1	30.2	29.7	30.0	---	---	---
16	29.2	28.2	28.6	27.9	27.3	27.6	29.7	27.6	28.9	---	---	---
17	29.4	28.7	29.0	27.5	27.1	27.3	---	---	---	---	---	---
18	28.8	28.1	28.4	27.7	27.1	27.4	---	---	---	---	---	---
19	28.2	27.4	27.9	27.5	27.0	27.3	---	---	---	---	---	---
20	27.4	25.9	26.6	28.0	27.3	27.7	---	---	---	---	---	---
21	25.9	25.0	25.4	29.7	27.9	28.7	---	---	---	---	---	---
22	25.1	24.8	25.0	30.2	29.7	30.0	---	---	---	---	---	---
23	25.6	25.0	25.2	30.2	29.7	30.0	---	---	---	---	---	---
24	25.7	25.5	25.6	30.1	29.7	30.0	---	---	---	---	---	---
25	25.8	24.7	25.2	30.1	29.7	30.0	---	---	---	---	---	---
26	24.7	24.4	24.6	30.0	29.4	29.8	---	---	---	---	---	---
27	24.4	24.1	24.3	30.0	29.1	29.6	---	---	---	---	---	---
28	25.2	24.2	24.9	31.1	29.7	30.3	---	---	---	---	---	---
29	25.7	24.9	25.3	31.1	30.6	30.9	---	---	---	---	---	---
30	26.3	25.5	25.9	30.8	30.4	30.6	---	---	---	---	---	---
31	---	---	---	30.6	30.2	30.4	---	---	---	---	---	---
MONTH	29.5	24.1	26.8	31.1	25.9	28.3	31.3	27.6	30.1	---	---	---
YEAR	31.3	5.6	19.0									

08031400 LAKE PALESTINE NEAR FRANKSTON, TX

LOCATION.--Lat 32°03'12", long 95°26'12", Anderson-Cherokee County line, Hydrologic Unit 12020001, in outlet tower near right bank, 140 ft upstream from Blackburn Crossing Dam on Neches River, 5 mi east of Frankston, 21 mi upstream from gage (station 08032000), and at mile 354.0.

DRAINAGE AREA.--839 mi².

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

Water-quality records.--Chemical analyses: October 1976 to September 1984.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Sept. 20, 1962, non-recording gage read once daily.

REMARKS.--The lake is formed by a rolled earthfill dam with a 500-foot-wide uncontrolled spillway near 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- x 7-foot gates located in concrete tower near center of dam and connected to an 8.5-foot-diameter concrete conduit through the dam. The low-flow outlet consists of two 3-foot 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 gage (station 08032000). There are no large diversions above station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	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, is based on Geological Survey topographic maps dated 1946 and 1948-49.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 531,100 acre-ft May 19, 1989 (elevation, 349.31 ft); minimum since first appreciable storage, 11,450 acre-ft Nov. 28, 1970 (elevation, 310.00 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 465,500 acre-ft Jan. 5 at 1700 hours (elevation, 347.02 ft); minimum, 362,600 acre-ft Sept. 13 (elevation, 343.00 ft).

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

343.0	362,600	345.0	411,800	347.0	464,900
344.0	386,700	346.0	437,900	348.0	492,900

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	369600	369100	392700	423500	426200	434200	426200	430600	411300	416800	392700	370800
2	368900	372500	391200	422500	425600	434200	424100	427500	410300	414900	391200	369300
3	368100	371500	393000	441700	424800	434200	423800	428500	409000	413900	391200	370100
4	367700	370600	394700	462500	424800	435800	425900	427200	410300	413100	390200	369100
5	366900	370600	394000	465200	425600	431100	423500	427200	409300	411000	388500	368400
6	368600	370300	393700	463500	424600	430100	422200	425600	407800	411000	389000	367900
7	365700	369100	394200	458700	424600	428200	425100	424600	407000	411300	388500	366900
8	366500	370100	395500	456000	424100	426900	424800	421700	406500	410300	387700	367400
9	365200	370800	395700	454100	423300	424800	424600	422200	407500	410000	387200	365500
10	364000	371000	397500	449000	423800	425900	423500	424800	407800	409000	386200	365700
11	363100	374200	397700	448200	425900	431400	423500	421500	408500	408000	385500	363600
12	361400	374200	397700	447100	423500	436300	422500	423500	409000	407500	384800	361400
13	360100	374400	398000	448200	423300	431600	423300	423300	409800	406800	383800	362100
14	361400	374400	412600	442800	422500	430600	426400	421200	410300	406500	383600	368600
15	364800	374200	426700	440600	432700	432200	424300	419600	410300	405500	382600	366700
16	364000	374400	437100	440300	435800	432900	424300	418600	411300	405000	381900	366200
17	363600	374600	440300	435800	438400	432200	423800	418100	409800	404300	381400	365500
18	362600	379000	441400	439500	439200	431100	422000	419600	409500	404300	380700	365000
19	362100	380400	444100	440900	438400	434200	425600	418100	411000	402800	380000	364000
20	362400	383100	441400	441100	436600	435600	426900	418100	418300	402800	379000	364500
21	362100	385300	438700	441100	436900	435800	425400	415700	421700	401000	378000	364300
22	361900	385700	438700	440300	434200	437600	424300	413400	422200	400000	376800	363600
23	361700	388000	436300	444400	432200	436900	422200	413600	421500	398500	375400	362800
24	361000	390200	433500	438200	429500	436100	422000	414700	421200	398000	374900	361900
25	359800	390500	432200	436300	435600	435600	424300	414100	422200	397200	375400	362100
26	360100	390200	430300	434000	434500	434200	423300	413400	421500	397000	374900	368400
27	359800	390000	428500	432200	434000	432900	422200	413400	420700	396000	373900	365700
28	364300	390700	426900	431400	433200	431600	420400	411500	419600	395700	372200	365700
29	365700	392000	426400	430900	---	431100	424800	413100	418600	395200	372000	364800
30	365000	392200	425100	428500	---	430600	425100	412600	416800	394200	371300	362800
31	370100	---	426200	427200	---	428200	---	413100	---	393500	371800	---
MAX	370100	392200	444100	465200	439200	437600	426900	430600	422200	416800	392700	370800
MIN	359800	369100	391200	422500	422500	424800	420400	411500	406500	393500	371300	361400
(†)	343.31	344.22	345.55	345.59	345.82	345.63	345.51	345.05	345.19	344.27	343.38	343.01
(Φ)	0	+22100	+34000	+1000	+6000	-5000	-3100	-12000	+3700	-23300	-21700	-9000

CAL YR 1992 MAX 470800 MIN 359800 (Φ) -12500

WTR YR 1993 MAX 465200 MIN 359800 (Φ) -7300

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

(Φ) Change in contents, in acre-feet.

NECHES RIVER MAIN STEM

08032000 NECHES RIVER NEAR NECHES, TX

LOCATION.--Lat 31°53'32", Long 95°25'50", Anderson-Cherokee County line, Hydrologic Unit 12020001, on left bank just downstream from bridge on U.S. Highway 79, 1.0 mi downstream from Missouri Pacific Railroad Co. bridge, 1.4 mi downstream from Walnut Creek, 4.4 mi northeast of Neches, and at mile 333.2.

DRAINAGE AREA.--1,145 mi².

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 264.06 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 27, 1945, nonrecording gage at present site and datum.

REMARKS.--Records good, including those for estimated daily discharges. Some regulation by Lake Palestine (station 08031400) 11 mi upstream and by Lake Athens 50 mi upstream (combined capacity 454,600 acre-ft). There are no large diversions above station. Gage-height telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--22 years (water years 1940-61) unregulated, 804 ft³/s (502,500 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1940-61).--Maximum discharge, 45,500 ft³/s Apr. 2, 1945 (gage height, 22.07 ft); no flow Oct. 3-5, 1939.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1908 (stage 24.3 ft) was the highest since flood in May 1884, which was probably higher.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	175	e559	217	1260	1570	2030	1610	1250	420	786	178	144
2	172	535	217	1220	1450	2200	1520	1480	357	692	171	142
3	171	382	228	1150	1340	2120	1420	1580	290	605	166	147
4	170	293	225	1150	1260	2060	1350	1580	266	518	164	144
5	170	233	230	1490	1250	1990	1360	1500	251	435	162	142
6	170	203	230	2730	1280	1900	1340	1410	245	364	162	141
7	170	186	227	5520	1290	1760	1270	1330	230	331	166	141
8	179	172	228	6460	1260	1610	1280	1240	217	306	171	139
9	184	166	256	5990	1200	1520	1310	1120	213	284	166	139
10	184	169	336	5500	1150	1460	1310	1040	228	271	163	125
11	182	206	317	4940	1130	1390	1240	1070	293	256	160	111
12	181	244	284	4310	1130	1790	1140	1040	405	238	157	113
13	181	371	264	3650	1130	2780	1060	989	342	227	155	113
14	179	359	351	3320	1100	2830	1040	943	324	216	153	120
15	177	293	1280	3050	1050	2290	1150	881	329	213	151	131
16	200	229	2930	2780	1120	2020	1250	784	320	210	150	127
17	256	200	3040	2530	1440	1890	1260	684	307	205	148	131
18	236	189	2630	2360	1880	1870	1200	646	295	203	148	143
19	222	189	2620	2260	2110	1840	1110	807	308	201	147	138
20	212	439	2680	2340	2210	1870	1030	792	2530	196	147	131
21	205	540	2780	2450	2220	1980	1130	651	4870	188	145	123
22	201	651	2760	2480	2150	2160	1270	532	4110	183	147	118
23	198	632	2540	2480	2080	2310	1280	436	2720	183	146	115
24	196	504	2300	2420	1970	2380	1160	402	2120	180	145	114
25	192	400	2140	2390	1940	2320	1030	451	1770	178	145	114
26	192	319	1990	2300	1980	2170	1010	457	1490	176	144	122
27	e192	275	1840	2150	2050	2070	1010	407	1370	174	143	196
28	e192	250	1680	2020	2080	1990	951	400	1260	173	144	184
29	205	237	1530	1880	---	1890	945	409	1140	170	144	165
30	e393	227	1420	1770	---	1800	1100	411	1000	169	165	153
31	e545	---	1330	1690	---	1690	---	390	---	183	150	---
TOTAL	6482	9652	41100	88040	43820	61980	36136	27112	30020	8714	4803	4066
MEAN	209	322	1326	2840	1565	1999	1205	875	1001	281	155	136
MAX	545	651	3040	6460	2220	2830	1610	1580	4870	786	178	196
MIN	170	166	217	1150	1050	1390	945	390	213	169	143	111
AC-FT	12860	19140	81520	174600	86920	122900	71680	53780	59540	17280	9530	8060

e Estimated

NECHES RIVER MAIN STEM

221

08032000 NECHES RIVER NEAR NECHES, TX--Continued

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

MEAN	208	396	752	802	1037	1228	1274	1290	821	221	116	203
MAX	2064	2559	3344	3097	3097	2879	4162	5289	4129	1076	617	1313
(WY)	1974	1975	1992	1991	1992	1987	1966	1968	1973	1976	1979	1973
MIN	12.8	16.0	82.1	102	180	92.0	60.1	43.3	23.7	12.5	9.70	8.37
(WY)	1964	1964	1990	1981	1981	1972	1972	1972	1971	1964	1964	1964

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1962 - 1993#

ANNUAL TOTAL	364339					361925						
ANNUAL MEAN	995					992				693		
HIGHEST ANNUAL MEAN										1265		1973
LOWEST ANNUAL MEAN										106		1972
HIGHEST DAILY MEAN	7530	Feb 27				6460	Jan 8			26200	May 13	1968
LOWEST DAILY MEAN	84	Jul 13				111	Sep 11			3.3	Nov 1	1963
ANNUAL SEVEN-DAY MINIMUM	91	Jul 8				120	Sep 20			3.4	Oct 29	1963
INSTANTANEOUS PEAK FLOW						6650	Jan 8			26900	May 13	1968
INSTANTANEOUS PEAK STAGE						16.26	Jan 8			19.46	May 13	1968
INSTANTANEOUS LOW FLOW										.00	Oct 3	1939
ANNUAL RUNOFF (AC-FT)	722700					717900				502300		
10 PERCENT EXCEEDS	2760					2300				1700		
50 PERCENT EXCEEDS	409					451				262		
90 PERCENT EXCEEDS	170					147				50		

Period of regulated streamflow.

NECHES RIVER MAIN STEM

08032000 NECHES RIVER NEAR NECHES, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: December 1969 to current year. Biochemical analyses: October 1974 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: December 1969 to September 1991.

WATER TEMPERATURES: December 1983 to September 1991.

INSTRUMENTATION.--Since December 1969, specific conductance is recorded continuously at this station.

Beginning December 1983 water temperature is recorded continuously at this station. On October 1, 1991 the continuously recording instrumentation was discontinued.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (1974-88): Maximum, 1,190 microsiemens Aug. 29, 1976; minimum 65 microsiemens June 1, 1990.

WATER TEMPERATURE: Maximum, 36.0°C July 16, 1985; minimum, 0.0°C Dec. 24, 25, 1989.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)
JAN 21...	0922	2430	167	7.2	8.0	9.3	79	1.3	39	13	9.6
APR 26...	1424	1020	150	7.4	20.5	7.9	88	2.2	38	14	9.3
JUN 09...	1401	214	167	7.2	28.0	6.4	82	1.5	47	22	12
JUL 23...	0757	184	169	7.2	25.0	5.9	72	1.6	41	20	10
AUG 20...	0821	147	173	5.6	28.0	5.6	72	1.8	44	24	11
SEP 16...	1426	127	184	7.1	23.0	6.6	75	1.2	45	19	11

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)
JAN 21...	3.6	14	1	5.3	26	19	22	0.10	8.4	98	0.083
APR 26...	3.6	14	1	3.6	24	20	18	<0.10	3.5	86	--
JUN 09...	4.1	15	1	3.4	25	20	24	0.10	9.1	104	0.250
JUL 23...	3.9	14	1	3.4	21	22	21	0.10	7.8	95	0.110
AUG 20...	4.1	14	0.9	3.9	20	23	23	0.20	6.9	99	0.150
SEP 16...	4.3	14	0.9	4.0	26	21	23	0.20	10	105	0.240

DATE	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L AS N)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
JAN 21...	0.083	0.010	0.093	0.093	0.040	0.36	0.40	0.020	0.010	0.03
APR 26...	--	<0.010	--	<0.050	0.030	0.37	0.40	0.050	0.010	0.03
JUN 09...	0.250	0.010	0.260	0.260	0.070	0.23	0.30	<0.010	<0.010	--
JUL 23...	--	<0.010	0.110	0.110	0.030	0.57	0.60	<0.010	0.010	0.03
AUG 20...	--	<0.010	0.150	0.150	0.080	2.4	2.5	0.030	0.020	0.06
SEP 16...	0.240	0.030	0.270	0.270	0.220	0.28	0.50	0.030	<0.010	--

NECHES RIVER MAIN STEM

223

08033000 NECHES RIVER NEAR DIBOLL, TX
(Flood-hydrograph Partial-record Station)

LOCATION.--Lat 31°07'58", long 94°48'35", Angelina-Polk County line, Hydrologic Unit 12020002, near center of main span of downstream bridge on U.S. Highway 59, 700 ft downstream from Texas and New Orleans Railroad Co. bridge, 2.9 mi downstream from Alabama Creek, 3.8 mi south of Diboll, and at mile 203.5

DRAINAGE AREA.--2,724 mi².

PERIOD OF RECORD.--October 1923 to September 1925, March 1939 to September 1985. Monthly discharge only for some periods, published in WSP 1312. October 1985 to September 1989 (annual maximum), October 1989 to September 1991 (peaks above base discharge including annual maximum).

Water-quality records: Chemical and biochemical analyses: October 1969 to September 1981.

REVISED RECORDS.--WSP 1242: 1950. WSP 1732: Drainage area.

GAGE.--Water-stage recorder and Data Collection Platform (DCP). Datum of gage is 136.46 ft above National Geodetic Vertical Datum of 1929. Prior to July 10, 1925, nonrecording gage at site 630 ft upstream; July 10 to Aug. 31, 1925, and Mar. 30, 1939, to Sept. 24, 1943, nonrecording gage at site 500 ft upstream; Sept. 25, 1943, to Aug. 16, 1973, nonrecording gage at site 70 ft upstream; all at present datum.

REMARKS.--Satellite telemeter (DCP) at station.

AVERAGE DISCHARGE.--24 years (water years 1923-25, 1939-61) unregulated, 1,807 ft³/s (1,309,000 acre-ft/yr); 24 years (water years 1962-85) regulated, 1,353 ft³/s (980,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,900 ft³/s May 4, 1944 (gage height, 18.70 ft); no flow Aug. 15-22, 1925.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1874, 21 ft in May 1884 (discharge, about 110,000 ft³/s) from rating curve extended above 40,000 ft³/s; flood in 1900 reached a stage of 19.9 ft (discharge, about 80,000 ft³/s), from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges above base of 6,000 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 27	1500	6,960	13.88	Apr. 9	0500	7,750	14.12
Jan. 20	1800	10,500	14.73	May 2	2000	9,820	14.60
Mar. 25	0100	12,400	15.09	June 24	1500	21,400	16.32

NECHES RIVER MAIN STEM

08033500 NECHES RIVER NEAR ROCKLAND, TX

LOCATION.--Lat 31°01'29", long 94°23'55". Tyler County, Hydrologic Unit 12020003, at downstream side of bridge at U.S. Highway 69, 2,200 ft upstream from abandoned ferry crossing, 0.8 mi upstream from Texas and New Orleans Railway Co. bridge, 1.2 mi north of Rockland, 3.2 mi downstream from Williams Creek, and 32.4 mi upstream from Angelina River.

DRAINAGE AREA.--3,636 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1903 to current year.

REVISED RECORDS.--WSP 878: 1926-27. WSP 1342: 1922(M), 1935. WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 88.41 ft above National Geodetic Vertical Datum of 1929. Prior to May 23, 1973, nonrecording gage located 2,200 ft downstream at datum 3.00 ft higher. May 23, 1973, to Sept. 30, 1975, recording gage at present site at datum 3.00 ft higher.

REMARKS.--No estimated daily discharges. Records good. At times, low flow may be affected by regulation from Lake Athens, by Lake Palestine (station 08031400), and by Lake Jacksonville, with a combined capacity of 130,700 acre-ft. Between April and September of the current year, the Upper Neches Municipal Water Authority diverted 1,710 acre-ft from the Neches River at a diversion point about 10 mi downstream from station Neches River near Neches (08032000). Additional diversions occurred between October and March, but amounts are unknown. This water is used for municipal and industrial purposes in the Palestine area. Gage-height telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--58 years (water years 1904-61) 2,362 (1,711,000 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1904-61).--Maximum discharge, 49,800 ft³/s May 6, 1944 (gage height, 35.04 ft), present site; minimum observed during period of daily records, 1.6 ft³/s Sept. 28-30, and Oct. 1, 2, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Historical flood information begins with flood in May 1884, which reached a stage of 38.0 ft, present site, from information by local resident (discharge, about 62,000 ft³/s).

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	239	298	1080	7200	5980	2620	9920	2710	2520	20100	382	206
2	241	344	984	6940	5440	3650	8720	4450	2310	18600	368	206
3	242	349	857	6580	5060	4020	7510	6960	1850	16900	357	209
4	239	441	732	6160	4790	4050	7030	8410	1750	14800	340	219
5	235	476	632	5980	4610	4080	6750	9470	1540	12500	330	231
6	226	513	568	5530	4580	4160	6430	10200	1270	10400	324	238
7	223	570	531	5670	4530	4250	6880	10200	1080	8490	324	234
8	218	595	505	6650	4470	4320	9560	9640	957	6600	323	222
9	213	595	639	6670	4370	4330	9760	8680	872	4970	321	210
10	213	561	876	7020	4290	4260	10300	7970	799	3950	320	202
11	213	509	736	7190	4320	4200	10300	7090	909	3110	314	200
12	208	482	727	7290	4220	4980	10100	6520	952	2260	311	195
13	208	453	729	7230	4010	5780	9660	5980	891	1600	295	192
14	208	417	716	6950	3770	6310	9090	5440	774	1230	288	201
15	209	431	5430	6570	3540	6810	8820	5080	770	1040	281	218
16	235	442	6570	6220	3430	7500	8390	4870	834	936	274	210
17	252	433	6470	6010	3330	8370	7850	4680	1000	862	267	211
18	245	424	5520	6060	3180	8930	7080	4500	1150	762	259	213
19	241	430	4830	8280	3040	9160	6150	4300	1220	672	250	213
20	239	864	4130	12200	2930	9100	5170	3940	1690	625	244	235
21	236	973	4310	14700	2810	8850	4450	3170	2770	596	249	279
22	248	930	4700	16400	2670	8520	4050	2600	4060	568	281	289
23	264	951	5120	16700	2510	9110	3810	2270	4760	533	232	273
24	281	1100	5680	15800	2400	9720	3640	2190	4740	518	221	251
25	289	1290	6240	14500	2330	10800	3490	2310	5850	496	216	232
26	287	1250	6960	12900	2380	12000	3390	2450	9830	471	216	222
27	273	1220	7250	11300	2480	13000	3160	2380	16100	446	213	216
28	261	1230	7330	9930	2430	13500	2880	2230	20100	433	212	209
29	254	1200	7360	8740	---	13200	2670	2040	21500	420	209	198
30	266	1140	7380	7670	---	12300	2620	1940	21200	410	218	191
31	276	---	7350	6730	---	11100	---	1960	---	403	210	---
TOTAL	7482	20911	112942	273770	103900	232980	199630	156630	136048	135701	8649	6625
MEAN	241	697	3643	8831	3711	7515	6654	5053	4535	4377	279	221
MAX	289	1290	7380	16700	5980	13500	10300	10200	21500	20100	382	289
MIN	208	298	505	5530	2330	2620	2620	1940	770	403	209	191
AC-FT	14840	41480	224000	543000	206100	462100	396000	310700	269900	269200	17160	13140

NECHES RIVER MAIN STEM

225

08033500 NECHES RIVER NEAR ROCKLAND, TX--Continued

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

MEAN	538	1123	2287	3363	3660	3708	3766	4074	2751	1246	375	457
MAX	4832	6142	7805	12570	13930	13750	11990	12730	10360	11260	2673	3042
(WY)	1974	1974	1974	1991	1992	1992	1979	1969	1990	1989	1991	1979
MIN	36.6	65.8	213	263	368	475	282	469	102	42.9	34.2	43.1
(WY)	1964	1965	1981	1981	1971	1967	1971	1971	1971	1971	1964	1964

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1962 - 1993#

ANNUAL TOTAL	1590968		1395268									
ANNUAL MEAN	4347		3823							2272		
HIGHEST ANNUAL MEAN										4542		1992
LOWEST ANNUAL MEAN										352		1971
HIGHEST DAILY MEAN	27000	Mar 7	21500	Jun 29	41600	Jul 2	1989					
LOWEST DAILY MEAN	208	Oct 12	191	Sep 30	18	Aug 30	1970					
ANNUAL SEVEN-DAY MINIMUM	210	Oct 9	203	Sep 9	23	Jul 21	1971					
INSTANTANEOUS PEAK FLOW			21700	Jun 29	42000	Jul 2	1989					
INSTANTANEOUS PEAK STAGE			27.11	Jun 29	33.20	Jul 2	1989					
ANNUAL RUNOFF (AC-FT)	3156000		2768000		1646000							
10 PERCENT EXCEEDS	13000		9650		6040							
50 PERCENT EXCEEDS	1150		2330		900							
90 PERCENT EXCEEDS	270		222		102							

Period of regulated streamflow.

NECHES RIVER MAIN STEM

08033500 NECHES RIVER NEAR ROCKLAND, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: April 1941 to September 1942, September 1945 to September 1947. Chemical and biochemical analyses: December 1967 to current year. Sediment analyses: 1961 to 1963.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1941 to September 1942, and September 1945 to September 1947.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	HARDNESS TOTAL (MG/L AS CaCO3)	HARDNESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)
JAN 22...	1115	16400	99	6.0	10.5	9.4	84	1.1	21	12
MAR 11...	1115	4190	167	6.8	16.0	8.2	83	1.7	37	21
APR 29...	1000	2850	171	7.0	20.0	7.7	85	1.6	39	14
JUN 17...	0915	1040	192	7.3	27.5	6.5	83	0.5	42	10
AUG 05...	1602	327	188	7.2	32.0	7.0	96	0.9	40	13
SEP 01...	1610	206	195	7.2	31.0	7.4	100	1.7	40	13

DATE	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY WAT DIS FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS Cl)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
JAN 22...	5.2	2.0	10	0.9	2.6	9.0	17	13	<0.10	9.9
MAR 11...	8.6	3.7	17	1	3.2	16	28	21	0.10	8.1
APR 29...	8.9	4.0	16	1	3.1	25	22	20	0.20	9.5
JUN 17...	10	4.2	20	1	3.1	32	5.8	29	0.10	16
AUG 05...	9.3	4.1	19	1	3.0	27	18	25	0.10	17
SEP 01...	9.3	4.0	21	1	4.6	27	18	30	0.10	13

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS-SOLVED (MG/L AS N)	PHOSPHORUS, DIS-SOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
JAN 22...	66	--	0.020	--	<0.050	0.050	0.85	0.90	0.050	0.040
MAR 11...	99	--	<0.010	--	<0.050	0.020	0.38	0.40	0.020	0.010
APR 29...	100	0.150	<0.010	0.150	0.150	0.080	0.92	1.0	0.030	0.020
JUN 17...	109	0.330	<0.010	0.330	0.330	0.040	0.86	0.90	0.070	0.060
AUG 05...	113	0.180	<0.010	0.180	0.180	0.030	0.17	0.20	0.020	0.020
SEP 01...	117	--	<0.010	--	<0.050	0.050	0.65	0.70	0.050	0.020

DATE	PHOSPHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	ARSENIC, DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYLLIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM, DIS-SOLVED (UG/L AS CD)	CHROMIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)
JAN 22...	0.12	<1	34	0.7	1.0	<5	<3	<10	310	<10
MAR 11...	0.03	--	--	--	--	--	--	--	--	--
APR 29...	0.06	--	--	--	--	--	--	--	--	--
JUN 17...	0.18	--	--	--	--	--	--	--	--	--
AUG 05...	0.06	--	--	--	--	--	--	--	--	--
SEP 01...	0.06	<1	50	<0.5	<1.0	<5	<3	<10	320	<10

NECHES RIVER MAIN STEM

08033500 NECHES RIVER NEAR ROCKLAND, TX--Continued

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

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
JAN 22...	6	52	<0.1	<10	<10	<1	<1.0	54	<6	11
MAR 11...	--	--	--	--	--	--	--	--	--	--
APR 29...	--	--	--	--	--	--	--	--	--	--
JUN 17...	--	--	--	--	--	--	--	--	--	--
AUG 05...	--	--	--	--	--	--	--	--	--	--
SEP 01...	8	14	<0.1	<10	<10	<1	<1.0	110	<6	3

08036500 ANGELINA RIVER NEAR ALTO, TX

LOCATION.--Lat 31°40'10", long 94°57'24", Nacogdoches-Cherokee County line, Hydrologic Unit 12020004, near center of rectified channel at downstream side of bridge on State Highway 21, 0.4 mi upstream from Allen Creek, 1.5 mi upstream from Bingham Creek, 7.5 mi east of Alto, and 149.3 mi upstream from mouth.

DRAINAGE AREA.--1,276 mi².

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.

Water-quality records.--Chemical analyses: November 1961 to September 1963.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 204.30 ft above National Geodetic Vertical Datum of 1929. May 9, 1940, to Mar. 31, 1949, nonrecording gage on bridge at natural channel 1,400 ft to right at same datum. Feb. 18 to Sept. 15, 1959, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Records good. No large diversions above station. Flow partly regulated since May 1957 by Lake Striker, 35.5 mi upstream and by Lake Tyler, 69.9 mi upstream since January 1949 (combined capacity, 110,700 acre-ft). Several observations of water temperature were made during the year. Gage height and rainfall telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1905, that of Mar. 31, 1989. A flood in May 1908 reached a stage of about 22 ft, from information by local residents. Flood in 1932 reached a stage of 21.5 ft, from floodmarks and from information by local residents.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	138	592	986	1420	1860	2070	974	567	5460	150	154
2	52	252	511	979	1240	2070	1840	1380	636	4640	157	159
3	47	283	459	961	1040	2190	1590	1580	726	3770	159	151
4	41	297	388	1030	939	2400	1450	1810	760	3080	149	93
5	46	308	289	1160	928	2800	1330	2030	682	2490	143	63
6	87	275	252	1130	948	3140	1240	2220	493	1860	133	55
7	104	244	244	1230	948	3200	1350	2250	436	1250	122	48
8	110	234	239	1440	954	3030	1880	2170	383	775	111	43
9	110	223	242	1640	975	2690	2030	2030	287	569	106	40
10	113	193	282	1960	977	2250	2170	2090	248	498	121	40
11	116	173	354	2050	961	1780	2270	1850	252	452	141	39
12	126	235	438	2310	925	2180	2350	1630	283	415	139	36
13	128	303	484	2590	886	2400	2340	1470	341	385	130	34
14	128	334	459	2800	822	3480	2240	1340	441	361	115	36
15	95	374	1350	2870	738	6100	2260	1130	376	339	96	39
16	58	352	1400	2840	789	7150	2050	860	308	321	83	43
17	51	272	1480	2750	992	6400	1960	659	296	306	75	101
18	47	244	2170	2640	1170	5700	1930	553	282	292	71	180
19	58	236	3120	2550	1380	4870	1860	517	327	280	66	185
20	91	295	3740	2420	1640	4140	1740	591	1230	267	65	172
21	88	344	4040	2250	1860	3530	1570	721	3400	253	96	163
22	81	480	4020	2130	2050	3120	1430	779	20300	240	125	154
23	80	579	3720	2080	2170	3100	1430	777	26500	229	133	147
24	71	665	3270	2090	2140	2870	1500	677	20500	219	140	143
25	64	745	2820	2120	2120	2840	1540	581	13400	207	152	131
26	60	792	2400	2160	2090	2930	1440	548	9640	196	151	131
27	57	798	2020	2140	1860	2990	1230	614	7860	189	146	159
28	57	785	1680	2060	1790	2930	992	544	6590	180	144	179
29	55	744	1400	1930	---	2740	847	466	6060	170	141	200
30	74	675	1170	1770	---	2530	817	460	5870	161	142	224
31	81	---	1030	1590	---	2300	---	535	---	155	153	---
TOTAL	2428	11872	46063	60656	36752	101710	50746	35836	129474	30009	3855	3342
MEAN	78.3	396	1486	1957	1313	3281	1692	1156	4316	968	124	111
MAX	128	798	4040	2870	2170	7150	2350	2250	26500	5460	159	224
MIN	41	138	239	961	738	1780	817	460	248	155	65	34
AC-FT	4820	23550	91370	120300	72900	201700	100700	71080	256800	59520	7650	6630

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

	234	503	1152	1356	1551	1554	1493	1336	887	294	130	186
MEAN	234	503	1152	1356	1551	1554	1493	1336	887	294	130	186
MAX	2350	2081	4836	4874	4642	4622	4301	4484	4316	1718	519	950
(WY)	1974	1986	1961	1991	1983	1969	1969	1966	1993	1976	1979	1973
MIN	5.56	18.0	67.8	150	158	183	172	119	34.2	18.0	22.4	16.2
(WY)	1968	1968	1965	1981	1967	1967	1972	1972	1971	1971	1972	1972

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1960 - 1993

ANNUAL TOTAL	441935	512743	
ANNUAL MEAN	1207	1405	886
HIGHEST ANNUAL MEAN			1917
LOWEST ANNUAL MEAN			154
HIGHEST DAILY MEAN	8410	Feb 27	26500
LOWEST DAILY MEAN	39	Aug 31	34
ANNUAL SEVEN-DAY MINIMUM	47	Aug 26	38
INSTANTANEOUS PEAK FLOW			27700
INSTANTANEOUS PEAK STAGE			21.26
INSTANTANEOUS LOW FLOW			2.0
ANNUAL RUNOFF (AC-FT)	876600	1017000	641900
10 PERCENT EXCEEDS	3680	2890	2230
50 PERCENT EXCEEDS	415	682	329
90 PERCENT EXCEEDS	71	85	47

08036700 LAKE MACOGDOCHES NEAR MACOGDOCHES, TX

LOCATION.--Lat 31°35'19", Long 94°49'31", Macogdoches County, Hydrologic Unit 12020004, at upstream side of dam on Bayou Loco near service outlet tower and 10 mi west of Macogdoches.

DRAINAGE AREA.--87.9 mi².

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

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

REMARKS.--The lake is formed by a rolled earthfill dam. Deliberate impoundment began July 14, 1976. Water is used for industrial and municipal supply by the city of Macogdoches. The spillway is an uncontrolled 500-foot-wide cut through natural ground located near the right end of dam. There is an uncontrolled drop inlet with a 20.5-foot-diameter top opening that is connected to an 8- x 7-foot conduit that extends through the dam. A separate multi-gated inlet tower is connected to a valve by a 30-inch conduit through the dam. The valve box directs water to a purification plant. 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.....	303.0	-
Top of design flood.....	298.5	102,900
Crest of spillway.....	286.0	59,570
Crest of drop inlet (top of conservation pool).....	279.0	42,320
Lowest gated outlet (invert of 30 in. conduit).....	238.25	254

COOPERATION.--The capacity table, furnished by the city of Macogdoches, is based on Geological Survey topographic maps dated 1952.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 53,550 acre-ft June 3, 1979 (elevation, 283.76 ft); minimum since first appreciable storage, 20,540 acre-ft Nov. 26, 1977 (elevation, 266.62 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 48,070 acre-ft June 25 at 0400 to 0900 hours (elevation, 281.22 ft); minimum, 33,310 acre-ft Dec. 14 (elevation, 274.51 ft).

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

274.0	32,360	277.0	38,140	280.0	44,500
275.0	34,220	278.0	40,200	281.0	47,770
276.0	36,140	279.0	42,320	282.0	49,140

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37660	35600	34000	37760	42020	43150	42890	42820	42430	42490	40600	39290
2	37500	35510	34000	37720	42040	43520	42760	43040	42340	42340	40500	39190
3	37420	35220	33920	37740	42070	43410	42760	42930	42240	42190	40480	39170
4	37300	35310	33810	37980	42070	43240	43080	42760	42210	42090	40620	39110
5	37200	35280	33770	38260	42150	43040	43130	42760	42150	41960	40600	39070
6	37080	35180	33700	38330	42210	42890	43000	42580	42130	41900	40520	38980
7	36860	35060	33620	38530	42240	42780	43720	42430	42090	41810	40540	38900
8	36900	35010	33570	38880	42210	42690	44790	42360	42020	41750	40430	38840
9	36820	34930	33590	39270	42240	42580	44300	42450	41980	41660	40390	38760
10	36740	34870	33570	40040	42260	42560	43930	42470	41940	41580	40390	38740
11	36660	34850	33480	40240	42240	42710	43650	42800	42000	41600	40350	38630
12	36560	34780	33400	40520	42190	44330	43390	42670	42000	41510	40280	38590
13	36440	34740	33330	40620	42190	44860	43190	42650	41960	41470	40220	38530
14	36360	34660	33980	40690	42150	44170	43190	42540	41450	41430	40180	38680
15	36300	34580	35720	40750	42300	43850	43300	42470	41470	41390	40120	38680
16	36380	34510	36300	40750	42390	43610	43190	42430	41430	41370	40080	38650
17	36260	34450	36380	40810	42360	43410	43020	42360	41370	41300	40010	38570
18	36140	34370	36420	41240	42280	43170	42890	42260	41320	41260	39970	38510
19	36040	34470	36500	42040	42260	43190	42780	42280	41600	41200	39890	38530
20	35950	34470	36560	42780	42260	44500	42670	42260	45220	41150	39850	38470
21	35870	34510	36680	42970	42300	44460	42540	42190	48020	41150	39850	38410
22	35780	34510	36760	42860	42210	45480	42430	42150	47340	41070	39790	38410
23	35700	34490	37020	42800	42210	46230	42360	42150	45580	41010	39730	38370
24	35600	34550	37280	42670	42130	45190	42320	42150	44630	40960	39660	38300
25	35530	34430	37480	42540	43020	44410	42360	42240	44040	40920	39580	38300
26	35430	34350	37600	42430	43280	43980	42390	42210	43670	40860	39580	38390
27	35370	34350	37660	42320	43130	43610	42300	42190	43450	40810	39480	38300
28	35280	34280	37720	42280	43020	43340	42240	42280	43150	40750	39420	38220
29	35160	34200	37760	42210	---	43170	42300	42240	42910	40670	39460	38180
30	35470	34130	37800	42130	---	43340	42280	42630	42670	40670	39380	38140
31	35330	---	37760	42020	---	43150	---	42540	---	40650	39330	---
MAX	37660	35600	37800	42970	43280	46230	44790	43040	48020	42490	40620	39290
MIN	35160	34130	33330	37720	42020	42560	42240	42150	40670	40650	39330	38140
(↑)	275.58	274.95	276.81	278.86	279.32	279.38	278.98	279.10	279.16	278.21	277.58	277.00
(Φ)	-2470	-1200	-3630	+4260	+1000	+130	-870	+260	+130	-2020	-1320	-1190
(↑↑)	344	212	179	153	156	177	172	200	225	380	518	414
CAL YR 1992	MAX	48600	MIN	33330	(Φ)	-5240	(↑↑)	3268				
WTR YR 1993	MAX	48020	MIN	33330	(Φ)	+340	(↑↑)	3130				

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

(Φ) Change in contents, in acre-feet.

(↑↑) Diversions, in acre-feet, by the city of Macogdoches.

08037050 BAYOU LANANA AT MACOGDOCHES, TX

LOCATION.--Lat 31°36'58", long 94°38'28", Macogdoches County, Hydrologic Unit 12020005, on right bank at downstream side of bridge on Farm Road 1878 in Macogdoches and 14.5 mi upstream from mouth.

DRAINAGE AREA.--31.3 mi².

PERIOD OF RECORD.--October 1964 to September 1986, May 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Prior to July 1974, concrete control. Datum of gage is 264.23 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. No diversion above station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,100 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 12	1200	1,060	11.17	No peak greater than base discharge.			

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.14	21	.77	19	22	97	34	134	18	21	2.5	.39
2	.15	.73	.74	17	20	190	29	83	12	18	2.8	.08
3	.14	12	.65	17	19	59	34	37	9.3	17	2.2	.13
4	.22	1.2	.61	113	19	39	151	26	7.7	17	5.0	.20
5	.37	.37	.56	66	38	31	55	26	6.6	18	3.8	.10
6	.25	.29	.63	34	43	26	38	27	5.9	16	1.4	.08
7	.29	.25	.68	82	28	23	342	22	5.1	13	.97	.07
8	.21	.25	.66	105	23	21	396	18	4.2	12	.94	.39
9	.15	.25	6.4	123	20	19	77	34	3.4	11	1.8	.43
10	.13	.28	1.3	163	28	18	48	90	7.3	10	2.0	.35
11	.13	.42	.88	71	30	38	38	35	5.6	9.2	.83	.36
12	.10	28	.75	76	22	686	33	30	5.4	7.9	e.42	.15
13	.12	.87	.75	51	18	112	29	23	3.6	7.4	e.50	.14
14	.17	.45	66	42	17	60	113	17	2.5	6.9	e.33	38
15	.18	.33	544	37	31	52	101	15	2.1	6.5	e.25	3.7
16	2.5	.33	71	34	92	73	42	14	1.9	6.3	2.3	.75
17	.15	.33	28	33	35	62	33	11	2.1	6.0	e.62	.37
18	.13	.32	19	203	26	46	29	15	9.4	5.6	.21	.25
19	.10	4.0	19	232	23	56	26	22	40	5.0	.46	.51
20	.16	16	59	190	23	510	32	12	716	4.6	.02	.64
21	.16	61	60	93	22	117	26	10	342	4.2	1.0	.26
22	.15	35	37	57	18	323	20	10	122	3.8	1.3	.12
23	.10	2.8	106	47	16	273	18	9.4	57	5.4	.08	.16
24	.12	18	77	73	15	79	16	25	233	2.8	.30	.30
25	.09	4.4	70	44	228	57	34	19	107	2.2	.26	.12
26	.09	2.0	75	36	85	47	22	19	116	1.5	.95	4.6
27	.09	1.4	40	30	41	38	16	13	57	1.2	1.9	1.4
28	.13	1.2	31	28	33	33	14	12	39	1.7	1.0	.28
29	.13	1.1	27	28	---	30	20	10	29	20	.82	.16
30	24	.91	25	26	---	70	17	55	24	15	.57	.31
31	.37	---	22	23	---	46	---	96	---	7.1	.14	---
TOTAL	31.22	215.48	1391.38	2193	1035	3331	1883	969.4	1994.1	283.3	37.67	54.80
MEAN	1.01	7.18	44.9	70.7	37.0	107	62.8	31.3	66.5	9.14	1.22	1.83
MAX	24	61	544	232	228	686	396	134	716	21	5.0	.38
MIN	.09	.25	.56	17	15	18	14	9.4	1.9	1.2	.02	.07
AC-FT	62	427	2760	4350	2050	6610	3730	1920	3960	562	75	109
CFSM	.03	.23	1.43	2.26	1.18	3.43	2.01	1.00	2.12	.29	.04	.06
IN.	.04	.26	1.65	2.61	1.23	3.96	2.24	1.15	2.37	.34	.04	.07

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1993, BY WATER YEAR (WY)

	9.42	24.1	34.7	52.0	61.5	49.7	52.7	53.2	37.3	10.8	2.78	5.81
MEAN	9.42	24.1	34.7	52.0	61.5	49.7	52.7	53.2	37.3	10.8	2.78	5.81
MAX	56.8	129	167	156	246	145	178	234	295	72.1	12.1	39.3
(WY)	1985	1986	1983	1979	1975	1969	1968	1979	1979	1989	1991	1981
MIN	.000	.001	.41	1.49	4.62	2.44	.64	4.18	.25	.004	.018	.000
(WY)	1965	1968	1968	1971	1971	1971	1971	1972	1971	1970	1967	1967

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1965 - 1993

ANNUAL TOTAL	11193.44	13419.35	32.8
ANNUAL MEAN	30.6	36.8	90.4
HIGHEST ANNUAL MEAN			1.98
LOWEST ANNUAL MEAN			5730
HIGHEST DAILY MEAN	654	716	Jun 2 1979
LOWEST DAILY MEAN	.09	.02	Aug 20
ANNUAL SEVEN-DAY MINIMUM	.11	.11	Oct 23
INSTANTANEOUS PEAK FLOW		1060	Mar 12
INSTANTANEOUS PEAK STAGE		11.17	Mar 12
INSTANTANEOUS LOW FLOW		.00	Aug 18
ANNUAL RUNOFF (AC-FT)	22200	26620	23750
ANNUAL RUNOFF (CFSM)	.98	1.17	1.05
ANNUAL RUNOFF (INCHES)	13.30	15.95	14.23
10 PERCENT EXCEEDS	76	82	59
50 PERCENT EXCEEDS	3.4	16	6.0
90 PERCENT EXCEEDS	.15	.18	.14

NECHES RIVER BASIN

231

08038000 ATTOYAC BAYOU NEAR CHIRENO, TX
(Flood-hydrograph Partial-record Station)

LOCATION.--lat 31°30'15", long 94°18'15", Nacogdoches-San Augustine County Line, Hydrologic Unit 12020005, near right bank at downstream side of bridge on State Highway 21, 2.2 mi upstream from Amaladeros Creek, 2.8 mi east of Chireno, 5.4 mi downstream from Arenoso Creek, and 41 mi upstream from mouth.

DRAINAGE AREA.--503 mi².

PERIOD OF RECORD.--January 1924 to September 1925, July 1939 to November 1954, and October 1955 to Sept. 30, 1985. Monthly discharge only for some periods, published in WSP 1312 and 1732. October 1985 to September 1989 (annual maximum). October 1989 to current year (peaks above base discharge or annual maximum).

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Data collection platform (DCP) and water-stage recorder. Datum of gage is 169.58 ft above National Geodetic Vertical Datum of 1929. Jan. 24, 1924, to Aug. 29, 1925, and Sept. 6, 1957, to Oct. 27, 1958, nonrecording gage at same site and datum.

REMARKS.--Flow is affected at times by discharge from the flood-detention pools of twelve floodwater-retarding structures with a combined detention capacity of 15,870 acre-ft. These structures control runoff from 46.7 mi² above this station. Satellite telemeter (DCP) at station.

AVERAGE DISCHARGE.--45 years (water years 1940-54, 1956-1985) 479 ft³/s (12.93 in/yr), 347,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,900 ft³/s Nov. 24, 1940 (gage height, 25.97 ft); minimum, 0.8 ft³/s Aug. 26, 27, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1865, 29.9 ft June 29, 1902, from information by local residents. Flood in July 1933 reached a stage of 25.2 ft from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 14	2200	4,150	17.90	Apr. 10	1300	2,720	17.01
Mar. 23	1100	2,960	17.19	June 24	2100	4,410	18.02

NECHES RIVER BASIN

08039100 AYISH BAYOU NEAR SAN AUGUSTINE, TX
(Flood-hydrograph Partial-record Station)

LOCATION.--Lat 31°23'46", Long 94°09'03", San Augustine County, Hydrologic Unit 12020005, near center of span at downstream side of bridge on State Highway 103, 3.0 mi upstream from Turkey Creek, and 9.5 mi south of San Augustine.

DRAINAGE AREA.--89.0 mi².

PERIOD OF RECORD.--February 1959 to September 1985. October 1985 to September 1989 (annual maximum), October 1989 to current year (peaks above base discharge and annual maximum).

REVISED RECORDS.--WSP 1922: 1959(M).

GAGE.--Data collection platform (DCP) and water-stage recorder. Datum of gage is 190.22 ft above National Geodetic Vertical Datum of 1929. Prior to June 2, 1959, nonrecording gage at same site and datum.

REMARKS.--Satellite gage-height and rainfall telemeter (DCP) at station.

AVERAGE DISCHARGE.--26 years (water years 1960-85), 83.7 ft³/s, 12.77 in/yr, 60,640 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,200 ft³/s Sept. 14, 1978 (gage height, 18.02 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Between October 1957 and February 1959, the maximum discharge was 15,900 ft³/s Sept. 21 or 22, 1958 (gage height, 17.5 ft), from floodmarks.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,600 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 20	0500	2,320	12.55	Apr. 8	1100	2,240	12.49
Mar. 12	2400	1,910	12.23				

08039300 SAM RAYBURN RESERVOIR NEAR JASPER, TX

LOCATION.--Lat 31°03'38", long 94°06'21", Jasper County, Hydrologic Unit 12020005, in the powerhouse-intake structure of Sam Rayburn Dam on the Angelina River, 10 mi northwest of Jasper, and 25.2 mi upstream from mouth.

DRAINAGE AREA.--3,449 mi².

PERIOD OF RECORD.--January 1965 to current year.

Water-quality records.--Chemical analyses: October 1964 to September 1984. Biochemical analyses: November 1967 to September 1984.

GAGE.--Stevens-type AP recording transmitter. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Apr. 20, 1965, nonrecording gage at same site and datum.

REMARKS.--The reservoir is formed by a rolled earthfill dam 19,430 ft long, including spillway and dikes. The dam was completed and deliberate impoundment began Mar. 29, 1965. The spillway is an uncontrolled broad-crested weir 2,200 ft wide, on right bank 7,000 ft to right of outlet works, and is designed to discharge 125,300 ft³/s at maximum flood design. The flood-control outlet works consists of two 10.0- by 20.0-foot rectangular concrete-lined conduits controlled by two 10.0- by 20.0-foot tractor-type service gates and one 10.0- by 20.0-foot tractor-type emergency gate. Water for turbines is admitted through four 18.0- by 26.0-foot 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 U.S. Army 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. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	190.0	-
Design flood.....	183.0	5,610,000
Crest of spillway.....	176.0	4,442,400
Top of flood-control pool.....	173.0	3,997,600
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 the U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 3,881,000 acre-ft Feb. 7, 1974 (elevation, 172.17 ft); minimum since conservation storage was reached in 1968, 1,797,000 acre-ft Nov. 15, 1977 (elevation, 153.35 ft).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 3,251,000 acre-ft July 6 (elevation, 167.37 ft); minimum daily, 2,029,000 acre-ft Nov. 19 (elevation, 155.97 ft).

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

155.0	1,941,200	166.0	3,085,000	171.0	3,720,000
158.0	2,221,000	168.0	3,329,000	172.0	3,857,000
162.0	2,631,000	170.0	3,586,000	173.0	3,998,000

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2277000	2108000	2057000	2348000	2784000	2884000	3140000	2998000	2911000	3209000	2850000	2615000
2	2268000	2095000	2053000	2354000	2791000	2902000	3115000	3005000	2898000	3225000	2840000	2605000
3	2262000	2118000	2048000	2357000	2797000	2908000	3102000	2997000	2896000	3239000	2836000	2603000
4	2252000	2104000	2057000	2378000	2802000	2914000	3115000	2981000	2899000	3250000	2830000	2594000
5	2242000	2095000	2053000	2381000	2810000	2912000	3096000	2977000	2896000	3250000	2819000	2586000
6	2233000	2094000	2052000	2385000	2816000	2910000	3079000	2973000	2894000	3251000	2812000	2579000
7	2219000	2084000	2048000	2408000	2816000	2910000	3109000	2969000	2887000	3246000	2804000	2572000
8	2216000	2075000	2047000	2423000	2818000	2910000	3150000	2962000	2884000	3228000	2796000	2559000
9	2206000	2075000	2048000	2433000	2821000	2905000	3169000	2962000	2882000	3208000	2789000	2552000
10	2202000	2071000	2048000	2454000	2828000	2907000	3163000	3004000	2882000	3184000	2781000	2545000
11	2194000	2071000	2043000	2459000	2839000	2927000	3169000	3012000	2882000	3155000	2772000	2532000
12	2187000	2061000	2034000	2470000	2839000	2958000	3168000	3008000	2882000	3127000	2764000	2520000
13	2174000	2053000	2034000	2479000	2839000	2969000	3164000	2992000	2878000	3101000	2756000	2512000
14	2168000	2048000	2053000	2486000	2836000	2969000	3189000	2978000	2873000	3074000	2746000	2527000
15	2158000	2047000	2098000	2495000	2839000	2969000	3174000	2973000	2866000	3052000	2738000	2514000
16	2168000	2043000	2118000	2501000	2851000	2985000	3168000	2970000	2858000	3032000	2732000	2503000
17	2161000	2038000	2132000	2507000	2847000	2988000	3150000	2960000	2851000	3012000	2724000	2497000
18	2158000	2034000	2139000	2536000	2847000	2990000	3140000	2988000	2851000	2993000	2720000	2489000
19	2151000	2029000	2152000	2586000	2839000	2993000	3121000	2988000	2858000	2973000	2707000	2483000
20	2149000	2043000	2168000	2640000	2836000	3005000	3116000	2981000	2881000	2959000	2699000	2476000
21	2145000	2039000	2177000	2667000	2850000	3016000	3095000	2969000	2891000	2944000	2694000	2472000
22	2139000	2039000	2187000	2688000	2847000	3059000	3072000	2957000	2913000	2935000	2683000	2464000
23	2136000	2039000	2219000	2704000	2847000	3091000	3055000	2951000	2921000	2926000	2672000	2458000
24	2130000	2052000	2233000	2716000	2844000	3115000	3048000	2951000	2941000	2910000	2662000	2451000
25	2126000	2062000	2262000	2727000	2858000	3132000	3040000	2951000	2995000	2905000	2672000	2443000
26	2118000	2067000	2278000	2737000	2864000	3140000	3027000	2944000	3048000	2891000	2651000	2447000
27	2117000	2058000	2291000	2743000	2864000	3126000	3012000	2938000	3095000	2887000	2651000	2435000
28	2108000	2057000	2306000	2754000	2868000	3119000	2993000	2930000	3128000	2878000	2644000	2426000
29	2099000	2057000	2320000	2765000	---	3116000	2987000	2929000	3161000	2872000	2633000	2416000
30	2108000	2057000	2331000	2772000	---	3126000	2970000	2929000	3186000	2864000	2626000	2410000
31	2099000	---	2341000	2776000	---	3140000	---	2923000	---	2856000	2620000	---
MAX	2277000	2118000	2341000	2776000	2868000	3140000	3189000	3012000	3186000	3251000	2850000	2615000
MIN	2099000	2029000	2034000	2348000	2784000	2884000	2970000	2923000	2851000	2856000	2620000	2410000
(↑)	156.73	156.27	159.22	163.32	164.14	166.46	165.02	164.62	166.84	164.03	161.90	159.90
(Φ)	-184000	-42000	+284000	+435000	+92000	+272000	-170000	-47000	+263000	-330000	-236000	-210000

CAL YR 1992 MAX 4283000 MIN 2029000 (Φ) -719000
WTR YR 1993 MAX 3251000 MIN 2029000 (Φ) +127000

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

NECHES RIVER MAIN STEM

08040000 B.A. STEINHAGEN LAKE AT TOWN BLUFF, TX

LOCATION.--Lat 30°47'43", long 94°10'48", Tyler County, Hydrologic Unit 12020003, near right bank 70 ft upstream from outlet structure of Town Bluff Dam on Neches River, 0.4 mi north of Town Bluff, and at mile 113.7.

DRAINAGE AREA.--7,573 mi².

PERIOD OF RECORD.--April 1951 to current year. Prior to October 1967, published as Dam B Reservoir at Town Bluff.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 25, 1954, at site 490 ft upstream at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam with concrete spillway sections. The total length of dam is 6,698 ft, including a concrete spillway and non-overflow section. Deliberate impoundment of water began Apr. 16, 1951, and the dam was completed in June 1951. The uncontrolled spillway is 6,100 ft long. A 326-foot-long gated service spillway with six 40.0- by 35.0-foot tainter gates is located near right end of dam. The capacity of the spillways at maximum flood design is 218,300 ft³/s. The capacity table is based on a survey made in 1945. Water is used for industrial, municipal and irrigation supplies. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam (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 the U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 128,400 acre-ft May 22, 1953 (elevation, 85.21 ft); no storage Sept. 18 to Oct. 13, 1954.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 95,700 acre-ft Dec. 15 (elevation, 83.11 ft); minimum daily, 68,430 acre-ft Oct. 3 (elevation, 80.89 ft).

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

80.0	59,325	83.0	94,250
81.0	69,680	84.0	108,700
82.0	81,280		

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71760	85690	80930	80580	74080	83480	79650	83740	81040	91780	84520	84650
2	71420	86600	80120	79070	72920	86980	78610	86720	84910	94830	83870	83480
3	68430	89060	79190	77800	72230	86200	81790	90100	86980	94830	83480	82440
4	70600	86340	78490	79300	76520	84520	87240	89190	87890	91010	83350	81280
5	74200	84130	76520	79070	80580	85690	88540	89580	88150	88670	83350	80460
6	77330	82050	74780	78260	82440	88020	87370	85820	87110	85170	84130	80580
7	80120	82050	72580	80350	84390	88800	91010	81660	86340	76870	84650	80350
8	82570	82050	73620	80810	85170	88280	92950	79880	85690	73160	85170	80350
9	84650	82830	77680	78960	84650	87500	80350	79190	84260	77220	86080	80350
10	85950	82830	80230	78720	84260	85820	78380	78720	82830	81530	86200	80230
11	86080	81530	82050	78840	83870	87240	81790	73160	82440	85170	87240	80120
12	85950	83480	83350	78720	83090	88540	80580	71530	81920	85690	87240	80120
13	83730	82700	82180	78720	81790	85690	75820	78960	83610	85690	88280	80580
14	88020	81400	84910	76980	80120	82830	78490	86720	83740	86200	87630	84390
15	88670	80580	95700	79770	79190	84260	78260	85690	83350	88020	87630	84260
16	91660	79880	89840	81040	77680	89320	76640	83610	82570	89580	87890	83090
17	91010	78960	84130	81040	79190	92430	75710	82700	82310	88540	87760	83350
18	89580	77910	81530	82830	80350	92040	75010	84520	81530	86200	87760	83870
19	87760	78260	79190	84650	81530	89840	75940	85690	81160	85690	86850	84390
20	85430	78490	78840	87240	81660	87760	78030	84650	86980	87110	86850	84910
21	83740	79880	80580	85170	83090	85560	77330	83350	89580	85430	88020	85820
22	81920	81920	82440	82570	83090	83610	77100	81280	85430	84390	87890	86460
23	81040	83090	85820	81040	83870	84390	81040	79420	80000	84650	87890	87110
24	80350	82440	86080	80930	82830	82440	80580	78490	75480	85170	88280	87760
25	79300	83090	87500	80350	85170	78720	79300	80700	78140	85690	89710	88670
26	78720	82960	87240	77800	84390	76060	76640	83610	83090	87240	89450	89320
27	78960	81920	85820	77330	82960	79190	77910	86980	88670	86340	89190	89450
28	79070	81790	84650	77220	81280	86850	79770	87760	91520	85950	88670	89190
29	79190	81530	83480	78720	---	94970	81790	84910	89970	85690	87760	88540
30	80810	81280	82570	78030	---	94540	82310	81280	88800	86080	86720	87760
31	81400	---	82050	76400	---	87110	---	79880	---	85040	85820	---
MAX	91660	89060	95700	87240	85170	94970	92950	90100	91520	94830	89710	89450
MIN	68430	77910	72580	76400	72230	76060	75010	71530	75480	73160	83350	80120
(†)	82.01	82.00	82.06	81.58	82.00	82.45	82.08	81.88	82.58	82.29	82.35	82.50
(Φ)	+10330	-120	+770	-5650	+4880	+5830	-4800	-2430	+8920	-3760	+780	+1940

CAL YR 1992 MAX 101900 MIN 68430 (Φ) -13650
WTR YR 1993 MAX 95700 MIN 68430 (Φ) +16690

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

08040600 NECHES RIVER NEAR TOWN BLUFF, TX

LOCATION.--Lat 30°47'27", Long 94°09'03", Jasper-Tyler County line, Hydrologic Unit 12020003, on left bank 1.8 mi downstream from Town Bluff Dam, 2.0 mi northeast of Town Bluff, 1.0 mi upstream from Walnut Run, 6.5 mi downstream from Wolf Creek, and at mile 114.9.

DRAINAGE AREA.--7,574 mi².

PERIOD OF RECORD.--March 1951 to current year. Prior to Oct. 27, 1989, published as Neches River at Town Bluff.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Dec. 4, 1954 to Oct. 27, 1989, water-stage recorder at site 1.5 mi upstream at same datum. Prior to May 21, 1953, water-stage recorder, and May 21, 1953, to Dec. 3, 1954, nonrecording gage at former site at same datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by B. A. Steinhagen Lake (station 08040000) 1.8 mi upstream and by Sam Rayburn Reservoir (station 08039300) 37.9 mi upstream. There are some diversions upstream from station. Prior to October 1989, published as 08040500 Neches River at Town Bluff, Tx. Gage-height telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--13 years (water years 1952-64) prior to regulation by Sam Rayburn Reservoir, 4,406 ft³/s (3,192,000 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1952-64).--Maximum discharge, 90,900 ft³/s May 21, 22, 1953 (elevation, 82.85 ft) at former site; no flow at times due to regulation of B. A. Steinhagen Lake.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 1884 reached a stage about 86.8 ft (discharge, about 120,000 ft³/s) and is the highest since that date, from information by the U.S. Army Corps of Engineers.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3280	3470	2980	7860	7670	5250	17700	11500	6100	17600	3760	3430
2	3340	3520	3000	7810	6780	6910	17500	11600	5220	17700	3710	3410
3	3260	3400	2990	7560	5810	7730	17500	12300	4070	17700	3690	3400
4	3140	3440	3020	6850	4800	7360	18000	14600	3950	17700	3610	3380
5	3220	3520	3000	6670	3970	7100	18200	16400	3620	17600	3390	3380
6	3260	3510	3040	6580	4800	7020	17700	16600	3610	17600	3470	3380
7	2970	3340	3030	6460	4830	7490	17500	16100	3500	17400	3520	3380
8	3160	3470	2980	7870	5020	8190	18100	14600	3430	17200	3520	3370
9	3160	3480	3000	8740	5480	8640	17400	14500	3480	16300	3440	3390
10	3210	3580	3090	8230	5760	8880	15500	15100	3480	15000	3600	3370
11	3260	3330	2930	7660	5750	9380	14500	14800	3070	15000	3330	3390
12	3240	3500	2900	7720	5720	10700	15400	13400	3640	15000	3680	3420
13	3280	3600	2870	7680	5620	11800	16400	12400	3620	14800	3390	3360
14	3310	3600	2900	8010	5630	11600	16800	12000	3530	14100	3460	3040
15	3320	3560	6880	6600	5580	12300	17100	11200	3350	13400	3450	3110
16	3080	3380	13600	5580	5430	14300	17400	10600	3990	12800	3260	3950
17	3220	3530	11400	6220	5100	15900	17600	9910	3880	12300	3260	2960
18	3270	3470	8640	6230	4600	15700	17600	9400	3850	11800	3320	2920
19	3260	3100	6980	7610	4500	15600	17300	9440	3660	10700	3400	2920
20	3340	3300	5820	11600	4670	15600	16600	9330	3830	9490	3280	2900
21	3200	3300	4360	15300	4700	15600	16600	9030	5730	8060	3350	2830
22	3370	3310	3840	15100	4670	15600	16100	8400	7540	6170	3360	2800
23	3400	3350	4040	14900	4310	16200	14800	8290	10500	5240	3340	2860
24	3410	3320	5430	14500	4380	16400	13500	7930	10800	5000	3210	2860
25	3440	3300	6010	14700	4590	16800	13300	6870	10500	4980	3340	2670
26	3440	3290	6520	14600	4820	17000	13300	6270	10200	4660	3090	2850
27	3450	3290	7940	13400	5180	16900	12500	6260	11500	3940	3450	2880
28	3450	2960	7950	12300	5160	17100	11300	6630	14400	3870	3460	2900
29	3440	2960	7960	10900	---	17400	11400	7610	16600	3780	3500	2900
30	3420	2980	7950	9580	---	17800	11500	7630	17500	3570	3470	2910
31	3440	---	7950	8220	---	17900	---	7040	---	3800	3460	---
TOTAL	102040	101160	165000	293040	145330	392150	476100	337740	192150	354260	106570	94320
MEAN	3292	3372	5323	9453	5190	12650	15870	10890	6405	11430	3438	3144
MAX	3450	3600	13600	15300	7670	17900	18200	16600	17500	17700	3760	3950
MIN	2970	2960	2870	5580	3970	5250	11300	6260	3070	3570	3090	2670
AC-FT	202400	200700	327300	581200	288300	777800	944300	669900	381100	702700	211400	187100

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1993#, BY WATER YEAR (WY)

MEAN	2197	2579	4084	5988	7222	8346	8075	8282	7336	4930	3139	2649
MAX	7168	10570	14580	19400	20800	26430	20220	22560	17000	22870	8252	6652
(WY)	1974	1974	1974	1974	1974	1992	1969	1969	1979	1989	1979	1973
MIN	186	94.0	131	600	252	1178	1231	1003	1281	896	338	313
(WY)	1965	1965	1965	1965	1981	1971	1981	1971	1971	1967	1971	1971

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1965 - 1993#

ANNUAL TOTAL	3495810	2759860																											
ANNUAL MEAN	9551	7561																											
HIGHEST ANNUAL MEAN																													
LOWEST ANNUAL MEAN																													
HIGHEST DAILY MEAN	33800	Mar 9	18200	Apr 5	46600	Jul 3	1989																						
LOWEST DAILY MEAN	2810	Sep 1	2670	Sep 25	2.0	Dec 12	1965																						
ANNUAL SEVEN-DAY MINIMUM	2950	Dec 8	2820	Sep 21	2.4	Dec 11	1965																						
INSTANTANEOUS PEAK FLOW			18500	Apr 4	49200	Jul 2	1989																						
INSTANTANEOUS PEAK STAGE			67.76	Apr 4	78.49	Jul 2	1989																						
ANNUAL RUNOFF (AC-FT)	6934000	5474000	3906000																										
10 PERCENT EXCEEDS	21600	16400	14900																										
50 PERCENT EXCEEDS	3720	5220	3040																										
90 PERCENT EXCEEDS	3140	3100	927																										

Period of regulated streamflow.

NECHES RIVER MAIN STEM

08041000 NECHES RIVER AT EVADALE, TX
(National stream-quality accounting network)

LOCATION.--Lat 30°21'20", long 94°05'35", Jasper-Hardin County line, Hydrologic Unit 12020003, near right bank on downstream side of bridge on U.S. Highway 96 at Evadale, 0.8 mi upstream from Mill Creek, 16 mi upstream from Village Creek, and at mile 55.6.

DRAINAGE AREA.--7,951 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1904 to December 1906, April 1921 to current year. Monthly discharge only for some periods, published in WSP 1312.

REVISED RECORDS.--WSP 718: 1929. WSP 1342: 1905-07, 1924. WSP 1732: Drainage area at former site.

GAGE.--Water-stage recorder. Datum of gage is 8.25 ft above National Geodetic Vertical Datum of 1929. July 1, 1904, to Dec. 31, 1906, nonrecording gage on Gulf, Colorado, and Santa Fe Railway Co. bridge at site 1.2 mi downstream at datum 5.50 ft lower; Apr. 1, 1921, to Dec. 7, 1948, nonrecording gages at site 1.2 mi downstream at present datum; Dec. 8, 1948, to Nov. 8, 1963, water-stage recorder at site 1.2 mi downstream at present datum.

REMARKS.--Records good, including those for estimated daily discharges. Flow regulated by B. A. Steinhagen Lake (station 08040000) 58.1 mi upstream, and by Sam Rayburn Reservoir (station 08039300) 95.7 mi upstream. There are some diversions upstream for municipal use. Gage-height telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--45 years (water years 1905-06, 1922-64) 6,308 ft³/s (4,570,000 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1905-06, 1922-64).--Maximum discharge, 92,100 ft³/s May 11, 1944 (gage height, 23.58 ft, from floodmark), at site then in use; minimum daily, 63 ft³/s Nov. 26-28, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1884 reached a stage of 26.2 ft, at former site (discharge, about 125,000 ft³/s), and flood in August 1915 reached a stage of 24.5 ft, at former site (discharge, about 102,000 ft³/s). These are the highest floods since at least 1884. Stages furnished by Gulf, Colorado, and Santa Fe Railway Co.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3010	3110	2690	8000	10800	6010	18800	12700	7970	17300	4110	3530
2	3030	3180	2680	7990	9330	8560	19000	12900	7290	18600	4120	3540
3	3110	3150	2680	7980	8320	11300	19300	12900	6280	19200	4070	3500
4	3120	3100	2680	7990	7230	11800	20500	12700	5380	19400	4000	3470
5	2990	3040	2700	7760	6290	10700	20600	13000	4570	19500	3920	3510
6	3000	3080	2690	7350	5180	9310	20700	14200	4190	19500	3780	3450
7	3020	3060	2720	7570	5110	8450	21200	16100	3890	19500	3730	3430
8	2890	2950	2720	7810	5250	8030	22100	17000	3690	19400	3740	3400
9	2830	2920	2810	8110	5330	8130	21700	17100	3500	19400	3750	3380
10	2880	2950	2930	8750	5610	8470	21200	16700	3380	19300	3760	3360
11	2910	2980	3040	9090	5940	8770	20600	16100	3290	18800	3760	3340
12	2920	2960	2950	8860	6070	9180	19000	15900	3010	17700	3750	3330
13	2910	2890	2800	8440	6100	9670	17300	15900	3020	17000	3740	3370
14	2890	2990	2720	8260	6050	10600	16700	15000	3430	16800	3690	3350
15	2880	3040	3380	8380	6010	11700	17100	13900	3490	16700	3600	3240
16	2960	3020	5690	8120	6020	12500	17600	13000	3360	16400	3550	2980
17	2800	2900	8740	6980	5920	13000	18100	12300	3530	15800	3480	3420
18	2760	e2900	11600	6620	5810	14100	18500	11600	3840	14900	3440	3130
19	2770	e2870	12700	6870	5370	15800	18800	11000	3940	13900	3360	2760
20	2790	2850	10900	7750	5070	17000	18900	10400	4590	13200	3490	2710
21	2830	3040	8490	9520	5020	17300	18900	10100	5530	12200	3570	2650
22	2800	3280	6400	12100	5040	17400	18500	9870	7090	10700	3580	2580
23	2820	3310	4920	14900	5040	18600	18200	9520	9360	8680	3580	2540
24	2910	3300	4410	16500	4880	18500	17800	9220	10800	7230	3570	2540
25	2940	3230	4920	16700	4930	18300	16700	8800	12900	5970	3570	2510
26	2960	3150	5730	16500	5360	18300	15500	8410	14600	5510	3570	2470
27	2970	3100	6200	16200	5550	18400	14700	7480	14600	5310	3570	2480
28	2970	3040	6950	16000	5710	18500	14300	7100	13900	4800	e3570	2530
29	2980	2840	7600	15500	---	18500	13700	7140	14100	4430	e3560	2570
30	3010	2720	7900	14200	---	18600	13000	7490	15600	4140	e3560	2610
31	3020	---	8020	12500	---	18700	---	e8020	---	4010	e3550	---
TOTAL	90680	90950	163360	319300	168340	414180	549000	373550	204120	425280	114090	91680
MEAN	2925	3032	5270	10300	6012	13360	18300	12050	6804	13720	3680	3056
MAX	3120	3310	12700	16700	10800	18700	22100	17100	15600	19500	4120	3540
MIN	2760	2720	2680	6620	4880	6010	13000	7100	3010	4010	3360	2470
AC-F I	179900	180400	324000	633300	333900	821500	1089000	740900	404900	843500	226300	181800

e Estimated

NECHES RIVER MAIN STEM

237

08041000 NECHES RIVER AT EVADALE, TX--Continued
(National stream-quality accounting network)

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1993#, BY WATER YEAR (WY)

MEAN	2425	2859	4646	6717	8080	9261	9149	9028	8182	5689	3452	2875
MAX	8065	11800	15240	21710	21680	28790	21180	24120	19920	25680	9644	7090
(WY)	1974	1974	1974	1974	1974	1992	1969	1969	1991	1989	1979	1979
MIN	268	188	301	628	614	1352	1432	1220	1397	1118	396	398
(WY)	1965	1965	1965	1965	1981	1971	1981	1981	1971	1967	1971	1971

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1965 - 1993#

ANNUAL TOTAL	3813550		3004530		6018	
ANNUAL MEAN	10420		8232		10960	1991
HIGHEST ANNUAL MEAN					1128	1971
LOWEST ANNUAL MEAN					47400	Jul 6 1989
HIGHEST DAILY MEAN	37000	Mar 12	22100	Apr 8	82	Aug 14 1971
LOWEST DAILY MEAN	2680	Dec 2	2470	Sep 26	126	Nov 18 1965
ANNUAL SEVEN-DAY MINIMUM	2690	Nov 30	2520	Sep 23	47900	Jul 6 1989
INSTANTANEOUS PEAK FLOW			22800	Apr 7	20.79	Jul 6 1989
INSTANTANEOUS PEAK STAGE			17.31	Apr 7		
ANNUAL RUNOFF (AC-FT)	7564000		5959000		4360000	
10 PERCENT EXCEEDS	23200		18200		16300	
50 PERCENT EXCEEDS	4270		5920		3360	
90 PERCENT EXCEEDS	2880		2880		1110	

Period of regulated streamflow.

MECHES RIVER MAIN STEM

08041000 MECHES RIVER AT EVADALE, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: September 1939 to current year. Pesticide analyses: February 1968 to July 1981. Sediment analyses: October 1960 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1947 to current year.

WATER TEMPERATURE: October 1947 to current year.

INSTRUMENTATION.--From October 1954 to September 1963, water temperature was continuously recorded at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 422 microsiemens Jan. 25, 1957; minimum daily, 23 microsiemens Sept. 19, 1963.

WATER TEMPERATURE (1947-85, 1987 to current year): Maximum daily, 34.0°C June 29, 1953, and several days in Aug., 1992, Aug. and Sept. 1993; minimum daily, 3.0°C Jan. 30, 31, 1948, Jan. 31, 1949, and Jan 24, 1963.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 220 microsiemens Jun. 1; minimum daily, 80 microsiemens July 6.

WATER TEMPERATURE: Maximum daily, 34.0°C several days in Aug. and Sept.; minimum daily, 9.0°C several days in Jan., Feb., and Mar.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	
JAN 19...	1540	6900	138	6.4	12.0	24	9.5	88	1.3	88	110	
MAR 08...	1245	7760	148	6.8	15.0	47	9.2	90	1.3	64	44	
APR 27...	1000	14500	136	6.5	20.0	17	7.4	81	1.3	150	120	
JUN 14...	1545	3360	152	7.1	30.0	31	6.6	86	0.7	130	250	
AUG 02...	1518	4120	144	7.1	32.0	4.9	6.8	93	1.1	52	60	
SEP 01...	1019	3590	138	6.7	29.5	9.8	6.8	89	1.0	56	28	
DATE		HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	CAR-BONATE WATER DIS IT FIELD (MG/L AS C03)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HC03)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CAC03)	SULFATE DIS-SOLVED (MG/L AS S04)
JAN 19...	30	16	7.6	2.7	14	1	2.7	0	17	14	25	
MAR 08...	33	16	8.2	3.1	15	1	2.4	0	21	17	23	
APR 27...	30	14	7.2	3.0	13	1	2.5	0	20	16	19	
JUN 14...	34	12	8.6	3.1	15	1	2.7	0	27	22	22	
AUG 02...	35	16	8.7	3.3	15	1	2.4	0	24	20	20	
SEP 01...	33	12	7.8	3.2	15	1	3.0	0	25	20	19	
DATE		CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
JAN 19...	18	<0.10	13	114	92	--	0.010	--	<0.050	0.040	0.46	
MAR 08...	18	0.10	9.2	112	89	--	<0.010	--	<0.050	0.030	0.37	
APR 27...	17	0.10	7.9	96	80	--	<0.010	--	<0.050	0.030	0.37	
JUN 14...	19	0.10	9.6	103	94	0.083	<0.010	0.083	0.083	0.050	0.75	
AUG 02...	21	0.10	10	95	93	--	<0.010	--	<0.050	0.020	0.28	
SEP 01...	20	0.10	9.7	87	91	--	<0.010	--	<0.050	0.040	0.26	

NECHES RIVER MAIN STEM

239

08041000 NECHES RIVER AT EVADALE, TX--Continued
(National stream-quality accounting network)

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

DATE		NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	BARIUM, DIS- SOLVED (UG/L AS BA)
JAN	19...	0.50	0.040	0.050	0.030	0.09	39	727	69	410	45
MAR	08...	0.40	0.050	0.040	0.040	0.12	24	503	96	--	--
APR	27...	0.40	0.030	0.030	<0.010	--	27	1060	75	40	43
JUN	14...	0.80	0.080	0.020	<0.010	--	74	671	74	--	--
AUG	02...	0.30	0.020	<0.010	0.010	0.03	40	445	81	60	39
SEP	01...	0.30	0.040	0.030	<0.010	--	41	397	71	350	41
DATE		COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
JAN	19...	<3	320	8	45	<10	4	<1	<1.0	76	<6
MAR	08...	--	--	--	--	--	--	--	--	--	--
APR	27...	<3	190	<4	50	<10	2	<1	<1.0	81	<6
JUN	14...	--	--	--	--	--	--	--	--	--	--
AUG	02...	<3	120	10	13	<10	1	<1	<1.0	93	<6
SEP	01...	<3	100	7	4	<10	<1	<1	<1.0	89	<6
MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)	
OCT.	1992	90680	126	80	19700	16	3870	19	4640	28	
NOV.	1992	90950	130	82	20200	16	4010	19	4780	29	
DEC.	1992	163360	124	79	34600	16	6860	19	8180	27	
JAN.	1993	319300	135	84	72600	17	14800	20	17300	29	
FEB.	1993	168340	167	98	44600	22	9960	24	11100	33	
MAR.	1993	414180	157	95	106000	20	22800	23	25900	32	
APR.	1993	549000	141	87	129000	18	26600	21	31000	30	
MAY	1993	373550	145	89	90200	19	18700	22	21700	31	
JUNE	1993	204120	140	87	47700	18	9850	21	11500	30	
JULY	1993	425280	128	80	92300	16	18500	19	21900	28	
AUG.	1993	114090	145	90	27600	19	5710	22	6640	31	
SEPT	1993	91680	142	88	21800	18	4480	21	5230	30	
TOTAL		3004530	**	**	707000	**	146000	**	170000	**	
WTD.AVG.		8232	141	87	**	18	**	21	**	30	

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

[illegible]

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.0	22.0	14.0	12.0	9.0	9.0	12.0	20.0	25.0	30.0	33.0	34.0
2	25.0	21.0	14.0	12.0	9.0	9.0	12.0	20.0	25.0	30.0	33.0	34.0
3	24.0	20.0	14.0	11.0	9.0	9.0	12.0	20.0	26.0	30.0	33.0	34.0
4	24.0	20.0	14.0	11.0	9.0	9.0	12.0	21.0	26.0	30.0	33.0	34.0
5	24.0	21.0	14.0	11.0	9.0	9.0	12.0	21.0	26.0	30.0	33.0	34.0
6	24.0	20.0	13.0	11.0	9.0	9.0	14.0	21.0	26.0	31.0	33.0	34.0
7	24.0	20.0	13.0	11.0	9.0	9.0	14.0	21.0	26.0	31.0	33.0	34.0
8	24.0	19.0	13.0	11.0	9.0	9.0	---	21.0	28.0	31.0	33.0	30.0
9	24.0	19.0	13.0	11.0	9.0	9.0	14.0	22.0	28.0	31.0	33.0	34.0
10	24.0	19.0	13.0	10.0	9.0	9.0	14.0	22.0	28.0	31.0	33.0	34.0
11	24.0	19.0	13.0	10.0	9.0	9.0	14.0	22.0	28.0	31.0	33.0	34.0
12	24.0	19.0	13.0	10.0	9.0	9.0	14.0	22.0	28.0	32.0	33.0	34.0
13	22.0	19.0	13.0	10.0	9.0	9.0	14.0	22.0	28.0	31.0	33.0	34.0
14	22.0	19.0	13.0	10.0	9.0	9.0	14.0	23.0	28.0	31.0	33.0	34.0
15	22.0	17.0	---	10.0	9.0	9.0	14.0	23.0	28.0	31.0	33.0	31.0
16	22.0	17.0	13.0	9.0	9.0	9.0	14.0	23.0	28.0	31.0	33.0	31.0
17	22.0	17.0	13.0	9.0	9.0	9.0	16.0	23.0	28.0	31.0	33.0	30.0
18	22.0	17.0	13.0	10.0	9.0	9.0	16.0	23.0	28.0	32.0	33.0	31.0
19	22.0	17.0	13.0	9.0	9.0	9.0	16.0	24.0	28.0	32.0	33.0	31.0
20	22.0	17.0	13.0	9.0	9.0	9.0	16.0	24.0	28.0	32.0	34.0	31.0
21	22.0	17.0	13.0	9.0	9.0	9.0	18.0	23.0	28.0	32.0	34.0	31.0
22	22.0	17.0	13.0	9.0	9.0	11.0	18.0	23.0	30.0	32.0	33.0	31.0
23	22.0	16.0	13.0	9.0	9.0	11.0	18.0	23.0	30.0	32.0	34.0	31.0
24	22.0	16.0	13.0	9.0	9.0	11.0	18.0	23.0	30.0	32.0	34.0	31.0
25	22.0	15.0	13.0	9.0	9.0	11.0	20.0	25.0	30.0	32.0	34.0	30.0
26	22.0	15.0	12.0	9.0	9.0	11.0	20.0	25.0	30.0	32.0	34.0	30.0
27	22.0	14.0	12.0	9.0	9.0	11.0	20.0	25.0	30.0	32.0	34.0	30.0
28	22.0	14.0	12.0	9.0	---	11.0	20.0	25.0	30.0	32.0	34.0	30.0
29	22.0	14.0	12.0	9.0	---	12.0	20.0	25.0	30.0	32.0	34.0	30.0
30	22.0	14.0	12.0	9.0	---	12.0	20.0	25.0	30.0	32.0	34.0	30.0
31	22.0	---	12.0	9.0	---	12.0	---	25.0	---	32.0	34.0	---
MEAN	23.0	17.5	13.0	10.0	9.0	9.5	15.5	22.5	28.0	31.5	33.5	32.0
MAX	25.0	22.0	14.0	12.0	9.0	12.0	20.0	25.0	30.0	32.0	34.0	34.0
MIN	22.0	14.0	12.0	9.0	9.0	9.0	12.0	20.0	25.0	30.0	33.0	30.0
WTR YR 1993	MEAN 20.5	MAX 34										

NECHES RIVER BASIN

241

08041500 VILLAGE CREEK NEAR KOUNTZE, TX

LOCATION.--Lat 30°23'52", long 94°15'48", Hardin County, Hydrologic Unit 12020006, at downstream side of bridge on Farm Road 418, 1.6 mi upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 3.1 mi upstream from Cypress Creek, 3.4 mi northeast of Kountze, and 4.3 mi downstream from Beech Creek.

DRAINAGE AREA.--860 mi².

PERIOD OF RECORD.--May 1924 to September 1927, October 1927 to November 1929 (discharge measurements only), April 1939 to current year.

Water-quality records: November 1967 to September 1985.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 25.12 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 30, 1939, nonrecording gage at site 1.6 mi downstream at different datum. Apr. 30, 1939, to Sept. 30, 1966, water-stage recorder at site 2,000 ft downstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. There are small diversions above station. Gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1884, about 34 ft in August 1915 at site 2,000 ft downstream at present datum; stage was determined on basis of information by engineers of Gulf, Colorado, and Santa Fe Railway Co. for site 1.6 mi downstream.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	103	165	418	683	1090	1060	665	699	603	2100	126	190
2	101	326	384	648	1020	5760	622	1000	475	1320	113	159
3	99	544	365	611	914	7170	578	1360	407	742	113	137
4	97	608	342	599	837	6020	952	1190	346	515	112	119
5	95	589	328	842	789	4590	1970	863	301	412	108	105
6	93	528	318	1110	765	3420	2770	670	274	348	101	96
7	91	451	309	1320	775	2290	3350	599	256	309	105	89
8	90	366	302	1890	793	1410	3640	570	242	284	99	87
9	90	293	357	2290	758	999	3590	535	230	260	96	83
10	89	256	585	2440	711	821	3710	530	220	233	122	81
11	89	239	827	2560	718	727	4530	683	211	217	233	78
12	89	239	1010	2570	792	682	5110	1110	206	204	198	e90
13	89	303	908	2420	822	722	3600	1510	206	195	157	e85
14	89	348	665	2080	747	822	2260	1620	321	186	139	e100
15	88	398	900	1700	670	1010	1430	1180	379	174	122	e145
16	96	351	2030	1340	673	1100	1150	644	381	167	115	135
17	107	286	3410	1000	841	1250	1220	510	374	166	106	196
18	110	254	6200	886	971	1410	1210	447	313	160	98	215
19	130	243	7180	1390	913	1510	1070	408	359	158	92	177
20	164	251	5590	2360	750	1450	869	385	603	157	91	154
21	163	316	3840	3480	652	1360	745	371	1120	154	89	136
22	203	634	2480	5360	617	1180	676	366	1810	150	87	127
23	173	916	1640	8150	596	2010	633	346	2580	142	106	121
24	126	1070	1190	6600	562	2530	590	346	2830	135	136	116
25	115	1140	1010	4650	632	2390	542	351	2730	131	127	113
26	112	1030	935	3230	1250	2250	527	383	2780	124	117	109
27	110	844	950	2230	1380	1980	539	411	2810	119	110	106
28	102	714	930	1590	1130	1580	574	445	2770	115	109	101
29	93	572	852	1220	---	1170	556	479	2790	110	146	97
30	89	472	772	1090	---	845	582	503	2660	103	176	92
31	141	---	714	1090	---	722	---	615	---	141	206	---
TOTAL	3426	14746	47741	69429	23168	62240	50260	21129	31587	9731	3855	3639
MEAN	111	492	1540	2240	827	2008	1675	682	1053	314	124	121
MAX	203	1140	7180	8150	1380	7170	5110	1620	2830	2100	233	215
MIN	88	165	302	599	562	682	527	346	206	103	87	78
AC-FT	6800	29250	94690	137700	45950	123500	99690	41910	62650	19300	7650	7220
CFSM	.13	.57	1.79	2.60	.96	2.33	1.95	.79	1.22	.37	.14	.14
IN.	.15	.64	2.07	3.00	1.00	2.69	2.17	.91	1.37	.42	.17	.16

e Estimated

NECHES RIVER BASIN

08041500 VILLAGE CREEK NEAR KOUNTZE, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 1993, BY WATER YEAR (WY)

MEAN	316	728	1069	1479	1445	1176	1175	1196	859	511	257	311
MAX	4140	6430	5835	5693	4420	3311	6733	6932	6668	4963	1580	2111
(WY)	1950	1941	1941	1974	1966	1992	1979	1953	1950	1989	1975	1961
MIN	22.8	34.9	115	113	169	206	104	89.5	69.5	31.1	28.8	26.5
(WY)	1968	1968	1955	1957	1968	1940	1971	1963	1956	1971	1956	1956

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR			FOR 1993 WATER YEAR			WATER YEARS 1925 - 1993		
ANNUAL TOTAL	476488			340951			877		
ANNUAL MEAN	1302			934			190		
HIGHEST ANNUAL MEAN							2248		
LOWEST ANNUAL MEAN							190		
HIGHEST DAILY MEAN	12600			8150			62200		
LOWEST DAILY MEAN	88			78			16		
ANNUAL SEVEN-DAY MINIMUM	89			85			18		
INSTANTANEOUS PEAK FLOW				8720			67200		
INSTANTANEOUS PEAK STAGE				17.80			a27.60		
INSTANTANEOUS LOW FLOW				76			16		
ANNUAL RUNOFF (AC-FT)	945100			676300			635700		
ANNUAL RUNOFF (CFSM)	1.51			1.09			1.02		
ANNUAL RUNOFF (INCHES)	20.61			14.75			13.86		
10 PERCENT EXCEEDS	3450			2460			2140		
50 PERCENT EXCEEDS	523			535			327		
90 PERCENT EXCEEDS	128			101			78		

a Flood of May 27, 1929, reached a stage of about 32 ft at site 2,000 ft downstream at present datum; stage was determined on basis of information furnished by Gulf, Colorado, and Santa Fe Railway engineers at site 1.6 miles downstream.

08041700 PINE ISLAND BAYOU NEAR SOUR LAKE, TX

LOCATION.--Lat 30°06'21", Long 94°20'04", Jefferson-Hardin County line, Hydrologic Unit 12020007, on right bank at downstream side of bridge on county road and 5.1 mi southeast of Sour Lake.

DRAINAGE AREA.--336 mi².

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

Water-quality records.--Chemical analyses: February 1968 to June 1989. Specific conductance: February 1968 to September 1989. Water temperature: February 1968 to September 1989.

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

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Low flow for period March through September is affected by small diversions and return flow from irrigated fields. Gage height telemeter at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft³/s :

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 4	1500	4,630	28.08	June 22	1800	4,190	27.81

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	38	29	143	517	1770	872	e35	1250	1760	60	49
2	17	70	19	112	434	2520	385	84	1350	1600	52	41
3	14	42	13	90	367	3680	193	e230	1290	1410	56	32
4	13	27	12	79	282	e4590	e800	e220	1020	1130	73	23
5	12	17	11	123	206	e4400	e1490	e210	713	675	64	17
6	12	12	8.1	202	171	e4050	1780	e230	354	288	69	14
7	17	9.9	5.4	850	160	e3660	1890	225	123	133	80	13
8	18	8.3	e4.6	1690	148	e3170	2430	176	62	88	75	15
9	14	6.9	e7.2	1850	137	e2630	2640	114	48	68	57	19
10	15	6.1	e50	2030	147	2110	2650	255	46	58	55	12
11	17	7.4	e130	2030	e215	1710	2360	520	37	50	59	12
12	18	16	e175	1940	e220	1300	2080	577	33	51	57	16
13	19	14	e140	1800	e200	867	1910	405	31	50	51	15
14	17	8.0	e65	1620	180	498	1710	209	38	45	e54	16
15	13	8.1	e100	1410	153	308	1420	118	42	49	e58	23
16	21	7.8	e460	1190	240	243	979	86	88	63	e60	26
17	29	6.5	e880	922	300	246	475	72	101	78	e56	27
18	23	5.4	e1260	596	260	251	218	54	453	68	e51	20
19	21	6.1	e1580	427	216	300	138	209	557	62	e47	16
20	15	107	e1770	890	184	433	100	438	978	64	e43	18
21	14	191	1830	e1420	157	e790	80	340	2110	65	e39	25
22	13	229	1820	e1570	129	e1090	54	141	3840	85	e35	26
23	11	205	1730	e1630	103	1390	39	64	4090	81	e31	19
24	9.0	211	1610	e1660	82	1650	33	122	3740	64	e27	14
25	7.0	194	1400	1650	433	1930	27	306	3360	56	28	12
26	5.8	148	1170	1620	1390	2140	e38	299	3130	51	33	11
27	5.6	121	863	1560	1600	2210	e39	237	3010	43	31	14
28	4.5	98	555	1420	1700	2090	31	192	2780	43	26	14
29	3.6	71	342	1210	---	1900	e30	182	2390	52	33	16
30	3.6	46	236	911	---	1680	e40	276	2010	56	43	13
31	16	---	181	647	---	1370	---	791	---	61	53	---
TOTAL	434.1	1937.5	18456.3	35292	10331	56976	26931	7417	39074	8447	1556	588
MEAN	14.0	64.6	595	1138	369	1838	898	239	1302	272	50.2	19.6
MAX	29	229	1830	2030	1700	4590	2650	791	4090	1760	80	49
MIN	3.6	5.4	4.6	79	82	243	27	35	31	43	26	11
AC-FI	861	3840	36610	70000	20490	113000	53420	14710	77500	16750	3090	1170

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1993, BY WATER YEAR (WY)

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MEAN	224	407	595	734	636	559	656	576	702	431	188	216														
MAX	1164	2095	2158	2206	1850	1838	4972	3589	2795	3291	1660	1487														
(WY)	1974	1987	1987	1974	1992	1993	1979	1989	1981	1989	1983	1979														
MIN	2.90	2.48	12.4	4.75	13.5	89.1	21.4	29.1	37.8	33.4	12.3	10.1														
(WY)	1970	1989	1990	1971	1989	1978	1987	1978	1984	1980	1977	1984														

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1968 - 1993

ANNUAL TOTAL	202967.7	207439.9	493
ANNUAL MEAN	555	568	1167
HIGHEST ANNUAL MEAN			133
LOWEST ANNUAL MEAN			24600
HIGHEST DAILY MEAN	5940	4590	.00
LOWEST DAILY MEAN	3.6	3.6	.62
ANNUAL SEVEN-DAY MINIMUM	5.6	5.6	25000
INSTANTANEOUS PEAK FLOW		4630	34.29
INSTANTANEOUS PEAK STAGE		28.08	.25
INSTANTANEOUS LOW FLOW			
ANNUAL RUNOFF (AC-FT)	402600	411500	357000
10 PERCENT EXCEEDS	1960	1820	1400
50 PERCENT EXCEEDS	77	112	89
90 PERCENT EXCEEDS	13	13	9.0

TAYLOR BAYOU MAIN STEM

08042000 TAYLOR BAYOU NEAR LABELLE, TX

LOCATION.--Lat 29°52'30", long 94°09'34", Jefferson County, Hydrologic Unit 12040201, near center of stream at downstream side of bridge on county road, 0.7 mi south of LaBelle, 6.0 mi upstream from Hillebrandt Bayou, 7.2 mi upstream from State Highway 73, and 11.2 mi upstream from saltwater gates and barge locks. Distances are measured along rectified channel.

DRAINAGE AREA.--262 mi².

PERIOD OF RECORD.--April 1954 to September 1984 (daily mean and peak discharge for storms of 1.0 inch or more runoff, except for period Sept. 10-22, 1961). October 1984 to current year (gage heights only).

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4.63 ft below National Geodetic Vertical Datum of 1929, originally determined by several comparisons of water surface with auxiliary water-stage recorder 7.2 mi downstream during times of no flow and ideal weather conditions. Prior to October 1984, auxiliary water-stage recorder 7.2 mi downstream.

REMARKS.--Records good. Prior to October 1984, records were computed using fall as a factor. 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 irrigation of ricefields. Estimates for period of missing record (July 7 to July 12 and Aug. 2 to Sept. 8) were not made.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,590 ft³/s Sept. 22, 1963, and Apr. 23, 1979; maximum gage height, 11.78 ft Sept. 20, 1963 (backwater from Hillebrandt Bayou); minimum discharge not determined (affected by tides and pumping); minimum gage height, 2.31 ft July 17, 1954. Maximum stage since at least 1941, that of Sept. 20, 1963, and Apr. 23, 1979. Flood of Sept. 13, 1961 (Hurricane Carla), reached a stage of 11.51 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1941 reached a stage of 11.3 ft, from information by U.S. Army Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum (recorded) gage height, 8.5 ft June 22 at 2100 hours; minimum (recorded) gage height, 4.8 ft Nov. 5 at 1500 hours.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.8	5.9	5.3	5.7	5.7	6.7	5.8	6.1	6.1	6.1	5.4	---
2	5.9	5.9	5.3	5.5	5.5	7.2	5.3	6.2	6.0	5.9	---	---
3	6.0	5.9	5.4	5.6	5.6	7.1	6.2	6.2	5.9	5.9	---	---
4	6.1	5.9	6.0	5.9	5.7	6.7	7.0	6.1	5.7	5.9	---	---
5	6.1	5.1	6.1	5.9	5.8	6.3	7.0	6.1	5.7	6.0	---	---
6	6.1	5.0	5.9	5.7	5.8	5.7	6.9	6.1	5.6	6.0	---	---
7	5.9	5.2	5.9	7.8	5.4	5.6	7.4	6.1	5.7	---	---	---
8	6.0	5.4	5.7	8.1	5.3	5.4	7.8	6.1	5.8	---	---	---
9	5.9	5.5	6.8	8.1	5.4	5.4	7.8	6.2	6.0	---	---	5.8
10	6.0	5.7	6.9	7.9	6.3	5.6	6.8	6.6	6.0	---	---	5.8
11	6.0	5.8	6.6	7.4	6.4	5.7	6.4	6.4	6.0	---	---	5.8
12	5.7	6.2	6.1	6.8	6.4	5.8	6.4	6.0	5.9	---	---	5.9
13	5.7	5.8	6.0	6.4	6.0	5.8	6.3	5.9	5.8	5.9	---	6.1
14	5.7	5.7	6.1	6.1	5.8	5.2	6.3	5.4	5.7	5.8	---	6.2
15	5.8	5.6	7.4	6.1	6.0	5.4	6.3	5.5	5.6	5.8	---	6.2
16	6.1	5.5	7.4	6.1	6.2	6.2	6.0	5.7	5.7	5.9	---	6.1
17	6.1	5.5	7.4	6.0	6.2	6.2	5.8	5.7	6.0	5.9	---	6.1
18	5.9	5.6	6.7	6.3	6.0	6.2	5.9	5.9	6.7	5.9	---	6.1
19	5.7	5.8	6.6	6.8	5.8	6.2	6.0	6.0	7.4	5.9	---	6.1
20	5.8	6.6	6.5	7.5	5.8	6.6	6.0	5.9	8.4	5.9	---	6.2
21	5.9	6.9	6.5	7.5	5.9	6.8	5.9	5.8	8.3	5.8	---	6.2
22	6.0	7.0	6.4	7.3	5.8	6.8	5.6	5.8	8.5	5.7	---	6.2
23	6.0	6.5	6.3	6.6	5.8	6.8	5.7	6.0	8.5	5.6	---	6.2
24	6.0	6.4	6.2	6.4	6.0	6.8	5.8	6.1	8.3	5.6	---	6.2
25	5.9	6.2	6.0	6.1	6.6	6.8	5.8	6.1	8.0	5.6	---	6.1
26	5.6	5.8	6.0	6.1	7.2	5.9	5.8	6.1	7.4	5.5	---	6.3
27	5.6	5.3	5.9	5.8	6.6	6.1	5.7	6.0	7.0	5.4	---	6.3
28	5.5	5.1	5.9	5.9	6.3	6.1	5.8	6.1	6.9	5.5	---	6.2
29	5.4	5.2	5.9	5.9	---	6.2	5.9	6.1	6.6	5.5	---	6.2
30	5.5	5.3	5.8	5.9	---	6.2	6.0	6.2	6.4	5.5	---	6.1
31	5.6	---	5.8	5.8	---	6.1	---	6.2	---	5.4	---	---
MAX	6.1	7.0	7.4	8.1	7.2	7.2	7.8	6.6	8.5	---	---	---

08042500 HILLEBRANDT BAYOU NEAR LOVELL LAKE, TX

LOCATION.--Lat 29°55'44", long 94°06'35", Jefferson County, Hydrologic Unit 12040201, near center of stream at downstream side of bridge on county road, 1.3 mi southeast of Lovell Lake, and 4.4 mi upstream (along rectified channel) from Taylor Bayou.

DRAINAGE AREA.--128 mi².

PERIOD OF RECORD.--April 1954 to September 1984 (daily mean and peak discharge for storms of 1.0 inch or more runoff, except for the period Sept. 11-18, 1961). October 1984 to current year (gage heights only).

GAGE.--Water-stage recorder. Datum of gage is 4.63 ft below National Geodetic Vertical Datum of 1929, originally determined by comparisons of water surface with Taylor Bayou near LaBelle, an auxiliary gage 5.6 mi downstream, during times of no flow and calm wind conditions. Prior to Aug. 28, 1963, auxiliary water-stage recorder on Taylor Bayou, 1.2 mi downstream from Hillebrandt Bayou, nonrecording gages on Taylor Bayou 2.3 and 5.2 mi downstream from Hillebrandt Bayou; Aug. 28, 1963, to Sept. 30, 1984, auxiliary water-stage recorder 3.0 mi downstream. Gage was destroyed on Aug. 24, 1991 and re-installed on Mar. 4, 1992.

REMARKS.--Records good. Prior to October 1984, records were computed using fall as a factor. Low flow 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.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,000 ft³/s Sept. 18, 1963; maximum gage height, 12.34 ft Sept. 19, 1963; minimum discharge not determined (affected by tides and pumping); minimum gage height, 2.33 ft July 17, 1954. Maximum stage since at least 1941, 12.34 ft Sept. 19, 1963.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 8.2 ft June 20, at 1800 hours; minimum gage height, 5.0 ft Nov. 27, at 1700 hours.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.0	6.1	5.5	5.8	5.9	6.9	5.9	6.2	6.3	6.4	5.7	6.2
2	6.1	6.1	5.5	5.6	5.7	7.1	5.4	6.4	6.2	6.2	5.6	6.2
3	6.2	6.1	5.5	5.8	5.8	6.7	6.5	6.5	6.1	6.2	5.7	6.2
4	6.3	6.1	6.2	6.0	5.8	6.7	7.4	6.3	6.0	6.2	5.7	6.1
5	6.3	5.3	6.2	6.0	5.9	6.4	6.9	6.3	5.9	6.2	5.7	6.0
6	6.3	5.3	6.1	5.9	6.0	5.8	6.8	6.3	5.9	6.3	5.8	6.0
7	6.2	5.4	6.1	7.7	5.6	5.7	7.8	6.3	5.9	6.3	5.8	6.0
8	6.2	5.6	5.9	7.7	5.5	5.6	7.8	6.4	6.1	6.2	5.8	6.0
9	6.2	5.7	6.9	7.1	5.6	5.6	7.2	6.5	6.2	6.1	5.9	6.0
10	6.2	5.9	6.9	7.1	6.4	5.7	6.4	6.8	6.2	6.1	5.9	6.0
11	6.2	6.0	6.6	6.5	6.6	5.8	6.5	6.4	6.2	6.2	5.9	6.0
12	6.0	6.4	6.3	6.6	6.6	5.9	6.5	6.3	6.1	6.1	5.9	6.1
13	5.9	5.9	6.2	6.4	6.2	5.8	6.4	6.2	6.1	6.1	5.9	6.3
14	6.0	5.9	6.4	6.2	6.0	5.3	6.5	5.7	5.9	6.1	5.9	6.4
15	6.1	5.8	7.4	6.3	6.1	5.6	6.5	5.8	5.8	6.1	5.9	6.4
16	6.3	5.7	7.1	6.3	6.3	6.3	6.1	6.0	5.9	6.1	5.8	6.3
17	6.3	5.7	6.5	6.2	6.2	6.3	6.0	6.0	6.3	6.1	5.7	6.3
18	6.2	5.8	6.6	6.4	6.1	6.3	6.1	6.2	6.8	6.2	5.6	6.3
19	5.9	6.0	6.7	6.7	5.9	6.4	6.2	6.2	7.4	6.2	5.6	6.4
20	6.0	6.7	6.7	7.0	6.0	6.6	6.2	6.2	8.2	6.2	5.7	6.4
21	6.1	7.1	6.6	7.0	6.0	6.8	6.1	6.2	7.9	6.1	5.8	6.5
22	6.2	7.1	6.5	6.5	6.0	6.9	5.8	6.1	7.7	6.0	5.9	6.5
23	6.2	6.5	6.5	6.6	6.0	6.5	5.8	6.3	7.5	5.9	5.9	6.5
24	6.2	6.6	6.3	6.5	6.1	6.7	6.0	6.5	7.3	5.8	5.9	6.5
25	6.1	6.5	6.2	6.3	7.0	6.8	6.0	6.5	7.1	5.8	5.9	6.5
26	5.9	6.0	6.2	6.3	7.0	6.1	6.0	6.4	7.0	5.8	6.2	6.5
27	5.8	5.5	6.0	6.0	6.4	6.2	5.8	6.3	7.0	5.7	6.2	6.5
28	5.7	5.3	6.1	6.1	6.4	6.3	5.9	6.4	7.2	5.7	6.2	6.5
29	5.7	5.4	6.1	6.1	---	6.4	6.1	6.5	6.9	5.7	6.3	6.4
30	5.7	5.4	6.0	6.0	---	6.4	6.2	6.5	6.6	5.7	6.3	6.4
31	5.8	---	6.0	6.0	---	6.3	---	6.5	---	5.7	6.3	---
MAX	6.3	7.1	7.4	7.7	7.0	7.1	7.8	6.8	8.2	6.4	6.3	6.5

TRINITY RIVER BASIN

247

08042900 BEANS CREEK AT WIZARD WELLS, TX
(Flood-hydrograph Partial-record Station)

LOCATION.--Lat 33 11'59", Long 97 58'01", Jack County, Hydrologic Unit 12030101, on the downstream side, at first pile from right end of bridge on Farm Road 1156, 900 ft. east of intersection of a county road and FM 1156 in Wizard Wells.

DRAINAGE AREA.--29.6 mi².

PERIOD OF RECORD.--June 1992 to current year (annual maximum).

GAGE.--Water-stage recorder. Datum of gage is 848.40 ft. above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Gage-height telemeter at station.

PEAK DISCHARGE FOR CURRENT YEAR.--

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Feb. 15	1315	575	8.80	No supplemental peaks published.			

08043000 BRIDGEPORT RESERVOIR ABOVE BRIDGEPORT, TX

LOCATION.--Lat 33°13'22", long 97°49'54", Wise County, Hydrologic Unit 12030101, in brick valve house on upstream side and near left end of Bridgeport Dam on West Fork Trinity River, 4.6 mi west of Bridgeport, 13 mi upstream from Big Sandy Creek, and at mile 626.

DRAINAGE AREA.--1,111 mi².

PERIOD OF RECORD.--April 1932 to current year. Prior to October 1950, monthend figures only.
Water-quality records.--Chemical analyses: October 1969 to September 1984.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Jan. 12, 1988, nonrecording gages at various sites in vicinity of present gage at present datum.

REMARKS.--The reservoir is formed by a rolled earthfill dam 2,040 ft long. The dam was completed in December 1931 and storage began Apr. 1, 1932. The original dam was 1,900 ft long, but was lengthened to the present length (2,040 ft) 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 from the left end of dam. The new spillway is 90 ft wide and has eight vertical lift gates that are 11.25 by 22 ft. The controlled outlet works consist of a 48-inch-diameter and an 18-inch-diameter pipe encased in a concrete conduit extending through the dam. In addition, a controlled 60-inch-diameter 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. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	874.0	-
Crest of spillway.....	866.0	889,700
Top of gates.....	842.0	456,900
Top of conservation pool.....	836.0	374,800
Sill of gates.....	820.0	202,200
Lowest valve outlet (invert).....	751.4	0

COOPERATION.--Capacity table No. 5-C was provided by Tarrant County Water Control and Improvement District No. 1. The table was put into use Oct. 1, 1988.

EXTREMES FOR PERIOD OF RECORD.--Prior to Jan. 12, 1988, once-daily reading of nonrecording gage at 0700 hours; maximum contents observed, 491,700 acre-ft May 5, 1990 (elevation, 844.36 ft); minimum contents observed since first appreciable storage in 1935, 7,170 acre-ft Oct. 12-16, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 394,600 acre-ft June 14 at 0315 hours (elevation, 837.51 ft); minimum 336,100 acre-ft Sept. 13 (elevation, 832.90 ft).

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

832.0	325,300	835.0	362,100	837.0	387,900
833.0	337,300	836.0	374,800	838.0	401,200
834.0	349,500				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	361600	351300	345200	349500	352500	374500	374200	374900	373900	375800	363000	341000
2	361200	350900	344900	349600	352800	376600	374200	375200	373900	375500	362100	340800
3	360800	350100	344600	349800	352600	378000	374900	375200	373800	375200	361200	340200
4	360500	349500	344000	350000	352500	379900	375100	375500	373400	374800	360600	339700
5	360100	349000	343500	350400	352600	381600	374800	375300	373400	374400	359500	339300
6	359600	348500	343500	350100	352600	382400	374800	375100	373000	373800	358700	338800
7	358900	348300	343200	350000	352800	382000	374800	375100	372800	373500	357900	338500
8	358200	347800	343000	350300	350900	381600	374800	375200	377000	373100	357300	338200
9	357900	347900	343200	350300	353000	380900	374800	376400	382400	372600	356400	337700
10	357700	347900	343200	350600	352900	379500	374800	377300	386100	372400	355500	337200
11	357300	347500	342900	350400	353700	377900	374800	378600	389500	372100	354900	336700
12	357100	347400	342700	350600	352900	376600	374500	380800	392500	372000	354200	336300
13	356600	347100	345000	351000	352900	375500	374400	382900	394100	371700	353000	336000
14	356200	346800	347200	351000	352600	374400	374200	383100	393800	371500	352100	339400
15	356200	346600	348400	350800	352600	374300	373300	382600	393000	371100	351300	339300
16	355700	346300	349300	350900	357800	374900	373300	381700	392000	370800	350400	339300
17	355300	346100	349800	351100	359100	374400	373500	380500	391100	370600	349500	339300
18	354900	346300	350000	350900	360300	374500	373600	379500	390000	370300	348600	339100
19	354500	347200	350100	350800	362100	374900	373900	378300	389000	369900	347900	339100
20	354500	346700	349900	351500	364600	374900	373600	377100	387800	369600	347300	339100
21	354200	347500	350300	351900	364900	375100	373300	376000	386700	369300	346800	339000
22	354000	346800	350300	352300	364700	375600	372900	375100	385400	368700	346200	338900
23	353900	346800	350300	352500	364600	375100	373000	374500	384300	368100	345600	338600
24	353800	346600	350100	352500	365000	375500	373100	374500	383100	367800	345000	338500
25	353500	346600	349900	352500	368800	374700	373100	374400	382200	367300	344400	338600
26	353200	346300	349900	352600	368900	374400	372900	374200	381300	367500	343800	338500
27	352800	346100	350000	352600	369300	374500	372900	374200	380100	366400	343200	338200
28	352400	345800	350100	352600	369800	374700	374400	374200	378400	366100	342500	337900
29	351900	345800	350500	352500	---	374900	374700	374200	377500	366000	341900	337800
30	351600	345400	350600	352400	---	374900	374500	374200	376500	364700	341700	337500
31	351900	---	350500	352400	---	374800	---	374000	---	363600	341300	---
MAX	361600	351300	350600	352600	369800	382400	375100	383100	394100	375800	363000	341000
MIN	351600	345400	342700	349500	350900	374300	372900	374000	372800	363600	341300	336300
(†)	834.19	833.66	834.08	834.23	835.61	836.00	835.98	835.94	836.13	835.12	833.33	833.02
(Φ)	-9900	-6500	+5100	+1900	+17400	+5000	-300	-500	+2500	-12900	-22300	-3800

CAL YR 1992 MAX 398500 MIN 342700 (Φ) -23700
WTR YR 1993 MAX 394100 MIN 336300 (Φ) -24300

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

LOCATION.--Lat 33°13'54", long 97°41'40", Wise County, Hydrologic Unit 12030101, at downstream side of bridge on U.S. Highway 380, 1.9 mi upstream from Greathouse Branch, 4.0 mi east of Bridgeport, and 4.4 mi upstream from mouth.

WATER-DISCHARGE RECORDS

REVISED RECORDS.--WSP 1148: Drainage area.

REMARKS.--No estimated daily discharges. Records good. Since May 1, 1956, runoff from 100 mi² above this station is affected at times by storage in Lake Amon G. Carter, 30 mi upstream, with a capacity of 15,240 acre-ft at elevation 920.0 ft (spillway crest). During the year, the city of Bowie diverted water from Lake Amon G. Carter for municipal use and discharged sewage effluent into tributaries to Big Sandy Creek upstream from this station. Flow was also affected at times by discharge from the flood-detention pools of 19 floodwater-retarding structures with a combined capacity of 11,430 acre-ft. These structures control runoff from a 46.0 mi² area upstream from this station and below Lake Amon G. Carter. Gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stages since at least 1887 occurred in 1908 and 1915 and reached about the same stage as that of June 10, 1941.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.8	5.3	15	26	25	456	86	106	129	17	1.8	1.9
2	4.7	12	14	27	26	928	74	151	127	15	1.7	1.5
3	4.4	9.0	13	27	28	641	68	123	98	14	1.8	3.1
4	4.3	6.7	13	31	30	349	88	86	29	12	1.9	1.8
5	4.3	6.2	13	41	31	291	126	63	22	11	1.6	1.4
6	4.1	6.1	13	34	30	256	110	57	19	11	1.1	1.1
7	3.9	6.5	13	29	30	238	102	54	13	10	.93	.86
8	3.9	6.9	13	27	27	209	97	50	43	9.8	1.0	1.5
9	3.7	7.6	16	36	27	204	88	289	1390	9.1	1.2	1.8
10	3.8	8.3	22	41	35	179	83	1110	2990	8.4	1.1	1.6
11	3.6	8.8	19	41	47	168	73	1740	2350	8.0	.92	1.1
12	3.7	9.8	17	70	36	162	67	907	1320	7.5	.88	.77
13	3.8	21	45	59	34	148	61	691	684	7.1	.78	1.6
14	3.6	12	587	43	42	137	105	579	557	6.8	.70	.77
15	3.7	11	831	37	578	133	196	506	482	6.2	.65	11
16	4.5	10	348	33	773	125	115	422	376	5.9	.65	6.9
17	7.4	9.8	186	31	344	110	78	348	326	5.7	.58	5.0
18	5.9	10	126	29	199	103	67	304	300	5.2	.55	4.3
19	4.8	21	80	30	166	107	58	274	264	4.9	.50	3.8
20	4.5	58	61	109	155	122	49	243	238	4.9	.45	3.6
21	4.2	42	52	96	141	114	42	224	216	4.6	.42	3.3
22	4.1	50	45	56	129	138	37	205	199	4.0	.40	3.3
23	4.3	144	39	45	117	211	35	193	184	3.6	.34	3.2
24	4.3	58	34	36	116	159	33	216	169	3.3	.32	3.1
25	4.3	51	31	33	312	127	33	192	150	3.0	.30	3.3
26	4.2	33	30	32	228	116	27	170	137	2.8	.25	3.6
27	4.0	23	29	30	156	101	24	158	129	2.5	.81	3.5
28	3.9	18	29	28	138	97	23	148	119	2.4	1.4	3.1
29	4.4	17	30	27	---	94	346	143	84	2.3	1.3	3.1
30	4.6	16	30	25	---	94	250	143	22	2.1	1.3	3.2
31	5.0	---	28	26	---	93	---	136	---	1.9	2.0	---
TOTAL	135.7	698.0	2822	1235	4000	6410	2641	10031	13166	212.0	29.63	164.33
MEAN	4.38	23.3	91.0	39.8	143	207	88.0	324	439	6.84	.96	5.48
MAX	7.4	144	831	109	773	928	346	1740	2990	17	2.0	.77
MIN	3.6	5.3	13	25	25	93	23	50	13	1.9	.25	.77
AC-FT	269	1380	5600	2450	7930	12710	5240	19900	26110	421	59	326

MEAN	111	39.6	43.5	31.3	49.7	91.4	131	204	178	35.5	12.6	27.1
MAX	1829	388	743	316	292	887	1569	1284	1922	426	230	491
(WY)	1982	1941	1992	1946	1946	1945	1942	1990	1941	1950	1973	1962
MIN	.000	.000	.000	.000	.000	.000	.000	.002	.000	.000	.000	.000
(WY)	1939	1939	1939	1940	1939	1940	1956	1980	1953	1964	1938	1938

ANNUAL TOTAL	49623.2		41544.66			
ANNUAL MEAN	136		114		79.6	
HIGHEST ANNUAL MEAN					336	1942
LOWEST ANNUAL MEAN					2.12	1956
HIGHEST DAILY MEAN	1290	May 24	2990	Jun 10	23800	Oct 13 1981
LOWEST DAILY MEAN	3.6	Sep 1	.25	Aug 26	.00	May 29 1937
ANNUAL SEVEN-DAY MINIMUM	3.7	Oct 9	.35	Aug 20	.00	Jun 20 1937
INSTANTANEOUS PEAK FLOW			3240	Jun 10	53000	Jun 10 1941
INSTANTANEOUS PEAK STAGE			12.22	Jun 10	15.69	Jun 10 1941
INSTANTANEOUS LOW FLOW			.24	Aug 26	.00	at times
ANNUAL RUNOFF (AC-FT)	98430		82400		57690	
10 PERCENT EXCEEDS	407		252		93	
50 PERCENT EXCEEDS	36		29		5.7	
90 PERCENT EXCEEDS	4.7		1.8		.00	

TRINITY RIVER BASIN

08044000 BIG SANDY CREEK NEAR BRIDGEPORT, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: April 1993 to September 1993.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
APR 16...	1520	107	584	8.2	17.0	7.8	82	210	32	61	14	42
MAY 19...	1400	276	428	7.8	22.5	7.6	90	150	21	42	10	28
JUN 23...	1450	186	457	7.9	28.0	7.5	98	160	22	47	11	30
JUL 20...	0845	4.9	1030	7.8	29.0	5.2	69	370	100	99	31	75
AUG 10...	0922	1.1	1160	7.8	28.5	5.2	68	410	160	100	40	97
SEP 15...	1128	8.8	295	7.6	17.5	7.5	79	100	18	28	8.5	18
DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3)	ALKA-LINITY WAT TOT IT FIELD (MG/L AS CAC03)	ALKA-LINITY WAT DIS FIX END FIELD (MG/L AS CAC03)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	
APR 16...	1	4.6	0	217	178	170	43	64	0.30	8.0	360	
MAY 19...	1	5.9	0	153	126	120	29	45	0.20	4.6	253	
JUN 23...	1	6.0	0	171	140	140	31	45	0.20	6.9	281	
JUL 20...	2	3.9	--	--	--	280	110	110	0.30	18	626	
AUG 10...	2	4.0	0	311	255	250	170	140	0.40	17	740	
SEP 15...	0.8	6.2	0	106	87	86	32	21	0.20	8.7	214	
DATE	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	
APR 16...	344	0.075	0.075	0.010	0.085	0.085	0.040	0.56	0.46	0.50	0.60	
MAY 19...	240	0.057	--	<0.010	0.057	0.057	0.030	0.37	0.57	0.60	0.40	
JUN 23...	262	0.082	--	<0.010	0.082	0.082	0.040	0.26	0.26	0.30	0.30	
JUL 20...	612	--	--	<0.010	--	<0.050	0.040	0.46	0.16	0.20	0.50	
AUG 10...	721	--	--	<0.010	--	<0.050	0.020	0.58	0.48	0.50	0.60	
SEP 15...	178	0.380	0.380	0.070	0.450	0.450	0.090	2.5	0.41	0.50	2.6	
DATE	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	
APR 16...	0.060	0.050	0.020	0.06	6.9	2.1	146	42	98	41	61	
MAY 19...	0.050	0.030	0.020	0.06	6.6	1.8	115	86	97	13	6	
JUN 23...	0.030	0.040	0.020	0.06	16	1.3	76	38	96	48	16	
JUL 20...	0.060	0.030	0.030	0.09	3.4	0.6	36	0.48	97	10	150	
AUG 10...	0.020	<0.010	0.020	0.06	4.0	1.2	63	0.19	93	8	15	
SEP 15...	0.430	0.280	0.280	0.86	17	>4.8	340	8.1	100	140	11	

TRINITY RIVER BASIN

251

08044135 GARRETT CREEK NEAR PARADISE, TX
(Flood-hydrograph Partial-record Station)

LOCATION.--Lat 33 06'18", Long 97 39'17", Wise County, Hydrologic Unit 12030101, on the downstream side, at second pile from right end of bridge on State Highway 114, 3.8 mi. downstream from Rush Creek and 3.9 mi. southeast of Paradise.

DRAINAGE AREA.--52.5 mi².

PERIOD OF RECORD.--June 1992 to current year (annual maximum).

GAGE.--Water-stage recorder. Datum of gage is 692.61 ft. above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records good. Gage-height telemeter at station.

PEAK DISCHARGE FOR CURRENT YEAR.--

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Feb. 25	1145	953	11.65	No supplemental peaks published.			

TRINITY RIVER BASIN

08044140 SALT CREEK NEAR PARADISE, TX
(Flood-hydrograph Partial-record Station)

LOCATION.--Lat 33 05'54", Long 97 38'59", Wise County, Hydrologic Unit 12030101, on the downstream side, at second pile from right end of bridge on State Highway 114, 2.0 mi. downstream from Cottonwood Creek and 4.5 mi. southeast of Paradise.

DRAINAGE AREA.--52.7 mi².

PERIOD OF RECORD.--June 1992 to current year (annual maximum).

GAGE.--Water-stage recorder. Datum of gage is 702.12 ft. above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records poor. Gage-height telemeter at station.

PEAK DISCHARGE FOR CURRENT YEAR.--

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Feb. 25	0345	1,300	8.40	No supplemental peaks published.			

08044500 WEST FORK TRINITY RIVER NEAR BOYD, TX

LOCATION.--Lat 33°05'07", long 97°33'30", Wise County, Hydrologic Unit 12030101, on right bank at downstream side of highway embankment, 10 ft right of right abutment of bridge on Farm Road 730, 0.6 mi northeast of Boyd, 3.5 mi downstream from Boggy Creek, and at mile 602.

DRAINAGE AREA.--1,725 mi².

PERIOD OF RECORD.--January 1947 to current year.

GAGE.--Water-stage recorder. Datum of gage is 660.57 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 14, 1954, water-stage recorder at site 2.2 mi downstream at datum 5.48 ft lower.

REMARKS.--No estimated daily discharges. Records good. During year, sustained flows at this station were the result of water released for downstream supply from Bridgeport Reservoir (drainage area, 1,111 mi²), 25 mi upstream from station. In addition, flow from a 100 mi² area above station is affected at times by discharge from the flood-detention pools of 36 floodwater-retarding structures with a total combined detention capacity of 24,450 acre-ft. These structures control runoff from 91.2 mi² in the Big Sandy and Salt Creek drainage basins above this station. Several observations of water temperature were made during the year. Gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1880, about 25 ft in May 1908, present site and datum, from information by local residents, who also reported a flood of about the same gage height between 1870-80. A flood in April 1942 reached a stage of 20.6 ft, present site and datum, from information by State Department of Highways and Public Transportation.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91	117	123	63	57	598	150	533	177	361	239	91
2	106	122	120	69	57	1030	138	464	166	249	245	88
3	106	127	119	77	110	1190	134	444	161	74	263	88
4	107	119	118	76	243	1240	391	295	109	43	276	89
5	107	114	122	76	115	1070	506	243	67	35	278	87
6	108	113	121	80	82	893	650	225	57	31	314	85
7	107	112	122	78	70	789	501	219	54	28	315	84
8	109	113	121	73	66	750	426	214	48	25	285	85
9	114	117	125	83	61	727	406	229	547	24	282	86
10	115	123	135	103	69	706	285	737	1070	22	279	85
11	116	121	134	85	93	687	196	1030	1730	20	279	85
12	115	125	130	91	83	681	146	1350	2240	18	280	85
13	117	128	299	113	66	676	132	1430	1970	17	279	90
14	114	137	1230	98	61	666	349	1300	1490	16	278	776
15	116	123	1410	84	598	656	763	1170	1240	15	280	377
16	215	120	1220	76	1300	371	439	1090	1090	15	281	54
17	146	120	565	71	1260	208	194	1010	986	14	272	23
18	127	120	282	71	587	191	159	886	864	13	273	16
19	126	154	180	73	314	186	140	784	775	13	272	14
20	121	202	138	152	243	189	119	738	724	12	273	12
21	115	186	119	212	220	195	103	710	695	12	210	11
22	112	194	106	147	201	220	95	690	676	11	178	10
23	112	213	93	107	183	560	92	642	657	11	176	9.7
24	112	223	83	88	170	694	93	528	639	10	176	9.1
25	111	174	75	80	1470	666	91	352	624	9.8	177	9.0
26	111	161	72	78	1620	641	88	238	617	9.6	177	11
27	110	142	70	72	1010	344	81	216	606	9.1	177	12
28	111	132	70	68	457	191	73	201	598	9.0	177	10
29	113	127	70	65	---	184	434	194	587	8.6	176	9.0
30	113	125	69	62	---	176	873	191	543	8.2	177	8.6
31	113	---	66	58	---	156	---	222	---	99	139	---
TOTAL	3616	4204	7707	2729	10866	17531	8247	18575	21807	1242.3	7483	2499.4
MEAN	117	140	249	88.0	388	566	275	599	727	40.1	241	83.3
MAX	215	223	1410	212	1620	1240	873	1430	2240	361	315	776
MIN	91	112	66	58	57	156	73	191	48	8.2	139	8.6
AC-FI	7170	8340	15290	5410	21550	34770	16360	36840	43250	2460	14840	4960

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 1993, BY WATER YEAR (WY)

	313	180	192	112	109	203	280	734	516	210	216	185
MEAN	313	180	192	112	109	203	280	734	516	210	216	185
MAX	4063	1248	3073	929	944	1366	4339	5908	5439	1330	1157	1643
(WY)	1982	1982	1992	1992	1992	1987	1990	1990	1989	1950	1950	1962
MIN	2.96	4.81	2.21	.75	.10	.26	.59	25.2	2.76	7.11	.025	.23
(WY)	1957	1984	1953	1956	1953	1955	1955	1959	1953	1979	1980	1956

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1948 - 1993

ANNUAL TOTAL	173277	106506.7	272
ANNUAL MEAN	473	292	1094
HIGHEST ANNUAL MEAN			58.6
LOWEST ANNUAL MEAN			38800
HIGHEST DAILY MEAN	3080	2240	Oct 14 1981
LOWEST DAILY MEAN	12	8.2	Jul 30
ANNUAL SEVEN-DAY MINIMUM	13	9.2	Aug 6 1948
INSTANTANEOUS PEAK FLOW		2290	Jul 24
INSTANTANEOUS PEAK FLOW		17.02	Jun 12
INSTANTANEOUS LOW FLOW		7.9	Jul 29
ANNUAL RUNOFF (AC-FT)	343700	211300	196900
10 PERCENT EXCEEDS	1410	755	492
50 PERCENT EXCEEDS	125	132	64
90 PERCENT EXCEEDS	16	25	3.4

254

TRINITY RIVER BASIN

08044800 WALNUT CREEK AT RENO, TX
(Flood-hydrograph Partial-record Station)

LOCATION.--Lat 32 56'44", Long 97 34'58", Parker County, Hydrologic Unit 12030101, on the downstream side, at first pile from the left end of bridge on FM 1542, 3,500 ft. upstream from Cottonwood Branch and 2.4 mi. west of intersection of FM 1542 and FM 730 in Center Point.

DRAINAGE AREA.--75.6 mi².

PERIOD OF RECORD.--April 1992 to current year (annual maximum).

GAGE.--Water-stage recorder. Datum of gage is 681.11 ft. above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Gage-height telemeter at station.

PEAK DISCHARGE FOR CURRENT YEAR.--

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Feb. 25	0630	7,940	16.11	No supplemental peaks published.			

08045000 EAGLE MOUNTAIN RESERVOIR ABOVE FORT WORTH, TX

LOCATION.--Lat 32°52'39", long 97°28'29", Tarrant County, Hydrologic Unit 12030101, at right end of main section (left) of Eagle Mountain Dam on West Fork Trinity River, 11.8 mi northwest of Fort Worth, and at mile 583.3.

DRAINAGE AREA.--1,970 mi².

PERIOD OF RECORD.--February 1934 to current year. Prior to October 1950, month-end figures only.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 16, 1988, nonrecording gages at several sites within 1.0 mi of present site at present datum.

REMARKS.--The reservoir is formed by two sections of rolled earthfill and a concrete spillway separated by high natural ground. Total length of the dam including spillway, is 4,800 ft. The dam was completed Oct. 24, 1932, and storage began Feb. 24, 1934. The spillway is a 1,300-foot-wide 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 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 to the left of the original service spillway and has six 11.25- by 22-foot-wide roller lift gates. The main section of the dam contains the outlet works that consist of two concrete conduits with two 48-inch diameter valves in each conduit. The reservoir is used for flood control and for part of the municipal water supply for the city of Fort Worth. Capacities are based on a survey made in 1968. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08044500. For storage above the reservoir, see REMARKS for West Fork Trinity River near Boyd (station 08044500). Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	682.0	-
Crest of spillway.....	676.0	545,900
Top of gates (new side-channel spillway).....	659.0	283,200
Crest of (old service) spillway (top of conservation pool).....	649.1	178,400
Crest of spillway (new side-channel spillway).....	637.0	89,450
Lowest gated outlet (invert).....	599.9	36

COOPERATION.--New capacity table, No. 4-C, furnished by Tarrant County Water Control and Improvement District No. 1, was put into use Oct. 1, 1988.

EXTREMES FOR PERIOD OF RECORD.--Prior to Oct. 16, 1987, once-daily reading of nonrecording gage at 0700 hours, maximum contents observed, 333,500 acre-ft Apr. 26, 1942 (elevation, 659.9 ft); minimum observed since first appreciable storage in 1935, 57,690 acre-ft Nov. 19, 20, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 181,100 acre-ft June 15 at 2015 hours (elevation, 649.40 ft); minimum, 154,300 acre-ft Sept. 12 (elevation, 646.28 ft).

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

646.0	152,100	648.0	168,700	650.0	186,700
647.0	160,200	649.0	177,500		

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	163600	162500	165500	178200	177300	176300	175800	177000	177200	177000	160500	158400
2	163400	161900	165300	178200	177300	176100	175800	176100	177200	177100	160300	158100
3	163300	162200	165200	178500	179800	176500	176300	176500	176700	176300	160200	157700
4	163100	162100	165300	178200	179200	176400	177000	176600	177100	176100	160000	157500
5	162900	162000	165100	177900	178300	176700	176500	177000	176500	175800	159800	157100
6	162800	161900	165300	177800	177600	176800	175900	177100	175900	175000	159900	157000
7	162800	161800	165400	177900	177200	176500	176900	176900	175300	175100	160900	156700
8	162200	161900	165400	177800	177300	176600	176200	175600	176000	174600	160800	156400
9	162000	162000	165900	178100	177500	177000	176200	176500	176100	174300	160800	156100
10	161900	162300	165900	177700	178300	177500	176400	176800	176100	174000	160900	155900
11	161600	163300	165800	177700	178000	177800	176800	177100	176400	173600	160800	155300
12	161500	162900	166100	177900	177800	178000	176800	177000	177100	173000	161000	154700
13	161000	162800	168900	177700	177300	177500	177100	177100	179500	172600	161000	157700
14	161000	162800	174300	177500	177000	177000	177000	177800	180700	172300	160900	162200
15	162400	162800	177100	177600	176800	178000	176800	178200	180700	171600	160800	163300
16	162800	162800	178400	177500	178700	178300	176800	178500	180300	170900	160800	163200
17	162700	162800	178900	177500	178500	177600	177000	178400	179300	170400	160800	162700
18	162500	162900	178600	177400	178900	176900	176500	178200	178500	169900	160800	162400
19	162500	163900	178600	177500	178800	177600	177100	177700	177100	169400	160700	162200
20	162300	164200	178400	177500	177500	177400	177000	177400	176900	168800	160500	162200
21	162200	165000	178200	177500	177000	177200	176700	177300	176800	168000	160200	161600
22	162200	164700	178000	177300	176700	177700	176300	177200	176800	167300	159800	161400
23	162200	164800	177900	177900	176900	177400	175800	178000	176200	166500	159300	161000
24	162100	165400	177700	177100	178100	177700	176100	178100	176500	165500	160100	160500
25	162100	165400	177800	177100	179800	177900	176300	177900	176800	165100	159600	160500
26	162200	165200	177700	177300	178500	177900	176100	177800	177100	164400	159500	160000
27	161700	165100	177700	177400	176700	177500	175900	177300	177300	163500	159200	159600
28	161400	165100	177900	177600	176800	176800	175800	177700	177300	163100	158800	159300
29	162200	165200	177900	177700	---	175600	176500	177600	177100	162400	158400	159000
30	162100	165200	178200	177300	---	175800	176700	177500	176900	161600	158300	158400
31	162500	---	178400	177200	---	175700	---	177800	---	160800	158600	---
MAX	163600	165400	178900	178500	179800	178300	177100	178500	180700	177100	161000	163300
MIN	161000	161800	165100	177100	176700	175600	175800	175600	175300	160800	158300	154700
(↑)	647.27	647.59	649.10	648.97	648.92	648.80	648.91	649.03	648.93	647.07	646.80	646.78
(Φ)	-1400	+2700	+13200	-1200	-400	-1100	+1000	+1100	-900	-16100	-2200	-200

CAI YR 1992 MAX 181200 MIN 161000 (Φ) -1200
WTR YR 1993 MAX 180700 MIN 154700 (Φ) -5500

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

TRINITY RIVER MAIN STEM

08045400 LAKE WORTH ABOVE FORT WORTH, TX

LOCATION.--Lat 32°47'21", long 97°24'58", Tarrant County, Hydrologic Unit 12030102, on top of Lake Worth Dam on West Fork Trinity River, 240 ft to right of right end of uncontrolled concrete spillway, 2.9 mi upstream from Farmer's Branch, 3.3 mi upstream from bridge on State Highway 183 crossing West Fork Trinity River, 5.3 mi northwest of Tarrant County Courthouse in Fort Worth, and at river mile 572.0.

DRAINAGE AREA.--2,064 mi².

PERIOD OF RECORD.--October 1981 to current year.

Water-quality records.--Chemical analyses: January 1970 to September 1984.

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

REMARKS.--The lake is formed by a rolled earthfill dam 3,200 ft long, with an uncontrolled concrete spillway 700 ft long near the center of the dam. Deliberate impoundment began in June 1914 and the dam was completed in October 1914. There is a 48-inch diameter pipe controlled by a 36-inch valve, which may be used to make small releases through the dam. The dam is owned by the city of Fort Worth. Area-capacity curves are based on a survey made in 1968. 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.....	606.3	-
Crest of concrete spillway.....	594.0	37,070
Lowest gated outlet (invert).....	584.25	12,290

COOPERATION.--Copies of the capacity table (prepared by the U.S. Army Corps of Engineers) and area-capacity curves (prepared by Freese, Nichols, and Endress, Consulting Engineers) were provided by Tarrant County Water Control and Improvement District No. 1.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 56,040 acre-ft May 3, 1990 (elevation, 598.70 ft); minimum, 24,730 acre-ft Sept. 9-10, 1985 (elevation, 589.95 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 41,090 acre-ft Feb. 27 at 1100 hours (elevation, 595.11 ft); minimum, 32,740 acre-ft Sept. 12 (elevation, 592.70 ft).

