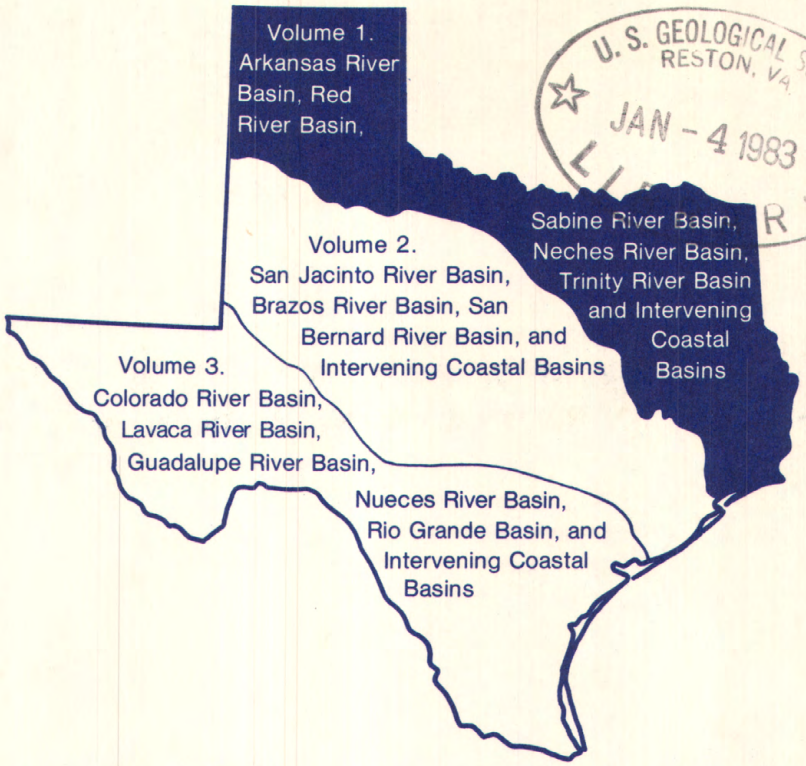
(200)
Ga3
Texas
1981
v. 1

# Water Resources Data
# Texas
# Water Year 1981

## 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.
JAN - 4 1983
LIBRARY

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-81-1
Prepared in cooperation with the State of Texas
and with other agencies

# CALENDAR FOR WATER YEAR 1981

## 1980

### OCTOBER

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

### NOVEMBER

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

### DECEMBER

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

## 1981

### JANUARY

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

### FEBRUARY

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

### MARCH

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

### APRIL

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

### MAY

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

### JUNE

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

### JULY

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

### AUGUST

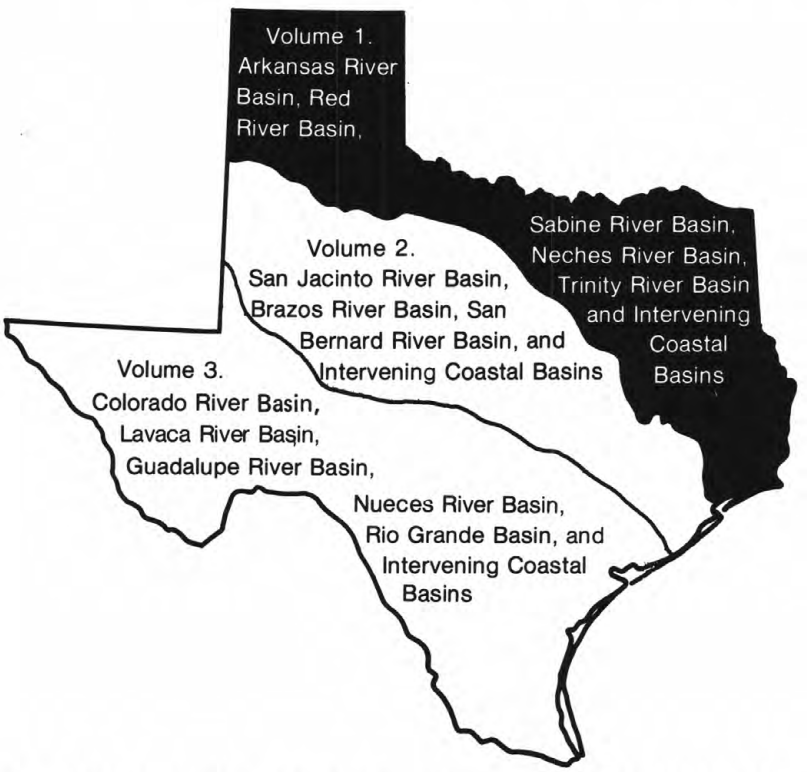
| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | | | | | | 1 |
| 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 23 | 24 | 25 | 26 | 27 | 28 | 29 |
| 30 | 31 | | | | | |

### SEPTEMBER

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

# Water Resources Data
# Texas
# Water Year 1981

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




U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-81-1
Prepared in cooperation with the State of Texas
and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

JAMES G. WATT, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

Compiled by

H. D. Buckner, E. R. Carrillo, and H. Davidson

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

1982

## Preface

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

This report is one of a series issued by State under the general direction of Phil Cohen, Chief Hydrologist, and R. J. Dingman, Assistant Chief Hydrologist for Scientific Publications and Data Management.

Data for Texas are in three volumes as follows:

Volume 1. Arkansas River basin, Red River basin, Sabine River basin, Neches River basin, Trinity River basin, and intervening and adjacent 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

50272-101

| REPORT DOCUMENTATION PAGE | 1. REPORT NO. USGS/WRD/HD-82/068 | 2. | 3. Recipient's Accession No. |
|---|---|---|---|

**4. Title and Subtitle**
Water Resources Data for Texas, Water Year 1981, Volume 1; Arkansas River, Red River, Sabine River, Neches River, Trinity River Basins and Intervening Coastal Basins

**5. Report Date**
September 1982

**6.**

**7. Author(s)**

**8. Performing Organization Rept. No.**
USGS-WDR-TX-81-1

**9. Performing Organization Name and Address**
U.S. Geological Survey, Water Resources Division
300 East Eighth Street
Austin, TX 78701

**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
300 East Eighth Street
Austin, TX 78701

**13. Type of Report & Period Covered**
Oct. 1, 1980, to Sept. 30, 1981

**14.**

**15. Supplementary Notes**
Prepared in cooperation with the State of Texas and with other agencies.

**16. Abstract (Limit: 200 words)**

Surface-water data for the 1981 water year for Texas are presented in three volumes, appropriately identified as to content by river basins. Data in each volume consist of records of stage, discharge, and water quality of streams and canals; and stage, contents, and water quality of lakes and reservoirs. Also included are crest-stage and flood-hydrograph partial-record stations, reconnaissance partial-record stations, and low-flow partial-record stations. Additional water data were collected at various sites, not part of the systematic data-collection program, and are published as miscellaneous measurements. Records for a few pertinent stations in bordering States also are included. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in Texas.

**17. Document Analysis a. Descriptors**

*Texas, *Hydrologic data, *Surface water, *Water quality, Flow rate, Gaging stations, Lakes, Reservoirs, Chemical analyses, Sediments, Water temperatures, Sampling sites, Water analyses

**b. Identifiers/Open-Ended Terms**

**c. COSATI Field/Group**

| 18. Availability Statement | 19. Security Class (This Report) | 21. No. of Pages |
|---|---|---|
| No restriction on distribution. This report may be purchased from: National Technical Information Service Springfield, VA 22161 | UNCLASSIFIED | 608 |
| | 20. Security Class (This Page) UNCLASSIFIED | 22. Price |

(See ANSI-Z39.18) See Instructions on Reverse OPTIONAL FORM 272 (4-77) (Formerly NTIS-35) Department of Commerce

CONTENTS


| | Page |
|---|---|
| List of gaging stations, in downstream order, for which records are published | V |
| Introduction | 1 |
| Cooperation | 2 |
| Hydrologic conditions | 3 |
| Definition of terms | 4 |
| Downstream order and station number | 16 |
| Special networks and programs | 16 |
| Explanation of stage and water-discharge records | 17 |
| Collection and computation of data | 17 |
| Accuracy of field data and computed results | 21 |
| Other data available | 22 |
| Records of discharge collected by agencies other than the Geological Survey | 22 |
| Explanation of surface-water quality records | 22 |
| Collection and examination of data | 22 |
| Water analysis | 23 |
| Water temperature | 24 |
| Sediment | 24 |
| Publications of techniques of water-resources investigations | 26 |
| Gaging-station records | 29 |
| Low-flow investigations | 590 |
| Discharge at partial-record stations and miscellaneous sites | 592 |
| Low-flow partial-record stations | 592 |
| Crest-stage partial-record stations | 593 |
| Discharge measurements at miscellaneous sites | 594 |
| Index | 595 |


ILLUSTRATION


Figure 1. Comparison of discharge at four long-term representative gaging stations during the 1981 water year with median discharge for the period 1941-70 ..... 28

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

Page

LOWER MISSISSIPPI RIVER BASIN
ARKANSAS RIVER BASIN
Arkansas River:
Canadian River at Logan, NM..... 29
Revuelto Creek near Logan, NM..... 30
Canadian River above New Mexico-Texas State line, NM..... 32
Canadian River near Amarillo..... 35
Lake Meredith near Sanford..... 40
Dixon Creek near Borger..... 42
Canadian River near Canadian..... 43
North Canadian River:
Wolf Creek at Lipscomb..... 51
RED RIVER BASIN
Prairie Dog Town Fork Red River near Wayside..... 52
Tule Creek:
MacKenzie Reservoir near Silverton..... 58
Tule Creek near Silverton..... 60
Little Red River near Turkey..... 61
Jonah Creek at weir near Estelline..... 66
Prairie Dog Town Fork Red River near Childress..... 70
Red River near Quanah..... 76
Groesbeck Creek at State Highway 6 near Quanah..... 78
Salt Fork Red River:
Greenbelt Lake near Clarendon..... 79
Salt Fork Red River near Wellington..... 81
Salt Fork Red River at Mangum, OK..... 85
North Fork Red River near Shamrock..... 86
Sweetwater Creek near Kelton..... 88
Middle Pease River near Paducah..... 90
Pease River near Childress..... 94
Pease River near Vernon..... 98
Red River near Burkburnett..... 100
North Wichita River near Paducah..... 108
North Wichita River near Truscott..... 110
South Wichita River near Benjamin..... 115
Wichita River:
Lake Kemp near Mabelle..... 119
Wichita River near Mabelle..... 120
Diversion Lake:
South Side Canal near Dundee..... 124
Beaver Creek near Electra..... 125
Wichita River at Wichita Falls..... 126
Wichita River near Charlie..... 127

Page

LOWER MISSISSIPPI RIVER BASIN--Continued
RED RIVER BASIN--Continued
Red River:
North Fork Little Wichita River:
Lake Kickaoo near Archer City..... 131
Little Wichita River near Archer City..... 133
Lake Arrowhead near Henrietta..... 134
Little Wichita River above Henrietta..... 136
East Fork Little Wichita River near Henrietta..... 138
Red River near Terral, OK..... 140
Moss Lake near Gainesville..... 144
Red River near Gainesville..... 146
Lake Texoma near Denison..... 153
Red River at Denison Dam Near Denison..... 154
Bois d'Arc Creek near Randolph..... 162
Pat Mayse Lake near Chicota..... 163
Sanders Creek near Chicota..... 165
Red River at Arthur City..... 166
Big Pine Creek:
Little Pine Creek near Kanawha..... 167
Red River near De Kalb..... 168
Red River at Index, AR..... 173
South Sulphur River (head of Sulphur River) near Commerce..... 177
South Sulphur River near Cooper..... 179
North Suphur River near Cooper..... 183
Sulphur River near Talco..... 187
Lake Sulphur Springs near Sulphur Springs..... 192
White Oak Creek near Talco..... 193
Wright Patman Lake near Texarkana..... 197
Sulphur River near Texarkana..... 207
Big Cypress Creek near Winnsboro..... 208
Lake Cypress Springs near Mount Vernon..... 209
Brushy Creek at Scroggins..... 211
Lake Bob Sandlin near Mount Pleasant..... 212
Big Cypress Creek near Pittsburg..... 213
Ellison Creek Reservoir near Lone Star..... 217
Lake O' the Pines near Jefferson..... 219
Big Cypress Creek near Jefferson..... 228
Black Cypress Bayou at Jefferson..... 229
Little Cypress Creek near Ore City..... 231
Little Cypress Creek near Jefferson..... 232
Big Cypress Creek near Karnack..... 239
Frazier Creek near Linden..... 240

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

Page

WESTERN GULF OF MEXICO BASINS
SABINE RIVER BASIN
Sabine River:
Cowleech Fork Sabine River at Greenville..... 241
South Fork Sabine River near Quinlan..... 242
Lake Tawakoni near Wills Point..... 243
Sabine River near Wills Point..... 245
Sabine River near Mineola..... 246
Lake Fork Creek:
Burke Creek near Yantis..... 250
Lake Fork Reservoir near Quitman..... 251
Lake Fork Creek near Quitman..... 253
Big Sandy Creek:
Lake Winnsboro near Winnsboro..... 257
Big Sandy Creek near Big Sandy..... 258
Sabine River near Gladewater..... 260
Mill Creek near Henderson..... 262
Mill Creek near Longview..... 263
Tiawichi Creek near Longview..... 264
Cherokee Bayou:
Lake Cherokee near Longview..... 265
Sabine River near Beckville..... 267
Martin Lake near Tatum..... 272
Martin Creek near Tatum..... 274
Murvaul Bayou near Gary..... 275
Sabine River at Logansport, LA..... 276
Tenaha Creek near Shelbyville..... 277
Toledo Bend Reservoir near Burkeville..... 278
Sabine River at Toledo Bend Reservoir near Burkeville..... 279
Sabine River near Burkeville..... 281
Sabine River near Bon Wier..... 285
Big Cow Creek near Newton..... 289
Cypress Creek near Buna..... 290
Sabine River near Ruliff..... 291
Cow Bayou near Mauriceville..... 299
NECHES RIVER BASIN
Neches River:
Kickapoo Creek near Brownsboro..... 300
Lake Athens near Athens..... 301
Lake Palestine near Frankston..... 303
Neches River near Neches..... 305
Neches River near Diboll..... 308
Piney Creek near Groveton..... 312
Neches River near Rockland..... 313

Page

WESTERN GULF OF MEXICO BASINS--Continued
NECHES RIVER BASIN--Continued
Neches River:
Angelina River:
Striker Creek:
Bowles Creek near Selman City..... 316
Striker Creek Reservoir near New Salem..... 317
East Fork Angelina River near Cushing..... 318
Mud Creek:
Prairie Creek:
Lake Tyler near Whitehouse..... 319
Angelina River near Alto..... 321
Lake Nacogdoches near Nacogdoches..... 322
Angelina River:
Bayou LaNana at Nacogdoches..... 323
Attoyac Bayou near Chireno..... 324
Ayish Bayou near San Augustine..... 325
Sam Rayburn Reservoir near Jasper..... 326
B. A. Steinhagen Lake at Town Bluff..... 328
Neches River at Town Bluff..... 334
Neches River at Evadale..... 336
Village Creek near Kountze..... 345
Pine Island Bayou near Sour Lake..... 347
TAYLOR BAYOU BASIN
Taylor Bayou near LaBelle..... 349
Hillebrandt Bayou near Lovell Lake..... 350
TRINITY RIVER BASIN
West Fork Trinity River (head of Trinity River) near Jacksboro..... 351
Bridgeport Reservoir above Bridgeport..... 352
West Fork Trinity River:
Big Sandy Creek near Bridgeport..... 354
West Fork Trinity River near Boyd..... 355
Eagle Mountain Reservoir above Fort Worth..... 356
Lake Worth above Fort Worth..... 357
West Fork Trinity River:
Clear Fork Trinity River near Weatherford..... 358
Benbrook Lake near Benbrook..... 361
Clear Fork Trinity River near Benbrook..... 369
Clear Fork Trinity River at Fort Worth..... 371

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

Page

WESTERN GULF OF MEXICO BASINS--Continued
TRINITY RIVER BASIN--Continued
West Fork Trinity River at Fort Worth..... 372
West Fork Trinity River at Beach Street, Fort Worth..... 373
Village Creek:
Lake Arlington at Arlington..... 382
West Fork Trinity River at Grand Prairie..... 392
Mountain Creek near Cedar Hill..... 401
Walnut Creek near Mansfield..... 404
Mountain Creek near Duncanville..... 405
Mountain Creek Lake near Grand Prairie..... 408
Mountain Creek at Grand Prairie..... 410
Elm Fork Trinity River near Sanger..... 411
Isle du Bois Creek near Pilot Point..... 414
Clear Creek near Sanger..... 415
Little Elm Creek near Aubrey..... 416
Lewisville Lake near Lewisville..... 417
Elm Fork Trinity River near Lewisville..... 426
Denton Creek near Justin..... 428
Grapevine Lake near Grapevine..... 431
Denton Creek near Grapevine..... 439
Elm Fork Trinity River near Carrollton..... 441
Trinity River at Dallas..... 442
Trinity River below Dallas..... 443
East Fork Trinity River at McKinney..... 453
Pilot Grove Creek:
Sister Grove Creek near Blue Ridge..... 456
Lavon Lake near Lavon..... 457
East Fork Trinity River near Lavon..... 464
Rowlett Creek near Sachse..... 466
Lake Ray Hubbard near Forney..... 467
Duck Creek near Garland..... 469
East Fork Trinity River near Forney..... 471
East Fork Trinity River near Crandall..... 472
Trinity River near Rosser..... 477
Cedar Creek Reservoir spillway outflow near Trinidad..... 488
Trinity River at Trinidad..... 489
Cedar Creek near Kemp..... 498
Kings Creek near Kaufman..... 499
Cedar Creek Reservoir near Trinidad..... 501

Page

WESTERN GULF OF MEXICO BASINS--Continued
TRINITY RIVER BASIN--Continued
Trinity River:
Richland Creek near Irene..... 512
Navarro Mills Lake near Dawson..... 513
Richland Creek near Dawson..... 519
Richland Creek near Richland..... 521
Chambers Creek:
Waxahachie Creek near Waxahachie..... 522
Bardwell Lake near Ennis..... 523
Waxahachie Creek near Bardwell..... 530
Chambers Creek near Corsicana..... 532
Richland Creek near Fairfield..... 534
Tehuacana Creek near Streetman..... 538
Catfish Creek near Tennessee Colony..... 540
Trinity River near Oakwood..... 541
Upper Keechi Creek near Oakwood..... 546
Trinity River near Crockett..... 547
Bedias Creek near Madisonville..... 557
White Rock Creek near Trinity..... 558
Kickapoo Creek near Onalaska..... 559
Livingston Reservoir near Goodrich..... 560
Livingston Reservoir at outflow weir near Goodrich..... 571
Trinity River:
Long King Creek at Livingston..... 572
Trinity River near Goodrich..... 573
Menard Creek near Rye..... 574
Big Creek near Shepherd..... 576
Trinity River at Romayor..... 578
Trinity River at Liberty..... 587
Devers Canal near Liberty..... 588
CEDAR BAYOU BASIN
Cedar Bayou near Crosby..... 589

# WATER RESOURCES DATA, TEXAS, WATER YEAR 1981

## VOLUME 1
## ARKANSAS RIVER BASIN, RED RIVER BASIN, SABINE RIVER BASIN, NECHES RIVER BASIN, TRINITY RIVER BASIN, AND INTERVENING AND ADJACENT COASTAL BASINS

## INTRODUCTION

Surface-water data for Texas for the 1981 water year are presented in three volumes, appropriately identified by river basins. Data in each volume consist of records of stage, discharge, and water quality of streams and canals; and stage, contents, and water quality of lakes and reservoirs. Records for a few pertinent stations in bordering states are also included. These data represent that part of the National Water Data System operated by the U.S. Geological Survey in cooperation with State and Federal agencies in Texas.

Records of discharge (or stage) of streams and contents (or stage) of lakes and reservoirs were first published in a series of Geological Survey Water-Supply Papers entitled, "Surface Water Supply of the United States." Through water year 1960, these water-supply papers were in an annual series and then in a 5-year series for 1961-65 and 1966-70. Records of chemical quality, water temperature, and suspended sediment were published from 1941 to 1971 in an annual series of water-supply papers entitled, "Quality of Surface Waters of the United States." Water-supply papers may be consulted in the libraries of the principal cities in the United States or may be purchased from Branch of Distribution, U.S. Geological Survey, 1200 South Eads Street, Arlington, Virginia 22202.

For water years 1961 through 1974, streamflow data were released by the Geological Survey in annual reports on a State-boundary basis. Water-quality records for water years 1964 through 1974 were similarly released either in separate reports or in conjunction with streamflow records. Beginning with the 1975 water year, water data for streamflow and water quality are published as an official Survey report on a State-boundary basis. These official Survey reports carry an identification number consisting of the two letter State abbreviation, the last two digits of the water year, and the volume number. For example, this report is identified as "U.S. Geological Survey Water-Data Report TX-81-1." Water-data reports are for sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22161.

## COOPERATION

Federal agencies that assisted the Geological Survey in the collection of data in this report in the form of funds or services in 1981 are:

Corps of Engineers, U.S. Army.

International Boundary and Water Commission, United States and Mexico, U.S. Section.

National Park Service.

U.S. Bureau of Reclamation.

Organizations that assisted in the collection of data in this report through joint funding agreements through the Texas Department of Water Resources or through direct joint funding agreements with the Gological Survey are:

Texas Department of Water Resources, H. D. Davis, Executive Director; the cities of Abilene, Alice, Arlington, Austin, Brady, Cleburne, Clyde, Corpus Christi, El Paso, Gainesville, Garland, Graham, Houston, Nacogdoches, San Angelo, San Antonio, and Wichita Falls; Athens Municipal Water Authority; Bexar, Medina, and Atascosa Counties Water Control and Improvement District No. 1; Bistone Municipal Water Supply District; Brazos River Authority; Coastal Industrial Water Authority; Colorado River Municipal Water District; Dallas County; Dallas Public Works Department; Dallas Utilities Water Department; Edwards Underground Water District; Franklin County Water District; Galveston County; Greenbelt Municipal and Industrial Water Authority; Guadalupe-Blanco River Authority; Harris County Flood Control District; Harris-Galveston Coastal Subsidence District; Lavaca-Navidad River Authority; Lower Colorado River Authority; Lower Neches Valley Authority; MacKenzie Municipal Water Authority; North Central Texas Municipal Water Authority; Northeast Texas Municipal Water District; Nueces River Authority; Orange County; Palo Pinto County Municipal Water District; Pecos River Commission; Red Bluff Water Power Control District; Reeves County Water Improvement District No. 1; Sabine River Authority of Texas; Sabine River Compact Administration; San Antonio City Public Service Board; San Antonio City Water Board; San Antonio River Authority; San Jacinto River Authority; Tarrant County Water Control and Improvement District No. 1; Titus County Fresh Water Supply District No. 1; Tom Green County Water Control and Improvement District No. 1; Trinity River Authority; Upper Guadalupe River Authority; Upper Neches River Municipal Water Authority; Upper Trinity Basin Water Quality Compact; West Central Texas Municipal Water District; Wichita County Water Improvement District No. 2; and Wood County.

## HYDROLOGIC CONDITIONS

Large variations in rainfall and runoff characterize the usual hydrologic conditions in Texas. In the eastern part of the State, streams generally are deep with wide alluvial flood plains, and streamflow generally is perennial. Normal annual rainfall exceeds 50 inches, and the annual runoff may average as much as 15 inches. In the western part of the State, streams generally flow through arroyos, and streamflow principally is highly ephemeral. Normal annual rainfall is less than 8 inches, and annual runoff averages less than 0.1 inch in many areas.

During the 1981 water year, runoff for the index stations in east Texas, Neches River near Rockland, and in central Texas were in the deficient range (within the lowest 25 percent of record). The runoff was normal for the index station in west Texas and excessive for the one in south-central Texas. A comparison of monthly and annual mean discharges for the index stations is shown in figure on 1 on page 28. Conservation storage in a selected group of 70 reservoirs throughout the State, with a combined conservation capapcity of 31,612,620 acre-feet, increased from 73 percent at the end of September 1980 to 82 percent at the end of September 1981. Records from the 70 reservoirs show that contents increased in 57, decreased in 11, and remained the same in 2.

At the beginning of the 1981 water year, streamflow was in the deficient range in the panhandle and the upper Brazos River basin, excessive (within the highest 25 percent of record) in parts of the Guadalupe River basin in south-central Texas, and about normal in the remainder of the State. At the end of December, accumulated rainfall was less than normal over most of the State, with deficient runoff conditions existing in the entire northeastern one-half of the State. While drought conditions continued through May in northeast Texas, heavy localized rainfall caused severe flooding in parts of south-central Texas during late May. A Memorial Day storm (May 30) produced as much as 10 inches of rainfall in the northwestern part of Austin. The disastrous flood that followed was the worse to occur in that part of the city in at least 60 years.

By the end of June, heavy rain storms covered much of the State, producing excessive runoff in the eastern one-half, with drought conditions existing only in the panhandle of north Texas. For the remainder of the water year, rainfall throughout the State generally was minimal. At the end of September, most of the State had normal runoff conditions, with excessive runoff occurring only in the the coastal areas of the Guadalupe, San Antonio, and Nueces River. Deficient runoff conditions existed only in the upper Brazos and Red River basins of north Texas.

## DEFINITION OF TERMS

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

During water year 1978, revisions were made in the terminology used to define 143 of the water-quality parameter codes that have been used by the Geological Survey in its publication of water-quality data in its WATSTORE data system. These revisions were made to achieve consistency in terminology. They do not represent a change in the way the codes have been used in the part or in the association of specific code numbers with identified analytical procedures.

Use of the new terminology began with data for the 1978 water year, and therefore, it first appears in that publication. Definitions on which the terminology is based are included in the "Definitions" sections of this report.

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

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

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

> Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as the organisms which produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C $\pm$ 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL (milliliters) of sample.

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

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

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

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

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

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

Dry mass refers to the mass of residue present after drying in an oven at 60°C for zooplankton and 105°C for periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry mass values are expressed in the same units as ash mass.

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

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

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

Bottom material: See Bed material.

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

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

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

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

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

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

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

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

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

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

Mean discharge (MEAN) is the arithmetic 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.

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

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

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

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

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

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

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are 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 attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ($CaCO_3$).

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.

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

Micrograms per gram (μg/g) is a unit expressing the concentration of a chemical element as the mass (micrograms) of the element sorbed per unit mass (gram) of sediment.

Micrograms per liter (UG/L, μg/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 represent 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 sediment per liter of water-sediment mixture.

National Geodetic Vertical Datum of 1929 (NGVD) 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.

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

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

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meters ($m^2$), acres, or hectares. 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 milliliters (mL) or liters (L). Numbers of planktonic organisms can be expressed in these terms.

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

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

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

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

| Clasification | Size (mm) | Method of analysis |
|---|---|---|
| Clay..... | 0.00024 - 0.004 | Sedimentation |
| Silt..... | .004 - .062 | Do. |
| Sand..... | .062 - 2.0 | Sedimentation or sieve |
| Gravel..... | 2.0 - 64.0 | Sieve |

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

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

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

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

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

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

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

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

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

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

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column, and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon baceria, 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.

Recoverable from bottom material refers to 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 only 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.

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 usuage, and quantity and intensity of precipitation.

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

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

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream, or is the quantity of sediment, as measured by dry weight or volume, that passes a section during a given time. It is computed by multiplying discharge ($ft^3/s$) times mg/L times 0.0027.

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

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

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

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

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in micromhos per centimeter

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

Stage-discharge relation is the relation between gage height (stage) and 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 substrates refers to any naturally occurring emersed or submersed solid surface, such as rock or tree, upon which an organism lived.

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

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

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

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

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

Total refers to 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 water-suspended sediment mixture and that the analytical method determines all of the constituent in the sample.)

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

Total load (tons) is the total quantity of any individual constituent, as measured by dry mass or volume, that is dissolved in a specific amount of water (discharge) during a given time. It is computed by multiplying the mean discharge ($ft^3/s$), times the mg/L of the constituent, times the factor 0.0027, times the number of days.

Total, recoverable refers to 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 would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

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.....Hexageria
Species.....Hexagenia limbata

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.

WDR is used as an abbreviation for "Water-Data Report" in the REVISED RECORDS paragraph to refer to State annual basic-data reports.

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

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

## DOWNSTREAM ORDER AND STATION NUMBER

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

As an added means of identification, each hydrologic station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The station numbering system is not used at miscellaneous sites where only random water-quality samples or discharge measurements are taken. The complete number for each station consists of eight digits, such as 08123800. The first two digits, 08 or 07, identify the river basin as previously published in the series of water-supply papers on the Surface Water Supply of the United States. The digits 07 indicate the Lower Mississippi River basin, and the digits 08 indicate the Western Gulf of Mexico Basins. The remaining six digits of the station number are sequential in downstream order.

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

## SPECIAL NETWORKS AND PROGRAMS

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

National stream-quality accounting network (NASQAN) is a data collection network designed by the Geological Survey to meet many of the information demands of agencies or groups involved in national or regional water-quality planning and management. Both accounting and broad-scale monitoring objectives have been incorporated into the network design. Areal configuration of the network is based on river-basin accounting units (identified by 8-digit hydrologic-unit numbers) designated by the Office of Water Data Coordination in consultation with the Water Resources Council. Primary objectives of the network are (1) to depict areal variability of streamflow and water-quality conditions nationwide on a year-by-year basis and (2) to detect and assess long-term changes in streamflow and stream quality.

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

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

## EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

### Collection and computation of data

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

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

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

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

If the stage-capacity curve is subject to changes because of deposition of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys, the computed contents may be increasingly in error due to the gradual accumulation of sediment. However, the change in contents is not affected to the same extent.

At some gaging stations, there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. For such periods, the daily discharges are estimated on the basis of recorded range in stage, adjoining good record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Daily contents may be estimated on the basis of operator's log, adjoining good record, inflow-outflow studies, and other information.

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

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

Previously published streamflow records for some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISED RECORDS" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1965 stands for the water year October 1, 1964, to September 30, 1965. If no daily, monthly, or annual figures of discharge are affected by the revision, the fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

The type of gage currently in use, the datum of the present gage referred to National Geodetic Vertical Datum, and a condenced history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." National Geodetic Vertical Datum is explained in "DEFINITIONS OF TERMS" on page 9.

Information pertaining to the accuracy of the discharge records and to conditions which affect the natural flow at the gaging station is given under "REMARKS." For reservoir stations, information on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir is given under "REMARKS."

The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE"; it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the statistic to have little significance. Under "EXTREMES" are given first, the extremes for the period of record, second, information available outside the period of record, and last, those for the current year. Unless otherwise qualified, the maximum discharge (or contents) is the instantaneous maximum corresponding to the maximum stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur on the same day as the maximum discharge, it is given separately. Similarly, the minimum is the instantaneous minimum unless otherwise qualified. For some stations additional peak discharges are listed under EXTREMES FOR THE CURRENT YEAR; if they are all independent peaks above a selected base. The time of occurrence of the peaks and corresponding gage heights are also listed. The base discharge, which is given in the table heading, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330. The minimums for these stations are published in separate paragraph following the table of peaks.

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

over the drainage basin is usually less than 20 inches. In the yearly summary below the monthly summary, the figures shown are the significant statistics for the calendar and water years.

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

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in two tables in the back of the report. 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 (or) discharge at crest-stage 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. Occasionally, a series of discharge measurements are made and samples collected within a short time period to investigate the seepage and (or) pollutant gains or losses along a reach of a stream or to determine the low-flow characteristics of an area. Such measurements and analyses are also given in special tables following the tables of partial-record stations.

## Accuracy of field data and computed results

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

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

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 $ft^3/s$; to tenths between 1.0 and 10 $ft^3/s$; to whole numbers between 10 and

1,000 $ft^3/s$; and to 3 significant figures above 1,000 $ft^3/s$. The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for partialrecord stations.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff because of the effects of diversion, municipal and industrial effluents consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, values for cubic feet per second per square mile and runoff in inches are not published unless satisfactory adjustments can be made. Adjustments for evaporation from a reservoir are not included in the published changes in reservoir contents, unless it is so stated.

### Other data available

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

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

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

## EXPLANATION OF SURFACE-WATER QUALITY RECORDS

### Collection and examination of data

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

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

## Water analysis

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

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 loads.

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

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

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean value 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 district office.

At some stations where continuous or daily records of specific conductance are obtained, concentrations of selected chemical constituents have been computed from regression relationships between specific conductance and the chemical constituents. The weighted average, monthly and annual concentrations and/or loads of these constituents may be published in this report. For each station where this has been done, a statement so indicating has been included in the remarks section of the station description.

## Water temperature

Water temperatures are measured at most of the water-quality stations. Water temperatures are also taken at time of discharge measurements at gaging stations. At sites at which daily samples are taken, the water temperature is taken about the same time each day. Large streams have a small diurnal temperature change; but small, shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams and reservoirs may be affected by waste-heat discharges.

At stations where digital recording thermographs are present, the records published consist of maximum, minimum, and mean temperatures for each day and the monthly averages.

## Sediment

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

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

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

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

## PUBLICATIONS OF TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

Most methods used by the U.S. Geological Survey have been publisted in the series on techniques describing procedures for planning and executing specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) is on surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises. The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 1200 South Eads Street, Arlington, VA 22202 (authorized agent of the Superintendent of Documents, Government Printing Office).

NOTE: When ordering any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations".

1-D1. *Water temperature-influential factors, field measurements, and data presentation,* by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 p.

3-A1. *General field and office procedures for indirect 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 methods,* 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-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-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.

5-A1. *Methods for determination of inorganic substances in water and fluvial sediments,* by M. W. Skougstad and others: USGS--TWRI Book 5, Chapter A1. 1979. 626 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.

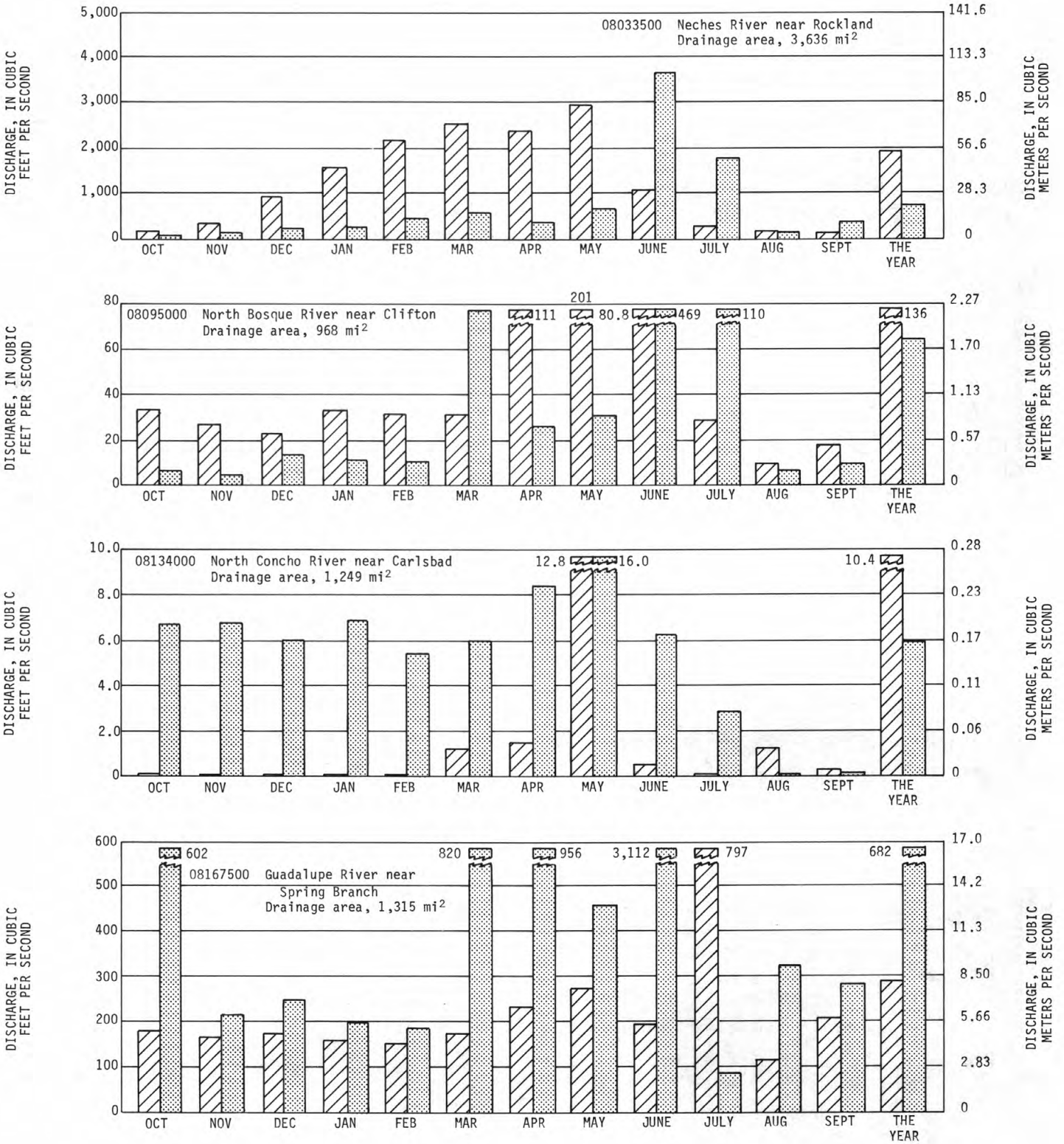
5-A3. *Methods for analysis of organic substances in water,* by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 p.

5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples,* edited by P. E. Greeson, T. A. Ehlke, G. A. Irwin, B. W. Lium, and K. V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 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-C1. *Laboratory theory and methods for sediment analysis,* by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 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.




EXPLANATION

Median of monthly and yearly mean discharge for 30-year period 1951-80.

Monthly and yearly mean discharge for 1981 water year.

FIGURE 1.--COMPARISON OF DISCHARGE AT FOUR LONG-TERM REPRESENTATIVE GAGING STATIONS DURING THE 1981 WATER YEAR WITH MEDIAN DISCHARGE FOR THE PERIOD 1951-80

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 (340 m) upstream from bridge on U.S. Highway 54, 0.7 mi (1.1 km) south of Logan, 1.4 mi (2.3 km) upstream from Chicago, Rock Island, & Pacific Railroad Co. bridge, 2.0 mi (3.2 km) downstream from Ute Dam, 4.3 mi (6.9 km) upstream from Revuelto Creek, and at mile 672.0 (1,081.2 km).

DRAINAGE AREA.--11,141 mi² (28,855 km²), of which 1,110 mi² (2,870 km²) probably is noncontributing.

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

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 3,668.1 ft (1,118.04 m) National Geodetic Vertical Datum of 1929. See WSP 1311 or 1731 for history of changes prior to Oct. 1, 1934.

REMARKS.--Records poor prior to August and fair thereafter. Flow regulated by Conchas Lake, 45 mi (72 km) upstream, and Ute Reservoir, 2 mi (3 km) upstream. Diversions for irrigation of about 90,000 acres (360 km²) above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--15 years (water years 1909, 1912-13, 1927-38) prior to completion of Conchas Dam 392 ft³/s (11.10 m³/s), 284,000 acre-ft/yr (350 hm³/yr); 24 years (water years 1939-62) prior to completion of Ute Dam, 257 ft³/s (7.278 m³/s), 186,200 acre-ft/yr (230 hm³/yr); 19 years (water years 1963-81) regulated, 32.4 ft³/s (0.918 m³/s), 23,470 acre-ft/yr (28.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD (SINCE 1925).--Maximum discharge, 219,000 ft³/s (6,200 m³/s) Sept. 22, 1941, gage height, 29.3 ft (8.93 m), from floodmarks, from rating curve extended above 75,000 ft³/s (2,120 m³/s); no flow at times prior to completion of Ute Dam.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 278,000 ft³/s (7,870 m³/s) Sept. 30, 1904, gage height, about 36.5 ft (11.13 m), site and datum used in 1909, from rating curve extended above 14,000 ft³/s (396 m³/s), from Ninth Biennial Report of State Engineer.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,940 ft³/s (225 m³/s) Aug. 11, gage height, 10.88 ft (3.316 m); minimum daily, 1.5 ft³/s (0.042 m³/s) Dec. 5, 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.8 | 1.9 | 2.0 | 2.5 | 2.1 | 2.5 | 1.9 | 243 | 1.9 | 2.0 | 4.4 | 385 |
| 2 | 1.8 | 2.0 | 2.0 | 2.5 | 2.1 | 2.5 | 1.9 | 6.1 | 1.8 | 1.9 | 6.9 | 393 |
| 3 | 1.7 | 1.9 | 2.1 | 2.1 | 2.1 | 2.7 | 1.9 | 3.5 | 1.9 | 1.9 | 4.6 | 396 |
| 4 | 1.7 | 2.0 | 2.1 | 2.5 | 2.0 | 2.7 | 1.9 | 2.6 | 2.1 | 2.4 | 2.9 | 400 |
| 5 | 1.7 | 2.1 | 1.5 | 2.7 | 2.0 | 2.5 | 1.9 | 2.4 | 1.8 | 2.1 | 2.4 | 404 |
| 6 | 2.8 | 1.9 | 1.6 | 2.7 | 2.1 | 2.5 | 1.8 | 2.4 | 1.8 | 2.0 | 1.9 | 400 |
| 7 | 2.3 | 1.9 | 1.8 | 2.7 | 2.1 | 2.5 | 1.7 | 2.2 | 1.8 | 2.0 | 1.9 | 400 |
| 8 | 2.0 | 1.9 | 1.8 | 2.7 | 2.3 | 2.5 | 1.7 | 2.0 | 1.8 | 2.6 | 2.0 | 396 |
| 9 | 1.9 | 1.9 | 1.5 | 2.7 | 2.3 | 2.3 | 1.8 | 1.9 | 1.8 | 2.2 | 4.1 | 400 |
| 10 | 1.8 | 1.9 | 1.6 | 2.3 | 2.5 | 2.3 | 1.8 | 2.1 | 1.8 | 2.1 | 5.5 | 400 |
| 11 | 1.8 | 1.8 | 2.3 | 2.3 | 2.5 | 2.5 | 1.7 | 1.9 | 1.8 | 2.0 | 353 | 396 |
| 12 | 1.8 | 1.9 | 2.0 | 2.5 | 2.3 | 2.3 | 1.7 | 1.9 | 1.8 | 2.0 | 6280 | 396 |
| 13 | 1.8 | 1.9 | 1.8 | 2.5 | 2.3 | 2.1 | 1.7 | 1.9 | 1.8 | 2.3 | 5230 | 396 |
| 14 | 1.8 | 1.8 | 1.8 | 2.5 | 2.1 | 2.3 | 1.7 | 2.0 | 1.8 | 5.2 | 3170 | 396 |
| 15 | 1.8 | 1.8 | 1.8 | 2.5 | 2.1 | 2.3 | 1.9 | 1.9 | 1.8 | 5.2 | 1220 | 400 |
| 16 | 1.8 | 1.8 | 1.8 | 2.5 | 2.1 | 2.1 | 1.9 | 1.9 | 1.8 | 5.4 | 583 | 261 |
| 17 | 1.8 | 1.8 | 1.8 | 2.5 | 2.0 | 2.0 | 1.8 | 1.8 | 1.8 | 5.4 | 438 | 28 |
| 18 | 1.8 | 1.8 | 2.0 | 2.7 | 2.0 | 2.0 | 2.0 | 1.7 | 1.8 | 5.6 | 410 | 4.7 |
| 19 | 1.8 | 1.8 | 1.8 | 2.7 | 2.1 | 2.0 | 1.9 | 1.9 | 1.8 | 5.6 | 350 | 4.4 |
| 20 | 1.8 | 1.7 | 1.8 | 2.7 | 2.3 | 1.9 | 1.7 | 2.0 | 1.8 | 5.2 | 331 | 4.4 |
| 21 | 1.8 | 1.9 | 2.5 | 2.5 | 2.5 | 1.9 | 1.7 | 1.8 | 1.8 | 5.0 | 334 | 4.3 |
| 22 | 1.8 | 2.0 | 2.9 | 2.5 | 2.5 | 1.9 | 1.7 | 1.7 | 1.8 | 4.7 | 338 | 4.1 |
| 23 | 1.8 | 2.0 | 2.9 | 2.5 | 2.5 | 1.9 | 1.6 | 1.8 | 1.8 | 4.7 | 341 | 11 |
| 24 | 1.8 | 2.3 | 2.1 | 2.5 | 2.3 | 1.9 | 89 | 1.8 | 1.8 | 4.9 | 345 | 5.5 |
| 25 | 1.8 | 2.3 | 2.1 | 2.5 | 2.3 | 1.9 | 268 | 1.9 | 1.8 | 4.8 | 348 | 4.1 |
| 26 | 1.8 | 2.1 | 2.3 | 2.5 | 2.3 | 1.9 | 292 | 1.9 | 1.8 | 5.0 | 356 | 3.9 |
| 27 | 2.1 | 2.1 | 2.1 | 2.3 | 2.7 | 1.9 | 295 | 1.8 | 1.8 | 5.6 | 360 | 3.7 |
| 28 | 1.8 | 2.0 | 2.3 | 2.3 | 2.7 | 1.9 | 295 | 1.8 | 1.8 | 5.5 | 363 | 3.7 |
| 29 | 1.8 | 2.1 | 2.0 | 2.1 | --- | 1.9 | 292 | 2.1 | 1.9 | 5.1 | 371 | 3.6 |
| 30 | 1.8 | 2.1 | 2.1 | 2.1 | --- | 1.9 | 288 | 2.9 | 2.2 | 4.7 | 374 | 3.7 |
| 31 | 1.9 | --- | 2.3 | 2.1 | --- | 1.9 | --- | 2.3 | --- | 4.7 | 382 | --- |
| TOTAL | 57.7 | 58.4 | 62.5 | 76.7 | 63.2 | 67.4 | 1860.3 | 308.9 | 55.0 | 119.8 | 22313.6 | 6308.1 |
| MEAN | 1.86 | 1.95 | 2.02 | 2.47 | 2.26 | 2.17 | 62.0 | 9.96 | 1.83 | 3.86 | 720 | 210 |
| MAX | 2.8 | 2.3 | 2.9 | 2.7 | 2.7 | 2.7 | 295 | 243 | 2.2 | 5.6 | 6280 | 404 |
| MIN | 1.7 | 1.7 | 1.5 | 2.1 | 2.0 | 1.9 | 1.6 | 1.7 | 1.8 | 1.9 | 1.9 | 3.6 |
| AC-FT | 114 | 116 | 124 | 152 | 125 | 134 | 3690 | 613 | 109 | 238 | 44260 | 12510 |

CAL YR 1980 TOTAL 7175.9 MEAN 19.6 MAX 312 MIN 1.2 AC-FT 14230
WTR YR 1981 TOTAL 31351.6 MEAN 85.9 MAX 6280 MIN 1.5 AC-FT 62190

## 07227100 REVUELTO CREEK NEAR LOGAN, NM

LOCATION.--Lat 35°20'28", long 103°23'40", in SW1/4NW1/4 sec.24, T.13 N., R.33 E., Quay County, Hydrologic Unit 11080008, on right bank 0.3 mi (0.5 km) upstream from bridge on State Highway 39, 1.9 mi (3.1 km) southeast of Logan, and at mile 2.3 (3.7 km).

DRAINAGE AREA.--786 $mi^2$ (2,036 $km^2$).

### WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Altitude of gage is 3,665 ft (1,117 m), from topographic map. Prior to Jan. 16, 1981, at site 320 ft (98 m) upstream at datum 0.56 ft (0.171 m) higher.

REMARKS.--Water-discharge records poor prior to February and fair thereafter. Low flows supplemented by surface- and ground-water return from irrigation in vicinity of Tucumcari.

AVERAGE DISCHARGE.--22 years, 46.0 $ft^3/s$ (1.303 $m^3/s$), 33,330 acre-ft/yr (41.1 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,700 $ft^3/s$ (756 $m^3/s$) July 9, 1960, gage height, 14.3 ft (4.36 m), site and datum then in use; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD (1941-47).--Maximum discharge determined, about 13,400 $ft^3/s$ (379 $m^3/s$) Sept. 18, 1946, gage height, 9.04 ft (2.755 m), at site 180 ft (155 m), revised, downstream at different datum, from unpublished records collected by Bureau of Reclamation (formerly the Water and Power Resources Services)
A peak discharge of 26,100 $ft^3/s$ (739 $m^3/s$), date unknown, gage height, 12.9 ft (3.93 m), at former site and datum, was measured by slope-area method in May 1957.

EXTREMES FOR CURRENT YEAR.--Peak diskcharges above base of 3,500 $ft^3/s$ (99.1 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| May 29 | 2345 | 5,050 | 143 | 7.01 | 2.137 | Aug. 11 | 0700 | *15,200 | 430 | 11.70 | 3.566 |
| June 4 | 0030 | 3,780 | 107 | 6.18 | 1.884 | Aug. 12 | 1100 | 7,400 | 210 | 8.31 | 2.533 |
| June 11 | 2315 | 4,340 | 123 | 6.56 | 1.999 | Aug. 27 | 0430 | 4,000 | 113 | 6.33 | 1.929 |
| June 30 | 0200 | 3,670 | 104 | 6.10 | 1.859 | Sept. 5 | 1345 | 5,140 | 146 | 7.07 | 2.155 |
| Aug. 2 | 2100 | 4,300 | 122 | 6.53 | 1.990 | | | | | | |

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7.7 | 16 | 2.9 | 1.6 | 1.1 | .48 | .00 | .00 | 161 | 235 | .00 | 1.7 |
| 2 | 5.9 | 15 | 2.1 | 1.6 | 1.1 | .55 | .00 | .00 | 82 | 18 | 524 | .85 |
| 3 | 6.0 | 12 | 1.8 | 1.6 | 1.1 | 1.0 | .00 | .00 | 103 | 2.7 | 711 | .34 |
| 4 | 6.0 | 8.3 | 1.8 | 1.6 | 1.1 | 1.5 | .02 | .00 | 625 | 164 | 337 | 320 |
| 5 | 6.0 | 8.4 | 1.8 | 1.5 | 1.5 | 1.1 | .01 | .00 | 13 | 245 | 17 | 1360 |
| 6 | 14 | 9.9 | 1.6 | 1.4 | 1.5 | 1.0 | .00 | .00 | 1.9 | 13 | 62 | 455 |
| 7 | 10 | 7.4 | 1.6 | 1.4 | 1.1 | 1.9 | .00 | 6.4 | .90 | 3.2 | 261 | 155 |
| 8 | 9.4 | 5.7 | 1.0 | 1.2 | 1.1 | 4.0 | .00 | .56 | .37 | 39 | 305 | 67 |
| 9 | 7.2 | 5.0 | 1.1 | 1.2 | 1.1 | 2.3 | .00 | .21 | .24 | 527 | 173 | 27 |
| 10 | 6.0 | 5.0 | 1.4 | 1.2 | 1.4 | 1.7 | .00 | .09 | .21 | 264 | 719 | 21 |
| 11 | 7.2 | 5.0 | 1.2 | 1.3 | 2.5 | 6.7 | .00 | .14 | 236 | 37 | 6450 | 14 |
| 12 | 7.2 | 4.8 | 1.3 | 1.5 | 1.4 | 18 | .00 | .01 | 458 | 16 | 4330 | 17 |
| 13 | 7.1 | 5.0 | 1.4 | 1.3 | .71 | 2.5 | .00 | .00 | 6.8 | 4.8 | 1950 | 22 |
| 14 | 11 | 4.5 | .96 | 1.2 | .80 | .90 | .00 | .00 | .06 | 1.5 | 219 | 28 |
| 15 | 13 | 4.5 | 1.2 | 1.6 | 1.1 | 2.8 | .02 | .00 | .00 | .63 | 164 | 14 |
| 16 | 11 | 5.0 | 1.1 | 2.0 | .90 | 1.5 | .40 | .00 | .00 | 2.2 | 212 | 5.0 |
| 17 | 11 | 7.4 | 1.0 | 2.1 | .80 | .27 | .62 | .00 | .00 | 18 | 196 | 11 |
| 18 | 12 | 21 | 1.0 | 2.8 | .71 | .09 | .42 | .00 | .00 | 4.4 | 101 | 7.4 |
| 19 | 14 | 11 | 1.0 | 5.8 | .63 | .04 | .92 | .00 | .00 | 2.5 | 66 | 13 |
| 20 | 14 | 4.0 | 1.0 | 5.8 | .48 | .01 | .77 | .00 | .00 | .50 | 28 | 16 |
| 21 | 14 | 2.8 | 1.2 | 4.0 | 1.0 | .00 | .25 | .00 | .00 | .20 | 16 | 23 |
| 22 | 13 | 2.3 | 1.4 | 4.0 | 1.7 | .00 | 1.4 | .00 | .00 | .11 | 12 | 35 |
| 23 | 11 | 2.3 | 1.8 | 3.6 | 1.7 | .00 | 3.4 | .00 | 268 | .10 | 8.6 | 87 |
| 24 | 11 | 2.4 | 1.6 | 3.6 | 1.0 | .00 | .76 | .00 | 270 | .33 | 6.8 | 733 |
| 25 | 15 | 4.5 | 1.6 | 3.0 | .63 | .00 | .48 | .00 | 32 | .09 | 3.3 | 223 |
| 26 | 17 | 3.2 | 1.8 | 1.9 | .42 | .00 | .16 | .00 | 4.1 | .02 | 2.6 | 60 |
| 27 | 18 | 10 | 1.5 | 1.5 | .48 | .00 | .00 | .00 | 1.2 | .05 | 885 | 22 |
| 28 | 18 | 22 | 1.4 | 1.7 | .55 | .00 | .00 | .00 | .21 | .06 | 38 | 9.8 |
| 29 | 18 | 21 | 1.6 | 1.5 | --- | .00 | .00 | 189 | 209 | .08 | 16 | 5.4 |
| 30 | 21 | 3.7 | 1.2 | 1.2 | --- | .00 | .00 | 1600 | 1820 | .06 | 5.6 | 3.3 |
| 31 | 20 | --- | 1.4 | 1.2 | --- | .00 | --- | 545 | --- | .02 | 4.1 | --- |
| TOTAL | 361.7 | 239.1 | 44.76 | 66.9 | 29.61 | 48.34 | 9.63 | 2341.41 | 4292.99 | 1599.55 | 17823.00 | 3756.79 |
| MEAN | 11.7 | 7.97 | 1.44 | 2.16 | 1.06 | 1.56 | .32 | 75.5 | 143 | 51.6 | 575 | 125 |
| MAX | 21 | 22 | 2.9 | 5.8 | 2.5 | 18 | 3.4 | 1600 | 1820 | 527 | 6450 | 1360 |
| MIN | 5.9 | 2.3 | .96 | 1.2 | .42 | .00 | .00 | .00 | .00 | .02 | .00 | .34 |
| AC-FT | 717 | 474 | 89 | 133 | 59 | 96 | 19 | 4640 | 8520 | 3170 | 35350 | 7450 |

CAL YR 1980 TOTAL 6117.74 MEAN 16.7 MAX 549 MIN .00 AC-FT 12130
WTR YR 1981 TOTAL 30613.78 MEAN 83.9 MAX 6450 MIN .00 AC-FT 60720

07227100 REVUELTO CREEK NEAR LOGAN, NM--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1959 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 24... | 1025 | 11 | 1270 | 8.5 | 6.0 | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | |
| 20... | 1340 | 5.6 | 1500 | 8.4 | 9.5 | 280 | 47 | 58 | 32 | 250 |
| DEC | | | | | | | | | | |
| 18... | 1605 | 1.0 | 2020 | 8.6 | 12.5 | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | |
| 12... | 1550 | 1.5 | 2080 | 8.6 | 9.5 | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | |
| 19... | 1140 | .63 | 3900 | 8.6 | 15.0 | 340 | 19 | 63 | 44 | 740 |
| MAR | | | | | | | | | | |
| 19... | 1215 | .04 | 3260 | 8.5 | 17.0 | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | |
| 07... | 0920 | .02 | 4460 | 8.3 | 9.5 | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | |
| 04... | 0900 | 298 | 320 | 8.9 | 18.0 | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | |
| 15... | 1515 | .60 | 1650 | 8.6 | 29.0 | -- | -- | -- | -- | -- |
| 15... | 1530 | .60 | -- | -- | 29.0 | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 11... | 1530 | 5870 | 330 | 8.9 | 20.5 | 25 | -- | 7.4 | 1.7 | -- |
| SEP | | | | | | | | | | |
| 17... | 1000 | 12 | 900 | 8.4 | 14.0 | -- | -- | -- | -- | -- |

| DATE | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | 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) | SEDI-MENT, SUS-PENDED (MG/L) | SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | -- | 117 | 3.5 | -- |
| NOV | | | | | | | | | | |
| 20... | 6.5 | 5.1 | 420 | 83 | .6 | 6.2 | 993 | 605 | 9.1 | 65 |
| DEC | | | | | | | | | | |
| 18... | -- | -- | -- | -- | -- | -- | -- | 27 | .07 | -- |
| JAN | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | 9 | .04 | -- |
| FEB | | | | | | | | | | |
| 19... | 18 | 4.2 | 360 | 950 | .8 | 8.5 | 2360 | 20 | .03 | 99 |
| MAR | | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | -- | -- | 64 | .01 | 99 |
| APR | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | 1 | .00 | -- |
| JUN | | | | | | | | | | |
| 04... | -- | -- | -- | -- | -- | -- | -- | 19800 | 15900 | 97 |
| JUL | | | | | | | | | | |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 15... | -- | -- | -- | -- | -- | -- | -- | 92 | .15 | 97 |
| AUG | | | | | | | | | | |
| 11... | -- | 1.5 | 64 | 8.3 | .2 | 3.4 | -- | 21900 | 347000 | 66 |
| SEP | | | | | | | | | | |
| 17... | -- | -- | -- | -- | -- | -- | -- | 665 | 22 | 98 |

## 07227140 CANADIAN RIVER ABOVE NEW MEXICO-TEXAS STATE LINE, NM
(National stream-quality accounting network station)

LOCATION.--Lat 35°23'35", long 103°02'30", in SW1/4 sec. 32, T.14 N., R.37 E., Quay County, Hydrologic Unit 11080006, 0.1 mi (0.2 km) upstream from New Mexico-Texas State line, 5.5 mi (8.8 km) downstream from Rana Canyon and 14.7 mi (23.7 km) north of Glenrio.

DRAINAGE AREA.--12,616 $mi^2$ (32,675 $km^2$).

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

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 24... | 0820 | 14 | 5813 | 8.5 | 2.5 | 2.0 | 12.4 | 22 | 92 | 500 |
| NOV | | | | | | | | | | |
| 20... | 1000 | 18 | 8230 | 8.3 | 3.0 | 80 | -- | 560 | 250 | 620 |
| DEC | | | | | | | | | | |
| 18... | 1340 | 8.7 | 7900 | 8.3 | 13.0 | 42 | 10.1 | 2 | 11 | 620 |
| JAN | | | | | | | | | | |
| 13... | 0930 | E12 | 9380 | 8.5 | 1.0 | .30 | 13.0 | 3 | 14 | 670 |
| FEB | | | | | | | | | | |
| 19... | 0850 | 2.0 | 9700 | 8.4 | 4.5 | 16 | 11.9 | 12 | 9 | 650 |
| MAR | | | | | | | | | | |
| 19... | 0915 | 11 | 6750 | 8.5 | 7.0 | 230 | 11.3 | 10 | 270 | 500 |
| MAY | | | | | | | | | | |
| 14... | 1130 | 3.7 | 7200 | 8.4 | 21.5 | 6.2 | 9.4 | 3 | 1 | 590 |
| JUN | | | | | | | | | | |
| 03... | 1130 | 34 | 3000 | 8.6 | 23.0 | 440 | 7.6 | 7500 | 240 | 220 |
| JUL | | | | | | | | | | |
| 15... | 1030 | 114 | 610 | 8.1 | 24.0 | 3400 | 6.7 | 16000 | 4900 | 63 |
| SEP | | | | | | | | | | |
| 16... | 1245 | 294 | 980 | 8.3 | 17.0 | 200 | 6.8 | 130 | 60 | 130 |

| DATE | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 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 | | | | | | | | | | |
| 24... | 280 | 110 | 54 | 1100 | 21 | 11 | 220 | -- | -- | -- |
| NOV | | | | | | | | | | |
| 20... | 370 | 140 | 66 | 1600 | 28 | 12 | -- | 370 | 2500 | .5 |
| DEC | | | | | | | | | | |
| 18... | 380 | 130 | 72 | 1700 | 30 | 8.9 | -- | 480 | 2700 | .5 |
| JAN | | | | | | | | | | |
| 13... | 410 | 140 | 77 | 1700 | 29 | 7.5 | -- | 440 | 2700 | .7 |
| FEB | | | | | | | | | | |
| 19... | 400 | 130 | 80 | 1900 | 32 | 8.6 | -- | 480 | 3000 | .5 |
| MAR | | | | | | | | | | |
| 19... | -- | 100 | 61 | 1200 | 23 | 6.3 | -- | 380 | 1900 | .5 |
| MAY | | | | | | | | | | |
| 14... | -- | 110 | 77 | 1400 | 25 | 10 | -- | 470 | 2200 | .5 |
| JUN | | | | | | | | | | |
| 03... | -- | 51 | 23 | 490 | 14 | 5.0 | -- | 230 | 650 | .4 |
| JUL | | | | | | | | | | |
| 15... | -- | 17 | 5.0 | 110 | 6.0 | 4.0 | -- | 38 | 120 | .2 |
| SEP | | | | | | | | | | |
| 16... | -- | 30 | 14 | 170 | 7.1 | 5.0 | -- | 110 | 150 | .8 |

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| 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, 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 TOTAL (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 24... | 8.4 | -- | -- | .17 | .18 | .010 | .000 | .49 | .43 | .50 |
| NOV | | | | | | | | | | |
| 20... | 11 | 4830 | 4850 | .35 | .32 | .020 | .030 | .46 | -- | .48 |
| DEC | | | | | | | | | | |
| 18... | 12 | 5160 | 5250 | .50 | .49 | .020 | .070 | .39 | .62 | .41 |
| JAN | | | | | | | | | | |
| 13... | 12 | 5320 | 5240 | .51 | .51 | .050 | .100 | .64 | .35 | .69 |
| FEB | | | | | | | | | | |
| 19... | 10 | 5630 | 5760 | .34 | .34 | .090 | .070 | .56 | .55 | .65 |
| MAR | | | | | | | | | | |
| 19... | 9.7 | 4270 | 3770 | .44 | .72 | .070 | .020 | 1.7 | .53 | 1.80 |
| MAY | | | | | | | | | | |
| 14... | 6.8 | 4420 | 4410 | .01 | .01 | .140 | .140 | .47 | .37 | .61 |
| JUN | | | | | | | | | | |
| 03... | 7.7 | 1610 | 1550 | .13 | .18 | -- | .150 | -- | .81 | -- |
| JUL | | | | | | | | | | |
| 15... | 4.8 | 321 | 374 | .39 | .64 | .050 | .530 | 6.4 | 2.7 | 6.40 |
| SEP | | | | | | | | | | |
| 16... | 6.0 | 559 | 589 | .26 | .16 | .240 | .180 | .96 | .82 | 1.20 |

| DATE | NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | PHOS-PHORUS, DIS-SOLVED (MG/L AS P) | CARBON, ORGANIC TOTAL (MG/L AS C) | 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 |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 24... | .43 | .210 | .060 | 6.0 | -- | -- | 118 | 4.3 | 94 |
| NOV | | | | | | | | | |
| 20... | -- | .070 | .030 | 4.8 | -- | -- | 120 | 5.9 | 94 |
| DEC | | | | | | | | | |
| 18... | .69 | .060 | .050 | -- | 18 | .3 | 64 | 1.5 | 78 |
| JAN | | | | | | | | | |
| 13... | .45 | .020 | .050 | 8.9 | -- | -- | 44 | 1.4 | 84 |
| FEB | | | | | | | | | |
| 19... | .62 | .030 | .030 | 12 | -- | -- | 35 | .19 | 89 |
| MAR | | | | | | | | | |
| 19... | .55 | .160 | .040 | -- | 4.6 | .9 | 273 | 8.1 | 100 |
| MAY | | | | | | | | | |
| 14... | .51 | .050 | .030 | 4.4 | -- | -- | 22 | .22 | 38 |
| JUN | | | | | | | | | |
| 03... | .96 | .020 | .050 | -- | -- | 1.4 | 431 | 40 | 99 |
| JUL | | | | | | | | | |
| 15... | 3.2 | 2.10 | .050 | 12 | -- | -- | 6100 | 1880 | 97 |
| SEP | | | | | | | | | |
| 16... | 1.0 | .180 | .010 | -- | 5.6 | .5 | 422 | 335 | 89 |

| DATE | TIME | ARSENIC TOTAL (UG/L AS AS) | ARSENIC SUS-PENDED TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) | BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA) | BARIUM, DIS-SOLVED (UG/L AS BA) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD) | CADMIUM DIS-SOLVED (UG/L AS CD) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | | | | |
| 18... | 1340 | 2 | 0 | 2 | 100 | 0 | 100 | 0 | 0 | 0 | 30 |
| MAR | | | | | | | | | | | |
| 19... | 0915 | 2 | 0 | 3 | -- | -- | 100 | -- | -- | 0 | -- |
| JUN | | | | | | | | | | | |
| 03... | 1130 | 10 | 6 | 4 | 300 | 100 | 200 | 0 | 0 | 3 | 10 |
| SEP | | | | | | | | | | | |
| 16... | 1245 | 0 | 0 | 3 | 300 | 100 | 190 | 1 | -- | <1 | 10 |

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | CHROMIUM, SUSPENDED RECOV. (UG/L AS CR) | CHROMIUM, DISSOLVED (UG/L AS CR) | COBALT, TOTAL RECOVERABLE (UG/L AS CO) | COBALT, SUSPENDED RECOVERABLE (UG/L AS CO) | COBALT, DISSOLVED (UG/L AS CO) | COPPER, TOTAL RECOVERABLE (UG/L AS CU) | COPPER, SUSPENDED RECOVERABLE (UG/L AS CU) | COPPER, DISSOLVED (UG/L AS CU) | IRON, TOTAL RECOVERABLE (UG/L AS FE) | IRON, SUSPENDED RECOVERABLE (UG/L AS FE) | IRON, DISSOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DEC 18... | 10 | 20 | 3 | 3 | 0 | 3 | 3 | 0 | 590 | 530 | 60 |
| MAR 19... | -- | 10 | -- | -- | 1 | -- | -- | 2 | -- | -- | 50 |
| JUN 03... | 0 | 10 | 5 | 5 | 0 | 14 | 10 | 4 | 7200 | 7200 | 40 |
| SEP 16... | 0 | 10 | 3 | 3 | 0 | 15 | 9 | 6 | 5300 | 5300 | 12 |

| DATE | LEAD, TOTAL RECOVERABLE (UG/L AS PB) | LEAD, SUSPENDED RECOVERABLE (UG/L AS PB) | LEAD, DISSOLVED (UG/L AS PB) | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MANGANESE, SUSPENDED RECOV. (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | MERCURY SUSPENDED RECOVERABLE (UG/L AS HG) | MERCURY DISSOLVED (UG/L AS HG) | NICKEL, TOTAL RECOVERABLE (UG/L AS NI) | NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DEC 18... | 5 | 5 | 0 | 80 | 30 | 50 | .2 | .2 | .0 | 4 | 4 |
| MAR 19... | -- | -- | 0 | -- | -- | 60 | .1 | .0 | .1 | -- | -- |
| JUN 03... | 4 | 0 | 4 | 210 | 200 | 10 | .1 | .1 | .0 | 14 | 11 |
| SEP 16... | 9 | 6 | 3 | 220 | -- | <1 | .1 | .1 | .0 | 9 | 7 |

| DATE | NICKEL, DISSOLVED (UG/L AS NI) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, SUSPENDED TOTAL (UG/L AS SE) | SELENIUM, DISSOLVED (UG/L AS SE) | SILVER, TOTAL RECOVERABLE (UG/L AS AG) | SILVER, SUSPENDED RECOVERABLE (UG/L AS AG) | SILVER, DISSOLVED (UG/L AS AG) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN) | ZINC, DISSOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|---|---|
| DEC 18... | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 30 | 0 | 30 |
| MAR 19... | 1 | 1 | 0 | 1 | -- | -- | 0 | -- | -- | 10 |
| JUN 03... | 3 | 1 | 0 | 1 | 0 | 0 | 0 | 60 | 40 | 20 |
| SEP 16... | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 60 | 50 | 14 |

## 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 (460 m) downstream from Pitcher Creek, 1.4 mi (2.3 km) downstream from East Amarillo Creek, 1.7 mi (2.7 km) downstream from Panhandle and Santa Fe Railway Co. bridge, 19 mi (31 km) north of Amarillo, and 537.7 mi (865.2 km) upstream from mouth.

DRAINAGE AREA.--19,445 mi² (50,362 km²), of which 4,069 mi² (10,539 km²) probably is noncontributing.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1924 to December 1925, 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 (911.096 m) 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 (6 m) upstream at same datum. June 2 to Dec. 5, 1938, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records poor. At times, low flow is maintained by release of sewage effluent from the Amarillo disposal plant into East Amarillo Creek, a tributary to the Canadian River. Some regulation by Conchas and Ute Reservoirs in New Mexico, total capacity 439,700 acre-ft (542 hm³). Conchas Canal and Bell Ranch Canal divert from Conchas Reservoir for irrigation.

AVERAGE DISCHARGE.--44 years (water years 1925, 1939-81), 337 ft³/s (9.544 m³/s), 244,200 acre-ft/yr (301 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 135,000 ft³/s (3,820 m³/s) July 25, 1941, gage height, 15.7 ft (4.79 m), from rating curve extended above 100,000 ft³/s (2,830 m³/s); no flow at times January 1924 to December 1925 and Aug. 7, 8, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1914 reached a stage of 24 ft (7.3 m); a higher stage probably occurred during flood in October 1904, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 14,000 ft³/s (396 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Aug. 12 | 1500 | 16,800 | 476 | 8.14 | 2.481 |
| Aug. 16 | 0500 | 15,100 | 428 | 6.84 | 2.085 |
| Aug. 17 | 0800 | *56,500 | 1,600 | 11.88 | 3.621 |

Minimum daily discharge observed, 0.08 ft³/s (0.002 m³/s) Oct. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .73 | .54 | 31 | 9.8 | 6.0 | 3.2 | 2.3 | 87 | 330 | 526 | 5.3 | 361 |
| 2 | .54 | .38 | 24 | 10 | 5.0 | 3.7 | 2.1 | 124 | 206 | 787 | 259 | 394 |
| 3 | .38 | .26 | 19 | 9.2 | 5.0 | 5.6 | 1.5 | 148 | 1460 | 505 | 66 | 372 |
| 4 | .26 | .38 | 18 | 9.7 | 6.0 | 5.2 | 1.9 | 185 | 108 | 346 | 485 | 5040 |
| 5 | .26 | .54 | 19 | 9.9 | 6.9 | 4.6 | 1.2 | 161 | 97 | 209 | 536 | 1550 |
| 6 | .32 | .73 | 20 | 9.8 | 7.5 | 5.7 | .95 | 78 | 204 | 161 | 375 | 2070 |
| 7 | .73 | .73 | 20 | 9.3 | 6.2 | 6.6 | .63 | 47 | 84 | 129 | 452 | 1990 |
| 8 | 1.7 | .73 | 21 | 8.8 | 5.7 | 8.4 | .63 | 29 | 73 | 184 | 288 | 904 |
| 9 | 2.1 | .73 | 22 | 8.4 | 5.3 | 7.0 | .46 | 14 | 43 | 2370 | 169 | 650 |
| 10 | 1.9 | .73 | 23 | 9.2 | 4.0 | 6.6 | .54 | 7.6 | 21 | 724 | 2220 | 639 |
| 11 | 1.4 | .73 | 25 | 9.0 | 3.0 | 12 | 6.2 | 5.7 | 13 | 288 | 2120 | 517 |
| 12 | 1.1 | .84 | 24 | 10 | 2.5 | 49 | 2.5 | 4.6 | 2380 | 374 | 11200 | 529 |
| 13 | .73 | .95 | 22 | 9.7 | 3.0 | 40 | .46 | 3.3 | 390 | 137 | 11500 | 545 |
| 14 | .54 | .95 | 18 | 8.8 | 4.0 | 29 | .21 | 2.8 | 293 | 87 | 12400 | 772 |
| 15 | .21 | .95 | 15 | 8.0 | 4.8 | 48 | .54 | 1.9 | 116 | 55 | 7580 | 696 |
| 16 | .08 | .95 | 13 | 8.5 | 5.4 | 33 | .54 | 2.5 | 70 | 37 | 6900 | 590 |
| 17 | .21 | .95 | 12 | 8.5 | 5.2 | 20 | .32 | 1.4 | 42 | 32 | 14400 | 534 |
| 18 | .32 | .95 | 12 | 9.8 | 4.6 | 15 | .63 | 1.5 | 25 | 38 | 5010 | 484 |
| 19 | .26 | .84 | 10 | 11 | 4.5 | 14 | 5.0 | 2.3 | 17 | 153 | 2120 | 419 |
| 20 | .17 | .84 | 9.0 | 10 | 4.3 | 12 | 23 | 2.3 | 10 | 49 | 922 | 283 |
| 21 | .17 | .95 | 11 | 8.1 | 4.3 | 11 | 8.1 | 2.1 | 5.7 | 18 | 664 | 204 |
| 22 | .21 | 1.1 | 14 | 7.4 | 3.4 | 11 | 3.0 | 1.9 | 3.4 | 8.6 | 618 | 155 |
| 23 | .26 | .95 | 17 | 7.1 | 3.2 | 11 | 1.9 | 1.9 | 59 | 3.8 | 671 | 143 |
| 24 | .32 | 1.1 | 15 | 8.0 | 2.7 | 9.8 | 1.4 | 3.3 | 1870 | 2.0 | 580 | 1810 |
| 25 | .38 | 1.0 | 14 | 8.4 | 2.9 | 9.2 | .84 | 1.5 | 295 | .88 | 509 | 1560 |
| 26 | .38 | .90 | 17 | 9.2 | 3.1 | 8.6 | .63 | 1.1 | 213 | .53 | 455 | 1100 |
| 27 | .38 | 1.0 | 20 | 7.8 | 3.0 | 7.1 | .32 | .95 | 196 | .48 | 2760 | 529 |
| 28 | .38 | 2.0 | 17 | 7.3 | 2.9 | 5.0 | .32 | 1.4 | 127 | .31 | 5280 | 369 |
| 29 | .46 | 9.8 | 15 | 6.9 | --- | 3.6 | .46 | 111 | 201 | .84 | 1620 | 278 |
| 30 | .38 | 49 | 14 | 6.6 | --- | 3.6 | 42 | 70 | 547 | 3.6 | 632 | 216 |
| 31 | .46 | --- | 11 | 6.4 | --- | 3.0 | --- | 296 | --- | 1.4 | 435 | --- |
| TOTAL | 17.72 | 82.50 | 542.0 | 270.6 | 124.4 | 411.5 | 110.58 | 1400.05 | 9499.1 | 7231.44 | 93231.3 | 25703 |
| MEAN | .57 | 2.75 | 17.5 | 8.73 | 4.44 | 13.3 | 3.69 | 45.2 | 317 | 233 | 3007 | 857 |
| MAX | 2.1 | 49 | 31 | 11 | 7.5 | 49 | 42 | 296 | 2380 | 2370 | 14400 | 5040 |
| MIN | .08 | .26 | 9.0 | 6.4 | 2.5 | 3.0 | .21 | .95 | 3.4 | .31 | 5.3 | 143 |
| AC-FT | 35 | 164 | 1080 | 537 | 247 | 816 | 219 | 2780 | 18840 | 14340 | 184900 | 50980 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 28947.95 | MEAN | 79.1 | MAX | 1580 | MIN | .02 | AC-FT 57420 |
| WTR YR 1981 | TOTAL | 138624.19 | MEAN | 380 | MAX | 14400 | MIN | .08 | AC-FT 275000 |

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: January 1969 to current year. Pesticide analyses: October 1968 to September 1981 (discontinued).

PERIOD OF RECORD.--
SPECIFIC CONDUCTANCE: October 1950 to current year.
WATER TEMPERATURES: 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, 6,540 micromhos Dec. 10, 1978; minimum daily, 346 micromhos Oct. 29, 1964.
WATER TEMPERATURES (1949-76): 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, 6,320 micromhos Mar. 21; minimum daily, 370 micromhos Aug. 17.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (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 (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 08... | 1615 | 2.6 | 1080 | 8.2 | 28.0 | 35 | 58 | 12.0 | 171 | 5.4 | 170 |
| DEC | | | | | | | | | | | |
| 04... | 1015 | 18 | 3900 | 8.1 | 7.0 | 5 | 270 | 17.7 | 172 | 3.1 | 550 |
| JAN | | | | | | | | | | | |
| 02... | 1340 | 10 | 4930 | -- | 9.5 | -- | -- | -- | -- | -- | 750 |
| FEB | | | | | | | | | | | |
| 13... | 0945 | 2.9 | 3650 | 7.7 | .0 | 0 | 3.5 | 14.6 | 111 | 2.8 | 660 |
| APR | | | | | | | | | | | |
| 15... | 1000 | .54 | 2500 | 8.1 | 12.0 | 5 | 4.6 | 18.5 | 191 | .9 | 510 |
| MAY | | | | | | | | | | | |
| 31... | 1530 | 180 | 1070 | -- | 23.0 | -- | -- | -- | -- | -- | 97 |
| JUN | | | | | | | | | | | |
| 09... | 1200 | 44 | 1500 | 8.2 | 25.0 | 10 | 7300 | 10.8 | 148 | 7.3 | 150 |
| AUG | | | | | | | | | | | |
| 19... | 1300 | 1730 | 750 | 7.9 | 25.5 | 120 | 3700 | 8.8 | 121 | 6.2 | 140 |
| SEP | | | | | | | | | | | |
| 08... | 1415 | 947 | 763 | -- | 22.0 | -- | -- | -- | -- | -- | 110 |

| DATE | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 08... | 48 | 36 | 19 | 220 | 7.4 | 6.8 | 120 | 170 | 280 | .6 | 11 |
| DEC | | | | | | | | | | | |
| 04... | 360 | 140 | 48 | 630 | 12 | 10 | 190 | 430 | 960 | .6 | 11 |
| JAN | | | | | | | | | | | |
| 02... | 590 | 190 | 66 | 760 | 12 | 4.9 | 160 | 700 | 1100 | .5 | 14 |
| FEB | | | | | | | | | | | |
| 13... | 470 | 180 | 52 | 610 | 10 | 3.7 | 190 | 530 | 860 | .4 | 19 |
| APR | | | | | | | | | | | |
| 15... | 320 | 140 | 39 | 340 | 6.6 | 3.5 | 190 | 340 | 500 | .5 | 19 |
| MAY | | | | | | | | | | | |
| 31... | 0 | 24 | 9.0 | 190 | 8.4 | 3.9 | 160 | 120 | 170 | .4 | 13 |
| JUN | | | | | | | | | | | |
| 09... | 0 | 35 | 15 | 260 | 9.3 | 5.0 | 170 | 190 | 270 | 1.0 | 11 |
| AUG | | | | | | | | | | | |
| 19... | 16 | 33 | 13 | 110 | 4.5 | 6.1 | 120 | 89 | 120 | .8 | 11 |
| SEP | | | | | | | | | | | |
| 08... | 0 | 28 | 9.6 | 120 | 5.4 | 3.7 | 150 | 92 | 98 | .6 | 9.4 |

07227500 CANADIAN RIVER NEAR AMARILLO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (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) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 08... | 815 | 46 | 26 | .00 | .000 | .00 | .020 | 1.9 | 1.90 | .180 | 14 |
| DEC | | | | | | | | | | | |
| 04... | 2340 | 248 | 28 | .31 | .010 | .32 | .660 | .74 | 1.40 | 1.00 | -- |
| JAN | | | | | | | | | | | |
| 02... | 2930 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | | |
| 13... | 2370 | 9 | 5 | .21 | .000 | .21 | .200 | .56 | .76 | .030 | 12 |
| APR | | | | | | | | | | | |
| 15... | 1500 | 4 | 6 | .09 | .010 | .10 | .100 | .32 | .42 | .020 | 4.5 |
| MAY | | | | | | | | | | | |
| 31... | 627 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | |
| 09... | 889 | 13900 | 1220 | .78 | .000 | .78 | .030 | .00 | .00 | 8.80 | 39 |
| AUG | | | | | | | | | | | |
| 19... | 455 | 323 | 47 | .22 | .010 | .23 | .100 | 9.2 | 9.30 | .660 | 36 |
| SEP | | | | | | | | | | | |
| 08... | 461 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| DATE | TIME | ARSENIC DIS-SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 08... | 1615 | 4 | 100 | <1 | 0 | <10 | <10 |
| JUN | | | | | | | |
| 09... | 1200 | 9 | 100 | 0 | 10 | 0 | 40 |
| AUG | | | | | | | |
| 19... | 1300 | 4 | 160 | <1 | 0 | <10 | 53 |

| DATE | 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) |
|---|---|---|---|---|---|---|
| OCT | | | | | | |
| 08... | <10 | 30 | .0 | 1 | 0 | <3 |
| JUN | | | | | | |
| 09... | 0 | 10 | .1 | 1 | 0 | 10 |
| AUG | | | | | | |
| 19... | <10 | 4 | .0 | 1 | 0 | <3 |

| DATE | TIME | PCB, TOTAL (UG/L) | PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | CHLOR-DANE, TOTAL (UG/L) | CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | DDD, TOTAL (UG/L) | DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | DDE, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | | | | |
| 04... | 1015 | .10 | 0 | .00 | .00 | .0 | .00 | .0 | .00 | .0 | .00 |
| FEB | | | | | | | | | | | |
| 13... | 0945 | .00 | 0 | .00 | .00 | .0 | .00 | .0 | .00 | .0 | .00 |
| JUN | | | | | | | | | | | |
| 09... | 1200 | .00 | 0 | .00 | .00 | .0 | .00 | .0 | .00 | .0 | .00 |

| DATE | DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | DDT, TOTAL (UG/L) | DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | DI-AZINON, TOTAL (UG/L) | DI-ELDRIN TOTAL (UG/L) | DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | ENDO-SULFAN, TOTAL (UG/L) | ENDRIN, TOTAL (UG/L) | ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | ETHION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | | | |
| 04... | .0 | .00 | .0 | .06 | .00 | .0 | .00 | .00 | .0 | .00 |
| FEB | | | | | | | | | | |
| 13... | .0 | .00 | .0 | .00 | .00 | .0 | .00 | .00 | .0 | .00 |
| JUN | | | | | | | | | | |
| 09... | .0 | .00 | .0 | .00 | .00 | .0 | .00 | .00 | .0 | .00 |

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | HEPTA-CHLOR, TOTAL (UG/L) | HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | HEPTA-CHLOR EPOXIDE TOTAL (UG/L) | HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) | LINDANE TOTAL (UG/L) | LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | MALA-THION, TOTAL (UG/L) | METH-OXY-CHLOR, TOTAL (UG/L) | METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (UG/KG) | METHYL PARA-THION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | | | |
| 04... | .00 | .0 | .00 | .0 | .00 | .0 | .00 | .00 | .0 | .00 |
| FEB | | | | | | | | | | |
| 13... | .00 | .0 | .00 | .0 | .00 | .0 | .00 | .00 | .0 | .00 |
| JUN | | | | | | | | | | |
| 09... | .00 | .0 | .00 | .0 | .00 | .0 | .00 | .00 | .0 | .00 |

| DATE | METHYL TRI-THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) | MIREX, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | PARA-THION, TOTAL (UG/L) | TOX-APHENE, TOTAL (UG/L) | TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | TOTAL TRI-THION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | | | |
| 04... | .00 | .00 | .0 | .00 | 0 | .0 | .00 | .05 | .01 | .01 |
| FEB | | | | | | | | | | |
| 13... | .00 | .00 | .0 | .00 | 0 | .0 | .00 | .00 | .00 | .00 |
| JUN | | | | | | | | | | |
| 09... | .00 | .00 | .0 | .00 | 0 | .0 | .00 | .01 | .00 | .01 |

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 17.72 | 2070 | 1220 | 58 | 380 | 18 | 280 | 13 | 340 |
| NOV. | 1980 | 82.50 | 2270 | 1340 | 298 | 420 | 94 | 310 | 69 | 370 |
| DEC. | 1980 | 542.0 | 3350 | 2010 | 2950 | 680 | 996 | 470 | 694 | 550 |
| JAN. | 1981 | 270.6 | 5070 | 3130 | 2290 | 1200 | 850 | 760 | 556 | 830 |
| FEB. | 1981 | 124.4 | 5090 | 3150 | 1060 | 1200 | 394 | 770 | 257 | 840 |
| MAR. | 1981 | 411.5 | 3530 | 2140 | 2380 | 750 | 835 | 510 | 568 | 580 |
| APR. | 1981 | 110.58 | 3040 | 1820 | 544 | 610 | 184 | 430 | 128 | 500 |
| MAY | 1981 | 1400.05 | 1920 | 1120 | 4250 | 350 | 1320 | 260 | 976 | 320 |
| JUNE | 1981 | 9499.1 | 1080 | 625 | 16000 | 180 | 4700 | 140 | 3630 | 180 |
| JULY | 1981 | 7231.44 | 981 | 564 | 11000 | 160 | 3170 | 130 | 2480 | 160 |
| AUG. | 1981 | 93231.3 | 564 | 322 | 81000 | 89 | 22400 | 72 | 18000 | 93 |
| SEPT | 1981 | 25703 | 914 | 524 | 36400 | 150 | 10300 | 120 | 8160 | 150 |
| TOTAL | | 138624.19 | ** | ** | 158000 | ** | 45300 | ** | 35500 | ** |
| WTD. AVG. | | 380 | 736 | 423 | ** | 120 | ** | 95 | ** | 120 |

07227500 CANADIAN RIVER NEAR AMARILLO, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2700 | 2200 | 1960 | 4600 | 5270 | 5040 | 3730 | 2860 | 2600 | 1150 | 2650 | 1180 |
| 2 | 2750 | 2210 | 2550 | 4930 | 5300 | 4990 | 3180 | 2450 | 2870 | 1120 | 643 | 1300 |
| 3 | 2780 | 2270 | 3260 | 5010 | 5340 | 4960 | 3220 | 2180 | 950 | 1100 | 1800 | 1350 |
| 4 | 2570 | 2230 | 3970 | 5040 | 4930 | 5790 | 3150 | 2150 | 1150 | 840 | 936 | 624 |
| 5 | 2540 | 2180 | 3870 | 5100 | 4870 | 5160 | 2360 | 2030 | 1420 | 971 | 850 | 637 |
| 6 | 2740 | 2210 | 3760 | 5160 | 4890 | 5050 | 2220 | 2090 | 1450 | 1110 | 913 | 842 |
| 7 | 2920 | 2190 | 3650 | 5040 | 5310 | 4980 | 2200 | 2180 | 1500 | 1380 | 1040 | 747 |
| 8 | 1080 | 2160 | 3550 | 5230 | 5220 | 3720 | 2170 | 2490 | 1410 | 1730 | 1100 | 739 |
| 9 | 1390 | 2110 | 3440 | 5070 | 5130 | 3990 | 2150 | 2930 | 1800 | 689 | 1150 | 844 |
| 10 | 1560 | 2100 | 3300 | 5150 | 4910 | 4040 | 2340 | 3340 | 2210 | 650 | 750 | 946 |
| 11 | 1730 | 2080 | 3030 | 5040 | 4800 | 3410 | 3500 | 3750 | 2300 | 880 | 668 | 960 |
| 12 | 1890 | 2100 | 2800 | 5120 | 4650 | 2560 | 1760 | 4190 | 650 | 1050 | 505 | 930 |
| 13 | 2060 | 1950 | 2250 | 5140 | 4260 | 1740 | 2660 | 4040 | 940 | 1360 | 653 | 990 |
| 14 | 2230 | 2090 | 3000 | 5130 | 5290 | 2250 | 2310 | 3920 | 987 | 1150 | 400 | 850 |
| 15 | 2390 | 2020 | 3750 | 5120 | 5490 | 2550 | 2500 | 3850 | 1540 | 1280 | 410 | 1010 |
| 16 | 2550 | 2200 | 3320 | 5110 | 4800 | 2440 | 2470 | 3650 | 1870 | 1550 | 450 | 1200 |
| 17 | 2180 | 2380 | 4180 | 5120 | 4910 | 2950 | 2400 | 3860 | 1930 | 1800 | 370 | 1230 |
| 18 | 2230 | 2550 | 4220 | 5440 | 4970 | 3720 | 2710 | 3540 | 2140 | 2030 | 602 | 1260 |
| 19 | 4910 | 2730 | 4000 | 5040 | 5040 | 4500 | 3500 | 2480 | 2340 | 2280 | 759 | 1300 |
| 20 | 4870 | 2910 | 3810 | 4850 | 5090 | 5270 | 1530 | 2170 | 3000 | 2520 | 1030 | 1350 |
| 21 | 3950 | 3050 | 3650 | 4910 | 5290 | 6320 | 1840 | 1990 | 3510 | 2760 | 1220 | 1520 |
| 22 | 3040 | 3100 | 3440 | 4990 | 5300 | 5600 | 3170 | 2280 | 3850 | 3100 | 1390 | 1640 |
| 23 | 2120 | 3160 | 3450 | 5050 | 5460 | 4900 | 3950 | 2550 | 4770 | 3540 | 1450 | 1920 |
| 24 | 2190 | 3460 | 3430 | 4940 | 5300 | 5030 | 3530 | 3460 | 874 | 3700 | 1520 | 1410 |
| 25 | 2240 | 3400 | 3450 | 5010 | 5370 | 5140 | 3010 | 3250 | 842 | 3680 | 1600 | 797 |
| 26 | 2300 | 3320 | 3440 | 5060 | 5160 | 5300 | 2640 | 3010 | 847 | 3660 | 1660 | 840 |
| 27 | 2340 | 2840 | 3510 | 5120 | 5110 | 5470 | 2300 | 2240 | 991 | 3310 | 729 | 923 |
| 28 | 2070 | 2630 | 3570 | 5140 | 5080 | 5630 | 2080 | 1800 | 2150 | 3340 | 525 | 1020 |
| 29 | 2170 | 2700 | 3620 | 5160 | --- | 5250 | 2110 | 1070 | 1360 | 3360 | 577 | 1150 |
| 30 | 2250 | 2050 | 3950 | 5200 | --- | 4840 | 4070 | 1600 | 1200 | 1260 | 781 | 1510 |
| 31 | 2300 | --- | 4280 | 5230 | --- | 4530 | --- | 1050 | --- | 1510 | 1040 | --- |
| MEAN | 2490 | 2490 | 3470 | 5070 | 5090 | 4420 | 2690 | 2720 | 1850 | 1930 | 973 | 1100 |

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | 6.0 | 6.0 | 3.0 | --- | --- | 22.0 | 26.0 | 25.0 | --- | 26.0 | --- |
| 2 | --- | 8.0 | --- | --- | --- | --- | 23.0 | 22.0 | --- | 24.0 | 22.0 | --- |
| 3 | 13.0 | 8.0 | 4.0 | --- | 11.0 | 13.0 | --- | 27.0 | --- | 24.0 | 24.0 | 22.0 |
| 4 | 13.0 | 8.0 | 5.0 | --- | 5.0 | 10.0 | 18.0 | 22.0 | 28.0 | 24.0 | 23.0 | 21.0 |
| 5 | 14.0 | 8.0 | --- | --- | 10.0 | 18.0 | 23.0 | --- | 22.0 | 22.0 | --- | 21.0 |
| 6 | 16.0 | 8.0 | --- | 11.0 | 12.0 | 15.0 | 18.0 | --- | 21.0 | 22.0 | 24.0 | 21.0 |
| 7 | 15.0 | --- | --- | 10.0 | 13.0 | 13.0 | --- | 15.0 | 22.0 | 23.0 | 22.0 | 22.0 |
| 8 | 15.0 | --- | --- | 8.0 | 13.0 | 10.0 | --- | 14.0 | 21.0 | 29.0 | --- | 19.0 |
| 9 | 13.0 | --- | 5.0 | 12.0 | 8.0 | 18.0 | 27.0 | 12.0 | 21.0 | 26.0 | --- | 19.0 |
| 10 | --- | --- | 7.0 | 6.0 | --- | --- | 15.0 | --- | 29.0 | --- | 20.0 | 19.0 |
| 11 | --- | 21.0 | 8.0 | 10.0 | --- | --- | 25.0 | --- | 27.0 | --- | 21.0 | --- |
| 12 | --- | 21.0 | 9.0 | 11.0 | --- | 15.0 | 14.0 | 14.0 | --- | 22.0 | 20.0 | --- |
| 13 | --- | 14.0 | 6.0 | --- | --- | 10.0 | 15.0 | --- | --- | 22.0 | 21.0 | --- |
| 14 | 25.0 | 11.0 | 8.0 | --- | 3.0 | 11.0 | 11.0 | --- | 22.0 | 22.0 | --- | --- |
| 15 | 21.0 | 9.0 | 10.0 | 10.0 | 6.0 | 8.0 | --- | 15.0 | 17.0 | 23.0 | --- | 25.0 |
| 16 | 17.0 | --- | 12.0 | --- | 5.0 | 10.0 | --- | 16.0 | 16.0 | 23.0 | 20.0 | 18.0 |
| 17 | 22.0 | --- | 11.0 | 8.0 | 8.0 | 9.0 | 14.0 | 15.0 | 15.0 | --- | --- | 16.0 |
| 18 | 22.0 | --- | 12.0 | 7.0 | --- | --- | 11.0 | --- | 17.0 | --- | 25.0 | 21.0 |
| 19 | 22.0 | --- | --- | 10.0 | --- | --- | 14.0 | --- | --- | --- | 26.0 | 23.0 |
| 20 | 21.0 | 13.0 | --- | 12.0 | 5.0 | 8.0 | 17.0 | 13.0 | --- | --- | 28.0 | 25.0 |
| 21 | --- | 5.0 | --- | --- | 6.0 | 8.0 | 18.0 | 15.0 | --- | 29.0 | 28.0 | 28.0 |
| 22 | --- | 3.0 | 11.0 | --- | 4.0 | 5.0 | 14.0 | --- | --- | 30.0 | 28.0 | --- |
| 23 | 17.0 | 6.0 | 10.0 | 4.0 | 6.0 | 8.0 | 13.0 | --- | 30.0 | 33.0 | 28.0 | --- |
| 24 | --- | 4.0 | 10.0 | 4.0 | 5.0 | 9.0 | --- | --- | 28.0 | 35.0 | 29.0 | 20.0 |
| 25 | 20.0 | --- | 8.0 | 5.0 | 5.0 | 7.0 | --- | --- | 30.0 | 36.0 | --- | 20.0 |
| 26 | --- | --- | 11.0 | 3.0 | 7.0 | --- | --- | 34.0 | 31.0 | 36.0 | --- | 20.0 |
| 27 | 11.0 | --- | --- | 3.0 | --- | --- | --- | 34.0 | 29.0 | 35.0 | 20.0 | 17.0 |
| 28 | 15.0 | 2.0 | 5.0 | 3.0 | --- | 14.0 | 22.0 | 35.0 | 29.0 | --- | 22.0 | 19.0 |
| 29 | 17.0 | 3.0 | 4.0 | 5.0 | --- | --- | 32.0 | 23.0 | 22.0 | --- | 22.0 | 18.0 |
| 30 | --- | 5.0 | 2.0 | --- | --- | --- | 30.0 | 19.0 | --- | 22.0 | 22.0 | --- |
| 31 | 7.0 | --- | 2.0 | --- | --- | 23.0 | --- | 23.0 | --- | 28.0 | 23.0 | --- |
| MEAN | 17.0 | 8.5 | 7.5 | 7.5 | 7.5 | 11.5 | 19.0 | 20.5 | 24.0 | 27.0 | 23.5 | 20.5 |

## 07227900 LAKE MEREDITH NEAR SANFORD, TX

LOCATION.--Lat 35°42'38", long 101°33'03", Hutchinson County, Hydrologic Unit 11090106, in outlet tower near right end of dam on Canadian River, 1.2 mi (1.9 km) northwest of Sanford, and 508.5 mi (818.2 km) upstream from mouth.

DRAINAGE AREA.--20,220 mi² (52,370 km²), of which 4,172 mi² (10,805 km²) probably is noncontributing.

### WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation). Prior to Aug. 16, 1965, nonrecording gage read daily at same site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam 6,410 ft (1,954 m) long. The dam was completed and storage began in October 1964. The service spillway is an uncontrolled concrete drop inlet located near the left end of dam. The spillway discharges into a 22-foot-diameter (7 m) conduit that is designed to discharge 19,300 ft³/s (547 m³/s) at an elevation of 3,004.9 ft (915.89 m). The flood-control outlet works consist of three 12- by 15-foot (4 by 5 m) gates that open into three 15.5-foot (4.7 m) concrete conduits. The flood-control works are located just to the left of the service spillway near the left end of dam. The dam was built by the U.S. Bureau of Reclamation for the Canadian River Municipal Water Authority for flood control, municipal, and industrial supply for the cities of Amarillo, Borger, Brownfield, Lamesa, Levelland, Lubbock, O'Donnell, Pampa, Plainview, Slaton, and Tahoka. The area-capacity curves are based on sediment resurvey in May 1980 by U.S. Bureau of Reclamation. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

| | Elevation (feet) | Capacity (acre-feet) |
|---|---|---|
| Top of dam | 3,011.0 | - |
| Design flood | 3,004.9 | 2,409,900 |
| Crest of drop inlet | 2,965.0 | 1,382,500 |
| Top of conservation pool | 2,936.5 | 839,200 |
| Crest of flood-control outlet works (invert) | 2,894.0 | 300,400 |
| Lowest gated outlet (invert) | 2,850.0 | 42,320 |

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 546,100 acre-ft (673 hm³) Apr. 28, 1973, elevation, 2,914.91 ft (888.465 m); minimum since first appreciable storage, 165,500 acre-ft (204 hm³) May 27, 1981, elevation, 2,876.17 ft (876.657 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 334,500 acre-ft (412 hm³) Sept. 29 at 2400 hours, elevation, 2,897.74 ft (883.231 m); minimum, 165,500 acre-ft (204 hm³) May 27, elevation, 2,876.17 ft (876.657 m).

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

| | | | | | |
|---|---|---|---|---|---|
| 2,876.0 | 164,400 | 2,884.0 | 219,100 | 2,892.0 | 282,900 |
| 2,878.0 | 177,300 | 2,886.0 | 234,200 | 2,894.0 | 300,400 |
| 2,880.0 | 190,700 | 2,888.0 | 249,800 | 2,896.0 | 318,400 |
| 2,882.0 | 204,600 | 2,890.0 | 266,100 | 2,898.0 | 337,000 |

CONTENTS IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 215600 | 204800 | 197700 | 192800 | 187600 | 182300 | 179000 | 172600 | 167500 | 171700 | 172000 | 300400 |
| 2 | 215400 | 204400 | 197900 | 192800 | 187500 | 182200 | 178600 | 172800 | 167800 | 173100 | 171800 | 300700 |
| 3 | 215000 | 204100 | 197600 | 192400 | 187200 | 182400 | 177900 | 172600 | 169000 | 173300 | 171600 | 302700 |
| 4 | 214600 | 203900 | 197300 | 192200 | 187100 | 182200 | 177900 | 172400 | 170100 | 174100 | 171500 | 309000 |
| 5 | 214400 | 203600 | 197200 | 191900 | 186900 | 182200 | 177500 | 172400 | 170100 | 173800 | 171900 | 313400 |
| 6 | 214000 | 203300 | 196800 | 191800 | 186600 | 182100 | 177500 | 172500 | 170200 | 173500 | 171500 | 316000 |
| 7 | 213800 | 203100 | 197200 | 191700 | 186300 | 182000 | 177100 | 172600 | 170200 | 173200 | 172000 | 319100 |
| 8 | 213400 | 202800 | 197000 | 191600 | 186200 | 181800 | 176500 | 172400 | 170100 | 173300 | 172000 | 320800 |
| 9 | 213200 | 202600 | 196800 | 191400 | 186200 | 181500 | 176400 | 171600 | 169800 | 176100 | 171700 | 321800 |
| 10 | 212700 | 202400 | 196800 | 191300 | 186000 | 181300 | 176800 | 171300 | 169900 | 178100 | 173300 | 322500 |
| 11 | 212300 | 202200 | 196700 | 191200 | 184800 | 181400 | 176200 | 171200 | 170400 | 178400 | 175600 | 323000 |
| 12 | 211900 | 202100 | 196500 | 190800 | 184800 | 181400 | 176000 | 170400 | 172000 | 178000 | 182100 | 323400 |
| 13 | 211600 | 201500 | 196200 | 190500 | 185200 | 181300 | 175800 | 170100 | 173200 | 178400 | 202800 | 323600 |
| 14 | 211600 | 201600 | 196100 | 190400 | 185100 | 182200 | 175200 | 169700 | 173200 | 178100 | 219000 | 324100 |
| 15 | 211900 | 201000 | 195900 | 190200 | 184800 | 182000 | 175300 | 169900 | 172600 | 177800 | 237900 | 324600 |
| 16 | 211900 | 201100 | 195600 | 190200 | 184600 | 182300 | 175100 | 170200 | 172400 | 177500 | 250700 | 325200 |
| 17 | 211300 | 200900 | 195600 | 190200 | 184500 | 182000 | 174900 | 169600 | 171800 | 177700 | 255800 | 325400 |
| 18 | 210700 | 200700 | 195200 | 190000 | 184500 | 181800 | 175000 | 168200 | 171300 | 177500 | 276000 | 325800 |
| 19 | 210000 | 200300 | 195100 | 189800 | 184500 | 181600 | 174800 | 168000 | 171200 | 177500 | 280200 | 326000 |
| 20 | 209400 | 200000 | 195000 | 189600 | 184400 | 181600 | 174500 | 167700 | 170700 | 176700 | 282100 | 326300 |
| 21 | 208800 | 199800 | 194600 | 189400 | 184200 | 181000 | 174500 | 167300 | 170300 | 177100 | 283300 | 326500 |
| 22 | 207800 | 199400 | 194300 | 189200 | 184000 | 180900 | 174300 | 167100 | 169800 | 176300 | 284000 | 326600 |
| 23 | 207700 | 199200 | 193900 | 189100 | 183600 | 180800 | 174200 | 166300 | 169500 | 175400 | 284600 | 327200 |
| 24 | 207600 | 199200 | 193900 | 189200 | 183400 | 181000 | 174100 | 166800 | 171000 | 175400 | 285200 | 330400 |
| 25 | 207100 | 199500 | 193900 | 188800 | 183200 | 180700 | 173700 | 166200 | 171500 | 174700 | 285600 | 331000 |
| 26 | 206600 | 199300 | 193800 | 188700 | 183000 | 180600 | 173500 | 166000 | 171500 | 174100 | 285800 | 333200 |
| 27 | 206100 | 199000 | 193700 | 188500 | 182800 | 180400 | 172900 | 165500 | 171300 | 173600 | 288900 | 333900 |
| 28 | 205000 | 198800 | 193300 | 188300 | 182600 | 180400 | 172800 | 165800 | 170900 | 173200 | 293900 | 334400 |
| 29 | 204900 | 198600 | 193100 | 188100 | --- | 179800 | 172500 | 165800 | 170700 | 172900 | 298900 | 334500 |
| 30 | 205400 | 198300 | 192900 | 187900 | --- | 179700 | 171900 | 166600 | 171600 | 172500 | 299600 | 334400 |
| 31 | 205100 | --- | 192900 | 187700 | --- | 179200 | --- | 166800 | --- | 172200 | 300300 | --- |
| MAX | 215600 | 204800 | 197900 | 192800 | 187600 | 182400 | 179000 | 172800 | 173200 | 178400 | 300300 | 334500 |
| MIN | 204900 | 198300 | 192900 | 187700 | 182600 | 179200 | 171900 | 165500 | 167500 | 171700 | 171500 | 300400 |
| (†) | 2882.07 | 2881.10 | 2880.32 | 2879.55 | 2878.80 | 2878.28 | 2877.17 | 2876.38 | 2877.12 | 2877.21 | 2893.99 | 2897.73 |
| (‡) | -18600 | -6800 | -5400 | -5200 | -5100 | -3400 | -7300 | -5100 | +4800 | +600 | +128100 | +34100 |
| (††) | 6120 | 5520 | 5660 | 4780 | 4480 | 4980 | 5940 | 6840 | 7820 | 8800 | 6730 | 5940 |

CAL YR 1980 MAX 271500 MIN 192900 ‡ -75500 †† 80650
WTR YR 1981 MAX 334500 MIN 165500 ‡ +110700 †† 73610

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, for municipal and industrial uses by Canadian River Water Authority.

07227900 LAKE MEREDITH NEAR SANFORD, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1968 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | TEMPERATURE, WATER (DEG C) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|
| FEB 13... | 1325 | 2140 | 7.0 | 280 | 98 | 57 | 33 | 350 |

| DATE | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| FEB 13... | 9.1 | 6.6 | 180 | 300 | 390 | .8 | 6.8 | 1250 |

## 07227920 DIXON CREEK NEAR BORGER, TX

LOCATION.--Lat 35°39'53", long 101°21'02", Hutchinson County, Hydrologic Unit 11090106, on right bank at downstream side of bridge on State Highway 152, 2.4 mi (3.9 km) east of Borger, and 7.6 mi (12.2 km) upstream from mouth.

DRAINAGE AREA.--134 $mi^2$ (347 $km^2$).

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

GAGE.--Water-stage recorder. Datum of gage is 2,834.84 ft (864.059 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor. No known diversion above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--7 years, 2.41 $ft^3/s$ (0.0683 $m^3/s$), 1,750 acre-ft/yr (2.16 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,640 $ft^3/s$ (103 $m^3/s$) May 26, 1977, gage height, 8.99 ft (2.740 m), from rating curve extended above 25 $ft^3/s$ (0.71 $m^3/s$) on basis of slope-conveyance studies; no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 574 $ft^3/s$ (16.3 $m^3/s$) June 12 at 0130 hours, gage height, 5.99 ft (1.826 m), no other peak above base of 500 $ft^3/s$ (14.2 $m^3/s$); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 3.7 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .03 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | .02 | .04 | 10 | .86 | .55 | .00 | 1.7 |
| 4 | .00 | .00 | .00 | .00 | .00 | .04 | .00 | 3.4 | .00 | .00 | .00 | 49 |
| 5 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .04 | .00 | .00 | .00 | 18 |
| 6 | .00 | .00 | .00 | .00 | .03 | .00 | .00 | .03 | .00 | .00 | .00 | .45 |
| 7 | .00 | .00 | .00 | .00 | .00 | .06 | .00 | .03 | .00 | .00 | .00 | .05 |
| 8 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .04 | .00 | .00 | .00 | .02 |
| 9 | .00 | .00 | .00 | .00 | .00 | .00 | .01 | .00 | .00 | .00 | .00 | .01 |
| 10 | .00 | .00 | .00 | .00 | .00 | .00 | .25 | .00 | .00 | .00 | .00 | .01 |
| 11 | .00 | .00 | .00 | .00 | .00 | .03 | .11 | .00 | .00 | .00 | .00 | .02 |
| 12 | .00 | .00 | .00 | .00 | .00 | .00 | .13 | .00 | 43 | .00 | .00 | .01 |
| 13 | .00 | .00 | .00 | .00 | .00 | .00 | .05 | .00 | .19 | .00 | .00 | .25 |
| 14 | .00 | .00 | .00 | .00 | .00 | .04 | .00 | .00 | .13 | .00 | .00 | .44 |
| 15 | .00 | .00 | .00 | .00 | .00 | .01 | .15 | .00 | .01 | .00 | .83 | .01 |
| 16 | .00 | .00 | .00 | .00 | .00 | .00 | .05 | .00 | .00 | .00 | 13 | .01 |
| 17 | .00 | .00 | .00 | .00 | .00 | .00 | .08 | .00 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | .00 | .00 | .00 | .64 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | .12 | .00 | .00 | .18 | .00 | .00 | .00 | .00 | .01 |
| 20 | .00 | .00 | .00 | .01 | .00 | .00 | .14 | .00 | .00 | .00 | .00 | .03 |
| 21 | .00 | .00 | .00 | .00 | .02 | .00 | .13 | .00 | .00 | .00 | .00 | .04 |
| 22 | .00 | .00 | .00 | .00 | .00 | .00 | .04 | .00 | .00 | .00 | .00 | .05 |
| 23 | .00 | .00 | .00 | .00 | .00 | .00 | .02 | .00 | .00 | .00 | .00 | .06 |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | .01 | .00 | .00 | .00 | .00 | .74 |
| 25 | .00 | .00 | .00 | .00 | .00 | .06 | .00 | .00 | .00 | .00 | .00 | .13 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .12 |
| 27 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .08 |
| 28 | .00 | .00 | .00 | .00 | .00 | .10 | .00 | .02 | .00 | .00 | .00 | .13 |
| 29 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .13 |
| 30 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .01 | .00 | .00 | .00 | .74 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | .00 | .00 | .00 | .13 | .05 | .36 | 2.03 | 17.30 | 44.19 | .55 | 13.83 | 72.24 |
| MEAN | .000 | .000 | .000 | .004 | .002 | .012 | .068 | .56 | 1.47 | .018 | .45 | 2.41 |
| MAX | .00 | .00 | .00 | .12 | .03 | .10 | .64 | 10 | 43 | .55 | 13 | 49 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | .00 | .00 | .00 | .3 | .10 | .7 | 4.0 | 34 | 88 | 1.1 | 27 | 143 |

CAL YR 1980 TOTAL 477.94 MEAN 1.31 MAX 323 MIN .00 AC-FT 948
WTR YR 1981 TOTAL 150.68 MEAN .41 MAX 49 MIN .00 AC-FT 299

## 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, near left bank on downstream side of pier of bridge on U.S. Highways 60 and 83, 600 ft (180 m) downstream from Panhandle and Santa Fe Railway Co. bridge, 1.2 mi (1.9 km) downstream from Red Deer Creek, 1.6 mi (2.6 km) northeast of Canadian, and 433.9 mi (698.1 km) upstream from mouth.

DRAINAGE AREA.--22,866 mi² (59,222 km²), of which 4,688 mi² (12,142 km²) 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 discharge only, published in WSP 1311.

REVISED RECORDS.--WSP 1341: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,301.50 ft (701.497 m) 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 (91 m) upstream at same datum.

REMARKS.--Water-discharge records poor. Extreme low flow is maintained by springs which enter the river about 600 ft (180 m) above gage. Some regulation and diversions from Lake Meredith (station 07227900) 75 mi (121 km) upstream. Gage-height telemeter at station.

AVERAGE DISCHARGE.--26 years (water years 1939-64) prior to completion of Lake Meredith, 549 ft³/s (15.55 m³/s), 397,800 acre-ft/yr (490 hm³/yr); 17 years (water years 1965-81) regulated, 89.4 ft³/s (2.532 m³/s), 64,770 acre-ft/yr (79.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 122,000 ft³/s (3,460 m³/s) Sept. 23, 1941, gage height, 9.8 ft (2.99 m), from graph based on gage readings, from rating curves for two channels extended above 8,000 and 54,000 ft³/s (227 and 1,530 m³/s); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 20.0 ft (6.10 m) Oct. 2, 1904. Floods of May 2, 1914, and Oct. 5, 1923, reached stages of 12 ft (3.7 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,070 ft³/s (144 m³/s) June 1 at 2145 hours, gage height, 7.19 ft (2.192 m); no flow July 28, Aug. 10, 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .06 | 3.7 | 17 | 37 | 35 | 49 | 55 | 79 | 1030 | 7.3 | .13 | 7.2 |
| 2 | .10 | 4.1 | 15 | 36 | 30 | 49 | 53 | 70 | 603 | 4.6 | .02 | 7.8 |
| 3 | .09 | 4.6 | 15 | 36 | 32 | 53 | 52 | 56 | 540 | 5.4 | .03 | 8.0 |
| 4 | .10 | 5.0 | 19 | 36 | 35 | 59 | 46 | 46 | 269 | 4.8 | .04 | 28 |
| 5 | .09 | 5.4 | 20 | 37 | 38 | 67 | 45 | 39 | 167 | 4.8 | .04 | 16 |
| 6 | .10 | 5.6 | 20 | 36 | 38 | 75 | 44 | 32 | 118 | 5.4 | .06 | 14 |
| 7 | .09 | 6.2 | 25 | 36 | 40 | 93 | 50 | 37 | 79 | 5.8 | .03 | 25 |
| 8 | .16 | 6.5 | 32 | 36 | 40 | 113 | 48 | 37 | 59 | 4.2 | .06 | 19 |
| 9 | .16 | 6.7 | 28 | 35 | 41 | 121 | 46 | 31 | 45 | 3.7 | .06 | 16 |
| 10 | .13 | 6.7 | 25 | 35 | 30 | 106 | 47 | 33 | 30 | 3.1 | .00 | 13 |
| 11 | .10 | 6.5 | 26 | 30 | 25 | 91 | 57 | 31 | 31 | 2.1 | .00 | 13 |
| 12 | .20 | 6.7 | 26 | 33 | 20 | 82 | 57 | 29 | 70 | 1.2 | .10 | 12 |
| 13 | .40 | 8.6 | 24 | 40 | 22 | 83 | 54 | 26 | 75 | .67 | 1.8 | 12 |
| 14 | .34 | 9.6 | 25 | 36 | 25 | 80 | 43 | 23 | 50 | .24 | 2.9 | 11 |
| 15 | .34 | 11 | 28 | 38 | 30 | 128 | 41 | 22 | 64 | .11 | 4.1 | 10 |
| 16 | .46 | 11 | 31 | 37 | 35 | 115 | 52 | 22 | 62 | .11 | 72 | 10 |
| 17 | .80 | 13 | 32 | 40 | 40 | 105 | 54 | 27 | 46 | .20 | 29 | 32 |
| 18 | .80 | 12 | 27 | 41 | 40 | 68 | 64 | 21 | 33 | .46 | 31 | 28 |
| 19 | .80 | 10 | 23 | 41 | 42 | 58 | 92 | 19 | 26 | 1.3 | 51 | 26 |
| 20 | .80 | 11 | 18 | 42 | 46 | 63 | 79 | 19 | 21 | 1.4 | 41 | 24 |
| 21 | .96 | 12 | 16 | 42 | 43 | 64 | 73 | 20 | 18 | .79 | 35 | 20 |
| 22 | 1.0 | 13 | 20 | 42 | 41 | 57 | 70 | 22 | 14 | .21 | 29 | 17 |
| 23 | 1.0 | 13 | 31 | 42 | 42 | 62 | 65 | 19 | 11 | .03 | 25 | 15 |
| 24 | 1.1 | 13 | 47 | 42 | 42 | 62 | 65 | 17 | 6.7 | .03 | 21 | 18 |
| 25 | 1.1 | 14 | 40 | 41 | 45 | 58 | 60 | 19 | 5.4 | .02 | 17 | 23 |
| 26 | 1.3 | 15 | 40 | 40 | 46 | 58 | 56 | 19 | 5.0 | .01 | 15 | 23 |
| 27 | 1.5 | 13 | 45 | 41 | 47 | 57 | 50 | 20 | 4.6 | .01 | 11 | 30 |
| 28 | 1.6 | 14 | 39 | 41 | 47 | 60 | 46 | 19 | 4.1 | .00 | 11 | 29 |
| 29 | 2.2 | 14 | 37 | 41 | --- | 70 | 48 | 35 | 3.9 | .09 | 11 | 27 |
| 30 | 2.8 | 15 | 38 | 40 | --- | 75 | 48 | 35 | 7.0 | .28 | 9.6 | 26 |
| 31 | 3.6 | --- | 37 | 41 | --- | 61 | --- | 31 | --- | .20 | 8.9 | --- |
| TOTAL | 24.28 | 289.9 | 866 | 1191 | 1037 | 2342 | 1660 | 955 | 3497.7 | 58.56 | 426.87 | 560.0 |
| MEAN | .78 | 9.66 | 27.9 | 38.4 | 37.0 | 75.5 | 55.3 | 30.8 | 117 | 1.89 | 13.8 | 18.7 |
| MAX | 3.6 | 15 | 47 | 42 | 47 | 128 | 92 | 79 | 1030 | 7.3 | 72 | 32 |
| MIN | .06 | 3.7 | 15 | 30 | 20 | 49 | 41 | 17 | 3.9 | .00 | .00 | 7.2 |
| AC-FT | 48 | 575 | 1720 | 2360 | 2060 | 4650 | 3290 | 1890 | 6940 | 116 | 847 | 1110 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 22791.35 | MEAN 62.3 | MAX 2060 | MIN .00 | AC-FT 45210 |
| WTR YR 1981 | TOTAL | 12908.31 | MEAN 35.4 | MAX 1030 | MIN .00 | AC-FT 25600 |

07228000 CANADIAN RIVER NEAR CANADIAN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: March 1968 to current year. Pesticide analyses: October 1971 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to current year.
WATER TEMPERATURES: October 1974 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, 4,480 micromhos Aug. 12, 1979; minimum daily, 461 micromhos Sept. 8, 1980.
WATER TEMPERATURES: Maximum daily, 39.0°C June 28, 1979; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,350 micromhos Sept. 23; minimum daily, 590 micromhos Aug. 5.
WATER TEMPERATURES: Maximum daily, 37.0°C June 20, 21; minimum daily, 1.0°C Dec. 21, Jan. 16, Feb. 11.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH FIELD (UNITS) | TEMPER-ATURE, WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 06... | 1400 | .13 | 843 | 8.1 | 28.0 | .70 | 18.9 | 262 | 2.4 | 130 | 96 |
| NOV | | | | | | | | | | | |
| 04... | 1330 | 5.0 | 2200 | 8.1 | 16.0 | 4.5 | 14.4 | 158 | 1.4 | 84 | 180 |
| DEC | | | | | | | | | | | |
| 03... | 1315 | 15 | 2650 | 7.9 | 7.0 | 6.9 | 18.8 | 168 | 1.4 | 250 | 780 |
| JAN | | | | | | | | | | | |
| 14... | 1030 | 45 | 3550 | 8.3 | 13.0 | 12 | 12.5 | 128 | 6.0 | K25 | K35 |
| MAY | | | | | | | | | | | |
| 14... | 1515 | 30 | 3250 | 8.0 | 25.0 | 2.9 | 11.9 | 159 | 1.7 | K18 | K3 |
| JUN | | | | | | | | | | | |
| 08... | 1500 | 51 | 3150 | 7.9 | 32.0 | 29 | 12.5 | 189 | 7.6 | K110 | 540 |
| JUL | | | | | | | | | | | |
| 27... | 1300 | .04 | 940 | 7.8 | 33.0 | 2.5 | 12.8 | 194 | 3.5 | 220 | 820 |
| AUG | | | | | | | | | | | |
| 21... | 1300 | 44 | 2500 | 8.4 | 29.0 | 15 | 12.9 | 184 | 21 | 100 | 2700 |
| SEP | | | | | | | | | | | |
| 22... | 1330 | 25 | 4300 | 8.1 | 27.0 | 4.5 | 11.0 | 153 | 2.8 | 190 | 580 |

| DATE | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 06... | 190 | 4 | 48 | 18 | 100 | 3.1 | 4.6 | 190 | 27 | 150 |
| NOV | | | | | | | | | | |
| 04... | 330 | 110 | 73 | 35 | 340 | 8.2 | 9.1 | 220 | 92 | 550 |
| DEC | | | | | | | | | | |
| 03... | 460 | 250 | 110 | 45 | 400 | 8.1 | 24 | 210 | 190 | 690 |
| JAN | | | | | | | | | | |
| 06... | 480 | 260 | 110 | 50 | 430 | 8.5 | 18 | 220 | 210 | 710 |
| FEB | | | | | | | | | | |
| 12... | 520 | 280 | 120 | 53 | 460 | 8.8 | 18 | 240 | 240 | 710 |
| MAR | | | | | | | | | | |
| 10... | 560 | 320 | 130 | 57 | 450 | 8.3 | 16 | 240 | 280 | 770 |
| APR | | | | | | | | | | |
| 14... | 540 | 350 | 120 | 59 | 520 | 9.7 | 21 | 190 | 120 | 1000 |
| MAY | | | | | | | | | | |
| 14... | 490 | 290 | 110 | 53 | 490 | 9.6 | 17 | 200 | 230 | 840 |
| JUN | | | | | | | | | | |
| 08... | 550 | 360 | 120 | 60 | 440 | 8.2 | 21 | 180 | 300 | 760 |
| JUL | | | | | | | | | | |
| 27... | 230 | 25 | 66 | 17 | 99 | 3.0 | 3.7 | 230 | 14 | 140 |
| AUG | | | | | | | | | | |
| 21... | 440 | 320 | 100 | 46 | 360 | 7.5 | 17 | 120 | 240 | 600 |
| SEP | | | | | | | | | | |
| 22... | 780 | 620 | 180 | 80 | 600 | 9.4 | 26 | 160 | 340 | 1200 |

07228000 CANADIAN RIVER NEAR CANADIAN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, AMMONIA DISSOLVED (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, ORGANIC DISSOLVED (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 06... | 1.2 | 32 | 488 | 496 | .00 | .00 | .030 | .040 | .97 | 1.1 |
| NOV | | | | | | | | | | |
| 04... | 1.4 | 26 | 1300 | 1260 | .00 | .00 | .030 | .000 | .44 | .48 |
| DEC | | | | | | | | | | |
| 03... | 1.3 | 22 | -- | 1610 | .17 | .18 | .130 | .200 | .73 | .54 |
| JAN | | | | | | | | | | |
| 06... | 1.7 | 20 | 1670 | 1680 | .32 | .27 | .250 | .220 | .75 | .88 |
| FEB | | | | | | | | | | |
| 12... | 1.6 | 25 | 1850 | 1770 | .45 | .45 | .390 | .380 | 1.0 | .92 |
| MAR | | | | | | | | | | |
| 10... | 1.7 | 23 | 1990 | 1870 | .43 | .42 | .230 | .240 | 1.3 | .67 |
| APR | | | | | | | | | | |
| 14... | 1.6 | 15 | 2050 | 1970 | .01 | .01 | .050 | .040 | 1.3 | .69 |
| MAY | | | | | | | | | | |
| 14... | 1.4 | 18 | 1960 | 1880 | .01 | .00 | .070 | .020 | .90 | .94 |
| JUN | | | | | | | | | | |
| 08... | 1.5 | 23 | 1950 | 1830 | .92 | .01 | .040 | .090 | 2.8 | .40 |
| JUL | | | | | | | | | | |
| 27... | .7 | 33 | 498 | 512 | .11 | .11 | .180 | .140 | .80 | .41 |
| AUG | | | | | | | | | | |
| 21... | 3.5 | 21 | 1520 | 1640 | .04 | .03 | .190 | .050 | 2.6 | 1.2 |
| SEP | | | | | | | | | | |
| 22... | 2.9 | 18 | 2600 | 2540 | <.10 | <.10 | .090 | .100 | .91 | .59 |

| DATE | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) | CARBON, ORGANIC TOTAL (MG/L AS C) | CARBON, ORGANIC DISSOLVED (MG/L AS C) | CARBON, ORGANIC SUSPENDED (MG/L AS C) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT DISCHARGE, SUSPENDED (T/DAY) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 06... | 1.0 | 1.1 | .040 | .020 | -- | 6.2 | .9 | 9 | .00 | 93 |
| NOV | | | | | | | | | | |
| 04... | .47 | .48 | .130 | .060 | 10 | -- | -- | 20 | .27 | 67 |
| DEC | | | | | | | | | | |
| 03... | .86 | .74 | .010 | .010 | 4.6 | -- | -- | 51 | 2.1 | 63 |
| JAN | | | | | | | | | | |
| 06... | 1.0 | 1.1 | .080 | .110 | 10 | -- | -- | 31 | 3.0 | 50 |
| FEB | | | | | | | | | | |
| 12... | 1.4 | 1.3 | .120 | .070 | -- | 15 | .9 | 68 | 3.7 | 37 |
| MAR | | | | | | | | | | |
| 10... | 1.5 | .91 | .090 | .070 | 20 | -- | -- | 117 | 34 | 54 |
| APR | | | | | | | | | | |
| 14... | 1.3 | .73 | .250 | .080 | 17 | -- | -- | 40 | 4.9 | 83 |
| MAY | | | | | | | | | | |
| 14... | .97 | .96 | .090 | .090 | -- | -- | -- | 17 | 1.4 | 60 |
| JUN | | | | | | | | | | |
| 08... | 2.8 | .49 | .240 | .030 | 6.1 | 6.1 | 2.2 | 126 | 17 | 75 |
| JUL | | | | | | | | | | |
| 27... | .98 | .55 | .120 | .380 | 3.3 | -- | -- | 23 | .00 | 75 |
| AUG | | | | | | | | | | |
| 21... | 2.8 | 1.2 | .060 | .010 | -- | 9.9 | 3.1 | 299 | 36 | 33 |
| SEP | | | | | | | | | | |
| 22... | 1.0 | .69 | .050 | .020 | 3.0 | -- | -- | 57 | 3.8 | 64 |

| DATE | TIME | ARSENIC TOTAL (UG/L AS AS) | ARSENIC SUSPENDED TOTAL (UG/L AS AS) | ARSENIC DISSOLVED (UG/L AS AS) | BARIUM, TOTAL (UG/L AS BA) | BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA) | BARIUM, DISSOLVED (UG/L AS BA) | CADMIUM TOTAL (UG/L AS CD) | CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD) | CADMIUM DISSOLVED (UG/L AS CD) | CHROMIUM, TOTAL (UG/L AS CR) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 06... | 1400 | 4 | 0 | 4 | 300 | 0 | 400 | 0 | -- | <1 | 0 |
| FEB | | | | | | | | | | | |
| 12... | 1400 | 2 | 0 | 2 | 100 | 0 | 200 | 0 | 0 | 0 | 10 |
| JUN | | | | | | | | | | | |
| 08... | 1500 | 6 | 1 | 5 | 300 | 0 | 400 | 0 | 0 | 1 | 10 |
| AUG | | | | | | | | | | | |
| 21... | 1300 | 3 | 0 | 3 | 400 | 100 | 300 | 0 | 0 | 1 | 20 |

07228000 CANADIAN RIVER NEAR CANADIAN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | CHROMIUM, SUSPENDED RECOV. (UG/L AS CR) | CHROMIUM, DISSOLVED (UG/L AS CR) | COBALT, TOTAL (UG/L AS CO) | COBALT, SUSPENDED RECOVERABLE (UG/L AS CO) | COBALT, DISSOLVED (UG/L AS CO) | COPPER, TOTAL (UG/L AS CU) | COPPER, SUSPENDED RECOVERABLE (UG/L AS CU) | COPPER, DISSOLVED (UG/L AS CU) | IRON, TOTAL (UG/L AS FE) | IRON, SUSPENDED RECOVERABLE (UG/L AS FE) | IRON, DISSOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 06... | 0 | 0 | 0 | -- | <3 | 4 | 3 | 1 | 400 | 380 | 20 |
| FEB | | | | | | | | | | | |
| 12... | 10 | 0 | 0 | 0 | 0 | 3 | 2 | 1 | 340 | 290 | 50 |
| JUN | | | | | | | | | | | |
| 08... | 10 | 0 | 1 | 1 | 0 | 5 | 2 | 3 | 660 | 640 | 20 |
| AUG | | | | | | | | | | | |
| 21... | 20 | 0 | 1 | 0 | 2 | 7 | 5 | 2 | 830 | 810 | 20 |

| DATE | LEAD, TOTAL (UG/L AS PB) | LEAD, SUSPENDED RECOVERABLE (UG/L AS PB) | LEAD, DISSOLVED (UG/L AS PB) | MANGANESE, TOTAL (UG/L AS MN) | MANGANESE, SUSPENDED RECOV. (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL (UG/L AS HG) | MERCURY SUSPENDED RECOVERABLE (UG/L AS HG) | MERCURY DISSOLVED (UG/L AS HG) | NICKEL, TOTAL (UG/L AS NI) | NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 06... | 2 | 2 | 0 | 60 | 20 | 40 | .1 | .1 | .0 | 4 | 1 |
| FEB | | | | | | | | | | | |
| 12... | 3 | 1 | 2 | 50 | 10 | 40 | .1 | .1 | .0 | 6 | 3 |
| JUN | | | | | | | | | | | |
| 08... | 11 | 7 | 4 | 70 | 60 | 10 | .1 | .0 | .1 | 8 | 3 |
| AUG | | | | | | | | | | | |
| 21... | 11 | 11 | 0 | 80 | 80 | 0 | .1 | .1 | .0 | 10 | 3 |

| DATE | NICKEL, DISSOLVED (UG/L AS NI) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, SUSPENDED TOTAL (UG/L AS SE) | SELENIUM, DISSOLVED (UG/L AS SE) | SILVER, TOTAL (UG/L AS AG) | SILVER, SUSPENDED RECOVERABLE (UG/L AS AG) | SILVER, DISSOLVED (UG/L AS AG) | ZINC, TOTAL (UG/L AS ZN) | ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN) | ZINC, DISSOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 06... | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | -- | <3 |
| FEB | | | | | | | | | | |
| 12... | 3 | 2 | 0 | 2 | 0 | 0 | 0 | 10 | 0 | 20 |
| JUN | | | | | | | | | | |
| 08... | 5 | 1 | 0 | 1 | 0 | 0 | 0 | 20 | 10 | 10 |
| AUG | | | | | | | | | | |
| 21... | 7 | 1 | 0 | 1 | 0 | 0 | 0 | 10 | 0 | 10 |

| DATE | TIME | PCB TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | CHLORDANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DIAZINON, TOTAL (UG/L) | DIELDRIN TOTAL (UG/L) | ENDRIN, TOTAL (UG/L) | ETHION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 04... | 1330 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

| DATE | HEPTACHLOR, TOTAL (UG/L) | HEPTACHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALATHION, TOTAL (UG/L) | METHOXYCHLOR, TOTAL (UG/L) | METHYL PARATHION, TOTAL (UG/L) | METHYL TRITHION, TOTAL (UG/L) | PARATHION, TOTAL (UG/L) | TOXAPHENE, TOTAL (UG/L) | TOTAL TRITHION (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | |
| 04... | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

07228000 CANADIAN RIVER NEAR CANADIAN, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

| DATE | NOV 4,80 | MAR 10,81 | MAY 14,81 | JUN 8,81 |
|---|---|---|---|---|
| TIME | 1330 | 1330 | 1515 | 1500 |
| TOTAL CELLS/ML | 7700 | 9600 | 7700 | 93000 |
| DIVERSITY: DIVISION | 0.6 | 1.0 | 0.9 | 1.0 |
| .CLASS | 0.6 | 1.0 | 0.9 | 1.0 |
| ..ORDER | 0.8 | 2.1 | 1.3 | 1.3 |
| ...FAMILY | 0.8 | 2.4 | 1.7 | 2.2 |
| ....GENUS | 0.8 | 2.4 | 1.7 | 2.4 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|---|---|
| BACILLARIOPHYTA (DIATOMS) | | | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | | | |
| ..ACHNANTHALES | | | | | | | | |
| ...ACHNANTHACEAE | | | | | | | | |
| ....ACHNANTHES | -- | - | -- | - | -- | - | 1100 | 1 |
| ..BACILLARIALES | | | | | | | | |
| ...NITZSCHIACEAE | | | | | | | | |
| ....NITZSCHIA | 6600# | 86 | 3100# | 32 | 270 | 4 | 1400 | 2 |
| ..EUPODISCALES | | | | | | | | |
| ...COSCINODISCACEAE | | | | | | | | |
| ....CYCLOTELLA | 270 | 3 | 310 | 3 | 1500# | 20 | 9800 | 11 |
| ..FRAGILARIALES | | | | | | | | |
| ...FRAGILARIACEAE | | | | | | | | |
| ....FRAGILARIA | -- | - | 240 | 2 | -- | - | -- | - |
| ..NAVICULALES | | | | | | | | |
| ...ENTOMONEIDACEAE | | | | | | | | |
| ....ENTOMONEIS | -- | - | 1700# | 17 | -- | - | -- | - |
| ...NAVICULACEAE | | | | | | | | |
| ....NAVICULA | -- | - | 1300 | 14 | 140 | 2 | -- | - |
| ..SURIRELLALES | | | | | | | | |
| ...SURIRELLACEAE | | | | | | | | |
| ....SURIRELLA | -- | - | 79 | 1 | -- | - | -- | - |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | | | |
| .CHLOROPHYCEAE | | | | | | | | |
| ..CHLOROCOCCALES | | | | | | | | |
| ...CHLOROCOCCACEAE | | | | | | | | |
| ....SCHROEDERIA | -- | - | -- | - | -- | - | 1100 | 1 |
| ...DICTYOSPHAERIACEAE | | | | | | | | |
| ....DICTYOSPHAERIUM | -- | - | -- | - | 180 | 2 | -- | - |
| ...MICRACTINIACEAE | | | | | | | | |
| ....GOLENKINIA | -- | - | -- | - | -- | - | -- | - |
| ....MICRACTINIUM | -- | - | -- | - | 180 | 2 | 8100 | 9 |
| ...OOCYSTACEAE | | | | | | | | |
| ....ANKISTRODESMUS | -- | - | -- | - | 45 | 1 | 1400 | 2 |
| ....CHODATELLA | -- | - | -- | - | -- | - | 8400 | 9 |
| ....KIRCHNERIELLA | -- | - | -- | - | -- | - | -- | - |
| ....OOCYSTIS | -- | - | -- | - | -- | - | * | 0 |
| ...SCENEDESMACEAE | | | | | | | | |
| ....ACTINASTRUM | -- | - | -- | - | -- | - | 1400 | 2 |
| ....COELASTRUM | -- | - | -- | - | -- | - | -- | - |
| ....SCENEDESMUS | 670 | 9 | 2600# | 27 | 5000# | 66 | 51000# | 54 |
| ..VOLVOCALES | | | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | | | |
| ....CHLAMYDOMONAS | -- | - | 160 | 2 | 140 | 2 | 1400 | 2 |
| ....CHLOROGONIUM | -- | - | -- | - | -- | - | -- | - |
| ..ZYGNEMATALES | | | | | | | | |
| ...DESMIDIACEAE | | | | | | | | |
| ....COSMARIUM | -- | - | -- | - | 45 | 1 | -- | - |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | | | |
| .CRYPTOPHYCEAE | | | | | | | | |
| ..CRYPTOMONADALES | | | | | | | | |
| ...CRYPTOCHRYSIDACEAE | | | | | | | | |
| ....CHROOMONAS | -- | - | -- | - | -- | - | 1400 | 2 |
| ...CRYPTOMONADACEAE | | | | | | | | |
| ....CRYPTOMONAS | 67 | 1 | -- | - | -- | - | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | | | |
| .CYANOPHYCEAE | | | | | | | | |
| ..CHROOCOCCALES | | | | | | | | |
| ...CHROOCOCCACEAE | | | | | | | | |
| ....AGMENELLUM | -- | - | -- | - | -- | - | 5600 | 6 |
| ....ANACYSTIS | -- | - | 160 | 2 | 90 | 1 | 1100 | 1 |
| ..NOSTOCALES | | | | | | | | |
| ...NOSTOCACEAE | | | | | | | | |
| ....ANABAENA | -- | - | -- | - | -- | - | -- | - |
| ..OSCILLATORIALES | | | | | | | | |
| ...OSCILLATORIACEAE | | | | | | | | |
| ....OSCILLATORIA | -- | - | -- | - | -- | - | -- | - |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | | | |
| .EUGLENOPHYCEAE | | | | | | | | |
| ..EUGLENALES | | | | | | | | |
| ...EUGLENACEAE | | | | | | | | |
| ....EUGLENA | 67 | 1 | -- | - | -- | - | -- | - |
| ....TRACHELOMONAS | -- | - | -- | - | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

07228000 CANADIAN RIVER NEAR CANADIAN, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

| DATE | JUL 27,81 | AUG 21,81 | SEP 22,81 |
|---|---|---|---|
| TIME | 1300 | 1300 | 1330 |
| TOTAL CELLS/ML | 42000 | 190000 | 51000 |
| DIVERSITY: DIVISION | 1.3 | 0.2 | 0.4 |
| .CLASS | 1.3 | 0.2 | 0.4 |
| ..ORDER | 2.2 | 0.2 | 0.4 |
| ...FAMILY | 2.4 | 1.0 | 1.4 |
| ....GENUS | 2.7 | 1.4 | 1.6 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|
| BACILLARIOPHYTA (DIATOMS) | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..ACHNANTHALES | | | | | | |
| ...ACHNANTHACEAE | | | | | | |
| ....ACHNANTHES | -- | - | -- | - | -- | - |
| ..BACILLARIALES | | | | | | |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | 2600 | 6 | -- | - | -- | - |
| ..EUPODISCALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | -- | - | 1400 | 1 | 900 | 2 |
| ..FRAGILARIALES | | | | | | |
| ...FRAGILARIACEAE | | | | | | |
| ....FRAGILARIA | -- | - | -- | - | -- | - |
| ..NAVICULALES | | | | | | |
| ...ENTOMONEIDACEAE | | | | | | |
| ....ENTOMONEIS | -- | - | -- | - | -- | - |
| ...NAVICULACEAE | | | | | | |
| ....NAVICULA | 1700 | 4 | -- | - | -- | - |
| ..SURIRELLALES | | | | | | |
| ...SURIRELLACEAE | | | | | | |
| ....SURIRELLA | -- | - | -- | - | -- | - |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...CHLOROCOCCACEAE | | | | | | |
| ....SCHROEDERIA | -- | - | 1400 | 1 | -- | - |
| ...DICTYOSPHAERIACEAE | | | | | | |
| ....DICTYOSPHAERIUM | 1100 | 3 | -- | - | -- | - |
| ...MICRACTINIACEAE | | | | | | |
| ....GOLENKINIA | 280 | 1 | 1400 | 1 | -- | - |
| ....MICRACTINIUM | -- | - | -- | - | -- | - |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | 410 | 1 | 1400 | 1 | 3300 | 6 |
| ....CHODATELLA | -- | - | 35000# | 18 | 20000# | 38 |
| ....KIRCHNERIELLA | -- | - | * | 0 | -- | - |
| ....OOCYSTIS | -- | - | -- | - | -- | - |
| ...SCENEDESMACEAE | | | | | | |
| ....ACTINASTRUM | -- | - | -- | - | -- | - |
| ....COELASTRUM | -- | - | 12000 | 6 | -- | - |
| ....SCENEDESMUS | 7400# | 18 | 140000# | 71 | 25000# | 48 |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CHLAMYDOMONAS | 3300 | 8 | -- | - | -- | - |
| ....CHLOROGONIUM | * | 0 | -- | - | -- | - |
| ..ZYGNEMATALES | | | | | | |
| ...DESMIDIACEAE | | | | | | |
| ....COSMARIUM | -- | - | -- | - | -- | - |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | |
| .CRYPTOPHYCEAE | | | | | | |
| ..CRYPTOMONADALES | | | | | | |
| ...CRYPTOCHRYSIDACEAE | | | | | | |
| ....CHROOMONAS | -- | - | -- | - | -- | - |
| ...CRYPTOMONADACEAE | | | | | | |
| ....CRYPTOMONAS | -- | - | -- | - | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....AGMENELLUM | 3400 | 8 | -- | - | -- | - |
| ....ANACYSTIS | 5200 | 12 | -- | - | -- | - |
| ..NOSTOCALES | | | | | | |
| ...NOSTOCACEAE | | | | | | |
| ....ANABAENA | -- | - | -- | - | 2700 | 5 |
| ..OSCILLATORIALES | | | | | | |
| ...OSCILLATORIACEAE | | | | | | |
| ....OSCILLATORIA | 16000# | 39 | -- | - | -- | - |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....EUGLENA | -- | - | -- | - | -- | - |
| ....TRACHELOMONAS | * | 0 | 3600 | 2 | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

07228000 CANADIAN RIVER NEAR CANADIAN, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 24.28 | 1300 | 786 | 52 | 270 | 18 | 91 | 5.9 | 270 |
| NOV. | 1980 | 289.9 | 2510 | 1520 | 1190 | 560 | 439 | 200 | 153 | 470 |
| DEC. | 1980 | 866 | 2730 | 1650 | 3860 | 620 | 1440 | 220 | 509 | 490 |
| JAN. | 1981 | 1191 | 2910 | 1760 | 5660 | 660 | 2140 | 240 | 760 | 520 |
| FEB. | 1981 | 1037 | 3030 | 1830 | 5130 | 700 | 1950 | 250 | 697 | 530 |
| MAR. | 1981 | 2342 | 3000 | 1810 | 11500 | 690 | 4350 | 250 | 1550 | 530 |
| APR. | 1981 | 1660 | 3250 | 1960 | 8800 | 760 | 3390 | 270 | 1220 | 550 |
| MAY | 1981 | 955 | 2960 | 1790 | 4610 | 680 | 1750 | 240 | 623 | 520 |
| JUNE | 1981 | 3497.7 | 2030 | 1230 | 11600 | 450 | 4210 | 150 | 1450 | 400 |
| JULY | 1981 | 58.56 | 2780 | 1680 | 266 | 630 | 100 | 220 | 35 | 500 |
| AUG. | 1981 | 426.87 | 2400 | 1450 | 1670 | 540 | 618 | 190 | 216 | 450 |
| SEPT | 1981 | 560.0 | 3350 | 2020 | 3060 | 790 | 1190 | 290 | 433 | 550 |
| TOTAL | | 12908.31 | ** | ** | 57400 | ** | 21600 | ** | 7660 | ** |
| WTD. AVG. | | 35 | 2720 | 1650 | ** | 620 | ** | 220 | ** | 490 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 883 | 2030 | 2740 | 2810 | 2880 | 3050 | 3120 | 2730 | 1650 | 2930 | 1810 | 3010 |
| 2 | 765 | 2100 | 2760 | 2840 | 3140 | 3050 | 3300 | 2840 | 1760 | 2980 | 830 | 2920 |
| 3 | 750 | 2160 | 2650 | 2860 | 2970 | 3020 | 3290 | 2970 | 1900 | 2750 | 849 | 2900 |
| 4 | 742 | 2370 | 2730 | 2870 | 2960 | 2950 | 3310 | 3110 | 2180 | 2640 | 842 | 2250 |
| 5 | 771 | 2340 | 2720 | 2880 | 3000 | 2880 | 3330 | 3000 | 2280 | 2850 | 590 | 2640 |
| 6 | 742 | 2370 | 2610 | 2890 | 2980 | 2850 | 3360 | 2960 | 2420 | 3280 | 1630 | 2600 |
| 7 | 734 | 2390 | 2400 | 2920 | 3030 | 2780 | 3410 | 3360 | 2550 | 2440 | 950 | 1980 |
| 8 | 779 | 2460 | 2280 | 2930 | 2920 | 2660 | 3450 | 2870 | 3150 | 2720 | 718 | 2470 |
| 9 | 788 | 2520 | 2490 | 2900 | 2970 | 2870 | 3310 | 2960 | 3270 | 2910 | 822 | 2750 |
| 10 | 861 | 2500 | 2630 | 2890 | 3050 | 2940 | 3350 | 3080 | 3100 | 2950 | --- | 3030 |
| 11 | 900 | 2450 | 2600 | 2900 | 3190 | 2990 | 3250 | 3230 | 3050 | 2800 | --- | 3250 |
| 12 | 918 | 2520 | 2720 | 2870 | 3000 | 3000 | 3290 | 3290 | 2740 | 2680 | 1350 | 3340 |
| 13 | 944 | 2570 | 2810 | 2850 | 2960 | 3110 | 3310 | 2810 | 2700 | 1950 | 2030 | 3440 |
| 14 | 911 | 2470 | 2800 | 2880 | 3050 | 3050 | 3610 | 3140 | 3530 | 1630 | 2730 | 3410 |
| 15 | 853 | 2540 | 2770 | 2850 | 2850 | 2860 | 3630 | 3130 | 1820 | 2000 | 2760 | 3350 |
| 16 | 1320 | 2330 | 2740 | 2880 | 3090 | 2840 | 3310 | 3060 | 1740 | 2190 | 1590 | 3220 |
| 17 | 1110 | 2470 | 2780 | 2860 | 3030 | 2930 | 3390 | 3100 | 1830 | 2360 | 2240 | 2650 |
| 18 | 1050 | 2520 | 2820 | 2760 | 2910 | 3050 | 2990 | 3110 | 2100 | 2330 | 2410 | 3130 |
| 19 | 1010 | 2430 | 2860 | 2850 | 3030 | 3200 | 2840 | 3130 | 2600 | 2400 | 1820 | 3640 |
| 20 | 1030 | 2500 | 2880 | 2880 | 3070 | 3310 | 2850 | 3120 | 3040 | 2560 | 2080 | 4130 |
| 21 | 973 | 2570 | 2860 | 2930 | 3100 | 3380 | 2890 | 3270 | 3470 | 2570 | 2510 | 4180 |
| 22 | 983 | 2630 | 2900 | 2890 | 3140 | 3180 | 2930 | 2950 | 3580 | 2400 | 2830 | 4220 |
| 23 | 975 | 2650 | 2590 | 2900 | 3120 | 3090 | 3300 | 3000 | 3680 | 2010 | 2920 | 4350 |
| 24 | 920 | 2660 | 2740 | 2930 | 3130 | 3100 | 3310 | 3050 | 3670 | 1670 | 3010 | 3840 |
| 25 | 1000 | 2300 | 2760 | 2940 | 3100 | 3090 | 3390 | 3000 | 3560 | 1330 | 3080 | 3900 |
| 26 | 1010 | 2700 | 2740 | 2990 | 3070 | 3120 | 3470 | 3060 | 3440 | 1150 | 3170 | 3950 |
| 27 | 1020 | 2590 | 2780 | 3010 | 3050 | 3130 | 3520 | 2980 | 3380 | 900 | 3160 | 3670 |
| 28 | 1010 | 2460 | 2790 | 3040 | 3040 | 3220 | 3450 | 2910 | 2730 | --- | 3150 | 3880 |
| 29 | 1700 | 2600 | 2890 | 3070 | --- | 3230 | 3510 | 2360 | 2740 | 1550 | 3130 | 4050 |
| 30 | 1840 | 2730 | 2880 | 3060 | --- | 2980 | 3100 | 2270 | 2820 | 2230 | 3110 | 3560 |
| 31 | 1960 | --- | 2800 | 3050 | --- | 3060 | --- | 2890 | --- | 2340 | 3050 | --- |
| MEAN | 1010 | 2460 | 2730 | 2910 | 3030 | 3030 | 3290 | 2990 | 2750 | 2320 | 2110 | 3320 |

07228000 CANADIAN RIVER NEAR CANADIAN, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 26.0 | --- | 11.0 | 10.0 | 5.0 | 10.0 | 20.0 | 28.0 | 18.0 | 28.0 | 33.0 | 22.0 |
| 2 | 25.0 | --- | 5.0 | 11.0 | 2.0 | 11.0 | 19.0 | 27.0 | 29.0 | 29.0 | 36.0 | 22.0 |
| 3 | 24.0 | 15.0 | 9.0 | 6.0 | 2.0 | --- | 18.0 | 26.0 | 29.0 | 28.0 | 31.0 | --- |
| 4 | 25.0 | 13.0 | 12.0 | 6.0 | 6.0 | --- | 9.0 | 23.0 | 26.0 | 35.0 | 28.0 | --- |
| 5 | 23.0 | 16.0 | 14.0 | 6.0 | 6.0 | 11.0 | --- | 20.0 | 26.0 | --- | 35.0 | 24.0 |
| 6 | 28.0 | 17.0 | 14.0 | 10.0 | 8.0 | 12.0 | 17.0 | 27.0 | 30.0 | 35.0 | 25.0 | 25.0 |
| 7 | 28.0 | 17.0 | --- | 9.0 | 8.0 | --- | 21.0 | 22.0 | 30.0 | 29.0 | --- | 21.0 |
| 8 | 25.0 | 13.0 | 2.0 | 8.0 | 9.0 | 6.0 | 24.0 | 27.0 | 30.0 | 25.0 | 32.0 | --- |
| 9 | 23.0 | 15.0 | 4.0 | 10.0 | 5.0 | 14.0 | 25.0 | 13.0 | 34.0 | 26.0 | 21.0 | 24.0 |
| 10 | 23.0 | --- | 6.0 | 4.0 | --- | 11.0 | 25.0 | 21.0 | 25.0 | 30.0 | 23.0 | 27.0 |
| 11 | 24.0 | 15.0 | 6.0 | 5.0 | 1.0 | 12.0 | 24.0 | 23.0 | 31.0 | 33.0 | 21.0 | 32.0 |
| 12 | 23.0 | 18.0 | 4.0 | 7.0 | 2.0 | 13.0 | --- | 24.0 | 31.0 | 31.0 | 21.0 | --- |
| 13 | 23.0 | 10.0 | 5.0 | 10.0 | 3.0 | 14.0 | 24.0 | 20.0 | 30.0 | 33.0 | 22.0 | 32.0 |
| 14 | 25.0 | 7.0 | 10.0 | 8.0 | 11.0 | 16.0 | 16.0 | 21.0 | 30.0 | 32.0 | 29.0 | 28.0 |
| 15 | 24.0 | 8.0 | 7.0 | 9.0 | 14.0 | 15.0 | 19.0 | 18.0 | 25.0 | --- | 31.0 | 20.0 |
| 16 | --- | 2.0 | 12.0 | 1.0 | 14.0 | 16.0 | 23.0 | 22.0 | 29.0 | --- | 27.0 | 16.0 |
| 17 | 17.0 | 7.0 | 11.0 | 5.0 | 15.0 | --- | 24.0 | 21.0 | 32.0 | 28.0 | --- | --- |
| 18 | --- | 10.0 | 6.0 | 5.0 | 17.0 | 12.0 | 19.0 | 17.0 | 32.0 | 26.0 | --- | --- |
| 19 | 21.0 | 10.0 | 3.0 | 6.0 | 17.0 | --- | 21.0 | 24.0 | 34.0 | --- | 23.0 | 12.0 |
| 20 | 17.0 | --- | 3.0 | 10.0 | 14.0 | 13.0 | 19.0 | 19.0 | 37.0 | 32.0 | 30.0 | 27.0 |
| 21 | 22.0 | --- | 1.0 | 10.0 | 10.0 | 8.0 | 20.0 | 24.0 | 37.0 | 31.0 | --- | 29.0 |
| 22 | 18.0 | 10.0 | 2.0 | 12.0 | 11.0 | 10.0 | 23.0 | 27.0 | 31.0 | 30.0 | 30.0 | 24.0 |
| 23 | 15.0 | 4.0 | 3.0 | 15.0 | 14.0 | 17.0 | 22.0 | 26.0 | 28.0 | --- | 30.0 | --- |
| 24 | 17.0 | 5.0 | 2.0 | 6.0 | 16.0 | 17.0 | 22.0 | 25.0 | 29.0 | --- | 28.0 | 23.0 |
| 25 | 18.0 | 4.0 | --- | 11.0 | 17.0 | 14.0 | --- | 29.0 | 30.0 | --- | 25.0 | 25.0 |
| 26 | 15.0 | 6.0 | 9.0 | 8.0 | 18.0 | 15.0 | --- | 24.0 | 32.0 | --- | 25.0 | 21.0 |
| 27 | 9.0 | --- | 10.0 | 11.0 | 20.0 | 19.0 | 22.0 | 27.0 | 32.0 | --- | 26.0 | 27.0 |
| 28 | 11.0 | 10.0 | 11.0 | 11.0 | 18.0 | 12.0 | 23.0 | 26.0 | 30.0 | --- | 26.0 | --- |
| 29 | 14.0 | --- | 10.0 | 6.0 | --- | 17.0 | 26.0 | 28.0 | 27.0 | --- | --- | 25.0 |
| 30 | 17.0 | 11.0 | 11.0 | 10.0 | --- | 21.0 | 24.0 | 19.0 | 33.0 | 25.0 | 30.0 | 26.0 |
| 31 | 18.0 | --- | 11.0 | 4.0 | --- | 20.0 | --- | 24.0 | --- | 26.0 | 25.0 | --- |
| MEAN | 20.5 | 10.5 | 7.5 | 8.0 | 10.5 | 13.5 | 21.0 | 23.5 | 30.0 | 29.5 | 27.5 | 24.0 |

## 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 (0.5 km) north of Lipscomb, 0.6 mi (1.0 km) downstream from Sand Creek, 2 mi (3 km) upstream from Plum Creek, and 61.2 mi (98.5 km) upstream from mouth.

DRAINAGE AREA.--697 $mi^2$ (1,805 $km^2$), of which 222 $mi^2$ (575 $km^2$) probably is noncontributing.

### WATER-DISCHARGE RECORDS

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

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

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 2,371.29 ft (722.769 m) 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 (1.759 m) higher.

REMARKS.--Water-discharge records fair. Small diversion upstream from station for irrigation and recreation.

AVERAGE DISCHARGE.--25 years (water years 1938-42, 1962-81), 17.0 $ft^3/s$ (0.481 $m^3/s$), 0.49 in/yr (12 mm/yr), 12,320 acre-ft/yr (15.2 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,000 $ft^3/s$ (566 $m^3/s$) Oct. 21, 1941, gage height, 11.57 ft (3.527 m), present datum, from rating curve extended above 14,000 $ft^3/s$ (396 $m^3/s$) on basis of velocity-area studies; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1890, 15.5 ft (4.72 m) June 23, 1957, present site and datum, from floodmarks. Flood in May 1955 reached a stage of 12.1 ft (3.69 m), present site and datum, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 35 $ft^3/s$ (0.99 $m^3/s$) Aug. 16, gage height, 2.55 ft (0.777 m), from floodmark, no peak above base of 500 $ft^3/s$ (14.2 $m^3/s$); minimum, 0.17 $ft^3/s$ (0.005 $m^3/s$) July 14, 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.4 | 1.8 | 2.1 | 2.1 | 2.8 | 2.3 | 2.6 | 2.6 | 2.1 | .80 | .78 | .48 |
| 2 | 1.1 | 1.8 | 2.1 | 2.1 | 2.0 | 2.3 | 2.6 | 2.4 | 1.8 | .76 | .76 | .48 |
| 3 | 1.1 | 2.0 | 2.3 | 2.1 | 2.0 | 2.3 | 2.7 | 2.1 | 1.6 | .81 | .75 | .48 |
| 4 | 1.1 | 2.0 | 2.4 | 2.1 | 2.0 | 2.4 | 2.6 | 2.0 | 1.6 | .62 | .74 | .70 |
| 5 | 1.3 | 2.0 | 2.4 | 2.3 | 2.5 | 2.4 | 2.4 | 1.8 | 1.6 | .56 | .72 | .60 |
| 6 | 1.3 | 2.1 | 2.3 | 2.3 | 2.5 | 2.4 | 2.6 | 1.5 | 1.4 | .55 | .71 | .69 |
| 7 | 1.1 | 2.0 | 2.5 | 2.3 | 2.5 | 2.6 | 2.6 | 1.5 | 1.1 | .45 | .70 | .72 |
| 8 | 1.1 | 2.0 | 3.5 | 2.3 | 3.0 | 3.0 | 2.5 | 1.6 | .90 | .44 | .69 | .60 |
| 9 | 1.0 | 2.0 | 3.4 | 2.4 | 2.9 | 3.0 | 2.6 | 2.1 | .77 | .41 | .68 | .55 |
| 10 | 1.0 | 2.0 | 2.9 | 2.4 | 3.0 | 2.9 | 2.6 | 2.7 | .69 | .38 | .66 | .55 |
| 11 | 1.0 | 2.1 | 2.7 | 2.4 | 1.5 | 2.6 | 2.6 | 2.4 | .68 | .38 | .66 | .70 |
| 12 | 1.1 | 2.1 | 2.6 | 3.4 | 1.5 | 2.6 | 2.5 | 2.0 | .65 | .38 | .65 | .91 |
| 13 | 1.3 | 2.1 | 2.6 | 2.4 | 2.0 | 2.6 | 2.4 | 1.6 | .73 | .28 | .64 | .76 |
| 14 | 1.3 | 2.1 | 2.6 | 2.4 | 2.0 | 2.6 | 2.4 | 1.6 | .73 | .27 | .64 | .74 |
| 15 | 1.3 | 2.1 | 2.6 | 2.4 | 2.2 | 4.2 | 2.3 | 1.5 | .66 | .50 | .63 | .60 |
| 16 | 1.6 | 2.1 | 2.6 | 2.4 | 2.4 | 5.3 | 2.9 | 1.5 | .67 | .53 | 10 | .63 |
| 17 | 1.4 | 2.0 | 2.6 | 2.4 | 2.4 | 4.0 | 3.0 | 1.5 | .77 | .62 | 1.3 | .70 |
| 18 | 1.4 | 2.0 | 2.6 | 2.3 | 2.3 | 3.6 | 3.3 | 1.4 | .80 | .79 | .85 | .55 |
| 19 | 1.6 | 2.0 | 2.4 | 2.4 | 2.3 | 3.2 | 3.5 | 1.3 | .63 | .57 | .70 | .56 |
| 20 | 1.8 | 2.0 | 2.1 | 2.4 | 2.3 | 3.0 | 3.1 | 1.3 | .65 | .43 | .62 | .63 |
| 21 | 1.8 | 2.1 | 2.1 | 2.4 | 2.4 | 3.0 | 3.0 | 1.3 | .65 | .42 | .58 | .61 |
| 22 | 2.0 | 2.1 | 2.1 | 2.4 | 2.4 | 2.9 | 2.9 | 1.3 | .62 | .48 | .56 | .48 |
| 23 | 2.1 | 2.1 | 2.1 | 2.4 | 2.3 | 2.7 | 2.6 | 1.1 | .64 | .38 | .54 | .51 |
| 24 | 2.1 | 2.1 | 2.1 | 2.5 | 2.3 | 2.7 | 2.8 | 1.0 | .64 | .30 | .54 | .81 |
| 25 | 2.0 | 2.1 | 2.3 | 2.6 | 2.2 | 2.7 | 2.6 | 1.1 | .55 | .38 | .52 | .56 |
| 26 | 2.0 | 2.1 | 2.1 | 2.6 | 2.2 | 2.7 | 2.4 | 1.0 | .55 | .48 | .52 | .48 |
| 27 | 2.1 | 2.3 | 2.4 | 2.4 | 2.3 | 2.7 | 2.3 | .95 | .57 | .60 | .52 | .48 |
| 28 | 2.0 | 2.3 | 2.4 | 2.4 | 2.3 | 2.9 | 2.3 | .96 | .66 | .60 | .51 | .42 |
| 29 | 2.0 | 2.1 | 2.3 | 2.6 | --- | 2.9 | 2.3 | 1.1 | .84 | .85 | .50 | .42 |
| 30 | 2.0 | 2.1 | 2.2 | 2.6 | --- | 2.7 | 2.4 | 1.9 | 1.0 | .82 | .50 | .38 |
| 31 | 1.8 | --- | 2.1 | 2.7 | --- | 2.7 | --- | 3.0 | --- | .80 | .50 | --- |
| TOTAL | 47.2 | 61.7 | 75.5 | 74.9 | 64.5 | 89.9 | 79.4 | 51.11 | 27.25 | 16.64 | 29.67 | 17.78 |
| MEAN | 1.52 | 2.06 | 2.44 | 2.42 | 2.30 | 2.90 | 2.65 | 1.65 | .91 | .54 | .96 | .59 |
| MAX | 2.1 | 2.3 | 3.5 | 3.4 | 3.0 | 5.3 | 3.5 | 3.0 | 2.1 | .85 | 10 | .91 |
| MIN | 1.0 | 1.8 | 2.1 | 2.1 | 1.5 | 2.3 | 2.3 | .95 | .55 | .27 | .50 | .38 |
| CFSM | .003 | .004 | .005 | .005 | .005 | .006 | .006 | .003 | .002 | .001 | .002 | .001 |
| IN. | .00 | .00 | .01 | .01 | .01 | .01 | .01 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 94 | 122 | 150 | 149 | 128 | 178 | 157 | 101 | 54 | 33 | 59 | 35 |

CAL YR 1980 TOTAL 4871.60 MEAN 13.3 MAX 1140 MIN 1.0 CFSM .03 IN .38 AC-FT 9660
WTR YR 1981 TOTAL 635.55 MEAN 1.74 MAX 10 MIN .27 CFSM .004 IN .05 AC-FT 1260

## 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 (21 km) northeast of Wayside, 26 mi (42 km) south of Claude, and at mile 1,145 (1,842 km).

DRAINAGE AREA.--4,211 $mi^2$ (10,906 $km^2$), of which 3,281 $mi^2$ (8,498 $km^2$) 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 (750.948 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair. Several small diversions above station.