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

592.0	30,540	594.0	37,070	596.0	44,520
593.0	33,690	595.0	40,670		

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35350	36260	35480	36730	37210	40310	37110	38550	36800	37750	33690	33860
2	35350	35990	35450	36730	37180	39910	37070	38800	36770	37430	33690	33690
3	35350	35990	35480	36800	37720	39550	36970	38260	36630	37040	33990	33560
4	35350	35680	35550	36970	38650	39340	37360	37720	36600	36830	33890	33470
5	35310	35580	35480	37180	38870	39190	37900	37500	36500	36730	33890	33340
6	35210	35350	35520	37210	38370	39190	38190	37360	36390	36500	34030	33250
7	35110	35280	35550	37180	38040	39190	38510	37290	36190	36290	34100	33180
8	34970	35140	35680	36970	37650	39050	38260	37860	36290	36020	33860	33180
9	34910	35080	35680	37470	37390	38650	38080	38010	36630	35790	34030	33150
10	34840	35110	35680	37180	37610	38370	37680	37570	37750	35580	34160	33060
11	34770	35410	35720	37180	37650	38400	37430	37680	38620	35350	34200	32990
12	34770	35040	35680	37040	37500	38550	37290	38470	38800	35110	34230	32900
13	34700	34940	37070	37040	37570	38400	37180	38800	39050	34910	34400	33990
14	34600	34970	38040	37000	37650	38470	37790	38870	39370	34600	34430	35140
15	35680	34940	37930	37040	38260	38440	37970	38910	39550	34430	34470	34940
16	36290	34870	38440	37070	38690	38370	38110	38910	39520	34260	34330	34770
17	36290	34840	38470	37140	38940	38260	37860	38910	39520	34160	34260	34640
18	36290	34840	38510	37180	38980	38220	37430	38940	39590	34100	33720	34530
19	36260	35410	38010	37650	38940	38190	37390	38980	39480	34030	33720	34500
20	36220	35350	37650	37610	38650	37930	37180	38800	39160	34030	33760	34430
21	36290	36020	37610	37650	38400	37930	37040	38510	38650	34060	33760	34260
22	36290	35410	37610	37570	38080	38470	37000	38400	38440	34030	33760	34160
23	36260	35450	37390	37500	37720	38510	37110	38220	38290	33930	33760	34060
24	36260	35580	37210	37210	38150	38580	37110	38040	38190	33820	34100	33890
25	36260	35550	37180	37140	40270	38550	37110	37900	37830	33820	34160	33860
26	36260	35410	37070	37040	40900	38510	37040	37680	38150	33690	34230	33760
27	36260	35380	37040	36970	40980	38470	37000	37470	38010	33630	34260	33600
28	36260	35450	36970	37110	40630	38580	37040	37360	37930	33690	34260	33530
29	36600	35480	36930	37290	---	38510	37570	37210	37900	33660	34200	33560
30	36330	35410	36870	37290	---	38110	38010	37140	37860	33690	34330	33560
31	36160	---	36800	37210	---	37500	---	37040	---	33720	34030	---
MAX	36600	36260	38510	37650	40980	40310	38510	38980	39590	37750	34470	35140
MIN	34600	34840	35450	36730	37180	37500	36970	37040	36190	33630	33690	32900
(↑)	593.73	593.51	593.92	594.04	594.99	594.12	594.26	593.99	594.22	593.01	593.10	592.96
(φ)	+810	-750	+1390	+410	+3420	-3130	+510	-970	+820	-4140	+310	-470

CAL YR 1992 MAX 42450 MIN 34600 (φ) -6610
WTR YR 1993 MAX 40980 MIN 32900 (φ) -1790

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

TRINITY RIVER BASIN

257

08045850 CLEAR FORK TRINITY RIVER NEAR WEATHERFORD, TX
(Flood-hydrograph Partial-record Station)

LOCATION.--Lat 32°44'25", long 97°39'06", Parker County, Hydrologic Unit 12030102, near left end of bridge on weigh station exit road associated with Interstate Highway 20, 150 ft downstream from Squaw Creek, 2.8 mi downstream from Lake Weatherford Dam on the Clear Fork Trinity River, 3.8 mi upstream from South Fork Trinity River, and 8.5 mi east of county courthouse in Weatherford.

DRAINAGE AREA.--121 mi².

PERIOD OF RECORD.--July 1924 to September 1925 and November 1947 to September 1985. October 1985 to current year, (peaks above base discharge).

REVISED RECORDS.--WSP 1312. 1925(M). WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 810.00 ft above National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation benchmark).

AVERAGE DISCHARGE FOR PERIOD (water years 1981-85).-- 23.0 ft³/s (16,660 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,080 ft³/s Nov. 1, 1981 (gage height, 21.58 ft); minimum, no flow Sept. 12-15, 1984.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 190 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 15	0645	314	11.30	Feb. 27	1230	394	11.67

08046020 CLEAR FORK TRINITY RIVER ABOVE BENBROOK NEAR ALEDO, TX

LOCATION.--Lat 32°37'14", long 97°31'46", Tarrant County, Hydrologic Unit 12030102, on U.S. Highway 377, over center of channel at upstream side of upstream bridge, 0.25 mi southwest of FM 2376, 0.25 mi northeast of FM 1187, and 6.5 mi southwest of Benbrook.

DRAINAGE AREA.--258 mi².

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1989 to current year.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)
JAN 28...	1430	47	690	8.6	9.0	15	3.0	14.8	131	0.4	280	57
FEB 16...	1400	323	495	8.2	8.0	55	93	11.3	96	3.4	180	27
APR 08...	1631	255	608	7.6	17.0	13	26	--	--	3.8	230	35
JUN 04...	1355	15	775	7.8	27.0	5	15	7.6	99	2.4	310	42
JUL 29...	1456	5.6	803	8.5	31.0	13	6.7	7.2	99	2.2	280	54
SEP 16...	1427	26	327	7.6	20.5	40	60	9.8	111	3.7	120	19

DATE	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)
JAN 28...	86	16	42	1	3.4	220	53	59	0.40	7.3	401	<1
FEB 16...	57	9.9	30	1	3.6	160	33	37	0.20	7.8	274	186
APR 08...	74	12	32	0.9	4.3	200	47	48	0.30	7.9	347	81
JUN 04...	100	15	45	1	3.5	270	65	61	0.70	15	471	<85
JUL 29...	90	14	67	2	6.2	230	66	79	1.5	11	474	27
SEP 16...	39	4.6	15	0.6	5.7	98	26	19	0.30	7.6	179	395

DATE	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L AS N)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)
JAN 28...	<1	--	--	--	--	--	--	--	--	--	--
FEB 16...	60	126	0.190	0.190	0.020	0.210	0.210	0.050	0.65	0.70	0.070
APR 08...	22	59	0.270	0.270	0.010	0.280	0.280	0.080	0.82	0.90	0.150
JUN 04...	14	--	0.660	0.660	0.010	0.670	0.670	0.090	0.31	0.40	0.350
JUL 29...	14	13	0.340	0.340	0.010	0.350	0.350	0.120	0.98	1.1	0.350
SEP 16...	30	365	0.410	--	<0.010	0.410	0.410	0.140	0.46	0.60	0.260

DATE	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
JAN 28...	--	--	5.0	--	--	--	--	--	--	--	--
FEB 16...	0.060	0.18	6.7	2	66	<0.5	2.0	<5	<3	<10	51
APR 08...	0.040	0.12	7.3	2	77	<0.5	1.0	<5	<3	20	<3
JUN 04...	0.330	1.0	5.5	--	--	--	--	--	--	--	--
JUL 29...	0.340	1.0	7.8	--	--	--	--	--	--	--	--
SEP 16...	0.270	0.83	9.8	2	46	2	1.0	<5	<3	<10	11

TRINITY RIVER BASIN

259

08046020 CLEAR FORK TRINITY RIVER ABOVE BENBROOK NEAR ALEDO, TX--Continued

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

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
JAN 28...	--	--	--	--	--	--	--	--	--	--	--
FEB 16...	<10	<4	7	0.2	<10	<10	<1	6.0	340	<6	9
APR 08...	<10	6	7	<0.1	<10	<10	<1	<1.0	470	<6	11
JUN 04...	--	--	--	--	--	--	--	--	--	--	--
JUL 29...	--	--	--	--	--	--	--	--	--	--	--
SEP 16...	10	<4	5	<0.1	<10	<10	<1	1.0	240	10	16

LOCATION.--Lat 32°35'38", long 97°30'47", Tarrant County, Hydrologic Unit 12030102, on FM 1187 bridge over center of channel at upstream side of bridge, 0.3 mi downstream from an unnamed tributary on left bank, 0.3 upstream from Benbrook Lake, and 6.4 mi south of Benbrook.

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1989 to current year.

[illegible]

08046500 BENBROOK LAKE NEAR BENBROOK, TX

LOCATION.--Lat 32°39'02", long 97°26'54", Tarrant County, Hydrologic Unit 12030102, in intake structure of Benbrook Dam on Clear Fork Trinity River, 2.5 mi south of Benbrook, 3.5 mi upstream from Marys Creek, and 14.6 mi upstream from mouth.

DRAINAGE AREA.--429 mi².

WATER-CONTENT RECORDS

PERIOD OF RECORD.--September 1952 to current year. Prior to October 1970, published as Benbrook Reservoir.

REVISED RECORDS.--WSP 1922: Drainage area.

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

REMARKS.--The lake is formed by a rolled earthfill dam 9,130 ft long, including a 500-foot uncontrolled off-channel concrete-gravity spillway with a 100-foot notch in center of ogee weir section. The outlet works consist of a 13.0-foot-diameter concrete conduit controlled by two 6.5- by 13.0-foot broome-type gates and two 30-inch 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. Inflow is affected at times by the discharge from flood-detention pools of 12 floodwater-retarding structures with a combined detention capacity of 11,170 acre-ft. These structures control runoff from 37.6 mi². Gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	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 (inverts).....	656.0	6,550
Lowest gated outlet (invert).....	622.0	12

COOPERATION.--Records of elevations and contents furnished by the U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 212,200 acre-ft May 3, 1990 (elevation, 717.54 ft); minimum since lake first filled in 1957, 61,450 acre-ft Oct. 10, 1984 (elevation, 686.16 ft).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 99,510 acre-ft Mar. 2 (elevation, 696.87 ft); minimum daily, 77,770 acre-ft Sept. 12 (elevation, 691.12 ft).

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

688.0	67,250	693.0	84,520	696.0	96,000
691.0	77,350	694.0	88,250	697.0	100,050
692.0	80,890	695.0	92,060		

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83390	81930	82220	89160	88700	99310	89190	90490	88700	89420	84860	79040
2	83170	81900	82190	89080	88510	99510	89190	91520	88620	89160	84860	78930
3	82950	81720	82220	89000	88970	98940	89310	91790	88590	89000	84740	78820
4	82730	81610	82150	88890	89920	97880	89540	91830	88470	88890	84600	78720
5	82590	81570	82120	88810	90180	96670	89540	91750	88470	88700	84380	78610
6	82550	81500	82150	88700	90180	95310	89310	91640	88470	88440	84120	78470
7	82440	81430	82150	88620	90030	93970	89500	91560	88440	88320	83940	78360
8	82330	81430	82150	88590	89800	92720	89380	91410	88290	88250	83720	78220
9	82260	81430	82300	88510	89610	91600	89000	91330	88210	88020	83500	78150
10	82150	81460	82300	88470	89840	90370	88850	91140	88550	87950	83310	78010
11	82150	81570	82370	88550	89650	89570	88810	90720	88550	87760	83100	77910
12	82080	81570	82400	88660	89610	89500	88890	90110	88550	87650	82840	77770
13	82010	81570	83100	88740	89720	89460	88890	89460	88510	87500	82590	77910
14	81930	81570	86340	88890	89800	89380	89500	89000	88440	87350	82330	79000
15	81930	81570	88290	88970	90870	89310	89690	88700	88440	87230	82080	79040
16	81860	81570	89120	89080	91100	89270	89540	88590	88400	87080	81830	79000
17	81860	81570	89720	89160	90370	89160	89340	88590	88320	86970	81570	78900
18	81830	81570	89800	89310	89690	89040	89190	88470	88290	86860	81430	78820
19	81750	81860	89920	89650	89270	89420	88850	88510	88250	86750	81390	78750
20	81720	82010	90030	89880	89610	90070	88660	88470	88170	86640	81390	78680
21	81640	82150	89800	90220	89760	90370	88550	88510	88170	86490	81390	78610
22	81640	82190	89190	90260	89760	92530	88550	88510	88170	86340	81390	78540
23	81610	82220	88850	90180	89540	93340	88440	88590	88210	86190	80100	78470
24	81570	82370	88890	90180	89880	93150	88620	88620	88060	86000	79920	78400
25	81570	82300	88970	90180	97150	92490	88700	88590	89000	85820	79820	78440
26	81540	82220	89040	90110	98860	91790	88810	88620	90030	85630	79750	78400
27	81500	82190	89190	90070	99180	91020	88890	88660	90260	85480	79680	78330
28	81500	82190	89310	89950	98980	90640	88970	88660	90260	85370	79530	78190
29	81720	82220	89340	89690	---	90030	89720	88700	90110	85260	79390	78120
30	81720	82220	89310	89460	---	89420	90030	88740	89720	85150	79250	78010
31	81860	---	89190	89160	---	89190	---	88660	---	85000	79180	---
MAX	83390	82370	90030	90260	99180	99510	90030	91830	90260	89420	84860	79040
MIN	81500	81430	82120	88470	88510	89040	88440	88470	88060	85000	79180	77770
(†)	692.27	692.37	694.25	694.24	696.74	694.25	694.47	694.11	694.39	693.13	691.52	691.19
(Φ)	-1750	+360	+6970	-30	+9820	-9790	+840	-1370	+1060	-4720	-5820	-1170
CAL YR 1992	MAX	178100	MIN	81430	(Φ)	-89710						
WTR YR 1993	MAX	99510	MIN	77770	(Φ)	-5600						

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

(Φ) Change in contents, in acre-feet.

TRINITY RIVER BASIN

08046500 BENBROOK LAKE NEAR BENBROOK, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1969 to September 1982. February 1990 to current year.

REVISED RECORDS.--Due to a computation error discovered after publication of Phytoplankton analyses for the period October 1991 to September 1992, revised data for these analyses are included in this report.

323858097265601 - BENBROOK LAKE SITE AC

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

DATE	TIME	RESER- VOIR STORAGE (AC-FT)	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
JAN										
22...	1226	82600	1.00	369	8.0	9.5	1.04	8.2	73	K11
22...	1230	--	10.0	370	7.9	8.5	--	8.3	72	--
22...	1233	--	20.0	369	7.9	8.5	--	8.3	72	--
22...	1236	--	30.0	369	7.8	8.5	--	8.2	71	--
22...	1240	--	40.0	369	7.7	8.5	--	8.2	71	--
22...	1244	--	50.0	368	7.6	9.0	--	8.1	71	--
22...	1248	--	58.0	368	7.3	9.0	--	7.9	69	--
MAY										
05...	1003	91700	1.00	429	8.2	20.0	0.98	7.0	79	K7
05...	1006	--	10.0	428	8.2	20.0	--	7.1	81	--
05...	1009	--	20.0	429	8.2	20.0	--	7.1	81	--
05...	1012	--	30.0	429	8.1	20.0	--	7.0	79	--
05...	1015	--	40.0	429	8.1	20.0	--	7.0	79	--
05...	1019	--	50.0	429	8.0	20.0	--	6.9	78	--
05...	1022	--	58.0	434	7.6	20.0	--	5.6	64	--
AUG										
02...	0945	84900	1.00	348	8.3	30.5	1.31	8.2	113	K1
02...	0950	--	10.0	351	8.3	30.5	--	7.6	105	--
02...	0955	--	20.0	380	7.7	29.0	--	3.4	46	--
02...	1000	--	30.0	387	7.5	28.5	--	0	0	--
02...	1005	--	40.0	391	7.4	28.0	--	0	0	--
02...	1010	--	50.0	404	7.3	27.5	--	0	0	--
02...	1015	--	55.0	414	7.2	27.5	--	0	0	--

DATE	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)
JAN									
22...	K4	140	18	43	7.0	21	0.8	3.1	120
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
22...	--	140	16	43	7.0	21	0.8	3.1	120
MAY									
05...	K6	160	16	54	7.3	20	0.7	2.9	150
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	170	12	54	7.4	20	0.7	2.9	150
AUG									
02...	37	120	20	35	7.6	22	0.9	2.8	99
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	--	150	8	48	8.0	22	0.8	3.5	150

TRINITY RIVER BASIN

263

08046500 BENBROOK LAKE NEAR BENBROOK, TX--Continued

323858097265601 - BENBROOK LAKE SITE AC--Continued

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

DATE	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
JAN									
22...	30	25	0.30	7.8	208	--	--	--	0.30
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
22...	29	25	0.30	8.1	208	--	--	--	0.40
MAY									
05...	30	27	0.30	0.40	231	<0.010	<0.050	0.040	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	30	27	0.30	1.4	235	<0.010	<0.050	0.200	--
AUG									
02...	33	27	0.30	4.7	192	<0.010	<0.050	0.020	--
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	<0.010	<0.050	0.030	--
02...	--	--	--	--	--	<0.010	<0.050	0.040	--
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	21	26	0.30	9.1	228	<0.010	<0.050	0.870	--
DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN									
22...	--	--	0.30	0.020	--	--	--	<3	2
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
22...	--	--	0.40	0.020	--	--	--	3	14
MAY									
05...	0.16	0.20	--	--	<0.010	<0.010	--	<3	2
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	0.30	0.50	--	--	0.010	<0.010	--	9	78
AUG									
02...	0.18	0.20	--	--	<0.010	<0.010	--	<3	2
02...	--	--	--	--	--	--	--	--	--
02...	0.17	0.20	--	--	<0.010	<0.010	--	<10	<10
02...	0.16	0.20	--	--	<0.010	<0.010	--	20	40
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	0.43	1.3	--	--	0.190	0.160	0.49	550	710

TRINITY RIVER BASIN

08046500 BENBROOK LAKE NEAR BENBROOK, TX--Continued

323908097273401 - BENBROOK LAKE SITE AL

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
22...	1300	1.00	369	8.1	9.0	8.6	76
22...	1303	10.0	370	8.0	8.5	8.5	74
22...	1306	20.0	370	8.0	8.5	8.5	74
22...	1308	30.0	369	8.0	8.5	8.4	73
22...	1311	40.0	370	8.0	8.5	8.3	72
22...	1314	46.0	370	8.0	8.5	8.3	72
MAY							
05...	1035	1.00	432	8.2	20.5	7.2	83
05...	1038	10.0	432	8.2	20.0	7.2	82
05...	1041	20.0	430	8.2	20.0	7.2	82
05...	1043	30.0	431	8.2	20.0	7.2	82
05...	1049	40.0	431	8.2	20.0	7.1	81
05...	1051	47.0	431	8.1	20.5	7.0	80
AUG							
02...	1024	1.00	348	8.3	30.5	8.1	112
02...	1027	10.0	349	8.2	30.0	7.8	107
02...	1029	20.0	382	7.6	29.0	2.4	32
02...	1032	30.0	389	7.4	28.5	0.7	9
02...	1035	40.0	391	7.4	28.5	0	0
02...	1038	45.0	394	7.4	28.5	0	0

323735097274701 - BENBROOK LAKE SITE BC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
JAN												
22...	1329	1.00	371	8.2	9.5	1.10	9.2	82	K1	K1	140	17
22...	1333	10.0	371	8.1	8.5	--	8.9	77	--	--	--	--
22...	1337	20.0	372	8.1	8.5	--	8.8	76	--	--	--	--
22...	1341	30.0	373	8.0	8.5	--	8.5	74	--	--	--	--
22...	1345	42.0	375	8.0	8.5	--	8.3	72	--	--	140	21
MAY												
05...	1105	1.00	429	8.2	20.0	0.88	7.0	79	K2	K1	160	14
05...	1108	10.0	429	8.2	20.0	--	6.9	78	--	--	--	--
05...	1111	20.0	430	8.1	20.0	--	6.8	77	--	--	--	--
05...	1115	30.0	431	8.0	19.5	--	6.1	69	--	--	--	--
05...	1120	41.0	436	7.9	19.5	--	5.0	56	--	--	160	12
AUG												
02...	1055	1.00	349	8.4	30.5	1.22	8.8	121	K3	56	120	19
02...	1100	10.0	352	8.2	29.5	--	8.3	112	--	--	--	--
02...	1105	20.0	384	7.7	28.5	--	3.5	47	--	--	--	--
02...	1110	30.0	394	7.4	28.5	--	0	0	--	--	--	--
02...	1115	38.0	398	7.4	28.5	--	0	0	--	--	140	7

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)
JAN												
22...	43	7.1	21	0.8	3.1	120	29	25	0.30	7.8	208	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	45	7.1	21	0.8	3.1	120	30	25	0.30	7.9	212	--
MAY												
05...	54	7.3	20	0.7	2.8	150	31	26	0.30	0.40	232	<0.010
05...	--	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--	--
05...	54	7.3	20	0.7	2.8	150	31	27	0.30	1.2	236	<0.010
AUG												
02...	35	7.7	22	0.9	2.8	100	32	26	0.30	4.7	190	<0.010
02...	--	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--	--
02...	42	7.4	21	0.8	3.0	130	31	26	0.30	6.2	214	<0.010

TRINITY RIVER BASIN

265

08046500 BENBROOK LAKE NEAR BENBROOK, TX--Continued

323735097274701 - BENBROOK LAKE SITE BC--Continued

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

DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN											
22...	--	--	0.30	--	--	0.30	0.010	--	--	<3	1
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	0.30	--	--	0.30	<0.010	--	--	<3	11
MAY											
05...	<0.050	0.040	--	0.16	0.20	--	--	<0.010	<0.010	<3	1
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	<0.050	0.150	--	0.15	0.30	--	--	0.010	<0.010	<3	11
AUG											
02...	<0.050	0.020	--	0.18	0.20	--	--	<0.010	<0.010	3	2
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--
02...	<0.050	0.040	--	0.26	0.30	--	--	<0.010	<0.010	130	310

323628097275101 - BENBROOK LAKE SITE CR

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
22...	1357	1.00	373	8.3	9.5	9.5	85
22...	1401	10.0	372	8.2	9.0	9.3	82
22...	1405	20.0	374	8.2	8.5	9.1	79
22...	1409	27.0	376	8.2	8.5	8.9	77
MAY							
05...	1128	1.00	432	8.2	20.5	7.1	81
05...	1132	10.0	432	8.2	20.0	6.9	78
05...	1135	24.0	432	8.0	20.0	6.2	70
AUG							
02...	1128	1.00	358	8.3	30.0	8.6	118
02...	1131	10.0	358	8.3	30.0	8.3	113
02...	1135	20.0	385	7.5	29.0	2.7	36
02...	1139	25.0	387	7.4	29.0	1.5	20

323629097280901 - BENBROOK LAKE SITE CL

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
22...	1416	1.00	371	8.2	9.5	9.3	83
22...	1419	10.0	371	8.2	9.0	9.1	80
22...	1423	20.0	375	8.1	8.5	8.9	77
22...	1427	24.0	383	8.1	8.5	8.7	76
MAY							
05...	1142	1.00	431	8.2	20.5	7.1	81
05...	1145	10.0	430	8.2	20.5	6.9	79
05...	1148	23.0	433	8.0	20.0	6.1	69
AUG							
02...	1145	1.00	361	8.3	30.0	8.2	112
02...	1148	10.0	362	8.2	29.5	7.4	100
02...	1151	22.0	386	7.4	29.0	7.0	94

TRINITY RIVER BASIN

08046500 BENBROOK LAKE NEAR BENBROOK, TX--Continued

323652097291901 - BENBROOK LAKE SITE DC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN										
22...	1436	1.00	379	8.2	9.5	1.00	9.3	83	K3	K1
22...	1440	10.0	395	8.2	9.0	--	9.0	79	--	--
22...	1443	20.0	474	8.1	9.0	--	8.7	77	--	--
22...	1446	26.0	481	8.1	9.0	--	8.7	77	--	--
MAY										
05...	1213	1.00	439	8.2	20.5	0.61	7.2	83	54	K18
05...	1217	10.0	439	8.2	20.5	--	7.1	81	--	--
05...	1222	20.0	439	8.1	20.5	--	6.4	73	--	--
05...	1227	25.0	451	7.7	19.5	--	3.9	44	--	--
AUG										
02...	1201	1.00	363	8.4	31.0	1.22	8.3	115	K3	K4
02...	1207	10.0	373	7.9	29.5	--	5.7	77	--	--
02...	1213	15.0	381	7.5	29.0	--	2.7	36	--	--
02...	1217	22.0	393	7.3	29.0	--	0	0	--	--

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
JAN										
22...	140	17	45	7.3	22	0.8	3.0	120	31	27
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	190	27	59	9.8	27	0.9	3.2	160	38	36
MAY										
05...	170	19	55	7.5	20	0.7	2.9	150	31	27
05...	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--
05...	170	18	56	7.6	20	0.7	3.0	150	31	28
AUG										
02...	130	22	40	7.6	22	0.8	2.8	110	32	26
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	140	20	45	7.9	22	0.8	3.1	120	30	26

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
JAN									
22...	0.30	7.8	218	--	--	--	--	--	0.20
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
22...	0.30	8.7	279	--	--	--	--	--	0.40
MAY									
05...	0.30	1.1	234	--	<0.010	--	<0.050	0.010	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	0.30	3.9	242	0.069	<0.010	0.069	0.069	0.280	--
AUG									
02...	0.30	4.9	201	--	<0.010	--	<0.050	0.020	--
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	0.30	6.2	216	--	<0.010	--	<0.050	0.030	--

TRINITY RIVER BASIN

267

08046500 BENBROOK LAKE NEAR BENBROOK, TX--Continued

323652097291901 - BENBROOK LAKE SITE DC--Continued

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

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN									
22...	--	--	0.20	<0.010	--	--	--	<3	<1
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
22...	--	--	0.40	0.070	--	--	--	<3	8
MAY									
05...	0.29	0.30	--	--	<0.010	<0.010	--	<3	<1
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	0.32	0.60	--	--	0.020	0.020	0.06	<3	37
AUG									
02...	0.18	0.20	--	--	<0.010	<0.010	--	4	62
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	0.17	0.20	--	--	<0.010	<0.010	--	25	280

TRINITY RIVER BASIN

08046500 BENBROOK LAKE NEAR BENBROOK, TX—Continued

Benbrook Lake Site AC (323858097265601)

Phytoplankton Analyses October 1992 to September 1993

Date	1-22-93
Time	1225

TOTAL CELLS/mL	8,957
NUMBER OF SPECIES	14
DEPTH COLLECTED (ft.)	1.7

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	279
<i>Melosira varians</i>	346
Order Pennales	
<i>Achnanthes</i> spp.	29
<i>Asterionella formosa</i>	14
<i>Diatoma</i> sp.	14
<i>Fragilaria crotonensis</i>	315
<i>Gomphonema acuminatum</i>	14
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	268
<i>Chlamydomonas</i> sp.	119
<i>Gloeoecystis major</i>	30
<i>Scenedesmus dimorphus</i>	89
<i>Scenedesmus quadricauda</i>	238
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	7,142
<i>Chroococcus limneticus</i>	60

08046500 BENBROOK LAKE NEAR BENBROOK, TX—Continued

Benbrook Lake Site DC (323652097291901)

Phytoplankton Analyses October 1992 to September 1993

Date	1-22-93
Time	1435
<hr/>	
TOTAL CELLS/mL	6,938
NUMBER OF SPECIES	16
DEPTH COLLECTED (ft.)	1.6
<hr/>	

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	37
<i>Melosira varians</i>	142
Order Pennales	
<i>Achnanthes</i> spp.	115
<i>Cymbella</i> sp.	77
<i>Fragilaria crotonensis</i>	421
<i>Gomphonema acuminatum</i>	38
<i>Navicula</i> sp.	77
<i>Nitzschia linearis</i>	77
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	238
<i>Chlamydomonas</i> sp.	149
<i>Gloeocystis major</i>	60
<i>Pediastrum duplex</i>	30
<i>Scenedesmus quadricauda</i>	60
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	5,357
EUGLENOPHYTA	
<i>Trachelomonas</i> sp.	30
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	30

TRINITY RIVER BASIN

06046500 BENBROOK LAKE NEAR BENBROOK, TX—Continued

Benbrook Lake Site AC (323858097265601)

Phytoplankton Analyses October 1992 to September 1993

Date	5-5-93
Time	1003

TOTAL CELLS/mL	11,248
NUMBER OF SPECIES	12
DEPTH COLLECTED (ft.)	1.6

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella meneghiniana</i>	717
<i>Stephanodiscus astraee</i>	27
Order Pennales	
<i>Pinnularia</i> sp.	149
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	565
<i>Chlamydomonas</i> spp.	149
<i>Oocystis pusilla</i>	119
<i>Scenedesmus quadricauda</i>	446
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	4,464
<i>Chroococcus limneticus</i>	2,619
<i>Merismopedia tenuissima</i>	1,428
EUGLENOPHYTA	
<i>Trachelomonas</i> spp.	119
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	446

08046500 BENBROOK LAKE NEAR BENBROOK, TX—Continued

Benbrook Lake Site DC (323652097291901)

Phytoplankton Analyses October 1992 to September 1993

Date	5-5-93
Time	1213

TOTAL CELLS/mL	10,445
NUMBER OF SPECIES	15
DEPTH COLLECTED (ft.)	1.0

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella meneghiniana</i>	1,323
<i>Melosira varians</i>	110
<i>Stephanodiscus astraea</i>	55
Order Pennales	
<i>Fragilaria crotonensis</i>	218
<i>Navicula</i> sp.	109
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	952
<i>Chlamydomonas</i> sp.	89
<i>Pediastrum duplex</i>	149
<i>Scenedesmus bijuga</i>	30
<i>Scenedesmus quadricauda</i>	387
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	5,059
<i>Chroococcus limneticus</i>	357
<i>Merismopedia tenuissima</i>	1,428
EUGLENOPHYTA	
<i>Trachelomonas</i> spp.	30
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	149

Benbrook Lake Site AC (323858097265601)

Phytoplankton Analyses October 1992 to September 1993

Date	8-2-93
Time	0944

TOTAL CELLS/mL	36,160
NUMBER OF SPECIES	24
DEPTH COLLECTED (ft.)	2.15

Organisms	Cells/mL
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	17
<i>Melosira varians</i>	162
Order Pennales	
<i>Fragilaria crotonensis</i>	397
<i>Fragilaria salinarum</i>	191
<i>Synedra ulna</i>	8
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	744
<i>Chlamydomonas</i> sp.	119
<i>Cosmarium</i> sp.	119
<i>Gloeocystis major</i>	60
<i>Pediastrum duplex</i>	119
<i>Scenedesmus quadricauda</i>	30
<i>Staurostrum</i> sp.	30
CHRYSOPHYTA	
<i>Dinobryon sociale</i>	60
<i>Mallomonas</i> sp.	30
CYANOPHYTA	
<i>Anabaena Augustumalis</i> var. <i>Marchica</i>	14,344
<i>Anabaena flos-aquae</i>	4,285
<i>Aphanocapsa delicatissima</i>	9,821
<i>Aphanothece microspora</i>	595
<i>Chroococcus limneticus</i>	1,637
<i>Gloeotrichia echinulata</i> (colonies)	1,190
<i>Merismopedia tenuissima</i>	1,905
EUGLENOPHYTA	
<i>Trachelomonas</i> sp.	119
PYRRHOPHYTA	
<i>Peridinium pusillum</i>	238
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	30

08048500 BENBROOK LAKE NEAR BENBROOK, TX—Continued

Benbrook Lake Site DC (323652097291901)

Phytoplankton Analyses October 1992 to September 1993

Date	8-2-93
Time	1200

TOTAL CELLS/mL	51,725
NUMBER OF SPECIES	23
DEPTH COLLECTED (ft.)	2.0

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	99
<i>Melosira varians</i>	407
Order Pennales	
<i>Fragilaria crotonensis</i>	669
<i>Fragilaria salinarum</i>	45
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	714
<i>Chlamydomonas</i> sp.	417
<i>Cosmarium</i> sp.	119
<i>Gloeocystis major</i>	60
<i>Pediastrum duplex</i>	149
<i>Scenedesmus acuminatus</i>	30
<i>Scenedesmus quadricauda</i>	149
CHRYSTOPHYTA	
<i>Dinobryon sociale</i>	119
<i>Mallomonas</i> sp.	30
CYANOPHYTA	
<i>Anabaena Augustumalis</i> var. <i>Marchica</i>	22,975
<i>Anabaena flos-aquae</i>	5,803
<i>Aphanocapsa delicatissima</i>	8,928
<i>Aphanothece microspora</i>	2,083
<i>Chroococcus limneticus</i>	2,143
<i>Gloeotrichia echinulata</i> (colonies)	1,042
<i>Merismopedia tenuissima</i>	5,357
EUGLENOPHYTA	
<i>Phacus</i> sp.	30
<i>Trachelomonas</i> sp.	208
PYRRHOPHYTA	
<i>Peridinium pusillum</i>	149

TRINITY RIVER BASIN

08046500 BENBROOK LAKE NEAR BENBROOK, TX—Continued

Benbrook Lake Site AC (323858097265601)

Phytoplankton Analyses October 1991 to September 1992

Date	1-10-92
Time	1137

TOTAL CELLS/mL	263,620
NUMBER OF SPECIES	14
DEPTH COLLECTED (ft.)	1.3

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella meneghiniana</i>	313
<i>Cyclotella ocellata</i>	78
<i>Stephanodiscus astraëa</i> var. <i>minutula</i>	391
Order Pennales	
<i>Asterionella formosa</i>	284
<i>Nitzschia acicularis</i>	142
<i>Synedra delicatissima</i>	356
CHLOROPHYTA	
<i>Chlamydomonas</i> sp.	782
<i>Chlorella ellipsoidea</i>	782
<i>Selenastrum minutum</i>	782
CHRYSTOPHYTA	
Unknown flagellate	8,605
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	238,589
<i>Chroococcus</i> sp.	7,040
CRYPTOPHYTA	
<i>Cryptomonas</i> sp.	3,911
<i>Rhodomonas minuta</i>	1,565

06046500 BENBROOK LAKE NEAR BENBROOK, TX—Continued

Benbrook Lake Site DC (323652097291901)

Phytoplankton Analyses October 1991 to September 1992

Date	1-10-92
Time	1418

TOTAL CELLS/mL	157,235
NUMBER OF SPECIES	11
DEPTH COLLECTED (ft.)	1.0

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Aulacoseira italica</i>	427
<i>Cyclotella meneghiniana</i>	356
Order Pennales	
<i>Nitzschia acicularis</i>	782
CHLOROPHYTA	
<i>Chlamydomonas</i> sp.	782
<i>Chlorococcum humicola</i>	782
<i>Selenastrum minutum</i>	782
CHRYSOPHYTA	
Unknown flagellate	4,694
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	140,807
<i>Chroococcus</i> sp.	3,129
CRYPTOPHYTA	
<i>Chroomonas</i> sp.	3,129
<i>Cryptomonas erosa</i>	1,565

TRINITY RIVER BASIN

08046500 BENBROOK LAKE NEAR BENBROOK, TX—Continued

Benbrook Lake Site AC (323858097265601)

Phytoplankton Analyses October 1991 to September 1992

Date	5-7-92
Time	1042

TOTAL CELLS/mL	8,990
NUMBER OF SPECIES	14
DEPTH COLLECTED (ft.)	2.3

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	440
<i>Melosira varians</i>	48
<i>Stephanodiscus astraee</i>	18
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	149
<i>Gloeocystis gigas</i>	60
<i>Pediastrum duplex</i>	119
<i>Scenedesmus bijuga</i>	60
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	5,357
<i>Aphanizomenon flos-aquae</i>	744
<i>Chroococcus dispersus</i>	1,220
<i>Chroococcus limneticus</i>	238
EUGLENOPHYTA	
<i>Euglena</i> sp.	60
<i>Trachelomonas</i> sp.	298
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	179

08046500 BENBROOK LAKE NEAR BENBROOK, TX—Continued

Benbrook Lake Site DC (323652097291901)

Phytoplankton Analyses October 1991 to September 1992

Date	5-7-92
Time	1254

TOTAL CELLS/mL	16,160
NUMBER OF SPECIES	19
DEPTH COLLECTED (ft.)	1.1

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	1572
<i>Melosira varians</i>	67
<i>Stephanodiscus astraea</i>	27
Order Pennales	
<i>Fragilaria crotonensis</i>	191
<i>Fragilaria vaucherie</i>	128
<i>Navicula</i> sp.	128
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	506
<i>Chlamydomonas dinobryonii</i>	119
<i>Gloeocystis gigas</i>	179
<i>Pediastrum duplex</i>	60
<i>Scenedesmus quadricauda</i>	149
<i>Selenastrum Westii</i>	238
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	8,630
<i>Aphanizomenon flos-aquae</i>	2,381
<i>Chroococcus limneticus</i>	952
<i>Chroococcus minimus</i>	119
CHRYSTOPHYTA	
<i>Dinobryon sociale</i>	238
<i>Mallomonas</i> sp.	30
EUGLENOPHYTA	
<i>Trachelomonas</i> sp.	446

TRINITY RIVER BASIN

06048500 BENBROOK LAKE NEAR BENBROOK, TX—Continued

Benbrook Lake Site AC (323858097265601)

Phytoplankton Analyses October 1991 to September 1992

Date	8-18-92
Time	1148
<hr/>	
TOTAL CELLS/mL	656,204
NUMBER OF SPECIES	18
DEPTH COLLECTED (ft.)	1.0
<hr/>	

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
<i>Cyclotella ocellata</i>	762
<i>Melosira varians</i>	997
Order Pennales	
<i>Fragilaria crotonensis</i>	643
<i>Fragilaria vaucherie</i>	4,635
CHLOROPHYTA (Green algae)	
<i>Ankistrodesmus falcatus</i>	3,519
<i>Ankistrodesmus spiralis</i>	8,796
<i>Chlamydomonas</i> sp.	3,519
<i>Scenedesmus quadricauda</i>	1,759
CYANOPHYTA (Blue-green algae)	
<i>Anabaena spiroides</i>	35,185
<i>Aphanizomenon flos-aquae</i>	70,370
<i>Aphanocapsa delicatissima</i>	87,963
<i>Chroococcus limneticus</i>	14,074
<i>Merismopedia chondroidea</i>	28,148
<i>Merismopedia tenuissima</i>	140,741
<i>Oscillatoria subrevis</i>	246,296
EUGLENOPHYTA (Euglenoids)	
<i>Euglena</i> sp.	1,759
<i>Trachelomonas</i> spp.	3,519
CRYPTOPHYTA (Cryptomonads)	
<i>Cryptomonas erosa</i>	2,519

09046500 BENBROOK LAKE NEAR BENBROOK, TX—Continued

Benbrook Lake Site DC (323652097291901)

Phytoplankton Analyses October 1991 to September 1992

Date	8-18-92
Time	1404

TOTAL CELLS/mL	48,987
NUMBER OF SPECIES	22
DEPTH COLLECTED (ft.)	1.0

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
<i>Cyclotella ocellata</i>	34
<i>Melosira varians</i>	85
Order Pennales	
<i>Fragilaria crotonensis</i>	74
<i>Fragilaria vaucherie</i>	224
CHLOROPHYTA (Green algae)	
<i>Ankistrodesmus falcatus</i>	238
<i>Ankistrodesmus spiralis</i>	506
<i>Chlamydomonas</i> sp.	179
<i>Cosmarium</i> sp.	89
<i>Peridinium duplex</i>	30
<i>Scenedesmus bijuga</i>	30
<i>Staurastrum</i> sp.	30
CHRYSTOPHYTA (Golden-brown algae)	
<i>Dinobryon sociale</i>	30
CYANOPHYTA (Blue-green algae)	
<i>Anabaena spiroides</i>	4,762
<i>Aphanizomenon flos-aquae</i>	3,869
<i>Aphanocapsa delicatissima</i>	5,952
<i>Chroococcus limneticus</i>	476
<i>Merismopedia chondroidea</i>	2,827
<i>Merismopedia tenuissima</i>	8,333
<i>Oscillatoria subrevis</i>	20,832
EUGLENOPHYTA (Euglenoids)	
<i>Euglena</i> sp.	89
<i>Trachelomonas</i> spp.	149
CRYPTOPHYTA (Cryptomonads)	
<i>Cryptomonas erosa</i>	149

TRINITY RIVER BASIN

08047000 CLEAR FORK TRINITY RIVER NEAR BENBROOK, TX

LOCATION.--Lat 32°39'54", long 97°26'30", Tarrant County, Hydrologic Unit 12030102, on left bank 1.5 mi downstream from Benbrook Dam, 1.7 mi southeast of Benbrook, 2.9 mi upstream from Marys Creek, and 13.1 mi upstream from mouth.

DRAINAGE AREA.--431 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1947 to current year.

REVISED RECORDS.--WDR TX-89-1: 1988.

GAGE.--Water-stage recorder. Datum of gage is 604.22 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark).

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Benbrook Lake (station 08046500), 1.5 mi upstream, since September 1952. There is a diversion 1.0 mi upstream for Pecan Valley Golf Course. Gage-height telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--5 years (water years 1948-52) prior to regulation by Benbrook Lake, 105 ft³/s (76,070 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1948-52).--Maximum discharge, 82,900 ft³/s May 17, 1949 (gage height, 28.72 ft), from rating curve extended above 11,000 ft³/s on basis of velocity-area studies and slope-area measurement of 82,900 ft³/s; no flow at times most years. Maximum stage since at least 1922, that of May 17, 1949.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	95	10	9.1	99	319	899	163	52	18	198	20	20
2	95	7.2	8.3	99	187	886	162	64	17	121	20	20
3	95	7.5	8.3	100	108	1020	163	177	18	46	25	21
4	95	7.2	8.7	103	102	1090	164	304	18	41	67	20
5	45	7.2	8.7	103	255	1080	335	292	17	39	89	21
6	3.1	7.1	8.7	101	352	1080	493	292	18	37	89	19
7	3.1	6.3	9.0	101	352	1080	497	289	19	27	89	19
8	4.6	6.8	9.0	102	352	997	484	283	19	17	89	19
9	5.5	6.3	12	102	351	927	538	287	18	17	89	19
10	6.2	7.3	11	102	353	927	397	283	22	18	89	18
11	5.8	7.6	7.9	63	345	746	250	401	17	18	89	19
12	6.1	8.6	7.6	3.0	197	494	250	504	18	19	89	19
13	4.7	7.2	28	2.8	96	290	250	501	20	19	90	20
14	4.0	7.2	59	2.5	95	288	258	378	20	18	91	42
15	2.0	6.9	12	5.2	118	286	325	258	20	19	89	20
16	3.9	9.1	4.5	8.7	546	286	427	136	21	19	88	19
17	3.9	15	3.9	8.7	841	286	429	58	22	19	87	19
18	2.8	16	50	8.7	778	286	427	38	21	18	87	18
19	2.1	17	99	13	520	202	423	26	22	19	87	18
20	2.6	7.6	96	55	97	113	295	25	24	19	87	18
21	6.3	9.1	359	96	97	113	212	25	25	20	87	18
22	7.1	7.4	566	97	239	147	210	22	20	20	87	19
23	6.8	9.1	289	99	320	295	125	23	25	20	87	19
24	7.0	13	48	104	324	622	66	23	32	20	48	19
25	7.3	9.1	16	104	180	783	66	23	36	20	20	20
26	8.6	8.7	16	104	161	782	64	22	37	20	19	22
27	10	8.7	17	103	713	778	64	18	37	20	19	18
28	11	8.0	17	223	898	779	59	16	39	19	20	15
29	9.3	8.3	61	334	---	774	70	17	101	19	19	14
30	5.1	8.4	94	322	---	680	54	17	198	19	19	14
31	7.6	---	99	321	---	367	---	18	---	19	20	---
TOTAL	571.5	264.9	2042.7	3089.6	9296	19383	7720	4872	939	964	1995	586
MEAN	18.4	8.83	65.9	99.7	332	625	257	157	31.3	31.1	64.4	19.5
MAX	95	17	566	334	898	1090	538	504	198	198	91	42
MIN	2.0	6.3	3.9	2.5	95	113	54	16	17	17	19	14
AC-FT	1130	525	4050	6130	18440	38450	15310	9660	1860	1910	3960	1160

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

	MEAN	20.6	90.8	46.0	79.0	82.9	117	94.6	217	227	63.3	22.7	17.5
MAX	184	1479	680	1845	792	748	881	2351	1804	1070	198	164	
(WY)	1960	1992	1992	1992	1992	1970	1977	1990	1957	1989	1979	1962	
MIN	.000	.053	.042	.000	.000	.13	.10	.000	.000	.029	.000	.000	
(WY)	1953	1971	1954	1953	1953	1953	1959	1959	1953	1953	1953	1953	

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1953 - 1993#
ANNUAL TOTAL	124165.9	51723.7	
ANNUAL MEAN	339	142	89.8
HIGHEST ANNUAL MEAN			514
LOWEST ANNUAL MEAN			.27
HIGHEST DAILY MEAN	2840	1090	6320
LOWEST DAILY MEAN	2.0	2.0	.00
ANNUAL SEVEN-DAY MINIMUM	3.0	3.0	.00
INSTANTANEOUS PEAK FLOW		1100	67400
INSTANTANEOUS PEAK STAGE		5.95	14.71
INSTANTANEOUS LOW FLOW		1.7	.00
ANNUAL RUNOFF (AC-FT)	246300	102600	65030
10 PERCENT EXCEEDS	1130	410	154
50 PERCENT EXCEEDS	53	27	5.6
90 PERCENT EXCEEDS	6.3	7.3	.10

Period of regulated streamflow.

TRINITY RIVER BASIN

281

08047000 CLEAR FORK TRINITY RIVER NEAR BENBROOK, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1982, and October 1989 to current year.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	
JAN 22...	1244	97	382	7.9	11.0	10	8.0	11.8	110	--	140	25	
MAY 05...	1330	253	414	8.4	19.0	20	16	9.0	99	2.0	170	27	
AUG 02...	1100	19	406	7.9	27.0	13	3.7	7.0	90	1.2	150	4	
DATE		CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)
JAN 22...	44	7.1	20	0.7	3.2	120	30	26	0.30	6.9	207	11	
MAY 05...	56	7.4	20	0.7	2.8	140	31	27	0.30	0.46	232	11	
AUG 02...	46	7.9	23	0.8	3.1	140	25	26	0.30	8.3	228	25	
DATE		RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	
JAN 22...	11	0	--	--	--	--	0.30	--	--	0.30	0.010	--	
MAY 05...	3	8	<0.010	<0.050	0.050	--	0.25	0.30	--	--	<0.010	--	
AUG 02...	16	9	<0.010	<0.050	0.680	--	0.32	1.0	--	--	0.080	--	
DATE		PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	
JAN 22...	--	--	--	4.5	1	50	<0.5	<1.0	<5	<3	<10	<3	
MAY 05...	<0.010	--	--	6.2	<1	56	<0.5	<1.0	<5	<3	<10	<3	
AUG 02...	0.070	0.21	--	6.1	8	57	<0.5	<1.0	<5	<3	<10	5	
DATE		LEAD, DIS-SOLVED (UG/L AS Pb)	LITHIUM DIS-SOLVED (UG/L AS Li)	MANGA-NESE, DIS-SOLVED (UG/L AS Mn)	MERCURY DIS-SOLVED (UG/L AS Hg)	MOLYB-DENUM, DIS-SOLVED (UG/L AS Mo)	NICKEL, DIS-SOLVED (UG/L AS Ni)	SELE-NIUM, DIS-SOLVED (UG/L AS Se)	SILVER, DIS-SOLVED (UG/L AS Ag)	STRON-TIUM, DIS-SOLVED (UG/L AS Sr)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS Zn)	
JAN 22...	<10	5	2	<0.1	<10	<10	<1	<1.0	330	<6	10	<3	
MAY 05...	<10	5	2	0.1	<10	<10	<1	<1.0	370	<6	<3	<3	
AUG 02...	<10	4	620	0.1	<10	<10	<1	<1.0	390	<6	4	<3	

TRINITY RIVER BASIN

08047500 CLEAR FORK TRINITY RIVER AT FORT WORTH, TX

LOCATION.--Lat 32°43'56", long 97°21'31", Tarrant County, Hydrologic Unit 12030102, at Fort Worth pumping station on left bank, 240 ft upstream from the Texas and Pacific Railway Co. bridge in Fort Worth, 830 ft upstream from East West Expressway bridge, 2.5 mi upstream from mouth, 5 mi downstream from Marys Creek, and 10 mi downstream from Benbrook Dam.

DRAINAGE AREA.--518 mi².

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

REVISED RECORDS.--WSP 1392: 1924-25, 1927. WSP 1922: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 532.91 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 3, 1970, various nonrecording and recording gages were located within 650 ft of present site at different datums.

REMARKS.--No estimated daily discharges. Records fair. Since September 1952, flow largely regulated by Benbrook Lake (station 08046500) 10 mi upstream. The city of Fort Worth diverted water from pool at gage during the current year. The Benbrook Water and Sewage Authority diverted water from the river upstream from station during the current year for municipal use. Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--28 years (water years 1925-52) prior to regulation by Benbrook Lake, 112 ft³/s (81,140 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1925-52).--Maximum discharge, 107,000 ft³/s May 17, 1949 (gage height, 28.20 ft, present datum), from rating curve extended above 16,000 ft³/s on basis of contracted-opening measurement of 107,000 ft³/s; no flow at times most years. Maximum stage since at least 1900, that of May 17, 1949, present datum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 25, 1922, reached a stage of 27.5 ft, present datum (discharge, 74,300 ft³/s, by slope-area measurement of peak flow); data furnished by Fort Worth city engineer.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	155	14	136	367	1250	247	69	36	136	10	12
2	54	24	13	136	283	1120	239	409	31	112	19	12
3	57	16	13	136	480	1160	255	142	30	39	17	11
4	57	11	15	143	381	1230	439	253	27	36	25	13
5	53	12	15	137	300	1220	354	247	22	34	46	13
6	18	15	15	136	400	1220	516	245	32	33	28	13
7	58	12	14	136	400	1220	673	239	33	32	49	11
8	31	12	14	136	400	1160	556	237	34	22	37	11
9	12	14	55	183	400	1060	529	263	41	15	34	10
10	9.0	20	20	124	610	1040	435	242	175	18	30	10
11	9.8	44	15	109	444	881	237	304	39	19	27	11
12	11	94	12	40	319	779	231	433	36	18	27	12
13	10	23	492	30	177	380	230	433	35	16	27	43
14	8.1	17	1620	27	174	357	531	372	32	17	27	516
15	46	16	467	26	557	365	306	238	28	18	27	41
16	51	14	129	34	550	357	378	178	28	17	26	27
17	20	14	86	36	923	352	412	69	28	16	26	20
18	16	14	74	37	849	346	411	60	59	16	25	18
19	13	269	164	126	705	492	411	43	36	17	23	16
20	13	42	171	195	202	308	320	39	32	17	24	15
21	12	68	296	132	200	227	202	39	31	16	25	17
22	9.9	37	504	136	268	1050	194	38	30	16	29	13
23	9.3	25	365	136	367	527	160	46	27	17	28	11
24	9.5	88	125	133	495	763	80	47	24	17	41	11
25	10	27	66	129	1330	935	76	41	76	16	33	13
26	11	18	58	136	261	925	69	37	72	18	19	66
27	13	16	57	136	740	911	64	35	36	20	15	21
28	9.4	15	57	203	1020	1010	64	85	33	20	14	17
29	97	15	77	430	---	931	341	44	37	16	13	20
30	21	14	132	374	---	833	88	42	128	12	12	16
31	15	---	136	367	---	504	---	38	---	11	11	---
TOTAL	820.0	1161	5291	4375	13602	24913	9048	5007	1308	827	794	1040
MEAN	26.5	38.7	171	141	486	804	302	162	43.6	26.7	25.6	34.7
MAX	97	269	1620	430	1330	1250	673	433	175	136	49	516
MIN	8.1	11	12	26	174	227	64	35	22	11	10	10
AC-FT	1630	2300	10490	8680	26980	49410	17950	9930	2590	1640	1570	2060

TRINITY RIVER BASIN

283

08047500 CLEAR FORK TRINITY RIVER AT FORT WORTH, TX--Continued

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

MEAN	52.9	108	75.8	109	124	182	159	312	286	79.9	30.0	32.7
MAX	337	1555	1118	2198	1019	1081	1012	3020	2219	1300	247	245
(WY)	1982	1992	1992	1992	1992	1990	1977	1990	1989	1989	1979	1962
MIN	.000	.84	1.68	2.28	2.84	.91	3.12	3.41	.27	.75	.54	.28
(WY)	1953	1955	1979	1957	1953	1956	1954	1959	1953	1954	1954	1954

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1953 - 1993#	
ANNUAL TOTAL	157698.6		68186.0		129	
ANNUAL MEAN	431		187		660	
HIGHEST ANNUAL MEAN					4.55	
LOWEST ANNUAL MEAN					1992	
HIGHEST DAILY MEAN	3280	Jan 5	1620	Dec 14	11000	Mar 11 1990
LOWEST DAILY MEAN	8.1	Oct 14	8.1	Oct 14	.00	Oct 1 1952
ANNUAL SEVEN-DAY MINIMUM	10	Oct 22	10	Oct 22	.00	Oct 1 1952
INSTANTANEOUS PEAK FLOW			7690	Dec 14	20900	May 2 1990
INSTANTANEOUS PEAK STAGE			12.87	Dec 14	16.80	May 2 1990
INSTANTANEOUS LOW FLOW			7.3	Oct 14	.00	at times
ANNUAL RUNOFF (AC-FT)	312800		135200		93490	
10 PERCENT EXCEEDS	1350		516		268	
50 PERCENT EXCEEDS	105		43		15	
90 PERCENT EXCEEDS	14		13		.70	

Period of regulated streamflow.

08048000 WEST FORK TRINITY RIVER AT FORT WORTH, TX

LOCATION.--Lat 32°45'39", long 97°19'56", Tarrant County, Hydrologic Unit 12030102, on left bank 125 ft upstream from Texas Electric Service Co.'s concrete dam, 980 ft downstream from centerline of Paddock Viaduct (North Main Street) at Fort Worth, 2,600 ft downstream from Clear Fork Trinity River, and at mile 556.8.

DRAINAGE AREA.--2,615 mi².

PERIOD OF RECORD.--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 records.--Chemical and biochemical analyses: October 1967 to September 1976.

REVISED RECORDS.--WSP 1392: 1925. WSP 1922: Drainage area.

GAGE.--Water-stage recorder and concrete dam control with angle-iron-crested notch for flow below 50 ft³/s. Datum of gage is 519.24 ft above Texas Reclamation Department datum. Prior to Aug. 22, 1954, at site 1,200 ft upstream at same datum. Aug. 22, 1954, to Oct. 15, 1955, at site 2,000 ft upstream at same datum. Gage-height telemeter at station.

REMARKS.--No estimated daily discharges. Records good. Flow is largely regulated by Lake Worth (station 08045400) 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. The city of Fort Worth diverts water from river upstream from station and from Cedar Creek Reservoir (station 08063010) for municipal and industrial uses and returns sewage effluent to river downstream from station 08048543. There are many small diversions upstream from station. Maximum stage since at least 1866, that of May 17, 1949. Maximum stages have been affected by levee construction, levee breaks, and channel rectification.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	301	22	177	417	3560	435	514	64	416	14	14
2	57	48	21	158	358	2990	324	1490	43	333	16	14
3	59	31	21	149	585	2730	301	984	36	112	25	13
4	61	24	22	178	969	2520	724	735	33	56	23	14
5	57	20	23	244	1210	2310	591	486	26	41	48	15
6	33	21	23	286	1240	2260	966	399	28	35	29	16
7	39	21	23	292	970	2250	1330	348	29	30	71	15
8	47	21	23	280	779	2140	1230	393	28	23	38	16
9	21	24	106	326	575	1800	1090	726	28	17	33	15
10	16	36	33	326	765	1590	840	593	319	14	30	14
11	15	86	23	253	692	1350	486	534	505	15	26	14
12	16	230	19	185	551	1540	387	936	858	14	25	14
13	17	35	669	139	377	1130	347	1240	966	13	25	91
14	17	28	3170	104	395	1030	860	1330	1210	13	25	888
15	289	26	1210	94	996	1030	757	1200	1370	13	28	61
16	184	23	749	106	1090	977	894	1160	1430	13	27	31
17	30	21	882	110	1760	912	898	1030	1430	13	24	24
18	24	22	883	126	1770	850	674	1040	1470	14	24	25
19	20	462	842	232	1690	1110	517	997	1460	15	24	25
20	19	64	578	602	1090	810	431	979	1300	14	24	36
21	18	132	530	404	953	600	257	798	1010	13	23	63
22	17	59	749	382	788	1910	224	616	720	12	26	27
23	16	36	632	371	715	1240	199	548	617	12	25	22
24	15	165	299	329	668	1390	112	491	543	12	31	22
25	15	41	196	243	2660	1560	122	393	459	13	46	21
26	17	30	173	206	2620	1520	129	333	600	13	26	102
27	20	25	152	184	3350	1480	108	246	426	14	18	36
28	18	22	128	202	3650	1670	91	202	362	17	16	29
29	146	24	115	500	---	1520	534	143	331	16	15	25
30	34	22	175	485	---	1470	369	88	424	14	15	28
31	25	---	175	445	---	894	---	81	---	13	14	---
TOTAL	1416	2100	12666	8118	33683	50143	16227	21053	18125	1363	834	1730
MEAN	45.7	70.0	409	262	1203	1618	541	679	604	44.0	26.9	57.7
MAX	289	462	3170	602	3650	3560	1330	1490	1470	416	71	888
MIN	15	20	19	94	358	600	91	81	26	12	14	13
AC-FT	2810	4170	25120	16100	66810	99460	32190	41760	35950	2700	1650	3430

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1921 - 1993, BY WATER YEAR (WY)

	MEAN	294	271	267	246	343	454	611	1143	818	258	116	162
	MAX	4548	3855	6071	3521	2412	3103	5595	12430	10240	3030	1447	2482
	(WY)	1982	1982	1992	1992	1932	1945	1942	1990	1989	1941	1950	1962
	MIN	.12	3.64	5.02	6.08	5.57	4.72	7.71	15.2	5.73	1.33	.000	.000
	(WY)	1940	1956	1935	1930	1940	1940	1930	1959	1954	1956	1956	1930

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1921 - 1993

ANNUAL TOTAL	370457	167458	415
ANNUAL MEAN	1012	459	1823
HIGHEST ANNUAL MEAN			15.6
LOWEST ANNUAL MEAN			47300
HIGHEST DAILY MEAN	7350	Jan 1	3650
LOWEST DAILY MEAN	15	Oct 11	12
ANNUAL SEVEN-DAY MINIMUM	17	Oct 20	13
INSTANTANEOUS PEAK FLOW			9920
INSTANTANEOUS PEAK STAGE			4.91
INSTANTANEOUS LOW FLOW			12
ANNUAL RUNOFF (AC-FT)	734800	332200	300800
10 PERCENT EXCEEDS	3390	1310	1060
50 PERCENT EXCEEDS	302	152	40
90 PERCENT EXCEEDS	23	15	5.5

a/ Maximum stage since at least 1866. Maximum stages have been affected by levee construction, levee breaks, and by channel rectification.

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX

LOCATION.--Lat 32°45'06", long 97°17'21", Tarrant County, Hydrologic Unit 12030102, at downstream side of bridge on Beach Street, 1,700 ft downstream from Sycamore Creek, 0.9 mi downstream from Riverside Drive bridge, 2.6 mi east of the Tarrant County Courthouse, and at mile 549.6.

DRAINAGE AREA.--2,685 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is 478.70 ft above National Geodetic Vertical Datum of 1929, State Department of Highways and Public Transportation datum.

REMARKS.--No estimated daily discharges. Records good. Flow is largely regulated by Lake Worth (station 08045400) 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. There are many diversions upstream from this station for municipal, industrial, and other uses. Gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1866 probably occurred in May 1949 (stage and discharge unknown). Maximum stages have been affected by levee construction, levee breaks, and channel rectification.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58	535	30	210	526	3760	494	624	85	460	12	13
2	57	91	28	174	456	3170	342	1950	61	368	32	14
3	60	43	28	164	1100	2910	340	1140	43	156	59	15
4	64	32	25	199	1570	2730	1050	853	38	85	46	14
5	64	25	23	228	1550	2540	632	562	31	63	56	14
6	46	24	23	283	1560	2490	1070	463	28	46	40	15
7	50	25	22	281	1240	2490	1670	397	32	37	107	16
8	102	25	23	255	1000	2410	1430	426	31	32	60	16
9	34	27	199	474	733	2070	1240	807	30	22	41	16
10	24	49	62	388	1180	1850	978	680	479	16	35	16
11	18	97	32	292	914	1600	525	594	645	16	29	15
12	17	340	23	201	724	1960	401	1010	987	20	26	14
13	19	65	772	158	487	1340	343	1410	1060	18	25	141
14	19	38	5770	120	495	1200	1140	1480	1320	13	25	1450
15	332	30	2260	111	1690	1230	890	1340	1530	13	28	142
16	639	26	1110	120	1350	1160	1030	1310	1610	12	29	60
17	58	25	1160	124	2060	1070	1050	1160	1610	12	26	43
18	37	24	1120	135	2060	980	806	1160	1630	13	25	33
19	30	860	1070	381	2020	1490	608	1100	1690	14	25	28
20	24	186	749	1020	1380	1050	513	1080	1460	14	24	25
21	24	265	644	556	1200	713	287	857	1140	13	23	65
22	23	167	914	508	978	2610	243	664	803	12	25	33
23	25	67	802	478	907	1590	215	593	664	12	26	23
24	18	384	371	435	929	1650	129	548	575	12	27	19
25	17	114	224	296	4160	1820	118	432	717	12	65	31
26	18	58	190	247	2850	1760	127	363	950	13	38	162
27	19	45	167	215	3370	1710	110	267	484	13	23	67
28	18	39	146	238	3620	2010	96	222	399	15	17	32
29	302	32	122	737	---	1790	969	237	355	15	15	26
30	72	33	180	636	---	1720	455	111	453	8.9	13	23
31	35	---	198	570	---	1080	---	96	---	10	13	---
TOTAL	2323	3771	18487	10234	42109	57953	19301	23936	20940	1565.9	1035	2581
MEAN	74.9	126	596	330	1504	1869	643	772	698	50.5	33.4	86.0
MAX	639	860	5770	1020	4160	3760	1670	1950	1690	460	107	1450
MIN	17	24	22	111	456	713	96	96	28	8.9	12	13
AC-FT	4610	7480	36670	20300	83520	114900	38280	47480	41530	3110	2050	5120

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1993, BY WATER YEAR (WY)

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MEAN	454	438	494	355	437	770	690	1863	1527	269	85.8	92.1					
MAX	4881	3878	6459	4067	2924	2418	5668	12540	9448	1654	441	216					
(WY)	1982	1982	1992	1992	1992	1992	1990	1990	1989	1982	1979	1980					
MIN	9.82	23.8	13.7	30.2	36.4	43.9	35.3	60.6	22.4	5.67	9.21	9.27					
(WY)	1978	1980	1978	1978	1981	1986	1983	1988	1978	1978	1985	1984					

SUMMARY STATISTICS

	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1977 - 1993
ANNUAL TOTAL	455020	204235.9	
ANNUAL MEAN	1243	560	624
HIGHEST ANNUAL MEAN			2071
LOWEST ANNUAL MEAN			40.1
HIGHEST DAILY MEAN	7720	5770	35200
LOWEST DAILY MEAN	17	8.9	1.2
ANNUAL SEVEN-DAY MINIMUM	20	12	2.3
INSTANTANEOUS PEAK FLOW		11900	46600
INSTANTANEOUS PEAK STAGE		24.66	38.02
INSTANTANEOUS LOW FLOW		7.2	.84
ANNUAL RUNOFF (AC-FT)	902500	405100	451800
10 PERCENT EXCEEDS	3820	1590	1570
50 PERCENT EXCEEDS	425	198	47
90 PERCENT EXCEEDS	28	17	14

TRINITY RIVER MAIN STEM

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1976 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1976 to current year.

pH: October 1976 to current year.

WATER TEMPERATURE: October 1976 to current year.

DISSOLVED OXYGEN: October 1976 to current year.

INSTRUMENTATION.--Since October 1976, a four-parameter water-quality monitor records temperature, DO, pH, and specific conductance continuously at this station. Since the 1990 water year, the satellite downlink was extended to include water-quality parameters such that unit-values can be accessed on a timely basis.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument, pump, or power failure. Where maximum or minimum specific conductance values are not shown, mean value is estimated. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request. Dissolved oxygen values bypassing saturation can be attributed to algae blooms in close proximity to the well intake. National water-quality assessment program data are included in this record.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 2,000 microsiemens Nov. 6, 1978; minimum, 90 microsiemens Sept. 10, 1992.

pH: Maximum, 9.8 units Aug. 8, Sept. 2, 1980; minimum, 6.6 units Aug. 15, 1987.

WATER TEMPERATURE: Maximum, 38.5°C Aug. 21, 1993; minimum, 0.0°C Jan. 31, Feb. 1, 2, 1985.

DISSOLVED OXYGEN: Maximum, 22.1 mg/L Oct. 4, 1983; minimum, 0.0 mg/L on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 614 microsiemens Aug. 1; minimum, 174 microsiemens Oct. 15 and Dec. 14.

pH: Maximum, 9.0 units Sept. 18 and 19; minimum, 7.4 units Nov. 21 and June 10-12.

WATER TEMPERATURE: Maximum, 38.5°C Aug. 21; minimum, 6.0°C Feb. 18.

DISSOLVED OXYGEN: Maximum, 15.0 mg/L Sept. 19 and 20; minimum, 2.6 mg/L Aug. 5.

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

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS TOTAL (MG/L AS CaCO3)	HARD- NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)
NOV												
23...	1005	67	454	7.6	12.0	9.0	86	--	170	35	59	4.9
FEB												
09...	1050	740	452	8.4	11.0	11.0	101	2.4	180	13	59	7.3
APR												
02...	1535	326	501	8.5	18.5	11.4	124	--	200	28	65	8.4
13...	1245	337	514	8.2	21.0	9.4	107	--	190	22	64	8.1
29...	0945	2110	458	8.0	22.5	5.5	65	--	170	21	57	6.3
29...	1300	1180	424	8.0	22.5	7.2	85	--	160	17	55	6.1
MAY												
02...	0105	1370	392	8.2	22.5	--	--	--	140	1	45	6.6
02...	0452	3120	400	8.2	23.0	--	--	--	150	12	47	6.8
02...	0725	2500	384	8.1	22.5	--	--	--	150	4	49	6.2
02...	1818	1600	350	8.1	20.5	9.1	104	--	130	11	42	5.6
17...	1545	1150	511	8.3	26.0	8.9	112	--	180	23	55	9.9
JUN												
07...	1510	32	547	8.2	27.5	8.8	115	2.2	190	24	62	8.8
22...	1145	799	517	8.3	29.0	7.5	99	--	180	25	52	11
JUL												
29...	1105	16	584	8.2	30.0	8.4	113	--	180	34	55	10
29...	1110	16	584	8.2	30.0	8.4	113	0.2	180	33	55	10
AUG												
10...	1422	35	512	8.4	33.5	7.7	110	--	180	43	58	9.5
30...	1315	13	504	8.2	32.0	8.8	124	7.9	170	32	53	9.5
SEP												
23...	1640	23	361	8.2	31.5	11.3	155	--	120	29	40	5.3

TRINITY RIVER MAIN STEM

287

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

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

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	CAR- BONATE WATER DIS IT FIELD (MG/L AS CO3)	BICAR- BONATE WATER DIS IT FIELD (MG/L AS HCO3)	ALKA- LINITY WAT DIS TOT IT FIELD (MG/L AS CACO3)	ALKA- LINITY WAT DIS FIX END FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)
NOV 23...	23	0.8	5.1	--	--	133	130	42	26	0.30	6.8	--
FEB 09...	25	0.8	3.9	--	--	--	160	36	34	0.20	7.0	--
APR 02...	28	0.9	3.7	--	--	169	170	45	34	0.30	5.0	--
13...	28	0.9	3.6	12	184	171	170	43	33	0.30	2.7	287
29...	22	0.7	3.4	0	179	146	150	39	28	0.30	2.8	267
29...	22	0.8	3.5	0	177	145	140	36	27	0.30	2.9	257
MAY 02...	23	0.8	3.9	0	169	138	140	32	32	0.20	3.7	239
02...	24	0.9	4.1	0	162	133	130	31	33	0.20	3.8	254
02...	21	0.8	3.5	0	176	144	140	30	28	0.20	3.8	234
02...	19	0.7	3.8	0	143	117	120	27	26	0.20	3.7	218
17...	34	1	4.9	3	183	155	150	38	48	0.40	4.2	294
JUN 07...	37	1	4.4	--	--	--	170	54	46	0.30	5.7	--
22...	38	1	5.5	1	181	151	150	39	53	0.30	5.9	309
JUL 29...	46	1	5.5	0	176	144	150	61	55	0.40	8.3	345
29...	46	1	5.5	--	--	--	150	61	55	0.40	8.0	--
AUG 10...	39	1	4.7	4	164	141	140	50	44	0.40	9.5	303
30...	40	1	4.3	--	--	--	140	46	45	0.50	8.8	--
SEP 23...	27	1	4.2	0	113	92	91	39	30	0.40	6.2	212
DATE	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)
NOV 23...	247	--	--	--	--	--	--	--	--	--	--	--
FEB 09...	272	0.270	0.270	0.020	0.290	0.290	0.020	--	0.28	0.30	--	--
APR 02...	292	0.230	--	<0.010	0.230	0.230	0.030	--	0.37	0.40	--	--
13...	286	0.150	--	<0.010	0.150	0.150	0.010	0.59	0.19	0.20	0.60	0.030
29...	249	0.330	0.330	0.020	0.350	0.350	0.170	0.53	0.33	0.50	0.70	0.060
29...	242	0.330	0.330	0.020	0.350	0.350	0.140	0.56	0.36	0.50	0.70	0.060
MAY 02...	231	0.280	0.280	0.010	0.290	0.290	0.080	0.52	0.32	0.40	0.60	0.080
02...	231	0.250	0.250	0.020	0.270	0.270	0.100	0.50	0.30	0.40	0.60	0.060
02...	230	0.280	0.280	0.020	0.300	0.300	0.070	0.43	0.23	0.30	0.50	0.050
02...	199	0.250	0.250	0.010	0.260	0.260	0.050	0.75	0.25	0.30	0.80	0.050
17...	287	--	--	<0.010	--	<0.050	0.020	0.28	0.38	0.40	0.30	0.050
JUN 07...	319	0.140	--	<0.010	0.140	0.140	0.050	--	4.8	4.8	--	--
22...	295	--	--	<0.010	--	<0.050	0.020	0.28	0.18	0.20	0.30	0.030
JUL 29...	328	--	--	<0.010	--	<0.050	0.020	0.38	0.28	0.30	0.40	0.030
29...	328	--	--	<0.010	--	<0.050	0.020	--	0.28	0.30	--	--
AUG 10...	300	--	--	<0.010	--	<0.050	0.030	0.37	0.37	0.40	0.40	0.020
30...	291	0.056	--	<0.010	0.056	0.056	0.050	--	0.45	0.50	--	--
SEP 23...	208	--	--	<0.010	--	<0.050	0.020	0.58	0.28	0.30	0.60	0.040

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

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

[illegible]

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

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

[illegible]

TRINITY RIVER MAIN STEM

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

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

DATE	PRON-AMIDE WATER FLTRD 0.7 U GF, REC (UG/L)	PROP-CHLOR, WATER, DISS, REC (UG/L)	PRO-PANIL WATER FLTRD 0.7 U GF, REC (UG/L)	PRO-PARGITE WATER FLTRD 0.7 U GF, REC (UG/L)	SI-MAZINE, WATER, DISS, REC (UG/L)	TER-BACIL WATER FLTRD 0.7 U GF, REC (UG/L)	TER-BUFOS WATER FLTRD 0.7 U GF, REC (UG/L)	TEBU-THIURON WATER FLTRD 0.7 U GF, REC (UG/L)	THIO-BENCARB WATER FLTRD 0.7 U GF, REC (UG/L)	TRIAL-LATE WATER FLTRD 0.7 U GF, REC (UG/L)	TRI-FLUR-ALIN WAT FLT 0.7 U GF, REC (UG/L)
NOV 23...	--	--	--	--	--	--	--	--	--	--	--
FEB 09...	--	--	--	--	--	--	--	--	--	--	--
APR 02...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
MAY 29...	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
JUN 07...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
JUL 29...	<0.01	<0.02	<0.02	<0.01	0.02	<0.03	<0.01	0.20	<0.01	<0.00	<0.01
29...	--	--	--	--	--	--	--	--	--	--	--
AUG 10...	<0.01	<0.02	<0.02	<0.01	0.03	<0.03	<0.01	0.36	<0.01	<0.00	<0.01
30...	--	--	--	--	--	--	--	--	--	--	--
SEP 23...	--	--	--	--	--	--	--	--	--	--	--

MONTH YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT. 1992	2323	414	234	1470	29	180	36	226	150
NOV. 1992	3771	400	226	2300	27	278	34	347	150
DEC. 1992	18487	370	209	10400	25	1260	31	1570	140
JAN. 1993	10234	464	263	7270	33	914	42	1170	170
FEB. 1993	42109	440	249	28300	31	3510	39	4450	160
MAR. 1993	57953	455	258	40300	32	5040	41	6420	160
APR. 1993	19301	465	263	13700	33	1730	42	2210	170
MAY 1993	23936	476	270	17400	34	2210	44	2840	170
JUNE 1993	20940	493	279	15800	36	2020	46	2620	180
JULY 1993	1565.9	500	284	1200	36	154	47	200	180
AUG. 1993	1035	504	286	798	37	103	48	134	180
SEPT 1993	2581	363	205	1430	24	169	30	207	140
TOTAL	204235.9	**	**	140000	**	17600	**	22400	**
WTD. AVG.	560	450	255	**	32	**	41	**	160

TRINITY RIVER MAIN STEM

291

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	406	374	391	398	206	358	540	524	534	544	502	526
2	416	386	403	420	380	405	550	534	542	502	490	493
3	432	404	419	458	420	441	558	540	549	498	486	493
4	460	422	438	482	458	466	564	542	552	508	476	491
5	440	412	427	502	482	491	546	540	543	488	476	480
6	436	412	427	514	500	507	544	538	542	508	484	495
7	464	236	420	520	498	507	554	540	545	514	502	508
8	460	410	427	526	506	514	572	554	562	514	494	505
9	466	418	440	530	506	518	568	388	464	498	450	471
10	488	466	476	506	436	481	540	498	525	478	450	467
11	520	488	497	518	296	445	564	540	549	486	474	479
12	522	514	518	402	296	381	572	554	561	488	482	485
13	526	510	520	434	394	413	574	196	500	498	486	492
14	542	512	523	478	434	460	274	174	216	514	498	506
15	544	174	489	508	478	493	390	274	345	514	502	510
16	362	260	325	528	506	514	447	376	408	522	494	510
17	384	362	373	550	522	532	455	442	449	512	502	508
18	420	384	399	550	530	542	454	442	449	518	508	514
19	438	420	425	546	238	384	464	452	457	528	364	506
20	460	436	441	410	392	404	480	464	475	458	364	442
21	482	458	467	420	308	370	480	460	469	436	354	398
22	494	474	485	428	342	402	464	420	442	462	422	438
23	556	482	500	466	428	450	424	408	420	468	462	465
24	582	508	542	468	228	364	458	424	444	476	466	469
25	528	510	516	436	380	400	476	458	469	480	468	475
26	578	528	550	458	426	440	494	476	484	482	470	477
27	594	562	574	498	458	479	502	494	498	484	468	478
28	572	550	560	522	498	510	516	500	510	494	474	484
29	554	206	411	538	522	530	536	516	526	480	406	439
30	462	420	444	540	530	536	546	534	539	430	410	421
31	484	206	469	---	---	---	568	544	551	434	422	428
MONTH	594	174	461	550	206	458	574	174	488	544	354	479

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	438	416	426	460	414	435	508	482	490	494	366	453
2	454	434	442	456	432	451	506	494	500	478	312	393
3	460	264	398	460	452	457	512	382	500	476	454	467
4	404	328	372	454	448	452	456	344	415	490	458	473
5	466	390	447	452	442	447	476	426	456	492	486	489
6	472	458	466	454	448	452	482	452	468	494	486	490
7	492	458	463	454	452	453	492	380	448	494	482	488
8	530	460	470	454	452	453	478	450	466	506	474	487
9	470	458	465	458	448	454	478	474	476	506	436	483
10	490	398	431	454	448	451	484	470	476	472	458	466
11	442	402	426	472	448	452	490	478	484	488	470	480
12	468	426	451	460	404	427	496	482	490	486	480	483
13	482	468	477	480	434	466	500	486	494	488	474	485
14	502	482	491	488	478	481	500	354	437	---	---	e400
15	520	304	425	490	484	486	470	338	400	---	---	e430
16	596	368	426	488	482	484	486	470	481	---	---	e475
17	466	446	451	490	480	484	492	478	485	---	---	e510
18	458	452	455	490	484	489	490	476	483	---	---	e510
19	462	454	456	494	400	459	484	460	474	---	---	e510
20	480	462	473	454	384	425	486	448	468	514	508	510
21	490	480	485	498	444	481	496	470	485	514	500	509
22	492	488	490	504	316	399	506	466	488	516	506	511
23	494	470	483	474	314	417	516	480	497	520	508	514
24	488	296	461	486	472	482	524	490	509	522	510	515
25	432	252	323	480	476	477	526	496	515	524	506	516
26	472	432	462	478	474	476	536	510	527	524	494	512
27	478	462	470	480	474	476	550	526	542	538	500	521
28	462	456	458	478	422	454	560	540	551	542	494	524
29	---	---	---	474	452	465	556	254	436	524	496	509
30	---	---	---	480	470	474	464	376	445	530	500	520
31	---	---	---	488	472	478	---	---	---	532	514	521
MONTH	596	252	448	504	314	459	560	254	480	542	312	487

e Estimated

TRINITY RIVER MAIN STEM

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	542	514	533	498	482	488	614	582	595	534	510	518
2	556	536	548	500	462	481	604	356	560	534	516	523
3	566	554	560	488	466	477	546	356	492	536	522	529
4	568	558	564	502	476	493	578	324	525	528	516	524
5	572	560	563	518	488	503	532	482	510	536	520	528
6	578	562	571	508	500	503	544	502	523	536	522	529
7	570	548	559	510	504	507	548	206	465	530	514	523
8	570	554	560	528	504	511	538	516	527	532	518	525
9	574	546	563	524	504	510	534	510	521	548	532	540
10	574	354	466	530	512	522	514	500	507	550	528	541
11	520	254	472	566	524	538	512	498	506	538	524	532
12	494	296	460	544	522	535	510	494	503	548	534	542
13	488	452	473	604	522	547	504	496	500	548	286	471
14	478	466	472	596	516	549	504	498	501	462	192	333
15	482	466	474	550	528	534	514	498	503	384	322	348
16	480	468	474	560	542	548	516	496	503	432	384	403
17	492	480	486	560	546	556	536	504	516	474	374	399
18	518	488	499	568	546	559	512	500	507	438	380	409
19	532	502	514	564	544	557	516	498	507	424	342	384
20	548	508	525	558	538	551	504	490	498	388	336	370
21	542	508	517	562	546	554	498	486	494	380	302	339
22	542	520	532	566	546	558	546	496	514	350	320	333
23	544	526	537	568	554	561	520	488	502	366	338	351
24	534	524	529	572	552	566	506	486	493	378	356	368
25	530	226	499	568	546	559	544	478	503	550	362	406
26	486	288	423	562	550	558	484	468	475	550	268	344
27	516	460	492	564	556	561	498	472	487	356	322	346
28	520	504	514	584	560	565	498	484	488	362	348	357
29	520	502	511	596	558	578	502	482	495	406	360	376
30	512	470	493	574	554	567	514	486	500	394	376	388
31	---	---	---	612	562	586	512	494	504	---	---	---
MONTH	578	226	513	612	462	538	614	206	507	550	192	436
YEAR	614	174	480									

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	8.2	7.6	7.9	8.1	7.8	8.0	7.9	7.8	7.8	8.5	8.3	8.4
2	8.2	7.6	7.9	8.3	7.9	8.1	7.9	7.8	7.9	8.4	8.2	8.3
3	8.2	7.7	7.9	8.3	8.0	8.2	8.1	7.9	8.0	8.4	8.1	8.2
4	8.3	7.7	7.9	8.4	8.2	8.3	8.2	8.0	8.1	8.5	8.1	8.3
5	8.4	7.7	8.0	8.3	8.1	8.2	8.3	8.0	8.2	8.5	8.1	8.3
6	8.3	7.7	8.0	8.2	8.0	8.1	8.1	8.0	8.1	8.3	8.1	8.2
7	8.3	7.6	7.9	8.4	8.0	8.2	8.3	8.0	8.1	8.5	8.1	8.2
8	8.4	7.7	8.1	8.2	7.9	8.0	8.4	8.2	8.3	8.3	8.1	8.2
9	8.4	7.8	8.1	8.2	7.9	8.0	8.4	8.1	8.2	8.3	8.1	8.2
10	8.4	7.7	8.0	8.0	7.8	7.9	8.3	8.2	8.2	8.3	8.1	8.2
11	8.4	7.7	8.0	8.0	7.7	7.8	8.3	8.1	8.2	8.3	8.1	8.2
12	8.3	7.7	8.0	8.0	7.8	7.9	8.4	8.2	8.2	8.4	8.1	8.2
13	8.3	7.7	7.9	7.9	7.7	7.8	8.2	7.9	8.2	8.5	8.1	8.3
14	8.3	7.7	8.0	8.0	7.8	7.9	---	---	---	8.4	8.1	8.2
15	8.3	7.7	8.0	8.1	7.9	8.0	---	---	---	8.5	8.0	8.2
16	7.9	7.5	7.7	8.2	7.9	8.0	---	---	---	8.6	8.0	8.3
17	7.7	7.6	7.6	8.2	7.9	8.1	---	---	---	8.5	8.0	8.2
18	7.9	7.6	7.7	8.2	7.9	8.0	---	---	---	8.5	8.0	8.2
19	8.0	7.7	7.8	8.0	7.6	7.7	---	---	---	8.3	8.1	8.2
20	8.4	7.7	8.0	7.7	7.5	7.6	---	---	---	8.2	8.1	8.2
21	8.5	7.8	8.1	7.5	7.4	7.5	---	---	---	8.2	8.1	8.2
22	8.5	7.8	8.1	7.7	7.5	7.6	---	---	---	8.4	8.1	8.2
23	8.5	7.8	8.1	7.7	7.6	7.6	---	---	---	8.4	8.1	8.2
24	8.3	7.8	8.0	7.8	7.6	7.7	---	---	---	8.5	8.2	8.3
25	8.2	7.7	8.0	7.9	7.8	7.8	---	---	---	8.5	8.1	8.3
26	8.2	7.7	7.9	7.8	7.8	7.8	---	---	---	8.6	8.1	8.3
27	8.2	7.7	7.9	7.9	7.8	7.8	---	---	---	8.7	8.1	8.4
28	8.3	7.9	8.1	7.8	7.8	7.8	---	---	---	8.6	8.1	8.3
29	8.3	7.7	8.0	7.8	7.8	7.8	---	---	---	---	---	---
30	8.2	7.8	8.0	7.9	7.8	7.8	---	---	---	---	---	---
31	8.6	7.9	8.2	---	---	---	8.5	8.1	8.3	---	---	---
MONTH	8.6	7.5	8.0	8.4	7.4	7.9	8.5	7.8	8.1	8.7	8.0	8.2

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	8.3	8.3	8.3	8.4	8.0	8.2	8.3	7.7	8.1
2	---	---	---	8.4	8.3	8.3	8.5	8.0	8.2	8.1	7.9	8.0
3	8.4	8.0	8.2	8.4	8.3	8.4	8.3	8.1	8.2	8.2	8.1	8.2
4	8.4	7.7	8.0	8.4	8.3	8.3	8.2	8.0	8.1	8.4	8.0	8.2
5	8.3	8.1	8.2	8.4	8.3	8.3	8.2	8.0	8.1	8.3	8.2	8.2
6	8.3	8.1	8.2	8.4	8.3	8.3	8.3	8.0	8.2	8.4	8.1	8.2
7	8.3	8.0	8.1	8.4	8.3	8.3	8.3	8.2	8.2	8.4	8.1	8.2
8	8.6	7.9	8.2	8.4	8.3	8.4	8.4	8.2	8.3	8.4	8.1	8.2
9	8.6	8.3	8.4	8.4	8.3	8.4	8.5	8.3	8.4	8.3	8.0	8.2
10	8.3	8.1	8.2	8.4	8.3	8.4	8.5	8.3	8.4	8.4	8.1	8.2
11	8.4	8.1	8.2	8.4	8.2	8.3	8.6	8.2	8.4	8.4	8.1	8.2
12	8.6	8.1	8.3	8.3	8.2	8.3	8.5	8.2	8.3	8.3	8.1	8.2
13	8.5	8.1	8.3	8.5	8.3	8.4	8.5	8.2	8.3	---	---	---
14	8.4	8.1	8.2	8.6	8.3	8.4	8.2	8.0	8.1	---	---	---
15	8.2	7.6	7.9	8.5	8.2	8.4	8.3	8.0	8.1	---	---	---
16	8.4	7.7	8.1	8.5	8.2	8.3	8.5	8.2	8.3	---	---	---
17	8.4	8.3	8.4	8.6	8.2	8.4	8.5	8.2	8.4	---	---	---
18	8.5	8.4	8.4	8.5	8.2	8.3	8.5	8.2	8.3	---	---	---
19	8.5	8.4	8.4	8.3	8.1	8.2	8.5	8.2	8.4	---	---	---
20	8.5	8.4	8.5	8.2	8.1	8.1	8.6	8.2	8.4	8.4	8.2	8.3
21	8.5	8.4	8.4	8.4	8.1	8.2	8.6	8.2	8.4	8.5	8.2	8.3
22	8.6	8.4	8.5	8.4	7.8	8.1	8.6	8.2	8.4	8.5	8.1	8.3
23	8.6	8.3	8.4	8.3	8.0	8.2	8.5	8.2	8.4	8.4	8.2	8.3
24	8.5	8.1	8.3	8.4	8.2	8.3	8.5	8.2	8.3	8.5	8.1	8.3
25	8.3	7.7	8.1	8.4	8.3	8.4	8.4	8.1	8.2	8.4	8.1	8.3
26	8.4	8.2	8.4	8.4	8.3	8.4	8.4	8.0	8.2	8.5	8.1	8.3
27	8.5	8.4	8.4	8.4	8.3	8.4	8.4	8.0	8.2	8.4	8.1	8.2
28	8.4	8.3	8.4	8.4	8.1	8.2	8.3	8.0	8.1	8.4	8.0	8.2
29	---	---	---	8.2	7.7	8.1	8.1	7.8	7.9	8.4	8.0	8.2
30	---	---	---	8.3	7.7	8.1	8.0	7.7	7.8	8.4	7.9	8.1
31	---	---	---	8.4	7.7	8.2	---	---	---	8.3	7.9	8.1
MONTH	8.6	7.6	8.3	8.6	7.7	8.3	8.6	7.7	8.2	8.5	7.7	8.2
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	8.1	7.9	8.0	8.5	8.1	8.3	8.4	7.8	8.1	8.4	7.9	8.1
2	8.0	7.7	7.8	8.5	8.1	8.3	8.3	7.7	7.9	8.4	7.9	8.1
3	8.0	7.6	7.8	8.5	8.1	8.3	8.4	7.6	8.0	8.4	7.9	8.1
4	8.0	7.6	7.8	8.5	8.1	8.3	8.3	7.7	8.0	8.4	7.9	8.1
5	7.9	7.6	7.7	8.5	8.0	8.2	8.6	7.6	8.0	8.4	7.9	8.1
6	7.9	7.5	7.7	8.4	8.0	8.2	8.2	7.9	8.1	8.4	7.9	8.1
7	8.0	7.6	7.7	8.4	7.9	8.1	8.4	7.8	8.1	8.4	7.9	8.1
8	7.9	7.6	7.7	8.4	7.9	8.1	8.5	8.0	8.3	8.4	7.8	8.0
9	8.0	7.6	7.8	8.4	7.9	8.1	8.5	7.9	8.1	8.4	7.9	8.1
10	7.8	7.4	7.6	8.3	7.8	8.1	8.5	7.9	8.1	8.5	8.0	8.2
11	7.8	7.4	7.6	8.3	7.8	8.0	8.4	7.7	8.0	8.5	8.0	8.2
12	8.0	7.4	7.8	8.3	7.8	8.0	8.4	7.7	8.0	8.5	8.0	8.2
13	7.9	7.8	7.8	8.3	7.8	8.1	8.4	7.8	8.0	8.1	7.7	8.0
14	7.8	7.7	7.7	8.3	7.8	8.1	8.4	7.8	8.0	8.3	7.8	8.0
15	7.8	7.6	7.7	8.3	7.8	8.0	8.4	7.8	8.0	8.3	7.9	8.0
16	7.8	7.7	7.8	8.3	7.8	8.0	8.3	7.8	8.0	8.2	8.0	8.0
17	7.9	7.7	7.8	8.3	7.8	8.0	8.3	7.8	8.0	8.7	8.0	8.3
18	---	---	---	8.3	7.8	8.0	8.4	7.8	8.1	9.0	8.2	8.5
19	---	---	---	8.2	7.8	8.0	8.4	7.9	8.1	9.0	8.2	8.6
20	---	---	---	8.2	7.8	8.0	8.4	7.8	8.1	8.8	7.9	8.4
21	---	---	---	8.2	7.8	8.0	8.3	7.8	8.0	8.9	7.7	8.3
22	---	---	---	8.2	7.8	8.0	8.3	7.7	8.0	8.7	7.8	8.3
23	---	---	---	8.2	7.8	8.0	8.4	7.8	8.0	8.5	7.7	8.1
24	---	---	---	8.2	7.8	8.0	8.2	7.8	8.0	8.4	7.6	8.0
25	8.5	8.0	8.3	8.2	7.8	8.0	8.5	7.6	8.0	7.9	7.6	7.7
26	8.4	8.0	8.2	8.5	7.8	8.1	8.4	7.9	8.1	8.1	7.6	7.8
27	8.5	8.0	8.3	8.5	8.0	8.3	8.3	7.8	8.0	8.2	7.7	7.9
28	8.5	8.1	8.3	8.5	8.0	8.2	8.3	7.8	8.0	8.3	7.8	8.0
29	8.5	8.1	8.3	8.5	8.0	8.2	8.3	7.8	8.0	8.4	7.8	8.0
30	8.6	8.1	8.3	8.4	7.9	8.1	8.4	7.8	8.0	8.5	7.8	8.1
31	---	---	---	8.5	7.9	8.1	8.4	7.8	8.1	---	---	---
MONTH	8.6	7.4	7.9	8.5	7.8	8.1	8.6	7.6	8.0	9.0	7.6	8.1
YEAR	9.0	7.4	8.1									

TRINITY RIVER MAIN STEM

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	24.0	19.5	22.0	21.0	17.0	20.0	---	---	---	---	---	---
2	23.0	19.0	22.0	18.0	15.5	17.0	---	---	---	---	---	---
3	24.0	19.5	22.0	17.0	12.5	15.0	---	---	---	---	---	---
4	24.0	19.5	22.5	12.5	8.5	10.5	---	---	---	---	---	---
5	24.5	20.0	22.5	11.0	7.0	9.0	---	---	---	---	---	---
6	25.0	21.0	23.5	12.0	8.5	10.0	---	---	---	---	---	---
7	24.5	19.0	22.5	12.5	7.5	10.0	---	---	---	---	---	---
8	19.5	15.0	17.5	11.5	9.5	10.5	---	---	---	---	---	10.5
9	20.0	16.0	18.0	15.5	11.0	13.5	---	---	---	---	---	---
10	23.5	18.0	20.5	17.5	15.5	16.5	---	---	---	---	---	---
11	24.0	17.5	20.5	18.0	14.5	17.5	---	---	---	---	---	---
12	24.5	17.5	21.0	15.0	12.0	13.5	---	---	---	---	---	---
13	25.5	20.0	22.0	12.5	9.5	11.5	---	---	---	---	---	---
14	26.0	20.0	22.5	13.5	10.0	12.0	---	---	---	---	---	---
15	26.5	20.0	23.0	15.0	11.0	12.5	---	---	---	---	---	---
16	21.5	19.5	20.5	14.5	11.0	13.0	---	---	---	14.5	9.0	11.5
17	19.5	17.5	18.0	16.0	12.5	14.0	---	---	---	12.5	9.5	11.0
18	20.0	16.0	18.0	16.5	14.5	15.5	---	---	---	12.0	8.5	10.5
19	21.0	17.0	19.0	---	---	---	---	---	---	8.5	6.5	8.0
20	22.5	17.5	19.5	---	---	---	---	---	---	9.5	6.5	8.5
21	23.5	19.5	21.5	---	---	---	---	---	---	12.0	7.0	9.0
22	23.5	19.5	21.5	13.5	10.5	12.0	---	---	---	14.0	8.5	10.5
23	25.5	20.0	22.5	14.5	10.5	12.5	---	---	---	18.0	11.0	13.5
24	26.5	20.5	23.0	14.5	10.5	13.5	---	---	---	14.5	9.5	11.5
25	28.0	21.5	24.5	---	---	---	---	---	---	14.5	9.0	11.0
26	25.5	21.0	23.0	---	---	---	---	---	---	14.5	8.0	11.0
27	24.0	19.5	21.0	---	---	---	---	---	---	14.5	8.5	11.5
28	24.0	18.0	20.5	---	---	---	---	---	---	12.5	10.5	11.5
29	23.0	17.5	21.0	---	---	---	---	---	---	13.5	11.0	12.0
30	21.0	18.0	20.0	---	---	---	---	---	---	---	---	---
31	24.5	19.5	22.0	---	---	---	---	---	---	---	---	---
MONTH	28.0	15.0	21.0	21.0	7.0	13.5	---	---	---	18.0	6.5	11.0

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

TRINITY RIVER MAIN STEM

295

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	29.5	24.0	27.0	32.0	26.0	28.5	---	---	---	31.5	22.5	26.0
2	30.0	21.5	26.0	32.0	25.5	28.0	34.5	25.5	30.0	31.0	23.5	27.0
3	34.5	26.5	30.0	30.5	24.0	27.0	30.5	24.5	27.0	29.5	23.0	26.0
4	32.5	28.0	30.0	29.0	22.0	25.5	32.0	26.5	28.5	30.0	20.5	24.5
5	32.0	26.0	29.0	28.0	22.5	25.5	32.0	27.0	29.5	29.5	20.0	24.0
6	32.5	27.0	29.0	29.5	24.0	26.5	30.0	22.0	25.5	29.0	21.0	24.5
7	28.5	26.0	27.0	30.5	25.0	28.0	25.5	18.0	21.5	31.5	22.5	26.0
8	28.0	24.0	25.5	30.5	25.0	27.5	30.0	22.5	26.5	29.0	23.0	25.5
9	30.0	24.0	26.5	32.0	24.0	27.5	33.0	26.0	29.0	30.0	20.5	24.5
10	30.0	20.5	25.5	32.5	25.0	28.0	34.5	27.5	30.5	28.5	20.0	24.0
11	29.5	23.0	26.0	34.0	25.5	29.0	35.0	28.5	31.5	30.0	21.5	25.0
12	29.5	23.0	26.0	34.0	25.0	29.5	33.5	27.0	30.0	29.5	22.0	25.0
13	30.0	25.0	27.0	34.0	26.5	29.5	35.0	26.5	30.0	25.5	21.0	23.5
14	30.5	26.5	28.0	33.5	25.0	28.5	35.5	27.5	31.0	---	---	---
15	31.5	28.0	29.5	34.5	24.5	28.5	36.0	27.5	31.0	---	---	---
16	31.0	28.5	29.5	34.0	25.5	29.0	35.0	28.5	31.0	---	---	---
17	31.5	27.0	29.0	34.0	25.5	29.5	36.0	28.5	31.5	---	---	---
18	31.0	27.5	29.0	35.0	26.0	30.0	36.0	28.0	31.5	28.5	22.0	25.0
19	33.0	28.0	30.0	35.5	27.0	30.5	35.5	27.0	31.0	32.5	25.0	28.5
20	32.5	27.5	29.5	36.0	28.0	31.0	37.5	28.0	32.5	---	---	---
21	31.0	28.5	29.0	36.0	28.0	31.0	38.5	29.0	33.0	---	---	---
22	33.0	28.0	29.5	36.0	27.0	30.5	36.0	29.0	32.0	---	---	---
23	30.5	26.5	29.0	35.5	26.0	30.0	34.0	27.5	30.5	---	---	---
24	30.0	25.0	27.0	34.5	25.5	29.0	34.0	27.0	29.0	---	---	---
25	32.0	23.0	27.5	34.0	25.0	29.0	31.5	25.0	28.5	---	---	---
26	30.5	23.0	26.5	33.0	25.0	28.5	32.0	27.5	30.0	30.0	23.5	26.5
27	32.5	24.0	28.0	33.0	23.5	27.5	33.0	28.0	30.0	26.5	21.5	24.5
28	32.0	25.5	28.5	---	---	---	34.0	27.0	30.0	29.5	22.5	25.5
29	32.5	25.5	28.5	---	---	---	33.5	26.0	29.0	31.0	21.5	26.0
30	32.0	26.5	28.5	---	---	---	32.5	24.5	28.0	30.0	23.0	26.0
31	---	---	---	---	---	---	30.0	24.5	27.0	---	---	---
MON III	34.5	20.5	28.0	36.0	22.0	28.5	38.5	18.0	29.5	32.5	20.0	25.5
YEAR	38.5	6.0	21.5									

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	10.2	6.2	8.0	8.9	6.7	7.8	11.8	10.0	10.8	11.5	10.1	10.6
2	10.6	6.4	8.3	10.3	6.8	8.7	12.6	10.3	11.2	12.0	10.1	10.8
3	10.3	6.6	8.4	10.5	8.0	9.4	12.8	9.5	11.2	12.2	10.0	10.8
4	11.2	6.5	8.5	11.3	8.7	10.1	12.3	9.9	10.9	12.9	9.8	10.9
5	11.2	6.4	8.6	12.2	9.8	11.0	12.3	11.1	11.6	13.1	10.1	11.3
6	10.5	6.5	8.5	12.0	10.4	11.1	13.7	11.0	12.0	12.3	10.1	10.9
7	11.9	6.7	8.3	13.2	10.5	11.6	14.5	11.1	12.3	12.6	10.3	11.2
8	11.5	6.7	9.0	11.6	10.0	10.6	12.7	10.3	11.4	11.9	10.2	10.9
9	11.7	7.6	9.3	11.4	9.2	10.0	12.4	9.3	10.5	11.7	10.3	10.9
10	12.0	7.6	9.3	9.3	7.3	8.2	12.0	9.2	10.4	12.6	11.2	11.8
11	13.5	8.2	10.2	9.0	6.4	7.8	11.8	10.0	10.8	12.8	11.6	12.0
12	12.0	8.3	9.9	9.3	7.9	8.6	12.8	9.5	11.0	13.1	11.5	12.1
13	10.8	8.3	9.3	9.5	7.9	8.9	10.3	7.3	8.7	13.6	11.6	12.5
14	10.8	6.9	8.6	10.5	8.7	9.7	9.2	7.7	8.6	13.6	11.7	12.5
15	10.7	6.0	8.2	11.0	9.4	10.3	8.8	7.6	8.1	14.0	11.0	12.3
16	7.4	6.1	6.7	11.3	9.6	10.3	8.2	6.7	7.8	14.5	10.6	12.4
17	6.9	5.6	6.4	10.9	9.2	10.1	7.6	6.8	7.3	13.1	10.2	11.5
18	9.1	6.5	7.7	10.6	8.5	9.4	12.3	6.7	8.9	12.9	10.0	11.2
19	10.0	7.5	8.8	---	---	---	11.2	10.4	10.8	12.1	10.4	11.0
20	12.2	6.6	9.4	---	---	---	11.1	10.4	10.7	11.5	10.9	11.2
21	12.9	8.3	10.4	---	---	---	11.2	10.4	10.7	11.8	10.9	11.4
22	13.2	8.1	10.5	8.7	7.8	8.4	10.5	10.1	10.3	12.0	10.5	11.2
23	12.5	8.1	9.9	8.7	7.9	8.4	10.6	9.9	10.2	11.3	10.1	10.5
24	12.4	7.6	9.5	8.6	7.9	8.3	11.1	9.9	10.4	12.3	10.3	11.2
25	11.8	7.7	9.2	9.7	8.5	9.1	10.8	9.9	10.2	13.0	10.4	11.4
26	12.6	7.3	8.9	10.3	9.1	9.7	11.2	9.9	10.4	13.5	10.3	11.6
27	11.0	6.9	8.8	10.6	10.1	10.3	11.2	9.9	10.5	13.8	10.2	11.6
28	13.1	8.7	10.3	10.6	9.8	10.2	10.8	9.5	10.0	13.4	9.8	11.0
29	9.6	6.2	8.3	10.8	9.8	10.2	11.2	8.8	9.7	10.0	9.1	9.7
30	9.9	6.4	8.2	11.0	9.7	10.3	11.0	9.0	9.8	10.2	8.8	9.4
31	12.8	7.7	9.7	---	---	---	11.1	8.8	9.8	---	---	---
MONTH	13.5	5.6	8.9	13.2	6.4	9.6	14.5	6.7	10.2	14.5	8.8	11.3

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	11.3	11.1	11.2	---	---	---	---	---	---
2	13.9	11.2	12.4	11.1	10.7	11.0	---	---	---	---	---	---
3	12.3	10.3	11.1	11.2	10.6	10.9	11.6	5.6	9.2	---	---	---
4	---	---	---	11.9	10.6	11.0	9.8	5.6	8.0	---	---	---
5	12.9	11.7	12.4	11.6	10.9	11.2	11.2	6.7	9.1	---	---	---
6	12.9	10.1	10.8	11.7	11.0	11.3	10.7	8.2	9.8	---	---	---
7	---	---	---	11.6	10.8	11.2	10.3	6.8	9.6	---	---	---
8	---	---	---	11.5	10.5	11.0	10.1	5.7	8.1	---	---	---
9	12.2	10.7	11.4	11.2	10.1	10.7	10.1	7.5	9.0	---	---	---
10	11.4	9.6	10.6	11.2	10.0	10.5	9.7	8.1	9.3	---	---	---
11	11.6	10.1	10.7	11.4	10.0	10.7	10.3	7.8	9.0	---	---	---
12	12.6	10.4	11.3	11.6	10.1	10.9	10.1	7.6	8.7	---	---	---
13	12.8	10.8	11.6	12.3	11.3	11.7	10.1	7.1	8.4	---	---	---
14	12.4	10.8	11.3	12.3	11.1	11.7	8.2	6.5	7.3	---	---	---
15	---	---	---	11.4	10.8	11.2	10.7	6.1	7.8	---	---	---
16	---	---	---	12.0	10.4	11.2	10.7	5.3	8.4	---	---	---
17	12.4	11.6	12.0	12.2	10.3	11.1	10.3	9.2	9.7	---	---	---
18	12.6	11.9	12.2	11.9	10.7	11.1	10.2	7.6	9.1	---	---	---
19	12.4	11.6	11.9	11.1	10.3	10.6	8.7	7.4	8.1	---	---	---
20	12.1	10.9	11.5	10.9	10.0	10.5	11.1	4.9	7.8	---	---	---
21	11.8	10.7	11.2	11.5	10.0	10.6	11.5	4.9	8.3	---	---	---
22	12.2	10.7	11.2	---	---	---	10.6	5.4	8.7	---	---	---
23	12.3	10.6	11.3	10.9	10.0	10.5	9.2	4.6	7.1	---	---	---
24	---	---	---	10.9	10.1	10.6	8.4	4.5	7.0	---	---	---
25	---	---	---	10.9	10.0	10.4	---	---	---	---	---	---
26	---	---	---	11.4	10.0	10.7	---	---	---	---	---	---
27	11.7	10.1	11.4	11.2	10.0	10.6	---	---	---	---	---	---
28	11.5	11.3	11.4	10.2	9.0	9.8	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	13.9	9.6	11.5	12.3	9.0	10.9	11.6	4.5	8.5	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	9.2	5.8	7.3	9.9	6.5	8.2	10.7	6.7	8.4
2	---	---	---	9.1	5.8	7.3	8.0	4.3	6.3	10.5	6.9	8.6
3	---	---	---	9.0	5.6	7.1	8.7	3.7	6.6	10.2	6.5	8.1
4	---	---	---	9.0	5.8	7.2	8.5	4.3	6.7	10.9	6.8	8.6
5	9.4	6.3	7.6	9.1	5.5	7.1	9.2	2.6	5.4	10.9	7.7	9.0
6	9.4	6.1	7.6	9.0	5.5	7.1	6.9	4.4	5.7	10.4	7.2	8.6
7	9.7	6.0	7.6	9.0	5.2	7.0	7.9	5.0	6.5	10.2	6.9	8.3
8	9.2	6.4	7.5	9.3	5.3	7.1	11.3	5.2	7.9	10.0	6.2	7.8
9	10.4	6.5	8.3	9.9	5.5	7.5	10.7	5.6	8.1	10.6	6.1	8.2
10	8.5	5.6	7.3	14.0	6.3	10.4	9.2	5.3	7.5	10.4	7.1	8.5
11	8.9	5.5	7.1	13.6	7.5	10.4	8.9	4.8	6.9	10.7	7.3	8.9
12	8.6	6.0	7.3	9.5	6.3	8.0	8.9	4.8	6.8	9.8	6.6	8.1
13	8.4	6.6	7.4	10.1	6.0	8.0	8.7	5.1	6.8	7.1	4.3	5.7
14	8.2	6.6	7.3	10.3	6.6	8.4	8.6	5.1	6.9	6.7	5.2	6.2
15	7.4	6.1	6.7	9.1	6.9	8.0	8.5	5.0	6.7	7.2	6.2	6.8
16	7.2	5.9	6.4	9.0	6.6	7.6	8.3	4.8	6.6	8.1	6.5	7.1
17	7.2	5.8	6.4	8.7	6.1	7.4	8.2	4.9	6.6	10.0	7.2	8.3
18	---	---	---	9.1	6.1	7.6	8.7	5.1	6.9	12.6	8.3	10.1
19	---	---	---	8.5	6.1	7.4	8.5	5.6	7.2	15.0	8.5	11.4
20	---	---	---	8.8	5.7	7.3	8.8	5.7	7.3	15.0	7.8	11.2
21	---	---	---	9.0	5.8	7.3	8.5	5.8	7.2	11.4	5.9	9.0
22	---	---	---	8.8	5.9	7.4	7.9	5.5	6.7	11.7	5.8	8.6
23	8.7	4.7	6.8	8.7	6.0	7.4	8.3	4.9	6.6	10.4	5.6	8.0
24	8.8	6.6	7.6	8.6	5.9	7.3	10.9	5.3	8.1	9.6	5.8	7.8
25	8.8	5.7	7.2	8.6	5.8	7.3	11.8	4.4	8.3	7.6	5.1	6.4
26	9.1	6.5	7.5	10.7	6.2	8.3	10.8	6.8	8.8	9.2	4.4	6.6
27	9.7	6.0	7.6	10.4	7.6	9.0	10.4	6.7	8.7	10.8	5.5	7.9
28	9.5	5.6	7.3	10.1	7.3	8.7	11.1	7.0	8.9	11.4	7.3	9.3
29	8.9	5.8	7.2	10.0	7.2	8.4	11.1	6.5	8.7	11.6	7.5	9.1
30	9.4	5.7	7.3	10.5	6.8	8.3	11.3	6.2	8.6	10.0	6.8	8.4
31	---	---	---	10.7	6.9	8.5	10.7	6.9	8.6	---	---	---
MONTH	10.4	4.7	7.3	14.0	5.2	7.8	11.8	2.6	7.3	15.0	4.3	8.3
YEAR	15.0	2.6	9.2									

08048970 VILLAGE CREEK AT EVERMAN, TX

LOCATION.--Lat 32°36'12", long 97°15'53", Tarrant County, Hydrologic Unit 12030102, at center of channel at downstream side of bridge on Rendon Road (Tarrant County Road 1015), 1.4 mi downstream from Deer Creek, and 1.8 mi southeast of Everman High School.

DRAINAGE AREA.--84.5 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1989 to current year.

GAGE.--Water-stage recorder. Datum of gage is 589.93 ft above National Geodetic Vertical Datum of 1929 (Tarrant County Public Works Department reference mark).

REMARKS.--No estimated daily discharges. Records good. Peak discharge from rating extended above 7,700 ft³/s on basis of area-velocity study. Gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known since about 1930, 27.37 ft date uncertain, but may be same date, Mar. 27, 1977, as date of maximum stage at discontinued downstream station, Village Creek at Kennedale (08048980). Flood of May 18, 1989, may have equalled, or slightly exceeded, the indicated known maximum stage.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	5.4	2.0	5.7	4.5	121	8.2	7.1	4.8	58	1.7	.00
2	1.7	3.4	1.9	6.8	4.1	109	7.6	113	5.1	52	1.9	.00
3	1.7	2.3	1.9	6.4	63	59	7.6	30	4.5	43	2.7	.00
4	2.0	.80	1.9	6.3	326	23	186	8.7	4.1	34	3.0	.00
5	1.6	1.1	1.9	6.3	70	8.3	71	6.2	4.0	29	2.6	.00
6	.86	.79	1.9	6.3	24	7.9	22	5.3	4.1	24	2.3	.00
7	1.1	.47	1.7	6.7	11	7.4	269	4.7	4.1	21	2.4	.00
8	.84	.41	1.6	6.7	8.9	6.9	138	4.6	4.1	17	2.6	.00
9	.11	1.3	3.3	8.7	7.8	6.2	44	5.0	4.1	15	2.6	.00
10	.09	2.3	3.2	7.2	19	6.2	12	6.6	26	13	2.4	.00
11	.07	3.7	2.3	5.7	12	6.4	8.8	4.6	5.2	13	1.7	.00
12	.06	6.8	1.5	5.3	8.2	23	7.9	4.7	4.0	11	1.0	.00
13	.04	4.3	6.8	4.8	6.9	9.0	7.8	4.6	3.7	11	.92	.76
14	1.9	3.3	825	4.5	6.2	8.0	128	4.2	3.6	10	1.5	8.9
15	.72	3.3	371	4.3	234	8.4	75	4.1	3.5	10	.49	2.4
16	.14	3.3	74	4.2	106	8.8	14	3.7	3.3	9.4	.02	.17
17	.06	4.1	12	4.1	29	7.8	8.8	3.5	3.3	8.6	.07	.02
18	.06	4.4	7.2	3.8	11	7.2	7.9	3.3	3.2	8.0	.00	.00
19	.07	27	5.6	4.2	9.3	63	7.5	3.6	7.9	7.6	.00	.00
20	.05	6.2	5.0	44	8.9	138	6.4	3.7	4.3	7.1	.00	.00
21	.10	13	4.8	9.2	8.3	53	5.7	3.9	3.7	6.5	.00	.00
22	.38	7.0	4.9	5.7	6.9	484	5.9	4.0	3.6	5.8	.00	.00
23	.99	3.5	4.9	4.8	6.2	226	5.7	6.2	3.6	5.3	.00	.00
24	.71	9.0	4.6	4.6	30	82	5.7	12	3.4	5.1	.00	.00
25	.96	5.2	4.4	3.8	3230	17	5.8	4.3	711	4.5	.00	.00
26	1.1	3.5	4.4	3.8	137	8.8	6.1	4.1	3060	3.8	.00	3.0
27	1.1	2.9	4.4	3.7	72	8.7	6.0	4.1	112	3.3	.00	.47
28	1.1	2.4	4.4	4.1	66	71	5.8	4.9	87	2.6	.00	.00
29	2.1	1.9	4.8	14	---	83	80	9.9	76	1.7	.00	.00
30	2.4	1.9	5.0	10	---	19	12	5.4	67	1.6	.00	.00
31	2.3	---	5.2	6.3	---	9.5	---	4.9	---	1.1	.00	---
TOTAL	28.21	134.97	1383.5	222.0	4526.2	1696.5	1176.2	294.9	4234.2	443.0	29.90	15.72
MEAN	.91	4.50	44.6	7.16	162	54.7	39.2	9.51	141	14.3	.96	.52
MAX	2.4	27	825	44	3230	484	269	113	3060	58	3.0	8.9
MIN	.04	.41	1.5	3.7	4.1	6.2	5.7	3.3	3.2	1.1	.00	.00
AC-FT	56	268	2740	440	8980	3370	2330	585	8400	879	59	31

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1993, BY WATER YEAR (WY)

	1990	1991	1992	1993
MEAN	61.2	16.3	104	39.4
MAX	240	48.4	367	117
(WY) 1992	1992	1992	1992	1993
MIN	.68	1.81	.72	7.16
(WY) 1990	1990	1990	1991	1991

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1990 - 1993

ANNUAL TOTAL	15155.42	14185.30	52.9
ANNUAL MEAN	41.4	38.9	92.6
HIGHEST ANNUAL MEAN			20.5
LOWEST ANNUAL MEAN			1992
HIGHEST DAILY MEAN	1330	Feb 25	5990
LOWEST DAILY MEAN	.04	Oct 13	.00
ANNUAL SEVEN-DAY MINIMUM	.12	Oct 16	.00
INSTANTANEOUS PEAK FLOW			11400
INSTANTANEOUS PEAK STAGE			21.96
INSTANTANEOUS LOW FLOW			.00
ANNUAL RUNOFF (AC-FT)	30060	28140	38360
10 PERCENT EXCEEDS	77	58	74
50 PERCENT EXCEEDS	7.1	4.6	4.3
90 PERCENT EXCEEDS	.77	.00	.03

TRINITY RIVER BASIN

08048970 VILLAGE CREEK AT EVERMAN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1989 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1989 to September 1990.

pH: October 1989 to September 1990.

WATER TEMPERATURE: October 1989 to September 1990.

DISSOLVED OXYGEN: October 1989 to September 1990.

INSTRUMENTATION.--From October 1989 to September 1990, a four-parameter water-quality monitor continuously recorded specific conductance, pH, water temperature, and dissolved oxygen at this station.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1,000 microsiemens on several days during January and May, 1990; minimum, 129 microsiemens May 3, 1990.

pH: Maximum, 9.1 units Jan. 13, 1990; minimum, 7.0 units Nov. 22, 1989.

WATER TEMPERATURE: Maximum, 34.5°C July 11, 1990; minimum, 0.5°C Dec. 22, 1989.

DISSOLVED OXYGEN: Maximum, 20.8 mg/L Feb. 25, 1990; minimum, 2.4 mg/L Nov. 8, 1989.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	
NOV 19...	1309	12	571	7.7	16.0	7.4	77	2.4	190	9	60	10	
JAN 14...	1423	4.7	733	8.3	8.5	7.9	68	0.5	260	60	82	13	
MAR 03...	1600	53	560	8.0	13.0	--	--	2.2	230	62	75	9.9	
APR 09...	1446	33	587	7.5	18.0	--	--	1.4	210	43	69	9.7	
JUN 07...	1540	4.4	795	7.8	27.0	7.6	98	2.0	250	83	75	16	
JUL 30...	1440	1.8	750	7.9	31.0	7.3	100	1.3	240	63	74	14	
DATE		SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)
NOV 19...	46	1	5.8	180	55	48	0.30	7.9	342	0.190	--	--	0.020
JAN 14...	63	2	5.1	200	100	72	0.40	2.8	460	0.440	0.440	--	--
MAR 03...	39	1	4.9	170	77	42	0.20	11	363	0.600	0.600	--	--
APR 09...	40	1	4.3	170	76	42	0.20	8.7	352	0.150	--	--	--
JUN 07...	70	2	1.8	170	130	75	0.40	15	485	--	--	--	--
JUL 30...	71	2	2.6	180	120	77	0.40	17	485	0.057	--	--	--
DATE		NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	
NOV 19...	--	0.210	--	0.030	--	0.57	--	--	0.60	0.120	--	--	
JAN 14...	0.020	0.460	0.460	--	0.060	--	0.44	0.50	--	--	0.130	--	
MAR 03...	0.010	0.610	0.610	--	0.040	--	0.36	0.40	--	--	0.090	--	
APR 09...	<0.010	0.150	0.150	--	0.030	--	0.67	0.70	--	--	0.060	--	
JUN 07...	<0.010	--	<0.050	--	0.040	--	0.26	0.30	--	--	0.030	--	
JUL 30...	<0.010	0.057	0.057	--	0.060	--	0.44	0.50	--	--	0.040	--	

TRINITY RIVER BASIN

299

08048970 VILLAGE CREEK AT EVERMAN, TX--Continued

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

DATE	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
NOV 19...	--	0.050	--	--	--	--	--	--	--	--	--
JAN 14...	0.120	--	0.37	--	--	--	--	--	--	--	--
MAR 03...	0.080	--	0.25	1	54	<0.5	<1.0	<5	<3	<10	60
APR 09...	0.050	--	0.15	--	--	--	--	--	--	--	--
JUN 07...	0.010	--	0.03	--	--	--	--	--	--	--	--
JUL 30...	0.030	--	0.09	<1	57	<0.5	1.0	<5	<3	<10	7
DATE	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 19...	--	--	--	--	--	--	--	--	--	--	--
JAN 14...	--	--	--	--	--	--	--	--	--	--	--
MAR 03...	<10	8	21	<0.1	<10	<10	<1	<1.0	550	<6	11
APR 09...	--	--	--	--	--	--	--	--	--	--	--
JUN 07...	--	--	--	--	--	--	--	--	--	--	--
JUL 30...	10	18	4	0.2	<10	<10	<1	<1.0	800	<6	24

TRINITY RIVER BASIN

08049200 LAKE ARLINGTON AT ARLINGTON, TX

LOCATION.--Lat 32°42'58", long 97°11'32", Tarrant County, Hydrologic Unit 12030102, in new pumphouse at right end of Arlington Dam on Village Creek near western boundary of Arlington, 1.5 mi upstream from the Texas and Pacific Railway Co. bridge, and 7 mi upstream from mouth.

DRAINAGE AREA.--143 mi².

WATER-CONTENT RECORDS

PERIOD OF RECORD.--March 1957 to current year.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Sept. 9, 1957, non-recording gage at same site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam 6,482 ft long. The service spillway is a 10-foot-diameter uncontrolled circular drop inlet. The spillway is an 882-foot-wide cut through natural ground near the right end of dam. The dam was completed and storage began Mar. 31, 1957. Capacities are based on a 1980 survey. The dam was built by the city of Arlington to impound water for municipal and industrial uses. Water is diverted from Cedar Creek Reservoir (station 08063010) into Lake Arlington. Water is pumped from the lake to a generating plant of Texas Electric Service Co. Gage-height telemeter located at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	572.0	-
Crest of spillway.....	559.7	64,360
Crest of drop inlet (top of conservation pool).....	550.0	39,930
Lowest gated outlet (invert).....	505.0	40

COOPERATION.--Capacity table provided by Freese and Nichols, Inc., Consulting Engineers, for the city of Arlington.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 72,500 acre-ft May 17, 1989 (elevation, 562.42 ft); minimum since lake first filled in April 1957, 18,110 acre-ft Oct. 17, 1971 (elevation, 534.27 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 45,550 acre-ft Feb. 25 at 2200 hours (elevation, 552.46 ft); minimum, 20,210 acre-ft Sept. 12 (elevation, 538.99 ft.)

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

538.0	18,870	544.0	28,030	550.0	39,930
540.0	21,620	546.0	31,750	552.0	44,460
542.0	24,650	548.0	35,720	553.0	46,820

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28160	27700	30090	35720	33520	41520	40250	39550	37110	40070	29440	21590
2	28290	27750	30090	35600	33450	41380	40160	40130	36930	39760	29090	21410
3	28190	27810	30050	35500	33430	41040	40220	40090	36610	39420	28800	21280
4	28030	27810	29950	35420	35090	40790	40660	40000	36300	39140	28540	21170
5	27860	27820	29950	35320	35480	40610	40570	39930	36050	38840	28270	20990
6	27750	27820	29970	35230	35520	40430	40430	39820	35760	38500	28000	20840
7	27740	27860	29970	35110	35520	40270	41450	39760	35500	38230	28050	20710
8	27740	27810	29990	35010	35500	40130	41220	39700	35320	37970	28000	20700
9	27750	27790	30070	35050	35480	39980	40910	39630	35110	37680	27720	20700
10	27700	27870	30050	34970	35560	39890	40610	39520	35520	37340	27460	20630
11	27680	27980	30030	34890	35580	39840	40430	39460	36200	37030	27200	20440
12	27580	28080	30090	34750	35540	40020	40250	39350	36300	36760	26840	20250
13	27460	28160	30820	34630	35500	39950	40450	39180	36360	36450	26470	20650
14	27360	28230	34670	34530	35440	39890	40750	39060	36450	36090	26100	21270
15	27290	28270	36630	34490	36320	39870	40500	38890	36450	35760	25760	21330
16	27360	28300	36910	34370	36820	39840	40380	38670	36490	35420	25390	21490
17	27370	28340	36910	34250	36800	39820	40340	38500	36410	35090	25030	21650
18	27440	28360	36860	34100	36740	39800	40290	38310	36490	34750	24670	21750
19	27440	28890	36760	34040	36610	40040	40180	38270	36490	34370	24320	21810
20	27360	28980	36680	34290	36550	40380	40000	38120	36570	33960	24010	21840
21	27340	29330	36590	34290	36450	40360	39840	37970	36590	33580	23670	21900
22	27300	29400	36550	34220	36340	41950	39740	37860	36530	33190	23290	21930
23	27270	29490	36430	34140	36260	42220	39630	37760	36320	32820	22970	21960
24	27220	29790	36360	34040	36300	41610	39550	37760	36050	32470	22740	22000
25	27200	29820	36240	33920	45470	41200	39350	37700	36590	32060	22660	22120
26	27170	29860	36180	33820	43490	40910	39210	37530	43080	31660	22490	22280
27	27080	29920	36070	33720	42340	40630	39080	37380	42020	31240	22340	22470
28	27060	29970	36010	33660	41680	40720	38990	37380	41290	30900	22160	22550
29	27320	30070	35930	33720	---	40750	39500	37400	40770	30560	21930	22600
30	27370	30070	35840	33680	---	40610	39570	37360	40340	30180	21710	22620
31	27440	---	35760	33620	---	40430	---	37280	---	29840	21680	---
MAX	28290	30070	36910	35720	45470	42220	41450	40130	43080	40070	29440	22620
MIN	27060	27700	29950	33620	33430	39800	38990	37280	35110	29840	21680	20250
(↑)	543.66	545.11	548.02	546.96	550.77	550.22	549.83	548.75	550.18	544.99	540.04	540.68
(φ)	-1500	+2630	+5690	-2140	+8060	-1250	-860	-2290	+3060	-10500	-8160	+940
CAL YR 1992	MAX	45360	MIN	27060	(φ)	-4870						
WTR YR 1993	MAX	45470	MIN	20250	(φ)	-6320						

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

TRINITY RIVER BASIN

301

08049200 LAKE ARLINGTON AT ARLINGTON, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: January 1964 to current year.

324304097113601 - LAKE ARLINGTON SITE AC

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

DATE	TIME	RESER- VOIR STORAGE (AC-FT)	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)
DEC												
30...	1314	35800	1.00	339	8.4	14.0	0.90	9.4	93	120	20	40
30...	1319	--	10.0	340	8.4	14.0	--	9.4	93	--	--	--
30...	1324	--	20.0	339	8.3	14.0	--	9.4	93	--	--	--
30...	1329	--	30.0	339	8.2	13.5	--	8.6	85	--	--	--
30...	1332	--	43.0	344	7.9	13.5	--	6.9	68	120	16	41
JUN												
03...	1009	36600	1.00	407	8.1	27.5	2.10	5.8	76	140	19	44
03...	1014	--	10.0	407	8.0	27.0	--	5.6	73	--	--	--
03...	1020	--	20.0	407	7.8	26.5	--	5.4	69	--	--	--
03...	1026	--	30.0	419	7.3	24.0	--	0	0	--	--	--
03...	1032	--	43.0	429	7.0	23.0	--	0	0	150	5	48
AUG												
16...	1144	25400	1.00	328	8.6	32.0	1.00	5.2	73	110	20	34
16...	1148	--	10.0	331	8.6	31.5	--	4.7	65	--	--	--
16...	1152	--	20.0	348	7.6	29.5	--	0	0	--	--	--
16...	1158	--	30.0	370	7.4	28.0	--	0	0	--	--	--
16...	1204	--	36.0	387	7.3	27.5	--	0	0	130	0	43

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)
DEC												
30...	4.8	20	0.8	4.3	100	37	18	0.20	3.5	189	0.030	0.030
30...	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--
30...	4.9	21	0.8	4.3	110	37	18	0.20	3.4	195	0.017	0.017
JUN												
03...	6.2	26	1	4.2	120	50	26	0.30	2.2	228	--	--
03...	--	--	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--	0.048	0.048
03...	6.2	26	0.9	4.1	140	42	26	0.30	6.0	245	--	--
AUG												
16...	5.9	26	1	4.9	89	58	25	0.30	3.8	211	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	6.1	23	0.9	5.9	150	21	23	0.30	9.0	229	--	--

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
DEC											
30...	0.020	0.050	0.050	0.030	0.37	0.40	0.070	--	--	360	360
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	0.050	0.067	0.067	0.230	0.37	0.60	0.100	0.070	0.21	92	230
JUN											
03...	<0.010	--	<0.050	0.020	0.28	0.30	0.010	<0.010	--	<3	9
03...	--	--	--	--	--	--	--	--	--	--	--
03...	<0.010	--	<0.050	0.030	0.17	0.20	<0.010	<0.010	--	<10	100
03...	0.010	0.058	0.058	0.070	0.23	0.30	0.010	<0.010	--	<10	230
03...	<0.010	--	<0.050	0.480	0.32	0.80	0.200	--	--	450	1700
AUG											
16...	<0.010	--	<0.050	0.040	0.26	0.30	<0.010	<0.010	--	5	10
16...	<0.010	--	<0.050	0.020	0.28	0.30	<0.010	<0.010	--	30	20
16...	<0.010	--	<0.050	0.140	0.26	0.40	<0.010	<0.010	--	70	490
16...	--	--	--	--	--	--	--	--	--	--	--
16...	<0.010	--	<0.050	2.70	0.50	3.2	0.550	0.450	1.4	320	2000

TRINITY RIVER BASIN

08049200 LAKE ARLINGTON AT ARLINGTON, TX--Continued

324320097121101 - LAKE ARLINGTON SITE AL

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
DEC							
30...	1340	1.00	340	8.4	14.0	9.6	95
30...	1343	10.0	340	8.4	14.0	9.6	95
30...	1347	20.0	340	8.4	14.0	9.6	95
30...	1350	30.0	340	8.4	14.0	9.6	95
30...	1354	36.0	340	8.4	14.0	9.4	93
JUN							
03...	1042	1.00	407	8.2	27.5	6.0	78
03...	1046	10.0	407	8.1	27.5	5.7	75
03...	1050	20.0	409	8.0	26.5	5.3	68
03...	1053	33.0	420	7.4	24.0	0	0
AUG							
16...	1224	1.00	331	8.6	32.5	5.4	76
16...	1228	10.0	332	8.6	32.0	5.3	74
16...	1232	20.0	348	8.0	30.0	0	0
16...	1236	25.0	355	7.9	29.5	0	0

324253097121801 - LAKE ARLINGTON SITE BC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
DEC								
30...	1406	1.00	340	8.4	14.0	0.80	9.2	91
30...	1409	10.0	340	8.3	14.0	--	9.1	90
30...	1412	20.0	340	8.3	14.0	--	8.8	87
30...	1415	30.0	341	8.1	13.5	--	8.0	79
30...	1417	38.0	343	7.9	13.0	--	7.2	70
JUN								
03...	1104	1.00	407	8.2	27.5	1.55	5.9	77
03...	1108	10.0	407	8.1	27.0	--	5.8	75
03...	1112	20.0	410	7.8	26.0	--	4.6	59
03...	1116	30.0	419	7.4	24.5	--	0	0
03...	1120	38.0	425	7.4	23.5	--	0	0
AUG								
16...	1254	1.00	332	8.6	32.5	0.85	5.6	79
16...	1258	10.0	333	8.5	31.5	--	4.6	64
16...	1302	20.0	349	8.3	29.5	--	0	0
16...	1305	31.0	382	8.0	28.5	--	0	0

324301097123301 - LAKE ARLINGTON SITE BL

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
DEC							
30...	1423	1.00	340	8.3	14.0	9.3	92
30...	1425	10.0	340	8.4	14.0	9.4	93
30...	1428	20.0	340	8.4	14.0	9.3	92
30...	1433	31.0	341	8.3	14.0	9.2	91
JUN							
03...	1127	1.00	407	8.2	27.5	6.1	80
03...	1130	10.0	407	8.1	27.5	5.8	76
03...	1134	20.0	407	8.0	26.5	5.3	68
03...	1138	29.0	415	7.5	25.5	1.7	21
AUG							
16...	1312	1.00	331	8.5	32.5	5.7	80
16...	1315	10.0	332	8.4	31.5	4.8	66
16...	1318	15.0	341	8.2	31.0	1.7	23
16...	1322	20.0	348	8.0	30.0	0	0
16...	1325	24.0	356	8.0	29.5	0	0

TRINITY RIVER BASIN

303

08049200 LAKE ARLINGTON AT ARLINGTON, TX--Continued

324257097130301 - LAKE ARLINGTON SITE CC

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

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATURATION)
DEC								
30...	1443	1.00	340	8.4	15.0	0.80	9.6	97
30...	1446	10.0	341	8.4	15.0	--	9.6	97
30...	1450	15.0	340	8.4	15.0	--	9.4	95
JUN								
03...	1149	1.00	408	8.1	34.0	1.40	5.3	78
03...	1153	10.0	409	8.0	31.5	--	5.3	74
03...	1156	20.0	410	7.9	30.0	--	4.9	67
AUG								
16...	1340	1.00	333	8.5	40.0	0.82	4.3	68
16...	1343	5.00	335	8.3	40.0	--	4.4	70
16...	1346	10.0	334	8.3	40.0	--	4.4	70
16...	1349	14.0	335	8.3	39.0	--	4.6	72

324228097130301 - LAKE ARLINGTON SITE DC

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

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATURATION)
DEC								
30...	1503	1.00	341	8.4	14.5	0.70	9.4	94
30...	1506	10.0	340	8.3	14.5	--	9.3	93
30...	1509	19.0	341	8.3	14.5	--	9.2	92
JUN								
03...	1205	1.00	408	8.1	29.0	1.20	5.4	73
03...	1209	10.0	407	8.0	27.0	--	5.4	70
03...	1213	19.0	408	7.8	27.0	--	4.2	54
AUG								
16...	1404	1.00	334	8.3	36.0	0.82	5.0	74
16...	1408	5.00	333	8.0	32.5	--	4.8	67
16...	1412	13.0	344	7.3	31.5	--	1.2	17

324143097132201 - LAKE ARLINGTON SITE EC

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

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATURATION)	HARD- NESS TOTAL (MG/L AS CaCO3)	HARD- NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS Ca)
DEC											
30...	1523	1.00	339	8.5	14.0	0.70	9.7	96	120	18	40
30...	1528	10.0	339	8.4	14.0	--	9.6	95	--	--	--
30...	1533	22.0	339	8.3	14.0	--	9.3	92	120	18	40
JUN											
03...	1234	1.00	412	8.0	26.5	--	5.1	66	140	20	45
03...	1237	10.0	412	7.7	25.5	--	4.0	50	--	--	--
03...	1241	20.0	413	7.5	25.5	--	2.8	35	--	--	--
03...	1244	24.0	416	7.5	25.0	--	1.2	15	140	19	46
AUG											
16...	1426	1.00	338	8.2	31.0	--	4.9	67	110	17	35
16...	1432	10.0	340	8.2	30.0	--	3.4	46	--	--	--
16...	1438	17.0	345	7.4	29.5	--	1.9	25	110	16	36

TRINITY RIVER BASIN

08049200 LAKE ARLINGTON AT ARLINGTON, TX--Continued

324143097132201 - LAKE ARLINGTON SITE EC--Continued

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

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
DEC										
30...	4.8	20	0.8	4.4	100	37	19	0.20	2.3	189
30...	--	--	--	--	--	--	--	--	--	--
30...	4.9	21	0.8	4.2	100	37	18	0.30	2.7	190
JUN										
03...	6.2	27	1	4.1	120	49	26	0.30	2.4	231
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	6.2	27	1	4.2	120	48	26	0.30	3.3	234
AUG										
16...	5.7	25	1	4.8	94	42	23	0.30	4.1	196
16...	--	--	--	--	--	--	--	--	--	--
16...	5.7	25	1	4.8	97	41	23	0.30	4.8	199

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
DEC										
30...	0.010	<0.050	0.020	0.38	0.40	0.060	0.020	0.06	3	26
30...	--	--	--	--	--	--	--	--	--	--
30...	0.030	<0.050	0.070	0.53	0.60	0.100	0.040	0.12	7	120
JUN										
03...	<0.010	<0.050	0.040	0.26	0.30	0.020	<0.010	--	<3	12
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	<0.010	<0.050	0.120	0.28	0.40	<0.010	<0.010	--	23	380
AUG										
16...	<0.010	<0.050	0.030	0.27	0.30	0.020	<0.010	--	16	17
16...	--	--	--	--	--	--	--	--	--	--
16...	<0.010	<0.050	0.110	0.19	0.30	<0.010	<0.010	--	20	240

324133097130601 - LAKE ARLINGTON SITE EL

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
AUG							
16...	1444	1.00	339	8.4	31.5	5.9	82
16...	1447	11.0	340	8.4	30.5	3.8	52

324041097134601 - LAKE ARLINGTON SITE FC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)
DEC											
30...	1545	1.00	336	8.6	14.5	0.70	10.4	104	120	17	40
30...	1549	10.0	336	8.6	14.5	--	10.2	102	--	--	--
30...	1553	13.0	337	8.5	14.5	--	10.0	100	120	18	40
JUN											
03...	1259	1.00	413	8.0	26.5	--	5.3	68	140	18	45
03...	1304	5.00	413	7.9	26.5	--	5.0	64	--	--	--
03...	1308	10.0	414	7.8	26.0	--	4.5	57	--	--	--
03...	1313	14.0	413	7.8	26.0	--	4.4	56	140	17	45
AUG											
16...	1509	1.00	344	8.2	30.5	--	4.4	60	110	15	36
16...	1515	8.00	345	7.8	30.0	--	3.1	42	120	18	37

TRINITY RIVER BASIN

305

08049200 LAKE ARLINGTON AT ARLINGTON, TX--Continued

324041097134601 - LAKE ARLINGTON SITE FC--Continued

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

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)
DEC											
30...	4.8	20	0.8	4.4	100	37	18	0.20	2.5	189	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	4.8	20	0.8	4.3	100	37	18	0.20	2.6	188	--
JUN											
03...	6.2	26	1	4.1	120	50	27	0.30	2.6	233	--
03...	--	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--	--
03...	6.2	26	1	4.1	120	50	26	0.30	2.6	233	--
AUG											
16...	5.7	26	1	4.6	98	42	23	0.30	4.7	201	--
16...	5.8	25	1	4.5	98	41	23	0.30	4.7	202	0.490
DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
DEC											
30...	0.020	--	<0.050	0.010	0.29	0.30	0.060	0.020	0.06	4	2
30...	--	--	--	--	--	--	--	--	--	--	--
30...	0.020	--	<0.050	0.020	0.48	0.50	0.080	0.030	0.09	3	6
JUN											
03...	<0.010	--	<0.050	0.020	0.18	0.20	<0.010	<0.010	--	<3	14
03...	--	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--	--
03...	<0.010	--	<0.050	0.040	0.26	0.30	<0.010	0.020	0.06	12	47
AUG											
16...	<0.010	--	<0.050	0.030	0.27	0.30	<0.010	<0.010	--	89	14
16...	<0.010	0.490	0.490	0.130	0.17	0.30	<0.010	<0.010	--	41	23

TRINITY RIVER BASIN

08049240 RUSH CREEK AT WOODLAND PARK BLVD., ARLINGTON, TX

LOCATION.--Lat 32°42'50", long 97°10'19", Tarrant County, Hydrologic Unit 12030102, near left bank at downstream side of bridge on Woodland Park Blvd., 0.3 mi upstream from bridge on Spur Highway 303, 0.6 mi downstream from bridge on Arkansas Lane, and 4.0 mi southwest of main Post Office in Arlington.