AVERAGE DISCHARGE.--14 years, 29.5 $ft^3/s$ (0.835 $m^3/s$), 21.370 acre-ft/yr (26.3 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58,000 $ft^3/s$ (1,640 $m^3/s$) Aug. 28, 1968, gage height, 13.0 ft (3.96 m), from floodmark; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,760 $ft^3/s$ (163 $m^3/s$) July 8 at 0600 hours, gage height, 9.85 ft (3.002 m), no peak above base of 6,000 $ft^3/s$ (170 $m^3/s$); minimum daily, 0.04 $ft^3/s$ (0.001 $m^3/s$) Oct. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .31 | .18 | .22 | .71 | 1.6 | 1.9 | .80 | 42 | 4.5 | .52 | 8.9 | 1.5 |
| 2 | .19 | .15 | .18 | .65 | 1.7 | 1.9 | .82 | 6.5 | 4.5 | .16 | 6.9 | 1.4 |
| 3 | .17 | .18 | .20 | .70 | 1.8 | 10 | 1.2 | 3.1 | 51 | .16 | 6.0 | 1.0 |
| 4 | .14 | .18 | .25 | .71 | 1.8 | 3.7 | .85 | 1.9 | 2.8 | .19 | 4.8 | 274 |
| 5 | .12 | .15 | .20 | .77 | 2.0 | 2.0 | .92 | 1.4 | 1.7 | 2.0 | 3.8 | 1.1 |
| 6 | .28 | .18 | .25 | .73 | 2.1 | 2.0 | .94 | 1.3 | 1.4 | .18 | 4.3 | 49 |
| 7 | .21 | .20 | .20 | .70 | 2.1 | 2.2 | 1.0 | 1.2 | 1.3 | .13 | 43 | 39 |
| 8 | .22 | .20 | .20 | .70 | 2.3 | 2.0 | .93 | 1.2 | 1.1 | 648 | 34 | 57 |
| 9 | .18 | .20 | .15 | .70 | 2.5 | 2.0 | .95 | 1.1 | 1.2 | 59 | 30 | 50 |
| 10 | .10 | .22 | .20 | .80 | 2.3 | 1.7 | .99 | 1.1 | 1.2 | 9.3 | 11 | 45 |
| 11 | .15 | .25 | .30 | .78 | 2.0 | 2.2 | 1.1 | 1.1 | 1.2 | 4.0 | 67 | 40 |
| 12 | .10 | .25 | .35 | .80 | 2.1 | 2.0 | 1.1 | 1.1 | 42 | 2.8 | 211 | 29 |
| 13 | .10 | .28 | .39 | .89 | 2.3 | 1.8 | 1.0 | 1.0 | 6.5 | 2.3 | 450 | 25 |
| 14 | .07 | .31 | .44 | .80 | 2.5 | 1.7 | 1.1 | 1.0 | 2.1 | 2.1 | 88 | 21 |
| 15 | .04 | .28 | .39 | .84 | 2.3 | 1.6 | 1.5 | 1.1 | .94 | 2.0 | 42 | 15 |
| 16 | 1.2 | .22 | .35 | .97 | 2.3 | 1.3 | 1.4 | 1.1 | .60 | 2.3 | 217 | 13 |
| 17 | .44 | .20 | .39 | .90 | 2.3 | 1.6 | 1.2 | 1.0 | .35 | 2.1 | 315 | 12 |
| 18 | .15 | .22 | .44 | 1.0 | 2.2 | 1.1 | 2.0 | .97 | .25 | 5.5 | 30 | 9.9 |
| 19 | .15 | .25 | .39 | 1.1 | 2.0 | 1.0 | 1.5 | .99 | .22 | 4.1 | 145 | 7.3 |
| 20 | .12 | .31 | .35 | 1.2 | 1.9 | 1.1 | 1.3 | .99 | .22 | 2.9 | 86 | 5.8 |
| 21 | .10 | .22 | .40 | 1.3 | 1.9 | 1.4 | 1.3 | 1.0 | .20 | 1.7 | 43 | 4.5 |
| 22 | .09 | .22 | .44 | 1.4 | 1.8 | 1.0 | 1.3 | .99 | .17 | 1.3 | 18 | 3.7 |
| 23 | .09 | .22 | .44 | 1.6 | 1.8 | .87 | 1.2 | .96 | .21 | 1.3 | 8.3 | 3.7 |
| 24 | .09 | .25 | .44 | 1.4 | 1.6 | .89 | 1.1 | 1.8 | .21 | 1.1 | 4.2 | 3.5 |
| 25 | .09 | .25 | .44 | 1.4 | 1.5 | .94 | 1.0 | 1.3 | .19 | 1.1 | 2.4 | 2.8 |
| 26 | .07 | .20 | .54 | 1.4 | 1.7 | .93 | 1.1 | 1.0 | .19 | 1.1 | 1.6 | 2.1 |
| 27 | .08 | .15 | .54 | 1.4 | 2.0 | .90 | 1.1 | 4.1 | .18 | 35 | 68 | 1.8 |
| 28 | .09 | .15 | .60 | 1.6 | 2.1 | 1.2 | 1.2 | 1.9 | .19 | 348 | 10 | 1.6 |
| 29 | .10 | .18 | .60 | 1.6 | --- | 1.0 | 1.2 | 9.1 | .19 | 184 | 3.1 | 1.3 |
| 30 | .13 | .20 | .66 | 1.4 | --- | .97 | 3.4 | 21 | .20 | 46 | 1.9 | 1.2 |
| 31 | .13 | --- | .67 | 1.7 | --- | .86 | --- | 17 | --- | 15 | 1.8 | --- |
| TOTAL | 5.50 | 6.45 | 11.61 | 32.65 | 56.5 | 55.76 | 36.50 | 131.30 | 127.01 | 1385.34 | 1966.0 | 723.2 |
| MEAN | .18 | .22 | .37 | 1.05 | 2.02 | 1.80 | 1.22 | 4.24 | 4.23 | 44.7 | 63.4 | 24.1 |
| MAX | 1.2 | .31 | .67 | 1.7 | 2.5 | 10 | 3.4 | 42 | 51 | 648 | 450 | 274 |
| MIN | .04 | .15 | .15 | .65 | 1.5 | .86 | .80 | .96 | .17 | .13 | 1.6 | 1.0 |
| AC-FT | 11 | 13 | 23 | 65 | 112 | 111 | 72 | 260 | 252 | 2750 | 3900 | 1430 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 5912.91 | MEAN | 16.2 | MAX | 2920 | MIN | .00 | AC-FT 11730 |
| WTR YR 1981 | TOTAL | 4537.82 | MEAN | 12.4 | MAX | 648 | MIN | .04 | AC-FT 9000 |

07297910 PRAIRIE DOG TOWN FORK RED RIVER NEAR WAYSIDE, TX--Continued

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 current year.
WATER TEMPERATURES: October 1968 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, 51,100 micromhos July 30, 1978; minimum daily, 417 micromhos July 10, 1975.
WATER TEMPERATURES: Maximum daily, 38.0°C Oct. 14, 1968, June 13, 1975; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 46,200 micromhos June 29; minimum daily, 808 micromhos Aug. 17.
WATER TEMPERATURES: Maximum daily, 36.0°C July 20, Aug. 1; minimum daily, 0.0°C Feb. 10.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH FIELD (UNITS) | TEMPER-ATURE, WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 08... | 1045 | .23 | 40500 | 8.0 | 21.0 | .55 | 10.4 | 146 | 1.2 | K32 | 85 |
| NOV | | | | | | | | | | | |
| 06... | 1200 | .18 | 38000 | 8.1 | 18.0 | 1.5 | 10.2 | 136 | .6 | K17 | K45 |
| DEC | | | | | | | | | | | |
| 04... | 1445 | .25 | 25500 | 7.9 | 16.5 | 1.1 | 11.1 | 137 | 1.2 | <4 | K15 |
| JAN | | | | | | | | | | | |
| 08... | 1145 | .74 | 22000 | 7.9 | 9.0 | 1.2 | 11.4 | 117 | 1.4 | K12 | K38 |
| FEB | | | | | | | | | | | |
| 13... | 1500 | 2.9 | 24000 | 7.9 | 14.0 | .60 | 11.9 | 137 | 2.8 | <4 | K11 |
| MAR | | | | | | | | | | | |
| 11... | 1715 | 2.0 | 16700 | 7.4 | 13.0 | 1.4 | 9.2 | 103 | .2 | 210 | 52 |
| APR | | | | | | | | | | | |
| 15... | 1500 | 1.8 | 19000 | 7.9 | 13.0 | 2.1 | 11.0 | 122 | .5 | 100 | K48 |
| MAY | | | | | | | | | | | |
| 13... | 1045 | 1.1 | 25500 | 7.9 | 18.0 | .60 | 9.5 | 122 | .6 | 140 | K20 |
| JUN | | | | | | | | | | | |
| 09... | 1500 | .91 | 25200 | 8.0 | 32.0 | 6300 | 8.1 | 135 | 1.6 | K17 | 190 |
| JUL | | | | | | | | | | | |
| 28... | 1445 | 846 | 1600 | 7.7 | 25.0 | 6500 | 9.1 | 120 | 7.6 | 48000 | 60000 |
| AUG | | | | | | | | | | | |
| 20... | 1330 | 87 | 1200 | 8.0 | 27.0 | 680 | 10.4 | 142 | 2.8 | K17000 | 26000 |
| SEP | | | | | | | | | | | |
| 23... | 1645 | 3.7 | 16000 | 8.1 | 23.0 | 5.1 | 9.4 | 127 | .8 | 420 | 440 |

| DATE | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 (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 | | | | | | | | | | | |
| 08... | 3900 | 3700 | 1100 | 270 | 8700 | 61 | 170 | 130 | 2800 | 14000 | .6 |
| NOV | | | | | | | | | | | |
| 06... | 3500 | 3400 | 1000 | 250 | 8100 | 59 | 120 | 130 | 2400 | 13000 | .8 |
| DEC | | | | | | | | | | | |
| 04... | 2700 | 2600 | 760 | 190 | 5200 | 44 | 110 | 120 | 2000 | 9000 | .8 |
| JAN | | | | | | | | | | | |
| 08... | 2500 | 2400 | 720 | 180 | 4600 | 40 | 60 | 130 | 2200 | 7500 | 1.0 |
| FEB | | | | | | | | | | | |
| 13... | 2500 | 2400 | 720 | 180 | 5400 | 47 | 61 | 130 | 2400 | 8300 | .7 |
| MAR | | | | | | | | | | | |
| 11... | 2100 | 2000 | 600 | 150 | 3000 | 28 | 38 | 120 | 2000 | 4700 | .8 |
| APR | | | | | | | | | | | |
| 15... | 2700 | 2300 | 760 | 200 | 3700 | 31 | 46 | 120 | 2500 | 5800 | .9 |
| MAY | | | | | | | | | | | |
| 13... | 3000 | 2800 | 840 | 210 | 5200 | 42 | 66 | 130 | 2400 | 9100 | .9 |
| JUN | | | | | | | | | | | |
| 09... | 3800 | 3700 | 1200 | 200 | 4700 | 33 | 77 | 90 | 2500 | 8600 | .8 |
| JUL | | | | | | | | | | | |
| 28... | 540 | 510 | 170 | 27 | 300 | 5.6 | 7.9 | 30 | 780 | 210 | .5 |
| AUG | | | | | | | | | | | |
| 20... | 320 | 130 | 85 | 26 | 130 | 3.4 | 12 | 190 | 240 | 130 | 1.8 |
| SEP | | | | | | | | | | | |
| 23... | 2100 | 2000 | 590 | 150 | 3000 | 29 | 43 | 120 | 1900 | 4900 | 1.2 |

07297910 PRAIRIE DOG TOWN FORK RED RIVER NEAR WAYSIDE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| 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, 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) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 08... | 28 | 27800 | 27100 | -- | .00 | .00 | .300 | .290 | .30 | .21 |
| NOV | | | | | | | | | | |
| 06... | 25 | 25100 | 25000 | -- | .17 | .00 | .330 | .330 | .00 | .06 |
| DEC | | | | | | | | | | |
| 04... | 25 | 18600 | 17400 | -- | .00 | .00 | .210 | .250 | .25 | .12 |
| JAN | | | | | | | | | | |
| 08... | 24 | 15100 | 15400 | -- | .04 | .05 | .140 | .170 | .55 | .32 |
| FEB | | | | | | | | | | |
| 13... | 5.1 | 16400 | 17100 | -- | .00 | .00 | .280 | .250 | .34 | .22 |
| MAR | | | | | | | | | | |
| 11... | 23 | 11200 | 10600 | -- | .00 | .00 | .170 | .160 | .57 | .11 |
| APR | | | | | | | | | | |
| 15... | 23 | 13100 | 13100 | -- | .02 | .01 | .100 | .050 | .41 | .36 |
| MAY | | | | | | | | | | |
| 13... | 25 | 18700 | 17900 | -- | .01 | .03 | .180 | .100 | 1.3 | .49 |
| JUN | | | | | | | | | | |
| 09... | 27 | 18300 | 17300 | .000 | .00 | .00 | .100 | .090 | .59 | .58 |
| JUL | | | | | | | | | | |
| 28... | 7.7 | 1760 | 1520 | -- | .42 | .35 | .280 | .300 | 7.4 | 1.0 |
| AUG | | | | | | | | | | |
| 20... | 8.4 | 753 | 748 | -- | .01 | .02 | .030 | .070 | 2.5 | 1.1 |
| SEP | | | | | | | | | | |
| 23... | 26 | 10900 | 10700 | -- | <.00 | <.10 | .150 | .190 | .46 | .37 |

| DATE | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | PHOS-PHORUS, DIS-SOLVED (MG/L AS P) | CARBON, ORGANIC TOTAL (MG/L AS C) | CARBON, ORGANIC DIS-SOLVED (MG/L AS C) | CARBON, ORGANIC SUS-PENDED (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 |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 08... | .60 | .50 | .020 | .020 | -- | 1.8 | .4 | 6 | .00 | 76 |
| NOV | | | | | | | | | | |
| 06... | .01 | .39 | .050 | .030 | 4.7 | -- | -- | 10 | .00 | 86 |
| DEC | | | | | | | | | | |
| 04... | .46 | .37 | .050 | .020 | 3.2 | -- | -- | 3 | .00 | 75 |
| JAN | | | | | | | | | | |
| 08... | .69 | .49 | .010 | .040 | 8.8 | -- | -- | 2 | .00 | 50 |
| FEB | | | | | | | | | | |
| 13... | .62 | .47 | .020 | .010 | -- | 8.0 | 7.8 | 19 | .15 | 84 |
| MAR | | | | | | | | | | |
| 11... | .74 | .27 | .030 | .020 | 2.9 | -- | -- | 36 | .19 | 84 |
| APR | | | | | | | | | | |
| 15... | .51 | .41 | .030 | .050 | 4.7 | -- | -- | 49 | .24 | 75 |
| MAY | | | | | | | | | | |
| 13... | 1.5 | .59 | .030 | .040 | 11 | -- | -- | 11 | .03 | 74 |
| JUN | | | | | | | | | | |
| 09... | .69 | .67 | .080 | .010 | -- | 2.7 | .6 | 14 | .03 | 86 |
| JUL | | | | | | | | | | |
| 28... | 7.7 | 1.3 | 6.000 | .040 | 74 | -- | -- | 32800 | 74900 | 95 |
| AUG | | | | | | | | | | |
| 20... | 2.5 | 1.2 | .510 | .020 | -- | 9.4 | 1.0 | 2700 | 634 | 68 |
| SEP | | | | | | | | | | |
| 23... | .61 | .56 | .010 | <.010 | 3.6 | -- | -- | 28 | .28 | 99 |

| DATE | TIME | ARSENIC TOTAL (UG/L AS AS) | ARSENIC SUS-PENDED TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, TOTAL (UG/L AS BA) | BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA) | BARIUM, DIS-SOLVED (UG/L AS BA) | CADMIUM TOTAL (UG/L AS CD) | CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD) | CADMIUM DIS-SOLVED (UG/L AS CD) | CHRO-MIUM, TOTAL (UG/L AS CR) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 08... | 1045 | 10 | 4 | 6 | 300 | 0 | 300 | 0 | 0 | 1 | 40 |
| FEB | | | | | | | | | | | |
| 13... | 1500 | 3 | 0 | 3 | 300 | 0 | 300 | 0 | 0 | 0 | 40 |
| JUN | | | | | | | | | | | |
| 09... | 1500 | 6 | 0 | 6 | 200 | 0 | 200 | 0 | 0 | 0 | 20 |
| AUG | | | | | | | | | | | |
| 20... | 1330 | 4 | 0 | 4 | 800 | 600 | 200 | 0 | -- | <1 | 20 |

07297910 PRAIRIE DOG TOWN FORK RED RIVER NEAR WAYSIDE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | CHROMIUM, SUSPENDED RECOV. (UG/L AS CR) | CHROMIUM, DISSOLVED (UG/L AS CR) | COBALT, TOTAL (UG/L AS CO) | COBALT, SUSPENDED RECOVERABLE (UG/L AS CO) | COBALT, DISSOLVED (UG/L AS CO) | COPPER, TOTAL (UG/L AS CU) | COPPER, SUSPENDED RECOVERABLE (UG/L AS CU) | COPPER, DISSOLVED (UG/L AS CU) | IRON, TOTAL (UG/L AS FE) | IRON, SUSPENDED RECOVERABLE (UG/L AS FE) | IRON, DISSOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 08... | 0 | 40 | 3 | 3 | 0 | 12 | 11 | 1 | 200 | 60 | 140 |
| FEB | | | | | | | | | | | |
| 13... | 0 | 40 | 1 | 0 | 2 | 3 | 3 | 0 | 160 | 60 | 100 |
| JUN | | | | | | | | | | | |
| 09... | 10 | 10 | 0 | 0 | 0 | 3 | 1 | 2 | 140 | 30 | 110 |
| AUG | | | | | | | | | | | |
| 20... | 20 | 0 | 11 | -- | <3 | 32 | 30 | 2 | 15000 | 15000 | 17 |

| DATE | LEAD, TOTAL (UG/L AS PB) | LEAD, SUSPENDED RECOVERABLE (UG/L AS PB) | LEAD, DISSOLVED (UG/L AS PB) | MANGANESE, TOTAL (UG/L AS MN) | MANGANESE, SUSPENDED RECOV. (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL (UG/L AS HG) | MERCURY SUSPENDED RECOVERABLE (UG/L AS HG) | MERCURY DISSOLVED (UG/L AS HG) | NICKEL, TOTAL (UG/L AS NI) | NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 08... | 3 | 1 | 2 | 810 | 0 | 810 | .0 | .0 | .1 | 6 | 6 |
| FEB | | | | | | | | | | | |
| 13... | 3 | 3 | 0 | 400 | 0 | 400 | .6 | .6 | .0 | 3 | 3 |
| JUN | | | | | | | | | | | |
| 09... | 8 | 4 | 4 | 360 | 0 | 370 | .1 | .0 | .1 | 0 | 0 |
| AUG | | | | | | | | | | | |
| 20... | 23 | 21 | 2 | 980 | 980 | 3 | .1 | .1 | .0 | 27 | 22 |

| DATE | NICKEL, DISSOLVED (UG/L AS NI) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, SUSPENDED TOTAL (UG/L AS SE) | SELENIUM, DISSOLVED (UG/L AS SE) | SILVER, TOTAL (UG/L AS AG) | SILVER, SUSPENDED RECOVERABLE (UG/L AS AG) | SILVER, DISSOLVED (UG/L AS AG) | ZINC, TOTAL (UG/L AS ZN) | ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN) | ZINC, DISSOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 08... | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 40 | 10 | 30 |
| FEB | | | | | | | | | | |
| 13... | 0 | 3 | 1 | 2 | 0 | 0 | 0 | 20 | 0 | 30 |
| JUN | | | | | | | | | | |
| 09... | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 30 | 0 | 30 |
| AUG | | | | | | | | | | |
| 20... | 5 | 1 | 1 | 0 | 0 | 0 | 0 | 70 | -- | <3 |

07297910 PRAIRIE DOG TOWN FORK RED RIVER NEAR WAYSIDE, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

| DATE | NOV 6,80 | MAR 11,81 | MAY 13,81 | JUN 9,81 | JUL 28,81 | SEP 23,81 |
|---|---|---|---|---|---|---|
| TIME | 1200 | 1715 | 1045 | 1500 | 1445 | 1645 |
| TOTAL CELLS/ML | 150 | 1800 | 7200 | 4700 | 1800 | 940 |
| DIVERSITY: DIVISION | 0.0 | 0.7 | 0.0 | 0.3 | 0.1 | 0.0 |
| .CLASS | 0.0 | 0.7 | 0.0 | 0.3 | 0.1 | 0.0 |
| ..ORDER | 0.0 | 1.1 | 0.1 | 0.8 | 0.1 | 1.5 |
| ...FAMILY | 0.0 | 1.2 | 0.1 | 0.8 | 0.1 | 1.5 |
| ....GENUS | 0.0 | 1.2 | 0.1 | 0.8 | 1.0 | 1.5 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BACILLARIOPHYTA (DIATOMS) | | | | | | | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | | | | | | | |
| ..ACHNANTHALES | | | | | | | | | | | | |
| ...ACHNANTHACEAE | | | | | | | | | | | | |
| ....ACHNANTHES | -- | - | -- | - | -- | - | 140 | 3 | -- | - | -- | - |
| ....COCCONEIS | -- | - | -- | - | -- | - | -- | - | -- | - | 180# | 19 |
| ..BACILLARIALES | | | | | | | | | | | | |
| ...NITZSCHIACEAE | | | | | | | | | | | | |
| ....NITZSCHIA | 150# | 100 | 1300# | 73 | 7200# | 99 | 4100# | 87 | -- | - | 310# | 33 |
| ..NAVICULALES | | | | | | | | | | | | |
| ...CYMBELLACEAE | | | | | | | | | | | | |
| ....CYMBELLA | -- | - | -- | - | -- | - | 94 | 2 | -- | - | -- | - |
| ...ENTOMONEIDACEAE | | | | | | | | | | | | |
| ....ENTOMONEIS | -- | - | 39 | 2 | -- | - | -- | - | -- | - | -- | - |
| ...NAVICULACEAE | | | | | | | | | | | | |
| ....NAVICULA | -- | - | 120 | 6 | 71 | 1 | 190 | 4 | 14 | 1 | 450# | 48 |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | | | | | | | |
| .CHLOROPHYCEAE | | | | | | | | | | | | |
| ..VOLVOCALES | | | | | | | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | | | | | | | |
| ....CHLAMYDOMONAS | -- | - | -- | - | -- | - | 94 | 2 | 14 | 1 | -- | - |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | | | | | | | |
| .CRYPTOPHYCEAE | | | | | | | | | | | | |
| ..CRYPTOMONADALES | | | | | | | | | | | | |
| ...CRYPTOCHRYSIDACEAE | | | | | | | | | | | | |
| ....CHROOMONAS | -- | - | -- | - | -- | - | 94 | 2 | -- | - | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | | | | | | | |
| .CYANOPHYCEAE | | | | | | | | | | | | |
| ..OSCILLATORIALES | | | | | | | | | | | | |
| ...OSCILLATORIACEAE | | | | | | | | | | | | |
| ....LYNGBYA | -- | - | 340# | 18 | -- | - | -- | - | 520# | 28 | -- | - |
| ....OSCILLATORIA | -- | - | -- | - | -- | - | -- | - | 1300# | 70 | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 5.50 | 31600 | 21300 | 316 | 10700 | 159 | 2500 | 38 | * |
| NOV. | 1980 | 6.45 | 33900 | 22800 | 397 | 11400 | 198 | 2800 | 48 | * |
| DEC. | 1980 | 11.61 | 22600 | 14900 | 467 | 6900 | 217 | 2400 | 75 | * |
| JAN. | 1981 | 32.65 | 24000 | 15900 | 1400 | 7400 | 651 | 2500 | 222 | * |
| FEB. | 1981 | 56.5 | 24600 | 16300 | 2480 | 7600 | 1170 | 2500 | 386 | * |
| MAR. | 1981 | 55.76 | 18600 | 12200 | 1840 | 5500 | 823 | 2200 | 326 | * |
| APR. | 1981 | 36.50 | 27400 | 18200 | 1790 | 8700 | 862 | 2600 | 257 | * |
| MAY | 1981 | 131.30 | 7740 | 5070 | 1800 | 2300 | 803 | 910 | 322 | 1000 |
| JUNE | 1981 | 127.01 | 7810 | 5080 | 1740 | 2200 | 752 | 990 | 339 | 1100 |
| JULY | 1981 | 1385.34 | 3370 | 2200 | 8220 | 960 | 3600 | 410 | 1550 | 460 |
| AUG. | 1981 | 1966.0 | 1720 | 1090 | 5810 | 430 | 2290 | 260 | 1370 | 270 |
| SEPT | 1981 | 723.2 | 3040 | 1950 | 3800 | 790 | 1540 | 440 | 856 | 460 |
| TOTAL | | 4537.82 | ** | ** | 30100 | ** | 13100 | ** | 5790 | ** |
| WTD. AVG. | | 12 | 3770 | 2450 | ** | 1100 | ** | 470 | ** | 520 |

07297910 PRAIRIE DOG TOWN FORK RED RIVER NEAR WAYSIDE, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 30500 | 38400 | 29000 | 23100 | 26700 | 23100 | 26900 | 2350 | 5320 | 34700 | 8280 | 9990 |
| 2 | 34600 | 38700 | 30300 | 23400 | 26900 | 22700 | 28400 | 2730 | 7040 | 23300 | 10700 | 11500 |
| 3 | 38600 | 37800 | 33300 | 22600 | 27800 | 16600 | 32100 | 9280 | 1630 | 35500 | 11200 | 12200 |
| 4 | 39300 | 37900 | 32100 | 22800 | 25000 | 12500 | 33400 | 9660 | 5480 | 44800 | 17700 | 1210 |
| 5 | 40100 | 37700 | 30300 | 23700 | 25300 | 17900 | 32800 | 12000 | 6840 | 12500 | 20500 | 13200 |
| 6 | 38200 | 38000 | 27800 | 23100 | 24000 | 18200 | 30300 | 14500 | 10400 | 27600 | 21800 | 1640 |
| 7 | 36400 | 36700 | 27200 | 22000 | 21500 | 17500 | 28800 | 16600 | 12200 | 44600 | 3500 | 1950 |
| 8 | 40000 | 37600 | 12000 | 22400 | 19500 | 16000 | 26600 | 16700 | 20500 | 2100 | 3090 | 1480 |
| 9 | 39800 | 36500 | 10800 | 22700 | 17400 | 18200 | 32200 | 18000 | 21200 | 1050 | 4540 | 1880 |
| 10 | 40300 | 38300 | 9380 | 23400 | 18900 | 18700 | 31200 | 18100 | 23600 | 2340 | 6020 | 2230 |
| 11 | 41700 | 38000 | 12700 | 24900 | 16500 | 16700 | 26600 | 20000 | 25500 | 5610 | 4460 | 2890 |
| 12 | 41000 | 37100 | 15100 | 28300 | 23500 | 15800 | 24000 | 21700 | 12400 | 9850 | 926 | 3210 |
| 13 | 41200 | 36200 | 16700 | 26400 | 28600 | 17700 | 31300 | 25000 | 3440 | 19800 | 819 | 3700 |
| 14 | 41000 | 34300 | 18200 | 22400 | 28000 | 19200 | 32500 | 26500 | 6790 | 21500 | 2120 | 5970 |
| 15 | 41400 | 34400 | 19600 | 24800 | 24400 | 16100 | 24500 | 26900 | 15900 | 28500 | 3400 | 6430 |
| 16 | 15000 | 32700 | 19300 | 25000 | 23600 | 16400 | 23600 | 30600 | 17600 | 29900 | 1640 | 7090 |
| 17 | 20600 | 33000 | 20800 | 25600 | 25600 | 20000 | 22700 | 23000 | 20100 | 45800 | 808 | 7980 |
| 18 | 28900 | 32700 | 20900 | 24100 | 25500 | 22800 | 18000 | 26000 | 24500 | 9350 | 2340 | 8470 |
| 19 | 36000 | 32900 | 21000 | 22500 | 24800 | 26600 | 14800 | 32000 | 26800 | 10800 | 1030 | 9460 |
| 20 | 39600 | 31800 | 23800 | 20800 | 25700 | 23200 | 22500 | 37600 | 27500 | 14600 | 1160 | 11500 |
| 21 | 37600 | 32400 | 27500 | 21900 | 25600 | 23400 | 23000 | 37500 | 31100 | 30500 | 1640 | 13300 |
| 22 | 38200 | 31200 | 25000 | 24600 | 25600 | 23700 | 23200 | 33600 | 34000 | 44200 | 1670 | 14400 |
| 23 | 40800 | 27900 | 25100 | 27600 | 26500 | 24000 | 22800 | 35000 | 41000 | 44300 | 2250 | 15500 |
| 24 | 41000 | 28300 | 25800 | 24000 | 27600 | 24100 | 26000 | 30100 | 43700 | 44700 | 3040 | 16100 |
| 25 | 41400 | 29800 | 24100 | 22900 | 27800 | 21200 | 28100 | 26900 | 44700 | 45600 | 3920 | 16500 |
| 26 | 41500 | 31300 | 23800 | 24000 | 27900 | 22000 | 32000 | 28500 | 43700 | 45400 | 4910 | 19800 |
| 27 | 40700 | 30300 | 22500 | 23900 | 28100 | 22800 | 33100 | 10400 | 44400 | 35300 | 1330 | 20100 |
| 28 | 39900 | 31000 | 22800 | 23500 | 26500 | 15400 | 35100 | 11800 | 46000 | 1960 | 3770 | 21300 |
| 29 | 40400 | 30500 | 23300 | 23600 | --- | 19400 | 33900 | 9500 | 46200 | 1210 | 4490 | 22200 |
| 30 | 40000 | 26500 | 24000 | 24500 | --- | 22000 | 31700 | 1920 | 44400 | 2310 | 6400 | 24200 |
| 31 | 37100 | --- | 23700 | 26100 | --- | 23100 | --- | 2730 | --- | 6040 | 9650 | --- |
| MEAN | 37500 | 34000 | 22500 | 23900 | 24800 | 19900 | 27700 | 19900 | 23800 | 23400 | 5450 | 10200 |

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 28.0 | 19.0 | 15.0 | 9.0 | 6.0 | 8.0 | 22.0 | 27.0 | 30.0 | 31.0 | 36.0 | 20.0 |
| 2 | 26.0 | 13.0 | 11.0 | 10.0 | 5.0 | 13.0 | 21.0 | 19.0 | 27.0 | 29.0 | 25.0 | 28.0 |
| 3 | 23.0 | 10.0 | 10.0 | 10.0 | 7.0 | 11.0 | 19.0 | 24.0 | 22.0 | 27.0 | 28.0 | 19.0 |
| 4 | 25.0 | 18.0 | 14.0 | 7.0 | 5.0 | 10.0 | 13.0 | 24.0 | 28.0 | 31.0 | 28.0 | 18.0 |
| 5 | 21.0 | 19.0 | 13.0 | 4.0 | 6.0 | 15.0 | 14.0 | 23.0 | 26.0 | 26.0 | 24.0 | 26.0 |
| 6 | 26.0 | 19.0 | 12.0 | 9.0 | 14.0 | 16.0 | 15.0 | 24.0 | 30.0 | 25.0 | 31.0 | 24.0 |
| 7 | 20.0 | 20.0 | 14.0 | 8.0 | 12.0 | 14.0 | 22.0 | 19.0 | 24.0 | 29.0 | 27.0 | 20.0 |
| 8 | 26.0 | 16.0 | 4.0 | 10.0 | 6.0 | 5.0 | 22.0 | 29.0 | 31.0 | 27.0 | 28.0 | 20.0 |
| 9 | 23.0 | 15.0 | 8.0 | 11.0 | 6.0 | 14.0 | 25.0 | 20.0 | 32.0 | 23.0 | 25.0 | 26.0 |
| 10 | 21.0 | 17.0 | 9.0 | 5.0 | .0 | 12.0 | 23.0 | 21.0 | 26.0 | 30.0 | 27.0 | 26.0 |
| 11 | 20.0 | 18.0 | 9.0 | 7.0 | 1.0 | 10.0 | 25.0 | 21.0 | 34.0 | 30.0 | 22.0 | 29.0 |
| 12 | 18.0 | 18.0 | 10.0 | 8.0 | 3.0 | 15.0 | 27.0 | 20.0 | 29.0 | 24.0 | 21.0 | 24.0 |
| 13 | 22.0 | 15.0 | 5.0 | 12.0 | 8.0 | 10.0 | 19.0 | 24.0 | 25.0 | 29.0 | 25.0 | 19.0 |
| 14 | 23.0 | 8.0 | 10.0 | 10.0 | 12.0 | 15.0 | 15.0 | 23.0 | 23.0 | 29.0 | 28.0 | 27.0 |
| 15 | 23.0 | 7.0 | 5.0 | 9.0 | 6.0 | 18.0 | 11.0 | 19.0 | 18.0 | 30.0 | 33.0 | 28.0 |
| 16 | 18.0 | 5.0 | 13.0 | 5.0 | 14.0 | 17.0 | 24.0 | 17.0 | 20.0 | 32.0 | 27.0 | 20.0 |
| 17 | 18.0 | --- | 10.0 | 7.0 | 19.0 | 17.0 | 26.0 | 18.0 | 25.0 | 29.0 | 22.0 | 26.0 |
| 18 | 14.0 | 12.0 | 15.0 | 5.0 | 15.0 | 10.0 | 21.0 | 21.0 | 30.0 | 33.0 | 24.0 | 23.0 |
| 19 | 12.0 | 10.0 | 5.0 | 6.0 | 21.0 | 16.0 | 17.0 | 21.0 | 31.0 | 35.0 | 25.0 | 22.0 |
| 20 | 15.0 | 12.0 | 4.0 | 10.0 | 20.0 | 15.0 | 20.0 | 19.0 | 35.0 | 36.0 | 20.0 | 19.0 |
| 21 | 19.0 | 12.0 | 3.0 | 7.0 | 7.0 | 15.0 | 21.0 | 22.0 | 21.0 | 32.0 | 27.0 | 27.0 |
| 22 | 18.0 | 8.0 | 5.0 | 9.0 | 10.0 | 10.0 | 23.0 | 24.0 | 22.0 | 31.0 | 28.0 | 26.0 |
| 23 | 13.0 | 7.0 | 7.0 | 14.0 | 17.0 | 19.0 | 24.0 | 21.0 | 29.0 | 26.0 | 19.0 | 24.0 |
| 24 | 14.0 | 5.0 | 4.0 | 10.0 | 9.0 | 16.0 | 26.0 | 20.0 | 30.0 | 27.0 | 30.0 | 22.0 |
| 25 | 17.0 | --- | 6.0 | 6.0 | 18.0 | 9.0 | 25.0 | 27.0 | 21.0 | 25.0 | 31.0 | 25.0 |
| 26 | 13.0 | 5.0 | 8.0 | 10.0 | 17.0 | 14.0 | 18.0 | 20.0 | 24.0 | 21.0 | 30.0 | 26.0 |
| 27 | 11.0 | 3.0 | 10.0 | 13.0 | 13.0 | 25.0 | 24.0 | 26.0 | 25.0 | 30.0 | 25.0 | 17.0 |
| 28 | 5.0 | 9.0 | 6.0 | 12.0 | 15.0 | 14.0 | 20.0 | 33.0 | 29.0 | 25.0 | 27.0 | 27.0 |
| 29 | 14.0 | 12.0 | 9.0 | 10.0 | --- | 11.0 | 25.0 | 20.0 | 25.0 | 23.0 | 29.0 | 25.0 |
| 30 | 17.0 | 6.0 | 8.0 | 5.0 | --- | 19.0 | 28.0 | 19.0 | 30.0 | 31.0 | 24.0 | 28.0 |
| 31 | 18.0 | --- | 10.0 | 11.0 | --- | 18.0 | --- | 25.0 | --- | 33.0 | 32.0 | --- |
| MEAN | 18.5 | 12.0 | 9.0 | 8.5 | 10.5 | 14.0 | 21.0 | 22.5 | 26.5 | 28.5 | 26.5 | 23.5 |

## 07298100 MACKENZIE RESERVOIR NEAR SILVERTON, TX

LOCATION.--Lat 34°32'43", long 101°26'16", Briscoe County, Hydrologic Unit 11120104, at upstream side of dam on Tule Creek, 0.9 mi (1.4 km) upstream from Rock Creek, 9.5 mi (15.3 km) northwest of Silverton, and 22.7 mi (36.5 km) upstream from mouth.

DRAINAGE AREA.--1,053 mi² (2,727 km²), of which 904 mi² (2,341 km²) probably is noncontributing.

### WATER-DISCHARGE RECORDS

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

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

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

REMARKS.--The reservoir is formed by a rolled earthfill dam 2,100 ft (640 m) long. The dam was completed in August 1974 and storage began in June 1974. The uncontrolled emergency spillway is an open cut channel just beyond the right end of dam. The service spillway is an uncontrolled ogee-type weir across a concrete chute at the right end of dam. A 30-inch (762 mm) gated outlet concrete pipe discharges into a valve vault at the downstream toe of the dam and then into the creek bed downstream. When facilities are completed, water will be used for municipal, industrial, and recreational purposes by the cities of Floydada, Silverton, and Tulia. 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 | 3,127.0 | - |
| Crest of spillway | 3,111.0 | 57,770 |
| Crest of spillway with ogee weir | 3,100.0 | 46,080 |
| Lowest gated outlet (invert) | 2,961.0 | 17 |

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 15,670 acre-ft (19.3 hm³) June 14, 1978, elevation, 3,047.51 ft (928.881 m); minimum, 598 acre-ft (0.737 hm³) Oct. 1, 2, 1974, elevation, 2,980.61 ft (908.490 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 13,880 acre-ft (17.1 hm³) Aug. 20 at 1500 hours, elevation, 3,043.14 ft (927.549 m); minimum, 12,570 acre-ft (15.5 hm³) Aug. 9, 10, elevation, 3,039.73 ft (926.510 m).

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

| | | | |
|---|---|---|---|
| 3,039.0 | 12,300 | 3042.0 | 13,430 |
| 3,040.0 | 12,670 | 3043.0 | 13,820 |
| 3,041.0 | 13,050 | 3044.0 | 14,220 |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 13600 | 13490 | 13400 | 13390 | 13400 | 13330 | 13230 | 13170 | 13020 | 12780 | 12610 | 13780 |
| 2 | 13590 | 13480 | 13400 | 13390 | 13400 | 13320 | 13230 | 13170 | 13020 | 12770 | 12600 | 13780 |
| 3 | 13600 | 13460 | 13400 | 13390 | 13400 | 13320 | 13230 | 13170 | 13010 | 12770 | 12630 | 13780 |
| 4 | 13580 | 13450 | 13400 | 13390 | 13400 | 13310 | 13230 | 13170 | 13010 | 12770 | 12600 | 13770 |
| 5 | 13570 | 13430 | 13400 | 13390 | 13400 | 13310 | 13230 | 13170 | 13010 | 12800 | 12600 | 13770 |
| 6 | 13620 | 13430 | 13400 | 13390 | 13400 | 13310 | 13220 | 13160 | 13000 | 12790 | 12600 | 13770 |
| 7 | 13620 | 13430 | 13400 | 13390 | 13400 | 13310 | 13220 | 13160 | 13000 | 12800 | 12580 | 13770 |
| 8 | 13610 | 13420 | 13400 | 13390 | 13400 | 13300 | 13220 | 13150 | 13000 | 12810 | 12580 | 13770 |
| 9 | 13600 | 13420 | 13400 | 13390 | 13400 | 13300 | 13220 | 13130 | 12980 | 12800 | 12580 | 13760 |
| 10 | 13590 | 13410 | 13400 | 13390 | 13400 | 13300 | 13210 | 13120 | 12970 | 12800 | 12570 | 13760 |
| 11 | 13590 | 13410 | 13400 | 13390 | 13390 | 13290 | 13210 | 13100 | 12960 | 12780 | 12640 | 13760 |
| 12 | 13580 | 13410 | 13400 | 13390 | 13390 | 13290 | 13210 | 13080 | 12950 | 12770 | 12840 | 13760 |
| 13 | 13570 | 13410 | 13400 | 13390 | 13390 | 13280 | 13210 | 13080 | 12940 | 12760 | 12890 | 13760 |
| 14 | 13570 | 13400 | 13400 | 13390 | 13380 | 13280 | 13210 | 13080 | 12930 | 12750 | 12880 | 13750 |
| 15 | 13570 | 13400 | 13400 | 13390 | 13380 | 13280 | 13200 | 13070 | 12920 | 12740 | 12900 | 13750 |
| 16 | 13630 | 13400 | 13400 | 13390 | 13380 | 13270 | 13200 | 13070 | 12910 | 12740 | 12890 | 13750 |
| 17 | 13650 | 13400 | 13400 | 13390 | 13370 | 13270 | 13200 | 13070 | 12880 | 12740 | 13760 | 13740 |
| 18 | 13650 | 13400 | 13400 | 13390 | 13370 | 13260 | 13200 | 13070 | 12870 | 12730 | 13830 | 13740 |
| 19 | 13650 | 13390 | 13400 | 13390 | 13360 | 13260 | 13200 | 13060 | 12850 | 12730 | 13850 | 13740 |
| 20 | 13650 | 13390 | 13400 | 13390 | 13360 | 13260 | 13200 | 13060 | 12850 | 12720 | 13860 | 13740 |
| 21 | 13650 | 13390 | 13400 | 13390 | 13360 | 13250 | 13190 | 13050 | 12850 | 12720 | 13860 | 13740 |
| 22 | 13620 | 13390 | 13400 | 13390 | 13350 | 13250 | 13190 | 13050 | 12850 | 12710 | 13850 | 13730 |
| 23 | 13610 | 13390 | 13400 | 13390 | 13350 | 13250 | 13190 | 13050 | 12830 | 12680 | 13840 | 13720 |
| 24 | 13600 | 13390 | 13400 | 13390 | 13350 | 13240 | 13190 | 13050 | 12810 | 12640 | 13830 | 13720 |
| 25 | 13590 | 13390 | 13400 | 13390 | 13340 | 13240 | 13180 | 13040 | 12800 | 12630 | 13830 | 13720 |
| 26 | 13570 | 13390 | 13400 | 13390 | 13340 | 13240 | 13180 | 13040 | 12800 | 12620 | 13810 | 13720 |
| 27 | 13560 | 13390 | 13400 | 13390 | 13330 | 13240 | 13180 | 13030 | 12800 | 12610 | 13830 | 13710 |
| 28 | 13540 | 13390 | 13400 | 13390 | 13330 | 13230 | 13180 | 13030 | 12790 | 12610 | 13810 | 13710 |
| 29 | 13530 | 13390 | 13400 | 13400 | --- | 13230 | 13180 | 13030 | 12780 | 12620 | 13810 | 13700 |
| 30 | 13520 | 13390 | 13400 | 13400 | --- | 13230 | 13170 | 13030 | 12780 | 12620 | 13800 | 13690 |
| 31 | 13500 | --- | 13390 | 13400 | --- | 13230 | --- | 13020 | --- | 12620 | 13790 | --- |
| MAX | 13650 | 13490 | 13400 | 13400 | 13400 | 13330 | 13230 | 13170 | 13020 | 12810 | 13860 | 13780 |
| MIN | 13500 | 13390 | 13390 | 13390 | 13330 | 13230 | 13170 | 13020 | 12780 | 12610 | 12570 | 13690 |
| (†) | 3042.18 | 3041.90 | 3041.90 | 3041.91 | 3041.74 | 3041.48 | 3041.33 | 3040.94 | 3040.30 | 3039.86 | 3042.92 | 3042.67 |
| (‡) | -110 | -110 | 0 | +10 | -70 | -100 | -60 | -150 | -240 | -170 | +1180 | -100 |

CAL YR 1980 MAX 14640 MIN 13390 † -1180
WTR YR 1981 MAX 13860 MIN 12570 ‡ +80

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.

07298100 MACKENZIE RESERVOIR NEAR SILVERTON, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SPECIFIC CONDUCTANCE (UMHOS) | TEMPERATURE (DEG C) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | |
| 12... | 1320 | 527 | 8.0 | 170 | 0 | 42 | 15 | 42 |
| JUL | | | | | | | | |
| 28... | 1325 | 526 | -- | 160 | 0 | 36 | 17 | 46 |

| DATE | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | |
| 12... | 1.4 | 10 | 170 | 86 | 12 | 1.2 | .5 | 311 |
| JUL | | | | | | | | |
| 28... | 1.7 | 15 | 170 | 95 | 14 | 1.4 | 1.5 | 328 |

## 07298200 TULE CREEK NEAR SILVERTON, TX

LOCATION.--Lat 34°32'36", long 101°25'46", Briscoe County, Hydrologic Unit 11120104, on downstream side of bridge on State Highway 207, 0.1 mi (0.2 km) downstream from Rock Creek, 1.0 mi (1.6 km) downstream from MacKenzie Dam, 8.8 mi (14.2 km) northwest of Silverton, 17.7 mi (28.5 km) downstream from South Tule Draw, and 21.7 mi (34.9 km) upstream from mouth.

DRAINAGE AREA.--1,150 mi² (2,980 km²), of which 960 mi² (2,490 km²) probably is noncontributing.

PERIOD OF RECORD.--July 1964 to current year.
Water-quality records: Chemical analyses: October 1967 to September 1975. Water temperatures: October 1967 to September 1969.

REVISED RECORDS.--WDR TX 80-1: 1979.

GAGE.--Water-stage recorder. Datum of gage is 2,852.44 ft (869.424 m) State Department of Highways and Public Transportation datum.

REMARKS.--Records poor. Since June 1974, flow is regulated by MacKenzie Reservoir 1.0 mi (1.6 km) upstream. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--9 years (water years 1965-73) prior to completion of MacKenzie Dam, 9.24 ft³/s (0.262 m³/s), 6,690 acre-ft/yr (8.25 hm³/yr); 8 years (water years 1974-81) regulated, 2.02 ft³/s (0.057 m³/s), 1,460 acre-ft/yr (1.80 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,800 ft³/s (362 m³/s) May 20, 1977, gage height, 14.5 ft (4.42 m), from floodmarks; no flow for many days each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1890, occurred in 1892 (stage and discharge unknown); second highest stage occurred September 1926 (stage and discharge unknown); third highest stage occurred May 10, 1934, gage height, 20.3 ft (6.19 m), discharge unknown, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 803 ft³/s (22.7 m³/s) Aug. 12 at 1745 hours, gage height, 5.15 ft (1.570 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .70 | .03 | .36 | .00 | 1.2 | .00 | .01 | .00 | .00 |
| 2 | .00 | .00 | .00 | .70 | .01 | .20 | .00 | .00 | .80 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .60 | .04 | .47 | .00 | .00 | .30 | .00 | 3.6 | .00 |
| 4 | .00 | .00 | .00 | .50 | .11 | .37 | .00 | .00 | .00 | 9.1 | .00 | 3.9 |
| 5 | .00 | .00 | 22 | .40 | .12 | .04 | .00 | .00 | .00 | 22 | .00 | .02 |
| 6 | .00 | .00 | 39 | .35 | .12 | .13 | .00 | .00 | .00 | .11 | .00 | .00 |
| 7 | .00 | .00 | 6.8 | .30 | .18 | .91 | .00 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | 4.1 | .25 | .11 | .27 | .00 | .00 | .00 | 2.6 | .00 | .00 |
| 9 | .00 | .00 | 2.6 | .20 | .18 | .00 | .00 | .00 | .00 | .01 | .00 | .00 |
| 10 | .00 | .00 | 2.1 | .11 | .20 | .00 | 1.0 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | 1.9 | .12 | .00 | .50 | .20 | .00 | .00 | .00 | 16 | .00 |
| 12 | .00 | .00 | 1.6 | .08 | .00 | .80 | .00 | .00 | .00 | .00 | 59 | .00 |
| 13 | .00 | .00 | 1.4 | .19 | .00 | .36 | .82 | .00 | .00 | .00 | 16 | .00 |
| 14 | .00 | .00 | 1.3 | .04 | .06 | .43 | .11 | .00 | .00 | .00 | 4.1 | .00 |
| 15 | .00 | .00 | 1.3 | .03 | .15 | .00 | 2.5 | .00 | .00 | .00 | .05 | .00 |
| 16 | .45 | .00 | 1.3 | .03 | .13 | .00 | 1.6 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | 1.2 | .04 | .10 | .00 | .10 | .00 | .00 | .00 | 85 | .00 |
| 18 | .00 | .00 | 1.2 | .45 | .03 | .00 | 3.0 | .00 | .00 | .00 | 1.0 | .00 |
| 19 | .00 | .00 | 1.1 | .64 | .02 | .00 | .40 | .00 | .00 | .61 | .02 | .00 |
| 20 | .00 | .00 | 1.1 | .25 | .03 | .00 | .02 | .00 | .00 | .01 | .00 | .00 |
| 21 | .00 | .00 | 1.1 | .10 | .02 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 22 | .00 | .00 | 1.0 | .04 | .01 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | 1.0 | .09 | .01 | .00 | .00 | .00 | 4.0 | .00 | .00 | .00 |
| 24 | .00 | .00 | 1.0 | .14 | .02 | .00 | .00 | .00 | .06 | .00 | .00 | .00 |
| 25 | .00 | .00 | .90 | .08 | .01 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 26 | .00 | .00 | .90 | .05 | .01 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | .90 | .05 | .06 | .00 | .17 | .00 | .00 | .00 | .00 | .00 |
| 28 | .00 | .00 | .80 | .06 | .60 | .72 | .05 | .52 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | .80 | .04 | --- | .00 | .00 | .27 | .00 | 3.0 | .00 | .00 |
| 30 | .00 | .00 | .80 | .01 | --- | .00 | .00 | 1.2 | 1.9 | .00 | .00 | .00 |
| 31 | .00 | --- | .80 | .10 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | .45 | .00 | 100.00 | 6.74 | 2.36 | 5.56 | 9.97 | 3.19 | 7.06 | 37.45 | 184.77 | 3.92 |
| MEAN | .015 | .000 | 3.23 | .22 | .084 | .18 | .33 | .10 | .24 | 1.21 | 5.96 | .13 |
| MAX | .45 | .00 | 39 | .70 | .60 | .91 | 3.0 | 1.2 | 4.0 | 22 | 85 | 3.9 |
| MIN | .00 | .00 | .00 | .01 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | .9 | .00 | 198 | 13 | 4.7 | 11 | 20 | 6.3 | 14 | 74 | 366 | 7.8 |

CAL YR 1980 TOTAL 294.53 MEAN .80 MAX 70 MIN .00 AC-FT 584
WTR YR 1981 TOTAL 361.47 MEAN .99 MAX 85 MIN .00 AC-FT 717

## 07299300 LITTLE RED RIVER NEAR TURKEY, TX

LOCATION.--Lat 34°32'27", long 100°46'13", Hall County, Hydrologic Unit 11120105, on left bank at downstream side of bridge on Farm Road 657, 10 mi (16 km) upstream from mouth, and 14.5 mi (23.3 km) northeast of Turkey.

DRAINAGE AREA.--139 $mi^2$ (360 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1968 to September 1981 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 1,925.39 ft (586.859 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair. No diversion above station.

AVERAGE DISCHARGE.--13 years (water years 1969-81), 11.0 $ft^3/s$ (0.312 $m^3/s$), 1.07 in/yr (27 mm/yr), 7,970 acre-ft/yr (9.83 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,880 $ft^3/s$ (110 $m^3/s$) Mar. 18, 1979, gage height, 12.57 ft (3.831 m); maximum gage height, 13.48 ft (4.109 m) Aug. 29, 1968, from floodmarks, from rating curve extended above 620 $ft^3/s$ (17.6 $m^3/s$) on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,910 $ft^3/s$ (82.4 $m^3/s$) May 29 (time unknown), gage height, 11.53 ft (3.514 m), from floodmark, no other peak above base of 1,500 $ft^3/s$ (42.5 $m^3/s$); no flow Apr. 4-9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .10 | .04 | .15 | .50 | .06 | .23 | .03 | 99 | 4.3 | .17 | .27 | .24 |
| 2 | .15 | .04 | .15 | .49 | .04 | .23 | .02 | 28 | 31 | .14 | .28 | .21 |
| 3 | .02 | .15 | .15 | .64 | .02 | .80 | .02 | 3.0 | 172 | .19 | .27 | .19 |
| 4 | .15 | .06 | .15 | .51 | .02 | 1.3 | .00 | .92 | 50 | .32 | .23 | 293 |
| 5 | .15 | .10 | .15 | .51 | .02 | .64 | .00 | .25 | 11 | 3.0 | .16 | 36 |
| 6 | .15 | .10 | .15 | .51 | .04 | .40 | .00 | .19 | 6.4 | .38 | .12 | 20 |
| 7 | .10 | .10 | .15 | .40 | .04 | 2.6 | .00 | .41 | 4.5 | .09 | .20 | 5.3 |
| 8 | .04 | .10 | 26 | .40 | .02 | 2.1 | .00 | .47 | 2.3 | .14 | .14 | 4.0 |
| 9 | .04 | .10 | 7.0 | .34 | .10 | 1.6 | .00 | .12 | 1.1 | .13 | .15 | 1.8 |
| 10 | .02 | .10 | 1.6 | .28 | .15 | 1.3 | 2.9 | .04 | .23 | .12 | .15 | 1.6 |
| 11 | .04 | .06 | 1.4 | .28 | .10 | 1.3 | 27 | .05 | .19 | .13 | 96 | 1.6 |
| 12 | .04 | .06 | 1.3 | .40 | .10 | 1.3 | 4.1 | .03 | .19 | .12 | 113 | 1.3 |
| 13 | .04 | .06 | 1.3 | .34 | .10 | 1.1 | 3.0 | .04 | .15 | .17 | 243 | .54 |
| 14 | .04 | .06 | 1.3 | .28 | .10 | 1.3 | 26 | .07 | .09 | .16 | 16 | .37 |
| 15 | .04 | .04 | 1.3 | .23 | .10 | 3.5 | 5.0 | .06 | .27 | .12 | 2.7 | .32 |
| 16 | 3.3 | .23 | 1.1 | .19 | .06 | 2.9 | 6.3 | .09 | .15 | .14 | 1.8 | .28 |
| 17 | 4.1 | .40 | .94 | .19 | .06 | 2.1 | 3.5 | .05 | .10 | .11 | 18 | .28 |
| 18 | .19 | 2.4 | .94 | .23 | .04 | 1.1 | 133 | .05 | .10 | .08 | 8.7 | .28 |
| 19 | .19 | .15 | 1.1 | .40 | .04 | .64 | 68 | .03 | .10 | .09 | 2.4 | .30 |
| 20 | .19 | .19 | 1.1 | .94 | .04 | .51 | 14 | .05 | .06 | .10 | .92 | .28 |
| 21 | .10 | .19 | 1.1 | .34 | .02 | .34 | 6.7 | .07 | .10 | 17 | .74 | .27 |
| 22 | .06 | .19 | 1.1 | .28 | .01 | .28 | 4.9 | .11 | .06 | .69 | .62 | .23 |
| 23 | .06 | .19 | 1.1 | .28 | .02 | .23 | 2.6 | .05 | .04 | .13 | .58 | .22 |
| 24 | .06 | .15 | 1.1 | .23 | .02 | .19 | 1.7 | .06 | .06 | .09 | 27 | .33 |
| 25 | .04 | .15 | 1.3 | .15 | .02 | .19 | 1.2 | .10 | .09 | .09 | .90 | .24 |
| 26 | .04 | .15 | 1.1 | .15 | .02 | .20 | 1.3 | .01 | .10 | .08 | .51 | .22 |
| 27 | .02 | .15 | 1.1 | .15 | .02 | .22 | 1.2 | 13 | .09 | .08 | 4.1 | .23 |
| 28 | .02 | .15 | 1.1 | .15 | .10 | .20 | 1.5 | 26 | .08 | .79 | .80 | .22 |
| 29 | .04 | .15 | .94 | .10 | --- | .18 | 1.6 | 1370 | .12 | 25 | .54 | .23 |
| 30 | .04 | .15 | .80 | .06 | --- | .14 | 1.2 | 517 | .37 | 1.5 | .29 | .23 |
| 31 | .04 | --- | .90 | .15 | --- | .04 | --- | 188 | --- | .32 | .26 | --- |
| TOTAL | 9.61 | 6.16 | 59.07 | 10.10 | 1.48 | 29.16 | 316.77 | 2247.32 | 285.34 | 51.67 | 540.83 | 370.31 |
| MEAN | .31 | .21 | 1.91 | .33 | .053 | .94 | 10.6 | 72.5 | 9.51 | 1.67 | 17.4 | 12.3 |
| MAX | 4.1 | 2.4 | 26 | .94 | .15 | 3.5 | 133 | 1370 | 172 | 25 | 243 | 293 |
| MIN | .02 | .04 | .15 | .06 | .01 | .04 | .00 | .01 | .04 | .08 | .12 | .19 |
| CFSM | .002 | .002 | .01 | .002 | .000 | .007 | .08 | .52 | .07 | .01 | .13 | .09 |
| IN. | .00 | .00 | .02 | .00 | .00 | .01 | .08 | .60 | .08 | .01 | .14 | .10 |
| AC-FT | 19 | 12 | 117 | 20 | 2.9 | 58 | 628 | 4460 | 566 | 102 | 1070 | 735 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 874.51 | MEAN | 2.39 | MAX | 353 | MIN | .00 | CFSM | .02 | IN | .23 | AC-FT 1730 |
| WTR YR 1981 | TOTAL | 3927.82 | MEAN | 10.8 | MAX | 1370 | MIN | .00 | CFSM | .08 | IN | 1.05 | AC-FT 7790 |

07299300 LITTLE RED RIVER NEAR TURKEY, TX--Continued

WATER-QUALITY RCORDS

PERIOD OF RECORD.--Chemical analyses: July 1968 to September 1981 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1968 to September 1981 (discontinued).
WATER TEMPERATURES: July 1968 to September 1981 (discontinued).
SUSPENDED SEDIMENT DISCHRGE: February 1979 to September 1981 (discontinued).

INSTRUMENTATION.--Continuous recording of specific conductance was discontinued on September 1979.

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, 126,000 micromhos Feb. 21, 1978; minimum daily, 4,100 micromhos Sept. 3, 1979.
WATER TEMPERATURES: Maximum daily, 36.0°C July 23, 1969, and July 1, 6, 17, 23, 1981; minimum daily, 0.0°C on several days during winter months.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 34,000 mg/L June 24, 1979; minimum daily mean, 5 mg/L Feb. 14, Apr. 7, 1979, Jan. 28, 1980.
SEDIMENT LOADS: Maximum daily, 64,500 tons May 29, 1981; minimum daily, 0.0 tons on many days.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 98,200 micromhos Apr. 16; minimum daily, 9,500 micromhos Aug. 17.
WATER TEMPERATURES: Maximum daily, 36.0°C July 1, 6, 17, 23; minimum daily, 3.0°C Dec. 25.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 16,000 mg/L Aug. 13; minimum daily mean, 11 mg/L Feb. 11.
SEDIMENT LOADS: Maximum daily, 64,500 tons May 29; minimum daily, 0.00 tons on many days during year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | TEMPER-ATURE (DEG C) | SEDI-MENT, SUS-PENDED (MG/L) | SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) | SED. SUSP. FALL DIAM. % FINER THAN .002 MM | SED. SUSP. FALL DIAM. % FINER THAN .004 MM |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 07... | 1420 | .11 | 26.5 | 55 | .02 | -- | -- |
| DEC | | | | | | | |
| 30... | 1735 | .74 | 13.0 | 46 | .09 | -- | -- |
| FEB | | | | | | | |
| 12... | 1000 | .02 | 2.5 | 147 | .01 | -- | -- |
| APR | | | | | | | |
| 18... | 1711 | 998 | 21.0 | 33600 | 90500 | 12 | 26 |
| MAY | | | | | | | |
| 30... | 1545 | 310 | 23.0 | 11600 | 9710 | 37 | 51 |
| JUN | | | | | | | |
| 17... | 1000 | .11 | 26.0 | 25 | .01 | -- | -- |
| AUG | | | | | | | |
| 11... | 1713 | 193 | 26.0 | 5940 | 3100 | 67 | 83 |
| SEP | | | | | | | |
| 04... | 0735 | 880 | 27.0 | 10700 | 25400 | 53 | 75 |

| DATE | SED. SUSP. FALL DIAM. % FINER THAN .008 MM | SED. SUSP. FALL DIAM. % FINER THAN .016 MM | SED. SUSP. FALL DIAM. % FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM |
|---|---|---|---|---|---|---|
| OCT | | | | | | |
| 07... | -- | -- | -- | 58 | -- | -- |
| DEC | | | | | | |
| 30... | -- | -- | -- | 98 | -- | -- |
| FEB | | | | | | |
| 12... | -- | -- | -- | 84 | -- | -- |
| APR | | | | | | |
| 18... | 50 | 69 | 87 | 98 | 99 | 100 |
| MAY | | | | | | |
| 30... | 71 | 91 | 97 | 99 | 100 | -- |
| JUN | | | | | | |
| 17... | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | |
| 11... | 99 | 99 | 100 | 100 | -- | -- |
| SEP | | | | | | |
| 04... | 94 | 97 | 98 | 98 | 99 | 100 |

07299300 LITTLE RED RIVER NEAR TURKEY, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 68600 | 50700 | 52300 | --- | 49300 | --- | 54800 | --- | --- | 48500 | 41500 | 47400 |
| 2 | 63300 | 50700 | 52300 | 49000 | 49900 | 49500 | 54900 | 25000 | 15100 | 49900 | --- | 48000 |
| 3 | 62400 | 50600 | 50900 | 49600 | 49400 | 50200 | 54700 | 33600 | 14900 | 46800 | 44500 | --- |
| 4 | 60100 | 50800 | 50400 | 49600 | 49400 | 50200 | --- | 39300 | 22100 | 46700 | 46900 | 18100 |
| 5 | --- | 50200 | 49200 | 49200 | 49200 | 50200 | --- | 43300 | 31500 | --- | 46800 | 20100 |
| 6 | 55200 | 50900 | 49200 | 49200 | 48900 | 50300 | --- | 44800 | 32500 | 47200 | 49200 | --- |
| 7 | 53900 | 51000 | 49200 | 49200 | 49300 | 46600 | --- | 46800 | 40200 | 48600 | 49400 | 44100 |
| 8 | 54400 | 50700 | 72000 | 49100 | --- | --- | --- | 47600 | 43300 | 48100 | 51900 | 53500 |
| 9 | 54200 | 50800 | 61200 | 48900 | 48900 | 49000 | --- | 50300 | 44700 | 48100 | --- | 48600 |
| 10 | 54500 | 51200 | 61300 | 48800 | 46700 | 48800 | --- | 51900 | 45000 | 49800 | 52000 | 48500 |
| 11 | 53200 | 50100 | 51300 | 48900 | 46800 | 48700 | 75400 | 53600 | 46600 | 51400 | 23700 | 43900 |
| 12 | 53300 | 50100 | 51200 | 48900 | --- | 48600 | 69800 | 53200 | 47700 | 52100 | 23700 | 43800 |
| 13 | 53600 | 50100 | 51200 | 48800 | 49500 | 49100 | 54300 | 54200 | 50400 | 53500 | 15800 | --- |
| 14 | 54200 | 50100 | 51300 | 48800 | 47000 | 47500 | 87700 | 54000 | 50400 | 54000 | 28900 | 44500 |
| 15 | 54100 | 50300 | 51100 | 48800 | 48700 | 47500 | 98000 | 53700 | 44700 | 54300 | 28900 | 45800 |
| 16 | 54000 | 45800 | 49900 | 48800 | 48900 | 49200 | 98200 | 53500 | 43500 | 54500 | --- | 46900 |
| 17 | 45500 | 43700 | 49800 | 47600 | 49300 | 51000 | --- | --- | 48600 | 55100 | 9500 | 46900 |
| 18 | 45300 | 77900 | 50900 | 47600 | 49800 | 52400 | 28900 | 55500 | 48700 | 55300 | 53200 | 47500 |
| 19 | 49300 | 77900 | 50800 | 47900 | 51200 | 52500 | 24500 | 56200 | 49200 | 56100 | 38500 | 48000 |
| 20 | 49400 | 71600 | 48300 | 47900 | 51300 | 52500 | 33200 | 54900 | 50900 | 55100 | 42100 | --- |
| 21 | 50600 | 66300 | 48400 | 48200 | 51100 | --- | 37400 | 55500 | --- | 28900 | 46700 | 49700 |
| 22 | 51200 | 61100 | 48300 | 48100 | 51300 | 52500 | 39500 | 57200 | 51800 | 28700 | 47000 | 49700 |
| 23 | 52400 | 61100 | 48300 | 48100 | 52200 | 52200 | 45600 | 56100 | 52800 | 33900 | --- | 47700 |
| 24 | 51900 | 66500 | 49000 | 49100 | 52200 | --- | 45600 | --- | 53100 | 41300 | 19200 | 47700 |
| 25 | 51100 | 51000 | 49000 | 49000 | 52200 | 52700 | 47300 | 23700 | 53800 | 41400 | 37000 | 48400 |
| 26 | 51200 | 50900 | 48800 | 49200 | 51000 | 52800 | 48700 | 35500 | 53200 | --- | 37000 | 48300 |
| 27 | 51100 | 50500 | 48800 | 49100 | 51000 | 53200 | 49700 | 18100 | 53300 | 45500 | 19400 | --- |
| 28 | 52000 | 50500 | 48700 | 49200 | 49500 | 52800 | 50400 | 21800 | --- | 29300 | 35800 | 50200 |
| 29 | 51500 | 51300 | 48800 | 49200 | --- | 53000 | 51500 | --- | 54600 | 25100 | 35700 | 50200 |
| 30 | 51100 | 51300 | 48400 | 49200 | --- | 54100 | 52400 | 45900 | 45100 | 32500 | --- | 50300 |
| 31 | 51000 | --- | 48900 | 48900 | --- | 54900 | --- | 23800 | --- | 41300 | 46900 | --- |
| MEAN | 53500 | 54500 | 51300 | 48800 | 49800 | 50800 | 54700 | 44800 | 44000 | 45600 | 37400 | 45500 |

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | 18.0 | 19.0 | 16.0 | 9.0 | --- | 25.0 | --- | --- | 36.0 | 32.0 | 28.0 |
| 2 | --- | 18.0 | 11.0 | 14.0 | 12.0 | 14.0 | 22.0 | 27.0 | 27.0 | 33.0 | --- | 29.0 |
| 3 | --- | 15.0 | 13.0 | 17.0 | 4.0 | 13.0 | 21.0 | 31.0 | 27.0 | 30.0 | 30.0 | --- |
| 4 | --- | 17.0 | 19.0 | 13.0 | 7.0 | 16.0 | --- | 27.0 | 27.0 | 28.0 | 30.0 | 27.0 |
| 5 | --- | 17.0 | 19.0 | 16.0 | 5.0 | 19.0 | --- | 30.0 | 28.0 | --- | 31.0 | 27.0 |
| 6 | --- | 18.0 | 19.0 | 13.0 | 6.0 | 17.0 | --- | 30.0 | 29.0 | 36.0 | 31.0 | --- |
| 7 | --- | 19.0 | 18.0 | 12.0 | 9.0 | 16.0 | --- | 24.0 | 28.0 | 30.0 | 25.0 | 25.0 |
| 8 | --- | 19.0 | 6.0 | 14.0 | --- | --- | --- | 31.0 | 29.0 | 28.0 | 29.0 | 26.0 |
| 9 | --- | 18.0 | 9.0 | 19.0 | 7.0 | 21.0 | --- | 23.0 | 30.0 | 25.0 | --- | 25.0 |
| 10 | --- | --- | 14.0 | 9.0 | 4.0 | 18.0 | --- | 26.0 | 29.0 | 34.0 | 30.0 | 26.0 |
| 11 | --- | --- | 15.0 | 13.0 | 7.0 | 19.0 | --- | 23.0 | 27.0 | 33.0 | 26.0 | 25.0 |
| 12 | --- | --- | 14.0 | 14.0 | --- | 18.0 | 29.0 | 30.0 | 30.0 | 32.0 | 25.0 | 22.0 |
| 13 | --- | --- | 9.0 | 17.0 | 11.0 | 23.0 | 21.0 | 26.0 | 29.0 | 34.0 | 28.0 | --- |
| 14 | --- | --- | 13.0 | 15.0 | 5.0 | 19.0 | 18.0 | 29.0 | 28.0 | 35.0 | 28.0 | 27.0 |
| 15 | --- | --- | 15.0 | 17.0 | 14.0 | 14.0 | 14.0 | 24.0 | 22.0 | 31.0 | 29.0 | 23.0 |
| 16 | --- | --- | 16.0 | 8.0 | 8.0 | 22.0 | 24.0 | 25.0 | 25.0 | 32.0 | --- | 20.0 |
| 17 | --- | --- | 18.0 | 6.0 | 14.0 | 15.0 | --- | --- | 27.0 | 36.0 | --- | 18.0 |
| 18 | --- | --- | 11.0 | 10.0 | 16.0 | 17.5 | 21.0 | 26.0 | 26.0 | 34.0 | 32.0 | 24.0 |
| 19 | --- | --- | 10.0 | 8.0 | 19.0 | 21.0 | 25.0 | 26.0 | 30.0 | 34.0 | 31.0 | 22.0 |
| 20 | 17.0 | 13.0 | 11.0 | 6.0 | 20.0 | 18.0 | 26.0 | 22.0 | 28.0 | 32.0 | 34.0 | --- |
| 21 | 22.0 | 14.0 | 8.0 | 6.0 | 19.0 | --- | 23.0 | 25.0 | --- | 29.0 | 31.0 | 24.0 |
| 22 | 19.0 | 13.0 | 11.0 | 7.0 | 14.0 | 16.0 | --- | 26.0 | 34.0 | 33.0 | 29.0 | 24.0 |
| 23 | 14.0 | 13.0 | --- | 10.0 | 18.0 | 20.0 | 24.0 | 29.0 | 32.0 | 36.0 | --- | 26.0 |
| 24 | --- | 11.0 | 5.0 | 16.0 | 21.0 | --- | 26.0 | --- | 28.0 | 34.0 | 33.0 | 25.0 |
| 25 | --- | 10.0 | 3.0 | 13.0 | 22.0 | 21.0 | 26.0 | 33.0 | 31.0 | 34.0 | 32.0 | 25.0 |
| 26 | --- | 8.0 | 16.0 | 17.0 | 21.0 | 22.0 | 28.0 | 30.0 | 31.0 | --- | 31.0 | 22.0 |
| 27 | --- | 7.0 | 14.0 | 15.0 | 18.0 | 23.0 | 29.0 | 30.0 | 33.0 | 32.0 | 32.0 | --- |
| 28 | --- | 13.0 | 15.0 | 16.0 | 16.0 | 18.0 | 29.0 | 32.0 | --- | 27.0 | 30.0 | 25.0 |
| 29 | --- | 15.0 | 16.0 | 18.0 | --- | 21.0 | 30.0 | --- | 33.0 | 31.0 | 28.0 | 25.0 |
| 30 | --- | 18.0 | 8.0 | 7.0 | --- | 23.0 | 30.0 | 23.0 | 31.0 | 32.0 | --- | 26.0 |
| 31 | 17.0 | --- | 9.0 | 6.0 | --- | 23.0 | --- | 28.0 | --- | 32.0 | 34.0 | --- |
| MEAN | 18.0 | 14.5 | 13.0 | 12.5 | 12.5 | 19.0 | 24.5 | 27.5 | 29.0 | 32.0 | 30.0 | 24.5 |

07299300 LITTLE RED RIVER NEAR TURKEY, TX--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | |
| 1 | .10 | 45 | .01 | .04 | 60 | .00 | .15 | 21 | .00 |
| 2 | .15 | 48 | .02 | .04 | 51 | .00 | .15 | 34 | .01 |
| 3 | .02 | 41 | .00 | .15 | 27 | .01 | .15 | 51 | .02 |
| 4 | .15 | 36 | .01 | .06 | 55 | .00 | .15 | 76 | .03 |
| 5 | .15 | 37 | .01 | .10 | 35 | .00 | .15 | 100 | .04 |
| 6 | .15 | 38 | .02 | .10 | 92 | .02 | .15 | 55 | .02 |
| 7 | .10 | 37 | .00 | .10 | 87 | .02 | .15 | 33 | .01 |
| 8 | .04 | 53 | .00 | .10 | 63 | .02 | 26 | 591 | 45 |
| 9 | .04 | 40 | .00 | .10 | 65 | .02 | 7.0 | 292 | 6.6 |
| 10 | .02 | 45 | .00 | .10 | 71 | .02 | 1.6 | 200 | .86 |
| 11 | .04 | 49 | .00 | .06 | 67 | .01 | 1.4 | 275 | 1.0 |
| 12 | .04 | 90 | .00 | .06 | 49 | .00 | 1.3 | 180 | .63 |
| 13 | .04 | 51 | .00 | .06 | 62 | .01 | 1.3 | 96 | .34 |
| 14 | .04 | 30 | .00 | .06 | 60 | .00 | 1.3 | 94 | .33 |
| 15 | .04 | 90 | .00 | .04 | 59 | .00 | 1.3 | 109 | .38 |
| 16 | 3.3 | 75 | .71 | .23 | 91 | .06 | 1.1 | 145 | .43 |
| 17 | 4.1 | 58 | .98 | .40 | 51 | .06 | .94 | 105 | .27 |
| 18 | .19 | 19 | .00 | 2.4 | 51 | .59 | .94 | 33 | .08 |
| 19 | .19 | 24 | .01 | .15 | 16 | .00 | 1.1 | 77 | .23 |
| 20 | .19 | 101 | .05 | .19 | 36 | .02 | 1.1 | 53 | .16 |
| 21 | .10 | 41 | .01 | .19 | 46 | .02 | 1.1 | 90 | .27 |
| 22 | .06 | 33 | .00 | .19 | 46 | .02 | 1.1 | 86 | .26 |
| 23 | .06 | 47 | .00 | .19 | 39 | .02 | 1.1 | 105 | .31 |
| 24 | .06 | 47 | .00 | .15 | 57 | .02 | 1.1 | 85 | .25 |
| 25 | .04 | 45 | .00 | .15 | 58 | .02 | 1.3 | 37 | .13 |
| 26 | .04 | 38 | .00 | .15 | 61 | .02 | 1.1 | 116 | .34 |
| 27 | .02 | 28 | .00 | .15 | 44 | .02 | 1.1 | 110 | .33 |
| 28 | .02 | 35 | .00 | .15 | 43 | .02 | 1.1 | 64 | .19 |
| 29 | .04 | 46 | .00 | .15 | 66 | .03 | .94 | 50 | .13 |
| 30 | .04 | 63 | .00 | .15 | 57 | .02 | .80 | 45 | .10 |
| 31 | .04 | 55 | .00 | --- | --- | --- | .90 | 72 | .17 |
| TOTAL | 9.61 | --- | 1.83 | 6.16 | --- | 1.07 | 59.07 | --- | 58.92 |

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---|---|---|---|---|---|---|---|---|---|
| | | JANUARY | | | FEBRUARY | | | MARCH | |
| 1 | .50 | 75 | .10 | .06 | 47 | .00 | .23 | 31 | .02 |
| 2 | .49 | 55 | .07 | .04 | 30 | .00 | .23 | 22 | .01 |
| 3 | .64 | 99 | .17 | .02 | 74 | .00 | .80 | 29 | .06 |
| 4 | .51 | 90 | .12 | .02 | 15 | .00 | 1.3 | 37 | .13 |
| 5 | .51 | 90 | .12 | .02 | 31 | .00 | .64 | 22 | .04 |
| 6 | .51 | 74 | .10 | .04 | 20 | .00 | .40 | 21 | .02 |
| 7 | .40 | 88 | .10 | .04 | 61 | .00 | 2.6 | 14 | .10 |
| 8 | .40 | 93 | .10 | .02 | 77 | .00 | 2.1 | 23 | .13 |
| 9 | .34 | 53 | .05 | .10 | 69 | .02 | 1.6 | 32 | .14 |
| 10 | .28 | 84 | .06 | .15 | 38 | .02 | 1.3 | 24 | .08 |
| 11 | .28 | 41 | .03 | .10 | 11 | .00 | 1.3 | 52 | .18 |
| 12 | .40 | 46 | .05 | .10 | 20 | .00 | 1.3 | 23 | .08 |
| 13 | .34 | 68 | .06 | .10 | 56 | .02 | 1.1 | 35 | .10 |
| 14 | .28 | 48 | .04 | .10 | 28 | .00 | 1.3 | 14 | .05 |
| 15 | .23 | 54 | .03 | .10 | 66 | .02 | 3.5 | 17 | .16 |
| 16 | .19 | 84 | .04 | .06 | 41 | .00 | 2.9 | 46 | .36 |
| 17 | .19 | 22 | .01 | .06 | 45 | .00 | 2.1 | 59 | .33 |
| 18 | .23 | 44 | .03 | .04 | 48 | .00 | 1.1 | 88 | .26 |
| 19 | .40 | 58 | .06 | .04 | 23 | .00 | .64 | 20 | .03 |
| 20 | .94 | 16 | .04 | .04 | 71 | .00 | .51 | 25 | .03 |
| 21 | .34 | 61 | .06 | .02 | 31 | .00 | .34 | 22 | .02 |
| 22 | .28 | 58 | .04 | .01 | 40 | .00 | .28 | 19 | .01 |
| 23 | .28 | 52 | .04 | .02 | 30 | .00 | .23 | 102 | .06 |
| 24 | .23 | 39 | .02 | .02 | 23 | .00 | .19 | 93 | .05 |
| 25 | .15 | 43 | .02 | .02 | 20 | .00 | .19 | 84 | .04 |
| 26 | .15 | 69 | .03 | .02 | 22 | .00 | .20 | 113 | .06 |
| 27 | .15 | 26 | .01 | .02 | 23 | .00 | .22 | 84 | .05 |
| 28 | .15 | 47 | .02 | .10 | 41 | .01 | .20 | 24 | .01 |
| 29 | .10 | 91 | .02 | --- | --- | --- | .18 | 27 | .01 |
| 30 | .06 | 45 | .00 | --- | --- | --- | .14 | 27 | .01 |
| 31 | .15 | 17 | .00 | --- | --- | --- | .04 | 31 | .00 |
| TOTAL | 10.10 | --- | 1.64 | 1.48 | --- | 0.09 | 29.16 | --- | 2.63 |

07299300 LITTLE RED RIVER NEAR TURKEY, TX--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---|---|---|---|---|---|---|---|---|---|
| | | APRIL | | | MAY | | | JUNE | |
| 1 | .03 | 20 | .00 | 99 | 5230 | 2080 | 4.3 | 439 | 5.1 |
| 2 | .02 | 28 | .00 | 28 | 870 | 66 | 31 | 528 | 179 |
| 3 | .02 | 68 | .00 | 3.0 | 66 | .53 | 172 | 7580 | 3820 |
| 4 | .00 | --- | --- | .92 | 38 | .09 | 50 | 664 | 126 |
| 5 | .00 | --- | --- | .25 | 40 | .03 | 11 | 151 | 4.5 |
| 6 | .00 | --- | --- | .19 | 34 | .02 | 6.4 | 165 | 2.9 |
| 7 | .00 | --- | --- | .41 | 47 | .05 | 4.5 | 150 | 1.8 |
| 8 | .00 | --- | --- | .47 | 45 | .06 | 2.3 | 90 | .56 |
| 9 | .00 | --- | --- | .12 | 46 | .01 | 1.1 | 58 | .17 |
| 10 | 2.9 | 935 | 87 | .04 | 55 | .00 | .23 | 116 | .07 |
| 11 | 27 | 5400 | 807 | .05 | 68 | .00 | .19 | 71 | .04 |
| 12 | 4.1 | 32 | .35 | .03 | 68 | .00 | .19 | 75 | .04 |
| 13 | 3.0 | 92 | .75 | .04 | 68 | .00 | .15 | 96 | .04 |
| 14 | 26 | 7470 | 636 | .07 | 64 | .01 | .09 | 74 | .02 |
| 15 | 5.0 | 425 | 5.7 | .06 | 94 | .02 | .27 | 100 | .07 |
| 16 | 6.3 | 200 | 3.4 | .09 | 69 | .02 | .15 | 59 | .02 |
| 17 | 3.5 | 60 | .57 | .05 | 55 | .00 | .10 | 88 | .02 |
| 18 | 133 | 6110 | 9380 | .05 | 43 | .00 | .10 | 36 | .00 |
| 19 | 68 | 1970 | 654 | .03 | 44 | .00 | .10 | 46 | .01 |
| 20 | 14 | 160 | 6.0 | .05 | 58 | .00 | .06 | 52 | .00 |
| 21 | 6.7 | 26 | .47 | .07 | 48 | .00 | .10 | 53 | .01 |
| 22 | 4.9 | 28 | .37 | .11 | 65 | .02 | .06 | 56 | .00 |
| 23 | 2.6 | 25 | .18 | .05 | 76 | .01 | .04 | 78 | .00 |
| 24 | 1.7 | 25 | .11 | .06 | 120 | .02 | .06 | 157 | .03 |
| 25 | 1.2 | 16 | .05 | .10 | 192 | .05 | .09 | 150 | .04 |
| 26 | 1.3 | 29 | .10 | .01 | 182 | .00 | .10 | 123 | .03 |
| 27 | 1.2 | 35 | .11 | 13 | 1330 | 205 | .09 | 146 | .04 |
| 28 | 1.5 | 27 | .11 | 26 | 3760 | 500 | .08 | 135 | .03 |
| 29 | 1.6 | 35 | .15 | 1370 | 10400 | 64500 | .12 | 113 | .04 |
| 30 | 1.2 | 30 | .10 | 517 | 6070 | 11200 | .37 | 85 | .08 |
| 31 | --- | --- | --- | 188 | 10200 | 8890 | --- | --- | --- |
| TOTAL | 316.77 | --- | 11582.52 | 2247.32 | --- | 87441.94 | 285.34 | --- | 4140.66 |

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---|---|---|---|---|---|---|---|---|---|
| | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | .17 | 46 | .02 | .27 | 200 | .15 | .24 | 102 | .07 |
| 2 | .14 | 34 | .01 | .28 | 125 | .09 | .21 | 200 | .11 |
| 3 | .19 | 72 | .04 | .27 | 36 | .03 | .19 | 225 | .12 |
| 4 | .32 | 50 | .04 | .23 | 151 | .09 | 293 | 11400 | 15100 |
| 5 | 3.0 | 20 | .16 | .16 | 117 | .05 | 36 | 1480 | 144 |
| 6 | .38 | 40 | .04 | .12 | 67 | .02 | 20 | 162 | 8.7 |
| 7 | .09 | 42 | .01 | .20 | 92 | .05 | 5.3 | 141 | 2.0 |
| 8 | .14 | 12 | .00 | .14 | 81 | .03 | 4.0 | 85 | .92 |
| 9 | .13 | 31 | .01 | .15 | 95 | .04 | 1.8 | 67 | .33 |
| 10 | .12 | 50 | .02 | .15 | 133 | .05 | 1.6 | 55 | .24 |
| 11 | .13 | 60 | .02 | 96 | 3800 | 2030 | 1.6 | 56 | .24 |
| 12 | .12 | 64 | .02 | 113 | 6640 | 1760 | 1.3 | 23 | .08 |
| 13 | .17 | 74 | .03 | 243 | 16000 | 8170 | .54 | 43 | .06 |
| 14 | .16 | 98 | .04 | 16 | 6510 | 420 | .37 | 63 | .06 |
| 15 | .12 | 90 | .03 | 2.7 | 832 | 6.1 | .32 | 110 | .10 |
| 16 | .14 | 46 | .02 | 1.8 | 75 | .36 | .28 | 96 | .07 |
| 17 | .11 | 53 | .02 | 18 | 2550 | 189 | .28 | 118 | .09 |
| 18 | .08 | 52 | .01 | 8.7 | 48 | 1.1 | .28 | 129 | .10 |
| 19 | .09 | 73 | .02 | 2.4 | 20 | .13 | .30 | 98 | .08 |
| 20 | .10 | 76 | .02 | .92 | 15 | .04 | .28 | 95 | .07 |
| 21 | 17 | 3430 | 349 | .74 | 21 | .04 | .27 | 95 | .07 |
| 22 | .69 | 248 | .73 | .62 | 108 | .18 | .23 | 53 | .03 |
| 23 | .13 | 50 | .02 | .58 | 50 | .08 | .22 | 46 | .03 |
| 24 | .09 | 74 | .02 | 27 | 4200 | 650 | .33 | 110 | .10 |
| 25 | .09 | 33 | .00 | .90 | 52 | .13 | .24 | 121 | .08 |
| 26 | .08 | 27 | .00 | .51 | 44 | .06 | .22 | 91 | .05 |
| 27 | .08 | 59 | .01 | 4.1 | 52 | .58 | .23 | 74 | .05 |
| 28 | .79 | 72 | .15 | .80 | 92 | .20 | .22 | 57 | .03 |
| 29 | 25 | 1000 | 84 | .54 | 107 | .16 | .23 | 101 | .06 |
| 30 | 1.5 | 400 | 1.6 | .29 | 94 | .07 | .23 | 44 | .03 |
| 31 | .32 | 150 | .13 | .26 | 82 | .06 | --- | --- | --- |
| TOTAL | 51.67 | --- | 436.24 | 540.83 | --- | 13228.89 | 370.31 | --- | 15257.97 |
| YEAR | 3927.82 | | 132154.40 | | | | | | |

## 07299512 JONAH CREEK AT WEIR NEAR ESTELLINE, TX

LOCATION.--Lat 34°34'20", long 100°20'00", Childress County, Hydrologic Unit 11120105, on left bank 4 mi (6 km) upstream from mouth and 6.5 mi (10.5 km) northeast of Estelline.

DRAINAGE AREA.--65.5 $mi^2$ (169.6 $km^2$).

### WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,701.03 ft (518.47 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark).

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

AVERAGE DISCHARGE.--7 years (water years 1974-81), 1.70 $ft^3/s$ (0.048 $m^3/s$), 1,230 acre-ft/yr (1.52 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,680 $ft^3/s$ (47.6 $m^3/s$) May 28, 1978, gage height, 5.35 ft (1.631 m), from rating curve extended above 3.5 $ft^3/s$ (0.099 $m^3/s$) on basis of Francis weir formula; no flow for part of many days.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 338 $ft^3/s$ (9.57 $m^3/s$) June 1 at 2045 hours, gage height, 3.19 ft (0.972 m), no peak above base of 500 $ft^3/s$ (14.2 $m^3/s$); minimum, 0.10 $ft^3/s$ (0.003 $m^3/s$) Feb. 10, due to ice effect.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .53 | .48 | .48 | .77 | .81 | .78 | .67 | 3.9 | 52 | .84 | .62 | .48 |
| 2 | .54 | .46 | .37 | .77 | .77 | .82 | .65 | 1.3 | 18 | .65 | .62 | .46 |
| 3 | .53 | .48 | .44 | .76 | .76 | 1.1 | .65 | 1.2 | 35 | .65 | .63 | .51 |
| 4 | .52 | .52 | .46 | .76 | .81 | 1.1 | .65 | 1.0 | 5.8 | 2.9 | .72 | .62 |
| 5 | .54 | .52 | .52 | .76 | .91 | 1.1 | .65 | .78 | 1.0 | 1.1 | .67 | .66 |
| 6 | .58 | .57 | .52 | .76 | .86 | 1.0 | .56 | .78 | .66 | .59 | 3.2 | .61 |
| 7 | .60 | .60 | 4.0 | .75 | .84 | 1.9 | .46 | .84 | .58 | .52 | 1.0 | .62 |
| 8 | .60 | .59 | 1.7 | .75 | .78 | 1.0 | .46 | 1.1 | .60 | .59 | .63 | .59 |
| 9 | .57 | .57 | .54 | .75 | .96 | .65 | .46 | .90 | .67 | 2.9 | .51 | .63 |
| 10 | .54 | .56 | .47 | .75 | .72 | .78 | 3.5 | .90 | .65 | .52 | .55 | .66 |
| 11 | .56 | .61 | .55 | .74 | .59 | .79 | 2.0 | .96 | .61 | .40 | 2.1 | .71 |
| 12 | .59 | .62 | .64 | .74 | .72 | .79 | 1.3 | .96 | .68 | .46 | 2.1 | .74 |
| 13 | .61 | 1.2 | .69 | .74 | .65 | .84 | 2.7 | .89 | .70 | .40 | 1.0 | .73 |
| 14 | .58 | 1.1 | .59 | .73 | .65 | 2.2 | 1.5 | .78 | .73 | .52 | .84 | 1.5 |
| 15 | .58 | .52 | .72 | .73 | .72 | .59 | 1.8 | .76 | 12 | .72 | .62 | .61 |
| 16 | 2.5 | 1.6 | .72 | .73 | .65 | .52 | .96 | .87 | 10 | .74 | .51 | .60 |
| 17 | .56 | 1.2 | .65 | .72 | .65 | .59 | .84 | .82 | .84 | .75 | .47 | .65 |
| 18 | .56 | .53 | .65 | .72 | .59 | .59 | 2.1 | .68 | .74 | .83 | .44 | .64 |
| 19 | .60 | .51 | .52 | .72 | .59 | .52 | 1.0 | .52 | .62 | .87 | .39 | .56 |
| 20 | .57 | .52 | .52 | .72 | .59 | .52 | .60 | .51 | .65 | .82 | .37 | .57 |
| 21 | .56 | .52 | .52 | .72 | .68 | .52 | .75 | .54 | .69 | .80 | .32 | .59 |
| 22 | .53 | .51 | .65 | .71 | .59 | .46 | .84 | .50 | .67 | .81 | .34 | .51 |
| 23 | .53 | .53 | .65 | .71 | .55 | .46 | .84 | .42 | .78 | .83 | .35 | .58 |
| 24 | .51 | .42 | .52 | .71 | .61 | .46 | .84 | .38 | .78 | .82 | .34 | .67 |
| 25 | .56 | .63 | .59 | .71 | .66 | .52 | .84 | .37 | .78 | .86 | .35 | .86 |
| 26 | .57 | .52 | .59 | .71 | .64 | .52 | .84 | .38 | .65 | .89 | .42 | .61 |
| 27 | .61 | .51 | .65 | .77 | .69 | .59 | .84 | .46 | .65 | .95 | .69 | .59 |
| 28 | .52 | .44 | .72 | .81 | 1.1 | .59 | .84 | 1.9 | .72 | 13 | 1.3 | .59 |
| 29 | .59 | .47 | .78 | .80 | --- | .65 | .84 | .58 | .65 | 1.8 | .37 | .63 |
| 30 | .56 | .47 | .78 | .72 | --- | .65 | .84 | 1.7 | 1.0 | .85 | .43 | .67 |
| 31 | .47 | --- | .78 | .84 | --- | .72 | --- | 1.9 | --- | .45 | .41 | --- |
| TOTAL | 19.27 | 18.78 | 22.98 | 23.08 | 20.14 | 24.32 | 31.82 | 29.58 | 149.90 | 39.83 | 23.31 | 19.45 |
| MEAN | .62 | .63 | .74 | .74 | .72 | .78 | 1.06 | .95 | 5.00 | 1.28 | .75 | .65 |
| MAX | 2.5 | 1.6 | 4.0 | .84 | 1.1 | 2.2 | 3.5 | 3.9 | 52 | 13 | 3.2 | 1.5 |
| MIN | .47 | .42 | .37 | .71 | .55 | .46 | .46 | .37 | .58 | .40 | .32 | .46 |
| AC-FT | 38 | 37 | 46 | 46 | 40 | 48 | 63 | 59 | 297 | 79 | 46 | 39 |

CAL YR 1980 TOTAL 467.27 MEAN 1.28 MAX 75 MIN .33 AC-FT 927
WTR YR 1981 TOTAL 422.46 MEAN 1.16 MAX 52 MIN .32 AC-FT 838

07299512 JONAH CREEK AT WEIR NEAR ESTELLINE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: May 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: May 1974 to current year.

INSTRUMENTATION.--Specific conductance is recorded continuously at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 156,000 micromhos May 14, 1975; minimum daily, 4,920 micromhos May 28, 1978.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 115,000 micromhos July 25, 26; minimum daily, 13,100 micromhos June 1.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | TEMPER-ATURE, WATER (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 01... | 1705 | .46 | 95200 | 29.5 | 5900 | 5800 | 1700 | 390 | -- | -- |
| 14... | 1705 | .58 | -- | 25.5 | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | |
| 04... | 1430 | .52 | -- | 22.0 | -- | -- | -- | -- | -- | -- |
| 24... | 1400 | .42 | -- | 11.0 | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | |
| 15... | 1440 | .73 | -- | 16.5 | -- | -- | -- | -- | -- | -- |
| 15... | 1530 | .73 | 93200 | 10.5 | 5600 | 5500 | 1600 | 390 | 24000 | 140 |
| JAN | | | | | | | | | | |
| 06... | 1500 | .81 | -- | 14.0 | -- | -- | -- | -- | -- | -- |
| 26... | 1515 | .71 | -- | 16.0 | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | |
| 18... | 1510 | .55 | 97900 | 19.0 | 6700 | 6600 | 1900 | 470 | 26000 | 138 |
| MAR | | | | | | | | | | |
| 09... | 1530 | .66 | 87900 | 23.0 | 5600 | 5500 | 1600 | 390 | 28000 | 163 |
| 31... | 0900 | .72 | -- | 10.0 | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | |
| 13... | 0800 | 13 | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | 1430 | .55 | -- | 28.0 | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | |
| 01... | 0200 | 13 | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | 0720 | .96 | -- | 16.0 | -- | -- | -- | -- | -- | -- |
| 28... | 1830 | 13 | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | |
| 01... | 0900 | 300 | -- | -- | -- | -- | -- | -- | -- | -- |
| 01... | 1500 | 3.4 | 13100 | 31.0 | 1100 | 1000 | 330 | 66 | 3200 | 42 |
| 22... | 1515 | .61 | -- | 35.0 | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | |
| 14... | 1200 | .55 | -- | 32.5 | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 04... | 0700 | .67 | -- | 21.0 | -- | -- | -- | -- | -- | -- |
| 24... | 1615 | .35 | -- | 34.5 | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 15... | 1340 | .51 | 96400 | 28.0 | 5500 | 5400 | 1600 | 370 | 25000 | 146 |

07299512 JONAH CREEK AT WEIR NEAR ESTELLINE, TEX--CONTINUED

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT DISCHARGE, SUSPENDED (T/DAY) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 01... | -- | 63 | 4400 | 40000 | -- | -- | -- | 44 | .05 | 97 |
| 14... | -- | -- | -- | -- | -- | -- | -- | 28 | .04 | 96 |
| NOV | | | | | | | | | | |
| 04... | -- | -- | -- | -- | -- | -- | -- | 25 | .04 | 93 |
| 24... | -- | -- | -- | -- | -- | -- | -- | 5 | .01 | 86 |
| DEC | | | | | | | | | | |
| 15... | -- | -- | -- | -- | -- | -- | -- | 14 | .03 | 69 |
| 15... | 48 | 69 | 5200 | 41000 | -- | 7.9 | 72300 | -- | -- | -- |
| JAN | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | 8 | .02 | 75 |
| 26... | -- | -- | -- | -- | -- | -- | -- | 67 | .13 | 95 |
| FEB | | | | | | | | | | |
| 18... | 50 | 56 | 5400 | 42000 | -- | 7.2 | 75900 | 11 | .02 | 73 |
| MAR | | | | | | | | | | |
| 09... | 45 | 66 | 4700 | 38000 | .8 | 7.5 | 72800 | 23 | .04 | 96 |
| 31... | -- | -- | -- | -- | -- | -- | -- | 12 | .02 | 40 |
| APR | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | -- | -- | 7600 | 267 | 98 |
| 20... | -- | -- | -- | -- | -- | -- | -- | 14 | .02 | 84 |
| MAY | | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- | -- | 8590 | 302 | 100 |
| 13... | -- | -- | -- | -- | -- | -- | -- | 93 | .24 | 93 |
| 28... | -- | -- | -- | -- | -- | -- | -- | 10100 | 355 | 100 |
| JUN | | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- | -- | 11000 | 8910 | 87 |
| 01... | 15 | 66 | 940 | 4600 | -- | 8.1 | 9200 | 67 | .61 | 93 |
| 22... | -- | -- | -- | -- | -- | -- | -- | 92 | .15 | 78 |
| JUL | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- | -- | 87 | .13 | 93 |
| AUG | | | | | | | | | | |
| 04... | -- | -- | -- | -- | -- | -- | -- | 130 | .24 | 96 |
| 24... | -- | -- | -- | -- | -- | -- | -- | 68 | .06 | 95 |
| SEP | | | | | | | | | | |
| 15... | 55 | 71 | 5100 | 43000 | -- | 8.4 | 75200 | 164 | .23 | 97 |

| DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | TEMPERATURE (DEG C) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|
| OCT | | | | | | |
| 01... | 1705 | .46 | 29.5 | 44 | .05 | 97 |
| 14... | 1705 | .58 | 25.5 | 28 | .04 | 96 |
| NOV | | | | | | |
| 04... | 1430 | .52 | 22.0 | 25 | .04 | 93 |
| 24... | 1400 | .42 | 11.0 | 5 | .01 | 86 |
| DEC | | | | | | |
| 15... | 1440 | .73 | 16.5 | 14 | .03 | 69 |
| JAN | | | | | | |
| 06... | 1500 | .81 | 14.0 | 8 | .02 | 75 |
| 26... | 1515 | .71 | 16.0 | 67 | .13 | 95 |
| FEB | | | | | | |
| 18... | 1510 | .55 | 19.0 | 11 | .02 | 73 |
| MAR | | | | | | |
| 09... | 1530 | .66 | 23.0 | 23 | .04 | 96 |
| 31... | 0900 | .72 | 10.0 | 12 | .02 | 40 |
| APR | | | | | | |
| 13... | 0800 | 13 | -- | 7600 | 267 | 98 |
| 20... | 1430 | .55 | 28.0 | 14 | .02 | 84 |
| MAY | | | | | | |
| 01... | 0200 | 13 | -- | 8590 | 302 | 100 |
| 13... | 0720 | .96 | 16.0 | 93 | .24 | 93 |
| 28... | 1830 | 13 | -- | 10100 | 355 | 100 |
| JUN | | | | | | |
| 01... | 0900 | 300 | -- | 11000 | 8910 | 87 |
| 01... | 1500 | 3.4 | 31.0 | 67 | .61 | 93 |
| 22... | 1515 | .61 | 35.0 | 92 | .15 | 78 |
| JUL | | | | | | |
| 14... | 1200 | .55 | 32.5 | 87 | .13 | 93 |
| AUG | | | | | | |
| 04... | 0700 | .67 | 21.0 | 130 | .24 | 96 |
| 24... | 1615 | .35 | 34.5 | 68 | .06 | 95 |
| SEP | | | | | | |
| 15... | 1340 | .51 | 28.0 | 164 | .23 | 97 |

07299512 JONAH CREEK AT WEIR NEAR ESTELLINE, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 19.27 | 93400 | 69800 | 3630 | 38000 | 1980 | 4700 | 244 | * |
| NOV. | 1980 | 18.78 | 89300 | 65900 | 3340 | 36000 | 1820 | 4500 | 227 | * |
| DEC. | 1980 | 22.98 | 87200 | 63900 | 3960 | 35000 | 2170 | 4400 | 271 | * |
| JAN. | 1981 | 23.08 | 94300 | 70500 | 4400 | 38400 | 2390 | 4700 | 294 | * |
| FEB. | 1981 | 20.14 | 94400 | 70600 | 3840 | 38400 | 2090 | 4700 | 257 | * |
| MAR. | 1981 | 24.32 | 90800 | 67300 | 4420 | 36700 | 2410 | 4600 | 299 | * |
| APR. | 1981 | 31.82 | 85600 | 62800 | 5390 | 34300 | 2950 | 4300 | 369 | * |
| MAY | 1981 | 29.58 | 81800 | 59500 | 4760 | 32600 | 2610 | 4100 | 328 | * |
| JUNE | 1981 | 149.90 | 28300 | 18100 | 7310 | 10300 | 4160 | 1400 | 576 | * |
| JULY | 1981 | 39.83 | 86300 | 63700 | 6850 | 34800 | 3740 | 4300 | 465 | * |
| AUG. | 1981 | 23.31 | 77100 | 55400 | 3490 | 30500 | 1920 | 3900 | 243 | * |
| SEPT | 1981 | 19.45 | 100700 | 77000 | 4040 | 41600 | 2190 | 5000 | 265 | * |
| TOTAL | | 422.46 | ** | ** | 55400 | ** | 30400 | ** | 3840 | ** |
| WTD. AVG. | | 1.2 | 67100 | 48600 | ** | 27000 | ** | 3400 | ** | ** |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 95200 | 96000 | 90700 | 97800 | 93700 | 94000 | 100000 | 43300 | 13100 | 97400 | 85800 | 105000 |
| 2 | 96700 | 97800 | 85300 | 99100 | 92900 | 93200 | 100000 | 72400 | 22400 | 100000 | 89900 | 105000 |
| 3 | 96200 | 99600 | 85700 | 99100 | 92700 | 93300 | 104000 | 82600 | 15500 | 100000 | 92100 | 106000 |
| 4 | 96700 | 97500 | 91400 | 97600 | 93300 | 94600 | 103000 | 84200 | 30100 | 93200 | 94900 | 106000 |
| 5 | 97200 | 96500 | 91600 | 96200 | 92500 | 95400 | 101000 | 86800 | 47500 | 71600 | 101000 | 108000 |
| 6 | 96600 | 97500 | 87700 | 95900 | 92300 | 95200 | 103000 | 89600 | 65300 | 88200 | 94200 | 108000 |
| 7 | 96300 | 100000 | 73800 | 94200 | 93300 | 82500 | 103000 | 88700 | 71100 | 91500 | 43800 | 112000 |
| 8 | 97300 | 97500 | 75100 | 93400 | 91600 | 86500 | 105000 | 86800 | 78000 | 96500 | 46300 | 113000 |
| 9 | 98100 | 98400 | 78700 | 92700 | 89700 | 87900 | 103000 | 94400 | 81900 | 74100 | 50600 | 108000 |
| 10 | 99500 | 100000 | 81400 | 93000 | 93500 | 88700 | 93500 | 97500 | 83200 | 66400 | 53400 | 110000 |
| 11 | 99000 | 96500 | 82900 | 93000 | 95400 | 89300 | 51400 | 98700 | 84500 | 71300 | 51900 | 109000 |
| 12 | 99500 | 96200 | 86500 | 92700 | 91200 | 88300 | 82000 | 99700 | 86400 | 90100 | 51300 | 108000 |
| 13 | 101000 | 92800 | 90000 | 92700 | 94600 | 91200 | 83100 | 97400 | 88100 | 96900 | 68000 | 108000 |
| 14 | 100000 | 81500 | 93600 | 93300 | 96300 | 79600 | 81900 | 96700 | 89800 | 98300 | 70700 | 87800 |
| 15 | 101000 | 85300 | 93200 | 92500 | 93500 | 73500 | 74400 | 96100 | 43200 | 102000 | 73800 | 96400 |
| 16 | 85500 | 78700 | 93200 | 93000 | 95800 | 84300 | 85000 | 100000 | 47500 | 104000 | 75900 | 98300 |
| 17 | 72700 | 74200 | 92400 | 92200 | 96900 | 89100 | 89900 | 96400 | 60800 | 94700 | 78700 | 94900 |
| 18 | 80600 | 76900 | 92700 | 94300 | 97900 | 93900 | 58100 | 97500 | 75600 | 104000 | 81700 | 95500 |
| 19 | 91100 | 79700 | 94200 | 94100 | 94900 | 92900 | 72400 | 95400 | 79100 | 105000 | 84800 | 96400 |
| 20 | 93400 | 79500 | 92900 | 94400 | 96200 | 94500 | 87000 | 94700 | 85200 | 108000 | 87400 | 96400 |
| 21 | 93900 | 83100 | 92900 | 94300 | 98400 | 96700 | 87900 | 95000 | 92500 | 110000 | 90100 | 95500 |
| 22 | 94700 | 87900 | 92500 | 94000 | 98400 | 96300 | 87100 | 95600 | 98500 | 113000 | 93000 | 95500 |
| 23 | 95200 | 88100 | 91900 | 94200 | 97100 | 94100 | 88700 | 94800 | 97400 | 114000 | 95700 | 94500 |
| 24 | 95800 | 93300 | 92800 | 94500 | 97000 | 95700 | 90900 | 93100 | 97000 | 114000 | 97700 | 98300 |
| 25 | 94300 | 91200 | 93300 | 94600 | 98300 | 97300 | 93200 | 92100 | 95900 | 115000 | 95800 | 91400 |
| 26 | 94000 | 90400 | 93200 | 94400 | 97400 | 95500 | 95000 | 93800 | 95500 | 115000 | 97700 | 96400 |
| 27 | 90500 | 91200 | 93100 | 93300 | 96500 | 96900 | 96100 | 96100 | 95600 | 114000 | 101000 | 98300 |
| 28 | 93200 | 90700 | 94400 | 92900 | 90900 | 99500 | 95400 | 80000 | 95400 | 73200 | 84300 | 99200 |
| 29 | 90700 | 90800 | 96000 | 93700 | --- | 98300 | 94700 | 78900 | 95100 | 54800 | 93700 | 99400 |
| 30 | 92500 | 90600 | 96600 | 92900 | --- | 98000 | 96400 | 65800 | 99300 | 72300 | 98200 | 99300 |
| 31 | 94300 | --- | 97400 | 92700 | --- | 99300 | --- | 73400 | --- | 78700 | 96100 | --- |
| MEAN | 94300 | 90600 | 89900 | 94300 | 94700 | 92100 | 90200 | 89000 | 73700 | 94400 | 81300 | 101000 |

## 07299540 PRAIRIE DOG TOWN FORK RED RIVER NEAR CHILDRESS, TX
(National stream-quality accounting network station)

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 (5.0 km) downstream from Salt Creek, 10.0 mi (16.1 km) north of Childress, and at mile 1,061 (1,707 km).

DRAINAGE AREA.--7,725 mi² (20,008 km²), of which 4,769 mi² (12,352 km²) probably is noncontributing.

### WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 1,628.4 ft (496.34 m) State Department of Highways and Public Transportation datum.

REMARKS.--Water-discharge records fair. Many small diversions above station. Flow is affected at times by discharge from flood-detention pools of 20 floodwater-retarding structures with combined detention capacity of 19,260 acre-ft (23.7 hm³). These structures control runoff from 91.6 mi² (237 km²).

AVERAGE DISCHARGE.--16 years (water years 1966-81), 104 ft³/s (2.945 m³/s), 75,350 acre-ft/yr (92.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 86,400 ft³/s (2,450 m³/s) May 28, 1978, gage height, 13.47 ft (4.106 m), from floodmark, from rating curve extended above 33,000 ft³/s (935 m³/s); maximum gage height, 13.94 ft (4.249 m) May 21, 1977; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1899, 16.9 ft (5.15 m) in May or June 1957, from information by local residents and State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,800 ft³/s (334 m³/s) Sept. 4 at 1545 hours, gage height, 9.90 ft (3.018 m), no other peak above base of 7,000 ft³/s (198 m³/s); minimum daily, 0.07 ft³/s (0.002 m³/s) May 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 12 | 2.8 | 2.0 | 2.1 | 6.6 | 12 | .81 | 179 | 194 | 86 | 68 | 2.2 |
| 2 | 2.2 | 3.2 | .72 | 2.3 | 4.8 | 5.7 | .67 | 124 | 535 | 16 | 38 | 1.3 |
| 3 | 1.3 | 3.3 | 1.0 | 2.8 | 3.9 | 6.9 | 1.6 | 62 | 737 | 12 | 16 | 1.1 |
| 4 | 1.1 | 2.1 | 2.0 | 2.4 | 3.9 | 10 | 1.8 | 32 | 514 | 14 | 5.6 | 2260 |
| 5 | .72 | 2.9 | 2.5 | 2.3 | 4.3 | 3.4 | 1.6 | 32 | 168 | 68 | 3.3 | 811 |
| 6 | 1.1 | 3.0 | 2.8 | 3.2 | 5.6 | 2.1 | 1.1 | 4.4 | 91 | 19 | 3.8 | 158 |
| 7 | 1.8 | 2.1 | 21 | 2.4 | 6.8 | 16 | 1.1 | 4.4 | 117 | 8.5 | 34 | 106 |
| 8 | 1.1 | 2.1 | 175 | 2.6 | 6.8 | 19 | 1.0 | 89 | 54 | 2.5 | 8.1 | 64 |
| 9 | 1.1 | 1.6 | 314 | 3.3 | 7.3 | 9.2 | .69 | 45 | 29 | 126 | 5.3 | 44 |
| 10 | .90 | 1.8 | 90 | 3.6 | 5.0 | 7.8 | 6.1 | 3.9 | 14 | 136 | 4.9 | 22 |
| 11 | .57 | 1.6 | 61 | 3.2 | 3.0 | 6.1 | 40 | .90 | 8.8 | 59 | 37 | 11 |
| 12 | 1.1 | 1.7 | 44 | 3.6 | 3.5 | 5.9 | 2.6 | .90 | 8.2 | 15 | 128 | 5.6 |
| 13 | 1.1 | 2.6 | 29 | 4.1 | 4.0 | 5.8 | 1.6 | .90 | 6.5 | 5.0 | 515 | 1.8 |
| 14 | 1.3 | 14 | 19 | 4.4 | 4.8 | 10 | 21 | .44 | 7.4 | 1.6 | 494 | 39 |
| 15 | 1.1 | 6.0 | 11 | 3.3 | 5.0 | 54 | 14 | .57 | 70 | 1.4 | 150 | 27 |
| 16 | 61 | 24 | 8.2 | 3.2 | 5.0 | 17 | 31 | 2.2 | 320 | 1.9 | 49 | 13 |
| 17 | 17 | 131 | 5.4 | 3.7 | 5.0 | 9.0 | 13 | 1.8 | 172 | 1.8 | 26 | 5.6 |
| 18 | 2.9 | 55 | 4.3 | 7.6 | 4.9 | 3.2 | 40 | .57 | 79 | 1.7 | 149 | 5.6 |
| 19 | 1.9 | 19 | 1.4 | 18 | 3.3 | 2.7 | 63 | .07 | 39 | 2.5 | 102 | 4.4 |
| 20 | 2.2 | 13 | 1.3 | 18 | 3.7 | 2.7 | 42 | .20 | 22 | 2.2 | 39 | .72 |
| 21 | 3.0 | 8.2 | 2.4 | 10 | 3.3 | 4.3 | 21 | .27 | 18 | 1.7 | 17 | .27 |
| 22 | 2.6 | 7.0 | 3.3 | 6.7 | 3.2 | 2.7 | 14 | .90 | 19 | .95 | 11 | .27 |
| 23 | 2.6 | 8.4 | 4.3 | 5.8 | 2.1 | 2.2 | 5.0 | .44 | 20 | 1.2 | 13 | .44 |
| 24 | .93 | 4.6 | 3.1 | 5.9 | 2.2 | 2.2 | 3.3 | .72 | 21 | 1.2 | 8.2 | .44 |
| 25 | 2.1 | 4.8 | 1.4 | 5.8 | 2.7 | 2.6 | 2.2 | 1.1 | 21 | 1.2 | 2.7 | .57 |
| 26 | 2.5 | 8.5 | 2.4 | 5.1 | 2.5 | 1.6 | 1.8 | .44 | 21 | 1.7 | 1.8 | 1.6 |
| 27 | 4.8 | 6.1 | 3.7 | 5.7 | 3.6 | 1.3 | 2.2 | 3.4 | 20 | 1.9 | 12 | 1.6 |
| 28 | 1.7 | 3.2 | 4.0 | 5.6 | 13 | 2.7 | 8.7 | 23 | 17 | 92 | 434 | 1.6 |
| 29 | 1.6 | 2.7 | 2.6 | 5.4 | --- | 2.0 | 5.6 | 100 | 19 | 300 | 152 | 1.0 |
| 30 | 3.0 | 2.7 | 2.1 | 4.4 | --- | 1.3 | 2.2 | 138 | 35 | 288 | 51 | 1.0 |
| 31 | 3.5 | --- | 1.8 | 5.1 | --- | .98 | --- | 223 | --- | 104 | 13 | --- |
| TOTAL | 141.82 | 349.0 | 826.72 | 161.6 | 129.8 | 232.38 | 350.67 | 1075.52 | 3396.9 | 1373.95 | 2591.7 | 3592.11 |
| MEAN | 4.57 | 11.6 | 26.7 | 5.21 | 4.64 | 7.50 | 11.7 | 34.7 | 113 | 44.3 | 83.6 | 120 |
| MAX | 61 | 131 | 314 | 18 | 13 | 54 | 63 | 223 | 737 | 300 | 515 | 2260 |
| MIN | .57 | 1.6 | .72 | 2.1 | 2.1 | .98 | .67 | .07 | 6.5 | .95 | 1.8 | .27 |
| AC-FT | 281 | 692 | 1640 | 321 | 257 | 461 | 696 | 2130 | 6740 | 2730 | 5140 | 7120 |

CAL YR 1980 TOTAL 10901.98 MEAN 29.8 MAX 1630 MIN .08 AC-FT 21620
WTR YR 1981 TOTAL 14222.17 MEAN 39.0 MAX 2260 MIN .07 AC-FT 28210

07299540 PRAIRIE DOG TOWN FORK RED RIVER NEAR CHILDRESS, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: July 1968 to current year. Chemical and biochemical analyses: January 1978 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1968 to current year.
WATER TEMPERATURES: July 1968 to current year.

INSTRUMENTATION.--Specific conductance is recorded continuously at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 98,100 micromhos June 18, July 8, and Aug. 9, 1970; minimum daily, 3,000 micromhos Aug. 13, 1971.
WATER TEMPERATURES: Maximum daily 40.0°C July 24, 1980; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 96,100 micromhos July 24; minimum daily, 8,760 micromhos Aug. 28.
WATER TEMPERATURES: Maximum daily, 35.0°C July 20; minimum daily, 4.0°C Feb. 3.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH FIELD (UNITS) | TEMPER-ATURE, WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 05... | 0930 | 2.1 | 77000 | 7.9 | 9.5 | 3.6 | 10.2 | 134 | 1.2 | 280 | K3000 |
| 16... | 0900 | 7.8 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | |
| 07... | 1000 | 2.4 | 70500 | 7.6 | -- | 3.1 | 12.6 | 131 | 1.5 | 720 | K2600 |
| MAR | | | | | | | | | | | |
| 11... | 1100 | 5.9 | 72100 | 7.8 | 12.0 | 3.4 | 7.9 | 105 | .5 | K4 | 120 |
| MAY | | | | | | | | | | | |
| 14... | 0930 | 127 | 65000 | 7.7 | 12.0 | 3.1 | 10.5 | 135 | 1.7 | K40 | K20 |
| JUL | | | | | | | | | | | |
| 28... | 0730 | 1.7 | 84500 | 7.7 | 23.0 | 7.0 | 6.3 | 111 | 2.4 | K40 | K7200 |
| SEP | | | | | | | | | | | |
| 23... | 0930 | .44 | 66500 | 7.9 | 21.0 | 2.0 | 8.7 | 136 | 1.2 | K12 | 800 |

| DATE | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 05... | 5200 | 5200 | 1500 | 360 | 18000 | 108 | 66 | 110 | 3800 | 28000 | .6 |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | |
| 07... | 5200 | 5100 | 1500 | 350 | 18000 | 109 | 42 | 110 | 4900 | 27000 | .8 |
| MAR | | | | | | | | | | | |
| 11... | 5100 | 5000 | 1500 | 340 | 17000 | 103 | 37 | 100 | 4400 | 28000 | .6 |
| MAY | | | | | | | | | | | |
| 14... | 4800 | 4700 | 1400 | 320 | 16000 | 100 | 36 | 75 | 4000 | 26000 | .5 |
| JUL | | | | | | | | | | | |
| 28... | 8300 | 8200 | 2400 | 560 | 21000 | 100 | 51 | 60 | 5000 | 36000 | .6 |
| SEP | | | | | | | | | | | |
| 23... | 5100 | 5000 | 1500 | 330 | 16000 | 97 | 45 | 90 | 4300 | 26000 | 1.0 |

| 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 TOTAL (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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 05... | 9.1 | 56100 | 51700 | -- | -- | .07 | .00 | .410 | .480 | .17 | .34 |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | | |
| 07... | 10 | 53700 | 51900 | -- | -- | .17 | .17 | .420 | .380 | .36 | .36 |
| MAR | | | | | | | | | | | |
| 11... | 4.4 | 51300 | 51300 | -- | -- | .01 | .02 | .430 | .430 | .27 | .30 |
| MAY | | | | | | | | | | | |
| 14... | 6.2 | 48200 | 47800 | -- | -- | .06 | .08 | .250 | .220 | .27 | .20 |
| JUL | | | | | | | | | | | |
| 28... | 8.3 | 66700 | 65100 | .20 | .070 | .27 | <.10 | .800 | .500 | .00 | .00 |
| SEP | | | | | | | | | | | |
| 23... | 9.4 | 49500 | 48200 | -- | -- | .23 | .22 | .620 | .570 | .15 | .12 |

07299540 PRAIRIE DOG TOWN FORK RED RIVER NEAR CHILDRESS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) | CARBON, ORGANIC TOTAL (MG/L AS C) | CARBON, ORGANIC DISSOLVED (MG/L AS C) | CARBON, ORGANIC SUSPENDED (MG/L AS C) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT DISCHARGE, SUSPENDED (T/DAY) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | |
| 05... | .58 | .82 | .040 | .040 | -- | 3.2 | .9 | 17 | .10 | 53 |
| 16... | -- | -- | -- | -- | -- | -- | -- | 16 | .34 | 42 |
| JAN | | | | | | | | | | |
| 07... | .78 | .74 | .030 | .020 | -- | 2.8 | .5 | 15 | .10 | 56 |
| MAR | | | | | | | | | | |
| 11... | .70 | .73 | .040 | .030 | 2.5 | -- | -- | 74 | 1.2 | 92 |
| MAY | | | | | | | | | | |
| 14... | .52 | .42 | .050 | .040 | -- | 3.8 | 1.0 | 15 | 5.1 | 47 |
| JUL | | | | | | | | | | |
| 28... | .70 | .30 | .110 | .070 | -- | 4.1 | .6 | 18 | .08 | 74 |
| SEP | | | | | | | | | | |
| 23... | .77 | .69 | .010 | .010 | 1.4 | -- | -- | 19 | .02 | 75 |

| DATE | TIME | ARSENIC TOTAL (UG/L AS AS) | ARSENIC SUSPENDED TOTAL (UG/L AS AS) | ARSENIC DISSOLVED (UG/L AS AS) | BARIUM, TOTAL (UG/L AS BA) | BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA) | BARIUM, DISSOLVED (UG/L AS BA) | CADMIUM TOTAL (UG/L AS CD) | CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD) | CADMIUM DISSOLVED (UG/L AS CD) | CHROMIUM, TOTAL (UG/L AS CR) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 05... | 0930 | 2 | 0 | 2 | 300 | 0 | 300 | 0 | 0 | 0 | 60 |
| JAN | | | | | | | | | | | |
| 07... | 1000 | 1 | 0 | 1 | 400 | 200 | 200 | 0 | 0 | 0 | 50 |
| MAY | | | | | | | | | | | |
| 14... | 0930 | 5 | 2 | 3 | 400 | 0 | 500 | 0 | 0 | 1 | 70 |
| JUL | | | | | | | | | | | |
| 28... | 0730 | 3 | 0 | 3 | 300 | 0 | 300 | 0 | 0 | 0 | 140 |

| DATE | CHROMIUM, SUSPENDED RECOV. (UG/L AS CR) | CHROMIUM, DISSOLVED (UG/L AS CR) | COBALT, TOTAL (UG/L AS CO) | COBALT, SUSPENDED RECOVERABLE (UG/L AS CO) | COBALT, DISSOLVED (UG/L AS CO) | COPPER, TOTAL (UG/L AS CU) | COPPER, SUSPENDED RECOVERABLE (UG/L AS CU) | COPPER, DISSOLVED (UG/L AS CU) | IRON, TOTAL (UG/L AS FE) | IRON, SUSPENDED RECOVERABLE (UG/L AS FE) | IRON, DISSOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 05... | 60 | 0 | 0 | 0 | 0 | 3 | 0 | 4 | 460 | 190 | 270 |
| JAN | | | | | | | | | | | |
| 07... | 10 | 40 | 2 | 2 | 0 | 2 | 2 | 0 | 450 | 70 | 380 |
| MAY | | | | | | | | | | | |
| 14... | 0 | 70 | 1 | 1 | 0 | 4 | 4 | 0 | 490 | 140 | 350 |
| JUL | | | | | | | | | | | |
| 28... | 30 | 110 | 2 | 1 | 1 | 1 | 1 | 0 | 570 | 200 | 370 |

| DATE | LEAD, TOTAL (UG/L AS PB) | LEAD, SUSPENDED RECOVERABLE (UG/L AS PB) | LEAD, DISSOLVED (UG/L AS PB) | MANGANESE, TOTAL (UG/L AS MN) | MANGANESE, SUSPENDED RECOV. (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL (UG/L AS HG) | MERCURY SUSPENDED RECOVERABLE (UG/L AS HG) | MERCURY DISSOLVED (UG/L AS HG) | NICKEL, TOTAL (UG/L AS NI) | NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 05... | 2 | 0 | 3 | 140 | 0 | 140 | .0 | .0 | .2 | 8 | 2 |
| JAN | | | | | | | | | | | |
| 07... | 2 | 2 | 0 | 270 | 30 | 240 | .0 | .0 | .3 | 2 | 2 |
| MAY | | | | | | | | | | | |
| 14... | 0 | 0 | 2 | 220 | 20 | 200 | .1 | .0 | .3 | 1 | 0 |
| JUL | | | | | | | | | | | |
| 28... | 5 | 4 | 1 | 140 | 10 | 130 | .1 | .0 | .2 | 2 | 1 |

07299540 PRAIRIE DOG TOWN FORK RED RIVER NEAR CHILDRESS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | NICKEL, DIS-SOLVED (UG/L AS NI) | SELE-NIUM, TOTAL (UG/L AS SE) | SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE) | SELE-NIUM, DIS-SOLVED (UG/L AS SE) | SILVER, TOTAL (UG/L AS AG) | SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG) | SILVER, DIS-SOLVED (UG/L AS AG) | ZINC, TOTAL (UG/L AS ZN) | ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN) | ZINC, DIS-SOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | |
| 05... | 6 | 1 | 0 | 1 | 0 | 0 | 0 | 40 | 10 | 30 |
| JAN | | | | | | | | | | |
| 07... | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 40 | 0 | 40 |
| MAY | | | | | | | | | | |
| 14... | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 40 | 0 | 60 |
| JUL | | | | | | | | | | |
| 28... | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 70 | 0 | 70 |

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

| DATE | NOV 5,80 | MAR 11,81 | MAY 14,81 | JUL 28,81 | SEP 23,81 |
|---|---|---|---|---|---|
| TIME | 0930 | 1100 | 0930 | 0730 | 0930 |
| TOTAL CELLS/ML | 450 | 180 | 2000 | 9000 | 320 |
| DIVERSITY: DIVISION | 1.6 | 0.7 | 0.2 | 1.2 | 0.0 |
| .CLASS | 1.6 | 0.7 | 0.2 | 1.8 | 0.0 |
| ..ORDER | 1.6 | 1.3 | 0.8 | 2.3 | 0.0 |
| ...FAMILY | 2.3 | 2.2 | 0.9 | 2.8 | 0.0 |
| ....GENUS | 2.3 | 2.2 | 0.9 | 2.8 | 0.0 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | | | | | | | |
| .CHLOROPHYCEAE | | | | | | | | | | |
| ..CHLOROCOCCALES | | | | | | | | | | |
| ...CHARACIACEAE | | | | | | | | | | |
| ....SCHROEDERIA | -- | - | -- | - | -- | - | -- | - | 320# | 100 |
| ...OOCYSTACEAE | | | | | | | | | | |
| ....ANKISTRODESMUS | -- | - | -- | - | 20 | 1 | -- | - | -- | - |
| ..VOLVOCALES | | | | | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | | | | | |
| ....CHLAMYDOMONAS | -- | - | 13 | 7 | 61 | 3 | -- | - | -- | - |
| CHRYSOPHYTA | | | | | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | | | | | |
| ..CENTRALES | | | | | | | | | | |
| ...CHAETOCERACEAE | | | | | | | | | | |
| ....CHAETOCEROS | -- | - | -- | - | -- | - | 2600# | 29 | -- | - |
| ...COSCINODISCACEAE | | | | | | | | | | |
| ....CYCLOTELLA | -- | - | 26 | 14 | 1700# | 83 | -- | - | -- | - |
| ..PENNALES | | | | | | | | | | |
| ...ACHNANTHACEAE | | | | | | | | | | |
| ....ACHNANTHES | -- | - | -- | - | -- | - | 390 | 4 | -- | - |
| ...CYMBELLACEAE | | | | | | | | | | |
| ....CYMBELLA | -- | - | 13 | 7 | -- | - | -- | - | -- | - |
| ...DIATOMACEAE | | | | | | | | | | |
| ....DIATOMA | 13 | 3 | -- | - | -- | - | -- | - | -- | - |
| ...FRAGILARIACEAE | | | | | | | | | | |
| ....SYNEDRA | 39 | 9 | -- | - | 20 | 1 | -- | - | -- | - |
| ...NAVICULACEAE | | | | | | | | | | |
| ....ENTOMONEIS | -- | - | -- | - | -- | - | 280 | 3 | -- | - |
| ....NAVICULA | 13 | 3 | 77# | 43 | -- | - | -- | - | -- | - |
| ...NITZSCHIACEAE | | | | | | | | | | |
| ....NITZSCHIA | 170# | 37 | 39# | 21 | 240 | 12 | 1200 | 13 | -- | - |
| .CHRYSOPHYCEAE | | | | | | | | | | |
| ..CHRYSOMONADALES | | | | | | | | | | |
| ...SYNURACEAE | | | | | | | | | | |
| ....SYNURA | -- | - | -- | - | -- | - | 2000# | 22 | -- | - |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | | | | | |
| .CRYPTOPHYCEAE | | | | | | | | | | |
| ..CRYPTOMONADALES | | | | | | | | | | |
| ...CRYPTOCHRYSIDACEAE | | | | | | | | | | |
| ....CHROOMONAS | -- | - | -- | - | -- | - | 670 | 7 | -- | - |
| ...CRYPTOMONADACEAE | | | | | | | | | | |
| ....CRYPTOMONAS | 39 | 9 | 13 | 7 | -- | - | 890 | 10 | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

07299540 PRAIRIE DOG TOWN FORK RED RIVER NEAR CHILDRESS, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

| DATE | NOV 5,80 | | MAR 11,81 | | MAY 14,81 | | JUL 28,81 | | SEP 23,81 | |
|---|---|---|---|---|---|---|---|---|---|---|
| TIME | 0930 | | 1100 | | 0930 | | 0730 | | 0930 | |
| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | | | | | |
| .CYANOPHYCEAE | | | | | | | | | | |
| ..HORMOGONALES | | | | | | | | | | |
| ...OSCILLATORIACEAE | | | | | | | | | | |
| ....OSCILLATORIA | -- | - | -- | - | -- | - | 830 | 9 | -- | - |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | | | | | |
| .EUGLENOPHYCEAE | | | | | | | | | | |
| ..EUGLENALES | | | | | | | | | | |
| ...EUGLENACEAE | | | | | | | | | | |
| ....EUGLENA | 140# | 31 | -- | - | -- | - | -- | - | -- | - |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | | | | | |
| .DINOPHYCEAE | | | | | | | | | | |
| ..GYMNODINIALES | | | | | | | | | | |
| ...GYMNODINIACEAE | | | | | | | | | | |
| ....GYMNODINIUM | -- | - | -- | - | -- | - | 170 | 2 | -- | - |
| ..PERIDINIALES | | | | | | | | | | |
| ...GLENODINIACEAE | | | | | | | | | | |
| ....GLENODINIUM | 39 | 9 | -- | - | -- | - | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 141.82 | 56200 | 39300 | 15000 | 20900 | 8020 | 3600 | 1370 | * |
| NOV. | 1980 | 349.0 | 53000 | 37000 | 34900 | 19700 | 18600 | 3400 | 3210 | * |
| DEC. | 1980 | 826.72 | 42000 | 29200 | 65200 | 15500 | 34500 | 2700 | 6120 | * |
| JAN. | 1981 | 161.6 | 70700 | 50400 | 22000 | 27300 | 11900 | 4200 | 1840 | * |
| FEB. | 1981 | 129.8 | 71700 | 51200 | 17900 | 27800 | 9750 | 4200 | 1490 | * |
| MAR. | 1981 | 232.38 | 63900 | 45100 | 28300 | 24200 | 15200 | 4000 | 2480 | * |
| APR. | 1981 | 350.67 | 49900 | 34400 | 32600 | 18100 | 17100 | 3300 | 3160 | * |
| MAY | 1981 | 1075.52 | 26500 | 17700 | 51300 | 9000 | 26100 | 2000 | 5690 | * |
| JUNE | 1981 | 3396.9 | 19400 | 12900 | 118000 | 6500 | 60000 | 1400 | 13200 | * |
| JULY | 1981 | 1373.95 | 31200 | 21000 | 77800 | 10800 | 40000 | 2200 | 8300 | * |
| AUG. | 1981 | 2591.7 | 18500 | 12200 | 85300 | 6200 | 43000 | 1400 | 9760 | * |
| SEPT | 1981 | 3592.11 | 12900 | 8250 | 80000 | 4000 | 39000 | 1100 | 10300 | * |
| TOTAL | | 14222.17 | ** | ** | 628000 | ** | 323000 | ** | 66900 | ** |
| WTD. AVG. | | 39 | 24300 | 16400 | ** | 8400 | ** | 1700 | ** | ** |

07299540 PRAIRIE DOG TOWN FORK RED RIVER NEAR CHILDRESS, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 69200 | 74300 | 71900 | 72300 | 71100 | 72500 | 79900 | 11700 | 16500 | 47400 | 45600 | 50000 |
| 2 | 72400 | 72400 | 73500 | 72100 | 72000 | 76100 | 80200 | 22400 | 11200 | 61500 | 60000 | 62900 |
| 3 | 72700 | 73800 | 72900 | 72000 | 71600 | 75000 | 81000 | 24900 | 10400 | 74100 | 74500 | 65700 |
| 4 | 72300 | 75100 | 70200 | 72900 | 72800 | 70300 | 80200 | 45500 | 13400 | 77800 | 81000 | 12300 |
| 5 | 74800 | 72500 | 70000 | 71000 | 70100 | 72500 | 79500 | 50000 | 16400 | 55200 | 80400 | 10900 |
| 6 | 72600 | 72000 | 69900 | 71800 | 70000 | 74000 | 78800 | 64600 | 20600 | 68900 | 74900 | 10400 |
| 7 | 73400 | 73700 | 55200 | 72400 | 70500 | 66000 | 75700 | 64300 | 18500 | 74100 | 45900 | 11800 |
| 8 | 73000 | 74000 | 31700 | 71300 | 71200 | 60600 | 77800 | 50200 | 22400 | 79700 | 61600 | 16900 |
| 9 | 74400 | 73200 | 17400 | 71200 | 67500 | 66200 | 79100 | 48600 | 38500 | 38200 | 78900 | 17400 |
| 10 | 77300 | 73600 | 59100 | 71500 | 68000 | 67400 | 71600 | 50800 | 54700 | 20600 | 79800 | 18000 |
| 11 | 77000 | 73100 | 64100 | 71400 | 68600 | 69000 | 44900 | 53600 | 70800 | 28900 | 58700 | 26500 |
| 12 | 76700 | 73200 | 83500 | 71300 | 69200 | 70100 | 54900 | 57500 | 71900 | 80300 | 43400 | 35000 |
| 13 | 77600 | 71900 | 81000 | 71600 | 70000 | 70600 | 59200 | 64900 | 72500 | 81800 | 11000 | 40700 |
| 14 | 75400 | 62500 | 84000 | 72400 | 70700 | 68200 | 49600 | 67400 | 73100 | 80800 | 11400 | 28600 |
| 15 | 79000 | 66100 | 86400 | 72700 | 71000 | 50400 | 55800 | 70000 | 28900 | 81100 | 12100 | 31900 |
| 16 | 39300 | 54100 | 88200 | 72400 | 71600 | 53800 | 45300 | 69700 | 13500 | 84800 | 17400 | 35600 |
| 17 | 55000 | 29900 | 90000 | 71900 | 72100 | 62500 | 65600 | 72900 | 13000 | 86400 | 22900 | 40700 |
| 18 | 65600 | 65000 | 92900 | 70000 | 71700 | 74500 | 50500 | 75600 | 27500 | 85500 | 10800 | 49700 |
| 19 | 68700 | 67000 | 85000 | 67700 | 73800 | 74800 | 35900 | 77500 | 40000 | 81800 | 17400 | 55400 |
| 20 | 70100 | 69500 | 73300 | 68200 | 80400 | 75300 | 40400 | 76800 | 52100 | 82300 | 23900 | 63800 |
| 21 | 71600 | 70600 | 71500 | 70200 | 80000 | 74500 | 48100 | 76000 | 68600 | 87800 | 30500 | 64100 |
| 22 | 72600 | 70200 | 69300 | 70500 | 79900 | 75700 | 56900 | 75100 | 63200 | 91000 | 49900 | 68500 |
| 23 | 74500 | 71500 | 70700 | 70000 | 76600 | 77000 | 75200 | 77000 | 75300 | 94100 | 58000 | 66500 |
| 24 | 76300 | 72800 | 71800 | 70200 | 76000 | 75500 | 74700 | 75800 | 77800 | 96100 | 63500 | 68700 |
| 25 | 75400 | 72300 | 69500 | 72000 | 75100 | 73200 | 74100 | 75600 | 81100 | 95600 | 67600 | 68600 |
| 26 | 75200 | 72200 | 67800 | 72400 | 74300 | 77000 | 77100 | 80300 | 84000 | 93800 | 70500 | 69800 |
| 27 | 74500 | 70400 | 68400 | 71700 | 73100 | 76000 | 76900 | 80100 | 84400 | 91500 | 58500 | 71000 |
| 28 | 74900 | 72800 | 69700 | 71300 | 69600 | 76400 | 75200 | 65000 | 87500 | 34700 | 8760 | 72200 |
| 29 | 77600 | 71800 | 70300 | 72000 | --- | 76600 | 77000 | 32000 | 84500 | 22200 | 12900 | 71900 |
| 30 | 73400 | 72000 | 71500 | 72900 | --- | 79700 | 77300 | 20300 | 75300 | 15600 | 23800 | 75400 |
| 31 | 73600 | --- | 72700 | 72500 | --- | 84600 | --- | 13500 | --- | 25200 | 34600 | --- |
| MEAN | 72100 | 69500 | 70800 | 71400 | 72400 | 71500 | 66600 | 57700 | 48900 | 68300 | 44800 | 46000 |

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 33.0 | 13.0 | 20.0 | 14.0 | 10.0 | 15.0 | 15.0 | 24.0 | 28.0 | 31.0 | 26.0 | 29.0 |
| 2 | 27.0 | 19.0 | 16.0 | 15.0 | 13.0 | 16.0 | 17.0 | 26.0 | 25.0 | --- | 25.0 | 29.0 |
| 3 | 29.0 | 16.0 | 20.0 | 17.0 | 4.0 | 18.0 | 17.0 | 22.0 | 21.0 | --- | 30.0 | 26.0 |
| 4 | 30.0 | 11.0 | --- | 14.0 | 13.0 | 18.0 | 15.0 | 23.0 | 29.0 | 30.0 | 28.0 | 26.0 |
| 5 | 27.0 | 18.0 | 17.0 | 16.0 | 14.0 | 20.0 | 21.0 | 22.0 | 26.0 | 29.0 | 29.0 | 26.0 |
| 6 | 27.0 | 15.0 | 15.0 | 18.0 | 14.0 | 20.0 | 20.0 | 24.0 | 30.0 | 30.0 | 26.0 | 31.0 |
| 7 | 23.0 | 20.0 | 15.0 | 16.0 | 13.0 | 13.0 | 19.0 | 23.0 | 28.0 | 29.0 | 27.0 | 27.0 |
| 8 | 30.0 | 20.0 | 8.0 | 20.0 | 12.0 | 11.0 | 23.0 | 27.0 | 29.0 | 29.0 | 30.0 | 29.0 |
| 9 | 30.0 | 20.0 | 12.0 | 20.0 | 10.0 | 13.0 | 24.0 | 25.0 | 29.0 | 28.0 | 28.0 | 27.0 |
| 10 | 30.0 | 15.0 | 15.0 | 15.0 | 8.0 | 10.0 | 23.0 | 25.0 | 30.0 | 30.0 | 27.0 | 27.0 |
| 11 | 29.0 | 22.0 | 19.0 | 17.0 | 9.0 | 14.0 | 25.0 | 24.0 | 30.0 | 30.0 | 25.0 | 24.0 |
| 12 | 28.5 | 15.0 | 16.0 | 17.0 | 12.0 | 19.0 | 25.0 | 28.0 | 30.0 | 30.0 | 23.0 | 23.0 |
| 13 | 25.0 | 23.0 | 10.0 | 8.0 | 8.0 | 18.0 | 25.0 | 22.0 | 30.0 | 29.0 | 25.0 | 24.0 |
| 14 | 25.0 | 13.0 | 17.0 | 17.0 | 12.0 | 17.0 | 21.0 | 24.0 | 29.0 | 31.0 | 27.0 | 22.0 |
| 15 | 25.0 | 17.0 | 10.0 | 18.0 | 15.0 | 20.0 | 23.0 | 23.0 | 25.0 | 32.0 | 30.0 | --- |
| 16 | 21.0 | 10.0 | 18.0 | 10.0 | 17.0 | 14.0 | 18.0 | 25.0 | 27.0 | 32.0 | 30.0 | 25.0 |
| 17 | 22.0 | 10.0 | 25.0 | 7.0 | 16.0 | 10.0 | 28.0 | --- | 25.0 | 31.0 | 27.0 | 20.0 |
| 18 | 20.0 | 16.0 | 14.0 | 15.0 | 17.0 | 11.0 | --- | --- | 30.0 | 25.0 | 25.0 | 28.0 |
| 19 | 27.0 | 12.0 | 10.0 | 6.0 | 19.0 | 15.0 | 29.0 | --- | 30.0 | 29.0 | --- | 29.0 |
| 20 | 22.0 | 10.0 | 13.0 | 5.0 | 18.0 | 16.0 | 25.0 | --- | 28.0 | 35.0 | --- | 25.0 |
| 21 | 15.0 | 10.0 | 15.0 | 10.0 | 19.0 | 12.0 | 25.0 | --- | 30.0 | 29.0 | 25.0 | 21.0 |
| 22 | 16.0 | 10.0 | 15.0 | 5.0 | 17.0 | 17.0 | 26.0 | --- | 30.0 | 25.0 | 28.0 | 24.0 |
| 23 | 18.0 | 14.0 | 10.0 | 18.0 | 14.0 | 17.0 | 28.0 | --- | 32.0 | 25.0 | 28.0 | 25.0 |
| 24 | 23.0 | 15.0 | 10.0 | 19.0 | 25.0 | --- | 29.0 | 24.0 | 29.0 | 28.0 | 26.0 | 26.0 |
| 25 | 16.0 | 20.0 | 17.0 | 15.0 | 25.0 | 18.0 | 23.0 | 24.0 | 30.0 | 29.0 | 30.0 | 28.0 |
| 26 | 20.0 | 19.0 | 14.0 | 9.0 | 23.0 | 10.0 | 27.0 | 23.0 | 28.0 | 31.0 | 23.0 | 28.0 |
| 27 | 15.0 | 9.0 | 18.0 | 18.0 | 24.0 | 17.0 | 22.0 | 25.0 | 29.0 | 29.0 | 25.0 | 28.0 |
| 28 | 8.0 | 20.0 | 12.0 | 20.0 | 18.0 | 13.0 | 28.0 | 24.0 | 29.0 | 29.0 | 27.0 | --- |
| 29 | 20.0 | 7.0 | 18.0 | 21.0 | --- | 25.0 | 22.0 | 27.0 | 30.0 | 29.0 | 26.0 | 29.0 |
| 30 | 12.0 | --- | 12.0 | 5.0 | --- | 18.0 | 21.0 | 28.0 | 31.0 | 29.0 | 28.0 | 30.0 |
| 31 | 12.0 | --- | 14.0 | 8.0 | --- | 18.0 | --- | --- | --- | 25.0 | 31.0 | --- |
| MEAN | 23.0 | 15.0 | 15.0 | 14.0 | 15.0 | 16.0 | 23.0 | 24.5 | 28.5 | 29.0 | 27.0 | 26.5 |

## 07299570 RED RIVER NEAR QUANAH, TX

LOCATION.--Lat 34°24'47", long 99°44'03", Hardeman County, Hydrologic Unit 11130101, on right bank at downstream side of bridge on State Highway 6, 8 mi (13 km) north of Quanah, 30 mi (48 km) upstream from Salt Fork Red River, and at mile 1,030 (1,657 km).

DRAINAGE AREA.--8,321 $mi^2$ (21,551 $km^2$), of which 4,769 $mi^2$ (12,352 $km^2$) probably is noncontributing.

### WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 1,412.97 ft (430.673 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Several small diversions above station for irrigation. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 07299540.

AVERAGE DISCHARGE.--21 years (water years 1961-81), 141 $ft^3/s$ (3.993 $m^3/s$), 102,200 acre-ft/yr (126 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 73,500 $ft^3/s$ (2,080 $m^3/s$) May 28, 1978, gage height, 15.78 ft (4.810 m); maximum gage height, 16.00 ft (4.877 m) June 7, 1960; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1891 occurred in 1896 and reached a stage of about 23 ft (7.0 m); second highest stage occurred June 1, 1957, and reached a stage of 21.2 ft (6.46 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,180 $ft^3/s$ (232 $m^3/s$) Sept. 5 at 0500 hours, gage height, 9.77 ft (2.978 m), no other peak above base of 5,000 $ft^3/s$ (142 $m^3/s$); minimum daily, 0.12 $ft^3/s$ (0.003 $m^3/s$) July 23-27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.5 | 1.4 | 1.8 | 4.7 | 6.8 | 14 | 7.8 | 14 | 184 | 2.8 | 63 | 11 |
| 2 | 1.0 | 1.6 | 1.4 | 4.3 | 5.5 | 11 | 7.6 | 128 | 1820 | .95 | 19 | 7.2 |
| 3 | .45 | 1.6 | 1.8 | 4.4 | 5.2 | 11 | 8.3 | 86 | 1670 | .89 | 8.0 | 5.2 |
| 4 | .32 | 1.5 | 2.3 | 4.1 | 5.8 | 11 | 6.9 | 74 | 1930 | .90 | 2.7 | 4.5 |
| 5 | .19 | 1.7 | 2.5 | 4.2 | 5.8 | 8.9 | 7.3 | 33 | 186 | 5.9 | 1.5 | 2110 |
| 6 | .25 | 1.8 | 2.5 | 4.7 | 6.1 | 7.5 | 7.2 | 21 | 251 | 3.7 | 1.1 | 275 |
| 7 | .53 | 1.9 | 6.8 | 4.3 | 8.1 | 11 | 7.8 | 11 | 143 | .80 | 2.9 | 147 |
| 8 | .35 | 1.8 | 22 | 4.6 | 8.3 | 15 | 7.4 | 10 | 98 | .31 | 1.2 | 98 |
| 9 | .23 | 1.9 | 159 | 5.1 | 8.0 | 21 | 7.3 | 52 | 55 | .20 | .87 | 71 |
| 10 | .20 | 1.9 | 148 | 5.1 | 7.5 | 15 | 7.2 | 35 | 42 | .19 | .52 | 52 |
| 11 | .22 | 2.0 | 66 | 5.1 | 7.0 | 12 | 28 | 13 | 21 | 19 | 1.7 | 37 |
| 12 | .31 | 2.3 | 48 | 4.8 | 7.7 | 10 | 58 | 4.8 | 16 | 10 | 6.2 | 25 |
| 13 | .38 | 2.4 | 34 | 5.2 | 6.3 | 9.4 | 31 | 2.2 | 12 | 2.8 | 9.5 | 18 |
| 14 | .51 | 2.4 | 26 | 4.9 | 10 | 16 | 57 | 1.1 | 10 | .87 | 462 | 23 |
| 15 | .52 | 2.3 | 21 | 5.1 | 8.2 | 78 | 51 | 1.1 | 27 | .39 | 450 | 12 |
| 16 | .34 | 6.1 | 16 | 4.9 | 7.7 | 57 | 64 | 1.9 | 144 | .23 | 128 | 9.1 |
| 17 | .28 | 11 | 13 | 4.8 | 6.6 | 35 | 43 | 1.5 | 135 | .19 | 68 | 7.5 |
| 18 | .27 | 9.7 | 11 | 6.7 | 6.6 | 20 | 39 | .51 | 51 | .19 | 36 | 5.4 |
| 19 | .29 | 14 | 7.8 | 9.5 | 5.5 | 14 | 72 | .29 | 22 | .19 | 159 | 3.7 |
| 20 | .51 | 6.5 | 5.0 | 14 | 5.4 | 12 | 60 | .45 | 12 | .19 | 81 | 2.7 |
| 21 | .71 | 3.3 | 5.3 | 14 | 4.8 | 10 | 55 | .48 | 6.3 | .15 | 37 | 2.0 |
| 22 | .75 | 2.7 | 5.8 | 12 | 3.9 | 9.4 | 43 | .88 | 3.6 | .15 | 18 | 1.4 |
| 23 | .74 | 2.9 | 8.7 | 9.8 | 3.5 | 9.2 | 24 | .58 | 2.5 | .12 | 9.6 | 1.2 |
| 24 | .59 | 2.4 | 7.0 | 8.6 | 3.4 | 9.1 | 15 | 5.6 | 1.9 | .12 | 6.2 | 10 |
| 25 | .74 | 2.6 | 5.5 | 7.3 | 2.9 | 9.2 | 8.5 | 4.9 | 1.7 | .12 | 4.6 | 15 |
| 26 | .99 | 2.6 | 6.3 | 6.8 | 3.2 | 9.2 | 5.1 | .91 | 1.7 | .12 | 3.1 | 3.1 |
| 27 | 1.4 | 2.1 | 6.7 | 6.3 | 3.9 | 8.7 | 3.4 | .76 | 1.3 | .12 | 2.9 | 1.5 |
| 28 | .63 | 2.0 | 6.7 | 6.0 | 12 | 9.9 | 3.0 | .70 | .99 | 6.5 | 24 | 1.1 |
| 29 | .72 | 2.0 | 6.3 | 5.8 | --- | 8.6 | 3.0 | 114 | .95 | 9.9 | 221 | .68 |
| 30 | 1.0 | 2.1 | 5.4 | 5.8 | --- | 8.2 | 2.6 | 239 | 1.2 | 147 | 47 | .52 |
| 31 | 1.1 | --- | 5.0 | 6.2 | --- | 7.2 | --- | 207 | --- | 71 | 19 | --- |
| TOTAL | 22.02 | 100.5 | 664.6 | 199.1 | 175.7 | 487.5 | 740.4 | 1065.66 | 6851.14 | 285.99 | 1894.59 | 2960.80 |
| MEAN | .71 | 3.35 | 21.4 | 6.42 | 6.28 | 15.7 | 24.7 | 34.4 | 228 | 9.23 | 61.1 | 98.7 |
| MAX | 5.5 | 14 | 159 | 14 | 12 | 78 | 72 | 239 | 1930 | 147 | 462 | 2110 |
| MIN | .19 | 1.4 | 1.4 | 4.1 | 2.9 | 7.2 | 2.6 | .29 | .95 | .12 | .52 | .52 |
| AC-FT | 44 | 199 | 1320 | 395 | 349 | 967 | 1470 | 2110 | 13590 | 567 | 3760 | 5870 |

CAL YR 1980 TOTAL 36619.10 MEAN 100 MAX 7870 MIN .00 AC-FT 72630
WTR YR 1981 TOTAL 15448.00 MEAN 42.3 MAX 2110 MIN .12 AC-FT 30640

07299570 RED RIVER NEAR QUANAH, TX

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to September 1973. Pesticide analyses: March 1968 to September 1973. Sediment records: May 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | TEMPER-ATURE (DEG C) | SEDI-MENT, SUS-PENDED (MG/L) | SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) | SED. SUSP. FALL DIAM. % FINER THAN .002 MM | SED. SUSP. FALL DIAM. % FINER THAN .004 MM |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 02... | 1330 | 1.0 | 25.0 | 70 | .19 | -- | -- |
| NOV | | | | | | | |
| 05... | 1320 | 1.7 | 20.5 | 12 | .06 | -- | -- |
| DEC | | | | | | | |
| 16... | 1230 | 17 | 10.0 | 2060 | 93 | 92 | 93 |
| JAN | | | | | | | |
| 27... | 1230 | 6.5 | 7.5 | 43 | .75 | -- | -- |
| MAR | | | | | | | |
| 10... | 1205 | 16 | 12.0 | 116 | 4.9 | -- | -- |
| APR | | | | | | | |
| 21... | 1225 | 53 | 17.0 | 2660 | 378 | 80 | 84 |
| JUN | | | | | | | |
| 02... | 1300 | 3320 | 23.0 | 24300 | 218000 | 29 | 37 |
| 10... | 1035 | 37 | 27.5 | 659 | 66 | -- | -- |
| JUL | | | | | | | |
| 14... | 1140 | 3.1 | 31.0 | 265 | 2.2 | -- | -- |
| AUG | | | | | | | |
| 25... | 1320 | 4.2 | 31.0 | 309 | 3.5 | -- | -- |

| DATE | SED. SUSP. FALL DIAM. % FINER THAN .008 MM | SED. SUSP. FALL DIAM. % FINER THAN .016 MM | SED. SUSP. FALL DIAM. % FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 02... | -- | -- | -- | 98 | -- | -- | -- |
| NOV | | | | | | | |
| 05... | -- | -- | -- | 81 | -- | -- | -- |
| DEC | | | | | | | |
| 16... | 97 | 98 | 98 | 100 | -- | -- | -- |
| JAN | | | | | | | |
| 27... | -- | -- | -- | 81 | -- | -- | -- |
| MAR | | | | | | | |
| 10... | -- | -- | -- | 95 | -- | -- | -- |
| APR | | | | | | | |
| 21... | 89 | 91 | 92 | 95 | 98 | 100 | -- |
| JUN | | | | | | | |
| 02... | 48 | 57 | 65 | 75 | 95 | 99 | 100 |
| 10... | -- | -- | -- | 93 | -- | -- | -- |
| JUL | | | | | | | |
| 14... | -- | -- | -- | 100 | -- | -- | -- |
| AUG | | | | | | | |
| 25... | -- | -- | -- | 100 | -- | -- | -- |

## 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 on downstream side of bridge on State Highway 6, 2 mi (3 km) downstream from confluence of North and South Groesbeck Creeks, 4 mi (6 km) north of Quanah, and 9 mi (14 km) upstream from mouth.

DRAINAGE AREA.--303 $mi^2$ (785 $km^2$).

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

GAGE.--Water-stage recorder. Datum of gage is 1,425.69 ft (434.550 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several diversions upstream from station for farm and ranch use and for a gypsum wallboard plant. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--19 years (water years 1963-81), 13.6 $ft^3/s$ (0.385 $m^3/s$), 0.61 in/yr (15 mm/yr), 9,850 acre-ft/yr (12.1 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,900 $ft^3/s$ (394 $m^3/s$) Sept. 19, 1974, gage height, 23.56 ft (7.181 m), from rating curve extended above 6,100 $ft^3/s$ (173 $m^3/s$); no flow at times.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 706 $ft^3/s$ (20.0 $m^3/s$) June 2 at 1130 hours, gage height, 12.44 ft (3.792 m), no peak above base of 1,000 $ft^3/s$ (28.3 $m^3/s$); minimum, 2.4 $ft^3/s$ (0.068 $m^3/s$) Sept. 7-9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.2 | 3.4 | 4.2 | 4.2 | 4.8 | 5.0 | 4.6 | 6.5 | 8.8 | 5.5 | 5.7 | 2.7 |
| 2 | 3.3 | 3.3 | 3.8 | 4.2 | 4.7 | 4.8 | 4.6 | 6.5 | 278 | 5.5 | 4.4 | 2.8 |
| 3 | 3.0 | 3.5 | 3.7 | 4.2 | 4.7 | 4.8 | 4.8 | 5.6 | 414 | 5.5 | 4.0 | 2.9 |
| 4 | 3.0 | 3.7 | 3.9 | 4.2 | 4.6 | 5.1 | 4.5 | 5.9 | 169 | 5.5 | 3.8 | 2.8 |
| 5 | 3.0 | 3.7 | 4.0 | 4.2 | 4.6 | 4.7 | 4.5 | 147 | 21 | 5.6 | 3.4 | 2.6 |
| 6 | 3.2 | 3.9 | 3.8 | 4.4 | 4.6 | 4.6 | 4.6 | 33 | 230 | 5.4 | 3.2 | 2.6 |
| 7 | 3.3 | 4.0 | 4.4 | 4.4 | 4.6 | 4.8 | 4.7 | 9.6 | 241 | 5.2 | 3.3 | 2.5 |
| 8 | 3.3 | 4.0 | 5.3 | 4.2 | 4.7 | 5.0 | 4.7 | 5.9 | 76 | 5.2 | 3.4 | 2.5 |
| 9 | 3.3 | 4.0 | 4.6 | 4.2 | 4.8 | 5.0 | 4.8 | 4.9 | 13 | 5.0 | 3.2 | 2.5 |
| 10 | 3.3 | 4.2 | 3.9 | 4.2 | 4.9 | 4.8 | 4.8 | 4.4 | 8.3 | 5.0 | 3.2 | 2.6 |
| 11 | 3.3 | 4.0 | 4.2 | 4.2 | 4.7 | 4.8 | 5.0 | 4.5 | 6.8 | 4.8 | 3.4 | 2.6 |
| 12 | 3.4 | 4.1 | 4.0 | 4.2 | 4.7 | 4.8 | 5.2 | 4.4 | 6.6 | 4.6 | 3.5 | 2.6 |
| 13 | 3.5 | 4.2 | 4.0 | 4.2 | 4.6 | 4.8 | 5.4 | 4.4 | 12 | 4.6 | 4.0 | 2.6 |
| 14 | 3.5 | 4.2 | 4.0 | 4.4 | 4.7 | 5.0 | 9.3 | 4.4 | 8.9 | 4.2 | 4.4 | 3.1 |
| 15 | 3.5 | 4.3 | 4.0 | 4.5 | 4.9 | 9.1 | 9.8 | 4.8 | 7.4 | 4.4 | 3.8 | 3.3 |
| 16 | 3.4 | 4.5 | 4.0 | 4.4 | 4.9 | 6.9 | 8.5 | 4.8 | 7.5 | 4.3 | 3.4 | 2.8 |
| 17 | 3.4 | 5.3 | 3.8 | 4.4 | 4.7 | 4.5 | 7.6 | 4.8 | 6.6 | 4.2 | 3.4 | 2.7 |
| 18 | 3.3 | 4.8 | 3.9 | 4.5 | 4.6 | 4.1 | 7.4 | 4.7 | 6.2 | 4.2 | 3.4 | 2.6 |
| 19 | 3.1 | 4.5 | 3.7 | 4.6 | 4.4 | 4.1 | 8.2 | 4.5 | 6.2 | 4.2 | 3.4 | 2.7 |
| 20 | 3.3 | 4.4 | 3.7 | 4.5 | 4.4 | 4.2 | 6.8 | 4.4 | 6.2 | 4.0 | 3.2 | 2.7 |
| 21 | 3.4 | 4.3 | 3.8 | 4.6 | 4.8 | 4.4 | 6.6 | 4.4 | 6.0 | 3.9 | 3.2 | 2.7 |
| 22 | 3.6 | 4.4 | 3.9 | 4.6 | 4.8 | 4.3 | 6.7 | 4.5 | 5.8 | 3.7 | 3.0 | 2.5 |
| 23 | 3.4 | 4.5 | 4.0 | 4.6 | 5.1 | 4.6 | 5.8 | 4.5 | 5.6 | 3.6 | 3.0 | 2.5 |
| 24 | 3.3 | 4.4 | 4.2 | 4.6 | 4.9 | 4.6 | 5.4 | 24 | 5.7 | 3.6 | 3.0 | 2.8 |
| 25 | 3.3 | 4.4 | 4.2 | 4.6 | 4.6 | 4.6 | 5.5 | 92 | 5.6 | 3.6 | 2.9 | 12 |
| 26 | 3.4 | 4.2 | 4.3 | 4.7 | 4.5 | 4.8 | 5.6 | 38 | 5.5 | 3.6 | 2.9 | 36 |
| 27 | 3.4 | 4.1 | 4.4 | 4.6 | 4.9 | 4.7 | 5.5 | 12 | 5.2 | 3.4 | 2.7 | 9.7 |
| 28 | 3.3 | 4.0 | 4.4 | 4.6 | 5.0 | 4.8 | 6.5 | 6.0 | 5.2 | 4.5 | 2.8 | 4.3 |
| 29 | 3.3 | 4.1 | 4.4 | 4.7 | --- | 4.6 | 6.3 | 4.8 | 5.2 | 113 | 3.0 | 3.3 |
| 30 | 3.3 | 4.3 | 4.4 | 4.6 | --- | 4.5 | 6.2 | 5.1 | 5.3 | 19 | 3.0 | 3.0 |
| 31 | 3.3 | --- | 4.4 | 4.7 | --- | 4.6 | --- | 6.5 | --- | 9.9 | 2.8 | --- |
| TOTAL | 102.6 | 124.7 | 127.3 | 137.2 | 132.2 | 151.4 | 179.9 | 476.8 | 1588.6 | 268.7 | 105.8 | 133.0 |
| MEAN | 3.31 | 4.16 | 4.11 | 4.43 | 4.72 | 4.88 | 6.00 | 15.4 | 53.0 | 8.67 | 3.41 | 4.43 |
| MAX | 3.6 | 5.3 | 5.3 | 4.7 | 5.1 | 9.1 | 9.8 | 147 | 414 | 113 | 5.7 | 36 |
| MIN | 3.0 | 3.3 | 3.7 | 4.2 | 4.4 | 4.1 | 4.5 | 4.4 | 5.2 | 3.4 | 2.7 | 2.5 |
| CFSM | .01 | .01 | .01 | .02 | .02 | .02 | .02 | .05 | .18 | .03 | .01 | .02 |
| IN. | .01 | .02 | .02 | .02 | .02 | .02 | .02 | .06 | .20 | .03 | .01 | .02 |
| AC-FT | 204 | 247 | 252 | 272 | 262 | 300 | 357 | 946 | 3150 | 533 | 210 | 264 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 4554.49 | MEAN 12.4 | MAX 1040 | MIN .69 | CFSM .04 | IN .56 | AC-FT 9030 |
| WTR YR 1981 | TOTAL | 3528.20 | MEAN 9.67 | MAX 414 | MIN 2.5 | CFSM .03 | IN .43 | AC-FT 7000 |

## 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 (6.9 km) north of Clarendon.

DRAINAGE AREA.--457 mi² (1,184 km²), of which 191 mi² (495 km²) probably is noncontributing.

### WATER-DISCHARGE RECORDS

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 (1,770 m) long. Deliberate impoundment began Dec. 5, 1966, and the dam was completed in August 1967. The dam is the property of Greenbelt Municipal and Industrial Water Authority and was built to impound water for municipal and industrial uses by the cities of Childress, Clarendon, Crowell, Hedley, and Quanah. The spillway is an uncontrolled open cut through natural ground, 1,450 ft (442 m) wide and located at the left end of dam, designed to discharge 184,000 ft³/s (5,210 m³/s) at an elevation of 2,684.0 ft (818.08 m). A morning-glory-type drop inlet with a 26 ft 8.5-inch-diameter (8.14 m) opening at crest discharges into a 7- by 7-foot (2 by 2 m) concrete conduit. The outlet works consists of a 36-inch (914 mm) pipe that is controlled by two 20-inch (508 mm) 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 furnished by Greenbelt Municipal and Industrial Water Authority.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 44,650 acre-ft (55.1 hm³) June 26-28, 1975, elevation, 2,655.71 ft (809.460 m); minimum, 2,950 acre-ft (3.64 hm³) Aug. 29, 30, 1967, elevation, 2,607.37 ft (794.726 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 30,410 acre-ft (37.5 hm³) Oct. 1 at 0015 hours, elevation, 2,646.03 ft (806.510 m); minimum observed, 27,520 acre-ft (33.9 hm³) Sept. 30, elevation, 2,643.68 ft (805.794 m).