DRAINAGE AREA.--To be determined.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1993 to September 1993.

GAGE.--Water-stage recorder. Datum of gage to be determined.

REMARKS.--Records good except those for estimated daily discharges and those less than 2.0 ft³/s, which are poor.
Gage-height telemeter at station.

EXTREMES FOR CURRENT YEAR.--Maximum discharge for period May to September, 853 ft³/s June 25 (gage height, 35.59 ft.);
no flow Aug. 17 to Sep. 12.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	e10	1.7	3.0	e.02	e.00
2	---	---	---	---	---	---	---	e220	1.6	2.5	e.02	e.00
3	---	---	---	---	---	---	---	e35	1.6	1.7	e.04	e.00
4	---	---	---	---	---	---	---	e8.0	1.5	1.1	e.10	e.00
5	---	---	---	---	---	---	---	e4.5	1.1	.77	e.06	e.00
6	---	---	---	---	---	---	---	2.6	1.2	.43	e.04	e.00
7	---	---	---	---	---	---	---	1.9	.78	.37	e2.0	e.00
8	---	---	---	---	---	---	---	2.3	.73	.39	e1.3	e.00
9	---	---	---	---	---	---	---	18	1.2	.15	e.70	e.00
10	---	---	---	---	---	---	---	6.5	160	.11	e.30	e.00
11	---	---	---	---	---	---	---	3.0	38	.14	e.10	e.00
12	---	---	---	---	---	---	---	2.5	21	.11	e.07	e.00
13	---	---	---	---	---	---	---	2.5	7.2	.10	e.04	e50
14	---	---	---	---	---	---	---	2.5	3.4	.06	e.02	e20
15	---	---	---	---	---	---	---	2.5	1.4	.22	e.01	e5.0
16	---	---	---	---	---	---	---	2.6	8.0	.18	e.01	e1.1
17	---	---	---	---	---	---	---	2.7	4.8	.14	e.00	e.70
18	---	---	---	---	---	---	---	2.7	14	.10	e.00	e.40
19	---	---	---	---	---	---	---	3.0	11	.09	e.00	e.25
20	---	---	---	---	---	---	---	3.0	4.1	.06	e.00	e1.2
21	---	---	---	---	---	---	---	3.4	6.3	.07	e.00	4.8
22	---	---	---	---	---	---	---	3.7	8.1	.05	e.00	1.9
23	---	---	---	---	---	---	---	28	5.4	e.04	e.00	.43
24	---	---	---	---	---	---	---	10	2.1	e.03	e.00	.45
25	---	---	---	---	---	---	---	4.2	116	e.03	e.00	41
26	---	---	---	---	---	---	---	3.4	102	e.03	e.00	24
27	---	---	---	---	---	---	---	2.8	12	e.02	e.00	4.8
28	---	---	---	---	---	---	---	8.9	6.9	e.02	e.00	2.2
29	---	---	---	---	---	---	---	5.5	5.0	e.02	e.00	1.3
30	---	---	---	---	---	---	---	3.0	3.7	e.02	e.00	.22
31	---	---	---	---	---	---	---	2.3	---	e.02	e.00	---
MEAN	---	---	---	---	---	---	---	13.3	18.4	.39	.16	5.32
MAX	---	---	---	---	---	---	---	220	160	3.0	2.0	50
MIN	---	---	---	---	---	---	---	1.9	.73	.02	.00	.00

e Estimated

TRINITY RIVER BASIN

307

08049240 RUSH CREEK AT WOODLAND PARK BLVD., ARLINGTON, TX--Continued

PERIOD OF RECORD.--Chemical and biochemical analyses: March 1993 to September 1993.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1993 to September 1993.

pH: April 1993 to September 1993.

WATER TEMPERATURES: April 1993 to September 1993.

DISSOLVED OXYGEN: April 1993 to September 1993.

INSTRUMENTATION.--Since April 1993, a four-parameter water-quality monitor records temperature, DO, pH, and specific conductance continuously at this station.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. Where maximum or minimum specific conductance values are not shown, mean value is estimated.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	
MAR													
23...	1120	31	462	7.2	13.0	9.6	91	160	69	50	8.6	29	
APR													
06...	1530	7.0	715	8.0	12.5	9.1	88	--	--	--	--	--	
13...	1050	0.70	1090	7.7	20.5	7.2	82	370	200	110	24	82	
14...	1215	270	518	7.8	18.5	6.8	74	170	97	55	9.1	37	
14...	1430	25	490	7.9	18.0	6.8	74	160	28	50	8.3	35	
MAY													
05...	1320	3.8	777	7.5	21.0	8.1	93	270	120	79	17	55	
10...	1430	5.5	756	7.8	22.0	9.9	116	260	130	81	15	55	
25...	1235	3.9	756	7.6	23.5	5.7	68	270	140	80	17	56	
28...	1230	9.2	688	7.4	24.0	6.3	76	230	120	68	15	52	
JUN													
08...	1312	1.2	1020	7.5	26.0	5.0	63	330	170	95	23	82	
15...	1512	1.1	656	7.9	31.5	9.1	125	230	83	68	14	47	
24...	1247	2.1	768	7.6	28.0	7.4	96	270	130	81	17	60	
25...	2130	850	369	7.5	26.0	5.1	64	120	53	37	6.8	24	
JUL													
19...	1115	0.09	883	7.3	28.5	5.5	72	300	140	89	19	69	
27...	1345	0.02	957	8.1	29.5	9.8	133	310	120	94	18	72	
AUG													
09...	1118	0.55	619	7.4	28.0	1.3	17	210	86	65	11	48	
SEP													
13...	1337	100	595	7.5	25.0	5.8	72	200	130	63	11	43	
DATE		SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CaCO3)	ALKA-LINITY WAT DIS FIX END FIELD (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
MAR													
23...	1	5.3	0	111	91	100	72	38	0.20	10	291	270	
APR													
06...	--	--	0	164	134	130	--	--	--	--	--	--	--
13...	2	5.5	0	217	178	180	240	100	0.40	6.4	702	676	
14...	1	4.7	0	95	78	79	120	43	0.30	4.9	337	324	
14...	1	4.8	0	160	82	81	89	43	0.30	5.5	306	319	
MAY													
05...	1	5.2	0	182	149	150	140	72	0.40	11	500	472	
10...	1	4.9	0	162	133	130	160	70	0.40	9.0	456	478	
25...	1	5.1	0	161	132	130	160	68	0.40	7.0	480	474	
28...	1	4.7	0	133	109	110	140	62	0.40	6.2	429	417	
JUN													
08...	2	5.6	0	192	157	160	230	100	0.50	5.4	652	637	
15...	1	4.3	0	176	144	140	130	55	0.40	9.1	408	416	
24...	2	5.7	0	177	145	150	160	74	0.50	7.3	511	494	
25...	1	4.8	0	82	67	67	66	28	0.30	4.9	237	215	
JUL													
19...	2	4.7	--	--	--	160	170	85	0.50	16	566	551	
27...	2	4.8	0	228	187	190	180	84	0.60	17	605	583	
AUG													
09...	1	5.5	0	148	121	120	110	55	0.40	11	393	381	
SEP													
13...	1	6.4	0	94	77	77	150	49	0.50	6.7	402	379	

TRINITY RIVER BASIN

08049240 RUSH CREEK AT WOODLAND PARK BLVD., ARLINGTON, TX--Continued

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

DATE	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)
MAR 23...	0.370	0.370	0.010	0.380	0.380	0.040	0.96	--	--	1.0	0.140
APR 06...	--	--	--	--	--	--	--	--	--	--	--
13...	0.250	--	<0.010	0.250	0.250	0.020	0.28	0.38	0.40	0.30	0.020
14...	0.460	0.460	0.040	0.500	0.500	0.360	1.6	1.8	2.2	2.0	0.400
14...	0.570	0.570	0.050	0.620	0.620	0.480	1.4	3.5	4.0	1.9	0.440
MAY 05...	0.630	0.630	0.020	0.650	0.650	0.050	0.55	0.25	0.30	0.60	0.060
10...	0.520	0.520	0.030	0.550	0.550	0.040	0.46	0.56	0.60	0.50	0.060
25...	0.250	0.250	0.010	0.260	0.260	0.060	0.44	0.54	0.60	0.50	0.030
28...	0.570	0.570	0.030	0.600	0.600	0.230	0.47	0.47	0.70	0.70	0.090
JUN 08...	0.054	--	<0.010	0.054	0.054	0.070	0.23	0.23	0.30	0.30	0.030
15...	0.290	0.290	0.010	0.300	0.300	0.040	0.36	0.36	0.40	0.40	0.110
24...	0.120	--	<0.010	0.120	0.120	0.140	0.56	0.46	0.60	0.70	0.030
25...	0.510	0.510	0.030	0.540	0.540	0.150	0.45	0.65	0.80	0.60	0.150
JUL 19...	--	--	<0.010	--	<0.050	0.050	0.45	0.15	0.20	0.50	0.040
27...	--	--	<0.010	--	<0.050	0.050	0.35	0.25	0.30	0.40	0.020
AUG 09...	0.210	0.210	0.070	0.280	0.280	0.050	0.65	0.55	0.60	0.70	0.080
SEP 13...	0.580	0.580	0.030	0.610	0.610	0.160	0.54	4.9	5.1	0.70	0.100
DATE	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS P)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	ALA- CHLOR, WATER, DISS, REC, (UG/L)	ALPHA BHC DIS- SOLVED (UG/L)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L)
MAR 23...	0.070	0.060	0.18	30	2.5	91	220	81	<0.01	<0.01	<0.01
APR 06...	--	--	--	10	0.19	87	--	--	<0.01	<0.01	<0.01
13...	<0.010	<0.010	--	15	0.03	79	18	240	0.03	<0.01	<0.01
14...	0.100	0.100	0.31	363	265	90	110	110	<0.01	<0.01	<0.01
14...	0.170	0.170	0.52	204	14	98	110	58	0.03	<0.01	<0.01
MAY 05...	0.030	0.030	0.09	8	0.08	91	39	290	0.01	<0.01	<0.00
10...	0.050	0.030	0.09	24	0.35	87	31	140	<0.00	<0.01	<0.00
25...	0.040	0.010	0.03	26	0.27	93	120	320	<0.00	<0.01	<0.00
28...	0.090	0.060	0.18	49	1.2	86	45	330	<0.00	<0.01	<0.00
JUN 08...	0.020	<0.010	--	14	0.05	99	10	320	<0.00	<0.01	<0.00
15...	0.090	0.010	0.03	6	0.02	100	11	330	<0.00	<0.01	<0.00
24...	0.040	0.020	0.06	6	0.03	95	15	220	<0.01	<0.01	<0.01
25...	0.110	0.090	0.28	1020	2340	92	99	6	<0.01	<0.01	<0.01
JUL 19...	0.020	0.020	0.06	13	0.00	81	36	270	<0.01	<0.01	<0.01
27...	0.020	0.010	0.03	17	0.00	38	25	180	<0.01	<0.01	<0.01
AUG 09...	0.050	0.050	0.15	7	0.01	75	32	720	<0.01	<0.01	<0.01
SEP 13...	0.080	0.070	0.21	532	144	100	96	30	<0.01	<0.01	<0.01
DATE	ATRA- ZINE, WATER, DISS, REC (UG/L)	METHYL AZIN- PHOS- WAT FLT 0.7 U GF, REC (UG/L)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L)	BEN- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L)	BUTYL- ATE, WATER, DISS, REC (UG/L)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L)	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L)	CHLOR- PYRIFOS DIS- SOLVED (UG/L)	CYANA- ZINE, WATER, DISS, REC (UG/L)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L)	DI- AZINON, DIS- SOLVED (UG/L)
MAR 23...	0.26	<0.05	<0.02	<0.01	<0.01	0.06	<0.02	0.03	<0.02	0.01	0.52
APR 06...	0.45	<0.04	<0.02	<0.01	<0.01	0.13	<0.01	0.02	<0.01	<0.00	0.46
13...	1.1	<0.04	0.06	<0.01	<0.01	0.29	<0.01	0.11	<0.01	0.01	1.1
14...	0.37	<0.05	0.03	<0.01	<0.01	<0.07	<0.02	0.02	<0.02	0.01	0.41
14...	2.0	<0.04	0.08	<0.01	<0.01	0.21	<0.01	0.07	<0.01	0.01	2.3
MAY 05...	0.56	<0.01	0.07	<0.01	<0.00	0.08	<0.00	0.02	<0.01	0.01	0.53
10...	0.56	<0.01	0.05	<0.01	<0.00	0.04	<0.00	0.01	<0.01	0.00	0.45
25...	0.33	<0.01	0.04	<0.01	<0.00	0.04	<0.00	0.01	<0.01	<0.00	0.27
28...	0.26	<0.01	0.03	<0.01	<0.00	0.12	<0.00	0.03	<0.01	<0.00	0.38
JUN 08...	0.13	<0.01	<0.02	<0.01	<0.00	0.01	<0.00	0.01	<0.01	0.00	0.04
15...	0.24	<0.01	<0.02	<0.01	<0.00	0.05	<0.00	0.01	<0.01	0.00	0.27
24...	0.18	<0.04	<0.02	<0.01	<0.01	0.01	<0.01	0.01	<0.01	<0.00	0.12
25...	0.13	0.14	<0.02	<0.01	<0.01	0.39	<0.01	0.08	<0.01	0.00	1.1
JUL 19...	0.14	<0.04	<0.02	<0.01	<0.01	<0.05	<0.01	<0.00	<0.01	<0.00	0.07
27...	0.09	<0.08	<0.02	<0.01	<0.01	<0.05	<0.01	<0.00	<0.01	<0.00	0.10
AUG 09...	0.13	<0.08	<0.02	<0.01	<0.01	0.22	<0.01	0.05	<0.01	<0.00	1.9
SEP 13...	0.06	<0.04	<0.02	<0.01	<0.01	0.20	<0.01	0.05	<0.01	0.00	1.8

08049240 RUSH CREEK AT WOODLAND PARK BLVD., ARLINGTON, TX--Continued

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

DATE	DI- ELDRIN DIS- SOLVED (UG/L)	DIMETH- OATE WATER FLTRD 0.7 U GF, REC (UG/L)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L)	FONOFOS WATER DISS REC (UG/L)	LINDANE DIS- SOLVED (UG/L)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L)	MALA- THION, DIS- SOLVED (UG/L)	METO- LACHLOR WATER DISSOLV (UG/L)
MAR 23...	<0.02	<0.03	<0.02	<0.01	<0.02	<0.02	<0.01	<0.02	<0.05	<0.02	0.06
APR 06...	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.04	<0.01	0.04
13...	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.04	0.08	0.14
14...	<0.02	<0.03	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.06	<0.02	0.03
14...	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.04	0.15	0.16
MAY 05...	<0.02	<0.02	<0.02	<0.00	<0.00	<0.00	<0.00	<0.01	<0.01	0.02	0.07
10...	<0.02	<0.02	<0.02	<0.00	<0.00	<0.00	<0.00	<0.01	<0.01	<0.01	0.04
25...	<0.02	<0.02	<0.02	<0.00	<0.00	<0.00	<0.00	<0.01	<0.01	<0.01	0.05
28...	<0.02	<0.02	<0.02	<0.00	<0.00	<0.00	<0.00	<0.01	<0.01	0.11	0.04
JUN 08...	<0.02	<0.02	<0.02	<0.00	<0.00	<0.00	<0.00	<0.01	<0.01	<0.01	0.01
15...	<0.02	<0.02	<0.02	<0.00	<0.00	<0.00	<0.00	<0.01	<0.01	0.02	0.02
24...	<0.02	<0.02	<0.02	<0.00	<0.01	<0.01	<0.01	<0.01	<0.04	<0.01	0.01
25...	<0.02	<0.02	<0.02	<0.00	<0.01	<0.01	<0.01	<0.01	<0.04	0.15	0.01
JUL 19...	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.04	<0.01	0.00
27...	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.04	<0.01	<0.01
AUG 09...	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.04	0.38	<0.01
SEP 13...	<0.02	<0.02	<0.02	<0.00	<0.01	<0.01	0.03	<0.01	<0.04	0.09	0.02
DATE	METRI- BUZIN WATER DISSOLV (UG/L)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L)	PARA- THION, DIS- SOLVED (UG/L)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L)	PEB- ULATE WATER FLTRD 0.7 U GF, REC (UG/L)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L)	P,P' DDE DISSOLV (UG/L)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L)	PRO- METON, WATER, DISS, REC (UG/L)
MAR 23...	<0.02	<0.01	<0.03	<0.05	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.01
APR 06...	<0.01	<0.01	<0.02	<0.03	<0.01	<0.01	0.03	<0.02	<0.02	<0.02	0.02
13...	0.03	<0.01	<0.02	<0.03	<0.01	<0.01	0.06	<0.02	<0.02	<0.02	0.03
14...	<0.02	<0.01	<0.03	<0.05	<0.02	<0.01	<0.03	<0.02	<0.02	<0.02	0.03
14...	0.03	<0.01	<0.02	<0.03	<0.01	<0.01	0.08	<0.02	<0.02	<0.02	0.03
MAY 05...	<0.00	<0.00	<0.01	<0.01	0.01	<0.01	0.01	<0.01	0.00	<0.02	0.06
10...	<0.00	<0.00	<0.01	<0.01	<0.00	<0.01	0.01	<0.01	<0.00	<0.02	0.04
25...	<0.00	<0.00	<0.01	<0.01	<0.00	<0.01	0.01	<0.01	<0.00	<0.02	0.03
28...	<0.00	0.01	<0.01	<0.01	<0.00	<0.01	0.02	<0.01	<0.00	<0.02	0.02
JUN 08...	<0.00	<0.00	<0.01	<0.01	<0.00	<0.01	<0.01	<0.01	<0.00	<0.02	0.02
15...	<0.00	<0.00	<0.01	<0.01	<0.00	<0.01	0.01	<0.01	<0.00	<0.02	0.03
24...	<0.01	<0.01	<0.02	<0.03	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	0.02
25...	<0.01	<0.01	<0.02	<0.03	<0.01	<0.01	0.02	<0.02	<0.01	<0.02	0.06
JUL 19...	<0.01	<0.01	<0.02	<0.03	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	0.03
27...	<0.01	<0.01	<0.02	<0.03	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	0.02
AUG 09...	<0.01	<0.01	<0.02	<0.03	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	0.09
SEP 13...	0.04	<0.01	<0.02	<0.03	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	0.03
DATE	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L)	PROP- CHLOR, WATER, DISS, REC (UG/L)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L)	SI- MAZINE, WATER, DISS, REC (UG/L)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L)	TRIA- LATE WATER FLTRD 0.7 U GF, REC (UG/L)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L)
MAR 23...	<0.01	<0.02	<0.02	<0.01	0.27	<0.04	<0.02	<0.02	<0.01	<0.00	<0.02
APR 06...	<0.01	<0.02	<0.02	<0.01	0.20	<0.03	<0.01	<0.02	<0.01	<0.00	<0.01
13...	<0.01	<0.02	<0.02	<0.01	0.33	<0.03	<0.01	<0.02	<0.01	<0.00	<0.01
14...	<0.01	<0.02	<0.02	<0.01	0.16	<0.04	<0.02	<0.02	<0.01	<0.00	<0.02
14...	<0.01	<0.02	<0.02	<0.01	0.39	<0.03	<0.01	<0.02	<0.01	<0.00	<0.01
MAY 05...	<0.01	0.00	<0.00	<0.01	0.12	<0.01	<0.01	0.02	<0.00	<0.00	<0.01
10...	<0.01	<0.00	<0.00	<0.01	0.11	<0.01	<0.01	<0.01	<0.00	<0.00	<0.01
25...	<0.01	<0.00	<0.00	<0.01	0.16	<0.01	<0.01	<0.01	<0.01	<0.00	<0.01
28...	<0.01	<0.00	0.01	<0.01	0.13	<0.01	<0.01	<0.01	0.01	<0.00	<0.01
JUN 08...	<0.01	<0.00	<0.00	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.00	<0.01
15...	<0.01	<0.00	<0.00	<0.01	0.05	<0.01	<0.01	<0.01	<0.01	<0.00	<0.01
24...	<0.01	<0.02	<0.02	<0.01	0.04	<0.03	<0.01	<0.02	<0.01	<0.01	<0.01
25...	<0.01	<0.02	<0.02	<0.01	0.04	<0.03	<0.01	<0.02	<0.01	<0.01	<0.01
JUL 19...	<0.01	<0.02	<0.02	<0.01	0.23	<0.03	<0.01	<0.02	<0.01	<0.00	<0.01
27...	<0.01	<0.02	<0.02	<0.01	0.04	<0.03	<0.01	<0.02	<0.01	<0.00	<0.01
AUG 09...	<0.01	<0.02	<0.02	<0.01	<0.01	<0.03	<0.01	<0.02	<0.01	<0.00	<0.01
SEP 13...	<0.01	<0.02	<0.02	<0.01	0.03	<0.03	<0.01	<0.02	<0.01	<0.01	<0.01

TRINITY RIVER BASIN

08049240 RUSH CREEK AT WOODLAND PARK BLVD., ARLINGTON, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	800	690	757
2	---	---	---	---	---	---	---	---	---	800	300	455
3	---	---	---	---	---	---	---	---	---	640	470	552
4	---	---	---	---	---	---	---	---	---	740	640	696
5	---	---	---	---	---	---	---	---	---	850	740	788
6	---	---	---	---	---	---	776	603	692	890	820	863
7	---	---	---	---	---	---	825	359	522	950	880	924
8	---	---	---	---	---	---	535	403	466	1000	950	979
9	---	---	---	---	---	---	661	535	599	1070	650	902
10	---	---	---	---	---	---	772	661	718	800	690	742
11	---	---	---	---	---	---	840	772	809	840	780	806
12	---	---	---	---	---	---	894	840	870	940	840	886
13	---	---	---	---	---	---	945	889	920	980	940	965
14	---	---	---	---	---	---	957	463	644	1000	970	982
15	---	---	---	---	---	---	656	470	571	1020	990	1010
16	---	---	---	---	---	---	790	656	733	1040	1010	1020
17	---	---	---	---	---	---	917	768	831	1100	1040	1060
18	---	---	---	---	---	---	939	906	919	1100	1070	1080
19	---	---	---	---	---	---	989	939	965	1120	1070	1090
20	---	---	---	---	---	---	---	---	e1010	1120	1080	1090
21	---	---	---	---	---	---	---	---	e1040	1120	1080	1100
22	---	---	---	---	---	---	---	---	e1080	1140	970	1120
23	---	---	---	---	---	---	---	---	e1100	1050	160	856
24	---	---	---	---	---	---	---	---	e1120	850	700	787
25	---	---	---	---	---	---	---	---	e1140	850	760	783
26	---	---	---	---	---	---	---	---	e1150	860	780	817
27	---	---	---	---	---	---	---	---	e1160	930	860	884
28	---	---	---	---	---	---	---	---	e1160	1040	560	855
29	---	---	---	---	---	---	---	---	e575	920	680	772
30	---	---	---	---	---	---	690	501	601	930	860	895
31	---	---	---	---	---	---	---	---	---	980	930	960
MONTH	---	---	---	---	---	---	989	359	856	1140	160	886

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	990	970	979	690	650	669	930	920	921	880	860	875
2	1000	970	985	690	650	687	930	910	921	890	870	882
3	1050	990	1020	690	650	687	920	880	907	890	870	880
4	1040	960	1000	770	690	724	880	850	861	890	870	884
5	1000	960	977	770	730	744	850	850	850	900	880	888
6	1000	960	969	780	770	774	850	850	850	900	880	893
7	1000	1000	1000	790	770	784	880	230	597	900	880	895
8	1000	980	999	800	770	784	610	580	589	900	850	891
9	1040	1000	1010	820	780	801	640	580	610	910	880	895
10	1040	350	400	830	800	819	690	420	596	910	890	901
11	540	190	446	840	820	832	550	430	491	910	900	905
12	460	230	414	850	830	841	620	540	582	910	900	908
13	540	460	505	860	830	841	670	620	646	910	170	556
14	610	540	584	850	830	839	730	670	704	440	170	338
15	650	610	637	860	840	847	760	730	739	490	410	445
16	920	350	672	860	840	855	770	760	761	550	490	521
17	500	310	389	870	850	864	800	770	779	600	550	569
18	610	310	503	880	870	876	810	790	797	660	590	614
19	610	460	515	890	880	882	810	790	802	880	660	760
20	650	540	594	900	880	888	820	800	808	1000	880	920
21	730	500	627	900	890	892	820	800	812	1010	870	919
22	690	500	596	900	890	892	830	810	820	940	880	919
23	730	690	712	910	890	898	840	820	830	950	930	935
24	810	700	765	920	900	911	850	830	840	980	950	962
25	---	---	e672	940	920	925	850	840	847	1000	170	761
26	---	---	e391	950	930	937	860	840	853	480	380	428
27	---	---	e459	950	930	945	860	850	856	490	470	478
28	540	490	519	960	920	944	870	850	861	520	490	499
29	---	---	e570	940	920	930	870	860	867	550	510	532
30	650	600	634	930	910	921	880	860	871	580	540	561
31	---	---	---	920	910	917	880	860	870	---	---	---
MONTH	1050	190	685	960	650	844	930	230	779	1010	170	747

e Estimated

TRINITY RIVER BASIN

311

08049240 RUSH CREEK AT WOODLAND PARK BLVD., ARLINGTON, TX--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	---	---	---	7.7	7.4	7.5	---	---	---	7.4	6.9	7.1
2	---	---	---	7.6	7.4	7.5	---	---	---	7.3	6.8	7.0
3	---	---	---	7.6	7.4	7.5	---	---	---	7.5	7.2	7.4
4	---	---	---	7.5	7.4	7.4	---	---	---	7.4	7.1	7.3
5	---	---	---	---	---	---	---	---	---	7.3	7.1	7.2
6	---	---	---	---	---	---	---	---	---	7.4	7.1	7.3
7	---	---	---	7.6	7.3	7.4	---	---	---	7.5	7.2	7.3
8	---	---	---	7.4	7.2	7.3	---	---	---	7.5	7.3	7.4
9	7.6	7.3	7.5	---	---	---	---	---	---	7.5	7.1	7.3
10	8.0	7.2	7.5	---	---	---	---	---	---	7.5	7.2	7.3
11	7.4	7.2	7.3	---	---	---	---	---	---	7.4	7.1	7.2
12	---	---	---	---	---	---	---	---	---	7.5	7.1	7.2
13	---	---	---	7.3	7.0	7.2	---	---	---	8.1	7.2	7.5
14	---	---	---	7.3	7.2	7.3	---	---	---	7.8	7.4	7.5
15	---	---	---	7.3	7.1	7.2	---	---	---	7.5	7.3	7.4
16	8.5	7.6	7.9	7.3	7.2	7.2	---	---	---	7.4	7.2	7.3
17	7.8	7.6	7.7	7.3	7.2	7.2	---	---	---	7.3	7.1	7.2
18	8.3	7.6	7.8	7.3	7.1	7.2	---	---	---	7.3	7.2	7.2
19	8.1	7.8	7.9	---	---	---	---	---	---	7.3	7.2	7.2
20	8.0	7.8	7.9	---	---	---	---	---	---	7.3	7.2	7.2
21	8.4	7.7	7.9	---	---	---	---	---	---	7.3	7.2	7.2
22	8.4	8.0	8.2	---	---	---	---	---	---	7.3	7.2	7.2
23	8.1	7.8	8.0	---	---	---	---	---	---	7.4	7.2	7.3
24	8.0	7.7	7.9	---	---	---	---	---	---	7.3	7.2	7.3
25	8.1	7.7	7.8	---	---	---	7.3	7.1	7.2	7.8	7.2	7.4
26	---	---	---	---	---	---	7.3	7.1	7.2	7.8	7.4	7.6
27	---	---	---	---	---	---	7.4	7.2	7.3	7.5	7.0	7.3
28	7.9	7.7	7.8	---	---	---	7.4	7.2	7.3	7.5	7.1	7.3
29	---	---	---	---	---	---	7.4	7.2	7.3	7.7	7.1	7.4
30	7.8	7.7	7.8	---	---	---	7.4	7.2	7.3	7.8	7.3	7.5
31	---	---	---	---	---	---	7.4	7.2	7.3	---	---	---
MONTH	8.5	7.2	7.8	7.7	7.0	7.3	7.4	7.1	7.3	8.1	6.8	7.3

TRINITY RIVER BASIN

08049240 RUSH CREEK AT WOODLAND PARK BLVD., ARLINGTON, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	---	---	---	23.0	19.0	21.0
2	---	---	---	---	---	---	---	---	---	22.5	17.5	19.0
3	---	---	---	---	---	---	---	---	---	22.0	16.0	19.0
4	---	---	---	---	---	---	---	---	---	23.0	17.5	20.5
5	---	---	---	---	---	---	---	---	---	22.5	20.0	21.0
6	---	---	---	---	---	---	14.0	12.0	13.0	23.0	19.0	21.0
7	---	---	---	---	---	---	16.0	13.5	14.5	23.5	21.5	22.5
8	---	---	---	---	---	---	18.0	14.0	16.0	23.5	22.0	22.5
9	---	---	---	---	---	---	19.0	13.5	16.0	23.5	21.0	22.5
10	---	---	---	---	---	---	20.0	14.5	17.5	23.0	19.0	21.0
11	---	---	---	---	---	---	23.0	17.0	20.0	22.0	19.0	20.0
12	---	---	---	---	---	---	24.0	19.5	22.0	20.0	18.5	19.0
13	---	---	---	---	---	---	23.0	20.5	21.5	23.0	18.5	20.5
14	---	---	---	---	---	---	21.0	15.0	18.5	25.0	20.0	22.0
15	---	---	---	---	---	---	17.5	13.5	15.0	26.5	21.0	23.5
16	---	---	---	---	---	---	18.5	13.0	15.5	28.0	22.5	25.0
17	---	---	---	---	---	---	18.0	15.0	17.0	28.0	24.0	25.5
18	---	---	---	---	---	---	21.5	15.5	18.5	26.5	24.5	25.5
19	---	---	---	---	---	---	23.5	18.5	21.0	26.5	22.0	24.0
20	---	---	---	---	---	---	23.0	18.5	20.5	26.5	22.0	24.0
21	---	---	---	---	---	---	20.0	17.0	18.5	26.5	22.5	24.5
22	---	---	---	---	---	---	20.0	16.0	18.0	26.5	22.5	24.5
23	---	---	---	---	---	---	19.0	17.0	18.0	24.0	21.5	22.5
24	---	---	---	---	---	---	22.5	18.0	20.0	25.0	21.5	22.5
25	---	---	---	---	---	---	24.0	20.5	22.0	26.0	23.0	24.5
26	---	---	---	---	---	---	24.0	19.5	21.5	27.5	23.5	25.0
27	---	---	---	---	---	---	22.0	19.5	20.5	27.5	23.5	25.0
28	---	---	---	---	---	---	21.0	19.5	20.5	26.0	23.0	24.0
29	---	---	---	---	---	---	20.5	18.5	19.5	26.5	22.5	24.0
30	---	---	---	---	---	---	22.0	17.5	20.0	25.5	24.0	25.0
31	---	---	---	---	---	---	---	---	---	27.0	23.0	25.0
MONTH	---	---	---	---	---	---	24.0	12.0	18.5	28.0	16.0	22.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	27.5	23.0	25.0	32.0	27.5	29.5	31.5	29.0	30.5	27.5	26.0	27.0
2	28.5	23.5	26.0	31.5	27.5	29.5	30.5	28.5	29.5	28.5	26.5	27.5
3	30.0	25.5	27.5	31.0	27.5	29.0	30.0	27.5	28.5	28.0	26.0	26.5
4	29.5	26.5	28.0	30.0	26.5	28.0	29.5	28.0	29.0	26.0	24.5	25.5
5	29.5	25.5	27.5	29.5	26.5	28.0	30.0	27.5	28.5	25.5	23.5	24.5
6	29.5	26.5	28.0	30.0	27.0	28.5	28.5	26.5	27.5	25.5	24.0	24.5
7	28.0	26.5	27.0	31.0	27.0	29.0	27.0	24.0	26.0	26.0	24.5	25.0
8	27.0	25.5	26.5	30.5	27.5	29.0	30.5	25.5	27.5	26.0	25.0	25.0
9	28.5	25.5	26.5	31.0	27.0	29.0	---	---	---	25.0	23.5	24.5
10	26.5	22.0	24.0	30.5	27.5	29.0	---	---	---	25.0	23.5	24.5
11	27.0	23.0	24.5	31.5	27.5	29.0	---	---	---	25.5	23.5	24.5
12	28.0	24.0	26.0	31.5	28.0	29.5	---	---	---	26.5	24.5	25.5
13	29.0	24.5	27.0	31.0	28.0	29.5	---	---	---	26.0	23.5	25.5
14	31.0	25.5	28.0	30.5	28.0	29.0	---	---	---	25.5	21.0	22.5
15	32.0	27.0	29.0	31.0	28.0	29.5	---	---	---	22.0	18.5	20.5
16	31.0	27.0	28.5	31.0	28.0	29.5	---	---	---	23.0	19.0	20.5
17	30.5	25.5	27.5	31.0	28.0	29.5	---	---	---	24.5	20.0	22.0
18	29.0	26.5	27.5	32.0	28.0	30.0	---	---	---	24.0	21.0	22.5
19	28.0	25.5	26.5	31.0	28.5	29.5	---	---	---	26.0	23.5	24.5
20	28.0	26.0	26.5	31.0	29.0	30.0	---	---	---	28.0	24.5	25.5
21	28.5	26.0	27.0	31.5	29.0	30.0	---	---	---	28.5	25.5	27.0
22	30.0	27.0	28.0	31.0	29.0	30.0	---	---	---	28.0	25.5	27.0
23	31.0	27.0	28.5	31.0	28.5	30.0	---	---	---	28.0	26.5	27.5
24	---	---	---	31.0	28.5	29.5	---	---	---	28.5	26.5	27.5
25	---	---	---	31.0	28.0	29.5	29.0	27.0	28.0	27.5	24.0	26.0
26	---	---	---	30.5	28.5	29.5	29.0	27.5	28.0	26.0	23.0	24.5
27	---	---	---	31.0	28.0	29.5	29.0	27.5	28.0	25.0	21.5	23.0
28	---	---	---	31.5	28.5	30.0	29.0	27.0	28.0	24.0	21.0	22.5
29	---	---	---	31.5	28.5	30.0	29.0	27.0	28.0	23.5	21.0	22.5
30	---	---	---	32.0	29.0	30.5	29.0	27.0	28.0	23.5	21.0	22.5
31	---	---	---	32.0	29.0	30.5	28.5	27.0	27.5	---	---	---
MONTH	32.0	22.0	27.0	32.0	26.5	29.5	31.5	24.0	28.0	28.5	18.5	24.5

TRINITY RIVER BASIN

313

08049240 RUSH CREEK AT WOODLAND PARK BLVD., ARLINGTON, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	---	---	---	9.7	6.4	7.8
2	---	---	---	---	---	---	---	---	---	8.7	8.0	8.2
3	---	---	---	---	---	---	---	---	---	9.6	7.8	8.4
4	---	---	---	---	---	---	---	---	---	9.8	6.9	8.1
5	---	---	---	---	---	---	---	---	---	9.0	6.7	7.9
6	---	---	---	---	---	---	10.0	7.8	8.8	10.9	6.9	8.8
7	---	---	---	---	---	---	9.1	7.8	8.2	11.0	7.0	8.9
8	---	---	---	---	---	---	9.1	7.6	8.2	11.2	7.4	9.2
9	---	---	---	---	---	---	10.1	7.2	8.3	9.4	6.5	7.7
10	---	---	---	---	---	---	10.2	6.8	8.3	10.4	6.5	8.0
11	---	---	---	---	---	---	10.6	6.2	8.3	10.9	6.2	8.6
12	---	---	---	---	---	---	10.8	6.0	8.5	12.4	8.6	10.5
13	---	---	---	---	---	---	9.3	5.6	7.6	14.0	9.6	11.6
14	---	---	---	---	---	---	8.1	5.8	6.8	15.1	9.6	11.9
15	---	---	---	---	---	---	8.2	6.8	7.3	15.9	9.5	12.3
16	---	---	---	---	---	---	8.7	6.2	7.3	15.6	9.5	12.0
17	---	---	---	---	---	---	8.2	5.4	6.7	15.7	9.1	11.8
18	---	---	---	---	---	---	9.1	5.0	6.7	13.9	7.6	10.6
19	---	---	---	---	---	---	10.2	4.7	7.4	15.1	7.4	10.5
20	---	---	---	---	---	---	9.8	4.5	7.5	14.9	8.1	10.7
21	---	---	---	---	---	---	11.0	6.2	8.6	14.2	7.9	10.4
22	---	---	---	---	---	---	---	---	---	13.3	7.6	9.9
23	---	---	---	---	---	---	---	---	---	8.1	5.0	6.9
24	---	---	---	---	---	---	---	---	---	5.0	.0	.7
25	---	---	---	---	---	---	---	---	---	8.0	.0	2.7
26	---	---	---	---	---	---	---	---	---	9.6	2.0	6.2
27	---	---	---	---	---	---	---	---	---	9.6	2.2	6.1
28	---	---	---	---	---	---	---	---	---	8.8	5.6	7.2
29	---	---	---	---	---	---	9.7	7.4	8.1	11.1	5.6	7.8
30	---	---	---	---	---	---	8.9	7.1	7.9	9.7	6.7	8.0
31	---	---	---	---	---	---	---	---	---	12.6	6.9	9.1
MONTH	---	---	---	---	---	---	11.0	4.5	7.8	15.9	.0	8.7

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	14.1	6.7	9.4	11.4	6.8	8.9	9.2	5.2	7.3	11.7	4.2	7.2
2	14.0	6.6	9.8	11.2	6.8	8.9	9.3	5.2	7.2	11.9	4.4	8.4
3	13.0	5.9	9.5	10.7	6.7	8.7	7.5	4.6	6.2	9.7	4.5	7.3
4	13.0	5.7	9.1	9.6	5.8	7.8	8.2	5.6	7.2	11.1	3.4	6.9
5	13.1	5.0	8.6	8.9	5.3	7.3	8.6	5.2	6.9	13.6	4.0	8.0
6	13.9	5.0	9.0	8.0	5.0	6.8	7.2	4.7	5.5	12.9	5.4	8.5
7	11.8	4.9	8.3	8.8	4.4	6.7	5.6	.2	2.5	12.6	5.7	8.8
8	10.9	4.8	7.4	8.5	4.5	6.7	.2	.0	.0	10.1	5.7	7.7
9	13.2	4.9	8.4	8.6	4.7	6.6	2.1	.0	1.2	9.9	4.8	7.2
10	8.0	6.4	7.1	10.6	4.5	7.4	6.6	.2	2.9	8.3	4.8	6.8
11	7.9	5.8	6.6	11.4	5.8	8.6	6.1	2.1	4.4	9.0	4.2	6.4
12	8.0	6.4	7.1	11.8	6.6	9.3	2.6	.2	1.3	9.7	5.1	7.6
13	8.5	5.2	6.7	11.4	7.0	9.5	3.4	.3	1.7	8.4	5.7	6.8
14	9.5	5.7	7.3	10.8	6.8	9.1	5.4	.7	2.8	8.1	5.9	7.3
15	10.0	6.2	7.8	10.1	6.6	8.6	6.5	1.2	3.7	7.3	6.4	7.0
16	10.7	4.6	7.6	9.4	5.9	7.8	8.5	2.0	4.9	6.4	5.3	5.7
17	8.5	3.5	5.5	9.8	5.6	7.6	8.8	2.3	5.2	6.6	4.8	5.6
18	8.2	4.7	6.0	10.5	5.2	7.5	7.8	2.7	5.2	5.8	4.0	4.9
19	8.8	5.2	6.7	10.2	4.7	6.9	7.7	2.7	5.2	6.9	4.0	5.4
20	9.4	5.8	7.5	8.9	4.3	6.4	8.7	3.0	5.8	7.7	3.6	5.4
21	10.1	6.7	7.7	8.9	4.1	6.2	9.0	3.0	5.9	9.0	2.5	6.2
22	9.7	7.1	8.1	9.3	4.3	6.5	8.4	2.7	5.8	8.2	4.5	6.6
23	10.5	6.9	8.5	9.9	4.2	6.7	8.0	2.2	5.1	8.3	5.1	7.1
24	10.4	6.7	8.3	9.5	4.8	7.0	6.6	2.1	4.4	8.6	5.5	7.2
25	10.0	5.1	7.2	9.5	4.9	7.0	7.2	1.6	4.4	7.7	5.4	6.3
26	---	---	---	9.5	4.7	7.1	7.5	1.9	4.7	7.9	6.3	6.9
27	---	---	---	10.1	5.3	7.5	8.3	2.3	5.2	8.5	5.0	6.5
28	10.1	5.5	7.5	10.1	5.3	7.5	8.4	3.0	5.7	8.5	5.2	6.7
29	---	---	---	8.2	4.4	6.4	9.8	2.8	6.1	8.7	5.4	7.0
30	12.0	6.9	9.2	10.5	4.6	7.1	11.0	3.5	7.1	8.9	5.4	7.1
31	---	---	---	9.7	5.1	7.2	9.3	4.1	6.8	---	---	---
MONTH	14.1	3.5	7.8	11.8	4.1	7.5	11.0	.0	4.8	13.6	2.5	6.9

TRINITY RIVER MAIN STEM

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX

LOCATION.--Lat 32°45'46", long 96°59'42", Dallas County, Hydrologic Unit 12030102, on left bank at upstream side of bridge on Belt Line Road, 1.3 mi northeast of Grand Prairie, 3.7 mi upstream from Mountain Creek, and at mile 514.6.

DRAINAGE AREA.--3,065 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1925 to current year.

REVISED RECORDS.--WSP 628: 1925. WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 405.42 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 6, 1933, nonrecording gage at bridge on old channel 2,500 ft southeast of present site at datum 7.56 ft higher. Dec. 6, 1933, to May 24, 1956, water-stage recorder at site 440 ft downstream from site of nonrecording gage at datum 7.56 ft higher than present datum. May 25, 1956, to Apr. 18, 1957, nonrecording gage at site 1.5 mi downstream at different datum. Apr. 19 to Aug 13, 1957, nonrecording gage on bridge at present site and at datum 5.00 ft higher than present datum. Aug. 14, 1957, to Sept. 30, 1982, water-stage recorder at present site and at datum 5.00-ft higher than present datum.

REMARKS.--Records fair, including those for estimated daily discharges. Flow is affected at times by three upstream reservoirs with a combined capacity of 248,600 acre-ft. of which 76,550 acre-ft is for flood control. During the current year, the city of Fort Worth discharged sewage effluent into the river upstream from this station. There are many diversions upstream from station for municipal, industrial, and other uses. The river channel at this station was relocated and rectified in 1956. Gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, 30.6 ft in May 1908 (former site and datum), from information by local resident. Flood in April 1922 reached a stage of 29.0 ft (former site and datum), from flood-marks.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	197	1090	230	357	708	4700	1080	743	111	781	200	184
2	184	658	215	341	644	4760	709	1790	110	705	202	182
3	203	298	206	311	1160	3580	583	2170	96	517	219	185
4	218	248	204	318	4460	3340	1700	1260	90	337	241	175
5	213	230	201	365	2310	3070	1320	799	88	277	234	176
6	217	216	201	370	1960	2860	1220	430	88	271	228	171
7	215	195	206	410	1570	2780	2190	317	90	263	249	182
8	292	193	200	386	1290	2740	2260	261	109	253	281	183
9	263	187	362	561	1030	2560	1800	418	141	245	227	184
10	191	e209	415	726	1280	2200	1500	800	1230	237	213	179
11	183	e263	255	480	1550	1930	1080	456	649	230	206	176
12	189	683	222	409	1160	2490	720	537	1420	225	200	176
13	180	334	354	329	816	1910	617	960	1230	232	198	637
14	182	239	6460	277	693	1500	1490	1220	1310	227	195	2340
15	276	216	e6210	245	2640	1390	1740	1140	1550	219	194	1120
16	2360	205	2920	240	2520	1440	1280	1130	1650	217	198	378
17	499	200	1660	250	2210	1190	1290	987	1700	216	199	271
18	270	206	1480	247	2370	1030	1230	880	1670	214	197	240
19	232	1320	1370	328	2270	1380	931	940	1780	212	195	231
20	230	1310	1130	1880	1850	2200	843	891	1720	216	193	313
21	217	654	844	1070	1390	1130	785	790	1450	214	189	323
22	209	909	950	790	1240	2950	606	549	1130	210	190	245
23	e213	380	1050	654	1100	4000	564	483	910	207	192	228
24	e208	743	733	684	1110	2420	487	545	787	216	195	224
25	e201	835	456	517	7010	2310	423	368	1500	220	202	252
26	e180	334	344	446	6110	2190	418	308	2590	214	222	408
27	176	258	366	397	4220	2080	424	246	1380	212	204	374
28	182	239	309	376	4340	2410	401	210	1060	209	189	256
29	558	231	290	774	---	2520	1820	374	952	211	185	214
30	496	229	278	1140	---	2110	1120	254	783	208	184	205
31	229	---	342	820	---	1730	---	131	---	202	189	---
TOTAL	9663	13312	30463	16498	61011	74900	32631	22387	29374	8417	6410	10412
MEAN	312	444	983	532	2179	2416	1088	722	979	272	207	347
MAX	2360	1320	6460	1880	7010	4760	2260	2170	2590	781	281	2340
MIN	176	187	200	240	644	1030	401	131	88	202	184	171
AC-FT	19170	26400	60420	32720	121000	148600	64720	44400	58260	16700	12710	20650

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1926 - 1993, BY WATER YEAR (WY)

MEAN	482	421	458	432	610	721	833	1613	1138	401	236	333
MAX	5779	4472	8319	4504	3281	4521	7245	14030	11990	3475	1478	3094
(WY)	1982	1982	1992	1992	1992	1945	1942	1990	1989	1941	1950	1962
MIN	13.6	18.9	25.0	21.7	26.7	22.5	42.6	48.5	48.2	21.1	17.7	15.6
(WY)	1940	1940	1940	1930	1930	1940	1936	1937	1934	1939	1929	1931

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1926 - 1993

ANNUAL TOTAL	589911		315478				
ANNUAL MEAN	1612		864			639	1992
HIGHEST ANNUAL MEAN						2629	1956
LOWEST ANNUAL MEAN						79.3	1956
HIGHEST DAILY MEAN	9490	Jun 29	7010	Feb 25		48900	May 3 1990
LOWEST DAILY MEAN	169	Sep 28	88	Jun 5		8.0	Sep 29 1931
ANNUAL SEVEN-DAY MINIMUM	178	Sep 26	96	Jun 2		9.6	Sep 25 1931
INSTANTANEOUS PEAK FLOW			8810	Feb 25		64400	May 3 1990
INSTANTANEOUS PEAK STAGE			22.43	Feb 25		33.88	May 3 1990
INSTANTANEOUS LOW FLOW			58	Jun 5		3.2	Jun 6 1925
ANNUAL RUNOFF (AC-FT)	1170000		625800			463200	
10 PERCENT EXCEEDS	4310		2190			1490	
50 PERCENT EXCEEDS	726		380			167	
90 PERCENT EXCEEDS	206		190			46	

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: January 1964 to current year. Chemical and biochemical analyses: January 1968 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1966 to September 1992 and August 1993 to September 1993.

pH: October 1976 to September 1992 and August 1993 to September 1993.

WATER TEMPERATURE: October 1966 to September 1992 and August 1993 to September 1993.

DISSOLVED OXYGEN: October 1976 to September 1992 and August 1993 to September 1993.

INSTRUMENTATION.--Since November 1976, a four-parameter water-quality monitor records temperature, DO, pH, and specific conductance continuously at this station.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument, probe, or probeline. Where maximum or minimum specific conductance values are not shown, mean value is estimated. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance with the exception of the 1993 water year. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1,320 microsiemens Dec. 12, 1978; minimum, 108 microsiemens May 1, 1986.

pH: Maximum, 8.6 units July 2, 1981, June 27, 1982, Mar. 26, 1983, Feb. 5, 1986; minimum, 6.6 units Jan. 6, 1979.

WATER TEMPERATURE: Maximum, 35.0°C Aug. 8, 1982; minimum, 3.0°C Jan. 9, 1973.

DISSOLVED OXYGEN: Maximum, 14.8 mg/L Dec. 14, 16, 1983; minimum, 0.0 mg/L on several days during period of record.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	HARDNESS TOTAL (MG/L AS CaCO3)	HARDNESS NONCARB DISSOLVED (MG/L AS CaCO3)
NOV 23...	1210	380	485	7.6	14.5	8.4	84	--	150	21
FEB 09...	1340	983	594	7.8	12.5	10.2	97	2.6	200	35
JUN 08...	1410	109	848	7.8	26.5	7.2	93	3.6	210	31
AUG 30...	1500	190	868	8.0	30.5	8.2	112	7.6	200	56
SEP 20...	1125	267	810	7.8	27.5	6.9	90	4.3	180	46

DATE	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY WATER DIS-FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS Cl)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
NOV 23...	50	5.2	38	1	6.1	120	49	37	0.40	7.8
FEB 09...	65	8.3	41	1	5.1	160	55	49	0.30	5.7
JUN 08...	66	11	91	3	10	180	86	96	0.90	9.1
AUG 30...	62	11	100	3	9.0	140	76	110	1.1	11
SEP 20...	57	9.5	86	3	5.9	130	74	100	0.80	11

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRATE DIS-SOLVED (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)
NOV 23...	268	2.67	--	0.030	--	2.70	--	0.100	--
FEB 09...	337	2.06	2.06	--	0.040	2.10	2.10	--	0.050
JUN 08...	517	8.08	8.08	--	0.020	8.10	8.10	--	0.120
AUG 30...	509	8.37	8.37	--	0.030	8.40	8.40	--	0.030
SEP 20...	477	11.0	11.0	--	0.020	11.0	11.0	--	0.060

TRINITY RIVER MAIN STEM

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

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

DATE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)
NOV 23...	0.80	--	--	0.90	0.740	--	--	0.650	--
FEB 09...	--	0.45	0.50	--	--	0.390	0.300	--	0.92
JUN 08...	--	1.2	1.3	--	--	1.40	1.30	--	4.0
AUG 30...	--	0.87	0.90	--	--	2.00	1.70	--	5.2
SEP 20...	--	1.1	1.2	--	--	1.20	1.10	--	3.4

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	---	---	---	---	---	---	858	827	840
2	---	---	---	---	---	---	---	---	---	896	858	877
3	---	---	---	---	---	---	---	---	---	918	887	896
4	---	---	---	---	---	---	---	---	---	913	891	904
5	---	---	---	---	---	---	---	---	---	912	888	898
6	---	---	---	---	---	---	---	---	---	920	883	899
7	---	---	---	---	---	---	---	---	---	948	889	919
8	---	---	---	---	---	---	---	---	---	889	822	859
9	---	---	---	---	---	---	---	---	---	890	848	868
10	---	---	---	---	---	---	---	---	---	907	857	885
11	---	---	---	---	---	---	---	---	---	912	880	897
12	---	---	---	---	---	---	---	---	---	920	885	905
13	---	---	---	---	---	---	---	---	---	931	404	767
14	---	---	---	---	---	---	---	---	---	658	280	414
15	---	---	---	---	---	---	---	---	---	473	334	403
16	---	---	---	---	---	---	---	---	---	585	473	516
17	---	---	---	---	---	---	---	---	---	668	585	635
18	---	---	---	---	---	---	---	---	---	751	668	726
19	---	---	---	---	---	---	---	---	---	802	728	775
20	---	---	---	---	---	---	---	---	---	823	750	804
21	---	---	---	---	---	---	---	---	---	---	---	e780
22	---	---	---	---	---	---	---	---	---	790	740	762
23	---	---	---	---	---	---	---	---	---	800	740	764
24	---	---	---	---	---	---	---	---	---	820	740	784
25	---	---	---	---	---	---	876	802	833	840	520	786
26	---	---	---	---	---	---	897	876	890	830	570	732
27	---	---	---	---	---	---	882	812	834	830	600	661
28	---	---	---	---	---	---	887	832	850	630	600	612
29	---	---	---	---	---	---	893	863	878	770	630	720
30	---	---	---	---	---	---	893	872	884	840	705	792
31	---	---	---	---	---	---	892	849	868	---	---	---
MONTH	---	---	---	---	---	---	897	802	862	948	280	769

e Estimated

TRINITY RIVER MAIN STEM

317

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	---	---	---	8.5	8.3	8.4	8.1	7.9	8.0
2	---	---	---	---	---	---	8.4	8.1	8.2	8.2	7.8	8.0
3	---	---	---	---	---	---	8.4	8.2	8.3	8.2	7.9	8.0
4	---	---	---	---	---	---	8.4	8.1	8.3	8.2	8.0	8.1
5	---	---	---	---	---	---	8.8	8.2	8.5	8.2	8.0	8.1
6	---	---	---	---	---	---	8.7	8.4	8.5	8.2	7.9	8.1
7	---	---	---	---	---	---	8.5	8.3	8.4	8.3	8.0	8.1
8	---	---	---	---	---	---	---	---	---	8.2	8.0	8.1
9	---	---	---	---	---	---	8.8	8.4	8.6	8.2	8.0	8.1
10	---	---	---	---	---	---	8.7	8.4	8.6	8.3	8.0	8.1
11	---	---	---	---	---	---	8.7	8.3	8.5	8.2	8.0	8.1
12	---	---	---	---	---	---	8.5	8.1	8.3	8.3	8.0	8.2
13	---	---	---	---	---	---	8.2	8.0	8.1	8.2	7.9	8.1
14	---	---	---	---	---	---	8.4	8.0	8.2	8.4	7.3	7.9
15	---	---	---	---	---	---	8.3	8.1	8.2	---	---	---
16	---	---	---	---	---	---	8.3	8.1	8.2	---	---	---
17	---	---	---	---	---	---	8.4	8.1	8.2	8.0	7.9	7.9
18	---	---	---	---	---	---	8.3	8.0	8.1	8.0	7.9	7.9
19	---	---	---	---	---	---	8.2	8.0	8.1	8.1	7.9	8.0
20	---	---	---	---	---	---	8.1	7.9	8.0	8.3	7.9	8.1
21	---	---	---	---	---	---	8.1	7.9	8.0	---	---	---
22	---	---	---	---	---	---	8.1	7.9	8.0	8.2	7.8	8.0
23	---	---	---	---	---	---	8.0	7.8	7.9	8.2	7.8	8.0
24	---	---	---	---	---	---	8.0	7.8	7.9	8.1	7.8	7.9
25	---	---	---	---	---	---	8.2	7.8	8.0	7.9	7.7	7.8
26	---	---	---	---	---	---	8.1	7.9	8.0	7.7	7.6	7.6
27	---	---	---	---	---	---	8.3	7.9	8.1	7.9	7.5	7.6
28	---	---	---	---	---	---	8.2	7.9	8.0	8.1	7.7	7.9
29	---	---	---	---	---	---	8.0	7.9	7.9	8.1	7.8	7.9
30	---	---	---	---	---	---	8.0	7.7	7.9	8.0	7.7	7.8
31	---	---	---	---	---	---	8.2	7.9	8.0	---	---	---
MONTH	---	---	---	---	---	---	8.8	7.7	8.2	8.4	7.3	8.0

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	---	---	---	32.5	30.5	31.5	30.0	28.5	29.5
2	---	---	---	---	---	---	32.0	30.5	31.5	30.5	28.5	29.5
3	---	---	---	---	---	---	31.0	29.5	30.5	30.0	28.5	29.0
4	---	---	---	---	---	---	30.5	29.0	30.0	29.5	27.5	28.5
5	---	---	---	---	---	---	31.0	29.0	30.0	29.0	26.5	28.0
6	---	---	---	---	---	---	30.0	28.5	29.0	29.0	26.5	28.0
7	---	---	---	---	---	---	28.5	27.0	28.0	29.5	27.0	28.5
8	---	---	---	---	---	---	---	---	---	29.0	27.5	28.0
9	---	---	---	---	---	---	31.0	28.5	29.5	28.5	26.5	27.5
10	---	---	---	---	---	---	31.5	29.5	30.5	28.5	26.5	27.5
11	---	---	---	---	---	---	32.0	30.0	31.0	29.0	27.0	28.0
12	---	---	---	---	---	---	31.5	30.0	30.5	29.0	27.0	28.0
13	---	---	---	---	---	---	31.5	30.0	30.5	28.0	26.0	27.0
14	---	---	---	---	---	---	31.5	30.0	31.0	27.0	22.5	24.5
15	---	---	---	---	---	---	31.5	30.0	31.0	23.5	22.0	22.5
16	---	---	---	---	---	---	31.5	30.0	31.0	24.5	21.5	23.0
17	---	---	---	---	---	---	31.5	30.0	31.0	25.0	23.0	24.0
18	---	---	---	---	---	---	31.5	30.0	31.0	26.0	24.0	25.0
19	---	---	---	---	---	---	31.5	30.0	30.5	28.0	25.5	26.5
20	---	---	---	---	---	---	32.0	30.0	31.0	29.5	27.0	28.0
21	---	---	---	---	---	---	32.0	30.0	31.0	---	---	---
22	---	---	---	---	---	---	31.5	30.0	30.5	29.5	28.5	29.0
23	---	---	---	---	---	---	31.0	29.5	30.0	29.5	28.5	29.0
24	---	---	---	---	---	---	31.0	29.0	30.0	30.0	28.5	29.0
25	---	---	---	---	---	---	30.5	29.0	30.0	29.5	26.0	28.0
26	---	---	---	---	---	---	31.0	29.5	30.0	27.5	26.0	26.5
27	---	---	---	---	---	---	30.5	30.0	30.5	27.0	25.0	26.0
28	---	---	---	---	---	---	31.0	29.5	30.0	26.0	24.5	25.5
29	---	---	---	---	---	---	31.0	29.0	30.0	26.5	24.5	25.5
30	---	---	---	---	---	---	31.0	29.0	30.0	26.5	25.0	25.5
31	---	---	---	---	---	---	30.5	29.0	30.0	---	---	---
MONTH	---	---	---	---	---	---	32.5	27.0	30.5	30.5	21.5	27.0

TRINITY RIVER MAIN STEM

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	8.8	5.7	7.1
21	---	---	---	---	---	---	---	---	---	8.6	5.8	6.8
22	---	---	---	---	---	---	---	---	---	8.4	5.3	6.7
23	---	---	---	---	---	---	---	---	---	7.8	5.4	6.6
24	---	---	---	---	---	---	---	---	---	7.1	5.4	6.3
25	---	---	---	---	---	---	---	---	---	6.7	5.2	5.9
26	---	---	---	---	---	---	---	---	---	6.3	5.5	5.9
27	---	---	---	---	---	---	---	---	---	7.4	5.5	6.3
28	---	---	---	---	---	---	---	---	---	8.4	6.2	7.1
29	---	---	---	---	---	---	---	---	---	8.7	6.2	7.4
30	---	---	---	---	---	---	---	---	---	8.4	6.2	7.3
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	8.8	5.2	6.7

TRINITY RIVER BASIN

319

08049580 MOUNTAIN CREEK NEAR VENUS, TX
(Flood-hydrograph Partial-record Station)

LOCATION.--Lat 32°29'27", long 97°07'22", Johnson County, Hydrologic Unit 12030102, on right bank on downstream side of highway embankment near right end of bridge on Farm Road 157, 3.0 mi upstream from Grassy Creek, 3.2 mi upstream from Reece Branch, and 3.9 mi north of Venus.

DRAINAGE AREA.--25.5 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1985 to September 1987. October 1987 to current year, (peaks above base discharge).

GAGE.--Water-stage recorder. Datum of gage is 580.49 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Gage-height telemeter at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 580 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 14	0515	710	7.35	Feb. 25	0800	1,620	9.35
Dec. 15	0930	865	7.79	Mar. 22	1230	893	7.87
Feb. 3	1945	1,220	8.62	Apr. 14	1145	766	7.50
Feb. 15	1215	830	7.69	June 25	2215	1,160	8.49

TRINITY RIVER BASIN
08049580 MOUNTAIN CREEK NEAR VENUS, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: December 1985 to September 1993 (discontinued).

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

[illegible]

08049700 WALNUT CREEK NEAR MANSFIELD, TX

LOCATION.--Lat 32°34'51", long 97°06'06", Tarrant County, Hydrologic Unit 12030102, on right bank at downstream side of bridge on county road, 2.6 mi northeast of Mansfield, 3.3 mi downstream from Texas and New Orleans Railroad Co. bridge, and 10.2 mi upstream from mouth.

DRAINAGE AREA.--62.8 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 531.08 ft above National Geodetic Vertical Datum of 1929.

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

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 14	0445	793	12.95	Mar 22	1545	929	13.85
Feb. 4	0345	969	14.10	June 26	0600	5,090	25.71
Feb. 25	0900	3,740	23.89				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	2.0	.17	4.8	5.5	179	23	15	3.1	2.9	.12	.00
2	.04	.13	.24	4.4	5.0	172	20	184	2.7	1.8	.15	.00
3	.04	.07	.20	4.1	185	84	30	47	2.6	1.3	.26	.00
4	.04	.06	.22	4.1	548	62	271	18	2.3	.98	.52	.00
5	.04	.06	.18	3.7	99	50	98	13	2.0	1.1	.13	.00
6	.04	.06	.18	2.7	42	44	39	11	2.0	.98	.10	.00
7	.04	e.06	.18	2.8	29	40	203	11	1.9	.71	.22	.00
8	.05	.07	.21	2.9	23	37	128	9.5	1.7	.51	.21	.00
9	.04	.07	3.2	15	19	34	43	13	1.6	.48	.14	.00
10	.05	1.4	.85	8.2	24	29	28	12	73	.46	.10	.00
11	.04	.99	.62	5.6	17	28	22	8.9	23	.47	.08	.00
12	.04	.66	.55	3.9	11	72	20	8.3	33	.44	.06	.00
13	.04	.27	11	3.0	7.6	43	18	6.7	5.0	.40	.05	.00
14	.04	.12	409	1.9	6.9	26	192	6.0	2.8	.37	.05	.65
15	.05	.09	527	2.0	319	23	83	5.4	2.2	.32	.04	.04
16	.06	.09	109	1.9	137	26	29	5.2	1.9	.30	.04	.02
17	.06	.07	94	1.8	40	24	22	4.6	1.8	.27	.03	.02
18	.06	.09	16	2.2	24	20	18	4.1	2.5	.24	.03	.01
19	.07	35	9.9	6.6	22	78	17	3.8	3.0	.22	.02	.01
20	.07	1.6	7.0	95	19	206	15	3.6	2.1	.23	.01	.00
21	.07	18	5.9	18	16	60	12	3.8	1.9	.27	.01	.00
22	.07	2.0	5.4	5.4	12	500	12	3.5	2.8	.24	.01	.00
23	.08	.58	5.4	4.1	10	208	11	4.8	1.7	.17	.00	.00
24	.09	30	4.7	4.0	74	80	11	5.5	1.5	.15	.00	.00
25	.09	2.3	4.2	2.6	2350	56	9.9	4.3	411	.14	.00	.00
26	.10	1.0	3.9	2.1	186	43	8.4	3.3	1950	.14	.00	2.6
27	.10	.68	3.1	2.3	97	37	7.9	3.0	81	.15	.00	.02
28	.10	.44	3.7	3.0	76	74	7.7	8.6	32	.18	.00	.01
29	.35	.27	3.7	14	---	92	156	e8.9	14	.18	.00	.00
30	.21	.23	3.3	15	---	42	37	e4.2	5.6	.16	.00	.00
31	.15	---	3.2	7.9	---	29	---	e3.2	---	.14	.00	---
TOTAL	2.35	98.46	1236.20	255.0	4404.0	2498	1591.9	443.2	2671.7	16.40	2.38	3.38
MEAN	.076	3.28	39.9	8.23	157	80.6	53.1	14.3	89.1	.53	.077	.11
MAX	.35	35	527	95	2350	500	271	184	1950	2.9	.52	2.6
MIN	.03	.06	.17	1.8	5.0	20	7.7	3.0	1.5	.14	.00	.00
AC-FT	4.7	195	2450	506	8740	4950	3160	879	5300	33	4.7	6.7
CFSM	.00	.05	.63	.13	2.50	1.28	.84	.23	1.42	.01	.00	.00
IN.	.00	.06	.73	.15	2.61	1.48	.94	.26	1.58	.01	.00	.00

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1993, BY WATER YEAR (WY)

	MEAN	18.1	3.82	17.1	7.05	20.5	24.8	38.5	54.1	30.9	4.23	2.17	6.71
MAX	272	36.3	326	64.5	157	184	174	378	300	57.1	21.8	67.4	
(WY)	1992	1992	1992	1992	1993	1977	1990	1989	1986	1975	1979	1973	
MIN	.000	.000	.000	.000	.014	.13	.40	.074	.030	.000	.000	.000	
(WY)	1964	1961	1964	1981	1981	1963	1978	1962	1963	1964	1961	1971	

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1961 - 1993

ANNUAL TOTAL	11793.73	13222.97	
ANNUAL MEAN	32.2	36.2	19.0
HIGHEST ANNUAL MEAN			82.2
LOWEST ANNUAL MEAN			1.34
HIGHEST DAILY MEAN	1230	2350	7900
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.02	.00	.00
INSTANTANEOUS PEAK FLOW		5090	22800
INSTANTANEOUS PEAK STAGE		25.71	33.77
INSTANTANEOUS LOW FLOW			.00
ANNUAL RUNOFF (AC-FT)	23390	26230	13750
ANNUAL RUNOFF (CFSM)	.51	.58	.30
ANNUAL RUNOFF (INCHES)	6.99	7.83	4.11
10 PERCENT EXCEEDS	49	73	12
50 PERCENT EXCEEDS	4.1	2.6	.21
90 PERCENT EXCEEDS	.06	.02	.00

TRINITY RIVER BASIN

08049700 WALNUT CREEK NEAR MANSFIELD, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD---Chemical and biochemical analyses: October 1985 to September 1993 (discontinued).

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CAC03)	
OCT 07...	1146	0.04	1680	7.5	20.0	10	1.2	8.0	90	1.7	670	
JAN 12...	1440	3.9	1180	7.8	9.0	10	4.1	12.2	108	0.3	480	
MAR 18...	0945	20	1360	7.7	12.0	25	3.5	10.2	96	1.5	550	
MAY 05...	1130	13	1050	7.9	19.0	180	17	7.6	84	1.6	390	
JUN 25...	1600	1.3	1390	8.3	24.0	14	3.3	5.2	63	2.4	540	
AUG 11...	0905	0.08	1370	7.7	27.0	13	1.8	4.7	59	--	550	
DATE		HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)
OCT 07...		400	210	36	120	2	4.7	280	320	180	0.40	7.9
JAN 12...		270	150	25	73	1	4.8	210	310	92	0.40	14
MAR 18...		300	170	30	89	2	4.9	250	360	110	0.30	8.6
MAY 05...		190	120	22	65	1	5.1	210	250	77	0.40	13
JUN 25...		320	170	29	83	--	4.5	220	360	94	0.50	12
AUG 11...		330	170	30	100	2	4.9	220	370	110	0.65	8.4
DATE		SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
OCT 07...		1040	8	8	0	--	--	<0.010	--	<0.050	--	0.020
JAN 12...		796	<1	<1	--	--	--	--	--	--	--	--
MAR 18...		923	8	8	0	--	--	--	<0.010	--	<0.050	--
MAY 05...		678	11	1	10	0.400	0.400	--	0.040	0.440	0.440	--
JUN 25...		--	8	7	1	0.250	--	--	<0.010	0.250	0.250	--
AUG 11...		927	5	4	1	0.130	--	--	<0.010	0.130	0.130	--
DATE		NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED TOTAL (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	
OCT 07...		--	0.28	--	--	0.30	0.040	--	--	0.030	--	
JAN 12...		--	--	--	--	<0.20	0.010	--	--	--	--	
MAR 18...		0.050	--	0.35	0.40	--	--	<0.010	0.010	--	0.03	
MAY 05...		0.090	--	0.41	0.50	--	--	0.030	0.030	--	0.09	
JUN 25...		0.080	--	0.62	0.70	--	--	0.080	0.070	--	0.21	
AUG 11...		0.040	--	0.96	1.0	--	--	0.020	0.010	--	0.03	

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

[illegible]

TRINITY RIVER BASIN

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX

LOCATION.--Lat 32°38'36", long 97°00'03", Dallas County, Hydrologic Unit 12030102, in control room of outlet works tower located 285 ft upstream from centerline of Joe Pool Dam on Mountain Creek, 0.7 mi downstream from Walnut Creek, 0.7 mi upstream from bridge over Mountain Creek on Camp Wisdom Road, 1.0 mi downstream from John Penn Branch, 5.5 mi west of water towers in downtown Duncanville, 7.1 mi upstream from Mountain Creek Dam on Mountain Creek, and 11.2 mi upstream from mouth.

DRAINAGE AREA.--232 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1985 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers benchmark).

REMARKS.--The lake is formed by a rolled earthfill dam 22,360 ft long, including a 50-foot uncontrolled broad-crested concrete spillway. Impoundment of water began Jan. 7, 1986, after closure of the dam was completed in December 1985. The flood-control outlet works consist of a 10.5-foot-diameter conduit that is controlled by two 4.75- by 10.5-foot slide gates. Above an elevation of 541 ft, water will flow over a 50-foot-long uncontrolled broad-crested concrete spillway located 0.5 mi to left of the outlet works tower. The low-flow outlet works consist of four 3- by 5-foot slide gates having invert elevations at 486.0, 495.0, 504.0, and 513.0 ft that open to a wet-well. Discharge from the wet-well to the 10.5-foot-diameter conduit is controlled by a 2- by 4-foot gate with invert at elevation 483.0 ft. A low-flow bypass system consisting of a turbine pump and 10-inch-diameter piping is also available for use if needed. The capacity table was provided by the U.S. Army Corps of Engineers. The lake was built for water supply, conservation, and flood-control. During the current year, no water has been diverted for municipal or industrial supply. 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.....	564.5	-
Crest of spillway.....	541.0	362,700
Top of conservation pool.....	522.0	176,900
Lowest gated outlet.....	466.0	1,095

COOPERATION.--Records provided by the U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 274,600 acre-ft May 20, 1990 (elevation, 533.21 ft); minimum since initial filling began, 1,595 acre-ft Jan. 24, 1986 (elevation, 467.65 ft).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 194,900 acre-ft Feb. 27 (elevation, 524.33 ft); minimum daily, 163,600 acre-ft Sept. 30 (elevation, 520.18 ft).

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

520.0	162,300	522.0	176,900	524.0	192,200
521.0	169,500	523.0	184,500	525.0	200,200

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	173300	170700	169700	177900	177400	194300	177000	178400	175100	180100	172300	167000
2	173200	170500	169700	177900	177300	194000	177100	179600	175000	179300	172200	166900
3	173000	170100	169600	178000	180400	192600	177500	179600	174900	178800	172200	166700
4	172900	170000	169200	178000	184600	190800	178900	179200	174700	178200	172200	166500
5	172800	169800	169400	178000	186100	189200	179200	178800	174600	177800	171900	166300
6	172500	169700	169300	178000	186000	187400	179200	178300	174400	177300	171700	166200
7	172500	169400	169200	178000	185800	185600	180100	178100	174400	177100	171800	166000
8	172400	169400	169200	178100	185200	183700	180100	177900	174100	177000	171600	165700
9	172200	169200	169500	178200	184100	181600	179300	177800	174100	176700	171400	165600
10	171900	169400	169400	178300	182900	179900	178500	177600	175000	176600	171300	165400
11	171600	169400	169400	178400	181600	178800	177700	177300	175200	176400	171100	165200
12	171800	169200	169400	178300	180500	178500	177500	177000	175600	176200	170900	165100
13	171600	169200	170200	178000	180100	178300	177300	176900	175500	175900	170700	165500
14	171400	169200	173900	177900	179500	177800	181200	176900	175400	175900	170500	165300
15	171400	169100	180400	177900	181900	177600	181300	176700	175300	175600	170300	165100
16	171100	169000	181100	177900	182200	177300	180700	176700	175300	175500	170100	165000
17	171100	168900	181100	177900	181000	177100	179800	176600	175100	175300	170000	164700
18	171000	168900	180700	177800	179700	177300	179300	176300	175200	175100	169700	164500
19	170800	169700	179800	178300	178700	178000	178400	176300	175300	175000	169600	164500
20	170600	169700	179200	178900	177900	179100	177900	176100	175300	174800	169400	164400
21	170600	170000	178600	179100	177200	179400	177400	176000	175300	174700	169200	164200
22	170500	170000	178200	179000	177000	183100	177100	175900	175200	174400	169000	164200
23	170500	170000	177800	178700	177000	185300	177100	175900	175100	174100	168800	164200
24	170400	170500	177700	178500	177000	185200	177000	175900	175000	173900	168500	164000
25	170300	170200	177600	178300	194000	184100	177000	175900	177400	173600	168400	164000
26	170200	170000	177600	178100	194400	182500	177000	175700	183500	173300	168200	164200
27	170200	170000	177600	177800	194900	181000	177000	175600	183700	173200	168000	164200
28	170000	170000	177700	177700	194300	180400	177000	175600	183400	173000	167800	164000
29	170500	169800	177700	177700	---	179300	178200	175600	182300	172900	167600	163900
30	170400	169800	177900	177700	---	178000	178400	175600	181100	172700	167400	163600
31	170500	---	177900	177600	---	177200	---	175300	---	172600	167200	---
MAX	173300	170700	181100	179100	194900	194300	181300	179600	183700	180100	172300	167000
MIN	170000	168900	169200	177600	177000	177100	177000	175300	174100	172600	167200	163600
(↑)	521.14	521.04	522.13	522.10	524.26	522.04	522.20	521.78	522.56	521.42	520.68	520.18
(Φ)	-3100	-700	+8100	-300	+16700	-17100	+1200	-3100	+5800	-8500	-5400	-3600

CAL YR 1992 MAX 181100 MIN 83610 (Φ) -77200
WTR YR 1993 MAX 194900 MIN 163600 (Φ) -10000

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

TRINITY RIVER BASIN

325

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: January 1986 to September 1993 (discontinued).

REVISED RECORDS.--Due to a computation error discovered after publication of Phytoplankton analyses for the period October 1991 to September 1992, revised data for these analyses are included in this report.

323812096591701 - JOE POOL LAKE SITE AR

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

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATURATION)
FEB							
22...	1055	1.00	473	8.1	9.5	9.3	83
22...	1058	10.0	473	8.1	9.5	9.3	83
22...	1100	20.0	473	8.1	9.5	9.3	83
22...	1103	30.0	473	8.1	9.5	9.3	83
22...	1106	42.0	473	8.0	9.5	9.3	83
AUG							
17...	1156	1.00	491	8.3	30.5	6.8	94
17...	1159	10.0	493	8.2	30.0	6.2	85
17...	1202	20.0	496	8.0	29.5	5.6	76
17...	1206	30.0	498	7.8	29.5	4.4	60
17...	1210	41.0	513	7.5	29.0	0	0

323819096584801 - JOE POOL LAKE SITE AC

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

DATE	TIME	RESERVOIR STORAGE (AC-FT)	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS TOTAL (MG/L AS CACO3)
FEB												
22...	1028	177000	1.00	473	8.0	9.5	1.00	9.2	82	K7	K1	170
22...	1032	--	10.0	472	7.9	9.5	--	9.1	81	--	--	--
22...	1036	--	20.0	472	7.9	9.5	--	9.1	81	--	--	--
22...	1040	--	30.0	472	7.8	9.5	--	9.2	82	--	--	--
22...	1043	--	40.0	472	7.7	9.5	--	9.1	81	--	--	--
22...	1047	--	52.0	472	7.6	9.5	--	9.3	83	--	--	170
MAY												
26...	1214	176000	1.00	527	8.3	24.0	1.40	6.4	77	K1	K3	180
26...	1218	--	10.0	527	8.3	24.0	--	6.5	78	--	--	--
26...	1222	--	20.0	526	8.2	23.5	--	6.4	76	--	--	--
26...	1226	--	30.0	526	8.2	23.5	--	6.2	74	--	--	--
26...	1230	--	40.0	528	8.0	23.0	--	5.0	59	--	--	--
26...	1235	--	49.0	529	7.8	23.0	--	4.6	54	--	--	190
AUG												
17...	1050	170000	1.00	489	8.1	30.0	1.20	6.4	88	K1	K16	170
17...	1055	--	10.0	488	8.0	30.0	--	6.3	86	--	--	--
17...	1100	--	20.0	493	7.9	29.5	--	5.1	69	--	--	--
17...	1105	--	30.0	500	7.7	29.0	--	3.2	43	--	--	--
17...	1110	--	40.0	508	7.5	28.5	--	0	0	--	--	--
17...	1115	--	50.0	517	7.4	28.5	--	0	0	--	--	180

TRINITY RIVER BASIN

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX--Continued

323819096584801 - JOE POOL LAKE SITE AC--Continued

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

DATE	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
FEB												
22...	58	59	5.3	27	0.9	7.5	110	100	18	0.30	4.8	289
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	58	59	5.3	27	0.9	7.8	110	100	21	0.20	4.9	293
MAY												
26...	64	63	5.6	30	1	7.8	120	120	21	0.40	2.8	321
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	66	65	5.7	31	1	7.9	120	120	19	0.40	3.7	326
AUG												
17...	72	58	6.1	33	1	8.5	98	120	20	0.40	4.0	309
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	61	63	6.2	32	1	7.9	120	110	20	0.40	5.4	319

DATE	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB												
22...	0.180	0.180	0.020	0.200	0.200	0.030	0.17	0.20	<0.010	<0.010	<3	<1
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	0.170	0.170	0.030	0.200	0.200	0.030	0.27	0.30	<0.010	<0.010	<3	6
MAY												
26...	0.190	0.190	0.020	0.210	0.210	0.020	0.28	0.30	0.020	<0.010	<3	<1
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	0.250	0.250	0.020	0.270	0.270	0.040	0.26	0.30	0.020	<0.010	8	10
AUG												
17...	--	--	<0.010	--	<0.050	0.030	0.27	0.30	<0.010	<0.010	<3	1
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	<0.010	--	<0.050	0.040	0.36	0.40	<0.010	<0.010	30	30
17...	0.077	--	<0.010	0.077	0.077	0.030	0.17	0.20	0.010	<0.010	10	20
17...	--	--	<0.010	--	<0.050	0.200	0.30	0.50	<0.010	<0.010	200	570

323731097013901 - JOE POOL LAKE SITE BC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)
FEB												
22...	1326	1.00	473	8.1	10.5	1.00	9.4	86	23	K2	170	59
22...	1331	10.0	472	8.1	10.0	--	9.3	84	--	--	--	--
22...	1336	20.0	473	8.1	10.0	--	9.2	83	--	--	--	--
22...	1341	30.0	473	8.1	10.0	--	9.1	82	--	--	--	--
22...	1346	40.0	473	8.1	10.0	--	9.1	82	--	--	--	--
22...	1352	49.0	473	8.2	10.0	--	9.4	85	--	--	170	56
MAY												
26...	1505	1.00	526	8.3	24.5	1.50	6.4	78	K2	K9	180	65
26...	1510	10.0	526	8.3	23.5	--	6.1	73	--	--	--	--
26...	1515	20.0	527	8.1	23.0	--	5.4	64	--	--	--	--
26...	1520	30.0	530	7.8	22.5	--	4.1	48	--	--	--	--
26...	1525	40.0	533	7.6	22.0	--	2.9	34	--	--	--	--
26...	1530	50.0	538	7.5	21.0	--	1.4	16	--	--	190	61
AUG												
17...	1428	1.00	494	8.4	30.5	--	6.6	91	K1	K17	170	69
17...	1432	10.0	495	8.3	30.0	--	6.3	86	--	--	--	--
17...	1435	20.0	497	8.1	29.5	--	5.2	70	--	--	--	--
17...	1438	30.0	509	7.4	29.0	--	0.8	11	--	--	--	--
17...	1442	40.0	511	7.4	28.5	--	0	0	--	--	--	--
17...	1446	51.0	518	7.4	28.5	--	0	0	--	--	180	55

TRINITY RIVER BASIN

327

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX--Continued

323731097013901 - JOE POOL LAKE SITE BC--Continued

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

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)
FEB												
22...	60	5.3	27	0.9	7.6	110	100	19	0.30	4.8	293	0.180
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	59	5.3	27	0.9	7.7	110	100	19	0.30	4.7	292	0.180
MAY												
26...	63	5.6	30	1	7.8	120	120	21	0.40	2.9	321	0.200
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	65	5.9	31	1	7.7	130	110	22	0.30	4.7	324	0.350
AUG												
17...	57	6.1	32	1	8.2	98	120	21	0.40	3.8	307	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	0.052
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	62	6.1	32	1	8.4	120	110	20	0.40	6.0	321	--

DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB											
22...	0.180	0.020	0.200	0.200	0.020	0.18	0.20	<0.010	<0.010	<10	<10
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	0.180	0.020	0.200	0.200	0.030	0.17	0.20	<0.010	<0.010	<3	2
MAY											
26...	0.200	0.020	0.220	0.220	0.030	0.27	0.30	0.020	<0.010	8	12
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	0.350	0.010	0.360	0.360	0.040	0.26	0.30	0.020	<0.010	10	130
AUG											
17...	--	<0.010	--	<0.050	0.030	0.27	0.30	<0.010	<0.010	<3	8
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	<0.010	--	<0.050	0.030	0.17	0.20	0.010	<0.010	10	40
17...	--	<0.010	0.052	0.052	0.030	0.27	0.30	0.010	<0.010	10	130
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	<0.010	--	<0.050	0.310	0.39	0.70	<0.010	<0.010	120	920

323645097002001 - JOE POOL LAKE SITE CR

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
22...	1144	1.00	475	8.2	10.0	9.3	84
22...	1147	10.0	476	8.1	9.5	9.4	84
22...	1149	20.0	476	8.1	10.0	9.2	83
22...	1151	30.0	479	8.1	9.5	9.3	83
22...	1153	38.0	478	8.1	9.5	9.3	83
AUG							
17...	1251	1.00	500	8.2	29.5	6.0	81
17...	1254	10.0	497	8.2	29.5	6.0	81
17...	1257	20.0	500	8.1	29.5	5.8	79
17...	1300	30.0	509	7.5	29.0	1.7	23
17...	1303	37.0	512	7.5	28.5	0	0

TRINITY RIVER BASIN

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX--Continued

323646097005101 - JOE POOL LAKE SITE CC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)
FEB											
22...	1119	1.00	473	8.2	10.0	1.10	9.2	83	--	0.190	0.190
22...	1123	10.0	474	8.1	9.5	--	9.3	83	--	--	--
22...	1126	20.0	471	8.2	10.0	--	9.2	83	--	--	--
22...	1130	30.0	471	8.1	9.5	--	9.1	81	--	--	--
22...	1133	40.0	474	8.1	9.5	--	9.0	80	--	--	--
22...	1136	51.0	471	8.1	9.5	--	9.1	81	--	0.180	0.180
MAY											
26...	1250	1.00	528	8.3	24.0	1.30	6.4	77	120	0.210	0.210
26...	1254	10.0	527	8.3	23.5	--	6.3	75	--	--	--
26...	1257	20.0	528	8.2	23.5	--	6.2	74	--	--	--
26...	1301	30.0	536	7.9	23.0	--	4.7	55	--	--	--
26...	1304	40.0	536	7.7	22.5	--	3.6	42	--	--	--
26...	1308	50.0	537	7.5	22.0	--	1.5	17	120	0.270	0.270
AUG											
17...	1222	1.00	501	8.2	29.5	1.20	5.9	80	--	--	--
17...	1226	10.0	500	8.1	29.5	--	5.9	80	--	--	--
17...	1230	20.0	500	7.9	29.0	--	5.2	70	--	--	--
17...	1234	30.0	511	7.4	28.5	--	1.0	13	--	--	--
17...	1238	40.0	512	7.4	28.5	--	0	0	--	--	--
17...	1242	48.0	513	7.6	28.5	--	0	0	--	--	--

DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB										
22...	0.020	0.210	0.210	0.030	0.17	0.20	<0.010	<0.010	<10	<10
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	0.020	0.200	0.200	0.030	0.27	0.30	<0.010	<0.010	<10	10
MAY										
26...	0.020	0.230	0.230	0.020	0.28	0.30	0.010	<0.010	<10	10
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	0.070	0.340	0.340	0.060	0.24	0.30	0.020	<0.010	<10	130
AUG										
17...	<0.010	--	<0.050	0.030	0.27	0.30	<0.010	<0.010	30	20
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	0.020	--	<0.050	0.150	0.35	0.50	<0.010	<0.010	130	490

323503097012201 - JOE POOL LAKE SITE DC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)
FEB										
22...	1209	1.00	505	8.1	10.0	9.4	85	--	0.220	0.220
22...	1212	10.0	505	8.1	9.5	9.4	84	--	--	--
22...	1214	20.0	506	8.0	9.5	9.2	82	--	--	--
22...	1217	32.0	507	8.1	9.5	9.1	81	--	0.220	0.220
MAY										
26...	1325	1.00	533	8.2	24.0	6.4	77	120	0.240	0.240
26...	1330	10.0	536	8.2	23.5	6.2	74	--	--	--
26...	1336	20.0	563	7.7	23.0	4.1	48	--	--	--
26...	1342	30.0	551	7.4	22.0	0.8	9	130	0.350	0.350
AUG										
17...	1322	1.00	507	8.2	29.5	6.0	81	--	--	--
17...	1326	10.0	505	8.1	28.5	5.6	75	--	--	--
17...	1330	20.0	508	7.6	28.5	3.2	43	--	--	--
17...	1333	28.0	521	7.4	28.0	0	0	--	--	--

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX--Continued

323503097012201 - JOE POOL LAKE SITE DC--Continued

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

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB										
22...	0.030	0.250	0.250	0.040	0.26	0.30	<0.010	<0.010	<10	<10
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	0.020	0.240	0.240	0.060	0.14	0.20	<0.010	<0.010	<10	30
MAY										
26...	0.020	0.260	0.260	0.020	0.28	0.30	0.020	<0.010	<10	90
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	0.070	0.420	0.420	0.080	0.32	0.40	0.020	<0.010	<10	460
AUG										
17...	<0.010	--	<0.050	0.040	0.26	0.30	<0.010	<0.010	10	70
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	<0.010	--	<0.050	0.450	0.25	0.70	<0.010	<0.010	400	1000

323329097024101 - JOE POOL LAKE SITE EC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)
FEB												
22...	1231	1.00	724	8.2	11.5	0.10	9.6	90	470	840	230	90
22...	1235	5.00	724	8.2	11.5	--	9.5	89	--	--	--	--
22...	1241	12.0	758	8.1	11.0	--	9.1	84	--	--	240	91
MAY												
26...	1410	1.00	634	8.1	27.0	0.12	6.0	76	60	190	220	86
26...	1418	5.00	660	7.9	25.5	--	5.3	66	--	--	--	--
26...	1426	12.0	615	7.7	24.5	--	3.7	45	--	--	210	81
AUG												
17...	1351	1.00	531	8.0	29.5	0.20	5.0	68	280	800	180	65
17...	1402	10.0	525	7.5	28.5	--	1.3	17	--	--	190	68

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)
FEB												
22...	80	6.2	57	2	11	130	190	31	0.30	6.5	464	0.110
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	85	6.4	60	2	21	150	200	32	0.30	6.5	501	0.120
MAY												
26...	76	6.5	43	1	12	130	160	25	0.40	4.4	407	0.200
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	75	6.4	40	1	10	130	140	25	0.40	4.6	383	0.230
AUG												
17...	63	6.1	35	1	9.6	120	120	21	0.40	5.7	331	--
17...	65	6.2	35	1	8.5	120	110	21	0.40	5.6	324	--

DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB											
22...	0.110	0.030	0.140	0.140	0.020	0.28	0.30	<0.010	<0.010	4	13
22...	--	--	--	--	--	--	--	--	--	--	--
22...	0.120	0.030	0.150	0.150	0.020	0.28	0.30	<0.010	<0.010	5	29
MAY											
26...	0.200	0.040	0.240	0.240	0.030	0.37	0.40	0.020	<0.010	20	10
26...	--	--	--	--	--	--	--	--	--	--	--
26...	0.230	0.040	0.270	0.270	0.180	0.42	0.60	0.020	<0.010	4	33
AUG											
17...	--	<0.010	--	<0.050	0.060	0.24	0.30	<0.010	<0.010	<3	12
17...	--	<0.010	--	<0.050	0.180	0.22	0.40	<0.010	<0.010	<3	120

TRINITY RIVER BASIN

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX—Continued

Joe Pool Lake Site AC (323819096584801)

Phytoplankton Analyses October 1992 to September 1993

Date	2-22-93
Time	1027

TOTAL CELLS/mL	7,114
NUMBER OF SPECIES	7
DEPTH COLLECTED (ft.)	1.7

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	149
Order Pennales	
<i>Fragilaria crotonensis</i>	30
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	387
CYANOPHYTA	
<i>Aphanizomenon flos-aquae</i>	3,274
<i>Aphanocapsa delicatissima</i>	2,976
<i>Chroococcus limneticus</i>	119
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	179

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX—Continued

Joe Pool Lake Site EC (323329097024101)

Phytoplankton Analyses October 1992 to September 1993

Date	2-22-93
Time	1230

TOTAL CELLS/mL	5,922
NUMBER OF SPECIES	9
DEPTH COLLECTED (ft.)	0.1

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	324
<i>Stephanodiscus astraea</i>	3
Order Pennales	
<i>Navicula</i> spp.	89
<i>Synedra ulna</i>	179
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	60
CYANOPHYTA	
<i>Aphanizomenon flos-aquae</i>	2,083
<i>Aphanocapsa delicatissima</i>	2,678
EUGLENOPHYTA	
<i>Trachelomonas</i> spp.	387
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	119

TRINITY RIVER BASIN

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX—Continued

Joe Pool Lake Site AC (323819096584801)

Phytoplankton Analyses October 1992 to September 1993

Date	5-26-93
Time	1213

TOTAL CELLS/mL	9,792
NUMBER OF SPECIES	14
DEPTH COLLECTED (ft.)	2.35

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella meneghiniana</i>	684
Order Pennales	
<i>Fragilaria crotonensis</i>	30
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	238
<i>Chlamydomonas</i> sp.	30
<i>Closterium diana</i>	119
<i>Pediastrum</i> sp.	30
<i>Scenedesmus quadricauda</i>	60
CYANOPHYTA	
<i>Anabaena flos-aquae</i>	179
<i>Anabaena spiroides</i>	417
<i>Aphanizomenon flos-aquae</i>	1,488
<i>Aphanocapsa delicatissima</i>	2,678
<i>Merismopedia tenuissima</i>	3,452
EUGLENOPHYTA	
<i>Trachelomonas</i> spp.	30
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	357

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX—Continued

Joe Pool Lake Site EC (323329097024101)

Phytoplankton Analyses October 1992 to September 1993

Date	5-26-93
Time	1409

TOTAL CELLS/mL	3,513
NUMBER OF SPECIES	12
DEPTH COLLECTED (ft.)	0.2

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella meneghiniana</i>	258
<i>Melosira varians</i>	9
<i>Stephanodiscus astraëa</i>	1
Order Pennales	
<i>Cymbella</i> sp.	15
<i>Fragilaria crotonensis</i>	74
<i>Gyrosigma acuminatum</i>	15
<i>Navicula</i> sp.	15
<i>Nitzschia linearis</i>	30
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	60
<i>Cosmarium</i> sp.	30
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	2,976
EUGLENOPHYTA	
<i>Trachelomonas</i> sp.	30

TRINITY RIVER BASIN

09049800 JOE POOL LAKE NEAR DUNCANVILLE, TX—Continued

Joe Pool Lake Site AC (323819096584801)

Phytoplankton Analyses October 1992 to September 1993

Date	8-17-93
Time	1050

TOTAL CELLS/mL	27,389
NUMBER OF SPECIES	22
DEPTH COLLECTED (ft.)	2.0

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	5
<i>Melosira varians</i>	54
Order Pennales	
<i>Achnanthes</i>	9
<i>Fragilaria capucina</i> var. <i>mesolepta</i>	217
<i>Fragilaria crotonensis</i>	460
<i>Navicula cuspidata</i>	54
<i>Navicula cuspidata</i> var. <i>ambigua</i>	550
<i>Synedra ulna</i>	18
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	208
<i>Chlamydomonas</i> sp.	208
<i>Pediastrum duplex</i>	30
<i>Scenedesmus opoliensis</i>	59
<i>Scenedesmus quadricauda</i>	30
<i>Staurastrum</i> sp.	30
CYANOPHYTA	
<i>Aphanizomenon flos-aquae</i>	297
<i>Aphanocapsa delicatissima</i>	10,706
<i>Aphanocapsa elachista</i>	892
<i>Chroococcus limneticus</i>	1,309
<i>Oscillatoria angustissima</i>	11,985
CHRYSTOPHYTA	
<i>Mallomonas</i> sp.	30
EUGLENOPHYTA	
<i>Trachelomonas</i> spp.	208
PYRRHOPHYTA	
<i>Peridinium pusillum</i>	30

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX—Continued

Joe Pool Lake Site EC (323329097024101)

Phytoplankton Analyses October 1992 to September 1993

Date	8-17-93
Time	1351

TOTAL CELLS/mL	20,640
NUMBER OF SPECIES	22
DEPTH COLLECTED (ft.)	0.25

<u>Organisms</u>	<u>Cells/mL</u>
------------------	-----------------

BACILLARIOPHYTA

Order Centrales	
<i>Cyclotella ocellata</i>	52
<i>Melosira varians</i>	424
Order Pennales	
<i>Amphora ovalis</i>	25
<i>Cocconeis placentula</i>	25
<i>Fragilaria crotonensis</i>	225
<i>Fragilaria vaucherie</i>	13
<i>Gyrosigma acuminatum</i>	13
<i>Gyrosigma macrum</i>	25
<i>Meridion circulare</i>	13
<i>Navicula cuspidata</i>	125
<i>Navicula viridula</i>	50
<i>Nitzschia palea</i>	426
<i>Synedra ulna</i>	13

CHLOROPHYTA

<i>Chlamydomonas</i> sp.	89
<i>Scenedesmus opoliensis</i>	89
Unid. Filamentous Chlorophyta	89

CYANOPHYTA

<i>Aphanizomenon flos-aquae</i>	595
<i>Aphanocapsa delicatissima</i>	5,948
<i>Merismopedia tenuissima</i>	6,067
<i>Oscillatoria angustissima</i>	5,948

CHRYSOPHYTA

<i>Mallomonas</i> sp.	89
-----------------------	----

EUGLENOPHYTA

<i>Trachelomonas</i> spp.	297
---------------------------	-----

TRINITY RIVER BASIN

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX—Continued

Joe Pool Lake Site AC (323819096584801)

Phytoplankton Analyses October 1991 to September 1992

Date	1-23-92
Time	1140

TOTAL CELLS/mL	8,253
NUMBER OF SPECIES	14
DEPTH COLLECTED (ft.)	0.7

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella meneghiniana</i>	34
<i>Cyclotella ocellata</i>	16
<i>Stephanodiscus astraea</i> var. <i>minutula</i>	29
Order Pennales	
<i>Fragilaria crotonensis</i>	26
<i>Navicula cryptocephala</i>	7
<i>Nitzschia palea</i>	7
CHLOROPHYTA	
<i>Chlamydomonas</i> sp.	117
<i>Chlorococcum humicola</i>	78
<i>Selenastrum minutum</i>	39
CHRYSTOPHYTA	
Unknown flagellate	391
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	7,001
<i>Chroococcus</i> sp.	430
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	39
<i>Rhodomonas minuta</i>	39

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX—Continued

Joe Pool Lake Site EC (323329097024101)

Phytoplankton Analyses October 1991 to September 1992

Date	1-23-92
Time	1422
<hr/>	
TOTAL CELLS/mL	7,002
NUMBER OF SPECIES	16
DEPTH COLLECTED (ft.)	0.2
<hr/>	

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella meneghiniana</i>	35
<i>Stephanodiscus astraea</i> var. <i>minutula</i>	4
Order Pennales	
<i>Navicula cryptocephala</i>	2
<i>Nitzschia acicularis</i>	5
<i>Nitzschia palea</i>	5
<i>Synedra delicatissima</i>	16
<i>Synedra delicatissima</i> var. <i>angustissima</i>	11
<i>Synedra tenera</i>	2
CHLOROPHYTA	
<i>Chlamydomonas</i> sp.	39
<i>Chlorella ellipsoidea</i>	78
<i>Chlorococcum humicola</i>	39
CHRYSOPHYTA	
Unknown flagellate	430
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	5,945
<i>Chroococcus</i> sp.	235
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	39
<i>Rhodomonas minuta</i>	117

TRINITY RIVER BASIN

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX—Continued

Joe Pool Lake Site AC (323819096584801)

Phytoplankton Analyses October 1991 to September 1992

Date	4-9-92
Time	1029

TOTAL CELLS/mL	6,160
NUMBER OF SPECIES	13
DEPTH COLLECTED (ft.)	1.0

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	969
<i>Stephanodiscus astraea</i>	162
Order Pennales	
<i>Achnanthes lanceolata</i>	33
<i>Fragilaria crotonensis</i>	33
<i>Navicula</i> sp.	65
<i>Pinnularia</i> sp.	196
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	208
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	3,274
<i>Chroococcus minimus</i>	238
<i>Merismopedia tenuissima</i>	476
EUGLENOPHYTA	
<i>Euglena</i> sp.	30
<i>Trachelomonas</i> sp.	119
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	357

06049600 JOE POOL LAKE NEAR DUNCANVILLE, TX—Continued

Joe Pool Lake Site EC (323329097024101)

Phytoplankton Analyses October 1991 to September 1992

Date	4-9-92
Time	1248
<hr/>	
TOTAL CELLS/mL	9,733
NUMBER OF SPECIES	18
DEPTH COLLECTED (ft.)	0.4
<hr/>	

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	123
<i>Melosira varians</i>	12
<i>Stephanodiscus astraea</i>	14
Order Pennales	
<i>Achnanthes linearis</i>	16
<i>Cocconeis placentula</i>	31
<i>Cymbella cymbiformis</i>	54
<i>Fragilaria crotonensis</i>	171
<i>Gyrosigma</i> sp.	31
<i>Navicula contenta</i>	109
<i>Navicula</i> sp.	31
<i>Synedra fasciculata</i>	287
<i>Pinnularia</i> sp.	16
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	565
<i>Chlamydomonas</i> sp.	30
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	5654
<i>Chroococcus minimus</i>	119
<i>Merismopedia tenuissima</i> 2	381
EUGLENOPHYTA	
<i>Trachelomonas</i> sp.	89

Joe Pool Lake Site AC (323819096584801)

Phytoplankton Analyses October 1991 to September 1992

Date	8-3-92
Time	1122
<hr/>	
TOTAL CELLS/mL	14,406
NUMBER OF SPECIES	15
DEPTH COLLECTED (ft.)	2.1
<hr/>	

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
<i>Cyclotella ocellata</i>	774
Order Pennales	
<i>Fragilaria crotonensis</i>	655
CHLOROPHYTA (Green algae)	
<i>Ankistrodesmus falcatus</i>	89
<i>Chlamydomonas</i> sp.	60
<i>Cosmarium</i> sp.	30
<i>Scenedesmus quadricauda</i>	60
CHRYSTOPHYTA (Golden-brown algae)	
<i>Dinobryon sociale</i>	60
<i>Mallomonas</i> sp.	30
CYANOPHYTA (Blue-green algae)	
<i>Aphanocapsa delicatissima</i>	5,654
<i>Aphanizomenon flos-aquae</i>	446
<i>Chroococcus limneticus</i>	536
<i>Merismopedia tenuissima</i>	5,595
EUGLENOPHYTA (Euglenoids)	
<i>Euglena</i> sp.	89
<i>Trachelomonas</i> spp.	149
CRYPTOPHYTA (Cryptomonads)	
<i>Cryptomonas erosa</i>	179

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX—Continued

Joe Pool Lake Site EC (323329097024101)

Phytoplankton Analyses October 1991 to September 1992

Date	8-3-92
Time	1458

TOTAL CELLS/mL	7,677
NUMBER OF SPECIES	20
DEPTH COLLECTED (ft.)	0.2

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella ocellata	9
Melosira varians	20
Stephanodiscus astraea	0
Order Pennales	
Achnanthes sp.	132
Fragilaria crotonensis	132
Fragilaria vaucherie	50
Navicula sp.	33
Synedra sp.	99
CHLOROPHYTA (Green algae)	
Ankistrodesmus falcatus	357
Chlamydomonas sp.	89
Selenestrum westii	119
Scenedesmus quadricauda	60
CHRYSTOPHYTA (Golden-brown algae)	
Mallomonas sp.	30
CYANOPHYTA (Blue-green algae)	
Anabaena spiroides	1,488
Aphanocapsa delicatissima	2,976
Aphanizomenon flos-aquae	1,488
EUGLENOPHYTA (Euglenoids)	
Euglena sp.	89
Trachelomonas spp.	357
CRYPTOPHYTA (Cryptomonads)	
Cryptomonas erosa	119
Cryptomonas ovata	30

TRINITY RIVER BASIN

08049850 MOUNTAIN CREEK ABOVE DUNCANVILLE, TX

LOCATION.--Lat 32°39'07", long 96°59'24", Dallas County, Hydrologic Unit 12030102, 0.6 mi downstream from Joe Pool Dam on Mountain Creek, 1.4 mi downstream from Walnut Creek, and 4.9 mi west of water towers in downtown Duncanville.

DRAINAGE AREA.--232 mi²

REMARKS.--The drainage area is at Joe Pool Lake Dam, where all water-quality samples and discharge measurements are made.

PERIOD OF RECORD.--Chemical and biochemical analyses: February to September 1987, September 1991 to September 1993 (discontinued).

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)
FEB 22...	1215	15	492	8.2	9.0	15	17	11.4	100	1.0	190	71
MAY 26...	1330	17	520	8.2	22.0	13	16	8.2	95	1.8	200	87
AUG 17...	1300	2.8	500	8.4	30.0	8	1.4	7.4	100	0.6	170	72

DATE	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
FEB 22...	65	5.7	29	0.9	7.4	120	110	18	0.30	5.0	311
MAY 26...	70	6.1	29	0.9	8.0	110	110	19	0.30	2.9	316
AUG 17...	58	6.0	32	1	8.5	98	120	22	0.40	3.5	310

DATE	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)
FEB 22...	27	18	9	0.170	--	<0.010	0.170	0.170	0.030	0.27	0.30
MAY 26...	24	9	15	0.240	0.240	0.020	0.260	0.260	0.040	0.36	0.40
AUG 17...	4	1	3	--	--	<0.010	--	<0.050	0.040	0.16	0.20

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC, DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM, DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
FEB 22...	<0.010	<0.010	5.5	1	40	<0.5	<1.0	<5	<3	<10	8
MAY 26...	0.020	<0.010	4.9	<1	50	<0.5	<1.0	<5	<3	<10	6
AUG 17...	<0.010	<0.010	4.9	1	46	<0.5	<1.0	<5	<3	<10	5

DATE	LEAD, DIS-SOLVED (UG/L AS Pb)	LITHIUM, DIS-SOLVED (UG/L AS Li)	MANGA-NESE, DIS-SOLVED (UG/L AS Mn)	MERCURY, DIS-SOLVED (UG/L AS Hg)	MOLYB-DENUM, DIS-SOLVED (UG/L AS Mo)	NICKEL, DIS-SOLVED (UG/L AS Ni)	SELE-NIUM, DIS-SOLVED (UG/L AS Se)	SILVER, DIS-SOLVED (UG/L AS Ag)	STRON-TIUM, DIS-SOLVED (UG/L AS Sr)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS Zn)
FEB 22...	<10	11	8	<0.1	<10	<10	<1	<1.0	580	<6	<3
MAY 26...	<10	12	2	<0.1	10	<10	<1	<1.0	600	<6	3
AUG 17...	20	12	3	0.1	10	<10	<1	1.0	560	<6	<3

TRINITY RIVER BASIN

343

08050050 MOUNTAIN CREEK LAKE NEAR GRAND PRAIRIE, TX

LOCATION.--Lat 32°43'55", long 96°56'35", Dallas County, Hydrologic Unit 12030102, at right end of spillway in Mountain Creek Dam on Mountain Creek, 2.5 mi upstream from Texas and Pacific Railway Co. bridge, and 3.7 mi southeast of Grand Prairie.

DRAINAGE AREA.--295 mi².

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

Water-quality records.--Chemical analyses: October 1969 to September 1985.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 21, 1960, non-recording gage at powerplant at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 5,800 ft long, including a controlled spillway six 34- by 27 foot 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 Joe Pool Dam, see station 08049900. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	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 provided by the Dallas Power and Light Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 28,360 acre-ft May 17, 1989 (elevation, 458.80 ft); minimum, 14,120 acre-ft Oct. 18, 1972 (elevation, 453.25 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 24,600 acre-ft June 25 at 2400 hours (elevation, 457.61 ft); minimum, 18,130 acre-ft Sept. 12 (elevation, 455.10 ft).

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

455.0	17,890	457.0	22,840
456.0	20,260	458.0	25,720

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21090	21130	22200	22320	22450	21860	22840	21060	22190	22870	20650	18720
2	21090	21160	22170	22400	22660	22900	22870	21160	22250	22710	20620	18700
3	21060	20960	22220	22500	23590	22930	23160	21210	22190	22380	20620	18620
4	21030	20850	22070	22450	21470	22380	22090	21650	22010	22500	20570	18580
5	20980	20850	22090	22450	21860	21890	21680	22090	22070	22560	20520	18530
6	20960	20830	22120	22450	22400	21730	21810	22530	21990	22690	20390	18480
7	20800	20800	22170	22480	22930	23530	22810	22980	21940	22660	20390	18460
8	20780	20780	22120	22480	23530	23010	23240	21680	21830	22580	20390	18360
9	20750	20710	22300	22660	21990	22380	21730	21030	21830	22480	20290	18360
10	20700	20850	22320	22690	22400	21680	21700	21270	22690	22430	20190	18290
11	20750	20800	22320	22740	23160	21990	22430	21500	22840	22320	20140	18340
12	20780	20880	22300	22740	22480	23070	22900	21650	23100	22270	20070	18290
13	20720	20880	22810	22900	23130	23670	21780	21700	23050	22190	20000	18480
14	20700	20900	21700	23130	22480	22500	21140	21730	23040	22090	19930	18670
15	20830	20880	23440	23160	22120	21600	21400	21780	23040	22010	19880	18650
16	20780	20900	22400	23190	22790	21830	22350	21780	22980	21960	19790	18620
17	20780	20830	22500	23210	23210	22040	23270	21780	22900	21890	19710	18620
18	20780	20830	23040	23240	22380	22090	22400	21700	22960	21810	19670	18600
19	20700	21420	22810	22580	23560	22480	21240	21700	22930	21760	19600	18620
20	20670	21470	22580	22400	22270	22760	21680	21680	22900	21700	19500	18650
21	20650	21890	23420	22500	22500	22840	22090	21680	22900	21600	19450	18670
22	20620	21890	22790	22790	22900	23560	22400	21780	22900	21500	19360	18650
23	20620	21890	21990	23010	22980	22450	22480	21830	22870	21420	19240	18600
24	20620	22350	22190	23240	23650	22740	22500	21960	22760	21290	19190	18580
25	20620	22240	22190	22250	21520	23850	22430	21990	24600	21160	19120	18740
26	20600	22240	22190	22450	21860	23420	22430	21960	22350	21090	19070	18890
27	20540	22250	22250	22740	22170	22500	22400	21960	22400	20980	19030	18890
28	20540	22250	22300	23040	22400	21780	22430	21990	22500	20960	19000	18840
29	20830	22220	22380	22350	---	22040	22250	22220	23160	20850	18890	18790
30	20850	22220	22400	21890	---	21760	20670	22250	22400	20830	18840	18770
31	20900	---	22300	22140	---	22900	---	22190	---	20760	18740	---
MAX	21090	22350	23440	23240	23650	23850	23270	22980	24600	22870	20650	18890
MIN	20540	20710	21700	21890	21470	21600	20670	21030	21830	20760	18740	18290
(↑)	456.25	456.76	456.79	456.73	456.83	457.02	456.16	456.75	456.83	456.19	455.36	455.37
(Φ)	-310	+1320	+80	-160	+260	+500	-2230	+1520	+210	-1640	-2020	+30
CAL YR 1992	MAX	23760	MIN	20540	(Φ)	-200						
WTR YR 1993	MAX	24600	MIN	18290	(Φ)	-2440						

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

TRINITY RIVER BASIN

08050100 MOUNTAIN CREEK AT GRAND PRAIRIE, TX

LOCATION.--Lat 32°44'51", long 96°55'32", Dallas County, Hydrologic Unit 12030102, on roadway embankment at upstream right end of downstream bridge on Jefferson Street, 1,000 ft upstream from bridge on U.S. Highway 80, 1.2 mi upstream from Texas and Pacific Railroad Co. bridge, 1.5 mi downstream from Mountain Creek Lake Dam, and 4.4 mi east of Grand Prairie.

DRAINAGE AREA.--298 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 404.31 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 19, 1984, at datum 3.0 ft higher.

REMARKS.--Records fair except those of estimated daily discharges, which are poor. Since March 1937, flow regulated by Mountain Creek Lake (station 08050050), 1.5 mi upstream. Several observations of water temperature were made during the year. Gage-height telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	3.0	1.0	1.2	2.0	1110	2.0	3.3	1.2	238	1.1	1.3
2	3.0	1.1	.97	1.3	1.9	e18	2.3	12	1.4	310	1.2	1.2
3	2.8	1.0	1.0	1.1	121	706	2.0	3.1	1.3	417	1.7	1.9
4	2.4	1.2	.98	.90	2030	1170	727	2.0	.97	3.5	2.1	1.5
5	2.3	1.6	.81	.86	6.2	1150	304	1.8	.85	4.5	1.7	1.5
6	2.2	1.5	.80	.86	5.0	1010	2.5	2.0	.78	3.3	1.4	1.3
7	2.1	1.5	.71	.89	4.8	6.0	19	1.6	1.2	2.7	2.1	1.0
8	2.6	1.3	.56	.89	4.6	1070	64	720	1.1	2.2	1.8	1.2
9	2.5	1.1	1.5	1.3	1270	1140	1220	597	1.2	2.0	1.4	1.5
10	2.6	.89	1.3	1.4	612	1130	566	3.4	11	1.6	1.2	1.6
11	2.4	.90	1.1	1.4	250	559	2.3	2.0	2.0	1.5	1.2	1.6
12	1.9	1.4	.89	1.4	1160	4.5	2.0	1.9	1.5	1.6	1.3	1.3
13	1.6	1.5	7.6	1.4	8.3	2.8	662	1.8	1.2	1.1	1.2	2.4
14	1.4	1.7	e1900	1.5	628	772	1340	1.6	1.0	1.4	1.2	3.4
15	2.0	1.6	e70	1.4	1300	778	177	1.5	.95	1.4	1.1	2.6
16	3.6	1.5	e790	1.3	125	3.0	4.3	1.2	.94	1.3	1.1	2.5
17	1.9	1.3	1.5	1.2	464	1.5	3.4	1.1	1.0	1.3	1.1	2.1
18	2.0	1.3	1.1	1.2	1270	1.5	928	.99	1.3	1.2	1.1	1.7
19	2.0	1.1	579	454	111	4.2	1060	1.2	1.5	1.1	.95	1.5
20	2.0	.71	690	502	1230	5.1	4.5	1.2	1.5	1.1	1.1	1.1
21	1.8	3.6	1.7	1.4	357	2.2	2.1	1.2	1.6	1.0	1.1	.61
22	1.6	1.6	648	1.4	2.1	462	1.9	1.0	1.5	1.1	.99	1.4
23	1.5	1.2	770	1.4	2.0	e819	1.9	1.7	1.4	1.1	.99	1.4
24	1.3	6.0	1.7	1.3	7.4	6.4	2.5	1.9	1.4	1.0	.84	1.5
25	1.0	2.0	1.5	722	e4980	4.3	1.6	1.2	386	.98	.95	2.3
26	.80	1.6	1.5	2.7	e350	1060	1.2	1.0	2240	.91	1.2	4.4
27	.72	1.6	1.5	1.8	20	1200	1.2	.98	5.8	.93	1.2	2.9
28	.58	1.5	1.4	2.0	257	1190	1.1	1.1	2.9	.83	1.1	2.8
29	2.5	1.2	1.2	642	---	582	571	1.4	2.6	.94	1.0	2.6
30	1.1	1.0	1.2	489	---	841	914	1.3	731	1.0	1.2	2.5
31	.80	---	1.2	2.2	---	2.9	---	1.2	---	1.0	1.1	---
TOTAL	59.50	48.50	5481.72	2844.70	16579.3	16811.4	8590.8	1374.67	3408.09	1008.59	38.72	56.61
MEAN	1.92	1.62	177	91.8	592	542	286	44.3	114	32.5	1.25	1.89
MAX	3.6	6.0	1900	722	4980	1200	1340	720	2240	417	2.1	4.4
MIN	.58	.71	.56	.86	1.9	1.5	1.1	.98	.78	.83	.84	.61
AC-FT	118	96	10870	5640	32890	33350	17040	2730	6760	2000	77	112

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1993#, BY WATER YEAR (WY)

	MEAN	70.9	64.2	85.2	104	145	180	210	293	151	35.4	9.95	20.8
MAX	785	1286	1102	1483	714	1104	1170	1941	1028	511	88.6	188	
(WY)	1974	1992	1972	1992	1975	1977	1966	1969	1990	1989	1962	1973	
MIN	.22	.30	.26	.11	.17	.30	.91	.68	.50	.21	.16	.36	
(WY)	1989	1964	1976	1976	1964	1976	1987	1984	1971	1972	1972	1972	

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1961 - 1993#

ANNUAL TOTAL	115273.95	56302.60	114
ANNUAL MEAN	315	154	506
HIGHEST ANNUAL MEAN			4.39
LOWEST ANNUAL MEAN			24700
HIGHEST DAILY MEAN	4520 Jun 29	4980 Feb 25	May 7 1969
LOWEST DAILY MEAN	.56 Dec 8	.56 Dec 8	.00 Jan 25 1964
ANNUAL SEVEN-DAY MINIMUM	.83 Dec 2	.83 Dec 2	.02 Dec 23 1983
INSTANTANEOUS PEAK FLOW		9180 Feb 25	38100 Apr 19 1976
INSTANTANEOUS PEAK STAGE		a/20.58 Feb 25	a/25.12 Dec 20 1991
INSTANTANEOUS LOW FLOW		.22 Sep 21	.00 at times
ANNUAL RUNOFF (AC-FT)	228600	111700	82520
10 PERCENT EXCEEDS	1200	673	28
50 PERCENT EXCEEDS	2.7	1.6	1.1
90 PERCENT EXCEEDS	1.1	.99	.30

Period of regulated streamflow.

a/ Peak stage probably affected by backwater from the West Fork Trinity River.

TRINITY RIVER BASIN

345

08050400 ELM FORK TRINITY RIVER AT GAINESVILLE, TX

LOCATION.--Lat 33°37'27", long 97°09'22", Cooke County, Hydrologic Unit 12030103, on downstream right bank at end of the bridge on Farm Road 51, 31 ft downstream from the centerline of the road, 0.6 mi west of Cooke County courthouse in Gainesville, 1.0 mi upstream from Interstate Highway 35, and 1.2 mi downstream from Dozier Creek.

DRAINAGE AREA.--174 mi².

PERIOD OF RECORD.--August 1985 to current year.

GAGE.--Water-stage recorder. Datum of gage is 700.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for the one estimated daily discharge, which is fair. Several observations of water temperature were made during the year. Gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1981, reached a peak stage of 28.1 ft, from information furnished by an employee of the Gainesville Department of Public Works.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	3.8	6.3	34	51	2230	69	73	108	20	2.8	1.2
2	2.4	4.3	5.9	33	50	937	64	56	108	18	3.1	1.0
3	2.5	3.6	5.3	34	54	489	67	49	106	16	6.8	1.5
4	2.8	3.2	5.1	40	54	339	402	42	97	15	4.3	1.6
5	3.0	2.9	4.9	44	52	255	121	37	79	14	3.5	1.3
6	3.1	2.9	5.0	38	49	219	88	34	70	13	3.3	1.2
7	3.2	2.9	5.0	37	45	182	118	32	64	13	3.6	1.1
8	2.6	2.9	5.0	35	41	152	105	31	142	12	3.5	1.1
9	2.5	2.8	23	54	40	130	77	7270	1600	11	3.2	1.0
10	2.3	2.9	34	75	90	113	68	1400	2470	10	3.1	1.0
11	2.5	3.4	18	63	85	92	61	1010	709	9.7	2.8	1.0
12	2.5	3.9	13	127	57	85	58	846	350	9.5	2.2	1.0
13	2.5	6.0	1170	121	46	78	55	712	213	9.4	2.0	1.5
14	2.5	4.3	4970	87	43	72	131	644	169	8.9	2.0	903
15	2.4	3.7	1240	77	2530	71	165	547	100	7.9	1.6	61
16	2.4	3.4	757	69	911	76	109	421	74	8.0	1.5	11
17	2.5	3.3	615	62	489	73	84	306	61	6.9	1.5	5.3
18	2.8	3.2	394	58	315	68	74	274	51	6.9	1.3	3.6
19	2.8	6.5	277	62	224	208	68	257	46	6.7	1.2	2.8
20	2.8	8.2	192	504	180	364	58	230	43	6.5	1.4	2.5
21	2.6	14	139	239	146	188	50	201	40	6.2	1.3	2.3
22	2.5	117	117	159	110	489	46	189	39	5.0	1.1	2.0
23	2.4	67	103	123	89	385	45	204	37	4.6	.98	1.7
24	2.5	35	87	96	85	225	45	213	34	4.3	1.1	1.7
25	2.7	37	74	77	992	167	43	174	31	4.1	2.4	1.6
26	2.9	20	67	71	313	130	38	163	29	3.7	2.0	1.6
27	2.7	12	64	67	190	110	37	151	28	3.4	1.7	1.9
28	2.9	9.6	63	64	162	100	39	141	26	3.2	1.3	2.3
29	3.2	8.0	59	59	---	92	849	132	24	3.2	1.3	2.3
30	3.2	7.0	52	54	---	86	123	121	22	3.1	1.3	2.4
31	3.2	---	42	51	---	76	---	e114	---	2.9	1.4	---
TOTAL	83.3	404.7	10612.5	2714	7493	8281	3357	16074	6970	266.1	70.58	1024.5
MEAN	2.69	13.5	342	87.5	268	267	112	519	232	8.58	2.28	34.1
MAX	3.2	117	4970	504	2530	2230	849	7270	2470	20	6.8	903
MIN	2.3	2.8	4.9	33	40	68	37	31	22	2.9	.98	1.0
AC-FI	165	803	21050	5380	14860	16430	6660	31880	13820	528	140	2030

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1993, BY WATER YEAR (WY)

MEAN	56.6	30.8	184	103	147	184	189	430	241	19.8	3.66	43.7
MAX	273	157	743	316	348	565	1063	1359	659	91.1	7.95	105
(WY)	1992	1992	1992	1992	1987	1990	1990	1990	1989	1987	1992	1992
MIN	.72	2.56	2.61	5.72	18.0	6.54	6.25	5.79	5.36	1.02	.025	1.40
(WY)	1989	1990	1991	1986	1991	1986	1991	1988	1988	1988	1988	1990

SUMMARY STATISTICS

	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1986 - 1993			
ANNUAL TOTAL	40757.3				57350.68				136			
ANNUAL MEAN	111				157				277			
HIGHEST ANNUAL MEAN									35.2			
LOWEST ANNUAL MEAN									12500			
HIGHEST DAILY MEAN	4970				7270				May 2 1990			
LOWEST DAILY MEAN	1.9				.98				Aug 2 1988			
ANNUAL SEVEN-DAY MINIMUM	2.1				1.1				Aug 2 1988			
INSTANTANEOUS PEAK FLOW					21100				May 9 1989			
INSTANTANEOUS PEAK STAGE					22.72				May 16 1989			
INSTANTANEOUS LOW FLOW					.89				Sep 1			
ANNUAL RUNOFF (AC-FT)	80840				113800				98520			
10 PERCENT EXCEEDS	254				289				260			
50 PERCENT EXCEEDS	30				39				14			
90 PERCENT EXCEEDS	2.6				2.0				1.3			

* No flow for several days in August 1988 because of channel construction upstream.

TRINITY RIVER BASIN

08050410 ELM FORK TRINITY RIVER NEAR GAINESVILLE, TX

LOCATION.--Lat 33°34'56", long 97°07'49", Cooke County, Hydrologic Unit 12030103, on Farm Road 2071 bridge, over center of channel at downstream side of bridge, 1.0 mi downstream from Atchison, Topeka, and Santa Fe Railroad Co. bridge, and 3.0 mi south of Cooke County Courthouse in Gainesville.

DRAINAGE AREA.--1.79 mi².

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1988 to current year.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CAC03)
NOV 03...	1545	7.4	754	8.1	16.0	23	11	8.4	87	1.5	200
FEB 09...	1320	46	716	8.3	10.5	10	1.7	13.2	121	1.3	260
MAR 30...	1150	104	622	8.2	21.0	--	1.9	11.1	129	1.0	230
MAY 26...	1615	180	421	8.2	25.0	25	11	8.7	107	2.0	160
JUL 22...	1057	8.3	864	8.0	27.0	14	6.9	6.6	85	0.6	230
SEP 03...	1045	14	857	7.8	24.5	21	21	7.0	85	7.9	120
DATE	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)
NOV 03...	0	70	5.6	90	3	5.5	260	50	47	0.30	11
FEB 09...	18	95	5.9	52	1	2.7	240	55	60	0.30	4.7
MAR 30...	13	82	5.0	41	1	2.3	210	44	45	0.20	2.9
MAY 26...	9	60	3.3	21	0.7	2.9	150	23	25	0.20	7.2
JUL 22...	0	81	6.3	100	3	4.3	260	64	73	0.60	14
SEP 03...	0	41	4.2	160	6	6.2	260	62	65	0.80	13
DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
NOV 03...	438	<1	<1	--	5.36	--	0.040	--	5.40	--	0.050
FEB 09...	423	18	17	1	--	--	--	--	--	--	--
MAR 30...	355	7	7	0	0.950	0.950	--	0.010	0.960	0.960	--
MAY 26...	239	26	11	15	0.780	--	--	<0.010	0.780	0.780	--
JUL 22...	526	35	16	19	5.34	5.34	--	0.060	5.40	5.40	--
SEP 03...	556	50	5	45	9.14	9.14	--	0.060	9.20	9.20	--
DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED TOTAL (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	
NOV 03...	--	0.85	--	--	0.90	1.40	--	--	1.30	--	
FEB 09...	--	0.30	--	--	0.30	0.240	--	--	--	--	
MAR 30...	0.030	--	0.17	0.20	--	--	0.120	0.110	--	0.34	
MAY 26...	0.020	--	0.28	0.30	--	--	0.060	0.050	--	0.15	
JUL 22...	0.340	--	0.66	1.0	--	--	0.880	0.820	--	2.5	
SEP 03...	0.030	--	0.67	0.70	--	--	2.60	1.90	--	5.8	

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

[illegible]

TRINITY RIVER BASIN

08050800 TIMBER CREEK NEAR COLLINSVILLE, TX

LOCATION.--Lat 33°33'16", long 96°56'49". Cooke County, Hydrologic Unit 12030103, on left bank 13 ft to the left of bridge on Farm Road 902 and 19 ft downstream from the centerline of the road, 2.1 mi west of Collinsville, and 3.0 mi upstream from mouth.

DRAINAGE AREA.--38.8 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1985 to current year.

GAGE.--Water-stage recorder. Datum of gage is 640.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Several observations of water temperature were made during the year. Gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1981 reached a peak stage of 15.0 ft, from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 14	1130	3,050	13.46	Apr. 29	1530	1,010	12.29
Mar. 1	2330	1,030	12.37	May 9	1745	7,850	14.36

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.73	2.2	1.9	9.0	7.1	593	5.5	26	.01	.39	.00	.00
2	.63	.72	1.8	8.7	6.7	530	5.3	18	.01	.04	.00	.00
3	.57	.46	1.6	8.8	48	49	5.8	15	.00	.00	.00	.00
4	.54	.02	1.4	9.0	126	26	111	9.8	.00	.00	.00	.00
5	.46	.00	1.4	9.4	32	18	31	7.3	.00	.00	.00	.00
6	.39	.00	1.2	9.1	20	15	16	6.3	.00	.00	.00	.00
7	.38	.02	1.1	9.0	14	12	12	6.1	.00	.00	.00	.00
8	.30	.10	1.3	9.0	12	10	11	5.6	3.2	.00	.00	.00
9	.15	.16	4.7	10	9.5	9.1	8.0	1860	200	.00	.00	.00
10	.11	.31	9.6	13	25	8.2	7.1	750	175	.00	.00	.00
11	.07	.58	3.7	11	30	7.2	6.1	54	109	.00	.00	.00
12	.08	.73	2.7	11	14	7.0	5.7	36	36	.00	.00	.00
13	.08	.66	38	12	8.9	6.7	5.7	24	18	.00	.00	.00
14	.05	.55	1520	9.5	7.5	6.5	192	16	10	.00	.00	4.2
15	.04	.53	934	8.8	626	6.6	57	12	5.8	.00	.00	5.5
16	.05	.53	221	7.9	548	9.5	19	7.4	3.7	.00	.00	.00
17	.00	.53	37	8.1	41	8.4	11	5.5	2.5	.00	.00	.00
18	.00	.57	24	7.9	24	6.9	8.4	4.0	1.8	.00	.00	.00
19	.00	1.5	19	9.1	19	136	7.1	3.4	1.5	.00	.00	.00
20	.00	8.8	16	177	16	430	5.7	3.0	1.4	.00	.00	.00
21	.00	7.8	14	42	14	38	4.6	2.8	1.4	.00	.00	.00
22	.00	18	12	22	11	200	4.3	2.1	1.4	.00	.00	.00
23	.00	8.1	11	15	10	104	4.3	1.8	1.2	.00	.00	.00
24	.00	4.0	11	11	12	30	4.3	12	.82	.00	.00	.00
25	.00	3.9	11	10	796	18	4.0	2.7	.48	.00	.00	.00
26	.00	2.8	10	9.2	138	12	3.3	.90	15	.00	.00	.00
27	.00	2.2	9.6	9.4	30	9.9	3.2	.57	5.9	.00	.00	.00
28	.00	2.0	9.5	8.1	22	8.7	3.2	.28	3.1	.00	.00	.00
29	.00	1.9	9.3	7.7	---	7.9	783	.89	2.0	.00	.00	.00
30	.00	1.9	9.6	7.5	---	7.2	265	.65	1.1	.00	.00	.00
31	.01	---	9.4	7.3	---	6.2	---	.24	---	.00	.00	---
TOTAL	4.64	71.57	2957.8	506.5	2667.7	2337.0	1609.6	2894.33	600.32	0.43	0.00	9.70
MEAN	.15	2.39	95.4	16.3	95.3	75.4	53.7	93.4	20.0	.014	.000	.32
MAX	.73	18	1520	177	796	593	783	1860	200	.39	.00	5.5
MIN	.00	.00	1.1	7.3	6.7	6.2	3.2	.24	.00	.00	.00	.00
AC-FT	9.2	142	5870	1000	5290	4640	3190	5740	1190	.9	.00	19
CFSM	.00	.06	2.46	.42	2.46	1.94	1.38	2.41	.52	.00	.00	.01
IN.	.00	.07	2.84	.49	2.56	2.24	1.54	2.77	.58	.00	.00	.01

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1993, BY WATER YEAR (WY)

	MEAN	135	10.9	64.7	24.5	41.4	40.6	61.2	84.1	48.5	6.22	.81	9.25
MAX	135	40.5	326	73.1	95.3	89.6	259	168	193	36.9	4.40	32.0	
(WY)	1992	1992	1992	1992	1993	1990	1990	1989	1989	1989	1990	1992	
MIN	.000	.000	.097	.60	2.00	2.72	1.82	.69	1.10	.000	.000	.026	
(WY)	1988	1990	1990	1986	1991	1986	1987	1988	1988	1988	1986	1990	

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1986 - 1993

ANNUAL TOTAL	14156.97	13659.59	
ANNUAL MEAN	38.7	37.4	34.6
HIGHEST ANNUAL MEAN			72.7
LOWEST ANNUAL MEAN			10.1
HIGHEST DAILY MEAN	1520	1860	3460
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW		7850	7850
INSTANTANEOUS PEAK STAGE		14.36	14.79
INSTANTANEOUS LOW FLOW		.00	.00
ANNUAL RUNOFF (AC-FT)	28080	27090	25090
ANNUAL RUNOFF (CFSM)	1.00	.96	.89
ANNUAL RUNOFF (INCHES)	13.57	13.10	12.13
10 PERCENT EXCEEDS	37	31	27
50 PERCENT EXCEEDS	3.4	3.0	1.9
90 PERCENT EXCEEDS	.01	.00	.00

TRINITY RIVER BASIN

349

08050800 TIMBER CREEK NEAR COLLINSVILLE, TX--Continued

PERIOD OF RECORD.--Chemical and biochemical analyses: April 1993 to September 1993.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	HARDNESS TOTAL (MG/L AS CaCO3)	HARDNESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)
APR 25...	1407	4.1	910	7.8	20.5	8.0	91	250	89	72	18	86
MAY 20...	1135	3.0	888	7.7	18.5	7.1	77	240	79	69	17	85
JUN 28...	1505	2.7	511	7.4	26.5	5.2	66	140	14	41	9.7	44
DATE		SODIUM AD-SORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	CARBONATE WATER DIS IT FIELD (MG/L AS CO3)	BICARBONATE WATER DIS IT FIELD (MG/L AS HCO3)	ALKALINITY WATER DIS TOT IT FIELD (MG/L AS CaCO3)	ALKALINITY WATER DIS FIX END FIELD (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
APR 25...		2	2.8	0	201	164	160	36	170	0.30	12	514
MAY 20...		2	3.1	0	199	163	160	36	170	0.30	17	509
JUN 28...		2	4.2	0	157	129	130	16	77	0.30	13	301
DATE		SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	NITROGEN, NITRATE DIS-SOLVED TOTAL (MG/L AS N)	NITROGEN, NITRATE DIS-SOLVED (MG/L AS N)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, ORGANIC DIS-SOLVED TOTAL (MG/L AS N)	NITROGEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS-SOLVED TOTAL (MG/L AS N)
APR 25...		496	--	--	<0.010	--	<0.050	0.020	0.28	0.28	0.30	0.30
MAY 20...		496	0.130	--	<0.010	0.130	0.130	0.030	0.17	0.27	0.30	0.20
JUN 28...		284	0.250	0.250	0.010	0.260	0.260	0.070	0.43	0.23	0.30	0.50
DATE		PHOSPHORUS TOTAL (MG/L AS P)	PHOSPHORUS, DIS-SOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	SEDIMENT, SUS-PENDED (MG/L)	SEDIMENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	IRON, DIS-SOLVED (UG/L AS FE)	MANGANESE, DIS-SOLVED (UG/L AS MN)
APR 25...		0.020	0.010	<0.010	--	6.6	0.5	16	0.18	99	38	400
MAY 20...		0.020	0.010	<0.010	--	4.2	0.9	38	0.31	98	36	250
JUN 28...		0.030	0.020	0.010	0.03	7.6	1.3	21	0.15	97	150	150

TRINITY RIVER BASIN

08050815 JORDAN CREEK TRIBUTARY NEAR COLLINSVILLE, TX.

LOCATION---Lat 33°32'15", long 96°55'22", Grayson County, Hydrologic Unit 12030103, at culvert on gravel road, 0.4 mi upstream from mouth of Jordan Creek, and 1.5 mi southwest of Collinsville.