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

| | | | |
|---|---|---|---|
| 2,643.0 | 26,720 | 2,646.0 | 30,370 |
| 2,644.0 | 27,900 | 2,647.0 | 31,660 |
| 2,645.0 | 29,120 | | |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 30360 | 29380 | 28970 | 29500 | 29380 | 29380 | 29430 | 29370 | 29160 | 29060 | 27890 | 27820 |
| 2 | 30310 | 29380 | 28990 | 29480 | 29360 | 29410 | 29380 | 29360 | 29260 | 29020 | 27840 | 27780 |
| 3 | 30280 | 29360 | 29000 | 29460 | 29400 | 29430 | 29260 | 29370 | 30160 | 28970 | 27830 | 27700 |
| 4 | 30260 | 29360 | 29010 | 29480 | 29370 | 29450 | 29280 | 29350 | 30250 | 29000 | 27790 | 28120 |
| 5 | 30230 | 29360 | 29010 | 29460 | 29360 | 29460 | 29280 | 29330 | 30270 | 28970 | 27730 | 28170 |
| 6 | 30210 | 29350 | 29020 | 29470 | 29350 | 29470 | 29230 | 29320 | 30270 | 28920 | 27730 | 28180 |
| 7 | 30200 | 29370 | 29380 | 29460 | 29410 | 29480 | 29250 | 29310 | 30260 | 28880 | 27680 | 28160 |
| 8 | 30160 | 29360 | 29510 | 29450 | 29370 | 29480 | 29230 | 29310 | 30260 | 28850 | 27640 | 28130 |
| 9 | 30120 | 29360 | 29550 | 29480 | 29330 | 29480 | 29200 | 29180 | 30220 | 28810 | 27620 | 28080 |
| 10 | 30080 | 29360 | 29560 | 29450 | 29370 | 29470 | 29260 | 29180 | 30180 | 28770 | 27580 | 28070 |
| 11 | 30030 | 29320 | 29580 | 29470 | 29370 | 29470 | 29210 | 29130 | 30160 | 28690 | 27570 | 28060 |
| 12 | 29980 | 29300 | 29600 | 29410 | 29360 | 29470 | 29180 | 29120 | 30110 | 28630 | 27760 | 28020 |
| 13 | 29920 | 29210 | 29600 | 29410 | 29370 | 29460 | 29250 | 29060 | 30070 | 28610 | 28140 | 28000 |
| 14 | 29870 | 29250 | 29580 | 29410 | 29410 | 29460 | 29130 | 29030 | 30030 | 28560 | 28180 | 28020 |
| 15 | 29830 | 29250 | 29580 | 29450 | 29400 | 29460 | 29130 | 29010 | 29950 | 28530 | 28120 | 28000 |
| 16 | 29800 | 29220 | 29610 | 29420 | 29410 | 29450 | 29170 | 29010 | 29920 | 28490 | 28180 | 27910 |
| 17 | 29750 | 29120 | 29600 | 29430 | 29400 | 29450 | 29160 | 28890 | 29780 | 28450 | 28160 | 27910 |
| 18 | 29710 | 29120 | 29550 | 29430 | 29400 | 29530 | 29330 | 28850 | 29710 | 28420 | 28130 | 27890 |
| 19 | 29680 | 29100 | 29570 | 29420 | 29400 | 29550 | 29350 | 28900 | 29670 | 28440 | 28110 | 27860 |
| 20 | 29680 | 29070 | 29560 | 29450 | 29370 | 29550 | 29330 | 28830 | 29650 | 28400 | 28070 | 27840 |
| 21 | 29660 | 29100 | 29550 | 29400 | 29320 | 29530 | 29330 | 28810 | 29570 | 28340 | 28030 | 27830 |
| 22 | 29660 | 29150 | 29530 | 29450 | 29320 | 29470 | 29280 | 28840 | 29520 | 28270 | 28000 | 27790 |
| 23 | 29560 | 29000 | 29510 | 29430 | 29320 | 29500 | 29300 | 28730 | 29460 | 28190 | 27960 | 27760 |
| 24 | 29560 | 29000 | 29550 | 29430 | 29320 | 29470 | 29260 | 28730 | 29410 | 28120 | 27940 | 27750 |
| 25 | 29530 | 29000 | 29550 | 29470 | 29300 | 29500 | 29230 | 28710 | 29350 | 28020 | 27900 | 27700 |
| 26 | 29530 | 28950 | 29530 | 29450 | 29310 | 29460 | 29220 | 28720 | 29280 | 27990 | 27860 | 27680 |
| 27 | 29430 | 28990 | 29570 | 29450 | 29330 | 29480 | 29220 | 28830 | 29180 | 27920 | 27850 | 27650 |
| 28 | 29410 | 29010 | 29570 | 29460 | 29370 | 29360 | 29200 | 28840 | 29150 | 27910 | 27940 | 27620 |
| 29 | 29420 | 29030 | 29560 | 29430 | --- | 29470 | 29200 | 28850 | 29100 | 27970 | 27920 | 27580 |
| 30 | 29410 | 29030 | 29480 | 29430 | --- | 29430 | 29170 | 28940 | 29100 | 27970 | 27910 | 27520 |
| 31 | 29410 | --- | 29470 | 29320 | --- | 29430 | --- | 28920 | --- | 27920 | 27830 | --- |
| MAX | 30360 | 29380 | 29610 | 29500 | 29410 | 29550 | 29430 | 29370 | 30270 | 29060 | 28180 | 28180 |
| MIN | 29410 | 28950 | 28970 | 29320 | 29300 | 29360 | 29130 | 28710 | 29100 | 27910 | 27570 | 27520 |
| (†) | 2645.23 | 2644.93 | 2645.28 | 2645.16 | 2645.20 | 2645.25 | 2645.04 | 2644.84 | 2644.98 | 2644.02 | 2643.94 | 2643.68 |
| (‡) | -1000 | -380 | +440 | -150 | +50 | +60 | -260 | -250 | +180 | -1180 | -90 | -310 |
| (††) | 370 | 340 | 341 | 331 | 307 | 305 | 356 | 395 | 493 | 638 | 458 | 420 |

CAL YR 1980 MAX 35710 MIN 28950 ‡ -5880 †† 4937
WTR YR 1981 MAX 30360 MIN 27520 ‡ -2890 †† 4754

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, for municipal and industrial uses by Greenbelt Municipal Water Authority.

07299840 GREENBELT LAKE NEAR CLARENDON, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | TEMPERATURE, WATER (DEG C) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|
| FEB 11... | 1420 | 639 | 1.5 | 210 | 49 | 49 | 21 | 49 |

| DATE | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| FEB 11... | 1.5 | 6.1 | 160 | 90 | 50 | .7 | 4.2 | 366 |

## 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 on downstream side of bridge on U.S. Highway 83, 4 mi (6 km) downstream from Fort Worth and Denver (Burlington) Railway Co. bridge, 4.5 mi (7.2 km) south of Lutie, and 7.2 mi (11.6 km) north of Wellington.

DRAINAGE AREA.--1,222 $mi^2$ (3,165 $km^2$), of which 209 $mi^2$ (541 $km^2$) 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 (591.742 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair. Several small diversions upstream from gage for irrigation. Some regulation for municipal use by Greenbelt Lake (station 07299840), capacity 59,100 acre-ft (72.9 $hm^3$), 42 mi (68 km) upstream.

AVERAGE DISCHARGE.--14 years (water years 1953-66) prior to completion of Greenbelt Lake, 72.6 $ft^3/s$ (2.056 $m^3/s$), 52,600 acre-ft/yr (64.9 $hm^3/yr$); 15 years (water years 1967-81) regulated, 45.9 $ft^3/s$ (1.300 $m^3/s$), 33,250 acre-ft/yr (41.0 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 146,000 $ft^3/s$ (4,130 $m^3/s$) May 16, 1957, gage height, 19.00 ft (5.791 m), from rating curve extended above 11,000 $ft^3/s$ (312 $m^3/s$) on basis of slope-area measurement of 63,400 $ft^3/s$ (1,800 $m^3/s$); minimum, 0.1 $ft^3/s$ (0.003 $m^3/s$) June 19, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,500 $ft^3/s$ (241 $m^3/s$) Sept. 4 at 1500 hours, gage height, 7.61 ft (2.320 m); minimum, 0.34 $ft^3/s$ (0.010 $m^3/s$) July 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.2 | 4.6 | 9.0 | 15 | 11 | 26 | 11 | 301 | 9.5 | 6.3 | 3.8 | 2.9 |
| 2 | 2.8 | 4.2 | 7.5 | 15 | 8.2 | 26 | 12 | 83 | 74 | 5.3 | 3.4 | 2.8 |
| 3 | 3.1 | 5.6 | 8.2 | 17 | 9.0 | 40 | 11 | 31 | 622 | 6.6 | 3.4 | 2.2 |
| 4 | 3.1 | 4.6 | 11 | 17 | 9.9 | 43 | 9.7 | 25 | 158 | 6.3 | 3.0 | 1980 |
| 5 | 2.8 | 5.6 | 11 | 17 | 9.9 | 20 | 9.6 | 16 | 64 | 5.6 | 2.7 | 533 |
| 6 | 3.8 | 5.1 | 12 | 16 | 9.0 | 15 | 9.8 | 11 | 38 | 5.1 | 4.4 | 261 |
| 7 | 3.8 | 5.6 | 43 | 14 | 11 | 34 | 9.8 | 11 | 36 | 4.7 | 7.7 | 170 |
| 8 | 4.2 | 5.6 | 89 | 15 | 9.0 | 36 | 10 | 12 | 16 | 4.6 | 6.2 | 92 |
| 9 | 3.8 | 5.6 | 31 | 15 | 14 | 18 | 10 | 7.3 | 10 | 22 | 6.2 | 58 |
| 10 | 3.1 | 5.6 | 20 | 15 | 11 | 16 | 102 | 6.3 | 7.5 | 8.3 | 8.3 | 45 |
| 11 | 2.8 | 6.2 | 17 | 14 | 7.0 | 16 | 35 | 5.5 | 7.0 | 5.4 | 18 | 31 |
| 12 | 2.8 | 6.8 | 15 | 15 | 9.0 | 15 | 19 | 6.3 | 5.8 | 4.5 | 38 | 23 |
| 13 | 2.8 | 7.5 | 14 | 17 | 15 | 15 | 64 | 5.4 | 5.5 | 3.8 | 132 | 18 |
| 14 | 3.1 | 8.2 | 14 | 15 | 19 | 21 | 29 | 5.9 | 4.8 | 4.1 | 43 | 18 |
| 15 | 6.2 | 8.2 | 14 | 14 | 21 | 45 | 29 | 6.0 | 52 | 3.9 | 14 | 35 |
| 16 | 17 | 12 | 14 | 13 | 22 | 40 | 25 | 5.9 | 20 | 4.4 | 11 | 18 |
| 17 | 6.8 | 15 | 14 | 13 | 21 | 20 | 41 | 6.1 | 10 | 4.2 | 5.3 | 14 |
| 18 | 3.8 | 14 | 15 | 15 | 21 | 13 | 330 | 4.3 | 10 | 13 | 4.1 | 9.9 |
| 19 | 3.4 | 11 | 14 | 16 | 19 | 11 | 192 | 3.8 | 9.9 | 7.1 | 4.2 | 9.9 |
| 20 | 3.8 | 9.9 | 13 | 20 | 20 | 12 | 72 | 4.2 | 10 | 2.3 | 4.0 | 6.8 |
| 21 | 3.4 | 9.9 | 12 | 17 | 20 | 13 | 32 | 4.4 | 9.1 | 1.7 | 3.5 | 6.2 |
| 22 | 4.2 | 9.9 | 12 | 14 | 20 | 11 | 19 | 5.1 | 7.8 | 1.3 | 3.5 | 4.6 |
| 23 | 3.4 | 9.0 | 14 | 15 | 17 | 11 | 15 | 4.7 | 7.4 | 1.2 | 3.0 | 4.6 |
| 24 | 3.8 | 8.2 | 17 | 15 | 18 | 12 | 13 | 5.1 | 6.1 | 1.1 | 3.6 | 5.6 |
| 25 | 3.4 | 8.2 | 15 | 15 | 17 | 12 | 8.9 | 5.1 | 5.9 | 1.0 | 3.6 | 6.2 |
| 26 | 3.4 | 8.0 | 14 | 13 | 20 | 13 | 6.7 | 5.1 | 5.9 | 1.3 | 3.1 | 4.6 |
| 27 | 3.8 | 8.0 | 14 | 13 | 24 | 12 | 6.0 | 6.1 | 4.7 | 1.5 | 46 | 4.6 |
| 28 | 4.2 | 9.0 | 15 | 14 | 26 | 15 | 5.4 | 6.1 | 4.7 | 9.6 | 5.0 | 5.1 |
| 29 | 4.6 | 9.9 | 18 | 13 | --- | 13 | 5.1 | 7.6 | 4.1 | 12 | 2.6 | 4.2 |
| 30 | 5.6 | 9.9 | 16 | 12 | --- | 12 | 6.9 | 9.0 | 8.2 | 4.0 | 1.9 | 4.6 |
| 31 | 5.6 | --- | 15 | 13 | --- | 10 | --- | 8.7 | --- | 4.9 | 2.0 | --- |
| TOTAL | 132.6 | 240.9 | 547.7 | 462 | 438.0 | 616 | 1148.9 | 624.0 | 1233.9 | 167.1 | 400.5 | 3380.8 |
| MEAN | 4.28 | 8.03 | 17.7 | 14.9 | 15.6 | 19.9 | 38.3 | 20.1 | 41.1 | 5.39 | 12.9 | 113 |
| MAX | 17 | 15 | 89 | 20 | 26 | 45 | 330 | 301 | 622 | 22 | 132 | 1980 |
| MIN | 2.8 | 4.2 | 7.5 | 12 | 7.0 | 10 | 5.1 | 3.8 | 4.1 | 1.0 | 1.9 | 2.2 |
| AC-FT | 263 | 478 | 1090 | 916 | 869 | 1220 | 2280 | 1240 | 2450 | 331 | 794 | 6710 |

CAL YR 1980 TOTAL 19612.36 MEAN 53.6 MAX 2590 MIN .71 AC-FT 38900
WTR YR 1981 TOTAL 9392.40 MEAN 25.7 MAX 1980 MIN 1.0 AC-FT 18630

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

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1967 to current year. Chemical and biochemical analyses: October 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1967 to current year.
WATER TEMPERATURES: 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, 4,190 micromhos May 11, 1970; minimum daily, 743 micromhos June 2, 1978.
WATER TEMPERATURES: 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, 3,910 micromhos Feb. 11; minimum daily, 1,000 micromhos Sept. 4.
WATER TEMPERATURES: Maximum daily, 40.0°C July 20; minimum daily, 2.0°C Jan. 12.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | |
| 19... | 1110 | 11 | 3550 | 6.0 | 1800 | 1600 | 550 | 96 | 220 |
| FEB | | | | | | | | | |
| 11... | 1200 | 7.4 | 3910 | .0 | 2000 | 1900 | 630 | 110 | 370 |
| APR | | | | | | | | | |
| 30... | 1000 | 4.6 | 3310 | 22.0 | 1700 | 1600 | 540 | 93 | 200 |
| MAY | | | | | | | | | |
| 06... | 0830 | 12 | 3130 | 14.5 | 1500 | 1400 | 460 | 86 | 200 |
| JUN | | | | | | | | | |
| 16... | 1100 | 26 | 2620 | 22.0 | 1200 | 1100 | 370 | 77 | 200 |
| JUL | | | | | | | | | |
| 28... | 0805 | 2.0 | 2920 | 24.0 | 1600 | 1500 | 520 | 82 | 120 |
| AUG | | | | | | | | | |
| 14... | 1635 | 26 | 2490 | 33.0 | 1200 | 1100 | 380 | 59 | 150 |
| SEP | | | | | | | | | |
| 05... | 0930 | 82 | 1280 | 23.0 | 440 | 330 | 130 | 28 | 97 |

| DATE | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY 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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | |
| 19... | 2.3 | 3.9 | 160 | 1600 | 330 | .4 | 17 | 2910 |
| FEB | | | | | | | | |
| 11... | 3.6 | 4.7 | 170 | 1800 | 430 | .6 | 27 | 3470 |
| APR | | | | | | | | |
| 30... | 2.1 | 3.9 | 130 | 1600 | 280 | .5 | 18 | 2810 |
| MAY | | | | | | | | |
| 06... | 2.2 | 5.1 | 140 | 1400 | 300 | .5 | 18 | 2550 |
| JUN | | | | | | | | |
| 16... | 2.5 | 6.9 | 180 | 990 | 270 | .4 | 17 | 2040 |
| JUL | | | | | | | | |
| 28... | 1.3 | 3.9 | 130 | 1500 | 170 | .6 | 22 | 2500 |
| AUG | | | | | | | | |
| 14... | 1.9 | 5.4 | 98 | 990 | 240 | .6 | 13 | 1900 |
| SEP | | | | | | | | |
| 05... | 2.1 | 5.3 | 110 | -- | 130 | -- | -- | -- |

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

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 132.6 | 3070 | 2450 | 878 | 270 | 96 | 1300 | 474 | 1500 |
| NOV. | 1980 | 240.9 | 3370 | 2750 | 1790 | 290 | 186 | 1500 | 960 | 1700 |
| DEC. | 1980 | 547.7 | 3210 | 2590 | 3840 | 280 | 409 | 1400 | 2070 | 1600 |
| JAN. | 1981 | 462 | 3250 | 2630 | 3280 | 280 | 349 | 1400 | 1770 | 1600 |
| FEB. | 1981 | 438.0 | 3200 | 2580 | 3050 | 280 | 327 | 1400 | 1640 | 1600 |
| MAR. | 1981 | 616 | 3340 | 2720 | 4530 | 280 | 473 | 1500 | 2430 | 1700 |
| APR. | 1981 | 1148.9 | 2800 | 2200 | 6810 | 250 | 775 | 1200 | 3700 | 1300 |
| MAY | 1981 | 624.0 | 2080 | 1570 | 2640 | 190 | 328 | 860 | 1450 | 960 |
| JUNE | 1981 | 1233.9 | 2040 | 1510 | 5020 | 190 | 643 | 830 | 2770 | 920 |
| JULY | 1981 | 167.1 | 3000 | 2380 | 1070 | 260 | 119 | 1300 | 581 | 1500 |
| AUG. | 1981 | 400.5 | 2960 | 2360 | 2550 | 260 | 281 | 1300 | 1380 | 1400 |
| SEPT | 1981 | 3380.8 | 1410 | 998 | 9110 | 140 | 1270 | 560 | 5070 | 610 |
| TOTAL | | 9392.4 | ** | ** | 44600 | ** | 5260 | ** | 24300 | ** |
| WTD. AVG. | | 26 | 2280 | 1760 | ** | 210 | ** | 960 | ** | 1100 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3080 | 3230 | 3350 | 3270 | 3150 | 3240 | 3150 | 1450 | 3080 | 3100 | 3030 | 3170 |
| 2 | 3090 | 3250 | 3250 | 3250 | 3070 | 3230 | 3180 | 1690 | 2950 | 3070 | 3020 | 3110 |
| 3 | 3080 | 3260 | 3310 | 3280 | 3090 | 3500 | 3140 | 2350 | 1580 | 3060 | 3010 | 3120 |
| 4 | 3090 | 3240 | 3360 | 3230 | 3230 | 3670 | 3210 | 2730 | 1910 | 3100 | 3010 | 1000 |
| 5 | 3080 | 3270 | 3340 | 3260 | 3190 | 3370 | 3170 | 3100 | 2280 | 3000 | 2930 | 1280 |
| 6 | 3090 | 3300 | 3360 | 3280 | 3110 | 3300 | 3190 | 3180 | 2670 | 3040 | 3010 | 1940 |
| 7 | 3100 | 3290 | 3190 | 3220 | 3220 | 3150 | 3230 | 3200 | 2570 | 3100 | 3310 | 2140 |
| 8 | 3080 | 3280 | 2700 | 3280 | 3170 | 3500 | 3180 | 3140 | 2690 | 3060 | 3010 | 2420 |
| 9 | 3100 | 3320 | 3450 | 3260 | 3220 | 3440 | 3170 | 3320 | 2820 | 2840 | 2890 | 2620 |
| 10 | 3140 | 3260 | 3430 | 3250 | 3500 | 3410 | 2900 | 3260 | 2910 | 3190 | 2950 | 2760 |
| 11 | 3100 | 3320 | 3410 | 3270 | 3910 | 3330 | 3270 | 3190 | 2980 | 3150 | 2850 | 2850 |
| 12 | 3130 | 3310 | 3400 | 3290 | 3420 | 3310 | 3450 | 3150 | 2890 | 3130 | 3020 | 3000 |
| 13 | 3150 | 3320 | 3390 | 3270 | 2860 | 3290 | 3180 | 3180 | 2930 | 3100 | 3410 | 3090 |
| 14 | 3090 | 3350 | 3360 | 3240 | 3180 | 3250 | 3220 | 3150 | 2960 | 3050 | 2650 | 3050 |
| 15 | 3010 | 3370 | 3400 | 3270 | 3160 | 3580 | 3430 | 3100 | 2200 | 3070 | 2870 | 2700 |
| 16 | 2680 | 3500 | 3330 | 3250 | 3210 | 3150 | 3650 | 3100 | 2720 | 3060 | 3320 | 2840 |
| 17 | 3290 | 3590 | 3320 | 3190 | 3230 | 3280 | 3340 | 3310 | 3070 | 3010 | 3160 | 3060 |
| 18 | 3150 | 3480 | 3350 | 3250 | 3250 | 3370 | 2320 | 3160 | 3000 | 2850 | 3180 | 3200 |
| 19 | 3140 | 3420 | 3310 | 3310 | 3170 | 3190 | 2530 | 3080 | 3020 | 3100 | 3030 | 3220 |
| 20 | 3120 | 3410 | 3090 | 3410 | 3290 | 3270 | 2750 | 3090 | 2960 | 3130 | 2970 | 3140 |
| 21 | 3110 | 3400 | 3180 | 3250 | 3240 | 3360 | 3040 | 3120 | 2950 | 3060 | 2930 | 3130 |
| 22 | 3120 | 3390 | 3250 | 3230 | 3190 | 3270 | 3260 | 3060 | 2950 | 3080 | 2950 | 3140 |
| 23 | 3130 | 3360 | 3240 | 3220 | 3130 | 3190 | 3150 | 3080 | 2960 | 3070 | 2930 | 3090 |
| 24 | 3140 | 3340 | 3160 | 3230 | 3160 | 3230 | 3140 | 3140 | 2950 | 3060 | 2910 | 3100 |
| 25 | 3120 | 3320 | 3240 | 3220 | 3160 | 3190 | 3170 | 3120 | 2940 | 3050 | 2970 | 3140 |
| 26 | 3120 | 3330 | 3310 | 3200 | 3140 | 3280 | 3150 | 3100 | 2920 | 3040 | 3010 | 3130 |
| 27 | 3140 | 3300 | 3300 | 3180 | 3190 | 3190 | 3180 | 3070 | 2910 | 3030 | 1750 | 3090 |
| 28 | 3160 | 3310 | 3320 | 3160 | 3200 | 3120 | 3160 | 3110 | 2970 | 2920 | 2790 | 3040 |
| 29 | 3170 | 3380 | 3340 | 3230 | --- | 3310 | 3270 | 3210 | 2930 | 2720 | 3290 | 3090 |
| 30 | 3190 | 3360 | 3280 | 3170 | --- | 3230 | 3370 | 3280 | 3130 | 3160 | 3150 | 3030 |
| 31 | 3230 | --- | 3300 | 3210 | --- | 3200 | --- | 3360 | --- | 3100 | 3120 | --- |
| MEAN | 3110 | 3340 | 3290 | 3250 | 3220 | 3300 | 3150 | 3020 | 2790 | 3050 | 2980 | 2820 |

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

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 18.0 | 9.0 | 10.0 | --- | --- | 7.0 | 15.0 | 17.0 | 27.0 | 25.0 | 16.0 | 27.0 |
| 2 | 6.0 | 22.0 | 12.0 | 5.0 | 5.0 | 13.0 | 16.0 | 18.0 | --- | 27.0 | 25.0 | 24.0 |
| 3 | 5.0 | 14.0 | 5.0 | 6.0 | 13.0 | 10.0 | 17.0 | 20.0 | 19.0 | 24.0 | 25.0 | 24.0 |
| 4 | 28.0 | 13.0 | 7.0 | 12.0 | 6.0 | 15.0 | 19.0 | 20.0 | 28.0 | --- | 24.0 | 23.0 |
| 5 | 18.0 | 12.0 | 15.0 | 4.0 | 10.0 | 6.0 | 15.0 | 27.0 | 25.0 | --- | 25.0 | 23.0 |
| 6 | 18.0 | 13.0 | 14.0 | 7.0 | 8.0 | 20.0 | 17.0 | 28.0 | 32.0 | --- | 25.0 | 29.0 |
| 7 | 28.0 | 15.0 | 16.0 | 11.0 | 10.0 | 10.0 | 25.0 | --- | 27.0 | 31.0 | 32.0 | 22.0 |
| 8 | 18.0 | 12.0 | 3.0 | 11.0 | 10.0 | 8.0 | 25.0 | 17.0 | --- | 29.0 | 33.0 | 19.0 |
| 9 | 17.0 | 13.0 | 5.0 | 15.0 | 4.0 | 6.0 | 26.0 | 17.0 | 28.0 | 22.0 | 25.0 | 20.0 |
| 10 | 23.0 | 12.0 | 5.0 | 6.0 | --- | 4.0 | 25.0 | --- | 27.0 | 25.0 | 30.0 | 23.0 |
| 11 | 25.0 | 17.0 | 15.0 | 8.0 | 5.0 | 10.0 | 15.0 | --- | 32.0 | 25.0 | 25.0 | 32.0 |
| 12 | --- | 15.0 | 12.0 | 2.0 | 5.0 | 16.0 | --- | 30.0 | 25.0 | 33.0 | 27.0 | 21.0 |
| 13 | --- | 14.0 | 9.0 | 5.0 | 5.0 | 15.0 | 20.0 | 24.0 | 30.0 | 35.0 | 29.0 | 25.0 |
| 14 | 18.0 | --- | 8.0 | 10.0 | 10.0 | 14.0 | 12.0 | 27.0 | --- | 30.0 | 33.0 | 23.0 |
| 15 | 19.0 | 10.0 | 7.0 | 7.0 | --- | 25.0 | --- | 15.0 | 15.0 | 35.0 | 35.0 | 23.0 |
| 16 | 15.0 | --- | 10.0 | 5.0 | 14.0 | 30.0 | 14.0 | 15.0 | 28.0 | 31.0 | 31.0 | 17.0 |
| 17 | 12.0 | 7.0 | 10.0 | 5.0 | 6.0 | 30.0 | 15.0 | 28.0 | 27.0 | 27.0 | 29.0 | 13.0 |
| 18 | 22.0 | 8.0 | 10.0 | --- | 17.0 | 10.0 | 20.0 | 28.0 | 32.0 | 26.0 | 30.0 | 25.0 |
| 19 | 23.0 | 10.0 | 4.0 | 5.0 | 15.0 | 6.0 | 18.0 | 13.0 | 32.0 | 23.0 | 25.0 | 26.0 |
| 20 | 14.0 | 15.0 | 3.0 | 11.0 | 18.0 | 12.0 | 17.0 | 24.0 | 34.0 | 40.0 | 25.0 | 19.0 |
| 21 | 14.0 | 5.0 | --- | 12.0 | 5.0 | 15.0 | 20.0 | 25.0 | 34.0 | 28.0 | 21.0 | 16.0 |
| 22 | 12.0 | 8.0 | 8.0 | 5.0 | --- | --- | 25.0 | 25.0 | 33.0 | 25.0 | 21.0 | 20.0 |
| 23 | 12.0 | --- | 10.0 | 8.0 | 17.0 | 10.0 | 17.0 | 20.0 | 32.0 | 25.0 | 21.0 | 20.0 |
| 24 | 8.0 | 6.0 | --- | 15.0 | --- | 20.0 | 23.0 | 22.0 | 28.0 | 27.0 | 16.0 | 20.0 |
| 25 | 8.0 | --- | --- | 14.0 | 14.0 | 20.0 | 20.0 | 32.0 | 23.0 | 25.0 | 35.0 | 22.0 |
| 26 | 12.0 | 8.0 | 15.0 | 15.0 | 22.0 | 22.0 | 20.0 | 22.0 | 25.0 | 27.0 | --- | 22.0 |
| 27 | 12.0 | --- | 16.0 | 5.0 | 5.0 | 19.0 | 20.0 | 20.0 | 22.0 | 26.0 | 20.0 | 20.0 |
| 28 | 6.0 | 8.0 | --- | 5.0 | 6.0 | 20.0 | 19.0 | 23.0 | 32.0 | 23.0 | 22.0 | 19.0 |
| 29 | --- | 5.0 | 9.0 | 7.0 | --- | 25.0 | 31.0 | 21.0 | 30.0 | 22.0 | 25.0 | 30.0 |
| 30 | 12.0 | 10.0 | 14.0 | 7.0 | --- | 15.0 | 22.0 | 19.0 | 32.0 | 30.0 | 28.0 | 20.0 |
| 31 | 13.0 | --- | 16.0 | 5.0 | --- | --- | --- | 22.0 | --- | 23.0 | 22.0 | --- |
| MEAN | 15.5 | 11.0 | 10.0 | 8.0 | 10.0 | 15.0 | 19.5 | 22.0 | 28.0 | 27.5 | 26.0 | 22.0 |

## 07300500 SALT FORK RED RIVER AT MANGUM, OK

LOCATION.--Lat 34°51'32", long 99°30'28", in SW1/4SE1/4 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 (0.8 km) south of Mangum, 13.0 mi (20.9 km) downstream from Fish Creek, and 35.5 mi (57.1 km) upstream from mouth.

DRAINAGE AREA.--1,566 $mi^2$ (4,056 $km^2$), of which 209 $mi^2$ (541 $km^2$) probably is 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 (454.417 m) National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation, formerly Water and Power Resources Services). Apr. 11, 1905, to June 30, 1906, nonrecording gage at site 0.2 mi (0.3 km) upstream at different datum. Oct. 1, 1937, to Nov. 8, 1938, nonrecording gage at present site and datum.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--44 years (water years 1937-81), 86.2 $ft^3/s$ (2.441 $m^3/s$), 62,450 acre-ft/yr (77.0 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 72,000 $ft^3/s$ (2,040 $m^3/s$) May 16, 1957, gage height, 14.55 ft (4.435 m); maximum gage height, 14.7 ft (4.48 m) June 16, 1938; no flow at times each year except 1975.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,370 $ft^3/s$ (67.1 $m^3/s$) June 3, gage height, 8.34 ft (2.542 m), no peak above base of 6,000 $ft^3/s$ (170 $m^3/s$); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | 9.0 | 8.2 | 7.3 | 8.4 | 381 | 17 | 21 | .62 | .00 |
| 2 | .00 | .00 | .00 | 8.5 | 7.8 | 8.0 | 6.7 | 115 | 528 | 6.7 | .01 | .00 |
| 3 | .00 | .00 | .00 | 8.0 | 7.0 | 10 | 5.5 | 158 | 960 | 5.5 | .00 | .00 |
| 4 | .00 | .00 | .00 | 7.6 | 8.0 | 12 | 3.7 | 77 | 793 | 4.8 | .00 | .00 |
| 5 | .00 | .00 | .00 | 8.0 | 10 | 12 | 2.6 | 48 | 317 | 4.0 | .00 | 452 |
| 6 | .00 | .00 | .00 | 7.3 | 11 | 13 | 2.6 | 35 | 438 | 3.2 | .00 | 206 |
| 7 | .00 | .00 | .00 | 8.0 | 11 | 12 | 3.0 | 29 | 182 | 2.5 | .00 | 76 |
| 8 | .00 | .00 | .00 | 8.0 | 12 | 11 | 2.6 | 29 | 78 | 3.6 | .00 | 34 |
| 9 | .00 | .00 | 18 | 8.0 | 14 | 13 | 2.6 | 27 | 51 | 4.2 | .00 | 20 |
| 10 | .00 | .00 | 24 | 8.0 | 17 | 18 | 3.2 | 32 | 33 | 2.1 | .00 | 16 |
| 11 | .00 | .00 | 14 | 8.5 | 12 | 17 | 15 | 22 | 23 | 1.1 | .00 | 12 |
| 12 | .00 | .00 | 10 | 8.0 | 10 | 12 | 35 | 21 | 17 | .49 | .25 | 8.5 |
| 13 | .00 | .00 | 7.3 | 8.0 | 7.6 | 12 | 47 | 11 | 12 | .31 | 4.3 | 6.3 |
| 14 | .00 | .00 | 7.3 | 8.5 | 14 | 25 | 34 | 8.0 | 8.5 | .16 | 7.0 | 3.7 |
| 15 | .00 | .00 | 6.9 | 8.5 | 13 | 35 | 28 | 7.3 | 17 | .10 | 1.5 | 1.5 |
| 16 | .00 | .00 | 6.3 | 9.0 | 20 | 38 | 53 | 8.2 | 99 | .04 | 3.9 | .08 |
| 17 | .00 | .00 | 6.3 | 9.5 | 12 | 29 | 40 | 7.8 | 105 | .02 | 3.7 | .00 |
| 18 | .00 | .00 | 5.6 | 9.0 | 12 | 25 | 44 | 6.5 | 34 | .00 | 1.4 | .00 |
| 19 | .00 | .00 | 4.4 | 8.5 | 10 | 18 | 84 | 5.0 | 18 | .00 | .18 | .00 |
| 20 | .00 | .00 | 2.8 | 9.0 | 9.0 | 14 | 137 | 4.4 | 11 | .00 | .00 | .00 |
| 21 | .00 | .00 | 2.3 | 12 | 6.9 | 11 | 102 | 4.4 | 6.9 | .00 | .00 | .00 |
| 22 | .00 | .00 | 2.1 | 15 | 7.3 | 9.5 | 57 | 3.9 | 5.3 | .00 | .00 | .00 |
| 23 | .00 | .00 | 2.0 | 16 | 6.6 | 9.0 | 44 | 3.7 | 4.7 | .00 | .00 | .00 |
| 24 | .00 | .00 | 2.2 | 16 | 7.5 | 9.0 | 40 | 3.4 | 3.2 | .00 | .00 | .00 |
| 25 | .00 | .00 | 2.6 | 14 | 6.5 | 7.6 | 31 | 4.2 | 3.0 | .00 | .00 | .00 |
| 26 | .00 | .00 | 5.3 | 14 | 6.3 | 8.5 | 24 | 8.5 | 3.0 | .00 | .00 | .00 |
| 27 | .00 | .00 | 10 | 12 | 6.0 | 9.2 | 20 | 9.5 | 2.5 | .00 | .00 | .00 |
| 28 | .00 | .00 | 9.5 | 12 | 6.6 | 11 | 16 | 6.6 | 2.0 | .00 | .00 | .00 |
| 29 | .00 | .00 | 11 | 11 | --- | 13 | 214 | 111 | 1.7 | 2.6 | .00 | .00 |
| 30 | .00 | .00 | 11 | 11 | --- | 12 | 20 | 28 | 12 | 6.7 | .00 | .00 |
| 31 | .00 | --- | 10 | 11 | --- | 8.9 | --- | 14 | --- | 1.1 | .00 | --- |
| TOTAL | .00 | .00 | 180.90 | 310.9 | 279.3 | 450.0 | 1125.9 | 1229.4 | 3785.8 | 70.22 | 22.86 | 836.08 |
| MEAN | .000 | .000 | 5.84 | 10.0 | 9.98 | 14.5 | 37.5 | 39.7 | 126 | 2.27 | .74 | 27.9 |
| MAX | .00 | .00 | 24 | 16 | 20 | 38 | 214 | 381 | 960 | 21 | 7.0 | 452 |
| MIN | .00 | .00 | .00 | 7.3 | 6.0 | 7.3 | 2.6 | 3.4 | 1.7 | .00 | .00 | .00 |
| AC-FT | .00 | .00 | 359 | 617 | 554 | 893 | 2230 | 2440 | 7510 | 139 | 45 | 1660 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 25478.24 | MEAN | 69.6 | MAX | 8440 | MIN | .00 | AC-FT 50540 |
| WTR YR 1981 | TOTAL | 8291.36 | MEAN | 22.7 | MAX | 960 | MIN | .00 | AC-FT 16450 |

## 07301300 NORTH FORK RED RIVER NEAR SHAMROCK, TX

LOCATION.--Lat 35°15'51", long 100°14'29", Wheeler County, Hydrologic Unit 11120302, on left bank at downstream side of bridge on U.S. Highway 83, 2.5 mi (4.0 km) north of Shamrock, 16 mi (26 km) upstream from Texas-Oklahoma State line, and 23 mi (37 km) downstream from McClellan Creek.

DRAINAGE AREA.--1,082 $mi^2$ (2,802 $km^2$), of which 379 $mi^2$ (982 $km^2$) probably is noncontributing.

### WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 2,165.55 ft (660.060 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records poor. Some regulation by Lake McClellan, capacity 5,000 acre-ft (6.16 $hm^3$), 41 $mi^2$ (66 km) upstream. Flow is affected at times by discharge from flood-detention pool of one floodwater-retarding structure with detention capacity of 2,930 acre-ft (3.61 $hm^3$). This structure controls runoff from 17.0 $mi^2$ (44.0 $km^2$). Gage-height telemeter at station.

AVERAGE DISCHARGE.--17 years, 31.7 $ft^3/s$ (0.898 $m^3/s$), 22,970 acre-ft/yr (28.3 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,400 $ft^3/s$ (578 $m^3/s$) May 29, 1975, gage height, 7.47 ft (2.277 m), from rating curve extended above 3,800 $ft^3/s$ (108 $m^3/s$) on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1915, 16.1 ft (4.91 m) in May 1957, from information by State Department of Highways and Public Transportation and by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,740 $ft^3/s$ (106 $m^3/s$) Sept. 4 at 0815 hours, gage height, 4.05 ft (1.234 m), no other peak above base of 3,000 $ft^3/s$ (85.0 $m^3/s$); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 2.5 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 54 | .02 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | 1.5 | .00 | 6.7 | 108 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | .00 | 20 | .00 | 1.0 | 262 | .00 | .00 | 592 |
| 5 | .00 | .00 | .00 | .00 | .00 | 22 | .00 | .07 | 89 | .00 | .00 | 68 |
| 6 | .00 | .00 | .00 | .00 | .05 | 13 | .00 | .00 | 10 | .00 | .00 | 20 |
| 7 | .00 | .00 | .00 | .00 | .42 | 379 | .00 | .00 | .53 | .00 | .00 | 2.3 |
| 8 | .00 | .00 | .00 | .00 | .20 | 220 | .00 | .00 | .00 | .00 | .00 | .01 |
| 9 | .00 | .00 | 123 | .00 | .34 | 43 | .00 | .00 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | 24 | .00 | .30 | 25 | .00 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | 2.1 | .00 | .10 | 39 | .00 | .00 | .00 | .00 | .00 | .00 |
| 12 | .00 | .00 | .05 | .00 | .00 | 39 | .00 | .00 | .00 | .00 | .00 | .00 |
| 13 | .00 | .00 | .00 | .00 | .00 | 28 | .00 | .00 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | .00 | 256 | .00 | .00 | .00 | .00 | .00 | 71 |
| 15 | .00 | .00 | .00 | .00 | .05 | 287 | .53 | .00 | .00 | .00 | .00 | 8.0 |
| 16 | .00 | .00 | .00 | .00 | .67 | 39 | 22 | .00 | .00 | .00 | .00 | .01 |
| 17 | .00 | .00 | .00 | .00 | 5.7 | 22 | 34 | .00 | .00 | .00 | .00 | .09 |
| 18 | .00 | .00 | .00 | .00 | 4.2 | 13 | 98 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | .00 | 1.2 | 8.9 | 73 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | .08 | .16 | 10 | 35 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | .20 | .01 | 7.7 | 20 | .00 | .00 | .00 | .00 | .00 |
| 22 | .00 | .00 | .00 | .02 | .00 | 7.7 | 13 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | .02 | .00 | 5.7 | 6.7 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | .05 | .00 | 5.7 | 1.5 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .03 | .00 | 5.7 | .16 | .00 | .00 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | .02 | .00 | 4.2 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27 | .00 | .00 | .00 | .03 | .00 | 1.8 | .00 | .00 | .00 | .00 | .00 | .00 |
| 28 | .00 | .00 | .00 | .05 | .00 | 170 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | .00 | .16 | --- | 5.7 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .02 | --- | .42 | .00 | .00 | .06 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | .00 | .00 | 149.15 | .68 | 13.40 | 1680.02 | 303.89 | 64.27 | 469.61 | .00 | .00 | 761.41 |
| MEAN | .000 | .000 | 4.81 | .022 | .48 | 54.2 | 10.1 | 2.07 | 15.7 | .000 | .000 | 25.4 |
| MAX | .00 | .00 | 123 | .20 | 5.7 | 379 | 98 | 54 | 262 | .00 | .00 | 592 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | .00 | .00 | 296 | 1.3 | 27 | 3330 | 603 | 127 | 931 | .00 | .00 | 1510 |

CAL YR 1980 TOTAL 4385.34 MEAN 12.0 MAX 448 MIN .00 AC-FT 8700
WTR YR 1981 TOTAL 3442.43 MEAN 9.43 MAX 592 MIN .00 AC-FT 6830

07301300 NORTH FORK RED RIVER NEAR SHAMROCK, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1964 to September 1981 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | TEMPER-ATURE, WATER (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | |
| 10... | 1220 | .47 | 3820 | .0 | 1500 | 1300 | 460 | 79 | 320 |
| MAR | | | | | | | | | |
| 26... | 1050 | 4.6 | 2850 | 14.0 | 990 | 870 | 300 | 58 | 280 |

| DATE | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY (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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | |
| 10... | 3.6 | 6.2 | 160 | 1100 | 630 | .4 | 20 | 2710 |
| MAR | | | | | | | | |
| 26... | 3.9 | 5.3 | 120 | 730 | 530 | .6 | 18 | 1990 |

## 07301410 SWEETWATER CREEK NEAR KELTON, TX

LOCATION.--Lat 35°28'23", long 100°07'14", Wheeler County, Hydrologic Unit 11120302, near center of stream on downstream side of bridge on Farm Road 592, 5 mi (8 km) north of Kelton, 8 mi (13 km) upstream from Texas-Oklahoma State line, and 8.5 mi (13.7 km) northeast of Wheeler.

DRAINAGE AREA.--287 $mi^2$ (743 $km^2$), of which 20 $mi^2$ (50 $km^2$) probably is noncontributing.

### WATER-DISCHARGE RECORDS

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

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

REMARKS.--Water-discharge records fair. Diversion above station for ranch use.

AVERAGE DISCHARGE.--19 years (water years 1963-81), 13.6 $ft^3/s$ (0.385 $m^3/s$), 0.69 in/yr (18 mm/yr), 9,850 acre-ft/yr (12.1 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,890 $ft^3/s$ (81.8 $m^3/s$) May 20, 1977, gage height, 15.73 ft (4.795 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1882, about 20 ft (6.1 m) May 16, 1957.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 925 $ft^3/s$ (26.2 $m^3/s$) Sept. 5 at 0530 hours, gage height, 12.92 ft (3.938 m), no other peak above base of 500 $ft^3/s$ (14.2 $m^3/s$); minimum, 0.03 $ft^3/s$ (0.001 $m^3/s$) July 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .15 | 1.7 | 2.7 | 6.7 | 8.5 | 7.0 | 12 | 12 | 5.6 | 2.1 | .99 | .25 |
| 2 | .15 | 1.8 | 2.3 | 6.7 | 8.0 | 7.4 | 12 | 14 | 7.9 | 1.4 | .70 | .33 |
| 3 | .13 | 1.4 | 2.3 | 7.4 | 7.5 | 8.1 | 13 | 11 | 34 | 1.3 | .52 | .29 |
| 4 | .15 | 2.8 | 2.5 | 8.0 | 8.1 | 9.6 | 12 | 9.5 | 25 | 3.5 | .29 | 59 |
| 5 | .13 | 1.7 | 2.6 | 7.4 | 8.2 | 9.8 | 12 | 7.6 | 13 | 3.3 | .18 | 466 |
| 6 | .12 | 1.7 | 2.7 | 6.2 | 7.5 | 8.9 | 13 | 7.4 | 8.7 | 2.1 | .15 | 94 |
| 7 | .11 | 1.7 | 4.0 | 5.8 | 8.0 | 11 | 13 | 7.3 | 6.6 | 1.6 | .15 | 63 |
| 8 | .15 | 1.7 | 14 | 5.9 | 7.6 | 26 | 13 | 7.4 | 5.3 | 1.4 | .13 | 49 |
| 9 | .14 | 1.7 | 25 | 6.0 | 7.9 | 18 | 12 | 7.1 | 4.2 | 1.2 | .13 | 39 |
| 10 | .14 | 1.7 | 11 | 5.6 | 9.0 | 14 | 13 | 7.2 | 3.8 | .94 | .21 | 33 |
| 11 | .15 | 1.7 | 7.2 | 5.3 | 6.7 | 13 | 14 | 6.9 | 3.9 | .66 | 6.7 | 27 |
| 12 | .22 | 1.8 | 6.0 | 5.0 | 6.0 | 12 | 15 | 6.4 | 3.4 | .45 | 2.4 | 22 |
| 13 | .26 | 1.8 | 5.4 | 5.6 | 6.5 | 11 | 14 | 6.1 | 3.1 | .32 | 1.5 | 19 |
| 14 | .30 | 1.8 | 5.1 | 5.6 | 7.1 | 14 | 14 | 5.8 | 2.8 | .25 | .99 | 25 |
| 15 | .36 | 1.9 | 5.1 | 5.5 | 7.0 | 28 | 14 | 5.9 | 2.8 | .23 | .70 | 24 |
| 16 | .87 | 2.1 | 4.7 | 5.9 | 7.1 | 22 | 15 | 6.4 | 2.7 | .23 | .52 | 20 |
| 17 | .51 | 2.6 | 4.9 | 6.0 | 6.7 | 17 | 14 | 6.6 | 2.3 | .24 | .29 | 18 |
| 18 | .45 | 2.5 | 4.8 | 7.3 | 6.5 | 14 | 18 | 5.7 | 2.0 | .27 | .18 | 15 |
| 19 | .52 | 2.5 | 4.4 | 7.6 | 6.7 | 13 | 24 | 5.0 | 1.7 | 4.3 | .15 | 14 |
| 20 | .62 | 2.4 | 4.9 | 7.9 | 7.0 | 12 | 19 | 4.8 | 1.5 | 2.3 | .15 | 13 |
| 21 | .79 | 2.4 | 4.5 | 7.6 | 7.0 | 12 | 16 | 4.6 | 1.3 | .99 | .47 | 11 |
| 22 | .88 | 2.4 | 4.0 | 7.4 | 7.0 | 11 | 15 | 4.2 | .99 | .29 | .34 | 8.8 |
| 23 | .87 | 2.3 | 4.5 | 8.0 | 7.0 | 11 | 13 | 3.9 | .88 | .15 | .28 | 7.6 |
| 24 | .95 | 2.3 | 5.7 | 8.8 | 7.1 | 11 | 11 | 3.9 | .73 | .10 | .25 | 7.3 |
| 25 | 1.1 | 2.4 | 5.0 | 8.4 | 7.0 | 11 | 9.7 | 23 | .72 | .07 | .23 | 7.2 |
| 26 | 1.2 | 2.5 | 5.5 | 8.5 | 6.9 | 12 | 9.1 | 6.4 | .61 | .07 | .21 | 6.1 |
| 27 | 1.4 | 2.7 | 6.4 | 9.5 | 6.5 | 12 | 8.3 | 4.3 | .51 | .05 | .20 | 5.1 |
| 28 | 1.3 | 2.6 | 6.5 | 10 | 6.9 | 14 | 7.9 | 4.2 | .47 | 3.6 | .19 | 4.7 |
| 29 | 1.5 | 2.6 | 6.4 | 10 | --- | 15 | 7.9 | 5.6 | .46 | 4.1 | .18 | 4.0 |
| 30 | 1.4 | 2.5 | 6.5 | 10 | --- | 14 | 7.7 | 5.5 | 2.2 | 2.3 | .18 | 3.6 |
| 31 | 1.8 | --- | 6.9 | 10 | --- | 13 | --- | 4.9 | --- | 1.5 | .18 | --- |
| TOTAL | 18.82 | 63.7 | 183.5 | 225.6 | 203.0 | 411.8 | 391.6 | 220.6 | 149.17 | 41.31 | 19.74 | 1066.27 |
| MEAN | .61 | 2.12 | 5.92 | 7.28 | 7.25 | 13.3 | 13.1 | 7.12 | 4.97 | 1.33 | .64 | 35.5 |
| MAX | 1.8 | 2.8 | 25 | 10 | 9.0 | 28 | 24 | 23 | 34 | 4.3 | 6.7 | 466 |
| MIN | .11 | 1.4 | 2.3 | 5.0 | 6.0 | 7.0 | 7.7 | 3.9 | .46 | .05 | .13 | .25 |
| CFSM | .002 | .008 | .02 | .03 | .03 | .05 | .05 | .03 | .02 | .005 | .002 | .13 |
| IN. | .00 | .01 | .03 | .03 | .03 | .06 | .05 | .03 | .02 | .01 | .00 | .15 |
| AC-FT | 37 | 126 | 364 | 447 | 403 | 817 | 777 | 438 | 296 | 82 | 39 | 2110 |

CAL YR 1980 TOTAL 2948.46 MEAN 8.06 MAX 71 MIN .01 CFSM .03 IN .41 AC-FT 5850
WTR YR 1981 TOTAL 2995.11 MEAN 8.21 MAX 466 MIN .05 CFSM .03 IN .42 AC-FT 5940

07301410 SWEETWATER CREEK NEAR KELTON, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | TEMPER-ATURE, WATER (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 06... | 1700 | .13 | 1300 | 24.0 | 460 | 300 | 120 | 38 | 92 |
| NOV | | | | | | | | | |
| 18... | 1730 | 2.6 | 1130 | 9.0 | 420 | 170 | 120 | 29 | 78 |
| DEC | | | | | | | | | |
| 29... | 1715 | 6.5 | 1150 | 7.0 | 370 | 110 | 110 | 23 | 150 |
| FEB | | | | | | | | | |
| 09... | 1750 | 8.7 | 631 | 4.0 | 240 | 91 | 70 | 16 | 45 |
| MAY | | | | | | | | | |
| 05... | 1500 | 7.4 | 882 | 24.5 | 370 | 120 | 110 | 23 | 60 |
| JUL | | | | | | | | | |
| 27... | 1650 | .04 | 1320 | 28.0 | 540 | 310 | 153 | 38 | 88 |
| AUG | | | | | | | | | |
| 31... | 1455 | .18 | 1260 | 33.0 | 510 | 310 | 145 | 36 | 80 |

| DATE | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY (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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 06... | 1.9 | 3.8 | 160 | 390 | 66 | .5 | 31 | 838 |
| NOV | | | | | | | | |
| 18... | 1.7 | 3.8 | 250 | 320 | 50 | .5 | 24 | 776 |
| DEC | | | | | | | | |
| 29... | 3.4 | 2.7 | 260 | 210 | 100 | .6 | 23 | 776 |
| FEB | | | | | | | | |
| 09... | 1.3 | 1.8 | 150 | 140 | 36 | .5 | 17 | 416 |
| MAY | | | | | | | | |
| 05... | 1.4 | 2.9 | 250 | 190 | 40 | .7 | 25 | 602 |
| JUL | | | | | | | | |
| 27... | 1.8 | 5.3 | 230 | 410 | 70 | .6 | 35 | 938 |
| AUG | | | | | | | | |
| 31... | 1.6 | 5.7 | 200 | 390 | 63 | .7 | 28 | 869 |

## 07307760 MIDDLE PEASE RIVER NEAR PADUCAH, TX

LOCATION.--Lat 34°11'28", long 100°12'38", Cottle County, Hydrologic Unit 11130104, on right bank 500 ft (152 m) upstream from pipeline crossing, 0.8 mi (1.3 km) upstream from Jackson Creek, 2 mi (3 km) downstream from Owl Creek, 8 mi (13 km) upstream from confluence with North Pease River, and 13 mi (21 km) northeast of Paducah.

DRAINAGE AREA.--1,128 $mi^2$ (2,922 $km^2$), of which 65 $mi^2$ (168 $km^2$) probably is noncontributing.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,583.51 ft (482.654 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark).

REMARKS.--Water-discharge records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 937 $ft^3/s$ (26.5 $m^3/s$) June 3, 1981, gage height, 4.48 ft (1.366 m); minimum, 0.75 $ft^3/s$ (0.02 $m^3/s$) May 13, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 937 $ft^3/s$ (26.5 $m^3/s$) June 3 at 0145 hours, gage height, 4.48 ft (1.366 m), no other peak above base of 500 $ft^3/s$ (14.2 $m^3/s$); minimum, 1.8 $ft^3/s$ (0.051 $m^3/s$) May 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.8 | 3.4 | 3.8 | 4.2 | 4.2 | 4.6 | 3.1 | 35 | 25 | 3.1 | 3.5 | 4.6 |
| 2 | 3.8 | 3.4 | 3.8 | 4.2 | 3.9 | 4.2 | 3.1 | 6.6 | 49 | 3.0 | 3.6 | 4.6 |
| 3 | 3.8 | 3.6 | 3.8 | 4.2 | 4.0 | 4.9 | 3.0 | 5.1 | 252 | 3.2 | 3.6 | 4.4 |
| 4 | 3.8 | 3.4 | 3.8 | 4.2 | 3.8 | 4.4 | 3.0 | 8.1 | 74 | 3.3 | 3.3 | 7.5 |
| 5 | 3.8 | 3.4 | 3.4 | 4.2 | 3.8 | 3.6 | 3.4 | 20 | 29 | 3.7 | 2.9 | 5.8 |
| 6 | 3.8 | 3.3 | 3.4 | 4.2 | 4.0 | 3.4 | 3.4 | 7.3 | 107 | 3.1 | 3.0 | 4.6 |
| 7 | 3.8 | 3.3 | 5.3 | 5.0 | 4.2 | 4.4 | 3.4 | 7.0 | 35 | 3.1 | 13 | 5.8 |
| 8 | 3.4 | 3.4 | 8.4 | 5.3 | 3.8 | 3.8 | 3.4 | 6.9 | 12 | 3.0 | 3.7 | 4.9 |
| 9 | 3.4 | 3.3 | 4.6 | 5.2 | 4.0 | 3.8 | 3.4 | 7.4 | 5.1 | 2.9 | 3.5 | 4.5 |
| 10 | 3.4 | 3.1 | 3.8 | 4.7 | 4.0 | 3.9 | 3.5 | 6.8 | 4.4 | 2.7 | 3.2 | 4.4 |
| 11 | 3.4 | 3.2 | 3.8 | 4.8 | 4.0 | 3.8 | 3.9 | 6.2 | 3.9 | 2.6 | 7.2 | 4.3 |
| 12 | 3.4 | 2.9 | 3.8 | 4.2 | 3.9 | 3.5 | 3.4 | 6.1 | 4.2 | 2.6 | 8.5 | 4.4 |
| 13 | 3.4 | 3.0 | 4.2 | 4.2 | 3.9 | 3.4 | 26 | 6.2 | 4.0 | 2.7 | 7.9 | 4.2 |
| 14 | 3.2 | 3.1 | 4.2 | 4.2 | 3.9 | 13 | 24 | 5.8 | 4.0 | 2.9 | 7.5 | 4.9 |
| 15 | 3.0 | 3.1 | 4.2 | 4.1 | 3.9 | 12 | 18 | 5.3 | 18 | 3.1 | 3.9 | 4.2 |
| 16 | 2.8 | 9.8 | 3.8 | 4.0 | 3.8 | 4.9 | 11 | 6.2 | 3.3 | 3.1 | 4.9 | 4.4 |
| 17 | 2.9 | 11 | 3.8 | 4.2 | 3.8 | 3.9 | 8.1 | 6.1 | 3.1 | 3.1 | 4.9 | 4.7 |
| 18 | 2.9 | 5.2 | 3.8 | 4.9 | 3.8 | 3.4 | 20 | 5.8 | 3.4 | 3.1 | 4.1 | 4.7 |
| 19 | 2.8 | 4.7 | 3.8 | 5.3 | 3.8 | 3.4 | 9.0 | 5.8 | 3.4 | 3.1 | 4.3 | 4.6 |
| 20 | 2.8 | 4.2 | 3.4 | 5.1 | 3.8 | 3.4 | 5.2 | 4.9 | 3.8 | 3.1 | 3.4 | 4.4 |
| 21 | 2.9 | 4.2 | 3.4 | 4.7 | 3.8 | 3.4 | 7.3 | 3.8 | 3.8 | 3.1 | 3.0 | 4.4 |
| 22 | 2.9 | 4.2 | 3.4 | 4.1 | 3.8 | 3.4 | 5.4 | 3.7 | 3.4 | 2.8 | 2.7 | 4.2 |
| 23 | 3.0 | 4.2 | 3.5 | 4.0 | 3.8 | 3.4 | 3.6 | 3.6 | 3.3 | 2.8 | 2.8 | 4.6 |
| 24 | 3.0 | 3.8 | 3.4 | 3.9 | 3.8 | 3.4 | 3.2 | 28 | 3.3 | 2.6 | 2.8 | 44 |
| 25 | 3.4 | 6.4 | 3.4 | 4.0 | 3.8 | 3.4 | 3.2 | 11 | 3.3 | 2.6 | 2.6 | 18 |
| 26 | 3.6 | 5.2 | 3.4 | 4.2 | 3.8 | 3.4 | 3.0 | 9.6 | 3.4 | 2.6 | 8.1 | 5.1 |
| 27 | 3.7 | 4.7 | 3.8 | 3.8 | 3.8 | 3.3 | 3.1 | 41 | 2.9 | 2.6 | 17 | 3.7 |
| 28 | 3.7 | 3.8 | 3.8 | 4.3 | 7.1 | 3.3 | 3.2 | 39 | 3.0 | 3.9 | 7.0 | 3.3 |
| 29 | 3.6 | 3.8 | 3.8 | 4.2 | --- | 3.1 | 3.0 | 31 | 3.0 | 20 | 5.3 | 3.0 |
| 30 | 3.6 | 3.8 | 3.8 | 4.0 | --- | 3.0 | 2.8 | 18 | 3.1 | 31 | 4.8 | 2.8 |
| 31 | 3.5 | --- | 3.8 | 4.2 | --- | 3.1 | --- | 12 | --- | 7.9 | 4.4 | --- |
| TOTAL | 104.3 | 127.9 | 122.4 | 135.8 | 112.0 | 131.9 | 199.1 | 369.3 | 676.1 | 142.4 | 160.4 | 189.0 |
| MEAN | 3.36 | 4.26 | 3.95 | 4.38 | 4.00 | 4.25 | 6.64 | 11.9 | 22.5 | 4.59 | 5.17 | 6.30 |
| MAX | 3.8 | 11 | 8.4 | 5.3 | 7.1 | 13 | 26 | 41 | 252 | 31 | 17 | 44 |
| MIN | 2.8 | 2.9 | 3.4 | 3.8 | 3.8 | 3.0 | 2.8 | 3.6 | 2.9 | 2.6 | 2.6 | 2.8 |
| AC-FT | 207 | 254 | 243 | 269 | 222 | 262 | 395 | 733 | 1340 | 282 | 318 | 375 |

CAL YR 1980 TOTAL 2147.48 MEAN 5.87 MAX 93 MIN .98 AC-FT 4260
WTR YR 1981 TOTAL 2470.60 MEAN 6.77 MAX 252 MIN 2.6 AC-FT 4900

07307760 MIDDLE PEASE RIVER NEAR PADUCAH, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1979 to September 1980.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1979 to current year.
WATER TEMPERATURES: October 1979 to September 1980.

INSTRUMENTATION.--Specific conductance is recorded continuously at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 51,500 micromhos June 2, 3, 1980; minimum daily, 3,500 micromhos June 3, 1981.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 49,200 micromhos July 22; minimum daily, 3,500 micromhos June 3.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | TEMPER-ATURE, WATER (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 02... | 0735 | 3.9 | 46200 | 16.0 | 4200 | 4100 | 1300 | 240 | -- | -- |
| 14... | 1445 | 3.8 | -- | 28.5 | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | |
| 05... | 0910 | 3.4 | -- | 10.5 | -- | -- | -- | -- | -- | -- |
| 24... | 1100 | 4.2 | -- | 9.0 | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | |
| 16... | 0740 | 3.9 | 45000 | 8.0 | 4200 | 4100 | 1300 | 240 | 9800 | 66 |
| JAN | | | | | | | | | | |
| 07... | 1000 | 4.2 | 44800 | 3.5 | 4000 | 3900 | 1200 | 240 | 9600 | 66 |
| 27... | 0740 | 4.0 | -- | 3.5 | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | |
| 19... | 0745 | 3.8 | -- | 5.5 | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | |
| 10... | 0740 | 3.8 | -- | 9.5 | -- | -- | -- | -- | -- | -- |
| 14... | 0930 | 63 | -- | -- | -- | -- | -- | -- | -- | -- |
| 30... | 1500 | 3.0 | -- | 24.5 | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | |
| 14... | 2115 | 63 | -- | -- | -- | -- | -- | -- | -- | -- |
| 21... | 0745 | 53 | -- | 16.5 | -- | -- | -- | -- | -- | -- |
| 21... | 0845 | 5.5 | 43500 | 16.5 | 3900 | 3800 | 1200 | 230 | 10000 | 69 |
| MAY | | | | | | | | | | |
| 01... | 0330 | 63 | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | 1240 | 6.1 | -- | 27.5 | -- | -- | -- | -- | -- | -- |
| 24... | 1815 | 63 | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | |
| 03... | 0015 | 63 | -- | -- | -- | -- | -- | -- | -- | -- |
| 08... | 1125 | 12 | 33500 | 29.0 | 3200 | 3100 | 980 | 180 | 6900 | 53 |
| 08... | 1130 | 12 | -- | 29.0 | -- | -- | -- | -- | -- | -- |
| 15... | 1300 | 63 | -- | -- | -- | -- | -- | -- | -- | -- |
| 22... | 1210 | 4.2 | -- | 32.0 | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | |
| 14... | 1525 | 2.8 | 48800 | 35.0 | 4300 | 4200 | 1300 | 260 | 11000 | 73 |
| 29... | 1545 | 63 | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 03... | 1400 | 3.9 | 45700 | 33.0 | 4200 | 4100 | 1300 | 240 | 10000 | 67 |
| 25... | 0930 | 3.2 | -- | 23.0 | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 16... | 0740 | 4.7 | -- | 17.0 | -- | -- | -- | -- | -- | -- |

07307760 MIDDLE PEASE RIVER NR PADUCAH, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT DISCHARGE, SUSPENDED (T/DAY) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 02... | -- | 120 | 3500 | 17000 | -- | -- | 40 | .42 | 73 |
| 14... | -- | -- | -- | -- | -- | -- | 17 | .17 | 58 |
| NOV | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | 14 | .13 | 77 |
| 24... | -- | -- | -- | -- | -- | -- | 6 | .07 | 59 |
| DEC | | | | | | | | | |
| 16... | 23 | 120 | 3800 | 16000 | 11 | 31200 | 17 | .18 | 88 |
| JAN | | | | | | | | | |
| 07... | 25 | 130 | 3600 | 16000 | 11 | 30800 | 8 | .09 | 32 |
| 27... | -- | -- | -- | -- | -- | -- | 12 | .13 | 65 |
| FEB | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | -- | 9 | .09 | 65 |
| MAR | | | | | | | | | |
| 10... | -- | -- | -- | -- | -- | -- | 7 | .07 | 77 |
| 14... | -- | -- | -- | -- | -- | -- | 2780 | 473 | 95 |
| 30... | -- | -- | -- | -- | -- | -- | 31 | .25 | 80 |
| APR | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- | 5990 | 1020 | 88 |
| 21... | -- | -- | -- | -- | -- | -- | 26 | 3.7 | 93 |
| 21... | 26 | 130 | 3500 | 16000 | 11 | 23900 | -- | -- | -- |
| MAY | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- | 6770 | 1150 | 96 |
| 12... | -- | -- | -- | -- | -- | -- | 81 | 1.3 | 62 |
| 24... | -- | -- | -- | -- | -- | -- | 6260 | 1070 | 66 |
| JUN | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | 6990 | 1190 | 88 |
| 08... | 21 | 130 | 2700 | 13000 | 12 | 23900 | -- | -- | -- |
| 08... | -- | -- | -- | -- | -- | -- | 132 | 4.4 | 95 |
| 15... | -- | -- | -- | -- | -- | -- | 4650 | 791 | 91 |
| 22... | -- | -- | -- | -- | -- | -- | 77 | .87 | 94 |
| JUL | | | | | | | | | |
| 14... | 41 | 97 | 4000 | 18000 | 10 | 34700 | 49 | .36 | 91 |
| 29... | -- | -- | -- | -- | -- | -- | 3550 | 604 | 98 |
| AUG | | | | | | | | | |
| 03... | 27 | 100 | 3700 | 17000 | 11 | 32300 | 39 | .41 | 86 |
| 25... | -- | -- | -- | -- | -- | -- | 20 | .17 | 73 |
| SEP | | | | | | | | | |
| 16... | -- | -- | -- | -- | -- | -- | 11 | .14 | 78 |

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCTANCE (MICROMHOS) | DISSOLVED SOLIDS (MG/L) | DISSOLVED SOLIDS (TONS) | DISSOLVED CHLORIDE (MG/L) | DISSOLVED CHLORIDE (TONS) | DISSOLVED SULFATE (MG/L) | DISSOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 104.3 | 46800 | 32100 | 9040 | 16900 | 4750 | 3400 | 969 | * |
| NOV. | 1980 | 127.9 | 45400 | 31100 | 10800 | 16300 | 5640 | 3400 | 1160 | * |
| DEC. | 1980 | 122.4 | 45100 | 30900 | 10200 | 16200 | 5350 | 3300 | 1110 | * |
| JAN. | 1981 | 135.8 | 44600 | 30600 | 11200 | 16000 | 5870 | 3300 | 1220 | * |
| FEB. | 1981 | 112.0 | 44900 | 30800 | 9320 | 16100 | 4880 | 3300 | 1010 | * |
| MAR. | 1981 | 131.9 | 42300 | 29000 | 10300 | 15200 | 5400 | 3200 | 1140 | * |
| APR. | 1981 | 199.1 | 38100 | 26100 | 14100 | 13600 | 7300 | 2900 | 1580 | * |
| MAY | 1981 | 369.3 | 30200 | 20700 | 20700 | 10700 | 10600 | 2400 | 2390 | * |
| JUNE | 1981 | 676.1 | 12800 | 8790 | 16000 | 4400 | 8120 | 1100 | 1960 | * |
| JULY | 1981 | 142.4 | 36100 | 24800 | 9520 | 12900 | 4960 | 2700 | 1050 | * |
| AUG. | 1981 | 160.4 | 36700 | 25200 | 10900 | 13100 | 5660 | 2800 | 1230 | * |
| SEPT | 1981 | 189.0 | 38200 | 26200 | 13400 | 13600 | 6960 | 2900 | 1490 | * |
| TOTAL | | 2470.6 | ** | ** | 145000 | ** | 75500 | ** | 16300 | ** |
| WTD. AVG. | | 6.8 | 31800 | 21800 | ** | 11000 | ** | 2400 | ** | ** |

07307760 MIDDLE PEASE RIVER NEAR PADUCAH, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 47500 | 45800 | 45500 | 44900 | 44700 | 44000 | 46600 | 23400 | 22100 | 46300 | 39700 | 43800 |
| 2 | 46200 | 45700 | 45900 | 45000 | 45000 | 44400 | 47000 | 32600 | 18400 | 46700 | 43500 | 44600 |
| 3 | 45100 | 45600 | 45200 | 45500 | 44800 | 44300 | 47200 | 37500 | 3500 | 46000 | 45700 | 44700 |
| 4 | 45600 | 45600 | 44400 | 45800 | 45300 | 45000 | 47600 | 36000 | 7250 | 45400 | 45400 | 35800 |
| 5 | 45700 | 46300 | 43700 | 46000 | 45200 | 45300 | 47000 | 25700 | 9580 | 46800 | 46000 | 35700 |
| 6 | 45500 | 43600 | 43600 | 46500 | 44600 | 45000 | 47400 | 40600 | 8450 | 46600 | 46500 | 45200 |
| 7 | 45700 | 43600 | 43200 | 44800 | 44900 | 44400 | 47900 | 44800 | 15700 | 47000 | 25300 | 44500 |
| 8 | 46800 | 43500 | 44000 | 43500 | 44700 | 44500 | 48200 | 45500 | 33500 | 46700 | 35300 | 44400 |
| 9 | 47500 | 43000 | 45100 | 43500 | 44700 | 44000 | 47800 | 45100 | 37900 | 46400 | 40700 | 45000 |
| 10 | 47100 | 43100 | 45800 | 44000 | 45200 | 44800 | 47500 | 45400 | 39200 | 47500 | 43500 | 45800 |
| 11 | 47400 | 43100 | 45300 | 44100 | 47300 | 44400 | 46700 | 45700 | 39900 | 48300 | 43100 | 45900 |
| 12 | 47900 | 43400 | 45200 | 44000 | 44500 | 44400 | 47900 | 45900 | 40100 | 48000 | 41800 | 46300 |
| 13 | 48700 | 43600 | 45700 | 44000 | 44200 | 44400 | 32500 | 47000 | 39300 | 48600 | 39700 | 46900 |
| 14 | 47400 | 45000 | 45700 | 44000 | 44300 | 38900 | 26300 | 47500 | 41100 | 48800 | 23900 | 46200 |
| 15 | 48200 | 45200 | 44200 | 44200 | 44600 | 27000 | 35400 | 47300 | 22200 | 48100 | 39500 | 45800 |
| 16 | 48400 | 45900 | 45000 | 44500 | 44600 | 40700 | 42700 | 47000 | 37200 | 47900 | 42000 | 46400 |
| 17 | 47900 | 43600 | 45200 | 44600 | 44600 | 43400 | 45600 | 47500 | 42500 | 48000 | 41800 | 45900 |
| 18 | 47300 | 46000 | 45400 | 44100 | 44800 | 43600 | 27500 | 47800 | 44500 | 48600 | 42400 | 46100 |
| 19 | 47700 | 47100 | 45300 | 44600 | 45300 | 43300 | 33900 | 47500 | 45000 | 48700 | 41500 | 46400 |
| 20 | 47000 | 47400 | 45500 | 44000 | 45400 | 43700 | 39700 | 47700 | 45800 | 47600 | 39500 | 46200 |
| 21 | 46200 | 47500 | 45400 | 44600 | 45600 | 44500 | 43500 | 47700 | 46200 | 48800 | 44300 | 45900 |
| 22 | 46500 | 47500 | 45500 | 44400 | 45700 | 43600 | 44800 | 47400 | 45600 | 49200 | 45800 | 46200 |
| 23 | 46800 | 48000 | 45800 | 44500 | 45500 | 43200 | 44600 | 47900 | 45500 | 48700 | 46100 | 45900 |
| 24 | 47400 | 45600 | 45600 | 44500 | 45100 | 43700 | 44500 | 30300 | 45800 | 48600 | 46600 | 24500 |
| 25 | 46800 | 45100 | 45900 | 44700 | 45300 | 44300 | 44000 | 35700 | 46000 | 48100 | 46900 | 28100 |
| 26 | 46000 | 45900 | 46000 | 44600 | 44800 | 44500 | 44400 | 40200 | 46400 | 48500 | 39900 | 43600 |
| 27 | 46400 | 46300 | 44700 | 45000 | 45100 | 46000 | 44200 | 20100 | 46700 | 48800 | 16700 | 44700 |
| 28 | 47200 | 46300 | 45000 | 44400 | 43400 | 47600 | 44000 | 15700 | 46800 | 46000 | 32500 | 44800 |
| 29 | 46700 | 45900 | 45100 | 44600 | --- | 47000 | 44600 | 17500 | 46700 | 31600 | 40100 | 45000 |
| 30 | 46300 | 45600 | 45500 | 45200 | --- | 46700 | 45100 | 19400 | 46000 | 10200 | 39700 | 45100 |
| 31 | 46200 | --- | 45800 | 44800 | --- | 46500 | --- | 25900 | --- | 27200 | 41800 | --- |
| MEAN | 46900 | 45300 | 45100 | 44600 | 45000 | 43800 | 43200 | 38600 | 35200 | 45300 | 40200 | 43500 |

## 07307800 PEASE RIVER NEAR CHILDRESS, TX

LOCATION.--Lat 34°13'39", long 100°04'24", Cottle County, Hydrologic Unit 11130105, near right bank on downstream side of bridge on Farm Road 104, 0.8 mi (1.3 km) upstream from Catfish Creek, 4.4 mi (7.1 km) downstream from confluence of North and Middle Forks, 17 mi (27 km) southeast of Childress, and 71.0 mi (114.2 km) upstream from mouth.

DRAINAGE AREA.--2,754 mi² (7,133 km²), of which 559 mi² (1,448 km²) probably is noncontributing.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1959 to September 1962, October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,492.98 ft (455.060 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 21, 1959, nonrecording gage at same site and datum.

REMARKS.--Water-discharge records fair. Three small diversions for irrigation above station. Flow is affected at times by discharge from the flood-detention pools of six floodwater-retarding structures with a combined detention capacity of 1,360 acre-ft (1.68 hm³). These structures control runoff from 6.97 mi² (18.1 km²) in the Kent Creek drainage basin.

AVERAGE DISCHARGE.--16 years (water years 1961-62, 1967-81), 55.3 ft³/s (1.566 m³/s), 0.34 in/yr (9 mm/yr), 40,060 acre-ft/yr (49.4 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,000 ft³/s (538 m³/s) June 9, 1960, gage height, 13.59 ft (4.142 m), from rating curve extended above 4,000 ft³/s (113 m³/s) on basis of runoff comparisons with nearby stations; no flow Aug. 10-22, 1969, May 25, 26, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1909, 22 ft (6.7 m) June 1, 1957; flood in May 1935 reached a stage of 18 ft (5.5 m) and was the second highest, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,200 ft /s (62.3 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| June 3 | 0515 | *5,640 | 160 | 11.26 | 3.432 |
| June 6 | 1030 | 3,100 | 878 | 10.30 | 3.139 |

Minimum discharge, 0.16 ft³/s (0.005 m³/s) Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.5 | 2.4 | 3.6 | 3.1 | 3.2 | 6.8 | 3.9 | 114 | 50 | 5.5 | 7.5 | 1.1 |
| 2 | 2.1 | 2.5 | 2.8 | 3.2 | 3.0 | 5.0 | 4.3 | 61 | 343 | 4.8 | 4.5 | 1.1 |
| 3 | 1.8 | 2.6 | 3.2 | 3.2 | 3.0 | 5.9 | 4.6 | 18 | 2620 | 4.6 | 4.1 | 1.1 |
| 4 | 1.6 | 2.6 | 3.6 | 3.1 | 3.0 | 6.0 | 3.6 | 9.6 | 892 | 4.5 | 2.2 | 1.1 |
| 5 | 1.4 | 2.4 | 3.9 | 3.3 | 3.3 | 4.5 | 3.4 | 205 | 172 | 4.9 | 1.6 | 14 |
| 6 | 1.7 | 2.8 | 3.7 | 3.5 | 3.3 | 4.3 | 3.7 | 73 | 641 | 4.1 | 1.8 | 3.7 |
| 7 | 1.9 | 2.8 | 5.8 | 3.3 | 3.7 | 6.3 | 4.2 | 41 | 420 | 3.3 | 8.6 | 2.4 |
| 8 | 1.7 | 2.7 | 16 | 3.3 | 3.7 | 6.3 | 3.6 | 24 | 127 | 3.0 | 5.2 | 2.5 |
| 9 | 1.3 | 2.4 | 11 | 3.7 | 4.1 | 5.3 | 3.3 | 18 | 40 | 3.3 | 2.3 | 1.8 |
| 10 | .98 | 2.4 | 7.3 | 3.5 | 3.0 | 4.5 | 3.6 | 20 | 20 | 2.7 | 1.2 | 1.5 |
| 11 | .90 | 2.6 | 6.1 | 3.3 | 2.0 | 4.5 | 85 | 14 | 12 | 2.7 | 2.7 | 1.4 |
| 12 | 1.3 | 2.7 | 5.5 | 3.3 | 2.0 | 4.6 | 134 | 8.4 | 8.4 | 2.4 | 5.7 | 1.0 |
| 13 | 1.5 | 2.7 | 4.8 | 3.3 | 3.0 | 4.5 | 93 | 6.2 | 6.3 | 1.4 | 5.2 | .88 |
| 14 | 1.7 | 2.7 | 4.8 | 3.4 | 3.6 | 11 | 261 | 4.8 | 4.5 | .95 | 15 | 1.9 |
| 15 | 1.8 | 2.4 | 4.4 | 3.2 | 3.5 | 97 | 152 | 5.2 | 41 | .95 | 7.3 | 1.5 |
| 16 | 1.5 | 6.1 | 4.5 | 3.1 | 3.5 | 27 | 78 | 7.1 | 147 | .99 | 5.1 | .85 |
| 17 | 1.1 | 15 | 4.0 | 3.2 | 3.6 | 11 | 44 | 7.5 | 118 | .74 | 5.4 | .76 |
| 18 | 1.1 | 11 | 3.8 | 4.0 | 3.6 | 6.6 | 53 | 4.3 | 38 | .75 | 5.4 | .80 |
| 19 | 1.0 | 7.4 | 2.9 | 5.0 | 3.4 | 6.2 | 114 | 3.5 | 20 | .60 | 3.1 | .78 |
| 20 | 1.2 | 6.0 | 2.7 | 5.0 | 3.0 | 6.3 | 39 | 3.8 | 13 | .64 | 2.7 | .64 |
| 21 | 1.9 | 4.5 | 3.3 | 4.0 | 2.3 | 5.4 | 27 | 4.9 | 9.0 | .63 | 1.8 | .52 |
| 22 | 2.0 | 4.5 | 4.0 | 4.1 | 2.1 | 4.7 | 22 | 5.5 | 8.1 | .66 | 1.3 | .44 |
| 23 | 1.7 | 4.4 | 4.3 | 4.1 | 2.3 | 5.5 | 12 | 4.1 | 7.3 | .58 | .95 | .51 |
| 24 | 1.2 | 4.1 | 3.5 | 4.0 | 2.4 | 5.8 | 9.1 | 51 | 7.4 | .55 | .82 | 106 |
| 25 | 1.5 | 5.2 | 3.2 | 3.8 | 2.4 | 5.5 | 7.4 | 95 | 6.9 | .66 | .69 | 133 |
| 26 | 2.0 | 6.5 | 3.7 | 3.8 | 2.7 | 6.1 | 5.9 | 10 | 7.4 | .56 | .73 | 15 |
| 27 | 2.3 | 5.1 | 3.9 | 3.7 | 3.0 | 5.6 | 5.2 | 103 | 6.9 | .53 | 16 | 2.6 |
| 28 | 1.8 | 4.4 | 3.9 | 3.4 | 6.6 | 6.3 | 4.7 | 35 | 6.1 | 14 | 9.5 | 2.5 |
| 29 | 2.0 | 4.3 | 3.7 | 3.1 | --- | 5.4 | 5.0 | 264 | 6.0 | 9.8 | 3.9 | 2.5 |
| 30 | 2.4 | 4.0 | 3.3 | 2.5 | --- | 4.5 | 4.5 | 116 | 5.6 | 72 | 1.8 | 2.4 |
| 31 | 2.3 | --- | 3.3 | 3.2 | --- | 4.0 | --- | 52 | --- | 17 | 1.4 | --- |
| TOTAL | 52.18 | 131.2 | 144.5 | 109.7 | 88.3 | 292.4 | 1194.0 | 1388.9 | 5803.9 | 169.79 | 135.49 | 306.28 |
| MEAN | 1.68 | 4.37 | 4.66 | 3.54 | 3.15 | 9.43 | 39.8 | 44.8 | 193 | 5.48 | 4.37 | 10.2 |
| MAX | 3.5 | 15 | 16 | 5.0 | 6.6 | 97 | 261 | 264 | 2620 | 72 | 16 | 133 |
| MIN | .90 | 2.4 | 2.7 | 2.5 | 2.0 | 4.0 | 3.3 | 3.5 | 4.5 | .53 | .69 | .44 |
| CFSM | .001 | .002 | .002 | .002 | .001 | .004 | .02 | .02 | .09 | .002 | .002 | .005 |
| IN. | .00 | .00 | .00 | .00 | .00 | .00 | .02 | .02 | .10 | .00 | .00 | .01 |
| AC-FT | 103 | 260 | 287 | 218 | 175 | 580 | 2370 | 2750 | 11510 | 337 | 269 | 608 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 5438.77 | MEAN 14.9 | MAX 638 | MIN .08 | CFSM .007 | IN .09 | AC-FT 10790 |
| WTR YR 1981 | TOTAL | 9816.64 | MEAN 26.9 | MAX 2620 | MIN .44 | CFSM .01 | IN .17 | AC-FT 19470 |

07307800 PEASE RIVER NEAR CHILDRESS, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: July 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1968 to current year.
WATER TEMPERATURES: July 1968 to current year.

INSTRUMENTATION.--Specific conductance is recorded continuously at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 43,800 micromhos Apr. 11, 1974; minimum daily, 1,580 micromhos Nov. 20, 1979.
WATER TEMPERATURES: Maximum daily, 37.0°C on several days during summer months of 1969, 1976, 1978, and 1980; minimum daily, 0.0°C on several days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 41,500 micromhos Apr. 3; minimum daily, 3,350 micromhos June 6.
WATER TEMPERATURES: Maximum daily, 34.0°C Aug. 21; minimum daily, 0.0°C Feb. 10.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | TEMPER-ATURE, WATER (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 02... | 1100 | 2.8 | -- | 22.0 | -- | -- | -- | -- | -- | -- |
| 14... | 1450 | 1.8 | 35400 | 30.5 | 3900 | 3900 | 1200 | 230 | -- | -- |
| NOV | | | | | | | | | | |
| 05... | 0750 | 2.5 | 37200 | 8.0 | 4000 | 3900 | 1200 | 240 | 7400 | 51 |
| 24... | 1210 | 4.1 | -- | 9.0 | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | |
| 16... | 0930 | 4.7 | -- | 7.5 | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | |
| 07... | 1200 | 3.7 | -- | 8.0 | -- | -- | -- | -- | -- | -- |
| 27... | 1000 | 3.7 | 39200 | 3.5 | 4000 | 3900 | 1200 | 240 | 7800 | 54 |
| FEB | | | | | | | | | | |
| 19... | 0930 | 3.4 | -- | 6.0 | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | |
| 10... | 0925 | 4.3 | -- | 9.5 | -- | -- | -- | -- | -- | -- |
| 30... | 1700 | 4.7 | -- | 25.0 | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | |
| 21... | 1000 | 26 | 20300 | 17.0 | 2100 | 2000 | 630 | 130 | 3900 | 37 |
| MAY | | | | | | | | | | |
| 12... | 1420 | 8.6 | -- | 31.5 | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | |
| 02... | 1025 | 390 | 5270 | 20.5 | 960 | 830 | 320 | 39 | 830 | 12 |
| 08... | 1045 | 136 | 8020 | 26.0 | 1100 | 1100 | 360 | 60 | 1300 | 17 |
| 22... | 1335 | 8.1 | -- | 33.0 | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | |
| 14... | 1700 | .92 | -- | 35.0 | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 03... | 1535 | 2.7 | -- | 33.5 | -- | -- | -- | -- | -- | -- |
| 25... | 1055 | 1.1 | -- | 26.0 | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 16... | 0915 | 1.0 | -- | 18.0 | -- | -- | -- | -- | -- | -- |

07307800 PEASE RIVER NEAR CHILDRESS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT DISCHARGE, SUSPENDED (T/DAY) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 02... | -- | -- | -- | -- | -- | -- | -- | 9 | .07 | 55 |
| 14... | -- | 88 | 3000 | 12000 | -- | -- | -- | 8 | .04 | 73 |
| NOV | | | | | | | | | | |
| 05... | 40 | 120 | 3300 | 13000 | -- | 10 | 25300 | 17 | .12 | 83 |
| 24... | -- | -- | -- | -- | -- | -- | -- | 4 | .04 | 76 |
| DEC | | | | | | | | | | |
| 16... | -- | -- | -- | -- | -- | -- | -- | 27 | .34 | 87 |
| JAN | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | 8 | .08 | 66 |
| 27... | 22 | 130 | 4100 | 12000 | -- | 10 | 25500 | 14 | .14 | 73 |
| FEB | | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | -- | -- | 21 | .19 | 31 |
| MAR | | | | | | | | | | |
| 10... | -- | -- | -- | -- | -- | -- | -- | 11 | .13 | 75 |
| 30... | -- | -- | -- | -- | -- | -- | -- | 52 | .66 | 89 |
| APR | | | | | | | | | | |
| 21... | 16 | 130 | 1700 | 6800 | -- | 13 | 13300 | 1210 | 85 | 99 |
| MAY | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | 154 | 3.6 | 100 |
| JUN | | | | | | | | | | |
| 02... | 7.9 | 130 | 840 | 1400 | .4 | 14 | 3530 | -- | -- | -- |
| 08... | 11 | 86 | 920 | 2100 | .4 | 12 | 4820 | 1370 | 503 | 96 |
| 22... | -- | -- | -- | -- | -- | -- | -- | 75 | 1.6 | 57 |
| JUL | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- | -- | 10 | .02 | 85 |
| AUG | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | 52 | .38 | 96 |
| 25... | -- | -- | -- | -- | -- | -- | -- | 33 | .10 | 68 |
| SEP | | | | | | | | | | |
| 16... | -- | -- | -- | -- | -- | -- | -- | 20 | .05 | 68 |

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCTANCE (MICROMHOS) | DISSOLVED SOLIDS (MG/L) | DISSOLVED SOLIDS (TONS) | DISSOLVED CHLORIDE (MG/L) | DISSOLVED CHLORIDE (TONS) | DISSOLVED SULFATE (MG/L) | DISSOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 52.18 | 36000 | 23100 | 3260 | 11900 | 1680 | 3100 | 432 | * |
| NOV. | 1980 | 131.2 | 38100 | 24600 | 8720 | 12700 | 4510 | 3200 | 1120 | * |
| DEC. | 1980 | 144.5 | 38200 | 24700 | 9620 | 12800 | 4980 | 3200 | 1230 | * |
| JAN. | 1981 | 109.7 | 39200 | 25400 | 7520 | 13200 | 3900 | 3200 | 950 | * |
| FEB. | 1981 | 88.3 | 38500 | 24900 | 5940 | 12900 | 3080 | 3200 | 756 | * |
| MAR. | 1981 | 292.4 | 28400 | 18200 | 14400 | 9300 | 7340 | 2500 | 1950 | * |
| APR. | 1981 | 1194.0 | 14700 | 9170 | 29600 | 4500 | 14400 | 1500 | 4830 | * |
| MAY | 1981 | 1388.9 | 12800 | 7950 | 29800 | 3900 | 14500 | 1300 | 4950 | * |
| JUNE | 1981 | 5803.9 | 6010 | 3690 | 57800 | 1700 | 27400 | 660 | 10400 | 800 |
| JULY | 1981 | 169.79 | 25200 | 16000 | 7320 | 8000 | 3680 | 2300 | 1070 | * |
| AUG. | 1981 | 135.49 | 28900 | 18400 | 6730 | 9300 | 3400 | 2600 | 962 | * |
| SEPT | 1981 | 306.28 | 11300 | 7030 | 5810 | 3400 | 2820 | 1200 | 964 | * |
| TOTAL | | 9816.64 | ** | ** | 186000 | ** | 91700 | ** | 29600 | ** |
| WTD. AVG. | | 27 | 11200 | 7040 | ** | 3500 | ** | 1100 | ** | ** |

07307800 PEASE RIVER NEAR CHILDRESS, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 38100 | 37500 | 38900 | 39500 | 39500 | 37700 | 40600 | 14300 | 27800 | 37300 | 32600 | 32100 |
| 2 | 36300 | 37400 | 39500 | 39600 | 39400 | 38400 | 41400 | 13000 | 11200 | 36400 | 34400 | 32300 |
| 3 | 35100 | 36900 | 39400 | 39100 | 39600 | 38000 | 41500 | 25500 | 3420 | 35500 | 33900 | 32600 |
| 4 | 35500 | 37400 | 39300 | 39500 | 39400 | 41000 | 41000 | 32700 | 4110 | 36900 | 32300 | 32900 |
| 5 | 35700 | 37200 | 39300 | 36800 | 39100 | 40600 | 39700 | 6910 | 7960 | 37600 | 33500 | 20600 |
| 6 | 35000 | 38000 | 39100 | 39700 | 39200 | 40100 | 39200 | 10900 | 3350 | 37000 | 34200 | 32900 |
| 7 | 36000 | 37500 | 37500 | 39500 | 35500 | 38600 | 40600 | 19400 | 5660 | 36800 | 25800 | 34300 |
| 8 | 36500 | 36900 | 31300 | 39100 | 31000 | 39200 | 40500 | 28500 | 11900 | 36500 | 31600 | 36300 |
| 9 | 35800 | 37700 | 33500 | 39400 | 30000 | 40400 | 40200 | 26500 | 21100 | 35600 | 33900 | 35000 |
| 10 | 35000 | 37400 | 40600 | 39000 | 39800 | 39800 | 39400 | 30000 | 27300 | 36800 | 32400 | 33100 |
| 11 | 34500 | 37500 | 40400 | 36900 | 39700 | 39900 | 7310 | 32400 | 31500 | 36900 | 31100 | 33500 |
| 12 | 35900 | 37400 | 40200 | 39500 | 39700 | 39400 | 9670 | 35700 | 34100 | 36600 | 28300 | 33300 |
| 13 | 35700 | 37400 | 39900 | 39400 | 39300 | 40100 | 9000 | 36400 | 35800 | 36000 | 29700 | 33200 |
| 14 | 35100 | 37600 | 39800 | 39600 | 39600 | 33500 | 8040 | 37600 | 37000 | 35500 | 21800 | 32900 |
| 15 | 36300 | 37900 | 39800 | 39400 | 39100 | 11200 | 11100 | 37900 | 11600 | 35600 | 37500 | 34400 |
| 16 | 35800 | 32900 | 40000 | 39500 | 38800 | 22600 | 15900 | 38100 | 8300 | 35700 | 34400 | 32600 |
| 17 | 35200 | 37600 | 40100 | 39200 | 39300 | 38200 | 19500 | 39400 | 9120 | 36600 | 34500 | 33000 |
| 18 | 35700 | 40200 | 39800 | 37600 | 39700 | 39400 | 15000 | 36700 | 19600 | 34700 | 33600 | 33200 |
| 19 | 36200 | 39800 | 40000 | 39500 | 39900 | 39700 | 22800 | 37000 | 28400 | 35800 | 32800 | 33900 |
| 20 | 35400 | 36100 | 40200 | 39600 | 40600 | 39900 | 16200 | 37500 | 33500 | 36600 | 37600 | 34000 |
| 21 | 36400 | 39500 | 39800 | 39500 | 40500 | 39700 | 23200 | 38200 | 36500 | 35200 | 34800 | 32600 |
| 22 | 36300 | 39000 | 39500 | 39300 | 40400 | 39800 | 32200 | 39600 | 37700 | 36700 | 34400 | 32700 |
| 23 | 36500 | 39100 | 39700 | 39200 | 39600 | 39700 | 33400 | 38300 | 38200 | 36800 | 34000 | 34000 |
| 24 | 35800 | 39300 | 39100 | 39900 | 40500 | 39800 | 37000 | 8750 | 38000 | 37000 | 33400 | 6250 |
| 25 | 36000 | 35600 | 39600 | 39500 | 39400 | 39000 | 38200 | 10200 | 38300 | 34000 | 33700 | 7050 |
| 26 | 35300 | 39800 | 39500 | 39300 | 39800 | 40400 | 38100 | 24500 | 37900 | 35700 | 33900 | 19500 |
| 27 | 35000 | 40500 | 39500 | 39500 | 39600 | 40500 | 39100 | 8390 | 37800 | 34600 | 15000 | 30000 |
| 28 | 36000 | 39500 | 39300 | 39700 | 38300 | 40600 | 38900 | 20800 | 37500 | 22300 | 28000 | 33900 |
| 29 | 35000 | 39100 | 37500 | 39900 | --- | 40700 | 39200 | 5970 | 37400 | 27500 | 30400 | 35100 |
| 30 | 36800 | 38600 | 39700 | 39200 | --- | 40600 | 39500 | 7470 | 37500 | 14800 | 32700 | 32400 |
| 31 | 37300 | --- | 39600 | 39600 | --- | 40000 | --- | 22800 | --- | 32100 | 32000 | --- |
| MEAN | 35800 | 37900 | 39100 | 39200 | 38800 | 38000 | 29900 | 25900 | 25000 | 34600 | 31900 | 30700 |

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 33.0 | 18.0 | --- | 11.0 | 7.0 | --- | --- | 21.0 | 23.0 | 22.0 | 31.0 | 23.0 |
| 2 | 23.0 | 19.0 | --- | 12.0 | 7.0 | 14.0 | 14.0 | 17.0 | --- | --- | 28.0 | 27.0 |
| 3 | 23.0 | 13.0 | --- | 5.0 | 12.0 | 14.0 | 15.0 | 19.0 | 15.0 | --- | 28.0 | 26.0 |
| 4 | 23.0 | 17.0 | --- | 8.0 | 6.0 | 13.0 | 12.0 | 22.0 | 21.0 | --- | 31.0 | 25.0 |
| 5 | 25.0 | 17.0 | --- | 12.0 | 7.0 | 15.0 | 10.0 | 15.0 | 20.0 | --- | 31.0 | 25.0 |
| 6 | 23.0 | 19.0 | --- | 9.0 | 6.0 | 15.0 | 10.0 | 21.0 | 23.0 | --- | 33.0 | 24.0 |
| 7 | 26.0 | 17.0 | --- | 10.0 | 8.0 | 17.0 | 12.0 | 17.0 | 21.0 | --- | 29.0 | 26.0 |
| 8 | 23.0 | 20.0 | --- | 11.0 | 6.0 | 8.0 | 15.0 | 20.0 | 24.0 | --- | 20.0 | 27.0 |
| 9 | 23.0 | 20.0 | --- | 11.0 | 5.0 | 16.0 | 17.0 | 10.0 | 26.0 | --- | 26.0 | 29.0 |
| 10 | 22.0 | 20.0 | --- | 7.0 | .0 | 17.0 | 17.0 | 18.0 | 24.0 | --- | 23.5 | 30.0 |
| 11 | 23.0 | 17.0 | --- | 7.0 | 1.0 | 15.0 | 19.0 | 19.0 | 25.0 | --- | 26.0 | 32.0 |
| 12 | 22.0 | 15.0 | --- | 10.0 | 6.0 | 15.0 | 19.0 | 19.0 | 20.0 | --- | --- | --- |
| 13 | 21.0 | 16.0 | 9.0 | 10.0 | 14.0 | 23.0 | 12.0 | --- | 21.0 | --- | --- | 25.0 |
| 14 | 19.0 | 8.0 | 1.0 | 13.0 | 12.0 | --- | 12.0 | 19.0 | 23.0 | --- | 30.0 | 27.0 |
| 15 | 19.0 | 12.0 | 12.0 | 10.0 | 14.0 | 16.0 | 7.0 | 15.0 | 13.0 | --- | 29.0 | 31.0 |
| 16 | 19.0 | 3.0 | 15.0 | 6.0 | 14.0 | 18.0 | 15.0 | 19.0 | 19.0 | --- | 24.0 | 23.0 |
| 17 | 19.0 | 5.0 | 9.0 | 8.0 | 14.0 | --- | 19.0 | 16.0 | 20.0 | 29.0 | 28.0 | --- |
| 18 | 20.0 | 11.0 | 14.0 | 5.0 | 15.0 | 12.0 | 14.0 | 16.0 | 25.0 | 28.0 | 26.0 | 29.0 |
| 19 | 20.0 | 12.0 | 4.0 | 6.0 | 16.0 | 15.0 | 9.0 | 16.0 | 21.0 | 29.0 | 24.0 | 29.0 |
| 20 | 23.0 | 20.0 | 1.0 | 6.0 | 16.0 | 16.0 | 19.0 | 20.0 | 25.0 | 28.0 | 27.0 | 28.0 |
| 21 | 19.0 | 11.0 | 2.0 | 7.0 | 16.0 | 14.0 | 12.0 | 17.0 | 27.0 | 27.0 | 34.0 | 28.0 |
| 22 | 19.0 | 10.0 | 9.0 | 8.0 | 14.0 | 13.0 | 9.0 | 18.0 | 24.0 | 28.0 | 27.0 | 29.0 |
| 23 | 14.0 | 8.0 | 12.0 | 4.0 | 17.0 | 13.0 | 12.0 | 21.0 | 22.0 | 26.0 | 27.0 | 27.0 |
| 24 | 14.0 | 8.0 | 5.0 | 13.0 | 15.0 | 13.0 | 21.0 | 17.0 | 24.0 | 27.0 | 27.5 | 22.0 |
| 25 | 16.0 | 6.0 | 8.0 | 12.0 | 15.0 | 8.0 | 22.0 | 23.0 | 24.0 | 27.0 | 29.0 | 28.0 |
| 26 | 16.0 | 4.0 | 12.0 | 11.0 | 15.0 | 15.0 | 22.0 | --- | 20.0 | 27.0 | 32.0 | --- |
| 27 | 14.0 | 9.0 | 8.0 | 13.0 | 16.0 | 8.0 | 22.0 | 24.0 | 23.0 | 28.0 | 29.0 | --- |
| 28 | 14.0 | 11.0 | 9.0 | 12.0 | 11.0 | 20.0 | 23.0 | 18.0 | 23.0 | 25.0 | 28.0 | 28.0 |
| 29 | 16.0 | 10.0 | 9.0 | 12.0 | --- | 21.0 | 22.0 | 19.0 | 22.0 | 30.0 | 27.0 | 28.0 |
| 30 | 18.0 | 10.0 | 10.0 | 10.0 | --- | 15.0 | --- | 19.0 | 22.0 | 30.0 | 27.0 | 27.0 |
| 31 | 13.0 | --- | 9.0 | 7.0 | --- | 14.0 | --- | 19.0 | --- | 31.0 | 26.0 | --- |
| MEAN | 20.0 | 13.0 | 8.5 | 9.0 | 11.0 | 15.0 | 15.5 | 18.5 | 22.0 | 27.5 | 28.0 | 27.0 |

## 07308200 PEASE RIVER NEAR VERNON, TX

LOCATION.--Lat 34°10'44", long 99°16'40", Wilbarger County, Hydrologic Unit 11130105, near left bank on downstream side of bridge on U.S. Highway 283, 1.9 mi (3.1 km) north of Vernon, and 10 mi (16 km) upstream from mouth.

DRAINAGE AREA.--3,488 mi² (9,034 km²), of which 559 mi² (1,448 km²) probably is noncontributing.

### WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 1,166.03 ft (355.406 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair. Four small diversions for irrigation above station. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 07307800.

AVERAGE DISCHARGE.--21 years (water years 1961-81), 105 ft³/s (2.974 m³/s), 76,070 acre-ft/yr (93.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,000 ft³/s (878 m³/s) Sept. 19, 1965, gage height, 18.50 ft (5.639 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1890, 24 ft (7.3 m) in 1891. The flood in September 1936 reached a stage of 23.5 ft (7.16 m), and the flood of June 2, 1957, reached a stage of 22.0 ft (6.71 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft³/s (70.8 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| June 3 | 2215 | *6,520 | 18.5 | 13.60 | 4.145 |
| June 7 | 0545 | 2,920 | 82.7 | 11.30 | 3.444 |

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .02 | .30 | .39 | 17 | 357 | 7.0 | .05 | .98 |
| 2 | .00 | .00 | .00 | .00 | .02 | .15 | .24 | 43 | 1510 | 6.6 | .00 | .02 |
| 3 | .00 | .00 | .00 | .00 | .03 | .25 | .19 | 20 | 3750 | 5.8 | .00 | .02 |
| 4 | .00 | .00 | .00 | .00 | .04 | .29 | .07 | 36 | 3410 | 5.4 | .00 | .00 |
| 5 | .00 | .00 | .00 | .00 | .03 | .15 | .05 | 865 | 796 | 4.8 | .00 | .01 |
| 6 | .00 | .00 | .00 | .00 | .03 | .10 | .03 | 508 | 1270 | 4.5 | .00 | .00 |
| 7 | .00 | .00 | .05 | .00 | .06 | .17 | .03 | 452 | 1630 | 3.9 | .40 | .00 |
| 8 | .00 | .00 | 27 | .00 | .06 | .19 | .03 | 294 | 486 | 3.7 | .10 | .00 |
| 9 | .00 | .00 | 4.8 | .01 | .08 | .16 | .03 | 123 | 362 | 3.2 | .00 | .00 |
| 10 | .00 | .00 | 1.1 | .01 | .14 | .14 | .03 | 51 | 235 | 2.8 | .00 | .00 |
| 11 | .00 | .00 | .19 | .01 | .00 | .13 | .03 | 21 | 179 | 2.4 | .00 | .00 |
| 12 | .00 | .00 | .05 | .01 | .00 | .11 | .03 | 12 | 141 | 1.9 | .00 | .00 |
| 13 | .00 | .00 | .03 | .02 | .05 | .11 | .06 | 9.3 | 120 | 1.6 | .00 | .00 |
| 14 | .00 | .00 | .02 | .02 | .07 | .14 | 102 | 8.3 | 107 | 1.5 | .03 | 10 |
| 15 | .00 | .00 | .02 | .01 | .08 | 4.6 | 132 | 7.0 | 137 | 1.0 | .10 | 1.5 |
| 16 | .00 | .00 | .01 | .02 | .07 | 4.9 | 218 | 7.0 | 141 | .64 | .00 | .07 |
| 17 | .00 | .01 | .00 | .02 | .06 | 14 | 139 | 6.6 | 33 | .51 | .00 | .03 |
| 18 | .00 | .03 | .00 | .02 | .05 | 18 | 98 | 6.6 | 17 | .34 | .02 | .02 |
| 19 | .00 | .01 | .00 | .02 | .06 | 9.7 | 94 | 5.8 | 15 | .28 | .00 | .00 |
| 20 | .00 | .00 | .00 | .02 | .04 | 5.4 | 74 | 5.1 | 15 | .25 | .00 | .00 |
| 21 | .00 | .00 | .00 | .01 | .02 | 3.2 | 96 | 4.5 | 14 | .21 | .00 | .00 |
| 22 | .00 | .00 | .00 | .02 | .03 | 1.8 | 55 | 4.2 | 13 | .14 | .00 | .00 |
| 23 | .00 | .00 | .00 | .02 | .02 | 1.6 | 45 | 4.2 | 13 | .12 | .00 | .00 |
| 24 | .00 | .00 | .00 | .02 | .04 | 1.1 | 33 | 4.2 | 11 | .05 | .00 | .00 |
| 25 | .00 | .00 | .00 | .02 | .03 | .91 | 26 | 31 | 9.8 | .02 | .00 | .00 |
| 26 | .00 | .00 | .00 | .02 | .04 | .78 | 21 | 7.0 | 9.3 | .00 | 4.1 | .45 |
| 27 | .00 | .00 | .00 | .02 | .06 | .65 | 16 | 2.6 | 8.8 | .00 | 24 | 55 |
| 28 | .00 | .00 | .00 | .02 | .32 | 1.2 | 18 | 2.2 | 8.3 | 1.2 | 1.2 | 10 |
| 29 | .00 | .00 | .00 | .02 | --- | 4.8 | 30 | 250 | 7.9 | 2.0 | .12 | 2.7 |
| 30 | .00 | .00 | .00 | .00 | --- | 1.9 | 24 | 812 | 7.4 | .56 | .02 | .88 |
| 31 | .00 | --- | .00 | .03 | --- | .85 | --- | 605 | --- | .18 | .00 | --- |
| TOTAL | .00 | .05 | 33.27 | .39 | 1.55 | 77.78 | 1222.21 | 4224.6 | 14813.5 | 62.60 | 30.14 | 81.68 |
| MEAN | .000 | .002 | 1.07 | .013 | .055 | 2.51 | 40.7 | 136 | 494 | 2.02 | .97 | 2.72 |
| MAX | .00 | .03 | 27 | .03 | .32 | 18 | 218 | 865 | 3750 | 7.0 | 24 | 55 |
| MIN | .00 | .00 | .00 | .00 | .00 | .10 | .03 | 2.2 | 7.4 | .00 | .00 | .00 |
| AC-FT | .00 | .10 | 66 | .8 | 3.1 | 154 | 2420 | 8380 | 29380 | 124 | 60 | 162 |

CAL YR 1980 TOTAL 25177.12 MEAN 68.8 MAX 7760 MIN .00 AC-FT 49940
WTR YR 1981 TOTAL 20547.77 MEAN 56.3 MAX 3750 MIN .00 AC-FT 40760

07308200 PEASE RIVER NEAR VERNON, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: November 1967 to September 1981 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | | |
| 16... | 1508 | .01 | 8820 | 14.5 | 1800 | 1500 | 470 | 150 | 1400 |
| JAN | | | | | | | | | |
| 27... | 1600 | .02 | 15100 | 10.0 | 3100 | 2800 | 750 | 290 | 2500 |
| MAR | | | | | | | | | |
| 10... | 1520 | .13 | 9060 | 16.0 | 1700 | 1500 | 430 | 150 | 1400 |
| APR | | | | | | | | | |
| 21... | 1540 | 89 | 12900 | 18.5 | 1700 | 1600 | 520 | 92 | 2200 |
| JUN | | | | | | | | | |
| 02... | 1620 | 2100 | 1530 | 24.5 | 290 | 190 | 94 | 13 | 200 |
| 04... | 1350 | 1740 | 2840 | 24.0 | 610 | 500 | 200 | 27 | 390 |
| 10... | 0900 | 225 | 5280 | 26.0 | 930 | 840 | 300 | 45 | 790 |
| JUL | | | | | | | | | |
| 15... | 1210 | 2.6 | 11600 | 32.0 | 2500 | 2400 | 700 | 180 | 1900 |

| DATE | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY 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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | |
| 16... | 14 | 9.1 | 270 | 1500 | 2300 | .3 | 13 | 6000 |
| JAN | | | | | | | | |
| 27... | 20 | 10 | 280 | 2300 | 4300 | .2 | 12 | 10300 |
| MAR | | | | | | | | |
| 10... | 15 | 8.1 | 210 | 1300 | 2400 | .4 | 7.1 | 5820 |
| APR | | | | | | | | |
| 21... | 23 | 12 | 97 | 1300 | 3600 | .6 | 11 | 7790 |
| JUN | | | | | | | | |
| 02... | 5.1 | 8.5 | 94 | 180 | 330 | .2 | 9.9 | 892 |
| 04... | 6.9 | 7.9 | 110 | 540 | 580 | .4 | 12 | 1820 |
| 10... | 11 | 9.7 | 95 | 760 | 1300 | .5 | 11 | 3270 |
| JUL | | | | | | | | |
| 15... | 17 | 12 | 140 | 1600 | 3600 | .4 | 14 | 8090 |

## 07308500 RED RIVER NEAR BURKBURNETT, TX
(National stream-quality accounting network)

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 (4.0 km) northeast of Burkburnett, and at mile 933 (1,501 km).

DRAINAGE AREA.--20,570 mi² (53,280 km²), of which 5,936 mi² (15,374 km²) 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 (290.343 m) National Geodetic Vertical Datum of 1929. July 11, 1924, to Aug. 31, 1925, nonrecording gage at site 1,000 ft (305 m) downstream at same datum. Dec. 16, 1959, to Jan. 11, 1960, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records fair. Many small diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--21 years (water years 1961-81), 862 ft³/s (24.41 m³/s), 624,500 acre-ft/yr (770 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 62,800 ft³/s (1,780 m³/s) Oct. 19, 1965, gage height, 11.46 ft (3.493 m); maximum gage height, 12.64 ft (3.853 m) July 27, 1975; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 3, 1957, reached a stage of 13.54 ft (4.127 m), from levels to floodmarks. According to local residents, higher stages occurred in 1891 and June 1941.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 9,000 ft³/s (255 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| June 4 | 1800 | *20,400 | 578 | 9.78 | 2.981 |
| June 7 | 1800 | 9,570 | 271 | 8.08 | 2.463 |

Minimum daily discharge, 12 ft³/s (0.34 m³/s) Oct. 24, 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 80 | 20 | 73 | 66 | 77 | 144 | 100 | 373 | 1980 | 187 | 70 | 54 |
| 2 | 64 | 21 | 64 | 68 | 73 | 136 | 89 | 449 | 3790 | 173 | 87 | 87 |
| 3 | 57 | 21 | 64 | 70 | 71 | 119 | 85 | 1250 | 14100 | 197 | 135 | 70 |
| 4 | 56 | 21 | 72 | 62 | 72 | 130 | 72 | 1220 | 19300 | 224 | 100 | 49 |
| 5 | 51 | 22 | 74 | 65 | 72 | 141 | 67 | 1240 | 14100 | 197 | 82 | 44 |
| 6 | 42 | 21 | 74 | 68 | 73 | 107 | 65 | 2430 | 7600 | 210 | 68 | 1430 |
| 7 | 38 | 20 | 82 | 68 | 72 | 105 | 64 | 1830 | 7560 | 174 | 91 | 1050 |
| 8 | 34 | 21 | 136 | 67 | 76 | 108 | 61 | 1220 | 5980 | 159 | 132 | 741 |
| 9 | 29 | 21 | 158 | 69 | 79 | 112 | 64 | 566 | 4400 | 133 | 91 | 458 |
| 10 | 24 | 21 | 190 | 70 | 75 | 105 | 62 | 363 | 2890 | 132 | 54 | 318 |
| 11 | 21 | 20 | 273 | 70 | 75 | 102 | 59 | 313 | 2210 | 110 | 49 | 239 |
| 12 | 21 | 21 | 338 | 69 | 80 | 96 | 58 | 220 | 1560 | 98 | 48 | 184 |
| 13 | 19 | 20 | 290 | 70 | 90 | 97 | 70 | 182 | 1140 | 95 | 45 | 146 |
| 14 | 17 | 18 | 237 | 70 | 106 | 95 | 269 | 150 | 878 | 82 | 42 | 119 |
| 15 | 15 | 21 | 203 | 67 | 90 | 219 | 403 | 136 | 903 | 72 | 38 | 93 |
| 16 | 16 | 36 | 169 | 67 | 87 | 266 | 824 | 143 | 808 | 63 | 60 | 89 |
| 17 | 16 | 81 | 150 | 70 | 101 | 214 | 890 | 122 | 915 | 59 | 379 | 85 |
| 18 | 15 | 88 | 136 | 73 | 98 | 307 | 720 | 113 | 808 | 51 | 465 | 71 |
| 19 | 14 | 90 | 109 | 74 | 94 | 213 | 874 | 139 | 785 | 46 | 283 | 45 |
| 20 | 14 | 89 | 104 | 74 | 90 | 261 | 497 | 115 | 831 | 39 | 193 | 37 |
| 21 | 14 | 84 | 97 | 80 | 87 | 299 | 621 | 81 | 774 | 35 | 143 | 30 |
| 22 | 14 | 82 | 92 | 77 | 82 | 188 | 738 | 85 | 611 | 28 | 106 | 28 |
| 23 | 13 | 82 | 88 | 76 | 79 | 160 | 557 | 79 | 480 | 27 | 152 | 25 |
| 24 | 12 | 75 | 78 | 76 | 75 | 146 | 381 | 78 | 397 | 23 | 136 | 23 |
| 25 | 12 | 74 | 79 | 73 | 72 | 121 | 299 | 106 | 357 | 23 | 100 | 20 |
| 26 | 13 | 78 | 79 | 81 | 70 | 122 | 247 | 252 | 305 | 23 | 72 | 18 |
| 27 | 26 | 76 | 79 | 77 | 76 | 116 | 208 | 826 | 289 | 24 | 63 | 18 |
| 28 | 21 | 74 | 75 | 81 | 132 | 105 | 156 | 459 | 255 | 42 | 68 | 14 |
| 29 | 21 | 74 | 68 | 79 | --- | 95 | 138 | 2120 | 242 | 72 | 93 | 50 |
| 30 | 23 | 74 | 72 | 77 | --- | 96 | 136 | 2580 | 214 | 70 | 52 | 53 |
| 31 | 23 | --- | 71 | 77 | --- | 96 | --- | 2450 | --- | 68 | 36 | --- |
| TOTAL | 835 | 1466 | 3874 | 2231 | 2324 | 4621 | 8874 | 21690 | 96462 | 2936 | 3533 | 5688 |
| MEAN | 26.9 | 48.9 | 125 | 72.0 | 83.0 | 149 | 296 | 700 | 3215 | 94.7 | 114 | 190 |
| MAX | 80 | 90 | 338 | 81 | 132 | 307 | 890 | 2580 | 19300 | 224 | 465 | 1430 |
| MIN | 12 | 18 | 64 | 62 | 70 | 95 | 58 | 78 | 214 | 23 | 36 | 14 |
| AC-FT | 1660 | 2910 | 7680 | 4430 | 4610 | 9170 | 17600 | 43020 | 191300 | 5820 | 7010 | 11280 |

CAL YR 1980 TOTAL 343165 MEAN 938 MAX 37700 MIN 12 AC-FT 680700
WTR YR 1981 TOTAL 154534 MEAN 423 MAX 19300 MIN 12 AC-FT 306500

07308500 RED RIVER NEAR BURKBURNETT, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: July 1968 to September 1974. Chemical, biochemical, and pesticide analyses: October 1974 to current year.

PERIOD OF DAILY RECORD.--
SECIFIC CONDUCTANCE: July 1968 to current year.
WATER TEMPERATURES: July 1968 to current year.

INSTRUMENTATION.--Continuous recording of specific conductance was discontinued on September 1979.

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, 17,400 micromhos July 30, 1972; minimum daily, 889 micromhos Sept. 24, 1970.
WATER TEMPERATURES: Maximum daily, 35.5°C June 29, 1980; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 15,600 micromhos Sept. 2; minimum daily, 1,290 micromhos May 30.
WATER TEMPERATURES: Maximum daily, 35.0°C July 19, Aug. 15; minimum daily, 0.0°C Dec. 20.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 07... | 1605 | 38 | 9020 | 8.2 | 27.0 | .30 | 9.1 | 120 | 6.2 | K76 | K8 |
| 16... | 1215 | 34 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 03... | 1740 | 20 | 7380 | 8.1 | 17.5 | 5.5 | 9.8 | 107 | 5.2 | 23 | K11 |
| DEC | | | | | | | | | | | |
| 02... | 1350 | 64 | 7850 | 7.8 | 6.0 | 5.8 | 12.6 | 106 | 1.5 | K15 | K1 |
| JAN | | | | | | | | | | | |
| 14... | 0945 | 70 | 8890 | 8.4 | 3.0 | -- | 11.6 | 91 | 3.4 | 24 | K7 |
| FEB | | | | | | | | | | | |
| 10... | 1100 | 75 | 9410 | 8.4 | 3.0 | 16 | 9.4 | 75 | .9 | K4 | 32 |
| MAR | | | | | | | | | | | |
| 03... | 1230 | 119 | 7920 | 8.2 | 12.5 | 19 | 10.3 | 102 | 3.8 | 41 | K19 |
| APR | | | | | | | | | | | |
| 07... | 0950 | 64 | 9400 | 8.2 | 16.0 | 10 | 9.4 | 100 | 6.5 | K7 | K6 |
| MAY | | | | | | | | | | | |
| 05... | 1145 | 1260 | 2690 | 8.2 | 22.0 | 650 | 7.5 | 88 | 11 | 1100 | 6600 |
| JUN | | | | | | | | | | | |
| 02... | 1040 | 3060 | 2070 | 8.0 | 22.5 | 1200 | 7.1 | 83 | 5.4 | 5000 | K10000 |
| JUL | | | | | | | | | | | |
| 13... | 1600 | 95 | 8370 | 8.2 | 34.0 | 17 | 7.5 | 110 | 4.5 | 51 | K12 |
| AUG | | | | | | | | | | | |
| 04... | 1130 | 96 | 6520 | 8.1 | 27.0 | 1.2 | 8.5 | 113 | 4.4 | 70 | K38 |
| SEP | | | | | | | | | | | |
| 15... | 0930 | 102 | 11300 | 8.1 | 23.0 | 330 | 7.7 | 96 | 2.9 | K95 | 4500 |

07308500 RED RIVER NEAR BURKBURNETT, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 07... | 1500 | 1400 | 390 | 130 | 1500 | 17 | 13 | 152 | 1100 | 2600 | .4 |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 03... | 1300 | 1100 | 320 | 110 | 1200 | 15 | 12 | 190 | 1100 | 1900 | .4 |
| DEC | | | | | | | | | | | |
| 02... | 1400 | 1300 | 360 | 130 | 1200 | 14 | 15 | 180 | 1100 | 2000 | .4 |
| JAN | | | | | | | | | | | |
| 14... | 1500 | 1300 | 380 | 130 | 1500 | 17 | 9.1 | 160 | 1100 | 2500 | .5 |
| FEB | | | | | | | | | | | |
| 10... | 1300 | 1100 | 310 | 120 | 1600 | 20 | 8.9 | 160 | 1100 | 2400 | .3 |
| MAR | | | | | | | | | | | |
| 03... | 1300 | 1200 | 330 | 120 | 1300 | 16 | 9.1 | 150 | 1000 | 2200 | .3 |
| APR | | | | | | | | | | | |
| 07... | 1600 | 1500 | 410 | 150 | 1500 | 16 | 11 | 150 | 1300 | 2500 | .5 |
| MAY | | | | | | | | | | | |
| 05... | 590 | 490 | 170 | 39 | 350 | 6.3 | 7.8 | 100 | 380 | 580 | .3 |
| JUN | | | | | | | | | | | |
| 02... | 340 | 270 | 100 | 21 | 290 | 6.9 | 7.1 | 66 | 260 | 430 | .3 |
| JUL | | | | | | | | | | | |
| 13... | 1500 | 1400 | 380 | 130 | 1400 | 16 | 12 | 130 | 1100 | 2400 | .4 |
| AUG | | | | | | | | | | | |
| 04... | 1200 | 1200 | 340 | 90 | 1100 | 14 | 12 | 51 | 940 | 1900 | .4 |
| SEP | | | | | | | | | | | |
| 15... | 1600 | 1500 | 470 | 100 | 2100 | 23 | 14 | 92 | 1500 | 3200 | .7 |

| DATE | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NITRATE TOTAL (MG/L AS N) | NITROGEN, NITRITE TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, AMMONIA DISSOLVED (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, ORGANIC DISSOLVED (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 07... | 9.7 | 5920 | 5820 | -- | -- | .00 | .00 | .070 | .070 | 1.5 | .49 |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 03... | 11 | 4050 | 4770 | -- | -- | .01 | .00 | .090 | .080 | 1.0 | .71 |
| DEC | | | | | | | | | | | |
| 02... | 6.5 | -- | 4920 | -- | -- | .24 | .23 | .170 | .070 | 1.0 | .76 |
| JAN | | | | | | | | | | | |
| 14... | 3.4 | 5610 | 5720 | -- | -- | .00 | .00 | .100 | .080 | .80 | .92 |
| FEB | | | | | | | | | | | |
| 10... | .9 | 5780 | 5640 | -- | -- | .00 | .00 | .060 | .050 | 1.0 | .74 |
| MAR | | | | | | | | | | | |
| 03... | 1.9 | 1340 | 5050 | -- | -- | .00 | .00 | .050 | .060 | 1.3 | .61 |
| APR | | | | | | | | | | | |
| 07... | 2.1 | 6210 | 5960 | -- | -- | .02 | .03 | .100 | .050 | 1.7 | .47 |
| MAY | | | | | | | | | | | |
| 05... | 8.2 | 1660 | 1600 | -- | -- | .45 | .53 | .120 | .200 | 1.7 | 1.1 |
| JUN | | | | | | | | | | | |
| 02... | 7.1 | 1220 | 1160 | -- | -- | .57 | .57 | .290 | .160 | 2.1 | .83 |
| JUL | | | | | | | | | | | |
| 13... | 11 | 5510 | 5510 | -- | -- | .01 | .02 | .160 | .150 | 1.5 | .68 |
| AUG | | | | | | | | | | | |
| 04... | 6.4 | 4300 | 4420 | -- | -- | .10 | .13 | .160 | .170 | 1.4 | .52 |
| SEP | | | | | | | | | | | |
| 15... | 12 | 7510 | 7450 | .11 | .040 | .15 | <.10 | .210 | .140 | 1.3 | .38 |

07308500 RED RIVER NEAR BURKBURNETT, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) | CARBON, ORGANIC TOTAL (MG/L AS C) | CARBON, ORGANIC DISSOLVED (MG/L AS C) | CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 07... | 1.60 | .56 | .060 | .040 | -- | 7.0 | 3.5 | 57 | 5.8 | 97 |
| 16... | -- | -- | -- | -- | -- | -- | -- | 60 | 5.5 | 92 |
| NOV | | | | | | | | | | |
| 03... | 1.10 | .79 | .040 | .010 | 11 | -- | -- | 62 | 3.3 | 99 |
| DEC | | | | | | | | | | |
| 02... | 1.20 | .83 | .070 | .060 | 21 | -- | -- | 76 | 13 | 56 |
| JAN | | | | | | | | | | |
| 14... | .90 | 1.0 | .080 | .040 | -- | 10 | 1.9 | 46 | 8.7 | 34 |
| FEB | | | | | | | | | | |
| 10... | 1.10 | .79 | .080 | .030 | 8.7 | -- | -- | 173 | 35 | 28 |
| MAR | | | | | | | | | | |
| 03... | 1.30 | .67 | .140 | .040 | 15 | -- | -- | 57 | 18 | 82 |
| APR | | | | | | | | | | |
| 07... | 1.80 | .52 | .140 | .010 | -- | 10 | 1.4 | 45 | 7.8 | 96 |
| MAY | | | | | | | | | | |
| 05... | 1.80 | 1.3 | .990 | .090 | 23 | -- | -- | 2180 | 7420 | 80 |
| JUN | | | | | | | | | | |
| 02... | 2.40 | .99 | 1.80 | .110 | 30 | -- | -- | 3370 | 27800 | 57 |
| JUL | | | | | | | | | | |
| 13... | 1.70 | .83 | .090 | .010 | 8.6 | -- | -- | 64 | 16 | 78 |
| AUG | | | | | | | | | | |
| 04... | 1.60 | .69 | .090 | .010 | -- | 6.0 | 1.0 | 66 | 17 | 51 |
| SEP | | | | | | | | | | |
| 15... | 1.50 | .52 | .380 | .230 | 11 | -- | -- | 445 | 123 | 86 |

| DATE | TIME | ARSENIC TOTAL (UG/L AS AS) | ARSENIC SUSPENDED TOTAL (UG/L AS AS) | ARSENIC DISSOLVED (UG/L AS AS) | BARIUM, TOTAL RECOVERABLE (UG/L AS BA) | BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA) | BARIUM, DISSOLVED (UG/L AS BA) | CADMIUM TOTAL RECOVERABLE (UG/L AS CD) | CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD) | CADMIUM DISSOLVED (UG/L AS CD) | CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 07... | 1605 | 3 | 0 | 3 | 200 | 0 | 300 | 0 | 0 | 0 | 10 |
| JAN | | | | | | | | | | | |
| 14... | 0945 | 2 | 0 | 2 | 100 | 0 | 100 | 0 | 0 | 0 | 0 |
| APR | | | | | | | | | | | |
| 07... | 0950 | 3 | 1 | 2 | 100 | 0 | 100 | 0 | 0 | 0 | 20 |
| AUG | | | | | | | | | | | |
| 04... | 1130 | 5 | 1 | 4 | 100 | 0 | 100 | 0 | 0 | 1 | 20 |

| DATE | CHROMIUM, SUSPENDED RECOV. (UG/L AS CR) | CHROMIUM, DISSOLVED (UG/L AS CR) | COBALT, TOTAL RECOVERABLE (UG/L AS CO) | COBALT, SUSPENDED RECOVERABLE (UG/L AS CO) | COBALT, DISSOLVED (UG/L AS CO) | COPPER, TOTAL RECOVERABLE (UG/L AS CU) | COPPER, SUSPENDED RECOVERABLE (UG/L AS CU) | COPPER, DISSOLVED (UG/L AS CU) | IRON, TOTAL RECOVERABLE (UG/L AS FE) | IRON, SUSPENDED RECOVERABLE (UG/L AS FE) | IRON, DISSOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 07... | 0 | 10 | 1 | 1 | 0 | 9 | 8 | 1 | 640 | 340 | 300 |
| JAN | | | | | | | | | | | |
| 14... | 0 | 10 | 0 | 0 | 0 | 5 | 3 | 2 | 360 | 300 | 60 |
| APR | | | | | | | | | | | |
| 07... | 0 | 20 | 0 | 0 | 1 | 5 | 3 | 2 | 550 | 500 | 50 |
| AUG | | | | | | | | | | | |
| 04... | 10 | 10 | 1 | 1 | 0 | 5 | 2 | 3 | 390 | 350 | 40 |

| DATE | LEAD, TOTAL RECOVERABLE (UG/L AS PB) | LEAD, SUSPENDED RECOVERABLE (UG/L AS PB) | LEAD, DISSOLVED (UG/L AS PB) | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MANGANESE, SUSPENDED RECOV. (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | MERCURY SUSPENDED RECOVERABLE (UG/L AS HG) | MERCURY DISSOLVED (UG/L AS HG) | NICKEL, TOTAL RECOVERABLE (UG/L AS NI) | NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 07... | 4 | 4 | 0 | 140 | 80 | 60 | .0 | .0 | .0 | 5 | 5 |
| JAN | | | | | | | | | | | |
| 14... | 14 | 14 | 0 | 60 | 20 | 40 | .1 | .1 | .0 | 1 | 0 |
| APR | | | | | | | | | | | |
| 07... | 0 | 0 | 3 | 90 | 40 | 50 | .2 | .0 | .3 | 3 | 0 |
| AUG | | | | | | | | | | | |
| 04... | 8 | 6 | 2 | 60 | 40 | 20 | .1 | .1 | .0 | 4 | 2 |

07308500 RED RIVER NEAR BURKBURNETT, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | NICKEL, DIS-SOLVED (UG/L AS NI) | SELE-NIUM, TOTAL (UG/L AS SE) | SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE) | SELE-NIUM, DIS-SOLVED (UG/L AS SE) | SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) | SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG) | SILVER, DIS-SOLVED (UG/L AS AG) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) | ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN) | ZINC, DIS-SOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 07... | 0 | 2 | 1 | 1 | 0 | 0 | 0 | 30 | 10 | 20 |
| JAN | | | | | | | | | | |
| 14... | 6 | 3 | 0 | 3 | 1 | 0 | 1 | 40 | 20 | 20 |
| APR | | | | | | | | | | |
| 07... | 4 | 3 | 1 | 2 | 0 | 0 | 0 | 20 | 0 | 20 |
| AUG | | | | | | | | | | |
| 04... | 2 | 3 | 2 | 1 | 0 | 0 | 0 | 20 | 0 | 30 |

| DATE | TIME | PCB, TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | CHLOR-DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DI-AZINON, TOTAL (UG/L) | DI-ELDRIN TOTAL (UG/L) | ENDRIN, TOTAL (UG/L) | ETHION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 03... | 1740 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

| DATE | HEPTA-CHLOR, TOTAL (UG/L) | HEPTA-CHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALA-THION, TOTAL (UG/L) | METH-OXY-CHLOR, TOTAL (UG/L) | METHYL PARA-THION, TOTAL (UG/L) | METHYL TRI-THION, TOTAL (UG/L) | PARA-THION, TOTAL (UG/L) | TOX-APHENE, TOTAL (UG/L) | TOTAL TRI-THION (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | |
| 03... | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | NOV 3,80 | MAR 3,81 | MAY 5,81 | JUL 13,81 | AUG 4,81 |
|---|---|---|---|---|---|
| TIME | 1740 | 1230 | 1145 | 1600 | 1130 |
| TOTAL CELLS/ML | 110000 | 46000 | 4800 | 270000 | 1300 |
| DIVERSITY: DIVISION | 1.4 | 1.5 | 1.3 | 0.8 | 0.0 |
| .CLASS | 1.4 | 1.5 | 1.3 | 0.8 | 0.0 |
| ..ORDER | 1.5 | 1.8 | 1.8 | 1.8 | 0.0 |
| ...FAMILY | 1.7 | 1.8 | 2.3 | 1.9 | 1.3 |
| ....GENUS | 2.4 | 1.8 | 2.5 | 2.0 | 1.3 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | | | | | | | |
| .CHLOROPHYCEAE | | | | | | | | | | |
| ..CHLOROCOCCALES | | | | | | | | | | |
| ...CHLOROCOCCACEAE | | | | | | | | | | |
| ....SCHROEDERIA | -- | - | -- | - | -- | - | * | 0 | -- | - |
| ...DICTYOSPHAERIACEAE | | | | | | | | | | |
| ....DICTYOSPHAERIUM | 6100 | 5 | 1400 | 3 | -- | - | 15000 | 6 | -- | - |
| ....WESTELLA | 1300 | 1 | -- | - | -- | - | -- | - | -- | - |
| ...MICRACTINIACEAE | | | | | | | | | | |
| ....GOLENKINIOPSIS | -- | - | -- | - | -- | - | * | 0 | -- | - |
| ....MICRACTINIUM | -- | - | -- | - | -- | - | * | 0 | -- | - |
| ...OOCYSTACEAE | | | | | | | | | | |
| ....ANKISTRODESMUS | -- | - | 350 | 1 | -- | - | -- | - | -- | - |
| ....FRANCEIA | -- | - | -- | - | -- | - | * | 0 | -- | - |
| ....OOCYSTIS | 1900 | 2 | -- | - | -- | - | 5600 | 2 | -- | - |
| ...SCENEDESMACEAE | | | | | | | | | | |
| ....CRUCIGENIA | -- | - | -- | - | -- | - | * | 0 | -- | - |
| ....SCENEDESMUS | 5200 | 5 | -- | - | -- | - | 4100 | 2 | -- | - |
| ..VOLVOCALES | | | | | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | | | | | |
| ....CHLAMYDOMONAS | 4200 | 4 | 21000# | 46 | 180 | 4 | * | 0 | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

07308500 RED RIVER NEAR BURKBURNETT, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | NOV 3,80 | | MAR 3,81 | | MAY 5,81 | | JUL 13,81 | | AUG 4,81 | |
|---|---|---|---|---|---|---|---|---|---|---|
| TIME | 1740 | | 1230 | | 1145 | | 1600 | | 1130 | |
| ORGANISM | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT |
| CHRYSOPHYTA | | | | | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | | | | | |
| ..CENTRALES | | | | | | | | | | |
| ...COSCINODISCACEAE | | | | | | | | | | |
| ....CYCLOTELLA | 19000# | 17 | 14000# | 30 | 960# | 20 | 9700 | 4 | -- | - |
| ....MELOSIRA | 1600 | 1 | -- | - | -- | - | -- | - | -- | - |
| ..PENNALES | | | | | | | | | | |
| ...CYMBELLACEAE | | | | | | | | | | |
| ....AMPHORA | -- | - | -- | - | 59 | 1 | -- | - | -- | - |
| ....CYMBELLA | -- | - | -- | - | 59 | 1 | -- | - | -- | - |
| ....EPITHEMIA | -- | - | -- | - | * | 0 | -- | - | -- | - |
| ...FRAGILARIACEAE | | | | | | | | | | |
| ....SYNEDRA | -- | - | -- | - | 120 | 2 | -- | - | 140 | 11 |
| ...NAVICULACEAE | | | | | | | | | | |
| ....CALONEIS | -- | - | -- | - | * | 0 | -- | - | -- | - |
| ....DIPLONEIS | -- | - | -- | - | * | 0 | -- | - | -- | - |
| ....ENTOMONEIS | -- | - | 350 | 1 | -- | - | -- | - | -- | - |
| ....MASTOGLOIA | -- | - | -- | - | 79 | 2 | -- | - | -- | - |
| ....NAVICULA | -- | - | -- | - | 410 | 9 | -- | - | 270# | 20 |
| ....PLEUROSIGMA | -- | - | -- | - | 59 | 1 | -- | - | -- | - |
| ...NITZSCHIACEAE | | | | | | | | | | |
| ....NITZSCHIA | -- | - | -- | - | 490 | 10 | 4400 | 2 | 900# | 67 |
| ...SURIRELLACEAE | | | | | | | | | | |
| ....SURIRELLA | -- | - | -- | - | 39 | 1 | -- | - | 29 | 2 |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | | | | | |
| .CRYPTOPHYCEAE | | | | | | | | | | |
| ..CRYPTOMONADALES | | | | | | | | | | |
| ...CRYPTOCHRYSIDACEAE | | | | | | | | | | |
| ....CHROOMONAS | * | 0 | 350 | 1 | -- | - | -- | - | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | | | | | |
| .CYANOPHYCEAE | | | | | | | | | | |
| ..CHROOCOCCALES | | | | | | | | | | |
| ...CHROOCOCCACEAE | | | | | | | | | | |
| ....AGMENELLUM | 52000# | 46 | 8400# | 18 | -- | - | -- | - | -- | - |
| ....ANACYSTIS | 21000# | 18 | -- | - | -- | - | 3400 | 1 | -- | - |
| ..NOSTOCALES | | | | | | | | | | |
| ...NOSTOCACEAE | | | | | | | | | | |
| ....APHANIZOMENON | -- | - | -- | - | -- | - | 140000# | 51 | -- | - |
| ..OSCILLATORIALES | | | | | | | | | | |
| ...OSCILLATORIACEAE | | | | | | | | | | |
| ....OSCILLATORIA | -- | - | -- | - | 2300# | 47 | 83000# | 31 | -- | - |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | | | | | |
| .EUGLENOPHYCEAE | | | | | | | | | | |
| ..EUGLENALES | | | | | | | | | | |
| ...EUGLENACEAE | | | | | | | | | | |
| ....EUGLENA | 970 | 1 | -- | - | 59 | 1 | -- | - | -- | - |
| ....TRACHELOMONAS | -- | - | -- | - | * | 0 | -- | - | -- | - |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | | | | | |
| .DINOPHYCEAE | | | | | | | | | | |
| ..DINOKONTAE | | | | | | | | | | |
| ...GLENODINIACEAE | | | | | | | | | | |
| ....GLENODINIUM | -- | - | -- | - | -- | - | * | 0 | -- | - |
| ...PERIDINIACEAE | | | | | | | | | | |
| ....PERIDINIUM | -- | - | -- | - | -- | - | * | 0 | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

07308500 RED RIVER NEAR BURKBURNETT, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 835 | 7510 | 4680 | 10500 | 1900 | 4290 | 1100 | 2380 | 1300 |
| NOV. | 1980 | 1466 | 6940 | 4300 | 17000 | 1700 | 6860 | 990 | 3930 | 1300 |
| DEC. | 1980 | 3874 | 8300 | 5220 | 54600 | 2200 | 22700 | 1100 | 11800 | 1400 |
| JAN. | 1981 | 2231 | 9090 | 5730 | 34500 | 2400 | 14400 | 1200 | 7340 | 1600 |
| FEB. | 1981 | 2324 | 9720 | 6160 | 38700 | 2600 | 16300 | 1300 | 8020 | 1600 |
| MAR. | 1981 | 4621 | 8520 | 5350 | 66800 | 2200 | 27700 | 1200 | 14400 | 1500 |
| APR. | 1981 | 8874 | 6130 | 3790 | 90900 | 1500 | 36500 | 880 | 21100 | 1100 |
| MAY | 1981 | 21690 | 3380 | 2050 | 120000 | 790 | 46100 | 520 | 30500 | 660 |
| JUNE | 1981 | 96462 | 2810 | 1690 | 441000 | 640 | 166500 | 440 | 115600 | 560 |
| JULY | 1981 | 2936 | 7640 | 4770 | 37800 | 1900 | 15400 | 1100 | 8470 | 1400 |
| AUG. | 1981 | 3533 | 10000 | 6410 | 61100 | 2700 | 26100 | 1300 | 12200 | * |
| SEPT | 1981 | 5688 | 13000 | 8470 | 130000 | 3800 | 57600 | 1500 | 23300 | * |
| TOTAL | | 154534 | ** | ** | 1103000 | ** | 440000 | ** | 259000 | ** |
| WTD. AVG. | | 423 | 4280 | 2640 | ** | 1100 | ** | 620 | ** | 790 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5770 | 7400 | 7910 | 8900 | 9980 | 8750 | 8570 | 8950 | 2670 | 7920 | 5560 | 8040 |
| 2 | 6500 | 7250 | 7900 | 8940 | 9960 | 7370 | 8670 | 4270 | 1790 | 7900 | 7300 | 15600 |
| 3 | 6640 | 7260 | 7870 | 9160 | 9890 | 8360 | 9200 | 2970 | 2150 | 7830 | 7990 | 12800 |
| 4 | 6670 | 7280 | 7850 | 9120 | 9770 | 8260 | 9280 | 2380 | 2100 | 7480 | 11600 | 12400 |
| 5 | 7040 | 7260 | 7840 | 9010 | 9810 | 6820 | 9330 | 2690 | 2700 | 8100 | 13700 | 11900 |
| 6 | 8260 | 7250 | 7870 | 8980 | 9600 | 8650 | 9430 | 5000 | 2370 | 7890 | 12400 | 15100 |
| 7 | 9040 | 7320 | 7830 | 9000 | 9500 | 9250 | 9520 | 2950 | 2450 | 6030 | 10100 | 13400 |
| 8 | 8950 | 7380 | 5560 | 9020 | 9250 | 9530 | 9580 | 3390 | 2620 | 6360 | 7270 | 12900 |
| 9 | 8680 | 7340 | 6380 | 8910 | 8970 | 9630 | 9690 | 4120 | 2050 | 6640 | 7350 | 11700 |
| 10 | 8540 | 7300 | 5650 | 8920 | 9410 | 9830 | 9980 | 4170 | 2160 | 7340 | 8140 | 11000 |
| 11 | 8350 | 7270 | 5440 | 8880 | 10300 | 9890 | 10000 | 5460 | 2920 | 7880 | 8290 | 10800 |
| 12 | 8200 | 7250 | 5690 | 8890 | 10200 | 10200 | 10100 | 5890 | 3400 | 8170 | 8250 | 10700 |
| 13 | 8070 | 7310 | 6960 | 8870 | 9430 | 10100 | 10200 | 5990 | 4330 | 8420 | 8210 | 10800 |
| 14 | 8060 | 7410 | 10000 | 8830 | 9230 | 10000 | 7500 | 6800 | 5180 | 8540 | 7990 | 11100 |
| 15 | 8160 | 7250 | 11700 | 8910 | 9170 | 6010 | 3310 | 8640 | 5580 | 8510 | 7680 | 11300 |
| 16 | 7990 | 6430 | 9800 | 8920 | 9410 | 5490 | 5230 | 7790 | 5630 | 8340 | 6310 | 12000 |
| 17 | 7910 | 5660 | 9140 | 8980 | 9610 | 7890 | 3880 | 7620 | 6140 | 8400 | 9200 | 12700 |
| 18 | 7860 | 5860 | 9460 | 8940 | 9490 | 9360 | 5550 | 7860 | 5510 | 8550 | 13600 | 12000 |
| 19 | 7940 | 6190 | 11600 | 8850 | 9630 | 7780 | 3860 | 8320 | 5980 | 8680 | 11300 | 11800 |
| 20 | 7960 | 5840 | 11700 | 8800 | 9840 | 8080 | 4890 | 8430 | 8800 | 8730 | 10600 | 12100 |
| 21 | 7920 | 6110 | 10800 | 8780 | 10100 | 10900 | 6320 | 7060 | 8070 | 8880 | 9960 | 13100 |
| 22 | 7860 | 6370 | 10400 | 8830 | 10400 | 10600 | 5260 | 7510 | 7860 | 8970 | 9790 | 13300 |
| 23 | 7830 | 6530 | 10100 | 8870 | 10600 | 9430 | 6470 | 8230 | 7560 | 9020 | 10900 | 13400 |
| 24 | 7970 | 7140 | 9690 | 8910 | 10100 | 8550 | 7480 | 8260 | 7390 | 9160 | 13000 | 13200 |
| 25 | 8000 | 7620 | 9460 | 9040 | 10200 | 8060 | 8300 | 7910 | 7190 | 9120 | 12300 | 13000 |
| 26 | 7930 | 7590 | 9420 | 9170 | 10200 | 7800 | 9090 | 6210 | 7250 | 9190 | 10300 | 12900 |
| 27 | 7080 | 7700 | 8980 | 9330 | 10100 | 7810 | 9480 | 3560 | 7420 | 9250 | 8920 | 12600 |
| 28 | 7580 | 8160 | 9040 | 9520 | 9000 | 7780 | 9210 | 3290 | 7610 | 8740 | 6600 | 12200 |
| 29 | 7710 | 8200 | 8780 | 9880 | --- | 8170 | 9780 | 1800 | 7800 | 5810 | 6480 | 12300 |
| 30 | 7870 | 7900 | 8940 | 10200 | --- | 8080 | 8330 | 1290 | 7890 | 5760 | 5890 | 11200 |
| 31 | 7460 | --- | 8850 | 10000 | --- | 8230 | --- | 1940 | --- | 5700 | 6760 | --- |
| MEAN | 7800 | 7090 | 8660 | 9080 | 9760 | 8600 | 7920 | 5510 | 5090 | 7980 | 9150 | 12200 |

07308500 RED RIVER NEAR BURKBURNETT, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 23.0 | 18.5 | 18.0 | 12.0 | 7.0 | 13.0 | 21.5 | 21.0 | 24.0 | 30.5 | 33.0 | 25.0 |
| 2 | 22.0 | 21.0 | 2.5 | 5.0 | 6.0 | 14.0 | 17.5 | 26.0 | 22.0 | 30.5 | 29.5 | 28.0 |
| 3 | 23.5 | 16.0 | 3.0 | 10.5 | 4.0 | 12.0 | 22.5 | 22.0 | 22.0 | 30.0 | 31.5 | 28.5 |
| 4 | 25.5 | 14.5 | 10.5 | 8.0 | 4.0 | 17.0 | 20.5 | 21.5 | 22.5 | 29.0 | 32.0 | 28.5 |
| 5 | 24.0 | 16.5 | 5.0 | 4.5 | 2.5 | 15.0 | 20.0 | 21.5 | 23.5 | 28.0 | 33.0 | 24.5 |
| 6 | 16.0 | 15.5 | 18.0 | 6.5 | 4.5 | 11.5 | 17.5 | 19.5 | 24.5 | 29.0 | 33.5 | 27.5 |
| 7 | 25.0 | 17.0 | 17.0 | 4.0 | 8.5 | 11.0 | 21.0 | 19.5 | 27.5 | 29.0 | 31.0 | 25.0 |
| 8 | 19.5 | 21.5 | 7.0 | 6.0 | 7.0 | 7.5 | 20.0 | 20.5 | 26.0 | 28.5 | 32.0 | 25.0 |
| 9 | 19.5 | 22.0 | 6.0 | 5.5 | 6.5 | 9.0 | 20.5 | 19.5 | 31.0 | 27.0 | 27.0 | 27.0 |
| 10 | 21.5 | 17.0 | 5.5 | 5.5 | 3.5 | 9.0 | 23.0 | 18.0 | 22.5 | 33.0 | 32.0 | 27.0 |
| 11 | 24.5 | 21.0 | 6.5 | 6.5 | .5 | 13.0 | 27.0 | 21.5 | 27.5 | 34.0 | 25.5 | 28.0 |
| 12 | 22.0 | 17.0 | 6.0 | 3.0 | .5 | 12.5 | 20.0 | 16.5 | 25.5 | 27.5 | 28.0 | 27.0 |
| 13 | 16.5 | 14.0 | 10.0 | 5.5 | .5 | 14.5 | 10.0 | 22.0 | 24.5 | 34.5 | 31.5 | 30.0 |
| 14 | 23.0 | 9.5 | 10.5 | 7.0 | 12.5 | 19.5 | 11.0 | 17.0 | 26.0 | 32.5 | 33.0 | 29.0 |
| 15 | 24.5 | 8.0 | 10.5 | 5.5 | 8.0 | 16.5 | 20.0 | 18.5 | 24.5 | 31.0 | 35.0 | 27.0 |
| 16 | 23.0 | 4.0 | 8.5 | 3.5 | 15.0 | 18.0 | 20.5 | 20.5 | 20.0 | 33.5 | 28.0 | 20.0 |
| 17 | 18.5 | 4.0 | 14.0 | 3.5 | 9.5 | 9.0 | 22.0 | 25.0 | 22.0 | 31.5 | 27.0 | 17.5 |
| 18 | 20.5 | 11.0 | 10.5 | 4.0 | 13.0 | 9.5 | 21.0 | 26.0 | 29.0 | 31.5 | 23.5 | 24.0 |
| 19 | 19.5 | 6.5 | 2.0 | 4.0 | 18.5 | 9.0 | 26.0 | 22.0 | 30.0 | 35.0 | 28.5 | 22.0 |
| 20 | 15.0 | 6.0 | .0 | 5.0 | 14.5 | 11.0 | 21.0 | 18.5 | 25.0 | 29.5 | 29.5 | 22.0 |
| 21 | 15.5 | 8.0 | 1.0 | 4.5 | 17.0 | 16.0 | 19.0 | 17.5 | 30.0 | 34.5 | 30.0 | 28.0 |
| 22 | 14.5 | 9.0 | 5.0 | 8.5 | 14.0 | 11.0 | 18.0 | 21.0 | 31.0 | 33.0 | 23.0 | 29.5 |
| 23 | 18.5 | 9.0 | 8.5 | 10.5 | 17.5 | 12.0 | 19.5 | 29.0 | 30.0 | 34.0 | 28.0 | 25.5 |
| 24 | 10.5 | 8.0 | 9.5 | 13.0 | 19.5 | 18.0 | 21.5 | 23.5 | 30.0 | 32.5 | 28.0 | 26.5 |
| 25 | 19.5 | 4.0 | 1.5 | 9.5 | 19.5 | 12.5 | 25.5 | 22.5 | 32.0 | 34.5 | 32.0 | 24.5 |
| 26 | 14.0 | 3.0 | 4.0 | 8.0 | 16.0 | 19.0 | 23.0 | 25.0 | 28.5 | --- | 29.5 | 29.5 |
| 27 | 17.5 | 4.5 | 9.5 | 4.0 | 17.5 | 15.5 | 24.5 | 22.5 | 27.0 | 30.0 | 29.5 | 31.5 |
| 28 | 9.5 | 3.5 | 12.5 | 6.0 | 13.5 | 19.0 | 25.5 | 25.0 | 27.0 | 23.0 | 31.0 | 29.0 |
| 29 | 7.0 | 13.0 | 11.5 | 15.5 | --- | 21.0 | 25.0 | 22.5 | 32.0 | 30.0 | 31.5 | 26.0 |
| 30 | 10.5 | 14.0 | 11.5 | 3.5 | --- | 21.0 | 23.0 | 23.0 | 30.5 | 30.0 | 31.5 | 27.0 |
| 31 | 12.5 | --- | 13.0 | 4.5 | --- | 21.5 | --- | 24.0 | --- | 29.5 | 25.0 | --- |
| MEAN | 18.5 | 12.0 | 8.5 | 6.5 | 10.0 | 14.0 | 21.0 | 21.5 | 26.5 | 31.0 | 30.0 | 26.5 |

## 07311600 NORTH WICHITA RIVER NEAR PADUCAH, TX

LOCATION.--Lat 33°57'02", long 100°03'52", Cottle County, Hydrologic Unit 11130204, near center of stream on downstream side of county bridge, 4 mi (6 km) downstream from Cottonwood Creek, 7 mi (11 km) downstream from Salt Creek, 10 mi (16 km) upstream from Middle Fork, 14 mi (23 km) southeast of Paducah, and 211.3 mi (340.0 km) upstream from mouth.

DRAINAGE AREA.--540 $mi^2$ (1,399 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1951-54 (occasional low-flow measurements), July 1961 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,530 ft (466 m), from topographic map.

REMARKS.--Water-discharge records good. One small diversion for irrigation above station.

AVERAGE DISCHARGE.--20 years (water years 1962-81), 20.7 $ft^3/s$ (0.586 $m^3/s$), 0.52 in/yr (13 mm/yr), 15,000 acre-ft/yr (18.5 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,920 $ft^3/s$ (281 $m^3/s$) Aug. 25, 1966, gage height, 15.3 ft (4.66 m), from floodmark; minimum, 0.3 $ft^3/s$ (0.008 $m^3/s$) Sept. 1-4, 1964, gage height, 4.35 ft (1.326 m); minimum gage height, 2.50 ft (0.762 m) Aug. 28, 1978, and Aug. 19, 1979.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1908, 29.5 ft (8.99 m) in October 1955; flood in May or June 1956 reached a stage of 27 ft (8.2 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 $ft^3/s$ (28.3 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| June 2 | 1615 | 2,120 | 60.0 | 8.51 | 2.594 |
| June 3 | 1800 | *3,900 | 110 | 10.41 | 3.173 |

Minimum discharge, 7.5 $ft^3/s$ (0.21 $m^3/s$) July 24, 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11 | 9.5 | 11 | 11 | 11 | 12 | 11 | 14 | 25 | 10 | 9.1 | 9.6 |
| 2 | 9.5 | 9.5 | 11 | 11 | 10 | 11 | 12 | 14 | 1000 | 10 | 9.2 | 10 |
| 3 | 9.5 | 9.5 | 11 | 11 | 10 | 12 | 12 | 12 | 1970 | 10 | 10 | 10 |
| 4 | 9.2 | 9.9 | 12 | 11 | 10 | 12 | 12 | 12 | 341 | 10 | 9.6 | 9.9 |
| 5 | 9.5 | 9.9 | 12 | 11 | 11 | 10 | 12 | 55 | 62 | 10 | 9.1 | 16 |
| 6 | 9.5 | 9.9 | 12 | 11 | 11 | 11 | 12 | 39 | 146 | 9.9 | 8.9 | 12 |
| 7 | 9.5 | 9.9 | 13 | 11 | 11 | 13 | 12 | 17 | 313 | 9.9 | 9.0 | 10 |
| 8 | 9.2 | 9.9 | 20 | 11 | 11 | 11 | 12 | 188 | 47 | 10 | 9.2 | 9.8 |
| 9 | 9.2 | 9.5 | 13 | 11 | 11 | 11 | 12 | 45 | 30 | 9.4 | 9.2 | 9.7 |
| 10 | 8.8 | 9.9 | 13 | 11 | 10 | 11 | 13 | 20 | 24 | 9.3 | 9.2 | 9.5 |
| 11 | 8.8 | 10 | 12 | 11 | 9.9 | 11 | 13 | 15 | 21 | 9.1 | 9.2 | 9.5 |
| 12 | 9.2 | 11 | 12 | 11 | 11 | 11 | 12 | 13 | 19 | 8.8 | 9.5 | 9.3 |
| 13 | 9.2 | 10 | 12 | 11 | 10 | 11 | 15 | 12 | 18 | 8.9 | 9.5 | 9.3 |
| 14 | 9.2 | 9.9 | 12 | 11 | 10 | 14 | 55 | 11 | 18 | 8.8 | 9.5 | 11 |
| 15 | 9.5 | 9.9 | 11 | 11 | 10 | 21 | 48 | 11 | 17 | 8.6 | 30 | 9.6 |
| 16 | 8.8 | 12 | 11 | 11 | 10 | 15 | 21 | 11 | 22 | 8.6 | 83 | 9.2 |
| 17 | 8.8 | 14 | 11 | 11 | 10 | 12 | 15 | 11 | 18 | 8.5 | 101 | 9.5 |
| 18 | 8.5 | 12 | 11 | 12 | 9.9 | 11 | 15 | 9.4 | 16 | 8.7 | 182 | 9.6 |
| 19 | 8.8 | 11 | 11 | 11 | 11 | 11 | 15 | 9.0 | 14 | 8.6 | 51 | 9.6 |
| 20 | 9.2 | 11 | 11 | 11 | 11 | 12 | 13 | 9.7 | 14 | 8.6 | 24 | 9.2 |
| 21 | 9.2 | 11 | 11 | 11 | 10 | 11 | 13 | 10 | 13 | 8.5 | 18 | 9.0 |
| 22 | 9.2 | 11 | 11 | 11 | 9.9 | 10 | 13 | 9.9 | 13 | 8.3 | 16 | 8.9 |
| 23 | 8.8 | 11 | 11 | 11 | 10 | 11 | 12 | 9.4 | 12 | 8.2 | 14 | 9.0 |
| 24 | 8.8 | 11 | 11 | 11 | 11 | 12 | 11 | 16 | 12 | 8.2 | 11 | 10 |
| 25 | 9.2 | 11 | 11 | 11 | 11 | 11 | 11 | 293 | 12 | 8.1 | 11 | 23 |
| 26 | 9.5 | 11 | 11 | 11 | 11 | 11 | 11 | 32 | 11 | 8.4 | 11 | 15 |
| 27 | 9.9 | 11 | 11 | 11 | 11 | 12 | 11 | 43 | 11 | 8.7 | 11 | 11 |
| 28 | 8.8 | 11 | 11 | 11 | 14 | 12 | 10 | 27 | 11 | 11 | 11 | 10 |
| 29 | 9.2 | 11 | 11 | 10 | --- | 12 | 10 | 212 | 11 | 11 | 11 | 10 |
| 30 | 9.5 | 12 | 11 | 10 | --- | 11 | 10 | 74 | 10 | 9.5 | 10 | 9.9 |
| 31 | 9.5 | --- | 11 | 11 | --- | 11 | --- | 37 | --- | 9.2 | 10 | --- |
| TOTAL | 286.5 | 319.2 | 363 | 340 | 296.7 | 367 | 454 | 1291.4 | 4251 | 284.8 | 735.2 | 318.1 |
| MEAN | 9.24 | 10.6 | 11.7 | 11.0 | 10.6 | 11.8 | 15.1 | 41.7 | 142 | 9.19 | 23.7 | 10.6 |
| MAX | 11 | 14 | 20 | 12 | 14 | 21 | 55 | 293 | 1970 | 11 | 182 | 23 |
| MIN | 8.5 | 9.5 | 11 | 10 | 9.9 | 10 | 10 | 9.0 | 10 | 8.1 | 8.9 | 8.9 |
| CFSM | .02 | .02 | .02 | .02 | .02 | .02 | .03 | .08 | .26 | .02 | .04 | .02 |
| IN. | .02 | .02 | .03 | .02 | .02 | .03 | .03 | .09 | .29 | .02 | .05 | .02 |
| AC-FT | 568 | 633 | 720 | 674 | 589 | 728 | 901 | 2560 | 8430 | 565 | 1460 | 631 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR | 1980 | TOTAL | 8534.2 | MEAN | 23.3 | MAX | 1960 | MIN | 8.1 | CFSM | .04 | IN | .59 | AC-FT | 16930 |
| WTR YR | 1980 | TOTAL | 9306.9 | MEAN | 25.5 | MAX | 1970 | MIN | 8.1 | CFSM | .05 | IN | .64 | AC-FT | 18460 |

07311600 NORTH WICHITA RIVER NEAR PADUCAH, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1967 to September 1976. Water temperatures: October 1967 to September 1976. Sediment analyses: October 1977 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | TEMPER-ATURE (DEG C) | SEDI-MENT, SUS-PENDED (MG/L) | SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|
| OCT | | | | | | |
| 01... | 1520 | 11 | 25.0 | 90 | 2.6 | 95 |
| NOV | | | | | | |
| 04... | 1240 | 9.8 | 15.0 | 44 | 1.2 | 71 |
| DEC | | | | | | |
| 15... | 1300 | 12 | 8.5 | 12 | .37 | 38 |
| JAN | | | | | | |
| 26... | 1245 | 11 | 10.0 | 75 | 2.2 | 81 |
| MAR | | | | | | |
| 09... | 1310 | 12 | 13.0 | 47 | 1.5 | 78 |
| APR | | | | | | |
| 20... | 1230 | 14 | 12.3 | 141 | 5.1 | 98 |
| JUN | | | | | | |
| 01... | 1315 | 23 | 26.5 | 147 | 9.1 | 99 |
| JUL | | | | | | |
| 13... | 1545 | 9.6 | 31.0 | 44 | 1.1 | 95 |
| AUG | | | | | | |
| 24... | 1350 | 11 | 27.0 | 46 | 1.4 | 97 |

## 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 on downstream side of bridge on State Highway 6, 4.5 mi (7.2 km) north of Truscott, about 47.6 mi (76.6 km) upstream from confluence with South Wichita River, and 188.4 mi (303.1 km) upstream from mouth.

DRAINAGE AREA.--937 $mi^2$ (2,427 $km^2$).

### 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 (412.023 m) National Geodetic Vertical Datum of 1929. Prior to Jan. 2, 1960, nonrecording gage at same site and datum.

REMARKS.--Water-discharge records good. One small diversion for irrigation above station.

AVERAGE DISCHARGE.--21 years (water years 1961-81), 57.8 $ft^3/s$ (1.637 $m^3/s$), 0.84 in/yr (21 mm/yr), 41,880 acre-ft/yr (51.6 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,900 $ft^3/s$ (818 $m^3/s$) Sept. 19, 1965, gage height, 21.96 ft (6.693 m); minimum, 0.01 $ft^3/s$ (0.0003 $m^3/s$) July 25, 1964, and Aug, 22, 23, 1974.

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.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 $ft^3/s$ (28.3 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| May 9 | 1000 | 1,560 | 44.2 | 11.51 | 3.508 |
| May 30 | 0700 | 3,740 | 106 | 15.15 | 4.618 |
| June 3 | 1430 | *4,190 | 119 | 15.61 | 4.758 |

Minimum discharge, 2.9 $ft^3/s$ (0.082 $m^3/s$) July 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 18 | 12 | 20 | 14 | 17 | 19 | 11 | 18 | 102 | 14 | 10 | 11 |
| 2 | 16 | 12 | 18 | 14 | 17 | 18 | 11 | 26 | 400 | 14 | 8.5 | 11 |
| 3 | 13 | 12 | 19 | 16 | 15 | 18 | 13 | 26 | 3340 | 18 | 9.5 | 12 |
| 4 | 10 | 14 | 19 | 14 | 15 | 16 | 12 | 25 | 2170 | 16 | 9.4 | 13 |
| 5 | 10 | 14 | 19 | 16 | 15 | 14 | 12 | 25 | 299 | 16 | 8.4 | 15 |
| 6 | 9.2 | 13 | 21 | 16 | 16 | 12 | 11 | 123 | 292 | 17 | 6.5 | 12 |
| 7 | 9.4 | 13 | 35 | 16 | 16 | 14 | 11 | 77 | 482 | 16 | 11 | 17 |
| 8 | 8.2 | 13 | 90 | 16 | 15 | 19 | 12 | 44 | 234 | 15 | 11 | 14 |
| 9 | 7.5 | 12 | 49 | 16 | 15 | 19 | 12 | 723 | 107 | 15 | 8.5 | 12 |
| 10 | 6.7 | 12 | 35 | 16 | 16 | 16 | 11 | 144 | 65 | 14 | 8.1 | 12 |
| 11 | 7.2 | 12 | 27 | 16 | 12 | 13 | 12 | 40 | 51 | 15 | 8.8 | 12 |
| 12 | 7.7 | 12 | 23 | 16 | 12 | 13 | 12 | 28 | 45 | 13 | 14 | 11 |
| 13 | 7.3 | 12 | 21 | 16 | 16 | 18 | 17 | 24 | 44 | 12 | 14 | 11 |
| 14 | 8.6 | 12 | 21 | 16 | 15 | 29 | 145 | 19 | 44 | 9.3 | 13 | 89 |
| 15 | 10 | 11 | 18 | 16 | 15 | 185 | 126 | 17 | 85 | 9.0 | 11 | 30 |
| 16 | 12 | 22 | 18 | 16 | 15 | 47 | 120 | 14 | 66 | 8.1 | 60 | 15 |
| 17 | 12 | 36 | 18 | 16 | 15 | 26 | 49 | 12 | 48 | 8.3 | 154 | 13 |
| 18 | 12 | 34 | 16 | 16 | 13 | 16 | 35 | 11 | 38 | 6.6 | 153 | 13 |
| 19 | 10 | 29 | 14 | 16 | 13 | 13 | 103 | 9.8 | 20 | 6.2 | 166 | 13 |
| 20 | 8.9 | 24 | 13 | 16 | 12 | 12 | 44 | 9.9 | 17 | 8.5 | 58 | 13 |
| 21 | 9.7 | 21 | 12 | 16 | 12 | 13 | 34 | 9.4 | 17 | 6.5 | 33 | 13 |
| 22 | 9.7 | 20 | 15 | 16 | 11 | 12 | 44 | 9.7 | 20 | 5.5 | 22 | 12 |
| 23 | 9.7 | 20 | 16 | 17 | 10 | 13 | 31 | 8.6 | 18 | 4.9 | 16 | 12 |
| 24 | 10 | 19 | 16 | 17 | 11 | 13 | 28 | 131 | 17 | 4.5 | 15 | 13 |
| 25 | 10 | 22 | 14 | 16 | 11 | 13 | 25 | 536 | 17 | 4.0 | 15 | 27 |
| 26 | 11 | 25 | 14 | 17 | 11 | 13 | 20 | 342 | 16 | 3.6 | 13 | 46 |
| 27 | 13 | 25 | 15 | 17 | 13 | 11 | 20 | 89 | 15 | 3.7 | 14 | 53 |
| 28 | 14 | 23 | 13 | 17 | 20 | 26 | 19 | 78 | 14 | 5.0 | 13 | 44 |
| 29 | 14 | 22 | 13 | 17 | --- | 29 | 19 | 191 | 15 | 12 | 13 | 21 |
| 30 | 13 | 21 | 13 | 16 | --- | 13 | 18 | 1960 | 15 | 14 | 12 | 16 |
| 31 | 11 | --- | 13 | 16 | --- | 11 | --- | 300 | --- | 12 | 11 | --- |
| TOTAL | 328.8 | 549 | 668 | 496 | 394 | 704 | 1037 | 5070.4 | 8113 | 326.7 | 919.7 | 606 |
| MEAN | 10.6 | 18.3 | 21.5 | 16.0 | 14.1 | 22.7 | 34.6 | 164 | 270 | 10.5 | 29.7 | 20.2 |
| MAX | 18 | 36 | 90 | 17 | 20 | 185 | 145 | 1960 | 3340 | 18 | 166 | 89 |
| MIN | 6.7 | 11 | 12 | 14 | 10 | 11 | 11 | 8.6 | 14 | 3.6 | 6.5 | 11 |
| CFSM | .01 | .02 | .02 | .02 | .02 | .02 | .04 | .18 | .29 | .01 | .03 | .02 |
| IN. | .01 | .02 | .03 | .02 | .02 | .03 | .04 | .20 | .32 | .01 | .04 | .02 |
| AC-FT | 652 | 1090 | 1320 | 984 | 781 | 1400 | 2060 | 10060 | 16090 | 648 | 1820 | 1200 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 17250.7 | MEAN 47.1 | MAX 4430 | MIN 4.6 | CFSM .05 | IN .68 | AC-FT 34220 |
| WTR YR 1981 | TOTAL | 19212.6 | MEAN 52.6 | MAX 3340 | MIN 3.6 | CFSM .06 | IN .76 | AC-FT 38110 |

07311700 NORTH WICHITA RIVER NEAR TRUSCOTT, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: July 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1968 to current year.
WATER TEMPERATURES: July 1968 to current year.