DRAINAGE AREA---1.65 mi².

PERIOD OF RECORD---Chemical and biochemical analyses: October 1988 to current year.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CaCO3)
NOV 04...	1600	0.13	892	8.1	11.5	55	7.4	6.7	63	1.7	100
FEB 09...	1525	0.82	692	8.3	11.0	40	5.3	12.8	119	2.3	160
MAR 31...	1008	0.66	716	8.1	15.5	--	3.7	10.7	111	1.4	160
MAY 25...	1058	0.59	689	7.8	21.0	25	4.1	6.5	74	1.5	140
SEP 14...	1911	0.52	609	8.2	17.5	55	16	7.6	81	3.0	54
15...	1505	0.09	680	8.3	16.5	58	9.4	7.6	79	2.5	55

DATE	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
NOV 04...	0	32	5.8	150	6	7.3	300	40	78	0.30	7.9
FEB 09...	0	50	9.4	85	3	5.7	220	55	62	0.30	5.1
MAR 31...	0	49	9.4	86	3	5.2	230	59	52	0.30	3.3
MAY 25...	0	42	8.3	88	3	6.0	220	50	52	0.30	8.5
SEP 14...	0	17	2.8	110	7	4.9	190	38	45	0.30	4.5
15...	0	17	3.1	120	7	5.6	210	44	53	0.30	5.2

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
NOV 04...	499	<1	<1	--	--	--	0.020	--	<0.050	--	0.020
FEB 09...	403	17	17	0	--	--	--	--	--	--	--
MAR 31...	409	1	<1	--	0.680	0.680	--	0.030	0.710	0.710	--
MAY 25...	395	9	8	1	1.37	1.37	--	0.030	1.40	1.40	--
SEP 14...	343	23	11	12	0.350	0.350	--	0.080	0.430	0.430	--
15...	382	33	9	24	0.420	0.420	--	0.060	0.480	0.480	--

DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
NOV 04...	--	0.68	--	--	0.70	1.20	--	--	1.10	--
FEB 09...	--	0.50	--	--	0.50	0.490	--	--	--	--
MAR 31...	0.030	--	0.37	0.40	--	--	0.500	0.480	--	1.5
MAY 25...	0.060	--	0.74	0.80	--	--	0.860	0.820	--	2.5
SEP 14...	0.090	--	0.61	0.70	--	--	1.30	1.30	--	4.0
15...	0.060	--	0.64	0.70	--	--	1.40	1.30	--	4.0

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

[illegible]

TRINITY RIVER BASIN

08050840 RANGE CREEK NEAR COLLINSVILLE, TX

LOCATION.--Lat 33°31'34", long 96°48'25", Delta County, Hydrologic Unit 12030103, on downstream left bank at bridge on Farm Road 902, 1.8 mi upstream from Case Creek, 2.5 mi downstream from Little Elm Creek, 6.5 mi east southeast from the Post Office in Collinsville.

DRAINAGE AREA.--To be determined.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1992 to September 1993.

GAGE.--Water-stage recorder. Datum of gage to be determined.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Gage height telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.00	.00	.07	1.7	.30	108	.64	8.9	1.3	.00	.00	.00
2	e.00	.00	.03	.90	.24	81	.43	4.4	.29	.00	.00	.00
3	e.00	.00	.01	.61	30	18	.52	3.5	.04	.00	.00	.00
4	e.00	.00	.00	1.0	118	10	16	2.5	.02	.00	.00	.00
5	e.00	.00	.00	1.7	35	6.6	8.0	1.5	.02	.00	.00	.00
6	e.00	.00	.00	1.4	14	5.6	3.4	.76	.01	.00	.00	.00
7	e.00	.00	.00	.88	8.4	3.6	2.3	.51	.01	.00	.00	.00
8	e.00	.00	.00	.69	5.2	2.3	2.2	.38	2.1	.00	.00	.00
9	e.00	.00	.05	2.0	3.5	1.6	1.7	1020	248	.00	.00	.00
10	e.00	.00	.03	4.0	14	.96	.69	184	479	.00	.00	.00
11	e.00	.00	.02	3.1	17	.49	.40	16	73	.00	.00	.00
12	e.00	.00	.28	2.6	6.5	.32	.22	9.0	33	.00	.00	.00
13	e.00	.00	14	3.1	3.1	.26	.12	5.5	6.1	.00	.00	.00
14	e.00	.00	974	2.4	2.0	e.26	11	3.0	2.3	.00	.00	57
15	e.00	.00	519	1.7	134	e.22	13	1.6	.93	.00	.00	9.6
16	e.00	.00	208	1.4	81	e.23	4.4	.96	.31	.00	.00	1.5
17	e.00	.00	24	1.1	15	e.24	1.9	.54	.05	.00	.00	.19
18	e.00	.00	9.0	1.0	7.5	e.41	.96	.16	.01	.00	.00	.02
19	e.00	.01	6.9	2.7	5.3	e86	.51	.04	.01	.00	.00	.01
20	.00	.00	5.1	88	4.4	e71	.20	.02	.01	.00	.00	.00
21	.00	.08	4.0	24	3.6	e13	.07	.01	.01	.00	.00	.00
22	.00	.09	3.4	8.7	1.8	e127	.03	.00	.01	.00	.00	.00
23	.00	.60	3.0	5.1	.64	e33	.02	.00	.01	.00	.00	.00
24	.00	17	2.3	3.2	3.4	e15	.01	.00	.00	.00	.00	.00
25	.00	17	2.4	1.8	376	8.8	.01	.00	.00	.00	.00	.00
26	.00	5.1	2.1	1.3	34	5.3	.00	.00	1.1	.00	.00	.00
27	.00	2.9	1.8	1.3	12	3.4	.00	.00	.24	.00	.00	.00
28	.00	1.6	1.6	.90	8.5	2.5	.00	.00	.01	.00	.00	.00
29	.00	.63	1.8	.72	---	2.1	1470	.00	.00	.00	.00	.00
30	.00	.19	2.7	.56	---	1.6	38	.46	.00	.00	.00	.00
31	.00	---	2.5	.40	---	1.1	---	7.8	---	.00	.00	---
TOTAL	0.00	45.20	1788.09	169.96	944.38	609.89	1576.73	1271.54	847.89	0.00	0.00	68.32
MEAN	.000	1.51	57.7	5.48	33.7	19.7	52.6	41.0	28.3	.000	.000	2.28
MAX	.00	17	974	88	376	127	1470	1020	479	.00	.00	57
MIN	.00	.00	.00	.40	.24	.22	.00	.00	.00	.00	.00	.00
AC-FT	.00	90	3550	337	1870	1210	3130	2520	1680	.00	.00	136

e Estimated

SUMMARY STATISTICS

FOR 1993 WATER YEAR

ANNUAL TOTAL	7322.00
ANNUAL MEAN	20.1
HIGHEST DAILY MEAN	1470
LOWEST DAILY MEAN	.00
ANNUAL SEVEN-DAY MINIMUM	.00
INSTANTANEOUS PEAK FLOW	5990
INSTANTANEOUS PEAK STAGE	22.55
INSTANTANEOUS LOW FLOW	.00
ANNUAL RUNOFF (AC-FT)	14520
10 PERCENT EXCEEDS	14
50 PERCENT EXCEEDS	.05
90 PERCENT EXCEEDS	.00

Apr 29
Oct 1
Oct 1
May 9
May 9
Oct 1

TRINITY RIVER BASIN

353

08050840 RANGE CREEK NEAR COLLINSVILLE, TX--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1992 to September 1993.

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

		DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	HARDNESS TOTAL (MG/L AS CaCO3)
DEC 14...	1330	2050	179	7.8	12.0	240	170	8.8	84	2.7	58
FEB 10...	1340	12	594	7.8	12.0	100	59	9.8	94	2.7	200
APR 01...	1310	0.65	564	8.2	15.0	--	8.5	18.1	184	1.2	230
JUN 15...	1556	0.80	367	8.0	24.0	70	18	6.4	77	1.8	150
SEP 15...	1248	8.0	280	6.7	15.0	110	320	8.2	83	5.0	90
16...	1140	1.7	310	7.9	16.5	120	240	7.3	76	3.7	110
DATE	HARDNESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY WAT DIS FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS Cl)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
DEC 14...	0	20	1.8	9.2	0.5	4.4	61	15	4.9	0.20	10
FEB 10...	57	67	7.1	47	1	4.5	140	140	22	0.20	8.0
APR 01...	46	83	4.5	29	0.8	2.9	180	86	11	0.30	3.5
JUN 15...	15	55	3.3	16	0.6	5.0	140	41	9.0	0.30	16
SEP 15...	33	32	2.3	15	0.7	3.5	57	36	9.8	0.30	14
16...	42	39	2.8	17	0.7	4.0	67	37	11	0.30	17
DATE	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L)	RESIDUE VOLATILE, SUSPENDED (MG/L)	RESIDUE FIXED NON FILTERABLE (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRATE DIS-SOLVED (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)
DEC 14...	102	256	18	238	4.26	--	0.140	--	4.40	--	0.080
FEB 10...	386	108	42	66	1.26	1.26	--	0.040	1.30	1.30	--
APR 01...	329	2	<1	--	--	--	--	<0.010	--	<0.050	--
JUN 15...	229	26	17	9	0.240	--	--	<0.010	0.240	0.240	--
SEP 15...	178	832	48	784	6.51	6.51	--	0.090	6.60	6.60	--
16...	197	412	28	384	6.13	6.13	--	0.070	6.20	6.20	--
DATE	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)	PHOSPHORUS DIS-SOLVED (MG/L AS P)	PHOSPHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOSPHORUS ORTHO TOTAL (MG/L AS P)	PHOSPHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	
DEC 14...	--	1.2	--	--	1.3	0.610	--	--	0.390	--	
FEB 10...	0.040	--	0.66	0.70	--	--	0.170	0.120	--	0.37	
APR 01...	0.020	--	0.28	0.30	--	--	<0.010	0.010	--	0.03	
JUN 15...	0.030	--	0.57	0.60	--	--	0.170	0.120	--	0.37	
SEP 15...	0.060	--	1.1	1.2	--	--	0.300	0.280	--	0.86	
16...	0.040	--	3.3	3.3	--	--	0.270	0.240	--	0.74	

TRINITY RIVER BASIN

08050840 RANGE CREEK NEAR COLLINSVILLE, TX--Continued

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

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
DEC 14...	11	2	23	<0.5	<1.0	<5	<3	<10	140	<10
FEB 10...	10	--	--	--	--	--	--	--	--	--
APR 01...	8.2	2	69	<0.5	<1.0	<5	<3	<10	12	<10
JUN 15...	10	--	--	--	--	--	--	--	--	--
SEP 15...	22	4	32	<0.5	<1.0	<5	<3	<10	92	<10
SEP 16...	19	4	39	<0.5	<1.0	<5	<3	<10	79	<10
DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
DEC 14...	<4	9	<0.1	<10	<10	<1	<1.0	120	<6	11
FEB 10...	--	--	--	--	--	--	--	--	--	--
APR 01...	7	6	<0.1	<10	<10	<1	<1.0	600	<6	<3
JUN 15...	--	--	--	--	--	--	--	--	--	--
SEP 15...	9	3	<0.1	<10	<10	1	<1.0	210	<6	9
SEP 16...	4	3	<0.1	<10	<10	1	<1.0	260	<6	<3

TRINITY RIVER BASIN

355

08050842 RANGE CREEK ABOVE TIOGA, TX

WATER QUALITY RECORDS

LOCATION.--Lat 33°30'25", long 96°53'12", GRAYSON COUNTY, HYDROLOGIC UNIT 12030103, near center of channel at downstream side of county road truss bridge, 1,400 feet downstream from Hog Creek, and 3.2 mi north-northeast of Tioga.

DRAINAGE AREA.--To be determined.

PERIOD OF RECORD.--December 1992 to September 1993 (discontinued).

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

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	HARDNESS TOTAL (MG/L AS CaCO3)	HARDNESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)
DEC 18...	1200	294	7.7	5.0	120	77	11.3	91	1.9	100	34
FEB 10...	1535	700	8.1	12.0	140	54	9.2	88	2.9	240	110
MAR 31...	1238	578	7.8	16.5	--	48	8.2	87	2.0	230	50
MAY 24...	1755	480	7.7	24.0	30	10	3.8	46	2.4	190	35
SEP 14...	1729	186	5.8	17.0	110	270	7.2	76	3.5	58	40

DATE	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY WAT DIS FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS Cl)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)
DEC 18...	34	4.2	15	0.6	4.2	69	48	7.4	0.20	12	167
FEB 10...	83	7.0	49	1	4.6	120	190	35	0.20	13	454
MAR 31...	81	7.2	30	0.9	3.6	180	98	15	0.20	9.6	357
MAY 24...	66	6.4	21	0.7	4.6	160	75	11	0.20	9.2	288
SEP 14...	19	2.5	8.4	0.5	4.7	18	30	6.2	0.20	11	116

DATE	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L)	RESIDUE VOLATILE, SUSPENDED (MG/L)	RESIDUE FIXED NON FILTERABLE (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRATE DIS-SOLVED (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)
DEC 18...	88	2	86	3.94	--	0.060	--	4.00	--	0.050
FEB 10...	82	38	44	0.420	0.420	--	0.030	0.450	0.450	--
MAR 31...	60	2	58	0.310	0.310	--	0.010	0.320	0.320	--
MAY 24...	13	8	5	0.100	0.100	--	0.020	0.120	0.120	--
SEP 14...	1050	66	984	5.18	5.18	--	0.020	5.20	5.20	--

DATE	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)	PHOSPHORUS, DIS-SOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P)	PHOSPHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
DEC 18...	--	0.85	--	--	0.90	0.310	--	--	0.210	--
FEB 10...	0.040	--	0.76	0.80	--	--	0.180	0.110	--	0.34
MAR 31...	0.040	--	0.46	0.50	--	--	<0.010	0.010	--	0.03
MAY 24...	0.110	--	0.79	0.90	--	--	0.050	0.030	--	0.09
SEP 14...	0.050	--	0.95	1.0	--	--	0.220	0.200	--	0.61

[illegible]

TRINITY RIVER BASIN

357

08051100 RAY ROBERTS LAKE NEAR PILOT POINT, TX

LOCATION.--Lat 32°21'19", Long 97°02'59", Denton County, Hydrologic Unit 12030103, in control room of outlet works tower located 336 ft upstream from centerline of Ray Roberts Dam (and Farm Road 455 which is located on top of dam) on Elm Fork Trinity River, 3.7 mi upstream from Bray Branch, 5.7 mi southwest of Pilot Point, and at river mile 60.0.

DRAINAGE AREA.--692 mi².

WATER-CONTENT RECORDS

PERIOD OF RECORD.--July 1987 to current year.

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

REMARKS.--Lake is formed by a rolled earthfill dam 15,250 ft long. There is an uncontrolled, broad-crested spillway excavated in natural ground about 5,000 ft right of right end of dam. A reinforced concrete tower houses the flood-control and low-flow gates and operating equipment. Construction started Sept. 16, 1980 and closure was made in May 1986. The dam was built and is owned by the U.S. Army Corps of Engineers. Deliberate impoundment started June 30, 1987. The lake was built for water supply, flood control, and recreation purposes. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	665.0	-
Spillway crest (uncontrolled).....	645.5	1,262,000
Top of flood-control pool.....	640.5	1,065,000
Top of conservation pool.....	632.5	799,600
Invert, lowest gated outlet.....	551.0	990

COOPERATION.--Area and capacity tables provided by the U.S. Army Corps of Engineers. Records of elevations and contents provided by the U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,219,000 acre-ft May 3, 1990 (elevation, 644.48 ft); minimum since initial filling began, 990 acre-ft July 1, 1987 (elevation, 551.00 ft).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 876,300 acre-ft Dec. 16 (elevation, 635.01 ft); minimum daily, 529,000 acre-ft Sept. 12 (elevation, 621.80 ft).

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

620.0	491,200	628.0	675,800	633.0	814,500
622.0	533,300	630.0	729,000	634.0	844,800
624.0	578,100	631.0	756,700	635.0	876,000
626.0	625,500	632.0	785,200	636.0	908,100

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	797700	788700	784000	804500	800600	866500	802700	822600	800300	740800	543800	533700
2	797700	788100	783500	803300	800300	872200	801800	820200	800300	732500	544200	533300
3	797100	787500	783200	802700	806200	870900	802100	815700	799700	723000	543800	533500
4	796800	786600	783200	802400	810700	869400	806200	811300	800300	714600	543300	533100
5	796800	785800	782900	801500	811000	866500	805000	807400	799700	706800	542900	532600
6	796500	785200	782900	801500	810700	863100	803900	804200	798600	698600	542700	532400
7	795100	784000	782000	801500	809800	859300	803000	802400	798600	691200	543800	531800
8	794500	783700	782300	801800	809500	855000	801500	801500	808900	683100	543300	531600
9	793900	783500	783500	802400	808600	851600	800300	838700	822900	675300	542900	531100
10	793600	784000	783500	802100	809500	848200	800300	858700	839300	667900	542500	530900
11	793000	783700	783200	801800	808600	842900	800300	856800	840800	660200	542000	529800
12	792700	784300	783500	801800	806500	838700	799700	851600	837400	652100	541600	529000
13	791900	783500	794800	802100	805000	833800	800000	845700	832600	644100	541100	532000
14	791300	783500	857500	801500	804800	828900	803000	839000	827700	636300	540700	539400
15	791600	783200	874400	801500	832600	826500	803600	832000	823800	628500	540300	539400
16	791600	782900	876300	801500	839000	823500	803600	824700	819600	620700	539800	539200
17	791000	782900	871200	801500	837100	820500	803600	817200	815700	612700	539400	538500
18	790400	782600	864600	801500	833800	816300	802400	812500	812700	605300	538700	538300
19	789500	785500	858700	803600	831400	817800	803000	808000	809800	597000	538500	538100
20	789500	785200	851300	808000	828000	821400	802400	804800	806200	589700	538100	537900
21	789200	786100	843600	808600	825300	820500	801800	802400	803900	581800	537600	537600
22	789000	785800	837400	807400	822000	823500	800600	800300	801800	575300	537000	537400
23	788700	785500	832000	806500	819600	823500	800000	801500	798000	569400	536300	537400
24	788700	785500	826500	805300	817200	821700	800900	800900	792100	563400	537200	536800
25	788400	786100	822600	804200	840800	819600	801200	800600	788100	558000	536800	537600
26	788400	785200	817500	802700	842600	816600	800900	800300	780600	553100	536500	537400
27	787800	784900	814800	801800	843300	813900	800300	800300	773100	548900	535900	536500
28	787500	784300	812200	802100	844500	811300	800900	801200	765200	546400	535500	536300
29	787800	784000	810100	801500	---	808900	825600	801500	757200	545500	534800	535900
30	787500	784000	808600	801200	---	806800	826800	801500	749100	544700	534800	535000
31	789800	---	806500	801200	---	804500	---	801500	---	544000	534200	---
MAX	797700	788700	876300	808600	844500	872200	826800	858700	840800	740800	544200	539400
MIN	787500	782600	782000	801200	800300	804500	799700	800300	749100	544000	534200	529000
(↑)	632.16	631.96	632.73	632.55	633.99	632.66	633.41	632.56	630.73	622.49	622.04	622.08
(Φ)	-8200	-5800	+22500	-5300	+43300	-40000	+22300	-25300	-52400	-205100	-9800	+800
CAL YR 1992	MAX 1001000	MIN 782000	(Φ) -143200									
WTR YR 1993	MAX 876300	MIN 529000	(Φ) -263000									

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

(Φ) Change in contents, in acre-feet.

TRINITY RIVER BASIN

08051100 RAY ROBERTS LAKE NEAR PILOT POINT, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: February 1989 to current year.

REVISED RECORDS.--Due to a computation error discovered after publication of Phytoplankton analyses for the period October 1991 to September 1992, revised data for these analyses are included in this report.

332138097024101 - RAY ROBERTS LAKE SITE AC

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

DATE	TIME	RESER- VOIR STORAGE (AC-FT)	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
MAR										
09...	0911	852000	1.00	280	8.2	10.0	1.50	9.9	90	K3
09...	0913	--	10.0	280	8.1	9.5	--	9.6	86	--
09...	0915	--	20.0	279	8.1	9.5	--	9.6	86	--
09...	0917	--	30.0	280	8.0	9.5	--	9.4	84	--
09...	0919	--	40.0	281	8.0	9.0	--	9.2	81	--
09...	0921	--	50.0	280	7.9	9.0	--	9.2	81	--
09...	0923	--	60.0	280	7.9	9.0	--	9.2	81	--
09...	0926	--	70.0	279	7.8	9.0	--	9.3	82	--
09...	0933	--	80.0	279	7.3	9.0	--	9.4	83	--
JUN										
15...	0949	824000	1.00	291	8.5	25.5	1.80	8.6	108	K1
15...	0952	--	10.0	292	8.4	25.0	--	8.2	102	--
15...	0956	--	20.0	297	7.9	24.0	--	6.1	74	--
15...	0959	--	30.0	297	7.7	24.0	--	5.3	65	--
15...	1003	--	40.0	297	7.5	23.5	--	4.9	59	--
15...	1007	--	50.0	298	7.1	21.0	--	0.5	6	--
15...	1011	--	60.0	298	7.1	20.5	--	0	0	--
15...	1015	--	70.0	304	7.0	20.0	--	0	0	--
15...	1021	--	78.0	305	7.0	20.0	--	0	0	--
AUG										
27...	0939	536000	1.00	298	8.0	28.0	1.10	4.8	63	K60
27...	0943	--	10.0	298	8.0	28.0	--	4.7	62	--
27...	0946	--	20.0	299	8.0	28.0	--	4.6	60	--
27...	0950	--	30.0	299	7.9	27.5	--	4.6	60	--
27...	0954	--	40.0	299	7.7	27.5	--	4.4	57	--
27...	0958	--	50.0	313	7.4	24.5	--	0	0	--
27...	1003	--	60.0	333	7.4	21.5	--	0	0	--
27...	1008	--	67.0	338	7.4	21.0	--	0	0	--

DATE	STREP- TOCOCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)
MAR									
09...	K3	110	0	37	3.5	15	0.6	4.4	110
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	110	0	37	3.5	15	0.6	4.3	110
JUN									
15...	<1	110	6	37	3.6	15	0.6	4.0	100
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	110	7	39	3.7	15	0.6	4.2	110
AUG									
27...	210	120	18	41	4.2	17	0.7	<0.10	100
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	140	0	47	4.3	15	0.6	4.6	140

TRINITY RIVER BASIN

359

08051100 RAY ROBERTS LAKE NEAR PILOT POINT, TX--Continued

332138097024101 - RAY ROBERTS LAKE SITE AC--Continued

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

DATE	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)
MAR									
09...	15	17	0.10	3.8	161	0.300	0.300	0.040	0.340
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	15	17	<0.10	3.9	162	0.350	0.350	0.040	0.390
JUN									
15...	17	18	0.20	3.2	159	0.160	0.160	0.010	0.170
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	0.450	--	<0.010	0.450
15...	--	--	--	--	--	0.510	--	<0.010	0.510
15...	--	--	--	--	--	--	--	--	--
15...	16	19	0.20	4.5	168	0.510	--	<0.010	0.510
AUG									
27...	17	17	0.20	3.2	--	--	--	0.030	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	0.020	--
27...	--	--	--	--	--	--	--	0.020	--
27...	8.7	17	0.20	8.1	194	--	--	0.030	--
DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
MAR									
09...	0.340	0.020	0.28	0.30	<0.010	<0.010	--	<3	1
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	0.390	0.050	0.35	0.40	0.010	<0.010	--	4	31
JUN									
15...	0.170	0.030	0.27	0.30	0.060	<0.010	--	<3	<1
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	0.450	0.030	0.37	0.40	0.030	<0.010	--	<10	10
15...	0.510	0.030	0.37	0.40	0.080	<0.010	--	<10	30
15...	--	--	--	--	--	--	--	--	--
15...	0.510	0.050	0.25	0.30	0.070	0.010	0.03	24	280
AUG									
27...	<0.050	0.030	0.27	0.30	0.020	<0.010	--	<3	14
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	<0.050	0.020	0.28	0.30	0.010	<0.010	--	20	160
27...	<0.050	0.530	0.17	0.70	0.040	0.030	0.09	370	1700
27...	--	--	--	--	--	--	--	--	--
27...	<0.050	1.10	0.20	1.3	0.220	0.230	0.71	2100	2900

TRINITY RIVER BASIN

08051100 RAY ROBERTS LAKE NEAR PILOT POINT, TX--Continued

332200097010001 - RAY ROBERTS LAKE SITE AL

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
09...	0945	1.00	280	8.3	10.5	10.2	94
09...	0947	10.0	280	8.2	10.0	9.8	89
09...	0950	20.0	280	8.2	9.5	9.7	87
09...	0952	30.0	278	8.1	9.5	9.5	85
09...	0954	40.0	279	8.1	9.5	9.4	84
09...	0957	50.0	279	8.1	9.5	9.4	84
09...	1000	60.0	280	8.0	9.5	9.2	82
09...	1002	70.0	281	8.0	9.5	9.4	84
JUN							
15...	1031	1.00	291	8.5	25.5	8.3	104
15...	1034	10.0	293	8.3	25.0	8.0	99
15...	1037	20.0	297	7.8	24.0	5.5	67
15...	1041	30.0	297	7.7	24.0	5.2	63
15...	1044	40.0	297	7.6	23.5	4.7	57
15...	1047	50.0	298	7.3	21.0	0.5	6
15...	1051	60.0	305	7.3	20.0	0	0
15...	1055	66.0	310	7.4	20.0	0	0
AUG							
27...	1016	1.00	295	8.3	28.5	5.1	67
27...	1020	10.0	296	8.2	28.0	4.6	60
27...	1023	20.0	295	8.1	28.0	4.2	55
27...	1027	30.0	295	8.1	28.0	4.1	54
27...	1031	40.0	295	7.9	27.0	3.6	46
27...	1035	50.0	312	7.6	24.5	0	0
27...	1039	56.0	322	7.6	23.0	0	0

332301097050601 - RAY ROBERTS LAKE SITE BC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
09...	1322	1.00	280	8.3	10.5	10.3	94
09...	1324	10.0	280	8.3	10.5	10.2	94
09...	1326	20.0	280	8.3	10.5	10.1	93
09...	1328	30.0	281	8.3	10.5	10.0	92
09...	1330	40.0	280	8.3	10.0	9.8	89
09...	1332	50.0	280	8.1	9.5	9.4	84
09...	1334	60.0	280	8.1	9.5	9.1	82
09...	1336	70.0	280	8.1	9.5	9.2	82
09...	1338	83.0	280	8.1	9.5	9.7	87
JUN							
15...	1329	1.00	289	8.7	28.0	9.4	123
15...	1331	10.0	291	8.5	25.5	9.2	115
15...	1335	20.0	298	8.0	24.5	6.2	76
15...	1338	30.0	297	7.7	24.0	5.3	65
15...	1342	40.0	294	7.4	22.5	2.6	31
15...	1346	50.0	297	7.3	21.0	0.4	5
15...	1350	60.0	308	7.3	20.0	0	0
15...	1352	70.0	308	7.4	19.5	0	0
15...	1357	84.0	322	7.5	19.5	0	0
AUG							
27...	1328	1.00	294	8.3	29.5	6.2	83
27...	1331	10.0	296	8.3	29.0	5.3	71
27...	1333	20.0	298	8.0	28.5	4.4	58
27...	1336	30.0	297	7.8	28.0	3.0	39
27...	1338	40.0	303	7.7	27.0	0	0
27...	1341	50.0	324	7.6	25.0	0	0
27...	1344	60.0	335	7.6	22.0	0	0
27...	1347	73.0	339	7.5	22.0	0	0

TRINITY RIVER BASIN

361

08051100 RAY ROBERTS LAKE NEAR PILOT POINT, TX--Continued

332353097020101 - RAY ROBERTS LAKE SITE CC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
09...	1018	1.00	276	8.3	10.5	10.4	95
09...	1021	10.0	276	8.3	10.0	10.1	92
09...	1023	20.0	274	8.2	10.0	9.8	89
09...	1026	30.0	274	8.1	10.0	9.4	85
09...	1028	40.0	273	8.1	9.5	9.3	83
09...	1031	50.0	273	8.0	9.5	9.2	82
09...	1033	60.0	274	8.0	9.5	9.2	82
09...	1036	70.0	274	8.0	9.0	9.3	82
09...	1039	80.0	276	8.0	9.0	9.2	81
09...	1041	88.0	276	8.0	9.0	9.6	85
JUN							
15...	1108	1.00	288	8.6	28.0	8.9	117
15...	1111	10.0	291	8.3	25.5	7.6	95
15...	1114	20.0	295	7.8	24.5	5.8	71
15...	1118	30.0	297	7.6	23.5	4.6	55
15...	1121	40.0	296	7.4	23.0	3.7	44
15...	1124	50.0	284	7.2	21.5	0	0
15...	1127	60.0	301	7.3	20.0	0	0
15...	1131	70.0	307	7.3	20.0	0	0
15...	1135	84.0	320	7.4	19.5	0	0
AUG							
27...	1054	1.00	288	8.3	29.5	6.1	82
27...	1056	10.0	290	8.3	29.0	5.5	73
27...	1059	20.0	293	8.2	28.5	4.5	59
27...	1101	30.0	295	8.0	27.5	3.1	40
27...	1103	40.0	300	7.7	27.0	0	0
27...	1106	50.0	314	7.6	24.5	0	0
27...	1109	60.0	328	7.6	21.5	0	0
27...	1111	70.0	333	7.6	21.5	0	0
27...	1114	75.0	340	7.6	21.5	0	0

332459097063001 - RAY ROBERTS LAKE SITE DC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)
MAR												
09...	1415	1.00	300	8.1	11.0	0.90	9.2	85	47	38	120	4
09...	1420	10.0	299	8.1	11.0	--	8.8	82	--	--	--	--
09...	1425	20.0	315	7.8	10.5	--	7.7	71	--	--	--	--
09...	1431	30.0	320	7.8	10.5	--	7.5	69	--	--	--	--
09...	1436	40.0	323	7.8	10.0	--	7.4	67	--	--	--	--
09...	1440	50.0	324	7.8	10.0	--	7.2	65	--	--	--	--
09...	1445	60.0	325	7.8	10.5	--	8.0	73	--	--	120	8
JUN												
15...	1424	1.00	266	8.7	29.5	1.30	12.5	168	K2	<1	91	1
15...	1428	10.0	304	7.8	25.5	--	5.4	68	--	--	--	--
15...	1432	20.0	297	7.6	24.0	--	4.0	49	--	--	--	--
15...	1437	30.0	295	7.5	24.0	--	4.1	50	--	--	--	--
15...	1441	40.0	275	7.3	23.0	--	0	0	--	--	--	--
15...	1446	50.0	309	7.3	21.0	--	0	0	--	--	--	--
15...	1452	55.0	310	7.4	21.0	--	0	0	--	--	110	4
AUG												
27...	1407	1.00	297	8.3	30.0	0.70	6.0	81	K60	130	110	4
27...	1411	10.0	297	8.2	29.5	--	4.9	66	--	--	--	--
27...	1415	20.0	298	8.2	29.5	--	4.2	57	--	--	--	--
27...	1421	30.0	311	7.9	28.5	--	0	0	--	--	--	--
27...	1425	40.0	333	7.8	27.5	--	0	0	--	--	--	--
27...	1430	46.0	347	7.5	27.0	--	0	0	--	--	130	0

TRINITY RIVER BASIN

08051100 RAY ROBERTS LAKE NEAR PILOT POINT, TX--Continued

332459097063001 - RAY ROBERTS LAKE SITE DC--Continued

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

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)
MAR												
09...	41	3.5	16	0.6	4.1	110	16	20	0.10	5.2	177	0.580
09...	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--
09...	44	3.5	18	0.7	3.9	120	19	23	<0.10	6.7	192	0.800
JUN												
15...	31	3.4	16	0.7	3.9	90	16	18	0.20	3.3	146	0.051
15...	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--
15...	40	3.6	15	0.6	4.1	110	16	18	0.20	4.9	171	0.390
AUG												
27...	36	3.8	17	0.7	4.5	100	17	19	0.20	3.8	163	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	43	4.3	16	0.6	4.5	130	11	18	0.20	6.9	187	--
DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
MAR												
09...	0.580	0.050	0.630	0.630	0.030	0.27	0.30	0.030	0.020	0.06	4	12
09...	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--
09...	0.800	0.040	0.840	0.840	0.130	0.37	0.50	0.060	0.050	0.15	15	31
JUN												
15...	0.051	0.030	0.081	0.081	0.030	0.27	0.30	0.070	<0.010	--	<3	18
15...	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--
15...	0.390	0.020	0.410	0.410	0.100	0.30	0.40	0.080	0.020	0.06	27	370
AUG												
27...	--	0.020	--	<0.050	0.050	0.35	0.40	0.010	0.020	0.06	4	18
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	0.030	--	<0.050	0.070	0.33	0.40	0.020	<0.010	--	20	110
27...	--	0.030	--	<0.050	0.120	0.28	0.40	0.030	0.030	0.09	<10	170
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	0.030	--	<0.050	0.810	0.49	1.3	0.070	0.060	0.18	1100	1600

TRINITY RIVER BASIN

363

08051100 RAY ROBERTS LAKE NEAR PILOT POINT, TX--Continued

332509096595301 - RAY ROBERTS LAKE SITE EC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	
MAR													
09...	1057	1.00	270	8.4	11.0	1.80	10.3	96	K1	K1	100	0	
09...	1102	10.0	270	8.4	11.0	--	10.3	96	--	--	--	--	
09...	1106	20.0	270	8.3	11.0	--	10.2	95	--	--	--	--	
09...	1110	30.0	269	8.3	10.5	--	9.6	88	--	--	--	--	
09...	1113	40.0	263	7.8	9.5	--	8.3	74	--	--	--	--	
09...	1118	50.0	265	7.8	9.5	--	8.3	74	--	--	--	--	
09...	1123	60.0	265	7.8	9.5	--	8.4	75	--	--	--	--	
09...	1128	73.0	265	7.9	9.5	--	8.7	78	--	--	100	0	
JUN													
15...	1151	1.00	279	8.6	28.0	2.50	9.2	121	K1	K1	100	5	
15...	1155	10.0	289	8.3	25.0	--	7.1	88	--	--	--	--	
15...	1158	20.0	295	7.5	24.0	--	3.8	46	--	--	--	--	
15...	1202	30.0	296	7.4	23.5	--	4.0	48	--	--	--	--	
15...	1206	40.0	293	7.2	22.5	--	2.1	25	--	--	--	--	
15...	1210	50.0	266	7.0	20.5	--	0	0	--	--	--	--	
15...	1214	60.0	264	7.0	20.5	--	0	0	--	--	--	--	
15...	1218	71.0	269	7.1	20.0	--	0	0	--	--	88	3	
AUG													
27...	1135	1.00	286	8.3	29.5	1.70	5.8	78	K60	210	100	4	
27...	1139	10.0	292	8.3	28.5	--	4.0	53	--	--	--	--	
27...	1144	20.0	295	7.4	28.5	--	1.3	17	--	--	--	--	
27...	1148	30.0	299	7.4	27.5	--	0	0	--	--	--	--	
27...	1153	40.0	314	7.4	26.5	--	0	0	--	--	--	--	
27...	1158	50.0	330	7.4	24.5	--	0	0	--	--	--	--	
27...	1203	62.0	370	7.4	23.0	--	0	0	--	--	120	0	
DATE		CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)
MAR													
09...	35	3.6	15	0.6	4.2	100	15	17	0.10	3.4	156	0.210	
09...	--	--	--	--	--	--	--	--	--	--	--	--	
09...	--	--	--	--	--	--	--	--	--	--	--	--	
09...	--	--	--	--	--	--	--	--	--	--	--	--	
09...	--	--	--	--	--	--	--	--	--	--	--	--	
09...	--	--	--	--	--	--	--	--	--	--	--	--	
09...	34	3.6	14	0.6	4.3	100	15	16	<0.10	3.5	152	0.260	
JUN													
15...	34	3.6	15	0.7	4.0	95	17	18	0.20	3.0	152	0.067	
15...	--	--	--	--	--	--	--	--	--	--	--	--	
15...	--	--	--	--	--	--	--	--	--	--	--	--	
15...	--	--	--	--	--	--	--	--	--	--	--	--	
15...	--	--	--	--	--	--	--	--	--	--	--	--	
15...	--	--	--	--	--	--	--	--	--	--	--	--	
15...	29	3.7	12	0.6	3.9	85	14	15	0.20	6.2	145	0.410	
AUG													
27...	34	3.9	15	0.6	4.5	97	17	19	0.20	3.0	155	--	
27...	--	--	--	--	--	--	--	--	--	--	--	--	
27...	--	--	--	--	--	--	--	--	--	--	--	--	
27...	--	--	--	--	--	--	--	--	--	--	--	--	
27...	--	--	--	--	--	--	--	--	--	--	--	--	
27...	--	--	--	--	--	--	--	--	--	--	--	--	
27...	42	4.4	15	0.6	4.7	150	3.5	19	0.20	9.7	204	--	

TRINITY RIVER BASIN

08051100 RAY ROBERTS LAKE NEAR PILOT POINT, TX--Continued

33250909659301 - RAY ROBERTS LAKE SITE EC--Continued

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

DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
MAR											
09...	0.210	0.040	0.250	0.250	0.020	0.28	0.30	<0.010	<0.010	<3	<1
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	0.260	0.040	0.300	0.300	0.040	0.36	0.40	0.010	<0.010	7	11
JUN											
15...	--	<0.010	0.067	0.067	0.030	0.27	0.30	0.070	0.010	<3	22
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--
15...	--	<0.010	0.410	0.410	0.970	0.43	1.4	0.340	0.300	4600	1000
AUG											
27...	--	0.020	--	<0.050	0.020	0.28	0.30	<0.010	<0.010	9	25
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	0.030	--	<0.050	0.040	0.26	0.30	0.020	0.010	<10	110
27...	--	0.020	--	<0.050	0.130	0.27	0.40	0.020	0.010	70	270
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	0.030	--	<0.050	2.80	0.30	3.1	0.530	0.560	5800	2600

332758097063301 - RAY ROBERTS LAKE SITE FC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
09...	1503	1.00	327	8.0	12.5	9.1	87
09...	1506	10.0	329	7.9	11.5	8.3	78
09...	1510	20.0	331	7.7	10.5	7.2	66
09...	1513	30.0	341	7.6	10.5	6.4	59
09...	1516	43.0	345	7.7	10.0	5.0	45
JUN							
18...	1510	1.00	250	8.9	30.0	14.9	202
18...	1514	10.0	307	7.8	26.0	5.3	67
18...	1519	20.0	378	7.3	24.5	1.0	12
18...	1524	30.0	365	7.3	24.5	0	0
18...	1528	35.0	361	7.4	24.5	0	0
AUG							
27...	1451	1.00	280	8.3	30.5	8.9	122
27...	1454	10.0	309	8.1	29.5	1.4	19
27...	1457	20.0	339	8.0	29.0	0	0
27...	1500	28.0	352	7.9	29.0	0	0

332642096561201 - RAY ROBERTS LAKE SITE GC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
09...	1149	1.00	222	8.8	14.0	12.2	121
09...	1154	10.0	196	7.4	11.5	8.3	78
09...	1158	20.0	176	7.3	10.5	7.0	64
09...	1202	30.0	180	7.4	10.0	6.3	57
09...	1207	40.0	197	7.5	10.0	6.3	57
JUN							
15...	1246	1.00	242	9.0	29.0	10.1	135
15...	1250	10.0	261	7.8	25.5	4.6	58
15...	1254	20.0	222	7.0	24.0	0.5	6
15...	1258	30.0	218	7.0	22.5	0	0
15...	1302	38.0	233	7.0	22.0	0	0

08051100 RAY ROBERTS LAKE NEAR PILOT POINT, TX—Continued

Ray Roberts Lake Site AC (332138097024101)

Phytoplankton Analyses October 1992 to September 1993

Date	3-9-93
Time	0910

TOTAL CELLS/mL	5,297
NUMBER OF SPECIES	13
DEPTH COLLECTED (ft.)	2.45

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	62
<i>Melosira varians</i>	22
<i>Stephanodiscus astraea</i>	5
Order Pennales	
<i>Fragilaria crotonensis</i>	149
<i>Navicula</i> sp.	30
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	506
<i>Chlamydomonas</i> sp.	89
<i>Scenedesmus bijuga</i>	30
<i>Scenedesmus quadricauda</i>	119
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	2,678
<i>Chroococcus limneticus</i>	179
EUGLENOPHYTA	
<i>Trachelomonas</i> spp.	1,071
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	357

TRINITY RIVER BASIN

08051100 RAY ROBERTS LAKE NEAR PILOT POINT, TX—Continued

Ray Roberts Lake Site DC (332459097063001)

Phytoplankton Analyses October 1992 to September 1993

Date	3-9-93
Time	1414

TOTAL CELLS/mL	4,731
NUMBER OF SPECIES	11
DEPTH COLLECTED (ft.)	1.55

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	61
<i>Melosira varians</i>	23
<i>Stephanodiscus astraea</i>	5
Order Pennales	
<i>Fragilaria crotonensis</i>	89
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	298
<i>Chlamydomonas</i> sp.	89
<i>Scenedesmus quadricauda</i>	89
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	2,976
<i>Chroococcus limneticus</i>	357
EUGLENOPHYTA	
<i>Trachelomonas</i> spp.	476
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	268

08051100 RAY ROBERTS LAKE NEAR PILOT POINT, TX—Continued

Ray Roberts Lake Site AC (332138097024101)

Phytoplankton Analyses October 1992 to September 1993

Date	6-15-93
Time	0949

TOTAL CELLS/mL	22,200
NUMBER OF SPECIES	14
DEPTH COLLECTED (ft.)	3.0

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	1
<i>Melosira varians</i>	28
Order Pennales	
<i>Fragilaria crotonensis</i>	476
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	446
<i>Chlamydomonas</i> sp.	208
<i>Pediastrum duplex</i>	60
<i>Scenedesmus quadricauda</i>	149
CYANOPHYTA	
<i>Aphanizomenon flos-aquae</i>	8,035
<i>Aphanocapsa delicatissima</i>	8,333
<i>Aphanocapsa elachista</i>	1,786
<i>Chroococcus limneticus</i>	446
<i>Merismopedia tenuissima</i>	2,024
EUGLENOPHYTA	
<i>Trachelomonas</i> sp.	89
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	119

TRINITY RIVER BASIN

08051100 RAY ROBERTS LAKE NEAR PILOT POINT, TX—Continued

Ray Roberts Lake Site DC (332459097063001)

Phytoplankton Analyses October 1992 to September 1993

Date	6-15-93
Time	1424

TOTAL CELLS/mL	11,965
NUMBER OF SPECIES	20
DEPTH COLLECTED (ft.)	2.15

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Melosira varians</i>	33
<i>Stephanodiscus astraëa</i>	26
Order Pennales	
<i>Asterionella formosa</i>	27
<i>Fragilaria crotonensis</i>	41
<i>Navicula rhyncocephala</i>	7
<i>Pinnularia</i> sp.	7
<i>Synedra ulna</i>	7
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	446
<i>Chlamydomonas</i> sp.	89
<i>Gloeocystis major</i>	60
<i>Pediastrum duplex</i>	30
<i>Scenedesmus bijuga</i>	30
<i>Scenedesmus quadricauda</i>	30
CYANOPHYTA	
<i>Aphanizomenon flos-aquae</i>	1,786
<i>Aphanocapsa delicatissima</i>	4,762
<i>Aphanocapsa elachista</i>	2,381
<i>Chroococcus limneticus</i>	60
<i>Merismopedia tenuissima</i>	1,667
EUGLENOPHYTA	
<i>Trachelomonas</i> sp.	268
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	208

08051100 RAY ROBERTS LAKE NEAR PILOT POINT, TX—Continued

Ray Roberts Lake Site AC (332138097024101)

Phytoplankton Analyses October 1992 to September 1993

Date	8-27-93
Time	0939

TOTAL CELLS/mL	43,954
NUMBER OF SPECIES	26
DEPTH COLLECTED (ft.)	1.8

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	42
<i>Melosira varians</i>	18
Order Pennales	
<i>Cymbella parva</i>	5
<i>Fragilaria crotonensis</i>	555
<i>Fragilaria vaucherie</i>	109
<i>Fragilaria cuspidata</i>	5
<i>Navicula viridula</i>	5
<i>Nitzschia palea</i>	54
<i>Synedra ulna</i>	27
<i>Tabellaria fenestrata</i>	11
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	119
<i>Chlamydomonas</i> sp.	89
<i>Cosmarium</i> sp.	89
<i>Scenedesmus opoliensis</i>	149
<i>Staurastrum</i> sp.	30
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	15,762
<i>Aphanocapsa elachista</i>	2,082
<i>Chroococcus limneticus</i>	535
<i>Chroococcus minimus</i>	476
<i>Lyngbya contorta</i>	8,060
<i>Merismopedia tenuissima</i>	2,141
<i>Oscillatoria angustissima</i>	13,205
<i>Spirulina major</i>	119
CHRYSTOPHYTA	
<i>Mallomonas</i> sp.	59
EUGLENOPHYTA	
<i>Trachelomonas</i> spp.	178
PYRRHOPHYTA	
<i>Peridinium pusillum</i>	30

Ray Roberts Lake Site DC (332459097063001)

Phytoplankton Analyses October 1992 to September 1993

Date	8-27-93
Time	1407

TOTAL CELLS/mL	41,637
NUMBER OF SPECIES	26
DEPTH COLLECTED (ft.)	1.1

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	25
<i>Melosira varians</i>	5
Order Pennales	
<i>Fragilaria crotonensis</i>	145
<i>Fragilaria vaucherie</i>	73
<i>Navicula viridula</i>	5
<i>Nitzschia palea</i>	116
<i>Synedra ulna</i>	19
<i>Tabellaria fenestrata</i>	58
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	59
<i>Chlamydomonas</i> sp.	119
<i>Closterium</i> sp.	30
<i>Pediastrum duplex</i>	89
<i>Scenedesmus bujuga</i>	59
<i>Scenedesmus opoliensis</i>	238
<i>Scenedesmus quadricauda</i>	30
CYANOPHYTA	
<i>Anabaena planctonica</i>	654
<i>Aphanizomenon flos-aquae</i>	506
<i>Aphanocapsa delicatissima</i>	6,840
<i>Aphanocapsa elachista</i>	3,271
<i>Chroococcus limneticus</i>	1,190
<i>Chroococcus minimus</i>	476
<i>Lyngbya contorta</i>	8,000
<i>Merismopedia tenuissima</i>	7,376
<i>Oscillatoria angustissima</i>	11,718
CHRYSTOPHYTA	
<i>Mallomonas</i> sp.	30
EUGLENOPHYTA	
<i>Trachelomonas</i> spp.	506

08051100 RAY ROBERTS LAKE NEAR PILOT POINT, TX—Continued

Ray Roberts Lake Site AC (332138097024101)

Phytoplankton Analyses October 1991 to September 1992

Date	2-7-92
Time	1014

TOTAL CELLS/mL	16,349
NUMBER OF SPECIES	17
DEPTH COLLECTED (ft.)	1.2

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
<i>Cyclotella meneghiniana</i>	66
<i>Stephanodiscus astraea</i> var. <i>minutula</i>	13
Order Pennales	
<i>Navicula cryptocephala</i>	16
<i>Navicula pelliculosa</i>	16
<i>Nitzschia acicularis</i>	31
<i>Synedra delicatissima</i>	16
CHLOROPHYTA (Green algae)	
<i>Chlamydomonas</i> sp.	469
<i>Chlorella ellipsoidea</i>	156
<i>Chlorococcum humicola</i>	313
<i>Selenastrum minutum</i>	78
CHRYSTOPHYTA	
Unknown flagellate	1,173
CYANOPHYTA (Blue-green algae)	
<i>Aphanocapsa delicatissima</i>	12,908
<i>Chroococcus</i> sp.	469
<i>Oscillatoria limnetica</i>	78
EUGLENOPHYTA (Euglenoids)	
<i>Euglena</i> sp.	78
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	313
<i>Rhodomonas minuta</i>	156

TRINITY RIVER BASIN

08051100 RAY ROBERTS LAKE NEAR PILOT POINT, TX—Continued

Ray Roberts Lake Site DC (332459097063001)

Phytoplankton Analyses October 1991 to September 1992

Date	2-7-92
Time	1423
<hr/>	
TOTAL CELLS/mL	15,879
NUMBER OF SPECIES	18
DEPTH COLLECTED (ft.)	1.0
<hr/>	

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
<i>Cyclotella meneghiniana</i>	46
<i>Melosira varians</i>	23
<i>Stephanodiscus astraea</i> var. <i>minutula</i>	9
Order Pennales	
<i>Cymbella minuta</i>	11
<i>Gomphonema parvulum</i>	11
<i>Gomphonema subclaratum</i> var. <i>mexicanum</i>	11
<i>Navicula pelliculosa</i>	22
<i>Nitzschia acicularis</i>	11
<i>Synedra delicatissima</i>	11
CHLOROPHYTA (Green algae)	
<i>Chlamydomonas</i> sp.	156
<i>Chlorella ellipsoidea</i>	469
<i>Chlorococcum humicola</i>	548
<i>Scenedesmus quadricauda</i> var. <i>longispina</i>	313
<i>Selenastrum minutum</i>	78
CHRYSTOPHYTA	
Unknown flagellate	1,095
CYANOPHYTA (Blue-green algae)	
<i>Aphanocapsa delicatissima</i>	11,735
<i>Chroococcus</i> sp.	1,095
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	235

08051100 RAY ROBERTS LAKE NEAR PILOT POINT, TX—Continued

Ray Roberts Lake Site AC (332138097024101)

Phytoplankton Analyses October 1991 to September 1992

Date	6-3-92
Time	1115

TOTAL CELLS/mL	8,543
NUMBER OF SPECIES	15
DEPTH COLLECTED (ft.)	2.8

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
<i>Cyclotella ocellata</i>	60
Order Pennales	
<i>Fragilaria crotonensis</i>	208
CHLOROPHYTA (Green algae)	
<i>Ankistrodesmus falcatus</i>	30
<i>Chlamydomonas</i> sp.	89
<i>Elakatothrix gelatinosa</i>	60
<i>Gloeocystis gigas</i>	60
<i>Pediastrum duplex</i>	30
<i>Scenedesmus bijuga</i>	89
<i>Scenedesmus quadricauda</i>	179
CYANOPHYTA (Blue-green algae)	
<i>Anabaena affinis</i>	1,131
<i>Aphanocapsa delicatissima</i>	4,464
<i>Aphanizomenon flos-aquae</i>	893
<i>Chroococcus limneticus</i>	357
<i>Merismopedia tenuissima</i>	833
EUGLENOPHYTA (Euglenoids)	
<i>Trachelomonas</i> spp.	60

TRINITY RIVER BASIN

08051100 RAY ROBERTS LAKE NEAR PILOT POINT, TX—Continued

Ray Roberts Lake Site DC (332459097063001)

Phytoplankton Analyses October 1991 to September 1992

Date	6-3-92
Time	1555
<hr/>	
TOTAL CELLS/mL	12,560
NUMBER OF SPECIES	15
DEPTH COLLECTED (ft.)	1.8
<hr/>	

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
<i>Cyclotella ocellata</i>	43
<i>Stephanodiscus astra</i>	17
Order Pennales	
<i>Fragilaria crotonensis</i>	89
CHLOROPHYTA (Green algae)	
<i>Ankistrodesmus falcatus</i>	89
<i>Chlamydomonas</i> sp.	89
<i>Gloeocystis gigas</i>	30
<i>Scenedesmus quadricauda</i>	119
<i>Staurastrum</i> sp.	30
CYANOPHYTA (Blue-green algae)	
<i>Aphanocapsa delicatissima</i>	6,250
<i>Aphanizomenon flos-aquae</i>	298
<i>Chroococcus limneticus</i>	476
<i>Chroococcus minimus</i>	119
<i>Merismopedia tenuissima</i>	4,524
EUGLENOPHYTA (Euglenoids)	
<i>Trachelomonas</i> spp.	268
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	119

08051100 RAY ROBERTS LAKE NEAR PILOT POINT, TX—Continued

Ray Roberts Lake Site AC (332138097024101)

Phytoplankton Analyses October 1991 to September 1992

Date	8-14-92
Time	1045

TOTAL CELLS/mL	14,518
NUMBER OF SPECIES	15
DEPTH COLLECTED (ft.)	2.2

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
<i>Melosira varians</i>	298
Order Pennales	
<i>Fragilaria crotonensis</i>	52
CHLOROPHYTA (Green algae)	
<i>Ankistrodesmus falcatus</i>	923
<i>Ankistrodesmus spiralis</i>	595
<i>Chlamydomonas</i> sp.	30
<i>Scenedesmus quadricauda</i>	119
<i>Staurastrum</i> spp.	60
CHRYSTOPHYTA (Golden-brown algae)	
<i>Mallomonas</i> sp.	60
CYANOPHYTA (Blue-green algae)	
<i>Aphanizomenon flos-aquae</i>	2,589
<i>Aphanocapsa delicatissima</i>	6,250
<i>Chroococcus limneticus</i>	714
<i>Merismopedia tenuissima</i>	2,619
EUGLENOPHYTA (Euglenoids)	
<i>Trachelomonas</i> spp.	60
PYRRHOPHYTA (Dinoflagellates)	
<i>Ceratium hirundinella</i>	30
CRYPTOPHYTA (Cryptomonads)	
<i>Cryptomonas erosa</i>	119

TRINITY RIVER BASIN

06051100 RAY ROBERTS LAKE NEAR PILOT POINT, TX—Continued

Ray Roberts Lake Site DC (332459097063001)

Phytoplankton Analyses October 1991 to September 1992

Date	8-14-92
Time	1536
<hr/>	
TOTAL CELLS/mL	16,161
NUMBER OF SPECIES	15
DEPTH COLLECTED (ft.)	2.6
<hr/>	

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
<i>Cyclotella ocellata</i>	13
<i>Melosira varians</i>	106
Order Pennales	
<i>Fragilaria crotonensis</i>	675
<i>Fragilaria vaucherie</i>	188
CHLOROPHYTA (Green algae)	
<i>Ankistrodesmus falcatus</i>	833
<i>Ankistrodesmus spiralis</i>	1,101
<i>Chlamydomonas</i> sp.	119
CHRYSTOPHYTA (Golden-brown algae)	
<i>Mallomonas</i> sp.	60
CYANOPHYTA (Blue-green algae)	
<i>Aphanizomenon flos-aquae</i>	863
<i>Aphanocapsa delicatissima</i>	6,845
<i>Chroococcus minimus</i>	476
<i>Chroococcus varius</i>	179
<i>Merismopedia tenuissima</i>	4,524
EUGLENOPHYTA (Euglenoids)	
<i>Trachelomonas</i> spp.	30
CRYPTOPHYTA (Cryptomonads)	
<i>Cryptomonas erosa</i>	149

TRINITY RIVER BASIN

377

08051130 ELM FORK TRINITY RIVER NEAR PILOT POINT, TX

WATER-QUALITY RECORDS

LOCATION.--Lat 33°21'01", long 97°02'49", Denton County, Hydrologic Unit 12030103, on right bank of excavated outlet channel, 1,600 ft downstream from center line of Ray Roberts Dam on Elm Fork Trinity River, 3.3 mi upstream from Bray Branch, 4.9 mi upstream from Farm Road 428 bridge, and 5.7 mi southwest of town square in Pilot Point.

DRAINAGE AREA.--692 mi².

PERIOD OF RECORD.--Chemical and biochemical analyses: December 1985 to March 1993 (discontinued).

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CAC03)
MAR 09...	1425	2030	298	7.9	9.0	14	5.4	12.9	114	0.3	120
DATE	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SI02)
MAR 09...	13	40	4.0	15	0.6	4.1	100	16	17	0.10	3.6
DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L AS N)
MAR 09...	164	9	9	0	0.320	<0.010	0.320	0.320	0.020	0.38	0.40
DATE	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
MAR 09...	<0.010	<0.010	5.3	1	51	<0.5	<1.0	<5	<3	<10	8
DATE	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
MAR 09...	<10	<4	3	<0.1	<10	<10	<1	<1.0	180	<6	3

TRINITY RIVER BASIN

08051500 CLEAR CREEK NEAR SANGER, TX

LOCATION.--Lat 33°20'10", long 97°10'45", Denton County, Hydrologic Unit 12030103, at the downstream side near right end of bridge on county road, 1,350 ft downstream from Duck Creek, 1.1 mi upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, and 1.8 mi south of Sanger.

DRAINAGE AREA.--295 mi².

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1512: 1950, 1955. WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 582.23 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Apr. 18, 1975, water-stage recorder at datum 5.00 ft higher. Apr. 18, 1975 to June 9, 1988, at site 950 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. There are no appreciable diversions above station. Flow affected at times by discharge from the flood-detention pools of 51 floodwater-retarding structures with a combined detention capacity of 38,850 acre-ft. These structures control runoff from 149 mi² in the Clear Creek watershed. Gage-height telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--31 years (water years 1950-80), 74.3 ft³/s (53,830 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1950-80).--Maximum discharge, 18,200 ft³/s Sept. 13, 1950 (gage height, 29.80 ft) at site and datum then in use; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1880, 36.5 ft in May 1908, from information by Gulf, Colorado, and Santa Fe Railway Co. Flood in May 1935 reached a stage of 34.0 ft, from information by State Department of Highways and Public Transportation. Both peaks now referenced to present site and datum.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	31	24	60	67	1910	59	134	76	57	7.9	5.3
2	11	25	23	58	66	1710	56	91	68	53	8.0	6.4
3	11	15	24	60	250	977	68	97	66	50	9.9	6.3
4	11	15	24	66	391	511	788	74	62	47	11	e5.2
5	11	15	23	69	171	290	e457	58	60	44	11	e4.3
6	11	16	23	68	124	206	e312	56	61	43	9.7	e3.5
7	12	19	24	64	99	165	e216	52	60	41	9.9	3.3
8	13	25	23	63	88	142	130	49	429	39	11	3.6
9	14	31	27	75	80	124	89	308	4680	37	11	3.9
10	14	35	32	108	146	109	69	2400	3550	35	9.0	4.6
11	15	40	30	96	190	93	58	1590	1800	33	7.6	4.4
12	15	38	27	112	124	84	51	1210	1470	32	6.6	3.3
13	16	26	241	134	91	74	50	1020	1270	30	6.1	4.9
14	16	21	3540	109	77	70	312	761	1100	27	5.4	108
15	17	20	1630	95	2030	69	255	472	978	34	5.1	58
16	25	18	1090	87	1550	84	141	266	761	26	5.0	19
17	25	18	839	80	935	90	94	180	538	22	4.7	12
18	17	19	682	77	499	70	73	140	365	20	4.3	9.9
19	15	24	472	77	305	72	63	117	244	19	3.7	8.5
20	14	36	274	474	228	214	55	104	209	18	3.4	7.6
21	14	29	180	340	179	184	48	97	165	16	3.2	6.7
22	14	29	143	223	e142	278	45	92	134	15	3.1	6.1
23	14	49	120	174	e113	575	44	94	122	13	2.8	5.9
24	14	35	100	142	127	275	43	191	103	12	2.9	5.6
25	14	30	90	111	1970	181	41	152	94	11	4.3	5.9
26	14	28	82	99	967	138	39	103	90	10	4.9	7.8
27	14	26	75	91	402	109	37	86	78	9.3	4.7	6.8
28	14	25	74	86	248	93	36	79	76	9.3	3.9	6.2
29	14	24	73	81	---	88	869	e77	69	9.2	3.4	5.6
30	14	24	71	74	---	83	370	e78	62	8.8	3.3	5.2
31	15	---	67	69	---	75	---	e78	---	8.6	4.1	---
TOTAL	449	786	10147	3522	11659	9143	4968	10306	18840	829.2	190.9	343.8
MEAN	14.5	26.2	327	114	416	295	166	332	628	26.7	6.16	11.5
MAX	25	49	3540	474	2030	1910	869	2400	4680	57	11	108
MIN	11	15	23	58	66	69	36	49	60	8.6	2.8	3.3
AC-FT	891	1560	20130	6990	23130	18140	9850	20440	37370	1640	379	682

e Estimated

TRINITY RIVER BASIN

379

08051500 CLEAR CREEK NEAR SANGER, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1993#, BY WATER YEAR (WY)

MEAN	266	61.4	157	95.3	158	221	221	466	338	38.5	7.58	30.4
MAX	2739	344	1157	421	475	719	1811	1764	1307	174	20.2	155
(WY)	1982	1982	1992	1992	1989	1990	1990	1990	1989	1982	1982	1986
MIN	.70	1.09	5.83	6.62	9.22	26.2	27.7	15.5	13.1	.16	.000	.000
(WY)	1989	1981	1984	1981	1981	1986	1981	1984	1983	1984	1988	1983

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1981 - 1993#	
ANNUAL TOTAL	54864.9		71183.9		172	
ANNUAL MEAN	150		195		476	
HIGHEST ANNUAL MEAN					20.0	
LOWEST ANNUAL MEAN					1982	
HIGHEST DAILY MEAN	3540	Dec 14	4680	Jun 9	39700	Oct 13 1981
LOWEST DAILY MEAN	8.5	Aug 31	2.8	Aug 23	.00	Oct 12 1980
ANNUAL SEVEN-DAY MINIMUM	8.8	Aug 25	3.3	Aug 18	.00	Aug 2 1981
INSTANTANEOUS PEAK FLOW			6970	Jun 9	104000	Oct 13 1981
INSTANTANEOUS PEAK STAGE			24.12	Jun 9	35.70	Oct 13 1981
INSTANTANEOUS LOW FLOW			2.6	Aug 23	.00	at times
ANNUAL RUNOFF (AC-FT)	108800		141200		124500	
10 PERCENT EXCEEDS	362		440		310	
50 PERCENT EXCEEDS	55		59		28	
90 PERCENT EXCEEDS	12		6.2		.94	

Period of regulated streamflow.

TRINITY RIVER BASIN

08051500 CLEAR CREEK NEAR SANGER, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: April 1959, January 1966, October 1984 to current year. Sediment analyses: February 1966 to May 1977.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1969 to August 1977.

WATER TEMPERATURE: May 1968 to August 1977.

SUSPENDED SEDIMENT DISCHARGE: May 1968 to August 1977.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (1972-77): Maximum daily, 1,920 microsiemens Oct. 12, 1976; minimum daily, 182 microsiemens July 29, 1973.

WATER TEMPERATURE (1968-70, 1972-77): Maximum daily, 39.0°C June 8, 1969; minimum daily, 0.0°C Jan. 9, 1970.

SEDIMENT CONCENTRATION: Maximum daily mean, 7,370 mg/L May 12, 1972; minimum, no flow on many days.

SEDIMENT LOADS: Maximum daily, 79,000 tons May 7, 1969; minimum daily, 0 tons on many days.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CAC03)	
NOV 02...	1545	25	403	8.2	16.5	27	22	9.0	95	1.9	160	
DEC 16...	1515	1040	272	8.0	8.0	25	110	11.2	97	2.2	110	
FEB 08...	1445	86	549	8.3	10.5	20	5.9	11.4	105	1.8	250	
APR 08...	1700	116	535	8.2	18.0	20	20	10.0	108	1.2	230	
MAY 28...	1058	79	624	8.1	24.0	10	15	8.8	107	1.1	270	
JUL 22...	1618	16	669	8.1	31.5	8	4.2	8.1	113	0.8	220	
DATE		HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
NOV 02...	9	49	8.7	24	0.8	3.4	150	29	23	0.20	10	
DEC 16...	1	39	2.7	8.7	0.4	3.7	110	13	7.8	0.20	9.7	
FEB 08...	33	88	8.2	26	0.7	2.1	220	41	27	0.20	9.3	
APR 08...	20	79	6.8	21	0.6	2.0	210	37	22	0.20	8.6	
MAY 28...	46	89	11	31	0.8	2.2	220	43	41	0.20	12	
JUL 22...	45	65	15	52	2	2.7	180	63	66	0.30	16	
DATE		SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDE (MG/L)	RESIDUE VOLA-TILE, SUS-PENDE (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	
NOV 02...	237	8	<1	--	--	--	0.020	--	<0.050	--		
DEC 16...	150	286	8	278	0.910	--	0.040	--	0.950	--		
FEB 08...	335	20	5	15	0.230	0.230	--	0.020	0.250	0.250		
APR 08...	301	70	13	57	0.240	--	--	<0.010	0.240	0.240		
MAY 28...	364	31	8	23	0.270	--	--	<0.010	0.270	0.270		
JUL 22...	389	14	13	1	0.110	--	--	<0.010	0.110	0.110		

TRINITY RIVER BASIN

381

08051500 CLEAR CREEK NEAR SANGER, TX--Continued

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

DATE	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)
NOV 02...	0.020	--	0.38	--	--	0.40	0.060	--	--	0.020
DEC 16...	0.040	--	0.56	--	--	0.60	0.180	--	--	0.080
FEB 08...	--	0.020	--	0.28	0.30	--	--	0.030	<0.010	--
APR 08...	--	<0.010	--	--	0.20	--	--	<0.010	<0.010	--
MAY 28...	--	0.020	--	0.18	0.20	--	--	0.010	<0.010	--
JUL 22...	--	0.040	--	0.26	0.30	--	--	0.010	<0.010	--
DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
NOV 02...	4.9	--	--	--	--	--	--	--	--	--
DEC 16...	5.3	1	44	<0.5	<1.0	<5	<3	<10	78	<10
FEB 08...	3.5	--	--	--	--	--	--	--	--	--
APR 08...	5.3	--	--	--	--	--	--	--	--	--
MAY 28...	3.2	<1	100	<0.5	<1.0	<5	<3	<10	7	<10
JUL 22...	3.2	2	98	<0.5	<1.0	<5	<3	<10	8	<10
DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 02...	--	--	--	--	--	--	--	--	--	--
DEC 16...	<4	4	<0.1	<10	<10	<1	<1.0	160	<6	6
FEB 08...	--	--	--	--	--	--	--	--	--	--
APR 08...	--	--	--	--	--	--	--	--	--	--
MAY 28...	9	11	<0.1	<10	<10	<1	<1.0	560	<6	<3
JUL 22...	10	8	<0.1	<10	<10	<1	<1.0	670	<6	6

TRINITY RIVER BASIN

08052700 LITTLE ELM CREEK NEAR AUBREY, TX

LOCATION.--Lat 33°17'00", long 96°53'33", Denton County, Hydrologic Unit 12030103, on left bank at downstream side of bridge on Farm Road 1385, 1.5 mi upstream from Mustang Creek, 5.5 mi east of Aubrey, and 18 mi upstream from Lewisville Dam on the Elm Fork Trinity River.

DRAINAGE AREA.--75.5 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1956 to September 1976, October 1979 to current year.

REVISED RECORDS.--WDR TX-70-1: 1969.

GAGE.--Water-stage recorder. Datum of gage is 534.76 ft above National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation bench mark).

REMARKS.--Records good except those for estimated daily discharges, which are fair. There are several small diversions above station for irrigation. Flow affected at times by discharge from the flood-detention pools of 17 floodwater-retarding structures with a combined detention capacity of 10,460 acre-ft. These structures control runoff from 36.4 mi² above this station. Several observations of water temperature were obtained during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1900, 18.2 ft in May 1941, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 15	2100	1,020	14.35	Feb. 25	1615	3,630	16.48
Feb. 4	1415	1,140	14.60	Sep. 14	2126	1,250	14.79

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.08	.40	.48	5.7	2.7	e291	e5.1	166	2.2	.52	.00	.00
2	.07	.32	.30	4.7	2.4	e571	3.3	69	1.1	.12	.00	.00
3	.04	.36	.17	3.4	52	e211	2.8	46	.42	.00	.00	.00
4	.12	.19	.11	3.4	904	e110	7.8	29	.14	.00	.00	.00
5	.25	.09	.56	3.4	453	e79	9.1	14	.00	.00	.00	.00
6	.29	.05	.28	3.8	221	e60	8.0	6.9	.01	.00	.00	.00
7	.31	.10	.10	4.5	115	e44	7.6	4.0	.01	.00	.00	.00
8	.19	.16	.07	5.2	66	e32	6.7	2.6	.90	.00	.00	.00
9	.12	.30	.32	6.8	39	e20	5.8	2.8	8.0	.00	.00	.00
10	.07	.30	.84	8.8	36	e22	4.0	151	83	.00	.00	.00
11	.04	.36	.57	8.8	43	e19	3.4	100	97	.00	.00	.00
12	.03	.61	.25	8.3	26	e17	2.4	59	82	.00	.00	.00
13	.03	.72	4.3	8.4	17	e15	1.9	39	43	.00	.00	47
14	.01	.60	e560	7.8	13	e14	33	22	26	.00	.00	810
15	.00	.53	e888	7.3	358	e12	32	8.7	13	.00	.00	517
16	.00	.51	641	6.7	566	e11	11	3.5	6.6	.00	.00	121
17	.00	.53	338	6.4	230	e10	6.0	2.6	3.7	.00	.00	74
18	.00	.84	200	5.9	105	e9.4	4.2	4.4	2.4	.00	.00	43
19	.07	1.6	156	6.9	68	e103	5.1	3.9	3.3	.00	.00	21
20	.16	2.0	112	296	49	e105	4.0	7.6	3.4	.00	.00	14
21	.15	.99	63	127	32	e49	2.7	6.8	4.4	.00	.00	8.8
22	.13	8.9	36	69	20	e272	1.8	6.2	4.9	.00	.00	3.6
23	.07	5.1	20	45	13	e154	.91	7.2	3.8	.00	.00	2.2
24	.05	5.5	12	25	19	e74	1.5	5.7	2.2	.00	.00	2.8
25	.03	22	8.4	13	2050	e54	1.7	4.2	1.7	.00	.00	3.1
26	.01	6.4	6.2	8.9	675	e42	2.4	1.6	1.5	.00	.00	4.8
27	.01	2.7	5.1	6.7	e229	e30	1.5	.60	4.2	.00	.00	5.1
28	.00	1.5	4.8	5.2	e134	e22	.84	2.5	3.9	.00	.00	5.8
29	.00	.93	4.4	4.5	---	e16	604	6.8	4.8	.00	.00	5.2
30	.00	.67	4.7	4.1	---	e11	336	6.6	2.8	.00	.00	3.7
31	.01	---	5.4	3.3	---	e7.8	---	4.2	---	.00	.00	---
TOTAL	2.34	65.26	3073.35	723.9	6538.1	2487.2	1116.55	794.40	410.38	0.64	0.00	1692.10
MEAN	.075	2.18	99.1	23.4	234	80.2	37.2	25.6	13.7	.021	.000	56.4
MAX	.31	22	888	296	2050	571	604	166	97	.52	.00	810
MIN	.00	.05	.07	3.3	2.4	7.8	.84	.60	.00	.00	.00	.00
AC-FT	4.6	129	6100	1440	12970	4930	2210	1580	814	1.3	.00	3360

e Estimated

TRINITY RIVER BASIN

383

08052700 LITTLE ELM CREEK NEAR AUBREY, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 1993, BY WATER YEAR (WY)

MEAN	55.4	50.6	43.7	21.9	55.8	44.6	72.5	128	57.5	6.94	2.26	35.3
MAX	641	332	398	108	315	251	677	897	286	59.0	28.5	258
(WY)	1982	1975	1992	1992	1986	1990	1957	1982	1989	1989	1966	1964
MIN	.000	.000	.000	.000	.000	.026	.10	.000	.000	.000	.000	.000
(WY)	1957	1959	1959	1959	1959	1963	1959	1959	1972	1964	1957	1958

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1957 - 1993

ANNUAL TOTAL	13548.19	16904.22	
ANNUAL MEAN	37.0	46.3	47.8
HIGHEST ANNUAL MEAN			178
LOWEST ANNUAL MEAN			2.24
HIGHEST DAILY MEAN	914	Feb 25	10400
LOWEST DAILY MEAN	.00	Jul 15	.00
ANNUAL SEVEN-DAY MINIMUM	.01	Aug 27	.00
INSTANTANEOUS PEAK FLOW			.00
INSTANTANEOUS PEAK STAGE			.00
INSTANTANEOUS LOW FLOW			.00
ANNUAL RUNOFF (AC-FT)	26870	33530	34620
10 PERCENT EXCEEDS	103	101	74
50 PERCENT EXCEEDS	2.7	3.4	.47
90 PERCENT EXCEEDS	.07	.00	.00

08052700 LITTLE ELM CREEK NEAR AUBREY, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: June 1962 to June 1963, June 1965 to January 1968. Chemical and biochemical analyses: October 1984 to current year. Sediment analyses: April 1966 to October 1974.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: December 1966 to June 1975.

WATER TEMPERATURES: February 1966 to June 1975.

SUSPENDED SEDIMENT DISCHARGE: February 1966 to September 1975.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: (1966-68, 1971-74): Maximum daily, 1,380 microsiemens Jan. 24, Feb. 25, 1967; minimum daily, 195 microsiemens June 4, 1968.

WATER TEMPERATURE (1966-68, 1971-74): Maximum daily, 33.0°C June 16, 1968; minimum daily, 0.0°C Feb. 22, 1968.

SEDIMENT CONCENTRATIONS: Maximum daily mean, 4,750 mg/L Aug. 13, 1966; minimum daily mean, no flow on many days.

SEDIMENT LOADS: Maximum daily, 17,900 tons May 31, 1967; minimum daily, 0 tons on many days.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CaCO3)
NOV 05...	1145	0.10	1130	8.2	10.0	80	84	5.0	45	--	190
FEB 11...	1215	43	505	8.3	11.0	110	73	10.2	95	2.4	170
APR 02...	1520	3.2	476	8.1	17.0	--	59	10.1	106	1.4	160
MAY 27...	1242	0.60	449	7.8	24.0	55	44	6.8	82	2.1	140
SEP 16...	1625	111	295	7.6	19.5	65	810	7.9	88	3.4	110
DATE	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
NOV 05...	0	64	7.7	160	5	8.2	270	180	59	0.50	3.1
FEB 11...	51	60	5.1	27	0.9	4.9	120	96	10	0.20	8.7
APR 02...	25	57	4.5	31	1	4.6	140	88	11	0.30	4.2
MAY 27...	19	49	4.6	36	1	5.1	120	83	12	0.40	3.1
SEP 16...	38	37	3.0	15	0.6	4.6	67	53	8.2	0.40	9.4
DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
NOV 05...	645	40	16	24	--	--	0.060	--	<0.050	--	0.070
FEB 11...	285	142	48	94	--	--	--	--	--	--	--
APR 02...	285	75	2	73	0.380	--	--	<0.010	0.380	0.380	--
MAY 27...	268	56	10	46	0.220	0.220	--	0.010	0.230	0.230	--
SEP 16...	182	1350	96	1250	2.23	2.23	--	0.070	2.30	2.30	--
DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
NOV 05...	--	0.93	--	--	1.0	0.140	--	--	0.070	--	--
FEB 11...	--	0.60	--	--	0.60	0.180	--	--	--	--	--
APR 02...	0.050	--	0.55	0.60	--	--	<0.010	0.030	--	0.09	--
MAY 27...	0.130	--	0.57	0.70	--	--	0.040	0.020	--	0.06	--
SEP 16...	0.090	--	2.9	3.0	--	--	0.150	0.140	--	0.43	--

TRINITY RIVER BASIN

385

08052700 LITTLE ELM CREEK NEAR AUBREY, TX--Continued

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

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LITUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
NOV 05...	13	--	--	--	--	--	--	--	--	--
FEB 11...	13	2	39	<0.5	1.0	<5	<3	<10	140	20
APR 02...	9.2	1	43	<0.5	3.0	<5	<3	<10	28	<10
MAY 27...	8.8	--	--	--	--	--	--	--	--	--
SEP 16...	18	3	26	<0.5	<1.0	<5	<3	<10	56	<10
DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 05...	--	--	--	--	--	--	--	--	--	--
FEB 11...	10	4	0.8	<10	<10	<1	<1.0	510	<6	<3
APR 02...	10	10	<0.1	<10	10	<1	<1.0	460	<6	14
MAY 27...	--	--	--	--	--	--	--	--	--	--
SEP 16...	5	3	<0.1	<10	<10	<1	<1.0	290	<6	<3

08052730 PECAN CREEK NEAR AUBREY, TX

LOCATION.--Lat 33°17'50", long 96°55'06", Denton County, Hydrologic Unit 12030103, at Farm Road 428 bridge, over center of channel at downstream side of bridge, 1.1 mi downstream from unnamed tributary on right bank, 2.2 mi upstream from unnamed tributary on right bank, and 4.0 mi east of Aubrey.

DRAINAGE AREA.--32.2 mi².

PERIOD OF RECORD.--Chemical and biochemical analyses: December 1985 to current year.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	
FEB 11...	1000	23	654	7.5	10.5	150	50	9.6	88	2.5	210	130	
APR 16...	1810	3.3	998	7.9	14.5	45	17	8.5	85	--	330	210	
JUN 15...	1150	1.8	543	7.8	24.0	70	17	6.6	80	2.6	180	71	
SEP 13...	1726	112	119	7.1	23.0	230	720	7.1	85	5.9	33	15	
15...	1748	20	232	7.3	17.0	110	260	8.0	84	3.1	75	45	
DATE		CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)
FEB 11...	57	16	40	1	6.1	74	170	36	0.30	11	381	72	
APR 16...	92	25	70	2	4.7	120	280	62	0.40	6.7	617	23	
JUN 15...	52	13	36	1	6.8	110	130	32	0.40	12	353	22	
SEP 13...	10	2.0	5.3	0.4	5.4	18	23	7.2	0.30	3.6	72	1340	
15...	21	5.4	12	0.6	5.4	30	55	9.3	0.20	9.5	146	176	
DATE		RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)
FEB 11...	30	42	--	--	--	--	--	--	--	1.0	--	--	1.0
APR 16...	14	9	0.180	0.180	0.010	0.190	0.190	0.040	--	1.2	1.2	--	
JUN 15...	16	6	0.380	0.380	0.010	0.390	0.390	0.050	--	0.65	0.70	--	
SEP 13...	102	1240	0.770	0.770	0.030	0.800	0.800	0.100	--	0.40	0.50	--	
15...	36	140	2.07	2.07	0.030	2.10	2.10	0.040	--	0.66	0.70	--	
DATE		PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)
FEB 11...	0.250	--	--	--	12	--	--	--	--	--	--	--	--
APR 16...	--	0.040	0.010	0.03	10	<1	70	<0.5	<1.0	<5	<3	<10	
JUN 15...	--	0.120	0.060	0.18	10	<1	67	<0.5	<1.0	<5	<3	<10	
SEP 13...	--	0.210	0.200	0.61	21	1	24	<0.5	1.0	<5	<3	<10	
15...	--	0.200	0.180	0.55	--	2	32	<0.5	<1.0	<5	<3	<10	
DATE		IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM, DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
FEB 11...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR 16...	34	<10	51	330	<0.1	<10	<10	<1	<1.0	610	<6	12	
JUN 15...	81	<10	24	96	0.1	<10	<10	<1	<1.0	370	<6	7	
SEP 13...	170	<10	5	13	<0.1	<10	<10	<1	<1.0	66	<6	13	
15...	82	10	16	3	<0.1	<10	<10	<1	<1.0	120	<6	5	

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX

LOCATION.--Lat 33°04'09", long 96°57'51", Denton County, Hydrologic Unit 12030103, in intake structure of Lewisville Dam on Elm Fork Trinity River, 2 mi upstream from bridge on State Highway 121, 2.4 mi northeast of Lewisville, 12 mi upstream from Denton Creek, and 30.0 mi upstream from mouth.

DRAINAGE AREA.--1,660 mi².

WATER-CONTENT RECORDS

PERIOD OF RECORD.--November 1954 to current year. Prior to October 1970, published as Garza-Little Elm Reservoir near Lewisville.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to May 17, 1955, non-recording gage at site 4,000 ft upstream at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 32,888 ft long, including a 560-foot 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 conduit that is controlled by three 6.5- by 13.0-foot broome-type gates and two 60-inch steel pipes with service valves. The lake was built for flood control and water conservation. The city of Dallas obtains most of its municipal water supply from this lake. The capacity table is based on a survey made in 1965. Inflow is affected at times by discharge from the flood-detention pools of 118 floodwater-retarding structures with a combined detention capacity of 81,670 acre-ft. These structures control runoff from 298 mi² in the Elm Fork Trinity River, Clear, Little Elm, and Hickory Creeks watersheds. An unknown amount of water was diverted for municipal and industrial uses. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	560.0	-
Crest of spillway.....	532.0	981,800
Top of conservation pool.....	515.0	457,600
Lowest intakes to wet wells (invert).....	481.0	42,560
Invert of three broome-type gates.....	448.0	0

COOPERATION.--Records furnished by the U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,181,000 acre-ft May 4, 1990 (elevation, 536.73 ft); minimum since initial filling in 1957, 184,700 acre-ft Sept. 28, 1980 (elevation, 498.65 ft).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 730,400 acre-ft Mar. 2 (elevation, 524.92 ft); minimum daily, 589,900 acre-ft Sept. 11 (elevation, 520.23 ft).

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

518.0	530,800	524.0	701,600	529.0	869,000
520.0	583,500	526.0	765,100	530.0	905,500
522.0	641,000	528.0	833,100	531.0	943,100

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	630100	608700	601200	684300	641600	723700	648400	664600	640100	647200	643700	602900
2	629200	607800	600400	678500	641600	730400	644200	666400	639200	647200	641900	601200
3	628300	607800	599500	675200	652900	729700	643700	665500	638300	645700	641000	600700
4	627500	606400	600100	670300	678200	726300	644800	662500	639200	644800	639200	599200
5	626300	605500	598700	664000	679500	722200	643700	661300	637700	645100	638300	598100
6	625100	604600	598400	657700	675800	719300	641600	658600	635400	644800	636900	597000
7	624500	602900	597800	652300	672200	715600	643900	653800	634800	643900	636300	595600
8	622500	602400	597300	648400	668200	712200	643400	647500	636000	643700	634500	595000
9	621600	601800	598400	649600	663700	709300	641900	648400	645400	643900	633900	593600
10	621100	602100	598100	646900	661300	705600	641300	655300	662800	643700	633000	592400
11	620200	604900	597300	644500	658900	701900	640700	657700	670600	644200	631900	589900
12	621100	603800	596700	643400	655000	699100	640100	658000	672800	650500	630400	594400
13	617300	602600	603200	642200	652300	693200	640400	658900	674300	654700	629500	595800
14	616400	602100	604400	641900	649300	688300	647500	659500	675800	655300	628000	613200
15	617900	601200	663400	641900	664900	685300	645400	660100	674900	654400	626600	615600
16	619000	600700	669400	641900	673100	683100	645400	660400	673400	653800	625400	614400
17	617900	600700	670900	642200	674000	677900	645400	660100	670900	652900	624300	613500
18	617000	600100	674000	642500	672500	672200	644200	660400	668500	652600	623100	612700
19	615600	604100	678800	644500	671200	671500	645100	656800	665200	652000	621600	612100
20	615300	604100	680700	647500	670000	670000	644800	652000	662200	651400	620200	611800
21	614700	604400	683100	649000	668800	667600	643900	648400	659200	649900	618200	610900
22	614400	604100	685000	648100	666400	669700	642200	644500	653800	649600	616100	609800
23	613800	603200	686500	646900	664000	670300	641300	643400	648400	649300	615000	609200
24	613500	604600	685300	645700	664000	670000	641300	641900	646300	649000	613500	608100
25	612700	604900	684300	643900	671300	669700	641300	641300	647200	650200	612100	608400
26	612400	603800	683100	643100	721900	667600	640400	640100	647200	650200	610900	607500
27	610900	602900	684300	643100	718700	665200	639200	640100	647500	649900	609800	605800
28	609800	602100	685600	642800	709700	662500	638600	641900	647200	650800	607800	605200
29	610100	602100	686200	642500	---	659200	661600	641600	647200	650500	605800	604100
30	608900	601200	687100	641300	---	657100	664000	642500	646900	648400	605200	602900
31	606600	---	687400	641300	---	653200	---	641900	---	645400	604400	---
MAX	630100	608700	687400	684300	721900	730400	664000	666400	675800	655300	643700	615600
MIN	606600	600100	596700	641300	641600	653200	638600	640100	634800	643700	604400	589900
(↑)	520.83	520.63	523.54	522.01	524.26	522.41	522.77	522.03	522.20	522.15	520.74	520.69
(Φ)	-24700	-5400	+86200	-46100	+68400	-56500	+10800	-22100	+5000	-1500	-41000	-1500
CAL YR 1992	MAX	910700	MIN	595300	(Φ)	-255000						
WTR YR 1993	MAX	730400	MIN	589900	(Φ)	-284000						

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

TRINITY RIVER BASIN

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: March 1962 to July 1964, December 1969 to current year.

REVISED RECORDS.--Due to a computation error discovered after publication of Phytoplankton analyses for the period October 1991 to September 1992, revised data for these analyses are included in this report.

330419096575401 - LEWISVILLE LAKE SITE AC

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

DATE	TIME	RESER- VOIR STORAGE (AC-FT)	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
MAR										
08...	1129	712000	1.00	300	8.4	12.0	1.30	10.3	97	K7
08...	1130	--	10.0	300	8.2	11.0	--	9.8	90	--
08...	1132	--	20.0	310	8.2	10.5	--	9.7	88	--
08...	1134	--	30.0	310	8.2	10.5	--	9.5	87	--
08...	1137	--	40.0	311	8.1	10.5	--	9.4	86	--
08...	1140	--	50.0	315	8.1	10.0	--	9.2	83	--
08...	1143	--	60.0	314	8.0	10.0	--	9.0	81	--
08...	1146	--	65.0	314	7.7	10.0	--	8.7	78	--
JUN										
14...	1134	676000	1.00	334	8.2	26.5	1.30	7.0	89	K10
14...	1138	--	10.0	337	7.9	25.0	--	5.2	64	--
14...	1142	--	20.0	332	7.8	24.5	--	5.1	62	--
14...	1146	--	30.0	332	7.7	24.5	--	4.9	60	--
14...	1150	--	40.0	331	7.6	24.5	--	4.8	59	--
14...	1154	--	50.0	340	7.1	22.0	--	0.5	6	--
14...	1158	--	60.0	342	7.0	21.5	--	0	0	--
14...	1202	--	65.0	346	6.9	21.0	--	0	0	--
AUG										
26...	1130	611000	1.00	299	8.1	29.0	1.52	5.0	66	>60
26...	1134	--	10.0	299	8.0	28.5	--	5.1	67	--
26...	1138	--	20.0	299	8.0	28.5	--	4.9	64	--
26...	1141	--	30.0	300	7.9	28.0	--	4.2	55	--
26...	1145	--	40.0	300	7.8	28.0	--	4.1	53	--
26...	1149	--	50.0	328	7.3	26.5	--	0	0	--
26...	1153	--	62.0	341	7.3	26.0	--	0	0	--

DATE	STREP- TOCOCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKAL- INITY WAT DIS FIX END FIELD CACO3 (MG/L)
MAR									
08...	K6	110	6	38	3.6	17	0.7	3.9	100
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	--	110	4	39	3.8	18	0.7	3.9	110
JUN									
14...	K1	120	10	42	4.0	20	0.8	3.8	110
14...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
14...	--	130	0	45	4.1	18	0.7	4.0	130
AUG									
26...	K1100	100	4	35	4.1	18	0.8	4.3	100
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	130	0	43	4.4	18	0.7	4.2	130

TRINITY RIVER BASIN

389

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330419096575401 - LEWISVILLE LAKE SITE AC--Continued

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

DATE	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)
MAR									
08...	24	15	0.10	4.0	170	0.360	0.360	0.050	0.410
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	0.380	0.380	0.060	0.440
08...	--	--	--	--	--	--	--	--	--
08...	27	18	0.10	4.0	181	0.380	0.380	0.050	0.430
JUN									
14...	31	17	0.20	1.6	187	0.250	0.250	0.010	0.260
14...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	0.380	--	<0.010	0.380
14...	--	--	--	--	--	0.530	--	<0.010	0.530
14...	--	--	--	--	--	--	--	--	--
14...	29	17	0.30	5.4	203	0.440	--	<0.010	0.440
AUG									
26...	25	16	0.20	2.9	166	--	--	0.020	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	0.030	--
26...	--	--	--	--	--	--	--	0.030	--
26...	17	16	0.20	8.7	197	--	--	0.030	--
DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
MAR									
08...	0.410	0.020	0.28	0.30	0.010	<0.010	--	<3	1
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	0.440	0.030	0.27	0.30	0.010	<0.010	--	<10	<10
08...	--	--	--	--	--	--	--	--	--
08...	0.430	0.040	0.36	0.40	0.020	0.010	0.03	5	33
JUN									
14...	0.260	0.040	0.26	0.30	0.060	0.010	0.03	3	3
14...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
14...	0.380	0.030	0.27	0.30	0.070	0.010	0.03	<10	30
14...	0.530	0.040	0.26	0.30	0.080	0.020	0.06	<10	200
14...	--	--	--	--	--	--	--	--	--
14...	0.440	0.120	0.28	0.40	0.110	0.040	0.12	170	680
AUG									
26...	<0.050	0.020	0.28	0.30	<0.010	<0.010	--	7	11
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	<0.050	0.020	0.28	0.30	0.020	<0.010	--	10	40
26...	<0.050	0.610	0.19	0.80	0.210	0.210	0.64	520	800
26...	<0.050	0.910	0.09	1.0	0.300	0.320	0.98	1200	1300

TRINITY RIVER BASIN

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330410096584501 - LEWISVILLE LAKE SITE AL

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
08...	1207	1.00	298	8.3	11.5	10.2	95
08...	1209	10.0	298	8.2	11.0	9.5	88
08...	1211	20.0	303	8.1	10.5	9.2	84
08...	1214	30.0	310	8.1	10.5	9.2	84
08...	1216	40.0	310	8.1	10.5	8.9	81
08...	1218	50.0	313	8.0	10.0	8.8	80
08...	1220	55.0	313	7.9	10.0	8.2	74
JUN							
14...	1210	1.00	334	8.3	26.0	6.7	84
14...	1213	10.0	332	7.9	25.0	5.1	63
14...	1216	20.0	332	7.9	24.5	5.1	62
14...	1219	30.0	332	7.9	24.5	5.0	61
14...	1222	40.0	331	7.7	24.0	4.5	54
14...	1225	54.0	342	7.5	21.5	0	0
AUG							
26...	1202	1.00	299	8.2	29.0	5.5	73
26...	1205	10.0	299	8.2	28.5	5.4	71
26...	1207	20.0	299	8.1	28.5	5.2	68
26...	1209	30.0	301	7.9	28.5	4.6	60
26...	1213	40.0	308	7.5	28.0	0	0
26...	1216	54.0	329	7.4	26.5	0	0

330450096560501 - LEWISVILLE LAKE SITE BC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
08...	1236	1.00	307	8.4	12.5	10.6	101
08...	1238	10.0	310	8.3	11.0	10.0	92
08...	1240	20.0	361	8.2	10.5	9.1	83
08...	1242	30.0	363	8.2	10.5	9.0	82
08...	1244	38.0	363	8.2	10.5	9.0	82
JUN							
14...	1251	1.00	370	8.4	26.5	7.0	89
14...	1255	10.0	370	8.2	25.5	6.4	80
14...	1300	20.0	355	8.0	25.0	5.3	65
14...	1305	331	30	7.9	24.5	4.7	57
14...	1310	36.0	331	7.9	24.5	4.7	57
AUG							
26...	1225	1.00	--	--	--	--	--
26...	1228	10.0	329	8.2	28.5	5.6	74
26...	1232	20.0	302	7.9	28.5	4.1	54
26...	1234	30.0	306	7.6	28.0	1.5	20
26...	1236	36.0	309	7.6	28.0	1.1	14

330606097025601 - LEWISVILLE LAKE SITE CC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR								
08...	1608	1.00	235	7.8	12.5	--	7.6	72
08...	1610	10.0	239	7.8	12.0	--	7.7	73
08...	1612	20.0	268	7.9	11.0	--	8.0	74
08...	1615	33.0	288	7.9	11.0	--	7.7	71
JUN								
14...	1646	1.00	320	8.4	27.5	1.10	7.2	93
14...	1650	10.0	324	7.9	26.0	--	4.9	61
14...	1655	20.0	310	7.6	25.0	--	2.6	32
14...	1700	31.0	299	7.4	24.5	--	0.6	7
AUG								
26...	1502	1.00	298	8.5	30.5	0.64	6.1	83
26...	1505	5.00	301	8.2	29.5	--	5.1	68
26...	1507	10.0	303	8.0	29.5	--	4.5	60
26...	1510	20.0	301	7.9	29.0	--	4.0	53
26...	1513	28.0	322	7.5	29.0	--	0	0

TRINITY RIVER BASIN

391

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330755096572001 - LEWISVILLE LAKE SITE DC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)
MAR										
08...	1309	1.00	297	8.3	12.5	9.8	94	0.600	0.600	0.050
08...	1313	10.0	294	8.0	10.5	8.8	80	--	--	--
08...	1316	20.0	303	8.0	10.5	8.8	80	--	--	--
08...	1320	30.0	307	8.0	10.0	8.4	76	--	--	--
08...	1323	44.0	313	7.9	10.0	7.4	67	0.480	0.480	0.040
JUN										
14...	1359	1.00	321	8.7	27.0	9.4	120	0.130	0.130	0.040
14...	1404	10.0	325	8.5	26.5	7.8	99	--	--	--
14...	1409	20.0	329	8.1	26.0	5.7	72	--	--	--
14...	1412	30.0	333	7.8	25.5	4.4	55	--	--	--
14...	1416	42.0	334	7.6	25.5	3.2	40	0.310	0.310	0.080
AUG										
26...	1259	1.00	288	8.6	31.0	6.7	92	--	--	0.020
26...	1302	10.0	289	8.3	30.0	5.8	78	--	--	--
26...	1305	20.0	289	8.2	29.5	5.4	72	--	--	--
26...	1308	30.0	301	7.6	29.0	1.2	16	--	--	--
26...	1311	37.0	309	7.5	29.0	0	0	--	--	0.030

DATE	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
MAR										
08...	0.650	0.650	0.030	0.37	0.40	0.030	0.030	0.09	<10	<10
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	0.520	0.520	0.170	0.33	0.50	0.030	0.020	0.06	<10	100
JUN										
14...	0.170	0.170	0.030	0.27	0.30	0.070	<0.010	--	<10	<10
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	0.390	0.390	0.050	0.35	0.40	0.090	0.010	0.03	<10	40
AUG										
26...	--	<0.050	0.020	0.28	0.30	<0.010	<0.010	--	<10	50
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	<0.050	0.300	0.30	0.60	0.050	0.020	0.06	170	490

330959096565301 - LEWISVILLE LAKE SITE EC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRAN- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	HARD- NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)
MAR												
08...	1355	1.00	246	7.7	12.0	0.10	7.6	72	K18	120	92	0
08...	1358	10.0	242	7.8	11.0	--	7.8	72	--	--	--	--
08...	1402	20.0	304	8.0	10.5	--	8.2	75	--	--	--	--
08...	1406	32.0	307	8.0	10.5	--	8.3	76	--	--	120	13
JUN												
14...	1435	1.00	324	8.5	27.0	0.70	11.0	141	K2	K6	120	16
14...	1440	10.0	333	8.2	26.5	--	6.3	80	--	--	--	--
14...	1445	20.0	335	7.6	26.0	--	4.3	54	--	--	--	--
14...	1450	28.0	341	7.6	25.5	--	2.4	30	--	--	110	22
AUG												
26...	1325	1.00	288	8.5	30.0	0.58	6.7	90	60	K370	110	0
26...	1329	10.0	289	8.3	29.5	--	5.5	73	--	--	--	--
26...	1333	15.0	292	8.0	29.5	--	4.5	60	--	--	--	--
26...	1336	24.0	296	7.7	29.5	--	1.6	21	--	--	100	9

TRINITY RIVER BASIN

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330959096565301 - LEWISVILLE LAKE SITE EC--Continued

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

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)
MAR												
08...	32	3.0	11	0.5	3.7	100	34	6.7	0.10	6.9	163	0.740
08...	--	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--	--
08...	40	3.8	17	0.7	4.0	100	30	14	0.20	4.4	178	0.570
JUN												
14...	43	4.2	18	0.7	4.8	110	34	15	0.30	3.6	191	0.380
14...	--	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--	--
14...	37	3.8	18	0.8	3.9	86	30	15	0.20	1.5	162	0.160
AUG												
26...	36	4.2	18	0.8	4.3	110	26	18	0.30	3.2	175	--
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	35	4.1	18	0.8	4.5	95	27	17	0.30	3.8	167	--

DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
MAR												
08...	0.740	0.040	0.780	0.780	0.140	0.56	0.70	0.100	0.090	0.28	14	2
08...	--	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--	--
08...	0.570	0.050	0.620	0.620	0.070	0.23	0.30	0.040	0.030	0.09	7	2
JUN												
14...	0.380	0.140	0.520	0.520	0.140	0.26	0.40	0.070	0.010	0.03	<3	79
14...	--	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--	--
14...	0.160	0.050	0.210	0.210	0.030	0.27	0.30	0.060	<0.010	--	<3	4
AUG												
26...	--	0.030	--	<0.050	0.030	0.27	0.30	0.010	<0.010	--	3	16
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	0.030	--	<0.050	0.180	0.32	0.50	0.020	0.010	0.03	<3	110

330722096592201 - LEWISVILLE LAKE SITE FC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)
MAR										
08...	1439	1.00	302	8.5	13.0	10.6	102	0.220	0.220	0.050
08...	1442	10.0	302	8.4	11.5	10.0	93	--	--	--
08...	1445	20.0	309	8.1	10.5	8.6	78	--	--	--
08...	1448	30.0	309	8.1	10.5	8.5	77	--	--	--
08...	1451	35.0	309	8.0	10.5	8.5	77	0.430	0.430	0.050
JUN										
14...	1516	1.00	314	8.7	30.0	10.0	135	--	--	0.020
14...	1520	10.0	326	8.1	26.0	5.6	70	--	--	--
14...	1524	20.0	325	7.8	25.5	4.7	58	--	--	--
14...	1529	30.0	324	7.8	25.0	4.1	51	--	--	--
14...	1532	42.0	324	7.8	25.0	3.9	48	0.340	0.340	0.010
AUG										
26...	1355	1.00	287	8.7	31.0	8.0	110	--	--	0.030
26...	1358	10.0	293	8.0	29.5	4.8	64	--	--	--
26...	1402	20.0	295	7.8	29.0	3.4	45	--	--	--
26...	1405	30.0	296	7.7	29.0	3.2	42	--	--	--
26...	1408	43.0	299	7.7	29.0	2.7	36	--	--	0.050

TRINITY RIVER BASIN

393

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330722096592201 - LEWISVILLE LAKE SITE FC--Continued

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

DATE	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
MAR										
08...	0.270	0.270	0.020	0.28	0.30	0.020	0.020	0.06	<10	<10
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	0.480	0.480	0.040	0.26	0.30	0.020	0.020	0.06	<10	<10
JUN										
14...	--	<0.050	0.020	0.28	0.30	0.060	0.010	0.03	<10	<10
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	0.350	0.350	0.020	0.28	0.30	0.100	0.040	0.12	<10	<10
AUG										
26...	--	<0.050	0.030	0.27	0.30	0.030	<0.010	--	<10	<10
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	<0.050	0.080	0.22	0.30	0.030	0.030	0.09	20	<10

330944097003601 - LEWISVILLE LAKE SITE GC

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

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
MAR												
08...	1509	1.00	294	8.1	12.0	1.00	9.2	87	46	K6	120	6
08...	1513	10.0	296	8.1	11.5	--	9.1	85	--	--	--	--
08...	1517	20.0	301	8.1	11.0	--	8.6	79	--	--	110	2
JUN												
14...	1551	1.00	312	8.8	27.5	0.70	10.5	135	K9	K5	120	5
14...	1601	10.0	308	7.9	26.0	--	5.2	65	--	--	--	--
14...	1611	19.0	302	7.7	24.5	--	4.5	55	--	--	120	3
AUG												
26...	1421	1.00	285	8.8	30.5	0.46	8.6	117	60	K920	110	15
26...	1425	5.00	290	8.1	29.5	--	4.8	64	--	--	--	--
26...	1429	10.0	290	8.1	29.5	--	4.7	63	--	--	--	--
26...	1432	17.0	293	7.9	29.5	--	3.7	49	--	--	110	9

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)
MAR												
08...	41	3.5	13	0.5	3.5	110	16	14	0.10	5.7	165	0.370
08...	--	--	--	--	--	--	--	--	--	--	--	--
08...	40	3.6	15	0.6	3.8	110	17	15	0.10	4.9	169	0.320
JUN												
14...	42	4.0	17	0.7	4.1	120	19	18	0.20	2.1	176	0.021
14...	--	--	--	--	--	--	--	--	--	--	--	0.290
14...	41	3.5	14	0.6	3.7	110	16	14	0.20	6.1	169	0.400
AUG												
26...	38	4.3	18	0.7	4.5	98	18	20	0.20	5.1	167	--
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	36	4.1	17	0.7	4.4	98	18	19	0.20	5.5	163	--

TRINITY RIVER BASIN

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330944097003601 - LEWISVILLE LAKE SITE GC--Continued

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

DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
MAR												
08...	0.370	0.040	0.410	0.410	0.020	0.28	0.30	0.030	0.020	0.06	4	<1
08...	--	--	--	--	--	--	--	--	--	--	--	--
08...	0.320	0.040	0.360	0.360	0.030	0.27	0.30	0.020	0.020	0.06	<3	1
JUN												
14...	0.021	0.030	0.051	0.051	0.030	0.27	0.30	0.070	0.020	0.06	<3	2
14...	0.290	0.030	0.320	0.320	0.020	0.38	0.40	0.080	0.020	0.06	10	<10
14...	0.400	0.030	0.430	0.430	0.070	0.23	0.30	0.090	0.040	0.12	6	7
AUG												
26...	--	0.030	--	<0.050	0.030	0.27	0.30	0.030	0.020	0.06	<3	1
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	0.030	--	<0.050	0.120	0.28	0.40	0.040	0.030	0.09	<3	7

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX—Continued

Lewisville Lake Site AC (330419096575401)

Phytoplankton Analyses October 1992 to September 1993

Date	3-8-93
Time	1128
<hr/>	
TOTAL CELLS/mL	4,971
NUMBER OF SPECIES	12
DEPTH COLLECTED (ft.)	2.2

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	12
<i>Stephanodiscus astraee</i>	18
Order Pennales	
<i>Navicula</i> sp.	89
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	476
<i>Chlamydomonas</i> sp.	179
<i>Scenedesmus bijuga</i>	60
<i>Scenedesmus quadricauda</i>	30
<i>Staurastrum</i> sp.	30
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	2,678
<i>Chroococcus limneticus</i>	298
EUGLENOPHYTA	
<i>Trachelomonas</i> spp.	744
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	357

TRINITY RIVER BASIN

09052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX—Continued

Lewisville Lake Site GC (330944097003601)

Phytoplankton Analyses October 1992 to September 1993

Date	3-8-93
Time	1508

TOTAL CELLS/mL	4,315
NUMBER OF SPECIES	9
DEPTH COLLECTED (ft.)	1.7

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	37
<i>Stephanodiscus astraea</i>	22
Order Pennales	
<i>Asterionella formosa</i>	20
<i>Fragilaria crotonensis</i>	10
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	238
<i>Scenedesmus quadricauda</i>	30
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	2678
<i>Chroococcus limneticus</i>	744
EUGLENOPHYTA	
<i>Trachelomonas</i> spp.	536

TRINITY RIVER BASIN

397

06052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX—Continued

Lewisville Lake Site AC (330419096575401)

Phytoplankton Analyses October 1992 to September 1993

Date	6-14-93
Time	1134

TOTAL CELLS/mL	12,143
NUMBER OF SPECIES	9
DEPTH COLLECTED (ft.)	2.15

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	30
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	60
<i>Chlamydomonas</i> sp.	60
<i>Scenedesmus bijuga</i>	30
CYANOPHYTA	
<i>Aphanizomenon flos-aquae</i>	595
<i>Aphanocapsa delicatissima</i>	4166
<i>Chroococcus limneticus</i>	476
<i>Merismopedia tenuissima</i>	6666
EUGLENOPHYTA	
<i>Trachelomonas</i> sp.	60

TRINITY RIVER BASIN

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX—Continued

Lewisville Lake Site GC (330944097003601)

Phytoplankton Analyses October 1992 to September 1993

Date	6-14-93
Time	1551

TOTAL CELLS/mL	28,360
NUMBER OF SPECIES	13
DEPTH COLLECTED (ft.)	1.15

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	83
<i>Melosira varians</i>	17
<i>Stephanodiscus astraea</i>	18
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	89
<i>Chlamydomonas</i> sp.	119
<i>Scenedesmus bijuga</i>	30
<i>Scenedesmus quadricauda</i>	89
Unknown filamentous Chlorophyta	536
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	7,738
<i>Merismopedia glauca</i>	476
<i>Merismopedia tenuissima</i>	18,540
EUGLENOPHYTA	
<i>Trachelomonas</i> sp.	298
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	327

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX—Continued

Lewisville Lake Site AC (330419096575401)

Phytoplankton Analyses October 1992 to September 1993

Date	8-26-93
Time	1130

TOTAL CELLS/mL	50,498
NUMBER OF SPECIES	23
DEPTH COLLECTED (ft.)	2.5

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	54
<i>Melosira varians</i>	5
Order Pennales	
<i>Fragilaria crotonensis</i>	168
<i>Nitzschia palea</i>	180
<i>Synedra ulna</i>	39
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	327
<i>Chlamydomonas</i> sp.	59
<i>Scenedesmus opoliensis</i>	59
<i>Selenastrum westii</i>	30
<i>Staurastrum</i> sp.	119
CYANOPHYTA	
<i>Anabaena planctonica</i>	625
<i>Anabaena spiroides</i>	1,190
<i>Aphanocapsa delicatissima</i>	7,435
<i>Aphanocapsa elachista</i>	3,569
<i>Chroococcus limneticus</i>	1,011
<i>Chroococcus minimus</i>	119
<i>Lyngbya contorta</i>	12,669
<i>Merismopedia tenuissima</i>	9,517
<i>Oscillatoria angustissima</i>	11,747
<i>Oscillatoria splendida</i>	892
<i>Spirulina major</i>	357
CHRYSTOPHYTA	
<i>Mallomonas</i> sp.	30
EUGLENOPHYTA	
<i>Trachelomonas</i> spp.	297

TRINITY RIVER BASIN

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX—Continued

Lewisville Lake Site GC (330944097003601)

Phytoplankton Analyses October 1992 to September 1993

Date	8-26-93
Time	1421

TOTAL CELLS/mL	61,475
NUMBER OF SPECIES	29
DEPTH COLLECTED (ft.)	0.75

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	91
<i>Melosira varians</i>	28
Order Pennales	
<i>Cocconeis placentula</i>	25
<i>Fragilaria crotonensis</i>	76
<i>Fragilaria vaucherie</i>	101
<i>Fragilaria cuspidata</i>	13
<i>Navicula viridula</i>	13
<i>Nitzschia palea</i>	101
<i>Tabellaria fenestrata</i>	88
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	89
<i>Chlamydomonas</i> sp.	327
<i>Closterium</i> sp.	30
<i>Cosmarium</i> sp.	30
<i>Pediastrum duplex</i>	89
<i>Scenedesmus bijuga</i>	30
<i>Scenedesmus opoliensis</i>	119
<i>Scenedesmus quadricauda</i>	30
<i>Staurastrum</i> sp.	89
CYANOPHYTA	
<i>Anabaena planctonica</i>	1,279
<i>Aphanocapsa delicatissima</i>	15,465
<i>Aphanocapsa elachista</i>	10,706
<i>Chroococcus limneticus</i>	2,855
<i>Chroococcus minimus</i>	714
<i>Lyngbya contorta</i>	6,692
<i>Merismopedia tenuissima</i>	13,324
<i>Oscillatoria angustissima</i>	8,238
<i>Spirulina major</i>	208
EUGLENOPHYTA	
<i>Trachelomonas</i> spp.	595
PYRRHOPHYTA	
<i>Peridinium pusillum</i>	30

06052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX—Continued

Lewisville Lake Site AC (330419096575401)

Phytoplankton Analyses October 1991 to September 1992

Date	2-6-92
Time	1154

TOTAL CELLS/mL	26,206
NUMBER OF SPECIES	11
DEPTH COLLECTED (ft.)	0.9

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella meneghiniana</i>	65
<i>Melosira varians</i>	130
Order Pennales	
<i>Asterionella formosa</i>	98
<i>Surirella linearis</i>	98
CHLOROPHYTA	
<i>Chlamydomonas</i> sp.	978
<i>Chlorella ellipsoidea</i>	196
<i>Selenastrum minutum</i>	196
CHRYSOPHYTA	
Unknown flagellate	1,369
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	21,707
<i>Chroococcus</i> sp.	1,173
CRYPTOPHYTA	
<i>Rhodomonas minuta</i>	196

TRINITY RIVER BASIN

09052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX—Continued

Lewisville Lake Site GC (330944097003601)

Phytoplankton Analyses October 1991 to September 1992

Date	2-6-92
Time	1410

TOTAL CELLS/mL	36,178
NUMBER OF SPECIES	18
DEPTH COLLECTED (ft.)	0.6

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella meneghiniana</i>	73
<i>Melosira varians</i>	96
<i>Stephanodiscus astraea</i> var. <i>mintula</i>	27
Order Pennales	
<i>Achnanthes minutissima</i>	78
<i>Nitzschia acicularis</i>	39
<i>Nitzschia dissipata</i>	39
<i>Nitzschia palea</i>	39
CHLOROPHYTA	
<i>Chlamydomonas</i> sp.	1,173
<i>Chlorella ellipsoidea</i>	1,564
<i>Chlorococcum humicola</i>	1,173
<i>Selenastrum minutum</i>	391
CHRYSTOPHYTA	
Unknown flagellate	2,347
<i>Mallomonas</i> sp.	196
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	25,423
<i>Chroococcus</i> sp.	2,151
EUGLENOPHYTA	
<i>Euglena</i> sp.	196
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	782
<i>Rhodomonas minuta</i>	391

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX—Continued

Lewisville Lake Site AC (330419096575401)

Phytoplankton Analyses October 1991 to September 1992

Date	5-27-92
Time	1112

TOTAL CELLS/mL	9,792
NUMBER OF SPECIES	18
DEPTH COLLECTED (ft.)	2.5

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	148
<i>Stephanodiscus astraea</i>	30
Order Pennales	
<i>Achnanthes</i> sp.	2
<i>Cymbella cymbiformis</i>	6
<i>Diatoma vulgare</i>	13
<i>Fragilaria crotonensis</i>	4
<i>Gomphonema brasiliense</i>	2
<i>Navicula</i> sp.	4
CHLOROPHYTA	
<i>Chlamydomonas</i> sp.	89
<i>Scenedesmus quadricauda</i>	30
<i>Selenastrum Westii</i>	60
CYANOPHYTA	
<i>Aphanocapsa delicatissima</i>	5,952
<i>Aphanizomenon flos-aquae</i>	893
<i>Chroococcus limneticus</i>	89
<i>Merismopedia tenuissima</i>	1,845
EUGLENOPHYTA	
<i>Trachelomonas</i> sp.	30
PYRRHOPHYTA	
<i>Ceratium hirundinella</i>	119
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	476

TRINITY RIVER BASIN

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX—Continued

Lewisville Lake Site GC (330944097003601)

Phytoplankton Analyses October 1991 to September 1992

Date	5-27-92
Time	1402

TOTAL CELLS/mL	18,719
NUMBER OF SPECIES	17
DEPTH COLLECTED (ft.)	0.8

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA	
Order Centrales	
<i>Cyclotella ocellata</i>	188
<i>Stephanodiscus astraea</i>	11
<i>Melosira varians</i>	9
Order Pennales	
<i>Fragilaria crotonensis</i>	119
CHLOROPHYTA	
<i>Ankistrodesmus falcatus</i>	89
<i>Chlamydomonas</i> sp.	208
<i>Pediastrum duplex</i>	30
<i>Scenedesmus quadricauda</i>	30
CYANOPHYTA	
<i>Anabaena affinis</i>	625
<i>Aphanocapsa delicatissima</i>	5,654
<i>Aphanizomenon flos-aquae</i>	298
<i>Chroococcus limneticus</i>	119
<i>Chroococcus minimus</i>	119
<i>Merismopedia tenuissima</i>	11,011
CHRYSTOPHYTA	
<i>Dinobryon sociale</i>	30
PYRRHOPHYTA	
<i>Glenodinium palustre</i>	30
CRYPTOPHYTA	
<i>Cryptomonas erosa</i>	149

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX—Continued

Lewisville Lake Site AC (330419096575401)

Phytoplankton Analyses October 1991 to September 1992

Date	8-13-92
Time	1313

TOTAL CELLS/mL	11,041
NUMBER OF SPECIES	13
DEPTH COLLECTED (ft.)	2.1

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Pennales	
<i>Fragilaria crotonensis</i>	208
CHLOROPHYTA (Green algae)	
<i>Ankistrodesmus falcatus</i>	119
<i>Ankistrodesmus spiralis</i>	327
<i>Chlamydomonas</i> sp.	89
<i>Scenedesmus quadricauda</i>	60
<i>Selenestrum westii</i>	119
CYANOPHYTA (Blue-green algae)	
<i>Anabaena spiroides</i>	1,637
<i>Aphanizomenon flos-aquae</i>	1,339
<i>Aphanocapsa delicatissima</i>	5,059
<i>Chroococcus limneticus</i>	238
<i>Merismopedia tenuissima</i>	1,667
EUGLENOPHYTA (Euglenoids)	
<i>Trachelomonas</i> spp.	60
CRYPTOPHYTA (Cryptomonads)	
<i>Cryptomonas erosa</i>	119

TRINITY RIVER BASIN

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX—Continued

Lewisville Lake Site GC (330944097003601)

Phytoplankton Analyses October 1991 to September 1992

Date	8-13-92
Time	1638
<hr/>	
TOTAL CELLS/mL	17,081
NUMBER OF SPECIES	15
DEPTH COLLECTED (ft.)	0.9
<hr/>	

<u>Organisms</u>	<u>Cells/mL</u>
BACILLARIOPHYTA (Diatoms)	
Order Pennales	
<i>Fragilaria crotonensis</i>	149
CHLOROPHYTA (Green algae)	
<i>Ankistrodesmus falcatus</i>	536
<i>Ankistrodesmus spiralis</i>	208
<i>Chlamydomonas</i> sp.	60
<i>Cosmarium</i> sp.	208
<i>Scenedesmus quadricauda</i>	89
CYANOPHYTA (Blue-green algae)	
<i>Anabaena</i> sp.	357
<i>Anabaena spiroides</i>	952
<i>Aphanizomenon flos-aquae</i>	2,083
<i>Aphanocapsa delicatissima</i>	2,976
<i>Chroococcus limneticus</i>	476
<i>Merismopedia chondroidea</i>	1,309
<i>Merismopedia tenuissima</i>	7,380
EUGLENOPHYTA (Euglenoids)	
<i>Euglena</i> sp.	60
<i>Trachelomonas</i> spp.	238

LOCATION.--Lat 33°02'44", long 96°57'39", Denton County, Hydrologic Unit 12030103, on left bank at downstream edge of highway right-of-way, 90 ft to left of left end of bridge on State Highway 121, 1.8 mi east of Lewisville, 1.9 mi downstream from Lewisville Lake, 8.3 mi upstream from Denton Creek, and 28.2 mi upstream from mouth.

WATER-DISCHARGE RECORDS

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1907, 33.8 ft in 1908, present site and datum, from information by local resident.

e Estimated

MEAN	399	628	632	543	634	749	657	1296	1451	842	499	337
MAX	3628	6300	4681	5267	4611	3871	3547	8391	5222	4479	4101	2480
(WY)	1982	1982	1982	1992	1992	1992	1977	1990	1957	1989	1982	1962
MIN	23.1	37.3	35.0	15.2	23.6	37.7	14.0	84.4	109	157	54.7	65.0
(WY)	1959	1955	1955	1955	1955	1955	1989	1981	1955	1961	1963	1958

ANNUAL TOTAL	586010		567978				
ANNUAL MEAN	1601		1556			722	
HIGHEST ANNUAL MEAN						3062	1982
LOWEST ANNUAL MEAN						94.2	1955
HIGHEST DAILY MEAN	6810	Jan 25	4290	Mar 16	19000		May 4 1990
LOWEST DAILY MEAN	37	Nov 20	37	Nov 20		.28	Nov 1 1983
ANNUAL SEVEN-DAY MINIMUM	111	Nov 20	111	Nov 20		.29	Nov 3 1983
INSTANTANEOUS PEAK FLOW			4320	Mar 16	19600		May 4 1990
INSTANTANEOUS PEAK STAGE			20.28	Mar 16		30.15	May 4 1990
ANNUAL RUNOFF (AC-FT)	1162000		1127000		523300		
10 PERCENT EXCEEDS	5220		3800		3080		
50 PERCENT EXCEEDS	348		647		199		
90 PERCENT EXCEEDS	158		145		74		

Period of regulated streamflow.

08053000 ELM FORK TRINITY RIVER NEAR LEWISVILLE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: January 1981 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1981 to September 1990.

WATER TEMPERATURE: November 1976 to September 1990.

INSTRUMENTATION.--From November 1976 to October 1981, water temperature was continuously recorded at this station.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,050 microsiemens Feb. 5, 8, 1989; minimum daily, 200 microsiemens May 13, 1982.

WATER TEMPERATURES (1976-89): Maximum, 33.5°C July 16, Aug. 18, 1988, Sept. 14, 15, 1989; minimum, 0.0°C Jan. 31, Feb. 9, 1979.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS TOTAL (MG/L AS CACO3)	
OCT 30...	1415	199	342	8.2	22.0	10	7.7	7.9	92	1.4	120	
MAR 08...	1410	4240	316	8.4	10.5	25	5.0	13.1	119	0.8	120	
MAY 07...	0848	3300	331	8.1	18.5	15	12	8.9	97	1.4	120	
JUN 14...	1019	3510	327	7.9	23.5	20	12	8.3	99	1.5	120	
AUG 12...	0830	256	330	7.5	27.0	11	1.7	4.2	54	2.7	120	
26...	1207	304	328	7.9	29.0	13	2.0	6.6	87	5.9	110	
DATE		HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
OCT 30...	8	40	4.2	24	1	4.6	110	33	20	0.30	4.0	
MAR 08...	10	40	4.0	16	0.6	3.9	110	27	16	0.20	3.3	
MAY 07...	17	43	4.1	19	0.7	3.9	110	29	16	0.20	2.8	
JUN 14...	17	43	4.0	19	0.7	4.2	110	31	16	0.30	1.9	
AUG 12...	14	40	4.2	21	0.8	4.4	100	28	20	0.24	3.0	
26...	15	38	4.1	20	0.8	4.7	97	28	19	0.30	2.9	
DATE		SOLIDS, SUM OF CONSTIT- UENTS, DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	RESIDUE VOLA- TILE, SUS- PENDED (MG/L)	RESIDUE FIXED NON FILTER- ABLE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)
OCT 30...	195	3	3	0	0.790	--	0.020	--	0.810	--	0.010	
MAR 08...	177	<1	<1	--	0.370	0.370	--	0.020	0.390	0.390	--	
MAY 07...	184	11	20	0	0.470	0.470	--	0.020	0.490	0.490	--	
JUN 14...	186	8	7	1	0.420	--	--	<0.010	0.420	0.420	--	
AUG 12...	184	11	2	9	0.300	0.300	--	0.010	0.310	0.310	--	
26...	177	18	2	16	0.360	--	--	<0.010	0.360	0.360	--	
DATE		NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	
OCT 30...	--	0.59	--	--	0.60	0.240	--	--	--	0.190	--	
MAR 08...	0.020	--	0.28	0.30	--	--	0.030	0.020	--	0.06		
MAY 07...	0.030	--	0.57	0.60	--	--	0.020	0.020	--	0.06		
JUN 14...	0.040	--	0.36	0.40	--	--	0.030	0.020	--	0.06		
AUG 12...	0.110	--	0.79	0.90	--	--	0.060	0.070	--	0.21		
26...	0.070	--	0.33	0.40	--	--	0.100	0.090	--	0.28		

TRINITY RIVER BASIN

409

08053000 ELM FORK TRINITY RIVER NEAR LEWISVILLE, TX--Continued

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

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
OCT 30...	5.3	--	--	--	--	--	--	--	--	--
MAR 08...	6.0	2	40	<0.5	<1.0	<5	<3	<10	11	<10
MAY 07...	4.7	--	--	--	--	--	--	--	--	--
JUN 14...	5.2	1	47	<0.5	<1.0	<5	<3	<10	<3	<10
AUG 12...	4.9	--	--	--	--	--	--	--	--	--
26...	9.0	3	40	<0.5	<1.0	<5	<3	<10	8	<10
DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 30...	--	--	--	--	--	--	--	--	--	--
MAR 08...	<4	1	<0.1	<10	<10	<1	<1.0	230	<6	3
MAY 07...	--	--	--	--	--	--	--	--	--	--
JUN 14...	4	21	<0.1	<10	<10	<1	<1.0	250	<6	4
AUG 12...	--	--	--	--	--	--	--	--	--	--
26...	<4	14	<0.1	<10	<10	<1	<1.0	240	<6	7

TRINITY RIVER BASIN

08053500 DENTON CREEK NEAR JUSTIN, TX

LOCATION.--Lat 33°07'08", long 97°17'25". Denton County, Hydrologic Unit 12030104, on right bank at downstream side of bridge on Farm Road 156, 100 ft upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 2.2 mi north of Justin, 3.0 mi upstream from Olivers Creek, 12.9 mi upstream from Harriet Creek, and 32.9 mi upstream from Grapevine Dam.

DRAINAGE AREA.--400 mi².

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

Water-quality records.--Chemical and biochemical analyses: October 1980 to September 1982.

REVISED RECORDS.--WSP 1732: 1950(M). WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 606.66 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. There are several small diversions above station. Flow is affected at times by discharge from the flood-detention pools of 84 floodwater-retarding structures with a combined detention capacity of 52,750 acre-ft. These structures control runoff from 197 mi² in the Denton Creek watershed. Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--31 years (water years 1950-80) 77.4 ft³/s (56,080 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS 1950-80).--Maximum discharge, 29,800 ft³/s May 24 1957 (gage height, 17.64 ft); no flow at times in 1949-65, 1967-74, 1976-80.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1935 was the highest since 1908 and reached a stage of 20.6 ft at site about 1,500 ft upstream, from information by local resident. Flood in May 1908 reached a stage about 1.0 ft higher than flood in May 1935, from information by local resident.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	21	28	47	59	1310	93	244	69	28	4.8	4.2
2	13	34	27	49	58	1990	86	206	58	25	4.5	7.5
3	13	30	27	52	511	894	93	194	53	23	4.9	5.8
4	12	23	27	54	1070	523	275	149	49	21	7.0	4.2
5	12	19	26	58	272	347	259	114	45	20	7.4	5.8
6	12	18	26	57	177	263	165	100	43	19	7.4	4.3
7	12	18	25	55	137	221	139	93	41	18	7.4	3.5
8	12	18	25	54	117	195	141	87	40	17	10	3.1
9	12	19	29	63	108	175	122	327	2690	16	9.8	2.6
10	12	20	35	92	179	157	103	3180	4430	15	7.7	3.0
11	12	21	34	75	205	137	95	1560	2770	14	5.9	3.8
12	12	21	31	81	133	133	89	1040	1990	13	4.5	3.6
13	14	33	44	88	105	131	84	885	1010	12	3.6	7.7
14	14	32	3160	75	95	122	123	780	614	12	3.5	364
15	14	25	1560	67	1530	118	256	687	393	11	3.3	117
16	20	24	671	64	1870	124	181	585	264	11	3.2	28
17	27	24	332	60	740	122	131	439	208	10	3.2	16
18	21	24	201	59	406	110	110	316	173	9.6	3.0	11
19	17	32	144	59	276	112	98	240	151	9.3	2.7	9.9
20	16	61	110	254	218	155	85	187	125	8.9	2.4	8.7
21	16	52	90	245	186	160	71	155	107	8.4	2.1	7.6
22	16	45	81	163	150	208	65	123	98	8.1	1.7	7.2
23	16	121	73	123	126	410	62	99	89	7.8	1.3	6.8
24	16	82	64	102	135	269	62	210	72	7.6	1.1	6.1
25	16	52	59	83	3230	198	61	148	62	7.0	1.0	5.9
26	16	43	56	75	937	159	57	95	58	6.8	1.0	7.4
27	18	35	53	71	521	138	54	74	50	6.5	1.0	9.4
28	16	31	52	69	377	124	52	65	43	6.3	1.0	7.1
29	17	30	52	67	---	118	1190	64	38	6.0	1.0	5.9
30	18	29	53	62	---	111	534	83	32	5.5	1.0	5.2
31	19	---	52	59	---	102	---	103	---	5.2	1.0	---
TOTAL	474	1037	7247	2582	13928	9336	4936	12632	15865	388.0	119.4	682.3
MEAN	15.3	34.6	234	83.3	497	301	165	407	529	12.5	3.85	22.7
MAX	27	121	3160	254	3230	1990	1190	3180	4430	28	10	364
MIN	12	18	25	47	58	102	52	64	32	5.2	1.0	2.6
AC-11	940	2060	14370	5120	27630	18520	9790	25060	31470	770	237	1350

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1993#, BY WATER YEAR (WY)

	MEAN	289	72.8	155	89.4	164	198	239	515	382	46.4	8.92	30.0
	MAX	2828	524	1321	437	497	522	2095	2036	1815	260	24.9	242
	(WY)	1982	1982	1992	1992	1993	1990	1990	1982	1989	1982	1982	1986
	MIN	.000	.29	3.84	4.30	14.1	29.5	20.4	8.24	14.4	.000	.000	.000
	(WY)	1989	1981	1981	1981	1981	1986	1981	1984	1988	1984	1981	1983

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1981 - 1993#

ANNUAL TOTAL	56427.9	69226.7	183
ANNUAL MEAN	154	190	577
HIGHEST ANNUAL MEAN			21.9
LOWEST ANNUAL MEAN			18600
HIGHEST DAILY MEAN	3160	4430	18600
LOWEST DAILY MEAN	7.9	1.0	.00
ANNUAL SEVEN-DAY MINIMUM	10	1.0	.00
INSTANTANEOUS PEAK FLOW		6280	34700
INSTANTANEOUS PEAK STAGE		14.81	18.68
INSTANTANEOUS LOW FLOW		1.0	.00
ANNUAL RUNOFF (AC-FT)	111900	137300	132300
10 PERCENT EXCEEDS	382	354	275
50 PERCENT EXCEEDS	67	54	28
90 PERCENT EXCEEDS	14	5.8	.03

Period of regulated streamflow.

08054500 GRAPEVINE LAKE NEAR GRAPEVINE, TX

LOCATION.--Lat 32°58'21", long 97°03'22", Tarrant County, Hydrologic Unit 12030104, in intake structure of Grapevine Dam on Denton Creek, 2.7 mi northeast of Grapevine, 4.3 mi upstream from bridge on State Highway 121, and 11.7 mi upstream from mouth.

DRAINAGE AREA.--695 mi².

PERIOD OF RECORD.--July 1952 to current year. Prior to October 1970, published as Grapevine Reservoir.
Water-quality records.--Chemical and biochemical analyses: October 1969 to August 1986.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to May 16, 1953, non-recording gage at site 1,000 ft upstream at present datum.

REMARKS.--The lake is formed by a rolled earthfill dam 12,850 ft long, including a 500-foot 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 concrete conduit that is controlled by two 6.5- by 13.0-foot broome-type gates and two 30-inch 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. An unknown amount of water is diverted for industrial and municipal uses. Inflow is affected at times by discharge from the flood-detention pools of 87 floodwater-retarding structures with a combined detention capacity of 57,850 acre-ft. These structures control runoff from 217 mi² in the Denton Creek watershed. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	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 the U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 471,200 acre-ft Nov. 1, 1981 (elevation, 563.29 ft); minimum since lake first filled in 1957, 94,480 acre-ft Feb. 26, 1979 (elevation, 520.67 ft).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 228,800 acre-ft Mar 3, 4 (elevation, 541.10 ft); minimum daily, 155,100 acre-ft Sept. 12 (elevation, 531.28 ft).

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

531.0	153,300	542.0	236,500	549.0	302,000
535.0	181,100	545.0	263,300	551.0	322,400
539.0	211,500	547.0	282,300	553.0	343,800

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	168600	164800	162800	182000	182100	222300	184000	188800	183300	182900	171500	159600
2	168300	164500	162500	181800	182100	227200	182600	188600	183200	182300	171000	159200
3	168100	164300	162400	181800	187500	228800	182300	187900	183000	182000	170700	158800
4	167900	164000	162400	181800	199900	228800	182800	186900	182800	181500	170400	158300
5	167700	163600	162100	181500	200600	228200	182500	185700	182600	181300	170000	157900
6	167400	163200	162000	181500	199800	227400	181800	184600	182300	180900	169600	157500
7	167500	163000	161900	181400	198900	226600	182100	183900	182100	180600	169600	157100
8	167300	162700	161700	181500	197900	225700	181900	183300	181800	180200	169200	156900
9	167000	162600	162100	182000	196800	224600	181500	183700	184700	179900	168900	156500
10	166700	162600	162000	181900	196500	223400	181500	187400	193500	179700	168500	156100
11	166400	162900	161800	181900	195900	222100	181500	190300	198900	179200	168100	155700
12	166300	162600	161700	182100	194300	221100	181500	191100	202200	178900	167700	155100
13	165900	162500	163600	182100	192600	219500	181600	191500	202300	178500	167300	156300
14	165700	162400	181600	181900	190500	218100	182900	191700	201500	178100	166800	161800
15	166600	162200	188800	181900	194800	217000	182900	192000	200100	177800	166400	162400
16	166900	162000	190400	181900	198400	216000	182900	192000	198700	177300	166100	162300
17	166700	161900	189800	181900	198400	214500	183000	191900	197600	177000	165600	162100
18	166500	161800	189000	181900	197300	213000	182900	191800	196700	176700	165200	161800
19	166200	162900	188200	182500	196800	212100	182900	191100	195500	176300	164800	161700
20	166100	162800	187000	183500	197100	210300	182500	190200	194400	176000	164500	161500
21	165900	163200	185900	184000	197200	208000	182100	189200	193200	175600	164100	161200
22	165800	163000	184700	183700	196800	208100	181800	188000	192000	175300	163500	160900
23	165700	162900	184000	183200	196000	206700	181600	186800	190700	174900	163000	160600
24	165500	163700	183700	182600	196200	204700	181600	185700	189300	174400	162700	160400
25	165400	163500	183400	182000	215000	202300	181600	185100	189000	174000	162300	160300
26	165200	163300	183000	181700	218100	199700	181500	184500	188200	173600	161900	160000
27	165000	163200	182600	181700	218000	197200	181300	184000	186800	173200	161500	159600
28	164700	163000	182500	181800	217600	194700	181300	183800	185400	172900	161100	159300
29	165000	162900	182500	182100	---	192000	188200	183400	184200	172500	160600	159200
30	164800	162800	182400	182100	---	189500	189000	183700	183500	172300	160300	158700
31	164600	---	182300	182200	---	186600	---	183600	---	171900	160000	---
MAX	168600	164800	190400	184000	218100	228800	189000	192000	202300	182900	171500	162400
MIN	164600	161800	161700	181400	182100	186600	181300	183300	181800	171900	160000	155100
(↑)	532.67	532.41	535.16	535.15	539.75	535.75	536.08	535.34	535.33	533.72	532.00	531.81
(φ)	-4200	-1800	+19500	-100	+35400	-31000	+2400	-5400	-100	-11600	-11900	-1300
CAL YR 1992	MAX	332300	MIN	161700	(φ)	-149400						
WTR YR 1993	MAX	228800	MIN	155100	(φ)	-10100						

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

(φ) Change in contents, in acre-feet.

TRINITY RIVER BASIN

08055500 ELM FORK TRINITY RIVER NEAR CARROLLTON, TX

LOCATION.--Lat 32°57'57", long 96°56'39", Dallas County, Hydrologic Unit 12030103, near left bank at downstream side of bridge on Sandy Lake Road, 40 ft upstream from Carrollton Dam, 0.3 mi downstream from Denton Creek, 1.0 mi upstream from St. Louis Southwestern Railway Lines bridge, 2.3 mi northwest of Carrollton, and 18.2 mi upstream from mouth.

DRAINAGE AREA.--2,459 mi².

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".

REVISED RECORDS.--WSP 788: 1924. WSP 1148: Drainage area at former site. WSP 1632: 1908(M). WSP 1922: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 431.40 ft above National Geodetic Vertical Datum of 1929. Prior to November 1923, nonrecording gage at site 15.5 mi 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 mi downstream at datum 22.94 ft lower. Apr. 15, 1939, to Sept. 30, 1955, water-stage recorder at site 8.5 mi downstream at datum 22.94 ft lower. Oct. 1, 1955, to Sept. 30, 1987, water-stage recorder at present site and at datum 2.00 ft higher.

REMARKS.--No estimated daily discharges. Records fair. Flow largely regulated by Lewisville Lake (station 08052800) since November 1954, and by Grapevine Lake (station 08054500) since July 1952. The city of Dallas diverts water from the pool at gage and from the river 14 mi downstream for municipal use. A water treatment plant returns water to the river below the station. In addition, Dallas Power and Light Co. diverts water from the pool at gage into North Lake for cooling water at their electric generating plant. Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--47 years (water years 1908-54) 818 ft³/s (592,600 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1908-54).--Maximum gage height, about 19 ft May 25, 1908, present site and datum, from information by local resident; estimated discharge, 145,000 ft³/s, at site 8.5 mi downstream (from information by U.S. Army Corps of Engineers); maximum gage height subsequent to 1908, 16.5 ft Apr. 26, 1942, present site and datum, from observation by National Weather Service; discharge at site 8.5 mi downstream, 90,700 ft³/s; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1866, reached about the same stage as flood of May 25, 1908.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	113	180	30	1500	137	4390	4090	2630	269	3620	792	163
2	102	36	9.3	2510	130	3740	3610	2850	138	3620	398	151
3	97	6.3	5.5	2800	604	4200	2360	2790	120	3600	340	227
4	15	5.3	4.0	2990	2750	4490	1620	3400	116	3580	377	233
5	45	4.7	4.7	3090	1480	4580	1550	3560	135	3630	333	223
6	80	4.7	18	3110	3330	4600	2000	3570	275	3650	193	190
7	71	4.7	35	3080	3460	4600	1440	3530	170	3630	276	225
8	43	4.8	9.7	2440	3450	4580	1350	3320	157	3600	278	230
9	110	21	74	1240	3450	4560	1370	3330	202	3590	177	170
10	95	17	41	1050	3460	4660	760	2350	1250	3580	119	127
11	88	12	15	1030	3390	4690	498	3280	2990	3560	136	154
12	88	123	9.2	1020	3460	4720	551	3950	4260	1180	97	180
13	26	32	128	819	3250	4690	585	4240	4300	664	65	339
14	62	12	3250	215	3250	4690	1080	4260	4340	2580	84	892
15	65	40	1420	268	4020	4670	762	4240	4350	3480	163	49
16	1120	33	1300	268	3640	4750	690	4240	4380	3630	177	14
17	90	39	3310	262	3740	4710	599	4230	3840	3640	139	120
18	65	30	3520	264	3790	4550	557	4230	3700	3690	141	119
19	51	424	3530	282	3720	4480	540	4230	3710	3710	175	97
20	20	80	3520	736	3150	4280	552	4200	3680	3720	298	29
21	17	66	3500	810	3080	4150	617	4050	3700	3730	267	20
22	21	125	3510	1520	3190	4460	504	2760	3700	3630	228	57
23	94	14	3420	1890	3650	3810	493	2420	3700	3010	282	79
24	22	171	3120	1900	3830	3740	478	1580	3690	2030	237	67
25	12	85	3110	1900	5990	3720	456	1060	3770	1660	220	133
26	59	22	2970	1640	1900	3780	453	158	3910	1630	170	193
27	60	15	1670	569	3380	4080	482	93	3740	1600	139	144
28	47	11	1220	798	3900	4170	350	261	3710	1070	285	104
29	157	22	1130	781	---	4170	1570	253	3680	304	285	28
30	88	34	1220	612	---	4150	1320	327	3590	612	211	34
31	63	---	1250	133	---	4130	---	385	---	876	202	---
TOTAL	3086	1674.5	46353.4	41527	86581	134990	33287	85777	79572	86106	7284	4791
MEAN	99.5	55.8	1495	1340	3092	4355	1110	2767	2652	2778	235	160
MAX	1120	424	3530	3110	5990	4750	4090	4260	4380	3730	792	892
MIN	12	4.7	4.0	133	130	3720	350	93	116	304	65	14
AC-F I	6120	3320	91940	82370	171700	267800	66020	170100	157800	170800	14450	9500

TRINITY RIVER BASIN

413

08055500 ELM FORK TRINITY RIVER NEAR CARROLLTON, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1955 - 1993#, BY WATER YEAR (WY)

MEAN	389	701	767	650	752	867	858	1516	1738	975	573	310
MAX	3554	8830	6785	6614	5868	4858	4126	10920	6757	6224	6003	3406
(WY)	1982	1982	1982	1992	1992	1992	1977	1990	1990	1989	1982	1962
MIN	27.8	4.21	.78	.80	2.06	3.30	43.5	38.4	80.0	94.9	58.2	14.8
(WY)	1981	1957	1978	1957	1957	1957	1955	1980	1959	1979	1979	1985

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1955 - 1993#	
ANNUAL TOTAL	709814.9		611028.9		841	
ANNUAL MEAN	1939		1674		4289	
HIGHEST ANNUAL MEAN					76.0	
LOWEST ANNUAL MEAN					1982	
HIGHEST DAILY MEAN	8050	Jan 27	5990	Feb 25	25300	May 5 1990
LOWEST DAILY MEAN	4.0	Dec 4	4.0	Dec 4	.00	Dec 2 1954
ANNUAL SEVEN-DAY MINIMUM	7.4	Nov 3	7.4	Nov 3	.00	Jan 7 1959
INSTANTANEOUS PEAK FLOW			7460	Feb 25	33000	Sep 21 1964
INSTANTANEOUS PEAK STAGE			8.33	Feb 25	13.48	May 5 1990
INSTANTANEOUS LOW FLOW			.10	Sep 15	.00	at times
ANNUAL RUNOFF (AC-FT)	1408000		1212000		609600	
10 PERCENT EXCEEDS	6600		4160		3690	
50 PERCENT EXCEEDS	296		792		141	
90 PERCENT EXCEEDS	36		31		33	

Period of regulated streamflow.

TRINITY RIVER MAIN STEM

08057000 TRINITY RIVER AT DALLAS, TX

LOCATION.--Lat 32°46'29", long 96°49'18", Dallas County, Hydrologic Unit 12030105, on right bank (levee) 90 ft downstream from Commerce Street viaduct in Dallas, 5.2 mi downstream from confluence of West and Elm Forks, and at mile 500.3.

DRAINAGE AREA.--6,106 mi².

PERIOD OF RECORD.--October 1898 to December 1899 (gage heights only published in WSP 28 and 37), July 1903 to current year. Daily discharges are not available for all periods prior to 1931.

REVISED RECORDS.--WSP 850: 1903-6 (monthly and annual means). WSP 1732: 1937(M). WSP 1922: Drainage area. WDR TX-73-1: 1972.

GAGE.--Water-stage recorder. Datum of gage is 368.02 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1898, to Dec. 31, 1899, nonrecording gage at site 2 mi upstream at different datum. July 1, 1903, to July 20, 1930, non-recording gage at present site and datum. July 21, 1930, to Sept. 30, 1932, nonrecording gage at site 6 mi downstream at datum 3.08 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are fair. At times, flow is affected by storage in seven major upstream reservoirs, with a combined capacity of 1,703,000 acre-ft of which 846,200 acre-ft is for flood control. The city of Dallas diverts water for municipal use from the Elm Fork, Lake Ray Hubbard (on the East Fork), and from Lake Tawakoni (on the Sabine River), and purchases water from North Texas Municipal Water District (from the East Fork). Sewage effluent from the City of Dallas is returned to the river downstream from this station. The Trinity River Authority and the City of Fort Worth discharges sewage effluent into the river upstream from this station. For additional information on diversions and effluent returns for this station, see stations 08048000, 08049200, and 08049500. Several observations of water temperature were made during the year. Gage-height telemeters at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--31 years (water years 1903-33) prior to regulation by upstream reservoirs, 1,330 ft³/s (963,500 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1903-33).--Maximum discharge, 184,000 ft³/s May 25, 1908 (gage height, 52.6 ft), from rating curve extended above 109,000 ft³/s. Maximum stage since at least 1840, that of May 25, 1908.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1866 reached about the same stage as that of May 25, 1908.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	424	1650	502	1960	1200	10700	5500	3610	652	5030	1020	430
2	464	1460	488	2550	1120	11500	5080	5210	559	4660	768	391
3	446	639	454	3240	2000	9570	4470	5570	485	4920	631	402
4	440	498	441	3520	10400	9240	4870	4910	474	4240	660	381
5	425	446	422	3680	9130	9030	4380	4850	470	4070	729	378
6	427	426	425	3780	5410	8760	3300	4750	464	4090	582	356
7	544	413	454	3840	5330	7790	4290	4670	503	4110	719	377
8	880	411	464	3720	5050	8000	4610	4750	479	4060	854	392
9	568	426	837	3200	5310	8310	4490	5180	613	4010	613	421
10	464	431	844	2500	5460	7900	3920	4940	4210	3960	508	386
11	424	514	572	1950	5270	7370	2140	4210	3690	3950	468	362
12	407	911	501	1800	5420	7250	1520	4550	4950	3640	463	365
13	403	941	751	1670	4740	7010	1770	5190	5470	1130	440	760
14	388	548	10800	1180	4400	6580	4290	5620	5520	1670	420	3570
15	573	471	20900	841	7230	6890	4810	5740	5670	3140	409	3340
16	5800	459	12400	833	9680	6160	2560	5670	5770	3800	433	741
17	2900	446	5610	841	6720	5870	2190	5630	5800	3980	443	522
18	718	443	5340	838	6980	5700	2600	5620	5560	4000	404	499
19	528	1820	5130	1050	6170	5750	2970	5630	5500	3990	411	491
20	481	3590	5320	3630	e5510	6910	1760	5540	5440	4000	407	494
21	438	1550	4650	2780	e5200	5920	1400	5500	5200	3990	424	580
22	426	1950	4640	2260	4560	7230	1210	5130	5000	4040	407	426
23	410	954	5180	2810	4480	12300	1070	4330	4810	3880	420	427
24	418	1350	4480	3080	4760	8380	1040	3680	4690	3100	422	435
25	402	1710	4010	3390	16000	6620	944	2650	4870	2270	433	446
26	393	771	3830	2820	20800	6680	888	1430	10200	1950	443	1080
27	386	556	3480	1970	11000	6950	896	734	6920	1910	421	706
28	398	507	2270	1340	8700	7300	848	707	5540	1800	392	512
29	1260	490	1870	2290	---	7810	4210	1080	5000	901	413	479
30	1350	488	1780	3070	---	7240	5470	940	4960	610	412	413
31	611	---	1940	1660	---	6180	---	749	---	779	505	---
TOTAL	24196	27269	110785	74093	188030	238900	89496	128770	119469	101680	16074	20562
MEAN	781	909	3574	2390	6715	7706	2983	4154	3982	3280	519	685
MAX	5800	3590	20900	3840	20800	12300	5500	5740	10200	5030	1020	3570
MIN	386	411	422	833	1120	5700	848	707	464	610	392	356
AC-FI	47990	54090	219700	147000	373000	473900	177500	255400	237000	201700	31880	40780

e Estimated

TRINITY RIVER MAIN STEM

415

08057000 TRINITY RIVER AT DALLAS, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1934 - 1993#, BY WATER YEAR (WY)

MEAN	1116	1251	1360	1186	1841	1980	2466	3958	3227	1249	719	792
MAX	10050	14150	12860	13350	10410	14910	27050	28050	17390	8629	6075	7107
(WY)	1982	1982	1992	1992	1992	1945	1942	1990	1941	1989	1982	1962
MIN	68.2	58.2	53.0	62.4	76.9	68.2	91.5	213	68.0	51.9	50.2	52.4
(WY)	1935	1956	1939	1940	1940	1956	1955	1937	1953	1956	1956	1956

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1934 - 1993#		
ANNUAL TOTAL	1622419		1139324				
ANNUAL MEAN	4433		3121		1760		
HIGHEST ANNUAL MEAN					7154		
LOWEST ANNUAL MEAN					115		
HIGHEST DAILY MEAN	20900	Dec 15	20900	Dec 15	103000	Apr 26	1982
LOWEST DAILY MEAN	386	Oct 27	356	Sep 6	10	Oct 1	1953
ANNUAL SEVEN-DAY MINIMUM	405	Oct 22	380	Sep 6	26	Apr 12	1935
INSTANTANEOUS PEAK FLOW			23600	Feb 26	111000	Apr 26	1942
INSTANTANEOUS PEAK STAGE			36.88	Feb 26	47.10	May 3	1990
INSTANTANEOUS LOW FLOW			344	Sep 6	1.2	*	
ANNUAL RUNOFF (AC-FT)	3218000		2260000		1275000		
10 PERCENT EXCEEDS	12600		6790		5100		
50 PERCENT EXCEEDS	2000		2000		375		
90 PERCENT EXCEEDS	443		423		102		

Period of regulated streamflow.

* Minimum observed instantaneous low flow result of storage behind temporary dam 4 mi upstream on July 4, 1953.

08057055 TRINITY RIVER AT CEDAR CREST BOULEVARD, DALLAS, TX

LOCATION.--Lat 32°45'04", long 96°47'07", Dallas County, Hydrologic Unit 12030105, on right bank at abandoned bridge abutment, 0.2 mi upstream from Cedar Crest Blvd. bridge, 1.8 mi southeast of Dallas City Hall, 2.1 mi downstream from Coombs Creek, and 2.7 mi downstream from Commerce Street Bridge (station 08057000).

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: February 1984 to September 1993 (discontinued).

pH: February 1984 to September 1993 (discontinued).

WATER TEMPERATURES: February 1984 to September 1993 (discontinued).

DISSOLVED OXYGEN: February 1984 to September 1993 (discontinued).

INSTRUMENTATION.--Since February 1984, a four-parameter water-quality monitor records temperature, DO, pH, and specific conductance continuously at this station.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. Where maximum or minimum specific conductance values are not shown, mean value is estimated. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request. Records of discharge are given for gaging station 08057000. No appreciable inflow between the two stations.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1,030 microsiemens Feb. 12, 1988; minimum, 93 microsiemens Oct. 20, 1984.

pH: Maximum, 8.6 units Oct. 20, 1984; minimum, 6.8 units Sept. 6, 1988.

WATER TEMPERATURE: Maximum, 33.5°C Aug. 12, 1987; minimum, 5.0°C Feb. 7, 8, 1989.

DISSOLVED OXYGEN: Maximum, 13.7 mg/L Feb. 8, 1989; minimum, 0.0 mg/L July 21, 1985.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 866 microsiemens June 6; minimum, 240 microsiemens Dec. 15.

pH: Maximum, 8.4 units Feb. 22, Sept. 7, 9; minimum, 7.4 units Oct. 1, Sept. 4.

WATER TEMPERATURE: Maximum, 32.0°C July 30, 31, and Aug. 11-22; minimum, 8.0°C Feb. 19.

DISSOLVED OXYGEN: Maximum, 12.7 mg/L Aug. 22; minimum, 4.4 mg/L Sept. 4.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	
NOV 24...	1409	459	459	7.6	15.0	8.1	82	1.5	130	31	
JAN 27...	1321	1970	510	8.1	11.0	10.4	95	0.3	170	44	
MAR 31...	1054	6180	413	7.8	15.0	9.9	100	--	150	22	
MAY 21...	0957	5500	412	8.1	21.5	8.3	96	1.5	140	16	
JUN 15...	0914	5670	411	7.9	26.0	8.0	100	2.1	140	23	
AUG 25...	1013	433	835	7.9	29.0	7.5	99	7.9	190	54	
DATE		CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
NOV 24...	46	4.4	38	1	6.1	100	59	33	0.40	6.9	
JAN 27...	56	6.5	39	1	6.3	120	62	36	0.40	5.7	
MAR 31...	52	6.1	26	0.9	4.2	130	45	29	0.30	4.8	
MAY 21...	47	5.6	26	1	4.5	120	38	27	0.30	2.7	
JUN 15...	47	5.9	27	1	4.5	120	39	30	0.30	3.2	
AUG 25...	62	9.2	96	3	8.8	140	91	90	1.1	8.2	
DATE		SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	
NOV 24...	255	3.16	--	0.040	--	3.20	--	0.090	--	--	
JAN 27...	293	1.36	1.36	--	0.040	1.40	1.40	--	0.040	--	
MAR 31...	251	0.850	0.850	--	0.010	0.860	0.860	--	0.050	--	
MAY 21...	230	1.00	--	--	<0.010	1.00	1.00	--	0.020	--	
JUN 15...	233	1.00	--	--	<0.010	1.00	1.00	--	0.070	--	
AUG 25...	499	9.77	9.77	--	0.030	9.80	9.80	--	0.050	--	

08057055 TRINITY RIVER AT CEDAR CREST BOULEVARD, DALLAS, TX--Continued

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

DATE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)
NOV 24...	0.51	--	--	0.60	0.970	--	--	0.890	--
JAN 27...	--	0.36	0.40	--	--	0.450	0.200	--	0.61
MAR 31...	--	0.35	0.40	--	--	0.120	0.120	--	0.37
MAY 21...	--	0.28	0.30	--	--	0.180	0.150	--	0.46
JUN 15...	--	0.53	0.60	--	--	0.210	0.150	--	0.46
AUG 25...	--	0.75	0.80	--	--	2.80	2.00	--	6.1
MONTH YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT. 1992	24196	560	318	20800	46	2990	69	4540	160
NOV. 1992	27269	541	309	22800	42	3090	68	4980	160
DEC. 1992	110785	381	222	66500	24	7310	49	14600	130
JAN. 1993	74093	476	275	55000	34	6720	60	12000	150
FEB. 1993	188030	395	231	117000	25	12600	51	25600	130
MAR. 1993	238900	416	242	156000	27	17300	53	34300	140
APR. 1993	89496	500	288	69600	36	8750	63	15200	150
MAY 1993	128770	433	252	87600	29	10000	55	19200	140
JUNE 1993	119469	425	247	79700	28	9100	54	17400	140
JULY 1993	101680	393	230	63000	25	6780	50	13800	130
AUG. 1993	16074	712	399	17300	65	2840	87	3770	170
SEPT 1993	20562	664	375	20800	58	3230	82	4530	170
TOTAL	1139324	**	**	776000	**	90800	**	170000	**
WTD.AVG.	3121	435	252	**	30	**	55	**	140

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	763	741	749	624	353	462	712	679	699	497	472	486
2	781	763	774	526	428	460	725	696	711	472	407	439
3	771	605	491	545	429	488	748	712	729	407	393	402
4	787	543	518	622	545	583	791	747	768	403	391	397
5	805	743	786	703	622	674	803	777	790	401	392	397
6	800	754	778	751	694	720	813	799	806	398	392	396
7	789	619	751	751	740	746	811	774	792	403	393	398
8	630	421	536	775	742	755	777	752	763	403	393	399
9	721	562	656	771	750	761	774	541	653	490	399	447
10	737	690	718	767	755	761	705	639	682	515	485	507
11	735	682	705	773	720	744	691	669	676	506	473	492
12	769	724	740	745	644	692	705	679	694	487	475	482
13	798	757	770	649	567	603	725	461	663	492	476	486
14	809	782	796	595	565	579	489	270	330	606	484	544
15	816	305	765	652	595	631	279	240	256	636	606	619
16	430	286	366	702	644	682	348	279	315	638	629	632
17	403	321	363	740	693	718	395	348	378	658	633	645
18	513	403	480	735	712	724	408	395	401	670	654	659
19	608	513	571	735	368	582	409	402	405	662	554	650
20	693	608	662	441	386	413	406	390	401	569	512	541
21	722	678	703	470	372	421	403	395	398	525	460	491
22	750	700	721	476	391	442	412	400	405	553	499	529
23	775	744	759	506	455	486	412	393	403	497	428	471
24	793	765	776	518	431	475	405	388	396	575	432	461
25	802	788	795	530	432	477	410	384	403	490	446	468
26	800	786	793	528	476	505	395	385	390	469	447	457
27	805	786	791	610	528	576	440	385	409	558	451	507
28	808	786	799	663	610	645	468	436	457	579	548	566
29	810	432	618	703	663	689	474	455	467	597	519	551
30	601	443	536	706	673	690	480	469	474	542	520	532
31	624	543	588	---	---	---	490	473	481	576	527	545
MARCH	816	286	673	775	353	606	813	240	535	670	391	503

TRINITY RIVER MAIN STEM

08057055 TRINITY RIVER AT CEDAR CREST BOULEVARD, DALLAS, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	607	579	593	410	402	405	432	419	426	483	445	463
2	616	596	608	403	387	393	425	420	422	455	407	433
3	633	408	558	411	394	403	447	426	438	430	392	408
4	442	354	397	407	403	404	504	438	477	426	403	419
5	421	343	367	408	402	406	497	453	474	422	411	416
6	437	421	430	403	399	402	478	464	470	417	411	414
7	433	427	429	406	398	403	474	443	462	418	410	415
8	429	425	428	408	400	405	480	455	467	434	415	422
9	435	424	429	416	405	411	490	481	485	439	426	434
10	459	421	432	425	413	417	533	488	503	455	429	441
11	465	422	437	414	401	408	---	---	e530	458	416	436
12	438	417	423	430	407	418	---	---	e556	423	411	421
13	419	403	408	417	398	403	601	547	583	426	415	419
14	420	406	413	420	392	402	558	447	501	419	413	415
15	424	366	399	408	397	405	509	458	485	416	410	413
16	385	357	367	411	401	407	544	503	524	416	411	414
17	418	378	394	410	403	406	578	522	550	414	408	411
18	414	407	411	405	400	402	577	539	556	411	408	409
19	413	404	407	432	404	411	545	534	539	413	410	411
20	418	402	410	437	409	426	601	535	583	415	409	412
21	416	408	412	410	404	407	605	579	593	415	411	413
22	411	402	407	420	382	405	606	591	599	449	411	422
23	405	392	397	418	370	387	648	609	634	453	424	443
24	399	386	391	428	393	410	652	631	644	490	435	467
25	357	326	347	480	429	454	661	635	649	504	478	489
26	353	309	324	494	473	479	671	640	655	631	502	568
27	403	357	387	477	466	470	663	647	654	724	640	695
28	409	400	405	479	458	465	671	638	654	743	700	725
29	---	---	---	475	436	452	677	444	517	759	571	648
30	---	---	---	451	435	446	495	437	459	700	574	660
31	---	---	---	443	431	438	---	---	---	643	575	625
MONTH	633	309	422	494	370	418	677	419	536	759	392	470

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	676	628	653	416	397	406	554	500	518	795	573	709
2	753	679	718	406	390	400	608	500	546	808	778	792
3	817	758	793	409	381	398	662	608	637	808	780	792
4	836	811	823	382	376	380	685	641	673	822	806	811
5	851	823	836	375	371	373	679	544	594	829	818	825
6	866	846	855	376	367	373	717	637	665	825	806	817
7	856	756	790	373	366	370	742	566	684	814	796	804
8	832	801	815	376	352	372	635	545	603	823	796	815
9	832	446	773	376	352	371	693	635	669	814	746	767
10	523	356	414	376	370	372	700	669	686	803	775	793
11	523	410	454	374	369	372	729	698	714	823	794	805
12	442	392	416	456	366	388	737	717	726	828	816	822
13	408	376	388	660	456	550	783	733	754	---	---	e736
14	412	407	409	687	413	531	815	783	802	---	---	e650
15	420	413	415	413	373	386	829	812	818	---	---	e564
16	420	417	419	379	373	375	824	754	796	522	420	478
17	426	418	422	379	372	375	772	752	762	607	520	573
18	431	423	428	376	372	374	807	764	798	633	591	615
19	432	428	430	375	370	373	806	779	790	679	618	654
20	432	422	427	379	366	374	819	782	796	693	625	658
21	424	418	421	377	369	373	827	775	820	769	447	635
22	420	413	417	375	363	368	829	757	788	751	467	667
23	414	410	413	384	372	378	833	815	823	766	739	752
24	414	408	412	417	384	398	820	798	811	742	719	732
25	416	382	410	438	417	427	820	766	807	750	653	715
26	407	372	389	439	429	433	818	765	784	677	492	555
27	390	363	380	432	418	426	853	818	839	717	551	643
28	395	388	391	447	421	431	849	806	827	692	654	665
29	401	395	397	624	444	525	808	762	797	662	621	643
30	412	399	404	740	624	690	767	724	749	758	650	702
31	---	---	---	637	554	588	806	573	744	---	---	---
MONTH	866	356	524	740	352	418	853	500	736	829	420	706
YEAR	866	240	546									

e Estimated

TRINITY RIVER MAIN STEM

419

08057055 TRINITY RIVER AT CEDAR CREST BOULEVARD, DALLAS, TX--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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

TRINITY RIVER MAIN STEM

08057055 TRINITY RIVER AT CEDAR CREST BOULEVARD, DALLAS, TX--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

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

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

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

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

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

TRINITY RIVER MAIN STEM

08057055 TRINITY RIVER AT CEDAR CREST BOULEVARD, DALLAS, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	8.0	6.6	7.2	6.9	6.3	6.7	9.3	9.0	9.1	10.5	10.1	10.3
2	---	---	---	6.7	6.4	6.5	9.3	9.1	9.2	11.1	10.5	10.9
3	---	---	---	7.4	6.4	6.9	9.2	8.9	9.1	11.2	11.1	11.1
4	---	---	---	8.1	7.4	7.7	9.2	8.7	9.0	11.1	10.9	11.0
5	---	---	---	8.3	7.8	8.0	9.2	9.0	9.0	11.3	11.1	11.2
6	---	---	---	8.4	7.9	8.1	9.6	8.9	9.2	11.3	11.2	11.3
7	---	---	---	8.6	8.0	8.3	9.4	9.2	9.3	11.3	11.1	11.2
8	---	---	---	8.4	8.1	8.2	9.3	8.9	9.1	11.2	10.9	11.0
9	---	---	---	8.3	7.9	8.1	9.3	8.8	9.1	10.9	10.3	10.5
10	---	---	---	7.9	7.3	7.6	9.2	8.7	9.0	10.4	10.1	10.2
11	---	---	---	7.5	7.1	7.3	9.9	9.2	9.5	10.6	10.3	10.5
12	---	---	---	7.8	7.0	7.5	9.6	8.9	9.3	11.2	10.5	10.8
13	---	---	---	8.3	7.7	8.0	8.9	7.9	8.4	11.2	11.0	11.1
14	---	---	---	8.4	7.8	8.1	9.3	8.1	8.7	11.1	10.4	10.7
15	---	---	---	8.4	7.8	8.1	9.0	8.6	8.9	10.4	10.0	10.2
16	---	---	---	8.3	7.8	8.0	9.8	9.0	9.5	10.2	9.8	10.0
17	5.6	5.1	5.4	7.9	7.4	7.6	10.7	9.6	10.3	10.2	9.8	10.0
18	6.6	5.4	6.2	7.5	7.1	7.3	10.9	10.6	10.8	9.9	9.6	9.8
19	7.0	6.6	6.8	7.3	6.7	7.1	11.1	10.8	11.0	10.1	9.8	9.9
20	6.9	6.7	6.8	7.3	6.3	6.8	11.3	10.7	11.1	10.8	10.1	10.4
21	7.1	6.5	6.8	7.7	6.9	7.2	10.9	10.6	10.7	10.5	10.2	10.4
22	7.4	6.6	6.9	7.9	7.6	7.8	10.8	10.6	10.7	10.8	10.3	10.6
23	7.8	6.7	7.2	8.1	7.9	7.9	10.9	10.5	10.7	10.6	10.2	10.5
24	8.2	6.8	7.3	8.3	7.9	8.1	10.9	10.7	10.8	10.8	10.2	10.6
25	8.5	6.8	7.5	8.6	8.2	8.4	10.8	10.7	10.8	10.9	10.4	10.8
26	8.8	6.8	7.6	8.8	8.5	8.6	11.0	10.8	10.9	11.4	10.8	11.0
27	9.2	6.9	7.8	9.0	8.8	8.9	10.9	10.5	10.7	11.0	10.4	10.7
28	9.1	6.9	7.8	9.1	8.8	8.9	10.5	10.1	10.3	10.4	10.0	10.2
29	7.6	6.2	6.8	9.1	8.8	8.9	10.1	10.0	10.0	10.4	10.0	10.1
30	6.5	6.2	6.3	9.2	8.8	9.0	10.2	9.8	10.0	10.5	10.2	10.3
31	6.9	6.4	6.6	---	---	---	10.1	9.9	10.0	10.3	10.1	10.2
MONTH	9.2	5.1	6.9	9.2	6.3	7.9	11.3	7.9	9.8	11.4	9.6	10.6
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	10.2	9.8	10.0	11.0	10.6	10.8	10.3	9.8	10.0	8.5	7.0	7.8
2	10.1	9.6	9.9	10.6	10.4	10.5	10.3	10.1	10.2	8.5	7.8	8.2
3	9.9	9.4	9.6	10.8	10.4	10.6	10.1	9.7	9.9	8.5	7.5	8.1
4	9.9	9.3	9.6	11.0	10.7	10.9	9.7	8.9	9.1	8.9	8.4	8.7
5	9.4	9.3	9.4	11.1	10.8	11.0	8.9	8.1	8.6	9.0	8.7	8.8
6	10.5	9.4	10.0	11.2	10.9	11.0	9.2	8.6	8.9	9.2	8.9	9.0
7	10.8	10.5	10.7	11.2	10.9	11.0	9.5	8.5	9.2	9.1	8.9	9.0
8	11.0	10.8	10.9	11.1	10.8	11.0	9.4	9.0	9.2	9.0	8.8	8.9
9	11.4	10.6	11.1	11.2	10.7	10.9	10.2	9.3	9.9	8.8	8.6	8.7
10	11.4	10.9	11.2	11.0	10.5	10.7	10.2	9.7	10.0	8.7	8.5	8.6
11	11.0	10.7	10.9	11.1	10.7	10.9	10.3	8.0	9.2	8.9	8.4	8.6
12	11.5	10.9	11.3	10.9	10.7	10.8	---	---	---	---	---	---
13	11.7	11.4	11.6	11.4	10.8	11.0	9.2	8.8	9.0	---	---	---
14	11.7	11.5	11.6	11.6	11.3	11.4	9.1	8.4	8.7	9.1	8.7	8.9
15	11.5	10.7	11.2	11.3	11.1	11.2	8.8	8.1	8.5	9.1	8.7	8.9
16	11.1	10.4	10.7	11.2	10.9	11.0	9.3	8.5	8.9	9.0	8.7	8.9
17	11.7	11.1	11.4	11.2	10.9	11.1	9.7	9.0	9.3	9.0	8.6	8.8
18	12.1	11.7	11.9	11.2	11.0	11.1	9.9	9.2	9.5	8.9	8.5	8.7
19	12.0	11.8	11.9	11.0	10.6	10.8	9.7	9.2	9.4	8.9	8.4	8.7
20	11.8	11.5	11.7	10.6	10.3	10.4	9.9	8.7	9.3	9.0	8.5	8.8
21	11.5	11.3	11.4	10.8	10.5	10.6	10.3	9.0	9.7	8.9	8.5	8.7
22	11.5	11.2	11.4	10.7	9.4	10.1	10.7	9.3	10.0	8.7	8.4	8.6
23	11.6	11.4	11.5	9.6	9.1	9.4	10.2	9.2	9.8	8.5	8.1	8.2
24	11.5	11.1	11.4	10.1	9.5	9.8	10.2	8.9	9.5	8.3	8.0	8.2
25	11.1	9.3	10.1	10.1	9.9	10.0	10.6	8.8	9.6	8.6	7.8	8.2
26	9.5	9.1	9.3	10.3	9.7	10.0	10.8	8.9	9.8	9.0	7.6	8.2
27	10.6	9.4	10.0	10.3	9.9	10.1	10.2	8.8	9.6	9.7	7.7	8.5
28	11.0	10.6	10.9	10.2	9.7	10.0	9.9	8.4	9.2	9.7	7.6	8.5
29	---	---	---	9.7	9.4	9.6	9.3	7.3	7.9	8.1	6.4	7.2
30	---	---	---	10.0	9.5	9.7	7.5	6.8	7.1	8.0	6.7	7.2
31	---	---	---	10.1	9.6	9.8	---	---	---	9.3	7.3	7.8
MONTH	12.1	9.1	10.8	11.6	9.1	10.6	10.8	6.8	9.3	9.7	6.4	8.5

TRINITY RIVER BASIN

08057200 WHITE ROCK CREEK AT GREENVILLE AVENUE, DALLAS, TX

LOCATION.--Lat 32°53'21", long 96°45'23", Dallas County, Hydrologic Unit 12030105, on left bank 20 ft upstream from bridge on Greenville Avenue in Dallas, 1.1 mi downstream from Texas and New Orleans Railroad Co. bridge, 1.2 mi downstream from Cottonwood Creek, 2.9 mi upstream from White Rock Lake, and 8.2 mi northeast of Dallas County Courthouse.

DRAINAGE AREA.--66.4 mi².

PERIOD OF RECORD.--August 1961 to September 1980, April 1984 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 24, 1961, non-recording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. There is some regulation of low flow by diversions from small dams upstream from station. Several observations of water temperature were made during the year.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges above base discharge of 2,900 ft³/s:

Date	Time	Discharge (ft ³ /s)	Elevation (ft)	Date	Time	Discharge (ft ³ /s)	Elevation (ft)
Oct. 16	0030	17,400	487.85	Feb. 25	0645	17,500	487.87
Dec. 14	0530	8,760	485.66	Apr. 29	0230	8,700	485.64
Feb. 15	1015	9,360	485.86	June 10	0315	9,420	485.88

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	274	17	32	36	451	51	140	21	14	2.9	6.7
2	4.9	35	15	28	35	165	45	259	16	11	2.8	6.6
3	5.2	26	13	22	606	94	44	134	14	8.9	4.6	14
4	6.1	21	12	34	1010	75	283	75	12	10	82	13
5	6.4	20	9.9	32	164	63	56	52	10	8.5	26	7.0
6	4.5	18	11	26	100	56	48	39	11	6.9	7.2	4.2
7	122	19	9.8	26	83	54	223	29	10	5.2	319	4.5
8	31	16	20	24	72	49	66	31	9.2	5.8	53	5.7
9	12	18	148	175	63	45	51	302	403	5.3	29	6.3
10	8.4	38	26	52	130	42	46	98	1230	5.5	20	5.0
11	8.0	41	18	45	66	48	42	57	440	6.1	9.9	4.5
12	9.2	141	14	37	53	170	43	44	166	5.0	9.4	4.0
13	7.7	24	315	32	55	47	55	34	46	5.3	8.7	104
14	5.8	17	2240	30	46	43	399	28	35	4.8	8.8	492
15	1070	14	948	29	1330	53	109	22	28	4.2	10	44
16	1730	13	141	28	149	90	74	21	27	4.7	8.1	27
17	44	13	73	27	78	52	80	19	25	4.8	5.8	18
18	29	11	57	29	65	48	64	54	20	4.7	6.3	17
19	24	402	53	66	61	188	271	26	19	4.6	4.9	15
20	19	78	43	264	56	91	118	23	18	4.7	5.1	195
21	16	255	39	62	49	61	57	20	19	3.5	6.8	81
22	17	73	36	52	49	633	51	19	16	3.2	4.4	20
23	13	40	34	44	47	145	48	27	16	3.0	4.2	14
24	12	239	32	40	147	92	47	23	14	3.7	5.2	11
25	12	59	30	37	4040	84	47	18	356	3.5	5.2	92
26	11	44	28	36	145	77	47	15	209	3.2	3.9	180
27	12	30	27	35	91	69	48	12	42	3.6	4.7	26
28	11	25	25	80	84	131	245	20	29	2.9	5.6	16
29	204	21	27	82	---	70	2750	27	21	2.8	3.9	13
30	20	19	25	52	---	64	215	120	17	2.4	4.8	11
31	22	---	28	40	---	59	---	32	---	2.7	6.4	---
TOTAL	3501.5	2044	4514.7	1598	8910	3409	5723	1820	3299.2	164.5	678.6	1457.5
MEAN	113	68.1	146	51.5	318	110	191	58.7	110	5.31	21.9	48.6
MAX	1730	402	2240	264	4040	633	2750	302	1230	14	319	492
MIN	4.3	11	9.8	22	35	42	42	12	9.2	2.4	2.8	4.0
AC-F1	6950	4050	8950	3170	17670	6760	11350	3610	6540	326	1350	2890

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

	MEAN	MAX	(WY)	MIN	(WY)
1962	72.4	449	1962	.83	1964
1963	47.2	167	1965	2.96	1964
1964	77.0	627	1992	4.35	1964
1965	42.2	131	1992	5.85	1976
1966	84.6	330	1990	6.19	1967
1967	92.7	405	1990	12.0	1971
1968	126	690	1966	16.6	1971
1969	148	460	1990	15.8	1972
1970	90.5	800	1989	7.25	1980
1971	31.7	252	1962	.78	1964
1972	23.2	71.3	1992	1.26	1963
1973	63.4	624	1964	.92	1963

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1962 - 1993

ANNUAL TOTAL	43226.6	37120.0	75.7
ANNUAL MEAN	118	102	189
HIGHEST ANNUAL MEAN			20.8
LOWEST ANNUAL MEAN			
HIGHEST DAILY MEAN	3280	4040	14700
LOWEST DAILY MEAN	3.6	2.4	.01
ANNUAL SEVEN-DAY MINIMUM	4.3	2.9	.41
INSTANTANEOUS PEAK FLOW		17500	39200
INSTANTANEOUS PEAK STAGE		487.87	490.59
INSTANTANEOUS LOW FLOW		1.2	
ANNUAL RUNOFF (AC-FT)	85740	73630	54810
10 PERCENT EXCEEDS	214	177	104
50 PERCENT EXCEEDS	39	29	18
90 PERCENT EXCEEDS	9.9	5.0	3.5

08057410 TRINITY RIVER BELOW DALLAS, TX

LOCATION.--Lat 32°42'26", Long 96°44'08", Dallas County, Hydrologic Unit 12030105, on right bank at downstream side of bridge on South Loop Highway 12, 1.0 mi downstream from White Rock Creek, 1.5 mi upstream from Fivemile Creek, 6.4 mi southeast of Dallas County Courthouse in Dallas, and at mile 491.8.

DRAINAGE AREA.--6,278 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1956 to current year.

GAGE.--Water-stage recorder. Datum of gage is 365.89 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow affected at times by eight upstream reservoirs with a combined capacity of 1,714,400 acre-ft, of which 846,200 acre-ft is for flood control. Several cities within the Dallas-Fort Worth metropolplex divert water for municipal use and return it to the river as sewage effluents above this station. Low flows are sustained by sewage effluents. Gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 25, 1908, reached a stage of 41.1 ft, from information by U.S. Army Corps of Engineers, and is the highest since that date. Floods in 1866 and 1908 reached about the same stage at Dallas.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	620	1910	787	2150	1490	10900	6470	4490	1310	5110	1160	786
2	661	2180	785	2480	1370	11700	5640	5310	1070	4560	1010	610
3	636	1090	725	3140	1920	11300	4950	6460	967	4870	826	593
4	624	818	712	3420	8410	10600	5150	5430	915	4180	827	585
5	612	683	702	3580	11300	10200	5340	5140	895	3970	933	561
6	625	658	662	3650	8290	9890	3720	5020	857	3960	786	509
7	665	635	691	3710	6800	9360	4540	4900	927	3980	864	563
8	1360	623	720	3670	5730	8890	5340	4870	904	3980	1300	578
9	925	650	1170	3370	5760	9070	4840	5450	974	3930	955	614
10	702	662	1280	2860	6380	8960	4540	5580	4960	3860	750	562
11	651	779	897	2230	6100	8610	2730	4620	5190	3840	671	528
12	615	1150	737	2020	6080	8240	1970	4640	5340	3760	642	525
13	612	1400	832	1900	5380	8270	2020	5360	6100	1640	611	851
14	600	853	7590	1520	4430	7670	4850	6000	5960	1570	579	3210
15	651	734	16400	1110	6740	7720	6700	6250	6060	3000	559	4100
16	5340	701	16900	1090	10400	7400	3650	6140	6230	3650	591	1240
17	4670	683	10500	1090	9290	7000	2710	6070	6290	3860	635	780
18	1400	679	7860	1100	8420	6740	2900	6030	5990	3880	602	725
19	874	1690	6430	1200	7840	6630	3370	6150	5870	3870	606	701
20	761	4110	6480	3450	7220	7650	2540	5950	5820	3870	601	706
21	699	2250	5350	3290	6540	7440	1910	5830	5530	3830	616	920
22	670	2620	4950	2430	4950	7410	1680	5500	5250	3860	594	712
23	641	1630	5920	2760	4570	10600	1540	4550	4940	3760	614	656
24	650	1760	5100	3300	4930	10800	1500	4250	4740	3190	620	652
25	636	2370	4070	3370	11300	8840	1430	3090	4640	2380	624	633
26	623	1330	3780	3020	19400	7850	1380	2040	7820	2030	648	1410
27	614	922	3540	2300	15600	7790	1370	1290	8420	1990	619	1170
28	610	816	2530	1550	11500	7900	1340	1150	6530	1940	583	767
29	1480	774	2060	2300	---	8500	4240	1490	5170	1230	587	696
30	1930	791	1950	3290	---	8250	7150	1510	4870	766	607	603
31	1010	---	2080	2060	---	7560	---	1540	---	934	731	---
TOTAL	33167	37951	124190	78410	208140	269740	107510	142100	130539	101250	22351	27546
MEAN	1070	1265	4006	2529	7434	8701	3584	4584	4351	3266	721	918
MAX	5340	4110	16900	3710	19400	11700	7150	6460	8420	5110	1300	4100
MIN	600	623	662	1090	1370	6630	1340	1150	857	766	559	509
AC-FT	65790	75280	246300	155500	412800	535000	213200	281900	258900	200800	44330	54640

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 1993#, BY WATER YEAR (WY)

MEAN	1581	1844	1916	1695	2119	2480	2509	4595	3708	1609	1000	1096
MAX	10220	14350	14010	15370	11750	9859	10010	29980	17720	9145	11720	7521
(WY)	1982	1982	1992	1992	1992	1992	1990	1990	1989	1989	1982	1962
MIN	268	255	263	285	310	316	373	432	316	330	228	259
(WY)	1964	1964	1964	1959	1964	1959	1959	1961	1960	1964	1959	1959

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1958 - 1993#

ANNUAL TOTAL	1853205	1282894	
ANNUAL MEAN	5063	3515	
HIGHEST ANNUAL MEAN			2179
LOWEST ANNUAL MEAN			7319
HIGHEST DAILY MEAN			383
LOWEST DAILY MEAN	20200	19400	79200
ANNUAL SEVEN-DAY MINIMUM	600	509	142
INSTANTANEOUS PEAK FLOW	628	554	162
INSTANTANEOUS PEAK STAGE		20100	87000
INSTANTANEOUS LOW FLOW		26.95	34.79
ANNUAL RUNOFF (AC-FT)	3676000	2545000	1578000
10 PERCENT EXCEEDS	14700	7830	6040
50 PERCENT EXCEEDS	2420	2380	689
90 PERCENT EXCEEDS	680	624	349

Period of regulated streamflow.

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1967 to current year. Pesticide analyses: October 1970 to July 1981. Sediment analyses: April 1972 to April 1975.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1967 to September 1992, April 1993 to September 1993.

pH: January 1977 to September 1992, April 1993 to September 1993.

WATER TEMPERATURE: October 1967 to September 1992, April 1993 to September 1993.

DISSOLVED OXYGEN: January 1977 to September 1992, April 1993 to September 1993.

INSTRUMENTATION.--Since October 1976, a four-parameter water-quality monitor continuously records specific conductance, pH, water temperature, and dissolved oxygen at this station.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument and pump, plugged intake, and pump failures. Where maximum or minimum specific conductance values are not shown, mean value is estimated with the exception of the period April 1993 to June 17, 1993 when electronic magnetic field interferences prevented specific conductance record collection at this site and record was not estimated. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance with the exception of the 1993 water year. Regression equations developed for this station may be obtained from the Geological Survey District office upon request. National water-quality assessment program data are included in this report.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1,130 microsiemens Dec. 17, 1977; minimum, 112 microsiemens Oct. 20, 1984.

pH: Maximum, 8.8 units Jan. 23, 1980; minimum, 6.7 units Mar. 25, 1991.

WATER TEMPERATURES: Maximum, 35.0°C Aug. 20, 25, 28, 31, 1972; minimum, 1.0°C Jan. 29, 1968.

DISSOLVED OXYGEN (1977-90): Maximum, 12.8 mg/L Mar. 19, 1990; minimum, 0.0 mg/L on many days during spring and summer of 1977-81.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	
NOV 02...	1535	2010	432	7.2	20.5	6.3	71	130	35	46	4.5	33	
APR 21...	1530	1900	609	7.4	19.5	8.7	95	210	53	71	7.5	46	
MAY 27...	1145	1250	658	7.6	25.0	7.1	86	200	53	64	8.8	61	
JUL 0/...	1230	3980	381	7.8	27.0	6.0	77	130	14	43	4.9	26	
AUG 02...	1224	956	524	7.7	29.5	6.2	83	140	22	46	5.7	50	
12...	1330	636	677	7.5	30.0	6.5	86	160	45	52	6.8	72	
SEP 27...	1030	1170	510	7.5	25.0	6.0	72	140	46	48	5.3	49	
DATE		SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CAC03)	ALKA-LINITY WAT DIS FIX END FIELD (MG/L AS CAC03)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
NOV 02...	1	6.0	--	--	--	98	51	30	0.50	6.1	--	236	
APR 21...	1	6.6	0	189	155	150	75	49	0.70	5.2	374	376	
MAY 2/...	2	8.5	0	174	143	140	76	64	0.70	5.5	395	402	
JUL 0/...	1	5.2	0	138	113	110	36	21	0.30	3.6	228	216	
AUG 02...	2	7.9	0	142	116	120	57	46	0.70	5.6	324	313	
12...	2	13	0	137	112	110	82	72	1.1	7.7	421	420	
SLP 2/...	2	7.3	0	117	96	97	61	48	0.80	7.5	314	305	
DATE		NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)
NOV 02...	3.03	--	0.070	--	3.10	--	0.080	--	0.92	--	--	1.0	
APR 21...	4.24	4.24	--	0.160	4.40	4.40	--	0.220	0.78	0.58	0.80	1.0	
MAY 2/...	5.69	5.69	--	0.010	5.70	5.70	--	0.030	0.77	0.67	0.70	0.80	
JUL 0/...	1.68	1.68	--	0.020	1.70	1.70	--	0.050	0.35	0.45	0.50	0.40	
AUG 02...	4.78	4.78	--	0.020	4.80	4.80	--	0.040	0.76	0.66	0.70	0.80	
12...	9.27	9.27	--	0.030	9.30	9.30	--	0.040	0.96	0.66	0.70	1.0	
SLP 2/...	4.18	4.18	--	0.020	4.20	4.20	--	0.060	0.54	0.54	0.60	0.60	

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

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

DATE	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P04)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	ALA-CHLOR, WATER, DISS, REC. (UG/L)	ALPHA BHC DIS-SOLVED (UG/L)	
NOV 02...	0.940	--	--	0.780	--	--	--	--	--	--	--	
APR 21...	0.830	0.770	0.810	--	2.5	69	354	97	14	15	--	
MAY 27...	1.10	1.00	1.00	--	3.1	89	300	99	17	11	--	
JUL 07...	0.340	0.290	0.290	--	0.89	63	677	97	19	1	0.02	
AUG 02...	1.00	0.950	0.900	--	2.8	66	170	97	14	8	0.01	
12...	1.70	1.70	1.70	--	5.2	38	65	96	17	8	<0.01	
SEP 27...	0.750	0.750	0.740	--	2.3	106	335	99	23	6	--	
DATE	2,6-DI-ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L)	ATRA-ZINE, WATER, DISS, REC (UG/L)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L)	BEN-FLUR-ALIN WAT FLT 0.7 U GF, REC (UG/L)	BUTYL-ATE, WATER, DISS, REC (UG/L)	CAR-BARYL WATER FLTRD 0.7 U GF, REC (UG/L)	CARBO-FURAN WATER FLTRD 0.7 U GF, REC (UG/L)	CHLOR-PYRIFOS DIS-SOLVED (UG/L)	CYANA-ZINE, WATER, DISS, REC (UG/L)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L)	DI-AZINON, DIS-SOLVED (UG/L)
NOV 02...	--	--	--	--	--	--	--	--	--	--	--	--
APR 21...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 27...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 07...	<0.01	0.63	<0.04	<0.02	<0.01	<0.01	0.01	<0.01	<0.00	<0.01	0.00	0.02
AUG 02...	<0.01	0.46	<0.08	0.03	<0.01	<0.01	<0.05	<0.01	<0.00	<0.01	<0.00	<0.01
12...	<0.01	0.30	<0.04	<0.02	<0.01	<0.01	<0.05	<0.01	<0.00	<0.01	<0.00	<0.01
SEP 27...	--	--	--	--	--	--	--	--	--	--	--	--
DATE	DI-ELDRIN DIS-SOLVED (UG/L)	DIMETH-OATE WATER FLTRD 0.7 U GG, REC (UG/L)	DISUL-FOTON WATER FLTRD 0.7 U GF, REC (UG/L)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L)	ETHAL-FLUR-ALIN WAT FLT 0.7 U GF, REC (UG/L)	ETHO-PROP WATER FLTRD 0.7 U GF, REC (UG/L)	FONOFOS WATER DISS REC (UG/L)	LINDANE DIS-SOLVED (UG/L)	LIN-URON WATER FLTRD 0.7 U GF, REC (UG/L)	MALA-THION, DIS-SOLVED (UG/L)	METO-LACHLOR WATER DISSOLV (UG/L)	
NOV 02...	--	--	--	--	--	--	--	--	--	--	--	
APR 21...	--	--	--	--	--	--	--	--	--	--	--	
MAY 27...	--	--	--	--	--	--	--	--	--	--	--	
JUL 07...	<0.02	<0.02	<0.02	<0.00	<0.01	<0.01	<0.01	<0.01	<0.04	<0.01	0.16	
AUG 02...	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.04	<0.01	0.10	
12...	<0.02	<0.02	<0.02	<0.00	<0.01	<0.01	0.02	0.02	<0.04	<0.01	0.02	
SEP 27...	--	--	--	--	--	--	--	--	--	--	--	
DATE	METRI-BUZIN SENCOR WATER DISSOLV (UG/L)	MOL-INATE WATER FLTRD 0.7 U GF, REC (UG/L)	PARA-THION, DIS-SOLVED (UG/L)	METHYL PARA-THION WAT FLT 0.7 U GF, REC (UG/L)	NAPROP-AMIDE WATER FLTRD 0.7 U GF, REC (UG/L)	PEB-ULATE WATER FLTRD 0.7 U GF, REC (UG/L)	PENDI-METH-ALIN WAT FLT 0.7 U GF, REC (UG/L)	PER-METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L)	P,P' DDE DISSOLV (UG/L)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L)	PRO-METON, WATER, DISS, REC (UG/L)	
NOV 02...	--	--	--	--	--	--	--	--	--	--	--	
APR 21...	--	--	--	--	--	--	--	--	--	--	--	
MAY 27...	--	--	--	--	--	--	--	--	--	--	--	
JUL 07...	<0.01	<0.01	<0.02	<0.03	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	0.01	
AUG 02...	<0.01	<0.01	<0.02	<0.03	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	0.03	
12...	<0.01	<0.01	<0.02	<0.03	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	0.05	
SEP 27...	--	--	--	--	--	--	--	--	--	--	--	

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

[illegible]

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

[illegible]

TRINITY RIVER MAIN STEM

429

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	429	412	421	593	521	544	693	326	600
2	---	---	---	422	408	418	580	517	538	749	693	726
3	---	---	---	447	404	418	647	580	615	772	722	735
4	---	---	---	413	401	406	661	637	652	772	740	752
5	---	---	---	411	403	406	664	566	613	787	742	765
6	---	---	---	406	393	402	661	612	634	806	738	764
7	---	---	---	396	387	392	714	642	676	806	717	746
8	---	---	---	398	387	393	673	539	570	778	722	752
9	---	---	---	399	388	395	631	587	605	782	720	756
10	---	---	---	398	389	393	653	624	641	768	722	748
11	---	---	---	397	387	392	683	650	666	773	745	761
12	---	---	---	443	382	397	691	681	686	791	751	769
13	---	---	---	608	443	525	713	690	702	773	576	703
14	---	---	---	687	462	580	756	713	738	763	335	498
15	---	---	---	462	397	417	767	743	755	417	344	382
16	---	---	---	---	---	e410	786	700	753	537	417	481
17	---	---	---	---	---	e400	733	697	712	599	536	560
18	442	435	439	---	---	e390	750	699	724	621	593	604
19	445	440	443	---	---	e380	763	719	739	642	610	623
20	447	437	443	---	---	e370	737	715	725	643	615	629
21	439	435	437	379	325	371	772	728	752	635	510	593
22	437	430	434	370	317	339	753	708	725	644	458	540
23	432	427	430	385	368	376	765	725	745	680	644	668
24	432	426	429	413	382	394	761	724	739	691	669	682
25	---	---	e420	436	412	424	766	731	744	693	666	680
26	---	---	e410	439	430	434	743	715	730	666	439	540
27	---	---	e410	442	424	434	798	735	762	631	455	535
28	408	394	400	448	427	440	802	748	772	644	619	631
29	---	---	e410	577	447	499	757	730	746	633	604	621
30	441	411	419	697	577	646	747	689	713	680	626	643
31	---	---	---	671	582	611	755	326	689	---	---	---
MONTH	447	394	425	697	317	428	802	326	690	806	326	650

e Estimated

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	7.9	7.7	7.8
2	---	---	---	---	---	---	---	---	---	8.0	7.9	7.9
3	---	---	---	---	---	---	---	---	---	8.0	7.9	7.9
4	---	---	---	---	---	---	---	---	---	8.0	7.9	7.9
5	---	---	---	---	---	---	---	---	---	8.0	8.0	8.0
6	---	---	---	---	---	---	---	---	---	8.0	8.0	8.0
7	---	---	---	---	---	---	---	---	---	8.0	7.9	7.9
8	---	---	---	---	---	---	---	---	---	8.0	7.9	7.9
9	---	---	---	---	---	---	---	---	---	8.0	7.9	8.0
10	---	---	---	---	---	---	---	---	---	7.9	7.8	7.9
11	---	---	---	---	---	---	---	---	---	7.9	7.7	7.8
12	---	---	---	---	---	---	---	---	---	8.1	7.8	7.9
13	---	---	---	---	---	---	---	---	---	8.1	8.0	8.1
14	---	---	---	---	---	---	---	---	---	8.2	8.1	8.1
15	---	---	---	---	---	---	---	---	---	8.3	8.1	8.2
16	---	---	---	---	---	---	---	---	---	8.3	8.2	8.3
17	---	---	---	---	---	---	---	---	---	8.3	8.2	8.3
18	---	---	---	---	---	---	---	---	---	8.3	8.1	8.2
19	---	---	---	---	---	---	---	---	---	8.2	8.1	8.1
20	---	---	---	---	---	---	---	---	---	8.3	8.2	8.2
21	---	---	---	---	---	---	---	---	---	8.3	8.2	8.2
22	---	---	---	---	---	---	---	---	---	8.2	8.1	8.2
23	---	---	---	---	---	---	---	---	---	8.1	8.0	8.1
24	---	---	---	---	---	---	---	---	---	8.0	7.9	8.0
25	---	---	---	---	---	---	---	---	---	8.0	7.9	7.9
26	---	---	---	---	---	---	---	---	---	8.0	7.8	7.9
27	---	---	---	---	---	---	---	---	---	7.8	7.7	7.7
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	7.9	7.7	7.8	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	7.9	7.7	7.8	8.3	7.7	8.0

TRINITY RIVER MAIN STEM

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	7.8	7.7	7.8	7.8	7.6	7.7	7.7	7.4	7.5
2	7.8	7.6	7.7	7.8	7.7	7.8	7.8	7.5	7.7	7.9	7.7	7.8
3	7.7	7.6	7.6	7.8	7.7	7.8	7.5	7.4	7.5	7.9	7.7	7.8
4	---	---	---	7.8	7.7	7.8	7.5	7.3	7.4	7.8	7.6	7.6
5	---	---	---	7.8	7.7	7.8	7.5	7.3	7.5	7.8	7.6	7.7
6	---	---	---	8.1	7.8	8.0	7.6	7.3	7.5	7.9	7.6	7.7
7	---	---	---	8.1	8.0	8.0	7.4	7.3	7.3	7.8	7.6	7.7
8	7.7	7.5	7.6	8.0	7.9	8.0	7.6	7.4	7.5	7.8	7.6	7.7
9	7.7	7.5	7.6	8.0	7.9	7.9	7.6	7.2	7.5	7.8	7.6	7.7
10	8.1	7.6	7.7	8.0	7.8	7.9	7.5	7.2	7.4	7.7	7.5	7.6
11	7.7	7.6	7.7	7.9	7.8	7.9	7.6	7.3	7.4	7.7	7.5	7.6
12	7.9	7.7	7.8	7.9	7.7	7.8	7.8	7.4	7.6	7.8	7.5	7.6
13	7.8	7.5	7.6	7.7	7.4	7.5	7.8	7.5	7.7	7.8	7.5	7.6
14	7.9	7.5	7.9	7.7	7.4	7.5	7.8	7.5	7.6	8.1	7.6	7.9
15	8.0	7.9	8.0	7.6	7.5	7.6	7.8	7.5	7.6	7.8	7.6	7.7
16	8.0	7.9	8.0	---	---	---	7.9	7.4	7.6	7.6	7.4	7.5
17	---	---	---	---	---	---	7.6	7.3	7.5	7.4	7.3	7.4
18	---	---	---	---	---	---	7.4	7.3	7.4	7.6	7.4	7.5
19	---	---	---	---	---	---	7.5	7.3	7.4	7.8	7.6	7.7
20	---	---	---	---	---	---	7.5	7.3	7.4	8.0	7.6	7.8
21	---	---	---	8.0	7.9	7.9	7.6	7.4	7.5	---	---	---
22	---	---	---	8.2	7.9	8.0	7.6	7.4	7.5	---	---	---
23	---	---	---	8.3	8.2	8.2	7.6	7.4	7.5	---	---	---
24	---	---	---	8.2	8.1	8.2	7.6	7.4	7.5	---	---	---
25	---	---	---	8.1	8.0	8.1	7.6	7.5	7.5	---	---	---
26	---	---	---	8.1	8.0	8.1	7.5	7.4	7.5	---	---	---
27	---	---	---	8.1	8.0	8.1	7.6	7.3	7.4	---	---	---
28	---	---	---	8.0	7.9	8.0	7.5	7.3	7.4	---	---	---
29	---	---	---	8.0	7.6	7.8	7.6	7.3	7.5	---	---	---
30	7.8	7.7	7.7	7.7	7.5	7.6	7.6	7.4	7.5	---	---	---
31	---	---	---	7.7	7.5	7.6	7.7	7.4	7.5	---	---	---
MONTH	8.1	7.5	7.7	8.3	7.4	7.9	7.9	7.2	7.5	8.1	7.3	7.7

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

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

TRINITY RIVER MAIN STEM

431

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	27.5	27.0	27.0	31.0	30.0	30.5	30.0	27.0	28.5
2	26.5	25.0	25.5	27.5	26.5	27.0	31.0	29.5	30.0	30.5	29.0	30.0
3	28.0	26.0	27.0	27.5	27.0	27.0	30.0	29.5	30.0	30.0	29.0	29.5
4	---	---	---	27.0	26.5	26.5	30.5	29.5	30.0	29.0	27.5	28.5
5	---	---	---	27.0	26.0	26.5	30.0	29.0	30.0	29.0	27.5	28.5
6	---	---	---	27.5	26.5	26.5	30.0	28.5	29.5	28.5	27.5	28.0
7	---	---	---	---	---	---	28.5	27.5	28.0	29.5	27.5	28.5
8	27.0	26.5	26.5	28.0	27.0	27.5	29.5	27.5	28.5	29.0	28.0	28.5
9	27.0	26.0	26.5	28.0	27.0	27.5	30.5	28.5	29.5	28.5	27.0	28.0
10	26.5	22.5	24.0	28.0	27.0	27.5	31.0	29.5	30.0	29.0	27.0	28.0
11	25.0	23.5	24.5	28.0	27.0	27.5	31.5	30.0	30.5	28.5	27.5	28.0
12	25.0	24.0	24.5	28.5	27.0	28.0	31.0	29.5	30.5	28.5	27.5	28.0
13	25.0	24.5	25.0	29.5	28.0	28.5	31.0	29.5	30.5	28.5	27.5	28.0
14	26.0	25.0	25.5	29.0	28.0	29.0	31.0	29.5	30.5	27.5	24.0	25.5
15	26.5	25.5	26.0	28.5	27.0	28.0	31.0	29.5	30.5	24.0	23.0	23.5
16	26.5	26.0	26.5	---	---	---	31.5	29.5	30.5	24.5	23.0	23.5
17	26.5	26.0	26.0	---	---	---	31.0	29.5	30.5	25.5	23.5	24.5
18	26.5	26.0	26.0	---	---	---	31.0	29.5	30.5	26.0	24.0	25.0
19	26.5	25.5	26.0	---	---	---	31.0	30.0	30.5	27.5	25.5	26.5
20	26.0	25.5	25.5	---	---	---	31.0	30.0	30.5	28.5	26.5	27.5
21	26.0	25.5	25.5	29.0	28.0	28.5	31.5	30.0	30.5	28.5	27.5	28.0
22	26.5	25.0	25.5	29.0	28.0	28.5	31.0	30.0	30.5	29.0	27.5	28.0
23	26.5	26.0	26.0	29.0	28.0	28.5	31.0	29.5	30.0	29.5	28.0	28.5
24	26.5	26.0	26.5	29.0	28.0	28.5	30.5	29.0	30.0	29.5	28.5	29.0
25	---	---	---	29.5	28.0	28.5	30.5	29.0	30.0	29.5	27.5	28.5
26	---	---	---	29.5	28.0	28.5	30.5	29.5	30.0	27.5	25.0	26.5
27	---	---	---	29.5	27.5	28.5	30.5	29.5	30.0	26.0	25.0	25.5
28	27.5	27.0	27.0	30.0	28.0	29.0	30.5	29.5	30.0	26.5	25.0	26.0
29	---	---	---	30.5	29.0	29.5	30.5	29.0	30.0	26.5	25.0	26.0
30	---	---	---	32.0	30.0	31.0	30.5	29.0	29.5	27.0	25.0	26.0
31	---	---	---	31.5	30.5	31.0	30.0	27.5	29.5	---	---	---
MONTH	28.0	22.5	26.0	32.0	26.0	28.0	31.5	27.5	30.0	30.5	23.0	27.5

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	7.8	6.0	6.9
2	---	---	---	---	---	---	---	---	---	8.0	7.4	7.6
3	---	---	---	---	---	---	---	---	---	7.8	7.1	7.5
4	---	---	---	---	---	---	---	---	---	8.1	7.7	7.9
5	---	---	---	---	---	---	---	---	---	8.1	7.9	8.0
6	---	---	---	---	---	---	---	---	---	8.2	8.1	8.1
7	---	---	---	---	---	---	---	---	---	8.1	7.2	8.0
8	---	---	---	---	---	---	---	---	---	8.0	7.2	7.8
9	---	---	---	---	---	---	---	---	---	8.2	7.2	7.6
10	---	---	---	---	---	---	---	---	---	8.5	7.7	8.2
11	---	---	---	---	---	---	---	---	---	8.8	8.0	8.3
12	---	---	---	---	---	---	---	---	---	8.8	8.6	8.7
13	---	---	---	---	---	---	---	---	---	9.0	8.6	8.8
14	---	---	---	---	---	---	---	---	---	8.9	8.4	8.7
15	---	---	---	---	---	---	---	---	---	8.9	8.4	8.6
16	---	---	---	---	---	---	---	---	---	8.9	8.4	8.6
17	---	---	---	---	---	---	---	---	---	8.9	8.3	8.6
18	---	---	---	---	---	---	---	---	---	8.8	8.3	8.6
19	---	---	---	---	---	---	---	---	---	8.6	8.2	8.4
20	---	---	---	---	---	---	---	---	---	8.7	8.1	8.4
21	---	---	---	---	---	---	---	---	---	8.5	7.7	7.9
22	---	---	---	---	---	---	---	---	---	8.0	7.5	7.9
23	---	---	---	---	---	---	---	---	---	7.8	7.1	7.5
24	---	---	---	---	---	---	---	---	---	8.3	6.9	7.3
25	---	---	---	---	---	---	---	---	---	7.3	6.2	6.7
26	---	---	---	---	---	---	---	---	---	7.3	6.2	6.9
27	---	---	---	---	---	---	---	---	---	8.0	5.5	6.9
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	6.9	6.2	6.5	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	6.9	6.2	6.5	9.0	5.5	7.9

TRINITY RIVER MAIN STEM

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	8.4	7.9	8.1	8.0	6.6	7.3	---	---	---
2	---	---	---	8.3	7.5	8.0	8.1	6.5	7.4	---	---	---
3	---	---	---	8.7	7.9	8.3	7.7	5.9	6.8	---	---	---
4	---	---	---	8.7	7.6	8.0	8.8	5.6	6.8	5.4	4.1	4.7
5	---	---	---	7.9	6.9	7.2	8.6	5.5	7.4	4.5	3.2	3.9
6	---	---	---	7.4	6.4	6.8	8.3	6.9	7.5	4.7	3.3	3.9
7	---	---	---	6.8	5.8	6.3	8.4	4.6	7.1	5.3	3.5	4.2
8	---	---	---	6.8	5.9	6.3	8.4	6.7	7.6	4.1	3.3	3.8
9	---	---	---	6.3	5.6	6.0	8.4	7.1	7.8	5.0	2.9	3.9
10	---	---	---	6.6	5.8	6.1	8.8	6.3	7.6	6.4	4.7	5.4
11	---	---	---	8.2	6.1	7.2	8.6	6.1	7.2	6.7	5.2	6.0
12	---	---	---	8.0	6.7	7.4	8.8	6.1	7.3	6.1	5.1	5.6
13	---	---	---	---	---	---	8.3	5.6	7.0	---	---	---
14	---	---	---	---	---	---	6.7	5.6	6.2	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	8.2	7.7	7.9	---	---	---	---	---	---	8.9	6.6	7.8
19	8.4	7.9	8.1	---	---	---	---	---	---	9.0	6.4	7.8
20	8.4	8.1	8.2	---	---	---	---	---	---	8.7	6.5	7.6
21	8.5	8.2	8.3	8.9	7.8	8.5	---	---	---	7.7	5.9	6.8
22	---	---	---	9.1	8.2	8.6	---	---	---	6.5	2.0	4.4
23	8.5	8.0	8.2	8.9	8.2	8.6	---	---	---	8.2	5.2	6.7
24	9.0	8.3	8.7	9.1	7.9	8.4	---	---	---	8.0	5.4	6.8
25	9.2	8.6	8.9	8.9	7.9	8.4	---	---	---	8.6	7.1	7.9
26	---	---	---	8.9	7.5	8.2	---	---	---	7.6	6.0	6.9
27	---	---	---	9.3	8.3	8.7	---	---	---	7.9	6.4	7.3
28	8.4	7.6	7.9	9.1	8.1	8.6	---	---	---	8.2	6.0	7.2
29	---	---	---	8.7	7.1	7.6	---	---	---	7.7	3.2	6.8
30	---	---	---	7.2	5.7	6.5	---	---	---	8.5	6.2	7.3
31	---	---	---	7.8	5.7	6.6	---	---	---	---	---	---
MONTH	9.2	7.6	8.3	9.3	5.6	7.6	8.8	4.6	7.2	9.0	2.0	6.0

TRINITY RIVER BASIN

433

08057445 PRAIRIE CREEK AT U.S. HIGHWAY 175, DALLAS, TX

LOCATION.--Lat 32°42'17", long 96°40'11", Dallas County, Hydrologic Unit 12030105, on left bank at downstream side of the downstream access road bridge on U.S. Highway 175, 3.4 mi upstream from mouth, and 9.0 mi southeast of Dallas City Hall.

DRAINAGE AREA.--9.03 mi².

PERIOD OF RECORD.--October 1975 to September 1980, April 1984 to current year.

GAGE.--Water-stage recorder. Datum of gage is 390.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records poor. Several observations of water temperature were made during the year.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 900 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Feb. 25	0615	1,940	22.41	Apr. 14	1030	929	18.46

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.12	25	2.2	6.8	3.4	37	8.8	7.5	1.2	.91	.57	.39
2	.09	2.9	1.7	4.4	2.9	21	8.3	30	.64	1.3	.51	.04
3	.09	2.6	1.7	2.9	80	16	9.8	9.1	.64	1.0	.54	.02
4	.10	2.6	1.2	2.6	113	14	47	5.8	.83	1.1	.83	.02
5	.10	2.7	1.0	2.6	12	11	11	4.6	.73	1.3	.83	.02
6	.11	3.0	1.2	2.7	6.6	11	9.0	3.8	.76	1.4	.69	.05
7	.13	2.5	1.4	2.5	5.0	11	56	3.2	.82	1.5	4.4	.06
8	3.7	2.5	1.7	2.5	4.1	11	16	2.7	.90	1.5	5.9	.06
9	.63	2.6	19	27	3.5	13	9.0	34	9.8	1.5	1.5	.06
10	.13	11	6.1	7.6	11	13	8.2	13	126	1.5	.89	.05
11	.14	7.9	3.2	4.1	5.5	12	7.8	4.7	9.0	1.6	.64	.07
12	.18	4.1	2.9	7.0	3.1	26	8.1	3.2	14	1.6	.59	.07
13	.16	2.6	7.2	3.8	2.6	13	8.5	2.2	1.4	1.5	.53	.50
14	.15	2.0	244	2.7	2.5	11	183	1.8	.45	1.4	.47	.98
15	6.3	1.6	207	2.4	145	12	17	1.5	.37	1.0	.42	.29
16	77	2.5	15	2.4	14	16	9.4	1.4	.38	1.0	.38	.06
17	1.5	2.8	8.3	2.4	6.1	12	8.1	1.2	.41	.99	.32	.03
18	.87	2.9	5.1	2.4	4.4	11	9.2	4.4	3.5	1.0	.27	.03
19	.89	89	4.3	5.4	3.9	35	23	6.9	25	.98	.22	.04
20	.76	12	6.4	31	3.7	24	32	2.2	9.4	.91	.17	.05
21	.78	41	4.5	6.4	4.1	13	7.2	1.4	1.7	.94	.11	.05
22	.55	9.5	3.6	4.0	3.1	102	7.2	1.2	1.1	.89	.09	.05
23	1.7	3.2	3.0	3.6	2.7	22	6.5	99	.71	.92	.08	.05
24	1.3	49	2.4	12	8.5	13	5.6	26	.49	.65	.09	.05
25	.49	9.3	2.0	3.9	460	11	5.5	1.6	24	.87	.09	.02
26	.11	4.5	2.1	3.0	19	10	5.0	.81	31	.72	.08	2.7
27	.25	3.1	2.1	3.1	13	9.7	5.1	.68	3.4	.89	.06	.31
28	.42	3.1	2.0	3.7	10	16	5.1	.65	2.1	.77	.03	.02
29	15	2.4	2.5	17	---	13	121	.66	1.4	.74	.02	.00
30	1.3	2.1	2.8	13	---	10	11	8.9	1.2	.72	.02	.00
31	.67	---	3.6	4.7	---	9.5	---	7.1	---	.62	3.6	---
TOTAL	115.72	312.0	571.2	199.6	952.7	559.2	668.4	291.20	273.33	33.72	24.94	6.14
MEAN	3.73	10.4	18.4	6.44	34.0	18.0	22.3	9.39	9.11	1.09	.80	.20
MAX	77	89	244	31	460	102	183	99	126	1.6	5.9	2.7
MIN	.09	1.6	1.0	2.4	2.5	9.5	5.0	.65	.37	.62	.02	.00
AC-FI	230	619	1130	396	1890	1110	1330	578	542	67	49	12

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

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MEAN	9.55	5.94	10.1	6.60	11.5	10.7	12.9	16.8	8.46	2.26	1.24	2.83						
MAX	45.4	16.1	37.2	19.8	34.0	26.6	42.1	72.4	35.5	12.6	5.51	8.30						
(WY)	1985	1991	1992	1990	1993	1977	1990	1989	1989	1989	1979	1980						
MIN	.000	.33	.42	.12	.34	1.33	.66	.64	.32	.000	.000	.005						
(WY)	1976	1990	1978	1976	1976	1986	1978	1977	1978	1980	1980	1984						

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1976 - 1993

ANNUAL TOTAL	3708.37	4008.15	8.44
ANNUAL MEAN	10.1	11.0	15.6
HIGHEST ANNUAL MEAN			1.61
LOWEST ANNUAL MEAN			1989
HIGHEST DAILY MEAN	258	460	1150
LOWEST DAILY MEAN	.04	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.11	.04	.00
INSTANTANEOUS PEAK FLOW		1940	5660
INSTANTANEOUS PEAK STAGE		22.41	29.21
INSTANTANEOUS LOW FLOW		.00	.00
ANNUAL RUNOFF (AC-FT)	7360	7950	6120
10 PERCENT EXCEEDS	18	18	9.6
50 PERCENT EXCEEDS	2.1	2.6	.79
90 PERCENT EXCEEDS	.20	.10	.01

TRINITY RIVER BASIN

08058900 EAST FORK TRINITY RIVER AT MCKINNEY, TX

LOCATION.--Lat 33°14'38", long 96°36'31", Collin County, Hydrologic Unit 12030106, at downstream side of highway embankment near left end of main channel bridge on State Highways 5 and 121, 750 ft downstream from Honey Creek, 1.2 mi upstream from Southern Pacific Railway Co. bridge, 1.7 mi upstream from Clemons Creek, 3.3 mi north of McKinney, 26.1 mi upstream from Lavon Dam, and 86.5 mi upstream from mouth.

DRAINAGE AREA.--164 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 528.74 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair, including those of estimated daily discharges. Flow from 89.1 mi² above this station is affected at times by discharge from the flood-detention pools of 49 floodwater-retarding structures with a combined detention capacity of 26,000 acre-ft. Several observations of water temperature were made during the year. A nonrecording rain gage and gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1913, about 28 ft in April 1942 (discharge not determined), from information by State Department of Highways and Public Transportation.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	.08	12	55	48	1130	90	278	16	11	.00	.00
2	2.3	.12	12	50	46	1310	79	198	13	13	.00	.00
3	1.6	.04	11	50	151	626	78	160	12	11	.00	.00
4	1.1	.02	11	51	1210	419	150	128	11	7.5	.00	.00
5	.63	.02	9.9	50	674	341	131	104	9.8	5.2	.00	.00
6	.32	.01	9.7	46	405	295	105	88	9.1	3.4	.00	.00
7	.18	.01	9.4	45	276	262	104	77	8.2	2.4	.00	.00
8	.02	.02	9.1	45	203	225	109	67	8.1	1.7	.00	.00
9	.02	.04	11	58	160	186	86	66	60	1.3	.00	.00
10	.01	.11	15	79	152	160	75	188	598	.97	.00	.00
11	.01	.13	14	66	161	138	66	121	601	.62	.00	.00
12	.00	1.1	12	63	120	125	62	90	323	.78	.00	.00
13	.00	1.8	13	60	100	112	57	74	177	.48	.00	.00
14	.00	2.6	943	54	90	101	136	61	127	.20	.00	306
15	.03	1.2	1400	52	e744	96	187	54	98	.10	.00	63
16	.84	.44	1050	50	e1020	161	101	45	77	.07	.00	28
17	.28	.22	517	48	478	155	79	40	55	.04	.00	23
18	.65	.17	329	48	319	116	72	36	42	.01	.00	20
19	.16	3.5	230	48	241	156	64	31	42	.00	.00	18
20	.07	29	170	229	198	792	52	27	30	.00	.00	17
21	.05	14	136	205	172	333	43	24	26	.00	.00	15
22	.03	19	112	131	134	557	39	22	23	.00	.00	14
23	.03	22	97	103	115	564	36	20	20	.00	.00	12
24	.02	19	83	86	110	321	35	20	17	.00	.00	11
25	.03	22	74	70	2930	242	33	18	15	.00	.00	9.7
26	.03	19	68	64	1730	195	31	16	16	.00	.00	11
27	.01	16	64	61	829	169	28	14	15	.00	.00	7.7
28	.01	14	63	59	649	150	27	14	13	.00	.00	4.8
29	.01	13	63	56	---	135	1130	31	11	.00	.00	2.8
30	.01	12	64	51	---	125	604	22	9.2	.00	.00	1.4
31	.01	---	62	48	---	106	---	20	---	.00	.00	---
TOTAL	11.46	210.63	5674.1	2181	13465	9803	3889	2154	2482.4	59.77	0.00	564.40
MEAN	.37	7.02	183	70.4	481	316	130	69.5	82.7	1.93	.000	18.8
MAX	3.0	29	1400	229	2930	1310	1130	278	601	13	.00	306
MIN	.00	.01	9.1	45	46	96	27	14	8.1	.00	.00	.00
AC-FT	23	418	11250	4330	26710	19440	7710	4270	4920	119	.00	1120

e Estimated

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

	MEAN	84.4	62.2	125	69.8	170	202	139	275	162	17.1	3.12	4.72
MAX	1022	570	1160	369	562	598	804	1704	737	77.6	19.0	27.8	
(WY)	1982	1982	1992	1992	1986	1977	1990	1982	1989	1982	1990	1980	
MIN	.000	.000	.000	.000	1.37	2.30	4.08	6.08	1.28	.000	.000	.000	
(WY)	1978	1978	1978	1978	1976	1976	1980	1988	1984	1984	1980	1977	

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1976 - 1993

ANNUAL TOTAL	40713.01	40494.76	109
ANNUAL MEAN	111	111	373
HIGHEST ANNUAL MEAN			4.65
LOWEST ANNUAL MEAN			1980
HIGHEST DAILY MEAN	1630	2930	26800
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW		5160	61800
INSTANTANEOUS PEAK STAGE		19.04	22.17
INSTANTANEOUS LOW FLOW		.00	.00
ANNUAL RUNOFF (AC-FT)	80750	80320	79100
10 PERCENT EXCEEDS	318	250	210
50 PERCENT EXCEEDS	33	22	12
90 PERCENT EXCEEDS	.06	.00	.00

08058900 EAST FORK TRINITY RIVER AT MCKINNEY, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1982, and October 1985 to July 1987, and April 1993 to September 1993.

REMARKS.--Water-quality data collection reactivated in NAWQA program-Trinity River Basin.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG. C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	
APR 23...	1300	37	556	8.0	16.0	9.5	99	260	6	100	3.2	20	
MAY 20...	1825	27	518	8.0	20.5	7.6	86	230	18	89	2.6	17	
JUN 10...	1035	839	262	7.6	21.0	7.3	83	110	7	43	1.3	6.3	
10...	1805	662	294	7.7	22.0	7.6	88	140	15	52	1.6	8.1	
11...	1552	1120	277	7.7	22.5	7.7	90	110	2	43	1.3	6.7	
30...	1440	9.5	525	7.7	26.5	6.1	77	240	20	92	3.1	20	
JUL 22...	0950	0.01	572	7.4	27.0	0.4	5	260	6	99	3.5	22	
SEP 23...	1058	11	324	7.3	24.5	6.0	73	140	23	55	1.5	11	
DATE		SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CACO3)	ALKA-LINITY WAT DIS FIX END FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
APR 23...	0.5	1.9	0	313	257	250	58	9.7	0.40	4.1	281	352	
MAY 20...	0.5	2.2	--	--	--	220	44	8.2	0.40	8.9	320	309	
JUN 10...	0.3	3.9	0	129	106	110	17	4.6	0.30	11	170	159	
10...	0.3	3.4	0	148	121	130	21	4.8	0.30	11	186	185	
11...	0.3	3.6	0	135	111	110	17	4.5	0.50	10	168	159	
30...	0.6	2.6	0	271	222	220	45	8.1	0.50	9.7	340	316	
JUL 22...	0.6	3.0	0	312	256	260	38	9.9	0.40	12	366	343	
SEP 23...	0.4	2.8	0	147	121	120	28	5.7	0.60	10	214	191	
DATE		NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	
APR 23...	0.260	--	<0.010	0.260	0.260	0.020	0.18	0.28	0.30	0.20	0.020		
MAY 20...	1.80	--	<0.010	1.80	1.80	0.030	0.27	0.17	0.20	0.30	0.030		
JUN 10...	1.70	1.70	0.100	1.80	1.80	0.080	0.42	0.52	0.60	0.50	0.100		
10...	2.05	2.05	0.050	2.10	2.10	0.050	0.35	0.45	0.50	0.40	0.070		
11...	1.36	1.36	0.040	1.40	1.40	0.070	0.43	0.53	0.60	0.50	0.090		
30...	0.430	--	<0.010	0.430	0.430	0.040	0.16	--	<0.20	0.20	0.020		
JUL 22...	--	--	<0.010	--	<0.050	0.180	0.52	0.32	0.50	0.70	0.040		
SEP 23...	0.990	--	<0.010	0.990	0.990	0.030	0.47	0.37	0.40	0.50	0.030		
DATE		PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	ALA-CHLOR, WATER, DIS-SOLVED (UG/L)	ALPHA BHC DIS-SOLVED (UG/L)	2,6-DI-ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L)	
APR 23...	<0.010	<0.010	--	24	2.4	89	20	58	--	--	--		
MAY 20...	0.020	0.020	0.06	53	3.9	89	7	33	--	--	--		
JUN 10...	0.080	0.050	0.15	996	2260	98	41	2	0.18	<0.01	0.00		
10...	0.040	0.030	0.09	774	1380	99	210	18	0.25	<0.01	0.00		
11...	0.060	0.050	0.15	917	2770	97	52	2	0.19	<0.01	<0.00		
30...	0.010	0.010	0.03	46	1.2	88	20	45	0.06	<0.01	<0.01		
JUL 22...	0.030	<0.010	--	--	--	--	68	1200	<0.01	<0.01	<0.01		
SEP 23...	0.030	0.010	0.03	42	1.2	100	11	8	--	--	--		

08058900 EAST FORK TRINITY RIVER AT MCKINNEY, TX--Continued

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

DATE	ATRAZINE, WATER, DISS, REC (UG/L)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L)	DEETHYL ATRAZINE, WATER, DISS, REC (UG/L)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L)	BUTYL- ATE, WATER, DISS, REC (UG/L)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L)	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L)	CHLOR- PYRIFOS DIS- SOLVED (UG/L)	CYANA- ZINE, WATER, DISS, REC (UG/L)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L)	DI- AZINON, DIS- SOLVED (UG/L)
APR 23...	--	--	--	--	--	--	--	--	--	--	--
MAY 20...	--	--	--	--	--	--	--	--	--	--	--
JUN 10...	1.5	<0.01	0.04	<0.01	<0.00	<0.01	0.01	<0.00	<0.01	<0.00	0.02
10...	2.2	<0.01	0.04	<0.01	<0.00	<0.01	0.01	<0.00	0.12	<0.00	0.01
11...	1.8	<0.01	0.05	<0.01	<0.00	<0.01	0.01	<0.00	<0.01	<0.00	0.04
30...	1.1	<0.04	<0.02	<0.01	<0.01	<0.05	<0.01	<0.00	<0.01	<0.00	0.00
JUL 22...	0.34	<0.08	0.03	<0.01	<0.01	<0.05	<0.01	<0.00	<0.01	<0.00	<0.01
SEP 23...	--	--	--	--	--	--	--	--	--	--	--
DATE	DI- ELDRIN DIS- SOLVED (UG/L)	DIMETH- OATE WATER FLTRD 0.7 U GF, REC (UG/L)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L)	FONOFOS WATER DISS REC (UG/L)	LINDANE DIS- SOLVED (UG/L)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L)	MALA- THION, DIS- SOLVED (UG/L)	METO- LACHLOR WATER DISSOLV (UG/L)
APR 23...	--	--	--	--	--	--	--	--	--	--	--
MAY 20...	--	--	--	--	--	--	--	--	--	--	--
JUN 10...	<0.02	<0.02	<0.02	<0.00	<0.00	<0.00	<0.00	<0.01	<0.01	<0.01	0.46
10...	<0.02	<0.02	<0.02	<0.00	<0.00	<0.00	<0.00	<0.01	<0.01	<0.01	1.0
11...	<0.02	<0.02	<0.02	<0.00	<0.00	<0.00	<0.00	<0.01	<0.01	<0.01	0.84
30...	<0.02	<0.02	<0.02	<0.00	<0.01	<0.01	<0.01	<0.01	<0.04	<0.01	0.88
JUL 22...	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.04	<0.01	0.22
SEP 23...	--	--	--	--	--	--	--	--	--	--	--
DATE	METRI- BUZIN SENCOR WATER DISSOLV (UG/L)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L)	PARA- THION, DIS- SOLVED (UG/L)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L)	PEB- ULATE WATER FLTRD 0.7 U GF, REC (UG/L)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L)	P,P' DDE DISSOLV (UG/L)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L)	PRO- METON, WATER, DISS, REC (UG/L)
APR 23...	--	--	--	--	--	--	--	--	--	--	--
MAY 20...	--	--	--	--	--	--	--	--	--	--	--
JUN 10...	<0.00	<0.00	<0.01	<0.01	<0.00	<0.01	<0.01	<0.01	<0.00	<0.02	0.01
10...	<0.00	<0.00	<0.01	<0.01	<0.00	<0.01	<0.01	<0.01	<0.00	<0.02	0.01
11...	<0.00	<0.00	<0.01	<0.01	<0.00	<0.01	<0.01	<0.01	<0.00	<0.02	0.01
30...	<0.01	<0.01	<0.02	<0.03	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	0.01
JUL 22...	<0.01	<0.01	<0.02	<0.03	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	0.02
SEP 23...	--	--	--	--	--	--	--	--	--	--	--
DATE	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L)	PROP- CHLOR, WATER, DISS, REC (UG/L)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L)	SI- MAZINE, WATER, DISS, REC (UG/L)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L)
APR 23...	--	--	--	--	--	--	--	--	--	--	--
MAY 20...	--	--	--	--	--	--	--	--	--	--	--
JUN 10...	<0.01	<0.00	<0.00	<0.01	<0.01	<0.01	<0.01	0.05	<0.01	<0.00	<0.01
10...	<0.01	<0.00	<0.00	<0.01	0.01	<0.01	<0.01	0.02	<0.01	<0.00	<0.01
11...	<0.01	<0.00	<0.00	<0.01	0.01	<0.01	<0.01	0.02	<0.01	<0.00	<0.01
30...	<0.01	<0.02	<0.02	<0.01	<0.01	<0.03	<0.01	0.01	<0.01	<0.01	<0.01
JUL 22...	<0.01	<0.02	<0.02	<0.01	<0.01	<0.03	<0.01	<0.02	<0.01	<0.00	<0.01
SEP 23...	--	--	--	--	--	--	--	--	--	--	--

08059400 SISTER GROVE CREEK NEAR BLUE RIDGE, TX

LOCATION.--Lat 33°17'40", long 96°28'58", Collin County, Hydrologic Unit 12030106, on left bank at upstream side of highway embankment of bridge on Farm Road 545, 3.5 mi upstream from Hatler Branch, 4.8 mi west of Blue Ridge, 7.4 mi upstream from Stiff Creek, 14.7 mi upstream from mouth, and 24.7 mi upstream from Lavon Dam.

DRAINAGE AREA.--83.1 mi².

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

Water-quality records.--Chemical and biochemical analyses: November 1985 to June 1987.

GAGE.--Water-stage recorder. Datum of gage is 526.29 ft above National Geodetic Vertical Datum of 1929. Prior to June 29, 1988, at datum 10.00 ft higher at same site.

REMARKS.--No estimated daily discharges. Records good. Flow is 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. These structures control runoff from 47.4 mi². Several observations of water temperature were made during the year. Gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of 30.7 ft, present datum, probably occurred in July 1913, from information by State Department of Highways and Public Transportation. The probable date is from published records for discontinued station 08059500, located 9.7 mi downstream.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	1.9	12	45	44	670	56	311	16	7.0	.86	.00
2	1.8	2.3	12	41	42	649	52	212	13	6.5	.60	.00
3	1.8	2.6	12	50	80	375	51	153	11	5.9	.53	.00
4	1.9	2.0	13	53	449	294	159	105	11	5.5	.40	.00
5	1.9	1.4	12	47	342	235	127	68	11	5.2	.16	.00
6	1.6	1.1	12	43	245	168	90	58	9.6	4.8	.09	.00
7	1.4	1.3	12	41	180	132	84	47	9.1	4.5	.72	.00
8	1.1	1.3	13	42	136	117	93	44	8.7	4.3	1.9	.00
9	.86	1.9	23	60	119	100	69	41	15	4.2	2.4	.00
10	1.2	2.5	29	78	118	84	60	63	157	4.2	1.4	.00
11	1.4	4.2	25	64	135	73	53	48	205	3.9	.86	.00
12	1.0	4.0	22	61	106	68	51	44	198	3.6	.43	.00
13	1.0	5.2	21	57	93	62	47	39	97	3.3	.24	.00
14	.96	4.4	243	50	86	57	128	32	53	3.2	.18	93
15	.82	2.8	572	47	483	58	162	29	33	3.0	.11	40
16	2.8	2.0	493	45	619	191	102	26	22	2.9	.06	14
17	2.5	1.8	285	44	312	139	74	24	18	2.8	.03	7.6
18	1.1	1.9	217	44	207	98	65	21	18	2.5	.01	5.7
19	.64	3.0	195	44	167	117	57	19	19	2.3	.01	4.2
20	.61	11	159	125	140	576	48	20	17	2.3	.00	3.6
21	.69	9.7	128	125	125	277	40	19	16	2.2	.00	1.8
22	.87	21	110	96	103	291	36	18	14	2.1	.00	1.7
23	1.1	25	96	84	91	331	34	17	12	2.0	.00	1.3
24	1.2	19	81	77	90	208	34	20	11	1.8	.00	.71
25	1.2	26	74	65	937	166	32	18	9.3	1.6	.00	.57
26	1.2	21	62	59	867	126	29	15	10	1.5	.00	.39
27	1.2	15	57	55	519	107	28	14	9.7	1.6	.00	.52
28	1.2	14	55	52	421	95	26	13	8.7	1.5	.00	1.3
29	1.6	13	57	51	---	86	674	13	8.0	1.4	.00	.68
30	1.8	13	60	46	---	80	500	15	7.5	1.4	.00	.27
31	1.5	---	56	44	---	66	---	25	---	1.3	.00	---
TOTAL	41.85	235.3	3218	1835	7256	6096	3061	1591	1047.6	100.3	10.99	177.34
MEAN	1.35	7.84	104	59.2	259	197	102	51.3	34.9	3.24	.35	5.91
MAX	2.8	26	572	125	937	670	674	311	205	7.0	2.4	93
MIN	.61	1.1	12	41	42	57	26	13	7.5	1.3	.00	.00
AC-FT	83	467	6380	3640	14390	12090	6070	3160	2080	199	22	352

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

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MEAN	40.4	38.4	64.3	47.0	100	115	89.5	125	84.5	11.6	3.24	2.87						
MAX	451	294	493	178	266	340	477	714	348	54.4	24.7	15.6						
(WY)	1982	1982	1992	1992	1989	1990	1990	1982	1989	1982	1992	1992						
MIN	.000	.000	.000	1.55	1.81	2.92	3.46	6.99	1.22	.000	.000	.000						
(WY)	1978	1978	1978	1976	1976	1976	1980	1988	1980	1978	1978	1978						

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1976 - 1993

ANNUAL TOTAL	27435.75	24670.38	60.0
ANNUAL MEAN	75.0	67.6	169
HIGHEST ANNUAL MEAN			4.22
LOWEST ANNUAL MEAN			1982
HIGHEST DAILY MEAN	756	937	8560
LOWEST DAILY MEAN	.61	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.89	.00	.00
INSTANTANEOUS PEAK FLOW		1630	13300
INSTANTANEOUS PEAK STAGE		24.92	32.50
INSTANTANEOUS LOW FLOW		.00	.00
ANNUAL RUNOFF (AC-FT)	54420	48930	43430
10 PERCENT EXCEEDS	199	167	136
50 PERCENT EXCEEDS	32	18	8.9
90 PERCENT EXCEEDS	1.9	.40	.00

TRINITY RIVER BASIN

08060500 LAVON LAKE NEAR LAVON, TX

LOCATION.--Lat 33°01'54", long 96°28'56", Collin County, Hydrologic Unit 12030106, in right abutment of spillway in dam on East Fork Trinity River, 3,850 ft upstream from St. Louis Southwestern Railway Lines bridge, 4,000 ft upstream from bridge on State Highway 78, 2.9 mi west of Lavon, and 55.9 mi upstream from mouth.

DRAINAGE AREA.--770 mi².

PERIOD OF RECORD.--September 1953 to current year. Prior to October 1970, published as Lavon Reservoir.
Water-quality records.--Chemical analyses: October 1969 to September 1974, October 1975 to September 1982.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Jan. 20, 1954, non-recording gage in the approach channel at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 18,860 ft long, including a 568-foot gated spillway with twelve 40.0- by 28.0-foot tainter gates. The original dam was 9,499 ft long, but conservation capacity was increased to present size in December 1975. Deliberate impoundment began Sept. 14, 1953, and the dam was completed in October 1953. Low-flow outlets consist of five 36-inch-diameter controlled sluice gates. Capacity Table No. 9, now in use, is based on Design Memo, 1970 Conditions. Lake was designed for flood control and water conservation. Water for municipal supply can be released down to elevation 453.0 ft. Flow is affected at times by discharge from the flood-detention pools of 149 floodwater-retarding structures with a combined detention capacity of 69,170 acre-ft. These structures control runoff from 242 mi² in the East Fork Trinity River, Pilot Grove, and Sister Grove Creek drainage basins. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	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 U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 791,000 acre-ft May 3, 1990 (elevation, 504.93 ft); minimum since lake first filled in 1957, 80,150 acre-ft Apr. 17, 1976 (elevation, 465.96 ft).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 558,700 acre-ft Mar. 3, 4 (elevation, 496.46 ft); minimum daily, 359,200 acre-ft Sept. 30 (elevation, 487.10 ft).

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

487.0	357,500	492.0	456,500	498.0	597,000
488.0	376,200	494.0	500,600	500.0	649,400
490.0	415,200	496.0	547,400	502.0	704,700

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	425200	408500	402200	444800	457500	545500	494400	489000	452200	447800	409700	379500
2	424600	406700	401600	444200	457500	555700	490600	488100	451100	446900	408900	378500
3	423800	406900	400800	443400	462500	558700	487700	484600	450500	445700	407300	378000
4	423200	406100	401600	443800	473100	558700	486800	480100	450500	444000	406700	376800
5	422100	405200	400200	443800	480500	556200	484100	476400	449500	442900	405800	375900
6	421300	404600	399800	443800	485500	552800	480800	473300	448600	441900	404600	374700
7	420500	403600	399600	443800	487200	548900	478800	470300	447600	440800	404600	373600
8	419300	402800	399400	443600	487200	545500	475900	466200	446700	438900	404000	373400
9	418500	402400	400000	446100	485200	542900	471200	471200	449000	438300	403000	372300
10	418100	403600	400000	446100	482300	540600	467700	471800	451100	437300	402200	371400
11	417300	404200	399800	446300	480800	537000	465100	470300	453000	436000	401600	369900
12	416600	404000	399200	447100	477900	534600	462900	467200	455100	434800	400800	368000
13	415000	403200	399200	446900	474000	529400	462700	464600	456000	433700	399400	368600
14	414800	402800	407500	446700	470300	524600	472700	462300	456400	432900	398000	369300
15	415800	402200	420700	446900	482100	520700	476400	460700	456400	431700	396500	368900
16	416400	401800	432700	446900	495100	518900	477200	459900	456000	430900	395100	368000
17	415800	401600	436600	447100	498200	518400	474600	458600	455600	429700	394100	367200
18	415000	401400	438300	447600	496200	515400	470300	458300	456000	427600	393200	366300
19	414400	403400	440000	447800	493300	514200	469400	457700	455800	426800	391800	365700
20	413600	403000	442100	449500	489900	515900	467700	457000	455400	425600	390700	365400
21	413300	403800	441900	450900	488100	515900	464600	456800	454900	423600	388600	364800
22	412900	403800	441900	450900	486400	519300	461800	455100	454300	423200	388000	363900
23	412500	403400	442500	454500	485000	522300	459600	455800	453700	421500	386400	363500
24	412100	403800	444000	454900	482600	521400	460100	455800	452800	419700	385500	362600
25	411500	404400	442700	455400	509200	518200	460500	455600	453000	418900	384300	362900
26	410700	403800	442300	455600	528000	515200	460100	454700	452400	417300	383000	363300
27	410300	403200	442500	455800	534900	513600	459600	453900	451600	415800	382200	361600
28	409700	402800	442500	456600	536800	509400	459400	453900	450700	414600	380700	361100
29	409100	402600	443100	457300	---	505500	476400	453700	449200	413300	378700	360300
30	408500	402200	443400	457000	---	502300	487000	453500	448400	412500	378400	359200
31	407300	---	444400	457500	---	498000	---	453500	---	411100	380900	---
MAX	425200	408500	444400	457500	536800	558700	494400	489000	456400	447800	409700	379500
MIN	407300	401400	399200	443400	457500	498000	459400	453500	446700	411100	378400	359200
(↑)	489.59	489.33	491.41	492.03	495.54	493.87	493.38	491.84	491.60	489.78	488.23	487.08
(φ)	-18700	-5100	+42200	+13100	+79300	-38800	-11000	-33500	-5100	-37300	-30200	-21700
CAL YR 1992	MAX	720300	MIN	399200	(φ)	-268400						
WTR YR 1993	MAX	558700	MIN	359200	(φ)	-66800						

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

08061540 ROWLETT CREEK NEAR SACHSE, TX

LOCATION (REVISED).--Lat 32°57'53", long 96°36'51", Dallas County, Hydrologic Unit 12030106, on right bank at downstream side of railroad embankment of Gulf, Colorado, and Santa Fe Railway Co., 100 ft downstream from Spring Creek, 150 ft upstream from State Highway 78, and 1.5 mi southwest of Sachse. Prior to Aug. 25, 1993, at site on left bank 150 ft downstream.

DRAINAGE AREA.--120 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 450.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. There are no known diversions above station. The North Texas Municipal Water District returns sewage effluent into a tributary above this station. Several observations of water temperature were made during the year. Rain gage and gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1942, 35.4 ft in 1942, from information by State Department of Highways and Public Transportation.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges above base of 4,500 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Feb. 25	0930	5,950	24.12	No other peak greater than base discharge.			

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	283	78	84	107	922	98	160	82	25	12	20
2	28	44	76	82	97	449	95	387	70	24	17	17
3	29	36	69	84	729	228	91	158	67	23	35	25
4	30	31	61	91	1490	173	395	116	61	24	98	20
5	30	29	58	74	366	140	114	105	58	24	152	18
6	30	31	60	70	252	119	98	115	65	23	33	18
7	32	29	59	70	199	107	381	113	62	24	390	17
8	43	28	57	68	175	98	124	112	59	24	82	18
9	29	28	293	360	151	91	102	547	327	24	38	20
10	26	33	88	155	198	78	90	211	1240	22	32	18
11	29	39	70	109	156	71	80	107	388	19	29	18
12	32	182	68	103	122	183	77	118	248	18	26	18
13	30	38	236	92	109	70	80	96	106	18	25	45
14	26	33	2220	85	101	63	763	92	83	18	26	297
15	152	31	1700	89	1490	77	191	87	77	16	24	37
16	790	33	474	89	422	127	114	86	69	16	27	32
17	60	34	286	86	204	69	115	85	58	16	24	30
18	46	36	236	90	164	62	94	104	58	17	26	29
19	42	446	210	111	141	175	186	96	52	17	e25	25
20	37	168	179	548	126	173	151	83	54	15	e23	43
21	33	397	162	194	113	78	78	80	50	15	e20	65
22	32	217	156	151	92	832	73	80	51	13	e16	32
23	31	117	145	168	85	275	73	105	49	15	e16	28
24	34	385	127	192	158	143	70	93	48	19	e14	25
25	33	126	120	129	3550	127	65	80	113	14	17	52
26	35	94	112	122	533	113	61	75	232	13	19	95
27	27	85	110	115	310	105	59	69	45	11	20	29
28	27	82	105	136	247	134	67	76	35	11	19	28
29	135	76	97	228	---	133	1630	88	31	9.6	19	28
30	39	74	96	125	---	115	294	492	26	11	19	27
31	35	---	99	111	---	103	---	131	---	11	19	---
TOTAL	2009	3265	7907	4211	11887	5633	5909	4347	3964	549.6	1342	1174
MEAN	64.8	109	255	136	425	182	197	140	132	17.7	43.3	39.1
MAX	790	446	2220	548	3550	922	1630	547	1240	25	390	297
MIN	26	28	57	68	85	62	59	69	26	9.6	12	17
AC-FT	3980	6480	15680	8350	23580	11170	11720	8620	7860	1090	2660	2330

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1993, BY WATER YEAR (WY)

	110	82.1	142	89.5	148	162	153	229	143	39.7	28.5	47.9
MEAN	110	82.1	142	89.5	148	162	153	229	143	39.7	28.5	47.9
MAX	610	291	898	343	425	431	573	1039	566	160	82.3	180
(WY)	1982	1982	1992	1992	1993	1977	1990	1982	1981	1981	1990	1974
MIN	4.88	7.63	7.52	6.72	7.83	11.9	23.8	18.8	4.60	1.91	1.78	3.75
(WY)	1979	1976	1978	1976	1976	1971	1972	1972	1971	1972	1972	1969

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1969 - 1993

ANNUAL TOTAL	62163	52197.6	
ANNUAL MEAN	170	143	
HIGHEST ANNUAL MEAN			114
LOWEST ANNUAL MEAN			265
HIGHEST DAILY MEAN	2220	Dec 14	3550
LOWEST DAILY MEAN	25	Aug 29	9.6
ANNUAL SEVEN-DAY MINIMUM	28	Aug 25	11
INSTANTANEOUS PEAK FLOW			5950
INSTANTANEOUS PEAK STAGE			24.12
ANNUAL RUNOFF (AC-FT)	123300	103500	82810
10 PERCENT EXCEEDS	344	278	179
50 PERCENT EXCEEDS	80	77	38
90 PERCENT EXCEEDS	30	19	7.1

TRINITY RIVER BASIN

08061550 LAKE RAY HUBBARD NEAR FORNEY, TX

LOCATION.--Lat 32°48'00", long 96°29'45", Kaufman County, Hydrologic Unit 12030106, near right end of spillway on Forney Dam on East Fork Trinity River, 0.5 mi upstream from Duck Creek, 1.8 mi upstream from bridge on U.S. Highway 80, 3.8 mi northwest of Forney, 24 mi downstream from Lavon Dam, and 31.8 mi upstream from mouth.

DRAINAGE AREA.--1,071 mi².

PERIOD OF RECORD.--January 1968 to December 1993. Station discontinued December 31, 1993.
Water-quality records.--Chemical analyses: October 1969 to September 1979.

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

REMARKS.--The lake is formed by a rolled earthfill dam 12,500 ft long, including a 664-foot gated spillway with fourteen 40- by 28-foot tainter gates. Closure was made in September 1967, but the gates were not closed until Mar. 22, 1978. Low-flow releases are made through three 4.5- by 6.75-foot sluiceways. The lake was built by the city of Dallas for municipal water supply. Flow is affected at times by discharge from the flood-detention pools of 14 floodwater-retarding structures with a combined detention capacity of 12,530 acre-ft. These structures control runoff from 44.5 mi² above this station and below Lavon Lake station (08060500). Gage-height telemeter at station. Area and capacity tables are based on surveys made in 1953 and 1959. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	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.--The area and capacity tables were provided by Forrest and Cotton, Consulting Engineers, for the city of Dallas.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 544,100 acre-ft May 4, 1990 (elevation, 437.81 ft); minimum since first appreciable filling following closure of gates on Mar. 22, 1970, 326,600 acre-ft Sept. 29, 30, 1978 (elevation, 427.48 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 502,300 acre-ft Feb. 25 at 1700 hours (elevation, 436.04 ft); minimum, 417,700 acre-ft Sept. 30 (elevation, 432.18 ft).

EXTREMES FOR PERIOD OCTOBER TO DECEMBER 1993.--Maximum contents, 490,400 acre-ft Dec. 20 at 1200 hours (elevation, 435.52 ft); minimum, 414,800 acre-ft Oct. 12 (elevation, 432.04 ft).

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

432.0	414,000	434.0	456,500	436.0	501,400
433.0	435,000	435.0	478,600	437.0	524,700

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	470400	471000	471700	487200	487200	491100	489200	489500	489200	483100	451500	432800
2	469900	468600	471000	486700	487000	490200	488100	489900	488800	482000	451100	432000
3	469300	470100	470100	487200	490200	489200	490600	490600	487200	480000	449800	431600
4	468800	468600	474200	487700	492700	488800	491300	489900	489000	479300	451300	430700
5	468400	467300	470100	487000	491100	488800	488300	491500	487400	478900	449500	425500
6	470600	466800	469500	487200	487700	491300	487400	489200	486300	477300	449500	429000
7	467700	465700	469700	487000	487000	491100	491100	487400	484500	476600	451700	428400
8	466600	464800	468800	487200	487400	491100	490800	486500	485600	475500	450800	429200
9	467000	464600	470600	489700	487700	491500	490400	491300	487900	474600	450000	427100
10	466200	466800	470600	487200	489000	491500	490400	488800	489700	473900	449300	427400
11	465500	467300	469900	487000	489500	491300	491300	488100	490600	473000	448000	425700
12	463500	468200	469500	488100	488100	492900	491300	488100	489500	472100	447400	424000
13	464000	467000	470400	487700	489200	489500	491100	488600	489700	470800	446500	424600
14	472100	466600	481800	487000	488800	488600	496300	489200	489700	470400	445400	426700
15	473300	465900	491100	487000	498600	490200	489500	489900	489500	469500	444400	425500
16	472600	465500	491100	487000	492200	491300	489000	490600	488800	467900	443500	424600
17	472600	465300	488300	487400	489900	490600	489500	490800	488100	467000	442400	423800
18	472100	465500	488100	488300	488300	488300	487200	492200	489000	466200	441600	422900
19	471000	469700	491300	488800	489000	491300	491300	490800	489200	465300	440700	422500
20	470800	469500	489700	488800	491100	491100	489900	490800	488800	464400	439600	422700
21	470800	471500	488600	488800	492400	489700	488600	489900	488100	462900	437900	422100
22	470600	472100	488100	487400	490400	493300	488100	487700	487700	461800	437300	421500
23	470400	471700	488600	491100	488600	489700	489000	492900	487400	460900	436200	420700
24	469900	473700	487400	487700	491300	489000	489700	489900	486500	458900	436000	419800
25	469700	473700	488800	487700	501400	490600	489700	489900	483800	458700	434500	420200
26	469700	473500	487200	487400	491500	489500	489200	489200	486300	457400	433700	422300
27	469000	472600	487400	487400	489900	489200	488300	488300	485800	456300	432800	420400
28	468600	472100	487200	487900	489700	489900	487900	488300	484500	455600	431100	419600
29	469700	471900	487700	487700	---	490400	493800	488600	484300	454500	430100	419200
30	469000	471700	487900	487000	---	491300	490600	490600	483100	453200	429500	418400
31	466600	---	489200	487000	---	491100	---	490600	---	452400	433900	---
MAX	473300	473700	491300	491100	501400	493300	496300	492900	490600	483100	451700	432800
MIN	463500	464600	468800	486700	487000	488300	487200	486500	483100	452400	429500	418400
(↑)	434.46	434.69	435.47	435.37	435.49	435.55	435.53	435.53	435.20	433.81	432.95	432.21
(φ)	-4700	+5100	+17500	-2200	+2700	+1400	-500	0	-7500	-30700	-18500	-15500

CAL YR 1992 MAX 500200 MIN 463500 (φ) -3900
WTR YR 1993 MAX 501400 MIN 418400 (φ) -52900

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

TRINITY RIVER BASIN

441

08061550 LAKE RAY HUBBARD NEAR FORNEY, TX--Continued

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	417700	443900	447800	---	---	---	---	---	---	---	---	---
2	418800	444600	449300	---	---	---	---	---	---	---	---	---
3	418800	444100	458500	---	---	---	---	---	---	---	---	---
4	418600	444100	460400	---	---	---	---	---	---	---	---	---
5	418600	445200	461100	---	---	---	---	---	---	---	---	---
6	417700	443700	462400	---	---	---	---	---	---	---	---	---
7	417100	442400	465700	---	---	---	---	---	---	---	---	---
8	416700	442900	469500	---	---	---	---	---	---	---	---	---
9	417700	442900	472100	---	---	---	---	---	---	---	---	---
10	415900	442600	473900	---	---	---	---	---	---	---	---	---
11	415300	442000	475000	---	---	---	---	---	---	---	---	---
12	415000	443100	476200	---	---	---	---	---	---	---	---	---
13	424000	442900	482500	---	---	---	---	---	---	---	---	---
14	423400	445400	482500	---	---	---	---	---	---	---	---	---
15	423200	445400	483400	---	---	---	---	---	---	---	---	---
16	423200	447600	484000	---	---	---	---	---	---	---	---	---
17	424000	447400	485800	---	---	---	---	---	---	---	---	---
18	429700	446900	486100	---	---	---	---	---	---	---	---	---
19	443100	449100	486700	---	---	---	---	---	---	---	---	---
20	448000	447200	487400	---	---	---	---	---	---	---	---	---
21	447800	446900	487200	---	---	---	---	---	---	---	---	---
22	448000	446700	488100	---	---	---	---	---	---	---	---	---
23	447600	446900	487400	---	---	---	---	---	---	---	---	---
24	447800	450200	487000	---	---	---	---	---	---	---	---	---
25	447600	449500	487000	---	---	---	---	---	---	---	---	---
26	448200	447400	486100	---	---	---	---	---	---	---	---	---
27	446900	447400	487000	---	---	---	---	---	---	---	---	---
28	445900	447800	487000	---	---	---	---	---	---	---	---	---
29	452400	448000	486300	---	---	---	---	---	---	---	---	---
30	446300	447400	485400	---	---	---	---	---	---	---	---	---
31	445000	---	484900	---	---	---	---	---	---	---	---	---
MAX	452400	450200	488100	---	---	---	---	---	---	---	---	---
MIN	415000	442000	447800	---	---	---	---	---	---	---	---	---
(↑)	433.47	433.58	435.28	---	---	---	---	---	---	---	---	---
(Φ)	+26600	+2400	+37500	---	---	---	---	---	---	---	---	---

CAL YR 1993 MAX 501400 MIN 415000 (Φ) -4300

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

TRINITY RIVER BASIN

08061700 DUCK CREEK NEAR GARLAND, TX

LOCATION.--Lat 32°49'58", long 96°35'43", Dallas County, Hydrologic Unit 12030106, on right bank in the median area between the dual bridges on Belt Line Road, 6.0 mi southeast of Garland, and 7.7 mi upstream from mouth.

DRAINAGE AREA.--31.6 mi².

PERIOD OF RECORD.--January 1958 to December 1992 (discontinued).

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 430.02 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1962, at datum 4.00 ft higher.

REMARKS.--No estimated daily discharges. Records fair. Flow is slightly regulated by several small on-channel dams. There are several small diversions above station including the irrigation of a golf course. Low flows are sustained by effluents from the city of Garland. Recording rain gage located at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1895, 21.5 ft (present datum) June 13, 1949, from information by local residents.

PEAK DISCHARGES FOR PERIOD OCTOBER TO DECEMBER 1992.--Peak discharges greater than base discharge of 2,500 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 16	0245	5,340	17.94	Dec. 14	0730	3,700	17.38

DISCHARGE, CUBIC FEET PER SECOND, PERIOD OCTOBER 1992 TO DECEMBER 1993
DAILY MEAN VALUES

DAY	OCT	NOV	DEC
1	24	214	23
2	25	29	23
3	24	22	22
4	25	20	23
5	26	19	22
6	25	19	23
7	82	19	21
8	54	18	22
9	26	20	133
10	25	42	38
11	25	34	35
12	25	53	33
13	25	23	100
14	26	22	1140
15	118	22	612
16	916	23	108
17	30	22	67
18	24	21	59
19	21	292	67
20	19	67	58
21	19	212	54
22	19	68	53
23	19	31	51
24	19	190	50
25	19	39	49
26	20	29	51
27	20	26	51
28	20	25	44
29	137	24	43
30	28	23	47
31	26	---	58
TOTAL	1911	1668	3180
MEAN	61.6	55.6	103
MAX	916	292	1140
MIN	19	18	21
AC-FT	3790	3310	6310
CFSM	1.95	1.76	3.25
IN.	2.25	1.96	3.74

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

ANNUAL TOTAL	18652.3
ANNUAL MEAN	51.0
HIGHEST ANNUAL MEAN	
LOWEST ANNUAL MEAN	
HIGHEST DAILY MEAN	1140 Dec 14
LOWEST DAILY MEAN	1.4 Jul 26
ANNUAL SEVEN-DAY MINIMUM	2.5 Jul 11
INSTANTANEOUS PEAK FLOW	
INSTANTANEOUS PEAK STAGE	
INSTANTANEOUS LOW FLOW	
ANNUAL RUNOFF (AC-FT)	37000
ANNUAL RUNOFF (CFSM)	1.61
ANNUAL RUNOFF (INCHES)	21.96
10 PERCENT EXCEEDS	114
50 PERCENT EXCEEDS	19
90 PERCENT EXCEEDS	6.5

08061750 EAST FORK TRINITY RIVER NEAR FORNEY, TX

LOCATION.--Lat 32°46'27", long 96°30'12", Kaufman County, Hydrologic Unit 12030106, on right bank 25 ft downstream from bridge on Interstate Highway 20, 0.2 mi downstream from Duck Creek, 1.9 mi downstream from Lake Ray Hubbard Dam, 2.5 mi upstream from Texas and Pacific Railroad Co. bridge, 2.6 mi northwest of Forney, and 30.8 mi upstream from mouth.

DRAINAGE AREA.--1,118 mi², of which 1,071 mi² is above Lake Ray Hubbard.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 374.86 ft above National Geodetic Vertical Datum of 1929 (from State Department of Highways and Public Transportation bridge plans). Prior to Aug. 26, 1975, recording gage at 3-foot higher datum located at site 126 ft upstream and 868 ft to left. From Aug. 26, 1975, to May 12, 1977, recording gage at 3-foot higher datum located at site 105 ft downstream. From May 13, 1977, to Sept. 30, 1984, recording gage at 3-foot higher datum at current site.

REMARKS.--Records fair, including those for estimated daily discharges. Flow is regulated by Lake Ray Hubbard (station 08061550) 1.9 mi upstream. Low flow is sustained by sewage effluent discharge from the city of Garland into Duck Creek, which enters the East Fork Trinity River 0.2 mi upstream from this station. Gage-height telemeter at station.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	e496	62	565	151	2310	2410	2150	72	53	48	351
2	42	e193	50	81	110	2270	2400	2460	65	54	44	63
3	42	e65	59	63	576	2300	2400	2390	60	50	51	59
4	43	e53	58	113	2510	2470	2860	2640	59	49	52	58
5	44	e47	48	85	2150	2450	2450	2630	57	49	164	51
6	46	46	47	66	2060	2450	2400	2620	53	48	55	48
7	43	44	57	67	1110	2450	2640	2610	54	49	311	48
8	339	48	50	67	807	2450	2450	2600	54	50	277	52
9	77	49	385	661	1860	2450	2410	2700	53	49	64	51
10	45	54	202	1060	2130	2450	1960	2720	2550	50	60	49
11	43	249	86	149	2300	2450	1570	2640	960	49	56	46
12	43	224	65	126	2060	2620	1390	2320	1530	48	46	46
13	43	101	55	102	2040	2470	1300	1600	456	48	48	99
14	45	47	1420	77	2050	2450	6820	693	119	49	48	420
15	54	50	2350	73	4590	2450	4420	325	77	50	51	123
16	981	52	2240	70	4980	2510	932	81	66	51	54	54
17	268	49	2000	66	3180	2470	1940	64	63	51	57	48
18	79	49	457	78	2120	2450	2160	70	78	47	56	48
19	56	322	192	103	2080	2530	2220	197	72	51	59	47
20	60	677	218	977	2080	2670	2800	66	66	55	54	48
21	50	376	726	885	2090	2470	2150	60	57	55	48	95
22	46	601	1030	784	2230	3100	1090	59	58	52	48	56
23	48	243	149	277	2560	2680	92	554	57	50	54	46
24	48	456	87	1420	2560	2490	76	2220	58	50	59	45
25	45	404	82	363	11300	2470	75	216	55	50	55	44
26	44	171	72	122	7060	2450	68	68	108	45	51	299
27	44	102	68	89	2330	2450	68	62	64	51	50	83
28	43	72	72	165	2220	2310	66	54	54	55	47	49
29	309	49	71	1230	---	2320	3880	85	52	38	50	43
30	e132	56	71	351	---	2430	3210	212	51	49	53	46
31	e50	---	386	113	---	2430	---	367	---	52	54	---
TOTAL	3296	5445	12915	10448	73294	76720	60707	37533	7178	1547	2224	2615
MEAN	106	181	417	337	2618	2475	2024	1211	239	49.9	71.7	87.2
MAX	981	677	2350	1420	11300	3100	6820	2720	2550	55	311	420
MIN	42	44	47	63	110	2270	66	54	51	38	44	43
AC-FT	6540	10800	25620	20720	145400	152200	120400	74450	14240	3070	4410	5190

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 1993#, BY WATER YEAR (WY)

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MEAN	398	525	584	433	766	874	981	1512	1137	415	150	186								
MAX	3975	2804	3276	2421	2652	2510	2864	8008	5436	2207	1246	1583								
(WY)	1974	1982	1992	1992	1975	1992	1985	1990	1989	1982	1989	1974								
MIN	15.8	26.4	22.3	24.7	33.2	34.5	35.7	42.5	28.2	19.7	23.1	22.6								
(WY)	1978	1977	1978	1981	1981	1980	1978	1988	1978	1978	1980	1977								

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1974 - 1993#
ANNUAL TOTAL	437951	293922	
ANNUAL MEAN	1197	805	662
HIGHEST ANNUAL MEAN			1798
LOWEST ANNUAL MEAN			37.6
HIGHEST DAILY MEAN	5240	11300	50700
LOWEST DAILY MEAN	29	38	8.0
ANNUAL SEVEN-DAY MINIMUM	38	43	15
INSTANTANEOUS PEAK FLOW		17000	53000
INSTANTANEOUS PEAK STAGE		17.20	22.01
INSTANTANEOUS LOW FLOW		26	
ANNUAL RUNOFF (AC-FT)	868700	583000	479800
10 PERCENT EXCEEDS	2580	2460	2160
50 PERCENT EXCEEDS	670	78	53
90 PERCENT EXCEEDS	45	48	24

Regulated streamflow.

TRINITY RIVER BASIN

08061750 EAST FORK TRINITY RIVER NEAR FORNEY, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: November 1981 to January 1993 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1981 to January 1993 (discontinued).

pH: August 1986 to January 1993 (discontinued).

WATER TEMPERATURE: October 1981 to January 1993 (discontinued).

DISSOLVED OXYGEN: August 1986 to January 1993 (discontinued).

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1,100 microsiemens Aug. 29, 1985; minimum, 135 microsiemens Nov. 9, 1990.

pH: Maximum, 9.0 units July 28, 1992; minimum, 6.6 units May 27, 28, 1987.

WATER TEMPERATURE: Maximum, 33.5°C Aug. 31, 1990; minimum, 2.5°C Feb. 4, 1989.

DISSOLVED OXYGEN: Maximum, 14.1 mg/L July 14, 1991; minimum, 3.2 mg/L Aug. 10, 1991.

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

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)
NOV 02...	1230	98	425	7.4	19.5	6.4	71	120	23	43
DATE		MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
NOV 02...		2.4	37	1	7.3	94	36	33	0.70	8.2
DATE		SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)
NOV 02...		224	5.42	0.080	5.50	0.080	1.1	1.2	2.70	2.40

TRINITY RIVER BASIN

445

08061750 EAST FORK TRINITY RIVER NEAR FORNEY, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	676	626	651	639	226	407	615	593	608	513	305	379
2	700	611	648	523	358	421	644	614	631	596	532	558
3	661	617	640	606	522	547	651	621	634	576	549	568
4	626	583	602	639	605	617	647	615	628	638	568	591
5	593	576	581	657	634	640	658	633	640	666	590	617
6	624	595	607	674	627	652	675	616	637	669	616	638
7	653	606	640	675	649	658	622	603	609	693	641	664
8	694	265	424	660	604	626	643	619	630	714	678	700
9	563	526	546	602	580	586	660	299	505	703	280	525
10	597	563	579	629	571	604	576	426	501	410	272	306
11	600	562	578	598	437	484	635	576	606	607	428	506
12	569	553	557	571	477	539	649	603	623	625	574	600
13	616	578	598	562	487	530	680	603	634	685	618	636
14	657	611	640	595	575	587	604	181	286	707	645	676
15	684	629	654	619	586	594	297	235	259	709	648	671
16	655	155	290	617	585	595	273	263	269	722	644	690
17	457	315	376	640	609	625	373	268	279	737	619	671
18	503	464	485	648	623	637	608	372	490	626	576	609
19	539	509	525	658	225	544	643	593	610	632	614	620
20	610	543	587	445	222	335	640	571	614	546	288	343
21	619	593	607	530	238	441	635	274	440	---	---	---
22	669	637	655	413	255	335	483	284	329	---	---	---
23	706	643	669	534	413	470	680	503	593	---	---	---
24	719	672	693	563	287	444	702	632	666	---	---	---
25	688	606	631	531	369	452	682	617	640	---	---	---
26	609	591	602	583	535	554	638	591	621	---	---	---
27	652	604	634	583	563	572	649	594	620	---	---	---
28	691	636	662	594	564	581	602	564	583	---	---	---
29	688	276	517	583	568	577	639	597	617	---	---	---
30	585	467	510	592	580	587	670	601	632	---	---	---
31	636	574	590	---	---	---	683	295	543	---	---	---
MONTH	719	155	580	675	222	541	702	181	548	737	272	578

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	7.3	7.1	7.2	7.8	7.3	7.5	7.5	7.3	7.4	---	---	---
2	7.3	7.2	7.2	7.5	7.3	7.4	7.5	7.3	7.4	7.7	7.6	7.7
3	7.3	7.2	7.2	7.5	7.4	7.4	7.5	7.3	7.4	7.6	7.5	7.6
4	7.2	7.2	7.2	7.5	7.4	7.4	7.5	7.3	7.4	7.5	7.4	7.4
5	7.3	7.2	7.2	7.5	7.4	7.4	7.5	7.4	7.4	7.6	7.4	7.5
6	7.3	7.2	7.2	7.4	7.3	7.3	7.4	7.3	7.4	7.5	7.4	7.4
7	7.3	7.2	7.3	7.3	7.2	7.2	7.3	7.1	7.2	7.4	7.3	7.4
8	7.6	7.2	7.4	---	---	---	7.1	7.1	7.1	7.4	7.3	7.4
9	7.3	7.2	7.3	---	---	---	7.3	7.1	7.2	8.0	7.3	7.6
10	7.2	7.0	7.1	---	---	---	---	---	---	8.1	7.6	7.9
11	7.2	7.0	7.1	7.3	7.2	7.3	---	---	---	7.6	7.5	7.6
12	7.2	7.0	7.1	7.3	7.2	7.3	---	---	---	7.5	7.4	7.5
13	7.2	7.0	7.1	7.3	7.0	7.2	---	---	---	7.4	7.3	7.3
14	7.1	7.0	7.0	---	---	---	---	---	---	7.3	7.2	7.2
15	7.1	7.0	7.1	---	---	---	7.7	7.2	7.5	7.2	7.1	7.2
16	7.9	7.1	7.6	7.3	7.2	7.2	8.1	7.6	7.9	---	---	---
17	7.5	7.3	7.4	7.3	7.2	7.3	8.2	7.8	8.1	---	---	---
18	7.4	7.3	7.4	7.4	7.3	7.3	7.7	7.6	7.6	---	---	---
19	7.4	7.3	7.4	7.8	7.4	7.5	7.6	7.5	7.5	---	---	---
20	7.4	7.3	7.3	7.8	7.4	7.6	7.7	7.6	7.7	---	---	---
21	7.4	7.3	7.3	7.5	7.2	7.3	8.1	7.7	7.9	---	---	---
22	7.3	7.3	7.3	7.5	7.3	7.4	8.1	7.8	8.1	---	---	---
23	7.3	7.2	7.3	7.3	7.1	7.2	7.8	7.6	7.7	---	---	---
24	7.3	7.2	7.3	7.5	7.1	7.3	7.6	7.6	7.6	---	---	---
25	---	---	---	7.4	7.2	7.3	7.6	7.4	7.5	---	---	---
26	---	---	---	7.5	7.2	7.5	7.5	7.4	7.4	---	---	---
27	---	---	---	7.5	7.4	7.5	7.4	7.3	7.3	---	---	---
28	---	---	---	7.7	7.4	7.5	7.4	7.3	7.4	---	---	---
29	---	---	---	7.7	7.6	7.7	---	---	---	---	---	---
30	---	---	---	7.6	7.4	7.5	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MUNTH	7.9	7.0	7.2	7.8	7.0	7.4	8.2	7.1	7.5	8.1	6.6	7.3

TRINITY RIVER BASIN

08061750 EAST FORK TRINITY RIVER NEAR FORNEY, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	22.5	21.5	22.0	23.0	20.0	21.5	14.5	13.5	14.0	11.0	9.5	10.0
2	23.0	21.0	22.0	20.0	19.0	19.5	15.0	13.0	14.0	12.0	11.5	12.0
3	23.5	22.0	22.5	20.5	18.5	19.5	15.0	13.5	14.0	15.0	12.0	13.5
4	23.5	22.0	22.5	18.5	16.0	17.0	16.0	13.0	15.0	16.0	14.0	15.5
5	24.0	22.0	23.0	16.5	15.0	15.5	13.0	11.0	12.0	13.5	12.5	13.0
6	24.0	23.0	23.5	16.5	15.5	16.0	12.5	11.0	12.0	13.5	13.0	13.0
7	23.5	22.0	23.0	16.5	15.5	16.0	13.5	12.0	13.0	14.0	13.5	13.5
8	22.0	19.5	20.5	16.5	16.0	16.5	13.5	13.0	13.5	14.5	14.0	14.5
9	20.0	19.5	20.0	18.5	16.5	17.5	13.5	10.5	12.0	14.0	9.5	12.0
10	23.0	20.0	21.5	20.0	18.0	19.0	14.0	11.5	13.0	9.5	8.5	9.0
11	22.5	21.0	22.0	20.0	19.5	19.5	14.5	13.5	14.0	11.5	9.5	10.5
12	22.0	21.0	21.5	20.0	16.5	18.5	15.0	14.0	14.5	13.0	11.5	12.5
13	23.0	21.5	22.5	17.0	16.0	16.5	16.5	15.0	16.0	13.0	11.5	12.0
14	23.5	22.0	22.5	17.0	16.0	16.5	16.5	11.0	13.5	12.5	12.0	12.0
15	24.5	23.0	23.5	17.5	16.5	17.0	11.0	8.5	9.5	13.0	12.0	12.5
16	23.5	19.5	21.0	18.0	17.0	17.5	10.5	10.0	10.0	14.5	13.5	14.0
17	20.5	20.0	20.0	18.0	17.5	18.0	10.5	10.0	10.0	14.0	13.5	13.5
18	21.5	20.0	20.5	19.0	18.5	19.0	13.5	10.5	12.0	14.5	13.0	14.0
19	21.0	19.5	20.5	19.5	16.5	18.5	15.5	14.0	14.5	13.0	11.5	12.5
20	22.0	20.0	21.0	17.0	16.5	16.5	15.0	13.0	14.0	9.5	7.5	8.5
21	23.0	22.0	22.0	17.0	14.0	16.5	13.5	9.5	11.5	---	---	---
22	23.5	22.0	22.5	14.5	13.5	14.0	13.5	10.0	11.0	---	---	---
23	23.5	22.5	23.0	16.0	14.0	15.0	16.0	13.5	15.0	---	---	---
24	24.0	23.0	23.5	16.5	13.0	14.5	15.5	13.5	14.0	---	---	---
25	24.5	23.0	23.5	13.0	12.5	12.5	14.5	14.0	14.0	---	---	---
26	24.0	23.5	23.5	12.5	12.0	12.0	14.0	13.0	13.5	---	---	---
27	23.5	22.5	23.0	13.0	12.0	12.5	14.0	13.0	13.5	---	---	---
28	23.0	22.0	22.5	13.0	11.5	12.5	15.5	14.0	14.5	---	---	---
29	22.5	20.5	21.5	13.5	12.0	13.0	17.5	15.5	17.0	---	---	---
30	22.5	21.0	22.0	14.0	13.5	14.0	19.5	18.0	19.0	---	---	---
31	23.5	22.5	23.0	---	---	---	19.5	10.0	16.5	---	---	---
MONTH	24.5	19.5	22.0	23.0	11.5	16.5	19.5	8.5	13.5	16.0	7.5	12.5

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	6.0	4.9	5.4	6.5	5.1	5.9	8.7	7.8	8.2	11.5	9.6	10.8
2	5.8	4.9	5.3	6.4	6.0	6.2	8.4	8.1	8.3	9.4	8.6	8.9
3	7.4	4.8	5.9	6.7	6.1	6.4	8.5	8.2	8.4	8.8	7.7	8.2
4	6.2	5.1	5.8	7.5	6.4	7.0	8.8	7.8	8.2	8.2	6.6	7.3
5	5.8	5.1	5.4	7.8	7.1	7.5	9.1	8.7	8.9	9.4	7.5	8.4
6	5.7	4.8	5.2	7.6	7.1	7.4	9.8	8.7	9.1	9.0	7.9	8.3
7	5.3	3.5	4.4	7.6	7.1	7.4	8.9	8.5	8.6	7.8	7.4	7.6
8	4.0	3.7	3.9	7.3	7.1	7.2	9.3	8.5	8.8	7.6	6.8	7.1
9	3.9	3.8	3.9	7.2	6.9	7.1	9.7	8.4	9.1	11.3	7.1	8.8
10	3.9	3.8	3.9	6.9	6.5	6.7	9.3	8.6	8.9	11.9	10.3	11.3
11	4.0	3.7	3.8	6.9	5.8	6.3	9.8	8.6	9.0	10.1	8.8	9.4
12	4.1	3.7	3.8	7.5	5.8	6.6	9.1	8.5	8.8	8.8	8.3	8.5
13	4.6	3.7	3.9	7.4	7.1	7.2	8.6	7.7	8.0	8.8	8.1	8.4
14	---	---	---	7.5	7.0	7.2	8.9	7.7	8.5	8.8	8.1	8.4
15	---	---	---	7.1	6.8	7.0	11.4	9.1	10.4	8.7	8.1	8.3
16	4.5	3.6	4.1	7.1	6.5	6.9	11.8	11.4	11.6	8.3	7.3	7.8
17	4.6	3.6	4.0	6.8	6.3	6.6	12.1	10.9	11.8	7.9	7.3	7.6
18	4.3	4.0	4.1	6.6	6.0	6.4	10.4	8.8	9.7	7.9	7.1	7.5
19	4.4	4.0	4.1	7.7	6.0	6.5	8.8	8.1	8.5	8.8	7.7	8.0
20	4.3	4.0	4.1	7.6	5.4	6.0	9.3	8.5	9.0	11.5	9.3	10.9
21	4.4	4.0	4.2	7.4	5.8	6.3	12.1	9.1	10.6	---	---	---
22	4.6	4.1	4.4	7.4	6.9	7.0	12.0	10.0	11.4	---	---	---
23	4.8	4.1	4.5	7.3	6.9	7.1	9.8	8.3	8.8	---	---	---
24	4.8	4.1	4.4	8.2	6.7	7.5	9.1	8.2	8.6	---	---	---
25	4.6	3.7	4.2	8.2	7.9	8.0	8.9	8.4	8.6	---	---	---
26	4.7	3.6	4.1	8.6	8.2	8.4	8.9	8.4	8.6	---	---	---
27	4.6	3.7	4.1	8.7	8.2	8.5	8.7	8.4	8.5	---	---	---
28	4.8	4.0	4.3	8.7	8.2	8.5	8.4	7.8	8.2	---	---	---
29	6.0	4.0	4.9	8.6	8.0	8.3	7.8	7.1	7.3	---	---	---
30	6.7	4.9	5.5	8.2	7.8	8.0	7.0	6.5	6.7	---	---	---
31	5.5	4.7	5.1	---	---	---	11.4	5.9	7.9	---	---	---
MONTH	7.4	3.5	4.5	8.7	5.1	7.1	12.1	5.9	8.9	11.9	6.6	8.6

TRINITY RIVER BASIN

447

08061970 EAST FORK TRINITY RIVER ABOVE SEAGOVILLE, TX

LOCATION.--Lat 32°42'01", long 96°31'52", Dallas County, Hydrologic Unit 12030106, at downstream side of downstream bridge on Interstate Highway 20, about 20 ft to right of channel, 100 ft downstream from South Mesquite Creek, and 3.7 mi north of intersection of U. S. Highway 175 and Malloy Bridge Road in Seagoville.