INSTRUMENTATION.--Specific conductance is recorded continuouly 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, 33,800 micromhos Aug. 19, 1970; minimum daily, 785 micromhos June 4 1981.
WATER TEMPERATURES (1968-80); Maximum daily, 39°C Aug. 21, 23, 1969, Aug. 22, 1973; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 24,400 micromhos July 26; minimum daily, 785 micromhos June 4.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 01... | 1245 | 19 | -- | 24.0 | -- | -- | -- | -- | -- | -- |
| 14... | 1120 | 8.6 | 19000 | 21.5 | 3000 | 3000 | 890 | 200 | -- | -- |
| NOV | | | | | | | | | | |
| 04... | 1010 | 15 | 22300 | 13.0 | 2900 | 2800 | 830 | 200 | 4400 | 36 |
| 24... | 0930 | 14 | -- | 6.0 | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | | |
| 15... | 1030 | 18 | -- | 8.0 | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | |
| 06... | 1135 | 16 | 20600 | 8.0 | 2900 | 2800 | 840 | 190 | 4000 | 32 |
| 26... | 1040 | 16 | -- | 7.5 | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | |
| 18... | 1000 | 13 | -- | 10.5 | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | |
| 09... | 1130 | 22 | -- | 10.0 | -- | -- | -- | -- | -- | -- |
| 30... | 1100 | 12 | 14000 | 16.5 | 1800 | 1700 | 520 | 120 | 3000 | 31 |
| APR | | | | | | | | | | |
| 20... | 1030 | 43 | 7250 | 19.5 | 1300 | 1200 | 390 | 75 | 1300 | 16 |
| MAY | | | | | | | | | | |
| 12... | 1000 | 29 | -- | 19.0 | -- | -- | -- | -- | -- | -- |
| 29... | 1340 | 384 | 4050 | 23.0 | 700 | 600 | 220 | 37 | 610 | 10 |
| JUN | | | | | | | | | | |
| 01... | 1030 | 93 | -- | 23.5 | -- | -- | -- | -- | -- | -- |
| 08... | 1425 | 204 | 2280 | 28.0 | 520 | 430 | 160 | 29 | 280 | 5.4 |
| 22... | 1000 | 17 | -- | 25.0 | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | |
| 13... | 1315 | 13 | -- | 31.0 | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 03... | 1100 | 10 | -- | 25.5 | -- | -- | -- | -- | -- | -- |
| 24... | 1140 | 17 | -- | 26.5 | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 15... | 1030 | 21 | -- | 24.0 | -- | -- | -- | -- | -- | -- |

07311700 NORTH WICHITA RIVER NEAR TRUSCOTT, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- | -- | 61 | 3.1 | 98 |
| 14... | -- | 76 | 2700 | 6800 | -- | -- | -- | 166 | 3.9 | 100 |
| NOV | | | | | | | | | | |
| 04... | 80 | 86 | 2900 | 7200 | -- | 2.2 | 15700 | 225 | 8.9 | 99 |
| 24... | -- | -- | -- | -- | -- | -- | -- | 66 | 2.5 | 99 |
| DEC | | | | | | | | | | |
| 15... | -- | -- | -- | -- | -- | -- | -- | 142 | 6.9 | 100 |
| JAN | | | | | | | | | | |
| 06... | 17 | 130 | 2600 | 6600 | -- | 5.3 | 14300 | 2140 | 92 | 100 |
| 26... | -- | -- | -- | -- | -- | -- | -- | 223 | 9.9 | 100 |
| FEB | | | | | | | | | | |
| 18... | -- | -- | -- | -- | -- | -- | -- | 2100 | 74 | 100 |
| MAR | | | | | | | | | | |
| 09... | -- | -- | -- | -- | -- | -- | -- | 144 | 8.4 | 99 |
| 30... | 13 | 100 | 1900 | 4300 | -- | 3.6 | 9920 | 255 | 8.3 | 100 |
| APR | | | | | | | | | | |
| 20... | 9.8 | 84 | 1100 | 2100 | .3 | 6.2 | 5030 | 484 | 56 | 100 |
| MAY | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | 248 | 19 | 100 |
| 29... | 9.1 | 100 | 580 | 1000 | .3 | 11 | 2530 | -- | -- | -- |
| JUN | | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- | -- | 747 | 188 | 99 |
| 08... | 8.4 | 87 | 390 | 470 | .2 | 9.8 | 1400 | 1530 | 843 | 98 |
| 22... | -- | -- | -- | -- | -- | -- | -- | 261 | 12 | 76 |
| JUL | | | | | | | | | | |
| 13... | -- | -- | -- | -- | -- | -- | -- | 26 | .94 | 98 |
| AUG | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | 35 | .94 | 92 |
| 24... | -- | -- | -- | -- | -- | -- | -- | 29 | 1.4 | 97 |
| SEP | | | | | | | | | | |
| 15... | -- | -- | -- | -- | -- | -- | -- | 294 | 17 | 98 |

| DATE | TIME | STREAMFLOW, INSTANTANEOUS (CFS) | TEMPERATURE (DEG C) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) | SED. SUSP. FALL DIAM. % FINER THAN .002 MM | SED. SUSP. FALL DIAM. % FINER THAN .004 MM | SED. SUSP. FALL DIAM. % FINER THAN .008 MM | SED. SUSP. FALL DIAM. % FINER THAN .016 MM | SED. SUSP. FALL DIAM. % FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 01... | 1245 | 19 | 24.0 | 61 | 3.1 | -- | -- | -- | -- | -- | 98 |
| 14... | 1120 | 8.6 | 21.5 | 166 | 3.9 | -- | -- | -- | -- | -- | 100 |
| NOV | | | | | | | | | | | |
| 04... | 1010 | 15 | 13.0 | 225 | 8.9 | -- | -- | -- | -- | -- | 99 |
| 24... | 0930 | 14 | 6.0 | 66 | 2.5 | -- | -- | -- | -- | -- | 99 |
| DEC | | | | | | | | | | | |
| 15... | 1030 | 18 | 8.0 | 142 | 6.9 | -- | -- | -- | -- | -- | 100 |
| JAN | | | | | | | | | | | |
| 06... | 1135 | 16 | 8.0 | 2140 | 92 | 74 | 77 | 82 | 90 | 95 | 100 |
| 26... | 1040 | 16 | 7.5 | 223 | 9.9 | -- | -- | -- | -- | -- | 100 |
| FEB | | | | | | | | | | | |
| 18... | 1000 | 13 | 10.5 | 2100 | 74 | 87 | 90 | 96 | 99 | 100 | 100 |
| MAR | | | | | | | | | | | |
| 09... | 1130 | 22 | 10.0 | 144 | 8.4 | -- | -- | -- | -- | -- | 99 |
| 30... | 1100 | 12 | 16.5 | 255 | 8.3 | -- | -- | -- | -- | -- | 100 |
| APR | | | | | | | | | | | |
| 20... | 1030 | 43 | 19.5 | 484 | 56 | -- | -- | -- | -- | -- | 100 |
| MAY | | | | | | | | | | | |
| 12... | 1000 | 29 | 19.0 | 248 | 19 | -- | -- | -- | -- | -- | 100 |
| JUN | | | | | | | | | | | |
| 01... | 1030 | 93 | 23.5 | 747 | 188 | -- | -- | -- | -- | -- | 99 |
| 08... | 1425 | 204 | 28.0 | 1530 | 843 | -- | -- | -- | -- | -- | 98 |
| 22... | 1000 | 17 | 25.0 | 261 | 12 | -- | -- | -- | -- | -- | 76 |
| JUL | | | | | | | | | | | |
| 13... | 1315 | 13 | 31.0 | 26 | .94 | -- | -- | -- | -- | -- | 98 |
| AUG | | | | | | | | | | | |
| 03... | 1100 | 10 | 25.5 | 35 | .94 | -- | -- | -- | -- | -- | 92 |
| 24... | 1140 | 17 | 26.5 | 29 | 1.4 | -- | -- | -- | -- | -- | 97 |
| SEP | | | | | | | | | | | |
| 15... | 1030 | 21 | 24.0 | 294 | 17 | -- | -- | -- | -- | -- | 98 |

07311700 NORTH WICHITA RIVER NEAR TRUSCOTT, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 328.8 | 22000 | 15000 | 13300 | 6800 | 6080 | 2700 | 2440 | * |
| NOV. | 1980 | 549 | 20700 | 14000 | 20700 | 6300 | 9370 | 2600 | 3870 | * |
| DEC. | 1980 | 668 | 16000 | 10700 | 19300 | 4700 | 8520 | 2100 | 3740 | * |
| JAN. | 1981 | 496 | 20200 | 13700 | 18300 | 6200 | 8240 | 2600 | 3440 | * |
| FEB. | 1981 | 394 | 19100 | 12800 | 13600 | 5700 | 6070 | 2400 | 2590 | * |
| MAR. | 1981 | 704 | 13800 | 9110 | 17300 | 4000 | 7560 | 1800 | 3450 | * |
| APR. | 1981 | 1037 | 12200 | 7930 | 22200 | 3400 | 9550 | 1600 | 4540 | * |
| MAY | 1981 | 5070.4 | 3510 | 2190 | 30000 | 890 | 12200 | 490 | 6740 | 590 |
| JUNE | 1981 | 8113 | 2220 | 1370 | 30100 | 550 | 12000 | 320 | 6920 | 380 |
| JULY | 1981 | 326.7 | 20900 | 14200 | 12500 | 6400 | 5660 | 2600 | 2320 | * |
| AUG. | 1981 | 919.7 | 8650 | 5610 | 13900 | 2400 | 5960 | 1200 | 2880 | 1400 |
| SEPT | 1981 | 606 | 15900 | 10500 | 17200 | 4600 | 7560 | 2100 | 3400 | * |
| TOTAL | | 19212.6 | ** | ** | 229000 | ** | 98800 | ** | 46300 | ** |
| WTD. AVG. | | 53 | 6740 | 4410 | ** | 1900 | ** | 890 | ** | 1100 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 18400 | 21800 | 20300 | 20500 | 20200 | 16100 | 20700 | 20400 | 4720 | 19200 | 22900 | 16800 |
| 2 | 20900 | 21900 | 20500 | 20400 | 19000 | 16800 | 21300 | 20700 | 3500 | 19600 | 23100 | 17000 |
| 3 | 21100 | 22000 | 20200 | 20300 | 18100 | 17600 | 20800 | 20800 | 1040 | 19300 | 22500 | 17400 |
| 4 | 21300 | 21900 | 20000 | 20500 | 17300 | 18500 | 21300 | 21000 | 785 | 19400 | 22700 | 17700 |
| 5 | 21400 | 22000 | 19900 | 20300 | 16200 | 19200 | 21700 | 21300 | 3010 | 19500 | 23000 | 18100 |
| 6 | 21700 | 22100 | 17500 | 20400 | 18000 | 19900 | 22000 | 6420 | 3500 | 19300 | 22700 | 19000 |
| 7 | 21800 | 21900 | 10000 | 20300 | 19800 | 19700 | 21900 | 7500 | 1350 | 19600 | 22000 | 20000 |
| 8 | 22000 | 21800 | 5500 | 20400 | 16500 | 19000 | 22000 | 11700 | 2870 | 19800 | 21600 | 20900 |
| 9 | 22100 | 22000 | 8310 | 20200 | 17700 | 19100 | 22100 | 3210 | 4780 | 20000 | 21500 | 20800 |
| 10 | 22300 | 21900 | 12300 | 20300 | 16200 | 19000 | 22200 | 4500 | 6630 | 20100 | 21400 | 20800 |
| 11 | 22200 | 22100 | 17400 | 20500 | 18000 | 19500 | 22400 | 6020 | 8100 | 20500 | 21200 | 20900 |
| 12 | 22300 | 22400 | 17900 | 20300 | 19700 | 19800 | 22200 | 9330 | 9490 | 20600 | 20800 | 21100 |
| 13 | 22500 | 22500 | 18900 | 20100 | 18200 | 18200 | 21800 | 11300 | 10400 | 20900 | 20700 | 21300 |
| 14 | 22400 | 22800 | 19000 | 20400 | 18900 | 16000 | 9150 | 13000 | 11000 | 21100 | 20800 | 12500 |
| 15 | 22500 | 23000 | 19100 | 20300 | 19500 | 6080 | 8510 | 13700 | 3750 | 21400 | 21300 | 8610 |
| 16 | 22400 | 20500 | 19200 | 20400 | 19900 | 6580 | 9230 | 14800 | 5210 | 21600 | 8150 | 13800 |
| 17 | 22500 | 19100 | 19700 | 20200 | 20100 | 9230 | 11500 | 16000 | 9400 | 21800 | 3230 | 17400 |
| 18 | 22800 | 19300 | 19900 | 20100 | 20500 | 13600 | 13000 | 17400 | 13100 | 22000 | 3500 | 18500 |
| 19 | 23000 | 19500 | 20200 | 19900 | 20200 | 16700 | 6690 | 18300 | 15000 | 22200 | 5230 | 19300 |
| 20 | 22900 | 19600 | 20400 | 19800 | 20500 | 17900 | 8190 | 18600 | 15300 | 22500 | 4670 | 20000 |
| 21 | 22800 | 19800 | 20600 | 19900 | 20900 | 17500 | 9900 | 19200 | 15900 | 22600 | 6250 | 20800 |
| 22 | 22700 | 19900 | 20400 | 20000 | 21000 | 18800 | 6990 | 19700 | 15300 | 22900 | 7840 | 20900 |
| 23 | 22800 | 20100 | 20300 | 20100 | 21100 | 19400 | 11400 | 20100 | 16600 | 23200 | 9420 | 20900 |
| 24 | 22600 | 20300 | 20600 | 20000 | 21200 | 19700 | 14800 | 6650 | 17000 | 23500 | 11000 | 21000 |
| 25 | 22700 | 20200 | 20800 | 20200 | 21400 | 20000 | 16600 | 2720 | 17400 | 24000 | 11900 | 18000 |
| 26 | 22500 | 20100 | 20700 | 20100 | 21600 | 20300 | 17500 | 2500 | 17600 | 24400 | 12700 | 12500 |
| 27 | 22400 | 20200 | 20000 | 20200 | 20700 | 21100 | 18400 | 3630 | 18100 | 24200 | 13500 | 11800 |
| 28 | 22300 | 20400 | 20300 | 20300 | 16300 | 17500 | 19200 | 6870 | 18700 | 24000 | 14200 | 13000 |
| 29 | 22100 | 20200 | 20400 | 20400 | --- | 17200 | 19600 | 5230 | 18400 | 23000 | 15700 | 16900 |
| 30 | 22000 | 20300 | 20600 | 20500 | --- | 15000 | 20000 | 895 | 19000 | 22500 | 16200 | 17500 |
| 31 | 21900 | --- | 20500 | 20400 | --- | 19700 | --- | 3000 | --- | 22400 | 16400 | --- |
| MEAN | 22100 | 21100 | 18400 | 20200 | 19200 | 17200 | 16800 | 11800 | 10200 | 21500 | 15700 | 17800 |

07311700 NORTH WICHITA RIVER NEAR TRUSCOTT, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 18.5 | 15.5 | 15.5 | --- | 8.5 | --- | 24.0 | 25.0 | 27.5 | 30.5 | 33.5 | 29.0 |
| 2 | 23.5 | --- | --- | 10.0 | --- | --- | 21.0 | 25.5 | 26.0 | --- | --- | 30.0 |
| 3 | --- | 16.5 | --- | 8.5 | --- | --- | --- | 24.0 | 22.5 | 29.5 | 27.5 | --- |
| 4 | --- | 15.5 | --- | 6.5 | --- | --- | --- | --- | 24.0 | --- | 29.0 | --- |
| 5 | 23.5 | 17.0 | --- | 7.0 | 4.0 | --- | --- | --- | 25.5 | 30.0 | 34.0 | 24.5 |
| 6 | --- | 12.5 | --- | 9.0 | --- | 16.5 | 17.0 | 23.5 | --- | 28.5 | 31.5 | 28.0 |
| 7 | --- | 19.5 | --- | 9.0 | 5.5 | --- | 20.0 | --- | 28.0 | --- | --- | --- |
| 8 | --- | 17.5 | --- | --- | 9.0 | 8.5 | 27.0 | --- | 30.0 | --- | --- | 26.5 |
| 9 | 21.0 | 18.5 | 8.5 | 12.5 | --- | 15.5 | --- | --- | 33.0 | 29.0 | --- | --- |
| 10 | --- | 18.5 | 9.0 | --- | --- | 17.5 | 24.0 | --- | 33.0 | 29.5 | 26.5 | 27.0 |
| 11 | --- | --- | 10.0 | --- | --- | --- | --- | 25.0 | --- | 33.5 | 25.0 | --- |
| 12 | 22.5 | --- | 10.5 | --- | 6.0 | 14.5 | 27.0 | 26.5 | 27.0 | 29.0 | 26.5 | --- |
| 13 | 17.5 | --- | 8.0 | 8.5 | --- | --- | 25.0 | 22.5 | 28.0 | --- | --- | --- |
| 14 | 24.0 | --- | --- | 9.5 | --- | --- | 16.0 | 24.5 | --- | 29.0 | 28.5 | 28.0 |
| 15 | 25.0 | --- | 11.5 | 9.0 | --- | --- | 12.5 | 19.5 | 18.0 | 29.5 | 33.5 | 27.5 |
| 16 | 20.5 | --- | 13.0 | 5.0 | 15.5 | 13.0 | 19.0 | --- | 25.5 | 29.0 | 31.0 | 21.5 |
| 17 | 18.5 | 4.0 | 15.0 | --- | 15.5 | 16.0 | --- | --- | --- | 30.0 | 24.0 | 20.0 |
| 18 | --- | --- | 14.0 | --- | 16.5 | 14.0 | --- | --- | 28.5 | --- | 27.5 | 21.5 |
| 19 | 17.0 | 9.5 | --- | --- | 15.0 | 16.0 | 25.0 | 21.0 | 29.0 | 30.5 | 28.0 | --- |
| 20 | 16.5 | 11.0 | --- | 9.0 | --- | --- | 24.0 | 25.0 | 30.0 | 32.0 | 27.0 | 24.0 |
| 21 | 20.0 | --- | .0 | 6.5 | 14.0 | --- | 17.0 | 26.5 | --- | 29.5 | --- | 25.0 |
| 22 | 18.5 | --- | --- | 8.5 | --- | --- | 24.0 | 29.0 | --- | --- | --- | --- |
| 23 | 18.5 | --- | --- | 10.5 | --- | --- | 23.5 | 30.0 | 28.5 | 31.0 | --- | 24.5 |
| 24 | --- | --- | 4.0 | --- | 13.0 | 18.5 | 25.0 | --- | --- | 32.0 | 29.5 | 25.5 |
| 25 | --- | --- | --- | 11.5 | --- | --- | 27.0 | 25.0 | --- | --- | --- | --- |
| 26 | --- | 6.0 | --- | 10.0 | --- | 21.0 | 26.0 | 27.0 | 31.0 | --- | 33.0 | --- |
| 27 | 17.0 | 6.5 | --- | 9.5 | 16.0 | --- | 28.5 | 30.0 | --- | --- | 23.5 | --- |
| 28 | 11.5 | --- | 11.5 | 11.0 | --- | --- | 27.0 | 27.0 | --- | --- | 22.5 | --- |
| 29 | --- | --- | --- | 12.0 | --- | 20.5 | 29.0 | --- | --- | --- | 30.5 | --- |
| 30 | --- | 12.5 | --- | 4.0 | --- | 21.0 | --- | 22.5 | 29.0 | 29.5 | --- | --- |
| 31 | 16.5 | --- | 10.5 | --- | --- | 22.5 | --- | --- | --- | 28.0 | --- | --- |
| MEAN | 19.5 | 13.5 | 10.0 | 9.0 | 11.5 | 17.0 | 23.0 | 25.0 | 27.5 | 30.0 | 28.5 | 25.5 |

## 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 (3 km) downstream from Panhandle and Santa Fe Railway Co. bridge, 4 mi (6 km) north of Benjamin, and 41 mi (66 km) upstream from confluence with North Wichita River.

DRAINAGE AREA.--584 mi² (1,513 km²).

### 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 (406.673 m) National Geodetic Vertical Datum of 1929. Prior to Jan. 2, 1960, nonrecording gage at same site and datum.

REMARKS.--Water-discharge records good. No known regulation or diversion above station.

AVERAGE DISCHARGE.--21 years (water years 1961-81), 36.8 ft³/s (1.042 m³/s), 0.85 in/yr (22 mm/yr), 26,660 acre-ft/yr (32.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,000 ft³/s (368 m³/s) Oct. 18, 1960, gage height, 15.40 ft (4.694 m); maximum gage height, 16.48 ft (5.023 m) Oct. 18, 1965; no flow at times.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 800 ft³/s (22.7 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| May 30 | 1300 | 1,000 | 28.3 | 9.99 | 3.045 | June 6 | 0500 | 835 | 23.6 | 9.30 | 2.835 |
| June 3 | 0900 | *1,500 | 42.5 | 11.77 | 3.587 | Aug. 17 | 1500 | 1,140 | 32.3 | 10.52 | 3.206 |

Minimum discharge, no flow for several days in July and August.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 22 | 5.3 | 12 | 8.5 | 5.7 | 16 | 11 | 26 | 44 | 1.2 | .00 | 6.7 |
| 2 | 18 | 5.6 | 12 | 8.6 | 5.5 | 12 | 9.9 | 8.1 | 742 | 1.3 | .00 | 6.3 |
| 3 | 14 | 5.6 | 12 | 8.7 | 5.7 | 11 | 11 | 11 | 852 | 1.2 | .00 | 5.7 |
| 4 | 13 | 4.9 | 14 | 8.1 | 5.4 | 11 | 10 | 32 | 191 | 1.2 | .00 | 5.8 |
| 5 | 11 | 4.9 | 15 | 8.0 | 5.3 | 9.4 | 9.5 | 95 | 89 | 1.2 | .00 | 33 |
| 6 | 10 | 4.9 | 16 | 8.0 | 5.5 | 9.3 | 9.5 | 13 | 474 | .88 | .00 | 9.4 |
| 7 | 9.7 | 5.3 | 28 | 7.1 | 5.8 | 10 | 10 | 12 | 108 | .66 | .60 | 6.3 |
| 8 | 9.3 | 5.3 | 101 | 7.1 | 6.0 | 34 | 10 | 11 | 63 | .52 | .00 | 5.0 |
| 9 | 8.9 | 5.3 | 16 | 6.7 | 6.4 | 12 | 9.8 | 11 | 36 | .50 | .00 | 4.6 |
| 10 | 8.3 | 5.6 | 12 | 6.7 | 6.2 | 10 | 9.3 | 16 | 28 | .51 | .00 | 3.9 |
| 11 | 7.1 | 6.0 | 10 | 6.7 | 5.5 | 9.6 | 9.5 | 13 | 23 | .40 | .27 | 3.7 |
| 12 | 6.7 | 6.2 | 9.9 | 6.5 | 5.0 | 9.3 | 9.5 | 9.6 | 17 | .34 | .00 | 3.3 |
| 13 | 6.7 | 6.3 | 9.9 | 6.7 | 6.0 | 9.3 | 14 | 8.4 | 14 | .26 | .00 | 3.1 |
| 14 | 6.7 | 6.3 | 9.2 | 6.5 | 7.4 | 102 | 92 | 7.0 | 13 | .18 | .00 | 41 |
| 15 | 6.2 | 6.7 | 9.3 | 6.3 | 7.1 | 24 | 62 | 7.4 | 215 | .11 | .00 | 6.6 |
| 16 | 6.6 | 10 | 8.7 | 5.9 | 6.6 | 19 | 37 | 8.1 | 109 | .08 | .00 | 3.8 |
| 17 | 6.0 | 13 | 8.3 | 6.1 | 6.3 | 17 | 16 | 6.9 | 13 | .02 | 657 | 2.9 |
| 18 | 5.6 | 13 | 8.3 | 6.6 | 6.5 | 13 | 28 | 5.6 | 7.1 | .00 | 396 | 3.5 |
| 19 | 5.6 | 13 | 7.5 | 7.6 | 6.3 | 12 | 23 | 4.6 | 4.6 | .00 | 54 | 3.1 |
| 20 | 5.6 | 13 | 7.6 | 7.9 | 6.0 | 11 | 12 | 4.5 | 3.8 | .00 | 23 | 2.6 |
| 21 | 6.0 | 12 | 7.4 | 7.6 | 5.6 | 11 | 24 | 4.3 | 3.3 | .00 | 14 | 1.9 |
| 22 | 5.6 | 11 | 8.6 | 7.4 | 5.4 | 11 | 44 | 4.1 | 2.9 | .00 | 12 | 1.6 |
| 23 | 6.0 | 11 | 8.6 | 7.0 | 5.4 | 11 | 15 | 3.6 | 2.6 | .00 | 11 | 1.4 |
| 24 | 5.6 | 11 | 8.4 | 6.9 | 5.1 | 11 | 13 | 155 | 2.2 | .00 | 10 | 1.6 |
| 25 | 5.3 | 12 | 8.2 | 6.7 | 5.3 | 12 | 12 | 182 | 2.0 | .00 | 9.6 | 21 |
| 26 | 6.0 | 12 | 8.3 | 6.3 | 5.0 | 12 | 11 | 14 | 1.7 | .00 | 9.2 | 56 |
| 27 | 5.3 | 12 | 8.6 | 5.9 | 18 | 11 | 9.9 | 11 | 1.5 | .00 | 12 | 28 |
| 28 | 4.6 | 12 | 8.6 | 6.1 | 73 | 11 | 9.6 | 35 | 1.2 | .11 | 8.8 | 13 |
| 29 | 5.3 | 12 | 8.6 | 5.8 | --- | 11 | 9.4 | 49 | 1.3 | .00 | 8.5 | 8.9 |
| 30 | 6.0 | 11 | 8.5 | 5.3 | --- | 11 | 8.9 | 434 | 1.2 | .00 | 8.3 | 5.7 |
| 31 | 5.3 | --- | 8.6 | 5.4 | --- | 12 | --- | 78 | --- | .00 | 7.6 | --- |
| TOTAL | 248.0 | 262.2 | 419.1 | 214.7 | 243.0 | 484.9 | 559.8 | 1280.2 | 3066.4 | 10.67 | 1241.87 | 299.4 |
| MEAN | 8.00 | 8.74 | 13.5 | 6.93 | 8.68 | 15.6 | 18.7 | 41.3 | 102 | .34 | 40.1 | 9.98 |
| MAX | 22 | 13 | 101 | 8.7 | 73 | 102 | 92 | 434 | 852 | 1.3 | 657 | 56 |
| MIN | 4.6 | 4.9 | 7.4 | 5.3 | 5.0 | 9.3 | 8.9 | 3.6 | 1.2 | .00 | .00 | 1.4 |
| CFSM | .01 | .02 | .02 | .01 | .02 | .03 | .03 | .07 | .18 | .001 | .07 | .02 |
| IN. | .02 | .02 | .03 | .01 | .02 | .03 | .04 | .08 | .20 | .00 | .08 | .02 |
| AC-FT | 492 | 520 | 831 | 426 | 482 | 962 | 1110 | 2540 | 6080 | 21 | 2460 | 594 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 9909.87 | MEAN 27.1 | MAX 2560 | MIN .00 | CFSM .05 | IN .63 | AC-FT 19660 |
| WTR YR 1981 | TOTAL | 8330.24 | MEAN 22.8 | MAX 852 | MIN .00 | CFSM .04 | IN .53 | AC-FT 16520 |

07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--Chemical analyses: October 1967 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1967 to current year.
WATER TEMPERATURES: October 1967 to current year.

INSTRUMENTATION.--Specific conductance is recorded continuously at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 48,900 micromhos May 13, 1971; minimum daily, 901 micromhos Sept. 6, 1973.
WATER TEMPERATURES: Maximum daily, 38.0°C Sept. 7, 1969; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 36,900 micromhos Nov. 10; minimum daily, 1,010 micromhos May 30.
WATER TEMPERATURES: Maximum daily, 33.0°C May 28; minimum daily, 0.0°C Dec. 20, 21, Jan. 22, Feb. 11.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 01... | 1050 | 22 | 23200 | 19.5 | 3000 | 3000 | 890 | 200 | -- |
| NOV | | | | | | | | | |
| 24... | 0830 | 11 | 31400 | 6.0 | 4000 | 3900 | 1100 | 300 | 6400 |
| JAN | | | | | | | | | |
| 26... | 0840 | 6.5 | 32200 | 7.5 | 4000 | 3900 | 1100 | 310 | 6300 |
| MAR | | | | | | | | | |
| 09... | 0930 | 12 | 10100 | 7.5 | 1600 | 1500 | 440 | 110 | 1700 |
| MAY | | | | | | | | | |
| 12... | 0850 | 11 | 28600 | 18.0 | 3600 | 3500 | 960 | 280 | 6300 |
| JUN | | | | | | | | | |
| 01... | 0900 | 46 | 8330 | 23.0 | 1700 | 1700 | 550 | 89 | 1200 |
| 08... | 1540 | 59 | 6560 | 32.0 | 1900 | 1800 | 560 | 120 | 830 |
| AUG | | | | | | | | | |
| 24... | 0845 | 10 | 15700 | 24.5 | 2400 | 2300 | 730 | 140 | 2800 |
| SEP | | | | | | | | | |
| 15... | 0905 | 6.6 | 5550 | 23.0 | 950 | 900 | 290 | 55 | 830 |

| DATE | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY 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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 01... | -- | -- | 57 | 2300 | 7700 | -- | -- | -- |
| NOV | | | | | | | | |
| 24... | 44 | 29 | 90 | 3000 | 11000 | -- | 2.8 | 21900 |
| JAN | | | | | | | | |
| 26... | 43 | 28 | 140 | 3200 | 12000 | -- | 5.1 | 23000 |
| MAR | | | | | | | | |
| 09... | 19 | 12 | 74 | 1300 | 2900 | -- | 5.2 | 6510 |
| MAY | | | | | | | | |
| 12... | 46 | 24 | 77 | 3000 | 10000 | -- | 3.8 | 20600 |
| JUN | | | | | | | | |
| 01... | 13 | 16 | 75 | 1300 | 2200 | .2 | 6.5 | 5410 |
| 08... | 8.3 | 14 | 98 | 1500 | 1600 | .3 | 8.1 | 4690 |
| AUG | | | | | | | | |
| 24... | 25 | 19 | 79 | 2000 | 5000 | .4 | 6.3 | 10700 |
| SEP | | | | | | | | |
| 15... | 12 | 12 | 53 | 770 | 1500 | .3 | 5.9 | 3500 |

07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 248.0 | 28400 | 18900 | 12600 | 9300 | 6220 | 3000 | 1990 | * |
| NOV. | 1980 | 262.2 | 32500 | 21600 | 15300 | 10800 | 7630 | 3200 | 2240 | * |
| DEC. | 1980 | 419.1 | 21800 | 14400 | 16300 | 7100 | 7990 | 2400 | 2670 | * |
| JAN. | 1981 | 214.7 | 32100 | 21300 | 12400 | 10600 | 6150 | 3200 | 1830 | * |
| FEB. | 1981 | 243.0 | 23100 | 15300 | 10000 | 7500 | 4930 | 2500 | 1610 | * |
| MAR. | 1981 | 484.9 | 18700 | 12300 | 16200 | 6000 | 7790 | 2200 | 2840 | * |
| APR. | 1981 | 559.8 | 17600 | 11700 | 17700 | 5600 | 8530 | 2000 | 3060 | * |
| MAY | 1981 | 1280.2 | 6110 | 4030 | 13900 | 1900 | 6520 | 800 | 2770 | 1100 |
| JUNE | 1981 | 3066.4 | 3840 | 2520 | 20900 | 1100 | 9370 | 580 | 4830 | 760 |
| JULY | 1981 | 10.67 | 23100 | 15300 | 441 | 7400 | 212 | 2700 | 78 | * |
| AUG. | 1981 | 1241.87 | 5660 | 3720 | 12500 | 1700 | 5660 | 830 | 2790 | 1100 |
| SEPT | 1981 | 299.4 | 12300 | 8150 | 6590 | 3800 | 3110 | 1600 | 1270 | * |
| TOTAL | | 8330.24 | ** | ** | 155000 | ** | 74100 | ** | 28000 | ** |
| WTD. AVG. | | 23 | 10400 | 6880 | ** | 3300 | ** | 1200 | ** | ** |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 23300 | 36300 | 30800 | 31300 | 28600 | 8460 | 32900 | 8500 | 7950 | 21600 | --- | 24700 |
| 2 | 24600 | 36200 | 31800 | 31400 | 32000 | 19200 | 33300 | 25400 | 3460 | 21900 | --- | 25200 |
| 3 | 24000 | 36400 | 32100 | 31500 | 32600 | 26500 | 32800 | 20000 | 1930 | 22200 | --- | 25900 |
| 4 | 23800 | 36700 | 31900 | 31000 | 32800 | 24700 | 27800 | 5550 | 6210 | 22900 | --- | 26500 |
| 5 | 23600 | 36500 | 31800 | 31700 | 27700 | 27500 | 33000 | 2690 | 6630 | 23000 | --- | 8290 |
| 6 | 25300 | 36500 | 31600 | 31800 | 28400 | 26700 | 34700 | 4700 | 2460 | 23300 | --- | 12500 |
| 7 | 25700 | 36600 | 24400 | 32500 | 30400 | 27900 | 34500 | 10400 | 5870 | 23700 | 26100 | 14000 |
| 8 | 26400 | 36700 | 4650 | 31900 | 30200 | 8500 | 34600 | 24700 | 6520 | 24400 | --- | 16200 |
| 9 | 27300 | 36800 | 8500 | 31700 | 29700 | 9630 | 34800 | 27900 | 7120 | 24300 | --- | 21200 |
| 10 | 27900 | 36900 | 14700 | 31800 | 22600 | 13300 | 35100 | 25200 | 8620 | 24200 | --- | 22400 |
| 11 | 28200 | 36400 | 22500 | 31700 | 20600 | 23700 | 34700 | 24300 | 9860 | 24400 | 25700 | 23400 |
| 12 | 28500 | 36500 | 23700 | 32000 | 27600 | 26000 | 34600 | 28500 | 11100 | 25500 | --- | 24000 |
| 13 | 29600 | 36200 | 24800 | 31800 | 30000 | 27100 | 29900 | 29800 | 12400 | 24700 | --- | 24200 |
| 14 | 30100 | 36100 | 25100 | 32100 | 32300 | 8880 | 7320 | 27000 | 14500 | 24500 | --- | 5840 |
| 15 | 30600 | 35400 | 26400 | 32600 | 32400 | 7650 | 6480 | 23700 | 4750 | 24400 | --- | 10700 |
| 16 | 29500 | 32500 | 26900 | 32500 | 32500 | 9500 | 8040 | 22400 | 2830 | 24600 | --- | 15000 |
| 17 | 31200 | 28000 | 27100 | 32600 | 32400 | 14800 | 16300 | 26000 | 5800 | 24400 | 5040 | 19300 |
| 18 | 31300 | 29100 | 27300 | 32000 | 32500 | 23400 | 15000 | 28000 | 9390 | --- | 3800 | 22400 |
| 19 | 31300 | 31100 | 28600 | 31800 | 32600 | 24800 | 22700 | 29900 | 13200 | --- | 4990 | 26000 |
| 20 | 31400 | 31700 | 29800 | 31700 | 32700 | 26900 | 23500 | 30400 | 14000 | --- | 6950 | 29900 |
| 21 | 31200 | 31400 | 30100 | 31800 | 33000 | 27700 | 14100 | 30800 | 14700 | --- | 9030 | 30400 |
| 22 | 32000 | 31300 | 27900 | 32100 | 33200 | 28200 | 9870 | 31100 | 17100 | --- | 11300 | 31400 |
| 23 | 32700 | 31200 | 29300 | 32200 | 34100 | 29600 | 9500 | 31500 | 17900 | --- | 14100 | 32600 |
| 24 | 33900 | 31400 | 30400 | 32000 | 34000 | 30000 | 16600 | 4880 | 18200 | --- | 15100 | 33000 |
| 25 | 34100 | 31200 | 30900 | 31900 | 34500 | 29100 | 19000 | 3600 | 18600 | --- | 17200 | 22500 |
| 26 | 34000 | 29500 | 29200 | 32300 | 34300 | 27900 | 20800 | 8930 | 18700 | --- | 18500 | 5690 |
| 27 | 33900 | 28700 | 29900 | 32500 | 19800 | 28300 | 25400 | 17900 | 19000 | --- | 15000 | 3620 |
| 28 | 36100 | 31100 | 30400 | 32400 | 7540 | 29000 | 26800 | 9000 | 19100 | 25500 | 16800 | 6860 |
| 29 | 35900 | 31200 | 30900 | 32700 | --- | 29400 | 27600 | 7110 | 20400 | --- | 18600 | 13000 |
| 30 | 35800 | 31200 | 31100 | 33100 | --- | 32800 | 28500 | 1010 | 21200 | --- | 22700 | 21000 |
| 31 | 36000 | --- | 31200 | 36500 | --- | 32000 | --- | 4720 | --- | --- | 23800 | --- |
| MEAN | 30000 | 33600 | 27000 | 32200 | 29700 | 22900 | 24300 | 18600 | 11300 | 23900 | 15000 | 19900 |

07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 18.0 | 8.0 | 5.0 | --- | 5.0 | 17.0 | 11.0 | 18.0 | 23.0 | 24.5 | --- | 26.0 |
| 2 | 17.0 | 9.0 | 4.0 | 4.0 | 2.0 | 11.0 | 15.0 | 18.0 | 20.0 | 25.5 | --- | 24.0 |
| 3 | 15.0 | 8.0 | 3.0 | 6.0 | 1.0 | 13.0 | 19.5 | 18.0 | 20.0 | 31.5 | --- | 24.5 |
| 4 | 16.0 | 10.0 | 9.0 | 6.0 | 5.0 | 10.0 | 20.0 | 20.0 | 23.0 | 32.0 | --- | 25.0 |
| 5 | 15.0 | 11.0 | 13.0 | 6.0 | 4.0 | 8.0 | 18.5 | 18.0 | 23.5 | 25.0 | --- | 24.0 |
| 6 | 19.0 | 13.0 | 14.0 | 7.0 | 3.0 | 9.0 | 10.0 | 17.0 | 21.0 | 23.0 | --- | 28.0 |
| 7 | 19.0 | 14.0 | 13.0 | 3.0 | 4.0 | 11.0 | 13.0 | 17.5 | 32.0 | 24.0 | --- | 24.0 |
| 8 | 18.0 | 12.0 | 10.0 | 8.0 | 6.0 | --- | 16.5 | 19.0 | 25.0 | 24.0 | --- | 21.0 |
| 9 | 17.5 | 13.0 | 4.0 | 9.0 | 6.0 | 7.5 | 16.5 | 18.0 | 25.0 | 23.0 | --- | 19.0 |
| 10 | 17.0 | 14.5 | 4.0 | 7.5 | 4.5 | 11.0 | 20.0 | 17.0 | 25.0 | 24.0 | --- | 20.5 |
| 11 | 15.0 | 14.0 | 10.0 | 8.0 | .0 | 13.0 | 18.0 | 14.0 | 25.5 | 23.0 | --- | 22.0 |
| 12 | 16.0 | 14.0 | 5.0 | 4.0 | 5.0 | 9.0 | 18.5 | 17.0 | 23.0 | 29.5 | --- | 23.0 |
| 13 | 15.0 | 15.0 | 5.0 | 4.0 | --- | 9.0 | 20.5 | 20.5 | 24.0 | 24.0 | --- | 23.0 |
| 14 | 18.0 | 9.0 | 6.0 | 5.0 | 5.0 | 12.0 | 18.0 | 15.0 | 30.0 | 23.5 | --- | 23.0 |
| 15 | 21.0 | 7.0 | 7.0 | 2.0 | 8.0 | --- | 12.0 | 18.0 | 25.0 | 23.0 | --- | 22.0 |
| 16 | 19.0 | 7.0 | 8.0 | 2.0 | 7.0 | 12.0 | 12.0 | 17.0 | 16.0 | 23.0 | --- | 20.5 |
| 17 | 16.0 | 2.0 | 8.0 | 1.0 | 8.0 | 11.5 | 18.0 | 31.0 | 18.0 | 23.0 | 23.0 | 16.0 |
| 18 | 15.0 | 3.0 | 9.5 | 3.0 | 11.0 | 7.0 | 19.0 | 18.0 | 22.0 | --- | 23.0 | 13.0 |
| 19 | 15.0 | 3.0 | 4.0 | 3.0 | 9.0 | 6.0 | 19.0 | 14.0 | 23.5 | --- | 23.0 | 15.0 |
| 20 | 11.0 | 3.0 | .0 | 3.0 | 11.0 | 10.0 | 18.0 | 15.0 | 24.0 | --- | 23.0 | 24.0 |
| 21 | 13.0 | 4.0 | .0 | 4.0 | 12.5 | 10.0 | 19.0 | 17.0 | 24.0 | --- | 23.0 | 18.0 |
| 22 | 13.0 | 8.0 | 1.0 | .0 | 9.0 | 10.0 | 16.5 | 20.0 | 24.0 | --- | 22.0 | 18.0 |
| 23 | 14.0 | 9.0 | 3.0 | 3.0 | 7.0 | 7.0 | 18.0 | 20.5 | 25.0 | --- | 31.0 | 21.0 |
| 24 | 10.0 | 6.0 | 6.0 | 4.0 | 11.0 | 10.0 | 16.0 | 20.0 | 24.5 | --- | 23.0 | 21.0 |
| 25 | 9.0 | 5.0 | --- | 6.0 | 10.5 | 13.0 | 16.0 | 17.0 | 25.0 | --- | 23.0 | 22.0 |
| 26 | 10.0 | 3.0 | 7.0 | 10.0 | 15.0 | 11.0 | 17.0 | 22.0 | 25.0 | --- | 25.0 | 21.0 |
| 27 | 14.0 | 3.0 | 4.0 | 8.0 | 14.5 | 15.5 | 19.0 | --- | 24.5 | --- | 24.0 | 22.0 |
| 28 | 7.0 | 2.0 | 8.0 | 4.0 | 13.0 | 17.0 | 20.0 | 33.0 | 25.0 | --- | 23.0 | 22.0 |
| 29 | 5.0 | 4.0 | 8.0 | 9.0 | --- | 16.0 | 20.0 | 20.5 | 24.0 | --- | 24.0 | 21.0 |
| 30 | 7.0 | 5.0 | 4.0 | 4.0 | --- | 15.5 | 22.0 | 19.0 | 24.5 | --- | 31.0 | 20.0 |
| 31 | 7.5 | --- | 5.0 | 5.0 | --- | 13.0 | --- | 28.0 | --- | --- | 25.0 | --- |
| MEAN | 14.5 | 8.0 | 6.5 | 5.0 | 7.5 | 11.0 | 17.0 | 19.0 | 24.0 | 25.0 | 24.5 | 21.5 |

## 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 (10.0 km) north of Mabelle, 13 mi (21 km) northeast of Seymour, and 126.7 mi (203.9 km) upstream from mouth.

DRAINAGE AREA.--2,086 mi² (5,403 km²).

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1972, nonrecording gage at different site and at datum 2.40 ft (0.732 m) higher.

REMARKS.--The lake is formed by a rolled earthfill dam 8,890 ft (2,710 m) long. The original dam was completed Aug. 25, 1923, but deliberate impoundment had begun Oct. 1, 1922. Enlargement of the dam was completed in November 1973. The uncontrolled emergency spillway, 3,000 ft (910 m) wide, is located approximately 600 ft (180 m) to right and slightly upstream from right end of dam. The controlled outlet works near center of dam consist of two hydraulically operated slide gates 5 ft 8 in by 13 ft (1.7 by 4 m) with a 13-foot-diameter (4.0 m) conduit and spillway basin. The dam and lake are owned by the city of Wichita Falls and the Wichita County Water Improvement District No. 2. Water is used for irrigation in the Wichita River Valley, oilfield operation, municipal, and industrial uses. The capacity table is based on a resurvey made in 1973. 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 | 1,183.0 | - |
| Crest of spillway | 1,160.0 | 603,000 |
| Top of flood-control pool | 1,156.0 | 502,900 |
| Top of conservation pool | 1,144.0 | 268,000 |
| Lowest gated outlet (invert) | 1,090.0 | 1,400 |

COOPERATION.--Capacity table No. 4-C was furnished by the Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 420,900 acre-ft (519 hm³) June 30, 1941, elevation, 1,152.0 ft (351.13 m), present datum; minimum since first appreciable storage, 26,160 acre-ft (32.3 hm³) June 30, 1953, elevation, 1,108.0 ft (337.72 m), present datum.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 204,700 acre-ft (252 hm³) June 9 at 0900 hours, elevation, 1,139.52 ft (347.326 m); minimum, 112,500 acre-ft (139 hm³) Nov. 14, 15, elevation, 1,128.75 ft (344.043 m).

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

| | | | |
|---|---|---|---|
| 1,128.0 | 108,000 | 1,136.0 | 166,200 |
| 1,130.0 | 120,400 | 1,138.0 | 186,700 |
| 1,132.0 | 133.800 | 1,140.0 | 210,900 |
| 1,134.0 | 148,900 | | |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 115000 | 113100 | 114500 | 119500 | 119500 | 131900 | 134900 | 142700 | 158200 | 199900 | 174000 | 159800 |
| 2 | 115100 | 113100 | 114200 | 119500 | 119700 | 132100 | 134900 | 142700 | 167200 | 199100 | 173000 | 158900 |
| 3 | 115200 | 113100 | 114100 | 119500 | 119500 | 132900 | 134800 | 142700 | 176900 | 198700 | 172000 | 158200 |
| 4 | 115000 | 113100 | 114400 | 119500 | 119500 | 133400 | 134800 | 142600 | 185400 | 197600 | 171200 | 157300 |
| 5 | 115000 | 113000 | 114400 | 119500 | 119500 | 133100 | 134500 | 144000 | 192500 | 196700 | 170100 | 156200 |
| 6 | 115000 | 113100 | 114500 | 119500 | 119500 | 133000 | 134300 | 146000 | 199900 | 195900 | 168700 | 155600 |
| 7 | 115100 | 113100 | 115200 | 119500 | 119500 | 133500 | 134300 | 146000 | 202900 | 195300 | 169000 | 155100 |
| 8 | 115000 | 113100 | 117900 | 119500 | 119600 | 133900 | 134200 | 146400 | 204300 | 194700 | 168300 | 154600 |
| 9 | 115000 | 113000 | 118900 | 119500 | 119800 | 133900 | 134400 | 147000 | 204500 | 194200 | 167500 | 154600 |
| 10 | 114900 | 112900 | 119100 | 119400 | 119700 | 134000 | 133900 | 146500 | 204400 | 193600 | 166800 | 154300 |
| 11 | 114700 | 112900 | 119200 | 119300 | 119500 | 134200 | 134100 | 146600 | 204300 | 193100 | 166300 | 154100 |
| 12 | 114500 | 112900 | 119400 | 119500 | 119500 | 134200 | 134200 | 146800 | 204000 | 192600 | 165600 | 154100 |
| 13 | 114500 | 112900 | 119400 | 119500 | 119600 | 134300 | 134800 | 146700 | 203500 | 191900 | 164900 | 154000 |
| 14 | 114400 | 112700 | 119500 | 119500 | 119500 | 134000 | 135900 | 146700 | 203400 | 191500 | 164400 | 156900 |
| 15 | 114400 | 112600 | 119600 | 119500 | 119700 | 135000 | 136600 | 146700 | 203500 | 190700 | 163800 | 157400 |
| 16 | 114400 | 113200 | 119500 | 119500 | 119800 | 135400 | 137200 | 146700 | 203800 | 190200 | 163700 | 157100 |
| 17 | 114200 | 113700 | 119700 | 119300 | 119900 | 135200 | 138100 | 146900 | 204300 | 189500 | 163500 | 156800 |
| 18 | 114100 | 114000 | 119800 | 119500 | 120000 | 135200 | 138800 | 146600 | 204400 | 188500 | 164000 | 156100 |
| 19 | 114000 | 114200 | 119400 | 119500 | 120000 | 135300 | 140100 | 146300 | 204500 | 187900 | 165100 | 155400 |
| 20 | 114000 | 114200 | 119300 | 119500 | 120200 | 135500 | 140400 | 145800 | 204400 | 187000 | 165700 | 154900 |
| 21 | 113900 | 114200 | 119200 | 119500 | 120200 | 135100 | 141100 | 145100 | 204100 | 185600 | 165800 | 154300 |
| 22 | 113700 | 114300 | 119300 | 119500 | 120000 | 134800 | 141800 | 144600 | 203600 | 184400 | 165700 | 154000 |
| 23 | 113700 | 114300 | 119300 | 119500 | 119900 | 134900 | 142000 | 143900 | 203600 | 183300 | 165700 | 153600 |
| 24 | 113400 | 114200 | 119300 | 119700 | 119900 | 134900 | 142100 | 143900 | 203400 | 182100 | 165300 | 153100 |
| 25 | 113300 | 114200 | 119400 | 119600 | 119900 | 135000 | 142100 | 144400 | 203400 | 181000 | 164800 | 152200 |
| 26 | 113200 | 114300 | 119300 | 119700 | 120000 | 135000 | 142200 | 145900 | 203000 | 179800 | 164000 | 151800 |
| 27 | 113700 | 114300 | 119300 | 119700 | 121600 | 135000 | 142300 | 146500 | 202800 | 178900 | 163900 | 151300 |
| 28 | 113300 | 114200 | 119500 | 119700 | 130600 | 135000 | 142400 | 147700 | 202600 | 177800 | 163400 | 150800 |
| 29 | 113200 | 114300 | 119500 | 119500 | --- | 135000 | 142500 | 148600 | 201800 | 176900 | 162300 | 150300 |
| 30 | 113100 | 114500 | 119600 | 119600 | --- | 135000 | 142900 | 150800 | 200800 | 175900 | 161500 | 149900 |
| 31 | 113100 | --- | 119500 | 119700 | --- | 135000 | --- | 155500 | --- | 175000 | 160600 | --- |
| MAX | 115200 | 114500 | 119800 | 119700 | 130600 | 135500 | 142900 | 155500 | 204500 | 199900 | 174000 | 159800 |
| MIN | 113100 | 112600 | 114100 | 119300 | 119500 | 131900 | 133900 | 142600 | 158200 | 175000 | 160600 | 149900 |
| (†) | 1128.84 | 1129.08 | 1129.86 | 1129.89 | 1131.54 | 1132.17 | 1133.24 | 1134.80 | 1139.20 | 1136.90 | 1135.38 | 1134.12 |
| (‡) | -1700 | +1400 | +5000 | +200 | +10900 | +4400 | +7900 | +12600 | +45300 | -25800 | -14400 | -10700 |

CAL YR 1980 MAX 177400 MIN 97500 ‡ -23500
WTR YR 1981 MAX 204500 MIN 112600 ‡ +35100

† Elevation, in feet, at end of month.
‡ 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 on downstream side of bridge on U.S. Highways 183 and 283, 0.3 mi (0.5 km) downstream from Lake Kemp Dam, 6.2 mi (10.0 km) north of Mabelle, and 13 mi (21 km) northeast of Seymour.

DRAINAGE AREA.--2,086 $mi^2$ (5,403 $km^2$), 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 (323.917 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Flow is regulated by Lake Kemp (see station 07312000). Water is released from Lake Kemp to supply Lake Diversion. Water from Lake Diversion is released for mining, industrial use, recreation, and irrigation in the vicinity of Wichita Falls.

AVERAGE DISCHARGE.--22 years, 143 $ft^3/s$ (4.050 $m^3/s$), 103,600 acre-ft/yr (128 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,290 $ft^3/s$ (121 $m^3/s$) Mar. 24, 1976, gage height, 10.47 ft (3.191 m); minimum daily, 0.15 $ft^3/s$ (0.004 $m^3/s$) June 22, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,390 $ft^3/s$ (67.7 $m^3/s$) Oct. 22 at 1030 hours, gage height, 7.87 ft (2.399 m); minimum, 0.38 $ft^3/s$ (0.011 $m^3/s$) Jan. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.8 | 1.3 | .74 | 1.6 | .59 | 1.1 | .70 | 1.3 | 2.5 | 408 | 326 | 327 |
| 2 | 1.8 | 1.3 | .99 | 1.4 | .53 | .84 | .64 | .91 | 22 | 410 | 326 | 326 |
| 3 | 1.7 | 1.3 | .83 | 1.3 | .48 | 2.2 | .64 | .93 | 7.5 | 410 | 327 | 324 |
| 4 | 1.6 | 1.2 | .76 | 1.1 | .57 | 1.0 | .64 | .99 | 2.7 | 410 | 327 | 323 |
| 5 | 1.6 | 1.2 | .73 | 1.1 | .53 | .77 | .70 | 1.2 | 1.8 | 409 | 327 | 311 |
| 6 | 1.6 | 1.1 | .76 | 1.1 | .51 | .69 | .77 | 1.1 | 2.8 | 278 | 327 | 219 |
| 7 | 1.5 | 1.2 | 1.3 | .53 | .54 | 6.8 | .70 | 1.0 | 1.6 | 113 | 261 | 221 |
| 8 | 1.5 | 1.2 | 4.9 | .50 | .54 | 2.5 | .70 | 1.0 | 1.4 | 113 | 226 | 95 |
| 9 | 1.4 | 1.3 | 1.6 | .53 | .55 | 1.1 | .70 | 1.2 | 1.3 | 113 | 226 | 2.1 |
| 10 | 1.4 | 1.3 | 1.2 | .56 | .72 | .91 | .70 | 1.0 | 1.4 | 112 | 225 | 1.8 |
| 11 | 1.2 | 1.2 | .94 | .58 | .53 | .84 | .77 | .97 | 1.6 | 112 | 225 | 1.3 |
| 12 | 1.1 | 1.2 | .87 | .47 | .50 | .99 | .74 | .95 | 1.6 | 113 | 226 | 1.2 |
| 13 | 1.0 | 1.2 | .93 | .42 | .50 | .84 | .83 | 1.0 | 1.5 | 113 | 224 | 1.2 |
| 14 | 1.0 | 1.4 | .88 | .41 | .46 | .77 | 1.8 | 1.1 | 1.5 | 112 | 222 | 1.6 |
| 15 | .98 | 1.5 | .86 | .43 | .45 | .77 | 1.1 | 1.0 | 1.8 | 112 | 223 | 1.3 |
| 16 | 1.1 | 1.9 | .86 | .52 | .46 | .77 | .87 | 1.1 | 1.9 | 112 | 222 | 1.4 |
| 17 | 1.1 | 2.8 | .81 | .47 | .46 | .70 | .80 | 1.0 | 1.7 | 159 | 97 | 84 |
| 18 | 1.1 | 1.4 | .88 | .43 | .49 | .91 | .88 | 1.0 | 1.6 | 228 | 2.3 | 214 |
| 19 | 1.1 | 1.0 | 1.4 | .43 | .52 | 3.0 | .88 | 1.1 | 1.6 | 228 | 1.9 | 213 |
| 20 | 1.1 | .99 | 1.1 | .49 | .57 | .99 | .92 | 224 | 1.5 | 288 | 1.6 | 212 |
| 21 | 1.1 | 1.0 | .87 | .61 | .61 | .84 | 1.9 | 344 | 1.6 | 328 | 1.6 | 211 |
| 22 | 67 | .99 | .82 | .59 | .54 | 1.1 | 1.6 | 340 | 1.9 | 328 | 1.4 | 97 |
| 23 | 1.5 | 1.1 | 1.2 | .59 | .53 | 1.1 | .99 | 335 | 2.0 | 323 | 1.4 | 134 |
| 24 | 1.3 | 1.1 | 2.3 | .61 | .53 | .99 | .83 | 337 | 2.0 | 318 | 133 | 209 |
| 25 | 1.3 | 1.4 | 2.0 | .61 | .52 | .91 | .81 | 106 | 2.1 | 320 | 223 | 209 |
| 26 | 1.3 | 1.0 | 1.9 | .65 | .54 | .84 | .79 | 1.7 | 2.1 | 321 | 223 | 20[illegible] |
| 27 | 1.5 | .98 | 1.7 | .64 | .88 | .77 | .75 | 1.5 | 2.0 | 322 | 223 | 207 |
| 28 | 1.7 | .91 | 1.6 | .58 | 24 | .70 | .80 | 5.1 | 2.0 | 326 | 253 | 206 |
| 29 | 1.4 | .91 | 1.9 | .54 | --- | .64 | .87 | 3.0 | 264 | 326 | 328 | 206 |
| 30 | 1.3 | .73 | 1.4 | .59 | --- | .64 | .82 | 1.8 | 409 | 326 | 327 | 206 |
| 31 | 1.3 | --- | 1.6 | .56 | --- | .64 | --- | 1.3 | --- | 326 | 326 | --- |
| TOTAL | 107.38 | 37.11 | 40.63 | 20.94 | 38.65 | 37.66 | 26.64 | 1720.25 | 750.0 | 7917 | 6383.2 | 4773.9 |
| MEAN | 3.46 | 1.24 | 1.31 | .68 | 1.38 | 1.21 | .89 | 55.5 | 25.0 | 255 | 206 | 159 |
| MAX | 67 | 2.8 | 4.9 | 1.6 | 24 | 6.8 | 1.9 | 344 | 409 | 410 | 328 | 327 |
| MIN | .98 | .73 | .73 | .41 | .45 | .64 | .64 | .91 | 1.3 | 112 | 1.4 | 1.2 |
| AC-FT | 213 | 74 | 81 | 42 | 77 | 75 | 53 | 3410 | 1490 | 15700 | 12660 | 9470 |

CAL YR 1980 TOTAL 42841.90 MEAN 117 MAX 508 MIN .40 AC-FT 84980
WTR YR 1981 TOTAL 21853.36 MEAN 59.9 MAX 410 MIN .41 AC-FT 43350

07312100 WICHITA RIVER NEAR MABELLE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1966 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1968 to current year.
WATER TEMPERATURES: October 1968 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, 7,110 micromhos May 13, 14, 1980; minimum daily, 561 micromhos May 28, 1975.
WATER TEMPERATURES: Maximum daily, 32.0°C Sept. 4, 1972, June 26, July 5, 1975; minimum daily, 0.0°C Dec. 20, 1973, and Feb. 9, 17, 1980.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 6,600 micromhos Oct. 8; minimum daily, 1,250 micromhos June 2.
WATER TEMPERATURES: Maximum daily, 28.0°C on many days during July and August; minimum daily, 1.0°C Feb. 11.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | TEMPER-ATURE, WATER (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 27... | 0910 | 1.4 | 6000 | 14.0 | 1000 | 950 | 290 | 78 | 990 |
| DEC | | | | | | | | | |
| 08... | 0920 | 4.8 | 2060 | 8.0 | 350 | 260 | 93 | 29 | 300 |
| JAN | | | | | | | | | |
| 19... | 0915 | .44 | 5910 | 6.0 | 1200 | 980 | 320 | 90 | 950 |
| APR | | | | | | | | | |
| 10... | 1345 | .71 | 6580 | 22.0 | 1200 | 1000 | 320 | 98 | 1000 |
| JUN | | | | | | | | | |
| 02... | 0800 | 12 | 817 | 20.0 | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | |
| 17... | 0845 | 224 | 5490 | 27.0 | 900 | 810 | 250 | 67 | 850 |

| DATE | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY (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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 27... | 13 | 7.7 | 100 | 800 | 1600 | .3 | 6.5 | 3830 |
| DEC | | | | | | | | |
| 08... | 7.0 | 6.7 | 94 | 290 | 470 | .3 | 8.0 | 1250 |
| JAN | | | | | | | | |
| 19... | 12 | 5.5 | 190 | 800 | 1600 | .4 | 10 | 3890 |
| APR | | | | | | | | |
| 10... | 13 | 6.9 | 160 | 820 | 1700 | .4 | 9.0 | 4050 |
| JUN | | | | | | | | |
| 02... | -- | -- | -- | 70 | 160 | -- | -- | -- |
| AUG | | | | | | | | |
| 17... | 12 | 8.0 | 87 | 750 | 1400 | .4 | 6.8 | 3380 |

07312100 WICHITA RIVER NEAR MABELLE, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 107.38 | 6170 | 3600 | 1040 | 1600 | 451 | 850 | 247 | 1100 |
| NOV. | 1980 | 37.11 | 5930 | 3450 | 346 | 1500 | 149 | 820 | 82 | 1100 |
| DEC. | 1980 | 40.63 | 5490 | 3200 | 351 | 1400 | 151 | 760 | 83 | 980 |
| JAN. | 1981 | 20.94 | 6150 | 3580 | 203 | 1500 | 88 | 850 | 48 | 1100 |
| FEB. | 1981 | 38.65 | 3180 | 1850 | 193 | 760 | 80 | 430 | 45 | 590 |
| MAR. | 1981 | 37.66 | 4900 | 2860 | 290 | 1200 | 122 | 670 | 68 | 890 |
| APR. | 1981 | 26.64 | 5740 | 3350 | 241 | 1400 | 103 | 790 | 57 | 1000 |
| MAY | 1981 | 1720.25 | 6480 | 3780 | 17500 | 1600 | 7660 | 900 | 4160 | 1100 |
| JUNE | 1981 | 750.0 | 5330 | 3110 | 6290 | 1300 | 2660 | 730 | 1480 | 960 |
| JULY | 1981 | 7917 | 5400 | 3140 | 67200 | 1300 | 28400 | 740 | 15800 | 980 |
| AUG. | 1981 | 6383.2 | 5520 | 3220 | 55400 | 1400 | 23500 | 760 | 13100 | 990 |
| SEPT | 1981 | 4773.9 | 5670 | 3300 | 42600 | 1400 | 18100 | 780 | 10000 | 1000 |
| TOTAL | | 21853.36 | ** | ** | 192000 | ** | 81400 | ** | 45200 | ** |
| WTD. AVG. | | 60 | 5580 | 3250 | ** | 1400 | ** | 770 | ** | 1000 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5180 | 6230 | 6080 | 6340 | 5880 | 3080 | 6040 | 5700 | 6200 | 5320 | 5430 | 5600 |
| 2 | 5600 | 6230 | 6250 | 6420 | 5860 | 4190 | 6140 | 5850 | 1250 | 5330 | 5430 | 5590 |
| 3 | 5790 | 6230 | 6210 | 6280 | 6010 | 4980 | 6140 | 6060 | 2930 | 5320 | 5420 | 5600 |
| 4 | 6180 | 6240 | 6360 | 6370 | 6320 | 3870 | 6000 | 6060 | 3390 | 5320 | 5440 | 5600 |
| 5 | 6160 | 6000 | 6150 | 6430 | 6180 | 4850 | 5990 | 5900 | 5250 | 5300 | 5440 | 5630 |
| 6 | 6220 | 6310 | 6380 | 6260 | 5750 | 4890 | 6080 | 5990 | 3440 | 5310 | 5450 | 5640 |
| 7 | 6280 | 6330 | 2400 | 6020 | 5800 | 3100 | 6070 | 6090 | 5640 | 5320 | 5450 | 5640 |
| 8 | 6600 | 6220 | 2060 | 6020 | 5990 | 2940 | 6130 | 6040 | 6110 | 5350 | 5460 | 5640 |
| 9 | 6520 | 6310 | 3650 | 5900 | 6070 | 3360 | 6110 | 6020 | 6250 | 5360 | 5460 | 5800 |
| 10 | 6360 | 6330 | 5090 | 5910 | 6110 | 4840 | 6580 | 6040 | 6320 | 5350 | 5460 | 5800 |
| 11 | 6340 | 6310 | 5830 | 5940 | 6260 | 5270 | 5980 | 6060 | 6340 | 5350 | 5480 | 5840 |
| 12 | 6180 | 6230 | 6030 | 5950 | 6170 | 5570 | 5980 | 6090 | 6220 | 5360 | 5460 | 5700 |
| 13 | 6180 | 6300 | 6100 | 5910 | 5940 | 5830 | 5990 | 6330 | 5920 | 5380 | 5480 | 5700 |
| 14 | 6140 | 6270 | 6060 | 5980 | 5950 | 5800 | 4850 | 6050 | 5940 | 5400 | 5480 | 4290 |
| 15 | 6150 | 5880 | 6140 | 5990 | 5940 | 5800 | 5760 | 6050 | 6040 | 5380 | 5800 | 5220 |
| 16 | 6150 | 5890 | 6130 | 6000 | 5940 | 6070 | 5760 | 6260 | 5750 | 5400 | 5800 | 5470 |
| 17 | 6210 | 4160 | 6160 | 6050 | 5980 | 6250 | 5860 | 6190 | 6100 | 5390 | 5500 | 5760 |
| 18 | 6240 | 5240 | 6010 | 5950 | 5990 | 6120 | 5860 | 6190 | 6140 | 5440 | 5730 | 5670 |
| 19 | 6200 | 5520 | 6190 | 5910 | 5980 | 6160 | 5580 | 6080 | 6130 | 5440 | 5740 | 5700 |
| 20 | 6200 | 5860 | 6030 | 5940 | 5940 | 6220 | 5850 | 6110 | 6060 | 5390 | 5770 | 5700 |
| 21 | 6240 | 6110 | 6100 | 6030 | 5910 | 6040 | 5900 | 6550 | 5670 | 5390 | 5730 | 5700 |
| 22 | 6180 | 5880 | 6190 | 5990 | 5910 | 6210 | 4370 | 6570 | 5830 | 5420 | 5800 | 5700 |
| 23 | 6280 | 5890 | 6160 | 6370 | 5910 | 6230 | 5380 | 6580 | 5780 | 5420 | 5800 | 5820 |
| 24 | 6300 | 5890 | 6310 | 5930 | 5900 | 6250 | 5510 | 6550 | 5740 | 5440 | 5800 | 5700 |
| 25 | 6350 | 6170 | 6460 | 5930 | 6240 | 6120 | 5750 | 6410 | 5720 | 5460 | 5540 | 5720 |
| 26 | 6340 | 5910 | 6460 | 6250 | 6240 | 6120 | 5750 | 6390 | 5700 | 5470 | 5550 | 5720 |
| 27 | 5890 | 6050 | 6460 | 6220 | 6320 | 6100 | 5830 | 6420 | 5700 | 5460 | 5560 | 5730 |
| 28 | 6140 | 6050 | 6380 | 6230 | 1440 | 5980 | 5910 | 6440 | 5710 | 5470 | 5570 | 5730 |
| 29 | 6300 | 6050 | 6380 | 6160 | --- | 5980 | 5980 | 2870 | 5720 | 5480 | 5580 | 5730 |
| 30 | 6230 | 6060 | 6380 | 6070 | --- | 5980 | 6030 | 4100 | 5310 | 5480 | 5580 | 5730 |
| 31 | 6260 | --- | 6410 | 5900 | --- | 6120 | --- | 5760 | --- | 5490 | 5580 | --- |
| MEAN | 6170 | 6010 | 5840 | 6090 | 5850 | 5370 | 5840 | 5990 | 5480 | 5390 | 5570 | 5630 |

07312100 WICHITA RIVER NEAR MABELLE, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 20.0 | 12.0 | 12.0 | 8.0 | 7.0 | 12.0 | 14.0 | 20.0 | 22.0 | 28.0 | 28.0 | 26.0 |
| 2 | 19.0 | 12.0 | 7.0 | 6.0 | 4.0 | 13.0 | 17.0 | 19.0 | 20.0 | 28.0 | 28.0 | 25.0 |
| 3 | 18.0 | 15.0 | 6.0 | 6.0 | 6.0 | 13.0 | 19.0 | 20.0 | 20.0 | 27.0 | 28.0 | 26.0 |
| 4 | 18.0 | 14.0 | 14.0 | 7.0 | 6.0 | 12.0 | 17.0 | 19.0 | 20.0 | 26.0 | 28.0 | 26.0 |
| 5 | 18.0 | 13.0 | 14.0 | 7.0 | 6.0 | 10.0 | 17.0 | 20.0 | 22.0 | 28.0 | 27.0 | 27.0 |
| 6 | 19.0 | 15.0 | 15.0 | 9.0 | 9.0 | 10.0 | 12.0 | 17.0 | 23.0 | 28.0 | 28.0 | 26.0 |
| 7 | 19.0 | 16.0 | 15.0 | 7.0 | 9.0 | 13.0 | 12.0 | 18.0 | 26.0 | 25.0 | 27.0 | 26.0 |
| 8 | 19.0 | 16.0 | 9.0 | 9.0 | 10.0 | 9.0 | 17.0 | 19.0 | 24.0 | 27.0 | 27.0 | 25.0 |
| 9 | 18.0 | 16.0 | 6.0 | 8.0 | 8.0 | 8.0 | 19.0 | 17.0 | 24.0 | 27.0 | 27.0 | 20.0 |
| 10 | 18.0 | 16.0 | 8.0 | 8.0 | 9.0 | 12.0 | 19.0 | 16.0 | 25.0 | 28.0 | 27.0 | 21.0 |
| 11 | 17.0 | 16.0 | 8.0 | 7.0 | 1.0 | 15.0 | 19.0 | 15.0 | 25.0 | 28.0 | 27.0 | 21.0 |
| 12 | 17.0 | 16.0 | 8.0 | 6.0 | 5.0 | 12.0 | 20.0 | 16.0 | 23.0 | 27.0 | 26.0 | 22.0 |
| 13 | 15.0 | 16.0 | 9.0 | 7.0 | 8.0 | 12.0 | 20.0 | 20.0 | 23.0 | 27.0 | 26.0 | 21.0 |
| 14 | 18.0 | 13.0 | 9.0 | 8.0 | 8.0 | 13.0 | 18.0 | 17.0 | 23.0 | 28.0 | 27.0 | 20.0 |
| 15 | 20.0 | 12.0 | 10.0 | 6.0 | 8.0 | 13.0 | 14.0 | 17.0 | 23.0 | 28.0 | 27.0 | 23.0 |
| 16 | 20.0 | 8.0 | 11.0 | 6.0 | 10.0 | 13.0 | 15.0 | 16.0 | 19.0 | 28.0 | 27.0 | 20.0 |
| 17 | 18.0 | 5.0 | 11.0 | 5.0 | 11.0 | 12.0 | 18.0 | 16.0 | 19.0 | 28.0 | 26.0 | 17.0 |
| 18 | 19.0 | 5.0 | 12.0 | 8.0 | 13.0 | 10.0 | 19.0 | 18.0 | 22.0 | 27.0 | 22.0 | 23.0 |
| 19 | 17.0 | 8.0 | 7.0 | 6.0 | 12.0 | 9.0 | 20.0 | 15.0 | 24.0 | 28.0 | 22.0 | 23.0 |
| 20 | 15.0 | 9.0 | 4.0 | 7.0 | 12.0 | 10.0 | 19.0 | 16.0 | 24.0 | 28.0 | 22.0 | 23.0 |
| 21 | 16.0 | 9.0 | 4.0 | 7.0 | 12.0 | 12.0 | 19.0 | 20.0 | 23.0 | 28.0 | 22.0 | 23.0 |
| 22 | 13.0 | 10.0 | 6.0 | 7.0 | 8.0 | 10.0 | 18.0 | 20.0 | 24.0 | 28.0 | 23.0 | 23.0 |
| 23 | 16.0 | 12.0 | 7.0 | 6.0 | 8.0 | 8.0 | 18.0 | 21.0 | 25.0 | 28.0 | 23.0 | 22.0 |
| 24 | 13.0 | 9.0 | 7.0 | 7.0 | 10.0 | 13.0 | 18.0 | 21.0 | 25.0 | 28.0 | 22.0 | 23.0 |
| 25 | 14.0 | 8.0 | 4.0 | 10.0 | 13.0 | 13.0 | 21.0 | 20.0 | 25.0 | 28.0 | 23.0 | 23.0 |
| 26 | 15.0 | 9.0 | 6.0 | 9.0 | 15.0 | 13.0 | 21.0 | 22.0 | 25.0 | 28.0 | 25.0 | 23.0 |
| 27 | 16.0 | 9.0 | 7.0 | 9.0 | 16.0 | 16.0 | 19.0 | 22.0 | 25.0 | 28.0 | 26.0 | 23.0 |
| 28 | 9.0 | 7.0 | 8.0 | 7.0 | 14.0 | 15.0 | 20.0 | 24.0 | 25.0 | 27.0 | 25.0 | 24.0 |
| 29 | 8.0 | 6.0 | 9.0 | 10.0 | --- | 16.0 | 21.0 | 21.0 | 25.0 | 27.0 | 26.0 | 23.0 |
| 30 | 9.0 | --- | 6.0 | 8.0 | --- | 12.0 | 22.0 | 22.0 | 26.0 | 27.0 | 27.0 | 23.0 |
| 31 | 12.0 | --- | 7.0 | 7.0 | --- | 15.0 | --- | --- | --- | 28.0 | 26.0 | --- |
| MEAN | 16.0 | 11.5 | 8.5 | 7.5 | 9.0 | 12.0 | 18.0 | 19.0 | 23.5 | 27.5 | 25.5 | 23.0 |

## 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 (38 m) downstream from Lake Diversion headgates and 5.3 mi (8.5 km) northwest of Dundee.

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

GAGE.--Water-stage recorder. Datum of gage is 1,039.70 ft (316.901 m) National Geodetic Vertical Datum of 1929 (Wichita County Water Improvement District bench mark).

REMARKS.--Records good. Water diverted from Lake Diversion is used for mining, industrial use, recreation, and irrigation. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--10 years, 83.2 $ft^3/s$ (2.356 $m^3/s$), 62,280 acre-ft/yr (76.8 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 374 $ft^3/s$ (10.6 $m^3/s$) July 22, 1974; maximum gage height, 8.66 ft (2.640 m) July 23, 1978; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.1 | 3.8 | 3.2 | 1.6 | 97 | 2.9 | 3.8 | 3.0 | 20 | 150 | 209 | 172 |
| 2 | 4.8 | 3.8 | 2.9 | 1.6 | 97 | 3.2 | 3.8 | 2.7 | 22 | 151 | 209 | 172 |
| 3 | 4.8 | 4.1 | 2.6 | 1.6 | 96 | 3.1 | 3.7 | 2.8 | 23 | 153 | 185 | 173 |
| 4 | 4.8 | 4.1 | 2.5 | 1.6 | 91 | 3.0 | 3.6 | 2.5 | 24 | 154 | 164 | 163 |
| 5 | 4.8 | 4.1 | 2.5 | 1.6 | 39 | 2.9 | 3.7 | 2.5 | 13 | 155 | 179 | 147 |
| 6 | 4.8 | 4.1 | 2.5 | 1.5 | 7.3 | 2.9 | 3.7 | 2.2 | 1.6 | 157 | 187 | 137 |
| 7 | 4.4 | 4.1 | 2.5 | 1.6 | 2.6 | 2.9 | 3.6 | 2.2 | 1.5 | 158 | 198 | 137 |
| 8 | 4.4 | 4.1 | 2.6 | 1.6 | 2.5 | 3.0 | 3.5 | 2.3 | 1.5 | 157 | 205 | 130 |
| 9 | 4.4 | 4.1 | 2.6 | 1.6 | 2.9 | 3.0 | 3.2 | 1.8 | 1.5 | 156 | 206 | 118 |
| 10 | 4.4 | 4.1 | 2.5 | 1.5 | 3.1 | 3.2 | 3.3 | 14 | 1.5 | 155 | 208 | 113 |
| 11 | 4.4 | 4.1 | 2.4 | 1.7 | 2.9 | 3.2 | 3.2 | 51 | 1.5 | 154 | 200 | 112 |
| 12 | 4.4 | 4.1 | 2.2 | 1.7 | 2.9 | 3.2 | 52 | 62 | 1.5 | 154 | 182 | 112 |
| 13 | 4.4 | 4.1 | 2.3 | 1.7 | 2.9 | 3.2 | 111 | 48 | 1.5 | 152 | 176 | 111 |
| 14 | 4.4 | 4.1 | 2.5 | 1.7 | 2.9 | 3.3 | 105 | 77 | 22 | 152 | 175 | 111 |
| 15 | 4.4 | 4.1 | 2.5 | 1.7 | 2.9 | 3.5 | 78 | 79 | 66 | 167 | 176 | 111 |
| 16 | 4.3 | 4.1 | 2.5 | 1.7 | 2.9 | 3.5 | 60 | 80 | 83 | 165 | 156 | 117 |
| 17 | 4.1 | 4.1 | 2.5 | 1.7 | 2.9 | 3.7 | 46 | 115 | 82 | 165 | 128 | 129 |
| 18 | 4.1 | 3.8 | 2.4 | 1.7 | 2.9 | 3.6 | 3.2 | 79 | 82 | 187 | 119 | 129 |
| 19 | 4.1 | 3.8 | 2.3 | 1.8 | 2.9 | 3.6 | 3.2 | 79 | 81 | 208 | 119 | 129 |
| 20 | 4.1 | 3.6 | 2.1 | 1.9 | 2.9 | 3.5 | 2.9 | 80 | 80 | 208 | 119 | 130 |
| 21 | 3.9 | 3.2 | 1.6 | 19 | 2.9 | 3.6 | 3.0 | 80 | 79 | 219 | 119 | 128 |
| 22 | 4.8 | 3.4 | 1.1 | 16 | 2.9 | 3.6 | 3.0 | 81 | 91 | 225 | 118 | 138 |
| 23 | 4.8 | 3.3 | 1.7 | 2.5 | 3.0 | 3.6 | 3.2 | 80 | 114 | 226 | 118 | 145 |
| 24 | 4.4 | 3.3 | 1.7 | 2.5 | 2.9 | 3.6 | 3.1 | 82 | 127 | 226 | 125 | 145 |
| 25 | 4.4 | 3.3 | 1.7 | 23 | 2.9 | 3.7 | 3.2 | 81 | 135 | 226 | 134 | 145 |
| 26 | 4.1 | 3.2 | 1.6 | 106 | 2.9 | 3.8 | 3.2 | 83 | 149 | 225 | 135 | 144 |
| 27 | 4.2 | 3.3 | 1.7 | 123 | 2.9 | 3.7 | 3.2 | 82 | 150 | 224 | 140 | 145 |
| 28 | 4.1 | 3.2 | 1.7 | 102 | 2.9 | 3.6 | 2.9 | 82 | 149 | 226 | 159 | 146 |
| 29 | 3.9 | 3.2 | 1.6 | 98 | --- | 3.5 | 2.9 | 54 | 148 | 216 | 166 | 151 |
| 30 | 3.8 | 3.2 | 1.6 | 99 | --- | 3.6 | 2.9 | 20 | 148 | 207 | 168 | 165 |
| 31 | 3.8 | --- | 1.6 | 99 | --- | 3.7 | --- | 20 | --- | 208 | 171 | --- |
| TOTAL | 135.6 | 112.9 | 67.7 | 723.1 | 490.7 | 104.4 | 531.0 | 1531.0 | 1900.1 | 5686 | 5053 | 4105 |
| MEAN | 4.37 | 3.76 | 2.18 | 23.3 | 17.5 | 3.37 | 17.7 | 49.4 | 63.3 | 183 | 163 | 137 |
| MAX | 5.1 | 4.1 | 3.2 | 123 | 97 | 3.8 | 111 | 115 | 150 | 226 | 209 | 173 |
| MIN | 3.8 | 3.2 | 1.1 | 1.5 | 2.5 | 2.9 | 2.9 | 1.8 | 1.5 | 150 | 118 | 111 |
| AC-FT | 269 | 224 | 134 | 1430 | 973 | 207 | 1050 | 3040 | 3770 | 11280 | 10020 | 8140 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 33730.38 | MEAN 92.2 | MAX 312 | MIN .42 | AC-FT | 66900 |
| WTR YR 1981 | TOTAL | 20440.50 | MEAN 56.0 | MAX 226 | MIN 1.1 | AC-FT | 40540 |

## 07312200 BEAVER CREEK NEAR ELECTRA, TX

LOCATION.--Lat 33°54'21", long 98°54'17", Wichita County, Hydrologic Unit 11130207, near right bank on downstream side of bridge on Farm Road 2326, 6.5 mi (10.5 km) northwest of Kamay, 8 mi (13 km) upstream from Wichita River, and 9 mi (14 km) south of Electra.

DRAINAGE AREA.--652 mi² (1,689 km²).

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 (302.15 m) National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation reference point).

REMARKS.--Records fair. Some regulation by Santa Rosa Lake, capacity, 11,570 acre-ft (14.3 hm³), about 30 mi (48 km) upstream. Several small diversions above station.

AVERAGE DISCHARGE.--21 years, 55.9 ft³/s (1.583 m³/s), 1.16 in/yr (29 mm/yr), 40,500 acre-ft (49.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,700 ft³/s (331 m³/s) Mar. 17, 1961, gage height, 33.57 ft (10.232 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1925, 36.0 ft (10.97 m) probably occurred Oct. 2, 1941 (partly caused by deliberate demolition of Santa Rosa Dam to avoid its failure), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (28.3 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| May 29 | 1800 | 1,490 | 42.2 | 19.58 | 5.968 |
| June 4 | 0600 | *2,500 | 70.8 | 25.70 | 7.833 |

Minimum daily discharge, 0.02 ft³/s (0.001 m³/s) Apr. 12, possibly due to pumping.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7.8 | .64 | .58 | 1.6 | 1.6 | 203 | 1.7 | 14 | 63 | 2.6 | 11 | 2.8 |
| 2 | 5.9 | .58 | .58 | 1.8 | 1.8 | 26 | 1.4 | 3.5 | 1590 | 3.4 | 10 | 2.8 |
| 3 | 4.0 | .58 | .58 | 2.0 | 1.9 | 118 | 1.0 | .58 | 2270 | 14 | 10 | 3.0 |
| 4 | 3.5 | .52 | .58 | 1.8 | 2.1 | 141 | .71 | .28 | 2410 | 3.0 | 10 | 3.0 |
| 5 | 3.5 | .46 | .71 | 1.7 | 2.2 | 34 | .64 | .19 | 1410 | 2.1 | 9.4 | 12 |
| 6 | 3.5 | .46 | 65 | 1.5 | 2.0 | 8.1 | .78 | .16 | 805 | 8.8 | 8.8 | 29 |
| 7 | 3.5 | .58 | 199 | 1.4 | 2.3 | 2.4 | 1.0 | .16 | 685 | 16 | 9.7 | 10 |
| 8 | 3.5 | .85 | 292 | 1.3 | 2.6 | 1.6 | 1.0 | 1.8 | 691 | 9.3 | 9.4 | 8.2 |
| 9 | 3.5 | 1.2 | 126 | 1.2 | 8.4 | 1.3 | .94 | 12 | 660 | 1.6 | 9.0 | 7.6 |
| 10 | 3.4 | 1.8 | 73 | 1.2 | 13 | 1.5 | .78 | 7.6 | 579 | 1.6 | 9.0 | 7.3 |
| 11 | 3.2 | 2.4 | 40 | 1.3 | 9.4 | 1.2 | .17 | 2.2 | 402 | 1.7 | 10 | 7.6 |
| 12 | 3.7 | 3.0 | 19 | 1.3 | 7.0 | .71 | .02 | 1.3 | 221 | 1.3 | 11 | 7.3 |
| 13 | 14 | 3.1 | 5.5 | 1.2 | 7.6 | .71 | .36 | .85 | 135 | .93 | 4.9 | 7.3 |
| 14 | 14 | 2.8 | 4.9 | 1.1 | 7.9 | .82 | 37 | .64 | 98 | 5.8 | 3.0 | 20 |
| 15 | 9.9 | 2.6 | 3.3 | 1.0 | 8.2 | 219 | 20 | .52 | 77 | 2.5 | 2.6 | 16 |
| 16 | 4.0 | 3.0 | 2.6 | 1.1 | 7.0 | 75 | 6.0 | 3.0 | 66 | .78 | 37 | 11 |
| 17 | 2.3 | 12 | 2.6 | .85 | 5.2 | 17 | .93 | 4.2 | 47 | .71 | 33 | 8.2 |
| 18 | 1.7 | 38 | 2.5 | .93 | 5.8 | 3.9 | 6.9 | 2.2 | 43 | .64 | 12 | 7.3 |
| 19 | 1.3 | 44 | 2.5 | 1.3 | 4.7 | 1.5 | 369 | 1.7 | 42 | .78 | 4.4 | 7.0 |
| 20 | 1.1 | 34 | 1.7 | 1.3 | 3.2 | .64 | 128 | 1.3 | 37 | 1.5 | 3.3 | 7.0 |
| 21 | .98 | 30 | .25 | 1.3 | 1.8 | .22 | 33 | .64 | 33 | 8.8 | 3.1 | 7.0 |
| 22 | .79 | 28 | 1.2 | 1.4 | 1.2 | .25 | 112 | .36 | 26 | 4.9 | 3.1 | 6.7 |
| 23 | .77 | 27 | 2.5 | 1.4 | .55 | .22 | 38 | 20 | 19 | 1.7 | 3.0 | 6.1 |
| 24 | 1.0 | 26 | 2.5 | 1.3 | .15 | .05 | 11 | 104 | 11 | 1.3 | 3.0 | 5.2 |
| 25 | .96 | 20 | 2.6 | 1.3 | .62 | .08 | 2.1 | 127 | 8.6 | 1.6 | 3.0 | 5.8 |
| 26 | .55 | 6.0 | 2.6 | 1.3 | 1.1 | .22 | .78 | 43 | 6.4 | 1.8 | 3.0 | 5.5 |
| 27 | 5.1 | .85 | 2.4 | 1.7 | 55 | .36 | .46 | 18 | 3.8 | 1.5 | 3.9 | 8.8 |
| 28 | .67 | .58 | 2.2 | 1.3 | 517 | 2.2 | 5.5 | 32 | 3.7 | 1.8 | 30 | 8.2 |
| 29 | 2.1 | .58 | 2.1 | 1.2 | --- | 2.5 | 45 | 1160 | 2.5 | 50 | 11 | 7.6 |
| 30 | 1.6 | .58 | 1.7 | 1.1 | --- | 2.1 | 13 | 790 | 2.3 | 42 | 3.7 | 5.8 |
| 31 | .53 | --- | 1.5 | 1.0 | --- | 2.0 | --- | 267 | --- | 15 | 3.0 | --- |
| TOTAL | 112.35 | 202.16 | 864.18 | 41.18 | 681.32 | 867.58 | 839.17 | 2620.18 | 12447.3 | 209.44 | 287.3 | 251.1 |
| MEAN | 3.62 | 9.74 | 27.9 | 1.33 | 24.3 | 28.0 | 28.0 | 84.5 | 415 | 6.76 | 9.27 | 8.37 |
| MAX | 14 | 44 | 292 | 2.0 | 517 | 219 | 369 | 1160 | 2410 | 50 | 37 | 29 |
| MIN | .53 | .46 | .25 | .85 | .15 | .05 | .02 | .16 | 2.3 | .64 | 2.6 | 2.8 |
| CFSM | .006 | .02 | .04 | .002 | .04 | .04 | .04 | .13 | .64 | .01 | .01 | .01 |
| IN. | .01 | .02 | .05 | .00 | .04 | .05 | .05 | .15 | .71 | .01 | .02 | .01 |
| AC-FT | 223 | 579 | 1710 | 82 | 1350 | 1720 | 1660 | 5200 | 24690 | 415 | 570 | 498 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 10519.00 | MEAN 28.7 | MAX 2050 | MIN .01 | CFSM .04 | IN .60 | AC-FT 20860 |
| WTR YR 1981 | TOTAL | 19513.26 | MEAN 53.5 | MAX 2410 | MIN .02 | CFSM .08 | IN 1.11 | AC-FT 38700 |

## 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 on downstream side of bridge on Beverly Drive in Wichita Falls, 4 mi (6 km) upstream from Fort Worth and Denver Railway Co. bridge, 8.4 mi (13.5 km) upstream from Holliday Creek, and 55.3 mi (89.0 km) upstream from mouth.

DRAINAGE AREA.--3,140 $mi^2$ (8,130 $km^2$), of which 2,086 $mi^2$ (5,403 $km^2$) is above Lake Kemp Dam.

PERIOD OF RECORD.--February 1900 to January 1902 (monthly discharge only, published in WSP 1311), October 1910 to December 1911 (gage heights only), March 1938 to current year.
Water-quality records: Sediment records: January 1966 to September 1975.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 924.26 ft (281.714 m) 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 (6 km) downstream at different datum. Mar. 30, 1938, to Dec. 1, 1959, nonrecording gage at present site and datum.

REMARKS.--Records good. Flow from 2,086 $mi^2$ (5,403 $km^2$) is regulated by Lake Kemp, capacity 603,000 acre-ft (743 $hm^3$), 71 mi (114 km) upstream. Since completion of dam in 1923, no flow has been permitted to pass over spillway. Water is diverted from Lake Diversion, capacity 40,000 acre-ft (49.3 $hm^3$), 41 mi (82 km) upstream, for the irrigation of 42,000 acres (170 $km^2$) under permit in the vicinity of Wichita Falls. During the water year, Wichita County Water Improvement District No. 2 diverted 40,540 acre-ft (50.0 $hm^3$) from Lake Diversion for mining, industrial use, recreation, and irrigation of 26,635 acres (108 $km^2$). Several observations of water temperatures were made during the year.

AVERAGE DISCHARGE.--44 years (water years 1901, 1939-81), 267 $ft^3/s$ (7.561 $m^3/s$), 193,400 acre-ft/yr (238 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,800 $ft^3/s$ (504 $m^3/s$) Oct. 3, 1941, gage height, 24.0 ft (7.32 m); no flow Oct. 11, 1960 (construction of cofferdam upstream).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 50,000 $ft^3/s$ (1,420 $m^3/s$) June 8, 1915, computed by Vernon L. Sullivan, engineer for Big Wichita River Irrigation Co.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,540 $ft^3/s$ (71.9 $m^3/s$) Mar. 1 at 0730 hours, gage height, 11.27 ft (3.435 m); minimum, 16 $ft^3/s$ (0.45 $m^3/s$) Feb. 26, 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 387 | 70 | 62 | 31 | 50 | 2370 | 48 | 106 | 234 | 76 | 99 | 72 |
| 2 | 233 | 66 | 62 | 29 | 44 | 1060 | 46 | 72 | 1500 | 82 | 98 | 70 |
| 3 | 175 | 66 | 60 | 31 | 46 | 578 | 53 | 59 | 1850 | 84 | 102 | 72 |
| 4 | 149 | 64 | 61 | 29 | 58 | 1080 | 48 | 48 | 2050 | 89 | 100 | 70 |
| 5 | 131 | 62 | 60 | 28 | 53 | 657 | 44 | 42 | 2130 | 84 | 80 | 73 |
| 6 | 123 | 62 | 57 | 28 | 49 | 410 | 51 | 39 | 2090 | 86 | 73 | 76 |
| 7 | 112 | 63 | 61 | 28 | 28 | 258 | 43 | 37 | 1310 | 83 | 93 | 80 |
| 8 | 103 | 64 | 963 | 28 | 24 | 187 | 40 | 35 | 887 | 85 | 103 | 67 |
| 9 | 98 | 66 | 833 | 27 | 25 | 154 | 37 | 34 | 818 | 90 | 108 | 63 |
| 10 | 93 | 68 | 219 | 27 | 27 | 165 | 35 | 36 | 753 | 82 | 94 | 62 |
| 11 | 90 | 67 | 94 | 27 | 28 | 155 | 35 | 40 | 627 | 71 | 105 | 58 |
| 12 | 87 | 68 | 66 | 27 | 32 | 131 | 33 | 37 | 417 | 72 | 143 | 62 |
| 13 | 82 | 83 | 55 | 27 | 31 | 113 | 32 | 34 | 253 | 76 | 138 | 60 |
| 14 | 84 | 71 | 50 | 27 | 29 | 104 | 79 | 31 | 190 | 74 | 127 | 73 |
| 15 | 84 | 70 | 46 | 27 | 27 | 177 | 99 | 32 | 169 | 72 | 97 | 72 |
| 16 | 79 | 80 | 41 | 28 | 27 | 333 | 71 | 38 | 163 | 74 | 149 | 76 |
| 17 | 75 | 126 | 38 | 29 | 26 | 175 | 53 | 42 | 141 | 69 | 163 | 73 |
| 18 | 70 | 196 | 37 | 28 | 26 | 105 | 76 | 39 | 121 | 67 | 132 | 64 |
| 19 | 68 | 143 | 36 | 27 | 25 | 95 | 134 | 42 | 109 | 65 | 108 | 69 |
| 20 | 66 | 106 | 34 | 27 | 24 | 87 | 299 | 40 | 104 | 72 | 92 | 64 |
| 21 | 64 | 93 | 36 | 26 | 23 | 69 | 160 | 39 | 95 | 80 | 83 | 61 |
| 22 | 63 | 82 | 35 | 26 | 21 | 62 | 165 | 38 | 89 | 76 | 81 | 63 |
| 23 | 63 | 77 | 34 | 26 | 21 | 71 | 156 | 41 | 85 | 85 | 80 | 57 |
| 24 | 63 | 72 | 45 | 26 | 22 | 71 | 95 | 52 | 88 | 86 | 78 | 57 |
| 25 | 60 | 68 | 39 | 32 | 18 | 59 | 66 | 107 | 81 | 87 | 71 | 54 |
| 26 | 60 | 67 | 35 | 29 | 16 | 57 | 52 | 131 | 76 | 96 | 67 | 50 |
| 27 | 301 | 66 | 34 | 45 | 26 | 53 | 46 | 770 | 74 | 102 | 72 | 50 |
| 28 | 156 | 65 | 32 | 100 | 1530 | 50 | 46 | 291 | 75 | 105 | 76 | 52 |
| 29 | 102 | 65 | 32 | 58 | --- | 50 | 52 | 131 | 80 | 108 | 78 | 59 |
| 30 | 88 | 63 | 29 | 51 | --- | 50 | 108 | 855 | 78 | 132 | 85 | 60 |
| 31 | 74 | --- | 31 | 50 | --- | 50 | --- | 721 | --- | 111 | 77 | --- |
| TOTAL | 3483 | 2379 | 3317 | 1029 | 2356 | 9036 | 2302 | 4059 | 16737 | 2621 | 3052 | 1939 |
| MEAN | 112 | 79.3 | 107 | 33.2 | 84.1 | 291 | 76.7 | 131 | 558 | 84.5 | 98.5 | 64.6 |
| MAX | 387 | 196 | 963 | 100 | 1530 | 2370 | 299 | 855 | 2130 | 132 | 163 | 80 |
| MIN | 60 | 62 | 29 | 26 | 16 | 50 | 32 | 31 | 74 | 65 | 67 | 50 |
| AC-FT | 6910 | 4720 | 6580 | 2040 | 4670 | 17920 | 4570 | 8050 | 33200 | 5200 | 6050 | 3850 |

CAL YR 1980 TOTAL 45260 MEAN 124 MAX 4170 MIN 22 AC-FT 89770
WTR YR 1981 TOTAL 52310 MEAN 143 MAX 2370 MIN 16 AC-FT 103800

## 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 (4.8 km) southeast of Charlie, and 5.7 mi (9.2 km) northwest of Petrolia.

DRAINAGE AREA.--3,439 $mi^2$ (8,907 $km^2$), of which 2,086 $mi^2$ (5,403 $km^2$) is above Lake Kemp Dam and 143 $mi^2$ (370 $km^2$) 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 (266.002 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. For statement regarding regulations and diversions, see station 07312500. Records furnished by the city of Wichita Falls show that 14,830 acre-ft (18.3 $hm^3$) was returned to river above station as sewage effluent and filter plant washwater.

AVERAGE DISCHARGE.--14 years, 265 $ft^3/s$ (7.505 $m^3/s$), 192,000 acre-ft/yr (237 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,090 $ft^3/s$ (172 $m^3/s$) Nov. 4, 1972, gage height, 21.21 ft (6.465 m); minimum, 24 $ft^3/s$ (0.68 $m^3/s$) Feb. 18, 1978, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,600 $ft^3/s$ (102 $m^3/s$) Oct. 1, stage falling, peak occured Sept. 29, 1980; maximum peak discharge, 2,640 $ft^3/s$ (74.8 $m^3/s$) June 3, gage height, 12.36 ft (3.767 m); minimum discharge, 46 $ft^3/s$ (1.30 $m^3/s$) Feb. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2690 | 146 | 74 | 76 | 135 | 2540 | 79 | 416 | 791 | 157 | 204 | 140 |
| 2 | 661 | 139 | 74 | 74 | 142 | 2220 | 78 | 299 | 1470 | 155 | 170 | 142 |
| 3 | 614 | 132 | 74 | 72 | 153 | 1450 | 84 | 133 | 2600 | 178 | 160 | 130 |
| 4 | 374 | 126 | 74 | 72 | 134 | 1780 | 145 | 100 | 2240 | 181 | 169 | 136 |
| 5 | 304 | 120 | 73 | 67 | 134 | 1670 | 100 | 81 | 1770 | 170 | 163 | 144 |
| 6 | 248 | 119 | 76 | 65 | 142 | 1170 | 74 | 67 | 1980 | 161 | 111 | 166 |
| 7 | 215 | 118 | 79 | 65 | 141 | 799 | 81 | 61 | 1910 | 154 | 125 | 169 |
| 8 | 202 | 115 | 893 | 63 | 106 | 636 | 76 | 57 | 1390 | 139 | 184 | 156 |
| 9 | 178 | 112 | 1580 | 63 | 81 | 475 | 74 | 55 | 1100 | 132 | 139 | 148 |
| 10 | 163 | 110 | 974 | 65 | 77 | 394 | 73 | 50 | 1020 | 136 | 148 | 133 |
| 11 | 150 | 116 | 410 | 63 | 104 | 388 | 70 | 53 | 933 | 124 | 156 | 119 |
| 12 | 142 | 114 | 324 | 65 | 74 | 350 | 70 | 76 | 759 | 109 | 198 | 114 |
| 13 | 130 | 121 | 263 | 63 | 68 | 296 | 68 | 63 | 545 | 109 | 219 | 111 |
| 14 | 122 | 130 | 222 | 61 | 67 | 252 | 107 | 83 | 380 | 117 | 208 | 170 |
| 15 | 114 | 138 | 192 | 59 | 67 | 324 | 204 | 70 | 304 | 114 | 195 | 203 |
| 16 | 114 | 257 | 175 | 59 | 64 | 393 | 236 | 86 | 330 | 103 | 195 | 139 |
| 17 | 116 | 378 | 156 | 59 | 61 | 455 | 213 | 114 | 284 | 112 | 336 | 136 |
| 18 | 111 | 329 | 142 | 59 | 61 | 283 | 154 | 103 | 253 | 104 | 260 | 133 |
| 19 | 106 | 210 | 127 | 59 | 60 | 189 | 285 | 111 | 220 | 88 | 208 | 133 |
| 20 | 98 | 131 | 114 | 59 | 60 | 165 | 397 | 102 | 192 | 84 | 172 | 142 |
| 21 | 92 | 112 | 106 | 59 | 61 | 153 | 400 | 86 | 186 | 97 | 142 | 142 |
| 22 | 89 | 105 | 103 | 59 | 60 | 122 | 364 | 87 | 168 | 117 | 136 | 136 |
| 23 | 87 | 99 | 98 | 59 | 57 | 111 | 332 | 82 | 156 | 105 | 130 | 136 |
| 24 | 88 | 89 | 93 | 59 | 56 | 108 | 260 | 95 | 145 | 114 | 127 | 116 |
| 25 | 88 | 88 | 95 | 57 | 56 | 117 | 156 | 191 | 152 | 119 | 124 | 113 |
| 26 | 84 | 83 | 93 | 57 | 54 | 109 | 111 | 236 | 154 | 121 | 114 | 106 |
| 27 | 375 | 78 | 88 | 63 | 51 | 98 | 86 | 447 | 145 | 132 | 98 | 103 |
| 28 | 418 | 76 | 81 | 63 | 957 | 89 | 74 | 1430 | 145 | 161 | 100 | 103 |
| 29 | 221 | 74 | 78 | 159 | --- | 82 | 122 | 449 | 142 | 171 | 106 | 98 |
| 30 | 177 | 74 | 76 | 167 | --- | 79 | 124 | 338 | 143 | 178 | 111 | 108 |
| 31 | 162 | --- | 76 | 128 | --- | 80 | --- | 1140 | --- | 213 | 130 | --- |
| TOTAL | 8733 | 4039 | 7083 | 2218 | 3283 | 17377 | 4697 | 6761 | 22007 | 4155 | 5038 | 4025 |
| MEAN | 282 | 135 | 228 | 71.5 | 117 | 561 | 157 | 218 | 734 | 134 | 163 | 134 |
| MAX | 2690 | 378 | 1580 | 167 | 957 | 2540 | 400 | 1430 | 2600 | 213 | 336 | 203 |
| MIN | 84 | 74 | 73 | 57 | 51 | 79 | 68 | 50 | 142 | 84 | 98 | 98 |
| AC-FT | 17320 | 8010 | 14050 | 4400 | 6510 | 34470 | 9320 | 13410 | 43650 | 8240 | 9990 | 7980 |

CAL YR 1980 TOTAL 70485 MEAN 193 MAX 4480 MIN 34 AC-FT 139800
WRT YR 1981 TOTAL 89416 MEAN 245 MAX 2690 MIN 50 AC-FT 177400

07312700 WICHITA RIVER NEAR CHARLIE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1967 to September 1981 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1967 to September 1981 (discontinued).
WATER TEMPERATURES: October 1967 September 1981 (discontinued).

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, 10,000 micromhos Apr. 25, 1972; minimum daily, 384 micromhos Aug. 16, 1971.
WATER TEMPERATURES: Maximum daily, 34.5°C July 25, 1981; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 6,340 micromhos Jan. 30; minimum daily, 442 micromhos June 3.
WATER TEMPERATURES: Maximum daily, 34.5°C July 25; minimum daily, 0.5°C Feb. 11.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH FIELD (UNITS) | TEMPER-ATURE, WATER (DEG C) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | |
| 04... | 0930 | 126 | 4699 | 7.7 | 14.0 | 7.9 | 79 | 2.6 | 900 | 690 |
| FEB | | | | | | | | | | |
| 10... | 1415 | 75 | 5600 | 8.2 | 6.0 | 9.8 | 83 | 1.2 | 980 | 820 |
| MAR | | | | | | | | | | |
| 03... | 1500 | 1370 | 952 | 7.8 | 13.0 | 7.6 | 75 | 4.0 | 180 | 78 |
| MAY | | | | | | | | | | |
| 05... | 1500 | 76 | 2700 | 8.0 | 24.0 | 7.7 | 95 | 2.6 | 540 | 370 |
| JUN | | | | | | | | | | |
| 02... | 1250 | 1320 | 954 | 7.8 | 23.0 | 5.3 | 62 | 6.4 | 170 | 99 |
| SEP | | | | | | | | | | |
| 15... | 1145 | 185 | 3720 | 7.8 | 25.5 | 5.3 | 67 | 4.0 | 630 | 550 |

| 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 (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | FLUO-RIDE, DIS-SOLVED (MG/L AS F) |
|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | |
| 04... | 220 | 86 | 650 | 9.4 | 11 | 210 | 390 | 1200 | .6 |
| FEB | | | | | | | | | |
| 10... | 250 | 87 | 840 | 12 | 8.5 | 160 | 640 | 1400 | .5 |
| MAR | | | | | | | | | |
| 03... | 47 | 14 | 120 | 3.9 | 5.0 | 97 | 69 | 210 | .2 |
| MAY | | | | | | | | | |
| 05... | 130 | 52 | 360 | 6.8 | 7.4 | 170 | 210 | 660 | .4 |
| JUN | | | | | | | | | |
| 02... | 45 | 14 | 120 | 4.0 | 6.3 | 71 | 71 | 200 | .2 |
| SEP | | | | | | | | | |
| 15... | 160 | 57 | 520 | 9.0 | 7.6 | 89 | 400 | 940 | .4 |

| DATE | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | |
| 04... | 8.0 | 2690 | 1.5 | .340 | 1.8 | .760 | .94 | 1.7 | 1.200 |
| FEB | | | | | | | | | |
| 10... | 3.5 | 3330 | .87 | .100 | .97 | .580 | 1.2 | 1.8 | .950 |
| MAR | | | | | | | | | |
| 03... | 5.5 | 529 | .33 | .030 | .36 | .080 | 2.8 | 2.9 | .590 |
| MAY | | | | | | | | | |
| 05... | 8.8 | 1530 | 1.5 | .040 | 1.5 | .120 | 1.4 | 1.5 | 1.500 |
| JUN | | | | | | | | | |
| 02... | 7.1 | 506 | .74 | .020 | .76 | .020 | 2.3 | 2.3 | 1.400 |
| SEP | | | | | | | | | |
| 15... | 5.5 | 2140 | .57 | .110 | .68 | .460 | .94 | 1.4 | .670 |

07312700 WICHITA RIVER NEAR CHARLIE, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 8733 | 2910 | 1670 | 39300 | 750 | 17600 | 250 | 5800 | 570 |
| NOV. | 1980 | 4039 | 4440 | 2600 | 28400 | 1100 | 12500 | 430 | 4730 | 850 |
| DEC. | 1980 | 7083 | 2550 | 1450 | 27700 | 650 | 12400 | 210 | 3930 | 500 |
| JAN. | 1981 | 2218 | 5340 | 3180 | 19000 | 1400 | 8320 | 560 | 3370 | 1000 |
| FEB. | 1981 | 3283 | 3490 | 2020 | 17900 | 900 | 7960 | 320 | 2820 | 670 |
| MAR. | 1981 | 17377 | 2070 | 1160 | 54400 | 520 | 24600 | 150 | 7000 | 410 |
| APR. | 1981 | 4697 | 3610 | 2090 | 26500 | 930 | 11800 | 320 | 4110 | 700 |
| MAY | 1981 | 6761 | 2470 | 1410 | 25700 | 630 | 11500 | 200 | 3710 | 480 |
| JUNE | 1981 | 22007 | 1180 | 646 | 38400 | 300 | 17600 | 74 | 4400 | 240 |
| JULY | 1981 | 4155 | 4880 | 2870 | 32200 | 1300 | 14200 | 490 | 5470 | 930 |
| AUG. | 1981 | 5038 | 4840 | 2850 | 38800 | 1300 | 17100 | 490 | 6600 | 920 |
| SEPT | 1981 | 4025 | 5090 | 3010 | 32800 | 1300 | 14400 | 520 | 5700 | 960 |
| TOTAL | | 89416 | ** | ** | 381000 | ** | 170000 | ** | 57600 | ** |
| WTD. AVG. | | 245 | 2740 | 1580 | ** | 700 | ** | 240 | ** | 530 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1470 | 3460 | 5220 | 5240 | 4040 | 882 | 4770 | 3190 | 905 | 4470 | 5100 | 5300 |
| 2 | 2050 | 4140 | 5400 | 5180 | 3470 | 966 | 4820 | 1580 | 826 | 4440 | 4850 | 5310 |
| 3 | 2520 | 4680 | 5450 | 4900 | 3460 | 986 | 4990 | 2070 | 422 | 4430 | 5140 | 4690 |
| 4 | 2790 | 4620 | 5490 | 5170 | 4120 | 1920 | 4860 | 2240 | 732 | 4410 | 5400 | 5260 |
| 5 | 3590 | 4580 | 5320 | 5340 | 3270 | 2290 | 4720 | 2520 | 603 | 4100 | 5240 | 5560 |
| 6 | 3720 | 4960 | 5530 | 5280 | 3430 | 2020 | 3500 | 3280 | 612 | 4610 | 5400 | 5490 |
| 7 | 4080 | 5250 | 5580 | 5230 | 3500 | 2800 | 4330 | 3900 | 687 | 5070 | 3730 | 4840 |
| 8 | 4090 | 5520 | 2060 | 5200 | 2820 | 2820 | 4780 | 4230 | 1660 | 4790 | 4870 | 5420 |
| 9 | 4470 | 5700 | 1270 | 5110 | 3010 | 2840 | 4980 | 4520 | 1810 | 4480 | 4490 | 5560 |
| 10 | 4570 | 5890 | 1690 | 5090 | 4850 | 2940 | 5270 | 4390 | 1360 | 4590 | 4750 | 5470 |
| 11 | 4690 | 5590 | 1700 | 5360 | 5150 | 3220 | 5240 | 4630 | 1170 | 4870 | 5040 | 5440 |
| 12 | 4860 | 5560 | 2470 | 4990 | 4880 | 3570 | 5250 | 5040 | 1170 | 4860 | 4980 | 5190 |
| 13 | 4890 | 5550 | 2140 | 5380 | 3700 | 3290 | 4950 | 4490 | 1180 | 4700 | 4780 | 5320 |
| 14 | 4920 | 5700 | 2180 | 5140 | 4640 | 3350 | 4860 | 4510 | 1380 | 4770 | 5130 | 4500 |
| 15 | 5000 | 5760 | 2360 | 5150 | 5550 | 3290 | 4770 | 4650 | 1540 | 4990 | 5160 | 3390 |
| 16 | 5120 | 5200 | 2670 | 5150 | 5530 | 2640 | 4940 | 5360 | 1660 | 5040 | 5010 | 3300 |
| 17 | 5420 | 4930 | 2920 | 5120 | 5430 | 2550 | 4530 | 4810 | 1700 | 4990 | 3060 | 5240 |
| 18 | 5290 | 2090 | 3090 | 5160 | 5400 | 2880 | 5410 | 4220 | 1940 | 5000 | 4210 | 5370 |
| 19 | 5490 | 2870 | 3300 | 5200 | 5280 | 3020 | 4070 | 4600 | 2730 | 4970 | 4980 | 5300 |
| 20 | 5160 | 3250 | 3700 | 5270 | 5120 | 3100 | 3620 | 5190 | 2900 | 5000 | 4460 | 5210 |
| 21 | 5130 | 3390 | 3840 | 5270 | 5170 | 3160 | 2310 | 5140 | 3040 | 5310 | 4700 | 5260 |
| 22 | 5100 | 3220 | 4170 | 5200 | 5660 | 3820 | 2390 | 5450 | 3200 | 5330 | 5020 | 5490 |
| 23 | 5110 | 3500 | 4240 | 5080 | 5440 | 3910 | 1220 | 5380 | 3400 | 5370 | 5080 | 5280 |
| 24 | 5320 | 3770 | 4430 | 5140 | 5370 | 3670 | 2320 | 5100 | 3600 | 5350 | 5290 | 5310 |
| 25 | 5450 | 3910 | 4580 | 5660 | 5270 | 3940 | 2530 | 3500 | 3530 | 5200 | 5310 | 5330 |
| 26 | 5540 | 4360 | 4520 | 5080 | 5240 | 4380 | 2580 | 2680 | 3780 | 5330 | 5210 | 5150 |
| 27 | 3250 | 4470 | 5260 | 5020 | 5220 | 4580 | 2620 | 4000 | 3900 | 5160 | 5400 | 5190 |
| 28 | 1990 | 4780 | 5230 | 5540 | 1500 | 4040 | 2910 | 947 | 4050 | 5140 | 5310 | 5250 |
| 29 | 1910 | 4850 | 4610 | 5440 | --- | 4110 | 3280 | 1060 | 4140 | 5120 | 5190 | 5160 |
| 30 | 2560 | 5130 | 4950 | 6340 | --- | 4150 | 3450 | 1930 | 4290 | 5050 | 5610 | 5280 |
| 31 | 3070 | --- | 5040 | 5830 | --- | 4490 | --- | 1330 | --- | 5150 | 5270 | --- |
| MEAN | 4150 | 4560 | 3880 | 5270 | 4480 | 3080 | 4010 | 3740 | 2130 | 4910 | 4940 | 5130 |

07312700 WICHITA RIVER NEAR CHARLIE, TX--CONTINUED

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 19.0 | 12.0 | 11.0 | 8.0 | 5.0 | 14.0 | 17.5 | 24.5 | 24.5 | 29.0 | 30.0 | 28.5 |
| 2 | 21.0 | 14.0 | 8.0 | 7.0 | 4.0 | 13.0 | 18.0 | 23.0 | 23.0 | 31.0 | 30.0 | 26.5 |
| 3 | 21.0 | 14.0 | 7.0 | 7.0 | 4.0 | 13.0 | 20.0 | 22.5 | 22.0 | 28.5 | 28.5 | 28.0 |
| 4 | 19.0 | 14.0 | 9.0 | 6.0 | 5.0 | 12.0 | 20.0 | 22.0 | 23.0 | 28.0 | 28.0 | 28.0 |
| 5 | 21.0 | 16.0 | 11.0 | 5.0 | 5.0 | 13.0 | 18.0 | 23.0 | 24.0 | 28.0 | 28.5 | 28.0 |
| 6 | 19.0 | 15.0 | 15.0 | 6.0 | 6.0 | 12.0 | 15.5 | 21.5 | 23.5 | 29.0 | 30.0 | 27.0 |
| 7 | 21.0 | 16.0 | 16.0 | 6.0 | 6.0 | 12.0 | 19.5 | 22.0 | 25.0 | 28.5 | 29.0 | 29.0 |
| 8 | 23.0 | 15.0 | 11.0 | 7.0 | 7.0 | --- | 19.0 | 21.5 | 26.0 | 27.5 | 27.0 | 25.5 |
| 9 | 20.0 | 17.0 | 10.0 | 7.0 | 6.0 | 10.0 | 23.0 | 21.0 | 28.0 | 31.0 | 30.0 | 23.0 |
| 10 | 22.0 | 17.0 | 8.0 | 7.0 | 6.0 | 10.0 | 23.0 | 19.5 | 28.5 | 32.0 | 27.0 | 23.5 |
| 11 | 20.0 | 18.0 | 7.0 | 7.0 | .5 | 12.0 | 24.0 | 18.0 | 29.0 | 30.5 | 27.5 | 25.5 |
| 12 | 19.0 | 16.0 | 7.0 | 4.0 | 1.0 | 12.0 | 24.0 | 18.5 | --- | 31.0 | 26.0 | 26.5 |
| 13 | 18.0 | 16.0 | 8.0 | 7.0 | 3.0 | 13.0 | 24.0 | 23.0 | 27.0 | 32.0 | 26.5 | 28.0 |
| 14 | 19.0 | 13.0 | 10.0 | 6.0 | 5.0 | 16.0 | 18.0 | 24.0 | 26.0 | 30.0 | 28.5 | 25.0 |
| 15 | 21.0 | 11.0 | 9.0 | 5.0 | 9.0 | 17.0 | 18.0 | --- | 26.0 | 31.5 | 29.0 | 26.5 |
| 16 | 22.0 | 8.0 | 10.0 | 5.0 | 10.0 | 15.0 | 18.5 | 18.0 | 22.5 | 28.5 | 28.0 | 23.5 |
| 17 | 21.0 | 5.0 | 12.0 | 4.0 | 10.0 | 15.0 | 19.5 | 25.0 | 22.0 | 29.0 | 28.0 | 22.0 |
| 18 | 19.0 | 6.0 | 12.0 | 5.0 | 12.0 | 12.0 | 21.0 | 22.5 | 25.0 | 29.5 | 26.0 | 18.0 |
| 19 | 17.0 | 7.0 | 8.0 | --- | 12.0 | 12.0 | 23.5 | 20.5 | 26.0 | 29.5 | 25.0 | --- |
| 20 | 18.0 | 8.0 | 4.0 | 5.0 | 14.0 | 12.0 | 21.5 | 19.5 | 27.5 | 30.0 | 26.0 | 23.0 |
| 21 | 16.0 | 7.0 | 3.0 | 6.0 | 14.0 | 15.0 | 20.0 | 21.0 | 30.5 | 30.0 | 27.5 | 21.0 |
| 22 | 17.0 | 8.0 | 3.0 | 5.0 | 13.0 | 12.0 | 20.0 | 22.5 | --- | 32.5 | 28.5 | 26.0 |
| 23 | 19.0 | --- | 5.0 | 5.0 | 12.0 | 11.0 | 20.0 | 23.0 | 28.5 | 29.5 | 28.0 | 24.5 |
| 24 | 15.0 | 8.0 | 5.0 | 8.0 | 12.0 | 12.0 | 22.5 | 27.0 | 29.0 | 30.0 | 26.0 | 24.5 |
| 25 | 13.0 | 7.0 | 2.0 | 9.0 | 13.0 | 14.0 | 23.5 | 24.5 | 32.0 | 34.5 | 26.5 | 27.0 |
| 26 | 14.0 | 6.0 | 4.0 | 8.0 | 16.0 | 13.0 | --- | 25.0 | 29.5 | 29.5 | 30.0 | 24.0 |
| 27 | 15.0 | 5.0 | 5.0 | 7.0 | 17.0 | 15.0 | 23.0 | 25.5 | 31.0 | 29.0 | 30.0 | 26.0 |
| 28 | 13.0 | 5.0 | 6.0 | 9.0 | 15.0 | 15.0 | 24.0 | 23.5 | 30.5 | 28.0 | 29.5 | 26.0 |
| 29 | 11.0 | 6.0 | 9.0 | 10.0 | --- | 16.0 | 23.5 | 25.0 | 32.5 | 27.5 | 27.0 | 25.5 |
| 30 | 10.0 | 8.0 | 8.0 | 8.0 | --- | 16.0 | 24.5 | 24.5 | 29.0 | 30.0 | 29.0 | 24.0 |
| 31 | 11.0 | --- | 8.0 | 6.0 | --- | 17.0 | --- | 24.0 | --- | 29.5 | 29.5 | --- |
| MEAN | 18.0 | 11.0 | 8.0 | 6.5 | 8.5 | 13.5 | 21.0 | 22.5 | 27.0 | 30.0 | 28.0 | 25.5 |

## 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 (13.2 km) south of Mankins, and 9.2 mi (14.8 km) northwest of Archer City.

DRAINAGE AREA.--275 mi² (712 km²).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1946 to current year. Prior to October 1965, monthend contents only.

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 (2,500 m) long, including a 483-foot-wide (147 m) reinforced concrete ogee-type uncontrolled spillway near right end of dam. The dam was completed Dec. 15, 1945, and storage began Feb. 1, 1946. The service outlet consists of two gate-controlled 4- by 5-foot (1.2 by 1.5 m) 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 furnished by the city of Wichita Falls.

EXTREMES (at 0800) FOR PERIOD OF RECORD.--Maximum contents, 134,300 acre-ft (166 hm³) Aug. 2, 1950, elevation, 1,049.2 ft (319.80 m); minimum observed since first filling in July 1950, 35,660 acre-ft (44.0 hm³) June 30, 1953, elevation, 1,029.8 ft (313.88 m).

EXTREMES (at 0800) FOR CURRENT YEAR.--Maximum contents, 83,710 acre-ft (103 hm³) June 8-22, elevation, 1,041.3 ft (317.39 m); minimum, 68,420 acre-ft (84.4 hm³) Dec. 1-8, elevation, 1,038.4 ft (316.50 m).

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

| | | | |
|---|---|---|---|
| 1,038.0 | 66,500 | 1,041.0 | 82,000 |
| 1,039.0 | 71,300 | 1,042.0 | 87.700 |
| 1,040.0 | 76,500 | | |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 0800

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 71300 | 69380 | 68420 | 70820 | 69860 | 74420 | 77600 | 77600 | 75460 | 82000 | 77600 | 71300 |
| 2 | 71300 | 69380 | 68420 | 70820 | 69860 | 74940 | 77600 | 77600 | 75460 | 82000 | 77050 | 71820 |
| 3 | 71300 | 69380 | 68420 | 70820 | 69860 | 74940 | 77600 | 77600 | 75460 | 82000 | 77050 | 71820 |
| 4 | 71300 | 69380 | 68420 | 70340 | 69860 | 75460 | 77600 | 77600 | 78150 | 82000 | 76500 | 72340 |
| 5 | 71300 | 69380 | 68420 | 70340 | 69860 | 75460 | 77600 | 77600 | 79250 | 82000 | 76500 | 72340 |
| 6 | 71300 | 69380 | 68420 | 70340 | 69860 | 75980 | 76500 | 77600 | 80350 | 81450 | 75980 | 73380 |
| 7 | 71300 | 69380 | 68420 | 70340 | 69860 | 75980 | 76500 | 77600 | 81450 | 81450 | 75980 | 73900 |
| 8 | 71300 | 69380 | 68420 | 70340 | 69860 | 77600 | 76500 | 77600 | 83710 | 81450 | 75980 | 73900 |
| 9 | 71300 | 69380 | 71300 | 70340 | 69380 | 77600 | 76500 | 77600 | 83710 | 81450 | 75980 | 73900 |
| 10 | 71300 | 69380 | 71300 | 70340 | 69380 | 77600 | 76500 | 77600 | 83710 | 81450 | 75980 | 74420 |
| 11 | 71300 | 69380 | 71300 | 70340 | 69380 | 77600 | 76500 | 77600 | 83710 | 81450 | 75980 | 74420 |
| 12 | 71300 | 69380 | 71300 | 69860 | 69380 | 77600 | 76500 | 77600 | 83710 | 81450 | 75980 | 74420 |
| 13 | 71300 | 69380 | 71300 | 69860 | 69380 | 77600 | 76500 | 77600 | 83710 | 80900 | 75980 | 74420 |
| 14 | 71300 | 69380 | 71300 | 69860 | 69380 | 77600 | 76500 | 77600 | 83710 | 80900 | 75980 | 74420 |
| 15 | 70340 | 69380 | 71300 | 69860 | 69380 | 77600 | 76500 | 77600 | 83710 | 80900 | 75980 | 74420 |
| 16 | 70340 | 69380 | 71300 | 69860 | 69380 | 77600 | 76500 | 77600 | 83710 | 80900 | 75980 | 74420 |
| 17 | 70340 | 68900 | 71300 | 69860 | 69380 | 77600 | 76500 | 77600 | 83710 | 80900 | 75980 | 74420 |
| 18 | 70340 | 68900 | 71300 | 69860 | 69380 | 77600 | 76500 | 77050 | 83710 | 80900 | 74940 | 74420 |
| 19 | 70340 | 68900 | 71300 | 69860 | 69380 | 77600 | 76500 | 77050 | 83710 | 80900 | 74940 | 74420 |
| 20 | 70340 | 68900 | 71300 | 69860 | 69380 | 77600 | 77050 | 77050 | 83710 | 80900 | 73900 | 74420 |
| 21 | 70340 | 68900 | 71300 | 69860 | 69380 | 77600 | 77050 | 77050 | 83710 | 80900 | 73380 | 74420 |
| 22 | 70340 | 68900 | 71300 | 69860 | 69380 | 77600 | 77600 | 77050 | 83710 | 80350 | 73380 | 74420 |
| 23 | 70340 | 68900 | 71300 | 69860 | 69380 | 77600 | 77600 | 77050 | 83140 | 80350 | 72340 | 74420 |
| 24 | 70340 | 68900 | 71300 | 69860 | 69380 | 77600 | 77600 | 77050 | 83140 | 79800 | 71820 | 74420 |
| 25 | 70340 | 68900 | 70820 | 69860 | 69380 | 77600 | 77600 | 77050 | 83140 | 79250 | 71820 | 74420 |
| 26 | 70340 | 68900 | 70820 | 69860 | 69380 | 77600 | 77600 | 75460 | 83140 | 79250 | 71820 | 74420 |
| 27 | 70340 | 68900 | 70820 | 69860 | 69380 | 77600 | 77600 | 75460 | 83140 | 78700 | 71820 | 74420 |
| 28 | 69380 | 68900 | 70820 | 69860 | 69380 | 77600 | 77600 | 75460 | 83140 | 78700 | 71300 | 74420 |
| 29 | 69380 | 68900 | 70820 | 69860 | --- | 77600 | 77600 | 75460 | 82000 | 78150 | 71300 | 74420 |
| 30 | 69380 | 68900 | 70820 | 69860 | --- | 77600 | 77600 | 75460 | 82000 | 78150 | 71300 | 74420 |
| 31 | 69380 | --- | 70820 | 69860 | --- | 77600 | --- | 75460 | --- | 77600 | 71300 | --- |
| MAX | 71300 | 69380 | 71300 | 70820 | 69860 | 77600 | 77600 | 77600 | 83710 | 82000 | 77600 | 74420 |
| MIN | 69380 | 68900 | 68420 | 69860 | 69380 | 74420 | 76500 | 75460 | 75460 | 77600 | 71300 | 71300 |
| (†) | 1038.6 | 1038.5 | 1038.9 | 1038.7 | 1038.6 | 1040.2 | 1040.2 | 1039.8 | 1041.0 | 1040.2 | 1039.0 | 1039.6 |
| (‡) | +2880 | -480 | +1920 | -960 | -480 | +8220 | 0 | -2140 | +6540 | -4400 | -6300 | +3120 |
| (††) | 120 | 75 | 62 | 70 | 63 | 43 | 56 | 84 | 70 | 123 | 118 | 110 |

CAL YR 1980 MAX 71300 MIN 48960 ‡ +8370 †† 1022
WTR YR 1981 MAX 83710 MIN 68420 ‡ +7920 †† 994

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

07314000 LAKE KICKAPOO NEAR ARCHER CITY, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | TEMPERATURE, WATER (DEG C) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|
| JUL 07... | 1040 | 440 | 28.5 | 120 | 0 | 30 | 9.9 | 48 |

| DATE | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| JUL 07... | 2.1 | 5.9 | 130 | 20 | 51 | .4 | 6.0 | 249 |

## 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 (2.4 km) downstream from confluence of North and Middle Forks, and 4.8 mi (7.7 km) north of Archer City.

DRAINAGE AREA.--481 mi² (1,246 km²), of which 275 mi² (712 km²) 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 (284.903 m) National Geodetic Vertical Datum of 1929. Aug. 17, 1954, to Jan. 6, 1956, nonrecording gage at present site and datum.

REMARKS.--Records fair. Some regulation by Lake Kickapoo (station 07314000) on North Fork Little Wichita River. Records furnished by the city of Wichita Falls show that 994 acre-ft (1.23 hm³) was diverted from Lake Kickapoo for municipal use during the current water year. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--13 years (water years 1933-45) prior to completion of Lake Kickapoo, 110 ft³/s (3.115 m³/s), 79,700 acre-ft/yr (98.3 hm³/yr); 25 years (water years 1946-55, 1967-81) regulated, 35.8 ft³/s (1.014 m³/s), 25,940 acre-ft/yr (32.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,900 ft³/s (507 m³/s) Oct. 31, 1941, gage height, 26.18 ft (7.980 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1930 reached a stage of about 28 ft (8.5 m), from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,670 ft³/s (47.3 m³/s) Oct. 1, stage falling, peak ocurred Sept. 29, 1980; maximum peak discharge, 861 ft³/s (24.4 m³/s) Mar. 1 at 0645 hours, gage height, 16.51 ft (5.032 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 877 | 1.2 | .51 | .70 | .31 | 789 | .08 | .97 | 9.8 | .00 | .00 | .00 |
| 2 | 31 | .66 | .67 | .70 | .23 | 181 | .05 | .76 | 5.4 | .38 | .00 | .00 |
| 3 | 8.4 | .62 | .47 | .70 | .26 | 119 | .05 | .42 | 29 | 4.7 | .00 | .00 |
| 4 | 3.5 | .66 | .32 | .70 | .50 | 658 | .06 | .39 | 188 | 5.9 | .00 | .00 |
| 5 | 1.7 | .36 | .22 | .70 | .50 | 545 | 1.1 | .47 | 170 | 1.5 | .00 | .00 |
| 6 | 1.0 | .23 | .29 | .70 | .69 | 55 | .89 | .53 | 55 | .73 | .00 | .00 |
| 7 | .42 | .15 | .65 | .70 | .71 | 34 | .46 | .30 | 319 | .24 | .00 | .00 |
| 8 | .86 | .26 | 246 | .70 | .51 | 144 | .30 | 4.5 | 383 | .06 | .00 | .00 |
| 9 | .42 | .31 | 644 | .70 | .50 | 462 | .22 | 41 | 80 | .02 | .00 | .00 |
| 10 | .23 | .28 | 170 | .60 | .81 | 125 | .08 | 38 | 22 | .00 | .00 | .00 |
| 11 | .33 | .19 | 31 | .60 | .50 | 28 | .09 | 10 | 13 | .00 | .00 | .00 |
| 12 | .33 | .14 | 14 | .60 | .40 | 14 | .19 | 5.3 | 6.7 | .00 | .00 | .00 |
| 13 | .33 | .13 | 7.1 | .60 | .50 | 8.0 | .19 | 3.3 | 3.6 | .00 | .00 | .00 |
| 14 | .27 | .33 | 3.8 | .60 | .56 | 4.9 | 1.0 | 2.4 | 2.5 | .00 | .00 | 71 |
| 15 | .18 | .61 | 2.2 | .60 | .46 | 3.4 | 2.9 | 2.4 | 2.3 | .00 | .00 | 232 |
| 16 | .13 | 1.8 | 1.4 | .60 | .43 | 2.2 | 1.7 | 2.7 | 64 | .00 | .00 | 16 |
| 17 | .13 | 29 | .96 | .60 | .77 | 1.5 | .64 | 2.1 | 88 | .00 | .00 | 4.0 |
| 18 | 3.3 | 165 | .65 | .61 | .82 | .90 | .38 | 1.3 | 29 | .00 | .00 | 1.6 |
| 19 | 8.6 | 77 | .41 | .61 | .67 | .52 | 96 | .61 | 10 | .00 | .00 | .85 |
| 20 | 2.5 | 26 | .35 | .61 | .51 | .38 | 459 | .29 | 4.7 | .00 | .03 | .33 |
| 21 | 1.2 | 10 | .30 | .61 | .41 | .21 | 139 | .25 | 3.6 | .00 | .03 | .08 |
| 22 | .74 | 5.0 | .30 | .59 | .35 | .07 | 160 | .33 | 1.9 | .00 | .01 | .05 |
| 23 | .80 | 2.6 | .35 | .42 | .35 | .05 | 196 | .29 | 1.8 | .00 | .00 | .02 |
| 24 | .64 | 1.5 | .40 | .28 | .33 | .05 | 42 | .27 | 1.7 | .00 | .00 | .01 |
| 25 | .14 | 1.2 | .50 | .20 | .56 | .14 | 17 | .17 | 1.2 | .00 | .00 | .00 |
| 26 | .04 | 1.1 | .60 | .20 | .73 | .19 | 7.8 | .57 | .50 | .00 | .00 | .00 |
| 27 | 9.5 | .93 | .70 | .22 | 1.1 | .19 | 4.2 | 2.0 | .09 | .00 | .00 | .00 |
| 28 | 136 | .48 | .80 | .52 | 391 | .19 | 2.7 | 1.0 | .01 | .00 | .00 | .00 |
| 29 | 16 | .31 | .80 | .58 | --- | .13 | 1.9 | .49 | .00 | .00 | .00 | 1.4 |
| 30 | 5.0 | .18 | .70 | .38 | --- | .11 | 1.5 | 1.8 | .00 | .00 | .00 | .25 |
| 31 | 2.3 | --- | .70 | .33 | --- | .06 | --- | 15 | --- | .00 | .00 | --- |
| TOTAL | 1112.99 | 328.23 | 1131.15 | 17.26 | 405.47 | 3177.19 | 1137.48 | 139.91 | 1495.80 | 13.53 | .07 | 327.59 |
| MEAN | 35.9 | 10.9 | 36.5 | .56 | 14.5 | 102 | 37.9 | 4.51 | 49.9 | .44 | .002 | 10.9 |
| MAX | 877 | 165 | 644 | .70 | 391 | 789 | 459 | 41 | 383 | 5.9 | .03 | 232 |
| MIN | .04 | .13 | .22 | .20 | .23 | .05 | .05 | .17 | .00 | .00 | .00 | .00 |
| AC-FT | 2210 | 651 | 2240 | 34 | 804 | 6300 | 2260 | 278 | 2970 | 27 | .1 | 650 |

CAL YR 1980 TOTAL 11965.13 MEAN 32.7 MAX 2830 MIN .00 AC-FT 23730
WTR YR 1981 TOTAL 9286.67 MEAN 25.4 MAX 877 MIN .00 AC-FT 18420

## 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 (3.7 km) upstream from Lake Creek, 11 mi (18 km) southwest of Henrietta, and 12.3 mi (19.8 km) southeast of Wichita Falls.

DRAINAGE AREA.--822 mi² (2,129 km²).

### WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 0.40 ft (0.122 m) below National Geodetic Vertical Datum of 1929.

REMARKS.--The lake is formed by a rolled earthfill dam 15,900 ft (4,846 m) long, including an uncontrolled reinforced concrete ogee spillway 1,581 ft (482 m) wide located near the left end of dam. The dam was completed in December 1966 and storage began in June 1967. The service outlet works, located in a cylindrical service tower at upstream side of dam, consist of two gated 5-foot-diameter (2 m) 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 furnished by Homer Hunter and Associates and Biggs and Mathews Consulting Engineers for the city of Wichita Falls. Area-capacity curves furnished by Homer Hunter and Associates. Record of diversions furnished by the city of Wichita Falls.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 246,300 acre-ft (304 hm³) July 28, 30, 1975, gage height, 925.40 ft (282.062 m); minimum since first appreciable storage, 4,640 acre-ft (5.72 hm³) Aug. 31 to Sept. 4, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 140,400 acre-ft (173 hm³) June 9 at 1700 hours, gage height, 917.30 ft (279.593 m); minimum, 114,500 acre-ft (141 hm³) Nov. 15, gage height, 914.68 ft (278.794 m).

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

| | | | |
|---|---|---|---|
| 914.0 | 108,500 | 917.0 | 137,200 |
| 915.0 | 117,500 | 918.0 | 148,000 |
| 916.0 | 127,100 | | |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 116900 | 117000 | 116800 | 120400 | 118100 | 124700 | 137000 | 138300 | 136500 | 135000 | 125300 | 118100 |
| 2 | 120500 | 117000 | 116100 | 120700 | 118600 | 127000 | 136800 | 138100 | 136700 | 134900 | 125100 | 118400 |
| 3 | 120300 | 116700 | 116400 | 119900 | 118200 | 129400 | 136500 | 137900 | 136600 | 134800 | 124800 | 118000 |
| 4 | 120200 | 116700 | 116600 | 120100 | 118100 | 131900 | 135900 | 138200 | 136700 | 134500 | 124400 | 117800 |
| 5 | 120000 | 116600 | 116600 | 120300 | 118000 | 134700 | 135700 | 137700 | 137700 | 134200 | 124100 | 117900 |
| 6 | 119900 | 116900 | 116600 | 119900 | 118400 | 135800 | 135800 | 137500 | 138300 | 134000 | 123800 | 117700 |
| 7 | 119800 | 116500 | 116600 | 120100 | 117900 | 136800 | 136300 | 137400 | 138800 | 134000 | 123200 | 117300 |
| 8 | 119700 | 116500 | 117800 | 119900 | 118100 | 136900 | 135500 | 137600 | 139400 | 133300 | 123100 | 117100 |
| 9 | 119500 | 116200 | 119500 | 119900 | 118500 | 138200 | 135600 | 137000 | 140000 | 133200 | 122800 | 117100 |
| 10 | 119000 | 116400 | 121800 | 119500 | 118200 | 139100 | 135400 | 137000 | 139300 | 133000 | 122400 | 117000 |
| 11 | 119000 | 116300 | 122400 | 119300 | 117900 | 139200 | 135400 | 137000 | 138900 | 132600 | 122200 | 117000 |
| 12 | 118900 | 116300 | 122400 | 119700 | 117800 | 139300 | 135500 | 137600 | 138900 | 132400 | 122200 | 117000 |
| 13 | 118700 | 115200 | 122200 | 119400 | 117800 | 139300 | 134800 | 137600 | 139000 | 132000 | 122200 | 117400 |
| 14 | 118600 | 115200 | 122300 | 119400 | 117900 | 139200 | 133900 | 137200 | 139000 | 131700 | 122100 | 117200 |
| 15 | 118900 | 114500 | 122400 | 119300 | 117800 | 139000 | 134000 | 137000 | 138300 | 131400 | 122000 | 118100 |
| 16 | 118300 | 115400 | 122300 | 118800 | 117800 | 139000 | 134400 | 137000 | 138500 | 131000 | 121600 | 117900 |
| 17 | 118400 | 116100 | 122500 | 118800 | 117700 | 138400 | 134400 | 136900 | 138600 | 130700 | 121000 | 117300 |
| 18 | 117900 | 116600 | 120600 | 118900 | 117600 | 137800 | 135200 | 137000 | 138700 | 130400 | 121000 | 117800 |
| 19 | 117900 | 116900 | 120600 | 118900 | 117600 | 138100 | 135500 | 137000 | 138600 | 130000 | 120700 | 117800 |
| 20 | 117900 | 117000 | 120800 | 119200 | 117900 | 138500 | 135600 | 137000 | 138300 | 129700 | 120600 | 117400 |
| 21 | 117800 | 117000 | 121300 | 119200 | 116800 | 137000 | 137500 | 137000 | 137800 | 129400 | 120500 | 117200 |
| 22 | 117900 | 117300 | 121400 | 119200 | 117200 | 137000 | 138200 | 137000 | 137500 | 128900 | 120500 | 117000 |
| 23 | 117000 | 116800 | 121000 | 119200 | 117200 | 137500 | 138600 | 136700 | 137300 | 128400 | 120200 | 116700 |
| 24 | 117000 | 116600 | 120300 | 119400 | 117200 | 137300 | 139000 | 136700 | 137000 | 128000 | 120000 | 116900 |
| 25 | 117000 | 116400 | 120800 | 119200 | 117300 | 137300 | 139100 | 136700 | 136800 | 127300 | 119900 | 117200 |
| 26 | 117200 | 116600 | 120900 | 119100 | 117200 | 137400 | 138800 | 136700 | 136500 | 127100 | 119500 | 116400 |
| 27 | 116400 | 116600 | 121100 | 119000 | 118300 | 137800 | 138600 | 136700 | 136200 | 126700 | 119300 | 116300 |
| 28 | 116700 | 116600 | 120800 | 119300 | 121800 | 137500 | 138500 | 136700 | 136100 | 126200 | 119200 | 115900 |
| 29 | 117000 | 116800 | 120800 | 118100 | --- | 137600 | 138300 | 136300 | 135700 | 125900 | 119100 | 115600 |
| 30 | 117000 | 117400 | 120900 | 118700 | --- | 137700 | 138200 | 136500 | 135300 | 126100 | 118900 | 115400 |
| 31 | 117000 | --- | 120700 | 118700 | --- | 137300 | --- | 136400 | --- | 125800 | 118400 | --- |
| MAX | 120500 | 117400 | 122500 | 120700 | 121800 | 139300 | 139100 | 138300 | 140000 | 135000 | 125300 | 118400 |
| MIN | 116400 | 114500 | 116100 | 118100 | 116800 | 124700 | 133900 | 136300 | 135300 | 125800 | 118400 | 115400 |
| (†) | 914.95 | 914.99 | 915.34 | 915.13 | 915.45 | 917.01 | 917.09 | 916.92 | 916.81 | 915.87 | 915.09 | 914.77 |
| (‡) | +8700 | +400 | +3300 | -2000 | +3100 | +15500 | +900 | -1800 | -1100 | -9500 | -7400 | -3000 |
| (††) | 1620 | 1400 | 1310 | 1320 | 1220 | 1340 | 1400 | 1500 | 1870 | 3210 | 2640 | 2080 |

CAL YR 1980 MAX 122500 MIN 81080 ‡ -3700 †† 24141
WTR YR 1981 MAX 140000 MIN 114500 ‡ +7100 †† 20910

† Gage height, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, for municipal use by the city of Wichita Falls.

07314800 LAKE ARROWHEAD NEAR HENRIETTA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1970 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | TEMPERATURE, WATER (DEG C) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|
| JUL 07... | 0845 | 979 | 29.0 | 180 | 47 | 43 | 17 | 120 |

| DATE | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| JUL 07... | 4.3 | 11 | 130 | 2.0 | 240 | .4 | .5 | 512 |

## 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 (1.6 km) downstream from Duck Creek, 2.8 mi (4.5 km) west of Henrietta, 6.6 mi (10.6 km) upstream from Turkey Creek, and 7.6 mi (12.2 km) upstream from Dry Fork Little Wichita River.

DRAINAGE AREA.--1,037 mi² (2,686 km²).

### WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and concrete control. Datum of gage is 831.57 ft (253.463 m) National Geodetic Vertical Datum of 1929. Prior to June 26, 1953, nonrecording gage. Prior to July 11, 1975, at site 2.6 mi (4.2 km) downstream at same datum.

REMARKS.--Water-discharge records fair. Flow largely regulated by Lake Arrowhead 39 mi (63 km) upstream, capacity 262,100 acre-ft (323 hm³). The city of Wichita Falls diverted 994 acre-ft (1.23 hm³) from Lake Kickapoo and 20,910 acre-ft (25.8 hm³) from Lake Arrowhead for municipal uses, and returned 14,830 acre-ft (18.3 hm³) as sewage effluent and filter plant washwater to the Wichita River below station 07312500 at Wichita Falls and above station 07312700 near Charlie. The city of Henrietta diverted 601 acre-ft (0.741 hm³) from pool at gage for municipal use. Diversion records were furnished by the cities of Wichita Falls and Henrietta, respectively.

AVERAGE DISCHARGE.--13 years (water years 1954-66) prior to completion of Lake Arrowhead, 124 ft³/s (3.512 m³/s), 89,840 acre-ft/yr (111 hm³/yr); 15 years (water years 1967-81) regulated, 19.6 ft³/s (0.555 m³/s), 14,200 acre-ft/yr (17.5 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,630 ft³/s (216 m³/s) May 1, 1966, gage height, 18.28 ft (5.572 m), at former site; maximum gage height, 18.36 ft (5.596 m) May 2, 1957, at former site, and 21.33 ft (6.501 m) Sept. 29, 1980, at present site; no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1908 reached a stage of 21 ft (6.4 m) at former site, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,310 ft³/s (37.1 m³/s) Feb. 28 (time unknown), gage height, 19.82 ft (6.041 m), from floodmark; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 488 | .00 | .00 | .00 | .00 | 1150 | .00 | 6.9 | 9.5 | .00 | .00 | 14 |
| 2 | 80 | .00 | .00 | .00 | .00 | 747 | .00 | 3.8 | 17 | .00 | .00 | 8.6 |
| 3 | 38 | .00 | .00 | .00 | .00 | 399 | .00 | .00 | 22 | .00 | .00 | .00 |
| 4 | 21 | .00 | .00 | .00 | .00 | 880 | .00 | .00 | 28 | .00 | .00 | .00 |
| 5 | 13 | .00 | .00 | .00 | .00 | 588 | .00 | .00 | 91 | .00 | .00 | .00 |
| 6 | 8.5 | .00 | .00 | .00 | .00 | 173 | .00 | .00 | 103 | .00 | .00 | .00 |
| 7 | 6.2 | .00 | .00 | .00 | .00 | 84 | .00 | .00 | 33 | .00 | .00 | .00 |
| 8 | 4.1 | .00 | 89 | .00 | .00 | 95 | .00 | .00 | 12 | .00 | .00 | .00 |
| 9 | 2.5 | .00 | 220 | .00 | .00 | 107 | .00 | .00 | 6.5 | .00 | .00 | .00 |
| 10 | 1.2 | .00 | 125 | .00 | .00 | 90 | .00 | .00 | 4.5 | .00 | .00 | .00 |
| 11 | .42 | .00 | 63 | .00 | .00 | 58 | .00 | .00 | 3.5 | .00 | .00 | .00 |
| 12 | .03 | .00 | 35 | .00 | .00 | 35 | .00 | .00 | 2.4 | .00 | .00 | .00 |
| 13 | .00 | .00 | 21 | .00 | .00 | 22 | .00 | .00 | 1.1 | .00 | .00 | .12 |
| 14 | .00 | .00 | 14 | .00 | .00 | 16 | .00 | .00 | .39 | .00 | .00 | 50 |
| 15 | .00 | .00 | 9.4 | .00 | .00 | 12 | .00 | .00 | .65 | .00 | .00 | 5.9 |
| 16 | .00 | .00 | 7.0 | .00 | .00 | 9.0 | .00 | .00 | 2.1 | .00 | 7.2 | .57 |
| 17 | .49 | 1.3 | 5.6 | .00 | .00 | 6.3 | .00 | .00 | 1.5 | .00 | 10 | .00 |
| 18 | .00 | 8.2 | 4.6 | .00 | .00 | 4.8 | .00 | .00 | .58 | .00 | 9.8 | .00 |
| 19 | .00 | 6.2 | 4.5 | .00 | .00 | 4.0 | .00 | .00 | .09 | .00 | 7.5 | .00 |
| 20 | .00 | 4.6 | 3.2 | .00 | .00 | 3.4 | .00 | .00 | .00 | .00 | .02 | .00 |
| 21 | .00 | 3.7 | 1.8 | .00 | .00 | 1.2 | .00 | .00 | .00 | .00 | .00 | .00 |
| 22 | .00 | 2.9 | 1.3 | .00 | .00 | 1.1 | 10 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | 2.4 | 1.2 | .00 | .00 | 1.5 | 2.8 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | 1.7 | 1.5 | .00 | .00 | 1.5 | .13 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | 1.3 | .39 | .00 | .00 | 1.8 | .00 | .00 | .00 | .00 | .00 | .00 |
| 26 | .00 | .25 | .35 | .00 | .00 | 1.8 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27 | .00 | .03 | .36 | .00 | 3.0 | 1.6 | .00 | 50 | .00 | .00 | .00 | .00 |
| 28 | .00 | .00 | .30 | .00 | 951 | 1.3 | .00 | 90 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | .40 | .00 | --- | .24 | .00 | 46 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .03 | .00 | --- | .07 | 2.2 | 23 | .00 | .00 | 6.8 | .00 |
| 31 | .00 | --- | .06 | .00 | --- | .00 | --- | 24 | --- | .00 | 14 | --- |
| TOTAL | 663.44 | 32.58 | 608.99 | .00 | 954.00 | 4495.61 | 15.13 | 243.70 | 338.81 | .00 | 55.32 | 79.19 |
| MEAN | 21.4 | 1.09 | 19.6 | .000 | 34.1 | 145 | .50 | 7.86 | 11.3 | .000 | 1.78 | 2.64 |
| MAX | 488 | 8.2 | 220 | .00 | 951 | 1150 | 10 | 90 | 103 | .00 | 14 | 50 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 1320 | 65 | 1210 | .00 | 1890 | 8920 | 30 | 483 | 672 | .00 | 110 | 157 |

CAL YR 1980 TOTAL 6098.35 MEAN 16.7 MAX 1560 MIN .00 AC-FT 12100
WTR YR 1981 TOTAL 7486.77 MEAN 20.5 MAX 1150 MIN .00 AC-FT 14850

07314900 LITTLE WICHITA RIVER ABOVE HENRIETTA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: December 1952 to January 1956, March 1959 to September 1966, January 1968 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | TEMPER-ATURE, WATER (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 02... | 1315 | 73 | 123 | 21.5 | 35 | 0 | 9.2 | 2.8 | 8.6 |
| MAR | | | | | | | | | |
| 02... | 1010 | 886 | 165 | 13.5 | 49 | 8 | 14 | 3.5 | 13 |

| DATE | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY (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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 02... | .6 | 5.1 | 39 | 5.9 | 11 | .1 | 10 | 76 |
| MAR | | | | | | | | |
| 02... | .8 | 5.3 | 41 | 14 | 13 | .1 | 7.1 | 95 |

## 07315200 EAST FORK LITTLE WICHITA RIVER NEAR HENRIETTA, TX

LOCATION.--Lat 33°48'46", long 98°05'05", Clay County, Hydrologic Unit 11130209, on downstream side of bridge on U.S. Highway 82, 5.8 mi (9.3 km) upstream from Little Wichita River, 6.4 mi (10.3 km) east of Henrietta, and 8.9 mi (14.3 km) west of Ringgold.

DRAINAGE AREA.--178 $mi^2$ (461 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1963 to current year.

REVISED RECORDS.--WRD TX-72-1: 1966(M).

GAGE.--Water-stage recorder. Datum of gage is 825.32 ft (251.558 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. No known diversions above station.

AVERAGE DISCHARGE.--17 years (water years 1965-81), 19.9 $ft^3/s$ (0.564 $m^3/s$), 1.52 in/yr (39 mm/yr), 14,420 acre-ft/yr (17.8 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,500 $ft^3/s$ (439 $m^3/s$) May 12, 1972, gage height, 28.85 ft (8.793 m), from rating curve extended above 4,000 $ft^3/s$ (113 $m^3/s$) on basis of contracted-opening measurement of 15,500 $ft^3/s$ (439 $m^3/s$); no flow for many days most years.
Maximum stage since at least 1920, that of May 12, 1972.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1941 reached a stage of 28.8 ft (8.78 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 $ft^3/s$ (8.50 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dec. 8 | 2400 | 314 | 8.89 | 12.70 | 3.871 | May 31 | 1530 | 432 | 12.2 | 13.91 | 4.240 |
| Feb. 28 | 1400 | 390 | 11.0 | 13.49 | 4.112 | June 8 | 0600 | 415 | 11.8 | 13.71 | 4.179 |
| Mar. 4 | 0030 | *709 | 20.1 | 16.71 | 5.093 | June 17 | 1130 | 360 | 10.2 | 13.06 | 3.981 |
| May 25 | 1200 | 326 | 9.23 | 12.62 | 3.847 | Sept. 15 | 1700 | 416 | 11.8 | 13.69 | 4.173 |
| May 29 | 0130 | 597 | 16.9 | 15.61 | 4.758 | | | | | | |

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 55 | 2.1 | .10 | .03 | .01 | 82 | .19 | 19 | 78 | .06 | .00 | .00 |
| 2 | 7.8 | 1.6 | .06 | .02 | .01 | 14 | .17 | 1.5 | 20 | .04 | .00 | .00 |
| 3 | 3.4 | 1.3 | .04 | .02 | .01 | 192 | .15 | .63 | 8.7 | .03 | .00 | .00 |
| 4 | 2.1 | .96 | .04 | .02 | .01 | 618 | .10 | .42 | 7.0 | .03 | .00 | .00 |
| 5 | 1.7 | .72 | .03 | .02 | .01 | 238 | .09 | .31 | 24 | .03 | .00 | .00 |
| 6 | 1.2 | .46 | .03 | .02 | .01 | 31 | .07 | .25 | 89 | .03 | .00 | .00 |
| 7 | .94 | .32 | .02 | .01 | .01 | 17 | .06 | .21 | 221 | .02 | .00 | .00 |
| 8 | .68 | .26 | 152 | .01 | .01 | 29 | .05 | .24 | 259 | .02 | .00 | .00 |
| 9 | .53 | .21 | 292 | .01 | .01 | 29 | .04 | 31 | 23 | .02 | .00 | .00 |
| 10 | .42 | .17 | 91 | .01 | .02 | 15 | .04 | 20 | 8.2 | .02 | .00 | .00 |
| 11 | .35 | .13 | 19 | .01 | .00 | 7.1 | .04 | 4.7 | 3.8 | .02 | .00 | .00 |
| 12 | .28 | .10 | 6.1 | .01 | .00 | 3.4 | .05 | 1.8 | 2.1 | .02 | .00 | .00 |
| 13 | .22 | .07 | 2.5 | .01 | .01 | 2.1 | .04 | 1.1 | 1.6 | .02 | .00 | .31 |
| 14 | .19 | .04 | 1.3 | .01 | .01 | 1.7 | .05 | .94 | 1.3 | .02 | .00 | 39 |
| 15 | .17 | .05 | .84 | .01 | .01 | 1.5 | .04 | .76 | 1.4 | .01 | .00 | 350 |
| 16 | .16 | .06 | .66 | .01 | .01 | 1.2 | .05 | .68 | 98 | .01 | .00 | 49 |
| 17 | .23 | .58 | .48 | .01 | .01 | 1.1 | .04 | .56 | 297 | .01 | .00 | 5.0 |
| 18 | .23 | 1.0 | .32 | .01 | .01 | .82 | .59 | .39 | 37 | .01 | .00 | 1.9 |
| 19 | 1.1 | .94 | .23 | .01 | .01 | .79 | 7.2 | .28 | 9.7 | .01 | .00 | 1.4 |
| 20 | 4.6 | 1.0 | .19 | .01 | .01 | .69 | 137 | .20 | 4.2 | .00 | .00 | 1.1 |
| 21 | 2.4 | .94 | .18 | .01 | .01 | .65 | 36 | .14 | 2.2 | .00 | .00 | .73 |
| 22 | 1.9 | .82 | .17 | .01 | .01 | .53 | 14 | .11 | 1.5 | .00 | .00 | .50 |
| 23 | 1.4 | .77 | .15 | .01 | .01 | .50 | 14 | .11 | 1.3 | .00 | .00 | .30 |
| 24 | .95 | .57 | .12 | .01 | .01 | .46 | 188 | 31 | .92 | .00 | .00 | .18 |
| 25 | .69 | .42 | .09 | .01 | .01 | .44 | 38 | 285 | .67 | .00 | .00 | .12 |
| 26 | .46 | .31 | .08 | .01 | .01 | .45 | 9.2 | 116 | .45 | .00 | .00 | .09 |
| 27 | 2.6 | .24 | .07 | .01 | .05 | .48 | 3.1 | 269 | .28 | .00 | .00 | .07 |
| 28 | 44 | .19 | .06 | .01 | 234 | .44 | 1.4 | 502 | .16 | .01 | .00 | .05 |
| 29 | 19 | .16 | .06 | .01 | --- | .39 | 1.1 | 316 | .10 | .00 | .00 | .05 |
| 30 | 5.2 | .13 | .05 | .01 | --- | .32 | .87 | 154 | .08 | .00 | .00 | .03 |
| 31 | 2.6 | --- | .04 | .01 | --- | .26 | --- | 382 | --- | .00 | .00 | --- |
| TOTAL | 162.50 | 16.62 | 568.01 | .38 | 234.30 | 1290.32 | 451.73 | 2140.33 | 1201.66 | .44 | .00 | 449.83 |
| MEAN | 5.24 | .55 | 18.3 | .012 | 8.37 | 41.6 | 15.1 | 69.0 | 40.1 | .014 | .000 | 15.0 |
| MAX | 55 | 2.1 | 292 | .03 | 234 | 618 | 188 | 502 | 297 | .06 | .00 | 350 |
| MIN | .16 | .04 | .02 | .01 | .00 | .26 | .04 | .11 | .08 | .00 | .00 | .00 |
| CFSM | .03 | .003 | .10 | .000 | .05 | .23 | .09 | .39 | .23 | .000 | .000 | .08 |
| IN. | .03 | .00 | .12 | .00 | .05 | .27 | .09 | .45 | .25 | .00 | .00 | .09 |
| AC-FT | 322 | 33 | 1130 | .8 | 465 | 2560 | 896 | 4250 | 2380 | .9 | .00 | 892 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 4096.89 | MEAN | 11.2 | MAX | 1330 | MIN | .00 | CFSM | .06 | IN | .86 | AC-FT 8130 |
| WTR YR 1981 | TOTAL | 6516.12 | MEAN | 17.9 | MAX | 618 | MIN | .00 | CFSM | .10 | IN | 1.36 | AC-FT 12920 |

07315200 EAST FORK LITTLE WICHITA RIVER NEAR HENRIETTA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1965 to September 1968, October 1969 to current year. Sediment records: October 1965 to September 1975.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | TEMPER-ATURE, WATER (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 22... | 0850 | 2.0 | 495 | 13.0 | 140 | 67 | 37 | 11 | 39 |
| DEC | | | | | | | | | |
| 03... | 0845 | .04 | 566 | 4.0 | 140 | 46 | 36 | 11 | 51 |
| JAN | | | | | | | | | |
| 14... | 1030 | .01 | 1250 | 4.5 | 340 | 69 | 93 | 26 | 190 |
| FEB | | | | | | | | | |
| 25... | 0850 | .01 | 1790 | 10.5 | 420 | 0 | 110 | 35 | 230 |
| APR | | | | | | | | | |
| 08... | 0830 | .06 | 1580 | 17.0 | 380 | 0 | 94 | 36 | 210 |
| MAY | | | | | | | | | |
| 19... | 1210 | .29 | 507 | 17.5 | 130 | 13 | 35 | 11 | 56 |
| JUN | | | | | | | | | |
| 29... | 1025 | .10 | 867 | 25.0 | 210 | 51 | 58 | 16 | 91 |
| SEP | | | | | | | | | |
| 22... | 1110 | .49 | 282 | 20.0 | 74 | 17 | 20 | 5.9 | 23 |

| DATE | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY (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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 22... | 1.4 | 7.2 | 71 | 2.9 | 120 | .1 | 11 | 271 |
| DEC | | | | | | | | |
| 03... | 1.9 | 7.5 | 89 | 23 | 110 | .2 | 9.7 | 302 |
| JAN | | | | | | | | |
| 14... | 4.5 | 5.4 | 270 | 160 | 180 | .3 | 14 | 831 |
| FEB | | | | | | | | |
| 25... | 4.9 | 4.3 | 420 | 200 | 240 | .5 | 15 | 1090 |
| APR | | | | | | | | |
| 08... | 4.7 | 5.6 | 410 | 100 | 250 | .6 | 13 | 956 |
| MAY | | | | | | | | |
| 19... | 2.1 | 6.2 | 120 | 9.6 | 83 | .2 | 11 | 284 |
| JUN | | | | | | | | |
| 29... | 2.7 | 8.1 | 160 | 18 | 170 | .2 | 15 | 472 |
| SEP | | | | | | | | |
| 22... | 1.2 | 7.0 | 57 | 9.0 | 45 | .2 | 9.7 | 154 |

## 07315500 RED RIVER NEAR TERRAL, OK

LOCATION.--Lat 33°52'43", long 97°56'03", Jefferson County, Hydrologic Unit 11130201, near left bank on downstream side of pier of bridge on U.S. Highway 81, 0.5 mi (0.8 km) downstream from Chicago, Rock Island, and Pacific Railroad Co. bridge, 1.2 mi (1.9 km) south of Terral, 3.6 mi (5.8 km) downstream from Little Wichita River, and at mile 872 (1,403 km).

DRAINAGE AREA.--28,723 $mi^2$ (74,393 $km^2$), of which 5,936 $mi^2$ (15,374 $km^2$) 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 (234.790 m) National Geodetic Vertical Datum of 192°. Prior to Jan. 12, 1939, nonrecording gage at same site and datum.

REMARKS.--Water-discharge records good. Many small diversions for irrigation, oilfield, and municipal uses upstream from station.