PERIOD OF RECORD.--Chemical and biochemical analyses: April 1987 to January 1993 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: March 1987 to January 1993 (discontinued).

pH: March 1987 to January 1993 (discontinued).

WATER TEMPERATURE: March 1987 to January 1993 (discontinued).

DISSOLVED OXYGEN: March 1987 to January 1993 (discontinued).

INSTRUMENTATION.--Since March 1987, a four-parameter water-quality monitor continuously records specific conductance, pH, water temperature, and dissolved oxygen at this station.

REMARKS.--Interruptions in the record were due to malfunction of the instrument. Where maximum or minimum specific conductance values are not shown, mean value is estimated. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMS FOR PERIOD OF DAILY RECORD --

SPECIFIC CONDUCTANCE: Maximum, 934 microsiemens July 24, 1992; minimum, 110 microsiemens May 17, 1989.

pH: Maximum, 9.5 units Oct. 30, 1989; minimum, 6.6 units Mar. 29, 1988.

WATER TEMPERATURE: Maximum, 32.0°C Aug. 8, 9, 1988, July 14, 1991 minimum, 3.0°C Jan. 8, 1988, Feb. 4-6, 1989.

DISSOLVED OXYGEN: Maximum, 15.8 mg/L Feb. 9, 1992; minimum, 1.0 mg/L May 22, 1989.

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

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED WATER (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)
NOV 18...	0958	49	666	7.4	18.5	5.8	63	160	35	56
DATE		MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
NOV 18...		3.8	63	2	11	120	61	72	0.90	11
DATE		SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)
NOV 18...		351	7.18	0.320	7.50	2.00	1.1	3.1	5.10	4.50

TRINITY RIVER BASIN

08061970 EAST FORK TRINITY RIVER ABOVE SEAGOVILLE, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	669	601	638	573	319	442	595	571	579	578	355	422
2	679	635	659	476	354	413	627	601	607	567	473	505
3	699	645	669	476	349	388	640	609	625	590	561	573
4	675	634	655	587	452	555	650	625	637	592	573	579
5	663	639	651	---	---	e620	642	631	636	---	---	---
6	646	639	641	---	---	e610	648	627	636	---	---	---
7	678	646	665	---	---	e620	653	620	638	---	---	---
8	---	---	e450	---	---	e640	628	616	622	---	---	---
9	---	---	e530	---	---	e610	654	389	506	---	---	---
10	---	---	e570	---	---	e610	507	414	451	---	---	---
11	---	---	e570	469	233	386	563	501	519	---	---	---
12	---	---	e560	496	382	433	595	566	579	---	---	---
13	---	---	e590	534	482	507	608	497	587	---	---	---
14	---	---	e620	543	496	522	497	175	262	---	---	---
15	---	---	e660	581	537	564	244	182	209	---	---	---
16	644	160	255	593	578	582	292	239	264	---	---	---
17	441	294	374	626	594	604	317	288	302	---	---	---
18	568	441	491	688	626	640	468	309	386	---	---	---
19	---	---	e520	633	216	483	563	457	499	---	---	---
20	---	---	e580	405	274	316	563	515	546	---	---	---
21	---	---	e600	480	361	422	547	315	484	---	---	---
22	---	---	e650	482	406	437	396	311	332	---	---	---
23	---	---	e660	552	485	514	529	376	463	---	---	---
24	---	---	e680	559	249	416	610	535	564	---	---	---
25	---	---	e630	439	302	363	612	580	591	---	---	---
26	---	---	e600	521	442	479	608	584	592	---	---	---
27	---	---	e630	565	515	534	604	578	588	---	---	---
28	661	623	642	573	543	554	608	585	593	---	---	---
29	651	206	469	580	560	570	597	566	580	---	---	---
30	539	348	431	579	557	566	623	602	611	---	---	---
31	565	501	526	---	---	---	657	615	628	---	---	---
MONTH	699	160	576	688	216	513	657	175	520	592	355	520

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	7.5	7.3	7.4	7.8	7.5	7.6	7.6	7.5	7.5	7.9	7.5	7.7
2	7.4	7.3	7.4	7.7	7.5	7.6	7.6	7.5	7.6	---	---	---
3	7.3	7.2	7.3	---	---	---	7.6	7.5	7.6	---	---	---
4	7.4	7.2	7.3	---	---	---	7.5	7.4	7.5	---	---	---
5	7.3	7.2	7.2	---	---	---	7.5	7.3	7.3	---	---	---
6	7.4	7.2	7.3	---	---	---	7.4	7.3	7.4	---	---	---
7	7.3	7.0	7.3	---	---	---	7.3	7.2	7.3	---	---	---
8	7.5	7.0	7.2	---	---	---	---	---	---	---	---	---
9	7.5	7.4	7.5	---	---	---	---	---	---	---	---	---
10	7.5	7.4	7.5	---	---	---	---	---	---	---	---	---
11	7.5	7.4	7.4	7.6	7.3	7.5	---	---	---	---	---	---
12	7.5	7.4	7.4	7.6	7.4	7.5	8.0	7.9	8.0	---	---	---
13	7.5	7.4	7.4	7.5	7.4	7.4	8.1	7.8	7.9	---	---	---
14	7.5	7.1	7.4	7.4	7.3	7.4	8.3	8.1	8.2	---	---	---
15	7.5	7.1	7.3	7.5	7.3	7.4	8.3	8.1	8.2	---	---	---
16	8.3	7.4	7.9	---	---	---	8.2	8.1	8.1	---	---	---
17	7.9	7.6	7.8	---	---	---	8.3	8.1	8.2	---	---	---
18	7.6	7.1	7.4	---	---	---	8.3	8.0	8.1	---	---	---
19	---	---	---	7.8	7.5	7.6	8.1	8.0	8.0	---	---	---
20	---	---	---	7.7	7.6	7.7	8.1	8.0	8.1	---	---	---
21	---	---	---	7.9	7.6	7.7	8.2	8.0	8.1	---	---	---
22	---	---	---	7.7	7.6	7.6	8.3	8.2	8.2	---	---	---
23	---	---	---	7.7	7.6	7.7	8.2	7.9	8.0	---	---	---
24	---	---	---	7.9	7.7	7.8	7.9	7.9	7.9	---	---	---
25	---	---	---	7.8	7.7	7.8	7.9	7.9	7.9	---	---	---
26	---	---	---	7.8	7.7	7.8	7.9	7.8	7.9	---	---	---
27	---	---	---	7.7	7.7	7.7	7.8	7.8	7.8	---	---	---
28	7.5	7.4	7.5	7.7	7.6	7.7	7.8	7.7	7.8	---	---	---
29	7.6	7.4	7.5	7.7	7.6	7.6	7.7	7.6	7.7	---	---	---
30	7.7	7.5	7.6	7.6	7.5	7.6	7.6	7.5	7.5	---	---	---
31	7.6	7.5	7.5	---	---	---	7.6	7.4	7.5	---	---	---
MONTH	8.3	7.0	7.4	7.9	7.3	7.6	8.3	7.2	7.8	7.9	7.5	7.7

TRINITY RIVER BASIN

449

08061970 EAST FORK TRINITY RIVER ABOVE SEAGOVILLE, TX--Continued

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

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

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	6.5	4.8	5.5	7.9	4.8	6.5	8.7	8.5	8.6	10.5	7.9	10.0
2	5.9	5.1	5.5	6.8	6.5	6.6	8.7	8.0	8.4	9.7	8.6	9.3
3	6.1	5.1	5.5	6.6	6.1	6.4	8.6	8.0	8.4	8.5	8.0	8.2
4	5.7	4.8	5.2	---	---	---	---	---	---	8.0	7.5	7.7
5	5.4	4.3	4.8	---	---	---	---	---	---	---	---	---
6	5.0	3.7	4.4	---	---	---	---	---	---	---	---	---
7	4.2	2.9	3.6	---	---	---	9.3	8.7	9.0	---	---	---
8	4.2	2.7	3.4	---	---	---	8.9	8.1	8.5	---	---	---
9	5.6	3.8	4.9	---	---	---	11.0	8.2	9.4	---	---	---
10	5.6	4.5	5.1	---	---	---	9.2	8.8	9.1	---	---	---
11	5.0	3.7	4.4	6.6	6.1	6.4	8.9	8.3	8.8	---	---	---
12	5.6	3.4	4.0	7.3	6.1	6.6	8.6	7.8	8.2	---	---	---
13	---	---	---	7.0	6.2	6.7	8.4	7.3	7.5	---	---	---
14	---	---	---	7.1	6.8	6.9	9.5	8.3	8.9	---	---	---
15	---	---	---	7.1	6.7	6.8	---	---	---	---	---	---
16	4.9	4.6	4.7	6.7	6.3	6.5	---	---	---	---	---	---
17	5.1	4.6	4.9	6.5	6.0	6.3	---	---	---	---	---	---
18	5.7	5.1	5.4	6.1	5.7	5.9	---	---	---	---	---	---
19	---	---	---	8.1	5.5	6.8	---	---	---	---	---	---
20	---	---	---	7.5	6.9	7.1	---	---	---	---	---	---
21	---	---	---	8.7	6.8	7.4	---	---	---	---	---	---
22	---	---	---	8.1	7.8	7.9	---	---	---	---	---	---
23	---	---	---	7.9	7.5	7.8	10.7	8.5	9.3	---	---	---
24	---	---	---	9.9	7.4	8.6	8.7	8.2	8.4	---	---	---
25	---	---	---	9.2	9.0	9.1	8.6	8.2	8.3	---	---	---
26	---	---	---	9.3	9.0	9.2	8.4	8.1	8.2	---	---	---
27	---	---	---	9.5	9.3	9.4	8.3	8.0	8.1	---	---	---
28	5.0	4.1	4.5	9.4	9.1	9.3	8.1	7.7	7.9	---	---	---
29	7.8	4.4	5.9	9.1	9.0	9.1	7.6	7.2	7.5	---	---	---
30	5.6	4.7	5.2	9.1	8.7	8.8	7.1	6.6	6.9	---	---	---
31	5.8	4.9	5.3	---	---	---	7.3	6.1	6.6	---	---	---
MON III	7.8	2.7	4.9	9.9	4.8	7.5	11.0	6.1	8.3	10.5	7.5	8.8

08061980 EAST FORK TRINITY RIVER AT SEAGOVILLE, TX

LOCATION.--Lat 32°39'53", long 96°31'26", Dallas County, Hydrologic Unit 12030106, on right bank at downstream side of bridge on Malloy Bridge Road, 1.3 mi north of intersection of U. S. Highway 175 and Malloy Bridge Road in Seagoville, and 3.5 mi downstream from South Mesquite Creek.

PERIOD OF RECORD.-- Chemical and biochemical analyses: April 1987 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: March 1987 to current year.

pH: March 1987 to current year.

WATER TEMPERATURE: March 1987 to current year.

DISSOLVED OXYGEN: March 1987 to current year.

INSTRUMENTATION.--Since March 1987, a four-parameter water-quality monitor continuously records specific conductance, pH, water temperature, and dissolved oxygen at this station.

REMARKS.--Interruptions in the record were due to malfunction of the instrument. Where maximum or minimum specific conductance values are not shown, mean value is estimated. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 820 microsiemens Aug. 15, 1987; minimum, 129 microsiemens May 17, 1989.

pH: Maximum, 9.4 units Oct. 30, 1989; minimum, 6.7 units Mar. 7, 1988.

WATER TEMPERATURE: Maximum, 32.5°C July 29-31, 1993; minimum, 3.5°C Jan. 8, 1988, Feb. 5, 1989.

DISSOLVED OXYGEN: Maximum, 15.5 mg/L Feb. 9, 1992; minimum, 0.0 mg/L Nov. 23, 1988, Aug. 10, 12, 1991.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 723 microsiemens July 11; minimum, 166 microsiemens June 10.

pH: Maximum, 9.0 units Mar. 18; minimum, 7.1 units Nov. 19.

WATER TEMPERATURE: Maximum, 32.5°C July 29-31; minimum, 6.5°C Feb. 18.

DISSOLVED OXYGEN: Maximum, 15.2 mg/L Mar. 14; minimum, 3.4 mg/L Sept. 1.

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

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
NOV 18...	1300	2400	644	7.6	18.0	7.5	81	3.0	150	18
JAN 21...	1403	1040	317	7.9	9.0	11.1	98	1.4	120	17
MAR 31...	1335	2300	295	8.7	16.0	11.2	116	--	120	5
MAY 20...	1359	107	538	7.6	23.5	5.2	62	3.5	150	29
JUN 15...	1231	220	440	7.8	29.0	5.8	76	3.0	140	27
AUG 25...	1516	62	572	7.7	30.0	6.5	88	5.2	150	57

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
NOV 18...	53	3.5	63	2	11	130	58	66	0.90	11
JAN 21...	45	2.8	19	0.7	4.4	110	29	16	0.40	5.1
MAR 31...	44	2.5	14	0.6	3.5	120	26	11	0.30	0.90
MAY 20...	55	3.3	45	2	7.6	120	57	45	0.70	6.9
JUN 15...	52	3.1	32	1	5.8	120	40	28	0.50	7.9
AUG 25...	55	4.1	62	2	14	97	56	63	1.1	9.9

DATE	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)
NOV 18...	344	7.73	--	0.370	--	8.10	--	1.50	--
JAN 21...	191	0.860	0.860	--	0.070	0.930	0.930	--	0.230
MAR 31...	174	0.540	--	--	<0.010	0.540	0.540	--	0.030
MAY 20...	326	6.11	6.11	--	0.090	6.20	6.20	--	0.190
JUN 15...	261	4.36	4.36	--	0.040	4.40	4.40	--	0.140
AUG 25...	376	9.94	9.94	--	0.060	10.0	10.0	--	0.200

TRINITY RIVER BASIN

451

08061980 EAST FORK TRINITY RIVER AT SEAGOVILLE, TX--Continued

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

DATE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)
NOV 18...	0.90	--	--	2.4	4.40	--	--	3.70	--
JAN 21...	--	0.37	0.60	--	--	0.330	0.340	--	1.0
MAR 31...	--	0.47	0.50	--	--	0.030	0.060	--	0.18
MAY 20...	--	0.81	1.0	--	--	1.70	1.40	--	4.3
JUN 15...	--	0.76	0.90	--	--	0.900	0.940	--	2.9
AUG 25...	--	1.2	1.4	--	--	3.80	2.80	--	8.6

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	671	638	610	542	251	427	581	557	566	623	334	432
2	680	611	311	407	267	337	612	570	590	504	371	439
3	699	447	359	474	409	444	621	593	605	570	504	550
4	672	638	653	556	476	527	635	612	625	578	563	570
5	654	628	644	613	553	587	628	613	621	593	548	570
6	626	609	617	629	603	618	631	618	623	603	586	595
7	633	607	617	640	623	628	637	622	630	629	589	616
8	622	312	503	660	621	640	622	593	611	639	614	626
9	479	368	407	650	622	643	614	406	530	644	452	595
10	576	488	538	622	332	599	580	357	434	401	290	313
11	593	564	576	487	237	390	517	460	490	438	310	369
12	608	590	597	453	399	432	579	522	555	548	441	495
13	616	594	605	526	459	506	589	571	580	575	542	556
14	651	602	618	538	490	514	587	211	320	601	554	575
15	672	635	646	574	533	551	230	208	214	634	608	623
16	647	172	304	589	572	580	261	233	245	642	619	631
17	375	233	304	624	582	602	276	263	271	667	642	654
18	453	378	408	663	612	634	384	275	313	675	635	652
19	521	457	495	643	218	518	479	390	430	647	569	620
20	566	515	543	340	240	292	519	474	496	551	317	417
21	616	547	582	427	237	353	518	297	480	333	313	321
22	645	602	623	367	262	302	316	292	300	341	325	334
23	672	626	646	417	336	381	390	316	361	502	340	404
24	674	657	665	448	317	390	515	390	475	507	284	353
25	693	664	677	417	276	334	583	515	560	406	290	329
26	674	638	663	488	388	436	602	569	585	553	412	473
27	637	617	626	536	489	506	593	574	586	619	558	590
28	657	618	632	550	534	543	601	575	586	637	613	624
29	645	218	489	567	545	558	592	569	583	648	319	444
30	581	340	429	569	548	559	606	569	587	439	319	361
31	535	469	504	---	---	---	616	594	604	541	445	482
MONTH	699	172	545	663	218	494	637	208	499	675	284	504

TRINITY RIVER BASIN

08061980 EAST FORK TRINITY RIVER AT SEAGOVILLE, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	596	544	568	345	296	306	293	285	289	327	310	321
2	610	592	603	321	294	302	295	291	293	344	315	326
3	636	275	556	306	296	301	298	292	296	325	311	316
4	342	262	289	312	300	305	351	294	305	319	311	316
5	298	282	291	315	310	312	300	292	295	322	319	320
6	301	297	298	314	307	311	304	299	302	321	300	312
7	389	295	311	311	302	308	319	297	306	323	300	314
8	551	314	463	308	296	303	313	300	304	322	318	320
9	316	298	309	305	292	300	308	303	306	326	311	320
10	334	298	309	304	289	297	328	307	312	330	307	313
11	322	294	303	299	289	294	328	319	323	318	310	314
12	299	294	297	321	291	309	336	317	322	325	316	321
13	302	296	298	300	280	288	338	322	331	351	323	331
14	297	294	295	288	278	284	326	250	290	382	342	354
15	295	254	282	285	280	283	289	267	275	576	382	475
16	278	262	268	302	285	293	384	289	334	576	424	470
17	291	278	283	307	291	298	373	319	327	643	551	605
18	300	292	297	305	296	300	325	320	323	667	632	648
19	301	296	299	351	304	310	324	318	321	680	608	665
20	302	300	300	348	307	320	337	308	319	608	538	564
21	302	299	301	308	302	306	326	313	319	630	558	596
22	300	292	297	336	293	309	382	320	330	666	612	636
23	293	288	290	312	298	302	532	382	454	679	296	655
24	293	290	291	315	306	311	631	532	589	303	262	285
25	339	196	251	317	305	311	659	631	647	439	292	345
26	267	229	249	319	292	306	660	633	649	550	421	483
27	285	267	276	300	292	297	666	638	651	636	550	604
28	295	286	291	318	295	300	689	644	670	655	591	624
29	---	---	---	320	297	312	679	290	457	646	608	629
30	---	---	---	302	295	299	310	287	297	621	293	580
31	---	---	---	298	287	294	---	---	---	511	260	386
MON III	636	196	327	351	278	302	689	250	375	680	260	443
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	514	408	466	714	624	681	627	612	621	572	345	489
2	546	480	515	719	697	708	624	588	604	463	350	433
3	640	546	598	708	679	691	592	573	585	519	455	486
4	676	631	645	679	656	668	643	545	579	547	500	528
5	690	663	670	670	645	658	620	561	588	552	533	541
6	687	672	678	676	591	640	573	443	466	542	526	533
7	683	673	678	640	611	628	537	424	506	541	515	529
8	673	631	652	640	615	624	576	286	376	544	516	524
9	666	628	644	672	632	652	459	396	429	554	527	537
10	660	166	327	690	659	673	529	459	488	579	543	561
11	351	251	298	723	657	683	565	502	535	593	558	572
12	322	284	292	681	641	665	576	537	556	593	562	577
13	396	301	332	641	598	612	576	553	564	583	487	561
14	429	345	388	610	591	598	580	549	562	515	393	468
15	495	429	459	628	599	611	576	541	559	415	296	344
16	574	495	543	659	616	637	569	533	548	468	374	e425
17	647	574	630	664	638	653	545	506	531	552	467	506
18	651	629	642	658	624	640	588	529	557	592	552	562
19	637	561	599	663	634	648	580	549	569	641	547	579
20	606	514	555	655	612	635	592	540	562	617	545	583
21	615	592	603	635	608	620	587	567	576	597	541	575
22	619	599	610	643	616	630	569	544	558	633	527	584
23	655	615	640	635	616	626	575	563	567	591	529	555
24	671	646	657	639	612	626	569	537	545	635	557	607
25	693	659	675	655	624	636	574	533	561	661	596	633
26	665	311	487	651	631	642	594	562	579	646	317	554
27	671	533	628	631	596	615	617	575	595	538	339	403
28	636	589	617	612	580	597	622	584	599	526	467	491
29	650	566	624	627	600	619	636	598	612	572	471	519
30	666	631	643	620	573	600	613	591	602	620	572	594
31	---	---	---	631	580	600	602	572	587	---	---	---
MON III	693	166	560	723	573	639	643	286	554	661	296	528
YEAR	723	166	482									

e Estimated

TRINITY RIVER BASIN

453

08061980 EAST FORK TRINITY RIVER AT SEAGOVILLE, TX--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	7.7	7.4	7.5	7.8	7.6	7.6	7.8	7.7	7.8	8.1	7.8	8.0
2	7.6	7.6	7.6	7.8	7.7	7.7	7.8	7.7	7.7	8.0	7.8	7.9
3	7.7	7.5	7.6	7.7	7.5	7.6	7.8	7.7	7.8	7.8	7.7	7.7
4	7.7	7.5	7.6	7.6	7.5	7.6	7.7	7.7	7.7	7.7	7.7	7.7
5	7.6	7.5	7.6	7.6	7.5	7.5	7.7	7.4	7.6	7.9	7.7	7.8
6	7.7	7.5	7.6	7.6	7.5	7.5	7.8	7.5	7.7	7.9	7.8	7.8
7	7.6	7.5	7.5	7.6	7.5	7.6	7.8	7.7	7.7	7.8	7.7	7.8
8	7.8	7.6	7.7	7.6	7.5	7.6	7.9	7.7	7.8	7.7	7.7	7.7
9	7.7	7.6	7.7	7.5	7.4	7.5	8.1	7.8	7.9	7.9	7.6	7.7
10	7.6	7.5	7.6	8.0	7.4	7.5	7.9	7.8	7.9	8.0	7.9	8.0
11	7.6	7.5	7.5	8.0	7.6	7.8	7.9	7.8	7.9	8.0	7.8	7.8
12	7.5	7.4	7.5	7.8	7.5	7.7	7.9	7.7	7.7	7.7	7.6	7.7
13	7.5	7.3	7.4	7.8	7.7	7.8	7.7	7.6	7.6	7.7	7.6	7.6
14	7.5	7.3	7.4	7.8	7.6	7.7	8.0	7.6	7.9	7.6	7.5	7.6
15	7.6	7.4	7.5	7.7	7.5	7.6	8.0	7.9	8.0	7.5	7.4	7.5
16	8.1	7.6	7.8	7.6	7.3	7.4	8.1	8.0	8.1	7.5	7.5	7.5
17	8.0	7.7	7.8	7.5	7.2	7.4	8.2	8.1	8.2	7.5	7.4	7.5
18	---	---	---	7.5	7.3	7.4	8.2	8.0	8.1	7.5	7.4	7.5
19	---	---	---	7.9	7.1	7.5	8.0	7.9	7.9	7.7	7.5	7.5
20	7.7	7.6	7.7	7.9	7.7	7.8	7.9	7.9	7.9	7.7	7.5	7.6
21	7.6	7.5	7.6	7.9	7.7	7.7	8.1	7.9	8.0	8.0	7.7	7.8
22	7.6	7.5	7.6	---	---	---	8.4	8.1	8.3	7.9	7.9	7.9
23	7.6	7.5	7.5	---	---	---	8.3	8.2	8.3	7.9	7.7	7.8
24	7.5	7.4	7.5	8.1	7.8	7.9	8.2	8.0	8.1	8.0	7.7	7.9
25	7.5	7.4	7.4	7.9	7.8	7.9	8.0	8.0	8.0	8.0	7.8	7.9
26	7.4	7.3	7.4	7.9	7.8	7.9	8.0	8.0	8.0	7.8	7.7	7.7
27	7.5	7.3	7.4	7.9	7.9	7.9	8.0	7.8	7.9	7.7	7.6	7.6
28	7.5	7.5	7.5	7.9	7.8	7.9	7.9	7.8	7.8	7.6	7.6	7.6
29	7.9	7.5	7.7	7.9	7.8	7.8	7.9	7.8	7.9	7.9	7.6	7.7
30	7.7	7.5	7.6	7.9	7.8	7.8	7.9	7.8	7.9	7.9	7.7	7.8
31	7.6	7.6	7.6	---	---	---	7.8	7.7	7.8	7.7	7.6	7.7
MONIH	8.1	7.3	7.6	8.1	7.1	7.7	8.4	7.4	7.9	8.1	7.4	7.7
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	7.9	7.6	7.7	8.0	8.0	8.0	---	---	---	8.4	8.1	8.2
2	7.9	7.8	7.9	8.2	7.9	8.0	---	---	---	8.3	8.1	8.2
3	8.1	7.8	7.9	8.4	7.9	8.0	---	---	---	8.5	8.2	8.3
4	8.0	7.9	8.0	8.4	8.1	8.3	---	---	---	8.5	8.3	8.4
5	8.2	8.0	8.1	8.7	8.1	8.4	---	---	---	8.4	8.1	8.2
6	8.2	8.1	8.2	8.8	8.2	8.5	---	---	---	8.2	8.1	8.1
7	8.2	8.1	8.2	8.9	8.2	8.5	8.5	8.3	8.4	8.1	8.0	8.1
8	8.1	8.0	8.0	8.9	8.2	8.5	8.6	8.2	8.4	8.1	8.0	8.0
9	8.1	8.1	8.1	9.0	8.2	8.6	8.7	8.4	8.5	8.0	8.0	8.0
10	8.1	8.0	8.0	9.0	8.1	8.5	8.6	8.4	8.5	8.0	7.9	8.0
11	8.1	7.9	8.0	8.9	8.1	8.5	8.4	8.2	8.3	8.1	8.0	8.1
12	8.1	8.0	8.0	8.6	8.1	8.4	8.3	8.1	8.2	8.2	8.1	8.1
13	8.1	8.0	8.0	8.8	8.1	8.5	8.1	7.8	8.0	8.2	8.1	8.1
14	8.1	7.9	8.1	8.9	8.1	8.5	8.0	7.8	7.9	8.1	8.0	8.1
15	8.0	7.9	8.0	8.5	8.1	8.2	8.1	7.9	8.0	8.0	7.8	7.9
16	8.2	7.8	7.9	8.8	8.0	8.3	8.1	7.7	7.9	8.0	7.8	7.9
17	8.0	7.9	8.0	8.8	8.0	8.4	8.0	7.8	7.9	7.8	7.7	7.8
18	8.3	7.8	8.0	9.0	8.1	8.5	8.4	7.9	8.2	7.8	7.6	7.7
19	8.4	8.2	8.3	8.6	8.2	8.4	8.3	8.2	8.3	7.8	7.6	7.7
20	8.4	8.2	8.3	8.7	8.1	8.3	8.2	8.1	8.1	7.7	7.6	7.6
21	8.4	8.1	8.3	8.8	8.2	8.5	8.2	8.0	8.1	7.8	7.6	7.7
22	8.5	8.2	8.3	8.6	8.1	8.3	8.4	7.9	8.2	7.8	7.7	7.8
23	8.4	8.1	8.3	8.6	7.9	8.2	8.1	7.9	8.0	7.9	7.6	7.7
24	8.2	8.0	8.2	8.8	8.1	8.5	8.0	7.9	7.9	8.0	7.8	7.9
25	8.1	7.9	8.0	8.9	8.1	8.5	8.0	8.0	8.0	8.0	7.7	7.9
26	8.1	7.9	8.0	8.7	8.2	8.5	8.0	7.9	8.0	7.7	7.7	7.7
27	8.1	7.9	8.0	8.8	8.2	8.5	8.0	7.9	8.0	7.7	7.6	7.7
28	8.1	8.0	8.0	8.6	8.1	8.4	8.0	7.9	8.0	7.9	7.7	7.8
29	---	---	---	8.5	8.0	8.3	8.3	8.0	8.1	8.1	7.8	7.9
30	---	---	---	8.7	8.0	8.3	8.3	8.0	8.1	8.1	7.8	7.8
31	---	---	---	---	---	---	---	---	---	8.2	7.7	7.8
MONIII	8.5	7.6	8.1	9.0	7.9	8.4	8.7	7.7	8.1	8.5	7.6	7.9

TRINITY RIVER BASIN

08061980 EAST FORK TRINITY RIVER AT SEAGOVILLE, TX--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.8	7.7	7.7	7.9	7.5	7.7	8.1	7.9	8.0	---	---	---
2	7.8	7.7	7.7	7.9	7.6	7.7	8.0	7.8	7.9	---	---	---
3	7.8	7.6	7.7	8.0	7.6	7.7	8.0	7.8	7.8	7.9	7.8	7.9
4	7.8	7.6	7.7	8.1	7.6	7.8	7.9	7.8	7.8	8.0	7.8	7.9
5	7.9	7.6	7.7	8.1	7.6	7.8	8.0	7.8	7.9	8.0	7.8	7.9
6	7.8	7.6	7.6	8.0	7.6	7.8	7.9	7.7	7.8	8.0	7.7	7.8
7	7.7	7.5	7.6	8.2	7.6	7.8	8.0	7.8	7.9	8.0	7.7	7.8
8	7.8	7.5	7.6	8.4	7.8	8.0	8.0	7.8	7.9	8.0	7.8	7.8
9	7.8	7.5	7.6	8.3	7.8	8.0	7.9	7.8	7.8	8.0	7.8	7.8
10	8.2	7.6	7.8	8.3	7.8	8.0	7.9	7.7	7.8	7.9	7.7	7.8
11	7.7	7.6	7.6	8.2	7.8	8.0	7.9	7.8	7.9	8.0	7.7	7.8
12	7.8	7.7	7.8	8.1	7.7	7.9	8.0	7.9	7.9	8.0	7.7	7.8
13	7.8	7.6	7.7	8.1	7.7	7.8	8.1	7.8	7.9	7.8	7.6	7.7
14	7.7	7.6	7.7	8.1	7.7	7.8	8.0	7.7	7.8	7.8	7.6	7.7
15	7.7	7.6	7.7	8.1	7.7	7.9	8.0	7.7	7.8	7.9	7.6	7.8
16	7.8	7.7	7.7	8.0	7.6	7.8	7.9	7.6	7.7	7.9	7.6	7.8
17	7.9	7.7	7.8	8.0	7.6	7.8	7.8	7.6	7.7	8.0	7.9	8.0
18	7.8	7.7	7.8	8.0	7.6	7.8	7.9	7.6	7.7	7.9	7.9	7.9
19	7.8	7.7	7.8	7.9	7.5	7.7	8.0	7.7	7.8	8.0	7.9	7.9
20	7.8	7.7	7.8	8.0	7.6	7.7	8.1	7.7	7.9	7.9	7.8	7.9
21	7.8	7.7	7.8	8.0	7.7	7.8	8.3	7.8	8.0	7.9	7.8	7.8
22	7.7	7.5	7.6	8.0	7.7	7.8	8.4	7.9	8.0	7.9	7.8	7.8
23	7.9	7.5	7.7	8.1	7.7	7.8	8.1	7.8	7.9	8.0	7.8	7.9
24	7.9	7.7	7.8	8.0	7.7	7.8	8.0	7.8	7.9	8.0	7.9	7.9
25	7.9	7.6	7.7	8.0	7.6	7.8	8.0	7.8	7.9	8.0	7.9	8.0
26	7.7	7.6	7.6	7.9	7.6	7.7	8.0	7.8	7.9	8.2	7.9	7.9
27	7.7	7.6	7.6	8.1	7.6	7.8	8.1	7.8	7.9	8.0	7.9	7.9
28	7.8	7.6	7.6	8.0	7.6	7.8	8.2	7.8	8.0	8.1	7.9	8.0
29	7.8	7.6	7.7	8.2	7.9	8.0	8.4	7.8	8.0	8.0	7.9	8.0
30	7.9	7.5	7.7	8.3	8.0	8.1	---	---	---	8.1	7.8	7.9
31	---	---	---	8.2	8.0	8.1	---	---	---	---	---	---
MONTH	8.2	7.5	7.7	8.4	7.5	7.8	8.4	7.6	7.9	8.2	7.6	7.9
YEAR	9.0	7.1	7.9									

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	22.5	20.0	21.5	23.0	20.0	21.5	13.0	11.5	12.0	15.5	9.5	11.5
2	22.5	20.5	21.5	19.5	18.5	19.5	13.0	12.0	12.5	11.0	9.5	10.0
3	23.0	20.5	21.5	19.0	18.0	19.0	13.5	11.5	12.0	13.5	11.0	11.5
4	23.5	21.0	22.0	18.0	16.0	17.0	14.0	13.0	13.5	14.0	12.5	13.5
5	24.0	21.5	22.5	16.0	14.5	15.0	13.0	11.0	12.0	12.5	12.0	12.0
6	24.0	22.0	23.0	15.0	14.0	14.5	12.0	11.0	11.5	12.0	11.5	11.5
7	23.5	22.5	23.0	15.5	13.5	14.5	11.5	10.5	11.0	12.5	12.0	12.0
8	23.0	19.0	20.0	16.0	14.5	15.0	12.5	10.5	11.5	13.0	12.0	12.5
9	20.0	19.0	19.5	18.0	16.0	17.0	12.5	9.5	11.5	13.0	11.0	12.5
10	22.5	20.0	21.0	19.0	18.0	18.5	12.5	10.0	11.5	11.0	8.5	9.5
11	22.0	20.0	21.0	19.5	18.0	18.5	12.5	11.0	11.5	9.5	8.5	9.0
12	22.5	20.0	21.5	19.0	17.0	18.0	14.5	11.5	12.5	11.0	9.0	10.0
13	22.5	21.0	22.0	16.5	15.5	16.5	15.5	14.0	14.5	11.0	10.0	10.5
14	23.5	21.5	22.5	16.5	14.5	15.0	16.0	11.0	13.0	11.0	10.0	10.5
15	24.5	23.0	23.5	16.5	14.5	15.5	11.0	8.5	9.5	11.5	10.5	11.0
16	24.0	20.0	21.0	17.0	15.0	16.0	10.0	8.5	9.0	13.0	11.5	12.0
17	20.0	19.5	20.0	18.0	16.0	17.0	10.0	9.0	9.5	13.0	12.0	12.5
18	20.5	19.0	20.0	19.0	17.5	18.0	10.5	8.0	9.5	13.0	12.0	12.5
19	20.5	19.0	19.5	19.0	16.5	18.0	12.5	10.5	11.5	12.0	9.5	11.5
20	21.5	19.5	20.0	16.5	16.0	16.0	12.5	11.5	12.0	9.5	8.0	8.5
21	22.5	20.5	21.5	16.0	14.0	15.5	12.0	10.5	11.5	9.5	8.0	9.0
22	23.0	21.0	22.0	14.5	13.5	13.5	11.5	10.0	10.5	10.0	9.0	9.5
23	23.0	21.0	22.0	14.0	12.5	13.5	12.5	11.5	12.0	13.0	10.0	11.5
24	23.5	21.5	22.5	14.5	12.5	13.5	13.5	12.0	13.0	12.5	9.5	11.0
25	24.0	22.0	23.0	13.5	11.5	12.0	13.0	12.0	12.5	9.5	8.5	9.0
26	24.0	22.5	23.5	11.5	10.5	11.0	12.5	11.5	12.0	10.5	8.5	9.5
27	23.5	22.0	22.5	11.0	10.0	10.5	12.5	12.0	12.5	12.0	10.0	10.5
28	22.0	21.0	22.0	11.5	9.5	10.5	13.5	12.5	13.0	12.0	11.0	11.5
29	22.0	19.5	21.0	13.0	10.5	11.0	16.0	14.0	15.0	12.0	8.5	10.0
30	22.0	20.0	21.0	12.5	11.5	12.0	18.0	16.0	16.5	10.0	8.0	9.0
31	23.5	21.0	22.0	---	---	---	18.0	15.5	17.5	11.5	9.0	10.0
MONTH	24.5	19.0	21.5	23.0	9.5	15.5	18.0	8.0	12.0	15.5	8.0	11.0

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

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

TRINITY RIVER BASIN

08061980 EAST FORK TRINITY RIVER AT SEAGOVILLE, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	6.4	5.0	5.6	6.9	5.1	5.8	9.6	8.3	9.2	13.6	6.9	9.9
2	6.3	5.0	5.5	6.5	5.8	6.2	9.6	8.5	8.9	12.5	7.7	9.6
3	6.3	4.7	5.4	6.6	6.4	6.5	9.2	8.1	8.7	12.4	6.8	9.7
4	6.4	4.7	5.4	7.4	6.7	7.0	9.8	8.1	8.7	12.6	8.3	8.9
5	6.3	4.6	5.3	8.0	7.4	7.7	9.5	8.5	9.1	8.5	8.2	8.3
6	6.1	4.6	5.3	8.1	7.7	7.9	9.6	8.8	9.1	8.6	8.1	8.3
7	5.6	4.2	4.9	8.6	7.8	8.2	9.9	9.0	9.3	8.6	8.0	8.2
8	6.8	4.6	5.6	8.2	7.8	8.0	9.6	8.5	9.2	8.0	7.7	7.8
9	5.6	4.3	4.8	7.9	7.2	7.6	10.4	8.0	8.9	9.4	7.8	8.2
10	5.9	5.5	5.7	7.3	6.8	7.0	9.1	8.6	8.9	11.1	9.7	10.6
11	6.1	5.2	5.6	8.0	6.8	7.3	9.3	8.8	9.0	10.9	9.9	10.5
12	6.1	5.0	5.5	7.7	6.9	7.3	9.1	8.5	8.8	9.9	9.2	9.6
13	5.8	4.8	5.2	8.2	7.4	7.8	8.8	7.7	8.3	9.2	8.8	9.0
14	5.4	4.2	4.9	8.4	8.0	8.2	9.1	7.7	8.7	8.9	8.7	8.8
15	4.7	3.8	4.2	8.9	7.9	8.2	9.9	8.9	9.5	8.8	8.4	8.6
16	5.9	3.7	4.7	8.1	7.3	7.8	10.0	9.7	9.9	8.7	8.4	8.6
17	5.2	4.3	4.7	7.6	7.1	7.3	10.8	9.8	10.2	8.3	7.6	7.9
18	5.8	5.2	5.5	7.1	6.4	6.8	10.3	9.7	10.0	8.2	7.5	7.8
19	5.8	5.4	5.6	8.9	6.3	7.3	9.7	8.9	9.3	9.4	7.9	8.3
20	5.5	5.1	5.4	8.8	7.7	7.9	9.3	8.9	9.1	10.9	9.4	10.3
21	5.1	4.4	5.0	9.8	7.9	8.5	10.8	9.3	9.6	11.2	10.8	10.9
22	4.7	4.3	4.5	9.9	9.0	9.2	10.9	10.5	10.8	---	---	---
23	4.7	4.2	4.4	9.4	8.6	9.0	10.7	9.8	10.1	---	---	---
24	4.4	4.0	4.2	9.9	8.3	8.9	9.7	9.0	9.2	---	---	---
25	---	---	---	9.2	8.7	9.0	9.0	8.8	8.9	---	---	---
26	---	---	---	9.5	9.1	9.3	8.9	8.8	8.9	---	---	---
27	---	---	---	9.8	9.5	9.6	8.9	8.7	8.8	---	---	---
28	4.7	4.0	4.3	9.7	8.6	9.5	8.7	8.5	8.6	---	---	---
29	6.6	4.0	5.1	9.7	8.4	9.3	8.5	8.0	8.2	---	---	---
30	5.1	4.2	4.7	9.6	8.5	9.2	8.0	7.5	7.7	---	---	---
31	5.5	4.9	5.1	---	---	---	10.0	7.1	7.4	---	---	---
MONTH	6.8	3.7	5.1	9.9	5.1	8.0	10.9	7.1	9.1	13.6	6.8	9.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	11.1	10.6	10.8	11.6	8.6	9.9	8.9	7.4	8.1
2	9.1	8.4	8.8	11.6	10.1	10.7	11.8	8.8	10.1	8.7	8.3	8.5
3	10.7	8.0	8.8	12.2	10.2	11.0	10.4	8.8	9.6	9.2	8.2	8.6
4	10.9	10.1	10.7	12.3	10.5	11.2	9.5	8.4	8.9	9.3	8.2	8.7
5	11.2	10.7	10.9	12.7	9.9	11.0	11.5	8.3	9.6	8.6	8.1	8.4
6	11.8	11.2	11.5	13.2	9.9	11.2	11.3	9.2	10.2	8.9	8.2	8.5
7	11.8	10.8	11.4	13.8	9.7	11.4	10.1	9.0	9.6	8.5	8.0	8.2
8	12.1	10.0	10.6	14.4	9.4	11.5	10.9	8.1	9.3	8.3	7.9	8.1
9	12.0	11.1	11.6	14.7	9.2	11.5	11.3	8.9	9.9	8.2	7.4	7.9
10	11.5	10.9	11.3	14.9	9.1	11.6	11.2	8.9	9.8	8.2	7.4	7.7
11	11.5	10.8	11.1	14.1	9.3	11.3	10.4	8.9	9.6	8.5	7.8	8.1
12	12.1	11.1	11.5	12.7	9.3	10.8	10.3	9.4	9.8	8.6	8.0	8.3
13	12.1	11.3	11.7	15.0	10.0	12.1	9.7	9.1	9.4	8.8	8.1	8.4
14	12.0	11.2	11.6	15.2	10.0	12.3	9.6	7.7	8.7	8.6	8.0	8.3
15	11.5	10.4	11.1	11.2	9.8	10.5	9.2	7.8	8.6	8.2	7.1	7.4
16	11.2	10.3	10.7	14.9	9.4	11.6	8.9	7.6	8.1	7.8	6.8	7.5
17	12.1	11.1	11.6	14.2	9.5	11.7	10.1	8.1	9.5	6.8	6.0	6.4
18	12.3	11.5	11.9	14.3	9.7	11.6	10.1	9.4	9.7	6.4	5.8	6.0
19	12.3	11.5	11.8	11.2	9.5	10.4	10.0	9.3	9.6	6.7	5.7	6.1
20	12.5	11.2	11.7	12.1	9.0	10.3	9.3	8.1	8.6	6.3	4.9	5.5
21	12.4	10.7	11.5	13.0	9.4	11.0	10.5	8.3	9.3	7.0	5.9	6.3
22	12.8	10.8	11.7	10.8	9.3	10.1	9.8	8.3	9.3	7.1	6.0	6.4
23	13.0	11.0	11.8	12.3	8.2	9.9	8.3	6.9	7.4	6.2	5.5	5.7
24	12.2	10.8	11.4	13.1	8.9	10.7	6.9	6.6	6.7	7.5	5.8	7.0
25	11.0	9.3	10.0	13.2	8.8	10.7	6.6	6.1	6.3	7.4	6.1	6.8
26	11.0	10.1	10.5	13.4	8.9	10.9	6.4	6.1	6.2	6.6	6.0	6.2
27	11.2	10.4	10.7	12.8	8.8	10.6	6.9	6.3	6.6	6.6	5.9	6.2
28	11.4	10.4	10.8	11.5	8.8	9.9	7.1	6.6	6.7	7.6	6.2	6.7
29	---	---	---	11.4	8.8	10.0	7.7	6.5	7.2	9.1	6.3	7.4
30	---	---	---	12.1	8.8	10.2	8.1	7.2	7.6	6.9	5.9	6.4
31	---	---	---	11.8	8.6	10.0	---	---	---	6.5	5.9	6.2
MONTH	13.0	8.0	11.1	15.2	8.2	10.9	11.8	6.1	8.7	9.3	4.9	7.3

TRINITY RIVER BASIN

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX

LOCATION.--Lat 32°38'19", long 96°29'17", Kaufman County, Hydrologic Unit 12030106, on right bank 15 ft downstream from downstream eastbound bridge on U.S. Highway 175, 0.7 mi downstream from Mustang Creek, 1.8 mi northwest of Crandall, 4.0 mi upstream from Buffalo Creek, and 11.0 mi upstream from mouth.

DRAINAGE AREA.--1,256 mi².

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1922: Drainage area. WDR TX-75-1: 1974.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 338.69 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 21, 1983, at datum 5.00 ft higher.

REMARKS.--Records fair including those for estimated daily discharges. Flow largely regulated by Lavon Lake (station 08060500) since September 1953, and by Lake Ray Hubbard (station 08061550) since Mar. 22, 1970. The city of Forney discharges sewage effluent into a tributary below Lake Ray Hubbard and above this station. The North Texas Municipal Water District discharges sewage effluent into tributaries above this station from their Mesquite and Changler's Landing sewage treatment plants. Flow is also affected at times by discharge from the flood-detention pools of 20 floodwater-retarding structures with a combined detention capacity of 11,760 acre-ft. These structures control runoff from an 39.2 mi² area above this station. Gage-height telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--4 years (water years 1950-53) prior to regulation by Lavon Lake, 652 ft³/s (472,400 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1950-53).--Maximum discharge, 16,400 ft³/s May 2, 1953 (gage height, 19.87 ft); no flow at times.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	359	119	605	171	2430	2340	3210	159	95	79	e168
2	68	321	109	200	174	2700	2320	2250	119	96	70	e94
3	71	130	107	126	400	2410	2310	2320	114	93	66	e74
4	74	113	106	128	2520	2390	2640	2260	111	87	92	e83
5	74	102	96	146	3190	2560	2990	2380	106	78	104	e94
6	76	94	88	125	2450	2550	2500	2390	108	79	99	e88
7	74	95	90	117	2070	2530	2530	2380	108	86	107	e64
8	219	94	87	123	506	2520	3110	2370	106	85	332	56
9	126	98	197	349	1570	2510	2700	2460	104	89	114	56
10	80	111	242	1390	2060	2500	2420	2890	1190	85	84	56
11	69	403	129	451	2370	2480	1810	2660	1650	83	80	52
12	71	200	111	201	2400	2580	1550	2430	1890	86	80	51
13	69	167	101	178	2210	2640	1170	2070	1010	88	68	58
14	67	114	1300	153	2170	2520	2080	1090	288	83	73	166
15	67	101	3460	137	2370	2460	6730	240	188	87	71	208
16	925	100	3920	132	4420	2490	3860	227	154	86	73	69
17	538	100	3020	124	4540	2500	1580	123	135	85	e73	55
18	133	98	1800	123	3020	2460	1940	116	128	83	e59	50
19	101	366	365	151	2130	2460	2020	171	158	77	e62	54
20	92	1240	309	1020	2060	2730	2510	136	163	79	e65	53
21	92	483	348	1060	2020	2690	2680	114	129	78	e67	57
22	85	892	1160	819	2010	2750	1940	107	120	79	e65	85
23	83	309	447	385	2200	3590	339	105	119	78	e65	61
24	84	507	188	1120	2470	2980	163	1860	113	77	e62	54
25	81	585	159	885	5180	2610	151	1200	113	75	e63	52
26	79	216	141	195	12600	2510	138	152	279	71	e52	123
27	85	152	134	158	6880	2470	134	120	154	69	e51	174
28	84	136	129	142	2870	2440	128	113	113	79	e50	82
29	265	121	132	870	---	2230	1090	117	103	74	e49	61
30	246	116	131	917	---	2250	3730	166	96	62	e50	55
31	113	---	132	209	---	2360	---	430	---	85	e62	---
TOTAL	4357	7923	18857	12739	79031	79300	61603	38657	9328	2537	2487	2453
MEAN	141	264	608	411	2823	2558	2053	1247	311	81.8	80.2	81.8
MAX	925	1240	3920	1390	12600	3590	6730	3210	1890	96	332	208
MIN	66	94	87	117	171	128	128	105	96	62	49	50
AC-ft	8640	15720	37400	25270	156800	157300	122200	76680	18500	5030	4930	4870

e Estimated

TRINITY RIVER BASIN

459

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1993#, BY WATER YEAR (WY)

MEAN	364	446	639	496	729	807	983	1713	1063	421	166	211
MAX	4116	3032	4401	3083	3043	2714	3425	9586	5718	2026	1459	1560
(WY)	1974	1975	1972	1972	1975	1992	1985	1957	1989	1982	1989	1974
MIN	1.58	3.78	3.57	7.77	23.1	10.6	7.47	42.1	17.8	3.84	.000	.000
(WY)	1957	1956	1955	1957	1957	1956	1956	1959	1954	1956	1956	1954

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR			FOR 1993 WATER YEAR			WATER YEARS 1954 - 1993#		
ANNUAL TOTAL	478601			319272			669		
ANNUAL MEAN	1308			875			1875		
HIGHEST ANNUAL MEAN							38.4		
LOWEST ANNUAL MEAN							1955		
HIGHEST DAILY MEAN	7100	Jan 28		12600	Feb 26		48800	May 5	1990
LOWEST DAILY MEAN	33	Jun 24		49	Aug 29		.00	Oct 1	1953
ANNUAL SEVEN-DAY MINIMUM	34	Jul 12		54	Aug 24		.00	Oct 1	1953
INSTANTANEOUS PEAK FLOW				14000	Feb 26		59900	May 5	1990
INSTANTANEOUS PEAK STAGE				16.43	Feb 26		27.17	May 5	1990
INSTANTANEOUS LOW FLOW				42	Aug 28		.00	at times	
ANNUAL RUNOFF (AC-FT)	949300			633300			484800		
10 PERCENT EXCEEDS	2660			2520			2010		
50 PERCENT EXCEEDS	758			137			84		
90 PERCENT EXCEEDS	69			68			16		

Period of regulated streamflow.

TRINITY RIVER BASIN

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: January to April 1964, May 1966 to September 1981, and June 1986 to current year. Pesticide analyses: March 1977 to July 1981. Sediment analyses: April to September 1964.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1967 to September 1981, May 1986 to current year.

pH: March to September 1977, May 1986 to current year.

WATER TEMPERATURE: October 1967 to September 1981, May 1986 to current year.

DISSOLVED OXYGEN: March to September 1977, May 1986 to current year.

INSTRUMENTATION.--From March to November 1977, a four-parameter water-quality monitor continuously recorded specific conductance, pH, water temperature, and dissolved oxygen at this station. Since May 1986, a four-parameter water-quality monitor continuously records specific conductance, pH, water temperature, and dissolved oxygen at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1,010 microsiemens Nov. 23, 1968; minimum, 100 microsiemens May 17, 1989.

pH: Maximum, 9.5 units Oct. 30, 1989; minimum, 6.7 units on several days during 1988 and 1991.

WATER TEMPERATURE: Maximum, 34.0°C June 26, July 1, Aug. 16, 17, 1980; minimum, 1.0°C Jan. 3, 1979.

DISSOLVED OXYGEN: Maximum, 15.0 mg/L Mar. 14, 1993; minimum, 0.0 mg/L on many days during 1977 and 1991.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 746 microsiemens July 12; minimum, 160 microsiemens Feb. 25.

pH: Maximum, 9.1 units Mar. 14 and 15; minimum, 6.9 units Oct. 3-6.

WATER TEMPERATURE: Maximum, 32.5°C July 30; minimum, 6.0°C Feb. 18.

DISSOLVED OXYGEN: Maximum, 15.0 mg/L Mar. 14; minimum, 3.1 mg/L Aug. 8.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	
NOV 23...	1420	550	360	7.9	13.5	8.8	86	--	120	6	
JAN 27...	1057	153	569	8.1	10.0	10.1	90	1.7	180	34	
APR 06...	1250	2570	304	8.3	12.5	9.6	92	1.8	120	7	
MAY 21...	1255	150	577	7.7	22.5	6.8	80	3.6	150	36	
JUN 15...	1122	188	421	7.8	28.0	5.9	76	2.8	140	19	
AUG 25...	1316	71	574	7.7	30.0	5.8	78	8.3	150	46	
DATE		CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CaCO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
NOV 23...	43	2.5	24	1	6.5	110	30	18	0.40	9.7	
JAN 27...	66	4.1	45	1	6.3	150	56	38	0.60	7.9	
APR 06...	45	2.6	14	0.5	3.6	120	25	11	0.30	0.90	
MAY 21...	55	3.5	48	2	7.5	120	57	47	0.70	5.8	
JUN 15...	50	2.9	30	1	5.1	120	38	26	0.50	7.2	
AUG 25...	52	4.0	61	2	10	100	54	56	1.0	10	
DATE		SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	
NOV 23...	201	2.16	--	0.140	--	2.30	--	0.320	--	--	
JAN 27...	342	5.27	5.27	--	0.230	5.50	5.50	--	0.420	--	
APR 06...	175	0.540	0.540	--	0.010	0.550	0.550	--	0.060	--	
MAY 21...	324	5.73	5.73	--	0.070	5.80	5.80	--	0.080	--	
JUN 15...	252	4.27	4.27	--	0.030	4.30	4.30	--	0.060	--	
AUG 25...	358	9.25	9.25	--	0.050	9.30	9.30	--	0.070	--	

TRINITY RIVER BASIN

461

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

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

DATE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)
NOV 23...	0.88	--	--	1.2	0.940	--	--	0.840	--
JAN 27...	--	0.48	0.90	--	--	1.30	1.30	--	4.0
APR 06...	--	0.24	0.30	--	--	0.090	0.080	--	0.25
MAY 21...	--	0.92	1.0	--	--	1.40	1.20	--	3.7
JUN 15...	--	0.44	0.50	--	--	0.770	0.800	--	2.5
AUG 25...	--	0.83	0.90	--	--	3.80	2.80	--	8.6

MONTH YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT. 1992	4357	485	271	3190	39	456	49	574	140
NOV. 1992	7923	398	223	4770	26	554	38	807	130
DEC. 1992	18857	317	178	9070	17	885	29	1470	110
JAN. 1993	12739	409	229	7890	27	935	39	1340	130
FEB. 1993	79031	278	157	33400	12	2510	24	5100	100
MAR. 1993	79300	304	171	36600	14	2950	26	5660	110
APR. 1993	61603	312	175	29200	15	2470	27	4570	110
MAY 1993	38657	330	186	19400	17	1760	30	3080	120
JUNE 1993	9328	405	227	5710	28	701	39	982	130
JULY 1993	2537	665	370	2540	68	469	73	500	160
AUG. 1993	2487	544	304	2040	46	311	56	375	150
SEPT 1993	2453	527	294	1950	44	292	54	357	150
TOTAL	319272	**	**	156000	**	14300	**	24800	**
WTD.AVG.	875	322	181	**	17	**	29	**	110

TRINITY RIVER BASIN

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	631	600	616	531	248	421	569	540	555	---	---	e430
2	659	601	633	504	257	314	598	566	577	---	---	e440
3	669	630	651	430	345	396	614	597	606	---	---	e550
4	683	647	663	517	428	462	644	612	627	---	---	e570
5	661	635	648	561	517	535	644	635	639	---	---	e570
6	648	621	636	600	561	589	644	631	638	---	---	e600
7	621	601	611	619	600	615	651	637	643	---	---	e620
8	622	285	501	629	616	621	656	631	644	---	---	e630
9	611	387	466	652	620	642	631	424	551	---	---	e600
10	542	403	468	643	597	627	596	374	453	---	---	e310
11	605	542	585	598	244	383	508	447	487	---	---	e370
12	624	595	612	483	405	451	580	508	549	---	---	e500
13	639	623	631	527	407	477	602	573	592	559	495	520
14	644	628	639	522	497	509	---	---	e320	574	537	561
15	678	636	657	545	516	531	---	---	e210	624	550	592
16	663	168	372	580	545	566	---	---	e240	634	614	620
17	338	206	275	595	580	585	---	---	e270	663	619	639
18	423	338	393	631	595	614	---	---	e310	674	637	651
19	523	422	464	641	246	572	---	---	e430	673	581	632
20	564	519	536	341	224	280	---	---	e500	581	313	442
21	586	564	578	406	295	345	---	---	e480	321	302	308
22	639	586	626	363	241	291	---	---	e300	328	312	320
23	668	637	658	391	304	348	---	---	e360	414	323	352
24	698	655	683	450	236	368	---	---	e480	590	270	370
25	705	687	696	415	286	330	---	---	e560	352	279	296
26	718	693	706	430	360	400	---	---	e580	456	352	410
27	698	630	671	492	430	473	---	---	e590	573	456	535
28	634	620	625	529	487	512	---	---	e590	622	568	604
29	638	217	509	546	519	527	---	---	e580	645	311	475
30	573	313	430	548	539	544	---	---	e590	396	309	331
31	498	360	447	---	---	---	---	---	e600	469	396	441
MONTH	718	168	571	652	224	478	656	374	502	674	270	493

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	548	469	529	342	293	305	304	284	299	319	295	312
2	615	545	587	323	294	304	308	300	305	342	310	319
3	624	306	561	303	294	299	310	297	307	327	309	314
4	336	262	285	301	289	296	343	303	316	313	307	309
5	293	270	283	300	286	296	309	302	306	317	313	315
6	298	293	295	303	292	298	308	303	305	319	316	317
7	335	297	303	306	290	298	320	300	308	319	317	318
8	541	335	426	302	281	295	318	301	307	319	316	317
9	545	295	323	303	279	295	309	305	307	319	295	315
10	329	293	304	306	284	297	321	309	312	327	302	311
11	319	292	303	306	284	298	332	321	327	315	306	310
12	295	292	294	327	295	313	324	316	320	320	314	316
13	297	293	295	320	289	301	323	315	318	337	320	323
14	294	290	291	302	286	296	320	254	292	362	337	344
15	344	248	284	307	292	300	281	262	273	473	362	399
16	267	258	263	312	299	307	385	281	320	537	415	460
17	283	266	275	321	297	308	393	317	332	559	423	492
18	299	283	294	314	294	305	321	316	318	593	559	574
19	302	297	300	328	298	308	317	301	313	644	590	617
20	304	300	302	348	315	327	322	296	306	638	535	593
21	304	301	303	321	292	312	306	301	304	568	520	540
22	303	291	299	344	302	315	336	305	311	613	568	593
23	296	289	291	318	290	303	438	336	398	650	613	636
24	294	286	292	316	291	304	---	---	e590	692	278	340
25	291	160	234	312	298	306	---	---	e650	392	308	339
26	250	211	229	311	277	302	---	---	e650	487	392	444
27	280	250	265	311	282	300	---	---	e650	615	486	546
28	295	280	289	319	295	305	---	---	e670	659	615	630
29	---	---	---	325	302	316	---	---	e460	670	640	654
30	---	---	---	315	292	303	306	266	290	682	533	622
31	---	---	---	314	269	297	---	---	---	636	309	410
MONTH	624	160	321	348	269	304	438	254	372	692	278	430

e Estimated

TRINITY RIVER BASIN

463

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	433	337	396	666	633	649	653	614	636	625	247	511
2	511	426	466	713	666	697	653	628	640	545	213	366
3	---	---	e600	713	687	703	640	613	624	596	500	563
4	654	570	627	695	670	686	670	599	610	552	500	528
5	691	650	672	678	666	673	676	570	601	585	552	577
6	700	676	688	671	655	662	637	471	574	588	563	576
7	694	687	690	663	633	647	548	465	488	579	566	571
8	693	668	682	660	638	650	573	303	420	577	549	558
9	668	637	648	670	647	659	444	331	401	574	550	563
10	650	203	389	702	668	690	484	434	457	589	568	579
11	339	253	277	718	694	708	530	484	507	724	589	704
12	340	255	292	746	695	719	566	530	551	743	708	727
13	382	288	320	704	652	689	581	548	566	731	704	720
14	384	328	356	652	624	634	578	563	570	706	503	565
15	452	360	414	635	624	629	584	558	570	---	---	e340
16	533	436	478	655	630	645	573	549	564	---	---	e420
17	603	521	553	694	650	676	563	504	534	---	---	e510
18	632	597	611	694	664	680	517	481	498	---	---	e560
19	632	561	613	689	660	676	586	517	557	---	---	e580
20	578	512	545	705	670	690	585	552	565	---	---	e580
21	603	522	570	695	645	661	601	560	584	---	---	e580
22	610	585	595	665	645	656	598	562	584	---	---	e580
23	629	597	610	674	650	661	580	558	571	---	---	e560
24	652	629	643	661	644	654	585	556	574	---	---	e610
25	667	651	659	666	646	657	581	544	554	---	---	e630
26	678	315	472	680	656	668	598	576	588	---	---	e550
27	625	497	569	671	649	664	611	598	604	---	---	e400
28	615	584	598	649	605	629	639	602	623	---	---	e490
29	617	595	606	640	606	626	647	610	631	---	---	e520
30	633	614	624	659	639	651	660	627	642	---	---	e590
31	---	---	---	643	606	622	633	621	627	---	---	---
MONTH	700	203	542	746	605	665	676	303	565	743	213	554
YEAR	746	160	484									

e Estimated

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	7.1	7.0	7.1	7.8	7.5	7.6	8.0	7.9	7.9	8.2	8.1	8.1
2	7.1	7.0	7.0	7.6	7.4	7.5	8.0	8.0	8.0	8.2	7.9	8.1
3	7.1	6.9	7.0	7.5	7.4	7.5	8.0	7.9	8.0	8.2	7.9	8.0
4	7.1	6.9	7.0	7.6	7.5	7.5	8.0	7.9	8.0	8.1	7.9	8.0
5	7.1	6.9	7.0	7.6	7.5	7.5	7.9	7.9	7.9	8.2	7.9	8.1
6	7.1	6.9	7.0	7.5	7.4	7.4	7.9	7.4	7.7	8.1	7.8	8.0
7	7.1	7.0	7.0	7.4	7.3	7.4	8.0	7.9	8.0	---	---	---
8	7.4	7.0	7.2	7.4	7.3	7.3	8.0	7.9	8.0	---	---	---
9	7.4	7.2	7.3	7.3	7.3	7.3	8.1	7.9	7.9	---	---	---
10	7.5	7.4	7.4	7.5	7.3	7.4	7.9	7.8	7.9	---	---	---
11	7.5	7.4	7.4	7.8	7.5	7.6	7.9	7.9	7.9	---	---	---
12	7.5	7.4	7.4	7.6	7.6	7.6	7.9	7.9	7.9	---	---	---
13	7.4	7.3	7.4	7.7	7.6	7.7	7.9	7.8	7.8	---	---	---
14	7.4	7.3	7.3	7.7	7.6	7.7	---	---	---	8.2	8.2	8.2
15	7.3	7.1	7.2	7.6	7.5	7.6	---	---	---	8.3	8.2	8.2
16	7.9	7.2	7.6	7.5	7.4	7.5	---	---	---	8.3	8.2	8.2
17	7.9	7.6	7.8	7.4	7.4	7.4	---	---	---	8.3	8.2	8.3
18	7.7	7.6	7.6	7.6	7.4	7.5	---	---	---	8.2	8.2	8.2
19	7.6	7.5	7.6	7.9	7.6	7.7	---	---	---	8.3	8.2	8.3
20	7.5	7.4	7.5	7.9	7.7	7.8	---	---	---	8.5	8.3	8.4
21	7.5	7.4	7.5	7.8	7.7	7.7	---	---	---	8.5	8.5	8.5
22	7.5	7.4	7.4	7.9	7.7	7.8	---	---	---	8.5	8.5	8.5
23	7.4	7.4	7.4	7.9	7.7	7.8	---	---	---	8.5	8.4	8.5
24	7.5	7.4	7.4	8.0	7.8	7.9	---	---	---	8.5	8.3	8.4
25	7.5	7.4	7.4	7.9	7.8	7.9	---	---	---	8.5	8.4	8.5
26	7.5	7.4	7.5	8.0	7.9	7.9	---	---	---	8.4	8.3	8.3
27	7.6	7.0	7.5	8.0	7.9	8.0	---	---	---	8.3	8.2	8.3
28	7.7	7.6	7.7	8.0	7.9	8.0	8.2	8.2	8.2	8.2	8.1	8.2
29	8.3	7.7	7.9	8.0	8.0	8.0	8.3	8.2	8.2	8.2	8.1	8.1
30	8.0	7.7	7.8	8.0	7.9	8.0	8.3	8.2	8.2	8.3	8.0	8.2
31	7.8	7.6	7.7	---	---	---	8.2	8.2	8.2	8.0	7.9	8.0
MONTH	8.3	6.9	7.4	8.0	7.3	7.6	8.3	7.4	8.0	8.5	7.8	8.2

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	7.9	7.8	7.9	8.7	8.5	8.6	---	---	---	8.1	7.9	8.0
2	8.0	7.8	7.8	8.7	8.5	8.6	---	---	---	8.1	8.0	8.1
3	8.1	7.9	8.0	8.8	8.5	8.6	8.8	8.4	8.5	8.2	8.0	8.1
4	8.1	8.0	8.0	8.7	8.5	8.6	8.4	8.2	8.3	8.2	8.1	8.2
5	8.2	8.1	8.1	8.7	8.4	8.6	8.7	8.2	8.4	8.2	8.0	8.1
6	8.2	8.1	8.2	8.8	8.5	8.6	8.8	8.2	8.5	8.1	7.9	8.0
7	8.2	8.2	8.2	8.8	8.4	8.6	8.7	8.3	8.5	8.0	7.9	7.9
8	8.2	8.1	8.1	8.7	8.3	8.5	8.6	8.2	8.4	8.0	7.8	7.9
9	8.3	8.0	8.2	8.9	8.2	8.5	8.8	8.4	8.6	8.1	7.9	8.0
10	8.3	8.1	8.2	8.9	8.3	8.5	8.8	8.4	8.6	8.1	7.9	8.0
11	8.2	8.1	8.1	8.8	8.5	8.7	8.6	8.4	8.5	8.2	8.0	8.1
12	8.1	8.0	8.1	8.8	8.5	8.6	8.6	8.4	8.5	8.2	8.1	8.1
13	8.0	7.9	8.0	8.8	8.5	8.7	8.5	8.3	8.4	8.2	8.1	8.1
14	7.9	7.8	7.8	9.1	8.5	8.8	8.4	8.0	8.2	8.2	8.1	8.1
15	7.8	7.6	7.7	9.1	8.7	8.8	8.3	8.1	8.2	8.2	7.9	8.1
16	8.2	7.6	8.0	8.9	8.6	8.7	8.3	8.0	8.1	8.2	7.8	8.0
17	8.3	8.0	8.3	8.8	8.5	8.6	8.3	8.0	8.2	7.8	7.6	7.7
18	8.4	8.3	8.4	8.8	8.5	8.7	8.3	8.2	8.2	7.9	7.7	7.8
19	8.5	8.3	8.4	8.8	8.5	8.6	8.3	8.1	8.2	7.9	7.8	7.8
20	8.5	8.3	8.4	8.5	8.3	8.4	8.1	7.8	7.9	7.9	7.7	7.8
21	8.5	8.3	8.4	8.7	8.4	8.5	8.1	7.8	8.0	8.2	7.7	7.9
22	8.6	8.3	8.4	8.6	8.2	8.4	8.2	8.0	8.1	8.2	7.9	8.0
23	8.7	8.3	8.5	8.2	8.1	8.2	8.0	7.9	7.9	8.1	7.7	7.9
24	8.6	8.3	8.4	8.4	8.0	8.2	8.0	7.9	8.0	7.9	7.7	7.8
25	8.5	8.3	8.4	8.2	8.0	8.1	8.1	7.9	8.0	7.9	7.7	7.8
26	8.5	8.4	8.4	---	---	---	8.0	7.9	7.9	7.9	7.7	7.8
27	8.6	8.4	8.5	---	---	---	8.0	7.9	7.9	8.0	7.8	7.9
28	8.7	8.5	8.6	---	---	---	8.0	7.9	7.9	8.2	7.8	8.0
29	---	---	---	---	---	---	8.0	7.9	7.9	8.4	7.8	8.1
30	---	---	---	---	---	---	8.1	7.9	8.0	8.0	7.8	7.9
31	---	---	---	---	---	---	---	---	---	8.1	7.7	7.8
MONTH	8.7	7.6	8.2	9.1	8.0	8.5	8.8	7.8	8.2	8.4	7.6	8.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.9	7.7	7.8	7.9	7.6	7.7	7.8	7.5	7.6	---	---	---
2	8.0	7.7	7.9	8.0	7.6	7.8	7.8	7.6	7.7	---	---	---
3	8.1	7.7	7.9	8.0	7.7	7.8	7.7	7.6	7.6	7.8	7.8	7.8
4	8.0	7.8	7.9	8.0	7.7	7.9	7.7	7.6	7.6	7.8	7.7	7.8
5	8.2	7.9	8.0	8.1	7.7	7.9	7.7	7.1	7.6	7.8	7.7	7.7
6	8.1	7.8	8.0	8.0	7.7	7.8	7.7	7.6	7.7	7.7	7.3	7.5
7	7.9	7.8	7.9	8.1	7.6	7.9	7.7	7.6	7.6	7.4	7.2	7.3
8	7.9	7.7	7.8	8.2	7.9	8.0	7.8	7.6	7.7	7.3	7.0	7.2
9	7.9	7.7	7.8	8.2	8.0	8.1	7.7	7.2	7.6	7.5	7.2	7.3
10	8.3	7.8	7.9	8.2	7.9	8.1	7.7	7.1	7.5	7.6	7.4	7.5
11	7.9	7.8	7.9	8.2	8.0	8.1	7.7	7.1	7.6	7.6	7.3	7.5
12	8.0	7.8	7.9	---	---	---	---	---	---	7.6	7.3	7.4
13	7.9	7.7	7.8	---	---	---	7.8	7.6	7.7	7.6	7.2	7.3
14	7.8	7.7	7.7	---	---	---	8.0	7.8	7.9	7.8	7.5	7.6
15	7.7	7.7	7.7	---	---	---	8.0	7.8	7.9	8.0	7.7	7.9
16	7.9	7.7	7.8	---	---	---	8.0	7.8	7.9	8.0	7.9	8.0
17	8.0	7.8	7.8	---	---	---	8.0	7.8	7.9	8.0	8.0	8.0
18	7.9	7.8	7.8	---	---	---	8.0	7.8	7.9	8.0	7.9	8.0
19	7.9	7.7	7.8	---	---	---	8.0	7.8	7.9	8.0	7.9	7.9
20	7.7	7.7	7.7	---	---	---	7.9	7.6	7.7	8.0	7.9	7.9
21	7.9	7.7	7.8	---	---	---	7.7	7.5	7.6	8.0	7.8	7.9
22	8.1	7.8	7.9	---	---	---	8.4	7.6	8.0	7.9	7.7	7.8
23	8.2	7.8	8.0	---	---	---	8.2	7.8	8.0	7.8	7.6	7.7
24	8.0	7.8	7.9	7.8	7.7	7.7	---	---	---	7.7	7.5	7.7
25	7.8	7.7	7.8	7.8	7.7	7.7	---	---	---	7.9	7.6	7.9
26	7.7	7.5	7.6	7.7	7.6	7.7	---	---	---	---	---	---
27	7.7	7.6	7.6	7.7	7.6	7.7	---	---	---	---	---	---
28	7.7	7.6	7.6	7.8	7.7	7.7	---	---	---	---	---	---
29	7.8	7.6	7.7	7.8	7.6	7.7	---	---	---	---	---	---
30	7.9	7.6	7.7	7.7	7.2	7.5	---	---	---	8.0	7.8	7.9
31	---	---	---	7.8	7.6	7.7	---	---	---	---	---	---
MONTH	8.3	7.5	7.8	8.2	7.2	7.8	8.4	7.1	7.7	8.0	7.0	7.7
YEAR	9.1	6.9	7.9									

TRINITY RIVER BASIN

465

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

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

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

TRINITY RIVER BASIN

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	25.5	23.5	24.5	30.5	28.5	29.5	---	---	---	23.5	22.0	23.0
2	26.0	23.5	25.0	30.5	28.5	29.5	---	---	---	---	---	---
3	28.0	25.0	26.5	30.5	28.5	29.5	---	---	---	28.5	27.5	28.0
4	27.5	26.5	27.0	30.0	28.0	29.0	---	---	---	28.0	26.5	27.5
5	28.5	26.5	27.5	29.5	27.5	28.5	---	---	---	28.0	25.5	27.0
6	29.0	27.0	28.0	30.0	28.0	29.0	---	---	---	28.0	26.0	26.5
7	28.0	27.0	27.5	30.0	28.5	29.0	---	---	---	27.5	25.5	27.0
8	27.5	26.5	27.0	30.0	28.5	29.0	---	---	---	---	---	---
9	28.0	26.5	27.0	30.5	28.0	29.0	---	---	---	---	---	---
10	27.5	23.0	24.5	30.5	28.5	29.5	---	---	---	---	---	---
11	24.5	23.5	24.0	30.5	28.5	29.5	---	---	---	---	---	---
12	24.5	23.5	24.0	31.0	28.5	29.5	---	---	---	---	---	---
13	25.5	24.5	25.0	31.0	29.0	30.0	---	---	---	---	---	---
14	28.0	25.0	26.0	30.5	28.5	29.5	---	---	---	---	---	---
15	29.5	27.0	28.0	31.0	28.5	29.5	---	---	---	---	---	---
16	29.5	28.0	29.0	---	---	---	---	---	---	27.5	26.5	27.0
17	29.5	28.0	28.5	---	---	---	---	---	---	27.5	25.5	26.5
18	28.5	28.0	28.0	---	---	---	31.0	29.5	30.5	---	---	---
19	28.0	26.5	27.0	---	---	---	31.0	27.5	30.0	---	---	---
20	26.5	26.0	26.0	---	---	---	31.0	25.0	29.0	---	---	---
21	27.0	25.5	26.5	32.0	29.5	30.5	31.0	22.5	28.0	---	---	---
22	28.5	26.5	27.0	31.5	29.5	30.5	30.0	26.5	29.5	---	---	---
23	29.5	27.0	28.0	31.0	29.0	30.0	30.0	26.5	29.5	---	---	---
24	30.0	28.0	29.0	31.0	28.0	29.5	29.5	21.0	28.5	---	---	---
25	30.5	28.5	29.5	31.0	28.5	30.0	30.5	26.0	29.0	---	---	---
26	29.0	25.0	27.0	31.0	28.5	30.0	30.5	24.0	28.5	---	---	---
27	29.5	27.0	28.0	31.0	26.0	29.0	30.5	24.0	26.5	---	---	---
28	30.0	28.0	29.0	31.5	29.0	30.0	30.0	23.5	25.5	---	---	---
29	30.5	28.5	29.5	32.0	29.5	30.5	24.5	23.0	24.0	---	---	---
30	30.5	28.5	29.5	32.5	30.0	31.0	30.5	23.5	25.0	---	---	---
31	---	---	---	---	---	---	25.0	23.0	24.0	---	---	---
MONTH	30.5	23.0	27.0	32.5	26.0	29.5	31.0	21.0	27.5	28.5	22.0	26.5
YEAR	32.5	6.0	19.0									

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	5.5	4.5	4.9	6.6	5.2	5.8	9.5	8.8	9.1	---	---	---
2	5.3	4.4	4.7	6.8	6.0	6.5	9.2	8.7	9.0	---	---	---
3	5.1	3.9	4.4	7.2	6.7	6.9	9.2	8.7	8.9	---	---	---
4	5.5	3.9	4.5	7.6	6.7	7.1	8.9	8.2	8.6	---	---	---
5	5.8	3.6	4.6	8.1	7.3	7.8	8.5	8.0	8.3	---	---	---
6	5.8	3.6	4.6	8.2	7.9	8.0	8.4	3.3	6.6	---	---	---
7	5.7	3.7	4.6	8.4	8.0	8.2	9.2	8.3	8.9	---	---	---
8	5.8	4.2	4.7	8.2	7.8	8.0	9.5	8.8	9.1	---	---	---
9	5.9	4.7	5.2	8.0	7.3	7.8	9.5	8.4	8.9	---	---	---
10	6.3	4.8	5.5	7.3	6.4	6.7	8.9	8.6	8.8	---	---	---
11	6.1	5.3	5.7	6.7	6.4	6.6	9.3	8.7	9.1	---	---	---
12	6.3	5.4	5.8	7.2	6.7	6.8	9.4	8.5	8.9	---	---	---
13	6.2	5.2	5.6	7.4	7.1	7.3	8.5	7.9	8.2	---	---	---
14	6.3	5.1	5.6	7.9	7.4	7.7	8.8	8.0	8.6	9.5	9.2	9.4
15	5.5	4.6	4.9	7.9	7.5	7.7	---	---	---	9.4	8.9	9.1
16	6.0	4.1	5.0	7.9	7.2	7.6	---	---	---	9.4	8.8	9.0
17	6.3	5.1	5.7	7.2	6.7	7.0	---	---	---	8.9	8.3	8.7
18	6.8	6.3	6.6	6.7	6.1	6.4	---	---	---	8.5	7.9	8.2
19	7.5	6.6	7.0	7.4	6.0	6.4	---	---	---	9.2	8.1	8.6
20	7.0	6.5	6.7	7.5	6.8	7.1	---	---	---	10.7	8.9	10.1
21	6.8	6.2	6.4	8.3	7.3	7.6	---	---	---	10.9	10.7	10.8
22	6.2	5.4	5.7	8.4	7.9	8.2	---	---	---	10.9	10.7	10.8
23	5.8	5.2	5.5	8.7	8.2	8.5	---	---	---	10.7	9.8	10.5
24	6.1	5.4	5.7	9.0	8.0	8.6	---	---	---	10.9	8.4	9.9
25	6.0	5.2	5.6	9.0	8.4	8.8	---	---	---	11.1	10.6	11.0
26	5.7	4.9	5.2	9.3	8.9	9.1	---	---	---	10.6	10.1	10.4
27	4.9	3.8	4.5	9.7	9.3	9.5	---	---	---	10.1	9.3	9.7
28	5.2	4.2	4.6	9.7	9.4	9.6	---	---	---	9.3	8.8	9.1
29	6.1	4.5	5.2	9.6	9.1	9.4	---	---	---	11.1	8.4	9.8
30	5.5	4.7	5.1	9.1	8.8	9.0	---	---	---	11.4	10.7	11.2
31	5.8	4.9	5.4	---	---	---	---	---	---	10.7	10.0	10.4
MONTH	7.5	3.6	5.3	9.7	5.2	7.7	9.5	3.3	8.6	11.4	7.9	9.8

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	10.0	9.2	9.7	10.7	10.4	10.5	10.2	8.9	9.5	8.3	6.8	7.5
2	9.3	8.5	9.0	10.9	9.9	10.4	9.7	9.0	9.4	8.2	7.9	8.0
3	10.0	8.5	8.8	11.5	10.0	10.6	9.5	8.4	9.0	8.7	7.8	8.1
4	10.2	9.6	10.0	12.1	10.3	11.0	9.3	8.6	8.9	8.8	8.0	8.4
5	10.5	10.1	10.2	12.6	10.3	11.3	10.0	9.0	9.4	8.5	7.8	8.1
6	11.2	10.5	10.9	13.1	10.3	11.5	10.8	9.6	10.1	8.5	8.0	8.2
7	11.3	10.6	11.0	13.5	10.1	11.6	10.1	8.7	9.2	8.3	7.7	8.0
8	10.6	9.4	10.3	13.9	9.7	11.6	10.1	7.7	8.8	8.1	7.7	7.9
9	11.4	9.2	11.1	14.2	9.5	11.5	10.6	8.3	9.3	8.0	7.3	7.7
10	11.2	10.7	11.0	13.9	9.3	11.3	10.4	8.3	9.2	7.8	7.2	7.5
11	11.1	10.4	10.8	13.4	9.2	11.0	9.6	8.3	8.9	8.2	7.6	7.9
12	11.6	10.7	11.1	12.5	9.3	10.6	9.5	8.8	9.1	8.5	7.9	8.1
13	11.7	10.9	11.3	14.7	10.1	12.0	9.1	8.5	8.8	8.5	8.0	8.2
14	11.6	11.0	11.2	15.0	10.2	12.3	8.9	7.0	8.0	8.5	8.0	8.2
15	11.3	10.3	10.9	12.4	9.8	10.8	8.5	7.1	7.9	8.3	7.2	7.9
16	10.8	10.0	10.4	14.2	9.5	11.4	8.3	7.5	7.8	---	---	---
17	11.6	10.7	11.2	13.9	9.5	11.6	9.2	7.5	8.7	---	---	---
18	12.1	11.1	11.6	14.1	9.7	11.7	9.4	8.9	9.1	---	---	---
19	12.1	11.4	11.7	11.7	9.6	10.5	9.3	8.5	8.9	---	---	---
20	11.9	11.1	11.4	12.1	9.3	10.5	8.5	7.3	8.0	7.3	5.8	6.3
21	12.0	10.6	11.2	13.2	9.7	11.2	9.6	7.7	8.6	8.8	5.5	6.9
22	12.2	10.8	11.4	11.6	9.6	10.5	9.6	8.6	9.0	8.9	6.3	7.5
23	12.4	10.8	11.4	12.0	8.7	10.2	8.8	8.1	8.3	7.8	6.4	6.8
24	11.6	10.4	11.0	13.3	9.1	11.0	9.1	8.2	8.6	7.3	5.9	6.8
25	11.0	9.5	10.1	13.4	9.2	11.0	9.5	6.8	8.4	7.4	6.9	7.2
26	11.0	9.7	10.2	13.4	9.3	11.1	9.7	7.6	8.6	7.4	6.4	6.8
27	10.6	10.2	10.4	12.9	9.1	10.9	9.8	7.3	8.6	7.9	6.3	6.9
28	10.9	10.1	10.5	11.6	9.1	10.1	9.6	8.3	9.0	9.0	6.1	7.3
29	---	---	---	11.5	9.1	10.2	9.3	6.7	7.7	11.0	6.5	8.4
30	---	---	---	12.2	9.2	10.6	7.5	7.0	7.2	8.2	6.3	6.7
31	---	---	---	12.0	9.0	10.4	---	---	---	6.6	5.9	6.2
MONTH	12.4	8.5	10.7	15.0	8.7	11.0	10.8	6.7	8.7	11.0	5.5	7.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	7.5	6.0	6.7	8.3	5.9	6.9	7.0	4.2	5.2	---	---	---
2	8.3	6.5	7.3	---	---	---	6.1	4.5	5.2	---	---	---
3	8.4	6.3	7.1	---	---	---	6.0	4.4	5.1	7.0	6.3	6.6
4	7.6	5.8	6.5	---	---	---	5.6	4.6	5.1	7.0	5.5	6.3
5	7.8	5.7	6.7	---	---	---	5.4	3.5	4.3	6.1	5.1	5.5
6	7.2	5.9	6.5	---	---	---	5.3	4.4	4.8	6.9	5.2	5.9
7	6.7	5.7	6.2	---	---	---	5.1	4.2	4.5	6.8	5.3	6.1
8	6.9	5.7	6.3	7.6	5.7	6.6	5.1	3.1	4.0	6.2	5.2	5.7
9	6.7	5.5	6.1	7.8	5.9	6.8	---	---	---	6.9	5.5	6.1
10	6.1	5.1	5.6	7.5	5.9	6.7	---	---	---	6.6	5.5	6.1
11	5.9	5.5	5.7	7.5	5.8	6.6	---	---	---	6.6	5.5	6.0
12	6.6	5.9	6.4	7.0	5.6	6.3	---	---	---	6.8	5.4	6.1
13	6.8	6.4	6.6	6.9	5.3	6.0	---	---	---	6.1	5.2	5.7
14	6.4	6.0	6.2	6.6	5.2	5.9	---	---	---	7.5	5.3	7.0
15	6.3	5.8	6.0	7.0	5.1	6.0	---	---	---	7.5	5.4	6.5
16	6.8	5.6	6.0	6.7	5.5	6.0	---	---	---	6.0	5.4	5.7
17	7.3	5.6	6.3	6.7	5.3	5.9	---	---	---	6.3	5.9	6.0
18	6.8	5.7	6.2	6.8	5.3	5.9	6.7	5.4	6.0	6.2	5.8	6.0
19	6.4	5.7	6.0	6.9	5.2	5.9	7.1	5.5	6.2	6.0	5.6	5.9
20	6.1	5.7	5.9	6.9	5.2	6.0	7.3	5.4	6.3	6.3	5.4	5.8
21	7.2	5.8	6.3	6.7	5.3	5.9	8.8	5.6	6.9	6.5	5.2	5.7
22	8.3	5.9	6.9	7.2	5.4	6.1	8.8	5.8	7.1	6.2	5.3	5.7
23	9.1	6.2	7.4	6.8	5.5	6.1	7.5	5.7	6.5	5.6	4.2	4.9
24	8.3	6.3	7.2	7.5	5.7	6.4	6.7	5.6	6.1	5.4	4.2	4.7
25	7.1	5.7	6.3	7.3	5.7	6.4	7.1	5.5	6.2	4.9	4.3	4.6
26	6.2	5.2	5.7	7.0	5.6	6.2	---	---	---	5.3	4.4	4.7
27	6.6	5.5	5.9	6.7	5.1	5.8	---	---	---	5.1	4.4	4.9
28	7.0	5.6	6.1	7.8	5.3	6.3	---	---	---	6.0	5.0	5.5
29	7.4	5.5	6.4	6.3	4.8	5.5	---	---	---	6.4	5.3	5.8
30	7.9	6.1	6.8	6.5	4.7	5.5	---	---	---	5.8	5.3	5.6
31	---	---	---	8.3	4.9	6.2	---	---	---	---	---	---
MONTH	9.1	5.1	6.4	8.3	4.7	6.2	8.8	3.1	5.6	7.5	4.2	5.8
YEAR	15.0	3.1	7.8									

08062500 TRINITY RIVER NEAR ROSSER, TX

LOCATION.--Lat 32°25'35", long 96°27'46", Ellis County, Hydrologic Unit 12030105, on right bank at downstream side of right pier of bridge on State Highway 34, 2.5 mi south of Rosser, 8.5 mi downstream from East Fork Trinity River, and at mile 451.4.

DRAINAGE AREA.--8,147 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1924 to September 1925, October 1938 to current year. Monthly discharge only for some periods, are published in WSP 1312.

REVISED RECORDS.--WDR TX-77-1: 1942(M), drainage area. WDR TX-89-1: 1988. WDR TX-92-1: 1991.

GAGE.--Water-stage recorder. Datum of gage is 302.65 ft above National Geodetic Vertical Datum of 1929. July 25, 1924, to Sept. 30, 1925, nonrecording gage at abandoned lock and dam No. 7, 1.7 mi upstream from present site at datum 6.94 ft higher.

REMARKS.--No estimated daily discharges. Records fair. At times, flow is affected by storage in 15 upstream reservoirs having a combined capacity of 3,572,000 acre-ft, of which 1,138,000 acre-ft is for flood control. A levee system constructed in 1916, extends several miles upstream and downstream from the station. The cities of Fort Worth, Dallas, and several smaller cities divert considerable water for their municipal use, of which about 60 percent is returned as sewage effluent that sustains low flows at this site. Flow may also be affected at times by discharge from the flood-detention pools of 38 floodwater-retarding structures with a combined detention capacity of 22,600 acre-ft. These structures control runoff from 76.7 mi² above this station. Gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1908 reached a stage of about 33 ft (present site and datum), from information by U.S. Army Corps of Engineers (discharge believed to have been about the same as that of Apr. 22, 1942).

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	808	1790	1070	3350	2650	17000	10500	11100	2300	5280	1290	1390
2	832	3320	1060	3240	2220	15000	9350	8120	1740	5160	1490	1110
3	885	2180	1030	3790	2450	14600	8580	9610	1480	4930	1170	871
4	844	1180	963	4330	11400	14200	8930	9280	1340	4920	1090	844
5	824	926	951	4650	14600	13600	9830	8460	1300	4380	1150	814
6	821	785	919	4730	14000	13100	8240	8210	1240	4280	1230	744
7	819	753	899	4820	11700	12700	7640	8040	1210	4280	971	713
8	1330	735	958	4900	8680	12200	10400	7890	1260	4270	1650	786
9	1630	723	1200	5170	7790	11800	9250	8710	1230	4250	1680	806
10	1110	769	2100	6210	8610	11700	8300	13400	3410	4200	1220	821
11	909	1290	1710	4510	9110	11600	6740	10100	7750	4180	980	759
12	801	1210	1240	3280	8940	12000	4620	8020	6970	4190	903	722
13	796	1790	1100	2970	8690	12000	3870	7860	7460	3510	864	742
14	783	1460	5260	2660	7760	11500	6590	7760	6810	1580	812	2030
15	766	970	15900	1960	8290	11000	15200	7280	6520	2560	779	4660
16	2550	843	19700	1670	13300	11000	13300	7170	6620	3560	764	3230
17	6800	824	19000	1630	14500	10600	6090	6950	6740	3960	842	1350
18	3960	796	15600	1610	13300	10200	5370	6830	6680	4080	829	1000
19	1430	1040	10700	1670	11400	9900	5920	6890	6500	4070	792	945
20	1050	5790	8710	3980	10500	11300	7390	6910	6480	4070	820	910
21	933	4950	7860	6390	9790	11500	5820	6700	6280	4100	800	1010
22	859	4700	7330	4740	8640	11800	4530	6560	5950	4090	817	1180
23	824	3670	7130	4040	7600	14700	2960	5940	5640	4120	798	911
24	785	2470	7030	4660	7780	14600	2170	6520	5240	3910	818	840
25	800	4060	6080	5210	12500	14300	2070	6110	5030	3180	805	817
26	759	2940	5340	4590	21800	12700	1920	3690	7800	2560	818	1220
27	728	1670	5120	3790	24900	11500	1850	2370	9100	2360	834	2150
28	715	1280	4450	2660	22300	11300	1800	1800	8310	2330	792	1400
29	1060	1140	3310	2890	---	11800	3710	1810	6400	2140	752	999
30	2780	1070	2900	5080	---	11600	10400	2270	5330	1220	791	883
31	2000	---	2820	4210	---	11400	---	2390	---	1040	786	---
TOTAL	41991	57124	169440	119390	305200	384200	203340	214750	150120	112760	30137	36657
MEAN	1355	1904	5466	3851	10900	12390	6778	6927	5004	3637	972	1222
MAX	6800	5790	19700	6390	24900	17000	15200	13400	9100	5280	1680	4660
MIN	715	723	899	1610	2220	9900	1800	1800	1210	1040	752	713
AC-F	83290	113300	336100	236800	605400	762100	403300	426000	297800	223700	59780	72710

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 1993, BY WATER YEAR (WY)

	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
MEAN	1719	2153	2523	2082	3185	3442	4310	6513	5340	2001	1087	1161
MAX	11140	16860	22340	17140	14680	20120	38610	40400	24600	10650	6912	8322
(WY)	1982	1982	1992	1992	1992	1945	1942	1990	1941	1989	1982	1962
MIN	32.8	49.5	50.4	61.0	72.7	54.6	213	614	154	62.6	37.1	89.1
(WY)	1925	1925	1925	1925	1925	1925	1956	1964	1925	1925	1925	1925

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1925 - 1993

	1992	1993	1925-1993
ANNUAL TOTAL	2508698	1825109	
ANNUAL MEAN	6854	5000	2958
HIGHEST ANNUAL MEAN			9702
LOWEST ANNUAL MEAN			280
HIGHEST DAILY MEAN	25000	24900	133000
LOWEST DAILY MEAN	715	713	32
ANNUAL SEVEN-DAY MINIMUM	781	764	32
INSTANTANEOUS PEAK FLOW		25500	150000
INSTANTANEOUS PEAK STAGE		28.05	41.55
INSTANTANEOUS LOW FLOW		620	
ANNUAL RUNOFF (AC-FT)	4976000	3620000	2143000
10 PERCENT EXCEEDS	15900	11600	8220
50 PERCENT EXCEEDS	4530	3870	831
90 PERCENT EXCEEDS	877	817	197

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1954 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: January 1968 to July 1981. Sediment analyses: October 1963 to September 1964, and April 1972 to April 1975.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1954 to current year.

pH: March 1977 to current year.

WATER TEMPERATURE: October 1954 to current year.

DISSOLVED OXYGEN: March 1977 to current year.

INSTRUMENTATION.--Since March 1977, a four-parameter water-quality monitor records temperature, DO, pH, and specific conductance continuously at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 2,990 microsiemens Oct. 13, 1956; minimum, 122 microsiemens Sept. 30, 1981.

pH: Maximum, 9.9 units July 12, 1982; minimum, 6.8 units Oct. 3, 19, 20, Nov. 19, 1980.

WATER TEMPERATURE: Maximum, 36.0°C July 1, 1955; minimum, 1.0°C on many days during winter months.

DISSOLVED OXYGEN: Maximum, 13.1 mg/L Dec. 6, 1992; minimum, 0.0 mg/L on several days during 1979-81.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 802 microsiemens Oct. 3; minimum, 248 microsiemens Dec. 15.

pH: Maximum, 8.2 units Mar. 11-15, 17-19; minimum, 7.2 units Sept. 27 and 28.

WATER TEMPERATURE: Maximum, 31.0°C July 31-Aug. 2, and 12; minimum, 9.0°C Feb. 17-20.

DISSOLVED OXYGEN: Maximum, 13.1 mg/L Dec. 6; minimum, 3.0 mg/L Oct. 17.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)
NOV 04...	1015	1320	448	7.6	18.0	7.6	81	1.8	140	35
JAN 19...	1430	1820	642	7.8	11.5	10.0	92	0.5	190	49
APR 07...	1115	6960	441	7.9	14.5	9.1	90	1.6	160	28
MAY 11...	1430	9470	390	7.8	20.5	7.7	86	2.3	150	28
JUL 14...	1015	1240	454	7.7	28.5	6.5	84	1.2	140	26
AUG 10...	1415	950	530	7.9	29.5	6.4	84	1.8	150	40

DATE	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
NOV 04...	48	4.4	35	1	6.4	100	49	31	0.50	6.4
JAN 19...	68	6.0	53	2	7.3	150	75	51	0.60	7.3
APR 07...	55	4.5	26	0.9	4.6	130	48	25	0.30	3.9
MAY 11...	51	4.3	23	0.8	4.4	120	41	21	0.30	3.9
JUL 14...	47	4.7	37	1	6.2	110	49	36	0.50	4.6
AUG 10...	52	5.2	50	2	8.2	110	62	48	0.70	6.9

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)
NOV 04...	242	3.45	--	0.050	--	3.50	--	0.100	--
JAN 19...	387	6.15	6.15	--	0.050	6.20	6.20	--	0.130
APR 07...	252	1.58	1.58	--	0.020	1.60	1.60	--	0.070
MAY 11...	226	1.47	1.47	--	0.030	1.50	1.50	--	0.040
JUL 14...	267	3.17	3.17	--	0.030	3.20	3.20	--	0.130
AUG 10...	326	5.23	5.23	--	0.070	5.30	5.30	--	0.100

TRINITY RIVER MAIN STEM
08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

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

DATE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)
NOV 04...	0.60	--	--	0.70	0.950	--	--	0.910	--
JAN 19...	--	0.97	1.1	--	--	1.30	1.30	--	4.0
APR 07...	--	0.83	0.90	--	--	0.260	0.240	--	0.74
MAY 11...	--	0.36	0.40	--	--	0.210	0.200	--	0.61
JUL 14...	--	0.67	0.80	--	--	0.480	0.420	--	1.3
AUG 10...	--	0.60	0.70	--	--	0.890	0.910	--	2.8

MONTH YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT. 1992	41991	562	310	35100	47	5330	64	7300	150
NOV. 1992	57124	496	275	42500	36	5620	55	8510	150
DEC. 1992	169440	390	218	99800	24	11100	42	19200	130
JAN. 1993	119390	487	271	87400	35	11200	54	17400	150
FEB. 1993	305200	381	214	176000	22	18300	41	33400	130
MAR. 1993	384200	405	227	235000	24	25400	43	44900	140
APR. 1993	203340	440	245	135000	29	15900	48	26300	140
MAY 1993	214750	425	237	138000	27	15700	46	26600	140
JUNE 1993	150120	438	244	99000	29	11700	48	19300	140
JULY 1993	112760	423	236	71900	27	8080	46	13900	140
AUG. 1993	30137	636	350	28500	57	4600	74	6020	160
SEPT 1993	36657	570	315	31100	47	4670	65	6450	150
TOTAL	1825109	**	**	1179000	**	138000	**	229000	**
WTD.AVG.	5000	429	239	**	28	**	47	**	140

TRINITY RIVER MAIN STEM

471

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	736	662	693	560	504	530	---	---	e600	534	508	518
2	722	690	703	540	408	472	---	---	e630	516	486	496
3	802	690	727	474	400	447	660	648	654	516	448	487
4	772	704	712	452	440	447	672	660	668	446	432	436
5	734	716	727	514	454	476	684	666	675	440	422	431
6	732	708	721	558	518	538	704	684	693	438	426	432
7	716	710	712	610	550	580	704	694	699	436	428	432
8	746	696	721	---	---	e610	730	696	711	444	432	437
9	720	598	672	---	---	e630	730	706	723	452	432	442
10	598	502	536	---	---	e660	706	562	659	480	440	459
11	582	546	554	---	---	e680	622	570	600	510	456	481
12	658	586	628	---	---	e680	644	594	627	514	500	510
13	680	662	673	---	---	e650	646	636	641	532	504	514
14	670	448	620	---	---	e630	640	272	485	536	524	527
15	708	456	611	---	---	e650	300	248	271	546	534	538
16	704	450	673	---	---	e640	278	250	262	620	548	584
17	408	312	367	---	---	e620	316	280	300	636	622	629
18	386	336	360	---	---	e630	360	316	337	644	636	639
19	430	388	407	644	602	637	394	362	382	638	632	635
20	510	432	469	576	376	486	424	390	405	636	536	594
21	554	512	532	428	370	403	416	406	413	548	464	494
22	608	558	585	390	354	372	426	400	413	482	442	458
23	656	610	640	424	356	384	436	400	414	522	476	503
24	684	656	673	434	422	430	424	414	420	504	440	480
25	686	674	678	---	---	e450	426	416	421	442	412	426
26	704	690	697	---	---	e480	422	412	418	482	444	458
27	712	694	705	---	---	e500	418	412	415	480	456	468
28	716	702	709	---	---	e520	458	414	436	532	474	494
29	712	690	703	---	---	e530	500	458	481	600	536	568
30	690	480	607	---	---	e560	510	492	499	536	502	515
31	588	464	502	---	---	---	514	502	508	528	504	517
MONTH	802	312	623	644	354	544	730	248	512	644	412	503

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	548	530	536	406	380	393	416	406	413	418	394	404
2	596	550	570	416	402	410	410	402	407	436	416	429
3	602	462	582	412	402	405	410	402	406	428	400	413
4	460	332	381	412	406	409	424	390	412	404	394	399
5	374	322	356	412	410	410	448	390	424	414	398	409
6	388	344	362	412	404	409	446	418	430	412	404	407
7	410	390	402	406	400	404	438	422	432	408	406	406
8	440	410	429	402	398	401	428	406	416	408	404	407
9	458	420	435	406	400	403	430	416	422	428	330	399
10	430	416	419	408	400	405	454	432	446	378	338	354
11	438	420	426	410	404	407	478	450	462	412	382	396
12	440	408	419	408	400	404	486	472	479	418	402	410
13	418	412	414	420	402	412	506	474	493	412	402	405
14	412	404	408	400	390	393	508	384	465	426	412	420
15	412	386	407	404	390	396	374	294	346	434	428	430
16	374	334	356	402	396	399	420	376	384	436	428	430
17	366	350	357	406	402	404	486	428	465	434	432	433
18	402	366	384	402	396	399	486	468	477	434	428	431
19	416	402	410	402	394	397	504	482	493	430	424	427
20	418	412	415	416	398	406	480	410	438	434	430	432
21	424	414	419	418	400	410	454	414	431	438	432	435
22	424	418	421	406	384	397	476	454	466	438	434	436
23	420	406	413	394	356	379	594	476	532	472	436	448
24	406	398	404	390	374	382	628	598	614	502	384	446
25	398	262	339	414	390	402	654	630	647	470	394	423
26	304	278	295	426	414	420	662	652	658	506	474	497
27	328	302	311	432	424	427	662	648	656	544	502	517
28	380	330	358	426	422	424	670	648	659	614	546	583
29	---	---	---	438	418	427	664	504	601	692	616	654
30	---	---	---	432	408	418	472	370	407	716	686	700
31	---	---	---	420	414	417	---	---	---	696	574	628
MONTH	602	262	408	438	356	405	670	294	479	716	330	452

TRINITY RIVER MAIN STEM

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	652	494	555	438	402	426	700	552	628	---	---	e710
2	558	524	544	440	424	431	696	594	628	647	589	623
3	628	560	588	432	414	426	594	550	563	620	434	506
4	---	---	e580	446	416	429	580	548	556	646	526	590
5	---	---	e660	416	408	412	636	580	612	670	646	661
6	---	---	e690	408	400	404	668	636	654	684	664	675
7	---	---	e730	406	400	403	672	602	646	701	682	692
8	---	---	e740	406	396	401	642	600	615	710	685	696
9	---	---	e730	410	400	405	656	536	619	707	683	697
10	746	370	674	410	402	406	578	528	549	701	678	688
11	420	268	350	406	400	402	600	522	584	713	684	703
12	422	376	398	404	396	400	628	522	616	715	680	703
13	426	380	401	436	396	409	---	---	e610	711	681	698
14	420	388	399	512	436	474	---	---	e620	715	585	695
15	426	420	423	664	502	563	---	---	e620	684	362	474
16	432	426	430	502	414	439	---	---	e620	457	353	386
17	434	430	431	418	406	411	---	---	e640	457	395	414
18	438	422	428	412	402	407	---	---	e600	509	438	474
19	446	436	440	410	400	405	---	---	e630	558	509	533
20	448	436	443	404	400	402	---	---	e670	594	558	585
21	446	428	441	412	396	404	---	---	e630	609	589	603
22	428	424	426	410	404	406	---	---	e680	621	606	614
23	424	418	422	404	396	400	---	---	e650	619	550	589
24	420	406	417	416	404	409	---	---	e700	621	502	559
25	422	416	419	448	416	428	---	---	e680	649	530	611
26	426	302	375	476	418	455	---	---	e730	652	640	648
27	---	---	e420	474	468	471	---	---	e680	650	466	570
28	---	---	e400	478	470	474	---	---	e720	543	459	494
29	---	---	e400	480	472	475	---	---	e750	558	478	513
30	424	418	420	492	476	485	---	---	e700	609	558	595
31	---	---	---	552	492	512	---	---	e710	---	---	---
MONTH	746	268	492	664	396	431	700	522	642	715	353	600
YEAR	802	248	508									

e Estimated

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	7.7	7.6	7.6	7.6	7.5	7.6	---	---	---	7.9	7.8	7.9
2	7.8	7.6	7.7	7.5	7.4	7.4	---	---	---	7.9	7.9	7.9
3	7.8	7.7	7.8	7.6	7.5	7.5	7.8	7.8	7.8	8.0	7.9	7.9
4	7.9	7.7	7.8	7.6	7.6	7.6	7.8	7.7	7.8	8.0	7.9	7.9
5	7.9	7.7	7.8	7.7	7.6	7.7	7.8	7.8	7.8	8.0	8.0	8.0
6	8.0	7.8	7.9	7.7	7.6	7.7	7.9	7.8	7.8	8.0	8.0	8.0
7	8.0	7.8	7.9	7.8	7.7	7.7	7.9	7.8	7.8	8.0	8.0	8.0
8	7.9	7.6	7.8	---	---	---	7.8	7.8	7.8	8.0	8.0	8.0
9	7.6	7.5	7.6	---	---	---	7.8	7.8	7.8	8.0	8.0	8.0
10	7.6	7.5	7.6	---	---	---	7.7	7.6	7.7	8.0	7.9	7.9
11	7.7	7.6	7.7	---	---	---	7.8	7.6	7.7	7.9	7.9	7.9
12	7.9	7.7	7.8	---	---	---	7.8	7.7	7.8	8.0	7.8	7.9
13	7.9	7.8	7.8	---	---	---	7.8	7.7	7.8	7.9	7.8	7.9
14	8.0	7.8	7.8	---	---	---	7.8	7.6	7.7	7.9	7.8	7.9
15	7.9	7.8	7.8	---	---	---	7.8	7.8	7.8	7.9	7.8	7.9
16	7.8	7.3	7.6	---	---	---	7.8	7.7	7.8	7.9	7.8	7.8
17	7.6	7.5	7.5	---	---	---	7.8	7.7	7.7	7.8	7.8	7.8
18	7.5	7.5	7.5	---	---	---	7.8	7.7	7.8	7.8	7.7	7.8
19	7.6	7.5	7.6	7.6	7.5	7.6	7.8	7.7	7.8	7.9	7.7	7.8
20	7.7	7.6	7.6	7.5	7.4	7.5	7.9	7.8	7.8	8.0	7.8	7.9
21	7.7	7.6	7.6	7.6	7.5	7.5	7.9	7.9	7.9	8.0	7.8	7.9
22	7.8	7.6	7.7	7.6	7.5	7.6	7.9	7.9	7.9	7.9	7.8	7.9
23	7.8	7.6	7.6	7.6	7.6	7.6	7.9	7.9	7.9	7.9	7.8	7.8
24	7.7	7.6	7.6	7.6	7.6	7.6	8.0	7.9	7.9	7.9	7.8	7.9
25	7.7	7.6	7.6	---	---	---	7.9	7.9	7.9	8.0	7.8	7.9
26	7.7	7.6	7.7	---	---	---	8.0	7.9	7.9	8.0	7.9	7.9
27	7.8	7.6	7.7	---	---	---	8.0	7.9	8.0	8.0	7.9	7.9
28	7.9	7.6	7.7	---	---	---	8.0	7.9	7.9	8.0	7.9	7.9
29	7.8	7.6	7.7	---	---	---	7.9	7.8	7.9	7.9	7.8	7.9
30	7.7	7.6	7.6	---	---	---	7.8	7.8	7.8	7.9	7.8	7.9
31	7.7	7.6	7.7	---	---	---	7.8	7.8	7.8	8.0	7.9	7.9
MONTH	8.0	7.3	7.7	7.8	7.4	7.6	8.0	7.6	7.8	8.0	7.7	7.9

473

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	7.9	7.8	7.9	7.9	7.8	7.9	8.0	7.9	8.0	7.7	7.6	7.6
2	7.9	7.8	7.9	7.9	7.9	7.9	8.0	8.0	8.0	7.7	7.6	7.7
3	7.9	7.8	7.9	7.9	7.9	7.9	8.0	8.0	8.0	7.8	7.7	7.7
4	7.9	7.8	7.8	7.9	7.9	7.9	8.0	7.8	7.9	7.8	7.7	7.8
5	7.8	7.8	7.8	8.0	7.9	8.0	7.9	7.8	7.8	7.9	7.8	7.8
6	7.8	7.8	7.8	8.0	8.0	8.0	7.9	7.8	7.9	7.9	7.8	7.8
7	7.9	7.8	7.9	8.1	8.0	8.0	7.9	7.8	7.9	7.8	7.8	7.8
8	7.9	7.9	7.9	8.1	8.0	8.0	7.9	7.7	7.8	7.8	7.8	7.8
9	7.9	7.9	7.9	8.1	8.0	8.0	7.8	7.8	7.8	7.9	7.8	7.8
10	8.0	7.9	7.9	8.1	8.0	8.0	7.9	7.8	7.9	7.8	7.7	7.8
11	8.0	7.9	7.9	8.2	8.0	8.1	7.9	7.8	7.9	7.8	7.8	7.8
12	8.0	7.9	7.9	8.2	8.0	8.1	7.8	7.8	7.8	7.9	7.8	7.8
13	8.0	8.0	8.0	8.2	8.0	8.1	7.8	7.8	7.8	7.9	7.9	7.9
14	8.0	8.0	8.0	8.2	8.1	8.1	7.8	7.7	7.7	7.9	7.9	7.9
15	8.0	8.0	8.0	8.2	8.1	8.2	7.8	7.6	7.7	7.9	7.9	7.9
16	8.0	7.9	7.9	8.1	8.0	8.1	7.8	7.7	7.8	7.9	7.9	7.9
17	8.0	7.9	7.9	8.2	8.0	8.1	7.8	7.7	7.7	7.9	7.9	7.9
18	8.0	7.9	8.0	8.2	8.0	8.1	7.8	7.8	7.8	7.9	7.9	7.9
19	8.0	8.0	8.0	8.2	8.0	8.1	7.9	7.8	7.8	7.9	7.9	7.9
20	8.0	8.0	8.0	8.0	7.9	8.0	7.9	7.8	7.8	8.0	7.9	7.9
21	8.0	8.0	8.0	8.0	7.9	7.9	7.8	7.8	7.8	8.0	7.9	8.0
22	8.0	8.0	8.0	8.0	7.9	8.0	7.9	7.8	7.9	8.0	7.9	8.0
23	8.0	8.0	8.0	7.9	7.7	7.8	7.9	7.9	7.9	7.9	7.8	7.9
24	8.0	8.0	8.0	7.8	7.8	7.8	7.9	7.8	7.9	7.9	7.7	7.8
25	8.0	7.8	7.9	7.9	7.8	7.9	7.9	7.8	7.9	7.8	7.7	7.7
26	7.8	7.8	7.8	8.0	7.9	7.9	8.0	7.8	7.9	7.8	7.7	7.8
27	7.8	7.8	7.8	8.0	7.9	8.0	8.0	7.8	7.9	7.9	7.8	7.8
28	7.8	7.8	7.8	8.1	7.9	8.0	7.9	7.8	7.9	7.9	7.8	7.8
29	---	---	---	8.0	7.9	7.9	7.9	7.6	7.8	7.9	7.8	7.9
30	---	---	---	7.9	7.9	7.9	7.6	7.5	7.6	7.8	7.8	7.8
31	---	---	---	8.0	7.9	7.9	---	---	---	7.8	7.7	7.7
MONTH	8.0	7.8	7.9	8.2	7.7	8.0	8.0	7.5	7.8	8.0	7.6	7.8
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.8	7.6	7.7	7.8	7.7	7.8	7.8	7.7	7.8	7.8	7.7	7.7
2	7.9	7.7	7.8	7.8	7.8	7.8	7.8	7.7	7.7	7.8	7.7	7.7
3	8.0	7.8	7.9	7.8	7.7	7.8	8.0	7.7	7.8	7.7	7.6	7.6
4	---	---	---	7.8	7.8	7.8	8.0	7.8	7.9	7.7	7.5	7.6
5	---	---	---	7.								

TRINITY RIVER MAIN STEM

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

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

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

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

TRINITY RIVER MAIN STEM

475

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	26.0	25.0	25.5	28.5	27.5	28.0	31.0	30.0	30.5	30.0	29.0	29.5
2	26.5	25.0	25.5	28.0	27.5	28.0	31.0	30.0	30.5	29.5	29.0	29.5
3	27.0	26.0	26.5	28.0	27.0	27.5	30.5	29.5	30.0	29.0	28.0	28.5
4	---	---	---	28.0	27.5	27.5	30.0	29.0	29.5	28.5	27.5	28.0
5	---	---	---	27.5	26.5	27.0	29.5	28.5	29.0	28.5	27.5	28.0
6	---	---	---	28.0	26.5	27.0	29.5	28.5	29.0	28.5	27.5	28.0
7	---	---	---	28.0	27.0	27.5	28.5	28.0	28.5	28.5	27.5	28.0
8	---	---	---	28.5	27.0	27.5	29.0	28.0	28.5	28.5	27.5	28.0
9	---	---	---	28.5	27.5	28.0	29.0	28.0	28.5	28.0	27.0	27.5
10	26.5	24.5	26.0	28.5	27.5	28.0	30.0	29.0	29.5	28.0	27.0	27.5
11	25.5	23.5	24.5	29.0	27.5	28.0	30.5	29.0	29.5	28.0	27.0	27.5
12	25.5	24.5	25.0	29.0	27.5	28.5	31.0	29.0	29.5	28.0	27.0	27.5
13	25.5	24.5	25.0	29.0	28.0	28.5	---	---	---	27.5	27.0	27.0
14	26.5	25.0	26.0	29.0	28.0	28.5	---	---	---	27.0	25.5	26.5
15	27.0	26.0	26.5	30.0	28.5	29.5	---	---	---	25.5	23.5	24.5
16	27.5	26.5	27.0	29.5	28.0	29.0	---	---	---	23.5	22.5	23.0
17	27.0	26.5	27.0	29.0	28.0	28.5	---	---	---	23.5	22.5	23.0
18	27.0	26.5	26.5	29.0	28.0	28.5	---	---	---	24.5	23.5	24.0
19	26.5	26.0	26.5	29.5	28.0	29.0	---	---	---	26.0	24.5	25.0
20	26.5	25.5	26.0	29.5	28.5	29.0	---	---	---	27.0	25.5	26.5
21	26.5	25.5	26.0	29.5	28.5	29.0	---	---	---	28.0	27.0	27.5
22	27.0	26.0	26.0	29.5	28.5	29.0	---	---	---	28.5	28.0	28.0
23	27.5	26.0	26.5	29.5	28.5	29.0	---	---	---	28.5	28.0	28.5
24	27.5	26.5	27.0	29.5	28.0	28.5	---	---	---	29.0	28.0	28.5
25	27.5	26.5	27.0	29.5	28.0	29.0	---	---	---	28.5	27.5	28.0
26	27.0	25.5	26.0	29.5	28.5	29.0	---	---	---	27.5	27.0	27.5
27	27.5	26.5	27.0	29.5	28.5	29.0	---	---	---	27.5	25.0	26.0
28	28.5	27.0	27.5	29.5	28.5	29.0	---	---	---	25.0	24.5	25.0
29	28.5	27.5	28.0	30.5	29.0	30.0	---	---	---	25.0	24.5	24.5
30	28.5	27.5	28.0	30.5	29.5	30.0	---	---	---	25.5	24.5	25.0
31	---	---	---	31.0	29.5	30.0	---	---	---	---	---	---
MONTH	28.5	23.5	26.5	31.0	26.5	28.5	31.0	28.0	29.5	30.0	22.5	27.0
YEAR	31.0	9.0	19.5									

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	8.2	8.0	8.1	7.1	6.7	6.9	---	---	---	9.6	9.3	9.5
2	8.5	7.8	8.1	6.9	5.9	6.5	---	---	---	10.2	9.8	10.0
3	8.5	8.1	8.4	7.5	6.8	7.1	10.0	9.4	9.7	10.3	10.1	10.2
4	8.5	7.8	8.2	8.2	7.5	7.8	9.8	9.2	9.4	10.3	10.3	10.3
5	8.7	7.8	8.3	8.8	8.3	8.5	9.9	9.7	9.8	10.4	10.3	10.4
6	8.6	7.9	8.2	9.0	8.5	8.8	13.1	9.5	10.2	10.5	10.4	10.4
7	8.5	7.7	8.0	---	---	---	13.0	9.6	10.2	10.5	10.4	10.5
8	8.4	7.4	8.0	---	---	---	10.1	9.4	9.7	10.4	10.3	10.4
9	7.5	7.3	7.4	---	---	---	9.7	9.4	9.6	10.3	10.0	10.2
10	7.6	7.2	7.4	---	---	---	9.4	8.7	9.0	10.2	9.8	10.0
11	8.2	7.5	7.8	---	---	---	9.5	8.6	9.2	10.2	10.1	10.2
12	8.2	7.3	7.6	---	---	---	9.6	9.2	9.4	10.3	10.2	10.2
13	7.4	7.2	7.3	---	---	---	9.2	8.8	9.0	10.4	10.2	10.3
14	7.6	7.1	7.3	---	---	---	8.9	7.5	8.3	10.4	10.3	10.3
15	7.5	7.0	7.2	---	---	---	9.1	8.6	8.8	10.3	10.1	10.2
16	7.5	3.4	6.7	---	---	---	9.1	8.7	8.8	10.1	9.8	10.0
17	5.2	3.0	4.6	---	---	---	9.2	8.7	9.0	9.8	9.6	9.7
18	6.4	4.9	5.7	---	---	---	9.4	9.2	9.3	9.6	9.5	9.6
19	7.4	6.5	6.9	8.7	7.7	8.4	9.5	9.4	9.4	10.0	9.6	9.9
20	7.7	7.3	7.5	7.8	6.4	6.9	10.0	9.5	9.8	10.2	10.0	10.1
21	7.7	7.5	7.6	7.7	7.1	7.4	10.2	10.0	10.1	10.4	10.0	10.2
22	7.8	7.5	7.7	8.0	7.5	7.9	10.3	10.2	10.2	10.4	10.2	10.3
23	7.8	7.6	7.7	8.5	7.9	8.3	10.3	10.2	10.2	10.2	10.1	10.1
24	7.8	7.4	7.6	8.6	8.5	8.5	10.4	10.3	10.3	10.4	9.9	10.2
25	7.9	7.5	7.7	---	---	---	10.3	10.2	10.3	10.6	9.9	10.4
26	8.1	7.7	7.8	---	---	---	10.4	10.3	10.4	10.7	10.5	10.7
27	8.1	7.4	7.6	---	---	---	10.4	10.3	10.4	10.8	10.7	10.7
28	8.2	7.3	7.8	---	---	---	10.4	9.9	10.2	10.7	10.4	10.6
29	8.1	7.3	7.6	---	---	---	9.9	9.4	9.7	10.4	9.9	10.2
30	7.4	4.8	6.1	---	---	---	9.4	9.0	9.3	10.3	10.2	10.2
31	7.0	6.0	6.5	---	---	---	9.3	9.0	9.1	10.5	10.3	10.4
MONTH	8.7	3.0	7.4	9.0	5.9	7.7	13.1	7.5	9.6	10.8	9.3	10.2

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	10.3	10.1	10.2	9.6	9.2	9.4	9.3	9.0	9.2	6.9	6.5	6.7
2	10.1	9.9	10.0	9.8	9.5	9.6	9.5	9.3	9.4	7.7	6.9	7.2
3	9.8	9.7	9.7	9.6	9.5	9.5	9.5	9.2	9.4	7.7	7.5	7.6
4	9.7	9.4	9.5	9.8	9.5	9.7	9.3	8.5	9.0	8.0	7.5	7.8
5	9.7	9.3	9.5	10.1	9.8	10.0	8.9	8.4	8.6	8.0	7.8	7.9
6	9.4	9.3	9.4	10.3	10.0	10.1	9.0	8.7	8.8	8.1	8.0	8.0
7	10.2	9.4	9.8	10.4	10.0	10.2	9.0	8.8	8.9	8.1	7.9	8.0
8	10.3	10.2	10.2	10.4	10.0	10.2	8.8	8.3	8.5	7.9	7.8	7.9
9	10.4	10.2	10.3	10.3	9.8	10.1	8.7	8.4	8.5	7.9	7.4	7.7
10	10.4	10.2	10.3	10.2	9.7	9.9	8.8	8.7	8.7	7.4	7.1	7.2
11	10.2	10.0	10.1	10.3	9.8	10.0	8.8	8.5	8.6	7.7	7.4	7.6
12	10.3	10.1	10.1	10.3	10.0	10.1	8.4	8.2	8.3	8.0	7.7	7.8
13	10.6	10.4	10.5	10.6	10.2	10.4	8.2	7.8	8.0	8.2	8.0	8.1
14	10.6	10.5	10.5	11.0	10.6	10.8	7.8	7.2	7.6	8.3	8.0	8.1
15	10.6	10.3	10.5	11.1	10.4	10.8	7.9	6.9	7.3	8.2	8.0	8.1
16	10.2	9.9	10.0	10.5	10.3	10.4	7.9	7.7	7.8	8.2	8.0	8.1
17	10.5	10.0	10.2	10.7	10.1	10.4	8.2	7.6	7.9	8.1	7.9	8.0
18	10.9	10.5	10.7	10.6	10.2	10.3	8.5	8.2	8.4	8.0	7.9	7.9
19	11.1	11.0	11.0	10.6	10.0	10.2	8.5	8.3	8.4	8.1	7.8	7.9
20	11.0	10.6	10.9	10.1	9.7	9.8	8.4	7.7	8.0	8.2	7.9	8.0
21	10.7	10.4	10.5	10.0	9.6	9.8	8.5	7.8	8.1	8.2	7.9	8.0
22	10.4	10.3	10.4	10.1	9.5	9.8	8.8	8.5	8.6	8.1	7.9	8.0
23	10.5	10.4	10.4	9.4	8.8	9.1	8.8	8.5	8.7	8.0	7.5	7.7
24	10.6	10.4	10.5	9.1	8.8	8.9	8.7	8.3	8.5	7.5	6.5	7.1
25	10.5	8.9	9.7	9.2	8.9	9.0	8.8	8.1	8.5	7.4	7.1	7.3
26	9.1	8.9	9.0	9.4	9.1	9.2	9.1	8.2	8.7	7.6	7.2	7.4
27	9.1	9.0	9.1	9.6	9.3	9.5	9.3	8.3	8.8	7.7	7.3	7.5
28	9.2	9.0	9.1	9.6	9.2	9.4	8.9	8.3	8.7	7.6	7.2	7.4
29	---	---	---	9.3	8.9	9.1	8.7	7.0	8.0	7.8	7.3	7.5
30	---	---	---	9.0	8.9	8.9	6.8	5.1	6.3	7.5	7.1	7.3
31	---	---	---	9.2	9.0	9.0	---	---	---	7.2	6.6	6.9
MONTH	11.1	8.9	10.1	11.1	8.8	9.8	9.5	5.1	8.4	8.3	6.5	7.7
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	7.0	6.0	6.6	6.8	6.6	6.7	6.5	6.2	6.3	7.8	5.7	6.5
2	7.7	6.9	7.3	6.9	6.7	6.7	6.4	6.2	6.3	6.2	5.2	5.7
3	---	---	---	6.9	6.7	6.8	6.7	6.4	6.5	5.7	4.8	5.3
4	---	---	---	6.9	6.7							

TRINITY RIVER MAIN STEM

477

08062700 TRINITY RIVER AT TRINIDAD, TX
(National stream-quality accounting network)

LOCATION.--Lat 32°08'05", long 96°06'20", Henderson County, Hydrologic Unit 12030105, on left bank at pumping station of Texas Power and Light Co., near southwest boundary of Trinidad, 0.5 mi downstream from St. Louis Southwestern Railway Lines bridge, 0.9 mi downstream from bridge on State Highway 31, 8 mi upstream from Cedar Creek, and at mile 391.2.

DRAINAGE AREA.--8,538 mi², not including 1,007 mi² upstream from Cedar Creek Reservoir.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--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 U.S. Army Corps of Engineers, and records collected since October 1915 are contained in reports of the National Weather Service.

REVISED RECORDS.-- WDR TX-89-1: 1988. WDR TX-90-1: 1989.

GAGE.--Water-stage recorder. Datum of gage is 239.21 ft above National Geodetic Vertical Datum of 1929. Prior to May 3, 1967, at site 0.9 mi upstream at datum 1.28 ft higher.

REMARKS.--No estimated daily discharges. Records good. The spillway outflow from Cedar Creek Reservoir (station 08062650) enters the Trinity River 13 mi upstream from this station. There are many diversions above station for municipal supply for the cities of Fort Worth, Dallas, and several smaller towns. Low flows are maintained by sewage effluent from the Dallas-Fort Worth metropolplex. There are 62 floodwater-retarding structures with a combined detention capacity of 38,690 acre-ft in the drainage basin above this station. These structures control runoff from 126 mi² above this station. For regulation by upstream reservoirs, see Trinity River near Rosser (station 08062500). Gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1908, 49.8 ft Apr. 25, 1942 (present site and datum), from records of the National Weather Service. A flood in 1908 reached a stage of 48.3 ft, present site and datum, from records of the National Weather Service.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	854	1990	1060	2970	4280	22400	11700	9900	2070	5880	1010	749
2	831	1900	1050	3420	2950	24700	11200	11400	1950	5560	1190	1110
3	834	3100	1040	3370	2570	23000	10200	11200	1410	5310	1340	977
4	873	2160	1020	4510	5810	20400	10200	10700	1160	5110	1130	795
5	848	1250	967	6130	10900	18700	10800	9450	1050	4960	1060	761
6	836	1010	949	6320	13200	17400	9970	8590	1010	4490	1110	745
7	831	892	925	5060	14300	16400	8860	8070	969	4340	1170	706
8	850	851	897	4800	14900	15700	9840	7820	946	4330	999	678
9	1290	839	948	5880	14500	14400	11100	7660	972	4310	1490	723
10	1590	828	1180	9510	11800	13300	11100	9240	963	4290	1540	749
11	1170	866	1890	10400	10800	12500	10300	11100	3560	4240	1150	767
12	1000	1280	1600	8980	10300	13700	8150	11600	6770	4210	968	738
13	944	1270	1200	6210	9610	14000	4960	10800	6840	4220	893	705
14	911	1740	2630	3660	9180	13800	4660	9680	7040	3320	866	790
15	902	1490	11700	2890	10000	13000	8700	9000	6640	1620	827	2020
16	927	1050	17100	2200	15100	12300	11500	7680	6400	2530	801	4430
17	2980	938	21400	1870	15700	12200	12700	7180	6410	3620	780	3080
18	6060	907	24200	3680	16100	11800	12200	6890	6470	4060	812	1290
19	4000	1000	24300	4100	16000	11000	9160	6730	6450	4190	816	957
20	1620	2890	22600	3670	15800	11900	8160	6680	6350	4190	785	902
21	1150	5950	19700	6060	15200	12600	10000	6640	7580	4190	792	878
22	964	5920	16100	8260	13400	13100	8950	6450	8360	4210	777	947
23	892	6480	12900	7260	11200	13800	6600	6270	6420	4200	780	1060
24	858	5550	10800	6070	9290	14000	3370	5760	5660	4220	755	888
25	826	4800	9530	5160	10400	14600	2320	6210	5310	3960	769	834
26	835	5620	7020	5040	13900	15200	2110	5690	6190	3200	771	901
27	816	4150	5550	4490	15300	15500	1930	3580	9330	2540	776	1230
28	795	1740	5130	3750	18500	15100	1840	2090	10500	2350	782	1880
29	792	1280	4950	3400	---	13600	2270	1470	9390	2290	759	1280
30	1200	1130	3960	4350	---	12700	6380	1490	7380	2010	729	955
31	2560	---	3080	5020	---	12100	---	1920	---	1210	751	---
TOTAL	41839	70871	237376	158490	330990	464900	241230	228940	151550	119160	29178	34525
MEAN	1350	2362	7657	5113	11820	15000	8041	7385	5052	3844	941	1151
MAX	6060	6480	24300	10400	18500	24700	12700	11600	10500	5880	1540	4430
MIN	792	828	897	1870	2570	11000	1840	1470	946	1210	729	678
AC-FT	82990	140600	470800	314400	656500	922100	478500	454100	300600	236400	57870	68480

TRINITY RIVER MAIN STEM

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued
(National stream-quality accounting network)

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1993, BY WATER YEAR (WY)

MEAN	2371	3602	4213	3316	4915	5623	5418	9317	6838	2541	1383	1185
MAX	11390	20160	24320	20490	20550	20920	16570	47120	26790	11800	6886	3347
(WY)	1974	1975	1992	1992	1992	1992	1990	1990	1989	1982	1982	1974
MIN	417	403	460	415	424	542	798	693	526	394	394	448
(WY)	1976	1967	1967	1967	1967	1967	1978	1971	1972	1972	1967	1972

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1965 - 1993	
ANNUAL TOTAL	3130630		2109049		4221	
ANNUAL MEAN	8554		5778		11400	
HIGHEST ANNUAL MEAN					854	
LOWEST ANNUAL MEAN					1992	
HIGHEST DAILY MEAN	40700	Feb 28	24700	Mar 2	94100	May 7 1990
LOWEST DAILY MEAN	792	Oct 29	678	Sep 8	312	Aug 9 1972
ANNUAL SEVEN-DAY MINIMUM	831	Oct 23	724	Sep 7	326	Jul 7 1972
INSTANTANEOUS PEAK FLOW			25100	Mar 2	94500	May 7 1990
INSTANTANEOUS PEAK STAGE			34.55	Mar 2	48.11	May 7 1990
INSTANTANEOUS LOW FLOW			657	Sep 8		
ANNUAL RUNOFF (AC-FT)	6210000		4183000		3058000	
10 PERCENT EXCEEDS	20200		13700		11200	
50 PERCENT EXCEEDS	4520		4210		1190	
90 PERCENT EXCEEDS	900		833		486	

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: May 1966 to current year. Pesticide analyses: November 1977 to June 1982. Sediment analyses: November 1977 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: September 1967 to September 1981, May 1986 to current year.

PH: September 1967 to October 1969, May 1986 to current year.

WATER TEMPERATURE: September 1967 to September 1981, May 1986 to current year.

DISSOLVED OXYGEN: September 1967 to October 1969, May 1986 to current year.

INSTRUMENTATION.--From April 1967 to October 1969, a four-parameter water-quality monitor continuously recorded specific conductance, pH, water temperature, and dissolved oxygen. Since May 1986, a four-parameter water quality monitor continuously records specific conductance, pH, water temperature, and dissolved oxygen at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,000 micromhos Dec. 28, 1977; minimum daily, 170 micromhos May 4, 1990.

pH (1967-69, 1986-90): Maximum, 8.8 units July 28, 1988; minimum, 5.7 units Aug. 13, 1988.

WATER TEMPERATURE: Maximum daily, 34.0°C July 17, 1979, July 9, 13, 1980; minimum daily, 2.5°C Dec. 24, 1989.

DISSOLVED OXYGEN: Maximum, 15.6 mg/L Sept. 15, 1988; minimum, 0.0 mg/L May 3, 1987.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 780 microsiemens Sep. 16; minimum, 212 microsiemens Dec. 14.

pH: Maximum, 8.3 units Apr. 29; minimum, 6.8 units on Sep. 30.

WATER TEMPERATURE: Maximum, 32.5°C Aug. 2; minimum, 7.0°C Feb. 18 and 19.