AVERAGE DISCHARGE.--43 years (water years 1939-81), 2,118 $ft^3/s$ (60.0 $m^3/s$), 1,534,000 acre-ft/yr (1.89 $km^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 197,000 $ft^3/s$ (5,580 $m^3/s$) June 8, 1941, gage height, 28.12 ft (8.571 m); minimum, 43 $ft^3/s$ (1.22 $m^3/s$) Mar. 15, 1939.
Maximum stage since at least 1891, that of June 8, 1941.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 19, 1935, reached a stage of 27.2 ft (8.29 m); floods in 1891 and May 1, 1908, are reported to have reached about the same stage.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 33,600 $ft^3/s$ (952 $m^3/s$) June 5 at 2000 hours, gage height, 18.90 ft (5.761 m), no othe. peak above base of 21,000 $ft^3/s$ (595 $m^3/s$); minimum, 101 $ft^3/s$ (2.86 $m^3/s$) Feb. 11, 12 (result of freeze-up).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8160 | 195 | 156 | 205 | 232 | 3460 | 262 | 548 | 7750 | 428 | 486 | 298 |
| 2 | 3650 | 180 | 150 | 198 | 207 | 5460 | 241 | 1140 | 11100 | 421 | 485 | 295 |
| 3 | 1080 | 162 | 143 | 198 | 213 | 4400 | 238 | 2390 | 20200 | 418 | 457 | 328 |
| 4 | 591 | 147 | 146 | 195 | 216 | 6030 | 241 | 1330 | 23600 | 611 | 334 | 299 |
| 5 | 481 | 137 | 146 | 195 | 217 | 4970 | 241 | 1250 | 31200 | 574 | 324 | 384 |
| 6 | 430 | 131 | 147 | 192 | 212 | 3130 | 241 | 974 | 27900 | 539 | 316 | 314 |
| 7 | 396 | 129 | 149 | 192 | 216 | 1540 | 224 | 1070 | 12500 | 520 | 333 | 285 |
| 8 | 314 | 126 | 983 | 189 | 217 | 1290 | 216 | 1740 | 11800 | 436 | 344 | 746 |
| 9 | 287 | 124 | 2650 | 189 | 214 | 1080 | 217 | 1190 | 7860 | 381 | 418 | 675 |
| 10 | 261 | 121 | 2520 | 189 | 214 | 865 | 196 | 1070 | 6010 | 364 | 743 | 571 |
| 11 | 234 | 119 | 1360 | 186 | 155 | 688 | 188 | 905 | 4240 | 354 | 527 | 462 |
| 12 | 226 | 117 | 835 | 183 | 141 | 620 | 185 | 682 | 3430 | 323 | 408 | 399 |
| 13 | 208 | 115 | 651 | 183 | 218 | 579 | 178 | 576 | 2800 | 297 | 349 | 339 |
| 14 | 200 | 116 | 591 | 181 | 191 | 551 | 178 | 482 | 2290 | 276 | 334 | 306 |
| 15 | 192 | 121 | 515 | 180 | 187 | 496 | 186 | 432 | 1880 | 266 | 333 | 377 |
| 16 | 183 | 132 | 450 | 179 | 186 | 762 | 280 | 425 | 1660 | 259 | 319 | 556 |
| 17 | 192 | 164 | 406 | 173 | 180 | 865 | 511 | 383 | 1780 | 246 | 347 | 346 |
| 18 | 170 | 198 | 369 | 171 | 175 | 805 | 802 | 371 | 2260 | 232 | 377 | 293 |
| 19 | 164 | 314 | 329 | 172 | 175 | 529 | 864 | 353 | 1820 | 221 | 1230 | 241 |
| 20 | 159 | 372 | 296 | 175 | 174 | 540 | 1080 | 326 | 1340 | 211 | 908 | 215 |
| 21 | 156 | 319 | 281 | 180 | 168 | 475 | 1410 | 337 | 1150 | 196 | 567 | 197 |
| 22 | 151 | 280 | 266 | 181 | 160 | 451 | 1050 | 318 | 1080 | 187 | 445 | 191 |
| 23 | 147 | 242 | 255 | 175 | 161 | 425 | 978 | 298 | 975 | 184 | 371 | 180 |
| 24 | 141 | 214 | 245 | 174 | 159 | 373 | 916 | 395 | 812 | 186 | 323 | 172 |
| 25 | 138 | 195 | 231 | 175 | 157 | 387 | 814 | 426 | 714 | 180 | 304 | 164 |
| 26 | 140 | 179 | 221 | 174 | 155 | 440 | 603 | 643 | 632 | 183 | 301 | 155 |
| 27 | 160 | 170 | 224 | 171 | 166 | 321 | 489 | 1550 | 579 | 181 | 276 | 151 |
| 28 | 211 | 164 | 228 | 172 | 2370 | 309 | 416 | 2250 | 529 | 215 | 246 | 142 |
| 29 | 435 | 161 | 221 | 172 | --- | 300 | 371 | 4580 | 473 | 260 | 229 | 136 |
| 30 | 370 | 155 | 211 | 170 | --- | 289 | 358 | 9370 | 446 | 289 | 287 | 132 |
| 31 | 238 | --- | 208 | 222 | --- | 270 | --- | 8620 | --- | 318 | 293 | --- |
| TOTAL | 19865 | 5299 | 15583 | 5691 | 7436 | 42700 | 14174 | 46424 | 190810 | 9756 | 13014 | 9349 |
| MEAN | 641 | 177 | 503 | 184 | 266 | 1377 | 472 | 1498 | 6360 | 315 | 420 | 312 |
| MAX | 8160 | 372 | 2650 | 222 | 2370 | 6030 | 1410 | 9370 | 31200 | 611 | 1230 | 746 |
| MIN | 138 | 115 | 143 | 170 | 141 | 270 | 178 | 298 | 446 | 180 | 229 | 132 |
| AC-FT | 39400 | 10510 | 30910 | 11290 | 14750 | 84700 | 28110 | 92080 | 378500 | 19350 | 25810 | 18540 |

CAL YR 1980 TOTAL 482990 MEAN 1320 MAX 38000 MIN 115 AC-FT 958000
WTR YR 1981 TOTAL 380101 MEAN 1041 MAX 31200 MIN 115 AC-FT 753900

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 TEMPERATURES: 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, 12,700 micromhos Sept. 8, 1981; minimum daily, 450 micromhos May 25, 1975.
WATER TEMPERATURES: Maximum daily, 32.0°C July 19, 1974, July 10, 1976; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 12,700 micromhos Sept. 8; minimum daily, 640 micromhos Mar. 1.
WATER TEMPERATURES: Maximum daily, 30.0°C Apr. 28, June 28, July 5, 10, 11; minimum daily, 1.0°C Feb. 11.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH FIELD (UNITS) | TEMPER-ATURE, WATER (DEG C) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 02... | 1205 | 3370 | 900 | -- | 21.0 | -- | -- | -- | 160 |
| 07... | 1015 | 1580 | 2800 | 7.2 | 22.0 | 8.2 | 30 | 30 | 847 |
| NOV | | | | | | | | | |
| 30... | 0815 | 153 | 4750 | -- | 9.0 | -- | -- | -- | 940 |
| DEC | | | | | | | | | |
| 03... | 0935 | 140 | 5170 | -- | 4.0 | -- | -- | -- | 990 |
| FEB | | | | | | | | | |
| 28... | 1145 | 3230 | 1200 | -- | 14.0 | -- | -- | -- | 220 |
| APR | | | | | | | | | |
| 30... | 1145 | 198 | 6030 | -- | 24.0 | -- | -- | -- | 1100 |
| MAY | | | | | | | | | |
| 31... | 0700 | 8490 | 662 | -- | 22.0 | -- | -- | -- | 160 |
| JUN | | | | | | | | | |
| 02... | 1220 | 11600 | 619 | -- | 23.0 | -- | -- | -- | 150 |
| AUG | | | | | | | | | |
| 11... | 1015 | 542 | 2640 | -- | 25.5 | -- | -- | -- | 470 |
| SEP | | | | | | | | | |
| 22... | 0950 | 190 | 7090 | -- | 21.0 | -- | -- | -- | 1100 |

| DATE | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 02... | 88 | 43 | 12 | 110 | 3.8 | 5.9 | 69 | 85 | 180 |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | 94 |
| NOV | | | | | | | | | |
| 30... | 760 | 240 | 82 | 770 | 11 | 8.0 | 180 | 690 | 1200 |
| DEC | | | | | | | | | |
| 03... | 790 | 250 | 88 | 750 | 10 | 8.3 | 200 | 620 | 1300 |
| FEB | | | | | | | | | |
| 28... | 120 | 60 | 17 | 140 | 4.1 | 5.0 | 95 | 100 | 250 |
| APR | | | | | | | | | |
| 30... | 940 | 310 | 70 | 900 | 12 | 8.3 | 120 | 690 | 1700 |
| MAY | | | | | | | | | |
| 31... | 63 | 48 | 10 | 85 | 2.9 | 6.8 | 98 | 72 | 120 |
| JUN | | | | | | | | | |
| 02... | 52 | 46 | 9.1 | 69 | 2.6 | 6.5 | 100 | 56 | 110 |
| AUG | | | | | | | | | |
| 11... | 370 | 130 | 36 | 380 | 7.6 | 7.9 | 100 | 300 | 620 |
| SEP | | | | | | | | | |
| 22... | 920 | 290 | 81 | 1100 | 15 | 12 | 140 | 730 | 1900 |

07315500 RED RIVER NEAR TERRAL, OK--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 02... | .2 | 6.8 | 484 | -- | -- | -- | -- | -- |
| 07... | -- | -- | -- | 188 | <.50 | .57 | .525 | 14 |
| NOV | | | | | | | | |
| 30... | .4 | 6.5 | 3110 | -- | -- | -- | -- | -- |
| DEC | | | | | | | | |
| 03... | .5 | 5.9 | 3140 | -- | -- | -- | -- | -- |
| FEB | | | | | | | | |
| 28... | .3 | 5.4 | 635 | -- | -- | -- | -- | -- |
| APR | | | | | | | | |
| 30... | .4 | 7.5 | 3760 | -- | -- | -- | -- | -- |
| MAY | | | | | | | | |
| 31... | .2 | 9.8 | 411 | -- | -- | -- | -- | -- |
| JUN | | | | | | | | |
| 02... | .2 | 9.5 | 366 | -- | -- | -- | -- | -- |
| AUG | | | | | | | | |
| 11... | .4 | 8.5 | 1540 | -- | -- | -- | -- | -- |
| SEP | | | | | | | | |
| 22... | .6 | 7.1 | 4200 | -- | -- | -- | -- | -- |

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCTANCE (MICROMHOS) | DISSOLVED SOLIDS (MG/L) | DISSOLVED SOLIDS (TONS) | DISSOLVED CHLORIDE (MG/L) | DISSOLVED CHLORIDE (TONS) | DISSOLVED SULFATE (MG/L) | DISSOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 19865 | 1830 | 1100 | 59000 | 410 | 22200 | 250 | 13300 | 360 |
| NOV. | 1980 | 5299 | 3920 | 2380 | 34000 | 920 | 13100 | 520 | 7480 | 750 |
| DEC. | 1980 | 15583 | 3160 | 1920 | 80800 | 750 | 31400 | 420 | 17600 | 600 |
| JAN. | 1981 | 5691 | 5810 | 3570 | 54900 | 1400 | 22100 | 750 | 11600 | 1000 |
| FEB. | 1981 | 7436 | 4150 | 2540 | 51000 | 1000 | 20300 | 540 | 10900 | 760 |
| MAR. | 1981 | 42700 | 1820 | 1090 | 126000 | 410 | 47300 | 250 | 28300 | 360 |
| APR. | 1981 | 14174 | 4330 | 2640 | 101000 | 1000 | 39400 | 570 | 21900 | 810 |
| MAY | 1981 | 46424 | 1870 | 1120 | 140000 | 420 | 52300 | 250 | 31800 | 370 |
| JUNE | 1981 | 190810 | 1480 | 882 | 455000 | 320 | 166000 | 200 | 105000 | 300 |
| JULY | 1981 | 9756 | 4800 | 2930 | 77200 | 1200 | 30400 | 630 | 16600 | 890 |
| AUG. | 1981 | 13014 | 4250 | 2590 | 91000 | 1000 | 35700 | 560 | 19700 | 790 |
| SEPT | 1981 | 9349 | 7250 | 4570 | 115000 | 2000 | 49500 | 900 | 22700 | 1200 |
| TOTAL | | 380101 | ** | ** | 1385000 | ** | 530000 | ** | 307000 | ** |
| WTD. AVG. | | 1041 | 2230 | 1350 | ** | 520 | ** | 300 | ** | 430 |

07315500 RED RIVER NEAR TERRAL, OK--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 697 | 2870 | 5040 | 5790 | 3020 | 640 | 5100 | 4520 | 1230 | 5000 | 3380 | 3980 |
| 2 | 898 | 3030 | 5080 | 5810 | 5310 | 750 | 5290 | 3040 | 848 | 5250 | 3060 | 4420 |
| 3 | 1480 | 3410 | 5190 | 5600 | 4630 | 1100 | 5260 | 1780 | 740 | 5050 | 2730 | 3310 |
| 4 | 1910 | 3550 | 5300 | 5700 | 3770 | 645 | 5410 | 1550 | 950 | 4700 | 3500 | 3910 |
| 5 | 2320 | 3920 | 5210 | 5710 | 4050 | 978 | 5420 | 2040 | 1180 | 3710 | 4130 | 5390 |
| 6 | 2790 | 3890 | 5250 | 5770 | 4380 | 1460 | 5470 | 3350 | 1480 | 4030 | 5310 | 4660 |
| 7 | 2840 | 4120 | 5290 | 5830 | 5350 | 1750 | 5270 | 1960 | 1200 | 3790 | 5330 | 4580 |
| 8 | 3310 | 4510 | 3280 | 5960 | 6310 | 1910 | 5530 | 2750 | 1490 | 3910 | 4670 | 12700 |
| 9 | 3740 | 4570 | 1470 | 5860 | 5540 | 2200 | 5510 | 2960 | 1870 | 4970 | 4000 | 11500 |
| 10 | 3900 | 4420 | 1070 | 5960 | 5950 | 2480 | 5300 | 2530 | 1830 | 5280 | 2670 | 11100 |
| 11 | 4140 | 4540 | 1290 | 5850 | 6210 | 2800 | 5150 | 2450 | 1710 | 4520 | 2690 | 10600 |
| 12 | 4220 | 4660 | 1680 | 5860 | 6060 | 3220 | 5480 | 3020 | 1740 | 4110 | 3000 | 9710 |
| 13 | 4470 | 4830 | 3360 | 5780 | 5700 | 3510 | 5500 | 2920 | 2000 | 4690 | 3600 | 8850 |
| 14 | 4440 | 4900 | 3420 | 5710 | 5260 | 3890 | 5670 | 3710 | 2150 | 4850 | 4380 | 7900 |
| 15 | 4480 | 4870 | 3530 | 5870 | 5520 | 4230 | 5560 | 4150 | 2550 | 5110 | 4530 | 7490 |
| 16 | 4510 | 4850 | 3600 | 5900 | 5600 | 3790 | 5400 | 4320 | 2870 | 5290 | 4770 | 3380 |
| 17 | 4370 | 4450 | 5890 | 5770 | 5930 | 2320 | 5000 | 4470 | 2750 | 5330 | 4400 | 5060 |
| 18 | 4690 | 4400 | 6170 | 5930 | 5840 | 2810 | 3950 | 5430 | 2420 | 5360 | 4330 | 6220 |
| 19 | 4900 | 4370 | 5720 | 5980 | 6040 | 2950 | 4490 | 5920 | 2780 | 5480 | 2690 | 4470 |
| 20 | 4870 | 3250 | 5320 | 5830 | 6460 | 3950 | 4020 | 5330 | 3230 | 5580 | 3550 | 5340 |
| 21 | 4850 | 2750 | 5100 | 5680 | 6410 | 5200 | 2670 | 5400 | 3380 | 5480 | 4420 | 6400 |
| 22 | 4900 | 2800 | 5380 | 5600 | 6520 | 5100 | 2740 | 5390 | 4440 | 5500 | 6100 | 6670 |
| 23 | 4970 | 3790 | 5860 | 5700 | 6550 | 5490 | 3530 | 5340 | 7020 | 5530 | 5880 | 6370 |
| 24 | 5160 | 4100 | 6270 | 5860 | 6320 | 6380 | 3950 | 4750 | 5910 | 5700 | 5750 | 6020 |
| 25 | 5150 | 3860 | 6150 | 5960 | 6360 | 6160 | 3590 | 4440 | 5370 | 5730 | 5740 | 5970 |
| 26 | 5120 | 3950 | 6030 | 6000 | 6410 | 6120 | 4500 | 2440 | 5100 | 5770 | 6600 | 6050 |
| 27 | 4650 | 4040 | 5910 | 6040 | 6560 | 5480 | 5080 | 2090 | 5130 | 5880 | 6930 | 6040 |
| 28 | 4450 | 4180 | 6150 | 5980 | 1170 | 5220 | 5650 | 1640 | 4860 | 5510 | 7520 | 5900 |
| 29 | 3890 | 4530 | 6000 | 6080 | --- | 5120 | 5900 | 1500 | 4790 | 4810 | 7180 | 5970 |
| 30 | 3120 | 4710 | 5840 | 6160 | --- | 5190 | 6010 | 713 | 4850 | 4700 | 6780 | 5840 |
| 31 | 2320 | --- | 5960 | 4800 | --- | 5160 | --- | 652 | --- | 4000 | 4540 | --- |
| MEAN | 3790 | 4070 | 4740 | 5820 | 5470 | 3480 | 4910 | 3310 | 2930 | 4990 | 4650 | 6530 |

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 21.0 | 15.0 | 15.0 | 10.0 | 4.0 | 13.0 | 18.0 | 22.0 | 25.0 | 29.0 | 28.0 | 27.0 |
| 2 | 18.0 | 16.0 | 7.0 | 10.0 | 4.0 | 14.0 | 17.0 | 24.0 | 23.0 | 29.0 | 28.0 | 26.0 |
| 3 | 18.0 | 16.0 | 7.0 | 9.0 | 4.0 | 12.0 | 21.0 | 21.0 | 22.0 | 28.0 | 28.0 | 27.0 |
| 4 | 19.0 | 17.0 | 13.0 | 7.0 | 5.0 | 9.0 | 16.0 | 21.0 | 22.0 | 26.0 | 28.0 | 28.0 |
| 5 | 18.0 | 18.0 | 15.0 | 7.0 | 4.0 | 12.0 | 15.0 | 21.0 | 23.0 | 30.0 | 28.0 | 28.0 |
| 6 | 18.0 | 17.0 | 18.0 | 10.0 | 5.0 | 8.0 | 14.0 | 21.0 | 24.0 | 27.0 | 29.0 | 25.0 |
| 7 | 17.0 | 16.0 | 10.0 | 9.0 | 6.0 | 12.0 | 15.0 | 20.0 | 25.0 | 27.0 | 28.0 | 27.0 |
| 8 | 21.0 | 19.0 | 12.0 | 9.0 | 6.0 | 10.0 | 23.0 | 20.0 | 26.0 | 25.0 | 27.0 | 24.0 |
| 9 | 21.0 | 17.0 | 9.0 | 10.0 | 8.0 | 10.0 | 24.0 | 18.0 | 28.0 | 26.0 | 26.0 | 24.0 |
| 10 | 20.0 | 19.0 | 7.0 | 9.0 | 6.0 | 9.0 | 23.0 | 18.0 | 28.0 | 30.0 | 27.0 | 23.0 |
| 11 | 19.0 | 19.0 | 9.0 | 8.0 | 1.0 | 13.0 | 22.0 | 17.0 | 27.0 | 30.0 | 26.0 | 24.0 |
| 12 | 18.0 | 18.0 | 9.0 | 9.0 | 2.0 | 12.0 | 24.0 | 20.0 | 26.0 | 28.0 | 25.0 | 25.0 |
| 13 | 17.0 | 16.0 | 10.0 | 7.0 | 5.0 | 12.0 | 27.0 | 22.0 | 25.0 | 28.0 | 27.0 | --- |
| 14 | 19.0 | 15.0 | 10.0 | 8.0 | 6.0 | 15.0 | 20.0 | 22.0 | 25.0 | 27.0 | 27.0 | 24.0 |
| 15 | 21.0 | 10.0 | 9.0 | 8.0 | 6.0 | 15.0 | 16.0 | 19.0 | 25.0 | 27.0 | 27.0 | 26.0 |
| 16 | 21.0 | 9.0 | 12.0 | 8.0 | 9.0 | 16.0 | 17.0 | 18.0 | 22.0 | 27.0 | 27.0 | 22.0 |
| 17 | 20.0 | 6.0 | 12.0 | 5.0 | 11.0 | 17.0 | 20.0 | 20.0 | 22.0 | 26.0 | 28.0 | 18.0 |
| 18 | 19.0 | 9.0 | 14.0 | 6.0 | 12.0 | 11.0 | 20.0 | 22.0 | 24.0 | 26.0 | 24.0 | 18.0 |
| 19 | 19.0 | 10.0 | 7.0 | 6.0 | 8.0 | 10.0 | 20.0 | 20.0 | 25.0 | 26.0 | 24.0 | 25.0 |
| 20 | 16.0 | 9.0 | 4.0 | 8.0 | 15.0 | 11.0 | 21.0 | 20.0 | 25.0 | 27.0 | 21.0 | 19.0 |
| 21 | 18.0 | 10.0 | 3.0 | --- | 14.0 | 12.0 | 20.0 | 19.0 | 26.0 | 27.0 | 24.0 | 21.0 |
| 22 | 16.0 | 10.0 | 4.0 | 7.0 | 9.0 | 11.0 | 19.0 | 20.0 | 27.0 | 25.0 | 25.0 | 26.0 |
| 23 | 18.0 | 12.0 | 7.0 | 7.0 | 10.0 | 12.0 | 19.0 | 22.0 | 27.0 | 26.0 | 25.0 | 24.0 |
| 24 | 13.0 | 9.0 | 5.0 | 8.0 | 12.0 | 14.0 | 19.0 | 22.0 | 27.0 | --- | 27.0 | 25.0 |
| 25 | 13.0 | 8.0 | --- | 9.0 | 16.0 | 13.0 | 21.0 | 23.0 | 27.0 | --- | 28.0 | 24.0 |
| 26 | --- | 7.0 | 4.0 | 8.0 | 17.0 | 14.0 | 21.0 | 24.0 | 28.0 | --- | 27.0 | 23.0 |
| 27 | 16.0 | 6.0 | 9.0 | 6.0 | 19.0 | 15.0 | 22.0 | 21.0 | 29.0 | --- | 27.0 | 25.0 |
| 28 | 11.0 | 6.0 | 9.0 | 7.0 | 14.0 | 16.0 | 30.0 | 24.0 | 30.0 | --- | 26.0 | 26.0 |
| 29 | 9.0 | 9.0 | 9.0 | 9.0 | --- | 13.0 | 23.0 | 24.0 | 22.0 | 28.0 | 26.0 | 24.0 |
| 30 | 12.0 | 9.0 | 8.0 | 7.0 | --- | 16.0 | 24.0 | 23.0 | 28.0 | 28.0 | 27.0 | 23.0 |
| 31 | 13.0 | --- | 10.0 | 5.0 | --- | 16.0 | --- | 22.0 | --- | 27.0 | 26.0 | --- |
| MEAN | 17.5 | 12.5 | 9.0 | 8.0 | 8.5 | 12.5 | 20.5 | 21.0 | 25.5 | 27.5 | 26.5 | 24.0 |

## 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 (76 m) from right end of Fish Creek dam on Fish Creek, 1.6 mi (2.6 km) upstream from Bearhead Creek, 3.7 mi (6.0 km) upstream from mouth, and 10 mi (16 km) northwest of Gainesville.

DRAINAGE AREA.--65 mi² (168 km²).

### WATER-DISCHARGE RECORDS

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

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 (46 m) upstream at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 1,460 ft (445 m) long. The dam was completed and storage began Dec. 2, 1966. An uncontrolled morning-glory-type spillway with a 7- by 7-foot (2 by 2 m) opening is designed to discharge 2,500 ft³/s (70.8 m³/s) at a 10-foot (3 m) head. The emergency spillway is a 400-foot-wide (120 m) cut through natural ground located about 100 ft (30 m) to the left of the left end of dam. The dam was built by the city of Gainesville to impound water for municipal use. Area and capacity tables are based on a 1961 survey. There was no diversion from the lake during the current water year. 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 (top of conservation pool) | 715.0 | 23,210 |
| Lowest gated outlet (invert) | 666.0 | 78 |

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 32,960 acre-ft (40.6 hm³) Oct. 31, 1974, elevation, 722.63 ft (220.258 m); minimum since lake first filled in May 1968, 17,740 acre-ft (21.9 hm³) Sept. 26, 1980, elevation, 709.67 ft (216.307 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 24,920 acre-ft (30.7 hm³) May 27 at 1000 hours, elevation, 716.47 ft (218.380 m); minimum, 18,990 acre-ft (23.4 hm³) Oct. 6, elevation, 710.98 ft (216.707 m).

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

| | | | |
|---|---|---|---|
| 710.0 | 18,040 | 715.0 | 23,210 |
| 711.0 | 19,010 | 717.0 | 25,550 |
| 713.0 | 21,040 | | |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 19060 | 19260 | 19130 | 19830 | 19820 | 20000 | 22900 | 23100 | 23760 | 22880 | 22100 | 21620 |
| 2 | 19030 | 19250 | 19110 | 19830 | 19810 | 20010 | 22900 | 23090 | 23580 | 22880 | 22090 | 21630 |
| 3 | 19030 | 19250 | 19110 | 19830 | 19820 | 21450 | 22920 | 23060 | 23580 | 22840 | 22050 | 21630 |
| 4 | 19010 | 19240 | 19110 | 19830 | 19800 | 21780 | 22900 | 23060 | 23530 | 22840 | 22020 | 21660 |
| 5 | 19000 | 19240 | 19120 | 19820 | 19800 | 21810 | 22890 | 23060 | 23500 | 22810 | 21990 | 21690 |
| 6 | 19310 | 19220 | 19130 | 19810 | 19800 | 21860 | 22870 | 23030 | 23450 | 22780 | 21960 | 21690 |
| 7 | 19370 | 19220 | 19140 | 19810 | 19800 | 22400 | 22870 | 23020 | 23380 | 22770 | 21940 | 21870 |
| 8 | 19390 | 19220 | 19720 | 19810 | 19800 | 22550 | 22870 | 23050 | 23300 | 22750 | 21920 | 21900 |
| 9 | 19380 | 19210 | 19780 | 19810 | 19830 | 22640 | 22880 | 23060 | 23260 | 22740 | 21900 | 21890 |
| 10 | 19370 | 19210 | 19810 | 19810 | 19790 | 22700 | 22880 | 23030 | 23210 | 22730 | 21860 | 21860 |
| 11 | 19350 | 19210 | 19850 | 19810 | 19790 | 22760 | 22890 | 23020 | 23170 | 22700 | 21830 | 21850 |
| 12 | 19330 | 19210 | 19860 | 19790 | 19800 | 22780 | 22900 | 23010 | 23130 | 22680 | 21830 | 21920 |
| 13 | 19320 | 19180 | 19870 | 19810 | 19800 | 22840 | 22900 | 22980 | 23120 | 22640 | 21810 | 22020 |
| 14 | 19300 | 19160 | 19870 | 19810 | 19800 | 22850 | 22880 | 22980 | 23160 | 22620 | 21770 | 22100 |
| 15 | 19280 | 19140 | 19890 | 19790 | 19810 | 22860 | 22870 | 22990 | 23130 | 22590 | 21780 | 22100 |
| 16 | 19300 | 19160 | 19890 | 19780 | 19810 | 22870 | 22870 | 23000 | 23130 | 22560 | 21780 | 22060 |
| 17 | 19370 | 19190 | 19890 | 19780 | 19810 | 22900 | 22890 | 23020 | 23110 | 22530 | 21750 | 22040 |
| 18 | 19360 | 19190 | 19870 | 19780 | 19840 | 22830 | 22940 | 23000 | 23090 | 22510 | 21700 | 22010 |
| 19 | 19330 | 19190 | 19850 | 19780 | 19840 | 22840 | 23170 | 22970 | 23080 | 22470 | 21700 | 21980 |
| 20 | 19320 | 19180 | 19840 | 19780 | 19840 | 22830 | 23160 | 22960 | 23060 | 22450 | 21650 | 21970 |
| 21 | 19320 | 19180 | 19840 | 19780 | 19840 | 22840 | 23350 | 22950 | 23020 | 22410 | 21650 | 21960 |
| 22 | 19310 | 19180 | 19840 | 19810 | 19840 | 22800 | 23380 | 22940 | 23010 | 22370 | 21630 | 21940 |
| 23 | 19270 | 19180 | 19830 | 19810 | 19840 | 22830 | 23350 | 23070 | 23000 | 22330 | 21610 | 21920 |
| 24 | 19250 | 19180 | 19810 | 19820 | 19850 | 22830 | 23280 | 23170 | 23000 | 22310 | 21600 | 21910 |
| 25 | 19250 | 19150 | 19810 | 19810 | 19850 | 22830 | 23210 | 23350 | 22980 | 22260 | 21580 | 21900 |
| 26 | 19220 | 19150 | 19820 | 19810 | 19850 | 22850 | 23180 | 23280 | 22960 | 22240 | 21550 | 21890 |
| 27 | 19320 | 19140 | 19820 | 19810 | 19860 | 22840 | 23140 | 24530 | 22950 | 22220 | 21530 | 21870 |
| 28 | 19290 | 19150 | 19820 | 19820 | 19940 | 22900 | 23110 | 23970 | 22920 | 22200 | 21510 | 21850 |
| 29 | 19280 | 19130 | 19820 | 19810 | --- | 22910 | 23110 | 23690 | 22900 | 22180 | 21500 | 21840 |
| 30 | 19270 | 19130 | 19820 | 19800 | --- | 22910 | 23090 | 24670 | 22890 | 22170 | 21470 | 21810 |
| 31 | 19270 | --- | 19830 | 19820 | --- | 22910 | --- | 24100 | --- | 22130 | 21450 | --- |
| MAX | 19390 | 19260 | 19890 | 19830 | 19940 | 22910 | 23380 | 24670 | 23760 | 22880 | 22100 | 22100 |
| MIN | 19000 | 19130 | 19110 | 19780 | 19790 | 20000 | 22870 | 22940 | 22890 | 22130 | 21450 | 21620 |
| (†) | 711.26 | 711.12 | 711.82 | 711.81 | 711.93 | 714.73 | 714.89 | 715.77 | 714.71 | 714.02 | 713.38 | 713.72 |
| (‡) | + 210 | - 140 | + 700 | - 10 | + 120 | +2970 | + 180 | +1010 | -1210 | - 760 | - 680 | + 360 |

CAL YR 1980 MAX 20610 MIN 17740 ‡ - 740
WTR YR 1981 MAX 24670 MIN 19000 ‡ +2750

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.

07315950 MOSS LAKE NEAR GAINESVILLE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO |
|---|---|---|---|---|---|---|---|---|
| APR 14... | 1645 | 329 | 140 | 13 | 51 | 3.9 | 11 | .4 |

| DATE | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|
| APR 14... | 3.6 | 130 | 19 | 9.7 | .2 | .6 | 177 |

## 07316000 RED RIVER NEAR GAINESVILLE, TX

LOCATION.--Lat 33°43'40", long 97°09'35", in SW1/4 sec.36, T.9 S., R.1 E., Love County, Okla., Hydrologic Unit 11130201, near center of span on downstream side of bridge on U.S. Highway 77, 0.2 mi (0.3 km) downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 5.0 mi (8.0 km) downstream from Fish Creek, 7.0 mi (11.0 km) north of Gainesville, and at mile 791.5 (1,273.5 km).

DRAINAGE AREA.--30,782 mi² (79,725 km²), of which 5,936 mi² (15,374 km²) probably is noncontributing.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1936 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 627.91 ft (191.387 m) 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.--Water-discharge records good. Flow slightly regulated by Lake Kemp (station 07331500), since 1943 by Lake Altus in Oklahoma, since 1946 by Lake Kickapoo (station 07314000), and since 1967 by Lake Arrowhead and Moss Lake (stations 07314800 and 07315950).

COOPERATION.--Gage-height record and 21 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--45 years, 2,657 ft³/s (75.25 m³/s), 1,925,000 acre-ft/yr (2.37 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 168,000 ft³/s (4,760 m³/s) June 9, 1941, gage height, 24.15 ft (7.361 m); maximum gage height, 26.53 ft (8.086 m) May 21, 1951; minimum discharge, 48 ft³/s (1.36 m³/s) Jan. 27, 1940.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 24,000 ft³/s (680 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| May 31 | 1030 | 26,600 | 753 | 16.64 | 5.072 |
| June 6 | 1830 | *43,700 | 1,240 | 18.75 | 5.715 |

Minimum daily discharge, 174 ft³/s (4.93 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8570 | 441 | 196 | 263 | 204 | 6000 | 387 | 969 | 17000 | 684 | 366 | 267 |
| 2 | 8170 | 375 | 187 | 257 | 194 | 9000 | 363 | 843 | 15300 | 645 | 344 | 329 |
| 3 | 5600 | 301 | 185 | 255 | 208 | 7000 | 350 | 1890 | 23000 | 634 | 378 | 388 |
| 4 | 2500 | 262 | 183 | 246 | 210 | 9000 | 349 | 2330 | 38700 | 608 | 466 | 398 |
| 5 | 1020 | 240 | 184 | 244 | 200 | 11000 | 325 | 3100 | 40800 | 595 | 485 | 368 |
| 6 | 787 | 227 | 185 | 242 | 210 | 9000 | 311 | 2050 | 42900 | 678 | 438 | 358 |
| 7 | 710 | 217 | 183 | 228 | 200 | 7000 | 307 | 1790 | 32900 | 775 | 374 | 360 |
| 8 | 684 | 205 | 623 | 226 | 210 | 6000 | 316 | 1480 | 16500 | 688 | 362 | 412 |
| 9 | 633 | 192 | 999 | 226 | 220 | 4500 | 314 | 1820 | 15600 | 655 | 358 | 399 |
| 10 | 553 | 207 | 3960 | 226 | 250 | 3560 | 298 | 3730 | 9330 | 589 | 349 | 426 |
| 11 | 456 | 238 | 5050 | 226 | 190 | 2080 | 286 | 4310 | 7460 | 531 | 334 | 725 |
| 12 | 402 | 230 | 3350 | 220 | 180 | 1460 | 281 | 3450 | 5600 | 485 | 458 | 704 |
| 13 | 364 | 215 | 1700 | 220 | 217 | 1160 | 272 | 2550 | 4480 | 464 | 611 | 758 |
| 14 | 331 | 209 | 1100 | 220 | 217 | 988 | 261 | 1410 | 3670 | 434 | 474 | 833 |
| 15 | 313 | 213 | 843 | 220 | 201 | 878 | 248 | 1040 | 3000 | 410 | 395 | 796 |
| 16 | 301 | 208 | 727 | 219 | 209 | 783 | 239 | 913 | 2660 | 383 | 371 | 453 |
| 17 | 300 | 229 | 636 | 214 | 215 | 695 | 235 | 795 | 2270 | 358 | 393 | 407 |
| 18 | 292 | 241 | 550 | 214 | 205 | 1100 | 244 | 720 | 1980 | 338 | 370 | 501 |
| 19 | 277 | 248 | 479 | 214 | 199 | 1550 | 887 | 632 | 2060 | 322 | 347 | 478 |
| 20 | 272 | 248 | 437 | 212 | 195 | 1160 | 1030 | 577 | 2290 | 304 | 342 | 361 |
| 21 | 257 | 270 | 414 | 208 | 190 | 905 | 1230 | 538 | 1860 | 278 | 662 | 318 |
| 22 | 250 | 364 | 385 | 208 | 184 | 756 | 1860 | 507 | 1500 | 269 | 963 | 283 |
| 23 | 237 | 386 | 364 | 208 | 180 | 652 | 2950 | 503 | 1340 | 260 | 669 | 254 |
| 24 | 224 | 355 | 343 | 212 | 177 | 602 | 1770 | 924 | 1250 | 240 | 518 | 233 |
| 25 | 217 | 322 | 319 | 214 | 176 | 581 | 1620 | 1900 | 1140 | 236 | 433 | 217 |
| 26 | 210 | 283 | 311 | 213 | 175 | 540 | 1400 | 1500 | 1020 | 222 | 378 | 206 |
| 27 | 276 | 258 | 304 | 208 | 180 | 507 | 1220 | 4590 | 925 | 219 | 352 | 199 |
| 28 | 273 | 239 | 286 | 205 | 200 | 486 | 953 | 8030 | 840 | 227 | 327 | 190 |
| 29 | 252 | 224 | 277 | 200 | --- | 491 | 794 | 10300 | 780 | 236 | 312 | 186 |
| 30 | 252 | 206 | 270 | 199 | --- | 448 | 693 | 17300 | 733 | 296 | 290 | 174 |
| 31 | 295 | --- | 270 | 196 | --- | 410 | --- | 25300 | --- | 429 | 268 | --- |
| TOTAL | 35278 | 7853 | 25300 | 6863 | 5596 | 90292 | 21793 | 107791 | 298888 | 13492 | 13187 | 11981 |
| MEAN | 1138 | 262 | 816 | 221 | 200 | 2913 | 726 | 3477 | 9963 | 435 | 425 | 399 |
| MAX | 8570 | 441 | 5050 | 263 | 250 | 11000 | 2950 | 25300 | 42900 | 775 | 963 | 833 |
| MIN | 210 | 192 | 183 | 196 | 175 | 410 | 235 | 503 | 733 | 219 | 268 | 174 |
| AC-FT | 69970 | 15580 | 50180 | 13610 | 11100 | 179100 | 43230 | 213800 | 592800 | 26760 | 26160 | 23760 |

CAL YR 1980 TOTAL 556088 MEAN 1519 MAX 39900 MIN 182 AC-FT 1103000
WTR YR 1981 TOTAL 638314 MEAN 1749 MAX 42900 MIN 174 AC-FT 1266000

07316000 RED RIVER NEAR GAINESVILLE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: May 1944 to April 1946, October 1952 to September 1964, October 1966 to current year. Pesticide analyses: April 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: May 1944 to April 1946, October 1952 to September 1964, October 1966 to current year.
WATER TEMPERATURES: October 1952 to September 1963, October 1966 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, 11,100 micromhos July 16, 1972; minimum daily, 176 micromhos Nov. 4, 1958.
WATER TEMPERATURES: Maximum daily, 35.0°C July 13, 1954; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 8,480 micromhos Sept. 14; minimum daily, 385 micromhos Mar. 6.
WATER TEMPERATURES: Maximum daily, 33.0°C June 25; minimum daily, 1.5°C Feb. 12.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L) | OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 06... | 1200 | 787 | 1100 | 7.3 | 22.0 | -- | 7.9 | -- | 23 | -- | -- |
| NOV | | | | | | | | | | | |
| 04... | 1400 | 2300 | 3640 | 9.0 | 17.0 | 13 | 14.3 | 149 | -- | 12 | 22 |
| JAN | | | | | | | | | | | |
| 14... | 1400 | 220 | 5250 | 9.0 | 8.0 | -- | 13.9 | 119 | -- | 18 | K9 |
| MAR | | | | | | | | | | | |
| 04... | 1100 | 12500 | 831 | 8.0 | 12.5 | 820 | 8.6 | 83 | -- | 5.1 | K9700 |
| MAY | | | | | | | | | | | |
| 06... | 1245 | 1980 | 1550 | 7.9 | 22.0 | 400 | 7.6 | 87 | -- | 8.1 | 920 |
| JUL | | | | | | | | | | | |
| 14... | 0945 | 434 | 4430 | 8.1 | 30.0 | 4.4 | 6.7 | 91 | -- | 6.4 | K60 |
| SEP | | | | | | | | | | | |
| 15... | 1520 | 730 | 4650 | 7.8 | 28.0 | 1300 | 6.3 | 83 | -- | 3.2 | K3800 |

| DATE | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 FIELD (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 06... | 4600 | 381 | -- | -- | -- | -- | -- | -- | -- | -- | 274 |
| NOV | | | | | | | | | | | |
| 04... | 22 | 700 | 540 | 170 | 66 | 520 | 8.6 | 11 | 154 | 390 | 920 |
| JAN | | | | | | | | | | | |
| 14... | K6 | 940 | 800 | 230 | 88 | 780 | 11 | 7.5 | 110 | 640 | 1400 |
| MAR | | | | | | | | | | | |
| 04... | 4700 | 160 | 92 | 42 | 13 | 94 | 3.3 | 4.6 | 66 | 70 | 170 |
| MAY | | | | | | | | | | | |
| 06... | 550 | 260 | 160 | 70 | 20 | 210 | 5.7 | 5.9 | 87 | 150 | 340 |
| JUL | | | | | | | | | | | |
| 14... | 27 | 780 | 660 | 200 | 67 | 620 | 9.7 | 9.7 | 120 | 110 | 1300 |
| SEP | | | | | | | | | | | |
| 15... | 8000 | 740 | 670 | 230 | 41 | 700 | 11 | 8.5 | 71 | 510 | 1300 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 06... | -- | -- | -- | -- | 286 | <.50 | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 04... | .4 | .3 | 2130 | 2170 | -- | .04 | .06 | .060 | .040 | .66 | .47 |
| JAN | | | | | | | | | | | |
| 14... | .5 | .6 | 3180 | 3210 | -- | .00 | .00 | .050 | .040 | 2.0 | -- |
| MAR | | | | | | | | | | | |
| 04... | .2 | 5.7 | 470 | 442 | -- | .52 | .53 | .100 | .120 | 2.8 | .85 |
| MAY | | | | | | | | | | | |
| 06... | .2 | 8.5 | 893 | 860 | -- | .69 | .81 | .060 | .130 | 1.9 | 2.1 |
| JUL | | | | | | | | | | | |
| 14... | .3 | 9.1 | 2800 | 2390 | -- | .01 | .01 | .110 | .090 | 2.0 | .47 |
| SEP | | | | | | | | | | | |
| 15... | .4 | 3.5 | 2840 | 2840 | -- | .78 | .66 | .130 | .140 | 4.5 | .96 |

07316000 RED RIVER NEAR GAINESVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) | CARBON, ORGANIC TOTAL (MG/L AS C) | CARBON, ORGANIC DISSOLVED (MG/L AS C) | CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 06... | 1.13 | -- | .345 | -- | 12 | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | |
| 04... | .72 | .51 | .240 | .090 | -- | 7.7 | 4.0 | 40 | 248 | 90 |
| JAN | | | | | | | | | | |
| 14... | 2.00 | -- | .330 | .060 | -- | 6.1 | 4.3 | 21 | 12 | 94 |
| MAR | | | | | | | | | | |
| 04... | 2.90 | .97 | .580 | .210 | 29 | -- | -- | 1940 | 65500 | 64 |
| MAY | | | | | | | | | | |
| 06... | 2.00 | 2.2 | .750 | .250 | -- | 6.6 | 5.9 | 1220 | 6520 | 88 |
| JUL | | | | | | | | | | |
| 14... | 2.10 | .56 | .160 | .020 | -- | 5.4 | 2.9 | 51 | 60 | 58 |
| SEP | | | | | | | | | | |
| 15... | 4.60 | 1.1 | .770 | .030 | 31 | -- | -- | 2080 | 4100 | 100 |

| DATE | TIME | ARSENIC TOTAL (UG/L AS AS) | ARSENIC SUSPENDED TOTAL (UG/L AS AS) | ARSENIC DISSOLVED (UG/L AS AS) | BARIUM, TOTAL RECOVERABLE (UG/L AS BA) | BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA) | BARIUM, DISSOLVED (UG/L AS BA) | CADMIUM TOTAL RECOVERABLE (UG/L AS CD) | CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD) | CADMIUM DISSOLVED (UG/L AS CD) | CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 06... | 1200 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 04... | 1400 | 4 | 0 | 4 | 200 | 0 | 200 | 0 | 0 | 2 | 0 |
| JAN | | | | | | | | | | | |
| 14... | 1400 | 4 | 1 | 3 | 200 | 100 | 100 | 0 | 0 | 0 | 10 |
| MAY | | | | | | | | | | | |
| 06... | 1245 | 10 | 7 | 3 | 400 | 200 | 200 | 0 | 0 | 0 | 50 |
| JUL | | | | | | | | | | | |
| 14... | 0945 | 6 | 0 | 6 | 300 | 300 | 0 | 0 | 0 | 0 | 20 |

| DATE | CHROMIUM, SUSPENDED RECOV. (UG/L AS CR) | CHROMIUM, DISSOLVED (UG/L AS CR) | COBALT, TOTAL RECOVERABLE (UG/L AS CO) | COBALT, SUSPENDED RECOVERABLE (UG/L AS CO) | COBALT, DISSOLVED (UG/L AS CO) | COPPER, TOTAL RECOVERABLE (UG/L AS CU) | COPPER, SUSPENDED RECOVERABLE (UG/L AS CU) | COPPER, DISSOLVED (UG/L AS CU) | IRON, TOTAL RECOVERABLE (UG/L AS FE) | IRON, SUSPENDED RECOVERABLE (UG/L AS FE) | IRON, DISSOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | 1830 | -- | -- |
| NOV | | | | | | | | | | | |
| 04... | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 3 | 330 | 300 | 30 |
| JAN | | | | | | | | | | | |
| 14... | 10 | 0 | 0 | 0 | 0 | 4 | 3 | 1 | 300 | 250 | 50 |
| MAY | | | | | | | | | | | |
| 06... | 50 | 0 | 11 | 11 | 0 | 25 | 23 | 2 | 16000 | 16000 | 20 |
| JUL | | | | | | | | | | | |
| 14... | 0 | 20 | 0 | 0 | 2 | 3 | 1 | 2 | 420 | 400 | 20 |

| DATE | LEAD, TOTAL RECOVERABLE (UG/L AS PB) | LEAD, SUSPENDED RECOVERABLE (UG/L AS PB) | LEAD, DISSOLVED (UG/L AS PB) | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MANGANESE, SUSPENDED RECOV. (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | MERCURY SUSPENDED RECOVERABLE (UG/L AS HG) | MERCURY DISSOLVED (UG/L AS HG) | NICKEL, TOTAL RECOVERABLE (UG/L AS NI) | NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 06... | -- | -- | -- | 190 | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | | |
| 04... | 3 | 2 | 1 | 50 | 40 | 10 | .3 | .1 | .2 | 9 | 6 |
| JAN | | | | | | | | | | | |
| 14... | 8 | 8 | 0 | 80 | 50 | 30 | .2 | .2 | .0 | 2 | 2 |
| MAY | | | | | | | | | | | |
| 06... | 19 | 18 | 1 | 730 | 730 | 0 | .2 | .1 | .1 | 30 | 27 |
| JUL | | | | | | | | | | | |
| 14... | 0 | 0 | 0 | 160 | 140 | 20 | .1 | .0 | .1 | 6 | 3 |

07316000 RED RIVER NEAR GAINESVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | NICKEL, DIS-SOLVED (UG/L AS NI) | SELE-NIUM, TOTAL (UG/L AS SE) | SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE) | SELE-NIUM, DIS-SOLVED (UG/L AS SE) | SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) | SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG) | SILVER, DIS-SOLVED (UG/L AS AG) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) | ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN) | ZINC, DIS-SOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | | |
| 04... | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 10 |
| JAN | | | | | | | | | | |
| 14... | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 20 | 10 | 10 |
| MAY | | | | | | | | | | |
| 06... | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 70 | 60 | 10 |
| JUL | | | | | | | | | | |
| 14... | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 10 | 10 |

| DATE | TIME | PCB, TOTAL (UG/L) | PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | CHLOR-DANE, TOTAL (UG/L) | CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | DDD, TOTAL (UG/L) | DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | DDE, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | | |
| 14... | 1400 | .00 | 0 | .00 | .00 | .0 | .00 | .0 | .00 | .0 | .00 |
| JUL | | | | | | | | | | | |
| 14... | 0945 | .00 | 1 | .00 | .00 | .0 | .00 | .0 | .00 | .1 | .00 |

| DATE | DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | DDT, TOTAL (UG/L) | DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | DI-AZINON, TOTAL (UG/L) | DI-ELDRIN TOTAL (UG/L) | DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | ENDO-SULFAN, TOTAL (UG/L) | ENDRIN, TOTAL (UG/L) | ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | ETHION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 14... | .1 | .00 | .0 | .05 | .00 | .0 | .00 | .00 | .0 | .00 |
| JUL | | | | | | | | | | |
| 14... | .4 | .00 | .0 | .02 | .00 | .0 | .00 | .00 | .0 | .00 |

| DATE | HEPTA-CHLOR, TOTAL (UG/L) | HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | HEPTA-CHLOR EPOXIDE TOTAL (UG/L) | HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) | LINDANE TOTAL (UG/L) | LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | MALA-THION, TOTAL (UG/L) | METH-OXY-CHLOR, TOTAL (UG/L) | METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (UG/KG) | METHYL PARA-THION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 14... | .00 | .0 | .00 | .0 | .00 | .0 | .00 | .00 | .0 | .01 |
| JUL | | | | | | | | | | |
| 14... | .00 | .0 | .00 | .0 | .00 | .0 | .00 | .00 | .0 | .00 |

| DATE | METHYL TRI-THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) | MIREX, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | PARA-THION, TOTAL (UG/L) | TOX-APHENE, TOTAL (UG/L) | TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | TOTAL TRI-THION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 14... | .00 | .00 | .0 | .00 | 0 | .0 | .00 | .00 | .00 | .00 |
| JUL | | | | | | | | | | |
| 14... | .00 | .00 | .0 | .00 | 0 | .0 | .00 | .02 | .02 | .00 |

07316000 RED RIVER NEAR GAINESVILLE, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO JULY 1981

| DATE | NOV 4,80 | MAR 4,81 | MAY 6,81 | JUL 14,81 |
|---|---|---|---|---|
| TIME | 1400 | 1100 | 1245 | 0945 |
| TOTAL CELLS/ML | 62000 | 3000 | 3400 | 960000 |
| DIVERSITY: DIVISION | 1.1 | 1.2 | 1.5 | 0.5 |
| .CLASS | 1.1 | 1.2 | 1.5 | 0.5 |
| ..ORDER | 1.5 | 1.7 | 2.8 | 1.2 |
| ...FAMILY | 2.0 | 1.9 | 2.8 | 1.3 |
| ....GENUS | 2.5 | 1.9 | 2.9 | 1.6 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|---|---|
| BACILLARIOPHYTA (DIATOMS) | | | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | | | |
| ..BACILLARIALES | | | | | | | | |
| ...NITZSCHIACEAE | | | | | | | | |
| ....NITZSCHIA | 1800 | 3 | 180 | 6 | 690# | 20 | 14000 | 1 |
| ..EUNOTIALES | | | | | | | | |
| ...EUNOTIACEAE | | | | | | | | |
| ....EUNOTIA | -- | - | -- | - | 22 | 1 | -- | - |
| ..EUPODISCALES | | | | | | | | |
| ...COSCINODISCACEAE | | | | | | | | |
| ....CYCLOTELLA | 35000# | 56 | 68 | 2 | 500 | 15 | 8700 | 1 |
| ....MELOSIRA | 2300 | 4 | -- | - | 22 | 1 | -- | - |
| ....STEPHANODISCUS | -- | - | -- | - | 22 | 1 | -- | - |
| ..NAVICULALES | | | | | | | | |
| ...ENTOMONEIDACEAE | | | | | | | | |
| ....ENTOMONEIS | -- | - | 82 | 3 | -- | - | -- | - |
| ...GOMPHONEMACEAE | | | | | | | | |
| ....GOMPHONEMA | -- | - | 68 | 2 | 22 | 1 | -- | - |
| ...NAVICULACEAE | | | | | | | | |
| ....NAVICULA | 750 | 1 | 740# | 25 | 580# | 17 | * | 0 |
| ..SURIRELLALES | | | | | | | | |
| ...SURIRELLACEAE | | | | | | | | |
| ....SURIRELLA | -- | - | 27 | 1 | 65 | 2 | -- | - |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | | | |
| .CHLOROPHYCEAE | | | | | | | | |
| ..CHLOROCOCCALES | | | | | | | | |
| ...DICTYOSPHAERIACEAE | | | | | | | | |
| ....DICTYOSPHAERIUM | 1300 | 2 | -- | - | -- | - | 8700 | 1 |
| ....WESTELLA | 1000 | 2 | -- | - | -- | - | -- | - |
| ...MICRACTINIACEAE | | | | | | | | |
| ....GOLENKINIOPSIS | -- | - | -- | - | -- | - | * | 0 |
| ....MICRACTINIUM | 1000 | 2 | -- | - | -- | - | * | 0 |
| ...OOCYSTACEAE | | | | | | | | |
| ....ANKISTRODESMUS | 750 | 1 | -- | - | -- | - | 5000 | 1 |
| ....KIRCHNERIELLA | -- | - | -- | - | -- | - | * | 0 |
| ....OOCYSTIS | 5300 | 8 | -- | - | -- | - | 14000 | 1 |
| ....SELENASTRUM | 750 | 1 | -- | - | -- | - | -- | - |
| ....TREUBARIA | * | 0 | -- | - | -- | - | * | 0 |
| ...SCENEDESMACEAE | | | | | | | | |
| ....ACTINASTRUM | 2000 | 3 | -- | - | -- | - | -- | - |
| ....SCENEDESMUS | 2000 | 3 | 82 | 3 | 840# | 25 | 7500 | 1 |
| ....TETRASTRUM | 4000 | 6 | -- | - | -- | - | -- | - |
| ..VOLVOCALES | | | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | | | |
| ....CHLAMYDOMONAS | 1500 | 2 | * | 0 | 150 | 4 | 12000 | 1 |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | | | |
| .CYANOPHYCEAE | | | | | | | | |
| ..CHROOCOCCALES | | | | | | | | |
| ...CHROOCOCCACEAE | | | | | | | | |
| ....AGMENELLUM | -- | - | -- | - | -- | - | 26000 | 3 |
| ....ANACYSTIS | 2500 | 4 | -- | - | -- | - | 22000 | 2 |
| ..NOSTOCALES | | | | | | | | |
| ...NOSTOCACEAE | | | | | | | | |
| ....ANABAENA | -- | - | -- | - | 220 | 6 | -- | - |
| ....ANABAENOPSIS | -- | - | -- | - | -- | - | 19000 | 2 |
| ....APHANIZOMENON | -- | - | -- | - | -- | - | 41000 | 4 |
| ..OSCILLATORIALES | | | | | | | | |
| ...OSCILLATORIACEAE | | | | | | | | |
| ....LYNGBYA | -- | - | -- | - | -- | - | 25000 | 3 |
| ....OSCILLATORIA | -- | - | 1700# | 57 | 170 | 5 | 740000# | 78 |
| ....SPIRULINA | -- | - | -- | - | -- | - | * | 0 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | | | |
| .EUGLENOPHYCEAE | | | | | | | | |
| ..EUGLENALES | | | | | | | | |
| ...EUGLENACEAE | | | | | | | | |
| ....EUGLENA | -- | - | 27 | 1 | 86 | 3 | * | 0 |
| ....TRACHELOMONAS | -- | - | -- | - | 22 | 1 | * | 0 |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | | | |
| .DINOPHYCEAE | | | | | | | | |
| ..DINOKONTAE | | | | | | | | |
| ...GLENODINIACEAE | | | | | | | | |
| ....GLENODINIUM | -- | - | -- | - | -- | - | * | 0 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

07316000 RED RIVER NEAR GAINESVILLE, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 35278 | 1210 | 712 | 67900 | 290 | 27200 | 140 | 13700 | 260 |
| NOV. | 1980 | 7853 | 3810 | 2280 | 48300 | 920 | 19600 | 460 | 9830 | 750 |
| DEC. | 1980 | 25300 | 1890 | 1120 | 76400 | 450 | 30800 | 230 | 15500 | 390 |
| JAN. | 1981 | 6863 | 5220 | 3160 | 58500 | 1300 | 23900 | 650 | 12000 | 960 |
| FEB. | 1981 | 5596 | 5560 | 3370 | 51000 | 1400 | 20900 | 690 | 10400 | 1000 |
| MAR. | 1981 | 90292 | 1150 | 676 | 165000 | 270 | 66000 | 140 | 33300 | 250 |
| APR. | 1981 | 21793 | 3260 | 1940 | 114000 | 780 | 46200 | 390 | 23200 | 650 |
| MAY | 1981 | 107791 | 1370 | 806 | 235000 | 320 | 94100 | 160 | 47500 | 290 |
| JUNE | 1981 | 298888 | 1300 | 759 | 612000 | 300 | 244800 | 150 | 123800 | 280 |
| JULY | 1981 | 13492 | 4490 | 2700 | 98400 | 1100 | 40000 | 550 | 20100 | 860 |
| AUG. | 1981 | 13187 | 4150 | 2490 | 88600 | 1000 | 36000 | 510 | 18100 | 800 |
| SEPT | 1981 | 11981 | 5220 | 3170 | 102000 | 1300 | 41900 | 650 | 21000 | 940 |
| TOTAL | | 638314 | ** | ** | 1717000 | ** | 691000 | ** | 349000 | ** |
| WTD. AVG. | | 1749 | 1690 | 996 | ** | 400 | ** | 200 | ** | 350 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 650 | 3780 | 4060 | 5250 | 5320 | 1750 | 4650 | 2440 | 681 | 4710 | 3830 | 5980 |
| 2 | 640 | 4080 | 3980 | 5200 | 5420 | 666 | 4460 | 3680 | 643 | 4610 | 4520 | 6170 |
| 3 | 720 | 3540 | 3930 | 5230 | 5540 | 560 | 4360 | 4620 | 754 | 4620 | 4720 | 6260 |
| 4 | 790 | 3670 | 4000 | 5180 | 5720 | 662 | 4400 | 2180 | 1020 | 4440 | 4710 | 6380 |
| 5 | 860 | 3620 | 4210 | 5130 | 5830 | 595 | 4500 | 1970 | 1180 | 4460 | 4610 | 5340 |
| 6 | 810 | 2890 | 4170 | 5140 | 5530 | 385 | 4520 | 1510 | 1140 | 4620 | 4310 | 3350 |
| 7 | 1320 | 2900 | 4470 | 5160 | 5450 | 388 | 4550 | 1860 | 1340 | 4710 | 3300 | 3220 |
| 8 | 1500 | 3090 | 2190 | 5210 | 5600 | 915 | 4650 | 2460 | 1100 | 4860 | 3490 | 3890 |
| 9 | 1780 | 3290 | 1630 | 5160 | 5660 | 1130 | 4670 | 1580 | 1200 | 3430 | 3130 | 3680 |
| 10 | 1920 | 3370 | 909 | 5100 | 5650 | 1150 | 4800 | 3640 | 1520 | 3720 | 3480 | 2700 |
| 11 | 2320 | 3600 | 815 | 5150 | 5680 | 1160 | 4760 | 2110 | 1940 | 3850 | 3900 | 4660 |
| 12 | 2400 | 3640 | 868 | 5110 | 5560 | 1620 | 4840 | 1650 | 1950 | 3590 | 4620 | 5240 |
| 13 | 2590 | 3900 | 1090 | 5120 | 5600 | 1930 | 4790 | 1490 | 1850 | 3930 | 5000 | 6270 |
| 14 | 2940 | 4030 | 1100 | 5230 | 5680 | 2040 | 4710 | 1730 | 1750 | 4430 | 2910 | 8480 |
| 15 | 3190 | 4000 | 1410 | 5280 | 5650 | 2340 | 4900 | 2400 | 1860 | 4680 | 2890 | 4590 |
| 16 | 3350 | 4050 | 1700 | 5360 | 5660 | 2760 | 4570 | 2700 | 1990 | 4940 | 2840 | 5140 |
| 17 | 3300 | 4000 | 2120 | 5330 | 5610 | 2880 | 4550 | 2680 | 2100 | 4180 | 3010 | 5560 |
| 18 | 3620 | 4120 | 2790 | 5340 | 5680 | 3470 | 4500 | 3150 | 2390 | 4080 | 3030 | 5920 |
| 19 | 3820 | 4130 | 3380 | 5290 | 5700 | 2660 | 2640 | 3460 | 2680 | 4300 | 3480 | 3770 |
| 20 | 3830 | 4390 | 3650 | 5180 | 5740 | 2240 | 3050 | 3820 | 3070 | 4660 | 4080 | 3950 |
| 21 | 3880 | 4610 | 3720 | 5150 | 5260 | 2250 | 3680 | 3950 | 2660 | 4730 | 4630 | 4180 |
| 22 | 4020 | 4390 | 5000 | 5170 | 5550 | 2760 | 2800 | 4210 | 2680 | 4850 | 3550 | 4820 |
| 23 | 3970 | 4380 | 5420 | 5260 | 5520 | 3180 | 2410 | 4870 | 3170 | 5010 | 2720 | 5520 |
| 24 | 3900 | 4170 | 5190 | 5160 | 5570 | 3850 | 2170 | 2980 | 3250 | 5060 | 4120 | 5700 |
| 25 | 4040 | 4490 | 4710 | 5310 | 5600 | 4460 | 2220 | 1600 | 4010 | 5100 | 5390 | 5350 |
| 26 | 4130 | 3480 | 4650 | 5320 | 5780 | 4400 | 2800 | 1790 | 4300 | 5150 | 5620 | 4980 |
| 27 | 2880 | 3060 | 4540 | 5270 | 6010 | 4090 | 2900 | 849 | 6010 | 5210 | 5770 | 5400 |
| 28 | 3200 | 2990 | 4730 | 5210 | 4150 | 4650 | 3420 | 775 | 5780 | 5250 | 5840 | 6030 |
| 29 | 3450 | 3430 | 5160 | 5160 | --- | 4820 | 3640 | 803 | 5070 | 5100 | 5690 | 6150 |
| 30 | 3460 | 3830 | 5340 | 5280 | --- | 4900 | 4100 | 639 | 4830 | 5200 | 5780 | 6330 |
| 31 | 4230 | --- | 5290 | 5390 | --- | 4920 | --- | 658 | --- | 4700 | 5810 | --- |

07316000 RED RIVER NEAR GAINESVILLE, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 18.0 | 16.5 | 16.5 | 9.5 | 5.0 | 14.5 | 20.0 | 27.0 | 26.0 | 31.5 | 29.0 | 27.0 |
| 2 | 17.5 | 16.5 | 9.0 | 9.0 | 5.5 | 15.0 | 22.0 | 25.5 | 25.5 | 30.5 | 32.0 | 27.0 |
| 3 | 20.5 | 17.0 | 9.5 | 7.5 | 5.5 | 13.0 | 22.5 | 22.0 | 26.0 | 29.5 | 31.5 | 29.5 |
| 4 | 17.5 | 16.0 | 13.5 | 8.5 | 6.0 | 14.5 | 20.5 | 23.0 | 24.5 | 29.0 | 31.5 | 27.5 |
| 5 | 20.0 | 14.5 | 18.5 | 6.0 | 6.0 | 13.5 | 20.0 | 23.0 | 25.0 | 28.0 | 29.0 | 27.0 |
| 6 | 17.5 | 17.5 | 18.0 | 8.5 | 5.5 | 11.0 | 18.0 | 24.0 | 25.0 | 29.5 | 30.0 | 27.0 |
| 7 | 18.0 | 18.5 | 18.5 | 8.5 | 5.0 | 9.5 | 20.5 | 24.0 | 25.0 | 30.5 | 30.5 | 26.5 |
| 8 | 18.0 | 15.5 | 10.5 | 8.5 | 7.5 | 11.0 | 23.0 | 22.0 | 29.0 | 30.5 | 26.0 | 27.5 |
| 9 | 18.5 | 15.5 | 10.0 | 10.0 | 7.0 | 10.0 | 25.5 | 19.5 | 29.5 | 29.0 | 29.0 | 24.5 |
| 10 | 18.5 | 21.5 | 9.0 | 7.5 | 3.5 | 13.5 | 22.0 | 18.5 | 30.0 | 30.0 | 28.0 | 25.0 |
| 11 | 16.0 | 20.5 | 9.0 | 7.5 | 2.0 | 13.5 | 24.5 | 22.0 | 29.5 | 32.0 | 28.0 | 27.5 |
| 12 | 17.5 | 18.5 | 9.5 | 7.0 | 1.5 | 14.0 | 26.0 | 20.0 | 28.0 | 31.5 | 28.0 | 26.5 |
| 13 | 16.5 | 18.0 | 10.0 | 8.5 | 3.5 | 16.5 | 26.5 | 21.0 | 26.5 | 32.5 | 28.0 | 29.5 |
| 14 | 17.0 | 14.5 | 8.5 | 9.0 | 6.0 | 15.5 | 22.5 | 24.0 | 26.5 | 32.0 | 31.5 | 27.5 |
| 15 | 20.0 | 13.0 | 11.5 | 10.0 | 5.5 | 17.5 | 20.0 | 20.0 | 29.0 | 31.0 | 28.5 | 27.5 |
| 16 | 20.5 | 10.0 | 11.0 | 7.0 | 12.0 | 17.5 | 24.5 | 24.0 | 23.5 | 31.0 | 28.5 | 27.0 |
| 17 | 18.5 | 6.0 | 11.5 | 6.5 | 13.0 | 18.0 | 25.5 | 24.5 | 26.5 | 31.5 | 29.5 | 22.5 |
| 18 | 16.5 | 7.5 | 12.5 | 6.0 | 14.5 | 14.0 | 22.0 | 27.0 | 27.0 | 31.0 | 27.0 | 23.0 |
| 19 | 17.5 | 10.0 | 7.0 | 6.0 | 17.0 | 13.5 | 23.5 | 18.5 | 29.0 | 30.0 | 24.0 | 28.0 |
| 20 | 18.0 | 9.0 | 5.0 | 5.5 | 13.5 | 14.0 | 25.0 | 20.0 | 30.0 | 30.5 | 25.0 | 25.5 |
| 21 | 16.0 | 11.5 | 3.0 | 5.0 | 17.0 | 16.5 | 21.5 | 19.0 | 30.5 | 31.5 | 25.0 | 26.5 |
| 22 | 16.5 | 9.0 | 4.5 | 8.5 | 14.0 | 13.0 | 22.5 | 20.0 | 29.5 | 29.0 | 27.0 | 25.5 |
| 23 | 20.5 | 8.5 | 8.5 | 10.0 | 15.5 | 9.0 | 22.0 | 27.5 | 29.0 | 28.5 | 30.0 | 25.5 |
| 24 | 14.5 | 10.0 | 7.0 | 8.5 | 16.5 | 13.5 | 23.5 | 21.5 | 31.0 | 27.5 | 26.0 | 26.5 |
| 25 | 16.0 | 9.0 | 6.5 | 11.5 | 17.0 | 15.0 | 24.0 | 22.0 | 33.0 | 32.5 | 30.5 | 25.5 |
| 26 | 15.0 | 7.0 | 4.5 | 12.0 | 19.0 | 17.5 | 23.0 | 28.0 | 30.0 | 29.5 | 30.5 | 25.5 |
| 27 | 16.5 | 7.5 | 7.5 | 12.0 | 20.0 | 16.5 | 25.5 | 24.0 | 30.0 | 32.0 | 29.5 | 25.0 |
| 28 | 14.0 | 8.5 | 8.0 | 11.5 | 15.5 | 17.5 | 26.0 | 26.5 | 28.5 | 31.5 | 30.0 | 26.0 |
| 29 | 13.5 | 9.5 | 10.0 | 15.0 | --- | 19.0 | 28.0 | 25.0 | 31.0 | 32.0 | 29.5 | 27.5 |
| 30 | 15.0 | 10.0 | 9.5 | 9.0 | --- | 20.5 | 29.0 | 23.5 | 31.5 | 32.0 | 30.0 | 27.5 |
| 31 | 14.5 | --- | 9.0 | 6.0 | --- | 21.0 | --- | 25.5 | --- | 29.5 | 29.5 | --- |

## 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, Okla., Hydrologic Unit 11130210, in control tower of Denison Dam on Red River, 1.2 mi (1.9 km) upstream from Shawnee Creek, 1.8 mi (2.9 km) upstream from Sand Creek, 4.0 mi (6.4 km) northwest of Denison, and at mile 725.9 (1,168.0 km).

DRAINAGE AREA.--39,719 mi² (102,872 km²), of which 5,936 mi² (15,374 km²) probably is 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, nonrecording 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 (508 mm) 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 Mar. 15, 1945. Dead storage, 11,000 acre-ft (13.6 hm³) at elevation 610.0 ft (185.93 m) in Cumberland pool. When contents are below 2,105,000 acre-ft (2.60 km³), the lake is divided into two pools by protective levees around the Cumberland oilfield on the Washita River arm, with bottom of outlet channel for the upper pool (known as Cumberland pool) at elevation 610.0 ft (185.93 m). At higher elevations the two pools are considered as being at a common level, contents being computed from gage in Denison pool. The lake is used principally for flood control and power development. Revised capacity table, based on survey in 1969, used since Oct. 1, 1977. Figures given herein represent total contents of both pools. Data regarding the dam and lake are given in the following table:

| | Elevation (feet) | Capacity (acre-feet) |
|---|---|---|
| Top of dam | 670.0 | - |
| Crest of spillway | 640.0 | 5,312,000 |
| Top of maximum power pool | 617.0 | 2,643,000 |
| Bottom of minimum power pool (in Denison pool) | 590.0 | 1,031,000 |

COOPERATION.--Records furnished by the Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 5,991,300 acre-ft (7.39 km³) June 5, 1957, elevation, 643.18 ft (196.041 m); minimum since power pool was first filled, 1,565,100 acre-ft (1.93 km³) Sept. 16, 1964; minimum elevation, 599.96 ft (182.868 m) Mar. 1, 2, 1957.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 2,985,000 acre-ft (3.68 km³) June 8, elevation, 620.67 ft (189.180 m); minimum, 2,202,000 acre-ft (2.72 km³) Sept. 30, elevation, 611.36 ft (186.343 m).

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

| | | | |
|---|---|---|---|
| 609.0 | 2,037,000 | 614.0 | 2,399,000 |
| 610.0 | 2,105,000 | 617.0 | 2,643,000 |
| 612.0 | 2,248,000 | 621.0 | 3,018,000 |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2333000 | 2368000 | 2338000 | 2399000 | 2357000 | 2348000 | 2538000 | 2573000 | 2800000 | 2672000 | 2497000 | 2302000 |
| 2 | 2345000 | 2368000 | 2333000 | 2396000 | 2351000 | 2356000 | 2533000 | 2565000 | 2817000 | 2662000 | 2498000 | 2296000 |
| 3 | 2355000 | 2371000 | 2331000 | 2397000 | 2348000 | 2403000 | 2534000 | 2567000 | 2853000 | 2660000 | 2490000 | 2293000 |
| 4 | 2360000 | 2370000 | 2330000 | 2395000 | 2343000 | 2451000 | 2535000 | 2569000 | 2870000 | 2676000 | 2481000 | 2290000 |
| 5 | 2360000 | 2369000 | 2331000 | 2390000 | 2342000 | 2475000 | 2535000 | 2570000 | 2904000 | 2677000 | 2472000 | 2290000 |
| 6 | 2373000 | 2367000 | 2332000 | 2393000 | 2341000 | 2487000 | 2532000 | 2573000 | 2938000 | 2675000 | 2470000 | 2288000 |
| 7 | 2376000 | 2368000 | 2363000 | 2390000 | 2342000 | 2501000 | 2530000 | 2570000 | 2970000 | 2670000 | 2460000 | 2295000 |
| 8 | 2376000 | 2368000 | 2364000 | 2391000 | 2341000 | 2517000 | 2533000 | 2580000 | 2981000 | 2667000 | 2457000 | 2299000 |
| 9 | 2378000 | 2367000 | 2371000 | 2391000 | 2350000 | 2529000 | 2533000 | 2621000 | 2968000 | 2662000 | 2455000 | 2298000 |
| 10 | 2378000 | 2366000 | 2374000 | 2393000 | 2352000 | 2537000 | 2533000 | 2637000 | 2945000 | 2656000 | 2450000 | 2296000 |
| 11 | 2377000 | 2366000 | 2381000 | 2392000 | 2332000 | 2544000 | 2536000 | 2648000 | 2920000 | 2654000 | 2449000 | 2293000 |
| 12 | 2376000 | 2364000 | 2390000 | 2384000 | 2324000 | 2547000 | 2537000 | 2649000 | 2897000 | 2652000 | 2447000 | 2294000 |
| 13 | 2375000 | 2362000 | 2397000 | 2381000 | 2325000 | 2550000 | 2530000 | 2656000 | 2875000 | 2651000 | 2446000 | 2294000 |
| 14 | 2372000 | 2363000 | 2401000 | 2381000 | 2328000 | 2553000 | 2533000 | 2651000 | 2854000 | 2642000 | 2442000 | 2291000 |
| 15 | 2366000 | 2360000 | 2407000 | 2380000 | 2329000 | 2559000 | 2535000 | 2650000 | 2861000 | 2634000 | 2438000 | 2290000 |
| 16 | 2371000 | 2367000 | 2408000 | 2379000 | 2330000 | 2559000 | 2533000 | 2648000 | 2856000 | 2627000 | 2440000 | 2289000 |
| 17 | 2367000 | 2361000 | 2409000 | 2378000 | 2332000 | 2557000 | 2531000 | 2653000 | 2839000 | 2615000 | 2442000 | 2284000 |
| 18 | 2370000 | 2351000 | 2418000 | 2378000 | 2334000 | 2550000 | 2534000 | 2651000 | 2825000 | 2605000 | 2442000 | 2282000 |
| 19 | 2369000 | 2348000 | 2410000 | 2377000 | 2335000 | 2545000 | 2545000 | 2640000 | 2805000 | 2595000 | 2439000 | 2276000 |
| 20 | 2368000 | 2346000 | 2405000 | 2375000 | 2339000 | 2540000 | 2545000 | 2635000 | 2788000 | 2582000 | 2436000 | 2274000 |
| 21 | 2365000 | 2340000 | 2403000 | 2377000 | 2336000 | 2546000 | 2551000 | 2629000 | 2771000 | 2570000 | 2426000 | 2264000 |
| 22 | 2360000 | 2338000 | 2396000 | 2377000 | 2339000 | 2548000 | 2571000 | 2621000 | 2753000 | 2558000 | 2417000 | 2259000 |
| 23 | 2364000 | 2344000 | 2404000 | 2374000 | 2338000 | 2540000 | 2582000 | 2630000 | 2729000 | 2548000 | 2410000 | 2255000 |
| 24 | 2357000 | 2333000 | 2401000 | 2371000 | 2341000 | 2531000 | 2582000 | 2647000 | 2723000 | 2537000 | 2398000 | 2247000 |
| 25 | 2357000 | 2335000 | 2399000 | 2373000 | 2343000 | 2528000 | 2583000 | 2665000 | 2716000 | 2529000 | 2389000 | 2241000 |
| 26 | 2352000 | 2335000 | 2400000 | 2369000 | 2344000 | 2527000 | 2588000 | 2665000 | 2709000 | 2522000 | 2375000 | 2233000 |
| 27 | 2377000 | 2335000 | 2400000 | 2363000 | 2343000 | 2527000 | 2586000 | 2688000 | 2704000 | 2511000 | 2366000 | 2226000 |
| 28 | 2373000 | 2335000 | 2402000 | 2355000 | 2330000 | 2540000 | 2579000 | 2694000 | 2691000 | 2505000 | 2355000 | 2217000 |
| 29 | 2367000 | 2334000 | 2403000 | 2361000 | --- | 2539000 | 2578000 | 2711000 | 2690000 | 2501000 | 2344000 | 2208000 |
| 30 | 2367000 | 2334000 | 2399000 | 2354000 | --- | 2540000 | 2569000 | 2762000 | 2673000 | 2501000 | 2333000 | 2202000 |
| 31 | 2367000 | --- | 2399000 | 2354000 | --- | 2542000 | --- | 2785000 | --- | 2497000 | 2315000 | --- |
| MAX | 2378000 | 2371000 | 2418000 | 2399000 | 2357000 | 2559000 | 2588000 | 2785000 | 2981000 | 2677000 | 2498000 | 2302000 |
| MIN | 2333000 | 2333000 | 2330000 | 2354000 | 2324000 | 2348000 | 2530000 | 2565000 | 2673000 | 2497000 | 2315000 | 2202000 |
| (†) | 613.69 | 613.15 | 614.00 | 613.42 | 613.10 | 615.81 | 616.14 | 618.56 | 617.33 | 615.26 | 612.90 | 611.36 |
| (‡) | +52000 | -33000 | +65000 | -45000 | -24000 | +212000 | +27000 | +216000 | -112000 | -176000 | -182000 | -113000 |

CAL YR 1980 MAX 2847000 MIN 2183000 ‡ - 13000
WTR YR 1981 MAX 2981000 MIN 2202000 ‡ -110000

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.

## 07331600 RED RIVER AT DENISON DAM NEAR DENISON, TX

LOCATION.--Lat 33°49'08", long 96°33'47", Grayson County, Hydrologic Unit 11140101, on right bank 1,800 ft (549 m) downstream from Denison Dam powerhouse, 0.4 mi (0.6 km) upstream from Shawnee Creek (spillway flow return), 4.5 mi (7.2 km) north of Denison, and at mile 725.5 (1,167.3 km).

DRAINAGE AREA.--39,720 mi² (102,875 km²), of which 5,936 mi² (15,374 km²) probably is noncontributing. At site used prior to October 1961, drainage area 39,777 mi² (103,022 km²), of which 5,936 mi² (15,374 km²) probably was noncontributing.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1923 to current year. Monthly discharge only for some periods, published in WSP 1311. Prior to October 1934, published as "near Denison, Tex.", and October 1934 to September 1961, published as "near Colbert, Okla.". Gage-height records collected at various sites in this vicinity during periods 1892-93, 1906-28, and 1931-49 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 807: 1935(M). WSP 1211: Drainage area. WSP 1241: 1924-29, 1932-33, 1934(M), 1935.

GAGE.--Water-stage recorder. Datum of gage is 500.00 ft (152.400 m) National Geodetic Vertical Datum of 1929. Oct. 9, 1923, to Sept. 24, 1934, nonrecording gage, and July 29, 1942, to Sept. 30, 1961, water-stage recorder at county road bridge 2.5 mi (4.0 km) downstream. Prior to Oct. 1, 1931, at datum 6.85 ft (2.088 m) higher; Oct. 1, 1931, to Sept. 24, 1934, at datum 7.07 ft (2.155 m) higher; and July 29, 1942, to Sept. 30, 1961, at datum 2.64 ft (0.805 m) lower. Sept. 25, 1934, to July 28, 1942, water-stage recorder at railway bridge 1.9 mi (3.1 km) downstream at datum 7.36 ft (2.243 m) higher.

REMARKS.--Water-discharge records good. Flow regulated since October 1943 by Lake Texoma (station 07331500).

COOPERATION.--Gage-height record and 15 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--20 years (water years 1924-43) prior to completion of Denison Dam, 5,684 ft³/s (161.0 m³/s), 4,118,000 acre-ft/yr (5.08 km³/yr); 37 years (water years 1945-81) regulated, 4,201 ft³/s (119.0 m³/s), 3,044,000 acre-ft/yr (3.75 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 201,000 ft³/s (5,690 m³/s) May 21, 1935, gage height, 31.8 ft (9.69 m), at site and datum then in use; maximum gage height, 32.0 ft (9.75 m) Apr. 25, 1942, at site and datum used in 1943; minimum daily discharge, 12 ft³/s (0.34 m³/s) Jan. 10, 1944.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 26, 1908, reached a stage of 45.5 ft (13.87 m) at site and datum used July 29, 1942, to Sept. 30, 1961, from records of the National Weather Service.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 29,500 ft³/s (835 m³/s) June 6, gage height, 13.70 ft (4.176 m); minimum daily, 38 ft³/s (1.08 m³/s) Mar. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 142 | 70 | 67 | 89 | 127 | 71 | 1760 | 2820 | 10000 | 5170 | 277 | 8080 |
| 2 | 91 | 68 | 613 | 1260 | 1340 | 1340 | 2010 | 4410 | 10000 | 4660 | 234 | 4980 |
| 3 | 86 | 69 | 124 | 111 | 2040 | 2790 | 2450 | 158 | 15800 | 2430 | 4190 | 2400 |
| 4 | 84 | 70 | 954 | 89 | 2100 | 163 | 110 | 2930 | 24800 | 193 | 4170 | 2280 |
| 5 | 84 | 933 | 101 | 1980 | 819 | 2840 | 40 | 1900 | 28500 | 106 | 4320 | 787 |
| 6 | 94 | 92 | 67 | 145 | 422 | 3720 | 475 | 1730 | 28700 | 2080 | 3730 | 982 |
| 7 | 89 | 68 | 70 | 262 | 73 | 2770 | 442 | 2530 | 23900 | 2630 | 2560 | 556 |
| 8 | 1290 | 295 | 572 | 361 | 70 | 131 | 553 | 2070 | 16300 | 3510 | 947 | 537 |
| 9 | 103 | 315 | 1480 | 212 | 912 | 63 | 1170 | 180 | 23000 | 3330 | 935 | 485 |
| 10 | 1280 | 462 | 1780 | 139 | 2060 | 1290 | 106 | 82 | 23000 | 2610 | 2030 | 559 |
| 11 | 101 | 98 | 1490 | 80 | 5880 | 304 | 43 | 2790 | 23000 | 2100 | 1160 | 2110 |
| 12 | 56 | 77 | 139 | 2920 | 2710 | 1150 | 43 | 4360 | 20000 | 2020 | 751 | 2350 |
| 13 | 55 | 1080 | 72 | 1960 | 763 | 1160 | 3070 | 4270 | 15500 | 3290 | 721 | 1560 |
| 14 | 1700 | 102 | 70 | 100 | 2490 | 43 | 332 | 3200 | 15500 | 2790 | 2880 | 2080 |
| 15 | 1580 | 73 | 73 | 287 | 1120 | 38 | 120 | 3240 | 14100 | 2950 | 1730 | 2110 |
| 16 | 1520 | 80 | 121 | 463 | 1210 | 1040 | 2050 | 2760 | 10400 | 3880 | 843 | 1150 |
| 17 | 1570 | 3030 | 82 | 215 | 1170 | 4280 | 1920 | 117 | 9860 | 4380 | 168 | 511 |
| 18 | 64 | 2200 | 80 | 88 | 1780 | 3480 | 198 | 4860 | 9910 | 3790 | 72 | 571 |
| 19 | 48 | 1640 | 1600 | 1240 | 1410 | 3230 | 120 | 3330 | 9880 | 4460 | 890 | 2140 |
| 20 | 53 | 656 | 1900 | 1570 | 1120 | 2820 | 2530 | 3280 | 9920 | 5280 | 2110 | 474 |
| 21 | 1560 | 2910 | 850 | 103 | 937 | 84 | 246 | 3300 | 9950 | 5240 | 5110 | 4520 |
| 22 | 977 | 916 | 2100 | 72 | 69 | 46 | 132 | 3300 | 9900 | 5200 | 4410 | 2530 |
| 23 | 1290 | 82 | 77 | 1630 | 66 | 3830 | 3090 | 955 | 9720 | 4690 | 4520 | 2230 |
| 24 | 80 | 2890 | 76 | 1260 | 1320 | 4400 | 3400 | 146 | 5580 | 4540 | 5840 | 3340 |
| 25 | 56 | 226 | 84 | 71 | 1130 | 2490 | 294 | 115 | 5460 | 3630 | 5370 | 2220 |
| 26 | 57 | 91 | 83 | 2780 | 1370 | 940 | 126 | 4200 | 5190 | 3010 | 6060 | 3530 |
| 27 | 1700 | 79 | 85 | 2920 | 86 | 52 | 3400 | 3700 | 2620 | 5050 | 5350 | 2700 |
| 28 | 766 | 79 | 88 | 2910 | 82 | 48 | 4440 | 3970 | 2690 | 3570 | 4990 | 3900 |
| 29 | 919 | 81 | 88 | 98 | --- | 241 | 3500 | 3480 | 5180 | 2360 | 5540 | 3680 |
| 30 | 76 | 74 | 2110 | 71 | --- | 89 | 3610 | 5640 | 4770 | 128 | 4710 | 2420 |
| 31 | 70 | --- | 532 | 2640 | --- | 44 | --- | 9360 | --- | 2940 | 8250 | --- |
| TOTAL | 17641 | 18906 | 17628 | 28126 | 34676 | 44987 | 41780 | 89183 | 403130 | 102017 | 94868 | 67772 |
| MEAN | 569 | 630 | 569 | 907 | 1238 | 1451 | 1393 | 2877 | 13440 | 3291 | 3060 | 2259 |
| MAX | 1700 | 3030 | 2110 | 2920 | 5880 | 4400 | 4440 | 9360 | 28700 | 5280 | 8250 | 8080 |
| MIN | 48 | 68 | 67 | 71 | 66 | 38 | 40 | 82 | 2620 | 106 | 72 | 474 |
| AC-FT | 34990 | 37500 | 34970 | 55790 | 68780 | 89230 | 82870 | 176900 | 799600 | 202400 | 188200 | 134400 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 756541 | MEAN | 2067 | MAX | 32900 | MIN 48 | AC-FT | 1501000 |
| WTR YR 1981 | TOTAL | 960714 | MEAN | 2632 | MAX | 28700 | MIN 38 | AC-FT | 1906000 |

07331600 RED RIVER AT DENISON DAM NEAR DENISON, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: May 1944 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: May 1944 to current year.
WATER TEMPERATURES: October 1945 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 (1944-81): Maximum daily, 3,520 micromhos Aug. 14, 1944; minimum daily, 656 micromhos Oct. 16, 1945.
WATER TEMPERATURES (1945-69): Maximum daily, 31.0°C July 17, 1969; minimum daily, 3.0°C Feb. 2-4, 7, 1966.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,080 micromhos Dec. 3; minimum daily, 1,580 micromhos Sept. 23, 28-30.

RED RIVER BASIN

07331600 RED RIVER AT DENISON DAM NEAR DENISON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 08... | 1130 | 78 | 1990 | 8.0 | 22.0 | .50 | 6.6 | 76 | 1.4 | 57 | K15 |
| NOV | | | | | | | | | | | |
| 04... | 1655 | 72 | 1960 | 8.3 | 19.5 | 4.6 | 14.0 | 152 | 2.0 | 42 | 43 |
| DEC | | | | | | | | | | | |
| 03... | 0915 | 89 | 2050 | 7.6 | 11.5 | 13 | 6.6 | 61 | .4 | K9 | K7 |
| JAN | | | | | | | | | | | |
| 20... | 0845 | 3920 | 2020 | 8.0 | 6.0 | .50 | 11.2 | 92 | .5 | K6 | 28 |
| FEB | | | | | | | | | | | |
| 11... | 1005 | 8920 | 2070 | 8.3 | 6.0 | 2.6 | 9.4 | 75 | .3 | <1 | K1 |
| MAR | | | | | | | | | | | |
| 05... | 0930 | 4210 | 2150 | 8.3 | 9.0 | 2.5 | 11.7 | 104 | 1.2 | K5 | K2 |
| APR | | | | | | | | | | | |
| 07... | 1545 | 46 | 1940 | 8.1 | 14.0 | 2.0 | 11.1 | 109 | 1.1 | K12 | K6 |
| MAY | | | | | | | | | | | |
| 06... | 0900 | 81 | 1910 | 7.3 | 15.5 | 2.6 | 5.9 | 60 | 1.0 | K20 | 59 |
| 06... | 1245 | 591 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | |
| 03... | 0910 | 11600 | 1860 | 8.3 | 20.0 | 1.7 | 7.0 | 76 | 2.0 | 180 | 380 |
| JUL | | | | | | | | | | | |
| 14... | 0945 | 255 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | 1350 | 4690 | 1750 | 7.8 | 27.5 | 1.0 | 1.8 | 23 | 1.2 | 20 | K5 |
| AUG | | | | | | | | | | | |
| 05... | 0830 | 170 | 1760 | 7.3 | 22.5 | 1.4 | 1.0 | 12 | 1.1 | 22 | 46 |
| SEP | | | | | | | | | | | |
| 15... | 1520 | 5500 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 16... | 0850 | 186 | 1710 | 7.5 | 22.5 | 5.6 | 2.8 | 33 | 2.8 | K10 | K15 |

| DATE | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 FIELD (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 08... | 390 | 270 | 100 | 33 | 270 | 6.0 | 7.8 | 116 | 290 | 430 |
| NOV | | | | | | | | | | |
| 04... | 350 | 230 | 92 | 30 | 260 | 6.0 | 8.4 | 119 | 220 | 420 |
| DEC | | | | | | | | | | |
| 03... | 410 | 320 | 110 | 34 | 280 | 6.0 | 9.3 | 93 | 290 | 430 |
| JAN | | | | | | | | | | |
| 20... | 420 | 320 | 110 | 35 | 270 | 5.7 | 6.4 | 95 | 300 | 430 |
| FEB | | | | | | | | | | |
| 11... | 390 | 290 | 100 | 34 | 270 | 6.0 | 6.2 | 100 | 280 | 430 |
| MAR | | | | | | | | | | |
| 05... | 420 | 320 | 110 | 35 | 270 | 5.7 | 6.2 | 99 | 340 | 430 |
| APR | | | | | | | | | | |
| 07... | 390 | 290 | 100 | 33 | 250 | 5.5 | 6.4 | 100 | 280 | 410 |
| MAY | | | | | | | | | | |
| 06... | 410 | 300 | 110 | 33 | 250 | 5.4 | 6.3 | 110 | 260 | 390 |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | |
| 03... | 380 | 280 | 100 | 32 | 250 | 5.6 | 5.8 | 100 | 270 | 390 |
| JUL | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | 360 | 250 | 93 | 30 | 230 | 5.3 | 6.2 | 110 | 230 | 370 |
| AUG | | | | | | | | | | |
| 05... | 360 | 240 | 98 | 29 | 230 | 5.6 | 6.3 | 120 | 230 | 370 |
| SEP | | | | | | | | | | |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 16... | 330 | 210 | 87 | 27 | 220 | 5.7 | 5.9 | 120 | 200 | 360 |

07331600 RED RIVER AT DENISON DAM NEAR DENISON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, AMMONIA DISSOLVED (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, ORGANIC DISSOLVED (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 08... | .4 | 5.4 | 1200 | 1210 | .09 | .03 | .110 | .080 | 2.0 | .54 |
| NOV | | | | | | | | | | |
| 04... | .3 | 3.9 | 1180 | 1110 | .13 | .14 | .050 | .020 | .70 | .42 |
| DEC | | | | | | | | | | |
| 03... | .4 | 4.6 | 1210 | 1210 | .33 | .34 | .050 | .020 | .46 | .51 |
| JAN | | | | | | | | | | |
| 20... | .3 | 4.9 | 1200 | 1210 | .24 | .24 | .040 | .050 | .83 | .62 |
| FEB | | | | | | | | | | |
| 11... | .3 | 4.6 | 1190 | 1190 | .26 | .26 | .020 | .030 | .69 | .59 |
| MAR | | | | | | | | | | |
| 05... | .3 | 4.4 | 1190 | 1250 | .20 | .21 | .000 | .020 | .88 | .58 |
| APR | | | | | | | | | | |
| 07... | .3 | 4.5 | 1150 | 1140 | .16 | .18 | .100 | .130 | .76 | .79 |
| MAY | | | | | | | | | | |
| 06... | .3 | 6.5 | 1170 | 1120 | .28 | .56 | .110 | .150 | .69 | 1.6 |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | |
| 03... | .3 | 5.4 | 1140 | 1110 | .09 | .12 | .170 | .130 | .66 | .32 |
| JUL | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | .3 | 7.7 | 1040 | 1030 | .10 | .14 | .240 | .220 | .71 | .74 |
| AUG | | | | | | | | | | |
| 05... | .3 | 8.5 | 1040 | 1040 | .10 | .11 | .610 | .620 | .49 | .37 |
| SEP | | | | | | | | | | |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 16... | .3 | 9.4 | 1000 | 982 | <.10 | <.10 | 1.20 | 1.20 | .50 | .40 |

| DATE | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) | CARBON, ORGANIC TOTAL (MG/L AS C) | CARBON, ORGANIC DISSOLVED (MG/L AS C) | CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 08... | 2.10 | .62 | .080 | .060 | -- | 3.9 | .6 | 6 | 1.3 | 100 |
| NOV | | | | | | | | | | |
| 04... | .75 | .44 | .030 | .020 | 4.4 | -- | -- | 15 | 2.9 | 83 |
| DEC | | | | | | | | | | |
| 03... | .51 | .53 | .090 | .060 | 15 | -- | -- | 5 | 1.2 | 94 |
| JAN | | | | | | | | | | |
| 20... | .87 | .67 | .030 | .020 | -- | 6.2 | .5 | 6 | 64 | 65 |
| FEB | | | | | | | | | | |
| 11... | .71 | .62 | .050 | .040 | 7.9 | -- | -- | 20 | 482 | 46 |
| MAR | | | | | | | | | | |
| 05... | .88 | .60 | .040 | .020 | 5.0 | -- | -- | 15 | 171 | 41 |
| APR | | | | | | | | | | |
| 07... | .86 | .92 | .050 | .030 | -- | 7.8 | .2 | 8 | .99 | 98 |
| MAY | | | | | | | | | | |
| 06... | .80 | 1.7 | .190 | .180 | 5.1 | -- | -- | 7 | 1.5 | 97 |
| 06... | -- | -- | -- | -- | -- | -- | -- | 1220 | 1950 | 88 |
| JUN | | | | | | | | | | |
| 03... | .83 | .45 | .020 | .010 | 7.7 | -- | -- | 8 | 251 | 92 |
| JUL | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- | -- | 51 | 35 | 58 |
| 14... | .95 | .96 | .110 | .100 | 5.6 | -- | -- | 3 | 38 | 79 |
| AUG | | | | | | | | | | |
| 05... | 1.10 | .99 | .250 | .220 | -- | 5.7 | <.1 | 6 | 2.8 | 89 |
| SEP | | | | | | | | | | |
| 15... | -- | -- | -- | -- | -- | -- | -- | 2080 | 30900 | 100 |
| 16... | 1.70 | 1.6 | .300 | .290 | 5.2 | -- | -- | 5 | 2.5 | 92 |

| DATE | TIME | ARSENIC TOTAL (UG/L AS AS) | ARSENIC SUSPENDED TOTAL (UG/L AS AS) | ARSENIC DISSOLVED (UG/L AS AS) | BARIUM, TOTAL RECOVERABLE (UG/L AS BA) | BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA) | BARIUM, DISSOLVED (UG/L AS BA) | CADMIUM TOTAL RECOVERABLE (UG/L AS CD) | CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD) | CADMIUM DISSOLVED (UG/L AS CD) | CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 08... | 1130 | 2 | 1 | 1 | 200 | 0 | 200 | 0 | 0 | 0 | 0 |
| JAN | | | | | | | | | | | |
| 20... | 0845 | 1 | 0 | 1 | 100 | 0 | 100 | 0 | 0 | 0 | 0 |
| APR | | | | | | | | | | | |
| 07... | 1545 | 1 | 0 | 1 | 200 | 0 | 200 | 0 | -- | <1 | 20 |
| AUG | | | | | | | | | | | |
| 05... | 0830 | 5 | 1 | 4 | 100 | 0 | 150 | 1 | -- | <1 | 10 |

07331600 RED RIVER AT DENISON DAM NEAR DENISON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | CHROMIUM, SUSPENDED RECOV. (UG/L AS CR) | CHROMIUM, DISSOLVED (UG/L AS CR) | COBALT, TOTAL RECOVERABLE (UG/L AS CO) | COBALT, SUSPENDED RECOVERABLE (UG/L AS CO) | COBALT, DISSOLVED (UG/L AS CO) | COPPER, TOTAL RECOVERABLE (UG/L AS CU) | COPPER, SUSPENDED RECOVERABLE (UG/L AS CU) | COPPER, DISSOLVED (UG/L AS CU) | IRON, TOTAL RECOVERABLE (UG/L AS FE) | IRON, SUSPENDED RECOVERABLE (UG/L AS FE) | IRON, DISSOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 08... | 0 | 0 | 1 | 1 | 0 | 7 | 6 | 1 | 310 | 290 | 20 |
| JAN | | | | | | | | | | | |
| 20... | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 1 | 90 | 60 | 30 |
| APR | | | | | | | | | | | |
| 07... | 10 | 10 | 0 | -- | <3 | 1 | 0 | 1 | 80 | -- | <10 |
| AUG | | | | | | | | | | | |
| 05... | 10 | 0 | 1 | -- | <3 | 3 | 2 | 1 | 50 | -- | <10 |

| DATE | LEAD, TOTAL RECOVERABLE (UG/L AS PB) | LEAD, SUSPENDED RECOVERABLE (UG/L AS PB) | LEAD, DISSOLVED (UG/L AS PB) | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MANGANESE, SUSPENDED RECOV. (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | MERCURY SUSPENDED RECOVERABLE (UG/L AS HG) | MERCURY DISSOLVED (UG/L AS HG) | NICKEL, TOTAL RECOVERABLE (UG/L AS NI) | NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 08... | 40 | 40 | 0 | 90 | 70 | 20 | .1 | .1 | .0 | 3 | 3 |
| JAN | | | | | | | | | | | |
| 20... | 2 | 2 | 0 | 20 | 10 | 10 | .3 | .3 | .0 | 2 | 0 |
| APR | | | | | | | | | | | |
| 07... | 5 | 5 | 0 | 20 | 20 | 3 | .3 | .1 | .2 | 6 | 5 |
| AUG | | | | | | | | | | | |
| 05... | 4 | 0 | 5 | 920 | 0 | 930 | .3 | .3 | .0 | 3 | 1 |

| DATE | NICKEL, DISSOLVED (UG/L AS NI) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, SUSPENDED TOTAL (UG/L AS SE) | SELENIUM, DISSOLVED (UG/L AS SE) | SILVER, TOTAL RECOVERABLE (UG/L AS AG) | SILVER, SUSPENDED RECOVERABLE (UG/L AS AG) | SILVER, DISSOLVED (UG/L AS AG) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN) | ZINC, DISSOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 08... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 70 | 60 | 10 |
| JAN | | | | | | | | | | |
| 20... | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 10 | 10 |
| APR | | | | | | | | | | |
| 07... | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 20 | -- | <3 |
| AUG | | | | | | | | | | |
| 05... | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 20 |

07331600 RED RIVER AT DENISON DAM NEAR DENISON, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

| DATE | NOV 4,80 | MAR 5,81 | MAY 6,81 | JUN 3,81 |
|---|---|---|---|---|
| TIME | 1655 | 0930 | 0900 | 0910 |
| TOTAL CELLS/ML | 17000 | 9700 | 680 | 12000 |
| DIVERSITY: DIVISION | 1.4 | 1.0 | 0.8 | 0.0 |
| .CLASS | 1.4 | 1.0 | 0.8 | 0.0 |
| ..ORDER | 1.5 | 1.0 | 1.3 | 0.0 |
| ...FAMILY | 1.5 | 1.1 | 1.5 | 0.0 |
| ....GENUS | 1.7 | 1.1 | 1.7 | 0.0 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|---|---|
| BACILLARIOPHYTA (DIATOMS) | | | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | | | |
| ..ACHNANTHALES | | | | | | | | |
| ...ACHNANTHACEAE | | | | | | | | |
| ....RHOICOSPHENIA | -- | - | -- | - | 13 | 2 | -- | - |
| ..BACILLARIALES | | | | | | | | |
| ...NITZSCHIACEAE | | | | | | | | |
| ....NITZSCHIA | 100 | 1 | -- | - | 39 | 6 | -- | - |
| ..EUPODISCALES | | | | | | | | |
| ...COSCINODISCACEAE | | | | | | | | |
| ....COSCINODISCUS | 300 | 2 | -- | - | -- | - | -- | - |
| ....CYCLOTELLA | 7900# | 48 | 7300# | 76 | 26 | 4 | * | 0 |
| ....STEPHANODISCUS | -- | - | -- | - | 13 | 2 | -- | - |
| ..FRAGILARIALES | | | | | | | | |
| ...FRAGILARIACEAE | | | | | | | | |
| ....FRAGILARIA | -- | - | -- | - | -- | - | -- | - |
| ....SYNEDRA | -- | - | -- | - | -- | - | -- | - |
| ..NAVICULALES | | | | | | | | |
| ...CYMBELLACEAE | | | | | | | | |
| ....CYMBELLA | -- | - | -- | - | -- | - | -- | - |
| ...NAVICULACEAE | | | | | | | | |
| ....NAVICULA | -- | - | 76 | 1 | 39 | 6 | -- | - |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | | | |
| .CHLOROPHYCEAE | | | | | | | | |
| ..CHLOROCOCCALES | | | | | | | | |
| ...CHLOROCOCCACEAE | | | | | | | | |
| ....PLANKTOSPHAERIA | -- | - | -- | - | -- | - | -- | - |
| ....TETRAEDRON | -- | - | -- | - | -- | - | -- | - |
| ...DICTYOSPHAERIACEAE | | | | | | | | |
| ....DICTYOSPHAERIUM | -- | - | -- | - | -- | - | -- | - |
| ...OOCYSTACEAE | | | | | | | | |
| ....ANKISTRODESMUS | 200 | 1 | -- | - | 13 | 2 | -- | - |
| ....OOCYSTIS | -- | - | -- | - | 490# | 72 | -- | - |
| ....SELENASTRUM | 100 | 1 | 76 | 1 | -- | - | -- | - |
| ...SCENEDESMACEAE | | | | | | | | |
| ....COELASTRUM | -- | - | -- | - | -- | - | -- | - |
| ....SCENEDESMUS | -- | - | 300 | 3 | 26 | 4 | 12000# | 100 |
| ..VOLVOCALES | | | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | | | |
| ....CARTERIA | -- | - | -- | - | -- | - | -- | - |
| ....CHLAMYDOMONAS | 200 | 1 | -- | - | 13 | 2 | -- | - |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | | | |
| .CRYPTOPHYCEAE | | | | | | | | |
| ..CRYPTOMONADALES | | | | | | | | |
| ...CRYPTOCHRYSIDACEAE | | | | | | | | |
| ....CHROOMONAS | 1100 | 7 | 76 | 1 | 13 | 2 | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | | | |
| .CYANOPHYCEAE | | | | | | | | |
| ..CHROOCOCCALES | | | | | | | | |
| ...CHROOCOCCACEAE | | | | | | | | |
| ....ANACYSTIS | -- | - | -- | - | -- | - | -- | - |
| ..NOSTOCALES | | | | | | | | |
| ...NOSTOCACEAE | | | | | | | | |
| ....ANABAENOPSIS | -- | - | -- | - | -- | - | -- | - |
| ....APHANIZOMENON | -- | - | -- | - | -- | - | -- | - |
| ....CYLINDROSPERMUM | -- | - | -- | - | -- | - | -- | - |
| ..OSCILLATORIALES | | | | | | | | |
| ...OSCILLATORIACEAE | | | | | | | | |
| ....LYNGBYA | -- | - | -- | - | -- | - | -- | - |
| ....OSCILLATORIA | 6700# | 40 | 1800# | 19 | -- | - | -- | - |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | | | |
| .EUGLENOPHYCEAE | | | | | | | | |
| ..EUGLENALES | | | | | | | | |
| ...EUGLENACEAE | | | | | | | | |
| ....EUGLENA | -- | - | -- | - | -- | - | -- | - |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | | | |
| .DINOPHYCEAE | | | | | | | | |
| ..DINOKONTAE | | | | | | | | |
| ...GYMNODINIACEAE | | | | | | | | |
| ....GYMNODINIUM | -- | - | -- | - | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

07331600 RED RIVER AT DENISON DAM NEAR DENISON, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

| DATE | JUL 14,81 | AUG 5,81 | SEP 16,81 |
|---|---|---|---|
| TIME | 1350 | 0830 | 0850 |
| TOTAL CELLS/ML | 370 | 19000 | 8600 |
| DIVERSITY: DIVISION | 0.9 | 0.1 | 0.1 |
| .CLASS | 0.9 | 0.1 | 0.1 |
| ..ORDER | 1.1 | 1.2 | 0.4 |
| ...FAMILY | 1.6 | 1.2 | 0.5 |
| ....GENUS | 2.0 | 1.8 | 0.7 |

| ORGANISM | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT |
|---|---|---|---|---|---|---|
| BACILLARIOPHYTA (DIATOMS) | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..ACHNANTHALES | | | | | | |
| ...ACHNANTHACEAE | | | | | | |
| ....RHOICOSPHENIA | -- | - | -- | - | -- | - |
| ..BACILLARIALES | | | | | | |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | 13 | 3 | * | 0 | -- | - |
| ..EUPODISCALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....COSCINODISCUS | 13 | 3 | -- | - | -- | - |
| ....CYCLOTELLA | -- | - | -- | - | -- | - |
| ....STEPHANODISCUS | -- | - | -- | - | -- | - |
| ..FRAGILARIALES | | | | | | |
| ...FRAGILARIACEAE | | | | | | |
| ....FRAGILARIA | -- | - | * | 0 | -- | - |
| ....SYNEDRA | -- | - | -- | - | * | 0 |
| ..NAVICULALES | | | | | | |
| ...CYMBELLACEAE | | | | | | |
| ....CYMBELLA | -- | - | * | 0 | -- | - |
| ...NAVICULACEAE | | | | | | |
| ....NAVICULA | 39 | 10 | * | 0 | -- | - |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...CHLOROCOCCACEAE | | | | | | |
| ....PLANKTOSPHAERIA | -- | - | * | 0 | -- | - |
| ....TETRAEDRON | 13 | 3 | -- | - | -- | - |
| ...DICTYOSPHAERIACEAE | | | | | | |
| ....DICTYOSPHAERIUM | -- | - | -- | - | * | 0 |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | 13 | 3 | -- | - | * | 0 |
| ....OOCYSTIS | 13 | 3 | * | 0 | * | 0 |
| ....SELENASTRUM | -- | - | -- | - | -- | - |
| ...SCENEDESMACEAE | | | | | | |
| ....COELASTRUM | 230# | 62 | -- | - | -- | - |
| ....SCENEDESMUS | 26 | 7 | -- | - | -- | - |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CARTERIA | -- | - | * | 0 | -- | - |
| ....CHLAMYDOMONAS | -- | - | -- | - | -- | - |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | |
| .CRYPTOPHYCEAE | | | | | | |
| ..CRYPTOMONADALES | | | | | | |
| ...CRYPTOCHRYSIDACEAE | | | | | | |
| ....CHROOMONAS | -- | - | -- | - | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....ANACYSTIS | -- | - | 1600 | 8 | -- | - |
| ..NOSTOCALES | | | | | | |
| ...NOSTOCACEAE | | | | | | |
| ....ANABAENOPSIS | -- | - | * | 0 | -- | - |
| ....APHANIZOMENON | -- | - | 240 | 1 | 550 | 6 |
| ....CYLINDROSPERMUM | -- | - | 4100# | 21 | -- | - |
| ..OSCILLATORIALES | | | | | | |
| ...OSCILLATORIACEAE | | | | | | |
| ....LYNGBYA | -- | - | 10000# | 54 | 7600# | 89 |
| ....OSCILLATORIA | -- | - | 2600 | 14 | 310 | 4 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....EUGLENA | 13 | 3 | -- | - | -- | - |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | |
| .DINOPHYCEAE | | | | | | |
| ..DINOKONTAE | | | | | | |
| ...GYMNODINIACEAE | | | | | | |
| ....GYMNODINIUM | -- | - | * | 0 | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

07331600 RED RIVER AT DENISON DAM NEAR DENISON, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 17641 | 2040 | 1190 | 56900 | 400 | 19300 | 280 | 13400 | 420 |
| NOV. | 1980 | 18906 | 2030 | 1190 | 60700 | 400 | 20600 | 280 | 14300 | 420 |
| DEC. | 1980 | 17628 | 2050 | 1200 | 57200 | 410 | 19400 | 280 | 13500 | 420 |
| JAN. | 1981 | 28126 | 2020 | 1180 | 89900 | 400 | 30500 | 280 | 21200 | 410 |
| FEB. | 1981 | 34676 | 2020 | 1180 | 111000 | 400 | 37600 | 280 | 26100 | 410 |
| MAR. | 1981 | 44987 | 2000 | 1170 | 142000 | 400 | 48200 | 270 | 33400 | 410 |
| APR. | 1981 | 41780 | 1940 | 1130 | 127000 | 380 | 43100 | 260 | 29700 | 400 |
| MAY | 1981 | 89183 | 1890 | 1100 | 264000 | 370 | 89600 | 250 | 61300 | 400 |
| JUNE | 1981 | 403130 | 1820 | 1050 | 1147E3 | 360 | 389500 | 240 | 264400 | 390 |
| JULY | 1981 | 102017 | 1780 | 1030 | 282000 | 350 | 95900 | 240 | 64800 | 380 |
| AUG. | 1981 | 94868 | 1730 | 995 | 255000 | 340 | 86600 | 230 | 58200 | 380 |
| SEPT | 1981 | 67772 | 1640 | 941 | 172000 | 320 | 58500 | 210 | 38900 | 360 |
| TOTAL | | 960714 | ** | ** | 2766000 | ** | 939000 | ** | 639000 | ** |
| WTD. AVG. | | 2632 | 1840 | 1070 | ** | 360 | ** | 250 | ** | 390 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2020 | 2050 | 2060 | 2040 | 2030 | 2020 | 1970 | 1910 | 1860 | 1810 | 1810 | 1630 |
| 2 | 2020 | 2040 | 2070 | 2040 | 2030 | 2020 | 1960 | 1910 | 1860 | 1800 | 1810 | 1700 |
| 3 | 2030 | 2030 | 2080 | 2040 | 2030 | 2020 | 1970 | 1910 | 1860 | 1810 | 1810 | 1740 |
| 4 | 2030 | 2020 | 2060 | 2040 | 2030 | 2020 | 1970 | 1910 | 1870 | 1820 | 1800 | 1730 |
| 5 | 2030 | 2020 | 2050 | 2040 | 2030 | 2010 | 1970 | 1920 | 1850 | 1830 | 1810 | 1730 |
| 6 | 2030 | 2020 | 2050 | 2020 | 2030 | 2010 | 1960 | 1930 | 1850 | 1840 | 1670 | 1730 |
| 7 | 2030 | 2010 | 2050 | 2020 | 2030 | 2010 | 1950 | 1920 | 1850 | 1840 | 1800 | 1730 |
| 8 | 2020 | 2020 | 2040 | 2020 | 2030 | 2010 | 1950 | 1930 | 1840 | 1810 | 1800 | 1730 |
| 9 | 2020 | 2020 | 2050 | 2020 | 2030 | 2010 | 1950 | 1910 | 1860 | 1820 | 1800 | 1690 |
| 10 | 2030 | 2020 | 2050 | 2020 | 2030 | 2010 | 1950 | 1900 | 1830 | 1830 | 1800 | 1740 |
| 11 | 2030 | 2020 | 2050 | 2020 | 2030 | 2010 | 1950 | 1890 | 1820 | 1810 | 1800 | 1720 |
| 12 | 2030 | 2020 | 2040 | 2020 | 2020 | 2010 | 1950 | 1900 | 1810 | 1800 | 1790 | 1700 |
| 13 | 2030 | 2030 | 2040 | 2020 | 2020 | 2010 | 1950 | 1900 | 1810 | 1790 | 1800 | 1670 |
| 14 | 2040 | 2040 | 2040 | 2020 | 2020 | 2010 | 1940 | 1890 | 1810 | 1830 | 1790 | 1650 |
| 15 | 2030 | 2040 | 2040 | 2050 | 2020 | 2010 | 1940 | 1890 | 1800 | 1800 | 1790 | 1710 |
| 16 | 2070 | 2040 | 2040 | 2020 | 2020 | 2000 | 1950 | 1890 | 1760 | 1800 | 1790 | 1710 |
| 17 | 2040 | 2030 | 2040 | 2020 | 2020 | 2010 | 1940 | 1890 | 1770 | 1810 | 1790 | 1690 |
| 18 | 2040 | 2030 | 2040 | 2020 | 2020 | 2000 | 1940 | 1890 | 1780 | 1800 | 1780 | 1670 |
| 19 | 2040 | 2040 | 2050 | 2020 | 2020 | 2000 | 1940 | 1880 | 1790 | 1780 | 1790 | 1650 |
| 20 | 2040 | 2030 | 2050 | 2030 | 2020 | 2000 | 1950 | 1880 | 1780 | 1700 | 1760 | 1630 |
| 21 | 2040 | 2030 | 2050 | 2020 | 2020 | 2000 | 1940 | 1880 | 1770 | 1780 | 1720 | 1610 |
| 22 | 2040 | 2030 | 2050 | 2020 | 2020 | 2000 | 1940 | 1890 | 1750 | 1740 | 1720 | 1590 |
| 23 | 2040 | 2030 | 2050 | 2020 | 2020 | 2000 | 1920 | 1890 | 1750 | 1680 | 1710 | 1580 |
| 24 | 2040 | 2050 | 2060 | 2020 | 2020 | 1990 | 1920 | 1890 | 1790 | 1810 | 1700 | 1590 |
| 25 | 2040 | 2020 | 2060 | 2020 | 2020 | 1990 | 1920 | 1880 | 1780 | 1750 | 1770 | 1610 |
| 26 | 2040 | 2040 | 2060 | 2020 | 2020 | 1980 | 1920 | 1870 | 1790 | 1700 | 1700 | 1590 |
| 27 | 2040 | 2040 | 2060 | 2020 | 2020 | 1990 | 1920 | 1870 | 1790 | 1700 | 1630 | 1590 |
| 28 | 2040 | 2040 | 2060 | 2010 | 2020 | 1990 | 1920 | 1870 | 1790 | 1660 | 1760 | 1580 |
| 29 | 2050 | 2040 | 2050 | 2010 | --- | 1980 | 1920 | 1870 | 1790 | 1810 | 1700 | 1580 |
| 30 | 2050 | 2040 | 2050 | 2040 | --- | 1970 | 1920 | 1870 | 1800 | 1800 | 1670 | 1580 |
| 31 | 2050 | --- | 2050 | 2040 | --- | 1970 | --- | 1870 | --- | 1800 | 1630 | --- |

WTR YR 1981 MEAN 1920 MAX 2080 MIN 1580

07331600 RED RIVER AT DENISON DAM NEAR DENISON, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 24.0 | --- | 12.0 | --- | --- | --- | 13.0 | 16.0 | 21.0 | 22.5 | --- | 26.0 |
| 2 | 24.5 | --- | --- | --- | 9.0 | 9.5 | 11.0 | --- | 21.0 | 22.5 | --- | 25.0 |
| 3 | 24.5 | --- | 11.5 | --- | 9.0 | 9.5 | 13.0 | --- | 21.5 | --- | 22.0 | 25.0 |
| 4 | --- | --- | --- | --- | 9.0 | 9.5 | --- | 16.5 | 21.0 | --- | 22.0 | 24.5 |
| 5 | --- | 18.0 | 12.0 | 10.0 | 8.5 | 10.5 | --- | 16.5 | 22.0 | --- | 22.0 | --- |
| 6 | 23.0 | --- | --- | 9.5 | 9.0 | 10.0 | 12.5 | 16.0 | --- | 22.0 | 26.0 | --- |
| 7 | --- | 18.0 | --- | --- | --- | --- | 12.5 | 16.0 | --- | 22.0 | 22.0 | --- |
| 8 | 22.0 | --- | 12.5 | 9.0 | --- | --- | 15.0 | 16.0 | 22.0 | 22.0 | --- | 24.0 |
| 9 | --- | --- | 12.5 | 9.0 | 8.5 | --- | 12.5 | --- | 23.0 | 22.0 | --- | 24.0 |
| 10 | 23.0 | 18.0 | 12.0 | --- | 8.5 | --- | 12.5 | --- | 23.0 | 22.0 | 23.0 | 23.5 |
| 11 | --- | --- | 11.0 | --- | 6.5 | 10.0 | --- | 19.0 | 23.0 | --- | 23.0 | 24.0 |
| 12 | --- | 17.0 | 11.5 | 9.0 | 6.0 | --- | --- | 18.5 | 23.0 | --- | 23.0 | --- |
| 13 | --- | --- | --- | --- | 8.0 | 10.5 | 13.0 | 18.5 | --- | 22.5 | 23.0 | --- |
| 14 | 22.0 | 17.0 | --- | 9.5 | --- | --- | 13.5 | 18.5 | --- | 21.0 | 24.0 | 26.0 |
| 15 | 22.0 | --- | 12.0 | 9.0 | --- | --- | 13.0 | 19.0 | 23.0 | 22.0 | --- | 26.0 |
| 16 | 22.0 | --- | --- | 9.0 | --- | 11.5 | 13.0 | --- | 24.0 | --- | --- | 24.0 |
| 17 | 22.0 | 15.5 | --- | --- | 8.5 | 13.0 | 14.0 | --- | 24.0 | 23.0 | 23.0 | 24.0 |
| 18 | --- | 15.5 | 13.0 | --- | 8.0 | 12.0 | --- | 18.5 | 24.0 | --- | 23.0 | --- |
| 19 | --- | 15.5 | 13.5 | 9.0 | 8.5 | 12.0 | --- | 18.5 | 23.0 | --- | 22.0 | --- |
| 20 | 21.0 | --- | --- | 9.0 | 8.5 | 12.0 | 14.0 | 18.5 | --- | 26.0 | 23.0 | --- |
| 21 | 21.0 | 14.5 | --- | --- | --- | --- | 14.5 | 19.0 | --- | 23.0 | 24.0 | --- |
| 22 | --- | --- | 9.0 | 9.0 | --- | --- | 14.5 | 20.0 | 25.5 | 27.0 | --- | 25.0 |
| 23 | 21.0 | --- | 9.5 | 9.0 | 8.5 | 12.0 | 17.5 | --- | 24.0 | 25.5 | --- | 25.0 |
| 24 | 21.0 | 14.5 | 10.0 | --- | 8.5 | 12.0 | 17.5 | --- | 23.0 | 22.0 | 23.5 | 25.0 |
| 25 | --- | 14.0 | --- | --- | 8.5 | 12.0 | --- | --- | 25.0 | --- | 22.5 | 23.5 |
| 26 | --- | 14.0 | --- | 8.5 | --- | 13.0 | --- | 20.0 | 22.5 | 25.5 | 24.5 | 24.0 |
| 27 | --- | --- | --- | 8.5 | 8.5 | 13.5 | 16.0 | 20.0 | --- | 25.5 | 25.0 | --- |
| 28 | 20.0 | --- | --- | 9.0 | --- | --- | 15.0 | 20.5 | --- | 25.5 | 23.0 | 25.0 |
| 29 | 20.0 | --- | 10.5 | 9.0 | --- | --- | 15.0 | 20.5 | 22.5 | 25.0 | --- | 25.0 |
| 30 | --- | --- | 10.5 | 9.0 | --- | 13.0 | 16.0 | --- | 22.5 | 25.0 | --- | 25.0 |
| 31 | 20.0 | --- | 11.0 | --- | --- | 13.0 | --- | --- | --- | --- | 26.5 | --- |

WTR YR 1981 MEAN 17.5 MAX 27.0 MIN 6.0

## 07332600 BOIS D'ARC CREEK NEAR RANDOLPH, TX

LOCATION.--Lat 33°28'32", long 96°12'52", Fannin County, Hydrologic Unit 11140101, on right bank at downstream side of bridge on State Highway 11, 2.3 mi (3.7 km) upstream from Henson Creek, and 2.4 mi (3.9 km) east of Randolph.

DRAINAGE AREA.--72 $mi^2$ (186 $km^2$).

PERIOD OF RECORD.--November 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 564.38 ft (172.023 m) National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation bench mark).

REMARKS.--Records fair. No known diversion or regulation above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--18 years (water years 1964-81), 53.1 $ft^3/s$ (1.504 $m^3/s$), 10.02 in/yr (255 mm/yr), 38,470 acre-ft/yr (47.4 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,100 $ft^3/s$ (399 $m^3/s$) July 1, 1976, gage height, 23.15 ft (7.056 m); no flow each year except 1968.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1922, 24.6 ft (7.50 m) about 1935, from information by State Department of Highways and Public Transportation and local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 $ft^3/s$ (113 $m^3/s$), and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| June 5 | 1430 | *8,890 | 252 | 20.32 | 6.194 |
| June 16 | 0530 | 4,360 | 123 | 14.03 | 4.276 |

Minimum discharge, no flow Aug. 3 to Sept. 1, Sept. 19-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.7 | 10 | 5.3 | 6.0 | 11 | 45 | 7.2 | 23 | 19 | 19 | .01 | .00 |
| 2 | 2.9 | 9.0 | 4.4 | 6.0 | 7.5 | 12 | 5.9 | 16 | 45 | 17 | .01 | .44 |
| 3 | 2.1 | 7.9 | 4.1 | 6.3 | 5.4 | 342 | 8.9 | 8.1 | 466 | 15 | .00 | 2.5 |
| 4 | 1.6 | 6.6 | 4.3 | 5.7 | 5.5 | 821 | 13 | 6.4 | 88 | 12 | .00 | 1.3 |
| 5 | 1.2 | 5.8 | 4.9 | 5.6 | 6.2 | 77 | 5.3 | 5.6 | 3190 | 11 | .00 | 13 |
| 6 | 1.2 | 5.7 | 5.0 | 6.7 | 7.1 | 49 | 4.5 | 5.3 | 457 | 9.5 | .00 | 9.9 |
| 7 | 2.2 | 5.9 | 4.9 | 5.9 | 8.4 | 48 | 4.2 | 4.5 | 116 | 334 | .00 | 6.5 |
| 8 | 2.3 | 5.8 | 828 | 5.5 | 8.7 | 51 | 4.0 | 4.9 | 61 | 46 | .00 | 4.5 |
| 9 | 1.5 | 5.9 | 134 | 5.0 | 12 | 35 | 3.8 | 455 | 41 | 20 | .00 | 3.4 |
| 10 | 1.1 | 5.5 | 55 | 4.2 | 20 | 30 | 3.6 | 114 | 28 | 14 | .00 | 1.9 |
| 11 | .81 | 5.3 | 42 | 4.1 | 9.0 | 25 | 3.2 | 24 | 22 | 9.9 | .00 | 1.1 |
| 12 | .53 | 4.9 | 35 | 3.6 | 5.6 | 21 | 2.8 | 12 | 19 | 6.5 | .00 | .41 |
| 13 | .49 | 5.0 | 29 | 3.8 | 6.2 | 19 | 2.6 | 8.1 | 17 | 4.8 | .00 | .25 |
| 14 | 7.0 | 4.7 | 25 | 4.2 | 6.5 | 16 | 2.6 | 5.4 | 16 | 4.5 | .00 | .12 |
| 15 | 3.6 | 4.2 | 23 | 3.6 | 6.9 | 15 | 7.6 | 5.4 | 276 | 4.5 | .00 | .06 |
| 16 | 2.7 | 5.9 | 20 | 3.0 | 6.9 | 12 | 4.5 | 15 | 2170 | 4.3 | .00 | .03 |
| 17 | 471 | 14 | 17 | 2.5 | 6.9 | 12 | 3.4 | 14 | 126 | 4.0 | .00 | .02 |
| 18 | 34 | 12 | 16 | 3.1 | 7.2 | 11 | 2.8 | 11 | 66 | 3.4 | .00 | .01 |
| 19 | 11 | 7.2 | 13 | 4.1 | 6.9 | 9.3 | 3.4 | 5.9 | 46 | 2.7 | .00 | .00 |
| 20 | 7.0 | 5.9 | 10 | 8.3 | 6.9 | 9.2 | 8.3 | 4.3 | 36 | 1.9 | .00 | .00 |
| 21 | 5.5 | 5.5 | 9.5 | 7.5 | 6.9 | 9.6 | 29 | 3.5 | 31 | 1.5 | .00 | .00 |
| 22 | 4.5 | 5.9 | 10 | 6.7 | 6.2 | 8.7 | 138 | 4.5 | 26 | 1.1 | .00 | .00 |
| 23 | 3.8 | 8.9 | 11 | 5.8 | 5.6 | 8.1 | 143 | 8.1 | 25 | .72 | .00 | .00 |
| 24 | 2.9 | 9.1 | 9.3 | 5.0 | 5.3 | 8.3 | 28 | 175 | 23 | .41 | .00 | .00 |
| 25 | 2.6 | 7.3 | 7.2 | 5.4 | 6.2 | 6.5 | 8.7 | 112 | 20 | .21 | .00 | .00 |
| 26 | 2.6 | 6.1 | 7.5 | 4.3 | 6.5 | 5.6 | 6.9 | 38 | 18 | .12 | .00 | .00 |
| 27 | 835 | 5.7 | 7.7 | 4.5 | 6.5 | 5.0 | 6.2 | 888 | 16 | .08 | .00 | .00 |
| 28 | 48 | 5.4 | 7.3 | 5.2 | 14 | 7.2 | 7.9 | 89 | 15 | .06 | .00 | .00 |
| 29 | 20 | 5.0 | 6.8 | 6.0 | --- | 123 | 9.1 | 50 | 35 | .04 | .00 | .00 |
| 30 | 14 | 5.1 | 6.2 | 5.5 | --- | 27 | 7.0 | 88 | 22 | .03 | .00 | .00 |
| 31 | 12 | --- | 6.5 | 5.9 | --- | 10 | --- | 39 | --- | .02 | .00 | --- |
| TOTAL | 1509.83 | 201.2 | 1368.9 | 159.0 | 218.0 | 1878.5 | 485.4 | 2243.0 | 7536 | 548.29 | .02 | 45.44 |
| MEAN | 48.7 | 6.71 | 44.2 | 5.13 | 7.79 | 60.6 | 16.2 | 72.4 | 251 | 17.7 | .001 | 1.51 |
| MAX | 835 | 14 | 828 | 8.3 | 20 | 821 | 143 | 888 | 3190 | 334 | .01 | 13 |
| MIN | .49 | 4.2 | 4.1 | 2.5 | 5.3 | 5.0 | 2.6 | 3.5 | 15 | .02 | .00 | .00 |
| CFSM | .68 | .09 | .61 | .07 | .11 | .84 | .23 | 1.01 | 3.49 | .25 | .000 | .02 |
| IN. | .78 | .10 | .71 | .08 | .11 | .97 | .25 | 1.16 | 3.89 | .28 | .00 | .02 |
| AC-FT | 2990 | 399 | 2720 | 315 | 432 | 3730 | 963 | 4450 | 14950 | 1090 | .04 | 90 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 6457.12 | MEAN 17.6 | MAX 2120 | MIN .00 | CFSM .24 | IN 3.34 | AC-FT 12810 |
| WTR YR 1981 | TOTAL | 16193.58 | MEAN 44.4 | MAX 3190 | MIN .00 | CFSM .62 | IN 8.37 | AC-FT 32120 |

## 07335390 PAT MAYSE LAKE NEAR CHICOTA, TX

LOCATION (revised).--Lat 33°51'09", long 95°32'40", Lamar County, Hydrologic Unit 11140101, on upstream side of dam on Sanders Creek, 2,800 ft (850 m) to right of outlet channel, 2.0 mi (3.2 km) southeast of Chicota, and 4.6 mi (7.4 km) upstream from mouth.

DRAINAGE AREA.--175 mi² (453 km²).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1967 to current year. Prior to October 1970, published as Pat Mayse Reservoir.

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.

REMARKS.--The lake is formed by a rolled earthfill dam about 7,080 ft (2,160 m) long, including an emergency spillway 100 ft (30 m) wide located near the right abutment of dam. The dam was completed and deliberate impoundment began Sept. 28, 1967. The flood-control outlet works consist of an uncontrolled morning-glory-type drop-inlet spillway that is connected to a 7.25-foot-diameter (2.21 m) concrete conduit through the dam. A 24- and 12-inch-diameter (610 and 305 mm) low-flow pipe are provided for additional outlets. The lake was built for flood control, municipal, and industrial water supply, recreation, fish and wildlife conservation, and for channel improvement on Sanders Creek. Records furnished by the Corps of Engineers indicate that during the current year, 11,460 acre-ft (14.1 hm³) was diverted from the lake for municipal and industrial uses by the city of Paris. Any resultant effluent is discharged into Pine Creek below Lake Crook, which is located in another drainage basin. The capacity table is based on Geological Survey topographic maps dated 1949. Data regarding the dam and lake are given in the following table:

| | Elevation (feet) | Capacity (acre-feet) |
|---|---|---|
| Top of dam | 488.5 | - |
| Crest of spillway | 477.0 | 352,700 |
| Top of flood-control pool | 460.5 | 189,100 |
| Crest of morning-glory drop-inlet spillway (top of conservation pool) | 451.0 | 124,500 |
| Streambed | 393.0 | 0 |

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 208,000 acre-ft (256 hm³) Dec. 11, 12, 1971, elevation, 462.87 ft (141.083 m); minimum since conservation pool was first reached on Apr. 20, 1968, 100,900 acre-ft (124 hm³) Nov. 10, 1978, elevation, 446.80 ft (136.185 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 145,600 acre-ft (180 hm³) June 7, elevation, 454.37 ft (138.492 m); minimum, 117,300 acre-ft (145 hm³) Sept. 30, elevation, 449.79 ft (137.096 m).

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

| | | | |
|---|---|---|---|
| 449.0 | 112,800 | 453.0 | 136,800 |
| 451.0 | 124,500 | 455.0 | 149,800 |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 122500 | 124400 | 122800 | 125700 | 124100 | 124600 | 125500 | 127300 | 130900 | 131600 | 124300 | 120400 |
| 2 | 122500 | 124400 | 122600 | 125600 | 123900 | 125000 | 125500 | 127100 | 130500 | 131200 | 124300 | 120500 |
| 3 | 122500 | 124400 | 122600 | 125500 | 123900 | 125600 | 125500 | 126700 | 130000 | 130700 | 124100 | 120500 |
| 4 | 122300 | 124300 | 122500 | 125300 | 123700 | 127100 | 125400 | 126700 | 130200 | 131800 | 124000 | 120300 |
| 5 | 122100 | 124200 | 122500 | 125200 | 123700 | 128100 | 125200 | 126600 | 134200 | 131500 | 123800 | 120200 |
| 6 | 121800 | 124200 | 122500 | 125200 | 123500 | 128100 | 125000 | 126500 | 142700 | 130800 | 123700 | 120100 |
| 7 | 121900 | 124000 | 122500 | 125000 | 123500 | 128100 | 125000 | 126300 | 145000 | 130500 | 123700 | 120100 |
| 8 | 121900 | 124000 | 125000 | 125000 | 123500 | 128100 | 124900 | 127200 | 144300 | 130000 | 123500 | 119900 |
| 9 | 121900 | 124000 | 127600 | 125000 | 124000 | 128000 | 124900 | 130100 | 142900 | 130000 | 123400 | 119700 |
| 10 | 121800 | 123900 | 129200 | 124900 | 124000 | 127800 | 124800 | 132900 | 141500 | 129400 | 123200 | 119500 |
| 11 | 121600 | 123800 | 129300 | 124700 | 123800 | 127700 | 124700 | 135000 | 140100 | 129100 | 123100 | 119400 |
| 12 | 121300 | 123600 | 129200 | 124600 | 123700 | 127500 | 124600 | 134500 | 138900 | 128700 | 122800 | 119200 |
| 13 | 121200 | 123600 | 129000 | 124600 | 123700 | 127300 | 124600 | 134700 | 137900 | 128600 | 122700 | 119100 |
| 14 | 121200 | 123400 | 128800 | 124600 | 123400 | 127200 | 124300 | 134100 | 136900 | 128100 | 122600 | 119000 |
| 15 | 121200 | 123100 | 128600 | 124500 | 123200 | 127100 | 124200 | 133800 | 136800 | 127800 | 122500 | 119200 |
| 16 | 121100 | 123200 | 128300 | 124300 | 123200 | 126900 | 124300 | 133500 | 138700 | 127500 | 122300 | 119000 |
| 17 | 122100 | 123400 | 128100 | 124300 | 123200 | 126700 | 124200 | 133500 | 143500 | 127200 | 122300 | 118700 |
| 18 | 123400 | 123300 | 128000 | 124200 | 123200 | 126200 | 124100 | 133100 | 143100 | 127000 | 122200 | 118600 |
| 19 | 123500 | 123300 | 127600 | 124200 | 123200 | 126200 | 124200 | 132400 | 141800 | 126700 | 122200 | 118500 |
| 20 | 123500 | 123200 | 127300 | 124200 | 123300 | 126100 | 124000 | 132000 | 140500 | 126600 | 122000 | 118300 |
| 21 | 123500 | 123200 | 127200 | 124200 | 123200 | 126000 | 124100 | 131500 | 139300 | 126200 | 121900 | 118200 |
| 22 | 123500 | 123100 | 126900 | 124200 | 123200 | 125800 | 125900 | 131000 | 138100 | 126100 | 121800 | 118200 |
| 23 | 123500 | 123100 | 126800 | 124200 | 123200 | 125600 | 127100 | 131000 | 137200 | 125900 | 121600 | 118000 |
| 24 | 123200 | 123100 | 126500 | 124200 | 123100 | 125500 | 128000 | 131200 | 136300 | 125700 | 121500 | 117900 |
| 25 | 123200 | 122900 | 126400 | 124200 | 123100 | 125300 | 128000 | 132000 | 135500 | 125400 | 121400 | 117900 |
| 26 | 122900 | 122900 | 126300 | 124100 | 123100 | 125300 | 127800 | 132700 | 134700 | 125200 | 121200 | 117700 |
| 27 | 123600 | 122900 | 126200 | 124100 | 123100 | 125200 | 127600 | 132500 | 134000 | 125000 | 121200 | 117600 |
| 28 | 124300 | 122900 | 126100 | 124100 | 124000 | 125300 | 127500 | 132400 | 133200 | 124900 | 121100 | 117500 |
| 29 | 124400 | 122800 | 126100 | 124100 | --- | 125700 | 127500 | 132200 | 132700 | 124600 | 121000 | 117400 |
| 30 | 124400 | 122800 | 125900 | 123900 | --- | 125900 | 127300 | 131800 | 132100 | 124400 | 120700 | 117300 |
| 31 | 124400 | --- | 125800 | 124000 | --- | 125600 | --- | 131300 | --- | 124300 | 120600 | --- |
| MAX | 124400 | 124400 | 129300 | 125700 | 124100 | 128100 | 128000 | 135000 | 145000 | 131800 | 124300 | 120500 |
| MIN | 121100 | 122800 | 122500 | 123900 | 123100 | 124600 | 124000 | 126300 | 130000 | 124300 | 120600 | 117300 |
| (‡) | +1800 | -1600 | +3000 | -1800 | 0 | +1600 | +1700 | +4000 | +800 | -7800 | -3700 | -3300 |
| (†) | 450.98 | 450.72 | 451.22 | 450.92 | 450.91 | 451.19 | 451.47 | 452.12 | 452.24 | 450.97 | 450.34 | 449.79 |
| (††) | 1110 | 906 | 918 | 945 | 799 | 872 | 861 | 835 | 739 | 1120 | 1180 | 1180 |

CAL YR 1980 MAX 129700 MIN 110900 ‡ +3500 †† 12300
WTR YR 1981 MAX 145000 MIN 117300 ‡ -5300 †† 11460

‡ Change in contents, in acre-feet.
† Elevation in acre-feet, at end of month.

07335390 PAT MAYSE LAKE NEAR CHICOTA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO |
|---|---|---|---|---|---|---|---|---|
| JUN 13... | 0800 | 173 | 66 | 0 | 22 | 2.6 | 7.4 | .4 |

| DATE | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|
| JUN 13... | 2.9 | 66 | 8.0 | 7.6 | .1 | .6 | 91 |

## 07335400 SANDERS CREEK NEAR CHICOTA, TX
(Outflow from Pat Mayse Lake)

LOCATION (revised).--Lat 33°51'09", long 95°32'40", Lamar County, Hydrologic Unit 11140101, on upstream side of Pat Mayse Dam, 2,800 ft (853 m) to right of morning-glory drop inlet, 2.0 mi (3.2 km) southeast of Chicota, and 4.6 mi (7.4 km) upstream from mouth.

DRAINAGE AREA.--175 $mi^2$ (453 $km^2$), at Pat Mayse Dam; 184 $mi^2$ (477 $km^2$) at former site 2.6 mi (4.2 km) downstream.

PERIOD OF RECORD.--March 1964 to September 1967 (gage heights and discharge measurements only), October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 440.00 ft (134.112 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1967, at site 2.6 mi (4.2 km) downstream at datum 52.77 ft (16.084 m) lower. Oct. 1, 1967, to Sept. 30, 1970, at datum 10.00 ft (3.048 m) higher.

REMARKS.--Records fair. Flow represents uncontrolled outflow from Pat Mayse Lake (station 07335390). Flow downstream from dam is affected by local runoff and backwater from the Red River.

AVERAGE DISCHARGE.--14 years, 118 $ft^3/s$ (3.342 $m^3/s$), 85,490 acre-ft/yr (105 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum outflow, 1,060 $ft^3/s$ (30.0 $m^3/s$) May 19, 1969, gage height, 10.20 ft (3.109 m), datum then in use; maximum gage height, 22.87 ft (6.971 m) Dec. 11, 12, 1971; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum outflow, 844 $ft^3/s$ (23.9 $m^3/s$) June 7 at 2145 hours, gage height, 14.31 ft (4.362 m); no flow Oct. 6-17, Aug. 16 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .08 | 11 | .44 | 26 | 3.7 | 7.0 | 28 | 60 | 166 | 194 | 7.5 | .00 |
| 2 | .14 | 11 | .32 | 25 | 2.7 | 14 | 27 | 56 | 152 | 177 | 7.0 | .00 |
| 3 | .14 | 11 | .19 | 22 | 2.4 | 19 | 27 | 50 | 139 | 159 | 6.4 | .00 |
| 4 | .08 | 11 | .15 | 20 | 1.6 | 40 | 27 | 47 | 131 | 186 | 4.8 | .00 |
| 5 | .01 | 9.8 | .15 | 18 | 1.2 | 72 | 24 | 46 | 193 | 182 | 4.0 | .00 |
| 6 | .00 | 9.3 | .15 | 17 | 1.2 | 81 | 21 | 45 | 521 | 166 | 3.1 | .00 |
| 7 | .00 | 7.9 | .15 | 16 | 1.2 | 81 | 20 | 41 | 832 | 151 | 2.9 | .00 |
| 8 | .00 | 6.9 | 6.9 | 15 | 1.2 | 81 | 18 | 42 | 842 | 138 | 2.3 | .00 |
| 9 | .00 | 6.9 | 33 | 15 | 2.7 | 80 | 18 | 82 | 826 | 128 | 1.5 | .00 |
| 10 | .00 | 6.4 | 89 | 14 | 2.7 | 74 | 17 | 184 | 756 | 117 | .93 | .00 |
| 11 | .00 | 5.9 | 99 | 13 | 2.4 | 71 | 16 | 299 | 666 | 107 | .45 | .00 |
| 12 | .00 | 4.5 | 99 | 11 | 2.0 | 67 | 15 | 323 | 589 | 98 | .21 | .00 |
| 13 | .00 | 4.1 | 95 | 11 | 1.7 | 65 | 14 | 302 | 521 | 92 | .11 | .00 |
| 14 | .00 | 3.3 | 89 | 9.6 | 1.7 | 61 | 10 | 299 | 460 | 82 | .06 | .00 |
| 15 | .00 | 2.4 | 85 | 8.6 | .35 | 59 | 9.1 | 285 | 417 | 76 | .03 | .00 |
| 16 | .00 | 1.6 | 79 | 7.4 | .30 | 55 | 9.7 | 268 | 491 | 67 | .00 | .00 |
| 17 | .00 | 2.7 | 73 | 6.4 | .30 | 51 | 9.9 | 263 | 708 | 59 | .00 | .00 |
| 18 | .70 | 2.7 | 69 | 5.7 | .30 | 44 | 8.8 | 256 | 827 | 55 | .00 | .00 |
| 19 | 3.4 | 2.4 | 61 | 5.4 | .30 | 41 | 9.7 | 229 | 777 | 48 | .00 | .00 |
| 20 | 3.7 | 2.2 | 55 | 5.4 | .34 | 40 | 8.8 | 206 | 695 | 44 | .00 | .00 |
| 21 | 3.7 | 2.1 | 51 | 5.4 | .41 | 39 | 7.1 | 185 | 615 | 38 | .00 | .00 |
| 22 | 3.5 | 1.2 | 47 | 5.4 | .32 | 36 | 24 | 171 | 539 | 33 | .00 | .00 |
| 23 | 3.3 | 1.5 | 44 | 4.9 | .24 | 34 | 44 | 156 | 481 | 31 | .00 | .00 |
| 24 | 2.4 | 1.5 | 40 | 4.9 | .17 | 30 | 67 | 166 | 425 | 26 | .00 | .00 |
| 25 | 1.8 | .98 | 37 | 4.9 | .15 | 29 | 73 | 185 | 380 | 23 | .00 | .00 |
| 26 | 1.1 | .65 | 35 | 4.6 | .14 | 28 | 71 | 215 | 339 | 20 | .00 | .00 |
| 27 | 2.7 | .65 | 34 | 4.3 | .15 | 26 | 67 | 225 | 300 | 17 | .00 | .00 |
| 28 | 5.7 | .65 | 32 | 4.1 | 1.2 | 24 | 63 | 215 | 266 | 15 | .00 | .00 |
| 29 | 11 | .55 | 31 | 4.1 | --- | 29 | 63 | 214 | 237 | 12 | .00 | .00 |
| 30 | 11 | .52 | 30 | 3.2 | --- | 29 | 61 | 201 | 214 | 9.4 | .00 | .00 |
| 31 | 11 | --- | 28 | 2.5 | --- | 30 | --- | 183 | --- | 8.4 | .00 | --- |
| TOTAL | 65.45 | 133.30 | 1343.45 | 319.8 | 33.07 | 1437.0 | 878.1 | 5499 | 14505 | 2558.8 | 41.29 | .00 |
| MEAN | 2.11 | 4.44 | 43.3 | 10.3 | 1.18 | 46.4 | 29.3 | 177 | 484 | 82.5 | 1.33 | .000 |
| MAX | 11 | 11 | 99 | 26 | 3.7 | 81 | 73 | 323 | 842 | 194 | 7.5 | .00 |
| MIN | .00 | .52 | .15 | 2.5 | .14 | 7.0 | 7.1 | 41 | 131 | 8.4 | .00 | .00 |
| AC-FT | 130 | 264 | 2660 | 634 | 66 | 2850 | 1740 | 10910 | 28770 | 5080 | 82 | .00 |

CAL YR 1980 TOTAL 5503.73 MEAN 15.0 MAX 112 MIN .00 AC-FT 10920
WTR YR 1981 TOTAL 26814.26 MEAN 73.5 MAX 842 MIN .00 AC-FT 53190

## 07335500 RED RIVER AT ARTHUR CITY, TX

LOCATION.--Lat 33°52'32", long 95°30'08", in NW1/4 sec.11, T.8 S., R.17 E., Choctaw County, Okla., Hydrologic Unit 11140101, near right bank on downstream side of pier of bridge on U.S. Highway 271 at Arthur City, 10.6 mi (17.1 km) downstream from Muddy Boggy River, 26.0 mi (41.8 km) upstream from Kiamichi River, and at mile 633.1 (1,018.7 km).

DRAINAGE AREA.--44,531 $mi^2$ (115,335 $km^2$), of which 5,936 $mi^2$ (15,374 $km^2$) probably is noncontributing.

PERIOD OF RECORD.--January to September 1905 (gage heights and discharge measurements only), October 1905 to December 1911, July 1936 to current year. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected at same site since 1891 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 1241: Drainage area. WSP 1311: 1906-11.

GAGE.--Water-stage recorder. Datum of gage is 380.07 ft (115.845 m) National Geodetic Vertical Datum of 1929. From 1905-11, nonrecording gage at St. Louis-San Francisco Railway Co. bridge 200 ft (61 m) upstream at same datum. July 1, 1936, to Mar. 24, 1940, nonrecording gage at present site and datum.

REMARKS.--Records fair. Flow regulated since October 1943 by Lake Texoma (station 07331500), 92.8 mi (149.3 km) above station.

COOPERATION.--Gage-height records and 21 discharge measurements furnished by Corps of Engineers; records computed by the Geological Survey.

AVERAGE DISCHARGE.--13 years (water years 1906-11, 1937-43) prior to completion of Denison Dam, 9,266 $ft^3/s$ (262.4 $m^3/s$), 6,713,000 acre-ft/yr (8.28 $km^3/yr$); 37 years (water years 1944-81) regulated, 7,583 $ft^3/s$ (214.8 $m^3/s$), 5,494,000 acre-ft/yr (6.77 $km^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 400,000 $ft^3/s$ (11,300 $m^3/s$) May 28, 1908, gage height, 43.2 ft (13.17 m), from rating curve extended above 41,000 $ft^3/s$ (1,160 $m^3/s$) on basis of records for later years; minimum, 130 $ft^3/s$ (3.68 $m^3/s$) Dec. 11, 12, 1956, gage height, 4.49 ft (1.369 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 45,400 $ft^3/s$ (1,290 $m^3/s$) June 6, gage height, 17.71 ft (5.398 m); minimum daily, 460 $ft^3/s$ (13.0 $m^3/s$) Oct. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 15200 | 1890 | 591 | 785 | 1040 | 4810 | 2630 | 5250 | 11300 | 5100 | 3690 | 5510 |
| 2 | 8980 | 1090 | 543 | 1940 | 1030 | 10300 | 1690 | 6860 | 15700 | 5030 | 3000 | 8070 |
| 3 | 4240 | 847 | 512 | 1320 | 1880 | 9380 | 1300 | 6750 | 15300 | 5190 | 3010 | 8140 |
| 4 | 1940 | 721 | 480 | 956 | 1130 | 7520 | 2270 | 5790 | 22700 | 5230 | 1770 | 5610 |
| 5 | 1240 | 630 | 829 | 1510 | 1560 | 16200 | 2740 | 3610 | 34400 | 5310 | 2530 | 3300 |
| 6 | 897 | 566 | 824 | 949 | 2200 | 15600 | 2280 | 2410 | 44300 | 6600 | 4350 | 3160 |
| 7 | 763 | 543 | 1070 | 997 | 1980 | 11300 | 1140 | 3260 | 43600 | 7610 | 4720 | 2220 |
| 8 | 679 | 1080 | 1740 | 1980 | 1270 | 8940 | 849 | 2290 | 37500 | 6160 | 4240 | 1490 |
| 9 | 625 | 732 | 8030 | 1040 | 950 | 5890 | 914 | 3910 | 27400 | 4880 | 3470 | 1380 |
| 10 | 654 | 514 | 15500 | 795 | 987 | 3920 | 1030 | 9220 | 28700 | 5270 | 2410 | 1180 |
| 11 | 1150 | 529 | 13600 | 968 | 2450 | 2480 | 1050 | 14800 | 27800 | 4490 | 1630 | 1030 |
| 12 | 792 | 688 | 10100 | 858 | 3900 | 2070 | 1430 | 12800 | 26500 | 3910 | 1660 | 914 |
| 13 | 1140 | 807 | 6520 | 765 | 5560 | 2340 | 914 | 9760 | 25000 | 3010 | 1920 | 1030 |
| 14 | 763 | 645 | 3690 | 1350 | 4100 | 2070 | 650 | 8420 | 19600 | 2800 | 1550 | 1870 |
| 15 | 509 | 467 | 2210 | 2690 | 2460 | 2210 | 777 | 7500 | 18600 | 3100 | 1260 | 2030 |
| 16 | 460 | 600 | 1680 | 1910 | 2190 | 1890 | 2040 | 5620 | 23200 | 3060 | 1570 | 1970 |
| 17 | 2580 | 1000 | 1420 | 939 | 2160 | 1320 | 992 | 5200 | 29100 | 3060 | 2570 | 1970 |
| 18 | 6130 | 1600 | 1240 | 794 | 1800 | 1200 | 679 | 4800 | 24700 | 3690 | 2060 | 1830 |
| 19 | 6580 | 2500 | 1130 | 942 | 1730 | 1450 | 1480 | 3250 | 18300 | 4250 | 2200 | 1380 |
| 20 | 3870 | 2880 | 1030 | 920 | 1830 | 2530 | 1690 | 4020 | 14400 | 3970 | 1510 | 977 |
| 21 | 2000 | 2880 | 1030 | 728 | 2040 | 3050 | 959 | 4790 | 12800 | 4370 | 1030 | 1100 |
| 22 | 1320 | 1990 | 2480 | 1580 | 1730 | 3790 | 1260 | 3970 | 12100 | 4990 | 1210 | 1680 |
| 23 | 1090 | 2210 | 2330 | 1660 | 1510 | 2340 | 2870 | 3850 | 11500 | 5190 | 3140 | 2310 |
| 24 | 1770 | 2470 | 2440 | 974 | 1310 | 1300 | 2830 | 4010 | 11100 | 5060 | 4090 | 2980 |
| 25 | 1690 | 1570 | 2170 | 855 | 806 | 1470 | 4540 | 3760 | 9280 | 4720 | 4260 | 2400 |
| 26 | 1690 | 1510 | 1160 | 1610 | 642 | 4500 | 4630 | 4880 | 6160 | 4530 | 5350 | 2710 |
| 27 | 1280 | 2240 | 877 | 1330 | 1300 | 4000 | 3080 | 4370 | 5540 | 3800 | 5290 | 2810 |
| 28 | 5130 | 1080 | 783 | 1140 | 1700 | 2440 | 1430 | 5170 | 4920 | 3090 | 5780 | 3150 |
| 29 | 10400 | 743 | 732 | 2700 | --- | 1620 | 1590 | 8650 | 3470 | 4680 | 6320 | 2860 |
| 30 | 5500 | 641 | 703 | 2870 | --- | 1940 | 5130 | 7360 | 3280 | 4500 | 7350 | 3580 |
| 31 | 3250 | --- | 678 | 2100 | --- | 3410 | --- | 6430 | --- | 5200 | 6640 | --- |
| TOTAL | 94312 | 37663 | 88122 | 41955 | 53245 | 143280 | 56864 | 182760 | 588250 | 141850 | 101580 | 80641 |
| MEAN | 3042 | 1255 | 2843 | 1353 | 1902 | 4622 | 1895 | 5895 | 19610 | 4576 | 3277 | 2688 |
| MAX | 15200 | 2880 | 15500 | 2870 | 5560 | 16200 | 5130 | 14800 | 44300 | 7610 | 7350 | 8140 |
| MIN | 460 | 467 | 480 | 728 | 642 | 1200 | 650 | 2290 | 3280 | 2800 | 1030 | 914 |
| AC-FT | 187100 | 74700 | 174800 | 83220 | 105600 | 284200 | 112800 | 362500 | 1167000 | 281400 | 201500 | 160000 |

CAL YR 1980 TOTAL 1155281 MEAN 3157 MAX 37500 MIN 410 AC-FT 2291000
WTR YR 1981 TOTAL 1610522 MEAN 4412 MAX 44300 MIN 460 AC-FT 3194000

07336750 LITTLE PINE CREEK NEAR KANAWHA, TX

PERIOD OF RECORD.--Chemical analyses: October 1968 to September 1977. Periodic sediment analyses: October 1979 to September 1981 (discontinued).

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: November 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | TEMPER-ATURE (DEG C) | SEDI-MENT, SUS-PENDED (MG/L) | SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|
| OCT | | | | | | |
| 08... | 1030 | .45 | 17.0 | 17 | .02 | 31 |

## 07336820 RED RIVER NEAR DE KALB, TX

LOCATION.--Lat 33°41'15", long 94°41'39", Bowie County, Tex.-McCurtain County, Okla. State line, Hydrologic Unit 11140106, near left bank at downstream side of bridge on U.S. Highway 259, 4.8 mi (7.7 km) upstream from North Mill Creek, 13 mi (21 km) north of De Kalb, and at mile 556.9 (896.1 km).

DRAINAGE AREA.--47,348 $mi^2$ (122,631 $km^2$), of which 5,936 $mi^2$ (15,374 $km^2$) 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 (92.330 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. At times, flood peaks may be affected by storage in Lake Texoma (station 07331500) located approximately 169 mi (272 km) upstream and low flows may be affected by releases for generation of electric power. Gage-height telemeter at station.

AVERAGE DISCHARGE.--13 years (water years 1969-81), 10,720 $ft^3/s$ (303.6 $m^3/s$), 7,767,000 acre-ft/yr (9.58 $km^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 189,000 $ft^3/s$ (5,350 $m^3/s$) Dec. 11, 1971, gage height, 31.55 ft (9.616 m), from graph based on gage readings; minimum, 213 $ft^3/s$ (6.03 $m^3/s$) Nov. 30, 1979, from graph based on gage readings.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since 1957, 205,000 $ft^3/s$ (5,800 $m^3/s$) June 1957, gage height, 32.2 ft (9.81 m), from rating curve extended above 186,500 $ft^3/s$ (5,280 $m^3/s$). The greatest flood since 1936 occurred in February 1938, stage unknown.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 53,800 $ft^3/s$ (1,520 $m^3/s$) June 7 at 1130 hours, gage height, 22.45 ft (6.843 m); minimum, 757 $ft^3/s$ (21.4 $m^3/s$) Nov. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 20400 | 9060 | 1460 | 1420 | 3250 | 2300 | 5180 | 3820 | 8320 | 5000 | 5380 | 7810 |
| 2 | 17900 | 6150 | 1300 | 1690 | 2640 | 3480 | 6410 | 5820 | 10300 | 5340 | 5730 | 7120 |
| 3 | 13000 | 4720 | 1290 | 1820 | 1720 | 8580 | 5410 | 6840 | 17400 | 6770 | 4120 | 6800 |
| 4 | 8700 | 4050 | 1320 | 1810 | 1540 | 15000 | 3340 | 8410 | 21900 | 8290 | 3800 | 8780 |
| 5 | 5090 | 3670 | 1310 | 1680 | 1970 | 16500 | 2500 | 8070 | 30100 | 8960 | 3030 | 8990 |
| 6 | 3560 | 2980 | 1290 | 1740 | 1750 | 21800 | 3140 | 7300 | 47600 | 8760 | 2200 | 5650 |
| 7 | 2720 | 1690 | 1420 | 1890 | 1820 | 22700 | 3600 | 4910 | 53000 | 10300 | 3260 | 3910 |
| 8 | 2310 | 1290 | 1990 | 1760 | 2300 | 19200 | 2940 | 3870 | 51800 | 11000 | 4550 | 3390 |
| 9 | 2120 | 1080 | 5840 | 1650 | 2270 | 17100 | 1990 | 4240 | 45100 | 10300 | 4870 | 2270 |
| 10 | 1990 | 1360 | 10100 | 2110 | 2040 | 14900 | 1680 | 5970 | 39400 | 7660 | 4510 | 1840 |
| 11 | 1880 | 1380 | 19900 | 1810 | 2630 | 12000 | 1610 | 9950 | 40100 | 6940 | 3720 | 1690 |
| 12 | 1570 | 1010 | 21400 | 1480 | 4120 | 8260 | 1650 | 18100 | 39600 | 6620 | 2430 | 1540 |
| 13 | 1630 | 796 | 18400 | 1470 | 6060 | 5470 | 1670 | 21300 | 37800 | 5740 | 1930 | 1430 |
| 14 | 1530 | 985 | 16000 | 1430 | 7690 | 4790 | 1850 | 18600 | 35700 | 4900 | 1940 | 1360 |
| 15 | 1600 | 1230 | 13100 | 1340 | 8270 | 4250 | 1640 | 16800 | 31700 | 4240 | 1950 | 1480 |
| 16 | 1470 | 1200 | 8020 | 1710 | 7000 | 3940 | 1400 | 15300 | 31500 | 3880 | 1760 | 2060 |
| 17 | 1370 | 1200 | 5670 | 2630 | 5600 | 3680 | 1470 | 11900 | 34400 | 4190 | 1630 | 2190 |
| 18 | 1750 | 1520 | 4740 | 2270 | 5340 | 2580 | 2160 | 10600 | 34100 | 4070 | 2330 | 2180 |
| 19 | 3730 | 1580 | 4120 | 1670 | 5140 | 2030 | 1790 | 9650 | 29500 | 4070 | 2800 | 2210 |
| 20 | 6420 | 1300 | 3250 | 1390 | 4850 | 1980 | 1480 | 8560 | 23200 | 4690 | 2170 | 2050 |
| 21 | 6890 | 1430 | 2190 | 1380 | 4640 | 3630 | 1800 | 6340 | 18900 | 5070 | 2110 | 1740 |
| 22 | 7090 | 2730 | 1660 | 1350 | 4030 | 4540 | 2030 | 6070 | 16300 | 4910 | 1700 | 1450 |
| 23 | 5990 | 3180 | 1570 | 1240 | 3820 | 4380 | 1930 | 5570 | 15100 | 5280 | 1370 | 1530 |
| 24 | 5230 | 2490 | 1560 | 1630 | 3400 | 3920 | 2150 | 5120 | 14400 | 5950 | 1500 | 1860 |
| 25 | 4870 | 2670 | 1870 | 1890 | 3260 | 3160 | 3440 | 5460 | 13900 | 6100 | 3080 | 2740 |
| 26 | 4270 | 2720 | 2630 | 1570 | 2780 | 2300 | 4820 | 5830 | 12900 | 5900 | 4130 | 3300 |
| 27 | 4350 | 2140 | 2990 | 1350 | 1920 | 3610 | 6540 | 6430 | 9600 | 5510 | 4620 | 2840 |
| 28 | 4490 | 2080 | 2080 | 1690 | 1630 | 5100 | 6350 | 9330 | 7980 | 5150 | 5610 | 3250 |
| 29 | 5000 | 2360 | 1820 | 1720 | --- | 4700 | 4750 | 10100 | 7240 | 4620 | 5790 | 3350 |
| 30 | 12000 | 1810 | 1600 | 1600 | --- | 3710 | 3440 | 11300 | 5920 | 4230 | 6150 | 3650 |
| 31 | 12500 | --- | 1430 | 2490 | --- | 3200 | --- | 9790 | --- | 5140 | 7040 | --- |
| TOTAL | 173420 | 71861 | 163320 | 52680 | 103480 | 232790 | 90160 | 281350 | 784760 | 189580 | 107210 | 100460 |
| MEAN | 5594 | 2395 | 5268 | 1699 | 3696 | 7509 | 3005 | 9076 | 26160 | 6115 | 3458 | 3349 |
| MAX | 20400 | 9060 | 21400 | 2630 | 8270 | 22700 | 6540 | 21300 | 53000 | 11000 | 7040 | 8990 |
| MIN | 1370 | 796 | 1290 | 1240 | 1540 | 1980 | 1400 | 3820 | 5920 | 3880 | 1370 | 1360 |
| AC-FT | 344000 | 142500 | 323900 | 104500 | 205300 | 461700 | 178800 | 558100 | 1557000 | 376000 | 212700 | 199300 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 1889459 | MEAN | 5162 | MAX | 36000 | MIN | 633 | AC-FT | 3748000 |
| WTR YR 1981 | TOTAL | 2351071 | MEAN | 6441 | MAX | 53000 | MIN | 796 | AC-FT | 4663000 |

07336820 RED RIVER NEAR DE KALB, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical biochemical analyses: January 1968 to current year. Pesticide analyses: October 1970 to September 1981.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1968 to current year.
WATER TEMPERATURES: January 1968 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 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, 2,140 micromhos July 13, 1980; minimum daily, 132 micromhos Mar. 25, 1968.
WATER TEMPERATURES (1968-80): Maximum daily, 34.0°C on several days during July and August 1969-70; minimum daily, 0.0°C Jan. 11, 1977.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,910 micromhos Feb. 1; minimum daily, 224 micromhos Mar. 5.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH FIELD (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, BIOCHEM UNINHIB 5 DAY (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | |
| 21... | 1030 | 1120 | 1230 | 8.2 | 8.5 | 60 | 7.5 | 12.0 | 102 | 5.6 |
| JAN | | | | | | | | | | |
| 08... | 1300 | 1760 | -- | -- | 6.0 | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | | |
| 13... | 1400 | 6260 | 625 | 8.2 | 4.0 | 30 | 58 | 13.1 | 98 | 2.6 |
| 13... | 1645 | 6180 | -- | -- | 4.0 | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | |
| 24... | 1330 | 3940 | -- | -- | 16.0 | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | |
| 07... | 1530 | 4700 | 936 | 8.2 | 22.0 | 30 | 40 | 9.2 | 103 | 1.9 |
| JUN | | | | | | | | | | |
| 12... | 1500 | 39800 | 1120 | 7.9 | 26.0 | 45 | 81 | 6.9 | 85 | 1.6 |
| JUL | | | | | | | | | | |
| 23... | 1330 | 5310 | 1580 | -- | 32.0 | 15 | 27 | -- | -- | -- |
| SEP | | | | | | | | | | |
| 03... | 1030 | 6340 | 1250 | 8.4 | 26.5 | 5 | 46 | -- | -- | -- |

| DATE | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | |
| 21... | 270 | 110 | 76 | 20 | 140 | 3.7 | 6.5 | 160 | 140 |
| JAN | | | | | | | | | |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | |
| 13... | 150 | 64 | 43 | 11 | 65 | 2.3 | 3.1 | 89 | 72 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | |
| 07... | 190 | 120 | 52 | 15 | 120 | 3.8 | 4.1 | 73 | 120 |
| JUN | | | | | | | | | |
| 12... | 220 | 150 | 59 | 17 | 130 | 3.8 | 4.7 | 72 | 140 |
| JUL | | | | | | | | | |
| 23... | 320 | 210 | 87 | 26 | 200 | 5.2 | 5.8 | 110 | 220 |
| SEP | | | | | | | | | |
| 03... | 260 | 160 | 68 | 21 | 170 | 5.0 | 5.7 | 95 | 160 |

07336820 RED RIVER NEAR DE KALB, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L) | SOLIDS, VOLATILE, SUSPENDED (MG/L) | NITROGEN, NITRATE TOTAL (MG/L AS N) | NITROGEN, NITRITE TOTAL (MG/L AS N) |
|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | |
| 21... | 200 | .4 | 5.9 | -- | 685 | 14 | 1 | .00 | .030 |
| JAN | | | | | | | | | |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB | | | | | | | | | |
| 13... | 96 | .2 | 6.6 | -- | 351 | 65 | 13 | .41 | .010 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | |
| 07... | 180 | .2 | 5.1 | -- | 540 | 66 | 9 | .25 | .010 |
| JUN | | | | | | | | | |
| 12... | 230 | .2 | 6.5 | -- | 631 | 169 | 26 | .07 | .020 |
| JUL | | | | | | | | | |
| 23... | 310 | .3 | 4.4 | 954 | 920 | 76 | 22 | .00 | .010 |
| SEP | | | | | | | | | |
| 03... | 270 | .3 | 5.4 | -- | 758 | 95 | 8 | -- | .030 |

| DATE | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | CARBON, ORGANIC TOTAL (MG/L AS C) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT DISCHARGE, SUSPENDED (T/DAY) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | |
| 21... | .00 | -- | -- | 1.1 | .090 | 14 | 18 | 54 | -- |
| JAN | | | | | | | | | |
| 08... | -- | -- | -- | -- | -- | -- | 15 | 71 | -- |
| FEB | | | | | | | | | |
| 13... | .42 | .130 | 1.1 | 1.2 | .120 | 9.0 | -- | -- | -- |
| 13... | -- | -- | -- | -- | -- | -- | 143 | 2390 | -- |
| MAR | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | 92 | 979 | 55 |
| MAY | | | | | | | | | |
| 07... | .26 | .090 | .89 | .98 | .220 | 8.9 | 105 | 1330 | 82 |
| JUN | | | | | | | | | |
| 12... | .09 | .110 | .35 | .46 | .160 | 6.6 | 416 | 44700 | -- |
| JUL | | | | | | | | | |
| 23... | .00 | .150 | .95 | 1.1 | .070 | 7.7 | 149 | 2140 | -- |
| SEP | | | | | | | | | |
| 03... | <.10 | .130 | .58 | .71 | .100 | 8.4 | 244 | 4180 | -- |

| DATE | TIME | ARSENIC DISSOLVED (UG/L AS AS) | BARIUM, DISSOLVED (UG/L AS BA) | CADMIUM DISSOLVED (UG/L AS CD) | CHROMIUM, DISSOLVED (UG/L AS CR) | COPPER, DISSOLVED (UG/L AS CU) | IRON, DISSOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|
| NOV | | | | | | | |
| 21... | 1030 | 1 | 100 | <1 | 0 | <10 | 60 |
| FEB | | | | | | | |
| 13... | 1400 | 0 | 80 | <1 | 0 | <10 | 90 |
| MAY | | | | | | | |
| 07... | 1530 | 1 | 100 | <1 | 10 | <10 | 60 |
| JUL | | | | | | | |
| 23... | 1330 | 2 | 150 | <1 | 20 | <10 | <10 |

| DATE | LEAD, DISSOLVED (UG/L AS PB) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY DISSOLVED (UG/L AS HG) | SELENIUM, DISSOLVED (UG/L AS SE) | SILVER, DISSOLVED (UG/L AS AG) | ZINC, DISSOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|
| NOV | | | | | | |
| 21... | <10 | 70 | .0 | 0 | 0 | 4 |
| FEB | | | | | | |
| 13... | 18 | 30 | .0 | 0 | 0 | 5 |
| MAY | | | | | | |
| 07... | <10 | 7 | .0 | 0 | 0 | 9 |
| JUL | | | | | | |
| 23... | <10 | 4 | .0 | 0 | 0 | <3 |

07336820 RED RIVER NEAR DE KALB, TX--CONTINUED

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | PCB TOTAL (UG/L) | PCB, TOTAL IN BOTTOM MATERIAL (UG/KG) | NAPHTHALENES, POLYCHLOR. TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | CHLORDANE, TOTAL (UG/L) | CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG) | DDD, TOTAL (UG/L) | DDD, TOTAL IN BOTTOM MATERIAL (UG/KG) | DDE, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | | |
| 13... | 1400 | .00 | 0 | .0 | .00 | .0 | .0 | 0 | .00 | .0 | .00 |
| JUL | | | | | | | | | | | |
| 23... | 1330 | .00 | 0 | .0 | .00 | .0 | .0 | 0 | .00 | .0 | .00 |

| DATE | DDE, TOTAL IN BOTTOM MATERIAL (UG/KG) | DDT, TOTAL (UG/L) | DDT, TOTAL IN BOTTOM MATERIAL (UG/KG) | DIAZINON, TOTAL (UG/L) | DIELDRIN TOTAL (UG/L) | DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | ENDOSULFAN, TOTAL (UG/L) | ENDRIN, TOTAL (UG/L) | ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | ETHION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | |
| 13... | .3 | .00 | .0 | .01 | .00 | .0 | .00 | .00 | .0 | .00 |
| JUL | | | | | | | | | | |
| 23... | .0 | .00 | .0 | .01 | .00 | .0 | .00 | .00 | .0 | .00 |

| DATE | HEPTACHLOR, TOTAL (UG/L) | HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG) | HEPTACHLOR EPOXIDE TOTAL (UG/L) | HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) | LINDANE TOTAL (UG/L) | LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG) | MALATHION, TOTAL (UG/L) | METHOXYCHLOR, TOTAL (UG/L) | METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG) | METHYL PARATHION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | |
| 13... | .00 | .0 | .00 | .0 | .00 | .0 | .00 | .00 | .0 | .00 |
| JUL | | | | | | | | | | |
| 23... | .00 | .0 | .00 | .0 | .00 | .0 | .00 | .00 | .0 | .00 |

| DATE | METHYL TRITHION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) | MIREX, TOTAL IN BOTTOM MATERIAL (UG/KG) | PARATHION, TOTAL (UG/L) | TOXAPHENE, TOTAL (UG/L) | TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG) | TOTAL TRITHION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | |
| 13... | .00 | .00 | .0 | .00 | 0 | 0 | .00 | .03 | .01 | .00 |
| JUL | | | | | | | | | | |
| 23... | .00 | .00 | .0 | .00 | 0 | 0 | .00 | .02 | .01 | .00 |

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCTANCE (MICROMHOS) | DISSOLVED SOLIDS (MG/L) | DISSOLVED SOLIDS (TONS) | DISSOLVED CHLORIDE (MG/L) | DISSOLVED CHLORIDE (TONS) | DISSOLVED SULFATE (MG/L) | DISSOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 173420 | 535 | 290 | 136000 | 78 | 36500 | 53 | 25000 | 150 |
| NOV. | 1980 | 71861 | 901 | 504 | 97900 | 150 | 29900 | 110 | 20700 | 220 |
| DEC. | 1980 | 163320 | 501 | 272 | 120000 | 74 | 32800 | 51 | 22500 | 140 |
| JAN. | 1981 | 52680 | 1330 | 754 | 107000 | 240 | 34000 | 170 | 23600 | 310 |
| FEB. | 1981 | 103480 | 1050 | 586 | 164000 | 180 | 50200 | 120 | 34800 | 250 |
| MAR. | 1981 | 232790 | 612 | 338 | 213000 | 99 | 62000 | 68 | 42700 | 160 |
| APR. | 1981 | 90160 | 866 | 479 | 117000 | 140 | 34300 | 97 | 23700 | 220 |
| MAY | 1981 | 281350 | 728 | 400 | 304000 | 110 | 87300 | 79 | 60100 | 190 |
| JUNE | 1981 | 784760 | 1050 | 586 | 1241E3 | 180 | 372500 | 120 | 257600 | 260 |
| JULY | 1981 | 189580 | 1270 | 718 | 368000 | 230 | 117600 | 160 | 81800 | 290 |
| AUG. | 1981 | 107210 | 1350 | 765 | 222000 | 240 | 70600 | 170 | 49000 | 310 |
| SEPT | 1981 | 100460 | 1380 | 780 | 212000 | 250 | 67400 | 170 | 46800 | 320 |
| TOTAL | | 2351071 | ** | ** | 3300000 | ** | 995000 | ** | 689000 | ** |
| WTD. AVG. | | 6441 | 932 | 520 | ** | 160 | ** | 110 | ** | 230 |

07336820 RED RIVER NEAR DE KALB, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 384 | 343 | 1240 | 950 | 1910 | 793 | 698 | 564 | 808 | 1430 | 1500 | 1130 |
| 2 | 541 | 420 | 1100 | 840 | 1800 | 950 | 587 | 1440 | 880 | 1360 | 1200 | 1280 |
| 3 | 558 | 537 | 868 | 930 | 1680 | 650 | 391 | 1290 | 961 | 1590 | 889 | 1430 |
| 4 | 602 | 482 | 817 | 1020 | 1540 | 330 | 330 | 1080 | 1030 | 1870 | 891 | 1570 |
| 5 | 495 | 417 | 741 | 1210 | 1410 | 224 | 390 | 1020 | 991 | 1650 | 1020 | 1470 |
| 6 | 467 | 373 | 700 | 1310 | 1650 | 299 | 511 | 1180 | 872 | 1280 | 1090 | 1380 |
| 7 | 474 | 393 | 659 | 1140 | 1500 | 332 | 1160 | 936 | 930 | 1140 | 850 | 1280 |
| 8 | 489 | 585 | 770 | 1280 | 1700 | 231 | 1370 | 870 | 975 | 708 | 1560 | 1330 |
| 9 | 482 | 747 | 610 | 1250 | 1840 | 280 | 1150 | 1220 | 981 | 343 | 1540 | 1260 |
| 10 | 468 | 810 | 510 | 1100 | 1660 | 542 | 1060 | 1000 | 846 | 338 | 1490 | 1230 |
| 11 | 460 | 874 | 385 | 1460 | 1340 | 558 | 1010 | 880 | 868 | 589 | 1510 | 1160 |
| 12 | 448 | 1020 | 271 | 1310 | 912 | 602 | 949 | 690 | 1070 | 825 | 1280 | 1230 |
| 13 | 504 | 1120 | 300 | 1150 | 625 | 495 | 948 | 304 | 1140 | 1060 | 1310 | 1200 |
| 14 | 794 | 1120 | 330 | 1130 | 487 | 467 | 1040 | 228 | 1140 | 1160 | 1500 | 1110 |
| 15 | 690 | 1150 | 363 | 1170 | 1220 | 479 | 1340 | 430 | 1140 | 1250 | 1400 | 1120 |
| 16 | 750 | 1190 | 420 | 1300 | 1040 | 645 | 1240 | 657 | 1090 | 1260 | 1300 | 1300 |
| 17 | 830 | 1240 | 540 | 1410 | 862 | 729 | 1080 | 690 | 1080 | 1270 | 1260 | 1420 |
| 18 | 910 | 1090 | 616 | 1730 | 732 | 829 | 1270 | 741 | 1050 | 1510 | 1210 | 1400 |
| 19 | 1000 | 1180 | 585 | 1670 | 750 | 1100 | 1480 | 794 | 843 | 1510 | 1190 | 1440 |
| 20 | 1090 | 1190 | 545 | 1460 | 762 | 1020 | 1230 | 768 | 894 | 1520 | 1350 | 1420 |
| 21 | 796 | 1230 | 509 | 1350 | 790 | 958 | 1090 | 686 | 1090 | 1590 | 1300 | 1370 |
| 22 | 507 | 1340 | 460 | 1380 | 815 | 1730 | 1370 | 730 | 1310 | 1550 | 1250 | 1300 |
| 23 | 368 | 1730 | 455 | 1420 | 1100 | 1750 | 1470 | 1010 | 1430 | 1600 | 1150 | 1250 |
| 24 | 313 | 1580 | 480 | 1370 | 1070 | 1660 | 1070 | 1320 | 1490 | 1620 | 900 | 1220 |
| 25 | 276 | 1370 | 890 | 1500 | 967 | 1560 | 1200 | 1260 | 1520 | 1690 | 1100 | 1500 |
| 26 | 416 | 1650 | 1240 | 1620 | 930 | 1450 | 850 | 1310 | 1530 | 1600 | 1620 | 1590 |
| 27 | 612 | 1550 | 1560 | 1450 | 862 | 929 | 528 | 563 | 1510 | 1550 | 1550 | 1400 |
| 28 | 757 | 1280 | 1370 | 1500 | 937 | 1660 | 689 | 678 | 1430 | 1490 | 1580 | 1590 |
| 29 | 625 | 1500 | 1140 | 1550 | --- | 1520 | 975 | 296 | 1510 | 1490 | 1510 | 1540 |
| 30 | 480 | 1370 | 1030 | 1610 | --- | 1360 | 753 | 374 | 1510 | 1500 | 1540 | 1460 |
| 31 | 323 | --- | 941 | 1510 | --- | 1180 | --- | 821 | --- | 1620 | 1520 | --- |
| MEAN | 578 | 1030 | 724 | 1330 | 1170 | 881 | 974 | 833 | 1130 | 1320 | 1300 | 1350 |

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 17.0 | 12.0 | 10.0 | --- | 6.0 | 14.0 | 17.0 | 23.0 | 24.0 | --- | 30.0 | 30.0 |
| 2 | 18.0 | --- | 10.0 | 6.0 | --- | --- | 18.0 | 21.0 | --- | 30.0 | --- | --- |
| 3 | --- | 14.0 | 10.0 | --- | --- | 13.0 | 18.0 | --- | 24.0 | 30.0 | 30.0 | 28.0 |
| 4 | --- | 15.0 | 10.0 | --- | 5.0 | 13.0 | 18.0 | 20.0 | 23.0 | --- | 31.0 | 28.0 |
| 5 | --- | 13.0 | 11.0 | --- | 5.0 | 13.0 | --- | 20.0 | 22.0 | --- | 31.0 | 28.0 |
| 6 | --- | 15.0 | --- | 4.0 | 5.0 | 11.0 | 17.0 | 21.0 | 23.0 | 27.0 | 32.0 | --- |
| 7 | 16.0 | 15.0 | 15.0 | 4.0 | 5.0 | 11.0 | 17.0 | 20.0 | --- | 27.0 | 32.0 | 27.0 |
| 8 | 18.0 | 16.0 | 16.0 | 5.0 | 6.0 | 10.0 | 18.0 | 20.0 | 24.0 | 29.0 | 31.0 | 26.0 |
| 9 | 20.0 | 17.0 | --- | 6.0 | 6.0 | 10.0 | 19.0 | 19.0 | 24.0 | 30.0 | --- | 26.0 |
| 10 | 20.0 | --- | --- | 6.0 | 9.0 | 10.0 | 20.0 | --- | 25.0 | 31.0 | 30.0 | 24.0 |
| 11 | 20.0 | 17.0 | --- | 8.0 | --- | 12.0 | 21.0 | 15.0 | --- | 32.0 | 30.0 | 24.0 |
| 12 | 18.0 | 15.0 | 7.0 | 5.0 | 5.0 | 12.0 | 22.0 | 17.0 | --- | --- | 30.0 | 26.0 |
| 13 | 16.0 | 14.0 | --- | 5.0 | --- | 13.0 | 22.0 | 19.0 | --- | 32.0 | 30.0 | 26.0 |
| 14 | 17.0 | 14.0 | --- | 5.0 | 3.0 | 13.0 | 22.0 | 18.0 | --- | --- | --- | 26.0 |
| 15 | --- | 13.0 | 9.0 | 6.0 | 5.0 | 15.0 | 18.0 | 18.0 | --- | 32.0 | --- | 26.0 |
| 16 | --- | --- | --- | --- | 6.0 | 13.0 | 18.0 | 19.0 | --- | --- | --- | 26.0 |
| 17 | --- | 13.0 | --- | 4.0 | 7.0 | 14.0 | 20.0 | --- | --- | 32.0 | --- | 23.0 |
| 18 | --- | 7.0 | 8.0 | 4.0 | 8.0 | 12.0 | --- | 20.0 | --- | 33.0 | 28.0 | 21.0 |
| 19 | --- | 8.0 | --- | 5.0 | 9.0 | 9.0 | 21.0 | 20.0 | --- | --- | 27.0 | 20.0 |
| 20 | 17.0 | 6.0 | --- | 5.0 | 11.0 | 10.0 | 22.0 | 18.0 | 26.0 | 33.0 | 28.0 | 20.0 |
| 21 | 17.0 | --- | 4.0 | 5.0 | --- | 12.0 | 21.0 | 19.0 | 28.0 | 32.0 | --- | 22.0 |
| 22 | 16.0 | 8.0 | --- | --- | 11.0 | 12.0 | 21.0 | --- | 30.0 | 31.0 | 28.0 | 23.0 |
| 23 | 17.0 | 9.0 | --- | 5.0 | 11.0 | 12.0 | 20.0 | --- | 29.0 | 33.0 | --- | 24.0 |
| 24 | 15.0 | 9.0 | --- | 6.0 | 10.0 | 12.0 | 20.0 | 22.0 | 30.0 | 33.0 | 30.0 | 26.0 |
| 25 | 14.0 | 7.0 | --- | --- | 11.0 | 13.0 | 21.0 | 22.0 | 30.0 | --- | 30.0 | 25.0 |
| 26 | 14.0 | --- | --- | 9.0 | --- | --- | --- | 22.0 | 30.0 | --- | 30.0 | 26.0 |
| 27 | 15.0 | --- | 3.0 | 7.0 | 15.0 | 15.0 | 22.0 | 23.0 | 30.0 | 32.0 | 30.0 | --- |
| 28 | 13.0 | 6.0 | 3.0 | --- | 17.0 | 15.0 | 23.0 | 24.0 | 31.0 | 32.0 | 30.0 | 26.0 |
| 29 | 12.0 | 6.0 | 5.0 | 10.0 | --- | 15.0 | 23.0 | 23.0 | 30.0 | 32.0 | 30.0 | 26.0 |
| 30 | 12.0 | 11.0 | 5.0 | 9.0 | --- | 15.0 | 23.0 | 23.0 | 31.0 | 31.0 | 30.0 | 25.0 |
| 31 | 11.0 | --- | 6.0 | 7.0 | --- | 17.0 | --- | 26.0 | --- | 30.0 | 30.0 | --- |
| MEAN | 16.0 | 11.5 | 8.5 | 6.0 | 8.0 | 12.5 | 20.0 | 20.5 | 27.0 | 31.0 | 30.0 | 25.0 |

## 07337000 RED RIVER AT INDEX, AR

LOCATION.--Lat 33°33'07", long 94°02'28", in NW1/4SW1/4 sec.7, T.14 S., R.28 W., Miller County, Hydrologic Unit 11140106, near right bank on downstream side of bridge on U.S. Highway 71 at Index, 2.2 mi (3.5 km) south of Ogden, 20.6 mi (33.1 km) upstream from Little River, and at mile 485.3 (780.8 km).

DRAINAGE AREA.--48,030 mi² (124,400 km²), of which 5,936 mi² (15,370 km²) probably is 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 the National Weather Service.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 246.87 ft (75.246 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 12, 1939, nonrecording gage at present site and datum, and Dec. 12, 1939, to July 19, 1979, water-stage recorder at site 500 ft (152 m) downstream at present datum.

REMARKS.--Water-discharge records good. Some regulation by Lake Texoma (station 07331500), 241 mi (388 km) upstream since Oct. 31, 1943, capacity, 5,392,900 acre-ft (6.65 km³), by Pat Mayse Lake (station 07335390) since Sept. 28, 1967, capacity, 352,700 acre-ft (435 hm³), and by Hugo Lake in Oklahoma since Jan. 18, 1974, capacity, 966,700 acre-ft (1,190 hm³).

AVERAGE DISCHARGE.--45 years, 11,490 ft³/s (325 m³/s), 8,324,000 acre-ft/yr (10.3 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 297,000 ft³/s (8,410 m³/s) Feb. 23, 1938, gage height, 34.25 ft (10.439 m); minimum, 378 ft³/s (10.7 m³/s) Nov. 28, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 62,500 ft³/s (1,770 m³/s) June 8, gage height, 17.33 ft (5.282 m); minimum daily, 1,550 ft³/s (43.9 m³/s) Jan. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 15000 | 10500 | 2750 | 1860 | 2830 | 2900 | 4190 | 4490 | 9230 | 6090 | 4780 | 6040 |
| 2 | 20600 | 6000 | 2310 | 1760 | 4400 | 3170 | 4480 | 3930 | 7870 | 5200 | 5280 | 6840 |
| 3 | 17800 | 5000 | 2000 | 1690 | 4420 | 4050 | 5800 | 4820 | 8380 | 4790 | 5570 | 7000 |
| 4 | 12900 | 4500 | 1840 | 1620 | 3460 | 7210 | 5970 | 6030 | 15600 | 6220 | 5200 | 6410 |
| 5 | 9480 | 4200 | 1820 | 1670 | 2530 | 15400 | 4850 | 7230 | 25700 | 13000 | 4120 | 7110 |
| 6 | 6360 | 4000 | 1840 | 2130 | 2140 | 18900 | 3590 | 7960 | 43100 | 19100 | 3890 | 8270 |
| 7 | 4520 | 3700 | 1820 | 2120 | 2290 | 24800 | 3450 | 7420 | 58800 | 15200 | 3290 | 7080 |
| 8 | 3600 | 3500 | 1860 | 1910 | 2160 | 24400 | 3830 | 6270 | 61000 | 12800 | 3080 | 5030 |
| 9 | 3070 | 2800 | 3740 | 2020 | 2180 | 20700 | 3850 | 5070 | 54000 | 12600 | 4040 | 4110 |
| 10 | 2690 | 2200 | 6830 | 1900 | 2770 | 18200 | 3090 | 5650 | 45000 | 11600 | 4730 | 3490 |
| 11 | 2500 | 1700 | 12400 | 1830 | 2970 | 16000 | 2470 | 7250 | 39800 | 9290 | 4770 | 2800 |
| 12 | 2360 | 2100 | 21800 | 2140 | 2930 | 13000 | 2200 | 10200 | 40500 | 7470 | 4330 | 2420 |
| 13 | 2210 | 2100 | 22700 | 1960 | 3440 | 9780 | 2150 | 19500 | 39700 | 7050 | 3590 | 2230 |
| 14 | 1970 | 1800 | 19100 | 1710 | 4670 | 7240 | 2150 | 23000 | 37000 | 6360 | 2810 | 2090 |
| 15 | 1990 | 2900 | 16000 | 1660 | 6380 | 5780 | 2200 | 20000 | 34400 | 5630 | 2490 | 2070 |
| 16 | 1910 | 2800 | 13300 | 1630 | 7550 | 5180 | 2270 | 18300 | 36100 | 4850 | 2540 | 1910 |
| 17 | 2090 | 2900 | 9920 | 1560 | 7230 | 4710 | 2040 | 18700 | 38700 | 4380 | 2490 | 2060 |
| 18 | 2240 | 3000 | 6010 | 1890 | 6220 | 4460 | 1840 | 16400 | 38600 | 4240 | 2350 | 2490 |
| 19 | 2260 | 2800 | 4640 | 2610 | 5560 | 4050 | 2030 | 14000 | 35500 | 4340 | 2310 | 2520 |
| 20 | 2650 | 2600 | 4420 | 2430 | 5390 | 3300 | 2500 | 11700 | 29100 | 4230 | 3110 | 2530 |
| 21 | 4850 | 2500 | 3580 | 1920 | 5080 | 2830 | 2140 | 9430 | 22900 | 4420 | 3100 | 2500 |
| 22 | 6070 | 2600 | 2790 | 1620 | 4980 | 3120 | 1930 | 6870 | 18500 | 4930 | 2770 | 2290 |
| 23 | 6440 | 2800 | 2400 | 1570 | 4770 | 4410 | 2270 | 5420 | 15500 | 5060 | 2610 | 2020 |
| 24 | 6070 | 3300 | 2220 | 1600 | 4430 | 4820 | 2440 | 5110 | 13900 | 5060 | 2210 | 1800 |
| 25 | 5390 | 3350 | 2260 | 1560 | 4130 | 4550 | 2310 | 4570 | 13100 | 5470 | 1950 | 1920 |
| 26 | 5130 | 3060 | 2860 | 1780 | 3830 | 4170 | 2810 | 5240 | 12600 | 5850 | 2290 | 2140 |
| 27 | 4700 | 3230 | 2920 | 2010 | 3590 | 3490 | 3910 | 6010 | 11700 | 5830 | 3640 | 2940 |
| 28 | 5200 | 3100 | 3050 | 1860 | 3130 | 3340 | 5180 | 6280 | 9420 | 5590 | 4340 | 3080 |
| 29 | 5000 | 2660 | 2740 | 1620 | --- | 4860 | 5950 | 7330 | 7600 | 5390 | 4910 | 2910 |
| 30 | 5400 | 2730 | 2260 | 1800 | --- | 5720 | 5540 | 8620 | 6780 | 5100 | 5470 | 3180 |
| 31 | 9800 | --- | 2010 | 1940 | --- | 5090 | --- | 9420 | --- | 4600 | 5680 | --- |
| TOTAL | 182250 | 100430 | 186190 | 57380 | 115460 | 259630 | 99430 | 292220 | 830080 | 221740 | 113740 | 109280 |
| MEAN | 5879 | 3348 | 6006 | 1851 | 4124 | 8375 | 3314 | 9426 | 27670 | 7153 | 3669 | 3643 |
| MAX | 20600 | 10500 | 22700 | 2610 | 7550 | 24800 | 5970 | 23000 | 61000 | 19100 | 5680 | 8270 |
| MIN | 1910 | 1700 | 1820 | 1560 | 2140 | 2830 | 1840 | 3930 | 6780 | 4230 | 1950 | 1800 |
| AC-FT | 361500 | 199200 | 369300 | 113800 | 229000 | 515000 | 197200 | 579600 | 1646000 | 439800 | 225600 | 216800 |

CAL YR 1980 TOTAL 2063940 MEAN 5639 MAX 36300 MIN 1360 AC-FT 4094000
WTR YR 1981 TOTAL 2567830 MEAN 7035 MAX 61000 MIN 1560 AC-FT 5093000

07337000 RED RIVER AT INDEX, AR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: Water years 1947-56, April 1980 to current year.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,670 micromhos Jan. 21; minimum daily, 224 micromhos May 14.
WATER TEMPERATURES: Maximum daily, 35.0°C on several days during July.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD-NESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 14... | 1600 | 1970 | 606 | 8.0 | 25.0 | 2.3 | -- | -- | 570 | 1200 | 150 |
| DEC | | | | | | | | | | | |
| 10... | 1600 | 7360 | 468 | 8.0 | 10.0 | 240 | 11.4 | 101 | K3200 | 1600 | 130 |
| MAR | | | | | | | | | | | |
| 11... | 1430 | 12900 | 435 | 8.1 | 20.0 | 120 | 9.5 | 104 | 130 | K130 | 120 |
| MAY | | | | | | | | | | | |
| 06... | 1000 | 8150 | 1140 | 7.9 | 22.0 | 90 | 7.3 | 84 | K200 | K200 | 240 |
| JUL | | | | | | | | | | | |
| 08... | 1500 | 12900 | -- | -- | 19.5 | 66 | 6.7 | 73 | <3 | K30 | 190 |
| SEP | | | | | | | | | | | |
| 01... | 1430 | 6180 | 1556 | -- | 29.0 | 33 | 7.6 | 99 | K23 | K8 | 310 |

| DATE | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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) | 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 | | | | | | | | | | |
| 14... | 16 | 44 | 8.7 | 64 | 2.3 | 4.5 | 59 | 76 | .2 | 4.1 |
| DEC | | | | | | | | | | |
| 10... | 35 | 36 | 9.2 | 50 | 1.9 | 4.5 | 49 | 60 | .2 | 7.1 |
| MAR | | | | | | | | | | |
| 11... | 66 | 37 | 7.1 | 43 | 1.7 | 2.7 | 59 | 68 | .2 | 6.3 |
| MAY | | | | | | | | | | |
| 06... | -- | 65 | 18 | 130 | 3.7 | 4.5 | 150 | 210 | .3 | 5.0 |
| JUL | | | | | | | | | | |
| 08... | -- | 50 | 15 | 100 | 3.2 | 4.1 | 120 | 160 | .2 | 4.5 |
| SEP | | | | | | | | | | |
| 01... | -- | 83 | 25 | 190 | 5.0 | 5.9 | 200 | 300 | .2 | 5.8 |

| DATE | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | 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) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 14... | 361 | 339 | -- | -- | .00 | .00 | .040 | .000 | 1.3 | 1.5 |
| DEC | | | | | | | | | | |
| 10... | -- | 274 | -- | -- | .17 | .40 | .000 | .020 | -- | 1.3 |
| MAR | | | | | | | | | | |
| 11... | 277 | 260 | -- | -- | .44 | .43 | .080 | .070 | 1.3 | 1.2 |
| MAY | | | | | | | | | | |
| 06... | 667 | 636 | .220 | -- | -- | -- | .100 | .120 | 1.6 | .98 |
| JUL | | | | | | | | | | |
| 08... | 570 | 500 | -- | .010 | .46 | .10 | .120 | .140 | 1.2 | .84 |
| SEP | | | | | | | | | | |
| 01... | 903 | 876 | -- | -- | .00 | .02 | .020 | .030 | 1.4 | .94 |

| DATE | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | PHOS-PHORUS, DIS-SOLVED (MG/L AS P) | CARBON, ORGANIC TOTAL (MG/L AS C) | 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 14... | 1.30 | 1.5 | .070 | .030 | -- | 15 | 1.4 | 20 | 106 | 54 |
| DEC | | | | | | | | | | |
| 10... | -- | 1.3 | .270 | .320 | 17 | -- | -- | 260 | 5170 | 93 |
| MAR | | | | | | | | | | |
| 11... | 1.40 | 1.3 | .270 | .100 | -- | 8.4 | 1.8 | 496 | 17300 | 62 |
| MAY | | | | | | | | | | |
| 06... | 1.70 | 1.1 | .230 | .030 | 12 | -- | -- | 169 | 3720 | 86 |
| JUL | | | | | | | | | | |
| 08... | 1.30 | .98 | .070 | .060 | -- | 7.5 | -- | 182 | 6340 | 90 |
| SEP | | | | | | | | | | |
| 01... | 1.40 | .97 | .190 | .030 | -- | 4.3 | .2 | 300 | 5010 | 48 |

07337000 RED RIVER AT INDEX, AR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | ARSENIC TOTAL (UG/L AS AS) | ARSENIC SUS-PENDED TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) | BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA) | BARIUM, DIS-SOLVED (UG/L AS BA) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD) | CADMIUM DIS-SOLVED (UG/L AS CD) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 14... | 1600 | 3 | 0 | 4 | 100 | 20 | 80 | 0 | -- | <1 | 0 |
| MAR | | | | | | | | | | | |
| 11... | 1430 | 3 | 2 | 1 | 400 | 0 | 400 | 2 | 2 | 0 | 10 |
| JUL | | | | | | | | | | | |
| 08... | 1500 | 3 | 1 | 2 | 200 | 0 | 200 | 0 | -- | <1 | 10 |
| SEP | | | | | | | | | | | |
| 01... | 1430 | 3 | 1 | 2 | 200 | 40 | 160 | 1 | -- | <1 | 10 |

| DATE | CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR) | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) | COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) | COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE) | IRON, DIS-SOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 14... | 0 | 0 | 0 | -- | <3 | 6 | 4 | 2 | 440 | 360 | 80 |
| MAR | | | | | | | | | | | |
| 11... | 0 | 10 | 6 | 3 | 3 | 13 | 0 | 13 | 6100 | 5800 | 330 |
| JUL | | | | | | | | | | | |
| 08... | 10 | 0 | 1 | -- | <3 | 7 | 1 | 6 | 2800 | 2600 | 160 |
| SEP | | | | | | | | | | | |
| 01... | 10 | 0 | 1 | -- | <3 | 7 | 4 | 3 | 2800 | 2800 | 39 |

| DATE | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) | LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB) | LEAD, DIS-SOLVED (UG/L AS PB) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG) | MERCURY DIS-SOLVED (UG/L AS HG) | NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) | NICKEL, SUS-PENDED RECOV-ERABLE (UG/L AS NI) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 14... | 3 | 3 | 0 | 170 | 140 | 30 | .0 | .0 | .0 | 3 | 3 |
| MAR | | | | | | | | | | | |
| 11... | 24 | 18 | 6 | 270 | 250 | 20 | .3 | .2 | .1 | 8 | 1 |
| JUL | | | | | | | | | | | |
| 08... | 4 | 2 | 2 | 160 | 150 | 10 | .1 | .0 | .1 | 4 | 0 |
| SEP | | | | | | | | | | | |
| 01... | 2 | 0 | 2 | 220 | 210 | 14 | .1 | .1 | .0 | 5 | 5 |

| DATE | NICKEL, DIS-SOLVED (UG/L AS NI) | SELE-NIUM, TOTAL (UG/L AS SE) | SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE) | SELE-NIUM, DIS-SOLVED (UG/L AS SE) | SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) | SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG) | SILVER, DIS-SOLVED (UG/L AS AG) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) | ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN) | ZINC, DIS-SOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 14... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 10 | 8 |
| MAR | | | | | | | | | | |
| 11... | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 110 | 90 | 20 |
| JUL | | | | | | | | | | |
| 08... | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 140 |
| SEP | | | | | | | | | | |
| 01... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | -- | <3 |

07337000 RED RIVER AT INDEX, AR--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | --- | 948 | 814 | 1340 | 950 | 734 | 1540 | 1480 | 1550 |
| 2 | | | | --- | 981 | 660 | 1210 | 846 | 800 | 910 | 1500 | 1550 |
| 3 | | | | --- | 1170 | 702 | 765 | 645 | 790 | 850 | 1540 | 1180 |
| 4 | | | | --- | 1440 | 819 | 614 | 1300 | 924 | 378 | 1510 | 1180 |
| 5 | | | | --- | 1490 | 461 | 461 | 1110 | 837 | 374 | 1060 | 1240 |
| 6 | | | | --- | 1460 | 260 | 398 | 953 | 796 | 496 | 865 | 1240 |
| 7 | | | | --- | 1390 | 271 | 459 | 807 | 855 | 372 | 1090 | 1600 |
| 8 | | | | --- | 1320 | 431 | 485 | 641 | 973 | 372 | 1090 | 1600 |
| 9 | | | | --- | 1400 | 270 | 939 | 827 | 962 | 693 | 1120 | 1520 |
| 10 | | | | --- | 1350 | 249 | 1300 | 614 | 936 | 374 | 1120 | 1520 |
| 11 | | | | --- | 1370 | 454 | 1340 | 603 | 874 | 372 | 1610 | 1430 |
| 12 | | | | --- | 1480 | 535 | 1230 | 475 | 901 | 373 | 1480 | 1420 |
| 13 | | | | --- | 1330 | 571 | 1110 | 226 | 1070 | 586 | 1480 | 1600 |
| 14 | | | | 1380 | 940 | 580 | 1080 | 224 | 1020 | 936 | 1470 | 1490 |
| 15 | | | | 1430 | 560 | 497 | 1020 | 225 | 1010 | 1050 | 1420 | 1480 |
| 16 | | | | 1290 | 1150 | 1650 | 994 | 225 | 1010 | 1170 | 1380 | 1470 |
| 17 | | | | 1160 | 1020 | 472 | 1060 | 367 | 894 | 1220 | 1250 | 1470 |
| 18 | | | | 1140 | 904 | 602 | 1210 | 576 | 939 | 1290 | 1250 | 1470 |
| 19 | | | | 1150 | 761 | 680 | 1320 | 641 | 1000 | 1280 | 1320 | 1470 |
| 20 | | | | 1430 | 742 | 757 | 1140 | 645 | 917 | 1370 | 1310 | 1470 |
| 21 | | | | 1670 | 904 | 805 | 1070 | 722 | 1200 | 1380 | 1230 | 1470 |
| 22 | | | | 1520 | 761 | 895 | 1370 | 745 | 1150 | 1500 | 1380 | 1480 |
| 23 | | | | 1620 | 742 | 499 | 1340 | 693 | 1150 | 1500 | 1370 | 1480 |
| 24 | | | | 1370 | 731 | 934 | 1130 | 726 | 1370 | 1630 | 1350 | 1450 |
| 25 | | | | 1310 | 978 | 1640 | 1350 | 1240 | 1460 | 1660 | 1120 | 1460 |
| 26 | | | | 1310 | 1040 | 1640 | 1470 | 1130 | 1510 | 1600 | 1120 | 1520 |
| 27 | | | | 1360 | 986 | 1550 | 1150 | 1040 | 1540 | 1630 | 872 | 1520 |
| 28 | | | | 1350 | 940 | 1410 | 929 | 984 | 1540 | 1600 | 1580 | 1500 |
| 29 | | | | 1520 | --- | 1060 | 686 | 948 | 1500 | 1600 | 1580 | 1500 |
| 30 | | | | 1540 | --- | 1390 | 703 | 597 | 1500 | 1600 | 1550 | 1500 |
| 31 | | | | 1380 | --- | 1390 | --- | 296 | --- | 1570 | 1550 | --- |
| MEAN | | | | 1390 | 1080 | 805 | 1020 | 710 | 1070 | 1070 | 1320 | 1460 |

## 07342470 SOUTH SULPHUR RIVER NEAR COMMERCE, TX

LOCATION.--Lat 33°13'11", long 95°51'45", Hunt county, Hydrologic Unit 11140301, on left bank at downstream side of bridge on State Highway 11, 0.7 mi (1.1 km) upstream from St. Louis Southwestern Railroad bridge, 1.8 mi (2.9 km) downstream from Dunbar Creek, and 3.0 mi (4.9 km) southeast of Commerce.

DRAINAGE AREA.--189 $mi^2$ (490 $km^2$).

PERIOD OF RECORD.--October 1979 to current year. Stage records collected at this site November 1956 to September 1979 are published in reports by the Corps of Engineers.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 450.00 ft (137.160 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good during low-flow periods June 6 to Sept. 30 (below 10 ft or 3.0 m), and poor above on Oct. 1 to June 6. During the current year, 991 acre-ft (1.22 $hm^3$) of water was diverted from the Sabine River basin for municipal use by the city of Commerce and 709 acre-ft (874,000 $m^3$) of sewage effluent was discharged into the river upstream from this station. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,940 $ft^3/s$ (282 $m^3/s$) June 6, 1981, gage height, 25.49 ft (7.769 m), from rating curve extended above 4,240 $ft^3/s$ (120 $m^3/s$) on basis of velocity-area study; minimum, 0.41 $ft^3/s$ (0.012 $m^3/s$) Sept. 11-13, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 20, 1971, reached a stage of 27.80 ft (8.473 m), from records published by the Corps of Engineers.

EXTREMES FOR 1980 WATER YEAR.--Maximum discharge, 4,040 $ft^3/s$ (114 $m^3/s$) May 16 at 0100 hours, gage height, 20.98 ft (6.395 m), no other peak above base of 3,000 $ft^3/s$ (85.0 $m^3/s$); minimum, 0.41 $ft^3/s$ (0.012 $m^3/s$) Sept. 11-13.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 $ft^3/s$ (85.0 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| June 4 | 1900 | 5,860 | 166 | a23.32 | 7.108 |
| June 6 | 1400 | *9,940 | 282 | 25.49 | 7.769 |
| June 16 | 0700 | 8,380 | 237 | 24.83 | 7.568 |

a From graph based on gage readings.

Minimum discharge, 0.85 $ft^3/s$ (0.024 $m^3/s$) Jan. 11-12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.6 | 6.0 | 2.7 | 3.4 | 16 | 1.4 | 1.5 | 162 | 2.9 | 2.7 | .84 | .64 |
| 2 | 1.5 | 4.0 | 2.9 | 2.7 | 10 | 1.3 | 1.3 | 1370 | 3.3 | 2.7 | .81 | .62 |
| 3 | 1.4 | 3.2 | 2.9 | 2.1 | 9.0 | 1.3 | 1.3 | 101 | 3.3 | 2.6 | .95 | .63 |
| 4 | 1.3 | 2.8 | 3.0 | 1.9 | 6.2 | 1.3 | 1.3 | 27 | 3.3 | 2.5 | .98 | .64 |
| 5 | 1.3 | 2.6 | 3.0 | 1.6 | 5.4 | 1.2 | 1.2 | 12 | 3.4 | 2.5 | 1.0 | .88 |
| 6 | 1.3 | 3.0 | 3.0 | 2.1 | 4.5 | 1.2 | 1.1 | 19 | 3.1 | 2.5 | 1.0 | .60 |
| 7 | 1.3 | 3.3 | 3.1 | 1.7 | 4.1 | 1.3 | .93 | 33 | 3.0 | 1.6 | .97 | .49 |
| 8 | 1.3 | 3.3 | 3.1 | 1.4 | 78 | 1.4 | .84 | 12 | 3.0 | 1.2 | 1.1 | .51 |
| 9 | 1.3 | 4.3 | 3.1 | 1.3 | 1180 | 1.4 | .78 | 9.5 | 3.0 | .99 | .89 | .44 |
| 10 | 1.3 | 5.8 | 3.0 | 1.1 | 332 | 1.3 | .89 | 7.5 | 2.9 | 1.0 | .79 | .45 |
| 11 | 1.4 | 4.4 | 3.2 | 1.4 | 203 | 1.2 | 2.1 | 6.0 | 2.7 | 1.0 | .80 | .44 |
| 12 | 1.4 | 4.0 | 15 | 1.1 | 193 | 2.7 | 7.9 | 9.4 | 2.6 | 1.0 | .82 | .42 |
| 13 | 1.4 | 3.8 | 24 | .91 | 98 | 2.2 | 655 | 9.7 | 2.4 | 1.1 | .88 | .44 |
| 14 | 1.5 | 3.9 | 8.3 | .85 | 34 | 1.8 | 509 | 6.8 | 2.5 | 1.2 | .82 | .43 |
| 15 | 1.9 | 4.1 | 5.8 | .91 | 15 | 1.6 | 56 | 825 | 2.4 | 1.4 | .81 | .69 |
| 16 | 2.1 | 4.1 | 9.5 | .91 | 7.9 | 1.6 | 24 | 2160 | 2.3 | 1.6 | .86 | .98 |
| 17 | 2.3 | 4.3 | 8.4 | .91 | 5.5 | 1.6 | 16 | 265 | 2.2 | 1.7 | .81 | 1.5 |
| 18 | 2.3 | 4.3 | 6.7 | .97 | 3.9 | 1.4 | 12 | 48 | 2.4 | 1.8 | .89 | 1.7 |
| 19 | 1.9 | 3.0 | 5.8 | 1.4 | 3.0 | 1.4 | 10 | 22 | 2.4 | 1.7 | .97 | 2.0 |
| 20 | 5.8 | 3.0 | 5.0 | 22 | 2.6 | 1.4 | 9.7 | 13 | 28 | 1.8 | .97 | 1.4 |
| 21 | 3.9 | 3.6 | 4.6 | 484 | 2.3 | 1.2 | 8.7 | 10 | 28 | 1.8 | .91 | 1.3 |
| 22 | 2.7 | 3.0 | 160 | 1210 | 2.1 | 1.2 | 8.1 | 8.2 | 44 | 2.0 | .92 | 1.6 |
| 23 | 2.0 | 2.9 | 482 | 1500 | 2.0 | 1.2 | 7.2 | 7.2 | 26 | 1.8 | 1.0 | 1.9 |
| 24 | 1.8 | 3.1 | 1370 | 136 | 1.9 | 1.2 | 6.9 | 6.6 | 8.8 | 1.8 | 1.0 | 1.9 |
| 25 | 2.2 | 2.9 | 309 | 43 | 1.7 | 1.2 | 16 | 5.8 | 5.4 | 1.7 | 1.1 | 2.1 |
| 26 | 3.6 | 2.8 | 49 | 21 | 1.5 | 1.2 | 183 | 5.2 | 3.8 | 1.8 | .72 | 2.2 |
| 27 | 2.6 | 2.8 | 18 | 12 | 1.4 | 1.2 | 41 | 4.4 | 3.3 | 1.8 | .74 | 3.1 |
| 28 | 2.2 | 2.6 | 10 | 7.9 | 1.4 | 6.4 | 20 | 3.8 | 3.0 | 1.3 | 1.1 | 37 |
| 29 | 1.9 | 2.7 | 7.1 | 40 | 1.4 | 4.1 | 14 | 3.5 | 2.8 | .99 | 1.1 | 447 |
| 30 | 2.0 | 2.7 | 5.5 | 47 | --- | 3.4 | 11 | 3.1 | 2.7 | .98 | .90 | 735 |
| 31 | 23 | --- | 4.4 | 26 | --- | 2.0 | --- | 2.9 | --- | .91 | .71 | --- |
| TOTAL | 83.5 | 106.3 | 2541.1 | 3577.56 | 2226.8 | 54.3 | 1628.74 | 5178.6 | 208.9 | 51.47 | 28.16 | 1249.00 |
| MEAN | 2.69 | 3.54 | 82.0 | 115 | 76.8 | 1.75 | 54.3 | 167 | 6.96 | 1.66 | .91 | 41.6 |
| MAX | 23 | 6.0 | 1370 | 1500 | 1180 | 6.4 | 655 | 2160 | 44 | 2.7 | 1.1 | 735 |
| MIN | 1.3 | 2.6 | 2.7 | .85 | 1.4 | 1.2 | .78 | 2.9 | 2.2 | .91 | .71 | .42 |
| AC-FT | 166 | 211 | 5040 | 7100 | 4420 | 108 | 3230 | 10270 | 414 | 102 | 56 | 2480 |

WTR YR 1980 TOTAL 16934.43 MEAN 46.3 MAX 2160 MIN .42 AC-FT 33590

07342470 SOUTH SULPHUR RIVER NEAR COMMERCE, TX--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 672 | 3.8 | 2.9 | 1.3 | 1.8 | 72 | 18 | 183 | 31 | 1.3 | 3.8 | 1.8 |
| 2 | 212 | 2.2 | 2.7 | 1.3 | 2.0 | 307 | 9.7 | 63 | 1430 | 1.1 | 4.8 | 1.9 |
| 3 | 38 | 2.1 | 2.6 | 1.7 | 2.2 | 720 | 7.1 | 19 | 1420 | 1.1 | 4.1 | 1.9 |
| 4 | 5.9 | 1.9 | 2.7 | 1.9 | 2.2 | 1150 | 14 | 9.7 | 3860 | 80 | 3.8 | 1.9 |
| 5 | 4.0 | 1.8 | 3.3 | 1.2 | 2.5 | 605 | 12 | 15 | 6270 | 47 | 3.8 | 1.9 |
| 6 | 2.8 | 2.4 | 3.3 | 1.4 | 2.8 | 96 | 7.6 | 10 | 8420 | 10 | 4.3 | 1.9 |
| 7 | 2.1 | 3.2 | 3.1 | 2.6 | 2.9 | 47 | 5.9 | 5.5 | 2690 | 83 | 3.8 | 1.8 |
| 8 | 1.8 | 3.4 | 387 | 1.6 | 2.7 | 22 | 4.6 | 9.8 | 146 | 171 | 3.4 | 1.7 |
| 9 | 1.6 | 4.2 | 1320 | 1.1 | 2.6 | 15 | 4.3 | 643 | 46 | 38 | 3.4 | 2.3 |
| 10 | 1.5 | 4.6 | 1450 | 1.0 | 4.7 | 12 | 3.9 | 536 | 22 | 14 | 3.8 | 1.7 |
| 11 | 1.4 | 4.7 | 1340 | .94 | 2.0 | 7.1 | 3.4 | 90 | 11 | 6.8 | 3.8 | 1.5 |
| 12 | 1.3 | 4.7 | 349 | .90 | 9.8 | 4.8 | 3.1 | 25 | 6.8 | 4.3 | 3.8 | 1.5 |
| 13 | 1.2 | 4.8 | 70 | 1.2 | 5.8 | 3.7 | 2.9 | 9.8 | 5.1 | 3.2 | 3.9 | 1.5 |
| 14 | 1.5 | 4.7 | 9.3 | 1.2 | 3.5 | 2.8 | 2.6 | 5.8 | 3.8 | 2.6 | 4.1 | 14 |
| 15 | 1.7 | 4.3 | 7.1 | 1.1 | 2.7 | 2.4 | 2.3 | 4.3 | 27 | 2.0 | 4.1 | 4.3 |
| 16 | 2.1 | 5.2 | 5.7 | 1.1 | 2.1 | 1.8 | 2.1 | 51 | 5180 | 1.7 | 4.1 | 2.2 |
| 17 | 180 | 8.6 | 4.7 | 1.1 | 1.8 | 1.4 | 1.5 | 118 | 2440 | 1.4 | 9.3 | 2.1 |
| 18 | 164 | 4.8 | 4.1 | 1.1 | 1.7 | 1.4 | 1.7 | 274 | 233 | 1.3 | 6.8 | 1.9 |
| 19 | 30 | 3.6 | 3.3 | 1.2 | 1.6 | 1.3 | 1.7 | 135 | 42 | 1.3 | 2.6 | 1.8 |
| 20 | 10 | 3.2 | 2.7 | 3.5 | 1.6 | 1.4 | 2.0 | 37 | 17 | 1.3 | 2.1 | 1.7 |
| 21 | 5.9 | 3.0 | 2.5 | 2.8 | 2.5 | 1.3 | 2.2 | 12 | 8.1 | 1.2 | 1.9 | 1.7 |
| 22 | 3.7 | 3.5 | 2.6 | 1.8 | 3.9 | 1.2 | 2.9 | 5.7 | 5.0 | 1.2 | 2.0 | 1.7 |
| 23 | 2.2 | 4.9 | 2.1 | 1.7 | 2.1 | 1.4 | 19 | 3.6 | 3.3 | 1.1 | 2.1 | 1.7 |
| 24 | 1.7 | 3.9 | 2.0 | 1.6 | 1.4 | 1.5 | 12 | 456 | 2.5 | 2.0 | 1.7 | 1.7 |
| 25 | 1.3 | 3.2 | 1.9 | 1.5 | 1.3 | 1.6 | 13 | 570 | 2.0 | 2.6 | 1.7 | 1.7 |
| 26 | 1.1 | 2.8 | 1.8 | 1.5 | 1.2 | 1.8 | 8.7 | 134 | 1.7 | 2.7 | 1.6 | 1.7 |
| 27 | 3.2 | 3.2 | 1.7 | 1.4 | 1.3 | 2.1 | 5.5 | 262 | 1.7 | 3.0 | 2.0 | 1.8 |
| 28 | 2.5 | 3.3 | 1.6 | 1.6 | 50 | 2.2 | 7.8 | 325 | 1.4 | 3.1 | 1.9 | 1.9 |
| 29 | 8.6 | 3.1 | 1.6 | 1.9 | --- | 272 | 61 | 85 | 1.2 | 3.3 | 1.8 | 1.9 |
| 30 | 8.9 | 2.7 | 1.4 | 2.0 | --- | 153 | 8.7 | 227 | 1.3 | 3.1 | 1.7 | 1.9 |
| 31 | 6.2 | --- | 1.5 | 1.7 | --- | 33 | --- | 85 | --- | 3.3 | 1.9 | --- |
| TOTAL | 1380.2 | 111.8 | 4994.2 | 47.94 | 122.7 | 3545.2 | 251.2 | 4409.2 | 32328.9 | 499.0 | 103.9 | 69.0 |
| MEAN | 44.5 | 3.73 | 161 | 1.55 | 4.38 | 114 | 8.37 | 142 | 1078 | 16.1 | 3.35 | 2.30 |
| MAX | 672 | 8.6 | 1450 | 3.5 | 50 | 1150 | 61 | 643 | 8420 | 171 | 9.3 | 14 |
| MIN | 1.1 | 1.8 | 1.4 | .90 | 1.2 | 1.2 | 1.5 | 3.6 | 1.2 | 1.1 | 1.6 | 1.5 |
| AC-FT | 2740 | 222 | 9910 | 95 | 243 | 7030 | 498 | 8750 | 64120 | 990 | 206 | 137 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 20689.73 | MEAN | 56.5 | MAX | 2160 | MIN | .42 | AC-FT | 41040 |
| WTR YR 1981 | TOTAL | 47863.24 | MEAN | 131 | MAX | 8420 | MIN | .90 | AC-FT | 94940 |

## 07342500 SOUTH SULPHUR RIVER NEAR COOPER, TX

LOCATION.--Lat 33°21'20", long 95°35'39", Hopkins-Delta County line, Hydrologic Unit 11140301, on left bank of cut channel at downstream side of bridge on State Highways 19 and 154, 1.0 mi (1.6 km) downstream from Big Creek, 1.0 mi (1.6 km) upstream from Brushy Creek, 4.5 mi (7.2 km) downstream from Doctors Creek, and 5.6 mi (9.0 km) southeast of Cooper.

DRAINAGE AREA.--527 $mi^2$ (1,365 $km^2$).

### 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 (113.358 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1970, at datum 3.00 ft (0.914 m) higher. May 9, 1942, to Nov. 8, 1949, nonrecording gage, and Nov. 9, 1949, to May 13, 1955, water-stage recorder at site 700 ft (213 m) to right of present gage. Gage-height telemeter installed Jan. 20, 1981.

REMARKS.--Water-discharge records good. Small diversions upstream from station.

AVERAGE DISCHARGE.--39 years (water years 1943-81), 402 $ft^3/s$ (11.38 $m^3/s$), 10.36 in/yr (263 mm/yr), 291,200 acre-ft/yr (359 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,500 $ft^3/s$ (1,200 $m^3/s$) Dec. 10, 1971, gage height, 26.15 ft (7.971 m), from floodmark in gage well; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,600 $ft^3/s$ (527 $m^3/s$) June 6 at 1630 hours, gage height, 23.44 ft (7.145 m), no other peak above base of 8,000 $ft^3/s$ (227 $m^3/s$); minimum, 0.01 $ft^3/s$ (0.0003 $m^3/s$) Feb. 22, 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1420 | 10 | 2.5 | 2.2 | 2.4 | 1.9 | 127 | 49 | 230 | 7.5 | .73 | .68 |
| 2 | 441 | 8.5 | 2.4 | 1.9 | 2.3 | 104 | 57 | 282 | 348 | 7.1 | 1.2 | .83 |
| 3 | 80 | 6.1 | 2.2 | 1.8 | 2.1 | 150 | 36 | 114 | 3360 | 6.6 | 1.8 | .90 |
| 4 | 34 | 4.5 | 2.1 | 1.8 | 2.2 | 640 | 34 | 36 | 6830 | 12 | .99 | .80 |
| 5 | 21 | 3.7 | 2.0 | 1.8 | 2.3 | 1500 | 35 | 24 | 13200 | 178 | .70 | .80 |
| 6 | 15 | 3.0 | 1.9 | 1.6 | 2.1 | 2390 | 38 | 20 | 18000 | 188 | .52 | .88 |
| 7 | 12 | 2.7 | 1.8 | 1.6 | 2.1 | 1260 | 27 | 34 | 14300 | 40 | 1.2 | .97 |
| 8 | 11 | 1.9 | 806 | 1.9 | 2.1 | 201 | 20 | 23 | 8190 | 63 | 1.2 | 1.0 |
| 9 | 9.1 | 1.4 | 2760 | 2.3 | 2.4 | 97 | 16 | 538 | 3590 | 189 | 1.0 | .91 |
| 10 | 7.7 | 1.5 | 3020 | 2.2 | 3.7 | 57 | 13 | 1470 | 1450 | 52 | .89 | .82 |
| 11 | 6.5 | 1.5 | 2800 | 2.2 | 4.2 | 41 | 11 | 1660 | 171 | 22 | .79 | .71 |
| 12 | 5.6 | 1.3 | 728 | 2.4 | 4.9 | 29 | 9.6 | 664 | 75 | 14 | .67 | .64 |
| 13 | 4.8 | 1.1 | 145 | 2.1 | 6.0 | 21 | 8.3 | 129 | 45 | 9.9 | .50 | .58 |
| 14 | 4.4 | .91 | 69 | 2.0 | 5.5 | 15 | 7.0 | 153 | 34 | 8.1 | .50 | 1.1 |
| 15 | 4.2 | .91 | 37 | 1.8 | 5.3 | 11 | 6.2 | 123 | 28 | 6.9 | .45 | .79 |
| 16 | 3.6 | 1.1 | 23 | 1.6 | 2.3 | 8.2 | 6.5 | 138 | 1570 | 5.2 | .39 | .81 |
| 17 | 110 | 2.1 | 16 | 1.4 | .91 | 6.1 | 6.6 | 404 | 4180 | 4.0 | .81 | 4.9 |
| 18 | 438 | 4.3 | 13 | 1.4 | .34 | 4.4 | 7.7 | 447 | 6100 | 3.1 | 1.2 | 4.4 |
| 19 | 238 | 7.3 | 10 | 1.6 | .15 | 2.9 | 8.3 | 1050 | 3570 | 2.2 | 2.8 | 2.7 |
| 20 | 66 | 7.4 | 8.8 | 2.0 | .07 | 1.9 | 8.7 | 658 | 1250 | 1.5 | 7.5 | 2.0 |
| 21 | 22 | 5.1 | 7.5 | 2.1 | .04 | 1.3 | 9.2 | 125 | 148 | 1.1 | 5.1 | 1.4 |
| 22 | 13 | 4.0 | 6.4 | 2.3 | .02 | .97 | 11 | 60 | 66 | .93 | 3.3 | 1.1 |
| 23 | 9.5 | 3.3 | 5.6 | 2.7 | .04 | .77 | 13 | 39 | 38 | .75 | 2.1 | .86 |
| 24 | 6.8 | 2.8 | 4.9 | 4.7 | .12 | .69 | 13 | 564 | 27 | .66 | 1.5 | 2.5 |
| 25 | 5.1 | 2.4 | 4.1 | 4.2 | .93 | 1.4 | 35 | 1130 | 22 | .62 | 1.1 | 1.1 |
| 26 | 3.9 | 2.2 | 3.7 | 3.1 | .48 | 1.7 | 28 | 1430 | 20 | .57 | .87 | .63 |
| 27 | 3.9 | 2.9 | 3.2 | 2.6 | .17 | 2.4 | 20 | 987 | 18 | .46 | .80 | .49 |
| 28 | 3.5 | 3.3 | 2.9 | 2.3 | .15 | 2.6 | 19 | 1080 | 15 | .46 | .73 | .38 |
| 29 | 3.4 | 3.0 | 2.9 | 1.9 | --- | 67 | 15 | 1440 | 12 | .41 | .65 | .31 |
| 30 | 2.9 | 2.8 | 2.6 | 1.4 | --- | 941 | 50 | 890 | 8.8 | .56 | .66 | .23 |
| 31 | 5.5 | --- | 2.3 | 1.9 | --- | 839 | --- | 647 | --- | .55 | .68 | --- |
| TOTAL | 3011.4 | 103.02 | 10496.8 | 66.8 | 55.32 | 8400.23 | 696.1 | 16408 | 86895.8 | 827.17 | 43.33 | 36.22 |
| MEAN | 97.1 | 3.43 | 339 | 2.15 | 1.98 | 271 | 23.2 | 529 | 2897 | 26.7 | 1.40 | 1.21 |
| MAX | 1420 | 10 | 3020 | 4.7 | 6.0 | 2390 | 127 | 1660 | 18000 | 189 | 7.5 | 4.9 |
| MIN | 2.9 | .91 | 1.8 | 1.4 | .02 | .69 | 6.2 | 20 | 8.8 | .41 | .39 | .23 |
| CFSM | .18 | .007 | .64 | .004 | .004 | .51 | .04 | 1.00 | 5.50 | .05 | .003 | .002 |
| IN. | .21 | .01 | .74 | .00 | .00 | .59 | .05 | 1.16 | 6.13 | .06 | .00 | .00 |
| AC-FT | 5970 | 204 | 20820 | 132 | 110 | 16660 | 1380 | 32550 | 172400 | 1640 | 86 | 72 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 63299.83 | MEAN 173 | MAX 4690 | MIN .00 | CFSM .33 | IN 4.47 | AC-FT 125600 |
| WTR YR 1981 | TOTAL | 127040.19 | MEAN 348 | MAX 18000 | MIN .02 | CFSM .66 | IN 8.97 | AC-FT 252000 |

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.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1958 to September 1966, October 1967 to current year.
WATER TEMPERATURES: October 1958 to September 1966, 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, 4,710 micromhos Aug. 14, 1973; minimum daily, 82 micromhos July 2, 1976.
WATER TEMPERATURES: Maximum daily, 36.0°C Aug. 6, 1960, Aug. 10, 1962; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 950 micromhos Mar. 2; minimum daily, 111 micromhos May 9.
WATER TEMPERATURES: Maximum daily, 29.0°C on several day during July; minimum daily, 1.0°C Feb. 12.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH FIELD (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, BIOCHEM UNINHIB 5 DAY (MG/L) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | | |
| 18... | 1100 | 4.7 | 335 | 7.7 | 8.5 | 80 | 9.3 | 6.6 | 56 | 5.0 | 110 | 0 |
| FEB | | | | | | | | | | | | |
| 10... | 1700 | 3.3 | 560 | 8.2 | 7.5 | 30 | 4.5 | 10.2 | 86 | 6.3 | 150 | 0 |
| MAY | | | | | | | | | | | | |
| 05... | 1330 | 24 | 240 | 7.7 | 20.0 | 120 | 99 | 6.2 | 67 | 3.2 | 79 | 0 |
| JUN | | | | | | | | | | | | |
| 09... | 1530 | 3260 | 200 | 7.6 | 27.0 | 80 | 23 | 3.4 | 43 | 2.0 | 81 | 0 |
| JUL | | | | | | | | | | | | |
| 21... | 1100 | 1.3 | 318 | -- | 30.0 | 30 | 13 | -- | -- | -- | 120 | 0 |
| SEP | | | | | | | | | | | | |
| 01... | 0930 | .66 | 410 | 7.8 | 26.0 | 5 | 22 | 4.6 | 58 | 2.0 | 150 | 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 (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 | | | | | | | | | | | |
| 18... | 36 | 3.8 | 27 | 1.1 | 6.2 | 130 | 23 | 16 | .3 | 9.7 | -- |
| FEB | | | | | | | | | | | |
| 10... | 50 | 5.1 | 67 | 2.4 | 4.7 | 190 | 55 | 36 | .2 | .6 | -- |
| MAY | | | | | | | | | | | |
| 05... | 27 | 2.9 | 17 | .8 | 5.5 | 80 | 28 | 7.8 | .2 | 8.7 | -- |
| JUN | | | | | | | | | | | |
| 09... | 28 | 2.6 | 6.0 | .3 | 6.0 | 87 | 5.0 | 4.2 | .2 | 18 | -- |
| JUL | | | | | | | | | | | |
| 21... | 42 | 4.0 | 16 | .7 | 5.4 | 130 | 20 | 9.8 | .3 | 12 | 211 |
| SEP | | | | | | | | | | | |
| 01... | 50 | 5.7 | 28 | 1.0 | 5.0 | 170 | 18 | 19 | .3 | 9.4 | -- |

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (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) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 18... | 200 | 26 | 27 | .00 | .000 | .00 | .090 | .84 | .93 | .490 | 15 |
| FEB | | | | | | | | | | | |
| 10... | 333 | 17 | 6 | .00 | .010 | .00 | .010 | 1.9 | 1.9 | .470 | 17 |
| MAY | | | | | | | | | | | |
| 05... | 145 | 250 | 14 | .41 | .030 | .44 | .080 | 1.7 | 1.8 | .540 | 16 |
| JUN | | | | | | | | | | | |
| 09... | 122 | 27 | 7 | .00 | .010 | .01 | .120 | .52 | .64 | .440 | 14 |
| JUL | | | | | | | | | | | |
| 21... | 188 | 20 | 15 | .00 | .010 | .00 | .140 | 1.1 | 1.2 | .180 | 8.9 |
| SEP | | | | | | | | | | | |
| 01... | 237 | 26 | 7 | -- | .030 | <.10 | .180 | .82 | 1.0 | .140 | 8.5 |

07342500 SOUTH SULPHUR RIVER NEAR COOPER, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | ARSENIC DIS-SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| NOV | | | | | | | |
| 18... | 1100 | 11 | 50 | <1 | 0 | <10 | 120 |
| FEB | | | | | | | |
| 10... | 1700 | 5 | 60 | <1 | 0 | <10 | 30 |
| MAY | | | | | | | |
| 05... | 1330 | 15 | 100 | 11 | 0 | 0 | 90 |
| JUL | | | | | | | |
| 21... | 1100 | 11 | 70 | <1 | 10 | <10 | <10 |

| DATE | 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 | | | | | | |
| 18... | <10 | 90 | .0 | 0 | 0 | 9 |
| FEB | | | | | | |
| 10... | <10 | 30 | .0 | 0 | 0 | 4 |
| MAY | | | | | | |
| 05... | 0 | 10 | .1 | 0 | 0 | 0 |
| JUL | | | | | | |
| 21... | <10 | 26 | .7 | 0 | 0 | <3 |

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 3011.4 | 179 | 101 | 822 | 6.7 | 55 | 16 | 131 | 72 |
| NOV. | 1980 | 103.02 | 369 | 210 | 58 | 17 | 4.7 | 30 | 8.4 | 130 |
| DEC. | 1980 | 10496.8 | 189 | 106 | 3010 | 7.2 | 204 | 17 | 475 | 75 |
| JAN. | 1981 | 66.8 | 414 | 236 | 43 | 20 | 3.5 | 34 | 6.1 | 140 |
| FEB. | 1981 | 55.32 | 604 | 348 | 52 | 33 | 4.9 | 45 | 6.8 | 170 |
| MAR. | 1981 | 8400.23 | 263 | 149 | 3390 | 11 | 254 | 22 | 510 | 97 |
| APR. | 1981 | 696.1 | 339 | 193 | 363 | 15 | 28 | 28 | 53 | 120 |
| MAY | 1981 | 16408 | 207 | 117 | 5180 | 8.0 | 355 | 18 | 813 | 81 |
| JUNE | 1981 | 86895.8 | 156 | 88 | 20500 | 5.7 | 1330 | 14 | 3300 | 63 |
| JULY | 1981 | 827.17 | 270 | 153 | 342 | 11 | 25 | 23 | 52 | 100 |
| AUG. | 1981 | 43.33 | 394 | 225 | 26 | 18 | 2.1 | 33 | 3.8 | 140 |
| SEPT | 1981 | 36.22 | 543 | 312 | 31 | 29 | 2.8 | 42 | 4.1 | 160 |
| TOTAL | | 127040.19 | ** | ** | 33900 | ** | 2270 | ** | 5360 | ** |
| WTD. AVG. | | 348 | 175 | 99 | ** | 6.6 | ** | 16 | ** | 70 |

07342500 SOUTH SULPHUR RIVER NEAR COOPER, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 154 | 249 | 563 | 323 | 510 | 642 | 254 | 277 | 264 | 338 | 373 | 417 |
| 2 | 195 | 256 | 557 | 324 | 512 | 950 | 258 | 248 | 210 | 348 | 359 | 418 |
| 3 | 204 | 264 | 560 | 326 | 523 | 538 | 268 | 167 | 155 | 328 | 358 | 420 |
| 4 | 215 | 270 | 555 | 329 | 519 | 462 | 274 | 173 | 125 | 356 | 354 | 419 |
| 5 | 227 | 280 | 503 | 333 | 525 | 220 | 280 | 218 | 154 | 300 | 358 | 417 |
| 6 | 235 | 291 | 488 | 338 | 537 | 216 | 285 | 257 | 143 | 247 | 364 | 417 |
| 7 | 241 | 303 | 517 | 343 | 551 | 235 | 315 | 278 | 153 | 232 | 370 | 422 |
| 8 | 247 | 309 | 350 | 347 | 562 | 253 | 343 | 297 | 168 | 235 | 376 | 423 |
| 9 | 250 | 317 | 175 | 348 | 572 | 264 | 337 | 111 | 189 | 293 | 375 | 424 |
| 10 | 257 | 322 | 158 | 368 | 573 | 279 | 352 | 179 | 196 | 209 | 377 | 431 |
| 11 | 260 | 331 | 185 | 387 | 586 | 293 | 376 | 205 | 234 | 221 | 383 | 439 |
| 12 | 264 | 336 | 178 | 374 | 596 | 304 | 387 | 218 | 246 | 242 | 391 | 446 |
| 13 | 267 | 368 | 200 | 372 | 625 | 317 | 393 | 220 | 260 | 254 | 396 | 451 |
| 14 | 272 | 349 | 207 | 387 | 648 | 328 | 396 | 373 | 278 | 267 | 401 | 442 |
| 15 | 269 | 351 | 216 | 394 | 717 | 339 | 401 | 291 | 294 | 279 | 406 | 456 |
| 16 | 273 | 366 | 229 | 402 | 729 | 346 | 407 | 273 | 149 | 289 | 412 | 460 |
| 17 | 200 | 344 | 240 | 408 | 690 | 355 | 414 | 249 | 157 | 297 | 416 | 469 |
| 18 | 170 | 347 | 249 | 413 | 687 | 366 | 420 | 259 | 151 | 304 | 404 | 536 |
| 19 | 234 | 358 | 256 | 421 | 712 | 368 | 427 | 173 | 184 | 311 | 388 | 598 |
| 20 | 242 | 449 | 261 | 422 | 736 | 378 | 435 | 187 | 187 | 318 | 393 | 652 |
| 21 | 217 | 485 | 267 | 430 | 741 | 384 | 444 | 213 | 218 | 325 | 403 | 683 |
| 22 | 220 | 513 | 274 | 498 | 738 | 390 | 451 | 231 | 225 | 332 | 411 | 702 |
| 23 | 225 | 536 | 278 | 449 | 737 | 394 | 442 | 246 | 239 | 337 | 414 | 714 |
| 24 | 224 | 526 | 284 | 450 | 752 | 396 | 435 | 195 | 260 | 343 | 416 | 696 |
| 25 | 227 | 511 | 287 | 459 | 736 | 402 | 434 | 200 | 277 | 349 | 418 | 730 |
| 26 | 231 | 488 | 298 | 477 | 705 | 407 | 416 | 207 | 293 | 354 | 417 | 733 |
| 27 | 232 | 455 | 304 | 492 | 675 | 416 | 468 | 196 | 306 | 359 | 410 | 737 |
| 28 | 237 | 446 | 305 | 501 | 658 | 424 | 507 | 203 | 315 | 364 | 415 | 739 |
| 29 | 239 | 461 | 311 | 504 | --- | 400 | 553 | 214 | 322 | 369 | 414 | 741 |
| 30 | 243 | 527 | 315 | 513 | --- | 260 | 350 | 238 | 331 | 373 | 416 | 743 |
| 31 | 247 | --- | 320 | 517 | --- | 216 | --- | 255 | --- | 368 | 415 | --- |
| MEAN | 233 | 380 | 319 | 408 | 638 | 372 | 384 | 227 | 223 | 308 | 394 | 546 |

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 17.5 | 10.0 | 10.5 | 5.5 | 5.0 | 13.0 | 17.5 | 21.5 | 24.0 | 28.0 | 28.0 | 26.5 |
| 2 | 18.0 | 11.0 | 9.5 | 4.5 | 4.0 | 11.0 | 18.0 | 21.5 | 24.0 | 26.5 | 27.0 | 25.5 |
| 3 | 17.5 | 12.0 | 7.5 | 4.5 | 2.0 | 12.0 | 20.0 | 21.5 | 22.5 | 27.5 | 28.0 | 25.0 |
| 4 | 17.5 | 13.0 | 8.5 | 4.0 | 3.0 | 11.0 | 20.0 | 21.0 | 21.5 | 27.0 | 27.5 | 25.5 |
| 5 | 17.0 | 12.0 | 11.0 | 3.5 | 4.0 | 13.0 | 18.0 | 20.5 | 22.5 | 26.5 | 28.0 | 26.0 |
| 6 | 17.0 | 12.0 | 12.5 | 4.5 | 4.0 | 11.0 | 17.0 | 20.5 | 23.5 | 26.5 | 28.0 | 25.0 |
| 7 | 15.5 | 14.0 | 13.5 | 4.0 | 5.5 | 11.0 | 18.0 | 20.0 | 24.5 | 26.0 | 27.5 | 24.5 |
| 8 | 17.0 | 14.0 | 14.5 | 4.0 | 5.0 | 10.0 | 19.0 | 19.5 | 25.5 | 26.0 | 26.5 | 24.5 |
| 9 | 18.0 | 16.0 | 10.5 | 6.0 | 6.0 | 9.0 | 19.0 | 18.0 | 27.5 | 27.0 | 25.0 | 22.5 |
| 10 | 18.5 | 16.0 | 7.5 | 6.5 | 7.5 | 8.5 | 20.0 | 17.5 | 27.5 | 27.0 | 24.5 | 21.0 |
| 11 | 18.5 | 16.5 | 6.5 | 7.0 | 1.5 | 9.0 | 21.0 | 17.0 | 27.0 | 28.0 | 25.0 | 21.5 |
| 12 | 17.0 | 14.0 | 7.0 | 4.5 | 1.0 | 10.0 | 21.0 | 17.5 | 27.0 | 28.0 | 26.0 | 23.0 |
| 13 | 15.0 | 12.5 | 7.0 | 4.0 | 2.0 | 10.5 | 22.0 | 18.5 | 26.0 | 28.0 | 26.5 | 23.0 |
| 14 | 16.5 | 15.0 | 8.0 | 4.5 | 2.5 | 11.0 | 22.5 | 19.0 | 26.5 | 28.0 | 27.0 | 24.0 |
| 15 | 18.0 | 12.0 | 8.0 | 4.0 | 2.5 | 12.5 | 19.0 | 19.0 | 26.5 | 28.5 | 27.0 | 24.0 |
| 16 | 20.0 | 11.0 | 9.0 | 3.5 | 4.0 | 11.5 | 19.5 | 17.5 | 24.0 | 29.0 | 28.0 | 23.5 |
| 17 | 21.0 | 10.0 | 8.5 | 3.0 | 5.0 | 11.0 | 21.0 | 17.5 | 22.0 | 28.5 | 27.0 | 21.0 |
| 18 | 20.0 | 7.5 | 9.0 | 3.5 | 7.5 | 12.5 | 21.5 | 19.0 | 24.0 | 29.0 | 25.5 | 18.5 |
| 19 | 19.0 | 6.5 | 9.0 | 4.5 | 9.0 | 8.5 | 21.5 | 20.5 | 25.5 | 29.0 | 25.0 | 17.5 |
| 20 | 17.0 | 5.5 | 6.5 | 4.5 | 10.0 | 9.5 | 22.0 | 19.5 | 26.5 | 29.0 | 24.5 | 17.5 |
| 21 | 16.0 | 6.5 | 4.0 | 5.0 | 13.0 | 12.0 | 22.0 | 18.5 | 26.5 | 29.0 | 24.5 | 19.0 |
| 22 | 15.5 | 7.5 | 4.0 | 4.5 | 11.5 | 13.0 | 22.0 | 19.5 | 27.5 | 29.0 | 24.5 | 20.0 |
| 23 | 15.0 | 8.0 | 5.0 | 4.0 | 10.0 | 11.0 | 21.5 | 20.5 | 27.0 | 29.0 | 24.0 | 21.0 |
| 24 | 15.0 | 8.5 | 6.0 | 5.0 | 9.5 | 11.0 | 19.5 | 20.5 | 27.0 | 29.0 | 24.5 | 23.5 |
| 25 | 12.0 | 7.5 | 3.0 | 6.5 | 11.0 | 12.5 | 19.5 | 20.5 | 27.0 | 29.0 | 25.5 | 23.0 |
| 26 | 12.5 | 7.0 | 3.0 | 7.0 | 13.0 | 11.5 | 20.0 | 21.0 | 27.0 | 29.0 | 25.5 | 23.0 |
| 27 | 14.0 | 5.0 | 4.0 | 5.5 | 14.5 | 13.5 | 20.5 | 23.0 | 27.0 | 28.0 | 25.0 | 23.5 |
| 28 | 13.0 | 5.0 | 2.0 | 5.0 | 16.0 | 15.5 | 21.5 | 22.5 | 26.0 | 28.0 | 25.0 | 23.0 |
| 29 | 11.0 | 5.0 | 5.0 | 8.0 | --- | 15.0 | 21.5 | 24.0 | 27.0 | 28.0 | 25.0 | 23.0 |
| 30 | 9.0 | 7.0 | 5.0 | 7.5 | --- | 13.5 | 22.5 | 24.0 | 28.0 | 27.5 | 26.0 | 23.0 |
| 31 | 9.0 | --- | 5.0 | 6.0 | --- | 16.0 | --- | 24.0 | --- | 27.5 | 26.5 | --- |
| MEAN | 16.0 | 10.5 | 7.5 | 5.0 | 7.0 | 11.5 | 20.5 | 20.0 | 25.5 | 28.0 | 26.0 | 22.5 |

## 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 (3.7 km) upstream from Auds Creek, 5.5 mi (8.8 km) upstream from Hickory Creek, 8.7 mi (14.0 km) northeast of Cooper, and 15.6 mi (25.1 km) upstream from mouth.

DRAINAGE AREA.--276 $mi^2$ (715 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1949 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 372.42 ft (113.51 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Nov. 8, 1949, nonrecording gage, Nov. 8, 1949, to May 21, 1960, water-stage recorder at site 50 ft (15 m) upstream at datum 9.00 ft (2.743 m) higher, and May 22, 1960, to Sept. 30, 1970, at datum 5.00 ft (1.524 m) higher.

REMARKS.--Water-discharge records good. In 1928-29, the channel was rectified for a distance of 28 mi (45 km) upstream and 18 mi (29 km) downstream from this station. Gage-height telemeter at station.

AVERAGE DISCHARGE.--32 years, 232 $ft^3/s$ (6.570 $m^3/s$), 11.41 in/yr (290 mm/yr), 168,100 acre-ft/yr (207 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 90,600 $ft^3/s$ (2,570 $m^3/s$) Oct. 19, 1971, gage height, 36.16 ft (11.022 m), from floodmarks; no flow at times most years.
Maximum stage since at least 1915, that of Oct. 19, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 2, 1944, reached a stage of 35.6 ft (10.85 m), present datum, and flood in 1932 reached about same stage, from information by Corps of Engineers and local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 20,000 $ft^3/s$ (566 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| June 5 | 1800 | 32,900 | 932 | 25.00 | 7.620 |
| June 16 | 0800 | 26,100 | 739 | a21.95 | 6.690 |

a From graph based on daily observation of stage.

Minimum discharge, no flow Oct. 14 and July 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 53 | 6.4 | 4.1 | 6.4 | 6.0 | 379 | 18 | 21 | 41 | 3.2 | 3.8 | .08 |
| 2 | 27 | 4.8 | 3.2 | 5.6 | 6.0 | 125 | 13 | 12 | 24 | 5.6 | 2.5 | 781 |
| 3 | 16 | 3.8 | 2.6 | 5.6 | 6.4 | 174 | 11 | 7.3 | 6010 | 4.5 | 1.3 | 87 |
| 4 | 10 | 2.6 | 2.4 | 5.2 | 9.5 | 3330 | 19 | 6.8 | 1320 | 87 | .48 | 18 |
| 5 | 6.4 | 1.8 | 2.4 | 4.5 | 8.6 | 241 | 20 | 10 | 13000 | 1070 | .13 | 8.7 |
| 6 | 4.1 | 1.3 | 2.4 | 4.8 | 8.1 | 128 | 12 | 15 | 2870 | 177 | .08 | 5.7 |
| 7 | 2.4 | 1.0 | 2.6 | 5.6 | 8.1 | 91 | 8.0 | 7.8 | 862 | 60 | .09 | 4.6 |
| 8 | 2.0 | .80 | 4620 | 5.6 | 8.6 | 41 | 6.2 | 202 | 176 | 30 | .74 | 4.9 |
| 9 | 1.3 | .40 | 1040 | 5.6 | 9.0 | 19 | 6.6 | 3830 | 93 | 22 | .36 | 3.6 |
| 10 | .73 | .40 | 168 | 5.6 | 70 | 9.0 | 6.7 | 837 | 78 | 17 | .09 | 2.5 |
| 11 | .28 | .24 | 85 | 5.2 | 46 | 14 | 5.6 | 108 | 71 | 13 | .07 | 1.9 |
| 12 | .07 | .10 | 41 | 4.1 | 21 | 10 | 5.6 | 42 | 31 | 7.7 | 1.6 | 1.5 |
| 13 | .04 | .05 | 29 | 3.8 | 18 | 11 | 4.8 | 34 | 22 | 4.1 | 2.5 | 1.5 |
| 14 | .00 | .13 | 23 | 3.8 | 13 | 10 | 4.0 | 441 | 19 | 3.2 | 1.7 | 3.0 |
| 15 | .03 | 1.0 | 21 | 3.8 | 12 | 8.6 | 3.3 | 55 | 18 | 2.6 | .84 | 34 |
| 16 | .10 | 2.4 | 18 | 3.5 | 11 | 8.6 | 3.6 | 346 | 12800 | 1.8 | .26 | 297 |
| 17 | 197 | 12 | 16 | 2.9 | 10 | 8.1 | 5.1 | 261 | 482 | 1.6 | 12 | 19 |
| 18 | 134 | 14 | 14 | 2.6 | 9.1 | 4.8 | 6.0 | 235 | 186 | 1.3 | 12 | 8.1 |
| 19 | 26 | 12 | 12 | 3.2 | 8.5 | 4.5 | 6.2 | 118 | 171 | 1.0 | 5.1 | 5.1 |
| 20 | 12 | 8.6 | 10 | 6.4 | 7.5 | 2.4 | 5.8 | 34 | 108 | .58 | 2.9 | 3.7 |
| 21 | 7.6 | 6.1 | 7.7 | 11 | 7.2 | 1.6 | 4.1 | 19 | 56 | .13 | 1.8 | 2.8 |
| 22 | 5.1 | 5.0 | 7.7 | 12 | 7.5 | 1.6 | 4.2 | 14 | 26 | .10 | 1.0 | 2.3 |
| 23 | 3.7 | 6.4 | 8.1 | 11 | 5.7 | 1.6 | 421 | 12 | 18 | .07 | .55 | 1.7 |
| 24 | 2.8 | 7.9 | 9.5 | 10 | 6.2 | 1.6 | 76 | 1440 | 17 | .05 | .26 | 1.3 |
| 25 | 1.6 | 8.6 | 8.1 | 8.6 | 5.6 | 1.8 | 22 | 801 | 15 | .05 | .13 | .58 |
| 26 | .90 | 7.3 | 8.6 | 7.7 | 5.0 | 2.9 | 11 | 230 | 14 | .02 | .12 | .40 |
| 27 | 563 | 6.7 | 8.6 | 7.2 | 4.8 | 3.1 | 7.3 | 1060 | 13 | .00 | .31 | .24 |
| 28 | 238 | 5.6 | 8.1 | 6.4 | 15 | 2.7 | 5.3 | 354 | 11 | .41 | 1.1 | .13 |
| 29 | 33 | 4.3 | 7.7 | 6.4 | --- | 965 | 161 | 287 | 7.2 | 2.4 | .72 | .13 |
| 30 | 14 | 4.1 | 7.7 | 5.6 | --- | 138 | 50 | 510 | 2.6 | 1.2 | .19 | .10 |
| 31 | 9.5 | --- | 6.8 | 4.8 | --- | 36 | --- | 99 | --- | 6.9 | .09 | --- |
| TOTAL | 1371.65 | 135.82 | 6205.3 | 184.5 | 353.4 | 5774.9 | 932.4 | 11448.9 | 38561.8 | 1524.51 | 54.81 | 1300.56 |
| MEAN | 44.2 | 4.53 | 200 | 5.95 | 12.6 | 186 | 31.1 | 369 | 1285 | 49.2 | 1.77 | 43.4 |
| MAX | 563 | 14 | 4620 | 12 | 70 | 3330 | 421 | 3830 | 13000 | 1070 | 12 | 781 |
| MIN | .00 | .05 | 2.4 | 2.6 | 4.8 | 1.6 | 3.3 | 6.8 | 2.6 | .00 | .07 | .08 |
| CFSM | .16 | .02 | .73 | .02 | .05 | .67 | .11 | 1.34 | 4.66 | .18 | .006 | .16 |
| IN. | .18 | .02 | .84 | .02 | .05 | .78 | .13 | 1.54 | 5.20 | .21 | .01 | .18 |
| AC-FT | 2720 | 269 | 12310 | 366 | 701 | 11450 | 1850 | 22710 | 76490 | 3020 | 109 | 2580 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 28521.86 | MEAN | 77.9 | MAX | 8750 | MIN | .00 | CFSM .28 | IN 3.84 | AC-FT | 56570 |
| WTR YR 1981 | TOTAL | 67848.55 | MEAN | 186 | MAX | 13000 | MIN | .00 | CFSM .67 | IN 9.14 | AC-FT | 134600 |

07343000 NORTH SULPHUR RIVER NEAR COOPER, TX--Continued

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1968 to current year.
WATER TEMPERATURES: October 1968 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, 2,290 micromhos Sept. 17, 1969; minimum daily, 191 micromhos 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.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,680 micromhos Aug. 16; minimum daily, 230 micromhos June 3.
WATER TEMPERATURES: Maximum daily, 33.0°C June 28; minimum daily, 0.0°C Feb. 11, 12.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | |
| 17... | 1530 | 13 | 1030 | 8.5 | 330 | 190 | 110 | 13 | 95 |
| MAY | | | | | | | | | |
| 05... | 1100 | 11 | 621 | 20.5 | 170 | 82 | 58 | 7.0 | 54 |
| JUN | | | | | | | | | |
| 03... | 0900 | 14300 | 230 | 21.0 | 100 | 8 | 37 | 1.9 | -- |
| 06... | 0800 | 1600 | 336 | 23.5 | 130 | 13 | 48 | 3.2 | 13 |
| JUL | | | | | | | | | |
| 31... | 0800 | .31 | 1370 | 27.0 | 340 | 230 | 110 | 15 | 160 |
| AUG | | | | | | | | | |
| 31... | 1500 | .06 | 1100 | 34.0 | 270 | 200 | 85 | 13 | 130 |

| DATE | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY 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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | |
| 17... | 2.3 | 4.1 | 140 | 290 | 64 | .4 | 3.6 | 664 |
| MAY | | | | | | | | |
| 05... | 1.8 | 3.2 | 92 | 150 | 37 | .5 | 2.1 | 367 |
| JUN | | | | | | | | |
| 03... | -- | -- | 92 | 19 | 4.8 | -- | -- | -- |
| 06... | .5 | 4.7 | 120 | 23 | 13 | .3 | 13 | 190 |
| JUL | | | | | | | | |
| 31... | 3.8 | 5.5 | 100 | 340 | 180 | .5 | 6.7 | 878 |
| AUG | | | | | | | | |
| 31... | 3.6 | 4.5 | 69 | 300 | 110 | .5 | 1.4 | 686 |

07343000 NORTH SULPHUR RIVER NEAR COOPER, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 1371.65 | 539 | 325 | 1200 | 30 | 110 | 110 | 421 | 180 |
| NOV. | 1980 | 135.82 | 1010 | 629 | 231 | 75 | 28 | 240 | 87 | 310 |
| DEC. | 1980 | 6205.3 | 442 | 264 | 4420 | 22 | 365 | 90 | 1510 | 150 |
| JAN. | 1981 | 184.5 | 1040 | 649 | 323 | 78 | 39 | 250 | 123 | 320 |
| FEB. | 1981 | 353.4 | 1020 | 635 | 606 | 76 | 72 | 240 | 230 | 320 |
| MAR. | 1981 | 5774.9 | 414 | 247 | 3850 | 20 | 313 | 84 | 1310 | 140 |
| APR. | 1981 | 932.4 | 687 | 418 | 1050 | 42 | 106 | 150 | 379 | 220 |
| MAY | 1981 | 11448.9 | 351 | 208 | 6420 | 16 | 487 | 69 | 2150 | 120 |
| JUNE | 1981 | 38561.8 | 310 | 183 | 19100 | 13 | 1390 | 61 | 6310 | 110 |
| JULY | 1981 | 1524.51 | 435 | 260 | 1070 | 22 | 90 | 89 | 367 | 150 |
| AUG. | 1981 | 54.81 | 1200 | 760 | 113 | 100 | 15 | 300 | 44 | 360 |
| SEPT | 1981 | 1300.56 | 530 | 318 | 1120 | 28 | 99 | 110 | 387 | 180 |
| TOTAL | | 67848.55 | ** | ** | 39500 | ** | 3120 | ** | 13300 | ** |
| WTD. AVG. | | 186 | 362 | 215 | ** | 17 | ** | 73 | ** | 120 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 480 | 571 | 1220 | 918 | 1150 | 667 | 582 | 452 | 495 | 905 | 1350 | 1100 |
| 2 | 567 | 623 | 1240 | 929 | 1110 | 565 | 616 | 500 | 548 | 920 | 1300 | 600 |
| 3 | 634 | 665 | 1260 | 940 | 1120 | 637 | 624 | 526 | 230 | 958 | 1320 | 385 |
| 4 | 693 | 687 | 1270 | 951 | 1060 | 343 | 605 | 569 | 332 | 900 | 1340 | 446 |
| 5 | 753 | 710 | 1290 | 963 | 950 | 423 | 618 | 620 | 334 | 387 | 1350 | 476 |
| 6 | 788 | 737 | 1310 | 966 | 890 | 499 | 622 | 678 | 336 | 336 | 1370 | 484 |
| 7 | 806 | 770 | 1330 | 997 | 875 | 567 | 654 | 632 | 364 | 408 | 1360 | 504 |
| 8 | 838 | 794 | 450 | 985 | 1160 | 619 | 683 | 546 | 498 | 471 | 1410 | 524 |
| 9 | 862 | 801 | 319 | 980 | 854 | 658 | 714 | 350 | 562 | 506 | 1430 | 544 |
| 10 | 891 | 843 | 396 | 986 | 1200 | 713 | 754 | 338 | 595 | 542 | 1430 | 564 |
| 11 | 885 | 890 | 473 | 1000 | 1130 | 732 | 797 | 413 | 604 | 581 | 1450 | 584 |
| 12 | 889 | 939 | 538 | 1010 | 984 | 739 | 838 | 486 | 649 | 643 | 1440 | 604 |
| 13 | 931 | 999 | 600 | 1020 | 857 | 730 | 860 | 539 | 688 | 685 | 1510 | 624 |
| 14 | --- | 1030 | 640 | 1040 | 820 | 715 | 888 | 364 | 704 | 725 | 1580 | 644 |
| 15 | 993 | 1060 | 677 | 1060 | 830 | 716 | 921 | 397 | 721 | 772 | 1620 | 600 |
| 16 | 1030 | 1080 | 717 | 1070 | 860 | 709 | 939 | 400 | 286 | 815 | 1680 | 400 |
| 17 | 865 | 1110 | 740 | 1090 | 876 | 712 | 966 | 453 | 356 | 852 | 1300 | 364 |
| 18 | 683 | 1020 | 762 | 1100 | 886 | 739 | 990 | 507 | 456 | 868 | 1090 | 414 |
| 19 | 647 | 991 | 770 | 1120 | 903 | 746 | 1010 | 517 | 537 | 890 | 950 | 451 |
| 20 | 663 | 1060 | 780 | 1130 | 923 | 760 | 1020 | 526 | 540 | 919 | 932 | 518 |
| 21 | 670 | 1090 | 790 | 1120 | 945 | 796 | 1020 | 552 | 580 | 925 | 946 | 500 |
| 22 | 702 | 1100 | 822 | 1080 | 967 | 823 | 1030 | 562 | 621 | 928 | 960 | 520 |
| 23 | 737 | 1080 | 862 | 1050 | 983 | 852 | 845 | 583 | 666 | 943 | 958 | 533 |
| 24 | 773 | 1070 | 877 | 1040 | 1000 | 860 | 464 | 300 | 699 | 976 | 968 | 548 |
| 25 | 806 | 1080 | 881 | 1050 | 1020 | 889 | 523 | 250 | 725 | 1010 | 982 | 565 |
| 26 | 843 | 1110 | 891 | 1060 | 1030 | 920 | 582 | 373 | 756 | 978 | 998 | 567 |
| 27 | 450 | 1150 | 879 | 1070 | 1050 | 937 | 607 | 300 | 787 | --- | 988 | 587 |
| 28 | 361 | 1170 | 900 | 1100 | 950 | 959 | 630 | 359 | 819 | 998 | 1050 | 595 |
| 29 | 422 | 1170 | 909 | 1110 | --- | 414 | 450 | 400 | 846 | 1140 | 1070 | 602 |
| 30 | 482 | 1200 | 910 | 1120 | --- | 440 | 405 | 333 | 874 | 1170 | 1080 | 618 |
| 31 | 532 | --- | 907 | 1130 | --- | 521 | --- | 443 | --- | 1370 | 1090 | --- |
| MEAN | 723 | 953 | 852 | 1040 | 978 | 690 | 742 | 460 | 574 | 817 | 1240 | 549 |

07343000 NORTH SULPHUR RIVER NEAR COOPER, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 19.0 | 11.0 | 12.0 | 8.0 | 5.0 | 12.0 | 16.0 | 23.0 | 24.0 | 27.0 | 27.0 | 27.0 |
| 2 | 20.0 | 13.0 | 11.0 | 6.0 | 3.0 | 11.0 | 17.5 | 21.0 | 25.0 | 26.0 | 25.5 | 26.0 |
| 3 | 18.0 | 14.0 | 7.0 | 5.0 | 2.0 | 11.0 | 21.0 | 20.5 | 21.0 | 28.0 | 27.5 | 30.0 |
| 4 | 21.0 | 14.0 | 9.0 | 9.0 | 5.0 | 14.0 | --- | 19.0 | 20.0 | 26.0 | 27.0 | 29.0 |
| 5 | 19.0 | 13.0 | 13.0 | 3.0 | 6.0 | 12.0 | 19.0 | 21.0 | 23.0 | 25.0 | 28.0 | 26.0 |
| 6 | 17.0 | 13.0 | 15.0 | 5.0 | 6.0 | 11.0 | 15.0 | 21.0 | 23.5 | 26.0 | 29.0 | 26.0 |
| 7 | 15.0 | 15.0 | 17.0 | 4.0 | 7.0 | 10.0 | 17.0 | 19.0 | 23.5 | 26.0 | 27.5 | 29.0 |
| 8 | 20.0 | 15.0 | 15.0 | 5.0 | 7.0 | 9.0 | 18.0 | 20.0 | 26.5 | 26.5 | 24.5 | --- |
| 9 | 20.0 | 18.0 | 8.0 | 8.0 | 8.0 | 9.0 | 18.5 | 17.0 | 32.0 | --- | 29.0 | --- |
| 10 | 19.0 | 17.0 | 5.0 | 8.0 | 8.0 | 8.0 | 21.5 | 15.5 | 27.0 | 29.5 | 26.0 | --- |
| 11 | 18.0 | 18.0 | 4.0 | 8.0 | .0 | 11.0 | 21.0 | 15.0 | 27.0 | 29.0 | 25.0 | --- |
| 12 | 16.0 | 14.0 | 5.0 | 5.0 | .0 | 12.0 | 20.0 | 18.0 | 26.0 | 28.0 | 26.0 | --- |
| 13 | 16.0 | 13.0 | 8.0 | 4.0 | 3.0 | 13.0 | 21.5 | 21.0 | 26.5 | 28.5 | 26.0 | --- |
| 14 | --- | --- | 8.0 | 6.0 | 4.0 | 15.0 | 21.0 | 17.0 | 25.5 | 28.0 | 26.5 | --- |
| 15 | 18.0 | 12.0 | 9.0 | 4.0 | 5.0 | 15.0 | 16.0 | 18.0 | 25.0 | 27.5 | 28.0 | --- |
| 16 | --- | --- | 10.0 | 4.0 | 9.0 | 13.0 | 17.5 | 15.5 | 21.0 | 28.0 | --- | --- |
| 17 | 21.0 | 9.0 | 9.0 | 3.0 | 14.0 | 12.0 | 21.0 | 19.0 | 22.0 | 29.0 | 25.5 | 17.0 |
| 18 | 19.0 | 7.0 | 11.0 | --- | 12.0 | 13.0 | 22.0 | 22.0 | 25.5 | 27.0 | 25.5 | 17.0 |
| 19 | 17.0 | 7.0 | 9.0 | 5.0 | 12.0 | 7.0 | 22.0 | --- | 26.0 | 27.0 | 24.0 | 17.0 |
| 20 | 17.0 | 7.0 | 4.0 | 7.0 | 12.0 | 9.0 | 20.5 | 14.5 | 27.0 | --- | 25.0 | 20.5 |
| 21 | 16.0 | 8.0 | 3.0 | 6.0 | 16.0 | 14.0 | 21.0 | 19.0 | --- | 28.0 | 24.0 | 19.0 |
| 22 | 15.0 | 9.0 | 4.0 | 5.0 | 12.0 | 12.0 | 21.0 | 20.0 | 27.5 | 26.5 | 25.0 | 21.0 |
| 23 | 16.0 | 10.0 | 5.0 | 5.0 | 9.0 | 11.0 | 19.5 | 22.0 | 26.0 | 27.5 | 24.0 | 22.5 |
| 24 | 15.0 | 9.0 | 6.0 | 6.0 | 17.0 | 10.0 | 18.0 | 19.5 | 26.0 | --- | 24.5 | 28.0 |
| 25 | 15.0 | 8.0 | 4.0 | 9.0 | 12.0 | 12.0 | 22.0 | --- | 28.0 | 29.5 | 26.5 | 24.0 |
| 26 | 12.0 | 8.0 | 4.0 | 8.0 | 14.0 | 16.0 | 23.0 | 20.0 | 28.0 | 29.0 | 27.0 | 24.0 |
| 27 | 15.0 | 4.0 | 5.0 | 6.0 | 16.0 | 17.0 | 23.0 | 23.0 | --- | --- | 24.0 | 24.5 |
| 28 | 12.0 | 5.0 | 6.0 | 6.0 | 18.0 | 16.0 | 22.0 | 23.5 | 33.0 | 28.0 | 25.5 | 25.0 |
| 29 | 9.0 | 5.0 | 7.0 | 14.0 | --- | 14.0 | 22.5 | 24.0 | --- | 27.0 | 26.5 | 23.5 |
| 30 | 10.0 | 10.0 | 6.0 | --- | --- | 17.0 | 24.5 | 23.5 | 27.0 | 26.0 | --- | 24.0 |
| 31 | 9.0 | --- | 7.0 | 9.0 | --- | 17.0 | --- | 23.0 | --- | 27.0 | 26.5 | --- |
| MEAN | 16.5 | 11.0 | 8.0 | 6.0 | 8.5 | 12.5 | 20.0 | 20.0 | 25.5 | 27.5 | 26.0 | 24.0 |

## 07343200 SULPHUR RIVER NEAR TALCO, TX

LOCATION.--Lat 33°23'10", long 95°07'56", Franklin County, Hydrologic Unit 11140302, on downstream side of highway embankment near right end of bridge on U.S. Highway 271, 2.2 mi (3.5 km) northwest of Talco, 3.2 mi (5.1 km) downstream from Mustang Creek, and 162 mi (261 km) upstream from mouth.

DRAINAGE AREA.--1,365 mi² (3,535 km²).

### 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 (88.642 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. River Crest Steam Electric Station diverted 740 acre-ft (912,000 m³) for cooling purposes upstream from this station during the current year. Flow is affected at times by discharge from flood-detention pools of 14 floodwater-retarding structures with a combined detention capacity of 8,210 acre-ft (10.1 hm³). These structures control runoff from 23.4 mi² (60.6 km²) in the Auds and Deport Creek drainage basins. On Jan. 18, 1981, telemeter (data collection platform, solar panel, battery, and antenna) was installed at site.

AVERAGE DISCHARGE.--25 years, 1,399 ft³/s (39.62 m³/s), 13.92 in/yr (354 mm/yr), 1,014,000 acre-ft/yr (1.25 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 77,000 ft³/s (2,180 m³/s) Dec. 11, 1971, gage height, 29.40 ft (8.961 m), 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 (8.38 m), and flood in 1945 reached a stage of 26.5 ft (8.08 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 34,200 ft³/s (969 m³/s) June 7 at 0100 hours, gage height, 25.08 ft (7.644 m), no other peak above base of 15,000 ft³/s (425 m³/s); minimum, 1.3 ft³/s (0.037 m³/s) Nov. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 9000 | 51 | 9.0 | 20 | 13 | 84 | 1020 | 118 | 1130 | 50 | 4.8 | 3.7 |
| 2 | 4060 | 28 | 7.9 | 17 | 14 | 411 | 281 | 102 | 1090 | 44 | 4.3 | 3.8 |
| 3 | 1150 | 20 | 6.5 | 15 | 13 | 344 | 142 | 235 | 2790 | 40 | 3.9 | 591 |
| 4 | 315 | 20 | 6.2 | 14 | 12 | 2040 | 105 | 235 | 14400 | 38 | 3.5 | 159 |
| 5 | 157 | 15 | 6.0 | 12 | 10 | 4810 | 90 | 114 | 19600 | 178 | 3.5 | 66 |
| 6 | 82 | 11 | 5.0 | 11 | 10 | 2650 | 83 | 68 | 29300 | 517 | 3.2 | 40 |
| 7 | 49 | 7.6 | 3.9 | 12 | 13 | 2390 | 75 | 69 | 30200 | 404 | 3.6 | 26 |
| 8 | 34 | 5.8 | 321 | 12 | 13 | 1540 | 71 | 62 | 20500 | 240 | 3.7 | 17 |
| 9 | 25 | 4.0 | 7340 | 12 | 13 | 370 | 59 | 1570 | 14900 | 155 | 3.3 | 12 |
| 10 | 18 | 3.0 | 9520 | 12 | 24 | 214 | 48 | 7320 | 11500 | 227 | 3.2 | 9.0 |
| 11 | 13 | 2.4 | 7920 | 12 | 30 | 152 | 39 | 8790 | 8980 | 140 | 3.1 | 6.6 |
| 12 | 9.3 | 1.9 | 6080 | 12 | 70 | 123 | 32 | 6400 | 3500 | 84 | 3.0 | 5.0 |
| 13 | 6.7 | 1.5 | 2190 | 11 | 58 | 106 | 27 | 1950 | 932 | 60 | 2.8 | 4.0 |
| 14 | 5.0 | 4.4 | 402 | 10 | 41 | 92 | 22 | 799 | 697 | 48 | 2.7 | 4.1 |
| 15 | 3.8 | 7.5 | 244 | 9.3 | 28 | 81 | 16 | 716 | 604 | 39 | 2.5 | 4.2 |
| 16 | 3.2 | 6.4 | 171 | 8.9 | 20 | 71 | 12 | 1110 | 5090 | 31 | 2.5 | 33 |
| 17 | 5.1 | 64 | 124 | 8.4 | 21 | 63 | 9.8 | 3290 | 12000 | 25 | 2.3 | 142 |
| 18 | 692 | 33 | 96 | 7.0 | 23 | 55 | 7.8 | 2840 | 9310 | 19 | 2.7 | 61 |
| 19 | 1000 | 49 | 77 | 6.8 | 20 | 49 | 6.6 | 2480 | 8680 | 15 | 2.7 | 35 |
| 20 | 501 | 51 | 63 | 7.1 | 15 | 42 | 6.0 | 1840 | 8560 | 12 | 5.1 | 21 |
| 21 | 233 | 39 | 52 | 8.0 | 28 | 36 | 5.5 | 1090 | 5070 | 10 | 6.2 | 14 |
| 22 | 124 | 32 | 43 | 9.9 | 76 | 30 | 5.2 | 418 | 1020 | 9.0 | 6.4 | 11 |
| 23 | 62 | 28 | 36 | 14 | 30 | 25 | 5.4 | 242 | 611 | 9.0 | 6.2 | 8.0 |
| 24 | 36 | 23 | 33 | 20 | 23 | 21 | 276 | 998 | 479 | 18 | 5.8 | 6.1 |
| 25 | 24 | 18 | 36 | 21 | 17 | 17 | 138 | 4650 | 379 | 18 | 5.6 | 5.2 |
| 26 | 16 | 16 | 39 | 18 | 13 | 14 | 73 | 5730 | 205 | 13 | 5.3 | 4.9 |
| 27 | 17 | 14 | 37 | 15 | 11 | 12 | 57 | 4520 | 98 | 10 | 6.4 | 27 |
| 28 | 514 | 14 | 35 | 14 | 18 | 10 | 52 | 3840 | 71 | 8.5 | 5.8 | 19 |
| 29 | 402 | 12 | 33 | 14 | --- | 124 | 50 | 1980 | 60 | 7.8 | 5.3 | 9.4 |
| 30 | 177 | 9.7 | 29 | 12 | --- | 1020 | 107 | 2880 | 55 | 6.4 | 4.6 | 5.2 |
| 31 | 93 | --- | 25 | 11 | --- | 1250 | --- | 2220 | --- | 5.9 | 4.1 | --- |
| TOTAL | 18827.1 | 592.2 | 34990.5 | 386.4 | 677 | 18246 | 2921.3 | 68676 | 211811 | 2481.6 | 128.1 | 1353.2 |
| MEAN | 607 | 19.7 | 1129 | 12.5 | 24.2 | 589 | 97.4 | 2215 | 7060 | 80.1 | 4.13 | 45.1 |
| MAX | 9000 | 64 | 9520 | 21 | 76 | 4810 | 1020 | 8790 | 30200 | 517 | 6.4 | 591 |
| MIN | 3.2 | 1.5 | 3.9 | 6.8 | 10 | 10 | 5.2 | 62 | 55 | 5.9 | 2.3 | 3.7 |
| CFSM | .45 | .01 | .83 | .009 | .02 | .43 | .07 | 1.62 | 5.17 | .06 | .003 | .03 |
| IN. | .51 | .02 | .95 | .01 | .02 | .50 | .08 | 1.87 | 5.77 | .07 | .00 | .04 |
| AC-FT | 37340 | 1170 | 69400 | 766 | 1340 | 36190 | 5790 | 136200 | 420100 | 4920 | 254 | 2680 |

CAL YR 1980 TOTAL 266367.39 MEAN 728 MAX 14900 MIN .04 CFSM .53 IN 7.26 AC-FT 528300
WTR YR 1981 TOTAL 361090.40 MEAN 989 MAX 30200 MIN 1.5 CFSM .73 IN 9.84 AC-FT 716200

07343200 SULPHUR RIVER NEAR TALCO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1966 to current year. Chemical and biochemical analyses: October 1967 to current year. Pesticide analyses: January 1969 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1966 to current year.
WATER TEMPERATURES: October 1966 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,800 micromhos Feb. 17, 1976; minimum daily, 100 micromhos Sept. 11, 1974.
WATER TEMPERATURES: Maximum daily, 38.0°C Aug. 15, 1975; minimum daily, 0.0°C on several days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,110 micromhos Feb. 15; minimum daily, 120 micromhos May 13.
WATER TEMPERATURES: Maximum daily, 34.0°C Aug. 4; minimum daily, 4.0°C Feb. 11, 12, 14.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (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 (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | | |
| 19... | 0930 | 49 | 465 | 8.0 | 7.5 | 40 | 34 | 9.0 | 74 | 2.4 | 170 | 24 |
| FEB | | | | | | | | | | | | |
| 12... | 1230 | 73 | 965 | 8.1 | 5.0 | 10 | 14 | 11.6 | 89 | 1.2 | 320 | 130 |
| MAY | | | | | | | | | | | | |
| 06... | 1030 | 70 | 235 | 7.8 | 21.0 | 120 | 93 | 5.6 | 62 | 2.6 | 88 | 1 |
| 13... | 0715 | 2560 | 96 | -- | 19.0 | -- | -- | -- | -- | -- | 31 | 10 |
| JUN | | | | | | | | | | | | |
| 10... | 1400 | 11100 | 212 | 7.9 | 27.0 | 90 | 34 | 4.6 | 58 | 1.8 | 87 | 0 |
| JUL | | | | | | | | | | | | |
| 21... | 1830 | 10 | 385 | -- | 31.0 | 15 | 15 | -- | -- | -- | 150 | 0 |
| SEP | | | | | | | | | | | | |
| 01... | 1500 | 3.7 | 560 | 7.8 | 26.0 | 5 | 18 | 4.2 | 52 | 1.5 | 210 | 23 |

| 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 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 | | | | | | | | | | | |
| 19... | 62 | 4.7 | 22 | .7 | 4.9 | 150 | 64 | 16 | .3 | 7.4 | -- |
| FEB | | | | | | | | | | | |
| 12... | 110 | 11 | 79 | 1.9 | 3.8 | 190 | 220 | 67 | .2 | 2.2 | -- |
| MAY | | | | | | | | | | | |
| 06... | 31 | 2.5 | 13 | .6 | 4.1 | 87 | 11 | 6.6 | .2 | 7.3 | -- |
| 13... | 7.8 | 2.8 | -- | -- | -- | 21 | 7.0 | 10 | -- | -- | -- |
| JUN | | | | | | | | | | | |
| 10... | 31 | 2.3 | 6.4 | .3 | 5.8 | 90 | 12 | 4.4 | .2 | 17 | -- |
| JUL | | | | | | | | | | | |
| 21... | 53 | 4.1 | 22 | .8 | 4.9 | 150 | 25 | 19 | .3 | 11 | 247 |
| SEP | | | | | | | | | | | |
| 01... | 75 | 6.2 | 39 | 1.2 | 5.0 | 190 | 62 | 27 | .4 | 11 | -- |

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (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) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 19... | 272 | 34 | 21 | .46 | .010 | .47 | .070 | .75 | .82 | .090 | 11 |
| FEB | | | | | | | | | | | |
| 12... | 608 | 38 | 8 | .00 | .000 | .00 | .000 | .76 | .76 | .080 | 10 |
| MAY | | | | | | | | | | | |
| 06... | 128 | 164 | 11 | .60 | .070 | .67 | .200 | 1.3 | 1.50 | .420 | 17 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | |
| 10... | 133 | 46 | 14 | .00 | .010 | .01 | .130 | .30 | .43 | .380 | 13 |
| JUL | | | | | | | | | | | |
| 21... | 229 | 24 | 20 | .00 | .010 | .00 | .120 | .98 | 1.10 | .070 | 8.6 |
| SEP | | | | | | | | | | | |
| 01... | 340 | 16 | 8 | .11 | .030 | .14 | .210 | .76 | .97 | .080 | 6.8 |

07343200 SULPHUR RIVER NEAR TALCO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | ARSENIC DIS- SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| NOV | | | | | | | |
| 19... | 0930 | 1 | 70 | <1 | 0 | <10 | 50 |
| FEB | | | | | | | |
| 12... | 1230 | 1 | 100 | <1 | 10 | <10 | <10 |
| MAY | | | | | | | |
| 06... | 1030 | 7 | 40 | <1 | 10 | <10 | 90 |
| JUL | | | | | | | |
| 21... | 1830 | 5 | 80 | <1 | 0 | <10 | <10 |

| DATE | 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 | | | | | | |
| 19... | <10 | 50 | .0 | 0 | 0 | 5 |
| FEB | | | | | | |
| 12... | 12 | 110 | .0 | 1 | 0 | <3 |
| MAY | | | | | | |
| 06... | 15 | 9 | .0 | 0 | 0 | <3 |
| JUL | | | | | | |
| 21... | <10 | 32 | .0 | 0 | 0 | 7 |

| DATE | TIME | PCB, TOTAL (UG/L) | PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) | NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) | CHLOR- DANE, TOTAL (UG/L) | CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) | DDD, TOTAL (UG/L) | DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) | DDE, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | | |
| 12... | 1230 | .00 | 6 | .00 | .00 | .0 | .00 | .0 | .00 | 4.2 | .00 |
| JUL | | | | | | | | | | | |
| 21... | 1830 | .00 | 0 | .00 | .00 | .0 | .00 | 1.0 | .00 | 3.3 | .00 |

| DATE | DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) | DDT, TOTAL (UG/L) | DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) | DI- AZINON, TOTAL (UG/L) | DI- ELDRIN TOTAL (UG/L) | DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) | ENDO- SULFAN, TOTAL (UG/L) | ENDRIN, TOTAL (UG/L) | ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) | ETHION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | |
| 12... | 12 | .00 | .0 | .00 | .00 | .2 | .00 | .00 | .0 | .00 |
| JUL | | | | | | | | | | |
| 21... | 6.0 | .00 | .0 | .00 | .00 | .2 | .00 | .00 | .1 | .00 |

| DATE | HEPTA- CHLOR, TOTAL (UG/L) | HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) | HEPTA- CHLOR EPOXIDE TOTAL (UG/L) | HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) | LINDANE TOTAL (UG/L) | LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG) | MALA- THION, TOTAL (UG/L) | METH- OXY- CHLOR, TOTAL (UG/L) | METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG) | METHYL PARA- THION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | |
| 12... | .00 | .0 | .00 | .0 | .00 | .0 | .00 | .00 | .0 | .00 |
| JUL | | | | | | | | | | |
| 21... | .00 | .0 | .00 | .0 | .00 | .0 | .00 | .00 | .0 | .00 |

| DATE | METHYL TRI- THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) | MIREX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) | PARA- THION, TOTAL (UG/L) | TOX- APHENE, TOTAL (UG/L) | TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) | TOTAL TRI- THION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | |
| 12... | .00 | .00 | .0 | .00 | .00 | .0 | .00 | -- | -- | -- |
| JUL | | | | | | | | | | |
| 21... | .00 | .00 | .0 | .00 | .00 | .0 | .00 | .02 | .00 | .00 |

07343200 SULPHUR RIVER NEAR TALCO, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 18827.1 | 239 | 137 | 6970 | 7.2 | 365 | 25 | 1250 | 90 |
| NOV. | 1980 | 592.2 | 417 | 243 | 389 | 18 | 29 | 50 | 81 | 150 |
| DEC. | 1980 | 34990.5 | 247 | 142 | 13400 | 7.6 | 717 | 26 | 2420 | 93 |
| JAN. | 1981 | 386.4 | 750 | 446 | 465 | 46 | 48 | 110 | 114 | 250 |
| FEB. | 1981 | 677 | 904 | 544 | 994 | 65 | 119 | 150 | 266 | 290 |
| MAR. | 1981 | 18246 | 354 | 205 | 10100 | 13 | 655 | 40 | 1980 | 130 |
| APR. | 1981 | 2921.3 | 379 | 220 | 1740 | 15 | 120 | 44 | 349 | 140 |
| MAY | 1981 | 68676 | 278 | 160 | 29700 | 9.0 | 1660 | 29 | 5450 | 100 |
| JUNE | 1981 | 211811 | 221 | 127 | 72400 | 6.3 | 3610 | 22 | 12700 | 83 |
| JULY | 1981 | 2481.6 | 452 | 264 | 1770 | 21 | 140 | 57 | 379 | 160 |
| AUG. | 1981 | 128.1 | 517 | 303 | 105 | 24 | 8.3 | 65 | 22 | 180 |
| SEPT | 1981 | 1353.2 | 434 | 253 | 923 | 18 | 66 | 52 | 189 | 160 |
| TOTAL | | 361090.4 | ** | ** | 139000 | ** | 7540 | ** | 25200 | ** |
| WTD. AVG. | | 989 | 248 | 142 | ** | 7.7 | ** | 26 | ** | 93 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 219 | 329 | 648 | 612 | 880 | 613 | 275 | 517 | 301 | 373 | 450 | 563 |
| 2 | 203 | 350 | 637 | 667 | 878 | 529 | 306 | 516 | 283 | 397 | 459 | 574 |
| 3 | 231 | 369 | 634 | 708 | 922 | 588 | 345 | 587 | 270 | 417 | 456 | 450 |
| 4 | 255 | 381 | 639 | 722 | 932 | 432 | 341 | 365 | 229 | 424 | 480 | 355 |
| 5 | 264 | 396 | 645 | 738 | 955 | 373 | 338 | 233 | 184 | 588 | 482 | 344 |
| 6 | 283 | 411 | 653 | 739 | 958 | 302 | 349 | 243 | 245 | 753 | 487 | 369 |
| 7 | 310 | 428 | 673 | 735 | 1000 | 249 | 360 | 263 | 213 | 348 | 486 | 379 |
| 8 | 333 | 446 | 550 | 720 | 1030 | 269 | 356 | 279 | 191 | 331 | 490 | 401 |
| 9 | 345 | 462 | 301 | 706 | 1040 | 306 | 397 | 340 | 188 | 351 | 487 | 415 |
| 10 | 362 | 478 | 237 | 700 | 881 | 322 | 409 | 297 | 213 | 348 | 500 | 426 |
| 11 | 377 | 491 | 208 | 687 | 903 | 342 | 422 | 273 | 231 | 331 | 503 | 437 |
| 12 | 390 | 503 | 210 | 680 | 974 | 366 | 445 | 252 | 251 | 323 | 511 | 446 |
| 13 | 404 | 521 | 225 | 678 | 1010 | 384 | 460 | 120 | 276 | 315 | 516 | 452 |
| 14 | 417 | 521 | 265 | 677 | 1020 | 407 | 462 | 291 | 278 | 320 | 509 | 456 |
| 15 | 426 | 482 | 288 | 682 | 1110 | 440 | 453 | 344 | 276 | 334 | 525 | 460 |
| 16 | 438 | 527 | 307 | 689 | 1100 | 459 | 455 | 279 | 247 | 348 | 540 | 480 |
| 17 | 439 | 409 | 323 | 692 | 1100 | 474 | 470 | 257 | 266 | 356 | 547 | 385 |
| 18 | 350 | 380 | 348 | 700 | 1020 | 489 | 484 | 265 | 234 | 361 | 551 | 447 |
| 19 | 271 | 250 | 375 | 721 | 1030 | 504 | 491 | 258 | 195 | 369 | 557 | 535 |
| 20 | 238 | 137 | 395 | 734 | 1020 | 517 | 501 | 233 | 205 | 378 | 556 | 574 |
| 21 | 273 | 458 | 416 | 757 | 850 | 536 | 509 | 210 | 228 | 388 | 538 | 607 |
| 22 | 337 | 519 | 434 | 765 | 459 | 551 | 518 | 265 | 267 | 400 | 525 | 612 |
| 23 | 304 | 535 | 452 | 768 | 824 | 561 | 523 | 278 | 284 | 410 | 531 | 609 |
| 24 | 308 | 589 | 470 | 771 | 858 | 574 | 566 | 284 | 291 | 405 | 541 | 599 |
| 25 | 320 | 594 | 483 | 788 | 875 | 585 | 653 | 302 | 294 | 396 | 539 | 587 |
| 26 | 346 | 626 | 497 | 820 | 874 | 594 | 537 | 289 | 306 | 400 | 537 | 582 |
| 27 | 360 | 615 | 517 | 866 | 874 | 603 | 514 | 254 | 317 | 406 | 528 | 500 |
| 28 | 380 | 633 | 535 | 886 | 800 | 605 | 469 | 339 | 330 | 415 | 533 | 444 |
| 29 | 402 | 674 | 550 | 905 | --- | 518 | 450 | 359 | 345 | 424 | 530 | 450 |
| 30 | 321 | 671 | 568 | 910 | --- | 430 | 478 | 245 | 360 | 430 | 539 | 462 |
| 31 | 306 | --- | 585 | 915 | --- | 300 | --- | 282 | --- | 444 | 550 | --- |
| MEAN | 329 | 473 | 454 | 746 | 935 | 459 | 445 | 301 | 260 | 396 | 516 | 480 |

07343200 SULPHUR RIVER NEAR TALCO, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 17.0 | 11.0 | 10.0 | 6.0 | 8.0 | 14.0 | 17.0 | 22.5 | 25.0 | 29.0 | 31.0 | 27.0 |
| 2 | 18.0 | 12.0 | 10.0 | 6.0 | 6.0 | 13.0 | 17.0 | 24.0 | 23.0 | 28.5 | 30.0 | 27.0 |
| 3 | 17.0 | 13.0 | 8.0 | 6.0 | 5.0 | 13.0 | 20.0 | 24.0 | 23.0 | 28.5 | 30.0 | 26.0 |
| 4 | 17.0 | 13.0 | 10.0 | 6.0 | 5.0 | 14.0 | 19.5 | 23.0 | 23.0 | 28.5 | 34.0 | 26.0 |
| 5 | 17.0 | 14.0 | 12.0 | 6.0 | 6.0 | 14.0 | 19.5 | 22.0 | 23.0 | 28.0 | 31.0 | 27.0 |
| 6 | 17.0 | 13.0 | 13.0 | 6.0 | 6.0 | 12.0 | 18.0 | 21.5 | 23.0 | 27.0 | 31.0 | 26.5 |
| 7 | 16.0 | 14.0 | 14.0 | 6.0 | 7.0 | 11.0 | 19.5 | 21.0 | 24.0 | 27.0 | 30.0 | 26.0 |
| 8 | 17.0 | 14.0 | 15.0 | 5.0 | 7.0 | 11.0 | 20.0 | 20.5 | 25.0 | 27.0 | 29.0 | 26.0 |
| 9 | 18.0 | 16.5 | 12.0 | 7.0 | 8.0 | 10.0 | 20.0 | 19.5 | 26.0 | 28.0 | 28.0 | 24.0 |
| 10 | 18.0 | 14.0 | 8.0 | 7.0 | 9.0 | 10.0 | 20.5 | 16.0 | 29.0 | 28.0 | 28.0 | --- |
| 11 | 18.0 | 17.0 | 8.0 | 9.0 | 4.0 | 11.0 | 21.0 | 16.0 | 27.0 | 29.0 | 28.0 | 24.0 |
| 12 | 17.0 | 15.0 | 8.0 | 7.0 | 4.0 | 12.0 | 21.0 | 17.0 | 27.0 | 29.0 | 29.0 | 24.0 |
| 13 | 16.0 | 14.0 | 8.0 | 5.0 | 5.0 | 12.5 | 22.0 | 19.0 | 28.0 | 29.0 | 30.0 | 25.0 |
| 14 | 16.0 | 14.0 | 8.0 | 6.0 | 4.0 | 13.0 | 22.0 | 19.0 | 28.0 | 28.0 | 30.0 | 25.0 |
| 15 | 18.0 | 13.0 | 10.0 | 6.0 | 5.0 | 15.0 | 20.0 | 19.0 | 28.0 | 28.0 | 30.0 | 25.0 |
| 16 | 20.0 | 12.0 | 11.0 | 7.0 | 6.0 | 14.0 | 20.0 | 18.5 | 25.5 | 28.5 | 30.0 | 25.0 |
| 17 | 20.0 | 9.0 | 9.0 | 5.0 | 7.5 | 14.0 | 21.0 | 20.5 | 23.0 | 28.5 | 30.0 | 24.0 |
| 18 | 20.0 | 8.0 | 10.0 | 5.0 | 7.5 | 14.0 | 21.0 | 20.0 | 24.5 | 29.0 | 28.0 | 22.0 |
| 19 | 18.0 | 7.0 | 10.0 | 5.0 | 10.0 | 11.0 | 21.5 | 20.0 | 25.0 | 29.0 | 28.0 | 21.0 |
| 20 | 17.0 | 7.0 | 8.0 | 6.0 | 11.0 | 11.0 | 22.0 | 19.0 | 26.0 | 29.0 | 27.0 | 20.0 |
| 21 | 16.0 | 7.0 | 6.0 | 6.0 | 14.0 | 13.0 | 22.0 | 19.0 | 27.0 | 29.0 | 27.0 | 21.0 |
| 22 | 16.0 | 8.0 | 6.0 | 6.0 | 12.0 | 14.0 | 22.0 | 20.0 | 28.0 | 29.0 | 27.0 | 21.0 |
| 23 | 16.0 | 9.0 | 6.0 | 7.0 | 11.0 | 13.0 | 21.0 | 22.0 | 28.0 | 29.0 | 27.0 | 22.0 |
| 24 | 15.0 | 9.0 | 6.0 | 6.0 | 11.0 | 13.0 | 21.0 | 22.0 | 28.0 | 29.0 | 27.0 | 24.0 |
| 25 | 13.0 | 9.0 | 5.0 | 7.0 | 12.0 | 13.0 | 21.0 | 22.0 | 28.0 | 30.0 | 27.0 | 24.5 |
| 26 | 13.0 | 8.0 | 5.0 | 9.0 | 14.0 | 14.0 | 21.0 | 21.0 | 29.5 | 30.0 | 27.0 | 24.0 |
| 27 | 15.5 | 7.0 | 5.0 | 8.0 | 15.0 | 16.0 | 21.0 | 22.0 | 29.0 | 30.0 | 25.0 | 25.0 |
| 28 | 14.0 | 7.0 | 5.5 | 7.0 | 17.0 | 17.0 | 22.0 | 23.0 | 28.0 | 31.0 | 26.0 | 25.0 |
| 29 | 13.0 | 7.0 | 6.0 | 11.0 | --- | 16.0 | 22.0 | --- | 28.0 | 31.0 | 27.0 | 25.0 |
| 30 | 11.0 | 8.0 | 6.0 | 9.0 | --- | 15.0 | 23.0 | 24.0 | 28.0 | 30.0 | 27.0 | 25.0 |
| 31 | 11.0 | --- | 6.0 | 7.0 | --- | 16.0 | --- | 26.0 | --- | 30.0 | 27.0 | --- |
| MEAN | 16.5 | 11.0 | 8.5 | 6.5 | 8.5 | 13.0 | 20.5 | 21.0 | 26.5 | 29.0 | 28.5 | 24.5 |

07343460 LAKE SULPHUR SPRINGS NEAR SULPHUR SPRINGS, TX

PERIOD OF RECORD.--Chemical analyses: October 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | TEMPERATURE, WATER (DEG C) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|
| AUG 24... | 1142 | 101 | 30.5 | 36 | 3 | 9.2 | 3.1 | 3.9 |

| DATE | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| AUG 24... | .3 | 5.6 | 33 | 5.0 | 4.7 | .2 | 1.9 | 53 |

## 07343500 WHITE OAK CREEK NEAR TALCO, TX

LOCATION.--Lat 33°19'20", long 95°05'33", Titus County, Hydrologic Unit 11140303, near center of main channel on downstream side of bridge on U.S. Highway 271, 0.8 mi (1.3 km) downstream from Lewis Creek, 2.4 mi (3.9 km) upstream from Ripley Creek, 2.7 mi (4.3 km) south of Talco, and 38.4 mi (61.8 km) upstream from mouth.

DRAINAGE AREA.--494 $mi^2$ (1,279 $km^2$).

### 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 (87.310 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Several small diversions above station for municipal supply. Records furnished by the cities of Sulphur Springs and Mount Vernon show that during the year, 1,360 acre-ft (1.68 $hm^3$) and 1,030 acre-ft (1.27 $hm^3$), respectively, were discharged into tributaries above this station.

AVERAGE DISCHARGE.--31 years (water years 1951-81), 448 $ft^3/s$ (12.69 $m^3/s$), 12.32 in/yr (313 mm/yr), 324,600 acre-ft/yr (400 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,000 $ft^3/s$ (1,360 $m^3/s$) Dec. 11, 1971, gage height, 21.20 ft (6.462 m), from rating curve extended above 23,000 $ft^3/s$ (651 $m^3/s$); no flow at times in 1954, 1956, 1964-65, 1969-73, 1976, and 1978-79.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, 22.9 ft (6.98 m) Mar. 31, 1945, from floodmarks and from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16,200 $ft^3/s$ (459 $m^3/s$) June 6 at 1030 hours, gage height, 18.56 ft (5.657 m), no other peak above base of 9,000 $ft^3/s$ (255 $m^3/s$); minimum, 0.06 $ft^3/s$ (0.002 $m^3/s$) Nov. 12, 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 494 | 1.7 | 6.8 | 6.7 | 14 | 69 | 257 | 5.3 | 530 | 51 | 4.1 | 1.8 |
| 2 | 600 | 1.4 | 6.4 | 7.2 | 31 | 193 | 128 | 7.6 | 830 | 45 | 4.0 | 1.2 |
| 3 | 464 | .97 | 5.7 | 7.0 | 32 | 283 | 65 | 9.0 | 1700 | 40 | 3.7 | 1.4 |
| 4 | 170 | .70 | 5.0 | 6.2 | 27 | 313 | 42 | 22 | 2490 | 37 | 3.4 | 2.5 |
| 5 | 51 | .45 | 4.2 | 5.6 | 22 | 274 | 30 | 26 | 8360 | 35 | 3.2 | 2.8 |
| 6 | 25 | .28 | 3.5 | 6.2 | 18 | 224 | 45 | 23 | 15600 | 35 | 2.9 | 2.4 |
| 7 | 15 | .13 | 2.9 | 6.8 | 14 | 239 | 59 | 21 | 11200 | 54 | 3.1 | 4.7 |
| 8 | 9.8 | .09 | 57 | 6.6 | 13 | 169 | 47 | 15 | 7630 | 80 | 3.4 | 4.8 |
| 9 | 7.5 | .11 | 715 | 6.9 | 12 | 86 | 36 | 381 | 5260 | 127 | 3.4 | 3.0 |
| 10 | 6.6 | .14 | 1030 | 7.2 | 21 | 54 | 24 | 847 | 3490 | 126 | 3.4 | 2.0 |
| 11 | 5.2 | .14 | 1270 | 7.2 | 33 | 41 | 16 | 1060 | 2400 | 67 | 3.4 | 1.6 |
| 12 | 3.9 | .08 | 1250 | 9.1 | 37 | 34 | 13 | 1210 | 1810 | 41 | 3.4 | 1.3 |
| 13 | 3.0 | .07 | 1140 | 11 | 33 | 29 | 11 | 1140 | 958 | 29 | 3.2 | 1.5 |
| 14 | 2.4 | 6.9 | 859 | 11 | 28 | 24 | 11 | 942 | 354 | 23 | 2.8 | 2.1 |
| 15 | 2.0 | 47 | 278 | 9.8 | 23 | 17 | 12 | 369 | 193 | 19 | 2.6 | 2.1 |
| 16 | 1.6 | 32 | 79 | 9.1 | 20 | 18 | 9.2 | 218 | 653 | 16 | 2.8 | 2.2 |
| 17 | 2.7 | 144 | 40 | 8.2 | 17 | 17 | 7.4 | 680 | 1680 | 14 | 3.8 | 2.2 |
| 18 | 5.5 | 274 | 31 | 7.2 | 14 | 15 | 6.6 | 1470 | 2450 | 13 | 4.0 | 2.2 |
| 19 | 169 | 229 | 25 | 6.5 | 12 | 13 | 6.2 | 3120 | 2570 | 12 | 3.8 | 2.4 |
| 20 | 203 | 109 | 19 | 6.9 | 11 | 12 | 5.3 | 4440 | 2670 | 10 | 3.5 | 2.1 |
| 21 | 114 | 60 | 14 | 7.2 | 11 | 11 | 4.7 | 4520 | 2220 | 9.6 | 3.4 | 1.8 |
| 22 | 53 | 39 | 12 | 7.4 | 62 | 10 | 4.4 | 3700 | 1620 | 8.8 | 3.6 | 1.3 |
| 23 | 30 | 29 | 11 | 8.2 | 169 | 9.1 | 4.6 | 2790 | 937 | 7.8 | 3.7 | .81 |
| 24 | 20 | 22 | 9.8 | 8.6 | 150 | 9.4 | 4.1 | 2180 | 371 | 7.0 | 3.7 | .46 |
| 25 | 12 | 18 | 8.6 | 8.6 | 97 | 11 | 3.6 | 1650 | 181 | 6.3 | 3.5 | .30 |
| 26 | 7.4 | 14 | 7.8 | 11 | 67 | 10 | 3.6 | 1130 | 128 | 5.8 | 3.1 | .27 |
| 27 | 10 | 11 | 7.5 | 12 | 40 | 10 | 3.6 | 825 | 102 | 5.4 | 3.1 | .28 |
| 28 | 20 | 9.3 | 7.0 | 11 | 29 | 10 | 3.4 | 682 | 83 | 4.9 | 2.8 | .27 |
| 29 | 7.3 | 8.2 | 6.5 | 9.9 | --- | 12 | 4.1 | 609 | 69 | 4.6 | 2.4 | .28 |
| 30 | 2.8 | 7.4 | 6.4 | 8.4 | --- | 15 | 4.7 | 504 | 57 | 4.6 | 2.2 | .25 |
| 31 | 1.8 | --- | 6.5 | 7.4 | --- | 227 | --- | 493 | --- | 4.3 | 2.0 | --- |
| TOTAL | 2519.5 | 1066.06 | 6924.6 | 252.1 | 1057 | 2458.5 | 871.5 | 35088.9 | 78596 | 943.1 | 101.4 | 52.32 |
| MEAN | 81.3 | 35.5 | 223 | 8.13 | 37.8 | 79.3 | 29.1 | 1132 | 2620 | 30.4 | 3.27 | 1.74 |
| MAX | 600 | 274 | 1270 | 12 | 169 | 313 | 257 | 4520 | 15600 | 127 | 4.1 | 4.8 |
| MIN | 1.6 | .07 | 2.9 | 5.6 | 11 | 9.1 | 3.4 | 5.3 | 57 | 4.3 | 2.0 | .25 |
| CFSM | .17 | .07 | .45 | .02 | .08 | .16 | .06 | 2.29 | 5.30 | .06 | .007 | .004 |
| IN. | .19 | .08 | .52 | .02 | .08 | .19 | .07 | 2.64 | 5.92 | .07 | .01 | .00 |
| AC-FT | 5000 | 2110 | 13730 | 500 | 2100 | 4880 | 1730 | 69600 | 155900 | 1870 | 201 | 104 |

CAL YR 1980 TOTAL 192358.65 MEAN 526 MAX 31700 MIN .07 CFSM 1.07 IN 14.49 AC-FT 381500
WTR YR 1981 TOTAL 129930.98 MEAN 356 MAX 15600 MIN .07 CFSM .72 IN 9.78 AC-FT 257700

07343500 WHITE OAK CREEK NEAR TALCO, TX--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 TEMPERATURES: 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, 1,220 micromhos June 15, 1972; minimum daily, 33 micromhos May 16, 1969.
WATER TEMPERATURES: Maximum daily, 37.0°C July 18, Aug. 3, 15, 1975; minimum daily, 0.0°C on several days during January 1968, 1970, and 1978.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 626 micromhos May 7; minimum daily, 70 micromhos May 21.
WATER TEMPERATURES: Maximum daily, 34.0°C Aug. 4; minimum daily, 4.0°C Feb. 11-14.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | TEMPER-ATURE, WATER (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 10... | 1015 | 6.8 | 160 | 19.5 | 41 | 15 | 9.9 | 3.9 | 11 |
| NOV | | | | | | | | | |
| 19... | 1510 | 188 | 134 | 8.0 | 46 | 13 | 7.9 | 6.4 | 10 |
| FEB | | | | | | | | | |
| 11... | 1445 | 34 | 432 | 6.5 | 94 | 39 | 22 | 9.4 | 46 |
| MAY | | | | | | | | | |
| 05... | 1830 | 24 | 534 | 22.0 | 110 | 6 | 26 | 10 | 66 |
| JUN | | | | | | | | | |
| 05... | 0940 | 6380 | 86 | 23.5 | 27 | 4 | 6.7 | 2.5 | 4.7 |
| JUL | | | | | | | | | |
| 22... | 0900 | 9.2 | 298 | 29.5 | 73 | 9 | 18 | 6.7 | 27 |
| AUG | | | | | | | | | |
| 26... | 0800 | 3.0 | 390 | 27.0 | 100 | 10 | 24 | 10 | 37 |

| DATE | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY (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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 10... | .8 | 6.1 | 26 | 29 | 12 | .2 | 12 | 100 |
| NOV | | | | | | | | |
| 19... | .6 | 5.8 | 33 | 20 | 14 | .1 | 8.7 | 93 |
| FEB | | | | | | | | |
| 11... | 2.1 | 6.4 | 55 | 81 | 52 | .1 | 5.2 | 255 |
| MAY | | | | | | | | |
| 05... | 2.8 | 10 | 100 | 64 | 71 | .4 | 8.4 | 316 |
| JUN | | | | | | | | |
| 05... | .4 | 4.8 | 23 | 8.2 | 5.5 | .1 | 9.8 | 56 |
| JUL | | | | | | | | |
| 22... | 1.5 | 7.3 | 64 | 45 | 23 | .2 | 12 | 177 |
| AUG | | | | | | | | |
| 26... | 1.7 | 7.3 | 91 | 53 | 39 | .3 | 6.9 | 232 |

07343500 WHITE OAK CREEK NEAR TALCO, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 2519.5 | 112 | 67 | 458 | 7.8 | 53 | 19 | 126 | 31 |
| NOV. | 1980 | 1066.06 | 173 | 105 | 303 | 14 | 41 | 27 | 79 | 45 |
| DEC. | 1980 | 6924.6 | 96 | 57 | 1070 | 6.3 | 118 | 16 | 300 | 27 |
| JAN. | 1981 | 252.1 | 387 | 242 | 165 | 48 | 32 | 52 | 35 | 82 |
| FEB. | 1981 | 1057 | 319 | 198 | 565 | 36 | 102 | 45 | 128 | 72 |
| MAR. | 1981 | 2458.5 | 273 | 168 | 1120 | 29 | 190 | 40 | 263 | 64 |
| APR. | 1981 | 871.5 | 279 | 172 | 404 | 28 | 66 | 41 | 97 | 67 |
| MAY | 1981 | 35088.9 | 97 | 58 | 5540 | 6.6 | 624 | 16 | 1540 | 27 |
| JUNE | 1981 | 78596 | 98 | 59 | 12400 | 6.4 | 1350 | 16 | 3490 | 28 |
| JULY | 1981 | 943.1 | 232 | 142 | 362 | 21 | 54 | 36 | 91 | 58 |
| AUG. | 1981 | 101.4 | 348 | 216 | 59 | 39 | 11 | 49 | 13 | 78 |
| SEPT | 1981 | 52.32 | 446 | 280 | 40 | 58 | 8.2 | 58 | 8.2 | 90 |
| TOTAL | | 129930.98 | ** | ** | 22500 | ** | 2650 | ** | 6170 | ** |
| WTD. AVG. | | 356 | 107 | 64 | ** | 7.6 | ** | 18 | ** | 29 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 88 | 198 | 360 | 229 | 550 | 450 | 239 | 437 | 157 | 175 | 298 | 402 |
| 2 | 100 | 200 | 357 | 235 | 623 | 227 | 255 | 459 | 147 | 175 | 301 | 402 |
| 3 | 86 | 202 | 356 | 245 | 343 | 248 | 272 | 514 | 97 | 181 | 304 | 405 |
| 4 | 104 | 206 | 355 | 251 | 312 | 246 | 284 | 463 | 89 | 187 | 308 | 409 |
| 5 | 121 | 200 | 354 | 257 | 438 | 254 | 286 | 507 | 86 | 192 | 311 | 411 |
| 6 | 135 | 203 | 349 | 262 | 396 | 208 | 288 | 554 | 85 | 197 | 314 | 415 |
| 7 | 144 | 208 | 349 | 270 | 421 | 201 | 324 | 626 | 87 | 203 | 315 | 418 |
| 8 | 150 | 210 | 235 | 278 | 331 | 185 | 262 | 484 | 95 | 221 | 319 | 434 |
| 9 | 156 | 213 | 125 | 288 | 365 | 194 | 272 | 235 | 105 | 300 | 323 | 439 |
| 10 | 160 | 215 | 88 | 290 | 428 | 206 | 234 | 132 | 118 | 271 | 327 | 446 |
| 11 | 163 | 218 | 84 | 289 | 428 | 219 | 252 | 106 | 126 | 174 | 332 | 452 |
| 12 | 165 | 220 | 85 | 306 | 408 | 235 | 289 | 94 | 140 | 190 | 337 | 454 |
| 13 | 170 | 222 | 83 | 321 | 384 | 258 | 318 | 140 | 157 | 218 | 342 | 457 |
| 14 | 173 | 177 | 90 | 341 | 363 | 274 | 331 | 109 | 169 | 246 | 346 | 457 |
| 15 | 179 | 139 | 102 | 370 | 305 | 283 | 330 | 125 | 171 | 249 | 350 | 461 |
| 16 | 183 | 180 | 118 | 403 | 373 | 290 | 346 | 148 | 115 | 254 | 354 | 462 |
| 17 | 180 | 102 | 128 | 419 | 388 | 300 | 377 | 123 | 84 | 258 | 352 | 463 |
| 18 | 186 | 164 | 138 | 423 | 392 | 315 | 404 | 104 | 84 | 265 | 357 | 467 |
| 19 | 209 | 136 | 145 | 420 | 403 | 332 | 417 | 76 | 90 | 276 | 362 | 473 |
| 20 | 107 | 300 | 153 | 425 | 391 | 342 | 421 | 73 | 93 | 292 | 364 | 481 |
| 21 | 133 | 143 | 160 | 446 | 413 | 358 | 422 | 70 | 102 | 296 | 367 | 486 |
| 22 | 163 | 167 | 167 | 462 | 118 | 376 | 427 | 73 | 113 | 292 | 372 | 494 |
| 23 | 157 | 200 | 174 | 475 | 340 | 386 | 439 | 75 | 129 | 288 | 377 | 497 |
| 24 | 160 | 220 | 181 | 458 | 249 | 401 | 462 | 86 | 142 | 285 | 381 | 505 |
| 25 | 166 | 237 | 189 | 448 | 169 | 422 | 492 | 103 | 146 | 284 | 387 | 511 |
| 26 | 172 | 286 | 195 | 475 | 274 | 437 | 496 | 121 | 144 | 286 | 390 | 518 |
| 27 | 150 | 317 | 199 | 496 | 292 | 408 | 480 | 140 | 149 | 288 | 388 | 519 |
| 28 | 230 | 334 | 205 | 513 | 326 | 384 | 462 | 147 | 157 | 291 | 392 | 523 |
| 29 | 223 | 346 | 213 | 527 | --- | 378 | 447 | 165 | 163 | 293 | 395 | 527 |
| 30 | 195 | 355 | 218 | 524 | --- | 384 | 442 | 179 | 170 | 334 | 398 | 531 |
| 31 | 189 | --- | 223 | 522 | --- | 546 | --- | 160 | --- | 297 | 400 | --- |
| MEAN | 158 | 217 | 199 | 376 | 365 | 314 | 359 | 220 | 124 | 250 | 350 | 464 |

07343500 WHITE OAK CREEK NEAR TALCO, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 18.0 | 11.0 | 10.0 | 6.0 | 8.0 | 14.0 | 17.0 | 23.0 | 25.0 | 28.0 | 31.0 | 27.0 |
| 2 | 18.0 | 12.0 | 10.0 | 6.0 | 6.0 | 13.0 | 17.5 | 23.0 | 23.0 | 28.0 | 30.0 | 27.0 |
| 3 | 17.0 | 13.0 | 8.0 | 6.0 | 5.0 | 13.0 | 20.0 | 23.0 | 23.0 | 28.0 | 30.0 | 26.5 |
| 4 | 17.0 | 13.0 | 10.0 | 6.0 | 6.0 | 14.5 | 20.0 | 21.0 | 23.0 | 28.0 | 34.0 | 26.5 |
| 5 | 17.0 | 14.0 | 12.0 | 6.0 | 6.0 | 14.0 | 19.5 | 21.5 | 23.5 | 27.5 | 31.0 | 26.5 |
| 6 | 17.0 | 13.0 | 13.0 | 6.0 | 5.0 | 12.0 | 18.0 | 21.0 | 24.0 | 27.0 | 31.0 | 27.0 |
| 7 | 17.0 | 14.0 | 14.0 | 6.0 | 7.0 | 11.0 | 18.0 | 20.0 | 24.0 | 27.0 | 30.0 | 27.0 |
| 8 | 17.0 | 14.0 | 15.0 | 5.0 | 7.0 | 11.0 | 19.0 | 20.0 | 26.5 | 26.0 | 29.0 | 26.0 |
| 9 | 18.0 | 17.0 | 12.0 | 7.0 | 7.5 | 10.0 | 19.0 | 18.0 | 27.0 | 28.0 | 28.0 | 24.0 |
| 10 | 18.0 | 14.0 | 10.0 | 7.0 | 9.0 | 10.0 | 20.0 | 17.0 | 29.0 | 27.5 | 28.0 | --- |
| 11 | 18.0 | 17.0 | 8.0 | 10.0 | 4.0 | 11.0 | 21.0 | 18.0 | 28.0 | 28.0 | 28.0 | 24.0 |
| 12 | 17.5 | 15.0 | 8.0 | 9.0 | 4.0 | 12.0 | 21.0 | 18.0 | 27.0 | 28.0 | 29.0 | 24.0 |
| 13 | 17.0 | 14.0 | 8.0 | 7.0 | 4.0 | 13.0 | 22.0 | 20.0 | 27.0 | 28.0 | 30.0 | 25.0 |
| 14 | 16.0 | 14.0 | 8.0 | 6.0 | 4.0 | 13.0 | 22.0 | 19.5 | 28.0 | 28.0 | 30.0 | 25.0 |
| 15 | 18.0 | 13.0 | 10.0 | 6.0 | 5.0 | 15.0 | 20.0 | 19.0 | 28.0 | 28.0 | 30.0 | 25.0 |
| 16 | 20.0 | 17.0 | 11.0 | 7.0 | 6.0 | 14.0 | 20.0 | 19.0 | 25.0 | 28.0 | 30.0 | 25.0 |
| 17 | 20.0 | 9.0 | 9.0 | 5.0 | 7.0 | 14.0 | 21.0 | 20.5 | 24.0 | 28.0 | 29.5 | 24.0 |
| 18 | 20.0 | 8.0 | 10.0 | 5.0 | 8.0 | 14.0 | 21.0 | 21.0 | 26.0 | 28.0 | 28.5 | 22.0 |
| 19 | 18.0 | 7.5 | 10.0 | 6.0 | 10.0 | 11.0 | 21.5 | 21.0 | 27.0 | 28.0 | 28.0 | 21.0 |
| 20 | 17.0 | 7.0 | 8.0 | 6.0 | 11.0 | 11.0 | 22.0 | 19.0 | 28.0 | 28.0 | 28.0 | 20.0 |
| 21 | 16.0 | 7.0 | 6.0 | 6.0 | 14.0 | 13.0 | 22.0 | 20.0 | 28.0 | 28.0 | 28.0 | 21.0 |
| 22 | 16.0 | 8.0 | 6.0 | 6.0 | 13.0 | 14.0 | 22.0 | 21.0 | 28.0 | 28.0 | 27.0 | 21.0 |
| 23 | 16.0 | 9.0 | 6.0 | 7.0 | 12.0 | 13.0 | 21.0 | 21.5 | 28.0 | 29.0 | 27.0 | 22.0 |
| 24 | 15.0 | 9.0 | 6.0 | 6.0 | 11.0 | 13.0 | 21.0 | 22.0 | 28.0 | 29.0 | 27.0 | 24.0 |
| 25 | 13.0 | 9.0 | 5.0 | 7.0 | 12.0 | 13.0 | 21.0 | 22.5 | 28.0 | 30.0 | 27.0 | 24.0 |
| 26 | 13.5 | 8.0 | 5.0 | 9.0 | 14.0 | 14.0 | 21.0 | 21.0 | 28.5 | 30.0 | 27.0 | 24.0 |
| 27 | 15.0 | 9.0 | 5.0 | 8.0 | 15.0 | 15.0 | 21.0 | 22.0 | 28.0 | 30.0 | 26.0 | 25.0 |
| 28 | 14.0 | 7.0 | 5.5 | 8.0 | 17.0 | 16.0 | 22.0 | 23.0 | 28.0 | 31.0 | 26.0 | 25.0 |
| 29 | 13.5 | 9.0 | 5.0 | 12.0 | --- | 16.0 | 21.0 | --- | 27.0 | 31.0 | 27.0 | 25.0 |
| 30 | 11.5 | 8.0 | 6.0 | 9.0 | --- | 16.0 | 23.0 | 24.0 | 28.0 | 30.0 | 27.0 | 25.0 |
| 31 | 11.0 | --- | 6.0 | 7.0 | --- | 16.0 | --- | 26.0 | --- | 30.0 | 27.0 | --- |
| MEAN | 16.5 | 11.5 | 8.5 | 7.0 | 8.5 | 13.0 | 20.5 | 21.0 | 26.5 | 28.5 | 28.5 | 24.5 |

## 07344200 WRIGHT PATMAN LAKE NEAR TEXARKANA, TX

LOCATION.--Lat 33°18'16", long 94°09'38", Bowie-Cass County line, Hydrologic Unit 11140302, in intake structure of Wright Patman Dam on the Sulphur River, 0.5 mi (0.8 km) upstream from U.S. Highway 59, 10 mi (16 km) southwest of Texarkana, and 44.5 mi (71.6 km) upstream from mouth.

DRAINAGE AREA.--3,443 mi² (8,917 km²).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1953 to current year. Published as Texarkana Reservoir prior to October 1970 and as Lake Texarkana from October 1970 to September 1972.

REVISED RECORDS.--WSP 1561: 1957(M). WSP 1711: 1959(M).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). July 19 to Dec. 31, 1953, nonrecording gage at site about 125 ft (38 m) upstream at datum 200 ft (61.0 m) higher.

REMARKS.--The lake is formed by a rolled earthfill dam 18,500 ft (5,640 m) long, including a 200-foot (61 m) uncontrolled spillway and a 1-mile (2 km) long dike. Temporary impoundment of water began July 2, 1953, and deliberate impoundment began June 27, 1956. The dam was completed in December 1957. The flood-control outlet works consist of two 20.0-foot-diameter (6.1 m) conduits controlled by four 10.0- by 20.0-foot (3.0 by 6.1 m) electrically driven broome-type gates. Flow is affected at times by discharge from the flood-detention pools of 25 flood water-retarding structures with combined detention capacity of 13,450 acre-ft (16.6 hm³). These structures control runoff from 40.0 mi² (104 km²) in the Sulphur River and Langford Creek drainage basins. Flow discharging over the spillway passes into an outlet channel and then to the Sulphur River. The lake was built for flood control and conservation. The capacity table is based on a 1948 survey. 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 | 286.0 | - |
| Crest of spillway | 259.5 | 2,654,300 |
| Top of conservation pool | 220.0 | 145,300 |
| Lowest gated outlet (invert) | 200.0 | 2,600 |

COOPERATION.--Records furnished by the Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,912,100 acre-ft (2.36 km³) May 9, 1966, elevation, 252.64 ft (77.005 m); minimum since first appreciable storage and after deliberate impoundment began, 137,500 acre-ft (170hm³) Sept. 5, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 680,300 acre-ft (839 hm³) June 18 at 2400 hours, elevation, 235.49 ft (71.777 m); minimum, 145,500 acre-ft (179 hm³) Jan. 5, elevation, 220.01 ft (67.059 m).

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

| | | | |
|---|---|---|---|
| 220.0 | 145,300 | 230.0 | 437,200 |
| 222.0 | 189,300 | 232.0 | 518,400 |
| 224.0 | 240,200 | 234.0 | 607,900 |
| 226.0 | 298,500 | 236.0 | 706,200 |
| 228.0 | 364,100 | | |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 0700

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 261500 | 219500 | 185100 | 146900 | 150000 | 170000 | 168700 | 176500 | 413000 | 573300 | 312000 | 292700 |
| 2 | 265800 | 216100 | 180000 | 146900 | 152700 | 171800 | 170900 | 177400 | 407000 | 548800 | 312300 | 292300 |
| 3 | 262600 | 211300 | 175800 | 146700 | 155900 | 175400 | 174500 | 177400 | 402600 | 537800 | 311000 | 292000 |
| 4 | 264700 | 207500 | 172200 | 145700 | 159700 | 181100 | 177900 | 177000 | 398600 | 519300 | 310400 | 291100 |
| 5 | 265800 | 205100 | 168200 | 145900 | 162900 | 184100 | 179000 | 177400 | 403400 | 505800 | 309700 | 289900 |
| 6 | 270500 | 202300 | 164300 | 147300 | 164500 | 187400 | 179500 | 177400 | 406700 | 495300 | 308500 | 289300 |
| 7 | 273700 | 201400 | 161400 | 147300 | 164900 | 190700 | 179500 | 176500 | 408900 | 486600 | 307200 | 288700 |
| 8 | 273700 | 200100 | 162700 | 147700 | 165600 | 195800 | 179700 | 177900 | 415200 | 472800 | 306600 | 287800 |
| 9 | 272000 | 200100 | 163800 | 146700 | 166700 | 200900 | 179700 | 188800 | 448900 | 462800 | 305300 | 286900 |
| 10 | 269000 | 199600 | 165800 | 147300 | 167800 | 204300 | 179700 | 196500 | 470800 | 450100 | 304400 | 285700 |
| 11 | 266100 | 199400 | 169800 | 146900 | 167800 | 208800 | 180000 | 207500 | 535200 | 436100 | 303200 | 284800 |
| 12 | 262900 | 199400 | 175200 | 147100 | 167800 | 211600 | 180000 | 217400 | 584700 | 420800 | 301900 | 283900 |
| 13 | 260100 | 198900 | 180600 | 147100 | 168200 | 209800 | 180000 | 225500 | 616800 | 402300 | 301300 | 282700 |
| 14 | 256900 | 201100 | 186900 | 146900 | 168400 | 207000 | 178100 | 236700 | 636400 | 391700 | 300000 | 283300 |
| 15 | 254100 | 201100 | 193600 | 146700 | 168200 | 203600 | 177700 | 245400 | 653500 | 379500 | 299400 | 283600 |
| 16 | 252100 | 207300 | 200100 | 146100 | 167800 | 201100 | 178600 | 267000 | 670800 | 367600 | 300000 | 283300 |
| 17 | 251800 | 210300 | 203600 | 146100 | 167100 | 199400 | 179300 | 286900 | 673800 | 358900 | 299700 | 282100 |
| 18 | 251000 | 212600 | 207500 | 146100 | 166400 | 196000 | 178600 | 307500 | 680300 | 352700 | 301300 | 280600 |
| 19 | 248700 | 213800 | 210800 | 146100 | 165600 | 190500 | 177700 | 326400 | 679800 | 347300 | 301000 | 279700 |
| 20 | 246500 | 215900 | 211800 | 146500 | 164900 | 186500 | 175800 | 343600 | 675300 | 343600 | 300000 | 278800 |
| 21 | 245100 | 216100 | 210100 | 147100 | 166400 | 183200 | 176500 | 360600 | 668300 | 333600 | 299400 | 277900 |
| 22 | 244000 | 215600 | 200900 | 146900 | 166000 | 179700 | 177400 | 374200 | 661400 | 330300 | 298800 | 277300 |
| 23 | 243800 | 213800 | 186500 | 146900 | 165600 | 176100 | 177200 | 386700 | 656400 | 327100 | 297900 | 275800 |
| 24 | 241000 | 209100 | 180600 | 146900 | 165800 | 173300 | 176700 | 396800 | 650500 | 324500 | 297300 | 274600 |
| 25 | 237700 | 205100 | 178600 | 146700 | 166200 | 171600 | 176100 | 408100 | 647600 | 322200 | 296000 | 274300 |
| 26 | 235300 | 203800 | 165600 | 146900 | 166900 | 168700 | 175800 | 414500 | 641800 | 319900 | 296300 | 274000 |
| 27 | 238800 | 200400 | 155900 | 146900 | 167300 | 166000 | 175600 | 417800 | 633600 | 319000 | 295700 | 272300 |
| 28 | 236900 | 196500 | 151900 | 146700 | 168000 | 164000 | 177000 | 408900 | 623000 | 317100 | 295400 | 271400 |
| 29 | 233700 | 192600 | 149600 | 146700 | --- | 166700 | 176700 | 412200 | 609300 | 314500 | 294800 | 270800 |
| 30 | 229400 | 188600 | 147900 | 146300 | --- | 167100 | 176500 | 415200 | 596700 | 314200 | 293900 | 269900 |
| 31 | 224700 | --- | 147300 | 147500 | --- | 168000 | --- | 416300 | --- | 313500 | 292700 | --- |
| MAX | 273700 | 219500 | 211800 | 147700 | 168400 | 211600 | 180000 | 417800 | 680300 | 573300 | 312300 | 292700 |
| MIN | 224700 | 188600 | 147300 | 145700 | 150000 | 164000 | 168700 | 176500 | 398600 | 313500 | 292700 | 269900 |
| (†) | 223.42 | 221.97 | 220.10 | 220.11 | 221.07 | 221.07 | 221.45 | 229.45 | 233.76 | 226.48 | 225.81 | 225.05 |
| (‡) | -33900 | -36100 | -41300 | +200 | +20500 | 0 | +8500 | +239800 | +180400 | -283200 | -20800 | -22800 |
| (††) | 5360 | 4770 | 4730 | 5020 | 4500 | 5260 | 5010 | 5240 | 5240 | 5440 | 5270 | 5050 |

CAL YR 1980 MAX 396100 MIN 147300 ‡ -33800 † 65370
WTR YR 1981 MAX 680300 MIN 145700 ‡ +11300 † 60890

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, for industrial and municipal uses by the city of Texarkana and the International Paper Co.