DISSOLVED OXYGEN: Maximum, 11.2 mg/L Jan. 30; minimum, 2.8 mg/L June 12.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)	
NOV 03...	1045	3170	530	7.7	20.0	200	6.7	75	2.6	1000	10000	130	
JAN 21...	1115	6060	496	7.8	9.5	110	10.3	91	1.5	470	790	160	
APR 06...	1100	10000	404	7.8	14.0	150	8.3	81	1.6	K1900	2200	140	
MAY 13...	1015	10500	361	7.9	20.0	75	7.3	81	3.0	K530	300	140	
JUL 13...	1130	5310	401	7.8	28.5	140	6.3	82	0.6	230	280	130	
DATE		HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV 03...	31	46	4.6	44	2	7.7	0	126	100	59	42		0.60
JAN 21...	33	56	5.1	39	1	6.3	0	156	130	61	37		0.50
APR 06...	20	50	4.0	25	0.9	4.3	0	149	120	44	24		0.30
MAY 13...	27	48	4.1	22	0.8	4.5	0	134	110	38	22		0.30
JUL 13...	18	43	4.4	30	1	5.5	0	132	110	39	29		0.40
DATE		SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	
NOV 03...	6.8		316	299	4.81	4.92	0.090	0.080	5.00	5.00	0.120	0.080	
JAN 21...	7.5		297	310	3.87	3.87	--	0.030	3.90	3.90	--	0.120	
APR 06...	4.0		252	237	1.48	1.48	--	0.020	1.50	1.50	--	0.040	
MAY 13...	4.0		225	215	1.28	1.28	--	0.020	1.30	1.30	--	0.050	
JUL 13...	4.0		238	231	2.18	2.18	--	0.020	2.20	2.20	--	0.050	

TRINITY RIVER MAIN STEM

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued
(National stream-quality accounting network)

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

		NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUM- INUM, DIS- SOLVED (UG/L AS AL)
DATE												
NOV	03...	0.88	1.0	1.10	1.10	1.10	1.10	3.4	513	4390	100	20
JAN	21...	0.88	1.0	0.970	0.760	0.800	--	2.5	305	4990	98	20
APR	06...	1.5	1.5	0.340	0.200	0.190	--	0.58	298	8050	88	30
MAY	13...	0.45	0.50	0.190	0.150	0.160	--	0.49	210	5950	84	--
JUL	13...	0.55	0.60	0.480	0.340	0.300	--	0.92	363	4100	95	<10
DATE		BARIUM, DIS- SOLVED (UG/L AS BA)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
NOV	03...	41	<3	21	10	13	<10	3	<1	<1.0	380	<6
JAN	21...	50	<3	31	7	4	<10	3	<1	<1.0	450	<6
APR	06...	48	<3	23	5	3	<10	2	<1	<1.0	430	<6
MAY	13...	--	--	--	--	--	--	--	--	--	--	--
JUL	13...	45	<3	15	5	3	<10	3	<1	<1.0	300	<6
MONTH YEAR		DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)		
OCT.	1992	41839	573	320	36100	46	5220	65	7400	160		
NOV.	1992	70871	439	246	47100	30	5650	48	9210	140		
DEC.	1992	237376	329	185	119000	19	12000	35	22300	120		
JAN.	1993	158490	409	230	98400	26	11000	44	18900	140		
FEB.	1993	330990	354	200	178000	20	18100	38	33600	120		
MAR.	1993	464900	369	208	261000	21	26800	39	49300	130		
APR.	1993	241230	397	223	146000	24	15800	43	27800	130		
MAY	1993	228940	399	224	139000	24	15000	43	26500	130		
JUNE	1993	151550	432	243	99200	28	11600	47	19300	140		
JULY	1993	119160	425	239	76800	27	8660	46	14800	140		
AUG.	1993	29178	637	355	28000	54	4250	74	5810	170		
SEPT	1993	34525	626	349	32500	53	4930	72	6750	160		
TOTAL		2109049	**	**	1261000	**	139000	**	242000	**		
WTD. AVG.		5778	394	221	**	24	**	42	**	130		

TRINITY RIVER MAIN STEM

481

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued
(National stream-quality accounting network)

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	e650	663	500	557	527	494	511	499	482	490
2	710	670	679	561	472	511	566	529	545	505	496	501
3	718	669	697	556	472	520	607	567	585	523	482	501
4	686	661	669	460	415	445	633	608	619	506	378	453
5	698	688	695	475	411	443	635	625	629	377	353	362
6	749	695	721	477	450	464	647	636	640	357	350	353
7	711	690	707	461	450	454	654	648	652	430	358	420
8	733	710	718	504	463	477	667	652	658	432	423	428
9	733	701	713	549	506	530	680	661	671	431	339	387
10	722	693	707	600	550	573	680	674	677	329	311	319
11	706	685	694	655	602	631	707	680	698	332	313	324
12	683	589	638	675	646	661	692	625	664	364	309	322
13	583	518	538	680	652	673	620	569	596	373	364	369
14	560	543	551	647	569	597	608	212	479	497	374	477
15	609	558	583	655	593	641	335	243	292	508	490	501
16	671	611	646	653	641	645	252	232	239	518	505	509
17	688	644	664	645	612	625	234	225	227	523	518	521
18	653	359	438	612	593	604	257	234	244	526	261	380
19	371	350	359	591	500	559	285	259	270	387	373	377
20	396	372	384	528	363	459	311	287	299	462	374	434
21	419	397	407	560	415	490	339	312	322	516	460	482
22	455	420	432	435	329	379	348	340	345	459	349	403
23	522	458	487	328	310	321	359	345	352	409	356	379
24	554	525	540	320	303	311	369	343	351	399	363	378
25	600	556	582	343	301	316	368	356	361	505	402	474
26	662	601	632	355	317	343	415	381	408	469	414	433
27	693	662	673	420	321	356	415	408	411	471	424	446
28	700	671	683	470	415	442	414	405	409	466	451	457
29	694	661	676	468	452	456	412	339	387	476	337	429
30	693	676	687	492	458	474	460	344	420	558	341	432
31	698	669	684	---	---	---	488	462	478	578	499	530
MON III	/49	350	609	680	301	499	707	212	466	578	261	428
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	516	499	508	312	292	300	415	408	412	470	356	385
2	528	512	518	344	313	325	411	406	409	368	353	358
3	544	508	532	370	345	359	407	400	404	380	356	368
4	459	370	409	373	370	372	400	353	366	416	361	384
5	406	301	337	374	371	372	401	355	367	415	389	396
6	317	299	312	376	374	375	431	387	409	410	392	401
7	343	316	334	376	374	375	432	369	408	407	401	405
8	365	344	355	397	372	378	380	354	370	406	401	404
9	406	364	376	399	396	397	370	359	365	405	401	404
10	432	408	416	399	396	397	373	364	369	401	304	373
11	411	372	382	399	396	398	393	375	386	340	300	320
12	422	373	413	395	357	366	458	385	412	358	340	350
13	431	408	418	364	356	361	480	460	471	373	359	368
14	411	407	409	398	364	377	480	382	447	374	367	370
15	409	263	366	395	383	387	429	365	404	414	374	385
16	306	260	269	389	370	381	356	301	327	428	414	422
17	311	301	305	375	370	372	348	339	345	428	425	427
18	333	306	314	386	369	374	391	348	365	430	425	428
19	353	333	342	388	381	385	455	390	410	430	426	428
20	371	354	364	382	349	356	468	391	429	427	422	424
21	397	371	374	364	348	354	389	336	358	430	421	426
22	409	398	404	367	354	364	355	346	350	434	427	430
23	409	408	408	353	346	350	450	351	389	433	429	431
24	410	407	409	354	337	345	473	452	461	444	429	434
25	406	288	349	354	349	351	565	476	518	488	391	455
26	324	272	301	367	353	359	600	567	586	419	389	401
27	278	266	271	380	368	374	629	602	620	498	422	462
28	292	279	286	413	379	394	639	626	634	508	498	504
29	---	---	---	416	413	414	636	460	600	528	504	513
30	---	---	---	426	413	417	532	428	475	588	528	553
31	---	---	---	426	407	417	---	---	---	674	592	631
MON I H	544	260	374	426	292	372	639	301	429	674	300	421

TRINITY RIVER MAIN STEM

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued
(National stream-quality accounting network)

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	708	671	688	421	408	416	510	492	501	759	709	737
2	692	607	631	439	420	426	596	510	537	765	732	751
3	642	517	593	440	429	434	718	544	618	769	745	754
4	560	516	534	435	426	431	723	576	661	753	720	737
5	579	556	565	440	418	432	576	502	524	726	667	699
6	642	582	606	428	413	418	583	511	539	---	---	e680
7	679	646	663	415	404	410	611	565	584	---	---	e680
8	712	674	690	409	403	406	617	607	610	---	---	e690
9	737	714	727	409	400	405	---	---	e620	---	---	e690
10	746	732	742	410	404	407	---	---	e630	726	708	715
11	747	626	732	419	407	410	661	626	646	739	721	727
12	555	303	377	414	407	411	644	548	605	745	737	741
13	425	375	407	412	405	409	586	546	559	746	727	735
14	429	385	401	410	405	408	605	586	593	739	524	651
15	418	400	407	442	410	424	---	---	e620	774	690	734
16	431	418	428	545	442	482	---	---	e630	780	422	663
17	438	431	434	645	430	525	---	---	e650	443	407	427
18	440	437	439	430	410	418	---	---	e670	497	413	461
19	442	438	440	413	408	411	---	---	e680	524	497	510
20	446	442	444	413	406	409	---	---	e690	558	524	538
21	445	381	420	410	406	408	---	---	e700	610	558	582
22	434	376	387	412	404	408	---	---	e710	660	610	632
23	446	434	441	415	410	412	---	---	e710	---	---	e680
24	446	441	443	412	404	408	---	---	e720	---	---	e500
25	443	438	441	418	401	409	---	---	e720	---	---	e530
26	441	308	416	432	418	425	---	---	e720	---	---	e550
27	329	297	318	461	432	447	770	667	719	---	---	e590
28	389	328	362	486	458	473	767	699	744	661	595	649
29	390	376	383	488	481	485	699	674	685	654	544	612
30	408	390	396	491	483	487	743	693	718	557	494	527
31	---	---	---	494	490	492	728	702	715	---	---	---
MONTH	747	297	498	645	400	431	770	492	646	780	407	639
YEAR	780	212	485									

e Estimated

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	7.6	7.5	7.6	7.9	7.9	7.9	7.8	7.7	7.7
2	7.8	7.6	7.7	7.7	7.6	7.6	8.0	7.9	7.9	7.8	7.6	7.7
3	7.9	7.7	7.8	7.7	7.7	7.7	8.0	7.9	7.9	7.9	7.7	7.8
4	7.8	7.6	7.7	7.8	7.7	7.7	8.0	7.9	7.9	7.9	7.7	7.8
5	7.8	7.7	7.8	8.0	7.8	7.9	8.0	7.9	7.9	8.2	7.6	8.0
6	7.7	7.7	7.7	8.1	8.0	8.0	7.9	7.9	7.9	8.0	7.8	7.9
7	7.8	7.6	7.7	8.1	8.1	8.1	7.9	7.8	7.9	7.9	7.8	7.9
8	7.9	7.7	7.8	8.1	7.9	8.0	7.8	7.8	7.8	7.9	7.8	7.9
9	8.0	7.8	7.9	8.0	7.9	8.0	7.8	7.8	7.8	7.9	7.7	7.8
10	8.0	7.9	7.9	8.1	7.9	8.0	7.9	7.8	7.8	7.7	7.6	7.6
11	7.9	7.7	7.8	8.1	8.0	8.0	7.9	7.9	7.9	7.8	7.6	7.7
12	7.8	7.4	7.7	8.1	8.0	8.1	7.8	7.7	7.8	7.7	7.5	7.6
13	7.5	7.4	7.5	8.1	8.0	8.1	7.7	7.6	7.6	7.7	7.5	7.6
14	7.5	7.4	7.5	8.1	8.0	8.1	---	---	---	7.7	7.6	7.6
15	7.5	7.4	7.5	8.1	8.0	8.0	---	---	---	7.7	7.6	7.7
16	7.6	7.5	7.6	8.0	7.9	8.0	---	---	---	7.7	7.6	7.7
17	7.8	7.6	7.7	7.9	7.8	7.9	---	---	---	7.9	7.6	7.8
18	7.7	7.6	7.7	8.0	7.8	8.0	---	---	---	7.9	7.6	7.7
19	7.7	7.5	7.6	8.0	7.9	8.0	---	---	---	7.7	7.5	7.6
20	7.8	7.6	7.7	7.9	7.7	7.8	---	---	---	7.6	7.5	7.5
21	7.7	7.5	7.6	7.7	7.6	7.6	---	---	---	7.9	7.6	7.8
22	7.8	7.7	7.8	8.0	7.6	7.7	---	---	---	7.9	7.8	7.9
23	7.8	7.6	7.8	7.7	7.7	7.7	7.5	7.3	7.4	7.8	7.8	7.8
24	7.7	7.6	7.6	7.7	7.7	7.7	7.4	7.3	7.4	7.9	7.8	7.8
25	7.7	7.6	7.7	7.9	7.7	7.8	7.5	7.4	7.5	7.9	7.9	7.9
26	7.7	7.6	7.7	7.9	7.8	7.8	7.4	7.4	7.4	8.0	7.9	7.9
27	7.8	7.7	7.7	7.9	7.8	7.8	7.6	7.4	7.5	8.0	7.7	8.0
28	7.8	7.5	7.7	7.9	7.8	7.9	7.7	7.4	7.6	8.2	7.9	8.0
29	7.8	7.6	7.7	7.9	7.9	7.9	7.8	7.5	7.7	8.2	7.8	8.0
30	7.8	7.6	7.7	8.0	7.9	7.9	7.8	7.7	7.7	8.0	7.8	8.0
31	7.8	7.6	7.7	---	---	---	7.8	7.7	7.8	8.0	7.8	7.9
MONTH	8.0	7.4	7.7	8.1	7.5	7.9	8.0	7.3	7.7	8.2	7.5	7.8

TRINITY RIVER MAIN STEM

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued
(National stream-quality accounting network)

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	23.0	22.0	22.0	10.5	9.5	10.0	13.5	13.0	13.5
2	22.5	21.5	22.0	21.5	20.5	21.0	10.5	9.5	10.5	13.0	12.0	12.5
3	22.5	21.5	22.0	20.5	19.5	20.0	11.0	10.0	10.5	12.0	11.5	12.0
4	22.5	21.5	22.0	19.0	17.5	18.5	11.5	11.0	11.5	12.0	11.0	11.5
5	23.0	21.5	22.0	17.5	16.0	16.5	11.0	10.5	10.5	10.5	10.5	10.5
6	23.0	22.0	22.5	16.0	15.0	15.5	10.5	10.0	10.5	10.5	10.5	10.5
7	23.0	22.0	22.5	15.0	14.0	14.5	10.5	10.0	10.0	10.5	10.5	10.5
8	22.5	21.0	22.0	14.5	14.0	14.5	10.5	10.0	10.0	10.5	10.0	10.5
9	21.5	20.5	21.0	15.5	14.5	15.0	11.0	10.0	10.5	10.5	10.0	10.5
10	21.5	21.0	21.0	16.0	15.5	15.5	11.5	10.5	11.0	10.0	9.5	10.0
11	22.0	20.5	21.0	17.0	16.0	16.5	12.0	11.0	11.5	9.5	9.0	9.5
12	21.5	20.5	21.0	17.0	16.0	17.0	12.5	12.0	12.0	9.0	9.0	9.0
13	21.5	20.5	21.0	17.0	16.0	16.5	13.5	12.5	13.0	9.5	8.5	9.0
14	22.0	21.0	21.5	16.5	15.5	16.0	13.5	11.0	12.5	9.5	8.5	9.0
15	23.0	21.5	22.5	16.5	16.0	16.0	11.5	11.0	11.0	10.0	8.5	9.5
16	22.5	22.0	22.5	16.5	15.5	16.0	11.0	10.0	10.5	10.0	9.0	9.5
17	22.5	22.0	22.5	16.0	15.5	16.0	10.0	9.5	9.5	10.5	9.5	10.0
18	22.5	21.0	21.5	16.5	16.0	16.5	9.5	9.0	9.0	10.5	9.5	10.0
19	20.5	20.0	20.5	16.5	16.0	16.5	10.0	9.5	10.0	10.0	9.5	9.5
20	20.5	19.5	20.0	16.0	16.0	16.0	10.0	9.5	10.0	10.0	9.5	9.5
21	21.0	20.0	20.5	16.5	16.0	16.5	10.5	9.5	10.0	10.0	9.5	10.0
22	21.0	20.0	20.5	16.0	14.5	15.0	11.0	10.5	10.5	9.5	9.5	9.5
23	21.5	20.0	21.0	14.5	14.0	14.0	11.5	11.0	11.0	10.0	9.5	10.0
24	22.0	21.0	21.5	14.5	14.0	14.0	11.5	11.0	11.5	10.5	10.0	10.0
25	23.0	21.5	22.0	13.5	13.0	13.5	11.5	11.0	11.0	10.5	10.0	10.5
26	23.0	22.0	22.5	13.0	12.0	12.5	11.0	10.5	11.0	10.5	9.5	10.0
27	23.0	22.0	22.5	12.5	11.0	12.0	10.5	10.5	10.5	10.0	9.5	9.5
28	22.5	22.0	22.0	11.0	10.0	10.5	11.0	10.0	10.5	10.0	9.5	9.5
29	22.5	22.0	22.0	10.5	9.5	10.0	12.0	11.0	11.5	10.0	9.5	9.5
30	22.5	21.5	22.0	11.0	10.0	10.5	14.0	12.0	13.0	10.5	9.0	9.5
31	23.5	22.5	23.0	---	---	---	14.5	14.0	14.0	10.5	10.0	10.0
MON/H	23.5	19.5	21.5	23.0	9.5	15.5	14.5	9.0	11.0	13.5	8.5	10.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	11.0	10.0	10.5	10.5	10.5	10.5	17.0	16.5	17.0	21.0	20.0	20.5
2	11.5	10.5	11.0	11.5	10.5	11.0	16.5	16.0	16.5	21.0	20.5	21.0
3	12.0	11.0	11.5	12.0	11.5	11.5	16.0	15.5	16.0	21.0	20.5	20.5
4	11.5	10.5	11.0	12.5	11.0	12.0	15.5	15.0	15.5	21.0	20.0	20.5
5	11.0	10.5	10.5	12.0	11.5	11.5	15.0	14.5	14.5	21.0	20.5	20.5
6	10.5	10.5	10.5	12.5	11.0	11.5	14.5	13.5	14.0	21.5	20.5	21.0
7	11.0	10.5	10.5	13.0	11.5	12.0	14.5	14.0	14.0	22.0	21.0	21.5
8	11.0	10.5	11.0	13.5	12.5	13.0	15.0	14.0	14.5	22.0	21.5	22.0
9	11.5	10.5	11.0	14.0	13.0	13.5	15.5	15.0	15.5	22.0	21.5	22.0
10	11.5	11.0	11.0	14.5	14.0	14.0	16.5	16.0	16.0	21.5	21.0	21.5
11	11.5	11.0	11.5	14.0	12.5	13.5	17.0	16.5	17.0	21.0	20.5	20.5
12	11.5	11.0	11.0	12.5	11.5	12.0	19.5	17.0	18.0	21.0	20.5	20.5
13	11.0	10.5	10.5	11.5	10.5	10.5	20.0	19.5	19.5	21.0	20.0	20.5
14	10.5	10.0	10.0	10.5	10.0	10.0	19.5	18.0	19.5	21.5	20.5	21.0
15	11.0	10.0	10.5	10.0	10.0	10.0	18.0	17.5	18.0	22.0	21.5	22.0
16	10.5	10.0	10.5	11.5	10.0	10.5	17.5	16.5	16.5	23.0	22.0	22.5
17	10.0	8.5	9.5	11.5	11.0	11.5	17.0	16.5	16.5	24.0	23.0	23.5
18	8.5	7.0	7.5	12.0	11.5	12.0	18.0	16.5	17.0	24.0	23.5	23.5
19	7.5	7.0	7.0	12.0	12.0	12.0	19.5	18.0	18.5	24.0	23.0	23.5
20	10.0	7.5	8.5	12.0	12.0	12.0	19.5	19.0	19.5	24.0	23.0	23.5
21	12.0	10.0	10.5	12.5	12.0	12.0	19.5	19.0	19.0	23.5	23.0	23.0
22	12.0	11.5	11.5	12.5	12.0	12.5	19.5	18.5	19.0	24.0	23.0	23.5
23	12.0	11.5	11.5	14.0	12.0	13.0	19.5	18.0	19.0	23.5	22.5	23.0
24	11.5	11.0	11.5	14.5	12.5	14.0	20.0	18.5	19.0	22.5	22.0	22.5
25	11.5	11.0	11.5	16.0	15.0	15.5	21.5	20.0	20.5	23.5	22.5	23.0
26	11.5	11.0	11.0	17.0	15.5	16.0	22.0	20.5	21.5	23.5	22.5	23.0
27	11.5	11.0	11.0	17.0	16.0	16.5	22.0	21.5	21.5	24.5	23.5	24.0
28	11.0	10.5	10.5	17.0	16.0	16.5	22.5	21.5	22.0	24.5	24.0	24.0
29	---	---	---	16.5	16.5	16.5	22.0	20.5	22.0	26.0	24.5	25.0
30	---	---	---	17.5	16.5	17.0	21.0	20.5	20.5	26.5	25.0	25.5
31	---	---	---	17.5	17.0	17.0	---	---	---	26.5	25.5	26.0
MONTH	12.0	7.0	10.5	17.5	10.0	13.0	22.5	13.5	18.0	26.5	20.0	22.5

TRINITY RIVER MAIN STEM

485

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued
(National stream-quality accounting network)

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	26.5	25.5	26.0	29.0	28.0	28.5	32.0	26.0	30.0	30.5	29.0	30.0
2	26.5	25.0	26.0	28.5	28.0	28.5	32.5	30.5	31.5	30.5	29.0	30.0
3	27.5	26.0	27.0	29.0	28.0	28.5	32.0	30.5	31.0	30.0	29.0	29.5
4	28.5	26.5	27.0	28.5	28.0	28.0	31.0	29.5	30.5	29.0	27.5	28.0
5	28.5	27.5	28.0	28.5	27.5	28.0	31.0	29.0	30.0	28.5	27.0	28.0
6	29.0	28.0	28.5	28.5	27.5	28.0	30.5	29.5	29.5	28.5	27.0	28.0
7	28.5	28.0	28.5	28.5	27.5	28.0	29.5	29.0	29.0	28.5	27.0	27.5
8	28.5	27.5	28.0	28.5	27.5	28.0	31.0	28.0	29.5	28.5	26.5	27.5
9	28.5	27.5	28.0	28.5	27.5	28.0	31.0	29.0	30.0	28.5	27.0	27.5
10	27.5	27.0	27.0	29.0	28.0	28.5	31.0	29.5	30.0	28.0	27.0	27.5
11	27.0	26.0	26.5	29.0	28.0	28.5	31.5	29.5	30.5	28.0	27.0	27.5
12	26.0	24.0	25.0	29.0	28.5	29.0	31.5	29.0	30.5	28.0	27.0	27.5
13	25.5	25.0	25.5	29.5	28.5	29.0	31.5	30.0	31.0	28.0	27.0	27.5
14	26.0	25.0	25.5	29.0	28.5	29.0	32.0	30.5	31.0	27.5	25.5	26.5
15	27.0	26.0	26.5	30.0	28.0	29.0	32.0	30.5	31.0	25.5	24.0	25.0
16	28.0	27.0	27.5	30.0	29.0	29.5	32.0	30.5	31.5	25.0	24.0	24.5
17	28.0	27.0	27.5	30.0	29.0	29.5	32.0	30.5	31.5	24.0	23.0	23.5
18	27.5	27.0	27.5	29.5	28.5	29.0	32.0	30.5	31.5	24.5	23.0	24.0
19	27.5	26.5	27.0	29.5	28.5	29.0	32.0	31.0	31.5	26.0	24.0	24.5
20	26.5	26.0	26.5	30.0	29.0	29.5	32.0	30.5	31.5	27.0	25.0	26.0
21	27.0	26.0	26.5	30.0	29.0	29.5	32.0	30.5	31.5	28.0	26.5	27.0
22	27.5	26.0	26.5	30.0	29.5	29.5	31.5	30.5	31.0	28.5	27.0	27.5
23	27.5	26.5	27.0	30.0	29.0	29.5	31.5	30.5	31.0	29.0	27.5	28.5
24	28.0	27.0	27.5	30.0	29.0	29.5	---	---	---	29.0	28.0	28.5
25	28.0	27.5	27.5	29.5	29.0	29.5	---	---	---	28.5	28.0	28.5
26	27.5	25.5	27.0	30.0	29.0	29.0	---	---	---	28.0	27.0	27.5
27	27.0	25.5	26.0	30.5	29.0	29.5	31.0	30.0	30.5	27.0	26.0	26.0
28	28.0	27.0	27.5	30.5	29.5	30.0	31.0	30.0	30.5	26.5	25.5	26.0
29	28.5	27.5	28.0	31.0	30.0	30.5	30.5	29.5	30.0	26.0	24.5	25.5
30	29.0	28.0	28.5	31.5	30.0	31.0	30.5	29.5	30.0	26.0	24.0	25.0
31	---	---	---	32.0	27.5	31.0	31.0	29.0	30.0	---	---	---
MONTH	29.0	24.0	27.0	32.0	27.5	29.0	32.5	26.0	30.5	30.5	23.0	27.0
YEAR	32.5	7.0	19.5									

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	6.5	5.6	6.0	---	---	---	9.7	9.6	9.6
2	8.2	7.6	7.8	7.1	6.5	6.8	---	---	---	10.0	9.7	9.8
3	8.5	7.7	8.1	7.0	6.1	6.5	10.5	10.2	10.3	10.2	9.8	10.0
4	8.6	7.7	8.1	7.1	6.0	6.6	10.5	10.1	10.3	10.7	10.2	10.4
5	8.7	7.7	8.1	7.8	7.1	7.5	10.4	10.2	10.3	10.8	10.7	10.7
6	8.5	7.6	8.0	8.2	7.8	8.0	10.5	10.1	10.3	10.8	10.7	10.7
7	8.3	7.6	7.9	8.7	8.2	8.5	10.6	10.3	10.5	10.7	10.5	10.5
8	8.0	7.4	7.7	8.7	8.6	8.6	10.7	10.4	10.5	10.6	10.5	10.5
9	7.8	7.5	7.7	8.9	8.6	8.7	10.7	10.3	10.5	10.6	10.4	10.5
10	7.5	7.2	7.4	8.8	8.6	8.7	11.0	10.3	10.6	10.7	10.5	10.6
11	7.6	7.1	7.3	8.6	8.3	8.5	10.5	9.9	10.2	10.6	10.5	10.6
12	7.6	7.1	7.3	8.4	8.1	8.3	9.9	9.5	9.7	10.8	10.6	10.7
13	7.8	7.1	7.4	8.4	8.0	8.2	9.5	9.2	9.4	11.0	10.7	10.8
14	7.9	7.3	7.6	8.2	7.9	8.1	10.5	9.5	9.8	10.9	10.5	10.5
15	8.3	7.3	7.7	8.1	7.6	7.8	10.6	9.7	10.0	10.6	10.4	10.5
16	7.6	7.1	7.2	8.2	7.6	7.9	9.8	9.7	9.8	10.5	10.2	10.4
17	7.2	4.8	6.7	8.8	8.2	8.6	9.9	9.6	9.9	10.2	9.7	9.9
18	4.8	3.0	4.2	8.9	8.6	8.8	9.6	9.3	9.5	11.0	9.7	10.5
19	5.8	4.9	5.3	---	---	---	9.3	8.9	9.1	10.7	10.6	10.6
20	6.7	5.8	6.3	---	---	---	9.2	8.9	9.0	10.7	10.4	10.5
21	7.0	6.7	6.9	---	---	---	9.3	9.2	9.2	10.6	10.3	10.4
22	7.4	6.9	7.2	---	---	---	9.7	9.2	9.4	10.8	10.3	10.5
23	7.5	7.3	7.4	---	---	---	10.1	9.7	9.9	10.6	10.4	10.5
24	7.5	7.3	7.4	---	---	---	10.5	10.1	10.3	10.7	10.6	10.6
25	7.6	7.3	7.4	---	---	---	10.6	10.4	10.4	10.6	10.2	10.4
26	7.8	7.3	7.5	---	---	---	10.4	10.2	10.3	10.6	10.0	10.3
27	9.2	7.3	7.8	---	---	---	10.5	10.4	10.4	10.7	10.6	10.7
28	10.2	8.0	8.7	---	---	---	10.6	10.5	10.5	10.7	10.7	10.7
29	8.9	7.6	8.2	---	---	---	10.7	10.4	10.5	11.1	10.6	10.8
30	7.8	7.3	7.5	---	---	---	10.7	9.8	10.1	11.2	10.4	10.9
31	7.3	6.3	6.9	---	---	---	9.8	9.6	9.7	10.4	10.2	10.3
MONTH	10.2	3.0	7.4	8.9	5.6	7.9	11.0	8.9	10.0	11.2	9.6	10.5

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued
(National stream-quality accounting network)

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	10.5	10.3	10.4	9.2	9.0	9.1	8.9	8.7	8.8	6.6	4.8	5.9
2	10.4	10.2	10.3	9.2	9.0	9.1	9.0	8.9	9.0	6.9	6.6	6.7
3	10.2	10.0	10.2	9.3	9.0	9.1	9.1	9.0	9.1	7.5	6.9	7.1
4	10.7	9.8	10.4	9.4	9.2	9.3	9.3	9.1	9.2	7.5	7.1	7.3
5	9.9	9.6	9.8	9.7	9.3	9.5	9.2	8.6	9.1	7.3	7.0	7.2
6	9.9	9.6	9.7	9.9	9.6	9.7	8.5	8.2	8.3	7.6	7.3	7.5
7	9.6	9.3	9.3	10.0	9.7	9.8	8.6	8.4	8.5	7.7	7.6	7.6
8	9.6	9.2	9.4	10.0	9.8	9.9	8.7	8.6	8.6	7.7	7.6	7.6
9	9.6	9.4	9.6	9.8	9.6	9.7	8.5	8.3	8.4	7.6	7.6	7.6
10	9.9	9.5	9.7	9.7	9.5	9.6	8.4	8.3	8.4	7.7	6.8	7.5
11	10.2	9.9	10.1	9.6	9.5	9.5	8.6	8.4	8.5	7.0	6.7	6.8
12	10.2	9.9	9.9	10.0	9.5	9.9	8.5	7.8	8.3	7.3	7.0	7.1
13	10.0	9.9	10.0	10.3	10.1	10.2	7.8	7.4	7.6	7.7	7.2	7.4
14	10.2	10.1	10.2	10.5	10.3	10.4	8.0	7.3	7.6	7.9	7.6	7.7
15	10.5	10.1	10.3	10.6	10.3	10.4	7.9	7.1	7.5	7.9	7.7	7.8
16	10.6	10.2	10.5	10.5	10.3	10.4	7.7	6.9	7.2	7.7	7.5	7.6
17	10.3	10.1	10.2	10.3	10.2	10.2	7.7	7.6	7.6	7.6	7.4	7.5
18	10.5	10.2	10.4	10.3	9.9	10.1	7.7	7.5	7.5	7.5	7.4	7.4
19	10.6	10.4	10.5	10.1	9.8	10.0	8.0	7.7	7.9	7.6	7.4	7.5
20	10.6	10.5	10.5	10.1	9.8	10.0	8.1	7.7	7.8	7.6	7.4	7.5
21	10.5	10.2	10.3	9.8	9.6	9.7	7.8	7.3	7.5	7.6	7.4	7.5
22	10.1	10.0	10.1	9.7	9.3	9.5	8.0	7.5	7.8	7.7	7.4	7.5
23	10.1	9.9	10.0	9.5	9.3	9.4	8.3	7.7	8.0	7.5	7.4	7.5
24	10.1	10.0	10.1	9.3	8.9	9.1	7.7	7.5	7.7	7.4	7.3	7.4
25	10.3	10.0	10.2	8.9	8.6	8.7	7.6	7.4	7.5	7.3	6.1	7.0
26	10.3	9.5	10.0	9.1	8.6	8.8	8.0	7.5	7.7	7.1	6.1	6.8
27	9.4	9.3	9.3	9.5	8.9	9.1	8.4	7.7	8.0	7.1	6.9	7.0
28	9.2	9.2	9.2	9.4	9.0	9.1	8.7	7.9	8.3	7.0	6.9	6.9
29	---	---	---	9.0	8.8	8.9	8.3	7.6	7.9	7.1	6.7	6.8
30	---	---	---	8.9	8.6	8.8	7.6	6.5	7.0	7.0	6.7	6.8
31	---	---	---	8.7	8.6	8.6	---	---	---	7.1	6.6	6.8
MONTH	10.7	9.2	10.0	10.6	8.6	9.5	9.3	6.5	8.1	7.9	4.8	7.2
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	6.9	6.3	6.6	---	---	---	7.4	6.2	7.0	---	---	---
2	6.8	6.4	6.6	---	---	---	6.7	5.7	5.9	---	---	---
3	6.6	6.2	6.4	---	---	---	6.1	5.7	5.9	---	---	---
4	6.8	6.1	6.4	---	---	---	6.9	5.7	6.0	---	---	---
5	6.7	6.3	6.4	---	---	---	7.3	6.3	6.9	---	---	---
6	6.6	6.0	6.2	---	---	---	7.5	6.1	6.9	---	---	---
7	6.4	5.9	6.1	---	---	---	7.2	6.1	6.3	---	---	---
8	6.3	5.8	6.0	---	---	---	7.6	6.5	7.1	---	---	---
9	6.3	5.8	6.0	---	---	---	7.6	6.1	6.5	---	---	---
10	6.1	5.8	6.0	---	---	---	6.4	5.8	6.1	6.2	5.8	6.0
11	6.1	4.0	5.6	---	---	---	6.1	5.7	5.9	6.8	5.8	6.3
12	5.1	2.8	4.2	---	---	---	6.8	5.7	6.0	6.8	6.2	6.5
13	5.6	5.1	5.3	---	---	---	6.9	6.1	6.4	6.7	6.2	6.4
14	6.1	5.6	5.9	6.2	6.0	6.2	7.0	6.2	6.5	6.7	6.2	6.4
15	6.1	6.0	6.1	6.0	5.9	5.9	7.2	6.2	6.6	7.1	6.2	6.5
16	6.2	6.2	6.2	5.9	5.5	5.8	7.2	6.2	6.6	6.2	4.0	4.9
17	6.2	6.0	6.1	5.8	5.3	5.6	7.4	6.6	6.9	5.3	4.4	4.9
18	6.0	5.9	6.0	6.0	5.8	6.0	7.3	6.3	6.7	6.2	5.3	5.8
19	5.9	5.7	5.8	6.1	6.0	6.0	7.2	6.3	6.7	6.4	6.2	6.3
20	5.7	5.5	5.6	6.2	6.0	6.1	7.3	6.4	6.8	6.5	6.4	6.4
21	5.5	5.4	5.5	6.1	6.0	6.1	7.2	6.2	6.7	6.5	6.3	6.4
22	5.5	5.1	5.3	6.0	5.9	6.0	7.4	6.6	6.9	6.6	6.4	6.5
23	5.3	5.1	5.3	5.9	5.6	5.7	7.6	6.5	7.0	6.8	6.4	6.5
24	5.3	5.0	5.2	5.7	5.5	5.6	---	---	---	6.9	6.5	6.7
25	5.0	4.6	4.7	5.8	5.6	5.7	---	---	---	7.2	6.6	6.8
26	4.7	4.0	4.4	5.8	5.6	5.7	---	---	---	6.8	6.6	6.7
27	4.4	4.0	4.2	5.7	5.6	5.6	7.3	6.4	6.8	6.7	6.4	6.6
28	5.0	4.2	4.6	5.7	5.4	5.6	7.3	6.0	6.5	6.6	6.5	6.6
29	5.3	4.8	5.1	5.7	5.4	5.5	7.5	6.1	7.1	6.5	6.2	6.4
30	---	---	---	5.6	5.3	5.4	7.8	6.2	7.1	6.7	6.2	6.5
31	---	---	---	7.2	5.2	5.8	---	---	---	---	---	---
MONTH	6.9	2.8	5.6	7.2	5.2	5.8	7.8	5.7	6.6	7.2	4.0	6.3
YEAR	11.2	2.8	8.0									

08063010 CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX

LOCATION.--Lat 32°14'35", long 96°08'26", Henderson County, Hydrologic Unit 12030107, inside pumphouse on lower level, 1,000 ft north of spillway, 5.5 mi upstream from Joe B. Hogsett Dam on Cedar Creek, and 8.0 mi northwest of Trinidad.

DRAINAGE AREA.--1,007 mi².

PERIOD OF RECORD.--January 1965 to current year.

Water-quality records.--Chemical and biochemical analyses: October 1969 to September 1985.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to May 15, 1972, at unfinished pumphouse at same site and datum. May 16, 1972, to Sept. 8, 1975, at site 0.25 mi north and upstream from pumphouse at same datum.

REMARKS.--The reservoir is formed by a rolled earthfill dam 17,539 ft long. The spillway is located on the right bank 5.5 mi upstream from the dam and discharges into the Trinity River through a cut channel 2 mi long. Deliberate impoundment began July 2, 1965, and the dam was completed in February 1966. The spillway is 474 ft long and has eight 40- by 24-foot radial gates and two automatically operated 40- by 8.5-foot hinged gates. Low-flow releases may be made downstream through a 5.0-foot-diameter 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. Water is 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. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	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 provided by the Tarrant County Water Control and Improvement District No. 1. The area and capacity tables were provided by Freese and Nichols, Consulting Engineers, for Tarrant County Water Control and Improvement District No. 1.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 722,000 acre-ft June 4, 1973 (elevation, 323.24 ft); minimum since first appreciable storage in 1966, 332,900 acre-ft Mar. 19, 1967 (elevation, 309.42 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 698,800 acre-ft Feb. 28 at 0800 hours (elevation, 322.57 ft); minimum, 613,800 acre-ft Sept. 12 (elevation, 320.00 ft).

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

320.0	613,800	322.0	679,200
321.0	646,000	323.0	713,500

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	646000	645400	675600	680600	680600	695000	682000	686100	675600	677600	652000	628600
2	645100	644700	672900	680600	680900	694300	680600	684700	674200	676900	651700	627000
3	644400	648700	672300	682300	682300	694000	682300	679900	673600	675900	651300	627000
4	644100	647400	672900	683000	685100	691600	682000	677900	674200	673900	651700	626100
5	643500	646400	671900	681600	687500	687800	679200	678600	672900	672900	649000	625100
6	642800	645700	671600	680300	686400	683700	679900	679900	671600	672600	649700	624100
7	646400	644100	672300	680600	684400	680600	682300	678200	672900	671600	648700	623200
8	642500	644100	671300	682000	682000	678900	685100	678600	669300	671300	647700	624100
9	640900	644100	673900	685400	680900	679200	685100	682300	674200	669900	646700	621600
10	641500	644700	675200	686800	681600	679900	681600	682700	671900	669900	646700	620600
11	640600	645100	674200	684400	680600	682700	679200	683000	676900	669300	646000	618300
12	639900	647400	674200	682000	680300	683000	677900	684700	679900	668300	645400	617400
13	638300	646400	675200	680900	681300	680600	678200	683000	679900	667300	644700	616700
14	638000	646400	685700	680900	681300	677900	684700	680900	680300	666900	643800	625100
15	641200	645700	694300	680900	688500	679900	684400	678600	679900	666300	643100	622500
16	641200	645400	695700	680600	691900	682000	685700	678900	678900	664600	642200	621600
17	641500	645400	695700	680900	689500	680300	683300	678600	679200	664600	641200	620300
18	640900	645400	693600	680900	687500	677900	677900	680600	678900	664000	640900	619600
19	639300	659600	691200	680600	684700	682700	682000	679600	679900	663300	640600	619000
20	639600	666900	687500	684000	682000	685100	685100	678900	680600	663300	640200	619600
21	639600	674900	686400	687100	681300	684400	683300	677900	682000	662600	638600	618700
22	639300	679900	686400	686800	679900	687500	679900	676200	678900	661300	637000	617700
23	638900	680900	685100	685400	679600	689900	677600	677900	678600	660000	635100	618000
24	638900	681300	682000	684000	681600	690200	679200	678200	677900	658600	634400	616400
25	638600	679900	679600	682300	686400	688100	680300	677600	676900	658600	634400	616100
26	639300	676900	679200	681300	690900	684400	679900	677600	682700	657600	634800	626100
27	637700	675200	679900	680600	696700	680600	679600	676600	681600	656700	631200	622200
28	637300	674600	680300	682700	698800	680600	677900	676600	678900	656300	631900	621600
29	639600	675600	679900	681300	---	681300	683700	675600	678900	654700	631500	621200
30	641500	675200	680600	680600	---	683000	686800	678200	677900	653000	629600	619600
31	642500	---	680600	680600	---	682300	---	677200	---	653300	629900	---
MAX	646400	681300	695700	687100	698800	695000	686800	686100	682700	677600	652000	628600
MIN	637300	644100	671300	680300	679600	677900	677600	675600	669300	653000	629600	616100
(↑)	320.89	321.88	322.04	322.04	322.57	322.09	322.22	321.94	321.96	321.22	320.50	320.18
(Φ)	-2900	+32700	+5400	0	+18200	-16500	+4500	-9600	+700	-24600	-23400	-10300
CAL YR 1992	MAX	705000	MIN	637300	(Φ)	+1700						
WTR YR 1993	MAX	698800	MIN	616100	(Φ)	-25800						

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

08063050 NAVARRO MILLS LAKE NEAR DAWSON, TX

LOCATION.--Lat 31°57'27", long 96°41'21". Navarro County, Hydrologic Unit 12030108, in left abutment of spillway of Navarro Mills Dam on Richland Creek, 1.7 mi upstream from bridge on State Highway 31, 3.0 mi upstream from St. Louis Southwestern Railway Lines bridge, 4.2 mi upstream from Post Oak Creek, 4.6 mi north of Dawson, and 63.9 mi upstream from mouth.

DRAINAGE AREA.--320 mi².

PERIOD OF RECORD.--August 1962 to current year. Prior to October 1970, published as Navarro Mills Reservoir.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 8, 1962, nonrecording gage in low-water channel at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 7,570 ft long, including a 240-foot off-channel gated spillway with six 40.0- by 29.0-foot tainter gates. From Aug. 27, 1962, to Mar. 14, 1963, lake was operated as a detention basin only. Deliberate impoundment began Mar. 15, 1963, and dam was completed in September 1963. Low-flow outlet works consist of two 36-inch-diameter gate-controlled conduits. Lake was built for flood control and water conservation. Capacity table prior to September 1976 is based on survey made in February 1956 by U.S. Army Corps of Engineers. Capacity table after Aug. 31, 1976, is based on a sedimentation survey made in September 1972. Flow is affected at times by discharge from the flood-detention pools of 51 floodwater-retarding structures with a combined detention capacity of 26,160 acre-ft. These structures control runoff from 86.9 mi² in the Richland Creek drainage basin. An unknown amount of water is diverted for municipal and industrial uses. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	457.0	-
Design flood.....	451.9	329,500
Top of gates (top of flood-control storage pool).....	443.0	206,200
Top of conservation pool.....	424.5	56,960
Crest of spillway.....	414.0	18,840
Lowest gated outlet (invert).....	400.0	1,150

COOPERATION.--Records furnished by the U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 183,300 acre-ft May 18, 1968 (elevation, 440.36 ft); minimum since initial filling in May 1965, 32,490 acre-ft Dec. 28, 1978 (elevation, 418.89 ft).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 82,040 acre-ft Dec. 17 (elevation, 428.91 ft); minimum daily, 46,350 acre-ft Sept. 30 (elevation, 422.30 ft).

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

420.0	36,660	429.0	82,620	436.0	136,300
423.0	49,590	432.0	103,800	438.0	154,300
426.0	64,810	434.0	119,500	439.0	163,700

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49590	48230	57570	61500	59310	74010	59210	58540	57320	56960	52300	48320
2	49500	48040	57320	60190	59420	75210	58490	59310	57170	56810	52100	48230
3	49450	47950	57270	59620	60870	75880	58490	59060	57170	56610	52000	48090
4	49360	47860	57270	59570	69530	76180	59210	58700	57010	56460	51860	47950
5	49260	47720	57170	59420	71650	76430	59210	58640	56960	56410	51710	47860
6	49160	47620	57170	59110	72820	76740	59000	58340	56810	56100	51860	47670
7	49360	47490	57170	58640	73000	76980	60980	58240	56760	55960	51710	47580
8	49210	47400	57060	58340	70790	75700	61760	58180	56660	55800	51610	47440
9	49120	47440	57420	59570	68460	73060	61080	59210	56760	55700	51470	47350
10	49070	47440	57470	59780	66680	70210	60400	61710	56710	55550	51370	47210
11	48980	47620	57370	60040	64540	68400	59680	61820	57320	55400	51230	47120
12	48880	47490	57320	59830	62560	68910	59060	61290	58700	55250	51080	46940
13	48790	47440	57370	59360	60980	66510	58540	60660	58850	55100	50940	46940
14	48740	47400	65190	58800	59830	64060	59730	60090	58900	55000	50790	47580
15	48690	47300	77720	58750	65850	61920	59520	59420	58850	54860	50650	47440
16	48600	47260	80940	58640	69820	59880	59110	58800	58800	54760	50500	47300
17	48510	47210	82040	58490	70620	58900	58590	57620	58700	54710	50360	47210
18	48410	47120	81260	58340	71250	58340	58180	57880	58700	54460	50260	47120
19	48320	53130	78410	57980	71650	59360	57620	57830	58540	54360	50070	47080
20	48180	59360	75330	58180	71540	62980	57670	57780	58640	54210	49930	46980
21	48130	61130	74010	58080	70620	63630	57570	57670	58590	54060	49880	46940
22	48090	61760	73710	57930	69420	65850	57420	57620	58490	53960	49590	46890
23	48090	61190	72710	58030	67340	67060	57470	57670	58180	53770	49500	46800
24	48040	61290	71770	57720	65250	67560	57470	57720	58030	53570	49260	46670
25	47990	60140	70730	57670	69130	66790	57520	57720	57830	53320	49120	46580
26	47900	59420	69700	57470	71190	65410	57520	57620	57670	53180	49020	46800
27	47810	58900	68680	57420	71890	63840	57520	57570	57570	53030	48840	46670
28	47760	58540	67340	57520	72590	63570	57570	57470	57370	52830	48840	46530
29	47950	58290	65740	58440	---	62560	58180	57470	57220	52780	48600	46490
30	47860	57880	64170	58900	---	61290	58390	57570	57060	52640	48550	46350
31	47900	---	62770	59260	---	60090	---	57420	---	52490	48460	---
MAX	49590	61760	82040	61500	73000	76980	61760	61820	58900	56960	52300	48320
MIN	47760	47120	57060	57420	59310	58340	57420	57420	56660	52490	48460	46350
(↑)	422.64	424.68	425.62	424.95	427.38	425.11	424.78	424.59	424.52	423.60	422.76	422.30
(Φ)	-1840	+9980	+4890	-3510	+13330	-12500	-1700	-970	-360	-4570	-4030	-2110

CAL YR 1992 MAX 174600 MIN 47120 (Φ) -100030
WTR YR 1993 MAX 82040 MIN 46350 (Φ) -3390

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

08063100 RICHLAND CREEK NEAR DAWSON, TX

LOCATION.--Lat 31°56'18", long 96°40'52", Navarro County, Hydrologic Unit 12030108, at downstream side of bridge on State Highway 31, 1.3 mi upstream from St. Louis Southwestern Railway Lines bridge, 1.7 mi downstream from Navarro Mills Dam, 2.5 mi upstream from Post Oak Creek, and 3.6 mi northeast of Dawson.

DRAINAGE AREA.--333 mi².

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

Water-quality records.--Chemical and biochemical analyses: October 1980 to September 1982.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 367.52 ft above National Geodetic Vertical Datum of 1929. Nov. 21, 1960, to Sept. 30, 1982, water-stage recorder at same site and at 3.00 ft higher datum. Prior to Nov. 21, 1960, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Since Mar. 15, 1963, flow has been regulated by Navarro Mills Lake (station 08063050), 1.7 mi upstream. Flow may be slightly affected at times by discharge from the flood-detention pool of one floodwater-retarding structure with a conservation capacity of 297 acre-ft. This structure controls runoff from a 1.28 mi² area below Navarro Mills Lake and above this station. Several observations of water temperature were made during the year. Gage-height telemeter at station.

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1961-63).--Maximum discharge, 25,500 ft³/s July 3, 1961 (gage height, 25.50 ft), from rating curve extended above 14,000 ft³/s; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1895, about 31 ft June 19, 1929, from information by local residents. Floods in 1946 and 1957 reached a stage of about 26 ft, from information by local residents.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.21	2.4	236	732	54	11	474	14	19	.82	3.6	.12
2	.23	1.0	165	725	77	15	409	15	11	.29	3.6	.09
3	.26	.92	3.9	547	115	9.3	190	104	1.4	.21	.82	.10
4	.33	.94	2.4	243	153	6.8	84	228	1.1	.21	.40	.11
5	.35	1.5	1.9	131	27	5.3	119	228	.95	.19	.30	.09
6	.36	1.3	1.9	333	9.7	4.8	152	228	.90	.16	.91	.10
7	.72	1.1	2.1	395	313	4.3	163	139	.40	.15	.60	.08
8	1.8	1.2	2.0	294	1070	556	284	32	.16	.15	.31	.03
9	.52	1.1	3.4	216	1620	1220	463	32	.21	.14	.21	.03
10	.30	1.2	4.0	216	1230	1210	459	32	.70	.15	.20	.04
11	.21	1.4	3.8	214	1220	1190	457	193	.47	.19	.34	.04
12	.17	2.2	3.6	296	1120	1320	387	368	1.1	.17	.41	.04
13	.18	1.5	3.7	397	911	1210	323	366	.46	.19	.24	.04
14	.18	1.6	239	397	749	1170	341	365	2.9	.27	.22	1.9
15	.13	1.5	477	308	1010	1140	342	363	8.0	.52	.24	.24
16	.14	1.6	68	214	792	1020	327	359	7.9	.84	.17	.10
17	.13	17	30	216	347	583	325	357	8.0	.88	.11	.09
18	.13	1.3	516	214	22	394	323	163	7.8	1.3	.08	.10
19	.12	223	1700	213	12	273	236	8.0	8.0	1.7	.08	.12
20	.14	126	1670	211	325	187	127	20	8.1	.58	.07	.11
21	.14	19	1110	212	583	100	81	20	29	.26	.13	.12
22	.12	255	229	213	740	153	80	20	72	.54	.08	.12
23	.14	468	677	213	1090	133	44	20	72	2.7	.07	.14
24	.15	457	676	211	1210	96	15	20	73	1.4	1.2	.13
25	.18	451	674	211	928	480	14	20	61	.22	2.2	.12
26	.23	448	671	212	32	878	14	20	34	.69	.45	.28
27	.23	357	667	149	13	863	14	20	34	.49	.25	.25
28	.48	236	793	53	8.8	866	13	19	33	1.0	.27	.17
29	.43	235	961	55	---	868	15	19	33	3.3	.25	.16
30	.89	245	949	56	---	849	14	19	18	1.1	.17	.16
31	.70	---	838	54	---	678	---	19	---	.33	.12	---
TOTAL	10.30	3560.76	13378.7	8151	15781.5	17493.5	6289	3830.0	547.55	21.14	18.10	5.22
MEAN	.33	119	432	263	564	564	210	124	18.3	.68	.58	.17
MAX	1.8	468	1700	732	1620	1320	474	368	73	3.3	3.6	1.9
MIN	.12	.92	1.9	53	8.8	4.3	13	8.0	.16	.14	.07	.03
AC-11	20	7060	26540	16170	31300	34700	12470	7600	1090	42	36	10

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

	MEAN	46.3	124	144	147	183	180	199	274	381	120	15.3	25.0
MAX	400	1366	1050	1054	1090	971	992	980	1356	773	310	269	
(WY)	1974	1968	1975	1992	1992	1970	1992	1980	1975	1968	1991	1974	
MIN	.000	.000	.000	.058	.066	.22	.023	.019	.000	.000	.068	.068	
(WY)	1964	1964	1964	1964	1964	1971	1964	1964	1964	1970	1981	1968	

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1964 - 1993#

ANNUAL TOTAL	160925.42	69086.77	153
ANNUAL MEAN	440	189	561
HIGHEST ANNUAL MEAN			.20
LOWEST ANNUAL MEAN			1968
HIGHEST DAILY MEAN	2020	1700	2180
LOWEST DAILY MEAN	.06	.03	.00
ANNUAL SEVEN-DAY MINIMUM	.08	.04	.00
INSTANTANEOUS PEAK FLOW		1920	3850
INSTANTANEOUS PEAK STAGE		19.58	22.85
INSTANTANEOUS LOW FLOW		.02	.00
ANNUAL RUNOFF (AC-FT)	319200	137000	110500
10 PERCENT EXCEEDS	1510	677	610
50 PERCENT EXCEEDS	37	14	2.0
90 PERCENT EXCEEDS	.19	.14	.02

Period of regulated streamflow.

TRINITY RIVER BASIN

08063700 BARDWELL LAKE NEAR ENNIS, TX

LOCATION.--Lat 32°15'00", long 96°38'49", Ellis County, Hydrologic Unit 12030109, in intake structure of Bardwell Dam on Waxahachie Creek, 5 mi south of Ennis, and 5.6 mi upstream from mouth.

DRAINAGE AREA.--178 mi².

PERIOD OF RECORD.--November 1965 to current year. Prior to October 1970, published as Bardwell Reservoir.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Apr. 25, 1966, nonrecording gage on intake structure at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 15,400 ft long, including a 350-foot uncontrolled off-channel concrete-gravity spillway with ogee weir section. Deliberate impoundment began Nov. 20, 1965, and dam was completed Mar. 27, 1966. Controlled low-flow outlet works consists of a 10.0-foot-diameter concrete conduit with two 5.0- by 10.0-foot sluice gates. Lake was built for flood control and water conservation. Capacity table beginning October 1976 is based on a survey completed in 1972. Runoff from 81.4 mi² above Bardwell Lake is modified by Lake Waxahachie, with a capacity of 13,500 acre-ft at spillway elevation. The city of Waxahachie diverts water from Lake Waxahachie and returns an unknown amount of effluent to Waxahachie Creek. Inflow is affected at times by discharge from flood-detention pools of 23 floodwater-retarding structures with a combined detention capacity of 15,370 acre-ft. These structures control runoff from 52.4 mi² in the Chambers Creek watershed. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	460.0	-
Design flood.....	455.9	-
Crest of spillway (top of flood-control pool).....	439.0	137,600
Top of conservation pool.....	421.0	52,300
Lowest gated outlet (invert).....	391.0	690

COOPERATION.--Records furnished by the U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 112,100 acre-ft May 22, 1990 (elevation, 434.54 ft); minimum since initial filling, 39,720 acre-ft Nov. 10, 1978 (elevation, 417.21 ft).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 64,290 acre-ft Mar. 7 (elevation, 424.19 ft); minimum daily, 47,780 acre-ft Sept. 24, 25 (elevation, 419.71 ft).

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

420.0	48,780	423.0	59,680
421.0	52,290	424.0	63,550
422.0	55,920	425.0	67,530

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51690	50800	52180	53400	53690	61980	52680	54560	52680	56330	51300	49200
2	51620	50740	52110	53180	53620	62570	52650	55440	52580	55330	51230	49090
3	51550	50740	52110	53150	55000	63080	52930	55440	52580	54850	51120	49130
4	51550	50630	52260	53220	58580	63350	53760	54930	52610	54640	51330	49020
5	51480	50490	52110	53040	60180	63740	53840	54490	52540	54340	51230	48920
6	51400	50420	52110	53010	61170	64060	53650	53840	52470	54050	51190	48850
7	51300	50310	52180	53040	61710	64290	54560	53400	52400	53840	51120	48740
8	51260	50280	52110	52900	61560	63980	54640	53150	52360	53540	51050	48670
9	51230	50280	52400	54520	60710	62880	54270	54850	52470	53330	50980	48600
10	51190	50350	52430	54670	60060	61790	53840	56030	52540	53010	50950	48540
11	51090	50380	52400	54780	59220	60790	53330	55700	52760	52860	50910	48400
12	51050	50420	52400	54780	58280	60330	53080	55080	52790	52830	50800	48260
13	50950	50350	52500	54560	57410	59180	52930	54560	52860	52760	50770	48190
14	50910	50350	55330	54270	56670	58010	54850	54050	52900	52680	50770	48540
15	50910	50280	59260	54050	58130	57000	55150	53690	52860	52610	50740	48400
16	50910	50240	60480	53800	57900	56030	55080	53330	52790	52540	50700	48260
17	50840	50280	61100	53540	58160	55000	54780	53180	52790	52470	50700	48160
18	50770	50240	61100	53290	58540	54020	54340	53220	52970	52400	50700	48090
19	50700	51230	60480	53110	58960	54270	54120	52970	53040	52360	50700	48020
20	50660	51440	59600	53110	59000	54930	54640	52760	53080	52260	50700	48020
21	50630	51830	59340	53010	58660	54960	54200	52610	53080	52180	50700	47980
22	50630	51760	59410	52790	58200	56440	53620	52610	53040	52080	50660	47920
23	50630	51790	58960	52610	57450	56700	53220	52680	53040	51940	50660	47850
24	50560	52080	58350	52470	56410	56740	53040	52760	52970	51830	50630	47780
25	50560	52150	57860	52470	58810	56290	52900	52790	56890	51690	50630	47780
26	50520	52110	57230	52680	59870	55400	52540	52760	61980	51620	50630	48470
27	50490	52040	56700	52900	60600	54420	52500	52760	62260	51550	50630	48330
28	50420	52040	55960	53150	61170	53940	52610	52760	61400	51480	50560	48260
29	50630	52080	55150	53510	---	53330	53980	52760	59410	51400	49160	48190
30	50560	52110	54270	53580	---	53110	54340	52790	57750	51400	49130	48120
31	50490	---	53840	53650	---	52930	---	52830	---	51260	49090	---
MAX	51690	52150	61100	54780	61710	64290	55150	56030	62260	56330	51330	49200
MIN	50420	50240	52110	52470	53620	52930	52500	52610	52360	51260	49090	47780
(+)	420.49	420.95	421.43	421.38	423.39	421.18	421.57	421.15	422.49	420.71	420.09	419.81
(Φ)	-1270	+1620	+1730	-190	+7520	-8240	+1410	-1510	+4920	-6490	-2170	-970

CAL YR 1992 MAX 108300 MIN 50240 (Φ) -51660
WTR YR 1993 MAX 64290 MIN 47780 (Φ) -3640

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

08063800 WAXAHACHIE CREEK NEAR BARDWELL, TX

LOCATION.--Lat 32°14'36", long 96°38'24", Ellis County, Hydrologic Unit 12030109, on left bank at downstream side of highway embankment near left end of bridge on county road, 0.8 mi downstream from Bardwell Dam, 3.6 mi southeast of Bardwell, 3.8 mi downstream from bridge on State Highway 34, and 4.1 mi upstream from mouth.

DRAINAGE AREA.--178 mi².

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

Water-quality records.--Chemical and biochemical analyses: October 1980 to September 1982.

GAGE. Water-stage recorder. Datum of gage is 370.18 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark).

REMARKS.--Records poor, including those for estimated daily discharge. Since November 1965, flow regulated by Bardwell Lake (station 08063700) 0.8 mi upstream. Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--2 years (water years 1964-65) 32.8 ft³/s (23,720 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1964-65).--Maximum discharge 2,960 ft³/s Feb. 9, 1965 (gage height, 17.55 ft); no flow at times both years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1944, about 23 ft in 1944 and 1945, from information by U.S. Army Corps of Engineers.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.16	.06	e165	86	1.2	178	.29	.08	643	.14	.07
2	.01	.17	.06	e110	133	1.0	72	.41	.08	469	.14	.07
3	.01	.09	.05	e80	206	.98	.91	136	.07	103	.14	.07
4	.01	.07	.05	e85	106	1.0	.84	333	.06	56	.26	.07
5	.01	.07	.04	e75	7.2	1.1	97	329	.06	55	.25	.06
6	.01	.07	.04	68	.82	.97	173	333	.06	55	.17	.06
7	.01	.07	.05	66	111	.97	180	260	.05	54	.13	.06
8	.03	.07	.05	72	393	249	236	187	.04	54	.14	.06
9	.06	.07	.30	82	634	643	329	194	.05	54	.12	.05
10	.14	.08	.23	68	630	638	331	205	.09	53	.11	.04
11	.27	.09	.10	64	634	631	330	258	.08	21	.11	.03
12	.22	.12	.09	136	632	628	244	325	.13	.34	.09	.02
13	.17	.09	.25	188	549	623	180	322	.12	.22	.09	.05
14	.12	.07	14	191	491	619	181	268	.10	.19	.09	.14
15	.08	.07	27	190	503	619	182	180	.11	.19	.09	.09
16	.06	.07	5.7	191	502	618	268	181	.09	.20	.09	.08
17	.05	.06	2.9	188	214	611	329	69	.09	.19	.09	.07
18	.05	.07	e280	190	1.5	536	328	26	.16	.19	.09	e.07
19	.04	1.1	e490	188	1.2	317	330	52	.26	.16	.09	e.07
20	.06	.22	e460	205	198	178	328	53	.28	.16	.08	e.07
21	.06	.24	e150	203	337	176	327	31	.25	.15	.08	e.07
22	.06	.23	e65	200	338	240	322	.22	.21	.15	.08	e.07
23	.06	.21	e155	199	457	332	237	.21	.20	.14	.08	e.07
24	.07	.51	e160	199	629	331	182	.18	.20	.16	.08	e.06
25	.07	.39	e160	72	404	481	183	.16	.27	.16	.08	e.06
26	.06	.33	e160	2.2	2.6	610	180	.14	.46	.15	.08	e.06
27	.06	.29	e165	6.8	1.1	608	66	.11	.34	.15	.08	e.06
28	.06	.29	e375	17	1.1	605	.38	.12	448	.14	.08	e.06
29	.14	.23	e485	57	---	606	.60	.11	945	.14	.07	e.06
30	.10	.13	e485	87	---	362	.32	.10	814	.14	.07	e.06
31	.08	---	e270	85	---	176	---	.10	---	.14	.07	---
TOTAL	2.24	5.73	3910.97	3730.0	8202.52	11444.22	5796.05	3744.15	2210.99	1620.46	3.36	1.93
MEAN	.072	.19	126	120	293	369	193	121	73.7	52.3	.11	.064
MAX	.27	1.1	490	205	634	643	331	333	945	643	.26	.14
MIN	.01	.06	.04	2.2	.82	.97	.32	.10	.04	.14	.07	.02
AC-FI	4.4	11	7760	7400	16270	22700	11500	7430	4390	3210	6.7	3.8

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1993#, BY WATER YEAR (WY)

	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MEAN	22.9	79.8	76.1	100	116	138	107	164	213	32.0	4.82	7.84																
MAX	299	723	394	892	605	675	590	827	773	370	71.8	178																
(WY)	1974	1992	1986	1992	1992	1992	1977	1973	1989	1981	1973	1976																
MIN	.000	.014	.018	.022	.022	.024	.19	.12	.004	.000	.000	.000																
(WY)	1967	1970	1990	1967	1967	1967	1967	1988	1967	1966	1966	1966																

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1966 - 1993#

ANNUAL TOTAL	88662.02	40672.62	88.1
ANNUAL MEAN	242	111	318
HIGHEST ANNUAL MEAN			.063
LOWEST ANNUAL MEAN			1992
HIGHEST DAILY MEAN	1760	945	1880
LOWEST DAILY MEAN	.00	.01	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.01	.00
INSTANTANEOUS PEAK FLOW		1030	1960
INSTANTANEOUS PEAK STAGE		11.90	18.13
INSTANTANEOUS LOW FLOW		.01	.00
ANNUAL RUNOFF (AC-FT)	175900	80670	63800
10 PERCENT EXCEEDS	1240	382	291
50 PERCENT EXCEEDS	1.1	.29	1.3
90 PERCENT EXCEEDS	.01	.06	.00

Period of regulated streamflow.

TRINITY RIVER BASIN

08064100 Chambers Creek near Rice, Tex.

LOCATION.--Lat 32°11'54, long 96°31'12", Navarro County, Hydrologic Unit 12030109, on downstream side of highway embankment 20 ft to left of left end of bridge on Farm Road 1126, 3.6 mi downstream from Oak Branch, 3.9 mi upstream from Cummins Creek, 4.2 mi upstream from bridge on Interstate Highway 45, 5.0 miles downstream from Waxahachie Creek, and 3.4 mi southwest of Rice.

DRAINAGE AREA.--807 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1983 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 340.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Flow from 178² above this station is affected by storage in Bardwell Lake on Waxahachie Creek. Flood releases from Bardwell Lake will sustain flows at this site from time to time. In addition, flow is affected at times by discharge from the flood-detention pools of numerous floodwater-retarding structures in the drainage basin above this station. Gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood information for the next downstream station, Chambers Creek near Corsicana, (08064500) indicates that the maximum stage since at least 1870 occurred in August 1887, and that other significant floods occurred in December 1913, May 1944, and May 1958. Stages for these floods are unknown, but over the years a levee system has been developed along the main channel to limit cropland flooding.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.41	.96	15	389	492	714	557	294	19	831	.28	.03
2	.35	1.9	12	344	443	882	433	352	15	730	.22	.01
3	.31	1.2	9.8	268	607	689	273	720	12	281	.19	.00
4	.27	.78	9.0	279	5260	510	422	696	9.8	176	.17	.00
5	.25	1.0	8.1	331	6000	411	604	573	8.3	156	.17	.00
6	.23	.82	7.9	294	1890	353	578	537	7.1	140	.15	.00
7	.22	.70	7.7	285	1050	319	916	491	6.1	130	.13	.00
8	.20	.60	7.4	300	1010	372	1620	373	5.5	120	.12	.00
9	.20	.51	9.9	503	1180	870	1020	682	5.3	118	.12	.00
10	.17	.48	14	1010	1090	855	763	5840	6.2	114	.11	.00
11	.15	.47	15	811	1100	831	662	2440	6.6	87	.10	.00
12	.15	.46	16	627	1040	1020	567	1000	44	7.2	.08	.00
13	.14	1.6	14	517	902	1190	449	723	35	4.4	.07	.00
14	.14	3.9	1510	484	777	970	614	590	25	3.8	.05	.09
15	.15	2.3	5810	477	2250	883	2380	431	9.6	3.5	.04	.01
16	.13	1.5	5970	477	5350	866	1190	393	5.9	3.4	.03	.00
17	.11	1.1	2310	475	2110	854	819	305	4.2	3.1	.02	.00
18	.09	.81	906	474	788	784	686	167	4.3	3.0	.02	.00
19	.10	540	1180	475	588	634	622	238	8.6	2.8	.01	.00
20	.12	1250	1120	516	594	2060	639	227	12	2.6	.01	.00
21	.15	375	866	724	750	1450	602	208	18	2.6	.00	.00
22	.15	389	392	598	683	1670	543	96	24	2.1	.01	.00
23	.15	235	653	520	679	3570	474	76	15	1.3	.02	.00
24	.15	176	614	487	873	1990	385	70	10	1.0	.01	.00
25	.15	143	587	425	3350	1210	368	70	8.7	.86	.00	.00
26	.15	202	569	247	5840	1180	350	55	2180	.77	.00	.06
27	.15	107	555	229	2010	1050	274	40	919	.66	.00	.01
28	.15	55	577	222	887	1070	128	31	682	.56	.00	.00
29	.17	31	676	381	---	1820	349	26	1180	.46	.00	.00
30	.25	20	674	778	---	1210	466	25	1090	.39	.01	.00
31	.44	---	583	645	---	681	---	27	---	.33	.01	---
TOTAL	5.95	3544.09	25697.8	14592	49593	32968	19753	17796	6376.2	2927.83	2.15	0.21
MEAN	.19	118	829	471	1771	1063	574	213	94.4	.069	.007	.007
MAX	.44	1250	5970	1010	6000	3570	2380	5840	2180	.831	.28	.09
MIN	.09	.46	7.4	222	443	319	128	25	4.2	.33	.00	.00
AC-FT	12	7030	50970	28940	98370	65390	39180	35300	12650	5810	4.3	.4

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

	MEAN	326	287	849	506	857	738	390	872	831	64.1	25.6	30.1
MAX	1499	1811	3579	1984	2130	1819	1235	2932	2560	194	142	149	149
(WY)	1986	1992	1992	1992	1992	1992	1990	1989	1986	1989	1991	1991	1991
MIN	.000	1.72	1.45	12.0	107	45.3	92.6	7.86	2.21	.081	.000	.000	.000
(WY)	1989	1989	1989	1984	1984	1986	1987	1988	1984	1988	1988	1988	1985

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1984 - 1993

ANNUAL TOTAL	289583.23	173256.23	480
ANNUAL MEAN	791	475	1263
HIGHEST ANNUAL MEAN			96.6
LOWEST ANNUAL MEAN			1992
HIGHEST DAILY MEAN	7250	Feb 26	22700
LOWEST DAILY MEAN	.09	Oct 18	Dec 21 1991
ANNUAL SEVEN-DAY MINIMUM	.12	Oct 14	.00
INSTANTANEOUS PEAK FLOW			.00
INSTANTANEOUS PEAK STAGE			.00
INSTANTANEOUS LOW FLOW			.00
ANNUAL RUNOFF (AC-FT)	574400	343700	43400
10 PERCENT EXCEEDS	1990	1090	32.57
50 PERCENT EXCEEDS	246	107	39
90 PERCENT EXCEEDS	.57	.01	.07

TRINITY RIVER BASIN

493

08064100 Chambers Creek near Rice, Tex.--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1983 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1983 to current year.

WATER TEMPERATURE: October 1983 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (1983-90): Maximum daily, 2,510 microsiemens Nov. 21, 1988; minimum daily, 187 microsiemens Dec. 18, 1984.

WATER TEMPERATURE (1983-89): Maximum daily, 38.0°C Aug. 16, 1987; minimum daily, 0.0°C Feb. 7, 1989.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	
OCT 20...	1135	0.10	1600	7.6	15.5	10	14	3.1	31	1.9	450	230	
APR 20...	1620	666	459	8.0	19.5	35	85	8.6	94	--	190	37	
20...	1625	664	459	8.0	19.5	--	--	8.6	94	--	190	31	
JUN 02...	1355	14	794	7.9	25.5	--	--	7.3	91	--	270	95	
JUL 08...	1350	118	341	7.8	27.5	--	--	6.5	83	--	120	7	
23...	0745	1.4	900	7.5	27.0	--	--	4.3	55	--	260	83	
AUG 18...	1253	0.01	860	7.7	29.5	--	--	5.1	67	--	210	0	
SEP 28...	1223	0.01	2060	7.3	23.5	--	--	2.9	34	--	570	390	
DATE		CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CaCO3)	ALKA-LINITY WAT DIS FIX END FIELD (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 20...	160	12	170	3	4.7	--	--	--	220	440	130	0.40	
APR 20...	71	3.5	24	0.8	2.9	0	190	156	160	57	17	0.30	
20...	69	3.6	24	0.8	2.9	0	190	--	160	56	17	0.30	
JUN 02...	97	6.9	59	2	2.7	0	214	175	180	150	50	0.40	
JUL 08...	43	3.2	22	0.9	3.5	0	138	113	110	39	8.4	0.30	
23...	92	7.3	83	2	4.7	0	216	177	180	150	93	0.50	
AUG 18...	75	6.1	100	3	9.7	0	261	214	210	90	99	0.90	
SEP 28...	200	17	240	4	5.7	0	220	180	180	430	330	0.90	
DATE		SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)
OCT 20...	11	--	1060	29	11	18	--	--	<0.010	--	<0.050	--	
APR 20...	5.2	--	278	195	21	174	0.620	0.620	--	0.020	0.640	0.640	
20...	4.2	287	273	--	--	--	0.610	0.610	--	0.020	0.630	0.630	
JUN 02...	7.8	488	481	--	--	--	0.340	--	--	<0.010	0.340	0.340	
JUL 08...	3.5	206	192	--	--	--	0.300	0.300	--	0.030	0.330	0.330	
23...	6.6	565	543	--	--	--	--	--	--	<0.010	--	<0.050	
AUG 18...	9.6	547	529	--	--	--	0.580	0.580	--	0.060	0.640	0.640	
SEP 28...	8.8	1350	1340	--	--	--	--	--	--	<0.010	--	<0.050	

495

08064100 Chambers Creek near Rice, Tex.--Continued

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

[illegible]

TRINITY RIVER BASIN

08064100 Chambers Creek near Rice, Tex.--Continued

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1280	e1500	665	e380	530	480	e480	---	---	---	---	---
2	1310	1400	690	e410	e560	e600	e500	---	---	---	---	---
3	e1330	e1370	760	e430	e500	e580	e530	---	---	---	---	---
4	e1350	1350	780	440	e400	560	e560	---	---	---	---	---
5	1380	e1430	e810	440	350	580	600	---	---	---	---	---
6	1380	1410	e830	450	e380	e590	e570	---	---	---	---	---
7	e1380	e1430	850	440	e400	e600	530	---	---	---	---	---
8	1380	e1450	890	e440	430	580	450	---	---	---	---	---
9	1390	e1480	910	e390	e420	420	e480	---	---	---	---	---
10	e1410	1500	e950	e350	e420	410	e500	---	---	---	---	---
11	e1430	e1510	970	440	410	e430	e500	---	---	---	---	---
12	e1450	1520	e970	460	430	440	e500	---	---	---	---	---
13	1480	1540	e970	e440	410	e400	510	---	---	---	---	---
14	1490	e1800	e400	420	e430	e420	490	---	---	---	---	---
15	1500	e1900	300	420	e350	440	440	---	---	---	---	---
16	1500	1910	320	e420	e320	e440	460	---	---	---	---	---
17	e1510	1770	340	e420	370	440	e470	---	---	---	---	---
18	e1520	e1500	350	e420	e390	430	e470	---	---	---	---	---
19	1530	1370	330	420	e410	e450	480	---	---	---	---	---
20	1540	e1000	320	450	e420	e330	460	---	---	---	---	---
21	1550	e800	350	490	e430	e350	470	---	---	---	---	---
22	1560	e750	390	510	440	390	470	---	---	---	---	---
23	1590	e700	e370	e530	e450	e350	460	---	---	---	---	---
24	e1610	630	340	e550	400	e400	e470	---	---	---	---	---
25	e1630	490	e340	e580	e300	450	e480	---	---	---	---	---
26	1650	e600	e340	600	350	e450	480	---	---	---	---	---
27	1660	530	e340	620	e400	e500	490	---	---	---	---	---
28	1670	e550	340	650	e450	e450	e500	---	---	---	---	---
29	e1670	e600	e320	e550	---	410	440	---	---	---	---	---
30	1680	650	e320	e450	---	e440	e400	---	---	---	---	---
31	e1600	---	e350	e500	---	e460	---	---	---	---	---	---
MEAN	1500	1210	555	468	412	460	488	---	---	---	---	---
MAX	1680	1910	970	650	560	600	600	---	---	---	---	---
MIN	1280	490	300	350	300	330	400	---	---	---	---	---

WTR YR 1993 MEAN 731 MAX 1910 MIN 300

e Estimated

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.0	---	9.0	---	11.0	11.5	---	---	---	---	---	---
2	21.0	19.0	10.0	---	---	---	---	---	---	---	---	---
3	---	---	9.0	---	---	---	---	---	---	---	---	---
4	---	15.0	10.0	12.0	---	12.0	---	---	---	---	---	---
5	21.0	---	---	10.0	11.0	12.0	13.0	---	---	---	---	---
6	22.0	12.0	---	9.0	---	---	---	---	---	---	---	---
7	---	---	8.0	11.0	---	---	15.0	---	---	---	---	---
8	22.0	---	9.0	---	12.0	16.0	16.0	---	---	---	---	---
9	17.0	---	10.0	---	---	16.0	---	---	---	---	---	---
10	---	13.0	---	---	---	16.0	---	---	---	---	---	---
11	---	---	11.0	7.0	12.0	---	---	---	---	---	---	---
12	---	16.0	---	8.0	11.0	12.0	---	---	---	---	---	---
13	22.0	15.0	---	---	12.0	---	21.0	---	---	---	---	---
14	22.0	---	---	8.0	---	---	19.0	---	---	---	---	---
15	23.0	---	9.0	9.0	---	11.0	16.0	---	---	---	---	---
16	22.0	14.0	9.0	---	---	---	17.0	---	---	---	---	---
17	---	16.0	8.0	---	9.0	12.0	---	---	---	---	---	---
18	---	---	8.0	---	---	13.0	---	---	---	---	---	---
19	19.0	15.0	15.0	8.0	---	---	20.0	---	---	---	---	---
20	19.0	---	13.0	8.0	---	---	20.0	---	---	---	---	---
21	19.0	---	9.0	10.0	---	---	18.0	---	---	---	---	---
22	23.0	---	11.0	10.0	12.0	16.0	17.0	---	---	---	---	---
23	23.0	---	---	---	---	---	19.0	---	---	---	---	---
24	---	13.0	10.0	---	11.0	---	---	---	---	---	---	---
25	---	12.0	9.0	---	---	17.0	---	---	---	---	---	---
26	23.0	---	---	9.0	13.0	---	23.0	---	---	---	---	---
27	22.0	10.0	---	9.0	---	---	20.0	---	---	---	---	---
28	22.0	---	9.0	9.0	---	---	---	---	---	---	---	---
29	---	---	---	---	---	18.0	19.0	---	---	---	---	---
30	22.0	8.0	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MEAN	21.5	13.5	10.0	9.0	11.5	14.0	18.0	---	---	---	---	---
MAX	23.0	19.0	15.0	12.0	13.0	18.0	23.0	---	---	---	---	---
MIN	17.0	8.0	8.0	7.0	9.0	11.0	13.0	---	---	---	---	---

WTR YR 1993 MEAN 15.0 MAX 23.0 MIN 7.0

08064550 RICHLAND-CHAMBERS RESERVOIR NEAR KERENS, TX

LOCATION.--Lat 32°02'25", long 96°12'23", Navarro County, Hydrologic Units 12030108 and 12030109, on upper floor of pumphouse, on left bank of Chambers Creek arm of Richland-Chambers Reservoir, 7.0 mi south of intersection of State Highway 31 and Farm Road 309 in Kerens, and 14.4 mi upstream from dam on Richland Creek.

DRAINAGE AREA.--1,957 mi².

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

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

REMARKS.--The reservoir is formed by a rolled earthfill dam 31,000 ft long. Deliberate impoundment of water began July 14, 1987, and the dam was completed in December 1988. A gated concrete spillway is located near the left end of dam. The spillway is 1,155 ft long and contains twenty-four 40- x 29.4-foot radial gates. The low flow outlet works consist of two 3- X 5-foot outlets at elevation 266.0 ft, one 1.5- X 2.5-foot outlet, and one 1- X 1-foot outlet at elevation 285.0 ft. Each of the low flow outlets is controlled by sluice gates. The dam is owned by Tarrant County Water Control and Improvement District No. 1, and was built for municipal and industrial water supply and for recreation. The area and capacity tables were prepared by Freese and Nichols, Consulting Engineers for Tarrant County Water Control and Improvement District No. 1, who provided copies of the tables. Flow from 464 mi² above the dam is controlled by Bardwell and Navarro Mills Lakes. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	330.0	-
Top of gates.....	317.34	1,290,000
Top of conservation pool.....	315.0	1,182,000
Crest of spillway.....	290.0	370,200
Lowest gated outlet.....	266.0	43,240

COOPERATION.--Capacity table was prepared by Freese and Nichols, consulting engineer for Tarrant County Water Control and Improvement District No. 1.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents 1,267,000 acre-ft Dec. 22, 1991 (elevation, 316.85 ft); minimum contents, 233,600 acre-ft Dec. 8, 1988 (elevation, 283.02 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,217,000 acre-ft Mar. 24 at 1300 hrs (elevation, 315.77 ft); minimum, 1,060,000 acre-ft Nov. 17 (elevation, 312.19 ft).

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

312.0	1,052,000	314.0	1,138,000	316.0	1,227,000
313.0	1,095,000	315.0	1,182,000		

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1099000	1077000	1090000	1183000	1183000	1203000	1191000	1194000	1180000	1183000	1146000	1105000
2	1098000	1076000	1090000	1181000	1182000	1200000	1187000	1193000	1180000	1181000	1143000	1105000
3	1097000	1075000	1089000	1184000	1183000	1198000	1185000	1192000	1179000	1179000	1143000	1103000
4	1096000	1071000	1087000	1185000	1189000	1196000	1185000	1192000	1178000	1179000	1142000	1102000
5	1095000	1070000	1087000	1181000	1198000	1193000	1183000	1192000	1178000	1178000	1140000	1101000
6	1094000	1069000	1087000	1183000	1203000	1190000	1183000	1192000	1177000	1177000	1138000	1099000
7	1093000	1068000	1086000	1183000	1200000	1187000	1186000	1192000	1177000	1176000	1137000	1098000
8	1092000	1066000	1087000	1183000	1199000	1184000	1191000	1190000	1175000	1174000	1136000	1097000
9	1090000	1066000	1088000	1186000	1201000	1183000	1195000	1190000	1176000	1173000	1134000	1095000
10	1090000	1066000	1087000	1187000	1203000	1183000	1196000	1194000	1174000	1173000	1133000	1093000
11	1090000	1066000	1087000	1187000	1202000	1192000	1197000	1201000	1177000	1171000	1133000	1094000
12	1088000	1065000	1087000	1185000	1199000	1204000	1198000	1203000	1178000	1170000	1131000	1092000
13	1087000	1065000	1087000	1184000	1195000	1207000	1198000	1204000	1179000	1170000	1129000	1091000
14	1086000	1064000	1103000	1184000	1192000	1203000	1203000	1203000	1178000	1170000	1128000	1095000
15	1086000	1063000	1133000	1183000	1203000	1200000	1203000	1201000	1178000	1169000	1126000	1093000
16	1086000	1062000	1156000	1182000	1209000	1199000	1208000	1198000	1179000	1168000	1126000	1092000
17	1085000	1061000	1173000	1182000	1205000	1197000	1207000	1195000	1177000	1166000	1125000	1090000
18	1084000	1061000	1179000	1182000	1203000	1194000	1207000	1186000	1177000	1165000	1123000	1089000
19	1083000	1071000	1185000	1182000	1199000	1196000	1202000	1185000	1176000	1163000	1122000	1089000
20	1082000	1081000	1188000	1185000	1194000	1203000	1203000	1183000	1178000	1162000	1121000	1088000
21	1082000	1091000	1190000	1185000	1190000	1205000	1200000	1183000	1188000	1161000	1120000	1088000
22	1081000	1089000	1188000	1185000	1186000	1210000	1198000	1182000	1187000	1160000	1117000	1087000
23	1081000	1090000	1188000	1183000	1184000	1214000	1195000	1181000	1185000	1158000	1116000	1086000
24	1080000	1093000	1190000	1182000	1186000	1216000	1195000	1182000	1183000	1156000	1115000	1086000
25	1079000	1093000	1190000	1183000	1195000	1214000	1193000	1181000	1182000	1154000	1113000	1085000
26	1078000	1091000	1191000	1183000	1207000	1211000	1190000	1180000	1186000	1152000	1111000	1088000
27	1077000	1092000	1190000	1183000	1210000	1208000	1189000	1181000	1188000	1151000	1110000	1088000
28	1076000	1091000	1190000	1183000	1206000	1205000	1188000	1181000	1187000	1151000	1109000	1087000
29	1077000	1090000	1190000	1183000	---	1203000	1192000	1180000	1187000	1149000	1109000	1086000
30	1076000	1090000	1190000	1185000	---	1201000	1193000	1181000	1185000	1148000	1108000	1086000
31	1077000	---	1185000	1185000	---	1197000	---	1181000	---	1147000	1106000	---
MAX	1099000	1093000	1191000	1187000	1210000	1216000	1208000	1204000	1188000	1183000	1146000	1105000
MIN	1076000	1061000	1086000	1181000	1182000	1183000	1183000	1180000	1174000	1147000	1106000	1085000
(↑)	312.58	312.90	315.07	315.06	315.53	315.33	315.25	314.97	315.07	314.22	313.27	312.79
(Φ)	-24000	+13000	+95000	0	+21000	-9000	-4000	-12000	+4000	-38000	-41000	-20000
CAL YR 1992	MAX	1252000	MIN	1061000	(Φ)	-16000						
WTR YR 1993	MAX	1216000	MIN	1061000	(Φ)	-15000						

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

TRINITY RIVER BASIN

08064700 TEHUACANA CREEK NEAR STREETMAN, TX

LOCATION.--Lat 31°50'54", long 96°17'23", Freestone County, Hydrologic Unit 12030201, at downstream side of bridge on U.S. Highway 75, 2.8 mi southeast of Streetman, 3.1 mi downstream from Chicago, Rock Island, and Pacific Railroad Co. bridge, 3.8 mi upstream from Caney Creek, and 25 mi upstream from mouth.

DRAINAGE AREA.--142 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and crest-stage gage. Datum gage is 287.58 ft above National Geodetic Vertical Datum of 1929.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in September 1932 reached a stage of about 24 ft, from information by State Department of Highways and Public Transportation.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 15	1445	3,280	21.97	Mar. 20	0630	2,900	21.29
Feb. 25	1930	2,540	20.36	June 21	2245	2,879	21.21
Mar. 12	1100	2,670	20.70				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.06	.77	.26	3.3	13	20	7.9	14	1.2	3.2	.00	e.00
2	e.06	.93	.16	3.1	9.1	43	7.0	82	1.3	3.0	.00	e.00
3	e.06	1.1	.81	3.3	6.9	39	6.5	59	e.67	2.6	e.00	e.00
4	e.05	1.2	1.1	5.0	155	19	9.9	16	e.24	e2.2	e.00	e.00
5	e.05	.87	.91	4.8	134	13	27	9.6	e.16	e1.9	e.00	e.00
6	e.05	.67	.60	4.5	105	10	15	154	e.11	e1.7	e.00	e.00
7	e.04	.44	.36	4.4	39	8.6	15	38	e.07	e1.6	e.00	e.00
8	e.03	.25	.39	4.4	17	7.6	246	15	e.05	e1.5	.00	e.00
9	e.03	.17	1.4	20	10	6.9	49	9.6	e.03	e1.3	e.00	e.00
10	e.03	.12	1.9	283	8.5	6.3	18	7.7	e.02	e1.2	e.00	e.00
11	e.03	.06	1.8	48	7.5	5.9	11	6.2	e.66	e.96	e.00	e.00
12	e.02	1.2	1.3	28	6.3	1530	8.8	5.0	1.3	e.78	e.00	e.00
13	e.02	1.2	1.0	32	5.0	393	7.5	4.3	e.39	e.55	e.00	e.00
14	e.02	1.1	183	15	4.3	77	121	3.5	e.17	.36	e.00	.00
15	e.02	.98	2350	9.6	145	36	262	3.0	e.10	.51	e.00	.00
16	e.02	.98	854	7.1	646	29	42	2.3	e.06	.38	e.00	e.00
17	e.02	.98	80	5.9	64	25	17	2.4	e.03	.44	e.00	e.00
18	e.02	.98	23	6.3	18	21	11	1.4	e.02	.07	e.00	e.00
19	e.02	2.9	13	6.0	11	23	8.9	1.8	e.01	.01	e.00	e.00
20	e.02	41	9.6	138	7.9	1740	7.6	1.6	e.01	.02	e.00	e.00
21	.02	18	8.1	135	6.5	278	6.5	1.3	747	.02	e.00	e.00
22	.02	10	7.0	33	5.3	250	5.6	1.1	1180	.03	e.00	e.00
23	.01	9.6	6.3	15	4.3	747	5.0	1.1	100	.03	e.00	e.00
24	.01	6.2	6.0	10	3.6	128	4.7	1.1	20	.01	e.00	e.00
25	.01	3.8	5.4	7.9	795	45	4.3	1.2	12	.00	e.00	e.00
26	.01	2.4	5.1	6.3	623	24	3.9	1.2	9.1	.00	e.00	.12
27	.01	1.4	4.5	4.9	76	17	3.4	.83	8.6	.00	e.00	.00
28	.01	1.3	4.5	4.1	29	13	3.4	e.79	6.0	.00	e.00	.00
29	.01	.71	4.2	28	---	12	9.1	e.62	4.9	.01	e.00	.00
30	.09	.60	4.1	107	---	12	35	e.76	4.1	.00	e.00	.00
31	.06	---	3.7	30	---	9.5	---	.93	---	.00	e.00	---
TOTAL	0.93	111.91	3583.49	1012.9	2955.2	5588.8	979.0	447.33	2098.30	24.38	0.00	0.12
MEAN	.030	3.73	116	32.7	106	180	32.6	14.4	69.9	.79	.000	.004
MAX	.09	41	2350	283	795	1740	262	154	1180	3.2	.00	.12
MIN	.01	.06	.16	3.1	3.6	5.9	3.4	.62	.01	.00	.00	.00
AC-FT	1.8	222	7110	2010	5860	11090	1940	887	4160	48	.00	.2
CFSM	.00	.03	.81	.23	.74	1.27	.23	.10	.49	.01	.00	.00
IN.	.00	.03	.94	.27	.77	1.46	.26	.12	.55	.01	.00	.00

e Estimated

TRINITY RIVER BASIN

499

08064700 TEHUACANA CREEK NEAR STREETMAN, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1993, BY WATER YEAR (WY)

MEAN	58.3	52.2	146	64.3	150	130	85.6	231	73.4	4.40	19.0	32.3
MAX	379	371	1013	289	930	1048	557	2927	388	35.1	234	547
(WY)	1974	1975	1992	1992	1986	1990	1976	1989	1981	1976	1983	1974
MIN	.000	.000	.077	.12	1.08	.49	.000	.020	.042	.000	.000	.000
(WY)	1981	1981	1990	1971	1981	1971	1971	1971	1971	1978	1969	1980

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1969 - 1993	
ANNUAL TOTAL	41629.71		16802.36		87.0	
ANNUAL MEAN	114		46.0		274	
HIGHEST ANNUAL MEAN					12.6	
LOWEST ANNUAL MEAN					1989	
HIGHEST DAILY MEAN	6730	Feb 25	2350	Dec 15	42000	May 4 1989
LOWEST DAILY MEAN	.01	Oct 23	.00	Jul 25	.00	Oct 1 1968
ANNUAL SEVEN-DAY MINIMUM	.01	Oct 23	.00	Jul 30	.00	Jul 21 1969
INSTANTANEOUS PEAK FLOW			3280	Dec 15	85700	May 17 1989
INSTANTANEOUS PEAK STAGE			21.97	Dec 15	30.20	May 17 1989
INSTANTANEOUS LOW FLOW			.00	Jul 25	.00	at times
ANNUAL RUNOFF (AC-FT)	82570		33330		63040	
ANNUAL RUNOFF (CFSM)	.80		.32		.61	
ANNUAL RUNOFF (INCHES)	10.91		4.40		8.33	
10 PERCENT EXCEEDS	117		46		51	
50 PERCENT EXCEEDS	4.5		1.6		1.8	
90 PERCENT EXCEEDS	.06		.00		.00	

TRINITY RIVER BASIN

08064700 TEHUACANA CREEK NEAR STREETMAN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: February 1968 to September 1985, and October 1990 to current year.

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

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CAC03)	
OCT 21...	1120	0.03	2520	8.0	19.5	20	6.3	5.3	58	1.7	570	
JAN 2/...	1056	5.0	487	7.5	7.0	110	25	10.3	85	0.9	130	
MAR 1/...	1200	26	413	8.0	14.5	100	27	10.4	102	2.0	110	
MAY 19...	1300	1.8	1020	8.7	26.5	30	60	8.4	107	1.2	260	
JUL 14...	1300	0.35	1210	8.3	31.0	23	2.8	9.7	132	0.3	320	
DATE		HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS-SOLVED (MG/L AS S04)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
OCT 21...	280	120	66	320	6	5.9	290	340	420	0.50	9.3	
JAN 2/...	39	33	11	47	2	4.5	89	58	53	0.20	10	
MAR 1/...	34	29	9.3	E40	--	4.4	77	53	44	0.10	11	
MAY 19...	110	66	23	110	3	5.2	150	130	140	0.30	12	
JUL 14...	110	79	29	140	3	6.1	210	170	150	0.40	13	
DATE		SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
OCT 21...	1450	16	16	0	--	--	<0.010	--	<0.050	--	0.020	
JAN 2/...	271	42	1	41	0.090	0.090	--	0.020	0.110	0.110	--	
MAR 1/...	--	45	17	28	0.120	--	--	<0.010	0.120	0.120	--	
MAY 19...	579	9	9	0	--	--	--	<0.010	--	<0.050	--	
JUL 14...	715	11	8	3	--	--	--	<0.010	--	<0.050	--	
DATE		NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS P04)	
OCT 21...	--	0.48	--	--	--	0.50	0.080	--	--	0.020	--	
JAN 27...	0.020	--	1.1	1.1	--	--	--	0.050	0.040	--	0.12	
MAR 17...	0.070	--	0.73	0.80	--	--	--	0.040	0.040	--	0.12	
MAY 19...	0.020	--	0.38	0.40	--	--	--	0.020	<0.010	--	--	
JUL 14...	0.040	--	0.36	0.40	--	--	--	0.020	0.020	--	0.06	
DATE		CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	
OCT 21...	28	--	--	--	--	--	--	--	--	--	--	
JAN 27...	12	--	--	--	--	--	--	--	--	--	--	
MAR 1/...	12	<1	47	<0.5	<1.0	<5	<3	<10	440	<10		
MAY 19...	10	1	84	<0.5	<1.0	<5	<3	<10	23	<10		
JUL 14...	8.2	1	100	<0.5	<1.0	<5	<3	<10	12	<10		

TRINITY RIVER BASIN

501

08064700 TEHUACANA CREEK NEAR STREETMAN, TX--Continued

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

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 21...	--	--	--	--	--	--	--	--	--	--
JAN 27...	--	--	--	--	--	--	--	--	--	--
MAR 17...	8	61	<0.1	<10	<10	<1	8.0	320	<6	15
MAY 19...	18	210	0.1	<10	<10	<1	<1.0	730	<6	6
JUL 14...	26	<1	<0.1	10	<10	<1	<1.0	940	<6	4

TRINITY RIVER MAIN STEM

08065000 TRINITY RIVER NEAR OAKWOOD, TX

LOCATION.--Lat 31°38'54", long 95°47'21", Anderson County, Hydrologic Unit 12030201, on left bank at downstream side of bridge on U.S. Highways 79 and 84, 1.5 mi upstream from Missouri Pacific Railroad Co. bridge, 6 mi northeast of Oakwood, and at mile 313.4.

DRAINAGE AREA.--12,833 mi².

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.

REVISED RECORDS.--WSP 1442: 1934. See also PERIOD OF RECORD. WSP 1922: Drainage area. WDR TX-81-1: 1980 (M,m).

GAGE.--water-stage recorder. Datum of gage is 175.06 ft above National Geodetic Vertical Datum of 1929. Prior to July 1932, nonrecording gage at site 1.5 mi downstream at datum 1.06 ft lower. July 15, 1932, to Oct. 7, 1934, non-recording gage at present site and datum.

REMARKS.--Records good, including those for estimated daily discharges. Twenty-one major reservoirs with a capacity of 4,200,000 acre-ft, of which 1,362,000 acre-ft is for flood control, partly regulate the flow. Streamflow is affected at times by discharge from the flood-detention pools of 252 floodwater-retarding structures with a combined detention capacity of 183,300 acre-ft. These structures control runoff from 614 mi² in the Richland, Chambers and Tehuacana Creeks drainage basins. The Industrial Generating Co. at Fairfield, makes a minor diversion from the river at a site about 34 mi upstream. The diversion to Big Brown Lake is used to maintain the normal pool elevation for that lake. Gage-height telemeter at station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--30 years (water 1924-53), 5,045 ft³/s (3,655,000 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1924-53).--Maximum discharge, 153,000 ft³/s Apr. 29, 1942 (gage height 51.64 ft); minimum observed, 28 ft³/s Aug. 24, 1925.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1890 reached a stage of 53 ft (discharge about 180,000 ft³/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, present site and datum, from information by the National Weather Service (discharge, about 164,000 ft³/s).

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	832	1860	1530	5970	5430	17600	19000	5630	2360	9490	1810	792
2	827	2420	1370	5090	5700	19900	18000	8870	2420	8250	1260	815
3	843	2020	1290	4690	4960	20900	16900	10800	2420	6940	1180	873
4	820	2520	1260	5930	3870	22100	17600	11800	2070	6010	1340	1170
5	837	2710	1230	8850	5200	23800	15300	11900	1660	5310	1370	995
6	853	1970	1190	9620	9090	25700	13900	11400	1450	5050	1170	837
7	842	e1330	1140	9310	11600	26800	12900	10500	1320	4690	1160	804
8	836	e991	1120	8460	13200	26700	12200	9460	1250	4390	1280	779
9	837	e857	1120	7390	14500	25600	11300	8790	1190	4290	1260	729
10	881	e848	1150	7920	15400	24200	11400	8680	1180	4260	1250	717
11	1350	e899	1210	9720	15900	22700	11600	8880	1240	4230	1600	758
12	1340	996	1640	11600	15600	22400	11300	9890	2030	4190	1440	806
13	1060	1160	1930	11700	14800	21900	10300	11000	5180	4150	1170	813
14	899	1470	2220	10100	13900	21400	8240	11300	6390	4120	1000	795
15	839	1590	5810	7370	13100	21300	7210	11000	6730	3830	942	930
16	839	1800	10300	5160	12700	21500	8650	10400	6700	2680	894	1200
17	864	1500	12900	4050	13900	21400	10600	9650	6440	2110	851	3060
18	1300	1190	14200	3560	15800	20700	12100	8790	6320	2990	813	3680
19	4060	1080	15300	4300	18000	19400	13000	8300	6330	3670	806	2480
20	4590	1360	16100	5900	20200	18800	12800	7750	6870	3960	844	1470
21	2950	2300	18200	6170	21600	17900	11200	7070	8680	4040	830	1150
22	1600	4950	20800	6910	22100	18100	10600	6740	11300	4040	805	1060
23	1130	5950	22300	8230	22000	19600	10600	6390	11400	4040	808	1020
24	997	6310	23500	8820	21500	19900	9400	6170	10700	4040	798	1110
25	925	6130	23700	7890	20500	20200	6720	5870	9160	4040	789	1100
26	880	5340	22400	6500	18300	20300	4430	5780	7440	3940	783	1010
27	853	5360	18600	5600	16600	20000	3530	5770	6620	3520	794	1060
28	869	5040	11900	5070	16600	19800	3160	4660	8030	2890	803	1160
29	858	e3490	7930	4640	---	19700	3010	3120	9640	2470	818	1670
30	915	2080	6850	4380	---	19700	3170	2220	10100	2330	841	1760
31	976	---	6590	4800	---	19500	---	2130	---	2230	821	---
TOTAL	38502	77521	276780	215700	402050	659500	320120	250710	164620	132190	32330	36603
MEAN	1242	2584	8928	6958	14360	21270	10670	8087	5487	4264	1043	1220
MAX	4590	6310	23700	11700	22100	26800	19000	11900	11400	9490	1810	3680
MIN	820	848	1120	3560	3870	17600	3010	2130	1180	2110	783	717
AC-FI	76370	153800	549000	427800	797500	1308000	635000	497300	326500	262200	64130	72600

e Estimated

TRINITY RIVER MAIN STEM

503

08065000 TRINITY RIVER NEAR OAKWOOD, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1993#, BY WATER YEAR (WY)

MEAN	2618	3994	5408	4563	5877	6376	6595	11590	8102	2780	1528	1515
MAX	14250	25900	33280	30140	29840	30130	23710	56050	33550	12590	7050	7361
(WY)	1974	1975	1992	1992	1992	1992	1977	1990	1957	1982	1982	1962
MIN	131	165	235	400	553	286	318	812	332	126	101	116
(WY)	1957	1956	1956	1957	1967	1956	1956	1971	1954	1956	1956	1956

SUMMARY STATISTICS FOR 1992 CALENDAR YEAR FOR 1993 WATER YEAR WATER YEARS 1954 - 1993#

ANNUAL TOTAL	4186639	2606626	5073
ANNUAL MEAN	11440	7141	15240
HIGHEST ANNUAL MEAN			700
LOWEST ANNUAL MEAN			106000
HIGHEST DAILY MEAN	55400	Feb 29	26800
LOWEST DAILY MEAN	812	Sep 22	717
ANNUAL SEVEN-DAY MINIMUM	833	Sep 29	771
INSTANTANEOUS PEAK FLOW			27000
INSTANTANEOUS PEAK STAGE			39.63
ANNUAL RUNOFF (AC-FT)	8304000	5170000	3675000
10 PERCENT EXCEEDS	31600	19500	14300
50 PERCENT EXCEEDS	5770	4800	1500
90 PERCENT EXCEEDS	934	850	423

Period of regulated streamflow.

TRINITY RIVER BASIN

08065200 UPPER KEECHI CREEK NEAR OAKWOOD, TX

LOCATION.--Lat 31°34'11", long 95°53'17", Leon County, Hydrologic Unit 12030201, at right bank at downstream side of bridge on U.S. Highway 79, 1.9 mi upstream from Missouri Pacific Railroad Co. bridge, 2 mi southwest of Oakwood, 11 mi upstream from Buffalo Creek, and 21 mi upstream from mouth.

DRAINAGE AREA.--150 mi².

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

Water-quality records: Chemical analyses: June 1962 to April 1964, November 1967 to September 1975.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 240.11 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. No known diversions or regulation above station. Several observations of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1900, about 21 ft in 1932, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 5	0500	3,290	13.54	June 22	1900	2,550	13.26

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	33	14	32	57	159	57	136	80	32	5.6	2.2
2	1.4	25	13	31	50	451	51	256	37	26	5.7	2.1
3	1.5	15	13	35	47	902	50	352	24	22	5.5	2.2
4	1.6	11	13	213	58	499	275	279	19	19	5.3	2.4
5	1.6	10	14	1900	108	129	480	93	16	17	5.2	2.4
6	1.6	9.2	13	920	190	85	500	188	15	15	5.0	2.3
7	1.8	8.9	12	378	199	68	215	241	13	13	5.3	2.2
8	2.3	8.7	13	209	98	58	414	168	13	12	5.7	2.3
9	3.4	9.0	18	222	66	53	482	70	12	11	5.9	2.1
10	3.7	10	29	311	64	49	395	119	12	10	6.3	1.7
11	3.0	13	22	409	103	55	113	176	20	9.7	6.4	1.4
12	2.8	17	19	341	113	565	80	71	38	9.1	6.2	1.1
13	3.0	17	17	156	66	931	68	48	50	8.6	5.9	1.3
14	3.1	17	181	105	53	811	132	41	28	8.4	5.6	2.2
15	3.1	14	908	78	51	263	296	35	35	8.0	5.4	2.0
16	4.7	12	1280	66	89	142	202	30	22	7.8	4.8	3.7
17	7.7	11	1070	59	127	124	96	28	18	7.6	4.4	1.5
18	5.6	11	471	58	69	96	71	26	17	7.4	3.9	1.0
19	4.8	27	113	75	51	91	61	25	20	6.9	3.7	1.1
20	3.9	146	74	137	48	335	59	23	119	6.5	3.4	1.2
21	3.4	140	71	252	47	785	55	21	581	6.1	3.1	1.3
22	3.5	102	60	305	44	889	45	20	1900	5.9	2.8	1.4
23	3.9	65	51	114	38	994	41	19	1690	5.6	2.8	1.4
24	4.2	38	46	79	36	1190	39	25	978	5.2	3.3	1.5
25	4.2	26	40	61	117	565	39	27	321	5.2	3.4	1.6
26	4.2	20	37	52	294	175	37	24	154	5.1	3.1	2.4
27	4.4	16	34	48	426	108	33	21	220	5.0	2.8	4.7
28	4.7	15	34	45	243	86	31	20	265	5.1	2.6	6.9
29	4.8	14	39	57	---	77	75	24	98	5.3	2.5	5.4
30	7.6	14	39	78	---	74	149	26	44	5.5	2.4	4.7
31	8.5	---	36	74	---	68	---	94	---	5.5	2.3	---
TOTAL	115.3	874.8	4794	6900	2952	10877	4641	2726	6859	316.5	136.3	69.7
MEAN	3.72	29.2	155	223	105	351	155	87.9	229	10.2	4.40	2.32
MAX	8.5	146	1280	1900	426	1190	500	352	1900	32	6.4	6.9
MIN	1.3	8.7	12	31	36	49	31	19	12	5.0	2.3	1.0
AC-FT	229	1740	9510	13690	5860	21570	9210	5410	13600	628	270	138
CFSM	.02	.19	1.03	1.48	.70	2.34	1.03	.59	1.52	.07	.03	.02
IN.	.03	.22	1.19	1.71	.73	2.70	1.15	.68	1.70	.08	.03	.02

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

	MEAN	38.4	51.4	106	93.1	118	129	128	152	77.1	14.9	5.52	17.0
	MAX	371	513	878	403	378	461	574	1413	517	128	54.5	246
	(WY)	1974	1975	1992	1991	1992	1973	1966	1965	1976	1981	1979	1974
	MIN	.000	.000	.36	4.03	8.28	11.2	8.41	1.82	.48	.000	.000	.000
	(WY)	1964	1964	1964	1964	1964	1967	1971	1972	1963	1964	1963	1963

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1963 - 1993

ANNUAL TOTAL	36845.83	41261.6	77.3
ANNUAL MEAN	101	113	168
HIGHEST ANNUAL MEAN			4.52
LOWEST ANNUAL MEAN			9530
HIGHEST DAILY MEAN	2470	1900	.00
LOWEST DAILY MEAN	.65	1.0	.00
ANNUAL SEVEN-DAY MINIMUM	.72	1.3	.00
INSTANTANEOUS PEAK FLOW		3290	24000
INSTANTANEOUS PEAK STAGE		13.54	15.58
ANNUAL RUNOFF (AC-FT)	73080	81840	55990
ANNUAL RUNOFF (CFSM)	.67	.75	.52
ANNUAL RUNOFF (INCHES)	9.14	10.23	7.00
10 PERCENT EXCEEDS	249	295	136
50 PERCENT EXCEEDS	24	27	11
90 PERCENT EXCEEDS	2.5	2.6	.07

ANNUAL TOTAL	4688886		3264390				
ANNUAL MEAN	12810		8944			6509	
HIGHEST ANNUAL MEAN						16810	1992
LOWEST ANNUAL MEAN						1352	1971
HIGHEST DAILY MEAN	69400	Jan 1	34100	Jun 22		109000	May 10 1990
LOWEST DAILY MEAN	808	Sep 23	881	Oct 11		300	Sep 2 1967
ANNUAL SEVEN-DAY MINIMUM	901	Oct 1	901	Oct 1		324	Aug 29 1967
INSTANTANEOUS PEAK FLOW			35300	Jun 22		109000	May 10 1990
INSTANTANEOUS PEAK STAGE			38.06	Jun 22		48.54	May 10 1990
INSTANTANEOUS LOW FLOW						275	Aug 13 1964
ANNUAL RUNOFF (AC-FT)	9300000		6475000			4716000	
10 PERCENT EXCEEDS	34100		21900			18500	
50 PERCENT EXCEEDS	6550		5790			2400	
90 PERCENT EXCEEDS	1140		1100			705	

TRINITY RIVER MAIN STEM

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: February 1964 to current year. Chemical and biochemical analyses: February 1968 to current year. Pesticide analyses: November 1971 to July 1981. Sediment records: November 1972 to September 1977.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: February 1964 to current year.

pH: March 1975 to current year.

WATER TEMPERATURE: February 1964 to September 1971, March 1975 to current year.

DISSOLVED OXYGEN: March 1975 to current year.

SUSPENDED-SEDIMENT DISCHARGE: July 1972 to September 1977.

INSTRUMENTATION.--Beginning March 1975, a four-parameter water-quality monitor continuously records specific conductance, pH, water temperature, and dissolved oxygen at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 2,370 microsiemens Sept. 22, 1964; minimum, 96 microsiemens March 29, 1989.

pH: Maximum, 9.6 units Aug. 11-12, 1981; minimum, 5.9 units Aug. 12, 1977.

WATER TEMPERATURE: Maximum, 37.0°C July 4, 1970, Sept. 4, 1978; minimum, 1.0°C Jan. 17, 1978, Nov. 24, 1984.

DISSOLVED OXYGEN: Maximum, 19.3 mg/L Feb. 10, 1981; minimum, 0.0 mg/L Apr. 20, 1976.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 812 microsiemens Sept. 6; minimum, 102 microsiemens June 21-22.

pH: Maximum, 8.2 units Aug. 21-23; minimum 6.9 units June 21-22.

WATER TEMPERATURE: Maximum, 32.5°C Aug. 17-21; minimum, 9.0°C Jan. 27.

DISSOLVED OXYGEN: Maximum 11.8 mg/L Dec. 11-12; minimum, 4.3 mg/L, June 15.

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

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)
DEC											
02...	1300	--	--	--	--	--	--	--	--	--	--
02...	1400	--	--	--	--	--	--	--	--	--	--
02...	1401	--	--	--	--	--	--	--	--	--	--
JAN											
20...	1152	6500	410	7.9	10.0	10.2	90	1.4	130	35	43
APR											
26...	1200	7530	363	7.3	20.0	7.5	83	2.0	150	37	50
JUN											
09...	1102	2120	562	7.3	25.0	7.0	85	1.3	180	52	60
JUL											
23...	1053	4640	403	8.0	25.0	6.4	78	1.0	130	25	46
AUG											
20...	1115	1100	615	8.1	31.0	7.5	101	1.5	170	50	60
SEP											
10...	1052	1400	625	7.7	23.5	6.9	79	1.1	160	72	55

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
DEC										
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
JAN										
20...	5.1	27	1	4.6	94	47	30	0.40	9.4	231
APR										
26...	4.9	21	0.8	4.7	110	40	24	0.30	6.5	221
JUN										
09...	6.7	48	2	5.8	120	67	55	0.40	9.3	328
JUL										
23...	4.6	32	1	5.1	110	39	29	0.40	4.8	237
AUG										
20...	6.1	58	2	8.1	120	65	70	0.70	8.1	374
SEP										
16...	5.8	58	2	8.0	89	70	69	0.90	9.6	362

TRINITY RIVER MAIN STEM

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued
(National stream-quality accounting network)

MONTH YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT. 1992	41093	557	312	34600	52	5790	64	7080	150
NOV. 1992	81740	450	255	56300	36	7920	50	11100	140
DEC. 1992	335930	291	168	152000	17	15000	31	28500	110
JAN. 1993	304560	322	185	152000	19	15900	35	28700	120
FEB. 1993	442330	329	189	226000	20	23600	36	42600	120
MAR. 1993	731500	308	178	351000	18	34800	33	65600	110
APR. 1993	429950	349	200	232000	22	25400	38	44100	120
MAY 1993	346910	354	203	190000	22	21100	39	36100	120
JUNE 1993	302040	298	171	140000	19	15200	32	26400	100
JULY 1993	160070	405	231	99900	29	12300	45	19300	130
AUG. 1993	42900	616	343	39800	62	7140	71	8250	160
SEPT 1993	45367	660	366	44800	71	8670	77	9450	160
TOTAL	3264390	**	**	1719000	**	193000	**	327000	**
MTD.AVG.	8944	340	195	**	22	**	37	**	120

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	548	500	531	568	536	546	345	326	335	367	325	359
2	578	540	548	699	568	595	405	345	362	360	319	331
3	566	509	548	700	586	638	425	405	415	393	360	377
4	509	479	488	654	637	645	457	425	444	396	244	328
5	519	487	507	656	553	626	456	448	450	297	245	282
6	567	519	539	565	489	533	472	450	459	306	228	271
7	612	567	594	552	491	531	496	472	484	313	255	292
8	650	610	629	544	525	538	520	496	507	265	251	256
9	666	650	661	525	474	493	535	520	527	269	242	262
10	697	664	682	505	479	496	547	535	540	282	242	263
11	---	---	692	507	486	494	567	547	561	333	266	300
12	---	---	702	565	501	530	571	564	566	333	287	305
13	---	---	712	567	545	559	590	570	580	294	282	287
14	---	---	719	555	530	542	591	314	512	292	284	289
15	---	---	717	562	527	542	314	181	238	302	282	285
16	711	684	692	583	516	560	281	177	209	325	302	319
17	700	672	685	628	567	602	366	251	291	393	325	342
18	681	666	672	641	628	638	251	214	224	400	393	399
19	689	576	665	640	461	586	222	216	219	404	399	402
20	674	560	615	484	435	458	229	216	223	399	378	383
21	675	390	518	592	482	531	248	229	238	415	289	361
22	415	394	408	567	476	507	267	248	258	328	284	314
23	394	381	384	519	339	434	275	264	271	377	324	345
24	393	383	388	496	360	457	279	264	268	438	377	412
25	406	393	399	416	336	381	307	279	295	393	323	347
26	425	406	415	336	325	329	314	307	312	359	331	345
27	447	425	436	332	314	324	324	313	318	359	333	344
28	462	447	456	322	303	310	324	314	320	460	359	413
29	475	462	468	348	322	339	359	316	344	449	396	426
30	500	470	486	348	324	332	377	359	366	419	396	405
31	540	500	520	---	---	---	378	359	365	431	406	423
MONTH	711	381	564	700	303	503	591	177	371	460	228	338

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	435	410	420	281	268	275	364	359	362	450	301	382
2	---	---	345	277	267	272	373	362	368	343	277	323
3	---	---	325	280	264	272	371	366	369	374	285	348
4	---	---	355	291	277	285	369	357	365	339	328	333
5	---	---	390	307	289	299	357	337	342	335	332	333
6	---	---	345	329	304	318	353	338	346	342	330	337
7	---	---	300	341	324	335	338	313	322	359	327	346
8	---	---	315	347	339	344	326	309	317	360	346	351
9	---	---	330	351	336	347	363	314	340	370	356	365
10	---	---	340	354	347	351	363	336	350	356	294	313
11	---	---	350	358	346	354	347	327	336	325	284	298
12	---	---	360	359	292	327	341	334	337	358	325	347
13	---	---	370	301	287	295	353	340	344	352	293	326
14	---	---	375	297	280	288	361	319	350	330	298	314
15	---	---	355	283	276	279	325	313	319	342	329	336
16	---	---	310	300	282	291	390	314	353	349	341	346
17	---	---	265	322	300	310	406	355	381	350	343	346
18	---	---	275	335	312	327	385	297	345	373	350	358
19	---	---	285	336	332	334	328	299	317	382	337	369
20	---	---	295	332	315	321	336	327	331	368	325	339
21	---	---	305	321	309	314	350	336	344	393	368	382
22	---	---	315	323	259	304	414	346	368	406	393	402
23	---	---	325	259	244	250	414	348	377	405	399	403
24	347	326	340	282	249	267	348	323	329	413	399	407
25	353	345	349	283	278	281	331	327	329	413	410	412
26	355	344	352	290	279	286	351	329	341	418	412	415
27	355	340	349	304	290	297	409	351	390	425	416	419
28	340	272	288	317	303	311	412	409	410	464	425	445
29	---	---	---	332	317	325	429	412	420	461	388	402
30	---	---	---	344	332	339	456	429	442	416	391	402
31	---	---	---	360	344	354	---	---	---	423	390	405
MONTH	435	272	333	360	244	308	456	297	355	464	277	365
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	408	380	394	358	335	349	---	---	465	739	723	732
2	438	398	426	358	350	354	---	---	480	752	735	744
3	477	438	460	366	356	361	---	---	490	754	740	747
4	540	461	499	393	366	383	---	---	510	768	743	755
5	606	540	579	402	392	397	---	---	585	788	741	764
6	607	593	600	429	402	419	---	---	680	812	762	783
7	611	558	592	429	419	423	---	---	555	782	751	764
8	577	553	565	433	418	424	---	---	605	780	743	761
9	581	562	571	433	418	427	---	---	610	777	746	758
10	573	515	531	418	411	415	---	---	615	794	765	778
11	532	377	518	412	406	409	---	---	620	810	771	789
12	494	377	442	411	405	408	---	---	625	799	767	783
13	595	420	503	409	402	406	---	---	600	774	718	738
14	696	595	663	412	404	408	---	---	590	734	652	710
15	622	338	392	415	407	411	---	---	625	652	621	631
16	416	361	399	417	409	412	---	---	644	679	651	668
17	412	382	391	420	415	418	653	637	644	753	675	712
18	412	394	400	436	419	429	676	653	662	768	712	739
19	418	375	411	443	435	438	681	661	671	748	685	729
20	375	264	293	602	443	503	663	600	628	687	486	586
21	274	102	172	602	422	484	630	601	610	486	447	464
22	166	102	138	422	412	416	646	629	636	490	458	474
23	261	166	212	417	411	413	670	645	656	469	437	455
24	263	241	251	414	410	412	681	659	670	476	449	460
25	274	237	266	413	408	411	695	671	681	496	476	484
26	255	220	231	417	408	412	711	693	703	529	496	513
27	299	255	284	418	412	414	722	705	715	566	517	541
28	362	288	318	415	410	411	735	708	724	646	560	595
29	389	303	348	427	410	419	751	710	737	664	612	643
30	335	298	313	443	427	436	749	733	740	696	641	670
31	---	---	---	---	---	450	752	722	738	---	---	---
MONTH	696	102	405	602	335	415	752	600	629	812	437	666
YEAR	812	102	438									

TRINITY RIVER MAIN STEM

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued
(National stream-quality accounting network)

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	7.7	7.6	7.7	7.7	7.6	7.7	7.7	7.6	7.7	7.9	7.8	7.8
2	7.8	7.7	7.7	7.7	7.7	7.7	7.7	7.6	7.6	7.8	7.8	7.8
3	7.9	7.8	7.8	7.7	7.7	7.7	7.7	7.6	7.7	7.8	7.8	7.8
4	7.9	7.8	7.8	7.8	7.7	7.8	7.7	7.6	7.7	7.8	7.5	7.6
5	7.9	7.8	7.8	7.8	7.7	7.8	7.7	7.7	7.7	7.6	7.4	7.5
6	7.9	7.8	7.8	7.8	7.7	7.7	7.8	7.7	7.8	7.6	7.5	7.6
7	7.9	7.8	7.9	7.8	7.7	7.8	7.8	7.8	7.8	7.6	7.5	7.5
8	8.0	7.9	7.9	7.8	7.7	7.8	7.8	7.8	7.8	7.5	7.5	7.5
9	8.0	7.9	8.0	7.7	7.7	7.7	7.8	7.8	7.8	7.6	7.5	7.5
10	8.0	7.9	7.9	7.7	7.7	7.7	7.9	7.8	7.8	7.5	7.5	7.5
11	---	---	8.0	7.7	7.6	7.7	7.9	7.8	7.9	7.7	7.5	7.6
12	---	---	---	7.7	7.6	7.7	7.9	7.8	7.9	7.7	7.6	7.7
13	---	---	---	7.7	7.7	7.7	7.9	7.8	7.8	7.7	7.7	7.7
14	---	---	7.9	7.8	7.7	7.8	7.9	7.3	7.7	7.7	7.6	7.7
15	---	---	7.9	7.8	7.8	7.8	7.3	7.2	7.3	7.7	7.6	7.6
16	7.9	7.8	7.8	7.8	7.8	7.8	7.6	7.2	7.4	7.6	7.6	7.6
17	7.8	7.7	7.8	7.8	7.8	7.8	7.8	7.5	7.7	7.7	7.6	7.7
18	7.8	7.7	7.8	7.8	7.8	7.8	7.9	7.8	7.8	7.7	7.7	7.7
19	7.8	7.8	7.8	7.8	7.6	7.7	7.8	7.7	7.8	7.7	7.7	7.7
20	7.8	7.6	7.7	7.6	7.5	7.5	7.7	7.7	7.7	7.7	7.7	7.7
21	7.6	7.3	7.5	7.6	7.5	7.6	7.7	7.6	7.6	7.7	7.6	7.7
22	7.5	7.5	7.5	7.7	7.5	7.6	7.6	7.6	7.6	7.7	7.6	7.6
23	7.5	7.5	7.5	7.7	7.6	7.7	7.6	7.5	7.5	7.7	7.6	7.6
24	7.5	7.5	7.5	7.7	7.5	7.6	7.5	7.4	7.5	7.8	7.7	7.7
25	7.5	7.5	7.5	7.7	7.6	7.6	7.5	7.5	7.5	7.7	7.7	7.7
26	7.6	7.5	7.6	7.7	7.7	7.7	7.5	7.5	7.5	7.7	7.7	7.7
27	7.6	7.6	7.6	7.8	7.7	7.8	7.6	7.5	7.5	7.7	7.7	7.7
28	7.6	7.6	7.6	7.8	7.8	7.8	7.6	7.5	7.5	7.8	7.7	7.7
29	7.7	7.6	7.6	7.8	7.8	7.8	7.6	7.5	7.6	7.8	7.6	7.8
30	7.7	7.6	7.6	7.8	7.7	7.8	7.8	7.6	7.7	7.9	7.8	7.9
31	7.7	7.6	7.6	---	---	---	7.9	7.8	7.8	7.9	7.9	7.9
MONTH	8.0	7.3	7.7	7.8	7.5	7.7	7.9	7.2	7.7	7.9	7.4	7.7
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	7.9	7.9	7.9	7.8	7.8	7.8	7.8	7.7	7.8	7.4	7.3	7.3
2	---	---	---	7.8	7.8	7.8	7.8	7.8	7.8	7.3	7.2	7.3
3	---	---	---	7.8	7.8	7.8	7.8	7.8	7.8	7.4	7.3	7.3
4	---	---	---	7.8	7.8	7.8	7.8	7.6	7.7	7.4	7.4	7.4
5	---	---	---	7.8	7.7	7.7	7.6	7.6	7.6	7.4	7.4	7.4
6	---	---	---	7.7	7.7	7.7	7.7	7.6	7.7	7.4	7.4	7.4
7	---	---	---	7.7	7.7	7.7	7.7	7.5	7.6	7.5	7.3	7.4
8	---	---	---	7.8	7.7	7.7	7.5	7.5	7.5	7.5	7.5	7.5
9	---	---	---	7.8	7.7	7.8	7.5	7.5	7.5	7.6	7.5	7.5
10	---	---	---	7.7	7.7	7.7	7.6	7.5	7.6	7.5	7.3	7.4
11	---	---	---	7.7	7.7	7.7	7.6	7.5	7.5	7.5	7.3	7.4
12	---	---	---	7.7	7.6	7.6	7.6	7.5	7.5	7.6	7.5	7.6
13	---	---	---	7.7	7.6	7.6	7.6	7.6	7.6	7.6	7.4	7.5
14	---	---	---	7.7	7.5	7.6	7.8	7.5	7.6	7.5	7.4	7.5
15	---	---	---	7.6	7.6	7.6	7.5	7.4	7.4	7.6	7.5	7.5
16	---	---	---	7.6	7.6	7.6	7.6	7.4	7.5	7.6	7.6	7.6
17	---	---	---	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
18	---	---	---	7.8	7.6	7.7	7.6	7.5	7.5	7.6	7.6	7.6
19	---	---	---	7.8	7.8	7.8	7.6	7.5	7.5	7.6	7.5	7.6
20	---	---	---	7.8	7.7	7.7	7.6	7.6	7.6	7.6	7.4	7.5
21	---	---	---	7.7	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
22	---	---	---	7.7	7.5	7.6	7.7	7.6	7.6	7.6	7.6	7.6
23	---	---	---	7.5	7.4	7.5	7.7	7.6	7.6	7.6	7.6	7.6
24	7.9	7.9	7.9	7.5	7.5	7.5	7.6	7.6	7.6	7.6	7.6	7.6
25	8.0	7.9	8.0	7.5	7.5	7.5	7.6	7.5	7.6	7.6	7.6	7.6
26	8.0	7.9	8.0	7.6	7.5	7.5	7.6	7.5	7.5	7.6	7.6	7.6
27	8.0	8.0	8.0	7.6	7.6	7.6	7.5	7.5	7.5	7.6	7.6	7.6
28	8.0	7.8	7.9	7.7	7.6	7.6	7.6	7.5	7.5	7.6	7.6	7.6
29	---	---	---	7.7	7.6	7.7	7.6	7.5	7.5	7.6	7.3	7.5
30	---	---	---	7.8	7.7	7.7	7.5	7.4	7.5	7.5	7.0	7.2
31	---	---	---	7.8	7.7	7.7	---	---	---	7.0	7.0	7.0
MONTH	8.0	7.8	7.9	7.8	7.4	7.7	7.8	7.4	7.6	7.6	7.0	7.5

TRINITY RIVER MAIN STEM

511

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued
(National stream-quality accounting network)

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.1	6.9	7.0	7.5	7.5	7.5	---	---	---	7.9	7.8	7.8
2	7.1	7.0	7.0	7.6	7.5	7.5	---	---	---	7.9	7.8	7.8
3	7.2	7.1	7.2	7.6	7.6	7.6	---	---	---	7.9	7.8	7.8
4	7.3	7.2	7.3	7.7	7.6	7.6	---	---	---	7.9	7.8	7.9
5	7.3	7.2	7.3	7.7	7.7	7.7	---	---	---	7.9	7.8	7.9
6	7.3	7.3	7.3	7.7	7.7	7.7	---	---	---	7.9	7.8	7.9
7	7.3	7.3	7.3	7.7	7.7	7.7	---	---	---	7.9	7.8	7.8
8	7.8	7.3	7.5	7.7	7.7	7.7	---	---	---	7.9	7.8	7.8
9	7.7	7.4	7.6	7.7	7.7	7.7	---	---	---	7.9	7.7	7.8
10	7.6	7.5	7.5	7.7	7.7	7.7	---	---	---	7.9	7.7	7.8
11	7.6	7.3	7.5	7.8	7.7	7.7	---	---	---	7.9	7.8	7.8
12	7.4	7.2	7.3	7.8	7.7	7.7	---	---	---	7.8	7.8	7.8
13	7.9	7.3	7.6	7.8	7.7	7.8	---	---	---	7.9	7.8	7.8
14	7.9	7.6	7.8	7.8	7.7	7.8	---	---	---	7.9	7.8	7.8
15	7.7	7.6	7.6	7.8	7.7	7.8	---	---	---	7.9	7.7	7.8
16	7.7	7.6	7.7	7.8	7.7	7.8	---	---	---	7.8	7.7	7.8
17	7.8	7.7	7.7	7.7	7.7	7.7	7.9	7.7	7.8	7.8	7.6	7.7
18	7.8	7.8	7.8	7.7	7.7	7.7	8.0	7.7	7.9	7.7	7.6	7.6
19	7.8	7.7	7.8	7.8	7.7	7.7	8.1	7.8	7.9	7.6	7.5	7.6
20	7.7	7.4	7.5	7.8	7.7	7.8	8.1	7.9	8.0	7.5	7.4	7.5
21	7.4	6.9	7.2	7.8	7.7	7.8	8.2	7.9	8.1	7.5	7.5	7.5
22	7.1	6.9	7.1	7.8	7.8	7.8	8.2	8.0	8.1	7.5	7.5	7.5
23	7.2	7.1	7.1	7.8	7.8	7.8	8.2	8.0	8.1	7.5	7.5	7.5
24	7.3	7.2	7.3	7.8	7.8	7.8	8.1	7.9	8.0	7.5	7.5	7.5
25	7.3	7.2	7.3	7.8	7.8	7.8	8.1	7.9	8.0	7.6	7.5	7.6
26	7.3	7.1	7.2	7.8	7.8	7.8	8.0	7.9	8.0	7.6	7.6	7.6
27	7.3	7.2	7.3	7.8	7.8	7.8	8.0	7.8	7.9	7.7	7.6	7.6
28	7.3	7.2	7.2	7.8	7.8	7.8	7.9	7.8	7.9	7.7	7.6	7.7
29	7.5	7.3	7.4	---	---	7.7	7.9	7.8	7.9	7.7	7.6	7.7
30	7.5	7.5	7.5	7.7	7.6	7.7	7.9	7.8	7.8	7.7	7.6	7.7
31	---	---	---	---	---	---	7.9	7.8	7.8	---	---	---
MONTH	7.9	6.9	7.4	7.8	7.5	7.7	8.2	7.7	7.9	7.9	7.4	7.7
YEAR	8.2	6.9	7.7									

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	23.5	22.0	23.0	22.5	22.0	22.5	---	---	---	12.5	12.0	12.5
2	23.0	21.5	22.5	22.0	21.0	21.5	11.5	10.5	11.0	12.0	12.0	12.0
3	24.5	22.0	23.0	21.5	20.0	21.0	11.0	10.5	11.0	12.5	11.5	12.0
4	25.0	22.5	23.5	20.0	18.5	19.5	11.5	11.0	11.0	14.0	12.5	13.0
5	24.5	22.0	23.5	18.5	17.0	17.5	11.0	10.5	10.5	13.0	12.0	12.5
6	22.5	21.5	22.0	17.0	16.0	16.5	10.5	10.0	10.0	13.0	11.5	12.5
7	---	---	---	16.5	15.5	16.0	10.0	9.5	10.0	11.5	11.0	11.0
8	22.5	21.0	22.0	15.5	15.0	15.5	10.0	9.5	10.0	11.0	11.0	11.0
9	21.5	20.5	21.0	16.0	15.0	15.5	11.0	10.0	10.5	11.0	11.0	11.0
10	22.0	21.0	21.5	16.0	15.5	16.0	11.5	10.0	11.0	11.0	10.0	10.5
11	24.0	21.5	22.5	17.0	16.0	16.5	11.0	10.0	10.5	10.0	10.0	10.0
12	25.5	22.5	24.0	17.0	16.0	16.5	11.5	10.5	11.0	10.0	10.0	10.0
13	27.0	23.0	24.5	16.5	15.5	16.0	12.5	11.5	12.0	10.0	9.5	10.0
14	27.5	24.0	26.0	16.0	15.0	15.5	13.0	12.0	12.5	9.5	9.5	9.5
15	26.5	22.0	23.5	15.5	14.5	15.0	12.0	10.5	10.5	9.5	9.5	9.5
16	22.5	22.0	22.0	---	---	---	10.5	9.5	10.0	10.0	9.5	9.5
17	22.0	21.5	22.0	16.0	14.5	15.0	11.0	10.0	10.5	10.5	9.5	10.0
18	22.0	21.0	21.5	16.5	15.5	16.0	10.5	10.0	10.5	10.5	10.5	10.5
19	21.5	20.5	21.0	16.5	16.5	16.5	10.5	10.5	10.5	10.5	10.5	10.5
20	21.5	20.5	21.0	16.5	16.5	16.5	10.5	10.5	10.5	10.5	10.0	10.5
21	---	---	---	16.5	16.0	16.5	10.5	10.5	10.5	10.5	10.0	10.0
22	22.0	21.0	21.5	16.0	15.0	15.5	10.5	10.0	10.5	11.0	10.0	10.5
23	22.0	21.0	21.5	15.0	15.0	15.0	11.5	10.5	11.0	11.5	10.0	10.5
24	22.0	21.0	21.5	15.5	15.0	15.0	11.5	11.5	11.5	11.0	10.5	11.0
25	22.5	21.0	21.5	15.0	14.0	14.5	11.5	11.0	11.5	10.5	10.0	10.0
26	22.5	21.5	22.0	14.0	13.0	13.5	11.0	11.0	11.0	10.0	9.5	9.5
27	23.0	21.5	22.0	13.0	12.0	12.5	11.0	10.5	10.5	10.0	9.0	9.5
28	22.5	21.5	22.0	12.0	11.5	12.0	11.0	10.5	11.0	10.0	9.5	9.5
29	22.5	21.5	22.0	12.0	11.5	11.5	12.0	11.0	11.5	---	---	---
30	22.5	21.5	22.0	11.5	11.0	11.5	13.0	12.0	12.5	10.0	9.5	10.0
31	23.0	22.0	22.5	---	---	---	13.0	12.5	13.0	10.5	9.5	10.0
MONTH	27.5	20.5	22.5	22.5	11.0	16.0	13.0	9.5	11.0	14.0	9.0	10.5

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

TRINITY RIVER MAIN STEM

513

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued
(National stream-quality accounting network)

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	8.2	7.5	7.8	8.0	7.8	7.9	9.6	9.2	9.4	10.1	9.9	10.0
2	---	---	---	7.9	7.5	7.7	9.8	9.4	9.6	10.3	10.1	10.2
3	---	---	---	7.6	7.4	7.5	9.8	9.3	9.6	10.6	10.3	10.4
4	---	---	---	7.7	7.3	7.5	9.9	9.7	9.8	10.4	9.4	9.9
5	---	---	---	8.0	7.6	7.8	9.9	9.8	9.9	9.6	9.1	9.4
6	---	---	---	8.1	7.7	7.9	10.3	9.9	10.1	9.7	8.9	9.3
7	8.9	5.8	7.4	8.4	8.0	8.2	10.5	10.0	10.3	10.0	9.7	9.8
8	8.4	7.4	7.8	8.5	8.3	8.4	10.8	10.3	10.6	10.2	10.0	10.1
9	8.2	7.2	7.6	8.7	8.5	8.6	11.2	10.6	10.9	10.3	10.1	10.2
10	8.9	7.3	7.8	8.8	8.7	8.7	11.5	10.5	10.9	10.1	9.9	10.0
11	---	---	---	8.7	8.6	8.7	11.8	10.7	11.2	10.5	10.0	10.3
12	---	---	---	9.2	8.6	8.9	11.8	10.8	11.2	10.7	10.5	10.6
13	---	---	---	9.2	8.7	8.9	11.3	10.9	11.1	10.6	10.3	10.5
14	---	---	---	9.3	8.8	9.1	11.0	9.3	10.4	10.6	10.5	10.6
15	---	---	---	9.5	9.0	9.3	10.0	9.3	9.8	10.8	10.6	10.7
16	7.7	7.4	7.5	9.5	9.1	9.3	10.1	9.8	9.9	10.9	10.5	10.6
17	7.6	7.1	7.3	9.2	9.0	9.1	9.9	9.5	9.8	10.8	10.5	10.6
18	7.9	7.1	7.4	9.0	8.8	8.9	9.9	9.4	9.7	10.5	10.4	10.5
19	8.0	7.4	7.7	8.8	8.3	8.6	10.0	9.8	9.9	10.5	10.4	10.4
20	7.9	6.8	7.4	8.3	8.0	8.1	9.9	9.6	9.7	10.7	10.3	10.5
21	6.8	5.8	6.2	8.3	8.0	8.2	9.7	9.2	9.4	10.8	10.3	10.6
22	7.0	6.5	6.8	8.4	8.0	8.2	9.4	9.2	9.3	11.0	10.6	10.7
23	7.3	7.0	7.2	8.2	7.5	7.8	9.2	8.8	9.1	10.8	10.5	10.7
24	7.6	7.3	7.4	7.8	7.2	7.5	8.9	8.6	8.8	10.6	10.3	10.4
25	7.8	7.5	7.6	8.1	7.1	7.6	8.8	8.7	8.7	10.6	10.2	10.4
26	7.9	7.6	7.7	8.4	8.1	8.2	8.8	8.7	8.8	10.9	10.3	10.6
27	8.0	7.7	7.8	8.8	8.4	8.6	9.3	8.8	9.1	11.0	10.6	10.8
28	8.1	7.7	7.8	9.3	8.7	9.0	9.4	9.2	9.3	10.9	10.7	10.8
29	8.0	7.7	7.8	9.5	9.0	9.3	9.8	9.3	9.6	10.8	10.1	10.5
30	8.1	7.7	7.9	9.6	9.3	9.5	10.1	9.8	10.0	10.7	10.2	10.5
31	8.1	7.7	7.8	---	---	---	10.3	10.0	10.1	10.8	10.3	10.5
MONIH	8.9	5.8	7.5	9.6	7.1	8.4	11.8	8.6	9.9	11.0	8.9	10.4
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	10.9	10.5	10.7	9.6	9.5	9.5	8.8	8.3	8.5	7.2	6.8	7.0
2	---	---	---	9.5	9.2	9.4	8.9	8.4	8.6	6.8	6.4	6.6
3	---	---	---	9.2	9.0	9.1	8.8	8.4	8.7	6.6	5.8	6.4
4	---	---	---	9.0	8.9	8.9	8.7	8.3	8.5	6.8	5.8	6.4
5	---	---	---	8.9	8.8	8.8	8.4	8.2	8.3	7.0	6.8	6.9
6	---	---	---	9.0	8.5	8.9	8.8	8.3	8.5	7.2	7.0	7.1
7	---	---	---	8.9	8.9	8.9	8.7	8.6	8.7	7.2	6.9	7.0
8	---	---	---	8.9	8.8	8.8	8.6	7.9	8.3	7.1	6.9	7.0
9	---	---	---	8.9	8.7	8.8	8.2	7.9	8.0	7.3	7.0	7.1
10	---	---	---	8.8	8.7	8.7	8.3	8.2	8.2	7.2	7.0	7.1
11	---	---	---	8.7	8.6	8.6	8.2	7.9	8.0	7.4	7.0	7.2
12	---	---	---	9.0	8.6	8.7	7.9	7.7	7.8	7.8	7.4	7.7
13	---	---	---	9.5	9.0	9.3	7.8	7.6	7.7	8.0	7.3	7.6
14	---	---	---	9.8	9.5	9.7	7.7	7.6	7.7	7.7	7.3	7.5
15	---	---	---	9.9	9.7	9.8	7.8	7.6	7.7	7.9	7.7	7.9
16	---	---	---	9.9	9.6	9.7	7.9	7.6	7.8	8.3	7.9	8.1
17	---	---	---	9.6	9.5	9.5	8.2	7.9	8.1	8.3	8.2	8.3
18	---	---	---	9.5	9.4	9.4	8.0	7.5	7.7	8.2	8.0	8.1
19	---	---	---	9.5	9.5	9.5	8.0	7.6	7.8	8.1	7.8	8.0
20	---	---	---	9.5	9.0	9.2	7.9	7.8	7.8	8.1	7.8	7.9
21	---	---	---	9.1	9.0	9.0	7.9	7.7	7.8	8.2	7.9	8.1
22	---	---	---	9.0	8.7	8.9	8.0	7.8	7.9	8.2	8.1	8.1
23	---	---	---	8.7	8.5	8.6	7.9	7.6	7.8	8.1	7.9	8.0
24	---	---	---	8.6	8.4	8.5	7.7	7.5	7.6	8.0	7.8	7.9
25	---	---	---	8.5	8.3	8.4	7.8	7.7	7.7	8.0	7.7	7.8
26	---	---	---	8.5	8.3	8.4	7.7	7.6	7.7	7.8	7.6	7.7
27	9.8	9.4	9.6	8.4	8.1	8.3	7.6	7.3	7.4	7.6	7.4	7.5
28	9.8	9.6	9.7	8.5	8.1	8.3	7.5	7.3	7.4	7.4	6.9	7.2
29	---	---	---	8.5	8.2	8.3	7.5	7.3	7.4	6.9	6.5	6.7
30	---	---	---	8.7	8.1	8.4	7.4	7.0	7.2	6.9	6.7	6.8
31	---	---	---	8.6	8.3	8.4	---	---	---	6.7	6.6	6.6
MONIII	10.9	9.4	10.0	9.9	8.1	8.9	8.9	7.0	7.9	8.3	5.8	7.4

TRINITY RIVER BASIN

515

08065800 BEDIAS CREEK NEAR MADISONVILLE, TX

LOCATION.--Lat 30°53'03", long 95°46'39", Madison-Walker County line, Hydrologic Unit 12030202, on right bank at downstream side of bridge on U.S. Highways 75 and 190, 0.5 mi upstream from Interstate Highway 45, 1.5 mi downstream from Caney Creek, and 9.5 mi southeast of Madisonville.