WATER-QUALITY RECORDS

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

331838094095901 WRIGHT PATMAN LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | HARDNESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 20... | 1005 | 1.0 | 224 | 8.0 | 6.0 | .60 | 13.0 | 105 | 77 |
| 20... | 1006 | 1.0 | -- | -- | -- | -- | -- | -- | -- |
| 20... | 1007 | 10 | 224 | 8.0 | 6.0 | -- | 12.9 | 104 | -- |
| 20... | 1009 | 21 | 224 | 8.0 | 6.0 | -- | 12.9 | 104 | 81 |
| MAY | | | | | | | | | |
| 12... | 0945 | 1.0 | 262 | 7.7 | 19.0 | .50 | 7.7 | 83 | 81 |
| 12... | 0946 | .8 | -- | -- | -- | -- | -- | -- | -- |
| 12... | 0947 | 5.0 | 262 | 7.6 | 18.5 | -- | 7.4 | 78 | -- |
| 12... | 0948 | 10 | 262 | 7.6 | 18.5 | -- | 7.3 | 78 | -- |
| 12... | 0949 | 20 | 262 | 7.6 | 18.5 | -- | 7.3 | 78 | -- |
| 12... | 0950 | 23 | 262 | 7.6 | 18.5 | -- | 7.3 | 78 | 84 |
| AUG | | | | | | | | | |
| 18... | 0945 | 1.0 | 190 | 7.7 | 28.5 | .90 | 4.0 | 51 | 74 |
| 18... | 0946 | 1.4 | -- | -- | -- | -- | -- | -- | -- |
| 18... | 0947 | 10 | 190 | 7.7 | 28.5 | -- | 3.9 | 50 | -- |
| 18... | 0948 | 20 | 190 | 7.7 | 28.5 | -- | 3.7 | 47 | -- |
| 18... | 0949 | 25 | 192 | 7.6 | 28.5 | -- | 3.6 | 46 | -- |
| 18... | 0950 | 27 | 211 | 7.3 | 28.5 | -- | .1 | 1 | 77 |

| DATE | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 20... | 9 | 26 | 3.0 | 13 | .6 | 3.8 | 68 | 24 | 12 |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | 12 | 27 | 3.2 | 14 | .7 | 3.7 | 69 | 24 | 12 |
| MAY | | | | | | | | | |
| 12... | 19 | 27 | 3.4 | 17 | .8 | 3.7 | 62 | 36 | 19 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | 27 | 28 | 3.4 | 17 | .8 | 3.7 | 57 | 37 | 18 |
| AUG | | | | | | | | | |
| 18... | 0 | 25 | 2.8 | 7.9 | .4 | 5.0 | 75 | 5.0 | 8.5 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | 0 | 26 | 2.9 | 8.0 | .4 | 5.1 | 89 | 2.0 | 7.5 |

WRIGHT PATMAN LAKE NEAR TEXARKANA, TX--Continued

331838094095901 WRIGHT PATMAN LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 20... | .2 | 1.1 | 124 | .09 | 1.40 | 1.5 | .080 | 30 | <1 |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | -- | -- | -- | .08 | 1.20 | 1.3 | .080 | 80 | 10 |
| 20... | -- | 1.4 | 127 | .10 | 1.10 | 1.2 | .080 | 50 | <1 |
| MAY | | | | | | | | | |
| 12... | .2 | 4.2 | 148 | .06 | 1.20 | 1.3 | .110 | 20 | 3 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | .06 | 1.20 | 1.3 | .100 | 50 | 0 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | 4.3 | 146 | .07 | 1.20 | 1.3 | .110 | 20 | 5 |
| AUG | | | | | | | | | |
| 18... | .1 | 12 | 111 | .00 | 1.20 | 1.2 | .070 | <10 | 6 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | .00 | 1.30 | 1.3 | .070 | 20 | 50 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | 13 | 121 | .00 | 2.50 | 2.5 | .300 | 480 | 2200 |

331903094100201 WRIGHT PATMAN LAKE SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| 20... | 1035 | 1.0 | 223 | 8.0 | 6.0 | .50 | 13.2 | 106 |
| 20... | 1037 | 10 | 223 | 8.0 | 6.0 | -- | 13.0 | 105 |
| 20... | 1039 | 12 | 223 | 8.0 | 6.0 | -- | 12.9 | 104 |
| MAY | | | | | | | | |
| 12... | 1005 | 1.0 | 260 | 7.7 | 19.5 | -- | 7.7 | 84 |
| 12... | 1006 | 5.0 | 260 | 7.7 | 19.5 | -- | 7.6 | 83 |
| 12... | 1007 | 10 | 260 | 7.6 | 19.0 | -- | 7.4 | 80 |
| AUG | | | | | | | | |
| 18... | 1030 | 1.0 | 192 | 7.7 | 28.5 | -- | 3.8 | 49 |
| 18... | 1031 | 12 | 192 | 7.7 | 28.5 | -- | 3.8 | 49 |

332142094115001 WRIGHT PATMAN LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 20... | 1055 | 1.0 | 226 | 7.8 | 6.0 | .90 | 12.4 |
| 20... | 1057 | 7.0 | 226 | 7.8 | 5.5 | -- | 12.4 |
| MAY | | | | | | | |
| 12... | 1020 | 1.0 | 231 | 8.5 | 21.5 | .80 | 9.2 |
| 12... | 1021 | 5.0 | 217 | 8.2 | 21.0 | -- | 8.0 |
| 12... | 1022 | 9.0 | 168 | 7.1 | 21.0 | -- | 7.3 |
| AUG | | | | | | | |
| 18... | 1045 | 1.0 | 188 | 7.6 | 28.5 | .90 | 4.3 |
| 18... | 1046 | 12 | 188 | 7.6 | 28.5 | -- | 4.3 |

WRIGHT PATMAN LAKE NEAR TEXARKANA, TX--Continued

332142094115001 WRIGHT PATMAN LAKE SITE BC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | IRON, DIS-SOLVED (UG/L AS FE) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 20... | 100 | .01 | 1.00 | 1.0 | .060 | 30 | 10 |
| 20... | 98 | .01 | .97 | .98 | .060 | 40 | 10 |
| MAY | | | | | | | |
| 12... | 105 | .03 | 1.30 | 1.3 | .090 | 80 | 10 |
| 12... | 90 | -- | -- | -- | -- | -- | -- |
| 12... | 82 | .05 | 1.10 | 1.2 | .090 | 90 | 10 |
| AUG | | | | | | | |
| 18... | 55 | .00 | 1.30 | 1.3 | .050 | 20 | 10 |
| 18... | 55 | -- | -- | -- | -- | -- | -- |

331935094112901 WRIGHT PATMAN LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMP-LING DEPTH (FT) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TRANS-PAR-ENCY (SECCHI DISK) (M) | OXYGEN, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 20... | 1110 | 1.0 | 218 | 7.4 | 6.0 | .80 | 11.7 |
| 20... | 1112 | 10 | 218 | 7.4 | 6.0 | -- | 11.7 |
| 20... | 1114 | 12 | 218 | 7.4 | 6.0 | -- | 11.7 |
| MAY | | | | | | | |
| 12... | 1040 | 1.0 | 238 | 7.7 | 20.0 | .90 | 7.7 |
| 12... | 1041 | 5.0 | 238 | 7.7 | 20.0 | -- | 7.5 |
| 12... | 1042 | 10 | 228 | 7.4 | 19.5 | -- | 6.7 |
| 12... | 1043 | 16 | 204 | 7.1 | 19.5 | -- | 5.2 |
| AUG | | | | | | | |
| 18... | 1120 | 1.0 | 188 | 7.7 | 28.5 | .80 | 4.0 |
| 18... | 1121 | 10 | 188 | 7.7 | 28.5 | -- | 4.0 |
| 18... | 1122 | 19 | 188 | 7.7 | 28.5 | -- | 4.0 |

| DATE | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | IRON, DIS-SOLVED (UG/L AS FE) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 20... | 94 | .01 | 1.20 | 1.2 | .060 | 30 | 10 |
| 20... | 94 | -- | -- | -- | -- | -- | -- |
| 20... | 94 | .01 | 1.10 | 1.1 | .060 | 30 | 10 |
| MAY | | | | | | | |
| 12... | 85 | .07 | 1.50 | 1.6 | .080 | 40 | 10 |
| 12... | 82 | -- | -- | -- | -- | -- | -- |
| 12... | 73 | -- | -- | -- | -- | -- | -- |
| 12... | 57 | .10 | 1.70 | 1.8 | .110 | 70 | 30 |
| AUG | | | | | | | |
| 18... | 51 | .00 | 1.30 | 1.3 | .060 | 0 | 10 |
| 18... | 51 | -- | -- | -- | -- | -- | -- |
| 18... | 51 | .00 | 1.10 | 1.1 | .050 | 30 | 10 |

WRIGHT PATMAN LAKE NEAR TEXARKANA, TX--Continued

331628094121901 WRIGHT PATMAN LAKE SITE DR

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| 20... | 1210 | 1.0 | 222 | 8.3 | 5.5 | .30 | 13.8 | 110 |
| 20... | 1212 | 5.0 | 222 | 8.2 | 5.5 | -- | 13.3 | 106 |
| MAY | | | | | | | | |
| 12... | 1130 | 1.0 | 287 | 8.4 | 19.5 | -- | 8.9 | 97 |
| 12... | 1131 | 8.0 | 287 | 8.3 | 19.5 | -- | 8.5 | 92 |
| AUG | | | | | | | | |
| 18... | 1215 | 1.0 | 190 | 7.7 | 28.5 | -- | 5.2 | 67 |
| 18... | 1216 | 11 | 190 | 7.7 | 28.0 | -- | 4.8 | 62 |

331706094130501 WRIGHT PATMAN LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| 20... | 1140 | 1.0 | 224 | 7.8 | 5.5 | .40 | 13.1 | 104 |
| 20... | 1142 | 10 | 224 | 7.7 | 5.5 | -- | 12.6 | 100 |
| 20... | 1144 | 20 | 224 | 7.7 | 5.5 | -- | 12.6 | 100 |
| 20... | 1146 | 26 | 224 | 7.7 | 5.5 | -- | 12.6 | 100 |
| MAY | | | | | | | | |
| 12... | 1115 | 1.0 | 269 | 8.1 | 19.5 | -- | 8.5 | 92 |
| 12... | 1116 | 10 | 269 | 8.0 | 19.5 | -- | 8.2 | 89 |
| 12... | 1117 | 20 | 269 | 7.7 | 19.5 | -- | 7.6 | 83 |
| 12... | 1118 | 28 | 269 | 7.4 | 19.0 | -- | 6.2 | 67 |
| AUG | | | | | | | | |
| 18... | 1200 | 1.0 | 191 | 7.6 | 28.0 | -- | 4.6 | 59 |
| 18... | 1201 | 10 | 191 | 7.6 | 28.0 | -- | 4.5 | 58 |
| 18... | 1202 | 20 | 191 | 7.6 | 28.0 | -- | 4.4 | 56 |
| 18... | 1203 | 30 | 191 | 7.5 | 28.0 | -- | 4.0 | 51 |

331519094141101 WRIGHT PATMAN LAKE SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | HARDNESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 20... | 1300 | 1.0 | 217 | 8.2 | 5.5 | .30 | 12.9 | 103 | 77 |
| 20... | 1302 | 10 | 217 | 8.1 | 5.5 | -- | 12.5 | 99 | -- |
| 20... | 1304 | 20 | 217 | 8.0 | 5.5 | -- | 12.3 | 98 | 77 |
| MAY | | | | | | | | | |
| 12... | 1215 | 1.0 | 272 | 8.5 | 20.5 | .50 | 8.9 | 99 | 87 |
| 12... | 1217 | 5.0 | 272 | 8.5 | 20.5 | -- | 8.7 | 97 | -- |
| 12... | 1218 | 10 | 272 | 8.1 | 20.0 | -- | 8.2 | 90 | -- |
| 12... | 1219 | 15 | 279 | 7.8 | 20.0 | -- | 7.4 | 81 | -- |
| 12... | 1220 | 21 | 283 | 7.5 | 19.5 | -- | 6.4 | 70 | 90 |
| AUG | | | | | | | | | |
| 18... | 1230 | 1.0 | 191 | 7.6 | 28.5 | .70 | 5.0 | 64 | 72 |
| 18... | 1231 | 10 | 191 | 7.6 | 28.0 | -- | 4.9 | 63 | -- |
| 18... | 1232 | 20 | 191 | 7.6 | 28.0 | -- | 4.9 | 63 | -- |
| 18... | 1233 | 25 | 191 | 7.6 | 28.0 | -- | 4.9 | 63 | 69 |

WRIGHT PATMAN LAKE NEAR TEXARKANA, TX--Continued

331519094141101 WRIGHT PATMAN LAKE SITE EC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 20... | 11 | 26 | 2.9 | 12 | .6 | 3.8 | 66 | 26 | 11 |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | 11 | 26 | 3.0 | 12 | .6 | 4.1 | 66 | 25 | 10 |
| MAY | | | | | | | | | |
| 12... | 19 | 29 | 3.5 | 18 | .8 | 3.9 | 68 | 38 | 19 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | 20 | 30 | 3.7 | 19 | .9 | 3.8 | 70 | 40 | 20 |
| AUG | | | | | | | | | |
| 18... | 0 | 24 | 2.9 | 8.1 | .4 | 5.0 | 75 | 8.8 | 7.4 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | 0 | 23 | 2.9 | 7.7 | .4 | 4.9 | 75 | 1.0 | 12 |

| DATE | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| 20... | 4.0 | 125 | .00 | 1.00 | 1.0 | .110 | 40 | 0 |
| 20... | -- | -- | .01 | 1.20 | 1.2 | .110 | 30 | 10 |
| 20... | 3.9 | 124 | .01 | 1.30 | 1.3 | .110 | 60 | 3 |
| MAY | | | | | | | | |
| 12... | 4.1 | 156 | .02 | 1.60 | 1.6 | .090 | <10 | 2 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | .06 | 1.20 | 1.3 | .100 | 30 | 20 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | 5.4 | 164 | .01 | 1.30 | 1.3 | .120 | 20 | 60 |
| AUG | | | | | | | | |
| 18... | 13 | 114 | .00 | 1.50 | 1.5 | .110 | <10 | 10 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | 13 | 110 | .00 | 1.30 | 1.3 | .110 | 10 | 11 |

331533094210901 WRIGHT PATMAN LAKE SITE GC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | HARDNESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|
| MAY | | | | | | | | | |
| 12... | 1500 | 1.0 | 130 | 6.8 | 18.5 | .20 | 4.9 | 52 | 43 |
| 12... | 1501 | .2 | -- | -- | -- | -- | -- | -- | -- |
| 12... | 1502 | 10 | 130 | 6.8 | 18.5 | -- | 4.9 | 52 | -- |
| 12... | 1503 | 18 | 130 | 6.8 | 18.5 | -- | 4.8 | 51 | 43 |
| AUG | | | | | | | | | |
| 18... | 1430 | 1.0 | 207 | 7.1 | 28.5 | .90 | 2.4 | 31 | 75 |
| 18... | 1431 | 1.5 | -- | -- | -- | -- | -- | -- | -- |
| 18... | 1432 | 10 | 207 | 7.1 | 28.0 | -- | 1.8 | 23 | -- |
| 18... | 1433 | 15 | 209 | 7.0 | 28.0 | -- | 1.6 | 21 | -- |
| 18... | 1434 | 20 | 209 | 7.1 | 28.0 | -- | 2.0 | 26 | 75 |

WRIGHT PATMAN LAKE NEAR TEXARKANA, TX--Continued

331533094210901 WRIGHT PATMAN LAKE SITE GC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) |
|---|---|---|---|---|---|---|---|---|---|
| MAY | | | | | | | | | |
| 12... | -- | 14 | 1.9 | 7.4 | .5 | 3.9 | -- | 2.9 | 8.2 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | 14 | 1.9 | 7.4 | .5 | 3.9 | -- | 3.6 | 8.2 |
| AUG | | | | | | | | | |
| 18... | 0 | 25 | 3.0 | 9.2 | .5 | 4.7 | 77 | 11 | 9.5 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | 0 | 25 | 3.0 | 9.6 | .5 | 4.8 | 77 | 6.0 | 14 |

| DATE | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|
| MAY | | | | | | | | |
| 12... | 5.7 | -- | .39 | 1.50 | 1.9 | .230 | 200 | 50 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | 5.7 | -- | .39 | 1.40 | 1.8 | .240 | 190 | 50 |
| AUG | | | | | | | | |
| 18... | 11 | 120 | .00 | 1.20 | 1.2 | .170 | 15 | 140 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | 11 | 120 | .00 | 1.20 | 1.2 | .190 | 47 | 210 |

331838094095901 WRIGHT PATMAN LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | ARSENIC DISSOLVED (UG/L AS AS) | BARIUM, DISSOLVED (UG/L AS BA) | CADMIUM DISSOLVED (UG/L AS CD) | CHROMIUM, DISSOLVED (UG/L AS CR) | COPPER, DISSOLVED (UG/L AS CU) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 20... | 1005 | 1.0 | 0 | 40 | <1 | 0 | <10 |
| 20... | 1007 | 10 | -- | -- | -- | -- | -- |
| 20... | 1009 | 21 | 0 | 40 | <1 | 0 | <10 |
| MAY | | | | | | | |
| 12... | 0945 | 1.0 | 1 | 50 | <1 | 10 | <10 |
| 12... | 0948 | 10 | -- | -- | -- | -- | -- |
| 12... | 0950 | 23 | 1 | 50 | <1 | 10 | <10 |
| AUG | | | | | | | |
| 18... | 0945 | 1.0 | 5 | 30 | <1 | 0 | <10 |
| 18... | 0948 | 20 | -- | -- | -- | -- | -- |
| 18... | 0950 | 27 | 24 | 70 | <1 | 0 | <10 |

| DATE | IRON, DISSOLVED (UG/L AS FE) | LEAD, DISSOLVED (UG/L AS PB) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY DISSOLVED (UG/L AS HG) | SELENIUM, DISSOLVED (UG/L AS SE) | SILVER, DISSOLVED (UG/L AS AG) | ZINC, DISSOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 20... | 30 | <10 | <1 | .0 | 0 | 0 | 4 |
| 20... | 80 | -- | 10 | -- | -- | -- | -- |
| 20... | 50 | <10 | <1 | .1 | 0 | 0 | 8 |
| MAY | | | | | | | |
| 12... | 20 | <10 | 3 | .0 | 0 | 0 | 4 |
| 12... | 50 | -- | 0 | -- | -- | -- | -- |
| 12... | 20 | <10 | 5 | .0 | 0 | 0 | 20 |
| AUG | | | | | | | |
| 18... | <10 | <10 | 6 | .0 | 0 | 0 | <3 |
| 18... | 20 | -- | 50 | -- | -- | -- | -- |
| 18... | 480 | <10 | 2200 | .0 | 0 | 0 | <3 |

WRIGHT PATMAN LAKE NEAR TEXARKANA, TX--Continued

331838094095901 WRIGHT PATMAN LAKE SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | JAN 20,81 | MAY 12,81 | AUG 18,81 |
|---|---|---|---|
| TIME | 1006 | 0946 | 0946 |
| TOTAL CELLS/ML | 100000 | 46000 | 130000 |
| DIVERSITY: DIVISION | 1.0 | 1.6 | 0.2 |
| .CLASS | 1.0 | 1.6 | 0.2 |
| ..ORDER | 1.3 | 2.3 | 0.9 |
| ...FAMILY | 1.3 | 2.7 | 1.9 |
| ....GENUS | 1.6 | 3.3 | 2.4 |

| ORGANISM | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT |
|---|---|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | 1200 | 1 | 1100 | 2 | * | 0 |
| ....CHODATELLA | -- | - | 310 | 1 | -- | - |
| ....DICTYOSPHAERIUM | 2400 | 2 | -- | - | -- | - |
| ....GLOEOACTINIUM | -- | - | 2500 | 5 | -- | - |
| ....KIRCHNERIELLA | -- | - | * | 0 | -- | - |
| ....OOCYSTIS | * | 0 | 630 | 1 | -- | - |
| ....SELENASTRUM | * | 0 | -- | - | -- | - |
| ....TETRAEDRON | -- | - | 310 | 1 | -- | - |
| ...SCENEDESMACEAE | | | | | | |
| ....CRUCIGENIA | -- | - | 3900 | 8 | -- | - |
| ....SCENEDESMUS | -- | - | 1900 | 4 | -- | - |
| ....TETRASTRUM | -- | - | 940 | 2 | -- | - |
| ..TETRASPORALES | | | | | | |
| ...COCCOMYXACEAE | | | | | | |
| ....ELAKATOTHRIX | -- | - | -- | - | 970 | 1 |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CHLAMYDOMONAS | 740 | 1 | 630 | 1 | -- | - |
| CHRYSOPHYTA | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..CENTRALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | 1000 | 1 | 4100 | 9 | 1200 | 1 |
| ....MELOSIRA | 75000# | 73 | 4800 | 10 | -- | - |
| ..PENNALES | | | | | | |
| ...FRAGILARIACEAE | | | | | | |
| ....FRAGILARIA | -- | - | -- | - | * | 0 |
| ....SYNEDRA | 600 | 1 | -- | - | -- | - |
| ...NAVICULACEAE | | | | | | |
| ....NAVICULA | -- | - | 940 | 2 | -- | - |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | 1200 | 1 | 4100 | 9 | 1200 | 1 |
| ...SURIRELLACEAE | | | | | | |
| ....SURIRELLA | -- | - | * | 0 | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....AGMENELLUM | 4800 | 5 | -- | - | -- | - |
| ....ANACYSTIS | 3600 | 3 | 13000# | 28 | 19000 | 14 |
| ..HORMOGONALES | | | | | | |
| ...NOSTOCACEAE | | | | | | |
| ....ANABAENA | -- | - | -- | - | 9900 | 7 |
| ....ANABAENOPSIS | -- | - | -- | - | 5400 | 4 |
| ....APHANIZOMENON | -- | - | -- | - | 51000# | 39 |
| ...OSCILLATORIACEAE | | | | | | |
| ....LYNGBYA | -- | - | -- | - | 35000# | 26 |
| ....OSCILLATORIA | 11000 | 11 | 6900 | 15 | -- | - |
| ...RIVULARIACEAE | | | | | | |
| ....RAPHIDIOPSIS | -- | - | -- | - | 7700 | 6 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....TRACHELOMONAS | * | 0 | -- | - | * | 0 |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | |
| .DINOPHYCEAE | | | | | | |
| ..PERIDINIALES | | | | | | |
| ...GLENODINIACEAE | | | | | | |
| ....GLENODINIUM | * | 0 | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

WRIGHT PATMAN LAKE NEAR TEXARKANA, TX--Continued

331838094095901 WRIGHT PATMAN LAKE SITE AC--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | JAN 20,81 | | MAY 12,81 | | AUG 18,81 | |
|---|---|---|---|---|---|---|
| TIME | 1006 | | 0946 | | 0946 | |
| ORGANISM | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....TRACHELOMONAS | * | 0 | -- | - | * | 0 |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | |
| .DINOPHYCEAE | | | | | | |
| ..PERIDINIALES | | | | | | |
| ...GLENODINIACEAE | | | | | | |
| ....GLENODINIUM | * | 0 | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

331533094210901 WRIGHT PATMAN LAKE SITE GC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | MAY 12,81 | AUG 18,81 |
|---|---|---|
| TIME | 1501 | 1431 |
| TOTAL CELLS/ML | 3100 | 18000 |
| DIVERSITY: DIVISION | 1.4 | 0.9 |
| .CLASS | 1.4 | 0.9 |
| ..ORDER | 1.9 | 1.8 |
| ...FAMILY | 2.2 | 2.4 |
| ....GENUS | 2.7 | 3.2 |

| ORGANISM | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT |
|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | |
| .CHLOROPHYCEAE | | | | |
| ..CHLOROCOCCALES | | | | |
| ...CHARACIACEAE | | | | |
| ....SCHROEDERIA | -- | - | * | 0 |
| ...MICRACTINIACEAE | | | | |
| ....ACANTHOSPHAERA | -- | - | * | 0 |
| ...OOCYSTACEAE | | | | |
| ....ANKISTRODESMUS | 83 | 3 | 220 | 1 |
| ....CHODATELLA | -- | - | * | 0 |
| ....DICTYOSPHAERIUM | 220 | 7 | 370 | 2 |
| ....GLOEOACTINIUM | -- | - | 170 | 1 |
| ....OOCYSTIS | -- | - | 150 | 1 |
| ....SELENASTRUM | -- | - | * | 0 |
| ....TETRAEDRON | -- | - | * | 0 |
| ....TREUBARIA | -- | - | * | 0 |
| ...SCENEDESMACEAE | | | | |
| ....CRUCIGENIA | 41 | 1 | 430 | 2 |
| ....SCENEDESMUS | 170 | 5 | 170 | 1 |
| ..TETRASPORALES | | | | |
| ...COCCOMYXACEAE | | | | |
| ....ELAKATOTHRIX | -- | - | 110 | 1 |
| ..VOLVOCALES | | | | |
| ...CHLAMYDOMONADACEAE | | | | |
| ....CHLAMYDOMONAS | 28 | 1 | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

WRIGHT PATMAN LAKE NEAR TEXARKANA, TX--Continued

331533094210901 WRIGHT PATMAN LAKE SITE GC--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | MAY 12,81 | | AUG 18,81 | |
|---|---|---|---|---|
| TIME | 1501 | | 1431 | |
| ORGANISM | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT |
| CHRYSOPHYTA | | | | |
| .BACILLARIOPHYCEAE | | | | |
| ..CENTRALES | | | | |
| ...COSCINODISCACEAE | | | | |
| ....CYCLOTELLA | 170 | 5 | 330 | 2 |
| ....MELOSIRA | 190 | 6 | 590 | 3 |
| ..PENNALES | | | | |
| ...CYMBELLACEAE | | | | |
| ....CYMBELLA | * | 0 | -- | - |
| ...FRAGILARIACEAE | | | | |
| ....SYNEDRA | 55 | 2 | -- | - |
| ...NAVICULACEAE | | | | |
| ....GYROSIGMA | 28 | 1 | -- | - |
| ....NAVICULA | * | 0 | -- | - |
| ...NITZSCHIACEAE | | | | |
| ....NITZSCHIA | 83 | 3 | 260 | 1 |
| ...SURIRELLACEAE | | | | |
| ....SURIRELLA | 28 | 1 | -- | - |
| .XANTHOPHYCEAE | | | | |
| ..HETEROCOCCALES | | | | |
| ...CENTRITRACTACEAE | | | | |
| ....CENTRITRACTUS | * | 0 | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | |
| .CYANOPHYCEAE | | | | |
| ..CHROOCOCCALES | | | | |
| ...CHROOCOCCACEAE | | | | |
| ....AGMENELLUM | -- | - | 650 | 4 |
| ....ANACYSTIS | 150 | 5 | 5600# | 32 |
| ....JOHANNESBAPTISTIA | -- | - | 220 | 1 |
| ..HORMOGONALES | | | | |
| ...NOSTOCACEAE | | | | |
| ....ANABAENA | -- | - | 2800# | 15 |
| ...OSCILLATORIACEAE | | | | |
| ....LYNGBYA | -- | - | 3200# | 18 |
| ....OSCILLATORIA | 1600# | 52 | 2200 | 12 |
| ....PHORMIDIUM | 180 | 6 | -- | - |
| ...RIVULARIACEAE | | | | |
| ....RAPHIDIOPSIS | -- | - | * | 0 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | |
| .EUGLENOPHYCEAE | | | | |
| ..EUGLENALES | | | | |
| ...EUGLENACEAE | | | | |
| ....EUGLENA | * | 0 | * | 0 |
| ....LEPOCINCLIS | -- | - | * | 0 |
| ....PHACUS | -- | - | * | 0 |
| ....TRACHELOMONAS | * | 0 | * | 0 |
| PYRRHOPHYTA (FIRE ALGAE) | | | | |
| .DINOPHYCEAE | | | | |
| ..PERIDINIALES | | | | |
| ...GLENODINIACEAE | | | | |
| ....GLENODINIUM | -- | - | * | 0 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 07344210 SULPHUR RIVER NEAR TEXARKANA, TX

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 (0.6 km) downstream from Texarkana Dam, 1.4 mi (2.3 km) upstream from Elliott Creek, 11.7 mi (18.8 km) southwest of Texarkana, and at mile 44.1 (71.0 km).

DRAINAGE AREA.--3,443 $mi^2$ (8,917 $km^2$).

PERIOD OF RECORD.--October 1979 to current year. 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 Corps of Engineers.

GAGE.--Water-stage recorder. Datum of gage is 180.00 ft (54.864 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair above 50 $ft^3/s$ (1.42 $m^3/s$) and poor below. Daily discharge determined from flow through gates, computed from relation between discharge, head, and gate openings, and adjusted to discharge measurements. Flow regulated by Wright Patman Lake (station 07344200). Several observations of water temperature were made during the year.

EXTEMES FOR PERIOD OF RECORD.--Maximum discharge, 11,100 $ft^3/s$ (314 $m^3/s$) June 16 to July 5, 1981; maximum gage height, 32.57 ft (9.927 m) June 15, 1981 at 1000 hours; no flow June 25, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 94,000 $ft^3/s$ (2,660 $m^3/s$) Apr. 4, 1945; maximum stage, 47.23 ft (14.396 m) Apr. 14, 1945; no flow on various occasions.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,100 $ft^3/s$ (314 $m^3/s$) June 16 to July 5; maximum gage height, 32.57 ft (9.927 m) June 15 at 1000 hours; minimum daily, 6.9 $ft^3/s$ (0.20 $m^3/s$) Jan. 2-10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 88 | 2360 | 1710 | 71 | 10 | 176 | 88 | 31 | 9050 | 11100 | 202 | 95 |
| 2 | 88 | 2360 | 1710 | 6.9 | 10 | 228 | 31 | 31 | 10800 | 11100 | 202 | 95 |
| 3 | 165 | 1890 | 1710 | 6.9 | 10 | 228 | 31 | 31 | 10800 | 11100 | 202 | 141 |
| 4 | 220 | 1550 | 1710 | 6.9 | 10 | 228 | 31 | 31 | 10800 | 11100 | 202 | 218 |
| 5 | 220 | 1330 | 1710 | 6.9 | 10 | 380 | 31 | 31 | 10800 | 11100 | 202 | 218 |
| 6 | 399 | 780 | 1710 | 6.9 | 10 | 472 | 31 | 31 | 10800 | 10500 | 131 | 218 |
| 7 | 958 | 378 | 1250 | 6.9 | 10 | 472 | 31 | 31 | 10800 | 10000 | 95 | 218 |
| 8 | 1230 | 76 | 679 | 6.9 | 10 | 472 | 31 | 31 | 10800 | 10000 | 95 | 218 |
| 9 | 1230 | 10 | 509 | 6.9 | 148 | 472 | 31 | 31 | 10800 | 10000 | 95 | 218 |
| 10 | 1230 | 10 | 509 | 6.9 | 287 | 412 | 31 | 31 | 10800 | 10000 | 95 | 218 |
| 11 | 1230 | 10 | 509 | 26 | 287 | 818 | 31 | 31 | 10800 | 10000 | 95 | 218 |
| 12 | 1230 | 10 | 509 | 38 | 287 | 1450 | 31 | 31 | 10800 | 10000 | 95 | 218 |
| 13 | 1230 | 10 | 509 | 38 | 360 | 1700 | 31 | 31 | 10800 | 10000 | 95 | 218 |
| 14 | 1230 | 10 | 509 | 23 | 463 | 1700 | 31 | 31 | 10800 | 8550 | 95 | 218 |
| 15 | 1230 | 10 | 848 | 10 | 463 | 1700 | 31 | 31 | 11000 | 6040 | 95 | 218 |
| 16 | 1230 | 10 | 1050 | 10 | 463 | 1700 | 31 | 31 | 11100 | 6040 | 95 | 218 |
| 17 | 1230 | 10 | 1470 | 10 | 463 | 1700 | 31 | 31 | 11100 | 4670 | 95 | 218 |
| 18 | 1230 | 74 | 1680 | 10 | 463 | 1700 | 31 | 31 | 11100 | 3060 | 95 | 218 |
| 19 | 1230 | 248 | 2310 | 10 | 463 | 1700 | 31 | 31 | 11100 | 2610 | 95 | 218 |
| 20 | 1230 | 493 | 3530 | 10 | 463 | 1700 | 31 | 63 | 11100 | 2610 | 95 | 218 |
| 21 | 1230 | 777 | 3930 | 10 | 463 | 1700 | 31 | 172 | 11100 | 2610 | 95 | 218 |
| 22 | 1230 | 856 | 5470 | 10 | 463 | 1700 | 31 | 436 | 11100 | 2090 | 95 | 218 |
| 23 | 1230 | 1240 | 6240 | 10 | 317 | 1700 | 31 | 944 | 11100 | 1360 | 95 | 218 |
| 24 | 1230 | 1710 | 4660 | 10 | 125 | 1290 | 31 | 1370 | 11100 | 816 | 95 | 218 |
| 25 | 1230 | 1710 | 3790 | 10 | 73 | 1070 | 31 | 2280 | 11100 | 525 | 95 | 218 |
| 26 | 1230 | 1710 | 3790 | 10 | 73 | 1070 | 31 | 3240 | 11100 | 525 | 95 | 218 |
| 27 | 1230 | 1710 | 2980 | 10 | 73 | 1070 | 31 | 5200 | 11100 | 525 | 95 | 218 |
| 28 | 1390 | 1710 | 1900 | 10 | 73 | 677 | 31 | 8720 | 11100 | 525 | 95 | 218 |
| 29 | 1580 | 1710 | 1200 | 10 | --- | 462 | 31 | 8180 | 11100 | 525 | 95 | 218 |
| 30 | 2070 | 1710 | 670 | 10 | --- | 462 | 31 | 6120 | 11100 | 310 | 95 | 218 |
| 31 | 2360 | --- | 299 | 10 | --- | 300 | --- | 6120 | --- | 202 | 95 | --- |
| TOTAL | 34138 | 26472 | 61060 | 428.1 | 6350 | 30909 | 987 | 43434 | 326950 | 179593 | 3516 | 6217 |
| MEAN | 1101 | 882 | 1970 | 13.8 | 227 | 997 | 32.9 | 1401 | 10900 | 5793 | 113 | 207 |
| MAX | 2360 | 2360 | 6240 | 71 | 463 | 1700 | 88 | 8720 | 11100 | 11100 | 202 | 218 |
| MIN | 88 | 10 | 299 | 6.9 | 10 | 176 | 31 | 31 | 9050 | 202 | 95 | 95 |
| AC-FT | 67710 | 52510 | 121100 | 849 | 12600 | 61310 | 1960 | 86150 | 648500 | 356200 | 6970 | 12330 |

CAL YR 1980 TOTAL 611318.0 MEAN 1670 MAX 10400 MIN 6.2 AC-FT 1213000
WTR YR 1981 TOTAL 720054.1 MEAN 1973 MAX 11100 MIN 6.9 AC-FT 1428000

## 07344482 BIG CYPRESS CREEK NEAR WINNSBORO, TX

LOCATION.--Lat 33°01'24", long 95°16'12", Franklin County, Hydrologic Unit 11140305, on left bank at downstream side of bridge on State Highway 37, 0.3 mi (0.5 km) downstream from Glade Branch, 1.8 mi (2.9 km) upstream from Little Cypress Creek, 4.7 mi (7.6 km) north of Winnsboro, and 146.5 mi (235.7 km) upstream from mouth.

DRAINAGE AREA.--27.2 $mi^2$ (70.4 $km^2$).

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

GAGE.--Water-stage recorder. Datum of gage is 375.83 ft (114.553 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow affected slightly by Lake Franklin located upstream on Glade Branch. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--7 years (water years 1975-81), 20.7 $ft^3/s$ (0.586 $m^3/s$), 10.33 in/yr (262 mm/yr), 15,000 acre-ft/yr (18.5 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,320 $ft^3/s$ (122 $m^3/s$) Nov. 24, 1974, gage height, 12.39 ft (3.776 m); no flow at times in water years 1974, 1978-80.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 900 $ft^3/s$ (25.5 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| May 16 | 2145 | 910 | 25.8 | 10.52 | 3.206 |
| June 5 | 1030 | *1,040 | 29.5 | 10.82 | 3.298 |
| June 16 | 1300 | 961 | 27.2 | 10.57 | 3.222 |

Minimum discharge, 0.02 $ft^3/s$ (0.001 $m^3/s$) Sept. 11,12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.1 | 1.4 | 2.4 | 2.3 | 28 | 33 | 3.0 | 3.3 | 38 | 1.2 | .42 | .38 |
| 2 | 1.5 | 1.4 | 1.7 | 2.4 | 10 | 22 | 2.6 | 2.6 | 228 | 1.3 | .46 | .41 |
| 3 | 1.2 | 1.5 | 1.8 | 2.7 | 5.2 | 10 | 3.3 | 2.0 | 339 | 1.3 | .52 | .49 |
| 4 | 1.1 | 1.5 | 2.1 | 2.6 | 3.7 | 28 | 4.3 | 2.0 | 434 | 4.3 | .36 | .46 |
| 5 | .98 | 1.6 | 2.4 | 2.7 | 3.6 | 16 | 2.9 | 3.0 | 789 | 6.2 | .28 | .46 |
| 6 | .96 | 1.5 | 2.5 | 4.5 | 3.7 | 8.4 | 2.3 | 2.5 | 222 | 7.2 | .14 | .48 |
| 7 | 1.1 | 2.3 | 2.6 | 3.9 | 3.8 | 6.9 | 2.5 | 2.1 | 41 | 44 | .27 | .39 |
| 8 | 1.2 | 2.0 | 77 | 2.6 | 3.6 | 8.4 | 2.7 | 2.5 | 18 | 21 | .63 | .34 |
| 9 | 1.3 | 2.1 | 44 | 2.3 | 3.7 | 6.7 | 2.5 | 66 | 10 | 5.1 | .43 | .21 |
| 10 | 1.2 | 1.7 | 4.7 | 2.1 | 18 | 5.3 | 2.6 | 20 | 6.2 | 2.9 | .39 | .11 |
| 11 | 1.2 | 1.9 | 2.4 | 2.1 | 8.2 | 4.7 | 2.5 | 5.0 | 5.1 | 2.3 | .30 | .05 |
| 12 | 1.0 | 1.8 | 1.8 | 2.1 | 5.2 | 4.1 | 2.3 | 2.9 | 4.3 | 1.8 | .27 | .05 |
| 13 | 1.1 | 1.6 | 1.5 | 2.7 | 4.7 | 4.0 | 2.1 | 2.9 | 3.8 | 1.6 | .25 | .10 |
| 14 | 1.2 | 2.7 | 1.6 | 2.2 | 4.5 | 3.6 | 2.0 | 22 | 3.1 | 1.3 | .25 | 2.5 |
| 15 | 1.5 | 4.1 | 1.6 | 2.1 | 4.4 | 3.7 | 1.7 | 5.6 | 3.0 | 1.2 | .27 | 4.4 |
| 16 | 1.7 | 3.4 | 1.5 | 2.1 | 4.2 | 3.4 | 1.6 | 252 | 467 | 1.0 | .30 | 1.2 |
| 17 | 13 | 5.4 | 1.5 | 2.0 | 4.0 | 4.0 | 2.0 | 211 | 79 | .94 | .70 | .63 |
| 18 | 6.5 | 2.3 | 2.3 | 2.1 | 3.7 | 3.6 | 1.9 | 19 | 17 | .87 | .83 | .34 |
| 19 | 2.1 | 1.5 | 2.0 | 2.5 | 3.5 | 2.8 | 1.8 | 7.9 | 8.5 | .82 | .70 | .27 |
| 20 | 1.4 | 1.3 | 1.7 | 4.6 | 3.5 | 2.7 | 1.7 | 4.7 | 5.6 | .78 | .58 | .38 |
| 21 | 1.2 | 1.4 | 1.8 | 3.8 | 4.2 | 3.1 | 1.3 | 3.6 | 4.1 | .66 | .41 | .38 |
| 22 | 1.2 | 1.7 | 2.2 | 3.0 | 3.2 | 2.7 | 1.9 | 2.9 | 2.8 | .62 | .32 | .38 |
| 23 | 1.2 | 2.3 | 2.4 | 2.4 | 2.7 | 2.5 | 2.3 | 2.7 | 2.2 | .58 | .22 | .43 |
| 24 | 1.1 | 1.5 | 2.2 | 2.4 | 2.5 | 2.6 | 1.9 | 15 | 2.1 | .49 | .30 | .45 |
| 25 | 1.1 | 1.3 | 2.0 | 2.8 | 2.8 | 2.8 | 1.5 | 32 | 1.7 | .44 | .20 | .54 |
| 26 | 1.2 | 1.6 | 2.2 | 2.2 | 3.1 | 3.4 | 1.5 | 51 | 1.7 | .47 | .25 | .67 |
| 27 | 3.9 | 1.9 | 2.3 | 2.0 | 3.1 | 3.5 | 1.4 | 77 | 1.6 | .51 | 1.3 | .61 |
| 28 | 2.3 | 1.9 | 2.4 | 2.3 | 6.7 | 2.6 | 1.4 | 51 | 1.3 | .53 | .94 | .46 |
| 29 | 1.3 | 1.7 | 2.4 | 2.9 | --- | 14 | 2.6 | 12 | 1.3 | .54 | .55 | .54 |
| 30 | 1.2 | 2.2 | 2.5 | 1.8 | --- | 10 | 1.9 | 17 | 1.3 | .47 | .38 | .64 |
| 31 | 1.3 | --- | 2.5 | 2.3 | --- | 4.6 | --- | 7.6 | --- | .40 | .57 | --- |
| TOTAL | 60.34 | 60.5 | 184.0 | 80.5 | 157.5 | 233.1 | 66.0 | 910.8 | 2741.7 | 112.82 | 13.79 | 18.75 |
| MEAN | 1.95 | 2.02 | 5.94 | 2.60 | 5.63 | 7.52 | 2.20 | 29.4 | 91.4 | 3.64 | .44 | .63 |
| MAX | 13 | 5.4 | 77 | 4.6 | 28 | 33 | 4.3 | 252 | 789 | 44 | 1.3 | 4.4 |
| MIN | .96 | 1.3 | 1.5 | 1.8 | 2.5 | 2.5 | 1.3 | 2.0 | 1.3 | .40 | .14 | .05 |
| CFSM | .07 | .07 | .22 | .10 | .21 | .28 | .08 | 1.08 | 3.36 | .13 | .02 | .02 |
| IN. | .08 | .08 | .25 | .11 | .22 | .32 | .09 | 1.25 | 3.75 | .15 | .02 | .03 |
| AC-FT | 120 | 120 | 365 | 160 | 312 | 462 | 131 | 1810 | 5440 | 224 | 27 | 37 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 7410.59 | MEAN 20.2 | MAX 909 | MIN .00 | CFSM .74 | IN 10.13 | AC-FT 14700 |
| WTR YR 1981 | TOTAL | 4639.80 | MEAN 12.7 | MAX 789 | MIN .05 | CFSM .47 | IN 6.35 | AC-FT 9200 |

## 07344484 LAKE CYPRESS SPRINGS NEAR MOUNT VERNON, TX

LOCATION.--Lat 33°03'22", long 95°08'21", Franklin County, Hydrologic Unit 11140305, in brick meter house located on upstream side and near center of dam on Big Cypress Creek, 1.5 mi (2.4 km) upstream from Andy's Creek, 2.6 mi (4.2 km) downstream from Panther Creek, and 10.3 mi (16.6 km) southeast of Mount Vernon.

DRAINAGE AREA.--75.0 mi² (194.2 km²).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1973 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 5,230 ft (1,590 m) long. Deliberate impoundment began July 7, 1970, and the dam was completed Feb. 15, 1971. The emergency spillway is an excavated channel through natural ground 1,000 ft (300 m) wide located to the left of left end of dam. The service spillway is a rectangular 23- by 23-foot (7 by 7 m) drop inlet located near the right end of dam. The low-flow outlet works consist of an 18-inch-diameter (457 mm) concrete pipe that has duplicate valve controls and discharges into the service spillway conduit. 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 | 397.0 | - |
| Crest of spillway | 385.0 | 100,400 |
| Crest of spillway | 378.0 | 72,850 |
| Lowest gated outlet (invert) | 317.75 | 0 |

COOPERATION.--The capacity table, furnished by the Franklin County Water District, was based on data prepared by Wisenbaker, Fix, and Associates, Consulting Engineers. Records of diversions furnished by Franklin County Water District.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 83,770 acre-ft (103 hm³) Feb. 2, 1975, elevation, 381.00 ft (116.129 m); minimum, 59,440 acre-ft (73.3 hm³) Nov. 12-14, 1978, elevation, 373.79 ft (113.931 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 78,610 acre-ft (96.9 hm³) June 6 at 0100 hours, elevation, 379.63 ft (115.711 m); minimum, 68,440 acre-ft (84.4 hm³) Oct. 15, 16, elevation, 376.68 ft (114.812 m).

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

| | | | |
|---|---|---|---|
| 376.0 | 66,240 | 379.0 | 76,340 |
| 377.0 | 69,490 | 380.0 | 79,980 |
| 378.0 | 72,850 | | |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 69060 | 68860 | 69160 | 70120 | 71190 | 72270 | 73020 | 72810 | 74650 | 73330 | 72340 | 71020 |
| 2 | 69030 | 68800 | 69090 | 70120 | 71150 | 72340 | 72990 | 72750 | 75560 | 73330 | 72340 | 71020 |
| 3 | 68900 | 68830 | 69060 | 70090 | 71190 | 72640 | 73020 | 72710 | 76410 | 73260 | 72340 | 71020 |
| 4 | 68930 | 68800 | 69060 | 70050 | 71190 | 72850 | 73090 | 72780 | 76800 | 74190 | 72270 | 70920 |
| 5 | 68830 | 68770 | 69130 | 70020 | 71220 | 72810 | 73020 | 72850 | 78500 | 74260 | 72240 | 70950 |
| 6 | 68770 | 68770 | 69130 | 70220 | 71220 | 72810 | 72920 | 72880 | 78280 | 74260 | 72170 | 70890 |
| 7 | 68770 | 68730 | 69190 | 70220 | 71290 | 72880 | 72850 | 72780 | 77560 | 74960 | 72130 | 70890 |
| 8 | 68770 | 68700 | 70120 | 70220 | 71290 | 72880 | 72920 | 73360 | 76870 | 74960 | 72070 | 70790 |
| 9 | 68730 | 68670 | 70220 | 70250 | 71490 | 72880 | 72880 | 73850 | 76300 | 74860 | 71960 | 70750 |
| 10 | 68700 | 68670 | 70250 | 70220 | 71420 | 72880 | 72850 | 73780 | 75950 | 74650 | 71930 | 70720 |
| 11 | 68630 | 68670 | 70250 | 70250 | 71420 | 72920 | 72850 | 73740 | 75490 | 74370 | 71900 | 70590 |
| 12 | 68570 | 68630 | 70290 | 70290 | 71460 | 72920 | 72850 | 73610 | 75210 | 74330 | 71800 | 70620 |
| 13 | 68540 | 68600 | 70250 | 70290 | 71460 | 72920 | 72850 | 73610 | 74960 | 74120 | 71760 | 70520 |
| 14 | 68540 | 68860 | 70250 | 70290 | 71460 | 72920 | 72750 | 73640 | 74680 | 74020 | 71730 | 70720 |
| 15 | 68470 | 68900 | 70320 | 70290 | 71520 | 72920 | 72710 | 73610 | 74540 | 73920 | 71660 | 70690 |
| 16 | 68500 | 69130 | 70290 | 70250 | 71520 | 72880 | 72710 | 74580 | 75520 | 73610 | 71800 | 70590 |
| 17 | 69060 | 69160 | 70290 | 70190 | 71560 | 72880 | 72710 | 74890 | 75520 | 73500 | 71800 | 70450 |
| 18 | 69130 | 69160 | 70320 | 70190 | 71630 | 72780 | 72710 | 74820 | 75350 | 73400 | 71760 | 70390 |
| 19 | 69090 | 69160 | 70250 | 70220 | 71630 | 72750 | 72680 | 74580 | 75070 | 73330 | 71730 | 70390 |
| 20 | 69090 | 69060 | 70190 | 70350 | 71690 | 72780 | 72710 | 74330 | 74790 | 73230 | 71660 | 70320 |
| 21 | 69060 | 69060 | 70120 | 70390 | 71800 | 72780 | 72710 | 74190 | 74580 | 73160 | 71630 | 70290 |
| 22 | 69030 | 69130 | 70120 | 70390 | 71760 | 72710 | 72880 | 74090 | 74400 | 73050 | 71560 | 70250 |
| 23 | 68990 | 69160 | 70190 | 70420 | 71730 | 72710 | 72750 | 74060 | 74160 | 73020 | 71520 | 70220 |
| 24 | 68860 | 69160 | 70090 | 70450 | 71730 | 72710 | 72710 | 74160 | 74090 | 72950 | 71490 | 70190 |
| 25 | 68860 | 69090 | 70090 | 70520 | 71760 | 72710 | 72680 | 74400 | 73920 | 72810 | 71220 | 70120 |
| 26 | 68770 | 69130 | 70050 | 70520 | 71760 | 72680 | 72640 | 74400 | 73850 | 72810 | 71120 | 70150 |
| 27 | 68930 | 69090 | 70050 | 70520 | 71830 | 72680 | 72640 | 74510 | 73740 | 72680 | 71150 | 70120 |
| 28 | 68930 | 69090 | 70050 | 70520 | 72070 | 72680 | 72750 | 74580 | 73640 | 72680 | 71150 | 70090 |
| 29 | 68900 | 69060 | 70090 | 70520 | --- | 73050 | 72710 | 74540 | 73570 | 72540 | 71150 | 70050 |
| 30 | 68900 | 69130 | 70090 | 70490 | --- | 73120 | 72710 | 74400 | 73500 | 72540 | 71120 | 70020 |
| 31 | 68860 | --- | 70120 | 70890 | --- | 73090 | --- | 74300 | --- | 72470 | 71050 | --- |
| MAX | 69130 | 69160 | 70320 | 70890 | 72070 | 73120 | 73090 | 74890 | 78500 | 74960 | 72340 | 71020 |
| MIN | 68470 | 68600 | 69060 | 70020 | 71150 | 72270 | 72640 | 72710 | 73500 | 72470 | 71050 | 70020 |
| (†) | 376.81 | 376.89 | 377.19 | 377.42 | 377.77 | 378.07 | 377.96 | 378.42 | 378.19 | 377.89 | 377.47 | 377.16 |
| (‡) | - 200 | + 270 | + 990 | + 770 | +1180 | +1020 | - 380 | +1590 | - 800 | -1030 | -1420 | -1030 |
| (††) | 93 | 78 | 42 | 94 | 27 | 32 | 101 | 43 | 81 | 116 | 105 | 108 |

CAL YR 1980 MAX 77960 MIN 68050 ‡ -3870 †† 809
WTR YR 1981 MAX 78500 MIN 68470 ‡ + 920 †† 920

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, for municipal and commercial use.

07344484 LAKE CYPRESS SPRINGS NEAR MOUNT VERNON, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | TEMPERATURE, WATER (DEG C) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|
| JUL 16... | 1930 | 160 | 33.0 | 43 | 15 | 9.2 | 4.8 | 12 |

| DATE | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| JUL 16... | .9 | 3.9 | 28 | 24 | 15 | .1 | 3.8 | 90 |

## 07344486 BRUSHY CREEK AT SCROGGINS, TX

LOCATION.--Lat 32°58'32", long 95°11'03", Franklin County, Hydrologic Unit 11140305, on downstream side of highway embankment near left end of bridge on Farm Road 115, 0.1 mi (0.2 km) north of Scroggins, 0.3 mi (0.5 km) downstream from Briary Creek, 2.5 mi (4.0 km) upstream from South Brushy Creek, and 9.5 mi (15.3 km) upstream from mouth.

DRAINAGE AREA.--23.4 $mi^2$ (60.6 $km^2$).

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

GAGE.--Water-stage recorder. Datum of gage is 343.90 ft (104.821 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,140 $ft^3/s$ (60.6 $m^3/s$) Sept. 20, 1979, gage height, 13.46 ft (4.103 m); no flow for many days during period December 1977 to September 1978 and part of day on July 7, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 683 $ft^3/s$ (19.3 $m^3/s$) June 16 at 1330 hours, gage height, 12.63 ft (3.850 m), no peak above base of 800 $ft^3/s$ (22.7 $m^3/s$); minimum, 0.30 $ft^3/s$ (0.008 $m^3/s$) Oct. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .82 | 2.7 | 3.8 | 6.0 | 63 | 35 | 7.5 | 9.6 | 96 | 2.9 | .55 | .67 |
| 2 | .53 | 2.8 | 3.5 | 5.7 | 23 | 23 | 6.5 | 9.1 | 140 | 3.4 | .54 | .86 |
| 3 | .45 | 3.0 | 3.3 | 5.5 | 12 | 13 | 6.6 | 4.4 | 224 | 3.0 | .51 | .97 |
| 4 | .48 | 3.1 | 3.3 | 5.5 | 10 | 89 | 10 | 4.2 | 264 | 141 | .41 | .93 |
| 5 | .39 | 3.4 | 3.7 | 5.3 | 9.8 | 25 | 9.4 | 9.8 | 273 | 231 | .40 | .86 |
| 6 | .55 | 3.4 | 3.8 | 10 | 9.5 | 14 | 6.8 | 9.1 | 193 | 86 | .38 | .87 |
| 7 | .86 | 3.3 | 3.8 | 14 | 9.2 | 12 | 6.2 | 5.9 | 56 | 258 | .36 | .76 |
| 8 | 1.1 | 3.1 | 39 | 8.2 | 8.9 | 14 | 5.8 | 7.4 | 35 | 167 | .74 | .72 |
| 9 | 1.4 | 3.2 | 90 | 6.7 | 8.4 | 11 | 6.2 | 183 | 26 | 30 | .44 | .63 |
| 10 | 1.5 | 3.5 | 17 | 6.0 | 13 | 9.6 | 6.1 | 80 | 19 | 18 | .37 | .55 |
| 11 | 1.6 | 3.5 | 11 | 5.5 | 9.7 | 8.9 | 5.5 | 21 | 18 | 12 | .39 | .53 |
| 12 | 1.7 | 3.6 | 9.4 | 5.4 | 7.4 | 8.4 | 5.1 | 13 | 17 | 8.8 | .40 | .52 |
| 13 | 1.8 | 3.6 | 8.4 | 5.4 | 7.3 | 8.4 | 5.2 | 10 | 14 | 6.6 | .44 | .54 |
| 14 | 1.9 | 4.1 | 7.7 | 5.4 | 7.3 | 8.0 | 4.5 | 48 | 11 | 5.0 | .47 | 1.0 |
| 15 | 2.1 | 6.6 | 7.5 | 5.4 | 7.0 | 7.9 | 4.1 | 18 | 9.2 | 3.7 | .52 | 2.7 |
| 16 | 2.2 | 7.0 | 7.6 | 5.0 | 7.0 | 7.2 | 3.9 | 282 | 372 | 3.0 | .41 | 1.6 |
| 17 | 38 | 22 | 7.1 | 4.8 | 7.1 | 7.0 | 4.0 | 272 | 173 | 2.3 | .48 | 1.1 |
| 18 | 36 | 7.9 | 7.1 | 4.6 | 7.2 | 6.9 | 3.6 | 54 | 37 | 2.0 | .86 | .93 |
| 19 | 4.1 | 4.7 | 6.7 | 4.9 | 7.0 | 6.6 | 3.5 | 28 | 24 | 1.8 | 1.2 | .92 |
| 20 | 3.2 | 4.1 | 5.9 | 9.9 | 7.2 | 6.6 | 3.2 | 20 | 17 | 1.6 | .87 | .99 |
| 21 | 2.8 | 3.9 | 5.7 | 9.9 | 7.3 | 6.8 | 2.8 | 16 | 13 | 1.4 | .63 | 1.0 |
| 22 | 2.7 | 3.8 | 5.9 | 7.3 | 9.8 | 7.0 | 2.9 | 13 | 10 | 1.2 | .59 | 1.1 |
| 23 | 2.7 | 5.8 | 6.3 | 6.4 | 7.8 | 6.6 | 3.8 | 11 | 8.4 | 1.1 | .58 | 1.1 |
| 24 | 2.6 | 5.2 | 6.4 | 6.1 | 7.0 | 6.1 | 4.4 | 39 | 6.8 | .89 | .55 | 1.1 |
| 25 | 2.6 | 4.1 | 5.8 | 5.8 | 6.6 | 6.1 | 3.1 | 88 | 6.2 | .78 | .47 | .98 |
| 26 | 3.0 | 3.9 | 5.7 | 5.6 | 6.6 | 6.2 | 2.5 | 144 | 18 | .74 | .44 | .91 |
| 27 | 12 | 4.2 | 5.9 | 5.5 | 6.6 | 6.2 | 2.2 | 98 | 8.2 | .90 | .51 | 1.0 |
| 28 | 6.9 | 4.4 | 6.0 | 5.3 | 8.8 | 6.4 | 2.1 | 109 | 5.2 | 1.0 | .75 | 1.0 |
| 29 | 3.2 | 4.1 | 6.0 | 5.2 | --- | 30 | 6.2 | 32 | 3.9 | .86 | .62 | 1.0 |
| 30 | 2.8 | 4.2 | 5.9 | 5.0 | --- | 17 | 5.1 | 33 | 3.2 | .68 | .86 | 1.0 |
| 31 | 2.6 | --- | 5.9 | 4.9 | --- | 10 | --- | 22 | --- | .64 | .91 | --- |
| TOTAL | 144.58 | 142.2 | 315.1 | 196.2 | 301.5 | 429.9 | 148.8 | 1693.5 | 2101.1 | 997.29 | 17.65 | 28.84 |
| MEAN | 4.66 | 4.74 | 10.2 | 6.33 | 10.8 | 13.9 | 4.96 | 54.6 | 70.0 | 32.2 | .57 | .96 |
| MAX | 38 | 22 | 90 | 14 | 63 | 89 | 10 | 282 | 372 | 258 | 1.2 | 2.7 |
| MIN | .39 | 2.7 | 3.3 | 4.6 | 6.6 | 6.1 | 2.1 | 4.2 | 3.2 | .64 | .36 | .52 |
| CFSM | .20 | .20 | .44 | .27 | .46 | .59 | .21 | 2.33 | 2.99 | 1.38 | .02 | .04 |
| IN. | .23 | .23 | .50 | .31 | .48 | .68 | .24 | 2.69 | 3.34 | 1.59 | .03 | .05 |
| AC-FT | 287 | 282 | 625 | 389 | 598 | 853 | 295 | 3360 | 4170 | 1980 | 35 | 57 |

CAL YR 1980 TOTAL 5891.01 MEAN 16.1 MAX 564 MIN .01 CFSM .69 IN 9.36 AC-FT 11680
WTR YR 1981 TOTAL 6516.66 MEAN 17.9 MAX 372 MIN .36 CFSM .77 IN 10.36 AC-FT 12930

## 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 (2.7 km) upstream from Tankersley Creek, 3.5 mi (5.6 km) upstream from bridge on U.S. Highway 271, 5.7 mi (9.2 km) southwest of the county courthouse in Mount Pleasant, and 129.2 mi (207.9 km) upstream from mouth.

DRAINAGE AREA.--239 mi² (619 km²).

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. A nonrecording gage was located at same site and datum prior to Apr. 12, 1978.

REMARKS.--The lake is formed by a rolled earthfill dam 10,800 ft (3,290 m) long including spillways. Deliberate impoundment began Aug. 8, 1977, and the dam was completed by April 1978. The emergency spillway is an excavated channel cut through natural ground. The spillway is 4,500 ft (1,400 m) wide, located to the left of the left end of the dam. The service spillway is 289.5 ft (88.2 m) wide with 160 ft (50 m) of net flow width controlled by four 40- by 22.5-foot (12 by 6.9 m) 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 (194.2 km²) above this station is controlled by Lake Cypress Springs on Big Cypress Creek and from 36.0 mi² (93.2 km²) above this station is controlled by Montecello Reservoir on Blundell Creek, a tributary to Big Cypress Creek. 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 | 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. Records of diversions and return flow were furnished by Titus County Fresh Water Supply District No. 1.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 193,500 acre-ft (239 hm³) June 7, 1981, elevation, 335.35 ft (102.215 m); minimum, 516 acre-ft (0.636 hm³) Aug. 8-17, 1977, elevation, 290.00 ft (88.392 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 193,500 acre-ft (239 hm³) June 7 at 0900 hours, elevation, 335.35 ft (102.215 m); minimum observed, 146,300 acre-ft (180 hm³) Nov. 13, 14, elevation, 329.68 ft (100.486 ft).

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

| | | | |
|---|---|---|---|
| 328.0 | 133,700 | 334.0 | 181,600 |
| 330.0 | 148,700 | 335.0 | 190,400 |
| 332.0 | 164,700 | 336.0 | 199,400 |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 148900 | 147600 | 147400 | 148700 | 149100 | 151300 | 152800 | 151700 | 171100 | 174400 | 168000 | 162400 |
| 2 | 148700 | 147500 | 147300 | 148700 | 149100 | 151300 | 152800 | 151600 | 173300 | 173600 | 167700 | 162300 |
| 3 | 148600 | 147400 | 147300 | 148400 | 149100 | 152200 | 152900 | 151600 | 177100 | 173100 | 167500 | 162100 |
| 4 | 148400 | 147200 | 147300 | 148300 | 149100 | 153200 | 152800 | 151700 | 180900 | 175900 | 167100 | 162000 |
| 5 | 148200 | 147000 | 147300 | 148100 | 149100 | 153300 | 152500 | 151900 | 188000 | 176500 | 166900 | 161900 |
| 6 | 148100 | 146900 | 147400 | 148400 | 149200 | 153400 | 152400 | 151900 | 193200 | 176500 | 166600 | 161600 |
| 7 | 148100 | 146800 | 147400 | 148200 | 149300 | 153600 | 152100 | 151700 | 192400 | 178400 | 166400 | 161400 |
| 8 | 148000 | 146700 | 149500 | 148200 | 149300 | 153700 | 152000 | 152900 | 190800 | 178900 | 166100 | 161100 |
| 9 | 148000 | 146600 | 149400 | 148200 | 149500 | 153800 | 152000 | 154600 | 189600 | 178900 | 165800 | 160900 |
| 10 | 147900 | 146600 | 149500 | 148100 | 149900 | 153800 | 152000 | 154900 | 189000 | 178600 | 165500 | 160700 |
| 11 | 147700 | 146500 | 149500 | 148100 | 149500 | 153800 | 152000 | 154900 | 188500 | 178000 | 165200 | 160700 |
| 12 | 147500 | 146400 | 149400 | 148100 | 149500 | 153900 | 152000 | 155000 | 186900 | 177500 | 164900 | 160400 |
| 13 | 148100 | 146300 | 149400 | 148100 | 149500 | 153900 | 152000 | 155400 | 185200 | 177000 | 164700 | 159900 |
| 14 | 147200 | 147100 | 149400 | 147900 | 149500 | 153900 | 151700 | 155400 | 184100 | 176300 | 164500 | 160500 |
| 15 | 147000 | 147100 | 149500 | 147700 | 149500 | 154000 | 151700 | 155400 | 183900 | 175700 | 164300 | 160600 |
| 16 | 146800 | 147500 | 149400 | 147600 | 149500 | 153900 | 151700 | 162100 | 187400 | 175100 | 164600 | 160300 |
| 17 | 148100 | 147700 | 149400 | 147400 | 149500 | 154000 | 151700 | 165000 | 186300 | 174100 | 164500 | 160000 |
| 18 | 148300 | 147600 | 149400 | 147300 | 149600 | 153900 | 151700 | 166000 | 184300 | 173300 | 164400 | 159900 |
| 19 | 148200 | 147500 | 149300 | 147300 | 149700 | 153700 | 151700 | 165600 | 183400 | 172400 | 164200 | 159700 |
| 20 | 148100 | 147500 | 149100 | 147400 | 149700 | 153500 | 151600 | 165400 | 182800 | 171800 | 164100 | 159500 |
| 21 | 148200 | 147400 | 149100 | 147400 | 150100 | 153300 | 151600 | 165000 | 181900 | 170900 | 164000 | 159400 |
| 22 | 148100 | 147600 | 149100 | 147400 | 150100 | 153200 | 151800 | 164700 | 181000 | 170600 | 163700 | 159300 |
| 23 | 148100 | 147700 | 149200 | 147400 | 150000 | 153100 | 151700 | 165000 | 180300 | 170300 | 163500 | 159100 |
| 24 | 147800 | 147500 | 149000 | 147400 | 149900 | 153000 | 151600 | 165600 | 179900 | 170000 | 163200 | 159100 |
| 25 | 147700 | 147500 | 148900 | 147500 | 150000 | 152800 | 151500 | 169000 | 179200 | 169700 | 162900 | 159000 |
| 26 | 147500 | 147700 | 148900 | 147600 | 150100 | 152800 | 151400 | 169500 | 178500 | 169400 | 163000 | 159000 |
| 27 | 148300 | 147700 | 148900 | 147500 | 150200 | 152500 | 151400 | 170200 | 177600 | 169100 | 163200 | 158900 |
| 28 | 148100 | 147400 | 148900 | 147500 | 150700 | 153000 | 151500 | 170300 | 176800 | 168900 | 163000 | 158700 |
| 29 | 147900 | 147400 | 148800 | 147600 | --- | 153100 | 151400 | 170300 | 176100 | 168500 | 162800 | 158700 |
| 30 | 147900 | 147400 | 148800 | 147400 | --- | 153100 | 151400 | 170000 | 175300 | 168300 | 162700 | 158600 |
| 31 | 147700 | --- | 148800 | 148100 | --- | 153000 | --- | 169500 | --- | 168100 | 162500 | --- |
| MAX | 148900 | 147700 | 149500 | 148700 | 150700 | 154000 | 152900 | 170300 | 193200 | 178900 | 168000 | 162400 |
| MIN | 146800 | 146300 | 147300 | 147300 | 149100 | 151300 | 151400 | 151600 | 171100 | 168100 | 162500 | 158600 |
| (†) | 329.87 | 329.83 | 330.01 | 329.92 | 330.25 | 330.54 | 330.34 | 332.58 | 333.27 | 332.41 | 331.41 | 331.25 |
| (‡) | - 1300 | - 300 | + 1400 | - 700 | + 2600 | + 2300 | - 1600 | +18100 | + 5800 | - 7200 | - 5600 | - 3900 |
| (††) | 840 | 886 | 342 | 4180 | 474 | 2390 | 1580 | 591 | 1600 | 1790 | 1480 | 666 |

CAL YR 1980 MAX 170800 MIN 120100 ‡ +28700 †† 9530
WTR YR 1981 MAX 193200 MIN 146300 ‡ + 9600 †† 16820

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

## 07344500 BIG CYPRESS CREEK NEAR PITTSBURG, TX

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 (0.8 km) upstream from Louisiana & Arkansas Railway Co. bridge, 1.4 mi (2.3 km) upstream from Williamson Creek, 5.2 mi (8.4 km) east of Pittsburg, 19.2 mi (30.9 km) downstream from Lake Bob Sandlin, and 110.0 mi (177.0 km) upstream from mouth.

DRAINAGE AREA.--366 $mi^2$ (948 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1943 to January 1963 (published as Cypress Creek near Pittsburg), October 1967 to current year. Gage-height records collected at this site September 1963 to December 1967 are published in reports by the Corps of Engineers.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 247.49 ft (75.435 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 12, 1954, water-stage recorder at site 1,900 ft (579 m) downstream at present datum.

REMARKS.--Water-discharge 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. Records furnished by the city of Mount Pleasant show that 3,090 acre-ft (3.81 $hm^3$) of sewage effluent was returned to a tributary above the station. Records furnished by the city of Pittsburg show that 923 acre-ft (1.14 $hm^3$) of sewage effluent was returned to a tributary below the station.

AVERAGE DISCHARGE.--24 years (water years 1944-62, 1968-72), prior to combined regulation by Lake Cypress Springs and Monticello Reservoir, 327 $ft^3/s$ (9.261 $m^3/s$), 12.13 in/yr (308 mm/yr), 236,900 acre-ft/yr (292 $hm^3/yr$); 9 years (water years 1973-81) regulated, 270 $ft^3/s$ (7.646 $m^3/s$), 195,600 acre-ft/yr (241 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58,500 $ft^3/s$ (1,660 $m^3/s$) Mar. 30, 1945, gage height, 28.3 ft (8.63 m), from floodmark and adjusted to present site on basis of record for flood of Apr. 27, 1958, from rating curve extended above 20,000 $ft^3/s$ (566 $m^3/s$); 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 (7.6 m), present site, adjusted as explained above, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,840 $ft^3/s$ (222 $m^3/s$) June 5 at 1900 hours, gage height, 16.63 ft (5.069 m); minimum, 2.8 $ft^3/s$ (0.079 $m^3/s$) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 64 | 7.8 | 9.4 | 14 | 85 | 67 | 22 | 8.1 | 380 | 296 | 8.5 | 5.8 |
| 2 | 26 | 7.5 | 9.3 | 12 | 293 | 164 | 16 | 18 | 612 | 296 | 8.6 | 6.1 |
| 3 | 13 | 9.7 | 8.3 | 11 | 287 | 120 | 13 | 15 | 1010 | 230 | 7.6 | 6.3 |
| 4 | 9.3 | 9.4 | 7.6 | 10 | 67 | 297 | 13 | 9.0 | 2150 | 148 | 6.8 | 7.3 |
| 5 | 8.1 | 9.3 | 7.9 | 11 | 37 | 500 | 14 | 8.7 | 5300 | 348 | 6.0 | 9.0 |
| 6 | 6.6 | 9.4 | 8.7 | 11 | 31 | 285 | 14 | 12 | 5490 | 406 | 6.0 | 31 |
| 7 | 5.7 | 8.4 | 8.8 | 14 | 30 | 83 | 11 | 12 | 2390 | 401 | 6.4 | 11 |
| 8 | 5.4 | 9.2 | 12 | 18 | 29 | 62 | 10 | 11 | 1420 | 410 | 6.4 | 7.1 |
| 9 | 6.0 | 9.9 | 134 | 17 | 27 | 55 | 10 | 237 | 1570 | 428 | 6.9 | 5.8 |
| 10 | 6.0 | 11 | 285 | 15 | 32 | 41 | 10 | 525 | 1220 | 369 | 7.1 | 5.0 |
| 11 | 6.2 | 13 | 173 | 14 | 78 | 35 | 10 | 443 | 1110 | 320 | 6.4 | 5.2 |
| 12 | 6.1 | 13 | 42 | 14 | 57 | 30 | 9.6 | 85 | 745 | 300 | 5.6 | 5.1 |
| 13 | 5.5 | 11 | 27 | 13 | 30 | 28 | 9.1 | 25 | 764 | 295 | 5.9 | 5.1 |
| 14 | 5.2 | 13 | 21 | 11 | 25 | 26 | 8.4 | 19 | 1040 | 287 | 6.5 | 5.3 |
| 15 | 5.3 | 69 | 18 | 11 | 23 | 24 | 7.8 | 18 | 1070 | 282 | 6.3 | 6.1 |
| 16 | 6.0 | 96 | 16 | 11 | 21 | 22 | 7.9 | 323 | 1270 | 282 | 7.2 | 8.7 |
| 17 | 12 | 59 | 16 | 11 | 20 | 18 | 7.9 | 1610 | 3080 | 283 | 18 | 7.2 |
| 18 | 49 | 99 | 16 | 11 | 19 | 16 | 7.9 | 1730 | 2660 | 280 | 11 | 5.5 |
| 19 | 36 | 38 | 15 | 10 | 18 | 15 | 8.2 | 1200 | 1730 | 278 | 8.5 | 4.8 |
| 20 | 14 | 18 | 14 | 11 | 17 | 15 | 8.0 | 866 | 1240 | 242 | 7.8 | 4.5 |
| 21 | 9.1 | 12 | 14 | 14 | 20 | 15 | 7.7 | 640 | 855 | 179 | 7.2 | 4.8 |
| 22 | 7.0 | 11 | 13 | 19 | 84 | 15 | 7.2 | 376 | 632 | 168 | 6.9 | 4.4 |
| 23 | 6.5 | 11 | 13 | 16 | 37 | 14 | 7.6 | 236 | 587 | 83 | 6.5 | 8.9 |
| 24 | 6.5 | 13 | 14 | 14 | 23 | 13 | 8.3 | 103 | 610 | 16 | 6.3 | 6.4 |
| 25 | 7.6 | 13 | 14 | 13 | 18 | 12 | 7.3 | 289 | 496 | 12 | 6.1 | 4.1 |
| 26 | 9.4 | 11 | 13 | 13 | 17 | 12 | 6.7 | 1010 | 378 | 11 | 5.7 | 3.6 |
| 27 | 13 | 10 | 13 | 12 | 15 | 12 | 6.6 | 1400 | 332 | 9.5 | 8.6 | 3.9 |
| 28 | 39 | 10 | 13 | 12 | 16 | 12 | 6.4 | 1140 | 312 | 8.2 | 11 | 3.7 |
| 29 | 35 | 10 | 13 | 11 | --- | 24 | 6.1 | 687 | 303 | 8.7 | 10 | 3.4 |
| 30 | 14 | 9.9 | 12 | 11 | --- | 59 | 6.6 | 506 | 297 | 10 | 8.0 | 3.1 |
| 31 | 9.2 | --- | 13 | 12 | --- | 43 | --- | 432 | --- | 8.4 | 6.7 | --- |
| TOTAL | 451.7 | 631.5 | 994.0 | 397 | 1456 | 2134 | 288.3 | 13993.8 | 41053 | 6694.8 | 236.5 | 198.2 |
| MEAN | 14.6 | 21.1 | 32.1 | 12.8 | 52.0 | 68.8 | 9.61 | 451 | 1368 | 216 | 7.63 | 6.61 |
| MAX | 64 | 99 | 285 | 19 | 293 | 500 | 22 | 1730 | 5490 | 428 | 18 | 31 |
| MIN | 5.2 | 7.5 | 7.6 | 10 | 15 | 12 | 6.1 | 8.1 | 297 | 8.2 | 5.6 | 3.1 |
| AC-FT | 896 | 1250 | 1970 | 787 | 2890 | 4230 | 572 | 27760 | 81430 | 13280 | 469 | 393 |

CAL YR 1980 TOTAL 69137.1 MEAN 189 MAX 3900 MIN 2.7 AC-FT 137100
WTR YR 1981 TOTAL 68528.8 MEAN 188 MAX 5490 MIN 3.1 AC-FT 135900

07344500 BIG CYPRESS CREEK NEAR PITTSBURG, TX--Continued

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1968 to current year.
WATER TEMPERATURES: October 1968 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 (1968-69, 1971-81): Maximum daily, 941 micromhos Sept. 1, 1971; minimum daily, 69 micromhos July 30, 1969, Sept. 22, 1979.
WATER TEMPERATURES: Maximum daily, 32.0°C Aug. 20, 1969; minimum daily, 0.5°C Jan. 21, 22, 1978.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 851 micromhos Sept. 25; minimum daily, 73 micromhos June 6.
WATER TEMPERATURES: Maximum daily, 30.0°C Aug. 16; minimum daily, 4.0°C Dec. 27, 28, Jan. 3, 17.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | | |
| 02... | 1055 | 14 | 435 | 10.0 | 84 | 40 | 22 | 7.0 | 41 |
| MAR | | | | | | | | | |
| 04... | 0730 | 199 | 259 | 13.0 | 59 | 35 | 14 | 5.9 | 23 |
| MAY | | | | | | | | | |
| 19... | 1600 | 1110 | 92 | 20.0 | 23 | 16 | 5.9 | 2.0 | 7.2 |
| JUN | | | | | | | | | |
| 30... | 1630 | 292 | 217 | 27.5 | 56 | 7 | 13 | 5.7 | 16 |
| JUL | | | | | | | | | |
| 31... | 2400 | 10 | 400 | 29.0 | 87 | 15 | 21 | 8.4 | 40 |
| AUG | | | | | | | | | |
| 31... | 1945 | 6.7 | 597 | 27.0 | 85 | 20 | 22 | 7.4 | 79 |

| DATE | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY 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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | |
| 02... | 2.0 | 8.3 | 44 | 61 | 53 | .3 | 15 | 234 |
| MAR | | | | | | | | |
| 04... | 1.3 | 4.9 | 24 | 55 | 25 | .1 | 10 | 152 |
| MAY | | | | | | | | |
| 19... | .7 | 3.4 | 7 | 16 | 14 | .0 | 5.9 | 58 |
| JUN | | | | | | | | |
| 30... | .9 | 4.7 | 49 | 16 | 23 | .2 | 3.8 | 112 |
| JUL | | | | | | | | |
| 31... | 2.0 | 8.0 | 72 | 41 | 49 | .2 | 12 | 223 |
| AUG | | | | | | | | |
| 31... | 4.0 | 15 | 65 | 49 | 100 | .4 | 13 | 325 |

07344500 BIG CYPRESS CREEK NEAR PITTSBURG, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 451.7 | 330 | 181 | 220 | 43 | 53 | 44 | 53 | 69 |
| NOV. | 1980 | 631.5 | 328 | 180 | 306 | 43 | 73 | 43 | 74 | 68 |
| DEC. | 1980 | 994.0 | 316 | 173 | 463 | 42 | 112 | 41 | 111 | 65 |
| JAN. | 1981 | 397 | 456 | 242 | 260 | 64 | 69 | 55 | 59 | 81 |
| FEB. | 1981 | 1456 | 328 | 179 | 704 | 43 | 171 | 43 | 169 | 67 |
| MAR. | 1981 | 2134 | 339 | 185 | 1060 | 45 | 260 | 44 | 254 | 69 |
| APR. | 1981 | 288.3 | 528 | 276 | 215 | 78 | 60 | 60 | 47 | 84 |
| MAY | 1981 | 13993.8 | 154 | 87 | 3280 | 19 | 707 | 22 | 839 | 37 |
| JUNE | 1981 | 41053 | 153 | 87 | 9660 | 18 | 2000 | 23 | 2510 | 38 |
| JULY | 1981 | 6694.8 | 218 | 123 | 2220 | 27 | 480 | 31 | 567 | 52 |
| AUG. | 1981 | 236.5 | 511 | 267 | 171 | 75 | 48 | 58 | 37 | 83 |
| SEPT | 1981 | 198.2 | 521 | 272 | 145 | 77 | 41 | 59 | 31 | 82 |
| TOTAL | | 68528.8 | ** | ** | 18700 | ** | 4080 | ** | 4760 | ** |
| WTD. AVG. | | 188 | 180 | 101 | ** | 22 | ** | 26 | ** | 42 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 273 | 287 | 430 | 440 | 402 | 377 | 464 | 535 | 242 | 216 | 428 | 579 |
| 2 | 285 | 271 | 426 | 424 | 253 | 428 | 465 | 470 | 206 | 218 | 441 | 580 |
| 3 | 299 | 289 | 444 | 445 | 232 | 418 | 466 | 495 | 182 | 234 | 439 | 566 |
| 4 | 309 | 353 | 454 | 425 | 283 | 259 | 466 | 542 | 140 | 219 | 456 | 569 |
| 5 | 317 | 427 | 442 | 421 | 322 | 271 | 451 | 523 | 90 | 197 | 488 | 605 |
| 6 | 334 | 474 | 454 | 379 | 366 | 250 | 485 | 476 | 73 | 216 | 522 | 531 |
| 7 | 357 | 465 | 476 | 394 | 390 | 304 | 488 | 497 | 88 | 218 | 523 | 550 |
| 8 | 365 | 458 | 474 | 390 | 410 | 325 | 489 | 443 | 197 | 227 | 501 | 461 |
| 9 | 393 | 424 | 362 | 484 | 429 | 383 | 490 | 205 | 212 | 218 | 529 | 480 |
| 10 | 409 | 400 | 205 | 480 | 426 | 378 | 492 | 92 | 221 | 215 | 579 | 486 |
| 11 | 432 | 383 | 241 | 491 | 451 | 436 | 495 | 197 | 226 | 213 | 572 | 483 |
| 12 | 449 | 400 | 289 | 520 | 421 | 429 | 520 | 215 | 227 | 214 | 574 | 410 |
| 13 | 495 | 424 | 319 | 482 | 396 | 422 | 548 | 235 | 216 | 215 | 578 | 413 |
| 14 | 488 | 438 | 350 | 472 | 388 | 441 | 563 | 205 | 175 | 213 | 569 | 424 |
| 15 | 478 | 360 | 380 | 453 | 418 | 460 | 577 | 206 | 151 | 212 | 474 | 393 |
| 16 | 467 | 316 | 390 | 448 | 422 | 463 | 590 | 177 | 145 | 217 | 563 | 376 |
| 17 | 420 | 254 | 401 | 454 | 436 | 450 | 592 | 134 | 114 | 215 | 318 | 408 |
| 18 | 275 | 262 | 431 | 448 | 441 | 440 | 586 | 90 | 171 | 216 | 402 | 453 |
| 19 | 323 | 273 | 435 | 426 | 445 | 431 | 580 | 92 | 206 | 217 | 425 | 494 |
| 20 | 299 | 277 | 434 | 415 | 440 | 440 | 597 | 93 | 214 | 221 | 493 | 508 |
| 21 | 292 | 294 | 443 | 432 | 446 | 451 | 596 | 95 | 224 | 218 | 530 | 548 |
| 22 | 298 | 317 | 441 | 455 | 228 | 493 | 597 | 168 | 220 | 216 | 593 | 544 |
| 23 | 318 | 326 | 449 | 490 | 330 | 498 | 598 | 234 | 225 | 239 | 609 | 548 |
| 24 | 338 | 341 | 452 | 464 | 429 | 504 | 599 | 725 | 229 | 256 | 628 | 846 |
| 25 | 372 | 357 | 461 | 458 | 446 | 502 | 598 | 594 | 228 | 289 | 622 | 851 |
| 26 | 425 | 378 | 432 | 492 | 452 | 500 | 597 | 205 | 223 | 310 | 612 | 603 |
| 27 | 440 | 371 | 451 | 491 | 458 | 498 | 594 | 100 | 219 | 355 | 574 | 523 |
| 28 | 335 | 390 | 459 | 479 | 454 | 450 | 598 | 144 | 218 | 381 | 522 | 441 |
| 29 | 315 | 404 | 464 | 471 | --- | 451 | 582 | 190 | 217 | 384 | 566 | 428 |
| 30 | 341 | 413 | 469 | 485 | --- | 462 | 537 | 212 | 217 | 393 | 555 | 434 |
| 31 | 319 | --- | 449 | 492 | --- | 509 | --- | 233 | --- | 400 | 597 | --- |
| MEAN | 363 | 361 | 413 | 455 | 393 | 423 | 543 | 285 | 191 | 251 | 525 | 518 |

07344500 BIG CYPRESS CREEK NEAR PITTSBURG, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 18.0 | 10.0 | 11.0 | 5.0 | 9.0 | 15.0 | 20.0 | 21.0 | 26.0 | 27.0 | 27.0 | 26.0 |
| 2 | 18.0 | 11.0 | 10.0 | 6.0 | 7.0 | 14.0 | 21.0 | 21.0 | 24.0 | 27.0 | 27.0 | 26.0 |
| 3 | 17.0 | 14.0 | 9.0 | 4.0 | 6.0 | 14.0 | 21.0 | 21.0 | 23.0 | 27.0 | 28.0 | 26.0 |
| 4 | 16.0 | 14.0 | 10.0 | 5.0 | 6.0 | 13.0 | 21.0 | 20.0 | 22.0 | 26.0 | 28.5 | 21.0 |
| 5 | 16.0 | 13.0 | 13.0 | 5.0 | 6.0 | 14.0 | 21.0 | 21.0 | 23.0 | 26.0 | 28.5 | 25.5 |
| 6 | 15.0 | 14.0 | 13.0 | 6.0 | 7.0 | 13.0 | 19.0 | 20.0 | 24.0 | 26.0 | 28.0 | 25.0 |
| 7 | 15.0 | 15.0 | 14.0 | 6.0 | --- | 13.0 | 21.0 | 21.0 | 26.0 | 26.0 | 28.5 | 26.0 |
| 8 | 16.0 | 14.0 | 14.0 | 6.0 | --- | 14.0 | 22.0 | 21.0 | 28.0 | 27.0 | 28.0 | 25.0 |
| 9 | 19.0 | 15.0 | 12.0 | 7.0 | 9.0 | 14.0 | 22.0 | 20.0 | 28.0 | 28.0 | 26.0 | 25.0 |
| 10 | 20.0 | 18.0 | 9.0 | 8.0 | 9.0 | 14.0 | 22.0 | 21.0 | 29.0 | 28.0 | 26.0 | 26.0 |
| 11 | 18.0 | 18.0 | 9.0 | 8.0 | 6.0 | 15.0 | 24.0 | 20.0 | 28.0 | 28.0 | 26.5 | 25.0 |
| 12 | 16.0 | --- | 9.0 | 6.0 | 5.0 | --- | 25.0 | 20.0 | 27.0 | 28.0 | 27.0 | 23.0 |
| 13 | 16.0 | 15.0 | 7.0 | 6.0 | 7.0 | 16.0 | 25.0 | 20.0 | 27.0 | 28.0 | 27.5 | 23.0 |
| 14 | 17.0 | 14.0 | 8.0 | 7.0 | 5.0 | --- | 25.0 | 20.0 | 27.0 | 28.0 | 29.5 | 25.0 |
| 15 | 18.0 | 13.0 | 10.0 | 6.0 | 7.0 | 17.0 | 26.0 | 20.0 | 27.0 | 28.0 | 29.0 | 25.0 |
| 16 | 20.0 | 13.0 | 10.0 | 6.0 | 9.0 | 18.0 | 26.0 | 21.0 | 27.0 | 28.0 | 30.0 | 23.0 |
| 17 | 20.0 | 10.0 | 10.0 | 4.0 | 10.0 | 13.0 | 26.0 | 20.0 | 25.0 | 28.5 | 26.0 | 21.0 |
| 18 | 19.0 | 10.0 | 11.0 | 5.0 | 12.0 | 16.0 | 26.0 | 20.0 | 25.0 | 28.0 | 26.0 | 21.0 |
| 19 | 18.0 | 9.0 | 10.0 | 5.0 | 12.0 | 17.0 | 24.0 | 20.0 | 25.0 | 28.0 | 26.0 | 19.0 |
| 20 | 17.0 | 8.0 | 9.0 | 5.0 | 12.0 | 17.0 | 23.0 | 20.0 | 27.0 | 29.0 | 25.0 | 19.0 |
| 21 | 16.0 | 8.0 | 5.0 | 6.0 | 15.0 | 18.0 | 23.0 | 20.0 | 29.0 | 29.5 | 25.0 | 19.5 |
| 22 | 16.0 | 7.0 | 5.0 | 7.0 | 14.0 | 14.0 | 24.0 | 20.0 | 28.0 | 28.0 | 25.0 | 21.0 |
| 23 | 15.0 | 8.0 | 7.0 | 7.0 | 13.0 | 17.0 | 24.0 | 20.0 | --- | 29.0 | 24.5 | 22.0 |
| 24 | 15.0 | 10.0 | 8.0 | 5.0 | 12.0 | 18.0 | 24.0 | 24.0 | 27.0 | 29.0 | 26.0 | 23.0 |
| 25 | 11.0 | 9.0 | 5.0 | 7.0 | 13.0 | --- | 24.0 | 24.0 | 27.0 | 28.0 | 26.0 | 23.0 |
| 26 | 11.0 | 7.0 | 5.0 | 10.0 | 14.0 | --- | 24.0 | 25.0 | 27.0 | 28.0 | 25.0 | 25.0 |
| 27 | 15.0 | 7.0 | 4.0 | 10.0 | 15.0 | 20.0 | 25.0 | 24.0 | 26.0 | 28.0 | 25.0 | 23.0 |
| 28 | 13.0 | 7.0 | 4.0 | 9.0 | 17.0 | 18.0 | 25.0 | 24.0 | 25.0 | 28.0 | 26.0 | 23.0 |
| 29 | 13.0 | 6.0 | 7.0 | 11.0 | --- | 18.0 | 25.0 | 25.0 | 27.0 | 29.0 | 27.0 | 25.0 |
| 30 | 11.0 | 8.0 | 7.0 | 10.0 | --- | 20.0 | 20.0 | 25.0 | 27.5 | 27.0 | 27.0 | 25.0 |
| 31 | 8.0 | --- | 7.0 | 12.0 | --- | 20.0 | --- | 26.0 | --- | 29.0 | 27.0 | --- |
| MEAN | 16.0 | 11.0 | 9.0 | 7.0 | 10.0 | 16.0 | 23.5 | 21.5 | 26.5 | 28.0 | 27.0 | 23.5 |

## 07345500 ELLISON CREEK RESERVOIR NEAR LONE STAR, TX

LOCATION.--Lat 32°55'16", long 94°43'17", Morris County, Hydrologic Unit 11140305, at pumphouse of Lone Star Steel Co., on left bank 1,700 ft (518 m) upstream from Ellison Creek Dam on Ellison Creek, 0.6 mi (1.0 km) upstream from Big Cypress Creek, and 1.4 mi (2.3 km) southwest of Lone Star.

DRAINAGE AREA.--37.0 $mi^2$ (95.8 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1943 to September 1962 (published as "near Daingerfield"), January 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Sept. 22, 1943, staff gage at site just upstream from dam at datum 200 ft (61.0 m) lower.

REMARKS.--The reservoir is formed by a rolled earthfill dam 4,000 ft (1,200 m) long, with an uncontrolled concrete spillway 300 ft (91 m) long at the left end of dam. Deliberate impoundment began Jan. 14, 1943, and the dam was completed in April 1943. Another spillway is cut through natural ground near the right end of dam. In addition, there is a relief dam, approximately 125 ft (38 m) long, located near the reservoir pumphouse that can be breached if the other spillways are unable to release sufficient floodwater. There is a 36-inch-diameter (914 mm) conduit through the dam that is used for pumping water from Big Cypress Creek into the reservoir and can also be used to discharge water from the reservoir into Big Cypress Creek. The dam is owned by Lone Star Steel Co. Records furnished by the company show that during the current year the city of Lone Star diverted 232 acre-ft (286,000 $m^3$) from the reservoir. Area capacity curves are based on a survey made in 1942. 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 | 280.1 | - |
| Design flood | 275.1 | 36,600 |
| Crest of spillway | 273.1 | 33,000 |
| Crest of concrete spillway | 268.1 | 24,700 |
| Lowest gated outlet (invert) | 235.1 | 196 |

COOPERATION.--Capacity table, area-capacity curves, and records of diversions were furnished by Lone Star Steel Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 31,240 acre-ft (38.5 $hm^3$) Apr. 26, 1958, elevation, 272.11 ft (82.939 m); minimum since lake first filled in May 1944, 15,760 acre-ft (19.4 $hm^3$) Dec. 24, 1975, elevation, 261.28 ft (79.638 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 27,040 acre-ft (33.3 $hm^3$) May 16 at 2230 hours, elevation, 269.64 ft (82.186 m), from estimated graph; minimum, 22,040 acre-ft (27.2 $hm^3$) Oct. 16, elevation, 266.36 ft (81.187 m).

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

| | | | |
|---|---|---|---|
| 266.0 | 21,540 | 269.0 | 26,020 |
| 267.0 | 22,970 | 270.0 | 27,620 |
| 268.0 | 24,470 | | |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 22210 | 23380 | 24440 | 23300 | 24220 | 24860 | 24430 | 24020 | 23260 | 23560 | 23870 | 24040 |
| 2 | 22210 | 23360 | 24440 | 23300 | 24290 | 24860 | 24290 | 24020 | 23170 | 23590 | 23870 | 24040 |
| 3 | 22180 | 23360 | 24460 | 23320 | 24350 | 24900 | 24320 | 24160 | 23300 | 23600 | 23870 | 24040 |
| 4 | 22180 | 23360 | 24460 | 23300 | 24440 | 24890 | 24460 | 24140 | 23660 | 23650 | 23840 | 24040 |
| 5 | 22180 | 23360 | 24470 | 23300 | 24670 | 24760 | 24500 | 24100 | 24970 | 23680 | 23810 | 24020 |
| 6 | 22170 | 23350 | 24470 | 23320 | 24890 | 24640 | 24580 | 23960 | 25110 | 23720 | 23800 | 24020 |
| 7 | 22170 | 23330 | 24500 | 23480 | 25040 | 24580 | 24610 | 23840 | 24900 | 23810 | 23750 | 23980 |
| 8 | 22170 | 23320 | 24720 | 23560 | 25150 | 24470 | 24660 | 23870 | 24720 | 23840 | 23690 | 23980 |
| 9 | 22170 | 23330 | 24630 | 23560 | 25170 | 24400 | 24500 | 24260 | 24580 | 23870 | 23660 | 23920 |
| 10 | 22140 | 23330 | 24400 | 23560 | 25010 | 24280 | 24310 | 24350 | 24430 | 23890 | 23650 | 23920 |
| 11 | 22130 | 23350 | 24160 | 23560 | 25030 | 24170 | 24170 | 24280 | 24260 | 23900 | 23630 | 23920 |
| 12 | 22130 | 23330 | 23860 | 23560 | 25010 | 24140 | 24070 | 24160 | 24080 | 23920 | 23600 | 23920 |
| 13 | 22130 | 23320 | 23560 | 23510 | 24980 | 24200 | 24050 | 24110 | 23900 | 23930 | 23570 | 23900 |
| 14 | 22100 | 23440 | 23320 | 23530 | 24940 | 24250 | 24100 | 24020 | 23740 | 23950 | 23570 | 23900 |
| 15 | 22060 | 23560 | 23090 | 23560 | 24900 | 24290 | 24110 | 23930 | 23600 | 23950 | 23570 | 23950 |
| 16 | 22130 | 23860 | 23000 | 23440 | 24890 | 24350 | 24130 | 27010 | 23860 | 23980 | 23690 | 23950 |
| 17 | 22760 | 23980 | 23030 | 23260 | 24840 | 24410 | 24160 | 25760 | 23900 | 23960 | 23810 | 23920 |
| 18 | 22930 | 24040 | 23060 | 23260 | 24830 | 24400 | 24200 | 25200 | 23810 | 23960 | 23870 | 23890 |
| 19 | 22990 | 24050 | 23080 | 23320 | 24810 | 24430 | 24220 | 24870 | 23650 | 23960 | 23890 | 23890 |
| 20 | 23020 | 24070 | 23050 | 23440 | 24780 | 24460 | 24260 | 24690 | 23480 | 23960 | 23890 | 23870 |
| 21 | 23030 | 24070 | 23050 | 23510 | 24660 | 24550 | 24320 | 24560 | 23300 | 23930 | 23890 | 23870 |
| 22 | 23080 | 24130 | 23050 | 23540 | 24470 | 24590 | 24410 | 24290 | 23240 | 23900 | 23890 | 23870 |
| 23 | 23080 | 24170 | 23060 | 23590 | 24520 | 24590 | 24440 | 24160 | 23300 | 23890 | 23890 | 23870 |
| 24 | 23090 | 24220 | 23090 | 23630 | 24550 | 24560 | 24290 | 24110 | 23330 | 23830 | 23870 | 23860 |
| 25 | 23080 | 24260 | 23090 | 23660 | 24580 | 24490 | 24140 | 24050 | 23420 | 23800 | 23840 | 23830 |
| 26 | 23060 | 24310 | 23090 | 23710 | 24590 | 24380 | 24010 | 23980 | 23450 | 23770 | 23890 | 23810 |
| 27 | 23380 | 24350 | 23090 | 23770 | 24640 | 24370 | 23800 | 23860 | 23470 | 23740 | 23930 | 23800 |
| 28 | 23380 | 24370 | 23110 | 23780 | 24750 | 24430 | 23770 | 23710 | 23500 | 23740 | 23920 | 23810 |
| 29 | 23380 | 24400 | 23180 | 23810 | --- | 24900 | 23780 | 23500 | 23510 | 23710 | 23920 | 23800 |
| 30 | 23380 | 24430 | 23230 | 23840 | --- | 24760 | 23810 | 23350 | 23540 | 23690 | 24010 | 23770 |
| 31 | 23380 | --- | 23260 | 23950 | --- | 24630 | --- | 23360 | --- | 23690 | 24040 | --- |
| MAX | 23380 | 24430 | 24720 | 23950 | 25170 | 24900 | 24660 | 27010 | 25110 | 23980 | 24040 | 24040 |
| MIN | 22060 | 23320 | 23000 | 23260 | 24220 | 24140 | 23770 | 23350 | 23170 | 23560 | 23570 | 23770 |
| (†) | 267.27 | 267.97 | 267.19 | 267.65 | 268.18 | 268.10 | 267.56 | 267.26 | 267.38 | 267.48 | 267.71 | 267.53 |
| (‡) | +1170 | +1050 | -1170 | + 690 | + 800 | - 120 | - 820 | - 450 | + 180 | + 150 | + 350 | - 270 |
| (††) | | | | | | | | | | | | |

CAL YR 1980 MAX 25870 MIN 21710 ‡ - 880 †† 186800
WTR YR 1981 MAX 27010 MIN 22060 ‡ +1560 †† 188700

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, for industrial use by Lone Star Steel Company.

07345500 ELLISON CREEK RESERVOIR NEAR LONE STAR, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | TEMPERATURE, WATER (DEG C) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|
| AUG 27... | 1035 | 399 | 30.5 | 120 | 78 | 38 | 5.4 | 24 |

| DATE | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| AUG 27... | 1.0 | 10 | 39 | 78 | 37 | 1.2 | 5.3 | 222 |

## 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 (457 m) upstream from left end of Ferrell's Bridge Dam on Big Cypress Creek, on Farm Road 726, 9.0 mi (14.5 km) west of Jefferson, and 80.1 mi (128.9 km) upstream from mouth.

DRAINAGE AREA.--850 $mi^2$ (2,202 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Nov. 12, 1957, nonrecording gage at same site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam 10,600 ft (3,230 m) long, including a 200-foot (61 m) concrete spillway. Impoundment of water began Aug. 21, 1957, and the dam was completed June 25, 1958. Official operation began Dec. 11, 1959. The flood-control outlet works consist of two 10.0-foot-diameter (3.0 m) conduits that are controlled by two 8.0- by 12.5-foot (2.4 by 3.8 m) electrically driven broome-type gates. The low-flow outlet works consist of one controlled 14-inch (356 mm) pipe. Flow over the spillway is discharged into a 2,000-foot (610 m) channel and then into Cypress Creek. The capacity table is based on a survey made in 1950. The lake was built for flood control, conservation, and water supply. During the current year, 2,160 acre-ft (2.66 $hm^3$) was diverted from lake for municipal use and 4,840 acre-ft (5.97 $hm^3$) was diverted by Southwestern Electric Power Co. Figures given herein represent total contents. Data regarding the dam and lake are given in the following:

| | 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 furnished by the Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 694,360 acre-ft (856 $hm^3$) May 5, 1966, elevation, 245.41 ft (74.801 m); minimum since December 1959, 219,700 acre-ft (271 $hm^3$) Nov. 16, 1963, elevation, 226.54 ft (69.049 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 348,700 acre-ft (430 $hm^3$) June 10 at 0800 hours, elevation, 233.10 ft (71.049 m); minimum, 248,400 acre-ft (306 $hm^3$) Oct. 16 at 0800 hours, elevation, 228.15 ft (69.540 m).

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

| | | | |
|---|---|---|---|
| 228.0 | 245,600 | 232.0 | 324,800 |
| 230.0 | 283,700 | 234.0 | 348,800 |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 0700

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 253200 | 252600 | 254700 | 255000 | 259400 | 261100 | 259200 | 256500 | 291100 | 289900 | 282300 | 275200 |
| 2 | 253000 | 252400 | 254900 | 255200 | 258200 | 260900 | 258600 | 256000 | 291100 | 288300 | 282300 | 275400 |
| 3 | 252600 | 252600 | 253900 | 255200 | 258800 | 262600 | 259000 | 257300 | 292100 | 287900 | 281900 | 275100 |
| 4 | 252400 | 252400 | 254300 | 254900 | 259000 | 264800 | 260700 | 257800 | 293300 | 288300 | 281700 | 274700 |
| 5 | 251300 | 252400 | 254500 | 254900 | 260100 | 265000 | 260500 | 258400 | 303800 | 288500 | 281500 | 273900 |
| 6 | 251500 | 252200 | 254700 | 256500 | 260500 | 265000 | 259900 | 258000 | 322900 | 287700 | 280500 | 273900 |
| 7 | 251300 | 252200 | 254900 | 256300 | 261600 | 266200 | 259200 | 258400 | 339900 | 287700 | 280500 | 273500 |
| 8 | 251100 | 252200 | 257700 | 256300 | 261100 | 265800 | 259200 | 258600 | 346500 | 287500 | 279700 | 273100 |
| 9 | 250900 | 251900 | 257800 | 255800 | 261400 | 265400 | 259200 | 263300 | 348300 | 287500 | 279300 | 272500 |
| 10 | 250800 | 252100 | 257800 | 256000 | 263700 | 264700 | 258800 | 266400 | 348700 | 287100 | 278600 | 271900 |
| 11 | 250400 | 251700 | 257100 | 256200 | 262200 | 264300 | 259200 | 267100 | 346700 | 286500 | 277800 | 271800 |
| 12 | 249800 | 251500 | 258600 | 256500 | 261100 | 264500 | 259200 | 268100 | 344500 | 285700 | 277400 | 271600 |
| 13 | 249300 | 251900 | 259200 | 256300 | 261200 | 264300 | 259000 | 271800 | 341700 | 285500 | 277000 | 271200 |
| 14 | 249100 | 253000 | 259500 | 256300 | 261100 | 263100 | 258400 | 271400 | 338400 | 285700 | 276800 | 271000 |
| 15 | 248700 | 253000 | 260500 | 256300 | 261100 | 262800 | 257700 | 271400 | 335500 | 285500 | 276200 | 271200 |
| 16 | 248400 | 255800 | 260500 | 256300 | 260900 | 261600 | 257500 | 282100 | 335500 | 285300 | 277800 | 270800 |
| 17 | 252600 | 257100 | 258800 | 256500 | 260700 | 260500 | 257300 | 295500 | 333200 | 285300 | 278200 | 269400 |
| 18 | 253000 | 256700 | 258600 | 256700 | 260500 | 260100 | 256900 | 306100 | 331600 | 284900 | 278800 | 268100 |
| 19 | 253000 | 256300 | 257700 | 258000 | 260300 | 259000 | 256500 | 311700 | 331600 | 284700 | 279000 | 267500 |
| 20 | 252800 | 256200 | 256200 | 257500 | 260100 | 257500 | 256200 | 315500 | 331400 | 284500 | 278800 | 266600 |
| 21 | 252800 | 255600 | 255000 | 257300 | 260500 | 258200 | 256000 | 317100 | 329300 | 284100 | 278200 | 266000 |
| 22 | 252600 | 256000 | 254900 | 257500 | 260300 | 258200 | 256200 | 316700 | 326300 | 283700 | 277800 | 265800 |
| 23 | 252600 | 256200 | 255200 | 257500 | 259700 | 257500 | 256500 | 321800 | 322600 | 283700 | 277400 | 264300 |
| 24 | 252200 | 255400 | 255000 | 257100 | 259500 | 256900 | 256200 | 313800 | 319000 | 283900 | 276600 | 263700 |
| 25 | 251700 | 254900 | 254900 | 257500 | 259500 | 256700 | 255800 | 308400 | 314600 | 283500 | 276200 | 262900 |
| 26 | 251100 | 255800 | 254900 | 258000 | 259500 | 256300 | 255400 | 304000 | 308800 | 282500 | 275600 | 262400 |
| 27 | 254300 | 254900 | 254700 | 257500 | 259400 | 255800 | 255000 | 300200 | 304700 | 283700 | 275400 | 261800 |
| 28 | 253700 | 254300 | 255200 | 257100 | 260500 | 255400 | 255200 | 297700 | 300200 | 283300 | 276200 | 260700 |
| 29 | 253000 | 254100 | 255400 | 257700 | --- | 258600 | 255400 | 295500 | 295500 | 282900 | 275800 | 260100 |
| 30 | 252600 | 254100 | 255400 | 257300 | --- | 258600 | 255600 | 293300 | 291300 | 282300 | 275800 | 259500 |
| 31 | 252800 | --- | 255000 | 258600 | --- | 259000 | --- | 291900 | --- | 281900 | 275400 | --- |
| MAX | 254300 | 257100 | 260500 | 258600 | 263700 | 266200 | 260700 | 321800 | 348700 | 289900 | 282300 | 275400 |
| MIN | 248400 | 251500 | 253900 | 254900 | 258200 | 255400 | 255000 | 256000 | 291100 | 281900 | 275400 | 259500 |
| (†) | 228.39 | 228.46 | 228.51 | 228.70 | 228.80 | 228.72 | 228.54 | 230.41 | 230.38 | 229.91 | 229.58 | 228.75 |
| (‡) | -600 | +1300 | +900 | +3600 | +1900 | -1500 | -3400 | +36300 | -600 | -9400 | -6500 | -15900 |
| (††) | 75 | 65 | 64 | 1200 | 1340 | 1230 | 220 | 116 | 203 | 243 | 1030 | 1210 |

CAL YR 1980 MAX 331000 MIN 248400 ‡ -3600 †† 4720
WTR YR 1981 MAX 348700 MIN 248400 ‡ +6100 †† 7000

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, for municipal and industrial uses.

07345900 LAKE O' THE PINES NEAR JEFFERSON, TX--Continued

WATER-QUALITY RECORDS

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

324509094303901 LAKE O'THE PINES SITE AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|
| FEB | | | | | | | |
| 10... | 1100 | 1.0 | 100 | 5.6 | 8.5 | 10.3 | 90 |
| 10... | 1102 | 10 | 100 | 5.6 | 8.5 | 10.3 | 90 |
| 10... | 1104 | 20 | 100 | 5.6 | 8.5 | 10.3 | 90 |
| 10... | 1106 | 27 | 100 | 5.6 | 8.5 | 10.3 | 90 |
| MAY | | | | | | | |
| 13... | 0920 | 1.0 | 125 | 5.7 | 21.0 | 7.6 | 85 |
| 13... | 0921 | 10 | 125 | 5.7 | 21.0 | 7.5 | 84 |
| 13... | 0922 | 20 | 125 | 5.7 | 20.5 | 7.5 | 83 |
| 13... | 0923 | 30 | 125 | 5.6 | 20.5 | 6.9 | 77 |
| AUG | | | | | | | |
| 19... | 0950 | 1.0 | 125 | 6.6 | 29.0 | 4.9 | 64 |
| 19... | 0951 | 10 | 126 | 6.6 | 29.0 | 4.6 | 60 |
| 19... | 0952 | 20 | 140 | 6.6 | 28.0 | .2 | 3 |
| 19... | 0953 | 24 | 146 | 6.6 | 27.0 | .2 | 2 |

324518094300801 LAKE O'THE PINES SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | NESS (MG/L AS CACO3) | NONCARBONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | |
| 10... | 1030 | 1.0 | 100 | 5.6 | 9.0 | 2.20 | 10.4 | 92 | 20 | 16 |
| 10... | 1031 | 3.6 | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 1032 | 10 | 100 | 5.6 | 8.5 | -- | 10.3 | 90 | -- | -- |
| 10... | 1034 | 20 | 100 | 5.6 | 8.5 | -- | 10.3 | 90 | -- | -- |
| 10... | 1036 | 30 | 100 | 5.6 | 8.5 | -- | 10.3 | 90 | -- | -- |
| 10... | 1038 | 40 | 100 | 5.6 | 8.5 | -- | 10.3 | 90 | -- | -- |
| 10... | 1040 | 48 | 100 | 5.6 | 8.5 | -- | 10.3 | 90 | 20 | 16 |
| MAY | | | | | | | | | | |
| 13... | 0900 | 1.0 | 125 | 5.7 | 21.0 | 1.20 | 7.7 | 87 | 20 | 16 |
| 13... | 0901 | 2.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | 0902 | 10 | 125 | 5.7 | 21.0 | -- | 7.5 | 84 | -- | -- |
| 13... | 0903 | 20 | 125 | 5.7 | 20.5 | -- | 7.5 | 83 | -- | -- |
| 13... | 0904 | 30 | 125 | 5.6 | 20.5 | -- | 6.9 | 77 | -- | -- |
| 13... | 0905 | 40 | 125 | 5.6 | 20.0 | -- | 6.6 | 73 | -- | -- |
| 13... | 0906 | 45 | 125 | 5.5 | 20.0 | -- | 6.5 | 71 | 20 | 15 |
| AUG | | | | | | | | | | |
| 19... | 0900 | 1.0 | 124 | 6.7 | 29.0 | 1.40 | 5.0 | 65 | 31 | 20 |
| 19... | 0901 | 2.3 | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | 0902 | 10 | 124 | 6.6 | 29.0 | -- | 4.8 | 62 | -- | -- |
| 19... | 0903 | 15 | 124 | 6.7 | 29.0 | -- | 4.7 | 61 | -- | -- |
| 19... | 0904 | 20 | 129 | 6.6 | 28.0 | -- | .2 | 3 | -- | -- |
| 19... | 0905 | 30 | 151 | 6.7 | 24.0 | -- | .2 | 2 | -- | -- |
| 19... | 0906 | 40 | 155 | 6.7 | 23.5 | -- | .2 | 2 | -- | -- |
| 19... | 0907 | 46 | 158 | 6.7 | 23.0 | -- | .2 | 2 | 28 | 0 |

LAKE O' THE PINES NEAR JEFFERSON, TX--Continued

324518094300801 LAKE O'THE PINES SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| 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 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) |
|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | |
| 10... | 2.5 | 3.3 | 12 | 1.2 | 3.8 | 4 | 26 | 13 | .2 | 11 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 2.4 | 3.3 | 12 | 1.2 | 3.8 | 4 | 26 | 13 | -- | 11 |
| MAY | | | | | | | | | | |
| 13... | 2.7 | 3.2 | 12 | 1.2 | 3.6 | 4 | 27 | 15 | .2 | 6.0 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | 2.8 | 3.1 | 12 | 1.2 | 3.6 | 5 | 28 | 15 | -- | 6.6 |
| AUG | | | | | | | | | | |
| 19... | 6.7 | 3.4 | 11 | 1.0 | 4.4 | 11 | 20 | 20 | .2 | 9.6 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | 5.0 | 3.7 | 13 | 1.2 | 4.4 | 44 | 8.0 | 20 | -- | 15 |

| DATE | SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) | 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) | NITRO- GEN, TOTAL (MG/L AS N) | PHOS- PHORUS, TOTAL (MG/L AS P) | IRON, DIS- SOLVED (UG/L AS FE) | MANGA- NESE, DIS- SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | |
| 10... | 75 | .03 | .070 | .67 | .74 | .77 | .020 | 40 | 160 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | .03 | .090 | .58 | .67 | .70 | .020 | 70 | 160 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 74 | .03 | .090 | .69 | .78 | .81 | .030 | 60 | 160 |
| MAY | | | | | | | | | |
| 13... | 72 | .01 | -- | -- | .77 | .78 | .030 | 20 | 30 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | .07 | -- | -- | .80 | .87 | .040 | 20 | 40 |
| 13... | -- | .08 | -- | -- | .76 | .84 | .040 | 20 | 60 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | 74 | .07 | -- | -- | .78 | .85 | .260 | 60 | 120 |
| AUG | | | | | | | | | |
| 19... | 82 | .00 | -- | -- | .71 | .71 | .020 | 11 | 130 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | .00 | -- | -- | .89 | .89 | .020 | 50 | 230 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | .00 | -- | -- | .84 | .84 | .020 | 300 | 2300 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | 106 | .00 | -- | -- | 1.90 | 1.9 | .200 | 4600 | 6100 |

LAKE O' THE PINES NEAR JEFFERSON, TX--Continued

324613094323001 LAKE O'THE PINES SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | |
| 10... | 1130 | 1.0 | 100 | 5.6 | 8.5 | 1.80 | 10.4 | 91 |
| 10... | 1132 | 10 | 100 | 5.6 | 8.5 | -- | 10.4 | 91 |
| 10... | 1134 | 20 | 100 | 5.6 | 8.5 | -- | 10.4 | 91 |
| 10... | 1136 | 30 | 100 | 5.5 | 8.5 | -- | 10.5 | 92 |
| 10... | 1138 | 40 | 100 | 5.6 | 8.5 | -- | 10.5 | 92 |
| 10... | 1140 | 46 | 100 | 5.6 | 8.5 | -- | 10.4 | 91 |
| MAY | | | | | | | | |
| 13... | 0940 | 1.0 | 127 | 5.8 | 21.5 | 1.40 | 7.5 | 85 |
| 13... | 0941 | 10 | 127 | 5.7 | 21.5 | -- | 7.5 | 85 |
| 13... | 0942 | 20 | 127 | 5.7 | 21.5 | -- | 7.4 | 84 |
| 13... | 0943 | 30 | 129 | 5.6 | 21.0 | -- | 6.8 | 76 |
| 13... | 0944 | 41 | 129 | 5.6 | 20.5 | -- | 6.7 | 74 |
| AUG | | | | | | | | |
| 19... | 1015 | 1.0 | 126 | 6.9 | 28.5 | 1.30 | 5.6 | 72 |
| 19... | 1016 | 10 | 126 | 6.9 | 28.5 | -- | 5.6 | 72 |
| 19... | 1017 | 20 | 126 | 6.9 | 28.5 | -- | 5.4 | 69 |
| 19... | 1018 | 25 | 150 | 6.8 | 25.5 | -- | .2 | 2 |
| 19... | 1019 | 30 | 155 | 6.9 | 24.5 | -- | .2 | 2 |
| 19... | 1020 | 41 | 164 | 6.8 | 23.5 | -- | .2 | 2 |

| DATE | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | |
| 10... | .01 | -- | -- | .61 | .62 | .020 | 60 | 130 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | .02 | .090 | .62 | .71 | .73 | .020 | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | .02 | .060 | .62 | .68 | .70 | .030 | 90 | 130 |
| MAY | | | | | | | | |
| 13... | .06 | -- | -- | 1.10 | 1.2 | .040 | 20 | 30 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | .05 | -- | -- | .80 | .85 | .030 | 30 | 30 |
| 13... | .08 | -- | -- | 1.30 | 1.4 | .040 | 40 | 60 |
| 13... | .06 | -- | -- | 1.50 | 1.6 | .040 | 30 | 70 |
| AUG | | | | | | | | |
| 19... | .00 | -- | -- | .94 | .94 | .010 | 210 | 300 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | .00 | -- | -- | .91 | .91 | .020 | 510 | 570 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | .00 | -- | -- | 1.40 | 1.4 | .130 | 4000 | 4700 |
| 19... | .00 | -- | -- | 1.80 | 1.8 | .260 | 6300 | 5000 |

324738094325101 LAKE O'THE PINES SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|
| FEB | | | | | | | |
| 10... | 1220 | 1.0 | 103 | 5.6 | 10.0 | 10.3 | 93 |
| 10... | 1222 | 10 | 103 | 5.6 | 9.0 | 10.1 | 89 |
| 10... | 1224 | 21 | 103 | 5.6 | 9.0 | 10.1 | 89 |
| MAY | | | | | | | |
| 13... | 1115 | 1.0 | 126 | 5.8 | 22.0 | 7.0 | 80 |
| 13... | 1116 | 10 | 126 | 5.8 | 21.5 | 6.2 | 70 |
| 13... | 1117 | 20 | 126 | 5.7 | 21.0 | 5.0 | 56 |
| AUG | | | | | | | |
| 19... | 1205 | 1.0 | 130 | 6.6 | 29.0 | 4.5 | 58 |
| 19... | 1206 | 10 | 130 | 6.6 | 29.0 | 4.2 | 55 |
| 19... | 1207 | 15 | 131 | 6.7 | 28.5 | 4.2 | 54 |
| 19... | 1208 | 21 | 148 | 6.8 | 27.5 | .2 | 3 |

LAKE O' THE PINES NEAR JEFFERSON, TX--Continued

324806094350001 LAKE O'THE PINES SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|
| FEB | | | | | | | |
| 10... | 1300 | 1.0 | 100 | 5.6 | 9.5 | 10.2 | 91 |
| 10... | 1302 | 10 | 100 | 5.6 | 9.5 | 10.2 | 91 |
| 10... | 1304 | 20 | 100 | 5.6 | 9.5 | 10.3 | 91 |
| 10... | 1306 | 24 | 100 | 5.6 | 9.5 | 10.2 | 91 |
| MAY | | | | | | | |
| 13... | 1038 | 1.0 | 121 | 6.0 | 21.5 | 7.2 | 82 |
| 13... | 1040 | 5.0 | 117 | 6.0 | 21.5 | 7.2 | 82 |
| 13... | 1042 | 10 | 111 | 6.1 | 21.5 | 6.7 | 76 |
| 13... | 1043 | 21 | 111 | 6.0 | 21.0 | 6.2 | 70 |
| AUG | | | | | | | |
| 19... | 1130 | 1.0 | 126 | 6.7 | 28.5 | 4.6 | 59 |
| 19... | 1131 | 10 | 126 | 6.7 | 28.5 | 4.5 | 58 |
| 19... | 1132 | 20 | 126 | 6.6 | 28.5 | 4.0 | 51 |
| 19... | 1133 | 24 | 126 | 6.6 | 28.5 | 3.8 | 49 |

324726094363801 LAKE O'THE PINES SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | |
| 10... | 1330 | 1.0 | 103 | 5.6 | 8.5 | 2.00 | 10.7 | 94 | 24 | 19 |
| 10... | 1332 | 10 | 103 | 5.6 | 8.5 | -- | 10.7 | 94 | -- | -- |
| 10... | 1334 | 19 | 103 | 5.6 | 8.5 | -- | 10.8 | 95 | 19 | 15 |
| MAY | | | | | | | | | | |
| 13... | 1015 | 1.0 | 135 | 5.8 | 21.5 | 1.60 | 7.8 | 89 | 20 | 17 |
| 13... | 1016 | 10 | 135 | 5.7 | 21.5 | -- | 7.8 | 89 | -- | -- |
| 13... | 1017 | 20 | 137 | 5.6 | 21.5 | -- | 7.6 | 86 | -- | -- |
| 13... | 1018 | 29 | 143 | 5.5 | 21.0 | -- | 6.9 | 78 | 22 | 19 |
| AUG | | | | | | | | | | |
| 19... | 1100 | 1.0 | 121 | 6.7 | 28.5 | 1.40 | 5.0 | 64 | 24 | 13 |
| 19... | 1101 | 10 | 121 | 6.8 | 28.5 | -- | 5.0 | 64 | -- | -- |
| 19... | 1102 | 20 | 121 | 6.8 | 28.5 | -- | 5.0 | 64 | -- | -- |
| 19... | 1103 | 25 | 154 | 6.8 | 27.0 | -- | .2 | 2 | -- | -- |
| 19... | 1104 | 29 | 167 | 6.9 | 25.0 | -- | .2 | 2 | 32 | 0 |

| DATE | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | SILICA, DISSOLVED (MG/L AS SIO2) |
|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | |
| 10... | 4.0 | 3.5 | 12 | 1.1 | 3.9 | 3 | 26 | 13 | 8.3 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 2.1 | 3.4 | 13 | 1.3 | 3.9 | 4 | 26 | 14 | 8.3 |
| MAY | | | | | | | | | |
| 13... | 2.6 | 3.3 | 13 | 1.3 | 4.2 | 3 | 29 | 17 | 4.6 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | 3.1 | 3.5 | 13 | 1.2 | 3.9 | 3 | 30 | 17 | 4.9 |
| AUG | | | | | | | | | |
| 19... | 3.2 | 3.8 | 12 | 1.3 | 4.6 | 11 | 19 | 20 | 11 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | 6.5 | 3.9 | 12 | 1.0 | 4.8 | 52 | 5.0 | 14 | 17 |

LAKE O' THE PINES NEAR JEFFERSON, TX--Continued

324726094363801 LAKE O'THE PINES SITE EC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | 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) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | IRON, DIS-SOLVED (UG/L AS FE) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | |
| 10... | 73 | .00 | .080 | .52 | .60 | .60 | .030 | 50 | 70 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 73 | .00 | -- | -- | .74 | .74 | .030 | 50 | 70 |
| MAY | | | | | | | | | |
| 13... | 76 | .01 | -- | -- | 1.10 | 1.1 | .030 | 20 | 60 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | .10 | -- | -- | .93 | 1.0 | .040 | 40 | 130 |
| 13... | 77 | .12 | -- | -- | .98 | 1.1 | .040 | 60 | 210 |
| AUG | | | | | | | | | |
| 19... | 80 | .00 | -- | -- | .91 | .91 | .020 | 32 | 47 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | .00 | -- | -- | .79 | .79 | .020 | 240 | 230 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | 110 | .00 | -- | -- | 2.00 | 2.0 | .170 | 8600 | 6500 |

325100094420301 LAKE O'THE PINES SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMP-LING DEPTH (FT) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TRANS-PAR-ENCY (SECCHI DISK) (M) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | |
| 10... | 1535 | 1.0 | 230 | 6.7 | 9.0 | 1.20 | 10.4 | 92 | 54 | 35 |
| 10... | 1536 | 2.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 1537 | 10 | 230 | 6.6 | 9.0 | -- | 10.5 | 93 | -- | -- |
| 10... | 1539 | 20 | 230 | 6.5 | 9.0 | -- | 10.5 | 93 | 55 | 37 |
| MAY | | | | | | | | | | |
| 13... | 1330 | 1.0 | 278 | 7.0 | 22.0 | .80 | 7.8 | 90 | 64 | 41 |
| 13... | 1331 | 1.2 | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | 1332 | 10 | 278 | 6.8 | 21.5 | -- | 6.9 | 78 | -- | -- |
| 13... | 1333 | 20 | 278 | 6.7 | 21.0 | -- | 6.3 | 71 | 63 | 31 |
| AUG | | | | | | | | | | |
| 19... | 1400 | 1.0 | 147 | 6.7 | 29.0 | 1.40 | 4.6 | 60 | 28 | 8 |
| 19... | 1401 | 2.3 | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | 1402 | 10 | 150 | 6.6 | 28.0 | -- | 3.0 | 38 | -- | -- |
| 19... | 1403 | 21 | 150 | 6.6 | 28.0 | -- | 3.0 | 38 | 30 | 10 |

| 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 FIELD (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | SILICA, DIS-SOLVED (MG/L AS SIO2) |
|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | |
| 10... | 14 | 4.7 | 23 | 1.4 | 5.9 | 19 | 49 | 27 | 2.9 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 14 | 4.8 | 23 | 1.4 | 6.0 | 18 | 50 | 27 | 3.0 |
| MAY | | | | | | | | | |
| 13... | 18 | 4.6 | 23 | 1.3 | 6.6 | 23 | 53 | 31 | 11 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | 18 | 4.3 | 22 | 1.2 | 6.6 | 32 | 55 | 30 | 12 |
| AUG | | | | | | | | | |
| 19... | 3.6 | 4.7 | 15 | 1.4 | 4.9 | 20 | 17 | 15 | 12 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | 4.1 | 4.7 | 15 | 1.4 | 5.0 | 20 | 16 | 15 | 12 |

LAKE O' THE PINES NEAR JEFFERSON, TX--Continued

325100094420301 LAKE O'THE PINES SITE FC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | 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) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | IRON, DIS-SOLVED (UG/L AS FE) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | |
| 10... | 138 | .47 | .090 | .84 | .93 | 1.4 | .070 | 70 | 50 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 139 | .49 | .140 | 1.2 | 1.30 | 1.8 | .100 | 100 | 50 |
| MAY | | | | | | | | | |
| 13... | 161 | .01 | -- | -- | 1.30 | 1.3 | .090 | 110 | 60 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | .46 | -- | -- | 1.10 | 1.6 | .120 | 300 | 130 |
| 13... | 168 | .44 | -- | -- | 1.20 | 1.6 | .110 | 330 | 150 |
| AUG | | | | | | | | | |
| 19... | 84 | .00 | -- | -- | 1.10 | 1.1 | .050 | 49 | 180 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | .00 | -- | -- | 1.20 | 1.2 | .050 | 90 | 170 |
| 19... | 84 | .00 | -- | -- | 1.10 | 1.1 | .060 | 110 | 160 |

324518094300801 LAKE O'THE PINES SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMP-LING DEPTH (FT) | ARSENIC DIS-SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| FEB | | | | | | | |
| 10... | 1030 | 1.0 | 0 | 60 | <1 | 0 | 11 |
| 10... | 1034 | 20 | -- | -- | -- | -- | -- |
| 10... | 1040 | 48 | 0 | 60 | <1 | 0 | <10 |
| MAY | | | | | | | |
| 13... | 0900 | 1.0 | 1 | 60 | <1 | 10 | <10 |
| 13... | 0903 | 20 | -- | -- | -- | -- | -- |
| 13... | 0904 | 30 | -- | -- | -- | -- | -- |
| 13... | 0906 | 45 | 0 | 60 | <1 | 10 | <10 |
| AUG | | | | | | | |
| 19... | 0900 | 1.0 | 1 | 40 | <1 | 0 | <10 |
| 19... | 0902 | 10 | -- | -- | -- | -- | -- |
| 19... | 0904 | 20 | -- | -- | -- | -- | -- |
| 19... | 0907 | 46 | 6 | 200 | <1 | 0 | <10 |

| DATE | 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) |
|---|---|---|---|---|---|---|---|
| FEB | | | | | | | |
| 10... | 40 | <10 | 160 | .0 | 0 | 0 | 20 |
| 10... | 70 | -- | 160 | -- | -- | -- | -- |
| 10... | 60 | <10 | 160 | .0 | 0 | 1 | 30 |
| MAY | | | | | | | |
| 13... | 20 | <10 | 30 | .0 | 0 | 0 | 20 |
| 13... | 20 | -- | 40 | -- | -- | -- | -- |
| 13... | 20 | -- | 60 | -- | -- | -- | -- |
| 13... | 60 | <10 | 120 | .0 | 0 | 0 | 30 |
| AUG | | | | | | | |
| 19... | 11 | <10 | 130 | .0 | 0 | 0 | 61 |
| 19... | 50 | -- | 230 | -- | -- | -- | -- |
| 19... | 300 | -- | 2300 | -- | -- | -- | -- |
| 19... | 4600 | <10 | 6100 | .0 | 0 | 0 | 6 |

LAKE O' THE PINES NEAR JEFFERSON, TX--Continued

324518094300801 LAKE O'THE PINES SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | FEB 10,81 | MAY 13,81 | AUG 19,81 |
|---|---|---|---|
| TIME | 1031 | 0901 | 0901 |
| TOTAL CELLS/ML | 300 | 3400 | 32000 |
| DIVERSITY: DIVISION | 1.4 | 1.1 | 0.7 |
| .CLASS | 1.4 | 1.2 | 0.7 |
| ..ORDER | 2.3 | 1.4 | 1.6 |
| ...FAMILY | 2.5 | 1.4 | 2.0 |
| ....GENUS | 2.5 | 2.2 | 2.3 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | 26 | 9 | 98 | 3 | 1200 | 4 |
| ....CHLORELLA | -- | - | -- | - | 650 | 2 |
| ....DICTYOSPHAERIUM | -- | - | -- | - | 320 | 1 |
| ....OOCYSTIS | -- | - | 56 | 2 | -- | - |
| ....TETRAEDRON | -- | - | -- | - | 270 | 1 |
| ....TREUBARIA | -- | - | -- | - | * | 0 |
| ...SCENEDESMACEAE | | | | | | |
| ....ACTINASTRUM | -- | - | -- | - | 430 | 1 |
| ....CRUCIGENIA | -- | - | 110 | 3 | 870 | 3 |
| ....SCENEDESMUS | 51# | 17 | -- | - | 490 | 2 |
| ..TETRASPORALES | | | | | | |
| ...COCCOMYXACEAE | | | | | | |
| ....ELAKATOTHRIX | 51# | 17 | -- | - | -- | - |
| ...PALMELLACEAE | | | | | | |
| ....SPHAEROCYSTIS | -- | - | 110 | 3 | -- | - |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CHLAMYDOMONAS | 13 | 4 | 42 | 1 | -- | - |
| ...VOLVOCACEAE | | | | | | |
| ....GONIUM | -- | - | -- | - | 220 | 1 |
| CHRYSOPHYTA | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..CENTRALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | -- | - | 770# | 23 | * | 0 |
| ....MELOSIRA | 100# | 35 | 1700# | 50 | -- | - |
| ..PENNALES | | | | | | |
| ...FRAGILARIACEAE | | | | | | |
| ....FRAGILARIA | -- | - | -- | - | 160 | 1 |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | 13 | 4 | * | 0 | -- | - |
| .XANTHOPHYCEAE | | | | | | |
| ..HETEROCOCCALES | | | | | | |
| ...CHLOROTHECIACEAE | | | | | | |
| ....OPHIOCYTIUM | -- | - | 42 | 1 | -- | - |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | |
| .CRYPTOPHYCEAE | | | | | | |
| ..CRYPTOMONADALES | | | | | | |
| ...CRYPTOMONADACEAE | | | | | | |
| ....CRYPTOMONAS | -- | - | -- | - | * | 0 |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....AGMENELLUM | -- | - | 340 | 10 | -- | - |
| ....ANACYSTIS | 39 | 13 | 110 | 3 | 11000# | 34 |
| ....COCCOCHLORIS | -- | - | -- | - | 430 | 1 |
| ..HORMOGONALES | | | | | | |
| ...NOSTOCACEAE | | | | | | |
| ....APHANIZOMENON | -- | - | -- | - | 1600 | 5 |
| ...OSCILLATORIACEAE | | | | | | |
| ....LYNGBYA | -- | - | -- | - | 14000# | 43 |
| ...RIVULARIACEAE | | | | | | |
| ....RAPHIDIOPSIS | -- | - | -- | - | 270 | 1 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....EUGLENA | -- | - | -- | - | * | 0 |
| ....TRACHELOMONAS | -- | - | -- | - | * | 0 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

LAKE O' THE PINES NEAR JEFFERSON, TX--Continued

325100094420301 LAKE O'THE PINES SITE FC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | FEB 10,81 | MAY 13,81 | AUG 19,81 |
|---|---|---|---|
| TIME | 1536 | 1331 | 1401 |
| TOTAL CELLS/ML | 5100 | 49000 | 1100 |
| DIVERSITY: DIVISION | 0.9 | 1.4 | 2.0 |
| .CLASS | 0.9 | 1.4 | 2.0 |
| ..ORDER | 1.0 | 1.5 | 2.2 |
| ...FAMILY | 1.1 | 2.0 | 2.6 |
| ....GENUS | 1.2 | 3.1 | 2.9 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...CHARACIACEAE | | | | | | |
| ....SCHROEDERIA | -- | - | -- | - | 43 | 4 |
| ...HYDRODICTYACEAE | | | | | | |
| ....PEDIASTRUM | -- | - | -- | - | 230# | 21 |
| ...MICRACTINIACEAE | | | | | | |
| ....MICRACTINIUM | -- | - | -- | - | 29 | 3 |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | 530 | 10 | 1200 | 3 | -- | - |
| ....CHODATELLA | 44 | 1 | -- | - | -- | - |
| ....KIRCHNERIELLA | -- | - | 6900 | 14 | -- | - |
| ....OOCYSTIS | -- | - | * | 0 | -- | - |
| ....SELENASTRUM | 44 | 1 | 410 | 1 | -- | - |
| ....TREUBARIA | -- | - | * | 0 | -- | - |
| ...SCENEDESMACEAE | | | | | | |
| ....CRUCIGENIA | -- | - | 5600 | 11 | -- | - |
| ....SCENEDESMUS | -- | - | 8200# | 17 | 29 | 3 |
| ....TETRASTRUM | -- | - | 1200 | 3 | -- | - |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CHLAMYDOMONAS | -- | - | 620 | 1 | -- | - |
| CHRYSOPHYTA | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..CENTRALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | 4000# | 78 | 1300 | 3 | 58 | 5 |
| ....MELOSIRA | 44 | 1 | 2400 | 5 | 120 | 10 |
| ..PENNALES | | | | | | |
| ...FRAGILARIACEAE | | | | | | |
| ....SYNEDRA | 44 | 1 | -- | - | 14 | 1 |
| ...GOMPHONEMATACEAE | | | | | | |
| ....GOMPHONEMA | -- | - | -- | - | 29 | 3 |
| ...NAVICULACEAE | | | | | | |
| ....NAVICULA | 44 | 1 | -- | - | -- | - |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | 44 | 1 | 510 | 1 | -- | - |
| .XANTHOPHYCEAE | | | | | | |
| ..HETEROCOCCALES | | | | | | |
| ...CENTRITRACTACEAE | | | | | | |
| ....CENTRITRACTUS | -- | - | * | 0 | -- | - |
| ...CHLOROTHECIACEAE | | | | | | |
| ....OPHIOCYTIUM | -- | - | -- | - | 14 | 1 |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....AGMENELLUM | -- | - | 12000# | 25 | -- | - |
| ....ANACYSTIS | 350 | 7 | 7700# | 16 | -- | - |
| ..HORMOGONALES | | | | | | |
| ...NOSTOCACEAE | | | | | | |
| ....ANABAENA | -- | - | -- | - | 230# | 21 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....EUGLENA | -- | - | * | 0 | 14 | 1 |
| ....TRACHELOMONAS | -- | - | * | 0 | 300# | 27 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 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 (290 m) downstream from Ferrell's Bridge Dam, 7.6 mi (12.2 km) upstream from French Creek, and 8.5 mi (13.7 km) west of Jefferson.

DRAINAGE AREA.--850 $mi^2$ (2,202 $km^2$).

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 Corps of Engineers, New Orleans District.

GAGE.--Water-stage recorder. Datum of gage is 180.00 ft (54.864 m) National Geodetic Vertical Datum of 1929 (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 (290 m) upstream at datum 3.70 ft (1.128 m) higher. After Dec. 9, 1955, at site about 550 ft (168 m) downstream or at present site at datum 180.00 ft (54.864 m) lower.

REMARKS.--Records good. Flow regulated by Lake O' the Pines (station 07345900) since August 1957. Several observations of water temperature were obtained during the year.

AVERAGE DISCHARGE.--37 years (water years 1925-59, 1980-81), 682 $ft^3/s$ (19.31 $m^3/s$), 494,100 acre-ft/yr (609 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 57,100 $ft^3/s$ (1,620 $m^3/s$) Apr. 1, 1945, gage height, 28.78 ft (8.772 m) site and datum then in use, from rating curve extended above 29,000 $ft^3/s$ (821 $m^3/s$); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,660 $ft^3/s$ (75.3 $m^3/s$) May 25 at 1600 hours, gage height, 19.54 ft (9.956 m); minimum daily, 2.3 $ft^3/s$ (0.065 $m^3/s$) Oct. 14-16, 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.1 | 3.8 | 9.2 | 4.8 | 3.7 | 193 | 159 | 15 | 1750 | 1450 | 18 | 20 |
| 2 | 4.1 | 3.8 | 8.7 | 4.8 | 3.8 | 194 | 159 | 13 | 1700 | 919 | 19 | 20 |
| 3 | 3.7 | 3.8 | 8.6 | 4.8 | 3.8 | 192 | 159 | 13 | 1680 | 538 | 19 | 19 |
| 4 | 3.7 | 3.8 | 8.6 | 4.8 | 3.8 | 194 | 164 | 13 | 1680 | 459 | 19 | 19 |
| 5 | 3.8 | 3.8 | 8.6 | 4.8 | 3.8 | 347 | 162 | 13 | 1480 | 452 | 19 | 20 |
| 6 | 3.6 | 3.8 | 8.4 | 4.7 | 3.8 | 512 | 160 | 12 | 1080 | 449 | 19 | 20 |
| 7 | 3.6 | 5.8 | 7.6 | 4.4 | 3.8 | 517 | 160 | 12 | 983 | 450 | 19 | 20 |
| 8 | 3.6 | 6.8 | 8.4 | 4.3 | 3.8 | 521 | 160 | 12 | 1270 | 450 | 19 | 20 |
| 9 | 3.0 | 8.4 | 8.2 | 4.3 | 3.8 | 523 | 150 | 29 | 1750 | 447 | 19 | 20 |
| 10 | 2.6 | 8.9 | 7.6 | 4.1 | 108 | 523 | 144 | 26 | 2000 | 447 | 19 | 20 |
| 11 | 2.6 | 9.6 | 7.4 | 4.1 | 187 | 370 | 144 | 14 | 2260 | 447 | 19 | 20 |
| 12 | 2.5 | 9.4 | 7.3 | 4.0 | 188 | 173 | 143 | 8.1 | 2520 | 447 | 19 | 20 |
| 13 | 2.4 | 7.5 | 7.3 | 4.0 | 189 | 324 | 143 | 3.1 | 2540 | 342 | 19 | 20 |
| 14 | 2.3 | 9.3 | 7.3 | 4.1 | 190 | 441 | 143 | 3.0 | 2540 | 172 | 19 | 20 |
| 15 | 2.3 | 16 | 7.3 | 4.1 | 190 | 448 | 143 | 2.9 | 2530 | 167 | 19 | 21 |
| 16 | 2.3 | 22 | 64 | 4.1 | 191 | 446 | 142 | 6.8 | 2530 | 166 | 20 | 118 |
| 17 | 5.5 | 93 | 308 | 3.9 | 191 | 445 | 142 | 4.1 | 2520 | 166 | 20 | 200 |
| 18 | 2.4 | 159 | 498 | 3.9 | 190 | 394 | 142 | 2.9 | 2520 | 166 | 20 | 202 |
| 19 | 2.3 | 159 | 508 | 3.9 | 190 | 311 | 142 | 100 | 2510 | 165 | 20 | 201 |
| 20 | 2.5 | 159 | 507 | 4.1 | 190 | 163 | 143 | 307 | 2500 | 165 | 20 | 203 |
| 21 | 2.7 | 158 | 369 | 4.0 | 191 | 161 | 143 | 664 | 2500 | 165 | 20 | 203 |
| 22 | 2.7 | 158 | 104 | 3.9 | 190 | 159 | 142 | 1240 | 2490 | 92 | 20 | 204 |
| 23 | 2.7 | 159 | 7.7 | 3.9 | 190 | 159 | 142 | 2100 | 2490 | 19 | 20 | 205 |
| 24 | 3.6 | 159 | 7.8 | 3.9 | 190 | 159 | 142 | 2570 | 2480 | 18 | 20 | 206 |
| 25 | 3.9 | 159 | 7.6 | 3.9 | 190 | 159 | 142 | 2620 | 2470 | 18 | 20 | 206 |
| 26 | 3.9 | 159 | 7.1 | 3.9 | 190 | 159 | 142 | 2630 | 2470 | 18 | 20 | 207 |
| 27 | 4.9 | 159 | 6.0 | 3.9 | 191 | 159 | 142 | 2610 | 2460 | 18 | 20 | 208 |
| 28 | 4.3 | 158 | 4.9 | 3.9 | 191 | 159 | 73 | 2600 | 2460 | 18 | 19 | 208 |
| 29 | 4.1 | 74 | 4.2 | 3.9 | --- | 164 | 13 | 2580 | 2460 | 18 | 19 | 209 |
| 30 | 4.1 | 9.5 | 3.1 | 3.9 | --- | 162 | 15 | 2580 | 2120 | 18 | 20 | 209 |
| 31 | 3.9 | --- | 3.0 | 3.8 | --- | 161 | --- | 2210 | --- | 18 | 20 | --- |
| TOTAL | 103.7 | 2049.0 | 2529.9 | 128.9 | 3561.1 | 8992 | 4100 | 25013.9 | 64743 | 8884 | 602 | 3288 |
| MEAN | 3.35 | 68.3 | 81.6 | 4.16 | 127 | 290 | 137 | 807 | 2158 | 287 | 19.4 | 110 |
| MAX | 5.5 | 159 | 508 | 4.8 | 191 | 523 | 164 | 2630 | 2540 | 1450 | 20 | 209 |
| MIN | 2.3 | 3.8 | 3.0 | 3.8 | 3.7 | 159 | 13 | 2.9 | 983 | 18 | 18 | 19 |
| AC-FT | 206 | 4060 | 5020 | 256 | 7060 | 17840 | 8130 | 49620 | 128400 | 17620 | 1190 | 6520 |

CAL YR 1980 TOTAL 189016.2 MEAN 516 MAX 2750 MIN 1.2 AC-FT 374900
WTR YR 1981 TOTAL 123995.5 MEAN 340 MAX 2630 MIN 2.3 AC-FT 245900

## 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 (1.8 km) north of Jefferson, 2.0 mi (3.2 km) upstream from Texas and Pacific Railway Co. bridge, and 5.2 mi (8.4 km) upstream from mouth.

DRAINAGE AREA.--365 $mi^2$ (945 $km^2$).

### WATER-DISCHARGE RECORDS

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 Corps of Engineers as "Black Cypress Creek at Jefferson". September 1964 to August 1968 operated as low-flow partial-record station only.

GAGE.--Water-stage recorder. Datum of gage is 171.47 ft (52.264 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records good. No known regulation or diversion in vicinity of gage.

AVERAGE DISCHARGE.--13 years (water years 1969-81), 342 $ft^3/s$ (9.685 $m^3/s$), 12.72 in/yr (323 mm/yr), 247,800 acre-ft/yr (306 $hm^3/yr$).
The figure published in the 1980 report was in error; the correct figure is 12 years (water years 1969-80), 354 $ft^3/s$ (10.03 $m^3/s$), 13.17 in/yr (335 mm/yr), 256,500 acre-ft/yr (316 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,120 $ft^3/s$ (202 $m^3/s$) Apr. 25, 1974, gage height, 17.69 ft (5.392 m); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1938, 22.42 ft (6.834 m) Apr. 29, 1958, from records of Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,590 $ft^3/s$ (102 $m^3/s$) May 19 at 1400 hours, gage height, 15.77 ft (4.807 m), no peak above base of 4,000 $ft^3/s$ (113 $m^3/s$); minimum, 0.03 $ft^3/s$ (0.001 $m^3/s$) Aug. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 16 | 59 | 87 | 80 | 109 | 212 | 190 | 91 | 372 | 108 | 1.6 | 21 |
| 2 | 8.4 | 55 | 87 | 79 | 120 | 244 | 215 | 127 | 366 | 85 | 7.7 | 17 |
| 3 | 4.7 | 44 | 83 | 78 | 124 | 249 | 232 | 106 | 372 | 68 | 11 | 13 |
| 4 | 2.9 | 33 | 84 | 79 | 134 | 260 | 249 | 100 | 494 | 57 | 8.6 | 11 |
| 5 | 1.9 | 23 | 80 | 80 | 167 | 290 | 270 | 128 | 929 | 55 | 4.6 | 9.8 |
| 6 | 1.1 | 19 | 79 | 83 | 190 | 309 | 270 | 146 | 1420 | 82 | 2.8 | 9.8 |
| 7 | 1.6 | 14 | 79 | 94 | 198 | 322 | 246 | 149 | 1770 | 153 | 1.8 | 10 |
| 8 | 4.1 | 11 | 78 | 100 | 198 | 343 | 220 | 144 | 2290 | 155 | 1.4 | 9.6 |
| 9 | 3.1 | 8.2 | 93 | 100 | 194 | 364 | 197 | 201 | 2400 | 123 | .96 | 9.4 |
| 10 | 2.1 | 6.4 | 118 | 109 | 190 | 371 | 173 | 305 | 2080 | 107 | .76 | 7.7 |
| 11 | 1.5 | 5.9 | 120 | 117 | 185 | 366 | 152 | 320 | 1600 | 109 | .76 | 5.9 |
| 12 | .91 | 6.3 | 136 | 120 | 175 | 352 | 134 | 294 | 1210 | 109 | .58 | 4.2 |
| 13 | .49 | 7.2 | 165 | 118 | 165 | 325 | 119 | 306 | 932 | 97 | .38 | 2.8 |
| 14 | .31 | 9.5 | 177 | 113 | 163 | 282 | 105 | 334 | 732 | 79 | .22 | 1.9 |
| 15 | .19 | 27 | 173 | 108 | 161 | 235 | 92 | 348 | 569 | 62 | .09 | 1.5 |
| 16 | .17 | 50 | 165 | 101 | 157 | 202 | 80 | 407 | 470 | 48 | .04 | 1.1 |
| 17 | 14 | 89 | 152 | 95 | 152 | 179 | 73 | 663 | 425 | 38 | .04 | .82 |
| 18 | 60 | 133 | 135 | 90 | 146 | 163 | 68 | 1780 | 410 | 31 | .34 | .64 |
| 19 | 27 | 139 | 122 | 87 | 139 | 152 | 61 | 3450 | 419 | 26 | .19 | .53 |
| 20 | 12 | 152 | 113 | 94 | 134 | 143 | 56 | 3150 | 473 | 21 | 5.6 | .48 |
| 21 | 24 | 171 | 107 | 110 | 130 | 135 | 51 | 2320 | 503 | 17 | 6.0 | .34 |
| 22 | 43 | 178 | 99 | 117 | 133 | 131 | 45 | 1680 | 492 | 12 | 3.5 | 4.3 |
| 23 | 40 | 167 | 92 | 119 | 147 | 125 | 44 | 1310 | 475 | 7.5 | 7.4 | 6.9 |
| 24 | 30 | 144 | 88 | 133 | 144 | 118 | 47 | 1070 | 442 | 5.1 | 7.5 | 4.8 |
| 25 | 18 | 121 | 84 | 146 | 137 | 113 | 48 | 912 | 379 | 3.7 | 5.4 | 3.7 |
| 26 | 11 | 104 | 81 | 145 | 141 | 108 | 46 | 789 | 291 | 2.6 | 4.2 | 2.6 |
| 27 | 8.5 | 99 | 80 | 138 | 159 | 104 | 48 | 653 | 204 | 2.0 | 3.4 | 2.1 |
| 28 | 22 | 98 | 80 | 129 | 180 | 101 | 50 | 529 | 163 | 1.7 | 8.4 | 1.5 |
| 29 | 27 | 94 | 80 | 120 | --- | 117 | 47 | 437 | 148 | 1.5 | 9.0 | 1.1 |
| 30 | 30 | 88 | 80 | 112 | --- | 182 | 49 | 377 | 133 | 1.3 | 11 | .70 |
| 31 | 50 | --- | 80 | 107 | --- | 194 | --- | 369 | --- | 1.6 | 22 | --- |
| TOTAL | 465.97 | 2155.5 | 3277 | 3301 | 4372 | 6791 | 3677 | 22995 | 22963 | 1669.0 | 137.26 | 166.21 |
| MEAN | 15.0 | 71.9 | 106 | 106 | 156 | 219 | 123 | 742 | 765 | 53.8 | 4.43 | 5.54 |
| MAX | 60 | 178 | 177 | 146 | 198 | 371 | 270 | 3450 | 2400 | 155 | 22 | 21 |
| MIN | .17 | 5.9 | 78 | 78 | 109 | 101 | 44 | 91 | 133 | 1.3 | .04 | .34 |
| CFSM | .04 | .20 | .29 | .29 | .43 | .60 | .34 | 2.03 | 2.10 | .15 | .01 | .02 |
| IN. | .05 | .22 | .33 | .34 | .45 | .69 | .37 | 2.34 | 2.34 | .17 | .01 | .02 |
| AC-FT | 924 | 4280 | 6500 | 6550 | 8670 | 13470 | 7290 | 45610 | 45550 | 3310 | 272 | 330 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 118408.58 | MEAN 324 | MAX 3730 | MIN .00 | CFSM .89 | IN 12.07 | AC-FT 234900 |
| WTR YR 1981 | TOTAL | 71969.94 | MEAN 197 | MAX 3450 | MIN .04 | CFSM .54 | IN 7.33 | AC-FT 142800 |

07346045 BLACK CYPRESS BAYOU AT JEFFERSON, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1967 to September 1981 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | TEMPER-ATURE, WATER (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | | |
| 03... | 1130 | 84 | 58 | 9.0 | 13 | 9 | 3.0 | 1.4 | 3.9 |
| JAN | | | | | | | | | |
| 14... | 1500 | 118 | 51 | 6.5 | 13 | 7 | 2.8 | 1.5 | 4.5 |
| APR | | | | | | | | | |
| 15... | 1700 | 90 | 75 | 21.0 | 21 | 5 | 5.3 | 1.9 | 6.0 |
| JUN | | | | | | | | | |
| 03... | 1210 | 364 | 54 | 23.0 | 17 | 4 | 3.9 | 1.7 | 4.0 |
| JUL | | | | | | | | | |
| 15... | 1000 | 63 | 58 | 27.0 | 18 | 2 | 4.2 | 1.9 | 4.3 |
| AUG | | | | | | | | | |
| 27... | 1800 | .58 | 64 | 26.5 | 20 | 2 | 4.9 | 2.0 | 4.1 |

| DATE | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY (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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | |
| 03... | .5 | 2.5 | 4 | -- | -- | -- | 20 | -- |
| JAN | | | | | | | | |
| 14... | .5 | 1.8 | 6 | 11 | 6.4 | .1 | 19 | 51 |
| APR | | | | | | | | |
| 15... | .6 | 3.0 | 16 | 10 | 7.3 | .1 | 17 | 61 |
| JUN | | | | | | | | |
| 03... | .4 | 1.9 | 13 | 5.6 | 5.7 | .0 | 18 | 49 |
| JUL | | | | | | | | |
| 15... | .5 | 2.0 | 16 | 2.0 | 7.0 | .1 | 22 | 53 |
| AUG | | | | | | | | |
| 27... | .4 | 2.3 | 18 | 5.0 | 6.7 | .1 | 15 | 51 |

## 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 (6 km) downstream from Clear Creek, 9 mi (14 km) south of Ore City, and 12 mi (19 km) north of Longview.

DRAINAGE AREA.--383 $mi^2$ (992 $km^2$).

PERIOD OF RECORD.--December 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 232.67 ft (70.918 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No known diversion above station. During the water year, the city of Gilmer discharged 648 acre-ft (799,000 $m^3$) of sewage effluent into a tributary above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--18 years (water years 1964-81), 281 $ft^3/s$ (7.958 $m^3/s$), 9.96 in/yr (253 mm/yr), 203,600 acre-ft/yr (251 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,500 $ft^3/s$ (666 $m^3/s$) Apr. 24, 1966, gage height, 20.20 ft (6.157 m); no flow at times.

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 (5.91 m), or 1.3 ft (0.40 m) lower than the flood of March 1945 at a point 6 mi (10 km) upstream, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 $ft^3/s$ (56.6 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| May 19 | 1300 | *3,250 | 92.0 | 11.81 | 3.600 |
| June 8 | 1200 | 2,540 | 71.9 | 11.27 | 3.435 |

Minimum discharge, 0.08 $ft^3/s$ (0.002 $m^3/s$) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 27 | 17 | 28 | 29 | 44 | 83 | 147 | 36 | 356 | 66 | 8.5 | 3.7 |
| 2 | 29 | 12 | 26 | 28 | 72 | 120 | 125 | 47 | 344 | 59 | 8.1 | 11 |
| 3 | 22 | 7.9 | 27 | 28 | 83 | 115 | 101 | 43 | 350 | 48 | 7.8 | 13 |
| 4 | 13 | 4.8 | 25 | 29 | 84 | 149 | 128 | 48 | 372 | 49 | 7.3 | 5.5 |
| 5 | 7.2 | 4.0 | 24 | 31 | 91 | 227 | 174 | 67 | 545 | 77 | 7.0 | 4.4 |
| 6 | 4.4 | 3.0 | 25 | 31 | 89 | 241 | 122 | 95 | 786 | 117 | 6.1 | 3.3 |
| 7 | 2.9 | 2.9 | 25 | 45 | 85 | 237 | 98 | 85 | 1240 | 174 | 4.0 | 2.3 |
| 8 | 1.7 | 2.7 | 28 | 50 | 78 | 252 | 84 | 79 | 2430 | 208 | 3.6 | 2.2 |
| 9 | 1.1 | 2.2 | 52 | 47 | 70 | 265 | 74 | 220 | 2070 | 200 | 3.4 | 2.5 |
| 10 | .82 | 1.8 | 70 | 46 | 70 | 251 | 65 | 535 | 1570 | 190 | 3.3 | 1.8 |
| 11 | .58 | 1.6 | 68 | 42 | 78 | 224 | 60 | 552 | 1230 | 186 | 3.1 | 1.3 |
| 12 | .40 | 1.3 | 72 | 37 | 70 | 184 | 55 | 399 | 941 | 147 | 3.0 | .83 |
| 13 | .28 | 1.0 | 62 | 35 | 66 | 136 | 50 | 322 | 750 | 103 | 2.8 | .48 |
| 14 | .20 | 1.1 | 49 | 33 | 62 | 108 | 45 | 311 | 574 | 73 | 2.5 | .31 |
| 15 | .17 | 5.4 | 44 | 33 | 57 | 92 | 41 | 301 | 391 | 56 | 2.3 | .28 |
| 16 | .17 | 32 | 42 | 33 | 55 | 83 | 37 | 450 | 393 | 46 | 2.7 | .41 |
| 17 | .86 | 74 | 40 | 31 | 53 | 77 | 34 | 989 | 516 | 39 | 4.1 | .37 |
| 18 | 7.5 | 94 | 37 | 31 | 53 | 72 | 30 | 1190 | 431 | 33 | 6.4 | .35 |
| 19 | 41 | 74 | 35 | 31 | 53 | 67 | 27 | 2940 | 391 | 30 | 19 | .37 |
| 20 | 32 | 58 | 32 | 37 | 52 | 64 | 27 | 2560 | 516 | 25 | 26 | .33 |
| 21 | 19 | 44 | 31 | 52 | 51 | 63 | 27 | 1780 | 665 | 21 | 18 | .29 |
| 22 | 12 | 33 | 29 | 53 | 52 | 61 | 27 | 1320 | 671 | 18 | 13 | .31 |
| 23 | 6.3 | 31 | 28 | 54 | 60 | 58 | 44 | 989 | 582 | 15 | 8.4 | .91 |
| 24 | 3.1 | 35 | 28 | 52 | 67 | 56 | 58 | 812 | 447 | 14 | 5.6 | .87 |
| 25 | 2.3 | 34 | 27 | 47 | 79 | 53 | 58 | 664 | 267 | 13 | 4.0 | .68 |
| 26 | 1.4 | 31 | 28 | 45 | 80 | 50 | 44 | 531 | 163 | 12 | 3.3 | .54 |
| 27 | 1.1 | 32 | 28 | 43 | 77 | 48 | 35 | 406 | 169 | 11 | 2.9 | .39 |
| 28 | 19 | 32 | 29 | 41 | 71 | 48 | 29 | 352 | 143 | 12 | 2.2 | .28 |
| 29 | 56 | 31 | 29 | 41 | --- | 76 | 29 | 354 | 104 | 10 | 2.0 | .18 |
| 30 | 52 | 29 | 29 | 39 | --- | 179 | 32 | 367 | 82 | 9.5 | 2.0 | .11 |
| 31 | 32 | --- | 29 | 36 | --- | 179 | --- | 377 | --- | 9.0 | 1.9 | --- |
| TOTAL | 396.48 | 732.7 | 1126 | 1210 | 1902 | 3918 | 1907 | 19221 | 19489 | 2070.5 | 194.3 | 59.29 |
| MEAN | 12.8 | 24.4 | 36.3 | 39.0 | 67.9 | 126 | 63.6 | 620 | 650 | 66.8 | 6.27 | 1.98 |
| MAX | 56 | 94 | 72 | 54 | 91 | 265 | 174 | 2940 | 2430 | 208 | 26 | 13 |
| MIN | .17 | 1.0 | 24 | 28 | 44 | 48 | 27 | 36 | 82 | 9.0 | 1.9 | .11 |
| CFSM | .03 | .06 | .10 | .10 | .18 | .33 | .17 | 1.62 | 1.70 | .17 | .02 | .005 |
| IN. | .04 | .07 | .11 | .12 | .18 | .38 | .19 | 1.87 | 1.89 | .20 | .02 | .01 |
| AC-FT | 786 | 1450 | 2230 | 2400 | 3770 | 7770 | 3780 | 38120 | 38660 | 4110 | 385 | 118 |

CAL YR 1980 TOTAL 100763.91 MEAN 275 MAX 3020 MIN .00 CFSM .72 IN 9.79 AC-FT 199900
WTR YR 1981 TOTAL 52226.27 MEAN 143 MAX 2940 MIN .11 CFSM .37 IN 5.07 AC-FT 103600

## 07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX

LOCATION.--Lat 32°42'46", long 94°20'44", Harrison-Marion County line, Hydrologic Unit 11140307, near center of channel at downstream side of bridge on U.S. Highway 59, 0.3 mi (0.5 km) downstream from Texas and Pacific Railway Co. bridge, 3.3 mi (5.3 km) downstream from Grays Creek, 3.5 mi (5.6 km) south of Jefferson, and 6.8 mi (10.9 km) upstream from mouth.

DRAINAGE AREA.--675 $mi^2$ (1,748 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1946 to current year.

GAGE.--Water-stage recorder. Datum of gage is 174.60 ft (53.218 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 19, 1947, nonrecording gage at upstream side of bridge at same datum.

REMARKS.--Water-discharge records fair. For record of sewage effluent discharges into tributaries above this station, see station 07346050. No known diversion above station.

AVERAGE DISCHARGE.--35 years (water years 1947-81), 533 $ft^3/s$ (15.09 $m^3/s$), 10.72 in/yr (272 mm/yr), 386,200 acre-ft/yr (476 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,500 $ft^3/s$ (1,010 $m^3/s$) Apr. 26, 1966, gage height, 22.28 ft (6.791 m); no flow at times.
Maximum stage since May 1944, that of Apr. 26, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1944 reached a stage of 21.1 ft (6.43 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,400 $ft^3/s$ (68.0 $m^3/s$) May 25 at 1530 hours, gage height, 11.73 ft (3.575 m); minimum, 0.16 $ft^3/s$ (0.005 $m^3/s$) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .24 | 9.1 | 56 | 52 | 72 | 127 | 180 | 113 | 728 | 221 | 16 | 7.9 |
| 2 | .77 | 31 | 55 | 52 | 74 | 150 | 207 | 118 | 621 | 168 | 15 | 7.9 |
| 3 | .64 | 42 | 52 | 51 | 76 | 163 | 225 | 123 | 565 | 130 | 14 | 9.7 |
| 4 | .42 | 37 | 49 | 51 | 85 | 190 | 233 | 116 | 629 | 106 | 13 | 35 |
| 5 | .34 | 27 | 46 | 51 | 101 | 210 | 233 | 113 | 806 | 93 | 12 | 154 |
| 6 | .26 | 21 | 44 | 54 | 116 | 225 | 234 | 139 | 1160 | 91 | 11 | 110 |
| 7 | .29 | 21 | 42 | 56 | 126 | 234 | 248 | 172 | 1480 | 92 | 10 | 56 |
| 8 | 12 | 20 | 44 | 61 | 133 | 240 | 260 | 190 | 1510 | 116 | 9.0 | 23 |
| 9 | 13 | 18 | 48 | 68 | 138 | 249 | 254 | 291 | 1380 | 144 | 8.0 | 8.9 |
| 10 | 10 | 17 | 56 | 73 | 148 | 259 | 218 | 459 | 1210 | 173 | 7.5 | 4.0 |
| 11 | 7.0 | 16 | 72 | 78 | 154 | 267 | 173 | 495 | 1180 | 195 | 7.0 | 2.6 |
| 12 | 5.1 | 16 | 93 | 77 | 148 | 274 | 142 | 502 | 1650 | 204 | 6.5 | 1.8 |
| 13 | 3.9 | 15 | 106 | 75 | 143 | 280 | 121 | 510 | 2100 | 202 | 6.0 | 1.2 |
| 14 | 3.1 | 15 | 107 | 72 | 140 | 283 | 107 | 537 | 1960 | 196 | 5.8 | .90 |
| 15 | 2.5 | 16 | 103 | 68 | 133 | 278 | 93 | 563 | 1620 | 182 | 5.6 | .74 |
| 16 | 2.0 | 17 | 98 | 65 | 123 | 259 | 82 | 599 | 1370 | 151 | 5.4 | .70 |
| 17 | 2.6 | 25 | 89 | 62 | 114 | 223 | 74 | 640 | 1160 | 116 | 5.2 | 1.2 |
| 18 | 3.7 | 34 | 77 | 60 | 107 | 182 | 67 | 617 | 985 | 90 | 6.0 | 1.8 |
| 19 | 4.1 | 50 | 70 | 59 | 101 | 153 | 61 | 573 | 830 | 72 | 10 | 1.6 |
| 20 | 4.7 | 73 | 66 | 61 | 97 | 135 | 57 | 564 | 699 | 60 | 25 | 1.1 |
| 21 | 4.6 | 94 | 62 | 64 | 94 | 122 | 63 | 595 | 614 | 51 | 37 | 1.2 |
| 22 | 4.3 | 104 | 59 | 69 | 93 | 114 | 63 | 679 | 557 | 44 | 40 | 1.2 |
| 23 | 17 | 99 | 57 | 76 | 93 | 108 | 69 | 1030 | 505 | 38 | 38 | 1.1 |
| 24 | 28 | 83 | 55 | 85 | 90 | 103 | 74 | 1750 | 464 | 32 | 32 | .86 |
| 25 | 25 | 69 | 53 | 89 | 88 | 100 | 76 | 2330 | 501 | 28 | 22 | .70 |
| 26 | 20 | 61 | 52 | 88 | 89 | 95 | 83 | 2230 | 557 | 26 | 16 | .62 |
| 27 | 17 | 58 | 51 | 87 | 96 | 90 | 89 | 1910 | 571 | 24 | 11 | .56 |
| 28 | 14 | 59 | 51 | 82 | 106 | 86 | 87 | 1560 | 539 | 22 | 8.3 | .43 |
| 29 | 12 | 59 | 50 | 78 | --- | 94 | 74 | 1260 | 464 | 20 | 7.0 | .38 |
| 30 | 11 | 58 | 51 | 75 | --- | 110 | 71 | 1030 | 329 | 19 | 6.5 | .33 |
| 31 | 9.9 | --- | 52 | 72 | --- | 142 | --- | 856 | --- | 17 | 7.2 | --- |
| TOTAL | 239.46 | 1264.1 | 1966 | 2111 | 3078 | 5545 | 4018 | 22664 | 28744 | 3123 | 423.0 | 437.42 |
| MEAN | 7.72 | 42.1 | 63.4 | 68.1 | 110 | 179 | 134 | 731 | 958 | 101 | 13.6 | 14.6 |
| MAX | 28 | 104 | 107 | 89 | 154 | 283 | 260 | 2330 | 2100 | 221 | 40 | 154 |
| MIN | .24 | 9.1 | 42 | 51 | 72 | 86 | 57 | 113 | 329 | 17 | 5.2 | .33 |
| CFSM | .01 | .06 | .09 | .10 | .16 | .27 | .20 | 1.08 | 1.42 | .15 | .02 | .02 |
| IN. | .01 | .07 | .11 | .12 | .17 | .31 | .22 | 1.25 | 1.58 | .17 | .02 | .02 |
| AC-FT | 475 | 2510 | 3900 | 4190 | 6110 | 11000 | 7970 | 44950 | 57010 | 6190 | 839 | 868 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 198100.09 | MEAN 541 | MAX 5830 | MIN .00 | CFSM .80 | IN 10.92 | AC-FT 392900 |
| WTR YR 1981 | TOTAL | 73612.98 | MEAN 202 | MAX 2330 | MIN .24 | CFSM .30 | IN 4.06 | AC-FT 146000 |

07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1967 to current year. Pesticide analyses: January 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1967 to current year.
WATER TEMPERATURES: October 1967 to current year.

INSTRUMENTATION.--Beginning June 1981, specific conductance and water temperature are recorded continuously at at this station.