DRAINAGE AREA.--321 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 150.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good, except those for estimated daily discharges, which are fair. No known diversions above station. Flow may be slightly affected at times by discharge from the flood-detention pools of three floodwater-retarding structures with a combined detention capacity of 1,290 acre-ft. These structures control runoff from 2.71 mi² in the upper Caney Creek and Town Branch drainage basins. Several observations of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1910, 34 ft in May 1922 (discharge unknown), from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,400 ft³/s :

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 10	0100	6,460	19.19	Mar. 24	0100	5,600	18.83
Jan. 21	0100	3,490	17.70	May 7	2300	4,010	18.02
Mar. 21	1000	5,540	18.80	June 22	0500	16,500	21.94

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.07	12	7.2	59	172	28	723	567	186	58	1.9	1.2
2	.07	14	5.6	43	83	28	287	1020	77	41	2.1	1.0
3	.07	14	4.4	272	57	61	78	1670	39	31	2.0	1.5
4	.07	15	3.7	1340	46	65	92	1960	22	25	1.9	1.3
5	.06	14	3.1	2210	67	41	332	1170	14	20	1.8	.85
6	.05	8.9	2.7	1400	428	27	427	636	9.9	17	1.7	.56
7	.05	5.4	2.5	670	697	21	301	2360	7.6	14	1.6	.41
8	.05	4.9	2.5	e668	416	17	1030	3060	5.9	12	1.5	.33
9	.06	6.1	5.7	e2070	129	15	1680	1160	4.8	10	1.4	.27
10	.07	5.4	45	e2240	81	14	1340	1070	4.2	8.9	1.3	.27
11	.07	5.3	104	2970	70	13	265	1300	8.8	7.9	1.2	.26
12	.07	11	46	1760	79	63	93	1100	553	6.9	1.0	.21
13	.07	16	21	750	68	515	63	351	1140	6.4	.94	.21
14	.07	17	401	420	49	1200	71	93	1830	5.7	.81	.21
15	.07	6.2	3440	168	44	464	291	58	892	5.2	.74	.24
16	.28	5.6	5020	101	452	113	657	42	116	4.7	.68	.28
17	.46	6.5	2420	73	464	95	697	32	59	4.2	.58	.39
18	1.7	e6.3	779	65	265	89	147	26	99	4.0	.47	.44
19	2.0	e5.8	139	539	74	70	70	71	189	3.8	.42	.48
20	1.5	e14	92	1930	49	1080	51	62	2230	97	.38	.49
21	1.8	e156	120	2860	40	4160	39	31	6370	122	.33	.49
22	1.9	e219	198	1570	35	3000	31	20	12400	24	.27	.46
23	1.9	e303	276	530	30	3240	25	15	5410	10	.19	.30
24	1.9	e179	1100	157	26	4290	21	18	2810	6.6	.13	.18
25	1.9	e70	1670	97	23	2030	19	56	1040	4.8	.06	.11
26	1.9	e38	874	70	21	552	16	89	531	3.6	.04	.08
27	2.0	e24	436	53	27	158	15	169	659	3.0	.04	.08
28	2.1	e17	152	43	36	99	13	489	487	2.5	.08	.08
29	2.2	e13	100	54	---	73	19	212	137	2.3	.19	.08
30	3.5	10	141	283	---	61	214	179	84	1.9	.40	.08
31	6.5	---	88	448	---	304	---	127	---	1.7	.72	---
TOTAL	34.51	1222.4	17699.4	25913	4028	21986	9107	19213	37415.2	565.1	26.87	12.84
MEAN	1.11	40.7	571	836	144	709	304	620	1247	18.2	.87	.43
MAX	6.5	303	5020	2970	697	4290	1680	3060	12400	122	2.1	1.5
MIN	.05	4.9	2.5	43	21	13	13	15	4.2	1.7	.04	.08
AC-FT	68	2420	35110	51400	7990	43610	18060	38110	74210	1120	53	25
CFSM	.00	.13	1.78	2.60	.45	2.21	.95	1.93	3.89	.06	.00	.00
IN.	.00	.14	2.05	3.00	.47	2.55	1.06	2.23	4.34	.07	.00	.00

e Estimated

TRINITY RIVER BASIN

08065800 BEDIAS CREEK NEAR MADISONVILLE, TX--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1993, BY WATER YEAR (WY)

MEAN	217	134	194	327	310	293	284	351	298	24.4	21.5	101
MAX	3021	688	879	2015	1580	909	1333	1046	1745	260	216	1551
(WY)	1985	1986	1992	1991	1992	1973	1969	1969	1968	1979	1974	1974
MIN	.000	.025	.22	1.99	5.41	3.13	2.30	5.30	.82	.013	.000	.000
(WY)	1979	1989	1968	1971	1971	1971	1981	1988	1988	1977	1969	1969

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1968 - 1993	
ANNUAL TOTAL	115097.56		137223.32		212	
ANNUAL MEAN	314		376		423	
HIGHEST ANNUAL MEAN					35.8	
LOWEST ANNUAL MEAN					1985	
HIGHEST DAILY MEAN	8400	Feb 25	12400	Jun 22	23000	Jan 10 1991
LOWEST DAILY MEAN	.05	Sep 28	.04	Aug 26	.00	Aug 31 1968
ANNUAL SEVEN-DAY MINIMUM	.06	Oct 3	.06	Oct 3	.00	Aug 31 1968
INSTANTANEOUS PEAK FLOW			16500	Jun 22	33800	Sep 14 1974
INSTANTANEOUS PEAK STAGE			21.94	Jun 22	25.07	Sep 14 1974
INSTANTANEOUS LOW FLOW			.02	Aug 27	.00	at times
ANNUAL RUNOFF (AC-FT)	228300		272200		153700	
ANNUAL RUNOFF (CFSM)	.98		1.17		.66	
ANNUAL RUNOFF (INCHES)	13.34		15.90		8.98	
10 PERCENT EXCEEDS	786		1120		444	
50 PERCENT EXCEEDS	15		28		8.4	
90 PERCENT EXCEEDS	.29		.27		.04	

08065800 BEDIAS CREEK NEAR MADISONVILLE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.--Chemical analyses: July 1962 to April 1964; January 1968 to September 1974. Chemical and biochemical analyses: September 1970 to September 1974; April 1985 to 1988; April 1993 to September 1993. Pesticide analyses: April 1985 to 1988.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1984 to September 1987.

WATER TEMPERATURE: October 1984 to September 1987.

SUSPENDED SEDIMENT DISCHARGE: October 1984 to September 1986.

INSTRUMENTATION.--From September 1984 to September 1987 specific conductance and water temperature was recorded continuously at this station. Interruptions in the record were due to malfunctions of the instrument.

REMARKS.--Water-quality data collection reactivated in NAWQA program-Trinity River Basin.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1,680 microsiemens Sept. 1, 1987; minimum, 56 microsiemens Nov. 27, 1985.

WATER TEMPERATURE: Maximum, 31.5°C Aug. 9, 10, 1985; minimum, 56 microsiemens Nov. 27, 1985.

SEDIMENT CONCENTRATIONS: Maximum mean, 915 mg/L Oct. 19, 28, 1985; minimum daily mean, 10 mg/L July 25, 1985 and Aug. 11, 1986.

SEDIMENT LOADS: Maximum daily, 7,510 tons Nov. 26, 1985; minimum daily, no flow on many days.

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

		DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
APR 21...	1156	39	295	6.6	16.0	7.5	75	80	54	21	6.7
JUL 14...	0954	5.8	534	6.8	25.5	4.8	59	130	72	33	11
AUG 20...	0857	0.40	875	7.3	27.0	2.4	30	240	150	61	21
SEP 14...	1545	0.24	956	7.5	24.0	3.2	38	190	69	50	17
DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CAC03	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
APR 21...	27	1	4.1	0	32	26	57	36	0.20	18	221
JUL 14...	51	2	5.6	0	68	56	90	68	0.20	27	349
AUG 20...	86	2	7.9	0	107	88	160	120	0.20	11	546
SEP 14...	100	3	8.7	0	154	126	140	140	0.30	6.1	570
DATE	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)
APR 21...	188	0.370	0.370	0.020	0.390	0.390	0.100	0.70	0.70	0.80	0.80
JUL 14...	321	0.300	0.300	0.010	0.310	0.310	0.050	0.95	0.45	0.50	1.0
AUG 20...	521	--	--	<0.010	--	<0.050	0.070	0.53	0.53	0.60	0.60
SEP 14...	539	--	--	<0.010	--	<0.050	0.060	0.64	0.54	0.60	0.70
DATE	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	
APR 21...	0.170	0.110	0.080	0.25	12	1.2	37	99	450	150	
JUL 14...	0.190	0.190	0.150	0.46	11	0.8	26	91	170	130	
AUG 20...	0.100	0.080	0.060	0.18	9.9	0.4	7	98	360	750	
SEP 14...	0.100	0.080	0.060	0.18	9.8	0.3	9	98	150	550	

08066170 KICKAPOO CREEK NEAR ONALASKA, TX

LOCATION.--Lat 30°54'25", long 95°05'18", Polk County, Hydrologic Unit 12030202, on right bank 114 ft downstream from old bridge site, 1.2 mi downstream from Magnolia Creek, 6.2 mi upstream from Rocky Creek, 7.3 mi northeast of Onalaska, and 15.9 mi upstream from mouth.

DRAINAGE AREA.--57.0 mi².

PERIOD OF RECORD.--December 1965 to current year.

Water-quality records.--Chemical analyses: December 1963 to September 1969. Chemical and biochemical analyses: October 1969 to September 1974.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 139.85 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Low flow is sustained by sewage effluent that enters the creek upstream from this station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 19	1300	4,160	15.00	Apr. 7	1600	5,890	17.30
Mar. 22	1900	3,820	14.51				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.68	2.5	2.6	9.9	10	21	20	762	57	12	2.3	1.1
2	.64	3.0	2.5	7.6	9.4	105	18	e296	26	8.4	1.5	1.1
3	.72	14	2.3	7.0	8.3	37	93	121	15	6.6	1.1	1.1
4	.79	11	2.3	108	8.0	17	694	54	9.5	5.2	.99	1.0
5	.92	3.3	2.2	107	27	10	124	43	7.2	4.3	.99	.85
6	.93	2.1	2.2	47	67	7.4	63	90	5.8	3.8	.79	.86
7	1.0	1.9	2.2	199	31	6.4	1530	58	4.8	3.5	.77	.86
8	1.1	1.7	2.2	236	18	5.5	509	27	4.2	3.1	.76	.86
9	.95	1.7	105	408	12	4.9	115	25	4.0	2.7	.65	.86
10	.92	1.6	42	326	20	4.7	61	657	3.8	2.5	.65	.86
11	.87	1.6	13	67	29	92	43	82	3.8	2.4	.59	.72
12	.77	5.4	6.9	45	16	527	32	45	3.8	2.1	.60	.65
13	.74	3.9	5.0	29	10	112	25	26	8.0	2.1	.57	.70
14	.73	2.6	155	18	8.5	41	69	17	6.4	1.9	.51	1.3
15	.75	2.4	1010	13	9.3	28	97	12	4.4	1.8	.51	1.6
16	2.4	2.0	131	9.6	55	44	37	9.4	4.4	1.6	.51	1.1
17	2.1	1.9	45	7.4	26	36	24	7.6	5.1	1.6	.47	.83
18	1.4	1.8	25	234	14	22	20	15	15	1.6	.47	.75
19	1.3	1.9	17	2270	10	16	18	26	98	1.6	.46	.65
20	1.3	17	21	1010	9.7	432	15	11	661	1.5	.40	.70
21	1.1	66	47	196	9.9	94	15	7.0	900	1.5	.63	.70
22	.99	69	33	79	8.5	979	13	5.7	479	1.4	.75	.70
23	.99	12	33	47	6.7	622	11	5.4	135	1.3	.78	.66
24	.99	49	146	34	6.1	142	11	12	47	1.3	.63	.60
25	.99	36	80	23	6.4	88	11	13	111	1.2	.77	.57
26	1.0	9.4	106	17	8.8	62	10	49	487	1.2	.75	.51
27	1.1	5.1	51	14	6.9	45	9.7	17	323	1.0	1.4	.51
28	1.1	3.9	35	12	5.9	37	8.8	43	92	.85	3.0	.51
29	1.1	3.1	25	20	---	31	27	69	38	.86	1.9	.51
30	1.7	2.9	17	20	---	29	32	34	19	3.3	1.3	.55
31	1.8	---	14	13	---	25	---	410	---	8.0	1.1	---
TOTAL	33.87	339.7	2181.4	5633.5	457.4	3722.9	3755.5	3049.1	3578.2	92.21	28.60	24.27
MEAN	1.09	11.3	70.4	182	16.3	120	125	98.4	119	2.97	.92	.81
MAX	2.4	69	1010	2270	67	979	1530	762	900	12	3.0	1.6
MIN	.64	1.6	2.2	7.0	5.9	4.7	8.8	5.4	3.8	.85	.40	.51
AC-FT	67	674	4330	11170	907	7380	7450	6050	7100	183	57	48
CFSM	.02	.20	1.23	3.19	.29	2.11	2.20	1.73	2.09	.05	.02	.01
IN.	.02	.22	1.42	3.68	.30	2.43	2.45	1.99	2.34	.06	.02	.02

e Estimated

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

	MEAN	15.8	27.8	44.2	73.5	68.6	65.7	60.2	70.3	64.4	12.7	8.07	12.4
MAX	144	163	151	320	288	236	270	202	365	100	51.4	107	107
(WY)	1974	1975	1983	1974	1992	1990	1979	1982	1973	1989	1975	1973	1973
MIN	.31	.82	1.72	1.49	1.54	.76	1.13	.86	.31	.083	.32	.37	.37
(WY)	1988	1991	1981	1971	1971	1971	1971	1988	1971	1971	1988	1989	1989

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1967 - 1993

ANNUAL TOTAL	21699.68	22896.65	
ANNUAL MEAN	59.3	62.7	43.5
HIGHEST ANNUAL MEAN			102
LOWEST ANNUAL MEAN			4.63
HIGHEST DAILY MEAN	2600	Mar 4	5730
LOWEST DAILY MEAN	.41	Sep 20	.02
ANNUAL SEVEN-DAY MINIMUM	.52	Aug 25	.02
INSTANTANEOUS PEAK FLOW			24500
INSTANTANEOUS PEAK STAGE			30.37
ANNUAL RUNOFF (AC-FT)	43040	45420	31500
ANNUAL RUNOFF (CFSM)	1.04	1.10	.76
ANNUAL RUNOFF (INCHES)	14.16	14.94	10.36
10 PERCENT EXCEEDS	81	107	60
50 PERCENT EXCEEDS	4.8	8.0	3.5
90 PERCENT EXCEEDS	.79	.75	.46

08066190 LIVINGSTON RESERVOIR NEAR GOODRICH, TX

LOCATION.--Lat 30°38'00", long 95°00'36", Polk-San Jacinto County line, Hydrologic Unit 12030202, at left end of gated spillway at Livingston Dam on Trinity River, 4.4 mi northwest of Goodrich, 7 mi southwest of Livingston, 11.7 mi upstream from Long King Creek, and at mile 129.2.

DRAINAGE AREA.--16,583 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Trinity River Authority). Prior to Feb. 26, 1969, temporary nonrecording gages at site about 200 ft upstream and at same datum.

REMARKS.--The reservoir is formed by an earthfill dam 14,400 ft long. The dam was completed Sept. 29, 1968, and deliberate impoundment began June 26, 1969. The reservoir is operated for industrial water supply in the Houston metropolitan area. The spillway has twelve 40 x 35 ft tainter gates located near the left end of dam. Low-flow releases may be made through multi-gated inlet tower. There are five gated openings at various elevations located in the tower, and all discharge into a 10-foot-diameter concrete conduit through the dam. Flow is affected at times by discharge from the flood-detention pools of 255 floodwater-retarding structures with a combined detention capacity of 184,600 acre-ft. These structures control runoff from an 617 mi² area in the Richland, Chambers, Tehuacana, and Bedia Creek drainage basins above this station. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	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.--The capacity table, furnished by the Trinity River Authority, is based on Geological Survey topographic maps.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 2,032,000 acre-ft Jan. 14, 1991 (elevation, 133.85 ft); minimum since conservation pool capacity was reached on Nov. 2, 1971, 1,345,000 acre-ft Oct. 25, 1988 (elevation, 125.22 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,986,000 acre-ft June 26 at 1700 to 2400 hours (elevation, 133.25 ft); minimum, 1,685,000 acre-ft Sept. 13 (elevation, 129.72 ft).

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

128.0	1,550,000	131.0	1,788,000	133.0	1,958,000
129.0	1,627,000	131.5	1,830,000	133.5	2,002,000
130.0	1,707,000	132.0	1,872,000	134.0	2,046,000
130.5	1,748,000	132.5	1,915,000		

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1759000	1797000	1813000	1777000	1787000	1868000	1813000	1822000	1811000	1862000	1798000	1722000
2	1758000	1796000	1805000	1769000	1786000	1870000	1801000	1854000	1801000	1847000	1794000	1716000
3	1757000	1801000	1799000	1767000	1790000	1863000	1808000	1864000	1796000	1827000	1792000	1721000
4	1757000	1801000	1798000	1791000	1795000	1863000	1833000	1865000	1793000	1813000	1789000	1718000
5	1756000	1802000	1793000	1816000	1798000	1858000	1825000	1873000	1793000	1800000	1784000	1715000
6	1754000	1801000	1790000	1831000	1802000	1855000	1820000	1871000	1789000	1793000	1785000	1717000
7	1754000	1797000	1786000	1853000	1808000	1859000	1863000	1867000	1784000	1791000	1779000	1716000
8	1754000	1793000	1783000	1857000	1821000	1861000	1880000	1865000	1784000	1789000	1775000	1717000
9	1749000	1794000	1794000	1875000	1831000	1866000	1880000	1870000	1784000	1792000	1775000	1702000
10	1757000	1799000	1795000	1879000	1841000	1876000	1869000	1888000	1788000	1788000	1774000	1702000
11	1753000	1797000	1789000	1874000	1847000	1876000	1857000	1894000	1786000	1786000	1767000	1697000
12	1752000	1802000	1784000	1872000	1846000	1893000	1842000	1887000	1799000	1784000	1766000	1693000
13	1748000	1798000	1788000	1860000	1849000	1899000	1829000	1869000	1808000	1783000	1762000	1690000
14	1748000	1794000	1826000	1844000	1849000	1903000	1818000	1850000	1818000	1784000	1758000	1708000
15	1751000	1794000	1879000	1834000	1854000	1905000	1820000	1827000	1826000	1789000	1756000	1697000
16	1766000	1792000	1895000	1817000	1859000	1904000	1814000	1813000	1828000	1790000	1754000	1697000
17	1765000	1788000	1893000	1799000	1856000	1893000	1803000	1799000	1830000	1793000	1752000	1696000
18	1766000	1788000	1882000	1795000	1848000	1872000	1798000	1811000	1834000	1792000	1747000	1697000
19	1762000	1801000	1871000	1826000	1844000	1862000	1800000	1805000	1843000	1790000	1741000	1701000
20	1763000	1805000	1850000	1848000	1846000	1865000	1805000	1798000	1878000	1792000	1739000	1706000
21	1775000	1809000	1838000	1846000	1850000	1865000	1807000	1792000	1902000	1793000	1737000	1709000
22	1782000	1810000	1826000	1835000	1854000	1893000	1796000	1790000	1944000	1793000	1728000	1708000
23	1785000	1815000	1819000	1822000	1858000	1915000	1796000	1798000	1953000	1790000	1724000	1706000
24	1786000	1828000	1817000	1806000	1860000	1919000	1803000	1803000	1966000	1793000	1722000	1707000
25	1785000	1832000	1833000	1803000	1875000	1921000	1816000	1809000	1972000	1796000	1726000	1705000
26	1788000	1832000	1837000	1801000	1869000	1912000	1814000	1808000	1980000	1800000	1724000	1711000
27	1789000	1823000	1844000	1797000	1869000	1890000	1803000	1811000	1948000	1799000	1727000	1709000
28	1786000	1821000	1845000	1796000	1870000	1866000	1792000	1813000	1915000	1801000	1727000	1706000
29	1788000	1823000	1833000	1794000	---	1843000	1800000	1816000	1892000	1803000	1726000	1706000
30	1793000	1821000	1814000	1790000	---	1834000	1796000	1816000	1873000	1802000	1722000	1701000
31	1791000	---	1795000	1788000	---	1816000	---	1818000	---	1800000	1726000	---
MAX	1793000	1832000	1895000	1879000	1875000	1921000	1880000	1894000	1980000	1862000	1798000	1722000
MIN	1748000	1788000	1783000	1767000	1786000	1816000	1792000	1790000	1784000	1783000	1722000	1690000
(†)	131.03	131.39	131.08	130.99	131.95	131.33	131.09	131.36	132.01	131.14	130.23	129.93
(Φ)	-29000	+30000	-26000	-7000	+2000	-54000	+20000	+22000	+55000	-73000	-74000	-25000
CAL YR 1992	MAX	1965000	MIN	1748000	(Φ)	-145000						
WTR YR 1993	MAX	1980000	MIN	1690000	(Φ)	-61000						

(†) Elevation, in feet, at end of month.

(Φ) Change in contents, in acre-feet.

TRINITY RIVER MAIN STEM

08066190 LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1969 to current year.

303807095011101 - LIVINGSTON RES SITE AC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	RESER- VOIR STORAGE (AC-FT)	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)
FEB												
24...	1310	1860000	1.00	305	8.0	13.0	1.10	8.9	85	100	21	34
24...	1312	--	10.0	305	8.0	13.0	--	8.9	85	--	--	--
24...	1314	--	20.0	305	8.0	13.0	--	8.7	83	--	--	--
24...	1316	--	30.0	305	8.0	12.5	--	8.6	81	--	--	--
24...	1318	--	40.0	305	8.0	12.5	--	8.5	80	--	--	--
24...	1320	--	50.0	305	8.0	12.5	--	8.4	79	--	--	--
24...	1322	--	60.0	305	8.0	12.5	--	8.3	78	--	--	--
24...	1324	--	72.0	305	7.9	12.5	--	7.7	72	100	23	35
AUG												
25...	1155	1730000	1.00	280	8.4	31.0	0.95	8.0	108	99	17	34
25...	1157	--	10.0	280	8.0	30.0	--	4.9	65	--	--	--
25...	1159	--	20.0	280	7.7	30.0	--	3.7	49	--	--	--
25...	1201	--	30.0	280	7.5	29.5	--	2.3	30	--	--	--
25...	1203	--	40.0	280	7.4	29.5	--	0.5	7	--	--	--
25...	1205	--	50.0	300	7.4	26.5	--	0.4	5	--	--	--
25...	1207	--	60.0	335	7.4	24.5	--	0.1	1	--	--	--
25...	1209	--	72.0	370	7.6	23.0	--	0.1	1	130	8	46

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)
FEB												
24...	3.7	20	0.9	4.2	79	35	22	0.20	8.5	179	0.910	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	0.890	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
24...	3.7	20	0.9	4.4	80	35	22	0.20	8.7	181	0.870	0.870
AUG												
25...	3.4	16	0.7	3.9	82	27	18	0.20	7.9	160	--	--
25...	--	--	--	--	--	--	--	--	--	--	0.055	0.055
25...	--	--	--	--	--	--	--	--	--	--	0.170	0.170
25...	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--
25...	4.6	19	0.7	3.7	130	24	23	0.20	15	222	--	--

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB											
24...	<0.010	0.910	0.910	0.020	0.28	0.30	0.110	0.100	0.31	15	1
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	<0.010	0.890	0.890	0.040	0.36	0.40	0.110	0.090	0.28	20	<10
24...	--	--	--	--	--	--	--	--	--	--	--
24...	0.010	0.880	0.880	0.080	0.32	0.40	0.100	0.100	0.31	21	10
AUG											
25...	0.030	--	<0.050	0.030	0.27	0.30	0.090	0.080	0.25	3	10
25...	--	--	--	--	--	--	--	--	--	--	--
25...	0.030	0.085	0.085	0.040	0.36	0.40	0.100	0.090	0.28	<10	20
25...	--	--	--	--	--	--	--	--	--	--	--
25...	0.030	0.200	0.200	0.090	0.31	0.40	0.140	0.130	0.40	140	420
25...	--	--	--	--	--	--	--	--	--	--	--
25...	0.030	--	<0.050	1.30	0.40	1.7	1.30	1.10	3.4	3800	1900

TRINITY RIVER MAIN STEM

521

08066190 LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

303821095005001 - LIVINGSTON RES SITE AL

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB								
24...	1340	1.00	305	8.0	13.0	1.10	9.0	85
24...	1342	10.0	305	8.0	12.5	--	9.0	85
24...	1344	20.0	305	7.9	12.5	--	8.9	84
24...	1346	30.0	300	7.9	12.5	--	8.7	82
24...	1348	40.0	300	7.9	12.5	--	8.5	80
24...	1350	53.0	300	7.9	12.5	--	8.2	77
AUG								
25...	1235	1.00	275	8.4	31.5	0.95	7.8	106
25...	1237	10.0	280	8.0	30.0	--	4.6	61
25...	1239	20.0	280	8.0	30.0	--	5.0	67
25...	1241	30.0	280	7.6	29.5	--	0.9	12
25...	1243	40.0	285	7.6	29.5	--	0.6	8
25...	1245	50.0	295	7.8	28.0	--	0.2	3

303935095055401 - LIVINGSTON RES SITE BC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB								
24...	1200	1.00	320	8.0	13.0	1.00	9.2	87
24...	1202	10.0	320	8.0	13.0	--	9.2	87
24...	1204	20.0	320	8.0	13.0	--	9.2	87
24...	1206	30.0	320	7.9	13.0	--	9.0	85
24...	1208	40.0	325	7.9	13.0	--	8.7	83
24...	1210	50.0	325	7.9	12.5	--	8.5	80
24...	1212	60.0	325	7.9	12.5	--	7.5	70
AUG								
25...	1105	1.00	295	8.0	31.0	0.60	5.5	75
25...	1107	10.0	295	7.8	30.0	--	3.9	52
25...	1109	20.0	295	7.8	30.0	--	3.6	48
25...	1111	30.0	295	7.7	30.0	--	3.4	45
25...	1113	40.0	295	7.6	30.0	--	3.1	41
25...	1115	50.0	300	7.5	28.5	--	0.2	3
25...	1117	58.0	315	7.8	27.0	--	0.2	3

304144095073001 - LIVINGSTON RES SITE CC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB								
24...	1105	1.00	325	8.1	13.0	1.00	9.2	87
24...	1107	10.0	325	8.1	13.0	--	9.2	87
24...	1109	20.0	325	8.1	13.0	--	9.1	86
24...	1111	30.0	330	8.1	13.0	--	9.0	85
24...	1113	40.0	330	8.1	12.5	--	8.9	83
24...	1115	50.0	345	8.0	12.0	--	8.4	78
24...	1117	57.0	345	8.0	12.0	--	8.4	78
AUG								
25...	1030	1.00	300	8.2	31.0	0.50	6.0	81
25...	1032	10.0	300	8.1	30.0	--	4.6	61
25...	1034	20.0	300	8.0	30.0	--	4.6	61
25...	1036	30.0	300	8.0	30.0	--	4.7	63
25...	1038	40.0	300	7.8	30.0	--	4.1	55
25...	1040	52.0	315	7.6	27.5	--	0.1	1

TRINITY RIVER MAIN STEM

08066190 LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

304521095075501 - LIVINGSTON RES SITE DC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)
FEB											
24...	1015	1.00	350	8.3	12.5	1.00	9.4	88	0.940	0.940	0.020
24...	1017	10.0	350	8.3	12.5	--	9.4	88	--	--	--
24...	1019	20.0	350	8.3	12.5	--	9.3	87	--	--	--
24...	1021	30.0	355	8.3	12.5	--	9.1	85	--	--	--
24...	1023	40.0	355	8.3	12.5	--	8.9	83	--	--	--
24...	1025	50.0	360	8.3	12.0	--	8.6	79	--	--	--
24...	1027	58.0	360	8.2	12.0	--	8.5	79	0.870	0.870	0.020
AUG											
25...	0945	1.00	290	8.4	30.5	0.70	6.8	91	--	--	0.030
25...	0947	10.0	290	8.2	30.5	--	5.9	79	--	--	--
25...	0949	20.0	290	8.2	30.5	--	5.9	79	--	--	--
25...	0951	30.0	290	8.2	30.5	--	5.6	75	--	--	--
25...	0953	40.0	295	8.1	30.0	--	5.2	69	--	--	--
25...	0955	52.0	300	8.0	30.0	--	4.4	59	--	--	0.040

DATE	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHOPHOS- PHATE, DIS- SOLVED (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB									
24...	0.960	0.960	0.040	0.36	0.40	0.130	0.130	10	<10
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	0.890	0.890	0.100	0.30	0.40	0.120	0.110	20	10
AUG									
25...	--	<0.050	0.030	0.47	0.50	0.100	0.080	<10	<10
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	<0.050	0.060	0.34	0.40	0.090	0.090	<10	50

304453095064901 - LIVINGSTON RES SITE DL

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB								
24...	0950	1.00	335	8.4	13.0	1.00	9.3	88
24...	0952	10.0	335	8.4	13.0	--	9.3	88
24...	0954	22.0	335	8.4	13.0	--	9.2	87
AUG								
25...	0930	1.00	280	8.4	30.5	0.80	7.0	94
25...	0932	10.0	285	8.3	30.5	--	6.4	86
25...	0934	19.5	285	8.3	30.5	--	6.2	83

304659095052001 - LIVINGSTON RES SITE EC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)
FEB											
24...	0918	1.00	330	8.9	12.5	0.90	9.3	87	0.960	0.960	0.010
24...	0920	10.0	330	8.9	12.5	--	9.2	86	--	--	--
24...	0922	20.0	330	8.9	12.5	--	9.1	85	--	--	--
24...	0924	30.0	340	8.9	12.5	--	8.8	82	0.930	0.930	0.020
AUG											
25...	0900	1.00	290	8.3	30.0	0.70	6.2	83	--	--	0.030
25...	0902	10.0	290	8.2	30.0	--	5.9	79	--	--	--
25...	0904	20.0	295	8.0	30.0	--	5.7	76	--	--	--
25...	0906	32.0	305	7.6	30.0	--	3.3	44	--	--	0.030

TRINITY RIVER MAIN STEM

523

08066190 LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

304659095052001 - LIVINGSTON RES SITE EC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB										
24...	0.970	0.970	0.030	0.37	0.40	0.130	0.120	0.37	20	<10
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	0.950	0.950	0.070	0.33	0.40	0.130	0.120	0.37	30	<10
AUG										
25...	--	<0.050	0.040	0.46	0.50	0.110	0.080	0.25	<10	<10
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	<0.050	0.070	0.43	0.50	0.130	0.100	0.31	10	50

304843095104001 - LIVINGSTON RES SITE FC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB								
24...	1510	1.00	310	8.0	12.5	1.00	9.4	88
24...	1512	10.0	310	8.0	12.5	--	9.4	88
24...	1514	20.0	310	8.0	12.5	--	9.4	88
24...	1516	30.0	305	8.0	12.5	--	9.4	88
24...	1518	40.0	305	8.0	12.5	--	9.4	88
24...	1520	50.0	305	8.0	12.5	--	9.2	86
24...	1522	61.0	305	7.9	12.5	--	9.2	86
AUG								
25...	1325	1.00	350	8.6	31.5	0.45	7.1	97
25...	1327	10.0	360	8.3	30.5	--	3.6	48
25...	1329	20.0	360	8.3	30.5	--	3.6	48
25...	1331	30.0	360	8.3	30.5	--	3.6	48
25...	1333	40.0	360	8.3	30.5	--	3.3	44
25...	1335	50.0	360	8.2	30.5	--	3.1	42
25...	1337	57.0	360	8.2	30.5	--	2.4	32

305411095144901 - LIVINGSTON RES SITE GC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
FEB												
25...	0830	1.00	325	8.8	13.0	0.60	8.9	85	120	21	43	3.8
25...	0832	10.0	325	8.7	13.0	--	8.9	85	--	--	--	--
25...	0834	20.0	325	8.8	13.0	--	8.9	85	--	--	--	--
25...	0836	30.0	325	8.9	13.0	--	8.9	85	--	--	--	--
25...	0838	40.0	325	8.9	13.0	--	8.9	85	--	--	--	--
25...	0840	50.0	320	8.9	13.0	--	8.9	85	120	18	41	3.8
AUG												
26...	0845	1.00	390	8.4	30.0	0.30	5.2	69	130	15	43	4.7
26...	0847	5.00	390	8.4	30.0	--	5.1	68	--	--	--	--
26...	0849	10.0	390	8.3	29.5	--	4.9	65	--	--	--	--
26...	0851	20.0	395	8.2	29.5	--	4.3	57	--	--	--	--
26...	0853	30.0	405	8.2	29.5	--	3.9	52	--	--	--	--
26...	0855	41.0	425	8.1	29.0	--	2.5	33	140	22	46	5.0

TRINITY RIVER MAIN STEM

08066190 LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

305411095144901 - LIVINGSTON RES SITE GC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT DIS FIX END FIELD CAC03 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)
FEB											
25...	19	0.7	4.1	100	36	17	0.20	6.0	193	0.620	0.620
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	0.620	0.620
25...	--	--	--	--	--	--	--	--	--	--	--
25...	19	0.8	3.9	100	37	17	0.20	6.4	191	0.590	0.590
AUG											
26...	30	1	5.0	110	40	30	0.40	6.1	227	0.00	0.00
26...	--	--	--	--	--	--	--	--	--	0.030	0.030
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	0.040	0.040
26...	--	--	--	--	--	--	--	--	--	--	--
26...	34	1	5.2	110	42	35	0.40	6.5	244	0.120	0.120

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB											
25...	0.010	0.630	0.630	0.040	0.16	0.20	0.090	0.090	0.28	6	1
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	0.010	0.630	0.630	0.040	0.26	0.30	0.090	0.080	0.25	<10	<10
25...	--	--	--	--	--	--	--	--	--	--	--
25...	0.020	0.610	0.610	0.040	0.26	0.30	0.090	0.090	0.28	18	3
AUG											
26...	0.070	0.065	0.065	0.030	0.27	0.30	0.130	0.120	0.37	<3	3
26...	0.080	0.110	0.110	0.030	0.77	0.80	0.200	0.140	0.43	<10	<10
26...	--	--	--	--	--	--	--	--	--	--	--
26...	0.100	0.140	0.140	0.040	1.3	1.3	0.150	0.130	0.40	20	20
26...	--	--	--	--	--	--	--	--	--	--	--
26...	0.230	0.350	0.350	0.060	0.44	0.50	0.150	0.140	0.43	<3	40

305447095161401 - LIVINGSTON RES SITE HC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)
FEB											
25...	0915	1.00	295	8.1	13.0	0.90	8.1	77	0.440	0.440	0.040
25...	0917	10.0	295	8.1	13.0	--	8.1	77	--	--	--
25...	0919	20.0	295	8.2	13.0	--	8.1	77	--	--	--
25...	0921	30.0	300	8.2	13.0	--	8.2	78	--	--	--
25...	0923	40.0	305	8.2	12.5	--	8.2	77	0.520	0.520	0.020
AUG											
26...	0930	1.00	360	8.0	29.0	0.30	4.1	54	0.010	0.010	0.100
26...	0932	10.0	360	8.0	29.5	--	3.6	48	--	--	--
26...	0934	20.0	365	8.0	29.5	--	3.6	48	--	--	--
26...	0936	30.0	380	8.1	29.5	--	3.3	44	--	--	--
26...	0938	37.0	380	8.1	29.5	--	3.2	42	0.020	0.020	0.110

TRINITY RIVER MAIN STEM

525

08066190 LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

305447095161401 - LIVINGSTON RES SITE HC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB										
25...	0.480	0.480	0.080	0.32	0.40	0.070	0.060	0.18	50	10
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	0.540	0.540	0.080	0.22	0.30	0.090	0.080	0.25	20	<10
AUG										
26...	0.110	0.110	0.040	1.5	1.5	0.090	0.070	0.21	<10	30
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	0.130	0.130	0.100	0.40	0.50	0.100	0.080	0.25	<10	100

305135095193601 - LIVINGSTON RES SITE IC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB								
25...	1045	1.00	340	8.0	13.0	0.50	8.5	81
25...	1047	10.0	340	8.0	13.0	--	8.5	81
25...	1049	20.0	340	8.0	13.0	--	8.5	81
25...	1051	30.0	340	8.0	13.0	--	8.3	79
25...	1053	45.0	340	7.9	13.0	--	8.3	79
AUG								
26...	1050	1.00	505	7.9	31.5	0.55	4.1	56
26...	1052	10.0	505	7.8	31.0	--	3.2	43
26...	1054	20.0	505	7.8	31.0	--	3.1	42
26...	1056	30.0	500	7.8	31.0	--	3.0	41
26...	1058	38.0	500	7.8	31.0	--	2.6	35

305135095235401 - LIVINGSTON RES SITE JC

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
FEB												
25...	1145	1.00	345	8.0	13.0	0.50	8.5	81	130	19	44	4.0
25...	1147	10.0	345	8.0	13.0	--	8.5	81	--	--	--	--
25...	1149	20.0	345	8.0	13.0	--	8.5	81	--	--	--	--
25...	1151	30.0	345	8.0	13.0	--	8.5	81	--	--	--	--
25...	1153	45.0	345	8.0	13.0	--	8.4	80	130	19	44	4.0
AUG												
26...	1120	1.00	580	8.2	32.0	0.65	6.9	95	170	45	60	6.1
26...	1122	10.0	575	8.1	31.5	--	5.5	75	--	--	--	--
26...	1124	20.0	570	8.0	31.5	--	5.1	70	--	--	--	--
26...	1126	30.0	545	7.9	31.0	--	4.1	56	--	--	--	--
26...	1128	37.0	515	7.9	31.0	--	3.5	47	170	39	57	5.5

TRINITY RIVER MAIN STEM

08066190 LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

305135095235401 - LIVINGSTON RES SITE JC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)
FEB											
25...	20	0.8	4.1	110	37	19	0.20	5.8	201	0.630	0.630
25...	--	--	--	--	--	--	--	--	--	0.620	0.620
25...	--	--	--	--	--	--	--	--	--	--	--
25...	19	0.7	4.1	110	39	19	0.20	5.9	202	0.630	0.630
AUG											
26...	53	2	7.0	130	61	55	0.60	7.9	345	3.29	3.29
26...	--	--	--	--	--	--	--	--	--	2.89	2.89
26...	--	--	--	--	--	--	--	--	--	--	--
26...	45	2	6.1	130	52	46	0.50	8.9	307	1.85	1.85
DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- (MG/L AS N)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB											
25...	0.010	0.640	0.640	0.030	0.17	0.20	0.080	0.080	0.25	8	2
25...	--	--	--	--	--	--	--	--	--	--	--
25...	0.020	0.640	0.640	0.030	0.27	0.30	0.090	0.080	0.25	10	<10
25...	--	--	--	--	--	--	--	--	--	--	--
25...	0.010	0.640	0.640	0.030	0.27	0.30	0.090	0.080	0.25	6	1
AUG											
26...	0.310	3.60	3.60	0.040	0.46	0.50	0.280	0.270	0.83	<3	1
26...	--	--	--	--	--	--	--	--	--	--	--
26...	0.310	3.20	3.20	0.070	0.53	0.60	0.280	0.250	0.77	<10	<10
26...	--	--	--	--	--	--	--	--	--	--	--
26...	0.250	2.10	2.10	0.170	0.43	0.60	0.170	0.190	0.58	<3	43

TRINITY RIVER MAIN STEM

527

08066191 LIVINGSTON RESERVOIR AT OUTFLOW WEIR NEAR GOODRICH, TX

LOCATION.--Lat 30°37'55", long 95°01'11". San Jacinto County, Hydrologic Unit 12030202, at end of conduit into stilling basin, 1,700 ft to right of right spillway abutment, 4.8 mi northwest of Goodrich, 11.7 mi upstream from Long King Creek, and at mile 129.2.

DRAINAGE AREA.--16,583 mi².

PERIOD OF RECORD.--August 1969 to current year.

Water-quality records.--Chemical and biochemical analyses: October 1969 to September 1972.

GAGE.--Water-stage recorder, concrete control, and crest-stage gage. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Trinity River Authority). Oct. 1, 1974, to Jan. 30, 1976, staff gage and control only.

REMARKS.--Records fair. 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. These releases do not constitute the total flow from Livingston Reservoir since flow through tainter gates is not included in these totals.

AVERAGE DISCHARGE.--24 years, 198 ft³/s (143,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 3,990 ft³/s Jan 7, 1982; maximum elevation not determined, but probably occurred between May 16 and May 23, 1990; no flow for many days.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 527 ft³/s Oct. 29; maximum elevation, 85.50 ft; no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	497	514	.00	.00	255	.00	.00	279	323	.00	360	367
2	502	515	97	.00	255	.00	.00	.00	336	.00	363	366
3	498	513	286	.00	255	.00	.00	.00	345	.00	361	364
4	470	516	290	.00	262	.00	.00	.00	347	.00	362	357
5	406	517	270	.00	262	.00	.00	.00	348	.00	361	367
6	403	520	265	.00	269	.00	.00	.00	337	.00	357	380
7	391	525	271	.00	262	.00	.00	.00	314	313	359	364
8	387	525	275	.00	276	.00	.00	.00	321	321	359	370
9	382	526	274	.00	.00	.00	.00	.00	331	317	359	328
10	419	519	282	.00	.00	.00	.00	.00	336	331	359	282
11	433	524	281	.00	.00	.00	.00	.00	341	345	353	282
12	432	513	266	.00	.00	.00	.00	.00	354	348	356	270
13	438	514	277	.00	.00	.00	.00	.00	365	356	358	283
14	438	516	281	.00	.00	.00	.00	.00	366	352	363	289
15	437	517	61	.00	.00	.00	.00	.00	370	346	363	259
16	436	514	.00	.00	.00	.00	.00	.00	370	347	366	251
17	434	519	.00	.00	.00	.00	.00	.00	374	354	362	254
18	427	517	.00	.00	.00	.00	.00	.00	149	355	362	258
19	421	518	.00	.00	.00	.00	470	316	.00	350	360	270
20	423	511	.00	.00	.00	.00	452	446	.00	e350	360	301
21	428	516	.00	.00	.00	.00	450	82	.00	350	355	319
22	429	517	.00	.00	.00	.00	447	.00	.00	350	349	300
23	438	515	.00	.00	.00	.00	263	68	.00	349	356	275
24	443	518	.00	.00	.00	.00	.00	310	.00	349	354	271
25	427	526	.00	.00	.00	.00	.00	303	.00	352	354	270
26	429	520	.00	.00	.00	.00	.00	311	.00	354	355	274
27	428	515	.00	.00	.00	.00	.00	311	.00	358	357	274
28	456	.00	.00	.00	.00	.00	6.5	312	.00	357	360	260
29	527	.00	.00	.00	---	.00	315	314	.00	360	364	275
30	519	.00	.00	.00	---	.00	315	320	.00	360	368	283
31	520	---	.00	128	---	.00	---	327	---	359	357	---
TOTAL	13718	13980.00	3476.00	128.00	2096.00	0.00	2718.50	3699.00	6027.00	8683.00	11132	9063
MEAN	443	466	112	4.13	74.9	.000	90.6	119	201	280	359	302
MAX	527	526	290	128	276	.00	470	446	374	360	368	380

e Estimated

TRINITY RIVER BASIN

08066200 LONG KING CREEK AT LIVINGSTON, TX

LOCATION.--Lat 30°42'58", long 94°57'31", Polk County, Hydrologic Unit 12030202, on right bank at downstream side of bridge on U.S. Highway 190, 2 mi west of Livingston, 2 mi upstream from Choates Creek, and 14.8 mi upstream from mouth.

DRAINAGE AREA.--141 mi².

PERIOD OF RECORD.--January 1963 to current year.

Water-quality records.--Chemical analyses: January 1963 to September 1974.

GAGE.--Water-stage recorder. Datum of gage is 100.12 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. No known diversions above station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, about 41 ft in May 1929.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,600 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 15	1500	4,200	13.45	Apr. 7	2030	4,910	14.50
Jan. 20	0200	6,730	16.94	June 26	2200	4,570	14.00

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e2.1	19	20	27	52	57	21	113	11	32	e3.3	2.8
2	e1.9	18	20	25	45	358	19	501	6.4	24	e3.2	2.3
3	e2.0	9.8	17	24	41	130	23	152	e5.7	22	e3.2	1.9
4	e2.2	6.1	19	285	38	60	784	55	e5.7	16	e3.2	1.7
5	e2.3	4.3	22	559	37	40	407	42	e5.2	14	e3.1	1.9
6	e2.3	3.1	19	120	52	31	113	29	e5.2	12	e3.1	1.7
7	e2.3	2.6	14	749	52	26	1350	32	e5.0	11	e3.1	1.6
8	e2.5	3.4	12	1280	40	24	2440	19	e5.0	9.2	e3.0	1.5
9	e2.4	3.4	204	384	34	22	338	12	e5.0	8.0	e6.0	1.3
10	e2.4	2.9	239	1070	37	22	129	604	e5.0	7.4	e2.7	1.3
11	e2.3	3.3	62	369	64	20	72	191	e5.0	6.8	e2.7	1.3
12	e2.1	16	34	165	48	204	51	55	30	6.4	e2.5	1.4
13	e2.0	46	25	104	35	279	40	29	18	5.5	e2.5	2.0
14	e2.0	17	49	72	31	82	121	15	6.6	5.5	e2.4	2.2
15	e2.1	8.9	3060	57	30	53	397	11	6.0	6.0	e2.2	2.6
16	e5.3	6.4	1100	49	85	118	103	8.4	6.7	6.2	e2.2	2.4
17	9.3	5.0	197	42	74	129	52	7.4	8.6	5.5	e2.2	2.0
18	7.1	4.4	91	331	42	65	38	7.0	128	e5.1	e3.9	1.5
19	3.9	6.6	59	4060	33	47	32	15	57	e5.1	e5.4	1.4
20	3.2	222	53	4780	30	77	28	12	275	e5.1	1.9	1.7
21	2.4	133	67	905	29	92	25	7.1	128	e4.8	1.9	1.5
22	2.4	408	67	305	29	440	22	6.2	333	e4.8	2.1	1.3
23	e2.3	110	53	188	25	1510	21	6.3	390	e4.8	2.2	1.2
24	e2.3	147	78	135	23	332	21	8.4	69	e4.4	2.0	1.1
25	e2.3	306	68	97	24	145	19	9.7	51	e4.4	1.7	1.1
26	2.3	78	57	74	28	86	18	16	1200	e4.1	2.4	1.0
27	2.5	39	51	61	27	58	18	12	2110	e4.1	2.5	1.2
28	2.4	23	39	53	24	44	17	16	248	e3.6	11	1.1
29	2.4	23	33	65	---	38	45	23	122	e3.4	8.5	.98
30	7.0	23	31	105	---	35	84	11	59	e3.4	4.6	.91
31	5.4	---	29	67	---	30	---	18	---	e3.3	3.2	---
TOTAL	95.4	1698.2	5889	16607	1109	4654	6848	2043.5	5310.1	257.9	103.9	47.89
MEAN	3.08	56.6	190	536	39.6	150	228	65.9	177	8.32	3.35	1.60
MAX	9.3	408	3060	4780	85	1510	2440	604	2110	32	11	2.8
MIN	1.9	2.6	12	24	23	20	17	6.2	5.0	3.3	1.7	.91
AC-FT	189	3370	11680	32940	2200	9230	13580	4050	10530	512	206	95
CFSM	.02	.40	1.35	3.80	.28	1.06	1.62	.47	1.26	.06	.02	.01
IN.	.03	.45	1.55	4.38	.29	1.23	1.81	.54	1.40	.07	.03	.01

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1993, BY WATER YEAR (WY)

	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MEAN	31.6	75.3	129	167	168	149	142	144	150	39.8	16.7	22.4																		
MAX	292	689	491	966	629	640	844	662	869	493	191	186																		
(WY)	1974	1974	1974	1974	1974	1974	1974	1974	1974	1974	1974	1974																		
MIN	.18	.92	2.83	2.79	5.53	3.75	4.06	4.98	.72	.000	.000	.15																		
(WY)	1966	1969	1971	1971	1971	1971	1971	1978	1971	1971	1971	1967																		

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1964 - 1993

ANNUAL TOTAL	56522.7	44663.89	103
ANNUAL MEAN	154	122	256
HIGHEST ANNUAL MEAN			12.3
LOWEST ANNUAL MEAN			1973
HIGHEST DAILY MEAN	5300	4780	15900
LOWEST DAILY MEAN	1.5	.91	.00
ANNUAL SEVEN-DAY MINIMUM	1.8	1.1	.00
INSTANTANEOUS PEAK FLOW		6730	27600
INSTANTANEOUS PEAK STAGE		16.94	27.27
INSTANTANEOUS LOW FLOW		.81	.00
ANNUAL RUNOFF (AC-FT)	112100	88590	74270
ANNUAL RUNOFF (CFSM)	1.10	.87	.73
ANNUAL RUNOFF (INCHES)	14.91	11.78	9.88
10 PERCENT EXCEEDS	267	229	149
50 PERCENT EXCEEDS	19	19	12
90 PERCENT EXCEEDS	2.3	2.1	.84

08066250 TRINITY RIVER NEAR GOODRICH, TX

LOCATION.--Lat 30°34'19", Long 94°56'55", Polk-San Jacinto County line, Hydrologic Unit 12030202, on left bank at downstream bridge on U.S. Highway 59, 0.2 mi downstream from Long King Creek, 3.0 mi southeast of Goodrich, 11.9 mile downstream from Livingston Dam, and at mile 117.3.

DRAINAGE AREA.--16,844 mi².

PERIOD OF RECORD.--December 1965 to current year.
Water-quality records.--March 1966 to September 1973.

GAGE.--Water-stage recorder. Datum of gage is 40.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Twenty-two major reservoirs with a capacity of 6,246,000 acre-ft, of which 1,362,000 acre-ft is for flood control, partly regulate the flow. See station 08065000 for statement regarding floodwater-retarding structures.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1929, 52.0 ft in May 1942, from information by Texas Department of Transportation and by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1210	772	6170	17500	6820	20400	23900	7270	6530	20400	2960	1620
2	1090	1150	6040	12000	6280	21900	22500	11200	5390	19400	2960	1620
3	749	1200	5090	9010	5300	21700	21300	15900	5200	19300	2760	1480
4	e720	1670	4030	7530	5460	21400	21700	17000	3980	16800	2350	1060
5	e702	2150	3720	7650	5460	21300	21900	17500	3720	13600	2300	1040
6	e699	2190	3070	7940	5450	21200	21200	19200	3520	11400	2290	1040
7	e695	2190	2480	11700	5460	21200	22300	19400	2820	7520	2290	1030
8	e694	2200	2270	17700	5770	21200	27200	19300	2390	5640	2290	1020
9	e694	2210	2330	18100	8330	21200	25700	19200	2340	5340	2270	1020
10	e690	2220	2520	22600	10900	21200	25000	20300	2320	5320	2260	1010
11	e690	2230	2330	23600	14800	22000	24700	23500	2330	5280	2260	999
12	e690	2240	2260	23300	15100	23200	23400	24000	2410	4660	2250	1010
13	e686	2250	2230	23200	15100	25900	21600	23900	2580	4470	2250	1020
14	685	2260	2480	23100	15100	26200	19500	23600	3820	3400	2240	1020
15	681	2260	13200	23000	15100	27100	18800	21700	4640	3090	2220	1010
16	686	2260	25900	22100	16700	29100	17400	20200	5400	3050	2220	1000
17	686	2210	28200	18000	17200	29700	17000	18400	5940	3020	2220	1000
18	686	2190	28100	15600	17100	29500	15400	15300	7300	3000	2220	1000
19	686	2210	28000	17200	17000	29000	14400	14200	9120	2890	2220	992
20	686	2780	27500	24900	17000	27900	14200	14100	15600	2690	2210	985
21	685	3320	26500	23300	17000	27900	14300	12600	25200	2650	2200	985
22	677	3470	25900	21400	17100	28100	14300	9380	31100	2800	2210	987
23	679	4330	25700	20700	17100	33200	13700	7930	43800	2960	2050	990
24	681	5000	24600	18600	17100	34000	10500	6920	48300	2970	1680	987
25	684	6140	24400	14100	19200	33400	10000	6840	48800	2990	1660	977
26	689	6460	24400	11900	20200	33300	10000	6870	50900	2980	1680	970
27	688	6290	24400	9830	20200	33100	10000	6830	58400	2980	1650	965
28	686	6230	24500	9620	20200	33000	9580	6810	50600	2980	1690	920
29	686	6220	24500	9450	---	32200	7630	6840	33900	2970	1680	777
30	735	6180	24400	8270	---	29900	7370	6810	24600	2910	1650	764
31	723	---	22000	7690	---	26400	---	6770	---	2960	1630	---
TOTAL	22418	94482	469220	500590	373530	826800	526480	449770	512950	192420	66820	31298
MEAN	723	3149	15140	16150	13340	26670	17550	14510	17100	6207	2155	1043
MAX	1210	6460	28200	24900	20200	34000	27200	24000	58400	20400	2960	1620
MIN	677	772	2230	7530	5300	20400	7370	6770	2320	2650	1630	764
AC-FT	44470	187400	930700	992900	740900	1640000	1044000	892100	1017000	381700	132500	62080

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1993#, BY WATER YEAR (WY)

	MEAN	3060	5946	8204	8815	9605	11330	10990	13940	12840	4883	2213	2230
MAX	25630	30260	30270	45550	38660	40490	30750	57850	32120	24310	6819	15230	
(WY)	1974	1975	1992	1992	1992	1992	1977	1990	1973	1989	1982	1974	
MIN	283	449	317	321	472	724	1262	1294	907	1043	355	455	
(WY)	1973	1971	1971	1971	1971	1981	1971	1971	1972	1971	1972	1971	

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1967 - 1993#

ANNUAL TOTAL	5648180	4066778	7823	
ANNUAL MEAN	15430	11140	18310	1992
HIGHEST ANNUAL MEAN			746	1971
LOWEST ANNUAL MEAN			106000	May 20 1990
HIGHEST DAILY MEAN	83600	Jan 3	677	Oct 22
LOWEST DAILY MEAN	677	Oct 22	683	Oct 19
ANNUAL SEVEN-DAY MINIMUM	683	Oct 19	59500	Jun 27
INSTANTANEOUS PEAK FLOW			38.80	Jun 27
INSTANTANEOUS PEAK STAGE			46.80	May 21 1990
ANNUAL RUNOFF (AC-FT)	11200000	8066000	5668000	
10 PERCENT EXCEEDS	44600	25700	22700	
50 PERCENT EXCEEDS	6170	6460	2620	
90 PERCENT EXCEEDS	1210	982	682	

Regulated streamflow.

TRINITY RIVER BASIN

08066295 MENARD CREEK NEAR FUQUA, TX
(National water-quality assessment program)

WATER-QUALITY RECORDS

LOCATION.--Lat 30°27'42", long 94°43'22", Liberty County, 1.5 mi downstream from Menard Creek at Rye, Texas, 0.8 mi west of Hwy 105.

DRAINAGE AREA.--To be determined.

PERIOD OF RECORD.--Chemical and biochemical analyses: April 1993 to September 1993.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS TOTAL (MG/L AS CAC03)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	
APR 15...	1330	400	52	6.6	18.0	7.2	77	15	7	4.1	1.1	
JUL 13...	1154	26	65	5.8	24.5	6.7	81	14	1	3.5	1.2	
AUG 19...	1206	12	65	6.4	25.0	7.2	87	17	4	4.8	1.2	
SEP 14...	1043	10	62	6.3	24.0	6.4	76	15	3	4.1	1.2	
DATE		SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CAC03)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
APR 15...	5.7	0.6	0.70	0	10	8	2.5	10	0.20	11	56	
JUL 13...	6.8	0.8	0.70	0	15	12	1.7	12	<0.10	15	67	
AUG 19...	6.6	0.7	1.0	0	16	13	1.7	12	0.20	15	46	
SEP 14...	5.7	0.6	0.90	0	15	12	2.4	11	0.10	14	53	
DATE		SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
APR 15...	41	0.066	<0.010	0.066	0.066	0.040	0.46	0.36	0.40	0.50	0.020	
JUL 13...	50	0.150	<0.010	0.150	0.150	0.020	--	0.18	0.20	<0.20	0.020	
AUG 19...	51	0.071	<0.010	0.071	0.071	0.030	--	--	<0.20	<0.20	<0.010	
SEP 14...	48	0.080	<0.010	0.080	0.080	0.010	--	--	<0.20	<0.20	0.020	
DATE		PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. STEVE DIAM. % FINER THAN .062 MM	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	
APR 15...	0.010	<0.010	--	9.6	1.3	18	19	91	460	59		
JUL 13...	0.040	0.020	0.06	4.5	0.5	3	0.21	100	1200	60		
AUG 19...	0.030	0.010	0.03	2.5	0.3	2	0.06	94	470	90		
SEP 14...	0.020	<0.010	--	2.2	0.4	6	0.16	97	420	83		

TRINITY RIVER BASIN

531

08066300 MENARD CREEK NEAR RYE, TX

LOCATION.--Lat 30°28'52", long 94°46'46", Liberty County, Hydrologic Unit 12030202, on left bank 20 ft downstream from bridge on State Highway 146, 2.3 mi northwest of Rye, and about 6 mi upstream from mouth.

DRAINAGE AREA.--152 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1965 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of of gage is 62.32 ft above National Geodetic Vertical Datum of 1929. September 1974 to August 1976, wire-weight gage read twice daily.

REMARKS.--No estimated daily discharges. Records good. No known diversions above station. Regulation by Bear Foot Lake on Mill Creek, located 0.5 mi upstream from station. A section of the dam on this lake washed out on June 26-27, 1986, and was repaired in 1987.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1929 reached a stage of about 39.4 ft, from information by the Texas Department of Transportation. Flood in September 1961 reached a stage of about 34.0 ft, from information by local resident. Flood of May 1929 may have been equaled or exceeded by other floods during the period 1929-65.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 15	2400	1,600	19.38	Apr. 10	0600	1,630	19.46
Jan. 21	1500	2,750	21.92				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	93	59	108	208	172	99	179	114	191	29	31
2	20	98	55	102	184	572	92	205	82	134	28	27
3	20	81	53	98	166	468	87	161	64	112	29	25
4	20	85	52	115	155	438	151	132	55	94	29	23
5	19	72	50	183	151	304	270	115	49	82	27	22
6	19	57	49	213	157	180	390	105	46	73	26	21
7	19	43	48	313	158	143	563	105	43	66	25	21
8	19	37	48	473	151	124	1220	110	41	61	25	20
9	19	34	84	419	139	113	1070	96	39	57	24	20
10	19	34	129	534	135	106	1410	185	37	53	24	20
11	19	33	135	471	145	99	797	214	39	50	25	20
12	19	45	120	413	151	97	382	133	77	48	26	20
13	18	50	85	374	145	103	250	113	148	45	25	21
14	18	51	165	243	129	118	214	87	135	43	25	26
15	18	50	1170	197	121	120	247	75	87	41	24	34
16	27	43	1390	174	150	154	278	68	130	41	23	28
17	30	38	1100	157	170	186	337	62	110	40	22	26
18	26	35	1150	148	164	203	242	60	102	39	22	25
19	28	36	612	308	139	182	177	69	162	38	22	25
20	28	110	300	1010	123	163	153	71	252	37	22	26
21	25	207	232	2390	119	163	137	78	308	36	22	28
22	23	371	205	2090	116	180	124	70	400	35	24	24
23	22	290	187	1280	110	355	115	60	389	34	25	23
24	21	188	170	724	101	328	105	63	341	32	23	22
25	21	139	159	412	106	391	99	63	454	32	22	21
26	21	117	162	303	128	314	94	65	468	31	27	21
27	20	113	148	254	123	188	88	66	576	31	25	20
28	20	83	134	220	118	147	83	77	537	30	33	20
29	20	70	126	212	---	127	87	115	681	30	36	19
30	28	63	121	225	---	115	122	134	457	29	29	19
31	27	---	115	224	---	108	---	136	---	30	32	---
TOTAL	673	2766	8613	14387	3962	6461	9483	3272	6423	1695	800	698
MEAN	21.7	92.2	278	464	141	208	316	106	214	54.7	25.8	23.3
MAX	30	371	1390	2390	208	572	1410	214	681	191	36	34
MIN	18	33	48	98	101	97	83	60	37	29	22	19
AC-FT	1330	5490	17080	28540	7860	12820	18810	6490	12740	3360	1590	1380

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1993, BY WATER YEAR (WY)

	43.4	82.7	157	205	217	171	177	214	160	71.9	46.5	46.4
MEAN	43.4	82.7	157	205	217	171	177	214	160	71.9	46.5	46.4
MAX	186	514	457	777	727	510	977	757	788	464	354	192
(WY)	1974	1975	1975	1974	1992	1992	1979	1983	1986	1989	1983	1983
MIN	3.42	3.55	8.05	14.6	14.0	13.5	9.77	23.2	8.72	4.52	5.47	4.43
(WY)	1968	1968	1968	1971	1971	1971	1971	1978	1971	1971	1967	1967

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1967 - 1993

ANNUAL TOTAL	78824	59233	
ANNUAL MEAN	215	162	
HIGHEST ANNUAL MEAN			132
LOWEST ANNUAL MEAN			279
HIGHEST DAILY MEAN	3580	Mar 6	2390 Jan 21
LOWEST DAILY MEAN	18	Oct 13	18 Oct 13
ANNUAL SEVEN-DAY MINIMUM	19	Oct 9	19 Oct 9
INSTANTANEOUS PEAK FLOW			2750 Jan 21
INSTANTANEOUS PEAK STAGE			21.92 Jan 21
ANNUAL RUNOFF (AC-FT)	156300	117500	95780
10 PERCENT EXCEEDS	553	372	284
50 PERCENT EXCEEDS	80	94	49
90 PERCENT EXCEEDS	25	22	13

TRINITY RIVER BASIN

08066300 MENARD CREEK NEAR RYE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: August 1950 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	TEMPER- ATURE WATER (DEG C)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
APR 08...	1050	1310	30	17.0	8	1	2.3	0.64	3.0
MAY 19...	1105	69	103	21.5	18	7	5.2	1.3	11
JUN 23...	1213	372	52	27.0	14	6	4.1	1.0	5.7
JUL 15...	1130	41	104	27.0	20	8	5.6	1.4	13
AUG 24...	1145	24	115	28.0	21	9	6.1	1.5	14
SEP 09...	1010	20	116	25.0	20	10	5.6	1.4	13

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
APR 08...	0.5	1.1	7.0	2.8	4.8	<0.10	3.9	23
MAY 19...	1	0.80	11	2.1	23	<0.10	14	64
JUN 23...	0.7	0.90	8.0	2.6	11	<0.10	9.0	39
JUL 15...	1	0.90	12	1.8	23	<0.10	15	68
AUG 24...	1	1.2	12	1.8	26	0.20	14	72
SEP 09...	1	1.1	10	2.0	26	<0.10	15	70

08066500 TRINITY RIVER AT ROMAYOR, TX
(National stream-quality accounting network)

LOCATION.--Lat 30°25'30", long 94°51'02", Liberty County, Hydrologic Unit 12030202, near right bank at downstream side of bridge on State Highway 787, 1.9 mi south of Romayor, 1.9 mi downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 3.7 mi downstream from Big Creek, and at mile 94.3.

DRAINAGE AREA.--17,186 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1924 to current year. Monthly discharge only for some periods, published in WSP 1312.

REVISED RECORDS.--WSP 1392: 1932, 1935. WSP 1922: Drainage area. WDR TX-81-1: 1980(M, m).

GAGE.--Water-stage recorder. Datum of gage is 25.92 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1943, nonrecording gage at datum 63.57 ft higher at railroad bridge 1.9 mi upstream. Oct. 1, 1943 to Dec. 31, 1988, water-stage recorder and nonrecording gage (Sept. 15, 1975 to June 16, 1977) at present site and at datum 10.00 ft higher than current datum.

REMARKS.--Records good, including those for estimated daily discharges. Since Sept. 28, 1968, flow has been regulated by Livingston Reservoir (station 08066190), capacity 1,788,000 acre-ft, 35 mi upstream. There are no known large diversions between Livingston Reservoir and this station.

AVERAGE DISCHARGE FOR PERIOD PRIOR TO REGULATION.--44 years (water years 1925-68) 7,155 ft³/s (5,184,000 acre-ft/yr).

EXTREMES FOR PERIOD PRIOR TO REGULATION (WATER YEARS, 1925-68).--Maximum discharge, 111,000 ft³/s May 9, 1942 (gage height, 45.8 ft, from floodmark), present site and datum; minimum, 102 ft³/s Aug. 24, 25, 1956. Maximum stage since at least 1908, that of May 9, 1942.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1190	919	6750	19300	8090	21100	26600	8580	7770	23700	3820	2030
2	1320	1190	6530	14100	7710	23200	24200	10400	6710	20900	3810	2000
3	1030	1430	6040	10400	6480	23300	22800	15600	6300	20300	3750	1970
4	834	1490	4700	9030	6440	22800	22700	17200	5390	18300	3310	1520
5	808	2220	e4040	8730	6430	22500	23200	17600	4780	15100	3180	1300
6	798	2440	e3690	8670	6400	22200	22600	19400	4660	12700	3130	1270
7	789	2430	3060	11100	6410	22100	23400	19900	4060	9710	3100	1250
8	779	2420	2490	17300	6480	22000	30900	19900	3490	7440	3090	1240
9	777	2420	2590	18800	8190	22000	30000	19800	3370	6640	3080	1230
10	787	2420	2810	22100	10600	22000	28500	20200	3310	6530	3050	1230
11	771	2430	2740	24900	14100	22500	27600	23600	3320	6470	3030	1210
12	755	2460	2590	24500	15300	23400	25600	24900	3480	6060	2990	1210
13	757	2460	2520	24200	15300	27400	23300	24800	3480	5710	2970	1220
14	753	2460	2580	23900	15300	28400	20800	24600	4400	4990	2960	1240
15	750	2430	11000	23700	15400	29400	20100	22700	5400	4280	2930	1230
16	827	2420	27100	23300	16500	31900	18500	20700	6150	4190	2910	1210
17	865	2400	31300	19700	17500	33100	18000	19200	6880	4150	2900	1200
18	816	2400	31600	16600	17500	33000	16300	16400	7730	4120	2890	1190
19	785	2400	31200	16400	17500	32800	15100	14500	9750	4060	2870	1180
20	780	2790	30500	25900	17500	31600	14600	14200	14100	3820	2870	1170
21	772	3440	29000	27300	17500	31400	14500	13500	25700	3760	2850	1170
22	756	4180	28000	25000	17500	31600	14400	10900	33000	3790	2840	1160
23	746	4210	27700	23000	17500	35800	14200	9130	43200	3940	2790	1150
24	740	4910	26400	20900	17500	38700	12000	8180	51300	3980	2300	1140
25	741	e5800	25700	16400	18900	38300	10900	7820	54200	3950	2140	1120
26	739	e6300	25600	13100	20600	38000	10900	7850	55900	3920	2130	1120
27	740	e6700	25700	11200	20800	37600	10800	7820	61800	3890	2090	1100
28	721	e6800	25700	10600	20800	37400	10700	7850	61000	3890	2140	1080
29	720	e6800	25700	10500	---	36800	9240	7890	44900	3870	2180	905
30	786	e6800	25600	9600	---	35000	8660	7870	31600	3820	2120	794
31	811	---	23800	9080	---	30800	---	7850	---	3790	2080	---
TOTAL	25243	99969	504730	539310	386230	908100	571100	470840	577130	231770	88300	37839
MEAN	814	3332	16280	17400	13790	29290	19040	15190	19240	7476	2848	1261
MAX	1320	6800	31600	27300	20800	38700	30900	24900	61800	23700	3820	2030
MIN	720	919	2490	8670	6400	21100	8660	7820	3310	3760	2080	794
AC-11	50070	198300	1001000	1070000	766100	1801000	1133000	933900	1145000	459700	175100	75050

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1993#, BY WATER YEAR (WY)

	MEAN	3238	6375	9045	9771	10730	12500	11390	14510	13730	5334	2496	2445
MAX	25380	30780	31470	51740	44510	46100	31340	60070	33140	26280	7021	14850	
(WY)	1974	1975	1992	1992	1992	1992	1977	1990	1989	1989	1982	1974	
MIN	326	449	351	347	450	909	1176	1303	952	936	404	469	
(WY)	1973	1971	1971	1971	1971	1981	1971	1971	1972	1971	1972	1971	

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1969 - 1993#
ANNUAL TOTAL	6445342	4440561	
ANNUAL MEAN	17610	12170	8446
HIGHEST ANNUAL MEAN			20630
LOWEST ANNUAL MEAN			730
HIGHEST DAILY MEAN	84000	Jan 3	104000
LOWEST DAILY MEAN	720	Oct 29	292
ANNUAL SEVEN-DAY MINIMUM	735	Oct 23	297
INSTANTANEOUS PEAK FLOW			63800
INSTANTANEOUS PEAK STAGE			37.00
ANNUAL RUNOFF (AC-FT)	12780000	8808000	6119000
10 PERCENT EXCEEDS	52200	27800	24100
50 PERCENT EXCEEDS	6800	7710	2910
90 PERCENT EXCEEDS	1200	1130	824

e Estimated
Period of regulated streamflow.

TRINITY RIVER MAIN STEM

08066500 TRINITY RIVER AT ROMAYOR, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1941 to November 1949, February 1950 to September 1951, October 1953 to current year. Chemical and biochemical analyses: February 1968 to current year. Pesticide analyses: February 1968 to July 1981, August 1983 to current year. Sediment records: March 1959 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1941 to September 1942, January 1944 to September 1951, October 1953 to current year.

WATER TEMPERATURE: October 1941 to September 1950, October 1953 to current year.

SUSPENDED-SEDIMENT DISCHARGE: October 1954 to September 1955, October 1968 to September 1971.

REMARKS.--Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (1945-50, 1953 to current year): Maximum daily, 3,800 microsiemens Oct. 30, 1956; minimum daily, 103 microsiemens Nov. 9, 1946.

WATER TEMPERATURES (1953-58, 1961 to current year): Maximum daily, 37.0°C July 18, 27, 1953; minimum daily, 3.0°C Jan. 18, 1956, Jan. 15, 16, 1968, Jan. 2, 3, 1979.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 396 microsiemens Dec. 24 and 27; minimum daily, 235 microsiemens Jan. 20.

WATER TEMPERATURE: Maximum daily, 34.0°C Aug. 16; minimum daily, 11.0°C several days in Jan., Feb. and Mar.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CaCO3)	
JAN 25...	1550	15500	298	7.6	11.0	28	12.0	108	1.2	68	92	97	
MAR 24...	1128	38900	322	7.6	14.5	24	11.8	115	1.3	370	270	110	
JUN 30...	1221	31300	302	7.4	28.5	14	7.2	93	1.7	52	68	100	
JUL 13...	1355	5730	284	8.1	24.5	--	8.0	96	--	--	--	96	
AUG 19...	1518	2900	280	8.5	31.0	1.3	10.2	137	1.1	56	72	100	
SEP 15...	0955	1220	292	7.8	24.0	--	7.2	85	--	--	--	100	
DATE		HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
JAN 25...	24	33	3.4	20	0.9	4.3	0	89	73	32	20	0.20	
MAR 24...	22	38	3.8	19	0.8	4.1	0	108	88	36	21	0.30	
JUN 30...	19	34	3.6	20	0.9	3.9	0	99	81	34	25	0.20	
JUL 13...	14	33	3.4	17	0.8	3.7	0	100	82	28	19	0.20	
AUG 19...	14	35	3.3	17	0.7	3.8	6	94	88	24	20	0.20	
SEP 15...	17	36	3.6	17	0.7	3.8	0	107	88	24	20	0.30	
DATE		SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	
JAN 25...	7.2	177	168	0.820	<0.010	0.820	0.820	0.040	0.46	--	--		
MAR 24...	7.3	199	186	0.680	<0.010	0.680	0.680	0.020	0.38	--	--		
JUN 30...	7.0	188	184	1.50	<0.010	1.50	1.50	0.040	0.26	--	--		
JUL 13...	7.6	249	164	0.470	<0.010	0.470	0.470	0.030	0.27	0.27	0.30		
AUG 19...	7.7	174	164	--	<0.010	--	<0.050	0.020	0.28	--	--		
SEP 15...	8.5	179	166	--	<0.010	--	<0.050	0.020	0.38	0.28	0.30		

TRINITY RIVER MAIN STEM

535

08066500 TRINITY RIVER AT ROMAYOR, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE		NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS P04)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUM- INUM, DIS- SOLVED (UG/L AS AL)
JAN	25...	0.50	0.170	0.130	0.130	0.40	--	--	50	2090	79	20
MAR	24...	0.40	0.130	0.090	0.090	0.28	--	--	201	21100	23	--
JUN	30...	0.30	0.100	0.090	0.080	0.25	--	--	98	8280	69	20
JUL	13...	0.30	0.100	0.100	0.080	0.25	6.3	0.5	15	232	100	--
AUG	19...	0.30	0.080	0.070	0.070	0.21	8.0	0.3	15	117	99	10
SEP	15...	0.40	0.070	0.070	0.060	0.18	10	0.6	13	43	99	--
DATE		BARIUM, DIS- SOLVED (UG/L AS BA)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
JAN	25...	45	<3	44	6	4	<10	3	<1	<1.0	250	<6
MAR	24...	--	--	--	--	--	--	--	--	--	--	--
JUN	30...	47	<3	49	6	8	<10	2	<1	<1.0	260	<6
JUL	13...	--	--	140	--	5	--	--	--	--	--	--
AUG	19...	43	<3	18	11	3	<10	2	<1	<1.0	240	<6
SEP	15...	--	--	23	--	11	--	--	--	--	--	--
MONTH YEAR		DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- SIEMENS)		DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)	
OCT.	1992	25243	347		197	13400	26	1780	35	2380	120	
NOV.	1992	99969	322		183	49300	24	6500	32	8720	110	
DEC.	1992	504730	358		202	276000	28	38600	37	49800	120	
JAN.	1993	539310	302		173	252000	20	29300	29	42700	110	
FEB.	1993	386230	307		176	183000	20	21100	30	31000	110	
MAR.	1993	908100	317		181	443000	22	53600	31	76200	110	
APR.	1993	571100	276		158	243000	18	28000	27	41100	97	
MAY	1993	470840	320		182	232000	22	27600	31	39700	110	
JUNE	1993	577130	307		176	274000	21	32000	30	46500	110	
JULY	1993	231770	251		144	90000	16	10000	24	15100	90	
AUG.	1993	88300	255		147	35000	16	3710	24	5770	93	
SEPT	1993	37839	288		165	16900	18	1880	28	2820	100	
TOTAL		4440561	**		**	2108000	**	254000	**	362000	**	
WTD.AVG.		12170	308		176	**	21	**	30	**	110	

TRINITY RIVER MAIN STEM

08066500 TRINITY RIVER AT ROMAYOR, TX--Continued
(National stream-quality accounting network)

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	354	328	380	381	307	---	330	313	321	310	277	283
2	356	310	382	370	307	300	327	308	322	315	276	284
3	356	340	381	---	306	299	321	307	---	---	278	285
4	359	344	380	322	308	305	320	314	325	309	277	290
5	362	343	381	310	308	314	312	316	328	306	279	293
6	364	358	381	287	309	326	299	316	328	307	280	294
7	365	357	381	304	304	325	250	315	328	300	280	297
8	365	---	381	302	300	326	---	316	329	298	280	298
9	365	372	367	324	306	329	276	317	329	296	---	---
10	364	374	365	308	312	330	286	316	---	---	279	297
11	364	368	340	319	313	328	---	312	327	287	281	298
12	363	362	---	325	313	326	303	318	317	284	282	300
13	364	363	366	329	313	331	307	320	320	284	280	301
14	365	363	369	319	313	e327	310	322	318	283	---	300
15	364	366	306	324	307	329	307	323	319	287	283	297
16	366	---	327	329	313	330	308	325	319	287	283	298
17	---	---	368	329	306	328	309	324	320	281	281	298
18	351	367	372	327	301	327	312	325	319	278	283	303
19	351	---	377	313	302	327	313	322	319	274	283	300
20	345	351	379	235	299	326	314	326	301	271	282	302
21	353	325	378	261	304	325	315	326	305	270	281	303
22	357	322	383	268	304	327	316	328	314	269	282	304
23	363	317	392	285	307	314	317	327	317	272	282	305
24	362	342	396	303	307	319	316	326	317	---	285	305
25	361	358	---	298	306	326	317	326	318	271	288	306
26	358	356	394	303	306	328	317	326	317	272	288	305
27	357	363	396	300	308	330	317	325	303	271	287	306
28	359	368	393	294	313	329	317	324	313	277	279	308
29	359	373	392	305	---	329	317	321	298	273	284	305
30	353	379	391	303	---	329	310	321	302	273	288	308
31	350	---	388	308	---	326	---	322	---	---	---	---
MEAN	359	353	375	309	307	324	309	320	318	285	282	299
MAX	366	379	396	381	313	331	330	328	329	315	288	308
MIN	345	310	306	235	299	299	250	307	298	269	276	283

WTR YR 1993 MEAN 320 MAX 396 MIN 235

e Estimated

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.0	23.0	13.0	13.0	11.0	---	15.0	20.0	25.0	27.0	30.0	31.0
2	24.0	22.0	14.0	13.0	12.0	13.0	15.0	19.0	24.0	28.0	30.0	31.0
3	25.0	22.0	13.0	---	12.0	13.0	16.0	18.0	---	---	32.0	29.0
4	25.0	18.0	14.0	14.0	12.0	14.0	16.0	20.0	27.0	27.0	30.0	30.0
5	24.0	17.0	14.0	12.0	12.0	13.0	15.0	20.0	27.0	28.0	32.0	31.0
6	23.0	17.0	13.0	12.0	11.0	12.0	15.0	20.0	25.0	29.0	29.0	29.0
7	23.0	17.0	12.0	12.0	12.0	13.0	15.0	20.0	17.0	27.0	32.0	30.0
8	21.0	---	12.0	12.0	11.0	13.0	---	21.0	25.0	30.0	32.0	30.0
9	20.0	17.0	14.0	13.0	13.0	13.0	15.0	21.0	26.0	29.0	---	---
10	22.0	20.0	14.0	11.0	13.0	15.0	18.0	19.0	---	---	31.0	29.0
11	22.0	19.0	12.0	12.0	13.0	14.0	---	21.0	27.0	30.0	31.0	28.0
12	21.0	18.0	---	11.0	12.0	12.0	17.0	21.0	27.0	31.5	31.0	28.5
13	21.0	17.0	14.0	11.0	12.0	11.0	18.0	21.0	28.0	29.5	31.0	29.0
14	23.0	17.5	15.0	11.0	13.0	---	18.0	22.0	28.0	25.0	---	28.0
15	23.0	17.0	12.0	12.0	14.0	12.0	16.0	22.0	29.0	29.0	33.0	24.0
16	23.0	---	12.0	13.0	13.0	13.0	16.0	23.0	27.0	29.0	34.0	25.0
17	---	---	12.0	12.0	11.0	12.0	17.0	23.0	26.0	30.0	31.0	27.0
18	24.0	17.0	12.0	13.0	11.0	13.0	18.0	23.0	26.0	30.0	34.0	27.0
19	21.0	---	14.0	12.0	11.0	13.0	19.0	22.0	25.0	28.0	33.0	26.0
20	20.0	19.0	13.0	11.0	14.0	14.0	18.0	24.0	25.0	31.0	31.0	25.5
21	21.0	18.0	13.0	12.0	15.0	14.0	17.0	24.0	25.0	32.0	31.0	25.0
22	22.0	15.0	14.0	12.0	22.0	14.0	18.0	24.0	26.0	31.0	30.0	25.0
23	23.0	16.0	14.0	14.0	12.0	14.0	18.0	22.0	27.0	30.0	30.0	27.0
24	21.0	15.0	13.0	11.0	13.0	14.0	18.0	22.0	26.0	---	29.0	30.0
25	24.0	16.0	---	---	14.0	14.0	20.0	22.0	26.0	29.0	29.0	30.0
26	23.0	14.0	12.0	11.0	13.0	14.0	19.0	23.0	27.0	29.0	30.0	26.0
27	24.0	13.0	13.0	11.0	12.0	14.0	19.0	23.0	26.0	29.0	28.0	25.0
28	24.0	13.0	14.0	11.0	14.0	16.0	19.0	23.0	26.0	29.0	28.0	21.0
29	24.0	14.0	15.0	12.0	---	16.0	19.0	23.0	27.0	32.0	28.0	24.0
30	24.0	14.0	15.0	11.0	---	14.0	18.0	23.0	27.0	31.5	31.0	25.0
31	25.0	---	14.5	---	---	14.0	---	25.0	---	---	---	---
MEAN	23.0	17.0	13.5	12.0	13.0	13.5	17.0	21.5	26.0	29.5	30.5	27.5
MAX	25.0	23.0	15.0	14.0	22.0	16.0	20.0	25.0	29.0	32.0	34.0	31.0
MIN	20.0	13.0	12.0	11.0	11.0	11.0	15.0	18.0	17.0	25.0	28.0	21.0

WTR YR 1993 MEAN 20.5 MAX 34.0 MIN 11.0

TRINITY RIVER MAIN STEM

537

08067000 TRINITY RIVER AT LIBERTY, TX

LOCATION.--Lat 30°03'27", Long 94°49'05", Liberty County, Hydrologic Unit 12030203, at upstream side of upstream bridge on U.S. Highway 90 in Liberty, 345 ft downstream from Texas and New Orleans Railroad Co. bridge, and at mile 40.3.

DRAINAGE AREA.--17,468 mi².

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.

Water-quality records.--Chemical and biochemical analyses: October 1970 to September 1972. Pesticide analyses: May 1971 to September 1972.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2.22 ft below National Geodetic Vertical Datum of 1929; unadjusted land-surface subsidence. Prior to Mar. 13, 1973, nonrecording gage at site 105 ft downstream at same datum.

REMARKS.--Records fair, including those for estimated daily discharges. Discharges for current year were computed using stage discharge relationship. During years with predominantly low releases from Livingston Reservoir, discharges are estimated using records for Trinity River near Romayor (station 08066500), intervening area computation, and discharge measurements. Estimated discharges below 10,000 ft³/s are not published. Considerable regulation of flow by Livingston Reservoir (station 08066190) 88.9 mi upstream. Many diversions above station for municipal supplies, industrial uses, and irrigation. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 114,000 ft³/s May 12, 1942 (gage height, 29.38 ft); minimum not determined (affected by tides); minimum gage height observed, 2.32 ft Nov. 24, 1970. Maximum gage height since at least 1903, 30.03 ft, May 23, 1990 (at 1700 hours).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 8-11, 1922, reached a stage of 28.6 ft, present datum, from observations by the National Weather Service at nonrecording gage on railroad bridge upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 65,400 ft³/s June 29 at 1600 hours (gage height, 28.85 ft); minimum discharge not determined (affected by tides); minimum gage height, not recorded.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	24800	---	22800	34600	---	---	43800	---	---
2	---	---	---	21300	---	26400	32200	---	---	36200	---	---
3	---	---	---	16600	---	28200	30000	12100	---	31900	---	---
4	---	---	---	13300	---	28000	29000	16100	---	29000	---	---
5	---	---	---	11500	---	27000	28100	17700	---	25300	---	---
6	---	---	---	10400	---	26000	27600	18600	---	21200	---	---
7	---	---	---	---	---	25300	26900	19900	---	17700	---	---
8	---	---	---	13600	---	24800	30200	20500	---	13900	---	---
9	---	---	---	18100	---	24400	34200	20800	---	11000	---	---
10	---	---	---	20100	---	24100	35300	21000	---	---	---	---
11	---	---	---	22900	11400	23900	34200	22000	---	---	---	---
12	---	---	---	24600	14300	23900	32900	24300	---	---	---	---
13	---	---	---	25100	e15300	24800	31600	25400	---	---	---	---
14	---	---	---	25200	e15400	27000	29600	25900	---	---	---	---
15	---	---	---	25200	e15500	28500	27300	25900	---	---	---	---
16	---	---	14500	25100	15800	29700	25500	24800	---	---	---	---
17	---	---	25300	24400	16800	31400	23600	23500	---	---	---	---
18	---	---	28200	21900	17600	32400	22300	21800	---	---	---	---
19	---	---	29200	19800	17800	33000	20300	19500	---	---	---	---
20	---	---	29800	21400	e17900	33300	18300	17500	11800	---	---	---
21	---	---	29900	26900	e17900	33200	17300	16600	19600	---	---	---
22	---	---	29700	28700	17900	33200	16600	15100	28400	---	---	---
23	---	---	29200	28100	17900	34200	16300	12700	33000	---	---	---
24	---	---	28900	26700	18000	35800	15700	11000	36500	---	---	---
25	---	---	28200	24400	18400	37300	13500	---	40200	---	---	---
26	---	---	27600	20300	20400	37900	12500	---	44800	---	---	---
27	---	---	27300	17000	21700	38000	12100	---	52200	---	---	---
28	---	---	27000	14400	22100	38100	11800	---	59500	---	---	---
29	---	---	26900	13400	---	38100	11500	---	63100	---	---	---
30	---	---	26700	12700	---	37700	10200	---	55300	---	---	---
31	---	---	26400	11600	---	36600	---	---	---	---	---	---

e Estimated

TRINITY RIVER BASIN

08067070 CMA CANAL NEAR DAYTON, TX

LOCATION.--Lat 29°57'40", long 94°48'36", Liberty County, Hydrologic Unit 12030203, at flume on left bank of Coastal Water Authority canal, 1,000 ft west of the Trinity River, 2 mi east of Farm Road 1409, and 7.4 mi south-east of Dayton.

PERIOD OF RECORD.--April 1981 to current year. Prior to October 1990, published as CIWA Canal near Dayton, TX.

GAGE.--Water-stage recorder. National Geodetic Vertical Datum of gage not determined.

REMARKS.--No estimated daily discharges. Records good. There are no known diversions between pumping plant and the gage. Water is pumped from the Trinity River for industrial and municipal use in the area.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	627	609	544	526	508	511	516	607	573	804	729	352
2	610	604	521	522	472	453	515	611	519	800	753	635
3	676	592	521	515	470	498	510	636	502	817	779	693
4	622	541	545	507	466	508	498	636	618	823	777	688
5	666	542	504	540	488	522	486	611	651	817	778	693
6	667	551	512	537	538	531	481	611	648	826	779	688
7	659	558	537	543	546	530	466	616	694	823	779	698
8	580	563	555	538	577	533	434	616	742	811	779	694
9	650	570	573	529	548	532	421	616	705	799	783	695
10	625	567	587	510	536	530	429	595	701	789	779	694
11	681	578	604	454	546	526	481	610	682	782	757	697
12	623	567	607	438	555	524	519	621	655	766	741	701
13	668	552	609	444	556	524	528	625	657	743	742	709
14	666	564	610	474	538	525	525	625	632	780	742	680
15	619	564	606	476	544	529	528	625	611	774	742	603
16	526	563	529	478	515	545	535	626	597	795	741	601
17	409	565	490	476	518	558	547	626	556	811	742	603
18	377	568	525	513	521	559	547	613	593	805	743	608
19	380	570	525	521	521	557	545	629	602	466	746	612
20	424	537	482	518	520	557	543	624	581	670	741	612
21	448	544	480	506	521	556	541	618	563	730	727	611
22	565	560	512	461	531	557	528	613	576	737	727	614
23	614	543	525	444	542	560	537	605	589	776	761	292
24	612	552	514	443	549	558	534	601	617	767	748	530
25	603	553	478	464	571	558	531	617	600	758	723	759
26	604	560	476	476	573	541	528	627	593	753	750	754
27	601	567	524	475	572	500	542	625	536	748	758	733
28	598	569	515	506	572	471	622	623	523	721	748	746
29	604	570	482	532	---	457	607	621	635	727	733	749
30	600	572	506	530	---	497	572	592	768	728	664	639
31	603	---	529	526	---	516	---	585	---	728	640	---
TOTAL	18207	16915	16527	15422	14914	16323	15596	19106	18519	23674	23131	19383
MEAN	587	564	533	497	533	527	520	616	617	764	746	646
MAX	681	609	610	543	577	560	622	636	768	826	783	759
MIN	377	537	476	438	466	453	421	585	502	466	640	292
AC-FT	36110	33550	32780	30590	29580	32380	30930	37900	36730	46960	45880	38450

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1993, BY WATER YEAR (WY)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MEAN	362	353	338	332	337	352	381	410	434	460	432	408
MAX	587	564	533	509	533	527	557	616	617	764	746	646
(WY)	1993	1993	1993	1992	1993	1993	1992	1993	1993	1993	1993	1993
MIN	226	236	219	233	226	235	275	273	303	293	237	251
(WY)	1985	1985	1983	1983	1983	1985	1982	1986	1983	1983	1983	1983

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1982 - 1993

ANNUAL TOTAL	209925	217717	
ANNUAL MEAN	574	596	383
HIGHEST ANNUAL MEAN			596
LOWEST ANNUAL MEAN			259
HIGHEST DAILY MEAN	768	Aug 21	826
LOWEST DAILY MEAN	377	Oct 18	292
ANNUAL SEVEN-DAY MINIMUM	447	Oct 16	447
ANNUAL RUNOFF (AC-FT)	416400	431800	277800
10 PERCENT EXCEEDS	666	751	561
50 PERCENT EXCEEDS	564	572	365
90 PERCENT EXCEEDS	497	482	237

TRINITY RIVER BASIN

539

08067118 LAKE CHARLOTTE NEAR ANAHUAC, TX

LOCATION.--Lat 29°52'02", long 94°42'53", Chambers County, Hydrologic Unit 12030203, on east side of Lake Charlotte, which is connected to the Trinity River by a small channel, 1.0 miles west of State Highway 563, 1.9 miles north of Interstate Highway 10, and 2.7 miles northeast of Wallisville.

DRAINAGE AREA.--Not determined.

WATER-STAGE RECORDS

PERIOD OF RECORD.--December 1991 to Current year.

GAGE.--Water-stage recorder. Datum of gage is 5.81 feet below National Geodetic Vertical Datum. Water temperature, air temperature, and rain gage located at station. Telemeter at station.

REMARKS.--Records good. Lake Charlotte is a shallow natural lake within the Trinity River delta. December 1991 to November 9, 1992 the lowest stilling well intake was at gage-height 7.3 ft. Thereafter it was at gage-height 6.7 ft.

EXTREME FOR PERIOD OF RECORD.--Maximum gage height, 14.0 ft January 8, 1992 at 1815 hours.

EXTREME FOR CURRENT YEAR.--Maximum gage height, 13.1 ft June 30 at 1645 hours to July 1 at 0215 hours.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	<7.3	<7.3	6.9	11.2	9.8	11.0	11.9	9.1	8.3	12.9	<6.7	<6.7
2	<7.3	<7.3	6.9	11.2	9.1	11.3	11.9	8.9	8.3	12.5	<6.7	<6.7
3	7.3	<7.3	7.0	11.1	8.9	11.4	12.0	8.9	8.3	12.1	<6.7	<6.7
4	7.4	<7.3	7.1	11.0	8.6	11.4	11.9	9.1	8.1	11.9	<6.7	<6.7
5	7.4	<7.3	7.2	10.8	8.5	11.4	11.8	9.6	7.9	11.8	<6.7	<6.7
6	7.3	<7.3	7.0	10.2	8.2	11.4	11.7	10.0	7.8	11.6	<6.7	<6.7
7	7.4	<7.3	6.9	9.8	8.0	11.4	11.8	10.3	7.7	11.3	<6.7	<6.7
8	<7.3	<7.3	6.9	9.8	7.8	11.4	11.7	10.6	7.8	10.8	<6.7	<6.7
9	<7.3	<7.3	6.7	9.8	7.7	11.3	11.7	10.9	7.7	10.1	<6.7	<6.7
10	<7.3	7.0	7.0	10.0	7.8	11.3	11.7	11.2	7.6	9.5	<6.7	<6.7
11	<7.3	7.1	7.0	10.2	8.0	11.2	11.7	11.1	7.5	9.0	<6.7	<6.7
12	<7.3	7.3	6.8	10.3	8.3	11.2	11.7	11.1	7.3	8.6	<6.7	<6.7
13	<7.3	7.2	6.7	10.5	8.6	11.2	11.7	11.1	7.1	8.3	<6.7	<6.7
14	<7.3	7.1	6.9	10.6	8.9	11.2	11.8	11.1	6.9	8.1	<6.7	<6.7
15	<7.3	7.0	7.1	10.8	9.4	11.3	11.6	11.3	6.9	7.8	<6.7	---
16	<7.3	6.9	7.3	10.9	9.5	11.5	11.5	11.4	6.9	7.6	<6.7	---
17	<7.3	6.8	7.6	11.0	9.6	11.5	11.5	11.4	7.4	7.4	<6.7	---
18	<7.3	6.8	8.1	11.0	9.6	11.5	11.4	11.5	7.7	7.2	<6.7	---
19	<7.3	6.9	8.8	11.0	9.8	11.6	11.3	11.3	8.5	7.1	<6.7	---
20	<7.3	7.3	9.6	11.0	10.0	11.7	11.1	11.1	9.5	7.0	<6.7	---
21	<7.3	7.4	10.3	11.1	10.1	11.7	10.8	10.9	10.7	6.8	<6.7	---
22	<7.3	7.4	10.7	11.1	10.1	11.9	10.6	10.8	11.2	6.7	<6.7	---
23	<7.3	7.3	11.0	11.1	10.2	11.9	10.5	10.7	11.5	6.7	<6.7	---
24	<7.3	7.2	11.2	11.2	10.3	11.9	10.5	10.2	11.8	6.7	<6.7	---
25	<7.3	7.3	11.3	11.2	10.7	11.9	10.3	9.7	11.9	6.7	<6.7	---
26	<7.3	7.2	11.3	11.2	10.6	11.9	9.9	9.2	12.2	<6.7	<6.7	---
27	<7.3	7.0	11.3	11.1	10.6	12.0	9.6	8.9	12.4	<6.7	<6.7	---
28	<7.3	6.8	11.3	10.9	10.7	12.0	9.6	8.8	12.7	<6.7	<6.7	---
29	<7.3	6.8	11.3	10.7	---	12.0	9.5	8.6	13.0	<6.7	<6.7	---
30	<7.3	6.9	11.3	10.4	---	12.0	9.3	8.6	13.1	<6.7	<6.7	---
31	<7.3	---	11.3	10.1	---	12.0	---	8.5	---	<6.7	<6.7	---
MAX	7.4	7.4	11.3	11.2	10.7	12.0	12.0	11.5	13.1	12.9	<6.7	---
MIN	<7.3	6.8	6.7	9.8	7.7	11.0	9.3	8.5	6.9	<6.7	<6.7	---

< Actual value is known to be less than the value shown

TRINITY RIVER BASIN

08067118 LAKE CHARLOTTE NEAR ANAHUAC, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: December 1991 to current year.

INSTRUMENTATION.-- Water-quality instrumentation for water temperature. Air temperature also recorded.

REMARKS.--Water temperature probe above water surface at times. Air temperature is available but is not published.
Water and air instrumentation failure June 9 to Sept. 30.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum recorded, 36.5°C July 31, Aug. 1, 1992; minimum recorded, 5.0°C Nov. 28, 1992.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 31.0°C June 6; minimum recorded, 5.0°C Nov. 28.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	23.5	17.0	20.0	24.5	20.0	22.5	14.0	11.0	12.5	16.5	13.5	14.5
2	24.0	18.5	21.0	22.5	18.5	20.0	15.0	12.5	13.5	13.5	13.5	13.5
3	24.5	19.0	22.0	24.5	18.5	21.0	13.5	10.0	12.0	14.0	13.5	13.5
4	27.5	20.5	24.0	20.5	11.5	15.0	16.5	13.0	15.0	16.0	14.0	15.0
5	27.5	22.5	25.0	14.5	9.5	12.0	14.5	9.5	12.0	15.0	13.0	13.5
6	26.5	22.5	24.5	12.5	8.5	10.5	10.5	8.5	9.5	13.0	12.5	12.5
7	24.5	22.0	23.5	15.5	8.5	11.5	12.5	10.0	11.0	12.5	11.5	12.0
8	24.0	19.5	21.5	15.0	11.0	13.0	10.5	8.5	9.5	12.5	11.5	12.0
9	22.0	17.5	20.0	17.5	14.0	16.0	14.5	9.0	12.0	13.0	12.0	12.5
10	24.5	20.0	22.0	18.0	17.0	17.5	15.5	11.5	13.0	13.0	11.5	12.5
11	25.0	21.5	23.0	20.0	18.0	18.5	14.5	11.0	12.5	11.5	10.5	11.0
12	24.0	18.5	21.5	20.0	16.0	19.0	15.0	10.5	12.5	12.0	10.5	11.0
13	25.0	19.5	22.5	17.0	13.0	15.0	16.0	14.0	15.0	11.5	11.0	11.5
14	26.5	21.5	23.5	16.5	12.0	14.5	17.5	15.0	16.5	11.0	10.5	10.5
15	25.0	22.5	24.0	15.5	12.5	14.0	15.0	10.5	12.5	10.5	10.0	10.5
16	24.0	21.0	22.5	17.0	12.5	14.5	11.0	9.5	10.5	10.5	10.0	10.5
17	24.0	20.5	21.5	19.5	13.5	16.0	12.5	9.5	11.0	11.5	10.5	11.0
18	24.0	20.0	22.0	18.0	16.5	17.0	11.5	10.5	11.0	13.5	11.0	12.0
19	22.5	18.5	20.0	20.0	17.0	18.5	14.0	11.5	12.5	13.5	13.0	13.0
20	23.5	18.0	20.5	20.0	18.0	18.5	14.5	14.0	14.5	13.0	12.5	13.0
21	23.0	20.0	21.0	19.0	17.0	18.0	14.0	13.5	14.0	13.0	12.0	12.5
22	24.0	21.0	22.0	17.0	13.0	14.5	14.0	13.0	13.5	13.0	12.5	12.5
23	24.5	21.0	22.5	13.0	12.0	13.0	15.5	13.0	13.5	15.5	12.5	14.0
24	26.0	20.5	23.0	14.0	13.0	13.5	15.5	14.0	14.5	15.5	13.0	14.0
25	28.0	22.0	24.5	13.0	10.5	11.5	14.5	14.0	14.5	13.0	11.5	12.5
26	26.5	22.5	24.5	10.5	8.0	9.5	14.5	13.0	13.5	11.5	10.5	11.0
27	25.5	22.5	23.5	10.0	6.0	8.0	13.0	12.5	12.5	12.0	10.5	11.0
28	28.0	21.0	24.0	11.0	5.0	7.5	13.0	12.5	13.0	11.5	11.0	11.0
29	26.5	22.0	24.0	11.5	6.5	9.0	14.0	13.0	13.5	11.5	11.5	11.5
30	26.5	22.5	24.5	12.5	8.5	10.5	14.5	14.0	14.5	12.0	11.0	11.5
31	27.5	23.5	25.5	---	---	---	16.5	14.5	15.0	11.5	10.5	11.0
MONTH	28.0	17.0	22.7	24.5	5.0	14.6	17.5	8.5	12.9	16.5	10.0	12.2

541

08067118 LAKE CHARLOTTE NEAR ANAHUAC, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY	MARCH		APRIL	MAY						
1	14.0	11.5	12.5	13.5	13.0	13.0	19.0	17.5	18.0	23.5	22.5	23.0
2	13.5	12.5	13.0	15.5	13.5	14.5	18.0	17.0	17.5	23.0	21.0	22.0
3	13.0	12.0	12.5	17.0	14.5	15.5	17.0	16.5	17.0	23.0	19.5	21.5
4	14.0	12.5	13.5	15.5	14.5	15.0	18.5	16.5	17.0	24.0	21.5	22.5
5	14.0	12.5	13.0	15.0	14.0	14.5	17.0	16.0	16.0	23.0	22.0	22.5
6	13.0	11.0	12.0	16.0	14.0	15.0	16.5	16.0	16.0	23.5	21.5	22.0
7	15.0	10.5	12.5	16.5	15.0	15.5	16.5	16.0	16.0	24.5	22.5	23.5
8	15.5	12.0	14.0	17.0	15.0	16.0	17.5	16.5	16.5	24.0	23.0	23.5
9	15.0	13.5	14.0	18.0	16.0	17.0	17.5	16.0	17.0	24.5	22.5	23.5
10	16.0	14.0	15.0	18.0	17.0	17.0	19.0	16.5	17.5	24.5	22.5	23.5
11	17.5	15.0	16.0	18.0	16.5	17.0	20.0	17.5	18.5	24.0	22.0	23.0
12	15.5	13.0	14.5	16.5	12.0	14.5	20.5	19.0	19.5	24.5	22.0	23.0
13	16.0	13.0	14.5	12.5	10.5	11.5	20.0	19.5	20.0	24.0	22.0	23.0
14	15.5	14.5	15.0	12.0	10.5	11.5	20.5	19.5	20.0	24.0	22.5	23.0
15	16.0	13.5	15.0	12.5	11.5	12.0	19.5	17.0	18.0	25.0	22.5	23.5
16	16.0	13.5	15.0	14.0	12.0	13.0	19.0	17.0	18.0	25.0	24.0	24.5
17	14.5	12.5	13.5	15.5	12.5	14.5	19.0	17.5	18.5	25.5	24.0	24.5
18	13.0	11.5	12.0	15.0	14.5	14.5	20.0	17.5	18.5	25.5	24.5	24.5
19	11.5	11.0	11.0	14.5	14.0	14.5	21.0	19.0	20.0	24.5	23.5	24.0
20	14.0	11.5	13.0	16.0	14.5	15.5	20.5	20.0	20.5	24.5	23.5	23.5
21	16.5	14.0	15.5	15.5	15.0	15.5	20.5	19.0	19.5	24.0	23.0	23.5
22	16.0	15.0	15.5	16.0	14.5	15.0	20.5	18.5	19.5	24.5	23.0	23.5
23	15.5	14.5	15.0	16.0	15.5	16.0	20.5	19.0	20.0	24.0	23.0	23.5
24	15.0	14.0	14.5	16.0	15.0	15.5	21.0	19.5	20.0	24.0	22.5	23.0
25	15.0	14.0	15.0	17.0	15.5	16.0	23.0	20.5	21.0	24.0	22.5	23.0
26	15.5	14.0	14.5	18.0	16.5	17.5	22.5	21.0	21.5	23.0	22.0	22.5
27	14.5	13.0	13.5	17.5	16.0	16.5	22.0	20.5	21.5	22.5	22.0	22.5
28	13.5	12.5	13.0	17.5	16.5	17.0	22.0	21.5	21.5	24.0	21.5	22.5
29	---	---	---	17.5	17.0	17.0	22.0	21.0	21.5	24.5	23.0	23.5
30	---	---	---	19.5	16.5	18.0	24.0	20.5	22.0	26.5	23.5	25.0
31	---	---	---	19.5	18.5	19.0	---	---	---	28.5	24.0	26.0
MONTH	17.5	10.5	13.9	19.5	10.5	15.3	24.0	16.0	18.9	28.5	19.5	23.3
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	27.0	23.0	25.0	---	---	---	---	---	---	---	---	---
2	28.5	24.0	26.5	---	---	---	---	---	---	---	---	---
3	29.0	25.0	27.0	---	---	---	---	---	---	---	---	---
4	29.0	25.5	27.0	---	---	---	---	---	---	---	---	---
5	30.0	26.5	28.0	---	---	---	---	---	---	---	---	---
6	31.0	28.0	29.5	---	---	---	---	---	---	---	---	---
7	30.5	27.0	29.0	---	---	---	---	---	---	---	---	---
8	29.0	27.0	28.0	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

CEDAR BAYOU MAIN STEM

08067500 CEDAR BAYOU NEAR CROSBY, TX
(Flood-hydrograph Partial-record Station)

LOCATION.--Lat 29°58'21", long 94°59'08", Liberty County, Hydrologic Unit 12040203, on right bank at downstream side of bridge on U.S. Highway 90 and 6.6 mi northeast of Crosby.

DRAINAGE AREA.--64.9 mi².

PERIOD OF RECORD.--March to August 1946, March 1963 to February 1964, May to August 1971 (discharge measurements only), October 1971 to September 1991 (daily mean discharge); October 1991 to current year (Peak discharge greater than base discharge or annual maximum).

Water-quality records.--Chemical, biochemical, and pesticide analyses: May 1971 to September 1979.

GAGE.--Water-stage recorder. Datum of gage is 31.31 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Stage discharge relationship is affected by seasonal vegetation during most years. Low flow is sustained by drainage from irrigated lands. There are diversions upstream from station for irrigation. Gage-height telemetry at station.

AVERAGE DISCHARGE.--20 years (water years 1972-91), 78.7 ft³/s (57,020 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,760 ft³/s June 5, 1981 (gage height, 23.92 ft); maximum gage height, 25.50 ft Mar. 5, 1992; no flow occasionally during pumping season of some years.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,400 ft³/s:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 15	1500	1,620	18.49	Apr. 4	1200	1,660	18.65
Jan. 20	1600	1,580	18.35	June 20	0500	2,650	21.70
Mar. 2	0300	2,770	22.02	June 22	0100	2,590	21.55
Mar. 23	0700	1,990	19.77				

Because the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than continuous stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage of those events. The data collected for special reasons are called measurements at miscellaneous sites.

Streamflow data collected at partial-record stations where water-quality data other than observations of water temperature are not obtained are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations; the second is a table of annual maximum stage and (or) discharge at crest-stage stations. Discharge measurements made at miscellaneous sites for both low and high flows are given in a third table. Discharge measurements and water-quality data collected at partial-record stations are presented in downstream order in the section of this report entitled "Gaging-station records."

Low-flow partial-record stations

Measurements of streamflow at low-flow partial-record stations that are not published in the gaging-station section are given in the following table. Most of the measurements of low flow were made during periods when streamflow was sustained primarily by ground-water discharge. These measurements, when correlated with the simultaneous discharge of a nearby stream where continuous records are available, will indicate the low-flow potential of the stream. The years listed in the column headed "Period of record" identifies the water years in which measurements were made at the same or at practically the same site.

Discharge measurements made at low-flow partial-record station during water year 1993

Station no.	Station name	Location	Drainage area (mi²)	Period of record	Measurements	
					Date	Dis-charge (ft³/s)
Red River Basin						
07299890	Lelia Lake Creek below Bell Creek near Hedley, Tex.	Lat 34°56'08", long 100°41'46", Donley County, 150 ft down-stream from county road crossing, 1.0 mile downstream from mouth of Bell Creek, and about 5 mi north of Hedley.	74	1964-93	01-25-93	4.85
07307700	Roaring Springs near Roaring Springs, Tex.	Lat 33°51'12", long 100°51'53", Motley County, 3.5 mi south of Roaring Springs.	(a)	1937, 1943-93	01-22-93	1.32
Neches River Basin						
08041550	Village Creek at State Hwy. 327 near Silsbee, Tex.	Lat 30°20'49", long 94°14'20", Hardin County, at bridge on State Highway 327, about 1.6 mi upstream from Mill Creek, and 2.7 mi west of Silsbee.	--	1979-93	10-23-90 12-11-90 08-08-91 09-29-92 09-08-93	204 158 183 111 94.6
08041720	Pine Island Bayou at State Highway 105 near Sour Lake, Tex.	Lat 30°08'08", long 94°16'44", Hardin-Jefferson County line, at bridge on State Highway 105, about 2.0 mi upstream from mouth of Little Pine Island Bayou, and 7.9 mi east of Sour Lake.	--	1979-93	12-13-90 08-07-91 08-10-92 09-29-92 09-07-93	11.4 36.9 46.4 10.7 13.2

a Not applicable.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Crest-stage partial-record stations

The following table contains annual maximum stage and (or) discharge at partial-record stations operated primarily for the purpose of defining the flooding characteristics of the streams. At stations where discharge is given, or is footnoted "to be determined", a stage-discharge relation has been, or will be, defined by discharge measurements obtained by current meter or by indirect procedures. Water-stage recorders are located at these flood-hydrograph stations to facilitate complete hydrograph definition. At stations where only the maximum stage is given (discharge column is dashed), data are generally collected for use in stage-frequency studies of flood-profile definition. Gages at these stations usually consist of a device that will register the peak stage occurring between inspections of the gage. The years used in the column "Period of record" identify the years in which the annual maximum has been determined.

Annual maximum stage and (or) discharge during water year 1993

Station name and number	Location	Drainage area (mi²)	Period of record	Water Year 1993 maximum			Period of record maximum		
				Date	Gage height (ft)	Dis-charge (ft³)	Date	Gage height (ft)	Dis-charge (ft³)
Red River Basin									
McClellan Creek near McLean, Tex. 07301200	Lat 35°19'45", long 100°36'32", Gray County, on left bank at downstream side of bridge on State Highway 273, 5 mi upstream from mouth.	759	1967-80†	07-15-93	6.08	452	05-20-77	14.55	26,600
North Fork Red River nr Shamrock, Tex. 07301300	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 mi north of Shamrock.	1,082	1951-63	07-14-93	3.53	2,050	05-29-75	7.47	20,400
Sabine River Basin									
Long Branch at Greenville, Tex. 08017210	Lat 33°07'20", long 96°05'54", Hunt County, on left edge of low-water channel 80 ft upstream from culvert under Moulton St. (Business Rte. U.S. Highway 69), 0.5 mi upstream from IH-30, and 1.3 mi southeast of Hunt County Courthouse in Greenville.	5.37	1986-93	04-29-93	9.96	--	10-29-91	12.16	--
Trinity River Basin									
Big Fossil Creek at Haltom City, Tex. 08048800	Lat 33°48'32", long 97°15'02", Tarrant County, at center of channel at downstream side of downstream bridge on State Highway 183, 2.0 mi upstream from Little Fossil Creek, 3.5 mi upstream from mouth, and 6.0 mi northeast of downtown section of Fort Worth.	52.8	1960-73† 1974-84‡ 1985-93	12-13-92	10.66	--	09-07-62	26.90	27,000
Cedar River Basin									
Cedar Bayou near Baytown, Tex. 08067510	Lat 29°46'12", long 94°54'59", Chambers-Harris County Line, at bridge on State Highway 146, 0.2 mi downstream from Cary Bayou, 0.2 mi upstream from Saw Pit Gully, and 4.3 mi north-east of Baytown.	169	1984-93	06-19-93	*5.02	--	06-26-89	*7.19	--

u Unknown

* Elevation, in feet.

† Operated as a continuous-record station.

‡ Operated as an unpublished stage-only station.

INDEX

	Page		Page
Access to WATSTORE data	14	Data, collection and computation	7
Accuracy of the records	10	presentation	8, 13
Acre-foot, definition of	14	Definition of terms	14-21
Adenosine triphosphate (ATP), definition of	14	Denton Creek, near Justin	410
Algae, definition of	14	Diatoms, definition of	18
Algal growth potential (AGP), definition of	14	Discharge, definition of	16
Angelina River near Alto	228	Dissolved, definition of	16
Arkansas River Basin, gaging-station records in	25-41	Dissolved-solids concentration, definition of	16
Arrangement of records	11	Diversity index, definition of	16
Artificial substrate, definition of	20	Downstream order numbering	7
Ash mass, definition of	15	Drainage area, definition of	16
Attoyac Bayou near Chireno	231	Drainage Basin, definition of	16
Ayish Bayou near San Augustine	232	Dry mass, definition of	15
		Duck Creek near Garland	442
B.A. Steinhagen Lake at Town Bluff	234		
Bacteria, definition of	14	Eagle Mountain Reservoir above Fort Worth	255
Bardwell Lake near Ennis	490	East Fork Little Wichita River near Henrietta	95-96
Bayou LaNana at Nacogdoches	230	East Fork Trinity River, above Seagoville	447-449
Beans Creek near Wizard Wells	247	at McKinney	434-436
Bear Creek near Benbrook	260	at Seagoville	450-457
Beaver Creek near Electra	84-85	near Crandall	458-465
Bed load, definition of	19	near Fomey	443-446
discharge, definition of	19	Elm Fork Trinity River, at Gainesville	345
Bed material, definition of	15	near Carrollton	412-413
Bedias Creek near Madisonville	515	near Gainesville	346-347
Benbrook Lake near Benbrook	261-279	near Lewisville	407-409
Big Creek near Brasher	185	near Pilot Point	377
Big Cow Creek near Newton	211	Explanation of the records	7
Big Cypress Creek, near Jefferson	168		
near Pittsburg	166	Fecal coliform bacteria, definition of	15
Big Fossil Creek at Haltom City	544	Fecal streptococcal bacteria, definition of	15
Big Sandy Creek (Sabine River Basin) near Big Sandy	191-192		
Big Sandy Creek (Trinity River Basin) near Bridgeport	249-250	Gage height, definition of	16
Biochemical oxygen demand (BOD), definition of	15	Gaging station, definition of	16
Biomass, definition of	15	Gaging-station records	25-542
Birch Creek near Yantis	186	Garrett Creek near Paradise	251
Black Cypress Bayou at Jefferson	169-170	Grapevine Lake near Grapevine	411
Blue-green algae, definition of	18	Green algae, definition of	18
Bottom material, definition of	15	Greenbelt Lake near Clarendon	47
Bridgeport Reservoir above Bridgeport	248	Groesbeck Creek at State Highway 6 near Quanah	46
Brushy Creek at Scroggins	164		
		Hardness, definition of	16
Canadian River, above New Mexico-Texas State line	30	Hillebrandt Bayou near Lovell Lake	245
at Logan, NM	25-27	Hydrographs:	
near Amarillo	31-35	Red River near Terrell, OK	98
near Canadian	36-39	Wichita River at Wichita Falls	87
Caney Creek near Como	187	Hydrologic bench-mark network	6, 16
Cedar Bayou, near Baytown	544	Hydrologic conditions	2
near Crosby	542	Hydrologic unit	16
Cedar Creek Reservoir near Trinidad	487		
Cedar River Basin, crest-stage partial-record stations in	544	Identifying estimated daily discharge	10
gaging-station records in	542	Illustrations	4, 5
Cells/volume, definition of	15	Instantaneous discharge, definition of	16
Chambers Creek near Rice	492	Introduction	1
Chemical oxygen demand (COD), definition of	15		
Chlorophyll, definition of	15	Joe Pool Lake near Duncanville	324-341
CWA Canal near Dayton	538	Jordan Creek Tributary near Collinsville	350-351
Classification of records	11		
Clear Creek near Sanger	378-381	Kickapoo Creek (Trinity River Basin) near Onalaska	518
Clear Fork Trinity River, above Benbrook near Aledo	258-259		
at Fort Worth	282-283	Laboratory measurements	12
near Benbrook	280-281	Lake Arlington at Arlington	300-305
near Weatherford	257	Lake Arrowhead near Henrietta	92
Color unit, definition of	15	Lake Bob Sandlin near Mount Pleasant	165
Contents, definition of	15	Lake Charlotte near Anahuac	539-541
Continuing-record station, definition of	11	Lake Fork Creek near Quitman	189-190
Control, definition of	15	Lake Fork Reservoir near Quitman	188
structure	16	Lake Kemp near Mabelle	79
Cooper Lake near Cooper	119-127	Lake Kickapoo near Archer City	90
Cooperation	2	Lake Nacogdoches near Nacogdoches	229
Cowleech Fork Sabine River at Greenville	175-176	Lake O' the Pines near Jefferson	167
Cubic-foot-per-second day, definition of	16	Lake Palestine near Frankston	219
Cubic foot per second (ft ³ /s, ft ³ /s), definition of	16	Lake Ray Hubbard near Fomey	440-441
Cubic foot per second per square mile (CFSM), definition of	16	Lake Tawakoni near Wills Point	179

	Page		Page
Lake Texoma near Denison	103	Middle Pease River near Paducah	53
Lake Worth above Fort Worth	256	Middle Sulphur River at Commerce	117-118
Lake Surveys (Water Quality):		Milligrams of carbon per area or volume per unit time	18
Arlington, Lake at Arlington	301-305	Milligrams of oxygen per area or volume per unit time	19
Benbrook Lake near Benbrook	262-279	Milligrams per liter, definition of	17
Cooper Lake near Cooper	120-127	Miscellaneous sampling sites	11
Joe Pool Lake near Duncanville	325-341	Moss Lake near Gainesville	101
Lewisville Lake near Lewisville	388-406	Mountain Creek, above Duncanville	342
Livingston Reservoir near Goodrich	520-526	at Grand Prairie	344
Ray Roberts Lake near Pilot Point	358-376	near Venus	319-320
Wright Patman Lake near Texarkana	146-161	Mountain Creek Lake near Grand Prairie	343
Lakes and reservoirs:		National Geodetic Vertical Datum (NGVD), definition of	17
Arlington, Lake, at Arlington	300-305	National stream-quality accounting network (NASQAN),	
Arrowhead, Lake, near Henrietta	92	definition of	17
B.A. Steinhagen Lake at Town Bluff	234	National Trends Network (NTN), definition of	17
Bardwell Lake near Ennis	490	Natural substrate, definition of	20
Benbrook Lake near Benbrook	261-279	Navarro Mills Lake near Dawson	488
Bob Sandlin Lake near Mount Pleasant	165	Neches River, at Evadale	236-240
Bridgeport Reservoir above Bridgeport	248	near Town Bluff	235
Cedar Creek Reservoir near Trinidad	487	near Diboll	223
Charlotte Lake near Anahuac	539-541	near Neches	220-222
Cooper Lake near Cooper	119-127	near Rockland	224-227
Eagle Mountain Reservoir above Fort Worth	255	Neches River Basin, gaging-station records in	219-243
Grapevine Lake near Grapevine	411	low-flow partial-record stations in	543
Greenbelt Lake near Clarendon	47	North Fork Red River near Shamrock	544
Joe Pool Lake near Duncanville	324-341	North Sulphur River near Cooper	131-134
Kemp, Lake, near Mabelle	79	North Wichita River near Truscott	62-64
Kickapoo, Lake, near Archer City	90		
Lake Fork Reservoir near Quitman	188	On-site measurements and sample collection	11
Lavon Lake near Lavon	438	Organic mass, definition of	15
Lewisville Lake near Lewisville	387-406	Organism, definition of	17
Livingston Reservoir near Goodrich	519-526	Organism count/area, definition of	17
Martin Lake near Tatum	201	Organism count/volume, definition of	17
Moss Lake near Gainesville	101	Other records available	11
Mountain Creek Lake near Grand Prairie	343		
Nacogdoches, Lake, near Nacogdoches	229	Parameter code, definition of	17
Navarro Mills Lake near Dawson	488	Partial-record station, definition of	11, 17
O' the Pines, Lake, near Jefferson	167	Partial-record stations, crest-stage	544
Palestine, Lake, near Frankston	219	low-flow	543
Pat Mayse Lake near Chicota	104	Particle size, definition of	17
Ray Hubbard, Lake, near Forney	440-441	Particle-size classification, definition of	18
Ray Roberts Lake near Pilot Point	357-376	Pat Mayse Lake near Chicota	104
Richland-Chambers Reservoir near Kerens	497	Pease River, near Childress	54-55
Sam Rayburn Reservoir near Jasper	233	near Vernon	56
Tawakoni, Lake, near Wills Point	179	Pecan Creek near Aubrey	386
Texoma, Lake, near Denison	103	Percent composition, definition of	18
Toledo Bend Reservoir near Burkeville	205	Periphyton, definition of	18
Truscott Brine Lake near Truscott	61	Pesticides, definition of	18
Wright Patman Lake near Texarkana	145-161	Phytoplankton, definition of	18
Worth, Lake, above Fort Worth	256	Picocurie, definition of	18
Lavon Lake near Lavon	438	Pine Island Bayou, at St. Hwy. 105 near Sour Lake	543
Lelia Lake Creek below Bell Creek near Hedley	543	near Sour Lake	243
Lewisville Lake near Lewisville	387-406	Plankton, definition of	18
Little Cypress Creek, near Jefferson	172-174	Polychlorinated biphenyls (PCBs), definition of	18
near Ore City	171	Prairie Creek at U.S. Highway 175, Dallas	433
Little Elm Creek near Aubrey	382-385	Prairie Dog Town Fork Red River, near Childress	45
Little Wichita River, above Henrietta	93-94	near Wayside	42-44
near Archer City	91	Primary productivity, definition of	18
Livingston Reservoir, at outflow weir near Goodrich	527	Publications of techniques of water-resources investigations	22-23
near Goodrich	519-526		
Long Branch at Greenville	544	Radiochemical program	6, 19
Long King Creek at Livingston	528	Range Creek above Tioga	355-356
Low-flow partial-record stations, definition of	7	near Collinsville	352
		Ray Roberts Lake near Pilot Point	357-376
Martin Creek near Tatum	202-203	Records, accuracy of	10
Martin Lake near Tatum	201	arrangement of	11
McClellan Creek near McLean	544	classification of	11
Mean concentration, definition of	19	explanation of	7
Mean discharge, definition of	16	of stage and water discharge	7
Menard Creek near Fuqua	530	of surface-water quality	11
near Rye	531	other available	11
Metamorphic stage, definition of	16	Recoverable from bottom material, definition of	19
Methylene blue active substance (MBAS), definition of	17	Red River, at Arthur City	105
Micrograms per gram, definition of	17		
Micrograms per liter, definition of	17		

	Page		Page
Red River, at Index, AR	109-111	Suspended, total, definition of	20
near Burkburnett	57-60	Sweetwater Creek near Kelton	52
near De Kalb	106-108		
near Gainesville	102	Taxonomy, definition of	20
near Terral, OK	97-100	Taylor Bayou near LaBelle	244
Red River Basin, crest-stage partial-record stations in	544	Taylor Bayou Basin, gaging-station records in	244-245
gaging-station records in	42-174	Tehuacana Creek near Streetman	498-501
low-flow partial-record stations in	543	Thermograph, definition of	21
Remark codes	14	Timber Creek near Collinsville	348-349
Reservoirs. See lakes and reservoirs.		Time-weighted average, definition of	21
Return period, definition of	19	Toledo Bend Reservoir near Burkeville	205
Revuelto Creek near Logan, NM	28-29	Tons per acre-foot, definition of	21
Richland-Chambers Reservoir near Kerens	497	Tons per day, definition of	21
Richland Creek near Dawson	489	Total coliform bacteria, definition of	15
Roaring Springs near Roaring Springs	543	Total (in tables of chemical analyses), definition of	21
Rowlett Creek near Sachse	439	Total discharge, definition of	21
Runoff in inches, definition of	19	Total organism count, definition of	17
Rush Creek at Woodland Park Blvd., Arlington	306-313	Total, recoverable, definition of	21
		Total sediment discharge, definition of	19
Sabine River, above Longview	195	Total sediment load, definition of	19
at Logansport, LA	204	Trinity River, at Cedar Crest Blvd., Dallas	416-423
at Toledo Bend Reservoir near Burkeville	206	at Dallas	414-415
near Beckville	196-200	at Liberty	537
near Bon Wier	208-210	at Romayor	533-536
near Burkeville	207	at Trinidad	477-486
near Gladewater	193-194	below Dallas	425-432
near Mineola	181-184	near Crockett	505-514
near Ruliff	212-218	near Goodrich	529
near Wills Point	180	near Oakwood	502-503
Sabine River Basin, crest-stage partial-record stations in	544	near Rosser	468-476
gaging-station records in	175-218	Trinity River Basin, crest-stage partial-record stations in	544
Salt Creek near Paradise	252	gaging-station records in	246-541
Salt Fork Red River at Mangum, OK	51	Tritium network	21
near Wellington	48-50	Truscott Brine Lake near Truscott	61
Sam Rayburn Reservoir near Jasper	233		
Sediment, collection and examination	12	Upper Keechi Creek near Oakwood	504
definition of	19		
Sister Grove Creek near Blue Ridge	437	Village Creek, at Everman	297-299
Sodium adsorption ration (SAR), definition of	19	near Kountze	241-242
Solute, definition of	20	near Silsbee	543
South Fork Sabine River near Quinlan	177-178		
South Side Canal near Dundee	83	Walnut Creek at Reno	254
South Sulphur River, at Commerce	112-114	near Mansfield	321-323
near Commerce	115-116	Water quality yearly summary	3
near Cooper	128-130	Water temperature	12
South Wichita River, at dam near Guthrie	65-69	Water year, definition of	21
at Ross Ranch near Benjamin	71	WATSTORE data, access to	14
below dam near Guthrie	70	Waxahachie Creek near Bardwell	491
near Benjamin	72-78	WDR, definition of	21
Special networks and programs	6	Weighted average, definition of	21
Specific conductance, definition of	20	West Fork Trinity River, at Beach Street, Fort Worth	285-296
Stage-discharge relation, definition of	20	at Fort Worth	284
Station identification numbers	7	at Grand Prairie	314-318
Streamflow, definition of	20	near Boyd	253
yearly summary	2	near Jacksboro	246
Substrate, definition of	20	Wet mass, definition of	15
Sulphur River, near Talco	135-138	White Oak Creek, near Omaha	143-144
near Texarkana	162-163	near Talco	139-142
Surface area, definition of	20	White Rock Creek at Greenville Ave., Dallas	424
Surficial bed material, definition of	20	Wichita River, at Wichita Falls	86-87
Suspended (as used in tables of chemical analyses),		near Charlie	88-89
definition of	20	near Mabelle	80-82
Suspended, recoverable, definition of	20	Wolf Creek at Lipscomb	40-41
Suspended sediment, definition of	19	Wright Patman Lake near Texarkana	145-161
Suspended-sediment, concentration, definition of	19	WSP, definition of	21
discharge, definition of	19		
load, definition of	19	Zooplankton, definition of	18

CONVERSION FACTORS AND VERTICAL DATUM

Multiply	By	To obtain
<i>Length</i>		
inch (in.)	2.54×10^1	millimeter
	2.54×10^{-2}	meter
foot (ft)	3.048×10^{-1}	meter
mile (mi)	1.609×10^0	kilometer
<i>Area</i>		
acre	4.047×10^3	square meter
	4.047×10^{-1}	square hectometer
	4.047×10^{-3}	square kilometer
square mile (mi ²)	2.590×10^0	square kilometer
<i>Volume</i>		
gallon (gal)	3.785×10^0	liter
	3.785×10^0	cubic decimeter
	3.785×10^{-3}	cubic meter
million gallons (Mgal)	3.785×10^3	cubic meter
	3.785×10^{-3}	cubic hectometer
cubic foot (ft ³)	2.832×10^1	cubic decimeter
	2.832×10^{-2}	cubic meter
cubic-foot-per-second day [(ft ³ /s) d]	2.447×10^3	cubic meter
	2.447×10^{-3}	cubic hectometer
acre-foot (acre-ft)	1.233×10^3	cubic meter
	1.233×10^{-3}	cubic hectometer
	1.233×10^{-6}	cubic kilometer
<i>Flow</i>		
cubic foot per second (ft ³ /s)	2.832×10^1	liter per second
	2.832×10^1	cubic decimeter per second
	2.832×10^{-2}	cubic meter per second
gallon per minute (gal/min)	6.309×10^{-2}	liter per second
	6.309×10^{-2}	cubic decimeter per second
	6.309×10^{-5}	cubic meter per second
million gallons per day (Mgal/d)	4.381×10^1	cubic decimeter per second
	4.381×10^{-2}	cubic meter per second
<i>Mass</i>		
ton (short)	9.072×10^{-1}	megagram or metric ton

Sea level: In this report "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment for the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

USGS LIBRARY - RESTON



3 1818 00153333 8

U.S. DEPARTMENT OF THE INTERIOR
U.S. Geological Survey
8011 Cameron Road, Building 1
Austin, TX 78753