REMARKS.--Specific conductance and water temperature from October 1980 through May 1981 are measured once daily. 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, 1,350 micromhos Nov. 9, 1969; minimum daily, 39 micromhos Apr. 20, 1973.
WATER TEMPERATURES: Maximum daily, 32.0°C on several days during summer months of 1977-78 and 1980; minimum daily, 1.0°C Jan. 21-23, 1978.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 480 micromhos Oct. 25; minimum daily, 45 micromhos July 14.
WATER TEMPERATURES: Maximum daily, 30.5°C July 25, Aug. 6.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (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 (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 09... | 0815 | 15 | 397 | 7.1 | 18.5 | 50 | 5.3 | 4.6 | 49 | 1.7 | 42 | 0 |
| JAN | | | | | | | | | | | | |
| 08... | 0815 | 60 | 343 | 6.6 | 4.0 | 30 | 3.0 | 11.8 | 89 | 1.0 | 29 | 20 |
| MAR | | | | | | | | | | | | |
| 26... | 0745 | 109 | 216 | 6.4 | 13.5 | 50 | 5.4 | 8.4 | 80 | .6 | 34 | 26 |
| APR | | | | | | | | | | | | |
| 30... | 0735 | 66 | 225 | 6.7 | 21.5 | 150 | 13 | 5.5 | 62 | 1.1 | 39 | 17 |
| JUN | | | | | | | | | | | | |
| 02... | 0815 | 645 | 167 | 5.9 | 23.0 | 100 | 4.6 | 4.2 | 49 | 1.5 | 32 | 16 |
| AUG | | | | | | | | | | | | |
| 26... | 0815 | 18 | 200 | 7.0 | 24.0 | 60 | 5.8 | 4.6 | 55 | 1.2 | 42 | 8 |

| 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 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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 09... | 10 | 4.2 | 64 | 4.3 | 5.0 | 80 | 20 | 61 | .2 | 11 | 223 |
| JAN | | | | | | | | | | | |
| 08... | 6.7 | 2.9 | 49 | 4.0 | 3.1 | 9 | 22 | 79 | .1 | 21 | 190 |
| MAR | | | | | | | | | | | |
| 26... | 7.8 | 3.5 | 23 | 1.7 | 2.9 | 8 | 32 | 33 | .1 | 18 | 125 |
| APR | | | | | | | | | | | |
| 30... | 7.3 | 5.1 | 26 | 1.8 | 3.5 | 22 | 7.8 | 49 | .1 | 15 | 101 |
| JUN | | | | | | | | | | | |
| 02... | 7.6 | 3.0 | 17 | 1.3 | 3.6 | 16 | 16 | 28 | .1 | 16 | 101 |
| AUG | | | | | | | | | | | |
| 26... | 10 | 4.0 | 20 | 1.5 | 4.7 | 34 | 5.0 | 39 | .1 | 19 | 122 |

| DATE | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, 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) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 09... | 8 | 5 | .00 | .000 | -- | .00 | .030 | 1.1 | 1.10 | .070 | 8.0 |
| JAN | | | | | | | | | | | |
| 08... | 4 | 7 | .00 | .000 | -- | .00 | .030 | .69 | .72 | .060 | 4.4 |
| MAR | | | | | | | | | | | |
| 26... | 1 | 0 | .01 | .010 | -- | .02 | .060 | 1.2 | 1.30 | .050 | 7.7 |
| APR | | | | | | | | | | | |
| 30... | 7 | 8 | .34 | .030 | .030 | .37 | .130 | .80 | .93 | .120 | 9.5 |
| JUN | | | | | | | | | | | |
| 02... | 25 | 25 | .09 | .000 | -- | .09 | .140 | 1.3 | 1.40 | .100 | 14 |
| AUG | | | | | | | | | | | |
| 26... | 9 | 6 | .17 | .020 | -- | .19 | .120 | .98 | 1.10 | .070 | 10 |

07346070 LITTLE CYPRESS CEER NEAR JEFFERSON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | ARSENIC DIS-SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 09... | 0815 | 1 | 90 | <1 | 0 | <10 | 400 |
| JAN | | | | | | | |
| 08... | 0815 | 0 | 60 | <1 | 0 | <10 | 350 |
| JUN | | | | | | | |
| 02... | 0815 | 1 | 300 | <1 | 10 | <10 | 1400 |
| AUG | | | | | | | |
| 26... | 0815 | 0 | 70 | <1 | 0 | <10 | 1100 |

| DATE | 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) |
|---|---|---|---|---|---|---|
| OCT | | | | | | |
| 09... | 43 | 1100 | .1 | 0 | 0 | 10 |
| JAN | | | | | | |
| 08... | 110 | 30 | .0 | 0 | 1 | 10 |
| JUN | | | | | | |
| 02... | <10 | 370 | .0 | 0 | 0 | 10 |
| AUG | | | | | | |
| 26... | <10 | 980 | .0 | 0 | 0 | 19 |

| DATE | TIME | PCB, TOTAL (UG/L) | PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | CHLOR-DANE, TOTAL (UG/L) | CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | DDD, TOTAL (UG/L) | DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | DDE, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | | |
| 08... | 0815 | .00 | 4 | .00 | .00 | .0 | .00 | 3.0 | .00 | .6 | .00 |
| JUN | | | | | | | | | | | |
| 02... | 0815 | .00 | 4 | .00 | .00 | .0 | .00 | 1.0 | .00 | .0 | .00 |

| DATE | DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | DDT, TOTAL (UG/L) | DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | DI-AZINON, TOTAL (UG/L) | DI-ELDRIN TOTAL (UG/L) | DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | ENDO-SULFAN, TOTAL (UG/L) | ENDRIN, TOTAL (UG/L) | ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | ETHION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 08... | .4 | .00 | .0 | .01 | .00 | .1 | .00 | .00 | .0 | .00 |
| JUN | | | | | | | | | | |
| 02... | .5 | .00 | .5 | .00 | .00 | .1 | .00 | .00 | .0 | .00 |

| DATE | HEPTA-CHLOR, TOTAL (UG/L) | HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | HEPTA-CHLOR EPOXIDE TOTAL (UG/L) | HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) | LINDANE TOTAL (UG/L) | LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | MALA-THION, TOTAL (UG/L) | METH-OXY-CHLOR, TOTAL (UG/L) | METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (UG/KG) | METHYL PARA-THION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 08... | .00 | .0 | .00 | .0 | .00 | .0 | .00 | .00 | .0 | .00 |
| JUN | | | | | | | | | | |
| 02... | .00 | .0 | .00 | .0 | .00 | .0 | .00 | .00 | .0 | .00 |

| DATE | METHYL TRI-THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) | MIREX, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | PARA-THION, TOTAL (UG/L) | TOX-APHENE, TOTAL (UG/L) | TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | TOTAL TRI-THION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 08... | .00 | .00 | .0 | .00 | 0 | .0 | .00 | .00 | .00 | .00 |
| JUN | | | | | | | | | | |
| 02... | .00 | .00 | .0 | .00 | 0 | .0 | .00 | .02 | .01 | .00 |

07346070 LITTLE CYPRESS CEER NEAR JEFFERSON, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 239.46 | 393 | 211 | 136 | 88 | 57 | 21 | 14 | 42 |
| NOV. | 1980 | 1264.1 | 264 | 152 | 519 | 51 | 174 | 22 | 74 | 36 |
| DEC. | 1980 | 1966 | 300 | 169 | 898 | 61 | 322 | 22 | 117 | 38 |
| JAN. | 1981 | 2111 | 284 | 162 | 922 | 56 | 322 | 22 | 125 | 37 |
| FEB. | 1981 | 3078 | 193 | 115 | 958 | 34 | 282 | 19 | 158 | 29 |
| MAR. | 1981 | 5545 | 193 | 115 | 1730 | 34 | 507 | 19 | 286 | 29 |
| APR. | 1981 | 4018 | 198 | 118 | 1280 | 35 | 380 | 19 | 210 | 30 |
| MAY | 1981 | 22664 | 112 | 70 | 4260 | 18 | 1090 | 13 | 793 | 19 |
| JUNE | 1981 | 28744 | 123 | 76 | 5910 | 20 | 1530 | 14 | 1090 | 21 |
| JULY | 1981 | 3123 | 167 | 101 | 852 | 29 | 241 | 17 | 146 | 26 |
| AUG. | 1981 | 423.0 | 196 | 117 | 134 | 35 | 40 | 19 | 22 | 30 |
| SEPT | 1981 | 437.42 | 130 | 79 | 94 | 22 | 26 | 14 | 16 | 21 |
| TOTAL | | 73612.98 | ** | ** | 17700 | ** | 4970 | ** | 3050 | ** |
| WTD. AVG. | | 202 | 147 | 89 | ** | 25 | ** | 15 | ** | 23 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | | | 224 | | | 338 | | | 210 | | | 331 |
| 2 | | | 248 | | | 315 | | | 266 | | | 362 |
| 3 | | | 250 | | | 350 | | | 276 | | | 357 |
| 4 | | | 253 | | | 315 | | | 270 | | | 351 |
| 5 | | | 257 | | | 260 | | | 285 | | | 353 |
| 6 | | | 256 | | | 250 | | | 303 | | | 346 |
| 7 | | | 254 | | | 247 | | | 304 | | | 340 |
| 8 | | | 354 | | | 244 | | | 291 | | | 343 |
| 9 | | | 397 | | | 241 | | | 280 | | | 323 |
| 10 | | | 336 | | | 242 | | | 271 | | | 303 |
| 11 | | | 346 | | | 245 | | | 260 | | | 306 |
| 12 | | | 353 | | | 244 | | | 250 | | | 307 |
| 13 | | | 350 | | | 242 | | | 261 | | | 332 |
| 14 | | | 345 | | | 243 | | | 350 | | | 357 |
| 15 | | | 340 | | | 244 | | | 463 | | | 335 |
| 16 | | | 337 | | | 256 | | | 405 | | | 313 |
| 17 | | | 335 | | | 268 | | | 347 | | | 292 |
| 18 | | | 344 | | | 280 | | | 318 | | | 286 |
| 19 | | | 345 | | | 294 | | | 297 | | | 275 |
| 20 | | | 347 | | | 213 | | | 276 | | | 249 |
| 21 | | | 348 | | | 271 | | | 255 | | | 248 |
| 22 | | | 349 | | | 329 | | | 234 | | | 245 |
| 23 | | | 360 | | | 330 | | | 263 | | | 234 |
| 24 | | | 473 | | | 262 | | | 269 | | | 222 |
| 25 | | | 480 | | | 250 | | | 275 | | | 235 |
| 26 | | | 472 | | | 235 | | | 281 | | | 244 |
| 27 | | | 396 | | | 220 | | | 287 | | | 238 |
| 28 | | | 364 | | | 210 | | | 297 | | | 239 |
| 29 | | | 353 | | | 200 | | | 299 | | | 220 |
| 30 | | | 343 | | | 197 | | | 303 | | | 217 |
| 31 | | | 341 | | | | | | 332 | | | 194 |
| MONTH | | | 340 | | | 261 | | | 293 | | | 290 |

07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | | | 170 | | | 181 | | | 197 | | | 172 |
| 2 | | | 147 | | | 187 | | | 227 | | | 171 |
| 3 | | | 168 | | | 193 | | | 202 | | | 180 |
| 4 | | | 189 | | | 199 | | | 178 | | | 158 |
| 5 | | | 192 | | | 206 | | | 176 | | | 195 |
| 6 | | | 196 | | | 203 | | | 170 | | | 178 |
| 7 | | | 200 | | | 200 | | | 179 | | | 152 |
| 8 | | | 163 | | | 197 | | | 204 | | | 166 |
| 9 | | | 169 | | | 194 | | | 199 | | | 160 |
| 10 | | | 180 | | | 190 | | | 198 | | | 154 |
| 11 | | | 178 | | | 185 | | | 200 | | | 134 |
| 12 | | | 184 | | | 180 | | | 201 | | | 116 |
| 13 | | | 191 | | | 178 | | | 203 | | | 126 |
| 14 | | | 198 | | | 172 | | | 202 | | | 125 |
| 15 | | | 201 | | | 168 | | | 206 | | | 124 |
| 16 | | | 204 | | | 165 | | | 208 | | | 120 |
| 17 | | | 207 | | | 175 | | | 210 | | | 122 |
| 18 | | | 210 | | | 185 | | | 213 | | | 123 |
| 19 | | | 214 | | | 195 | | | 214 | | | 131 |
| 20 | | | 217 | | | 205 | | | 216 | | | 139 |
| 21 | | | 214 | | | 215 | | | 218 | | | 127 |
| 22 | | | 213 | | | 225 | | | 215 | | | 113 |
| 23 | | | 212 | | | 223 | | | 209 | | | 88 |
| 24 | | | 211 | | | 221 | | | 186 | | | 80 |
| 25 | | | 211 | | | 219 | | | 195 | | | 80 |
| 26 | | | 200 | | | 216 | | | 187 | | | 83 |
| 27 | | | 190 | | | 218 | | | 205 | | | 88 |
| 28 | | | 180 | | | 220 | | | 215 | | | 106 |
| 29 | | | | | | 225 | | | 219 | | | 123 |
| 30 | | | | | | 210 | | | 217 | | | 151 |
| 31 | | | | | | 192 | | | | | | 164 |
| MONTH | | | 193 | | | 198 | | | 202 | | | 134 |

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | --- | --- | 168 | 155 | 144 | 149 | 184 | 172 | 180 | 298 | 234 | 265 |
| 2 | 168 | 164 | 166 | 147 | 142 | 145 | 173 | 152 | 165 | 304 | 251 | 270 |
| 3 | 165 | 160 | 164 | 156 | 147 | 152 | 155 | 138 | 150 | 299 | 247 | 264 |
| 4 | 159 | 139 | 147 | 168 | 157 | 162 | 155 | 140 | 150 | 383 | 144 | 271 |
| 5 | 139 | 122 | 134 | 172 | 166 | 169 | 157 | 157 | 157 | 137 | 90 | 108 |
| 6 | 122 | 106 | 112 | 173 | 172 | 172 | 181 | 171 | 176 | 100 | 90 | 95 |
| 7 | 116 | 107 | 112 | 185 | 172 | 172 | 188 | 177 | 178 | 105 | 100 | 103 |
| 8 | 123 | 116 | 120 | 224 | 172 | 188 | 192 | 188 | 180 | 110 | 105 | 108 |
| 9 | 126 | 124 | 125 | 266 | 173 | 211 | 186 | 186 | 186 | 119 | 111 | 114 |
| 10 | 127 | 125 | 126 | 291 | 229 | 264 | 187 | 182 | 185 | 135 | 119 | 126 |
| 11 | 128 | 117 | 125 | 227 | 173 | 193 | 209 | 178 | 190 | 147 | 136 | 140 |
| 12 | 116 | 103 | 109 | 172 | 150 | 161 | 214 | 179 | 195 | 158 | 148 | 153 |
| 13 | 103 | 101 | 102 | 150 | 143 | 145 | 209 | 182 | 195 | 170 | 158 | 164 |
| 14 | 104 | 102 | 103 | 146 | 45 | 141 | 216 | 186 | 200 | 180 | 168 | 174 |
| 15 | 110 | 104 | 107 | 143 | 138 | 140 | 221 | 183 | 197 | 184 | 179 | 182 |
| 16 | 116 | 111 | 113 | 144 | 139 | 141 | 220 | 183 | 201 | 185 | 182 | 184 |
| 17 | 123 | 116 | 120 | 151 | 144 | 147 | 213 | 180 | 197 | 189 | 184 | 188 |
| 18 | 132 | 124 | 128 | 156 | 151 | 154 | 223 | 177 | 201 | 193 | 189 | 191 |
| 19 | 144 | 132 | 138 | 163 | 157 | 160 | 208 | 179 | 196 | 194 | 191 | 192 |
| 20 | 152 | 144 | 149 | 166 | 162 | 164 | 208 | 181 | 192 | 197 | 193 | 195 |
| 21 | 152 | 146 | 149 | 171 | 166 | 168 | 205 | 185 | 194 | 200 | 197 | 199 |
| 22 | 146 | 144 | 145 | 175 | 170 | 172 | 226 | 161 | 194 | 205 | 200 | 203 |
| 23 | 145 | 137 | 141 | 175 | 174 | 175 | 231 | 162 | 199 | 207 | 204 | 205 |
| 24 | 137 | 121 | 129 | 176 | 175 | 175 | 268 | 202 | 230 | 208 | 206 | 207 |
| 25 | 120 | 110 | 115 | 179 | 176 | 177 | 259 | 198 | 226 | 209 | 207 | 211 |
| 26 | 111 | 108 | 110 | 180 | 178 | 179 | 226 | 197 | 206 | 212 | 208 | 210 |
| 27 | 117 | 111 | 114 | 180 | 178 | 179 | 261 | 208 | 229 | 213 | 210 | 211 |
| 28 | 128 | 118 | 123 | 181 | 178 | 180 | 243 | 188 | 218 | 213 | 211 | 212 |
| 29 | 143 | 129 | 136 | 183 | 180 | 181 | 237 | 205 | 226 | 215 | 212 | 213 |
| 30 | 155 | 143 | 149 | 183 | 183 | 183 | 270 | 214 | 248 | 214 | 212 | 216 |
| 31 | --- | --- | --- | 185 | 185 | 185 | 291 | 223 | 245 | --- | --- | --- |
| MONTH | 168 | 101 | 129 | 291 | 45 | 170 | 291 | 138 | 196 | 383 | 90 | 186 |
| YEAR | 383 | 45 | 217 | | | | | | | | | |

07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | | | 20.0 | | | --- | | | 10.0 | | | 6.0 |
| 2 | | | 20.5 | | | 22.0 | | | 10.0 | | | 10.0 |
| 3 | | | --- | | | 22.0 | | | --- | | | --- |
| 4 | | | --- | | | --- | | | 12.0 | | | 7.0 |
| 5 | | | 22.0 | | | --- | | | 13.0 | | | 6.0 |
| 6 | | | 22.0 | | | 22.0 | | | 15.0 | | | --- |
| 7 | | | 22.0 | | | 22.0 | | | 14.0 | | | 7.0 |
| 8 | | | 22.0 | | | 22.0 | | | 12.0 | | | --- |
| 9 | | | --- | | | 22.0 | | | 10.0 | | | --- |
| 10 | | | 22.0 | | | 22.0 | | | --- | | | 7.0 |
| 11 | | | --- | | | 22.0 | | | --- | | | 7.0 |
| 12 | | | 22.0 | | | 22.0 | | | 9.0 | | | 6.0 |
| 13 | | | 22.0 | | | 22.0 | | | 9.0 | | | --- |
| 14 | | | 22.0 | | | 22.0 | | | 10.0 | | | 5.0 |
| 15 | | | 22.0 | | | 22.0 | | | 11.0 | | | --- |
| 16 | | | 22.0 | | | --- | | | --- | | | --- |
| 17 | | | 22.0 | | | --- | | | 12.0 | | | 5.0 |
| 18 | | | 22.0 | | | --- | | | 14.0 | | | 5.0 |
| 19 | | | 22.0 | | | 22.0 | | | --- | | | 5.0 |
| 20 | | | 22.0 | | | 22.0 | | | --- | | | 5.0 |
| 21 | | | 22.0 | | | --- | | | --- | | | 5.0 |
| 22 | | | 22.0 | | | 22.0 | | | 5.5 | | | 5.0 |
| 23 | | | 15.0 | | | 20.0 | | | 6.0 | | | --- |
| 24 | | | 22.0 | | | 18.0 | | | 7.0 | | | 6.0 |
| 25 | | | 22.0 | | | 16.0 | | | 6.5 | | | 8.0 |
| 26 | | | 22.5 | | | 13.0 | | | --- | | | 9.0 |
| 27 | | | 23.0 | | | 12.0 | | | 6.0 | | | 9.0 |
| 28 | | | 22.5 | | | 10.0 | | | 6.5 | | | 10.0 |
| 29 | | | --- | | | --- | | | 7.0 | | | 11.0 |
| 30 | | | 21.5 | | | 12.0 | | | 6.5 | | | 9.0 |
| 31 | | | 21.0 | | | | | | 6.0 | | | --- |
| MONTH | | | 21.5 | | | 19.5 | | | 9.5 | | | 7.0 |

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | | | 7.5 | | | 12.0 | | | 19.0 | | | 22.5 |
| 2 | | | 8.0 | | | --- | | | 19.0 | | | 23.0 |
| 3 | | | --- | | | --- | | | --- | | | 20.5 |
| 4 | | | 6.0 | | | --- | | | 21.5 | | | 20.5 |
| 5 | | | --- | | | 11.0 | | | 20.5 | | | 20.5 |
| 6 | | | --- | | | --- | | | 19.0 | | | 21.0 |
| 7 | | | 7.0 | | | --- | | | 19.5 | | | 20.0 |
| 8 | | | 9.0 | | | --- | | | 19.5 | | | 19.5 |
| 9 | | | 8.5 | | | 13.0 | | | 20.5 | | | --- |
| 10 | | | 7.0 | | | --- | | | 21.5 | | | 18.5 |
| 11 | | | 6.0 | | | --- | | | 21.0 | | | --- |
| 12 | | | --- | | | 13.0 | | | --- | | | 19.0 |
| 13 | | | --- | | | --- | | | 21.5 | | | 19.5 |
| 14 | | | 7.0 | | | --- | | | 22.5 | | | 20.0 |
| 15 | | | --- | | | --- | | | 22.5 | | | 18.5 |
| 16 | | | --- | | | --- | | | 22.0 | | | 18.5 |
| 17 | | | --- | | | --- | | | 21.5 | | | 19.0 |
| 18 | | | --- | | | --- | | | 21.5 | | | 21.0 |
| 19 | | | --- | | | --- | | | 21.5 | | | --- |
| 20 | | | 12.0 | | | --- | | | 22.5 | | | 20.0 |
| 21 | | | 13.0 | | | --- | | | 23.0 | | | 19.0 |
| 22 | | | --- | | | 13.0 | | | 22.5 | | | 20.0 |
| 23 | | | --- | | | --- | | | 22.0 | | | 21.0 |
| 24 | | | 13.0 | | | --- | | | 22.0 | | | 21.5 |
| 25 | | | 12.0 | | | --- | | | 20.5 | | | 21.0 |
| 26 | | | --- | | | 13.5 | | | 20.5 | | | 21.5 |
| 27 | | | --- | | | --- | | | 21.0 | | | 22.0 |
| 28 | | | 12.0 | | | --- | | | 22.5 | | | --- |
| 29 | | | | | | --- | | | 23.0 | | | 24.0 |
| 30 | | | | | | --- | | | 22.5 | | | 24.0 |
| 31 | | | | | | 18.5 | | | | | | 25.0 |
| MONTH | | | 9.0 | | | 13.5 | | | 21.5 | | | 21.0 |

07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | --- | --- | 24.0 | 26.5 | 26.0 | 26.0 | 28.5 | 27.5 | 27.5 | 26.5 | 25.5 | 26.0 |
| 2 | 24.0 | 23.5 | 24.0 | 26.5 | 26.0 | 26.5 | 27.5 | 27.0 | 27.0 | 26.5 | 25.0 | 25.5 |
| 3 | 23.5 | 23.5 | 23.5 | 26.5 | 26.0 | 26.5 | 28.0 | 26.0 | 27.0 | 26.0 | 25.5 | 26.0 |
| 4 | 23.0 | 22.5 | 23.0 | 26.0 | 25.5 | 26.0 | 29.0 | 27.0 | 28.0 | 25.5 | 24.5 | 25.0 |
| 5 | 23.0 | 23.0 | 23.0 | 26.0 | 25.5 | 25.5 | 30.0 | 27.5 | 28.5 | 25.0 | 24.5 | 25.0 |
| 6 | 23.5 | 23.0 | 23.0 | 25.5 | 25.0 | 25.5 | 30.5 | 28.0 | 29.0 | 25.0 | 24.5 | 25.0 |
| 7 | 24.5 | 23.0 | 23.5 | 25.5 | 25.0 | 25.5 | 30.0 | 28.5 | 29.0 | 25.0 | 24.0 | 24.5 |
| 8 | 25.0 | 23.5 | 24.0 | 26.5 | 25.0 | 25.5 | 28.5 | 26.5 | 27.5 | 25.0 | 24.5 | 24.5 |
| 9 | 26.0 | 24.5 | 25.0 | 26.5 | 26.0 | 26.5 | 27.5 | 26.0 | 26.5 | 24.5 | 23.0 | 24.0 |
| 10 | 26.5 | 25.5 | 26.0 | 27.5 | 26.5 | 27.0 | 27.5 | 25.5 | 26.5 | 24.0 | 22.5 | 23.5 |
| 11 | 26.5 | 25.5 | 26.0 | 28.0 | 27.0 | 27.5 | 27.5 | 26.0 | 26.5 | 24.5 | 22.0 | 23.0 |
| 12 | 26.0 | 25.5 | 26.0 | 27.5 | 26.5 | 27.0 | 27.5 | 26.0 | 27.0 | 23.5 | 22.0 | 23.0 |
| 13 | 26.5 | 25.5 | 26.0 | 27.5 | 26.5 | 27.0 | 27.5 | 26.0 | 27.0 | 24.0 | 22.5 | 23.0 |
| 14 | 27.0 | 26.0 | 26.5 | 28.0 | 22.0 | 27.5 | 28.0 | 26.5 | 27.5 | 25.0 | 23.5 | 24.0 |
| 15 | 27.0 | 26.5 | 26.5 | 28.0 | 27.0 | 27.5 | 29.0 | 27.0 | 28.0 | 25.0 | 24.0 | 24.5 |
| 16 | 27.0 | 25.5 | 26.5 | 28.0 | 27.0 | 27.5 | 29.0 | 27.5 | 28.5 | 24.5 | 23.0 | 23.5 |
| 17 | 25.5 | 25.0 | 25.0 | 28.5 | 27.0 | 28.0 | 28.5 | 27.5 | 28.0 | 23.5 | 21.5 | 22.5 |
| 18 | 25.0 | 24.5 | 25.0 | 28.5 | 27.5 | 28.0 | 28.0 | 26.5 | 27.0 | 22.0 | 20.0 | 21.0 |
| 19 | 26.0 | 25.0 | 25.5 | 29.0 | 27.5 | 28.0 | 27.0 | 26.0 | 26.5 | 21.0 | 19.0 | 20.0 |
| 20 | 26.5 | 25.5 | 26.0 | 29.0 | 27.5 | 28.5 | 27.0 | 25.5 | 26.0 | 21.0 | 18.5 | 19.5 |
| 21 | 27.0 | 26.0 | 26.5 | 29.5 | 27.5 | 28.5 | 26.5 | 25.0 | 26.0 | 21.0 | 19.0 | 19.5 |
| 22 | 27.0 | 26.5 | 26.5 | 30.0 | 28.0 | 29.0 | 26.0 | 25.0 | 25.5 | 21.5 | 19.5 | 20.5 |
| 23 | 27.0 | 26.5 | 27.0 | 30.0 | 28.5 | 29.0 | 26.5 | 25.0 | 25.5 | 21.5 | 20.5 | 21.0 |
| 24 | 26.5 | 26.0 | 26.5 | 30.0 | 28.5 | 29.5 | 26.5 | 25.5 | 26.0 | 22.5 | 21.5 | 22.0 |
| 25 | 26.0 | 25.5 | 26.0 | 30.5 | 29.0 | 29.5 | 26.5 | 25.0 | 25.5 | 22.5 | 22.0 | 22.5 |
| 26 | 26.5 | 25.5 | 26.0 | 30.0 | 29.0 | 29.5 | 26.5 | 25.5 | 26.0 | 23.5 | 22.5 | 23.0 |
| 27 | 26.0 | 25.0 | 25.5 | 29.5 | 28.5 | 29.0 | 26.5 | 25.0 | 25.5 | 23.5 | 22.5 | 23.0 |
| 28 | 25.5 | 25.0 | 25.0 | 30.0 | 28.0 | 28.5 | 26.5 | 25.0 | 26.0 | 23.5 | 22.5 | 23.0 |
| 29 | 26.0 | 25.0 | 25.5 | 30.0 | 28.0 | 29.0 | 27.0 | 25.0 | 26.0 | 23.5 | 22.5 | 23.0 |
| 30 | 26.5 | 25.5 | 26.0 | 29.0 | 27.5 | 28.5 | 27.0 | 25.5 | 26.5 | 24.0 | 23.0 | 23.5 |
| 31 | --- | --- | --- | 28.5 | 27.5 | 28.0 | 27.5 | 26.0 | 26.5 | --- | --- | --- |
| MONTH | 27.0 | 22.5 | 25.5 | 30.5 | 22.0 | 27.5 | 30.5 | 25.0 | 27.0 | 26.5 | 18.5 | 23.0 |
| YEAR | 30.5 | 18.5 | 20.0 | | | | | | | | | |

## 07346085 BIG CYPRESS CREEK NEAR KARNACK, TX

LOCATION.--Lat 32°41'48", long 94°11'15", Harrison County, Hydrologic Unit 11140304, near right bank at downstream side of bridge on State Highway 43, 0.6 mi (1.0 km) upstream from Mill Pond, 1.1 mi (1.8 km) downstream from Gum Slough (Haggerty Creek flows into Gum Slough), and 2.2 mi (3.5 km) north of Karnack.

DRAINAGE AREA.--Not determined.

PERIOD OF RECORD.--October 1979 to current year. Records for the period Nov. 1, 1975, to Sept. 30, 1979, published by the Corps of Engineers, New Orleans District, as "Cypress Creek (Cypress Bayou) near Karnack, Tex."

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark).

REMARKS.--Elevation records fair. This is a stage-only station used to aid in the operation of Lake O' the Pines and Caddo Lake and located in the upper end of Caddo Lake 15 mi (24 km) above the dam.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 172.65 ft (52.624 m) June 6, 1981; minimum, 167.07 ft (50.923 m) Oct. 16, 17, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation, 174.20 ft (53.096 m) May 9, 1979; minimum, 166.72 ft (50.816 m) Oct. 23, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 172.65 ft (52.624 m) June 6 at 1200 hours; minimum, 167.07 ft (50.923 m) Oct. 16, 17.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 167.27 | 167.23 | 167.98 | 168.48 | 168.53 | 168.86 | 168.83 | 168.87 | 171.12 | 170.55 | 168.60 | 168.37 |
| 2 | 167.26 | 167.23 | 168.03 | 168.49 | 168.53 | 168.87 | 168.85 | 168.84 | 171.02 | 170.37 | 168.52 | 168.38 |
| 3 | 167.24 | 167.23 | 168.01 | 168.47 | 168.54 | 168.93 | 168.90 | 168.81 | 170.99 | 170.07 | 168.49 | 168.38 |
| 4 | 167.22 | 167.22 | 168.03 | 168.53 | 168.55 | 168.92 | 168.91 | 168.82 | 171.01 | 169.79 | 168.47 | 168.41 |
| 5 | 167.23 | 167.23 | 168.04 | 168.49 | 168.59 | 168.92 | 168.92 | 168.81 | 172.39 | 169.83 | 168.44 | 168.42 |
| 6 | 167.20 | 167.22 | 168.06 | 168.53 | 168.58 | 169.00 | 168.91 | 168.81 | 172.59 | 169.68 | 168.42 | 168.36 |
| 7 | 167.18 | 167.22 | 168.09 | 168.54 | 168.59 | 169.07 | 168.91 | 168.81 | 172.41 | 169.61 | 168.42 | 168.35 |
| 8 | 167.17 | 167.22 | 168.10 | 168.54 | 168.63 | 169.09 | 168.91 | 168.80 | 172.37 | 169.51 | 168.39 | 168.35 |
| 9 | 167.16 | 167.22 | 168.15 | 168.54 | 168.72 | 169.11 | 168.91 | 169.07 | 172.39 | 169.42 | 168.38 | 168.34 |
| 10 | 167.14 | 167.22 | 168.17 | 168.55 | 168.65 | 169.13 | 168.89 | 169.20 | 172.38 | 169.35 | 168.36 | 168.34 |
| 11 | 167.13 | 167.24 | 168.20 | 168.54 | 168.72 | 169.15 | 168.86 | 169.21 | 172.26 | 169.30 | 168.35 | 168.34 |
| 12 | 167.12 | 167.20 | 168.22 | 168.54 | 168.76 | 169.11 | 168.83 | 169.19 | 172.10 | 169.25 | 168.34 | 168.29 |
| 13 | 167.11 | 167.20 | 168.26 | 168.51 | 168.75 | 169.06 | 168.81 | 169.20 | 172.02 | 169.20 | 168.32 | 168.28 |
| 14 | 167.09 | 167.22 | 168.28 | 168.51 | 168.75 | 169.08 | 168.83 | 169.17 | 171.96 | 169.09 | 168.30 | 168.27 |
| 15 | 167.09 | 167.24 | 168.29 | 168.52 | 168.75 | 169.07 | 168.82 | 169.23 | 171.86 | 169.01 | 168.27 | 168.30 |
| 16 | 167.08 | 167.47 | 168.32 | 168.53 | 168.75 | 169.06 | 168.77 | 169.44 | 171.76 | 168.94 | 168.27 | 168.39 |
| 17 | 167.21 | 167.43 | 168.39 | 168.52 | 168.74 | 169.03 | 168.75 | 169.51 | 171.61 | 168.88 | 168.28 | 168.35 |
| 18 | 167.22 | 167.52 | 168.46 | 168.51 | 168.74 | 168.98 | 168.75 | 169.60 | 171.44 | 168.82 | 168.29 | 168.32 |
| 19 | 167.21 | 167.55 | 168.58 | 168.53 | 168.73 | 168.94 | 168.71 | 169.97 | 171.30 | 168.76 | 168.19 | 168.30 |
| 20 | 167.20 | 167.58 | 168.60 | 168.54 | 168.73 | 168.91 | 168.84 | 170.34 | 171.19 | 168.71 | 168.19 | 168.30 |
| 21 | 167.19 | 167.63 | 168.61 | 168.54 | 168.74 | 168.88 | 168.80 | 170.53 | 171.10 | 168.68 | 168.19 | 168.30 |
| 22 | 167.18 | 167.75 | 168.59 | 168.54 | 168.68 | 168.86 | 168.77 | 170.58 | 171.03 | 168.64 | 168.19 | 168.29 |
| 23 | 167.18 | 167.77 | 168.55 | 168.54 | 168.68 | 168.83 | 168.79 | 170.62 | 170.98 | 168.60 | 168.18 | 168.29 |
| 24 | 167.14 | 167.82 | 168.54 | 168.55 | 168.70 | 168.80 | 168.76 | 170.76 | 170.93 | 168.57 | 168.18 | 168.28 |
| 25 | 167.15 | 167.86 | 168.54 | 168.55 | 168.69 | 168.77 | 168.74 | 171.19 | 170.89 | 168.53 | 168.18 | 168.28 |
| 26 | 167.17 | 167.86 | 168.52 | 168.56 | 168.70 | 168.76 | 168.72 | 171.34 | 170.84 | 168.50 | 168.17 | 168.27 |
| 27 | 167.23 | 167.90 | 168.52 | 168.56 | 168.70 | 168.77 | 168.70 | 171.43 | 170.79 | 168.49 | 168.17 | 168.27 |
| 28 | 167.22 | 167.94 | 168.52 | 168.57 | 168.77 | 168.84 | 168.69 | 171.42 | 170.74 | 168.49 | 168.25 | 168.27 |
| 29 | 167.23 | 167.97 | 168.50 | 168.56 | --- | 168.82 | 168.65 | 171.34 | 170.68 | 168.51 | 168.25 | 168.26 |
| 30 | 167.22 | 167.97 | 168.50 | 168.60 | --- | 168.81 | 168.75 | 171.31 | 170.62 | 168.50 | 168.27 | 168.26 |
| 31 | 167.22 | --- | 168.49 | 168.58 | --- | 168.82 | --- | 171.24 | --- | 168.48 | 168.28 | --- |
| MEAN | 167.18 | 167.48 | 168.33 | 168.53 | 168.68 | 168.94 | 168.81 | 169.85 | 171.49 | 169.10 | 168.31 | 168.32 |
| MAX | 167.27 | 167.97 | 168.61 | 168.60 | 168.77 | 169.15 | 168.92 | 171.43 | 172.59 | 170.55 | 168.60 | 168.42 |
| MIN | 167.08 | 167.20 | 167.98 | 168.47 | 168.53 | 168.76 | 168.65 | 168.80 | 170.62 | 168.48 | 168.17 | 168.26 |

CAL YR 1980 MEAN 169.02 MAX 172.36 MIN 167.08
WTR YR 1981 MEAN 168.75 MAX 172.59 MIN 167.08

## 07346140 FRAZIER CREEK NEAR LINDEN, TX

LOCATION.--Lat 33°03'14", long 94°17'24", Cass County, Hydrologic Unit 11140306, on right bank at downstream side of bridge on U.S. Highway 59, 1.6 mi (2.6 km) upstream from Colley Creek, 3.7 mi (6.0 km) upstream from Johns Creek, and 5.3 mi (8.5 km) northeast of Linden.

DRAINAGE AREA.--48.0 $mi^2$ (124.3 $km^2$).

PERIOD OF RECORD.--August 1958 to June 1961 (low-flow partial record only), November 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is 228.7 ft (69.71 m) National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation bridge plans).

REMARKS.--Records good. No known diversion. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--16 years (water years 1966-81), 42.5 $ft^3/s$ (1.204 $m^3/s$), 12.02 in/yr (305 mm/yr), 30,790 acre-ft/yr (38.0 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,010 $ft^3/s$ (142 $m^3/s$) Apr. 22, 1974, gage height, 12.51 ft (3.813 m); no flow at times for most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1945, 15.6 ft (4.75 m) Apr. 26, 27, 1958, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 $ft^3/s$ (19.8 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| May 17 | 1000 | *1,330 | 37.7 | 9.63 | 2.935 |
| June 6 | 0030 | 916 | 25.9 | 9.13 | 2.783 |

Minimum discharge, 0.03 $ft^3/s$ (0.001 $m^3/s$) Aug. 12-15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.6 | 2.7 | 6.6 | 6.8 | 19 | 43 | 18 | 18 | 128 | 5.1 | 1.0 | 3.4 |
| 2 | 2.4 | 2.6 | 6.4 | 6.8 | 45 | 55 | 14 | 32 | 79 | 5.2 | 1.8 | 2.4 |
| 3 | 1.6 | 2.5 | 6.0 | 6.6 | 21 | 31 | 12 | 12 | 115 | 5.1 | 2.4 | 2.1 |
| 4 | 1.1 | 2.3 | 5.6 | 6.6 | 14 | 50 | 23 | 7.9 | 180 | 4.7 | 1.4 | 1.7 |
| 5 | .71 | 2.2 | 5.3 | 6.8 | 12 | 68 | 36 | 7.9 | 380 | 17 | 1.1 | 1.4 |
| 6 | .50 | 2.1 | 6.0 | 8.3 | 13 | 40 | 18 | 8.4 | 737 | 34 | .92 | 1.0 |
| 7 | .37 | 1.9 | 6.1 | 23 | 13 | 31 | 13 | 7.7 | 351 | 26 | .79 | .69 |
| 8 | .42 | 1.7 | 7.6 | 17 | 13 | 30 | 12 | 6.5 | 172 | 23 | .43 | .43 |
| 9 | .45 | 1.7 | 38 | 12 | 12 | 27 | 12 | 53 | 83 | 13 | .28 | .30 |
| 10 | .37 | 1.8 | 36 | 9.8 | 17 | 23 | 10 | 98 | 57 | 8.3 | .28 | .24 |
| 11 | .35 | 1.9 | 16 | 8.8 | 24 | 22 | 9.4 | 39 | 46 | 6.4 | .12 | .16 |
| 12 | .33 | 1.9 | 12 | 8.4 | 12 | 21 | 8.4 | 19 | 39 | 5.0 | .04 | .09 |
| 13 | .18 | 2.0 | 10 | 8.2 | 10 | 20 | 7.7 | 13 | 35 | 4.1 | .03 | .07 |
| 14 | .08 | 2.6 | 9.5 | 8.3 | 10 | 19 | 7.2 | 11 | 32 | 3.5 | .03 | .09 |
| 15 | .04 | 9.0 | 8.8 | 8.4 | 9.8 | 19 | 6.5 | 9.8 | 24 | 3.2 | .04 | 3.9 |
| 16 | .04 | 19 | 8.7 | 7.8 | 9.9 | 18 | 6.5 | 207 | 82 | 2.7 | .05 | 28 |
| 17 | 1.7 | 48 | 8.4 | 7.3 | 10 | 15 | 5.9 | 1060 | 146 | 2.4 | .13 | 5.9 |
| 18 | 5.3 | 40 | 8.0 | 6.8 | 10 | 14 | 4.9 | 423 | 64 | 2.1 | 1.4 | 2.7 |
| 19 | 4.3 | 17 | 7.8 | 7.2 | 10 | 13 | 4.9 | 219 | 39 | 1.9 | 2.0 | 1.8 |
| 20 | 2.6 | 9.7 | 7.4 | 11 | 9.6 | 12 | 5.1 | 219 | 30 | 1.7 | 2.2 | 1.3 |
| 21 | 1.8 | 7.6 | 6.6 | 22 | 9.8 | 12 | 4.7 | 82 | 23 | 1.5 | 1.5 | .97 |
| 22 | 1.3 | 6.9 | 6.4 | 15 | 23 | 12 | 4.5 | 46 | 18 | 1.4 | 1.0 | .76 |
| 23 | 1.0 | 8.0 | 6.7 | 12 | 31 | 12 | 5.9 | 35 | 14 | 1.2 | .69 | .61 |
| 24 | 1.0 | 11 | 7.4 | 11 | 15 | 11 | 6.7 | 34 | 13 | 1.0 | .37 | .46 |
| 25 | .94 | 8.1 | 7.3 | 10 | 11 | 10 | 5.3 | 42 | 12 | .78 | .18 | .35 |
| 26 | .91 | 6.8 | 6.8 | 9.2 | 9.9 | 10 | 3.8 | 50 | 10 | .50 | 4.2 | .23 |
| 27 | 3.3 | 9.1 | 6.5 | 9.0 | 9.2 | 10 | 3.4 | 40 | 9.0 | .43 | 5.1 | .15 |
| 28 | 17 | 11 | 6.5 | 8.7 | 9.8 | 10 | 3.0 | 31 | 7.6 | .45 | 2.8 | .15 |
| 29 | 9.0 | 8.4 | 7.0 | 8.1 | --- | 32 | 2.7 | 25 | 6.4 | .56 | 4.5 | .13 |
| 30 | 3.9 | 7.0 | 7.0 | 7.9 | --- | 58 | 3.6 | 38 | 5.6 | 2.1 | 1.8 | .13 |
| 31 | 2.9 | --- | 7.0 | 7.9 | --- | 28 | --- | 159 | --- | 1.2 | 3.1 | --- |
| TOTAL | 70.49 | 256.5 | 295.4 | 306.7 | 413.0 | 776 | 278.1 | 3053.2 | 2937.6 | 185.52 | 41.68 | 61.61 |
| MEAN | 2.27 | 8.55 | 9.53 | 9.89 | 14.8 | 25.0 | 9.27 | 98.5 | 97.9 | 5.98 | 1.34 | 2.05 |
| MAX | 17 | 48 | 38 | 23 | 45 | 68 | 36 | 1060 | 737 | 34 | 5.1 | 28 |
| MIN | .04 | 1.7 | 5.3 | 6.6 | 9.2 | 10 | 2.7 | 6.5 | 5.6 | .43 | .03 | .07 |
| CFSM | .05 | .18 | .20 | .21 | .31 | .52 | .19 | 2.05 | 2.04 | .13 | .03 | .04 |
| IN. | .05 | .20 | .23 | .24 | .32 | .60 | .22 | 2.37 | 2.28 | .14 | .03 | .05 |
| AC-FT | 140 | 509 | 586 | 608 | 819 | 1540 | 552 | 6060 | 5830 | 368 | 83 | 122 |

CAL YR 1980 TOTAL 16686.10 MEAN 45.6 MAX 811 MIN .00 CFSM .95 IN 12.93 AC-FT 33100
WTR YR 1981 TOTAL 8675.80 MEAN 23.8 MAX 1060 MIN .03 CFSM .50 IN 6.72 AC-FT 17210

SABINE RIVER BASIN

## 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 (31 m) downstream from centerline of downstream bridge on Interstate Highway 30 (U.S. Highway 67), 0.3 mi (0.5 km) downstream from Horse Creek, 0.9 mi (1.4 km) downstream from Louisiana and Arkansas Railroad Co. bridge, 1.8 mi (2.9 km) east of Greenville, and at mile 558.3 (898.3 km).

DRAINAGE AREA.--77.7 $mi^2$ (201.2 $km^2$).

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 (147.849 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for periods Feb. 19, Mar. 23, and June 4 to July 20, which are poor. During the current water year, the city of Greenville reported that 4,880 acre-ft (6.02 $hm^3$) was diverted from city lakes upstream from station and 4,180 acre-ft (5.15 $hm^3$) was diverted from Lake Tawakoni for municipal uses; 3,630 acre-ft (4.48 $hm^3$) of sewage effluent was returned to a tributary downstream. Extreme low flow is largely sustained by returned water from water treatment plant upstream. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--22 years (water years 1960-81), 52.7 $ft^3/s$ (1.492 $m^3/s$), 9.21 in/yr (234 mm/yr), 44,630 acre-ft/yr (55.0 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 $ft^3/s$ (306 $m^3/s$) May 7, 1969, gage height, 17.95 ft (5.471 m); no flow at 1964, 1969-70, 1972-73, and 1977-81.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1895, 22 ft (6.7 m) in May 1935, from information by local resident and city engineer of Greenville. Flood of July 3, 1913, reached a stage of 20 ft (6.1 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,100 $ft^3/s$ (144 $m^3/s$) June 6 at 0200 hours, gage height, 17.00 ft (5.182 m), no other peak above base of 3,000 $ft^3/s$ (85.0 $m^3/s$); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 29 | .00 | .20 | .13 | .50 | .25 | 17 | 36 | 28 | 1.0 | .00 | .00 |
| 2 | 8.1 | .26 | .28 | .13 | .46 | 5.0 | 9.8 | 10 | 464 | .39 | .00 | .00 |
| 3 | 2.8 | .20 | .25 | .11 | .39 | 100 | 10 | 3.0 | 848 | .11 | .00 | .00 |
| 4 | .85 | .09 | .28 | .09 | .34 | 450 | 33 | 1.1 | 1200 | 459 | .00 | .12 |
| 5 | .30 | .00 | .43 | .11 | .43 | 150 | 23 | .47 | 1940 | 300 | .00 | .00 |
| 6 | .21 | .00 | .43 | .25 | .60 | 40 | 7.7 | .23 | 3110 | 27 | .00 | .00 |
| 7 | .49 | .00 | .39 | .26 | .55 | 5.5 | 4.3 | .06 | 314 | 61 | .00 | .00 |
| 8 | .18 | .00 | 400 | .23 | .47 | 4.0 | 2.7 | 9.9 | 94 | 41 | .00 | .00 |
| 9 | .13 | .00 | 914 | .21 | 4.3 | 3.0 | 2.0 | 285 | 30 | 4.8 | .19 | .00 |
| 10 | .02 | .00 | 61 | .18 | 3.8 | 2.2 | 1.5 | 112 | 12 | 1.6 | 1.1 | .00 |
| 11 | .00 | .00 | 6.2 | .20 | 1.2 | 1.8 | 1.2 | 34 | 6.2 | .74 | 1.2 | .00 |
| 12 | .00 | .00 | .25 | .20 | .67 | 1.4 | 1.0 | 9.4 | 3.7 | .28 | 1.2 | .00 |
| 13 | .00 | .00 | .18 | .19 | .56 | 1.0 | .84 | 3.3 | 2.1 | .13 | 1.2 | .02 |
| 14 | .09 | .00 | .16 | .20 | .55 | .80 | .60 | 1.0 | 1.1 | .11 | 1.0 | 2.1 |
| 15 | .06 | .00 | .16 | .20 | .44 | .58 | .69 | 3.1 | 27 | .04 | 1.2 | .01 |
| 16 | .00 | .41 | .13 | .20 | .39 | .50 | 3.4 | 57 | 1600 | .00 | 1.2 | .00 |
| 17 | 6.4 | .94 | .11 | .20 | .35 | .40 | 1.1 | 82 | 762 | .00 | 9.2 | .00 |
| 18 | 67 | .32 | .09 | .20 | .31 | .35 | .74 | 190 | 90 | .00 | 1.2 | .00 |
| 19 | 6.2 | .17 | .06 | .33 | .28 | .30 | 3.1 | 112 | 36 | .00 | .35 | .00 |
| 20 | 1.3 | .14 | .04 | 1.7 | .28 | .27 | 1.4 | 19 | 16 | .00 | .18 | .00 |
| 21 | .50 | .13 | .04 | .85 | .28 | .24 | .51 | 4.9 | 6.4 | .00 | .04 | .00 |
| 22 | .20 | .69 | .04 | .74 | .25 | .22 | 1.2 | 2.0 | 3.2 | .00 | .00 | .00 |
| 23 | .28 | 1.0 | .09 | .55 | .25 | .21 | 40 | 2.1 | 1.9 | .00 | .65 | .00 |
| 24 | .12 | .51 | .09 | .43 | .25 | .16 | 30 | 661 | 1.2 | .00 | .69 | .00 |
| 25 | .00 | .32 | .09 | .39 | .25 | .15 | 7.7 | 130 | .74 | .00 | .03 | .00 |
| 26 | .00 | .20 | .09 | .35 | .25 | .13 | 2.6 | 49 | .55 | .00 | .00 | .00 |
| 27 | .20 | .43 | .09 | .35 | .25 | .13 | 1.0 | 744 | .39 | .00 | .00 | .00 |
| 28 | .20 | .28 | .11 | .35 | .25 | .14 | .09 | 678 | .32 | .00 | .00 | .00 |
| 29 | .00 | .25 | .11 | .38 | --- | 1420 | 1.8 | 78 | .25 | .00 | .00 | .00 |
| 30 | .00 | .23 | .13 | .37 | --- | 164 | .12 | 210 | .20 | .00 | .00 | .00 |
| 31 | .00 | --- | .13 | .34 | --- | 38 | --- | 58 | --- | .00 | .00 | --- |
| TOTAL | 124.63 | 6.57 | 1385.65 | 10.42 | 18.90 | 2390.73 | 210.09 | 3585.56 | 10599.25 | 897.20 | 20.63 | 2.25 |
| MEAN | 4.02 | .22 | 44.7 | .34 | .68 | 77.1 | 7.00 | 116 | 353 | 28.9 | .67 | .075 |
| MAX | 67 | 1.0 | 914 | 1.7 | 4.3 | 1420 | 40 | 744 | 3110 | 459 | 9.2 | 2.1 |
| MIN | .00 | .00 | .04 | .09 | .25 | .13 | .09 | .06 | .20 | .00 | .00 | .00 |
| CFSM | .05 | .003 | .58 | .004 | .009 | .99 | .09 | 1.49 | 4.54 | .37 | .009 | .001 |
| IN. | .06 | .00 | .66 | .00 | .01 | 1.14 | .10 | 1.72 | 5.07 | .43 | .01 | .00 |
| AC-FT | 247 | 13 | 2750 | 21 | 37 | 4740 | 417 | 7110 | 21020 | 1780 | 41 | 4.5 |

CAL YR 1980 TOTAL 8917.14 MEAN 24.4 MAX 1710 MIN .00 CFSM .31 IN 4.27 AC-FT 17690
WTR YR 1981 TOTAL 19251.88 MEAN 52.7 MAX 3110 MIN .00 CFSM .68 IN 9.22 AC-FT 38190

## 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 (3.9 km) upstream from Dry Creek, 6.2 mi (10.0 km) upstream from Bearpen Creek, 7 mi (11 km) southwest of Quinlan, and 25 mi (40 km) upstream from mouth.

DRAINAGE AREA.--78.7 $mi^2$ (203.8 $km^2$).

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

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 461.40 ft (140.635 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Records furnished by the city of Royse City show that 143 acre-ft (176,000 $m^3$) of sewage effluent was returned to the stream above this station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--22 years (water years 1960-81), 73.5 $ft^3/s$ (2.082 $m^3/s$), 12.68 in/yr (322 mm/yr), 53,250 acre-ft/yr (65.7 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,000 $ft^3/s$ (651 $m^3/s$) June 16, 1981, gage height, 18.24 ft (5.560 m); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1890, 21 ft (6.4 m) July 29, 1902, from information by local resident. Flood of Apr. 27, 1957, reached a stage of 17.76 ft (5.413 m), from floodmarks.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 $ft^3/s$ (85.0 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| June 5 | 1715 | 11,500 | 326 | 16.75 | 5.105 |
| June 16 | 0600 | *23,000 | 651 | 18.24 | 5.560 |
| July 4 | 1515 | 22,300 | 632 | 18.12 | 5.523 |

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 19 | .25 | .00 | .07 | .12 | 57 | 5.7 | .01 | 7.2 | .06 | .00 | .00 |
| 2 | 3.1 | .20 | .00 | .06 | .14 | 62 | 2.8 | .00 | 916 | .05 | .00 | .00 |
| 3 | .88 | .01 | .00 | .04 | .15 | 21 | 1.3 | .00 | 2220 | .03 | .00 | .00 |
| 4 | .27 | .00 | .00 | .02 | .20 | 560 | 28 | .00 | 3690 | 9380 | .00 | .00 |
| 5 | .10 | .00 | .00 | .02 | .18 | 66 | 8.4 | .00 | 6490 | 5500 | .00 | 9.5 |
| 6 | .06 | .00 | .00 | .03 | .16 | 13 | 3.0 | .00 | 5250 | 245 | .00 | 28 |
| 7 | .04 | .00 | .00 | .03 | .27 | 7.1 | .99 | .00 | 193 | 39 | .00 | 4.5 |
| 8 | .02 | .00 | 882 | .12 | .31 | 9.3 | .38 | .06 | 30 | 9.8 | .00 | .94 |
| 9 | .01 | .00 | 1000 | .18 | .31 | 6.2 | .23 | 925 | 12 | 5.2 | .00 | .27 |
| 10 | .00 | .00 | 50 | .14 | 1.7 | 3.9 | .15 | 84 | 6.8 | 3.4 | .00 | .09 |
| 11 | .00 | .00 | 10 | .11 | 1.2 | 2.7 | .10 | 10 | 4.5 | 2.5 | .00 | .04 |
| 12 | .00 | .00 | 3.9 | .11 | .43 | 1.6 | .07 | 4.2 | 3.6 | 1.6 | .00 | .01 |
| 13 | .00 | .00 | 2.0 | .11 | .31 | 1.0 | .06 | 2.5 | 3.2 | .69 | .00 | .00 |
| 14 | .00 | .00 | 1.2 | .09 | .27 | .57 | .04 | 1.2 | 2.8 | .29 | .00 | 5.5 |
| 15 | .00 | .00 | .60 | .08 | .27 | .35 | .03 | .56 | 57 | .12 | .00 | 15 |
| 16 | .00 | .00 | .36 | .07 | .25 | .20 | .03 | 38 | 13300 | .07 | .00 | 2.2 |
| 17 | 52 | .00 | .23 | .06 | .21 | .08 | .02 | 96 | 1550 | .05 | .00 | .54 |
| 18 | 30 | .00 | .16 | .07 | .16 | .07 | .01 | 72 | 76 | .04 | .00 | .18 |
| 19 | 10 | .00 | .12 | .08 | .15 | .06 | .02 | 51 | 12 | .02 | .00 | .06 |
| 20 | .50 | .00 | .11 | .16 | .13 | .07 | .10 | 7.5 | 4.3 | .00 | .00 | .03 |
| 21 | .20 | .00 | .09 | .73 | .14 | .05 | .10 | 3.1 | 1.8 | .00 | .00 | .00 |
| 22 | .28 | .00 | .07 | .56 | 1.2 | .04 | .05 | 1.5 | .64 | .00 | .00 | .00 |
| 23 | .12 | .00 | .07 | .43 | 1.4 | .04 | .04 | .55 | .26 | .00 | .00 | .00 |
| 24 | .01 | .00 | .07 | .31 | .61 | .05 | .03 | 191 | .09 | .00 | .00 | .00 |
| 25 | .00 | .00 | .06 | .34 | .35 | .03 | .02 | 64 | .07 | .00 | .00 | .00 |
| 26 | .00 | .00 | .06 | .31 | .35 | .04 | .00 | 17 | .14 | .00 | .00 | .00 |
| 27 | .20 | .00 | .07 | .18 | .35 | .04 | .00 | 1410 | .13 | .00 | .00 | .00 |
| 28 | .02 | .00 | .08 | .15 | .41 | .03 | .00 | 1770 | .08 | .00 | .00 | .00 |
| 29 | .00 | .00 | .07 | .12 | --- | 2630 | .01 | 58 | .06 | .00 | .00 | .00 |
| 30 | .00 | .00 | .07 | .12 | --- | 441 | .02 | 79 | .06 | .00 | .00 | .00 |
| 31 | .00 | --- | .08 | .11 | --- | 17 | --- | 22 | --- | .00 | .00 | --- |
| TOTAL | 116.81 | .46 | 1951.47 | 5.01 | 11.73 | 3900.52 | 51.70 | 4908.18 | 33831.73 | 15187.92 | .00 | 66.86 |
| MEAN | 3.77 | .015 | 63.0 | .16 | .42 | 126 | 1.72 | 158 | 1.128 | 490 | .000 | 2.23 |
| MAX | 52 | .25 | 1000 | .73 | 1.7 | 2630 | 28 | 1770 | 13300 | 9380 | .00 | 28 |
| MIN | .00 | .00 | .00 | .02 | .12 | .03 | .00 | .00 | .06 | .00 | .00 | .00 |
| CFSM | .05 | .000 | .80 | .002 | .005 | 1.60 | .02 | 2.01 | 14.3 | 6.23 | .000 | .03 |
| IN. | .06 | .00 | .92 | .00 | .01 | 1.84 | .02 | 2.32 | 15.99 | 7.18 | .00 | .03 |
| AC-FT | 232 | .9 | 3870 | 9.9 | 23 | 7740 | 103 | 9740 | 67110 | 30130 | .00 | 133 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 16934.50 | MEAN | 46.3 | MAX | 4930 | MIN | .00 | CFSM | .59 | IN 8.00 | AC-FT 33590 |
| WTR YR 1981 | TOTAL | 60032.39 | MEAN | 164 | MAX | 13300 | MIN | .00 | CFSM | 2.08 | IN 28.38 | AC-FT 119100 |

## 08017400 LAKE TAWAKONI NEAR WILLS POINT, TX

LOCATION.--Lat 32°48'40", long 95°54'56", Rains-Van Zandt County line, Hydrologic Unit 12010001, in stairwell at left end of spillway of Iron Bridge Dam on Sabine River, 750 ft (229 m) upstream from bridge on Farm Road 47, 3 mi (5 km) upstream from McBee Creek, 9.0 mi (14.5 km) northeast of Wills Point, and at mile 514.5 (827.8 km).

DRAINAGE AREA.--756 mi² (1,958 km²).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1960 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 29,560 ft (9,010 m) long, including a 480-foot (146 m) uncontrolled concrete ogee spillway. Outlet works consist of two 4- by 6-foot (1.2 by 1.8 m) sluice gates and two 20-inch (508 mm) 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. Records furnished by Sabine River Authority show that during year the city of Dallas diverted 43,580 acre-ft (53.7 hm³) of water for municipal use in the Trinity River basin and that various other users in the Sabine River basin diverted 7,170 acre-ft (8.84 hm³). 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 (1.39 km³) May 1, 1966, elevation, 442.58 ft (134.900 m); minimum since lake first filled in May 1965, 802,700 acre-ft (990 hm³) Oct. 21, 1972, elevation, 433.65 ft (132.177 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,023,000 acre-ft (1.26 km³) June 17, 18 at 2300 to 0900 hours, elevation, 439.84 ft (134.063 m); minimum, 829,900 acre-ft (1.02 km³) Feb. 20, elevation, 434.46 ft (132.423 m).

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

| | | | |
|---|---|---|---|
| 434.0 | 814,300 | 438.0 | 954,300 |
| 435.0 | 848,200 | 439.0 | 991,200 |
| 436.0 | 882,800 | 440.0 | 1,029,000 |
| 437.0 | 918,200 | | |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 863400 | 850300 | 836700 | 848200 | 838000 | 834600 | 844800 | 836000 | 877200 | 958000 | 937700 | 917100 |
| 2 | 863100 | 849600 | 836700 | 847200 | 835300 | 835300 | 844800 | 834300 | 882400 | 956200 | 937300 | 913600 |
| 3 | 861700 | 849600 | 835300 | 848200 | 835300 | 836700 | 846100 | 833600 | 898400 | 954300 | 936200 | 913200 |
| 4 | 861700 | 848500 | 835700 | 845800 | 834600 | 840400 | 846500 | 834300 | 915000 | 972000 | 935200 | 912900 |
| 5 | 859600 | 847800 | 835700 | 844800 | 834300 | 844100 | 845800 | 834300 | 948900 | 1001000 | 934800 | 913600 |
| 6 | 859600 | 846800 | 835700 | 847200 | 834000 | 844500 | 844500 | 833300 | 978300 | 1001000 | 933700 | 912900 |
| 7 | 859300 | 846100 | 850300 | 846100 | 834300 | 844800 | 842400 | 831600 | 987600 | 996500 | 933000 | 913600 |
| 8 | 859300 | 845800 | 854800 | 845500 | 833600 | 845500 | 844100 | 832900 | 985300 | 990900 | 930800 | 912200 |
| 9 | 858600 | 845800 | 856800 | 845500 | 834000 | 844500 | 843400 | 840400 | 980900 | 985000 | 930100 | 910400 |
| 10 | 858600 | 845800 | 856800 | 844500 | 839700 | 844100 | 843100 | 840100 | 976800 | 980500 | 929000 | 909000 |
| 11 | 857500 | 844800 | 856800 | 845100 | 832300 | 843800 | 843100 | 839000 | 973200 | 976100 | 928700 | 908600 |
| 12 | 856100 | 844100 | 856800 | 843100 | 831300 | 843100 | 842400 | 837700 | 969800 | 972800 | 927600 | 908300 |
| 13 | 855100 | 843800 | 856800 | 842400 | 831300 | 842800 | 842100 | 841400 | 966500 | 969500 | 927200 | 907600 |
| 14 | 854400 | 846100 | 856800 | 842400 | 830900 | 842100 | 841700 | 836700 | 963900 | 966500 | 926800 | 908600 |
| 15 | 853400 | 844100 | 857200 | 842100 | 830200 | 842800 | 840700 | 836000 | 970600 | 963600 | 925800 | 909000 |
| 16 | 854400 | 844500 | 856500 | 842100 | 830200 | 841400 | 840400 | 840100 | 1010000 | 961000 | 925000 | 908600 |
| 17 | 860300 | 845500 | 855400 | 840700 | 830200 | 842400 | 839700 | 841400 | 1023000 | 958400 | 926100 | 906100 |
| 18 | 860600 | 842800 | 857900 | 839700 | 830200 | 841400 | 839000 | 845500 | 1018000 | 956500 | 926100 | 904700 |
| 19 | 859600 | 841400 | 856800 | 840400 | 830200 | 839000 | 839000 | 846100 | 1009000 | 954300 | 925800 | 903000 |
| 20 | 859300 | 841400 | 855100 | 840700 | 830200 | 836700 | 838700 | 845100 | 1001000 | 952500 | 924300 | 902200 |
| 21 | 858200 | 840400 | 853400 | 840700 | 832600 | 839000 | 838000 | 844100 | 993900 | 951100 | 923600 | 901900 |
| 22 | 857500 | 840700 | 852700 | 840100 | 831600 | 838700 | 837700 | 842800 | 987600 | 949300 | 922900 | 901500 |
| 23 | 861700 | 841700 | 853000 | 839700 | 831300 | 836300 | 837700 | 844500 | 982000 | 947500 | 922100 | 901200 |
| 24 | 856500 | 840700 | 854400 | 839000 | 830600 | 835700 | 837000 | 850600 | 977600 | 946700 | 920700 | 900100 |
| 25 | 854800 | 840100 | 850900 | 839000 | 830600 | 835700 | 836300 | 857500 | 973500 | 944200 | 920700 | 899400 |
| 26 | 854100 | 840100 | 850900 | 839000 | 830600 | 834000 | 836000 | 858600 | 972400 | 943100 | 919300 | 898700 |
| 27 | 857500 | 838700 | 850300 | 838400 | 831300 | 834000 | 835700 | 864400 | 967200 | 941700 | 920000 | 898400 |
| 28 | 854100 | 837300 | 849900 | 837000 | 834000 | 835700 | 835300 | 870300 | 964300 | 941700 | 918900 | 898000 |
| 29 | 852300 | 836700 | 850300 | 839000 | --- | 837300 | 836000 | 875900 | 962100 | 940200 | 918200 | 897600 |
| 30 | 851600 | 836000 | 848500 | 836300 | --- | 842800 | 835700 | 877200 | 959500 | 939500 | 917100 | 896200 |
| 31 | 850900 | --- | 848500 | 837000 | --- | 845100 | --- | 877600 | --- | 939100 | 916800 | --- |
| MAX | 863400 | 850300 | 857900 | 848200 | 839700 | 845500 | 846500 | 877600 | 1023000 | 1001000 | 937700 | 917100 |
| MIN | 850900 | 836000 | 835300 | 836300 | 830200 | 834000 | 835300 | 831600 | 877200 | 939100 | 916800 | 896200 |
| (†) | 435.08 | 434.64 | 435.01 | 434.67 | 434.58 | 434.91 | 434.63 | 435.85 | 438.14 | 437.58 | 436.96 | 436.38 |
| (‡) | -11800 | -14900 | +12500 | -11500 | -3000 | +11100 | -9400 | +41900 | +81900 | -20400 | -22300 | -20600 |
| (††) | 1560 | 5010 | 1030 | 9640 | 4830 | 7880 | 7120 | 8090 | 3670 | 335 | 784 | 798 |

CAL YR 1980 MAX 964300 MIN 835300 ‡ -70400 †† 40100
WTR YR 1981 MAX 1023000 MIN 830200 ‡ +33500 †† 50750

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

08017400 LAKE TAWAKONI NEAR WILLS POINT, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | TEMPERATURE, WATER (DEG C) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|
| MAY | | | | | | | | |
| 06... | 0825 | 215 | 21.0 | 82 | 2 | 28 | 2.9 | 11 |

| DATE | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| MAY | | | | | | | | |
| 06... | .5 | 4.5 | 80 | 16 | 6.8 | .3 | .8 | 118 |

## 08017410 SABINE RIVER NEAR WILLS POINT, TX

LOCATION.--Lat 32°48'34", long 95°54'46", Van Zandt County, Hydrologic Unit 12010001, on right bank at downstream side of bridge on Farm Road 47, 750 ft (229 m) downstream from Iron Bridge Dam which forms Lake Tawakoni, 3.0 mi (4.8 km) upstream from McBee Creek, 9.0 mi (14.5 km) northeast of Wills Point, and at mile 514.3 (827.5 km).

DRAINAGE AREA.--756 $mi^2$ (1,958 $km^2$).

PERIOD OF RECORD.--October 1970 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 370.00 ft (112.776 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period May 9 to June 15, which are fair. Flow regulated by Lake Tawakoni (see station 08017400).

AVERAGE DISCHARGE.--11 years, 412 $ft^3/s$ (11.67 $m^3/s$), 298,500 acre-ft/yr (368 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,600 $ft^3/s$ (385 $m^3/s$) Dec. 11, 1971, gage height, 18.5 ft (5.64 m), from graph based on gage readings; no flow most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since construction of Iron Bridge Dam in 1960, about 21,000 $ft^3/s$ (595 $m^3/s$) May 1, 1966, from theoretical rating curve of flow over dam 750 ft (229 m) upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,540 $ft^3/s$ (185 $m^3/s$) June 17 at 1315 hours, gage height, 16.88 ft (5.145 m); minimum daily, 1.2 $ft^3/s$ (0.034 $m^3/s$) Mar. 7, 14-16, 20, May 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 18 | 9.3 | 8.5 | 9.4 | 15 | 11 | 18 | 16 | 9.4 | 820 | 33 | 18 |
| 2 | 11 | 9.6 | 9.7 | 8.8 | 11 | 9.4 | 9.0 | 12 | 14 | 747 | 19 | 18 |
| 3 | 10 | 9.9 | 18 | 9.2 | 17 | 14 | 17 | 10 | 109 | 671 | 13 | 17 |
| 4 | 9.2 | 9.7 | 9.0 | 11 | 10 | 9.9 | 12 | 19 | 250 | 853 | 11 | 16 |
| 5 | 10 | 12 | 9.6 | 9.3 | 11 | 12 | 9.9 | 8.8 | 476 | 3260 | 2.9 | 17 |
| 6 | 9.0 | 9.7 | 11 | 9.2 | 15 | 11 | 16 | 9.0 | 958 | 4120 | 2.4 | 17 |
| 7 | 8.1 | 11 | 10 | 26 | 13 | 1.2 | 17 | 16 | 2380 | 3860 | 159 | 26 |
| 8 | 12 | 10 | 18 | 12 | 12 | 1.6 | 9.4 | 16 | 2700 | 3440 | 144 | 60 |
| 9 | 7.6 | 12 | 63 | 10 | 12 | 1.4 | 9.7 | 12 | 2280 | 3060 | 3.0 | 21 |
| 10 | 11 | 9.6 | 7.4 | 9.9 | 50 | 4.4 | 10 | 19 | 1990 | 2700 | 11 | 18 |
| 11 | 9.6 | 13 | 9.9 | 10 | 21 | 1.4 | 11 | 12 | 1620 | 2350 | 19 | 17 |
| 12 | 10 | 10 | 6.0 | 11 | 9.1 | 1.5 | 12 | 13 | 1420 | 1970 | 19 | 18 |
| 13 | 13 | 9.0 | 8.1 | 16 | 10 | 1.3 | 10 | 15 | 1210 | 1650 | 19 | 24 |
| 14 | 13 | 15 | 9.0 | 9.7 | 12 | 1.2 | 11 | 11 | 1030 | 1300 | 19 | 34 |
| 15 | 16 | 8.2 | 7.0 | 11 | 10 | 1.2 | 21 | 9.0 | 994 | 1030 | 19 | 18 |
| 16 | 7.8 | 9.9 | 8.9 | 10 | 16 | 1.2 | 13 | 1.5 | 2770 | 919 | 21 | 80 |
| 17 | 11 | 8.5 | 14 | 9.6 | 10 | 1.3 | 12 | 1.2 | 5870 | 818 | 27 | 96 |
| 18 | 11 | 14 | 8.4 | 9.1 | 10 | 26 | 9.3 | 16 | 5920 | 727 | 57 | 19 |
| 19 | 12 | 8.5 | 15 | 18 | 13 | 1.3 | 9.5 | 17 | 5090 | 645 | 24 | 17 |
| 20 | 9.7 | 2.9 | 9.3 | 13 | 13 | 1.2 | 12 | 19 | 4420 | 574 | 38 | 17 |
| 21 | 15 | 9.5 | 8.5 | 12 | 10 | 11 | 12 | 10 | 3840 | 499 | 16 | 18 |
| 22 | 16 | 8.7 | 11 | 11 | 10 | 13 | 17 | 16 | 3400 | 427 | 16 | 18 |
| 23 | 14 | 9.4 | 7.9 | 13 | 11 | 10 | 10 | 4.0 | 2990 | 366 | 17 | 19 |
| 24 | 26 | 9.5 | 18 | 11 | 12 | 14 | 12 | 63 | 2630 | 318 | 17 | 24 |
| 25 | 11 | 15 | 1.6 | 11 | 11 | 13 | 12 | 11 | 2290 | 263 | 17 | 11 |
| 26 | 10 | 12 | 8.8 | 12 | 11 | 11 | 13 | 11 | 1920 | 197 | 17 | 2.2 |
| 27 | 13 | 9.7 | 9.5 | 17 | 11 | 13 | 11 | 132 | 1580 | 146 | 21 | 2.4 |
| 28 | 35 | 11 | 8.0 | 13 | 10 | 14 | 11 | 85 | 1230 | 133 | 18 | 2.7 |
| 29 | 9.9 | 11 | 9.4 | 13 | --- | 15 | 15 | 9.0 | 1010 | 106 | 18 | 3.5 |
| 30 | 8.2 | 8.9 | 11 | 17 | --- | 15 | 11 | 5.4 | 910 | 74 | 18 | 7.3 |
| 31 | 8.8 | --- | 17 | 13 | --- | 15 | --- | 3.6 | --- | 47 | 18 | --- |
| TOTAL | 385.9 | 306.5 | 370.5 | 375.2 | 376.1 | 257.5 | 372.8 | 602.5 | 63310.4 | 38090 | 853.3 | 676.1 |
| MEAN | 12.4 | 10.2 | 12.0 | 12.1 | 13.4 | 8.31 | 12.4 | 19.4 | 2110 | 1229 | 27.5 | 22.5 |
| MAX | 35 | 15 | 63 | 26 | 50 | 26 | 21 | 132 | 5920 | 4120 | 159 | 96 |
| MIN | 7.6 | 2.9 | 1.6 | 8.8 | 9.1 | 1.2 | 9.0 | 1.2 | 9.4 | 47 | 2.4 | 2.2 |
| AC-FT | 765 | 608 | 735 | 744 | 746 | 511 | 739 | 1200 | 125600 | 75550 | 1690 | 1340 |

CAL YR 1980 TOTAL 49037.00 MEAN 134 MAX 1270 MIN .36 AC-FT 97260
WTR YR 1981 TOTAL 105976.80 MEAN 290 MAX 5920 MIN 1.2 AC-FT 210200

NOTE.--No gage-height record May 9 to June 15.

## 08018500 SABINE RIVER NEAR MINEOLA, TX

LOCATION.--Lat 32°36'49" (revised), long 95°29'08", Wood County, Hydrologic Unit 12010001, on left bank 5 ft (2 m) downstream from bridge on U.S. Highway 69, 3.5 mi (5.6 km) south of Mineola, 4.5 mi (7.2 km) upstream from Missouri Pacific Railway Lines bridge, 16.2 mi (26.1 km) upstream from Lake Fork Creek, and at mile 461.1 (741.9 km).

DRAINAGE AREA.--1,357 mi² (3,515 km²).

### 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 (92.708 m) National Geodetic Vertical Datum of 1929. May 12, 1939, to Dec. 11, 1955, at site 55 ft (17 m) upstream from downstream side of bridge; Dec. 12, 1955, to Dec. 12, 1959, at downstream side of bridge; Oct. 1, 1967, to Sept. 12, 1968, nonrecording gage at downstream side of bridge; Sept. 13, 1968, to Oct. 23, 1974, water-stage recorder at downstream side of bridge; Oct. 24, 1974, to Oct. 16, 1975, at site on right bank 75 ft (23 m) downstream from bridge. All gages at present datum.

REMARKS.--Water-discharge records good. Flow partly regulated since October 1960 by Lake Tawakoni (station 08017400), capacity 936,200 acre-ft (1.15 km³), located 53 mi (85 km) upstream and since September 1962 by Lake Holbrook, capacity 7,990 acre-ft (9.85 hm³), located on Keys Creek, tributary to Sabine River 8.0 mi (12.9 km) upstream. Flow is affected at times by discharge from the flood-detention pool of a floodwater-retarding structure with a detention capacity of 5,530 acre-ft (6.82 hm³). This structure controls runoff from 9.70 mi² (25.1 km²) in the Mill Creek drainage basin.

AVERAGE DISCHARGE.--20 years (water years 1940-59) prior to regulation by Lake Tawakoni, 1,054 ft³/s (29.85 m³/s), 763,600 acre-ft/yr (942 hm³/yr); 14 years (water years 1968-81) regulated, 926 ft³/s (26.22 m³/s) 670,900 acre-ft/yr (827 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 76,000 ft³/s (2,150 m³/s) Apr. 1, 1945, gage height, 24.00 ft (7.315 m); maximum gage height, 24.37 ft (7.428 m) June 8, 1943; no flow at times.
Maximum stage since at least 1890, that of June 8, 1943.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,720 ft³/s (190 m³/s) June 21 at 1600 hours, gage height, 17.66 ft (5.383 m); minimum, 9.7 ft³/s (0.27 m³/s) Oct. 15-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 378 | 18 | 23 | 15 | 60 | 66 | 96 | 29 | 1180 | 2050 | 117 | 26 |
| 2 | 371 | 23 | 23 | 15 | 153 | 139 | 70 | 31 | 576 | 1750 | 91 | 37 |
| 3 | 199 | 21 | 23 | 16 | 119 | 183 | 57 | 42 | 345 | 1490 | 71 | 30 |
| 4 | 79 | 17 | 23 | 16 | 80 | 334 | 57 | 43 | 1050 | 1280 | 57 | 28 |
| 5 | 41 | 14 | 22 | 19 | 64 | 547 | 61 | 38 | 1740 | 1080 | 45 | 31 |
| 6 | 27 | 13 | 22 | 21 | 58 | 389 | 54 | 35 | 2540 | 930 | 34 | 50 |
| 7 | 20 | 12 | 23 | 26 | 55 | 251 | 51 | 32 | 2990 | 1010 | 25 | 35 |
| 8 | 16 | 12 | 57 | 26 | 54 | 194 | 46 | 28 | 3310 | 1200 | 18 | 26 |
| 9 | 14 | 12 | 373 | 25 | 52 | 148 | 42 | 213 | 3480 | 1530 | 13 | 23 |
| 10 | 13 | 12 | 639 | 27 | 56 | 112 | 39 | 461 | 3390 | 2050 | 57 | 23 |
| 11 | 12 | 14 | 743 | 27 | 63 | 86 | 38 | 495 | 3110 | 2670 | 88 | 37 |
| 12 | 11 | 15 | 560 | 26 | 61 | 70 | 37 | 403 | 2840 | 3040 | 47 | 44 |
| 13 | 10 | 15 | 225 | 25 | 57 | 59 | 34 | 261 | 2700 | 3050 | 25 | 32 |
| 14 | 10 | 17 | 89 | 24 | 67 | 52 | 31 | 249 | 2580 | 2850 | 15 | 25 |
| 15 | 10 | 28 | 52 | 23 | 62 | 46 | 29 | 303 | 2440 | 2540 | 13 | 28 |
| 16 | 9.7 | 32 | 36 | 22 | 53 | 45 | 28 | 671 | 2770 | 2250 | 18 | 50 |
| 17 | 12 | 57 | 28 | 22 | 45 | 46 | 26 | 1490 | 3240 | 1930 | 23 | 45 |
| 18 | 19 | 55 | 24 | 22 | 41 | 38 | 26 | 1660 | 3530 | 1670 | 25 | 37 |
| 19 | 35 | 47 | 22 | 23 | 39 | 34 | 25 | 1550 | 4190 | 1440 | 30 | 43 |
| 20 | 45 | 37 | 19 | 35 | 38 | 31 | 27 | 1220 | 5970 | 1240 | 32 | 72 |
| 21 | 35 | 30 | 16 | 44 | 40 | 29 | 27 | 704 | 6580 | 1040 | 37 | 54 |
| 22 | 27 | 28 | 16 | 46 | 94 | 28 | 24 | 267 | 6260 | 803 | 40 | 35 |
| 23 | 22 | 31 | 16 | 47 | 126 | 29 | 24 | 130 | 5690 | 605 | 36 | 26 |
| 24 | 18 | 32 | 17 | 48 | 93 | 31 | 25 | 156 | 4980 | 470 | 33 | 22 |
| 25 | 15 | 30 | 18 | 46 | 68 | 28 | 26 | 549 | 4370 | 385 | 26 | 21 |
| 26 | 14 | 28 | 16 | 41 | 53 | 26 | 25 | 1170 | 3820 | 328 | 21 | 21 |
| 27 | 21 | 30 | 16 | 38 | 46 | 29 | 24 | 1230 | 3500 | 277 | 20 | 21 |
| 28 | 39 | 30 | 16 | 36 | 45 | 32 | 23 | 1430 | 3140 | 227 | 21 | 22 |
| 29 | 30 | 24 | 17 | 32 | --- | 54 | 23 | 1520 | 2750 | 183 | 21 | 23 |
| 30 | 23 | 22 | 17 | 31 | --- | 114 | 25 | 1620 | 2400 | 154 | 21 | 18 |
| 31 | 18 | --- | 16 | 29 | --- | 125 | --- | 1570 | --- | 143 | 23 | --- |
| TOTAL | 1593.7 | 756 | 3207 | 893 | 1842 | 3395 | 1120 | 19600 | 97461 | 41665 | 1143 | 985 |
| MEAN | 51.4 | 25.2 | 103 | 28.8 | 65.8 | 110 | 37.3 | 632 | 3249 | 1344 | 36.9 | 32.8 |
| MAX | 378 | 57 | 743 | 48 | 153 | 547 | 96 | 1660 | 6580 | 3050 | 117 | 72 |
| MIN | 9.7 | 12 | 16 | 15 | 38 | 26 | 23 | 28 | 345 | 143 | 13 | 18 |
| AC-FT | 3160 | 1500 | 6360 | 1770 | 3650 | 6730 | 2220 | 38880 | 193300 | 82640 | 2270 | 1950 |

CAL YR 1980 TOTAL 151416.64 MEAN 414 MAX 5550 MIN .74 AC-FT 300300
WTR YR 1981 TOTAL 173660.70 MEAN 476 MAX 6580 MIN 9.7 AC-FT 344500

08018500 SABINE RIVER NEAR MINEOLA, TX--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 TEMPERATURES: 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, 11,400 micromhos June 3, 1971; minimum daily, 70 micromhos Dec. 12, 1971.
WATER TEMPERATURES: Maximum daily, 30.0°C on several days during July 1980, July and August 1981; minimum daily, 0.0°C Jan. 15, Feb. 1, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 7,500 micromhos Nov. 21; minimum daily, 151 micromhos June 20.
WATER TEMPERATURES: Maximum daily, 30.0°C on several days during July and August; minimum daily, 4.0°C on several days during December, January, and February.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH FIELD (UNITS) | TEMPER-ATURE, WATER (DEG C) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 06... | 1105 | 27 | 496 | 6.9 | 17.0 | 6.0 | 61 | 2.2 | 46 | 16 |
| JAN | | | | | | | | | | |
| 05... | 1230 | 18 | 1260 | 7.3 | 5.0 | 11.3 | 88 | 1.8 | 120 | 70 |
| MAR | | | | | | | | | | |
| 23... | 1120 | 29 | 929 | 7.1 | 13.5 | 9.3 | 89 | 2.3 | 170 | 140 |
| APR | | | | | | | | | | |
| 27... | 1115 | 24 | 1070 | 7.4 | 22.0 | 6.7 | 77 | 4.0 | 160 | 88 |
| MAY | | | | | | | | | | |
| 06... | 0725 | 34 | 3210 | -- | 21.0 | -- | -- | -- | 190 | 120 |
| JUN | | | | | | | | | | |
| 01... | 1153 | 1200 | 270 | 6.5 | 25.0 | 3.6 | 44 | 2.4 | 58 | 27 |
| AUG | | | | | | | | | | |
| 24... | 1038 | 35 | 270 | 7.2 | 25.5 | 7.2 | 88 | 2.1 | 83 | 8 |

| 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 (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) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 06... | 13 | 3.2 | 72 | 4.6 | 4.2 | 25 | 29 | 110 | .2 | 7.6 |
| JAN | | | | | | | | | | |
| 05... | 33 | 9.5 | 200 | 7.9 | 4.2 | 52 | 76 | 320 | .2 | 10 |
| MAR | | | | | | | | | | |
| 23... | 43 | 15 | 120 | 4.0 | 4.2 | 30 | 140 | 200 | .1 | 13 |
| APR | | | | | | | | | | |
| 27... | 41 | 13 | 160 | 5.6 | 4.8 | 68 | 92 | 250 | .2 | 23 |
| MAY | | | | | | | | | | |
| 06... | 51 | 14 | -- | -- | -- | 69 | 100 | 950 | -- | -- |
| JUN | | | | | | | | | | |
| 01... | 15 | 5.1 | 27 | 1.5 | 5.1 | 31 | 36 | 39 | .1 | 11 |
| AUG | | | | | | | | | | |
| 24... | 26 | 4.4 | 21 | 1.0 | 3.8 | 75 | 22 | 29 | .2 | 4.9 |

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 06... | 257 | .71 | .070 | -- | .78 | .190 | 1.2 | 1.4 | .140 |
| JAN | | | | | | | | | |
| 05... | 684 | .30 | .020 | -- | .32 | .190 | .91 | 1.1 | .070 |
| MAR | | | | | | | | | |
| 23... | 553 | .11 | .020 | -- | .13 | .030 | 1.3 | 1.3 | .110 |
| APR | | | | | | | | | |
| 27... | 625 | .13 | .030 | .030 | .16 | .130 | 2.1 | 2.2 | .180 |
| MAY | | | | | | | | | |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | |
| 01... | 157 | .05 | .020 | -- | .07 | .110 | 1.3 | 1.4 | .220 |
| AUG | | | | | | | | | |
| 24... | 156 | .08 | .030 | -- | .11 | .160 | 1.0 | 1.2 | .080 |

08018500 SABINE RIVER NEAR MINEOLA, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 1593.7 | 677 | 363 | 1560 | 150 | 625 | 54 | 233 | 97 |
| NOV. | 1980 | 756 | 2650 | 1360 | 2770 | 790 | 1610 | 160 | 332 | 210 |
| DEC. | 1980 | 3207 | 743 | 397 | 3440 | 160 | 1430 | 58 | 500 | 100 |
| JAN. | 1981 | 893 | 1210 | 644 | 1550 | 270 | 642 | 83 | 200 | 130 |
| FEB. | 1981 | 1842 | 963 | 517 | 2570 | 200 | 1020 | 70 | 348 | 110 |
| MAR. | 1981 | 3395 | 764 | 413 | 3780 | 150 | 1410 | 59 | 540 | 100 |
| APR. | 1981 | 1120 | 1040 | 557 | 1680 | 220 | 664 | 74 | 224 | 120 |
| MAY | 1981 | 19600 | 334 | 181 | 9600 | 64 | 3380 | 35 | 1870 | 77 |
| JUNE | 1981 | 97461 | 198 | 108 | 28500 | 36 | 9410 | 28 | 7330 | 69 |
| JULY | 1981 | 41665 | 217 | 118 | 13300 | 39 | 4410 | 29 | 3250 | 70 |
| AUG. | 1981 | 1143 | 279 | 152 | 470 | 51 | 158 | 32 | 100 | 73 |
| SEPT | 1981 | 985 | 543 | 292 | 778 | 110 | 297 | 47 | 124 | 89 |
| TOTAL | | 173660.7 | ** | ** | 70000 | ** | 25100 | ** | 15100 | ** |
| WTD. AVG. | | 476 | 275 | 149 | ** | 53 | ** | 32 | ** | 73 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 554 | 1410 | 2860 | 1090 | 669 | 606 | 1260 | 3000 | 269 | 223 | 227 | 297 |
| 2 | 307 | 3420 | 3200 | 1040 | 680 | 542 | 1080 | 2070 | 291 | 220 | 240 | 291 |
| 3 | 366 | 2750 | 3070 | 1020 | 2000 | 1000 | 904 | 1620 | 353 | 222 | 250 | 268 |
| 4 | 423 | 1580 | 3180 | 958 | 1510 | 581 | 819 | 2720 | 262 | 225 | 264 | 288 |
| 5 | 441 | 1280 | 3140 | 1210 | 1320 | 817 | 753 | 2190 | 250 | 227 | 274 | 285 |
| 6 | 477 | 935 | 3020 | 1300 | 1160 | 512 | 730 | 3210 | 194 | 231 | 288 | 310 |
| 7 | 498 | 909 | 2830 | 968 | 760 | 600 | 786 | 1560 | 182 | 347 | 304 | 311 |
| 8 | 495 | 1010 | 2850 | 774 | 648 | 650 | 920 | 957 | 177 | 226 | 320 | 559 |
| 9 | 522 | 1100 | 1500 | 706 | 661 | 700 | 1960 | 445 | 165 | 211 | 331 | 1110 |
| 10 | 534 | 1350 | 470 | 821 | 681 | 1130 | 1430 | 700 | 166 | 205 | 300 | 2700 |
| 11 | 540 | 1460 | 282 | 976 | 820 | 889 | 1090 | 469 | 191 | 204 | 258 | 2010 |
| 12 | 548 | 1960 | 365 | 1120 | 824 | 749 | 1000 | 486 | 211 | 205 | 274 | 749 |
| 13 | 641 | 2000 | 400 | 1180 | 1220 | 697 | 915 | 413 | 214 | 207 | 269 | 409 |
| 14 | 715 | 1970 | 430 | 1370 | 1890 | 731 | 844 | 329 | 218 | 209 | 281 | 395 |
| 15 | 831 | 1690 | 553 | 1890 | 1780 | 765 | 846 | 450 | 222 | 211 | 300 | 353 |
| 16 | 871 | 2100 | 580 | 1610 | 961 | 799 | 871 | 233 | 202 | 212 | 318 | 391 |
| 17 | 853 | 1290 | 622 | 1130 | 741 | 833 | 873 | 250 | 213 | 212 | 312 | 496 |
| 18 | 834 | 1100 | 760 | 1010 | 676 | 866 | 875 | 312 | 215 | 211 | 340 | 517 |
| 19 | 968 | 4800 | 843 | 1030 | 712 | 911 | 897 | 300 | 177 | 212 | 324 | 673 |
| 20 | 1090 | 5150 | 968 | 828 | 787 | 917 | 910 | 317 | 151 | 217 | 323 | 473 |
| 21 | 3850 | 7500 | 1060 | 826 | 766 | 911 | 905 | 316 | 154 | 219 | 360 | 331 |
| 22 | 2250 | 5750 | 1100 | 768 | 767 | 915 | 889 | 332 | 183 | 217 | 310 | 342 |
| 23 | 1980 | 3500 | 1110 | 850 | 599 | 921 | 821 | 385 | 195 | 209 | 300 | 324 |
| 24 | 1660 | 2430 | 1180 | 1850 | 750 | 1030 | 777 | 345 | 207 | 210 | 281 | 330 |
| 25 | 1360 | 2080 | 1390 | 2570 | 633 | 1060 | 838 | 450 | 213 | 211 | 278 | 366 |
| 26 | 1090 | 1940 | 1150 | 2170 | 731 | 1040 | 903 | 286 | 217 | 213 | 272 | 392 |
| 27 | 1100 | 1640 | 1130 | 1440 | 704 | 993 | 1080 | 289 | 224 | 216 | 279 | 412 |
| 28 | 1030 | 1910 | 1140 | 1190 | 666 | 977 | 1500 | 274 | 223 | 222 | 275 | 423 |
| 29 | 964 | 3740 | 1120 | 953 | --- | 1030 | 2020 | 275 | 225 | 230 | 290 | 471 |
| 30 | 938 | 3250 | 1290 | 750 | --- | 712 | 1890 | 226 | 224 | 235 | 300 | 463 |
| 31 | 868 | --- | 1200 | 748 | --- | 1400 | --- | 219 | --- | 226 | 299 | --- |
| MEAN | 955 | 2430 | 1440 | 1170 | 933 | 848 | 1050 | 820 | 213 | 221 | 292 | 558 |

08018500 SABINE RIVER NEAR MINEOLA, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 18.0 | 10.0 | 10.0 | 6.0 | 10.0 | 15.0 | 16.0 | 24.0 | 25.0 | 27.0 | 28.0 | 26.0 |
| 2 | 19.0 | 12.0 | 10.0 | 8.0 | 7.0 | 13.0 | 18.0 | 22.0 | 25.0 | 28.0 | 28.0 | 25.0 |
| 3 | 18.0 | 12.0 | 8.0 | 6.0 | 5.0 | 14.0 | 20.0 | 22.0 | 23.0 | 28.0 | 29.0 | 25.0 |
| 4 | 19.0 | 14.0 | 9.0 | 5.0 | 6.0 | 15.0 | 20.0 | 21.0 | 22.0 | 27.0 | 28.0 | 25.0 |
| 5 | 17.0 | 11.0 | 12.0 | 5.0 | 6.0 | 15.0 | 16.0 | 22.0 | 22.0 | 26.0 | 29.0 | 25.0 |
| 6 | 18.0 | 12.0 | 14.0 | 6.0 | 6.0 | 13.0 | 16.0 | 21.0 | 23.0 | 27.0 | 30.0 | 25.0 |
| 7 | 17.0 | 14.0 | 15.0 | 6.0 | 7.0 | 15.0 | 18.0 | 20.0 | 24.0 | 26.0 | 28.0 | 26.0 |
| 8 | 18.0 | 15.0 | 16.0 | 8.0 | 7.0 | 12.0 | 19.0 | 21.0 | 25.0 | 26.0 | 28.0 | 25.0 |
| 9 | 19.0 | 13.0 | 12.0 | 8.0 | 9.0 | 11.0 | 20.0 | 19.0 | 26.0 | 27.0 | 26.0 | 25.0 |
| 10 | 21.0 | 19.0 | 12.0 | 8.0 | 10.0 | 11.0 | 20.0 | 17.0 | 27.0 | 28.0 | 26.0 | 22.0 |
| 11 | 19.0 | 13.0 | 10.0 | 8.0 | 4.0 | 12.0 | 21.0 | 17.0 | 26.0 | 27.0 | 26.0 | 22.0 |
| 12 | 15.0 | 16.0 | 9.0 | 4.0 | 4.0 | 12.0 | 22.0 | 17.0 | 26.0 | 27.0 | 27.0 | 23.0 |
| 13 | 16.0 | 13.0 | 8.0 | 5.0 | 5.0 | 13.0 | 21.0 | 19.0 | 26.0 | 28.0 | 27.0 | 23.0 |
| 14 | 18.0 | 16.0 | 8.0 | 6.0 | 4.0 | 13.0 | 21.0 | 19.0 | 26.0 | 29.0 | 25.0 | 24.0 |
| 15 | 19.0 | 14.5 | 10.0 | 5.0 | 4.0 | 12.0 | 18.0 | 19.0 | 20.0 | 29.0 | 27.0 | 24.0 |
| 16 | 20.0 | 13.0 | 11.0 | 4.0 | 6.0 | 12.0 | 21.0 | 17.0 | 25.0 | 29.0 | 28.0 | 23.0 |
| 17 | 22.0 | 10.0 | 9.0 | 4.0 | 7.0 | 14.0 | 24.0 | 17.0 | 24.0 | 28.0 | 27.0 | 21.0 |
| 18 | 20.0 | 9.0 | 10.0 | 4.0 | 9.0 | 14.0 | 20.0 | 20.0 | 24.0 | 27.0 | 27.0 | 18.0 |
| 19 | 18.0 | 7.0 | 10.0 | 6.0 | 11.0 | 10.0 | 22.0 | 19.0 | 25.0 | 28.0 | 26.0 | 17.0 |
| 20 | 17.0 | 6.0 | 6.0 | 5.0 | 11.0 | 10.0 | 22.0 | 18.0 | 26.0 | 29.0 | 24.0 | 18.0 |
| 21 | 17.0 | 7.0 | 5.0 | 6.0 | 14.0 | 14.0 | 22.0 | 19.0 | 26.0 | 29.0 | 26.0 | 19.0 |
| 22 | 15.0 | 9.0 | 5.0 | 6.0 | 13.0 | 14.0 | 23.0 | 20.0 | 27.0 | 29.0 | 24.0 | 21.0 |
| 23 | 15.0 | 9.0 | 8.0 | 5.0 | 12.0 | 12.0 | 22.0 | 21.0 | 27.0 | 30.0 | 24.0 | 20.0 |
| 24 | 15.0 | 9.0 | 7.0 | 5.0 | 12.0 | 10.0 | 19.0 | 21.0 | 26.0 | 30.0 | 26.0 | --- |
| 25 | 15.0 | 10.0 | 6.0 | 6.0 | 12.0 | 14.0 | 21.0 | 21.0 | 27.0 | 30.0 | 26.0 | 23.0 |
| 26 | 17.0 | 8.0 | 4.0 | 8.0 | 13.0 | 14.0 | 20.0 | 17.0 | 28.0 | 29.0 | 27.0 | 24.0 |
| 27 | 18.0 | 6.0 | 5.0 | 8.0 | 15.0 | 15.0 | 22.0 | 27.0 | 27.0 | 29.0 | 27.0 | 24.0 |
| 28 | 14.0 | 8.0 | 5.0 | 8.0 | 16.0 | 17.0 | 24.0 | 22.0 | 26.0 | 30.0 | 26.0 | 23.0 |
| 29 | 13.0 | 8.0 | 6.0 | 10.0 | --- | 16.0 | 22.0 | 24.0 | 27.0 | 30.0 | 25.0 | 24.0 |
| 30 | 12.0 | 7.0 | 6.0 | 10.0 | --- | 16.0 | 24.0 | 25.0 | 27.0 | 30.0 | 26.0 | 24.0 |
| 31 | 11.0 | --- | 6.0 | 10.0 | --- | 17.0 | --- | 24.0 | --- | 29.0 | 26.0 | --- |
| MEAN | 17.0 | 11.0 | 9.0 | 6.5 | 9.0 | 13.5 | 20.5 | 20.5 | 25.5 | 28.5 | 26.5 | 23.0 |

## 08018730 BURKE CREEK NEAR YANTIS, TX

LOCATION.--Lat 32°59'26", long 95°37'18", Hopkins County, Hydrologic Unit 12010003, on the downstream side of highway embankment, 7 ft (2.1 m) to left of left end of main bridge on Farm Road 1567, 100 ft (30 m) upstream from Cane Branch, 1.2 mi (1.9 km) upstream from Brushy Branch, and 5.0 mi (8.0 km) northwest of Yantis.

DRAINAGE AREA.--33.1 $mi^2$ (85.7 $km^2$).

PERIOD OF RECORD.--October 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 400.00 ft (121.920 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. There are no known diversions or return effluents in the basin above gage. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,990 $ft^3/s$ (84.7 $m^3/s$) June 16, 1981, gage height, 11.59 ft (3.533 m), from graph based on gage reading on June 16; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1943, 17.5 ft (5.334 m) June 6, 1943, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 $ft^3/s$ (28.3 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| June 2 | 1645 | 1,700 | 48.1 | 10.87 | 3.313 |
| June 16 | 0600 | *2,990 | 84.7 | a11.59 | 3.533 |

a From graph based on gage reading on June 16.

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .19 | .25 | 4.4 | 65 | 3.1 | 4.3 | 2.6 | 2.9 | .00 | .00 |
| 2 | .00 | .00 | .14 | .25 | 5.7 | 38 | 3.0 | 3.2 | 531 | 2.5 | .00 | .00 |
| 3 | .00 | .00 | .09 | .21 | 3.6 | 6.8 | 3.0 | 1.5 | 364 | 2.5 | .00 | .00 |
| 4 | .00 | .00 | .02 | .10 | 3.0 | 20 | 4.5 | 1.0 | 375 | 2.5 | .00 | .00 |
| 5 | .00 | .00 | .06 | .08 | 3.0 | 11 | 5.0 | 1.8 | 511 | 3.8 | .00 | .00 |
| 6 | .00 | .03 | .08 | 3.0 | 3.8 | 3.0 | 3.5 | 2.8 | 230 | 4.5 | .00 | .00 |
| 7 | .00 | .31 | .18 | 7.0 | 3.8 | 2.0 | 2.7 | 1.8 | 77 | 8.0 | .00 | .00 |
| 8 | .00 | .21 | 80 | 1.9 | 3.7 | 4.6 | 2.5 | 1.6 | 30 | 9.2 | .00 | .00 |
| 9 | .00 | .00 | 164 | .94 | 3.3 | 3.5 | 2.7 | 134 | 16 | 5.4 | .00 | .00 |
| 10 | .00 | .00 | 28 | .52 | 14 | 2.5 | 3.0 | 46 | 10 | 2.9 | .00 | .00 |
| 11 | .00 | .00 | 8.7 | .35 | 6.4 | 3.6 | 2.6 | 3.9 | 8.2 | 1.8 | .00 | .00 |
| 12 | .00 | .00 | 4.4 | .19 | 2.8 | 3.1 | 2.7 | 1.5 | 6.8 | .80 | .00 | .00 |
| 13 | .00 | .00 | 3.2 | .10 | 2.3 | 2.7 | 3.1 | 1.6 | 5.7 | .53 | .00 | .00 |
| 14 | .00 | .28 | 2.2 | .11 | 2.5 | 2.4 | 2.8 | 27 | 5.2 | .21 | .00 | .00 |
| 15 | .00 | .81 | 1.7 | .13 | 2.2 | 2.2 | 2.4 | 4.5 | 6.0 | .10 | .00 | .00 |
| 16 | .00 | .92 | 1.7 | .06 | 2.2 | 1.7 | 2.1 | 90 | 1300 | .00 | .00 | .00 |
| 17 | 21 | 10 | 1.6 | .00 | 2.4 | 1.2 | 2.3 | 155 | 189 | .00 | .00 | .00 |
| 18 | 15 | 7.2 | 1.6 | .00 | 2.6 | 1.2 | 2.4 | 63 | 44 | .00 | .00 | .00 |
| 19 | 2.5 | 2.1 | 1.5 | .00 | 2.4 | .56 | 2.6 | 110 | 20 | .00 | .00 | .00 |
| 20 | .70 | .84 | 1.4 | 3.2 | 2.3 | .43 | 2.5 | 7.4 | 13 | .00 | .00 | .00 |
| 21 | .53 | .44 | 1.3 | 6.3 | 2.4 | .48 | 1.6 | 3.4 | 9.5 | .00 | .00 | .00 |
| 22 | .34 | .41 | 1.1 | 2.7 | 80 | .49 | 1.5 | 2.8 | 9.0 | .00 | .00 | .00 |
| 23 | .14 | 1.1 | .96 | 1.7 | 13 | .21 | 1.6 | 2.9 | 8.4 | .00 | .00 | .00 |
| 24 | .02 | 1.7 | .80 | 1.6 | 4.2 | .06 | 2.0 | 64 | 7.2 | .00 | .00 | .00 |
| 25 | .00 | .97 | .73 | 1.7 | 3.2 | .05 | 1.7 | 27 | 5.9 | .00 | .00 | .00 |
| 26 | .00 | .48 | .66 | 1.5 | 2.3 | .07 | 1.3 | 12 | 5.4 | .00 | .00 | .00 |
| 27 | .00 | .33 | .53 | 2.5 | 1.9 | .12 | .80 | 84 | 5.0 | .00 | .00 | .00 |
| 28 | .00 | .35 | .53 | 2.2 | 4.6 | .87 | .36 | 90 | 4.3 | .00 | .00 | .00 |
| 29 | .00 | .30 | .43 | 2.0 | --- | 38 | .78 | 8.0 | 3.8 | .00 | .00 | .00 |
| 30 | .00 | .26 | .38 | 2.1 | --- | 12 | 2.0 | 67 | 3.2 | .00 | .00 | .00 |
| 31 | .00 | --- | .34 | 2.1 | --- | 2.9 | --- | 10 | --- | .00 | .00 | --- |
| TOTAL | 40.23 | 29.04 | 308.52 | 44.79 | 188.0 | 230.74 | 72.14 | 1033.0 | 3806.2 | 47.64 | .00 | .00 |
| MEAN | 1.30 | .97 | 9.95 | 1.44 | 6.71 | 7.44 | 2.40 | 33.3 | 127 | 1.54 | .000 | .000 |
| MAX | 21 | 10 | 164 | 7.0 | 80 | 65 | 5.0 | 155 | 1300 | 9.2 | .00 | .00 |
| MIN | .00 | .00 | .02 | .00 | 1.9 | .05 | .36 | 1.0 | 2.6 | .00 | .00 | .00 |
| CFSM | .04 | .03 | .30 | .04 | .20 | .23 | .07 | 1.01 | 3.84 | .05 | .000 | .000 |
| IN. | .05 | .03 | .35 | .05 | .21 | .26 | .08 | 1.16 | 4.28 | .05 | .00 | .00 |
| AC-FT | 80 | 58 | 612 | 89 | 373 | 458 | 143 | 2050 | 7550 | 94 | .00 | .00 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 10070.48 | MEAN 27.5 | MAX 1440 | MIN .00 | CFSM .83 | IN 11.32 | AC-FT 19970 |
| WTR YR 1981 | TOTAL | 5800.30 | MEAN 15.9 | MAX 1300 | MIN .00 | CFSM .48 | IN 6.52 | AC-FT 11500 |

## 08018800 LAKE FORK RESERVOIR NEAR QUITMAN, TX

LOCATION.--Lat 32°48'40", long 94°31'38", Wood County, Hydrologic Unit 12010003, in room at left end of gated concrete spillway structure of Lake Fork Dam on Lake Fork Creek, 0.2 mi (0.3 km) upstream from bridge on State Highway 182, 0.8 mi (1.3 km) downstream from Caney Creek, 2.1 mi (3.4 km) upstream from Alum Branch, and 4.4 mi (7.1 km) west-northwest of the County Courthouse in Quitman.

DRAINAGE AREA.--490 $mi^2$ (1,269 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1979 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 12,660 ft (3,859 m) long, including a 260-foot (79 m) gated concrete spillway. The outlet works consist of two 5- by 8-foot (1.5 by 2.4 m) low-flow sluice gates, five 40- by 20-foot (12 by 6 m) taintor gates, and two 5- by 6-foot (1.5 by 1.8 m) sluice gates that open into a set-well where there are two 36-inch (914 mm) and one 10-inch (254 mm) 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 (25.0 $hm^3$). These structures control runoff from 60.0 $mi^2$ (155.4 $km^2$) 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 furnished by URS/Forrest and Cotton, Inc., Consulting Engineers, for the Sabine River Authority. Observed elevations for the period Oct. 31, 1979, to Jan. 31, 1980, were furnished by the Sabine River Authority.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 193,600 acre-ft (239 $hm^3$) June 18, 1981, elevation, 378.30 ft (115.306 m); minimum observed, 46,140 acre-ft (56.9 $hm^3$) Dec. 11-14, 1979, elevation, 361.10 ft (110.063 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 193,600 acre-ft (239 $hm^3$) June 18 at 0900 hours, elevation, 378.30 ft (115.306 m); minimum observed, 82,250 acre-ft (101 $hm^3$) Oct. 15, 16, elevation, 366.94 ft (111.843 m).

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

| | | | |
|---|---|---|---|
| 365.0 | 68,930 | 374.0 | 143,300 |
| 368.0 | 90,080 | 377.0 | 177,200 |
| 371.0 | 114,700 | 379.0 | 202,800 |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 83560 | 83190 | 83560 | 88900 | 90080 | 91640 | 94440 | 91490 | 120900 | 174800 | 157200 | 151900 |
| 2 | 83560 | 83120 | 83560 | 88820 | 89860 | 91800 | 94210 | 91250 | 121800 | 173900 | 156900 | 151900 |
| 3 | 83410 | 83120 | 83410 | 88900 | 89860 | 92650 | 94130 | 91170 | 129300 | 173200 | 156700 | 152300 |
| 4 | 83340 | 83040 | 83340 | 88750 | 89860 | 93040 | 94370 | 91250 | 141100 | 173400 | 156500 | 152700 |
| 5 | 83190 | 82970 | 83410 | 88600 | 89940 | 93350 | 94210 | 93900 | 153400 | 173600 | 156400 | 152500 |
| 6 | 83120 | 83040 | 83410 | 89190 | 89860 | 93590 | 93980 | 93820 | 164700 | 172400 | 156100 | 152400 |
| 7 | 82970 | 82900 | 83410 | 89120 | 90010 | 93970 | 93820 | 93670 | 170900 | 171400 | 155900 | 152300 |
| 8 | 82970 | 82900 | 85790 | 89120 | 89940 | 94130 | 93740 | 94600 | 173500 | 169900 | 155700 | 152000 |
| 9 | 82900 | 82900 | 86300 | 89120 | 90400 | 94130 | 93670 | 95770 | 174600 | 168200 | 155500 | 151700 |
| 10 | 82820 | 82820 | 87490 | 89120 | 91100 | 94130 | 93510 | 96620 | 175400 | 166200 | 155200 | 151300 |
| 11 | 82750 | 82750 | 88600 | 89120 | 90160 | 94130 | 93430 | 97480 | 175900 | 164400 | 155000 | 151100 |
| 12 | 82600 | 82750 | 89120 | 88900 | 90160 | 94130 | 93280 | 97710 | 176400 | 162600 | 154700 | 150900 |
| 13 | 82460 | 82670 | 89340 | 89120 | 90160 | 94130 | 93200 | 98690 | 176400 | 161600 | 154500 | 150700 |
| 14 | 82390 | 83410 | 89340 | 88970 | 90160 | 94050 | 93120 | 98280 | 176600 | 161200 | 154200 | 151700 |
| 15 | 82320 | 83340 | 89420 | 88970 | 90160 | 94130 | 92890 | 98610 | 178600 | 160900 | 154000 | 152200 |
| 16 | 82460 | 83930 | 89490 | 88900 | 90160 | 94130 | 92810 | 101400 | 184200 | 160700 | 154000 | 152100 |
| 17 | 83710 | 84010 | 89420 | 88900 | 90160 | 94130 | 92650 | 103200 | 192700 | 160400 | 154100 | 151500 |
| 18 | 83860 | 83790 | 89570 | 88820 | 90160 | 94050 | 92580 | 105300 | 193500 | 160200 | 154800 | 151200 |
| 19 | 83930 | 83710 | 89490 | 88970 | 90240 | 93900 | 92340 | 106200 | 192600 | 160000 | 154600 | 150900 |
| 20 | 83930 | 83640 | 89270 | 89270 | 90080 | 93820 | 92340 | 107300 | 191400 | 159800 | 154200 | 150600 |
| 21 | 83860 | 83640 | 89190 | 89270 | 90470 | 94210 | 92190 | 107900 | 190000 | 159500 | 154000 | 150500 |
| 22 | 83790 | 83790 | 89190 | 89190 | 90400 | 93820 | 92030 | 108000 | 188200 | 159300 | 153800 | 150400 |
| 23 | 83790 | 83860 | 89120 | 89270 | 90550 | 93660 | 92110 | 109000 | 186600 | 159100 | 153600 | 150200 |
| 24 | 83560 | 83790 | 89270 | 89190 | 90630 | 93590 | 91950 | 109200 | 185600 | 159000 | 153300 | 149900 |
| 25 | 83490 | 83640 | 89050 | 89190 | 90630 | 93590 | 91800 | 110800 | 184600 | 158600 | 153100 | 149800 |
| 29 | 83490 | 83560 | 88970 | 89490 | --- | 94360 | 91560 | 119400 | 177200 | 157800 | 152300 | 149400 |
| 30 | 83270 | 83490 | 88900 | 89120 | --- | 94440 | 91410 | 120400 | 175800 | 157600 | 152000 | 149200 |
| 31 | 83270 | --- | 88900 | 89940 | --- | 94520 | --- | 120800 | --- | 157400 | 151800 | --- |
| MAX | 84010 | 84010 | 89570 | 89940 | 91170 | 94520 | 94440 | 120800 | 193500 | 174800 | 157200 | 152700 |
| MIN | 82320 | 82670 | 83340 | 88600 | 89860 | 91640 | 91410 | 91170 | 120900 | 157400 | 151800 | 149200 |
| (†) | 367.08 | 367.11 | 367.84 | 367.98 | 368.14 | 368.57 | 368.17 | 371.68 | 376.88 | 375.30 | 374.79 | 374.55 |
| (‡) | -290 | +220 | +5410 | +1040 | +1230 | +3350 | -3110 | +29390 | +55000 | -18000 | -5600 | -2600 |

CAL YR 1980 MAX 126100 MIN 71610 ‡ + 8060
WTR YR 1981 MAX 193500 MIN 82320 ‡ + 65640

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1980 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | TEMPERATURE, WATER (DEG C) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|
| MAY | | | | | | | | |
| 05... | 1245 | 265 | 21.0 | 82 | 18 | 21 | 7.1 | 19 |

| DATE | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| MAY | | | | | | | | |
| 05... | .9 | 3.8 | 64 | 26 | 23 | .1 | 1.4 | 139 |

## 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 (0.5 km) downstream from Dry Creek, 2.4 mi (3.9 km) south of Quitman, and 23.4 mi (37.7 km) upstream upstream from mouth.

DRAINAGE AREA.--585 mi² (1,515 km²).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1924 to April 1926, February 1939 to current year. Discharge for some high-water periods in 1925-26 published in WSP 1342. Monthly discharge only for some periods, published in WSP 1312. Prior to October 1961, published as Lake Fork Sabine River near Quitman.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 317.42 ft (96.750 m) National Geodetic Vertical Datum of 1929. June 27, 1924, to Apr. 30, 1926, nonrecording gage at site 1,000 ft (305 m) downstream at same datum. Prior to Sept. 5, 1978, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good. Since May 1962, flow from 31.0 mi² (80.3 km²) controlled by Lake Quitman, capacity 7,440 acre-ft (9.17 hm³), 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 (883 hm³), located about 5 mi (8 km) upstream from station, was begun in 1975. Deliberate impoundment began June 29, 1979, and the dam was completed in January 1980. Lake Fork Reservoir controls runoff from 490 mi² (1,269 km²). Records furnished by the city of Quitmen indicate that during the current year 146 acre-ft (180,000 m³) of sewage effluent was returned to a tributary above this station.

AVERAGE DISCHARGE.--41 years (water years 1925, 1940-79) prior to regulation by Lake Fork Reservoir, 432 ft³/s (12.23 m³/s), 10.03 in/yr (255 mm/yr), 313,000 acre-ft/yr (386 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 75,600 ft³/s (2,140 m³/s) Mar. 30, 1945, gage height, 29.85 ft (9.098 m), from floodmark, from rating curve extended above 49,000 ft³/s (1,390 m³/s); no flow at times most years.
Maximum stage since at least 1890, that of Mar. 30, 1945.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in July 1895 reached a stage of about 25.9 ft (7.89 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,320 ft³/s (65.7 m³/s) June 19 at 0330 hours, gage height, 14.73 ft (4.490 m); minimum, 0.23 ft³/s (0.007 m³/s) Oct. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 14 | .69 | 1.2 | 1.8 | 58 | 24 | 14 | 1.3 | 102 | 849 | 4.2 | 30 |
| 2 | 5.2 | .46 | 1.1 | 1.7 | 96 | 65 | 8.1 | 1.5 | 86 | 606 | 3.3 | 31 |
| 3 | 2.2 | .40 | 1.1 | 1.7 | 33 | 36 | 5.7 | 1.7 | 301 | 532 | 3.1 | 32 |
| 4 | 1.3 | .54 | 1.0 | 1.5 | 17 | 167 | 8.8 | 1.5 | 837 | 269 | 3.2 | 36 |
| 5 | .95 | .57 | 1.1 | 1.8 | 12 | 206 | 13 | 1.6 | 1030 | 74 | 3.0 | 34 |
| 6 | .68 | .52 | 1.4 | 3.0 | 10 | 73 | 9.4 | 1.8 | 1320 | 78 | 2.8 | 33 |
| 7 | .64 | .79 | 1.4 | 5.2 | 9.1 | 39 | 6.3 | 2.0 | 1220 | 607 | 2.5 | 32 |
| 8 | .62 | .72 | 14 | 5.7 | 8.2 | 35 | 4.5 | 2.4 | 603 | 866 | 2.1 | 31 |
| 9 | .60 | .67 | 162 | 4.1 | 7.3 | 30 | 4.3 | 137 | 223 | 905 | 1.9 | 31 |
| 10 | .53 | .60 | 73 | 3.2 | 10 | 22 | 4.1 | 220 | 95 | 961 | 1.7 | 31 |
| 11 | .53 | .79 | 19 | 2.4 | 18 | 17 | 4.1 | 73 | 62 | 975 | 1.5 | 31 |
| 12 | .39 | 1.0 | 9.2 | 2.4 | 12 | 14 | 4.4 | 26 | 46 | 963 | 8.9 | 31 |
| 13 | .32 | 1.1 | 4.5 | 3.0 | 8.9 | 12 | 4.2 | 14 | 37 | 956 | 27 | 30 |
| 14 | .32 | 2.3 | 2.6 | 3.1 | 7.1 | 11 | 3.7 | 28 | 29 | 580 | 29 | 33 |
| 15 | .29 | 4.4 | 1.7 | 3.0 | 6.3 | 10 | 3.5 | 38 | 23 | 117 | 29 | 46 |
| 16 | .37 | 5.2 | 1.3 | 2.8 | 5.9 | 9.5 | 2.9 | 238 | 427 | 38 | 30 | 46 |
| 17 | 2.6 | 16 | 1.2 | 2.6 | 5.7 | 8.4 | 2.9 | 779 | 1580 | 12 | 32 | 35 |
| 18 | 32 | 17 | 1.5 | 3.7 | 5.2 | 9.3 | 2.7 | 692 | 2070 | 7.2 | 34 | 32 |
| 19 | 10 | 8.6 | 1.7 | 4.0 | 5.0 | 8.6 | 2.6 | 362 | 2260 | 5.1 | 35 | 32 |
| 20 | 3.1 | 5.3 | 1.4 | 6.1 | 5.2 | 7.8 | 2.2 | 169 | 1820 | 4.1 | 33 | 32 |
| 21 | 1.1 | 2.9 | 1.3 | 8.3 | 5.4 | 7.6 | 1.9 | 73 | 1430 | 3.4 | 32 | 31 |
| 22 | .69 | 1.4 | 1.2 | 9.5 | 6.4 | 7.3 | 1.9 | 47 | 1280 | 3.1 | 31 | 31 |
| 23 | .72 | 1.7 | 1.4 | 7.9 | 9.7 | 6.9 | 2.2 | 32 | 1250 | 2.4 | 31 | 31 |
| 24 | .78 | 2.6 | 1.4 | 6.9 | 8.0 | 6.4 | 2.3 | 54 | 1110 | 2.1 | 31 | 31 |
| 25 | .63 | 2.5 | 1.3 | 7.2 | 6.7 | 5.8 | 2.0 | 356 | 786 | 1.9 | 32 | 31 |
| 26 | .55 | 1.6 | 1.2 | 6.4 | 6.6 | 4.3 | 1.7 | 1070 | 652 | 2.4 | 31 | 15 |
| 27 | 1.0 | 1.8 | 1.4 | 6.2 | 6.6 | 4.3 | 1.4 | 911 | 811 | 2.8 | 31 | 3.0 |
| 28 | 2.3 | 2.3 | 1.6 | 5.9 | 6.8 | 4.2 | 1.3 | 830 | 942 | 3.1 | 32 | 1.0 |
| 29 | 2.1 | 1.8 | 1.6 | 5.5 | --- | 30 | 1.3 | 574 | 984 | 3.4 | 32 | .57 |
| 30 | 1.4 | 1.4 | 1.9 | 5.3 | --- | 65 | 1.3 | 343 | 986 | 3.4 | 31 | 1.2 |
| 31 | .93 | --- | 1.7 | 5.5 | --- | 32 | --- | 196 | --- | 3.4 | 30 | --- |
| TOTAL | 88.84 | 87.65 | 317.4 | 137.4 | 396.1 | 978.4 | 128.7 | 7275.8 | 24402 | 9435.8 | 631.2 | 844.77 |
| MEAN | 2.87 | 2.92 | 10.2 | 4.43 | 14.1 | 31.6 | 4.29 | 235 | 813 | 304 | 20.4 | 28.2 |
| MAX | 32 | 17 | 162 | 9.5 | 96 | 206 | 14 | 1070 | 2260 | 975 | 35 | 46 |
| MIN | .29 | .40 | 1.0 | 1.5 | 5.0 | 4.2 | 1.3 | 1.3 | 23 | 1.9 | 1.5 | .57 |
| AC-FT | 176 | 174 | 630 | 273 | 786 | 1940 | 255 | 14430 | 48400 | 18720 | 1250 | 1680 |

CAL YR 1980 TOTAL 126959.24 MEAN 347 MAX 2340 MIN .00 AC-FT 251800
WTR YR 1981 TOTAL 44724.06 MEAN 123 MAX 2260 MIN .29 AC-FT 88710

08019000 LAKE FORK CREEK NEAR QUITMAN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: December 1961 to June 1965, November 1967 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1967 to current year.
WATER TEMPERATURES: December 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, 2,800 micromhos Oct. 5, 1972; minimum daily, 37 micromhos Dec. 11, 1971.
WATER TEMPERATURES (1976-1979, 1981); Maximum daily, 30.5°C Aug. 1, 1981; minimum daily, 2.0°C Jan. 10, 1970.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,440 micromhos Mar. 3, 31; minimum daily, 208 micromhos Sept. 8, 14.
WATER TEMPERATURES: Maximum daily, 30.5°C Aug. 1; minimum daily, 4.0°C Feb. 11.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | TEMPER-ATURE, WATER (DEG C) | COLOR (PLAT-INUM COBALT UNITS) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 07... | 1100 | .79 | 486 | 16.0 | -- | 77 | 56 | 19 | 7.2 |
| NOV | | | | | | | | | |
| 19... | 0935 | 8.7 | 526 | 7.0 | -- | 90 | 29 | 22 | 8.6 |
| FEB | | | | | | | | | |
| 19... | 1140 | 4.9 | 1100 | 12.0 | -- | 190 | 170 | 46 | 18 |
| MAR | | | | | | | | | |
| 31... | 1730 | 25 | 1440 | 21.0 | -- | 230 | 230 | 57 | 22 |
| MAY | | | | | | | | | |
| 05... | 1135 | 1.5 | 905 | 20.0 | -- | 150 | 110 | 37 | 15 |
| JUN | | | | | | | | | |
| 30... | 1800 | 958 | 217 | 29.5 | -- | 60 | 9 | 15 | 5.5 |
| AUG | | | | | | | | | |
| 11... | 1900 | .80 | 375 | 27.0 | -- | 89 | 14 | 21 | 8.8 |

| DATE | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY (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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 07... | 57 | 2.8 | 6.8 | 21 | 55 | 95 | .2 | 11 | 264 |
| NOV | | | | | | | | | |
| 19... | 62 | 2.8 | 7.0 | 61 | 36 | 100 | .2 | 11 | 284 |
| FEB | | | | | | | | | |
| 19... | 140 | 4.4 | 5.1 | 16 | 130 | 260 | .1 | 18 | 627 |
| MAR | | | | | | | | | |
| 31... | 180 | 5.1 | 5.2 | 7 | 130 | 350 | .2 | 18 | 767 |
| MAY | | | | | | | | | |
| 05... | 120 | 4.2 | 6.0 | 45 | 96 | 200 | .2 | 15 | 516 |
| JUN | | | | | | | | | |
| 30... | 15 | .8 | 6.3 | 51 | 15 | 23 | .1 | 5.1 | 116 |
| AUG | | | | | | | | | |
| 11... | 35 | 1.8 | 6.9 | 75 | 17 | 56 | .2 | 6.2 | 196 |

08019000 LAKE FORK CREEK NEAR QUITMAN, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 88.84 | 760 | 418 | 100 | 160 | 39 | 84 | 20 | 140 |
| NOV. | 1980 | 87.65 | 627 | 345 | 82 | 120 | 27 | 76 | 18 | 130 |
| DEC. | 1980 | 317.4 | 641 | 353 | 302 | 120 | 102 | 77 | 66 | 130 |
| JAN. | 1981 | 137.4 | 835 | 459 | 170 | 180 | 67 | 92 | 34 | 150 |
| FEB. | 1981 | 396.1 | 1080 | 592 | 633 | 270 | 290 | 100 | 112 | 170 |
| MAR. | 1981 | 978.4 | 868 | 477 | 1260 | 200 | 518 | 92 | 243 | 150 |
| APR. | 1981 | 128.7 | 1120 | 615 | 214 | 290 | 99 | 110 | 37 | 180 |
| MAY | 1981 | 7275.8 | 324 | 179 | 3520 | 48 | 934 | 44 | 855 | 72 |
| JUNE | 1981 | 24402 | 252 | 139 | 9180 | 33 | 2180 | 35 | 2320 | 59 |
| JULY | 1981 | 9435.8 | 231 | 128 | 3250 | 29 | 750 | 33 | 830 | 54 |
| AUG. | 1981 | 631.2 | 228 | 126 | 215 | 29 | 50 | 32 | 55 | 54 |
| SEPT | 1981 | 844.77 | 229 | 127 | 289 | 29 | 67 | 32 | 74 | 54 |
| TOTAL | | 44724.06 | ** | ** | 19200 | ** | 5120 | ** | 4670 | ** |
| WTD. AVG. | | 123 | 288 | 159 | ** | 42 | ** | 39 | ** | 64 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 500 | 568 | 751 | 605 | 888 | 1020 | 1290 | 912 | 428 | 224 | 388 | 214 |
| 2 | 472 | 560 | 799 | 592 | 1320 | 1130 | 1210 | 954 | 470 | 215 | 390 | 217 |
| 3 | 445 | 545 | 800 | 595 | 1070 | 1440 | 1180 | 932 | 389 | 211 | 392 | 218 |
| 4 | 414 | 529 | 810 | 597 | 1030 | 824 | 1130 | 897 | 287 | 339 | 388 | 213 |
| 5 | 471 | 512 | 826 | 596 | 965 | 634 | 1140 | 909 | 280 | 341 | 388 | 212 |
| 6 | 475 | 502 | 828 | 575 | 944 | 655 | 1150 | 904 | 276 | 415 | 384 | 217 |
| 7 | 486 | 495 | 824 | 643 | 930 | 676 | 1160 | 902 | 288 | 244 | 381 | 215 |
| 8 | 456 | 494 | 825 | 648 | 915 | 691 | 1140 | 900 | 320 | 265 | 377 | 208 |
| 9 | 448 | 502 | 650 | 652 | 907 | 746 | 1130 | 726 | 353 | 229 | 383 | 215 |
| 10 | 454 | 496 | 610 | 671 | 906 | 834 | 1120 | 675 | 399 | 215 | 377 | 216 |
| 11 | 463 | 493 | 582 | 702 | 904 | 865 | 1110 | 648 | 533 | 210 | 375 | 215 |
| 12 | 475 | 540 | 581 | 716 | 990 | 905 | 1120 | 665 | 734 | 212 | 357 | 214 |
| 13 | 490 | 580 | 582 | 735 | 1190 | 908 | 1110 | 698 | 620 | 209 | 263 | 215 |
| 14 | 503 | 600 | 587 | 743 | 1080 | 935 | 1070 | 634 | 575 | 232 | 222 | 208 |
| 15 | 501 | 643 | 585 | 843 | 1020 | 966 | 1040 | 625 | 564 | 242 | 218 | 362 |
| 16 | 512 | 610 | 609 | 918 | 1010 | 1010 | 1050 | 556 | 298 | 272 | 216 | 272 |
| 17 | 523 | 580 | 568 | 933 | 1040 | 1030 | 1060 | 263 | 253 | 333 | 215 | 244 |
| 18 | 1070 | 550 | 570 | 941 | 1080 | 1030 | 1040 | 281 | 224 | 399 | 218 | 228 |
| 19 | 860 | 650 | 569 | 934 | 1100 | 1040 | 972 | 322 | 225 | 415 | 218 | 222 |
| 20 | 658 | 764 | 568 | 936 | 1100 | 1050 | 1050 | 375 | 235 | 418 | 215 | 222 |
| 21 | 610 | 870 | 572 | 921 | 1090 | 1070 | 1040 | 415 | 237 | 424 | 216 | 221 |
| 22 | 571 | 982 | 583 | 837 | 1100 | 1030 | 999 | 442 | 235 | 429 | 215 | 218 |
| 23 | 569 | 860 | 594 | 845 | 1080 | 1030 | 954 | 465 | 232 | 439 | 216 | 222 |
| 24 | 570 | 740 | 605 | 841 | 1120 | 1060 | 1000 | 496 | 240 | 444 | 217 | 223 |
| 25 | 569 | 618 | 615 | 878 | 1140 | 1030 | 995 | 265 | 235 | 450 | 220 | 225 |
| 26 | 571 | 616 | 626 | 865 | 1120 | 1020 | 988 | 226 | 228 | 446 | 216 | 227 |
| 27 | 600 | 619 | 617 | 920 | 1150 | 976 | 958 | 273 | 225 | 438 | 216 | 230 |
| 28 | 632 | 637 | 629 | 981 | 1110 | 982 | 947 | 277 | 219 | 436 | 216 | 244 |
| 29 | 633 | 693 | 621 | 985 | --- | 866 | 899 | 288 | 221 | 440 | 215 | 243 |
| 30 | 616 | 726 | 622 | 995 | --- | 1060 | 935 | 354 | 217 | 431 | 214 | 247 |
| 31 | 590 | --- | 610 | 1010 | --- | 1440 | --- | 386 | --- | 409 | 214 | --- |
| MEAN | 555 | 619 | 652 | 795 | 1050 | 966 | 1070 | 570 | 335 | 336 | 282 | 228 |

08019000 LAKE FORK CREEK NEAR QUITMAN, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 23.0 | 12.0 | 8.0 | 8.0 | 8.5 | 16.0 | 21.5 | 24.0 | 25.5 | 29.0 | 30.5 | 26.0 |
| 2 | --- | 12.0 | 8.0 | 7.0 | 6.5 | 15.5 | 21.0 | 23.0 | 24.0 | 29.0 | 28.5 | 25.5 |
| 3 | --- | 12.0 | 8.0 | 7.0 | 7.5 | 14.5 | 22.0 | 20.5 | 22.0 | 28.5 | 28.5 | 26.5 |
| 4 | --- | 12.0 | 8.0 | 7.0 | 6.5 | 16.0 | 21.0 | 21.0 | 23.0 | 27.5 | 28.5 | 25.5 |
| 5 | 23.0 | 12.0 | 8.0 | 7.0 | 6.0 | 14.0 | 19.5 | 21.0 | 25.0 | 25.5 | 29.0 | 26.5 |
| 6 | 22.0 | 11.0 | 8.0 | 7.0 | 7.5 | 14.0 | 19.0 | 21.5 | 26.0 | 27.5 | 29.0 | 27.0 |
| 7 | 23.0 | 12.0 | 8.0 | 6.5 | 9.0 | 12.5 | 19.5 | 21.0 | 27.5 | 27.5 | 27.0 | 26.5 |
| 8 | 23.0 | 12.0 | 8.0 | 9.5 | 10.0 | 14.0 | 19.0 | 21.0 | 28.0 | 28.5 | 27.0 | 26.0 |
| 9 | --- | 12.0 | 8.0 | 9.0 | 9.5 | 14.0 | 22.0 | 17.0 | 28.0 | 29.0 | 26.0 | 26.0 |
| 10 | --- | 11.0 | 8.0 | 8.5 | 7.5 | 14.5 | 23.0 | 18.5 | 28.5 | 30.0 | 26.0 | 25.0 |
| 11 | 21.0 | 11.0 | 8.0 | 9.5 | 4.0 | 14.5 | 22.0 | 19.5 | 26.0 | 30.0 | 27.0 | 25.0 |
| 12 | 21.0 | 11.0 | 8.0 | 7.0 | 4.5 | 15.0 | 23.0 | 21.0 | 27.0 | 30.0 | 27.0 | 25.5 |
| 13 | 21.0 | 10.0 | 8.0 | 7.5 | 6.5 | 16.0 | 23.0 | 22.0 | 28.0 | 29.0 | 27.5 | 25.5 |
| 14 | 21.0 | --- | 8.0 | 7.5 | 8.0 | 16.5 | 21.5 | 21.0 | 27.5 | 29.5 | 29.0 | 26.5 |
| 15 | 21.0 | 10.0 | 8.0 | 6.5 | 9.0 | 17.0 | 21.0 | 17.5 | 28.0 | 30.0 | 29.5 | 24.5 |
| 16 | 22.0 | 12.0 | 8.0 | 5.0 | 11.0 | 16.0 | 21.5 | 16.0 | 23.0 | 29.5 | 28.5 | 25.0 |
| 17 | 21.0 | 12.0 | 8.0 | 5.0 | 12.5 | 17.0 | 22.5 | 21.5 | 25.0 | 29.0 | 28.0 | 22.0 |
| 18 | 21.0 | --- | 8.0 | 5.5 | 13.5 | 12.0 | 21.5 | 24.5 | 27.0 | 29.5 | 25.5 | 20.0 |
| 19 | 21.0 | 10.0 | 7.0 | 5.5 | 15.0 | 13.0 | 22.0 | 20.0 | 28.0 | 30.0 | 27.0 | 24.5 |
| 20 | 21.0 | 10.0 | 7.0 | 6.0 | 16.0 | 15.0 | 24.5 | 20.0 | 28.0 | 30.0 | 26.0 | --- |
| 21 | 21.0 | --- | --- | 6.0 | 16.5 | 16.0 | 23.5 | 21.0 | 28.0 | 29.5 | 26.0 | --- |
| 22 | 20.0 | --- | --- | 7.0 | 15.0 | 14.0 | 23.5 | 21.5 | 28.5 | 29.5 | 27.0 | --- |
| 23 | 20.0 | 10.0 | --- | 8.5 | 14.5 | 16.0 | 21.5 | 23.5 | 29.0 | 30.0 | 26.5 | --- |
| 24 | 20.0 | 10.0 | --- | 9.0 | 15.0 | 16.5 | 21.0 | 22.5 | 29.0 | 30.0 | 27.0 | --- |
| 25 | 20.0 | 9.0 | --- | 10.0 | 14.0 | 15.5 | 21.5 | 20.5 | 28.0 | 30.0 | 27.5 | --- |
| 26 | 20.0 | 9.0 | 8.0 | 10.5 | 17.5 | 17.0 | 22.0 | 24.0 | 28.5 | 29.0 | 28.0 | --- |
| 27 | 20.0 | 9.0 | 8.0 | 10.5 | 18.0 | 19.0 | 23.0 | 24.5 | 28.0 | 27.5 | 27.0 | --- |
| 28 | 15.0 | 9.0 | 8.0 | 10.0 | 17.5 | 18.0 | 24.0 | 27.0 | 28.0 | 29.5 | 27.5 | --- |
| 29 | 13.0 | 9.0 | 8.0 | 14.5 | --- | 19.0 | 25.0 | 26.0 | 28.5 | 29.0 | 28.0 | --- |
| 30 | --- | 9.0 | 8.0 | 9.0 | --- | 19.5 | 25.5 | 25.5 | 29.5 | 29.5 | 28.0 | --- |
| 31 | 15.0 | --- | 8.0 | 8.0 | --- | 21.0 | --- | 27.0 | --- | 29.5 | 27.0 | --- |
| MEAN | 20.5 | 10.5 | 8.0 | 8.0 | 11.0 | 16.0 | 22.0 | 22.0 | 27.0 | 29.0 | 27.5 | 25.0 |

## 08019300 LAKE WINNSBORO NEAR WINNSBORO, TX

LOCATION (revised).--Lat 32°53'13", long 95°20'41", Wood County, Hydrologic Unit 12010002, near left end of dam on Big Sandy Creek, 0.8 mi (1.3 km) upstream from bridge on State Highway 37, 2.5 mi (4.0 km) upstream from Indian Creek, and 5.8 mi (9.3 km) southwest of Winnsboro.

DRAINAGE AREA.--27.1 mi² (70.2 km²).

PERIOD OF RECORD.--June 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Jan. 19, 1963, nonrecording gage at same site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam 2,500 ft (762 m) long. Storage began June 11, 1962, and the dam was completed in August 1962. The dam was built by Wood County for flood control and recreation. The spillway is an uncontrolled 20-foot (6 m) square drop inlet at crest elevation of 419.0 ft (127.71 m). The crest was raised in April 1966 from elevation 417 to 419 ft (127.1 to 127.7 m). The other spillway is a 300-foot-wide (91 m) cut channel through natural ground near right end of dam. The capacity curve is based on 1960 Geological Survey topographic maps. 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 | 437.0 | |
| Design flood | 433.0 | 22,500 |
| Crest of spillway | 427.0 | 16,270 |
| Crest of drop inlet (top of conservation pool) | 419.0 | 8,110 |
| Lowest gated outlet (invert) | 392.2 | 0 |

COOPERATION.--Capacity curve was furnished by Wisenbaker, Fix, and Associates, Consulting Engineers for Wood County.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 11,640 acre-ft (14.4 hm³) Feb. 5, 1975, elevation, 422.92 ft (128.906 m); minimum since first appreciable storage, 2,430 acre-ft (3.00 hm³) Jan. 19, 20, 1965, elevation, 409.79 ft (124.904 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 9,240 acre-ft (11.4 hm³) June 5 at 1800 hours, elevation, 420.35 ft (128.123 m); minimum, 6,470 acre-ft (7.98 hm³) Nov. 13, elevation, 416.84 ft (127.053 m).

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

| | | | |
|---|---|---|---|
| 415.0 | 5,230 | 419.0 | 8,110 |
| 417.0 | 6,590 | 421.0 | 9,820 |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6620 | 6550 | 6550 | 6590 | 6670 | 6830 | 7130 | 7020 | 8290 | 8050 | 7700 | 7270 |
| 2 | 6610 | 6540 | 6530 | 6580 | 6650 | 6870 | 7120 | 7000 | 8290 | 8020 | 7680 | 7270 |
| 3 | 6590 | 6540 | 6520 | 6580 | 6670 | 6940 | 7120 | 6990 | 8470 | 8010 | 7660 | 7260 |
| 4 | 6570 | 6520 | 6520 | 6570 | 6670 | 7050 | 7150 | 7000 | 8710 | 8110 | 7640 | 7240 |
| 5 | 6560 | 6520 | 6530 | 6570 | 6670 | 7070 | 7120 | 7000 | 9240 | 8120 | 7630 | 7230 |
| 6 | 6540 | 6520 | 6530 | 6600 | 6670 | 7080 | 7120 | 6990 | 8960 | 8150 | 7600 | 7210 |
| 7 | 6570 | 6520 | 6540 | 6600 | 6680 | 7100 | 7100 | 6980 | 8730 | 8180 | 7570 | 7210 |
| 8 | 6570 | 6520 | 6670 | 6600 | 6690 | 7120 | 7110 | 7050 | 8570 | 8170 | 7540 | 7180 |
| 9 | 6560 | 6510 | 6700 | 6590 | 6710 | 7120 | 7110 | 7280 | 8440 | 8160 | 7530 | 7160 |
| 10 | 6540 | 6510 | 6690 | 6590 | 6680 | 7120 | 7110 | 7340 | 8350 | 8130 | 7510 | 7150 |
| 11 | 6520 | 6490 | 6690 | 6580 | 6690 | 7120 | 7100 | 7340 | 8300 | 8100 | 7500 | 7130 |
| 12 | 6510 | 6480 | 6690 | 6570 | 6690 | 7120 | 7090 | 7340 | 8250 | 8090 | 7480 | 7120 |
| 13 | 6500 | 6480 | 6690 | 6570 | 6690 | 7120 | 7090 | 7400 | 8210 | 8070 | 7460 | 7110 |
| 14 | 6490 | 6520 | 6690 | 6570 | 6690 | 7120 | 7070 | 7450 | 8180 | 8050 | 7440 | 7260 |
| 15 | 6490 | 6520 | 6690 | 6560 | 6690 | 7120 | 7060 | 7460 | 8210 | 8030 | 7430 | 7300 |
| 16 | 6490 | 6570 | 6690 | 6540 | 6700 | 7120 | 7060 | 8060 | 8830 | 8000 | 7410 | 7270 |
| 17 | 6650 | 6570 | 6670 | 6540 | 6700 | 7120 | 7060 | 8330 | 8730 | 7970 | 7420 | 7240 |
| 18 | 6650 | 6570 | 6680 | 6540 | 6700 | 7100 | 7040 | 8320 | 8570 | 7960 | 7430 | 7220 |
| 19 | 6620 | 6550 | 6660 | 6540 | 6710 | 7090 | 7030 | 8250 | 8450 | 7950 | 7430 | 7210 |
| 20 | 6620 | 6550 | 6650 | 6560 | 6720 | 7070 | 7020 | 8210 | 8370 | 7930 | 7410 | 7190 |
| 21 | 6600 | 6550 | 6640 | 6570 | 6740 | 7090 | 7020 | 8190 | 8280 | 7900 | 7390 | 7190 |
| 22 | 6600 | 6550 | 6620 | 6560 | 6720 | 7080 | 7010 | 8160 | 8250 | 7890 | 7380 | 7180 |
| 23 | 6580 | 6570 | 6640 | 6570 | 6720 | 7060 | 7020 | 8170 | 8200 | 7860 | 7370 | 7180 |
| 24 | 6560 | 6570 | 6620 | 6570 | 6720 | 7060 | 7010 | 8210 | 8170 | 7840 | 7360 | 7160 |
| 25 | 6540 | 6550 | 6600 | 6570 | 6720 | 7060 | 7000 | 8610 | 8150 | 7820 | 7340 | 7150 |
| 26 | 6540 | 6540 | 6610 | 6570 | 6730 | 7060 | 6990 | 8620 | 8120 | 7820 | 7310 | 7140 |
| 27 | 6610 | 6540 | 6610 | 6560 | 6730 | 7050 | 6990 | 8690 | 8100 | 7780 | 7310 | 7120 |
| 28 | 6580 | 6540 | 6610 | 6560 | 6780 | 7050 | 7000 | 8620 | 8080 | 7780 | 7300 | 7120 |
| 29 | 6570 | 6540 | 6600 | 6570 | --- | 7140 | 7000 | 8500 | 8070 | 7750 | 7290 | 7100 |
| 30 | 6550 | 6540 | 6590 | 6530 | --- | 7150 | 6990 | 8410 | 8050 | 7740 | 7270 | 7090 |
| 31 | 6550 | --- | 6600 | 6610 | --- | 7160 | --- | 8340 | --- | 7720 | 7260 | --- |
| MAX | 6650 | 6570 | 6700 | 6610 | 6780 | 7160 | 7150 | 8690 | 9240 | 8180 | 7700 | 7300 |
| MIN | 6490 | 6480 | 6520 | 6530 | 6650 | 6830 | 6990 | 6980 | 8050 | 7720 | 7260 | 7090 |
| (†) | 416.95 | 416.93 | 417.02 | 417.03 | 417.27 | 417.78 | 417.55 | 419.29 | 418.93 | 418.51 | 417.91 | 417.68 |
| (‡) | - 80 | - 10 | + 60 | + 10 | +170 | +380 | -170 | +1350 | -290 | -330 | -460 | -170 |

CAL YR 1980 MAX 9450 MIN 6410 ‡ -1580
WTR YR 1981 MAX 9240 MIN 6480 ‡ + 460

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.

## 08019500 BIG SANDY CREEK NEAR BIG SANDY, TX

LOCATION.--Lat 32°36'12", long 95°05'32", Upshur County, Hydrologic Unit 12010002, on left bank at downstream side of bridge on State Highway 155, 0.5 mi (0.8 km) upstream from St. Louis Southwestern Railway Lines bridge, 1.6 mi (2.6 km) northeast of Big Sandy, and 6.5 mi (10.5 km) upstream from mouth.

DRAINAGE AREA.--231 $mi^2$ (598 $km^2$).

### WATER-DISCHARGE RECORDS

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

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 (84.850 m) 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 (2.1 km) upstream at datum 3.00 ft (0.914 m) higher.

REMARKS.--Water-discharge records good except those for June 14 to Aug. 23, which are fair. Since June 1962, flow is affected somewhat by the flood-detention pool of Lake Winnsboro (station 08019300). Records furnished by the city of Winnsboro show that 381 acre-ft (470,000 $m^3$) of sewage effluent was discharged into a tributary above station.

AVERAGE DISCHARGE.--42 years, 182 $ft^3/s$ (5.154 $m^3/s$), 131,900 acre-ft/yr (163 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,000 $ft^3/s$ (680 $m^3/s$) Mar. 31, 1945, gage height, 24.1 ft (7.35 m), present site and datum, from floodmark, from rating curve extended above 13,000 $ft^3/s$ (368 $m^3/s$); minimum, 5.0 $ft^3/s$ (0.14 $m^3/s$) Aug. 15, 1956.

Maximum stage since at least 1875, that of Mar. 31, 1945, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,540 $ft^3/s$ (43.6 $m^3/s$) June 8 at 1100 hours, gage height, 13.30 ft (4.054 m), no other peak above base of 1,500 $ft^3/s$ (42.5 $m^3/s$); minimum, 5.9 $ft^3/s$ (0.17 $m^3/s$) Oct. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 100 | 25 | 49 | 36 | 106 | 213 | 103 | 20 | 615 | 130 | 14 | 14 |
| 2 | 96 | 21 | 44 | 35 | 126 | 240 | 114 | 20 | 490 | 120 | 13 | 16 |
| 3 | 62 | 18 | 41 | 35 | 137 | 261 | 124 | 19 | 408 | 110 | 13 | 17 |
| 4 | 43 | 17 | 41 | 35 | 153 | 273 | 128 | 19 | 449 | 120 | 12 | 17 |
| 5 | 37 | 16 | 42 | 35 | 157 | 274 | 122 | 24 | 731 | 140 | 12 | 19 |
| 6 | 31 | 16 | 44 | 43 | 145 | 271 | 95 | 31 | 1230 | 155 | 12 | 21 |
| 7 | 23 | 18 | 45 | 61 | 133 | 264 | 79 | 34 | 1420 | 170 | 11 | 20 |
| 8 | 15 | 18 | 51 | 71 | 122 | 256 | 71 | 32 | 1510 | 180 | 11 | 18 |
| 9 | 12 | 18 | 86 | 75 | 115 | 238 | 69 | 137 | 1270 | 195 | 11 | 18 |
| 10 | 8.9 | 19 | 106 | 75 | 114 | 224 | 62 | 180 | 910 | 210 | 10 | 18 |
| 11 | 7.3 | 21 | 117 | 76 | 95 | 212 | 54 | 172 | 639 | 220 | 10 | 21 |
| 12 | 6.9 | 22 | 108 | 76 | 91 | 205 | 49 | 182 | 480 | 225 | 10 | 25 |
| 13 | 6.2 | 23 | 117 | 75 | 87 | 192 | 44 | 184 | 368 | 223 | 10 | 28 |
| 14 | 6.8 | 27 | 120 | 72 | 83 | 176 | 40 | 208 | 320 | 200 | 10 | 29 |
| 15 | 7.6 | 38 | 103 | 73 | 81 | 157 | 35 | 211 | 280 | 180 | 10 | 33 |
| 16 | 9.0 | 49 | 80 | 74 | 80 | 138 | 32 | 218 | 350 | 160 | 11 | 33 |
| 17 | 16 | 84 | 65 | 62 | 87 | 122 | 28 | 258 | 400 | 135 | 15 | 33 |
| 18 | 26 | 84 | 56 | 58 | 95 | 111 | 26 | 332 | 450 | 110 | 16 | 32 |
| 19 | 32 | 78 | 51 | 57 | 104 | 100 | 25 | 592 | 500 | 95 | 20 | 32 |
| 20 | 31 | 69 | 46 | 72 | 113 | 90 | 22 | 624 | 480 | 80 | 20 | 33 |
| 21 | 21 | 63 | 44 | 86 | 118 | 82 | 21 | 935 | 430 | 65 | 19 | 34 |
| 22 | 16 | 64 | 41 | 97 | 119 | 75 | 28 | 631 | 370 | 55 | 18 | 34 |
| 23 | 17 | 68 | 42 | 91 | 114 | 68 | 28 | 417 | 320 | 45 | 17 | 33 |
| 24 | 19 | 64 | 39 | 81 | 113 | 62 | 32 | 303 | 280 | 35 | 17 | 34 |
| 25 | 18 | 60 | 37 | 79 | 134 | 58 | 29 | 244 | 250 | 30 | 16 | 33 |
| 26 | 16 | 56 | 36 | 83 | 129 | 55 | 25 | 222 | 220 | 27 | 14 | 32 |
| 27 | 29 | 57 | 35 | 92 | 153 | 53 | 22 | 252 | 200 | 24 | 12 | 31 |
| 28 | 38 | 58 | 35 | 92 | 216 | 53 | 19 | 418 | 180 | 22 | 12 | 29 |
| 29 | 45 | 56 | 35 | 88 | --- | 97 | 22 | 1070 | 160 | 20 | 13 | 28 |
| 30 | 54 | 51 | 35 | 79 | --- | 109 | 20 | 1010 | 140 | 18 | 13 | 27 |
| 31 | 37 | --- | 36 | 77 | --- | 100 | --- | 789 | --- | 16 | 13 | --- |
| TOTAL | 886.7 | 1278 | 1827 | 2141 | 3320 | 4829 | 1568 | 9788 | 15850 | 3515 | 415 | 792 |
| MEAN | 28.6 | 42.6 | 58.9 | 69.1 | 119 | 156 | 52.3 | 316 | 528 | 113 | 13.4 | 26.4 |
| MAX | 100 | 84 | 120 | 97 | 216 | 274 | 128 | 1070 | 1510 | 225 | 20 | 34 |
| MIN | 6.2 | 16 | 35 | 35 | 80 | 53 | 19 | 19 | 140 | 16 | 10 | 14 |
| AC-FT | 1760 | 2530 | 3620 | 4250 | 6590 | 9580 | 3110 | 19410 | 31440 | 6970 | 823 | 1570 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 73856.0 | MEAN 202 | MAX | 2320 | MIN 6.2 | AC-FT | 146500 |
| WTR YR 1981 | TOTAL | 46209.7 | MEAN 127 | MAX | 1510 | MIN 6.2 | AC-FT | 91660 |

08019500 BIG SANDY CREEK NEAR BIG SANDY, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | TEMPER-ATURE, WATER (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 06... | 1515 | 31 | 163 | 18.0 | 24 | 19 | 6.2 | 2.1 | 19 |
| NOV | | | | | | | | | |
| 17... | 1545 | 87 | 122 | 10.5 | 25 | 16 | 5.4 | 2.9 | 10 |
| JAN | | | | | | | | | |
| 05... | 1650 | 35 | 165 | 7.0 | 26 | 19 | 6.2 | 2.6 | 19 |
| FEB | | | | | | | | | |
| 09... | 1520 | 113 | 251 | 9.5 | 39 | 34 | 9.4 | 3.8 | 31 |
| JUN | | | | | | | | | |
| 01... | 1610 | 591 | 130 | 25.0 | 30 | 19 | 7.2 | 2.9 | 10 |
| JUL | | | | | | | | | |
| 13... | 1640 | 219 | 155 | 29.5 | 31 | 21 | 7.5 | 3.0 | 14 |
| AUG | | | | | | | | | |
| 24... | 1525 | 23 | 172 | 25.0 | 26 | 15 | 6.4 | 2.5 | 21 |

| DATE | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY (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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 06... | 1.7 | 2.4 | 5 | 18 | 31 | .1 | 13 | 93 |
| NOV | | | | | | | | |
| 17... | .9 | 4.6 | 9 | 14 | 23 | .1 | 15 | 80 |
| JAN | | | | | | | | |
| 05... | 1.6 | 2.3 | 7 | 15 | 32 | .1 | 14 | 95 |
| FEB | | | | | | | | |
| 09... | 2.2 | 3.1 | 5 | 31 | 54 | .0 | 13 | 148 |
| JUN | | | | | | | | |
| 01... | .8 | 3.5 | 11 | 21 | 16 | .1 | 12 | 80 |
| JUL | | | | | | | | |
| 13... | 1.2 | 3.5 | 10 | 15 | 30 | .1 | 17 | 96 |
| AUG | | | | | | | | |
| 24... | 1.9 | 2.7 | 11 | 15 | 37 | .2 | 14 | 106 |

## 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 (14 m) downstream from bridge on U.S. Highway 271, 0.4 mi (0.6 km) downstream from Glade Creek, 1.2 mi (1.9 km) southwest of Gladewater, and at mile 397.5 (639.6 km).

DRAINAGE AREA.--2,791 $mi^2$ (7,229 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1932 to current year.

REVISED RECORDS.--WSP 1732: Drainage area. WRD TX-73-1: 1972.

GAGE.--Water-stage recorder. Datum of gage is 243.85 ft (74.325 m) National Geodetic Vertical Datum of 1929 (Texas Reclamation Department bench mark based on Geological Survey datum). Prior to Oct. 13, 1933, nonrecording gage at same site and datum.

REMARKS.--Water-discharge records good. Flow is partially regulated by Lake Tawakoni (station 08017400), capacity 936,200 acre-ft (1,150 $hm^3$), Lake Fork Creek Reservoir (station 08018800), capacity 675,800 acre-ft (833 $hm^3$), and five tributary reservoirs with a combined capacity of 42,370 acre-ft (52.2 $hm^3$)". There are many diversions above station for oilfield operations and municipal supply. Rain gage and gage-height telemeter are operated at this station.

AVERAGE DISCHARGE.--28 years (water years 1933-60) prior to regulation by Lake Tawakoni, 2,012 $ft^3/s$ (56.98 $m^3/s$), 1,458,000 acre-ft/yr (1.80 $km^3/yr$); 21 years (water years 1961-81) regulated, 1,720 $ft^3/s$ (48.71 $m^3/s$), 1,246,000 acre-ft/yr (1.54 $km^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 138,000 $ft^3/s$ (3,910 $m^3/s$) Apr. 2, 1945, gage height, 44.16 ft (13.460 m), from floodmark, from rating curve extended above 91,000 $ft^3/s$ (2,580 $m^3/s$); minimum, 5.6 $ft^3/s$ (0.16 $m^3/s$) 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 (12.71 m), discharge, 85,900 $ft^3/s$ (2,430 $m^3/s$), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,040 $ft^3/s$ (171 $m^3/s$) June 29 at 0600 hours, gage height, 26.73 ft (8.147 m); minimum, 42 $ft^3/s$ (1.19 $m^3/s$) Oct. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 265 | 132 | 187 | 189 | 267 | 359 | 490 | 153 | 3440 | 5740 | 281 | 138 |
| 2 | 350 | 106 | 179 | 188 | 344 | 429 | 460 | 141 | 3340 | 5490 | 252 | 274 |
| 3 | 508 | 89 | 165 | 189 | 387 | 456 | 420 | 136 | 3190 | 5160 | 227 | 705 |
| 4 | 523 | 79 | 157 | 189 | 445 | 623 | 469 | 140 | 3170 | 4850 | 199 | 714 |
| 5 | 423 | 72 | 157 | 188 | 468 | 931 | 459 | 199 | 3630 | 4560 | 170 | 384 |
| 6 | 294 | 70 | 157 | 196 | 434 | 1110 | 435 | 208 | 4150 | 4130 | 147 | 260 |
| 7 | 201 | 68 | 160 | 225 | 404 | 1220 | 397 | 221 | 4390 | 3550 | 129 | 188 |
| 8 | 140 | 63 | 185 | 249 | 374 | 1140 | 334 | 208 | 4560 | 2910 | 112 | 154 |
| 9 | 108 | 59 | 253 | 267 | 336 | 946 | 298 | 609 | 4690 | 2320 | 99 | 137 |
| 10 | 88 | 55 | 305 | 274 | 334 | 778 | 277 | 1250 | 4770 | 2090 | 89 | 118 |
| 11 | 72 | 52 | 537 | 270 | 324 | 656 | 254 | 1560 | 4800 | 2150 | 82 | 102 |
| 12 | 60 | 50 | 814 | 261 | 311 | 533 | 232 | 1680 | 4770 | 2340 | 70 | 94 |
| 13 | 53 | 49 | 922 | 252 | 300 | 441 | 214 | 1470 | 4700 | 2570 | 72 | 93 |
| 14 | 47 | 54 | 872 | 249 | 287 | 392 | 201 | 1190 | 4560 | 2760 | 111 | 93 |
| 15 | 44 | 70 | 660 | 252 | 276 | 360 | 188 | 1010 | 4360 | 3030 | 103 | 101 |
| 16 | 42 | 118 | 462 | 259 | 274 | 331 | 176 | 1390 | 4280 | 3240 | 91 | 105 |
| 17 | 76 | 244 | 345 | 251 | 269 | 307 | 163 | 1930 | 4410 | 3380 | 121 | 98 |
| 18 | 93 | 324 | 287 | 232 | 259 | 288 | 152 | 2310 | 4470 | 3370 | 224 | 99 |
| 19 | 115 | 330 | 255 | 224 | 248 | 271 | 144 | 2590 | 4540 | 3170 | 242 | 121 |
| 20 | 130 | 312 | 229 | 253 | 236 | 255 | 138 | 2810 | 4710 | 2820 | 237 | 128 |
| 21 | 113 | 268 | 209 | 284 | 231 | 245 | 134 | 3040 | 4870 | 2380 | 213 | 122 |
| 22 | 102 | 235 | 197 | 318 | 253 | 243 | 164 | 3080 | 4950 | 1950 | 176 | 112 |
| 23 | 113 | 235 | 190 | 334 | 260 | 240 | 216 | 2700 | 5060 | 1550 | 150 | 129 |
| 24 | 108 | 229 | 192 | 316 | 285 | 229 | 232 | 1910 | 5250 | 1190 | 138 | 124 |
| 25 | 94 | 216 | 184 | 296 | 341 | 220 | 217 | 1240 | 5480 | 907 | 135 | 111 |
| 26 | 82 | 206 | 179 | 283 | 350 | 213 | 196 | 1190 | 5700 | 703 | 129 | 101 |
| 27 | 75 | 199 | 183 | 274 | 329 | 217 | 173 | 1770 | 5900 | 587 | 123 | 96 |
| 28 | 102 | 198 | 183 | 268 | 313 | 219 | 153 | 2420 | 5990 | 502 | 114 | 92 |
| 29 | 128 | 196 | 186 | 260 | --- | 363 | 168 | 2830 | 6010 | 437 | 107 | 92 |
| 30 | 127 | 193 | 187 | 250 | --- | 476 | 167 | 3240 | 5930 | 381 | 104 | 89 |
| 31 | 151 | --- | 186 | 225 | --- | 486 | --- | 3440 | --- | 328 | 107 | --- |
| TOTAL | 4827 | 4571 | 9364 | 7765 | 8939 | 14977 | 7721 | 48065 | 140070 | 80545 | 4554 | 5174 |
| MEAN | 156 | 152 | 302 | 250 | 319 | 483 | 257 | 1550 | 4669 | 2598 | 147 | 172 |
| MAX | 523 | 330 | 922 | 334 | 468 | 1220 | 490 | 3440 | 6010 | 5740 | 281 | 714 |
| MIN | 42 | 49 | 157 | 188 | 231 | 213 | 134 | 136 | 3170 | 328 | 70 | 89 |
| AC-FT | 9570 | 9070 | 18570 | 15400 | 17730 | 29710 | 15310 | 95340 | 277800 | 159800 | 9030 | 10260 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 463678 | MEAN | 1267 | MAX | 5420 | MIN 28 | AC-FT | 919700 |
| WTR YR 1981 | TOTAL | 336572 | MEAN | 922 | MAX | 6010 | MIN 42 | AC-FT | 667600 |

08020000 SABINE RIVER NEAR GLADEWATER, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1967 to September 1981 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH FIELD (UNITS) | TEMPER-ATURE, WATER (DEG C) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 07... | 1020 | 207 | 372 | 7.3 | 18.0 | 7.3 | 77 | 1.2 | 44 | 12 |
| JAN | | | | | | | | | | |
| 06... | 1015 | 188 | 357 | 6.9 | 6.0 | 11.7 | 94 | 1.8 | 48 | 33 |
| MAR | | | | | | | | | | |
| 24... | 0945 | 226 | 329 | 7.1 | 13.5 | 10.2 | 97 | 1.9 | 55 | 41 |
| APR | | | | | | | | | | |
| 28... | 0935 | 154 | 320 | 6.9 | 23.0 | 7.4 | 86 | 3.2 | 52 | 33 |
| JUN | | | | | | | | | | |
| 04... | 1320 | 2900 | 210 | 6.8 | 23.0 | 5.0 | 58 | 2.2 | 41 | 16 |
| AUG | | | | | | | | | | |
| 25... | 0845 | 134 | 290 | 7.3 | 27.0 | 7.3 | 91 | 2.3 | 65 | 17 |

| 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 (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) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 07... | 12 | 3.5 | 51 | 3.3 | 4.1 | 26 | 30 | 72 | .2 | 8.7 |
| JAN | | | | | | | | | | |
| 06... | 12 | 4.4 | 49 | 3.1 | 3.1 | 15 | 34 | 77 | .2 | 18 |
| MAR | | | | | | | | | | |
| 24... | 13 | 5.4 | 35 | 2.1 | 3.1 | 14 | 44 | 54 | .1 | 13 |
| APR | | | | | | | | | | |
| 28... | 12 | 5.4 | 40 | 2.4 | 3.4 | 25 | 36 | 55 | .2 | 14 |
| JUN | | | | | | | | | | |
| 04... | 10 | 4.0 | 20 | 1.4 | 4.1 | 25 | -- | 40 | .1 | 13 |
| AUG | | | | | | | | | | |
| 25... | 18 | 4.9 | 28 | 1.6 | 4.3 | 48 | 31 | 41 | .2 | 13 |

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 07... | 197 | .32 | .030 | -- | .35 | .180 | 1.3 | 1.5 | .070 |
| JAN | | | | | | | | | |
| 06... | 207 | .40 | .020 | -- | .42 | .220 | .70 | .92 | .070 |
| MAR | | | | | | | | | |
| 24... | 176 | .16 | .020 | -- | .18 | .050 | 1.2 | 1.2 | .080 |
| APR | | | | | | | | | |
| 28... | 182 | .44 | .060 | .060 | .50 | .230 | .87 | 1.1 | .120 |
| JUN | | | | | | | | | |
| 04... | -- | .13 | .010 | -- | .14 | .140 | 1.2 | 1.3 | .150 |
| AUG | | | | | | | | | |
| 25... | 169 | .08 | .020 | -- | .10 | .140 | 1.4 | 1.5 | .080 |

## 08020960 MILL CREEK NEAR HENDERSON, TX

LOCATION.--Lat 32°14'00", long 94°46'58", Rusk County, Hydrologic Unit 12010002, at left side of concrete flume located near left end of concrete overflow structure built across Mill Creek at end of a dirt access road, 0.5 mi (0.8 km) downstream from Beaver Run, 0.7 mi (1.1 km) southeast of intersection of access road with State Highway 322, 1.1 mi (1.8 km) upstream from Dogwood Creek, and 5.5 mi (8.8 km) north of the highway traffic circle located on the northeast edge of Henderson.

DRAINAGE AREA.--20.3 $mi^2$ (52.6 $km^2$).

PERIOD OF RECORD.--October 1978 to September 1981 (discontinued).

GAGE.--Water-stage recorders, crest-stage gages, and concrete flume with overflow. Datum of gage is 336.20 ft (102.474 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those above 50 $ft^3/s$ (1.42 $m^3/s$), which are fair. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 868 $ft^3/s$ (24.6 $m^3/s$) May 9, 1981, from rating extended above 365 $ft^3/s$ (10.3 $m^3/s$) by flow over broad-crested dam formula, gage height, 4.53 ft (1.381 m); minimum, 0.08 $ft^3/s$ (0.002 $m^3/s$) Sept. 30, 1981.

EXTEMES FOR CURRENT YEAR.--Maximum discharge, 868 $ft^3/s$ (24.6 $m^3/s$) May 9 at 2215 hours, from rating extended above 365 $ft^3/s$ (10.3 $m^3/s$) by flow over broad-crested dam formula, gage height, 4.53 ft (1.381 m), no other peak above base of 600 $ft^3/s$ (17.0 $m^3/s$); minimum, 0.08 $ft^3/s$ (0.002 $m^3/s$) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.8 | 3.5 | 4.3 | 4.4 | 6.7 | 30 | 5.6 | 5.3 | 9.8 | 2.4 | 2.4 | 11 |
| 2 | 2.7 | 3.5 | 3.5 | 4.2 | 6.7 | 25 | 4.9 | 4.7 | 9.0 | 1.6 | 2.1 | 23 |
| 3 | 2.3 | 3.3 | 3.5 | 4.3 | 5.0 | 10 | 4.4 | 4.5 | 35 | 3.5 | 1.9 | 10 |
| 4 | 2.0 | 3.0 | 3.5 | 4.3 | 4.8 | 31 | 18 | 7.5 | 58 | 3.7 | 1.8 | 23 |
| 5 | 1.9 | 2.8 | 3.7 | 4.1 | 10 | 15 | 12 | 6.5 | 68 | 60 | 1.6 | 7.6 |
| 6 | 2.0 | 2.9 | 3.8 | 6.1 | 13 | 9.2 | 6.3 | 6.2 | 41 | 26 | 1.4 | 5.0 |
| 7 | 1.7 | 2.8 | 3.9 | 9.5 | 8.2 | 8.1 | 5.2 | 4.9 | 20 | 29 | 1.2 | 3.5 |
| 8 | 1.6 | 2.6 | 4.7 | 5.8 | 6.6 | 9.2 | 4.6 | 4.0 | 14 | 18 | .95 | 2.4 |
| 9 | 1.6 | 2.8 | 14 | 5.6 | 5.5 | 7.3 | 4.6 | 232 | 11 | 6.6 | .77 | 2.2 |
| 10 | 1.5 | 3.0 | 7.5 | 5.7 | 67 | 6.5 | 4.5 | 239 | 8.7 | 5.7 | .77 | 1.8 |
| 11 | 1.4 | 3.0 | 5.2 | 5.0 | 21 | 6.3 | 3.8 | 25 | 13 | 4.9 | .78 | 1.4 |
| 12 | 1.3 | 3.0 | 4.6 | 4.6 | 9.2 | 6.0 | 3.1 | 13 | 9.5 | 10 | .77 | 1.4 |
| 13 | 1.3 | 3.0 | 4.3 | 4.3 | 7.4 | 6.0 | 3.0 | 8.7 | 9.5 | 5.7 | .74 | 1.3 |
| 14 | 1.3 | 3.1 | 4.1 | 4.3 | 6.3 | 5.6 | 2.8 | 33 | 7.0 | 4.7 | .51 | 1.1 |
| 15 | 1.3 | 3.5 | 4.2 | 4.3 | 5.8 | 5.4 | 2.6 | 14 | 5.3 | 3.9 | .56 | 1.1 |
| 16 | 1.4 | 8.2 | 4.3 | 3.9 | 5.7 | 5.1 | 2.3 | 42 | 9.2 | 3.3 | .50 | 1.3 |
| 17 | 2.2 | 22 | 4.3 | 3.9 | 5.5 | 4.8 | 2.6 | 26 | 12 | 3.1 | .52 | 1.3 |
| 18 | 4.9 | 9.1 | 4.3 | 3.9 | 5.4 | 4.7 | 2.8 | 13 | 8.4 | 2.8 | .63 | .70 |
| 19 | 3.4 | 4.9 | 4.1 | 4.1 | 5.3 | 4.5 | 2.7 | 8.9 | 7.0 | 2.3 | .76 | .68 |
| 20 | 2.6 | 3.4 | 3.7 | 10 | 5.4 | 4.5 | 2.8 | 7.1 | 5.3 | 2.1 | .84 | .63 |
| 21 | 2.4 | 3.3 | 3.6 | 8.5 | 6.2 | 4.5 | 2.8 | 6.2 | 4.1 | 2.0 | .79 | .63 |
| 22 | 2.4 | 3.5 | 3.6 | 6.2 | 18 | 4.7 | 2.8 | 5.6 | 3.0 | 1.9 | .63 | .50 |
| 23 | 2.4 | 8.9 | 3.9 | 5.6 | 8.2 | 4.5 | 59 | 5.3 | 2.2 | 1.9 | .53 | .50 |
| 24 | 2.2 | 6.2 | 4.1 | 5.3 | 6.2 | 5.3 | 31 | 25 | 2.0 | 1.8 | .50 | .39 |
| 25 | 2.0 | 4.6 | 4.1 | 5.1 | 5.6 | 4.5 | 10 | 38 | 1.6 | 1.7 | .71 | .39 |
| 26 | 2.1 | 7.5 | 3.9 | 5.0 | 5.4 | 4.3 | 6.1 | 42 | 2.0 | 1.5 | .77 | .39 |
| 27 | 4.1 | 9.1 | 4.0 | 4.8 | 5.3 | 4.7 | 4.7 | 42 | 1.8 | 1.7 | 5.0 | .29 |
| 28 | 7.2 | 6.0 | 4.1 | 4.8 | 5.4 | 4.7 | 3.9 | 29 | 1.8 | 1.9 | 2.2 | .29 |
| 29 | 4.6 | 5.0 | 4.2 | 4.7 | --- | 18 | 3.9 | 13 | 1.8 | 2.3 | 2.8 | .20 |
| 30 | 3.9 | 4.4 | 4.3 | 4.7 | --- | 13 | 4.9 | 9.3 | 2.4 | 2.3 | 2.2 | .20 |
| 31 | 3.6 | --- | 4.5 | 4.5 | --- | 7.2 | --- | 9.1 | --- | 2.2 | 2.4 | --- |
| TOTAL | 79.1 | 151.9 | 139.8 | 161.5 | 270.8 | 279.6 | 227.7 | 929.8 | 383.4 | 220.5 | 40.03 | 104.19 |
| MEAN | 2.55 | 5.06 | 4.51 | 5.21 | 9.67 | 9.02 | 7.59 | 30.0 | 12.8 | 7.11 | 1.29 | 3.47 |
| MAX | 7.2 | 22 | 14 | 10 | 67 | 31 | 59 | 239 | 68 | 60 | 5.0 | 23 |
| MIN | 1.3 | 2.6 | 3.5 | 3.9 | 4.8 | 4.3 | 2.3 | 4.0 | 1.6 | 1.5 | .50 | .20 |
| CFSM | .13 | .25 | .22 | .26 | .48 | .44 | .37 | 1.48 | .63 | .35 | .06 | .17 |
| IN. | .14 | .28 | .26 | .30 | .50 | .51 | .42 | 1.70 | .70 | .40 | .07 | .19 |
| AC-FT | 157 | 301 | 277 | 320 | 537 | 555 | 452 | 1840 | 760 | 437 | 79 | 207 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 5195.60 | MEAN 14.2 | MAX 476 | MIN 1.3 | CFSM .70 | IN 9.52 | AC-FT 10310 |
| WTR YR 1981 | TOTAL | 2988.32 | MEAN 8.19 | MAX 239 | MIN .20 | CFSM .40 | IN 5.48 | AC-FT 5930 |

## 08020980 MILL CREEK NEAR LONGVIEW, TX

LOCATION.--Lat 32°18'18", long 94°43'41", Rusk County, Hydrologic Unit 12010002, at left side of concrete flume located near left end of concrete embankment across Mill Creek at end of dirt access road, 0.7 mi (1.1 km) east of intersection of access road with State Highway 322, 1.3 mi (2.1 km) downstream from Boggy Creek, 10.4 mi (16.7 km) upstream from Cherokee Dam on Cherokee Bayou, and 13.5 mi (21.7 km) south of intersection of U.S. Highway 80 and State Highway 149 in Longview.

DRAINAGE AREA.--47.9 $mi^2$ (124.1 $km^2$).

PERIOD OF RECORD.--October 1978 to September 1981 (discontinued).

GAGE.--Water-stage recorders, crest-stage gages, and concrete flume with concrete overflow. Datum of gage is 284.00 ft (86.653 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,270 $ft^3/s$ (36.0 $m^3/s$) Mar. 31, 1979, from rating extended above 539 $ft^3/s$ (15.3 $m^3/s$) by flow over broad-crested dam formula, gage height, 5.28 ft (1.609 m); minimum, 0.07 $ft^3/s$ (0.002 $m^3/s$), Aug. 23-27, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 421 $ft^3/s$ (11.9 $m^3/s$) July 5 at 1245 hours, from rating extended above 539 $ft^3/s$ (15.3 $m^3/s$) by flow over broad-crested dam formula, gage height, 4.97 ft (1.515 m), no peak above base of 1,000 $ft^3/s$ (28.3 $m^3/s$); minimum, 0.46 $ft^3/s$ (0.013 $m^3/s$) Aug. 27, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.5 | 6.6 | 12 | 9.5 | 14 | 23 | 23 | 17 | 28 | 5.1 | 2.9 | 12 |
| 2 | 5.7 | 6.1 | 11 | 9.5 | 15 | 43 | 17 | 17 | 26 | 5.1 | 2.6 | 16 |
| 3 | 5.7 | 5.7 | 9.4 | 9.5 | 14 | 56 | 14 | 14 | 34 | 5.0 | 2.2 | 29 |
| 4 | 4.7 | 5.0 | 9.1 | 9.5 | 14 | 47 | 25 | 15 | 94 | 4.9 | 1.8 | 36 |
| 5 | 3.5 | 4.5 | 9.1 | 9.5 | 16 | 51 | 32 | 28 | 181 | 157 | 1.8 | 28 |
| 6 | 2.9 | 4.2 | 9.1 | 11 | 21 | 45 | 32 | 25 | 167 | 199 | 1.8 | 21 |
| 7 | 2.2 | 3.9 | 9.1 | 14 | 24 | 31 | 22 | 20 | 133 | 145 | 1.8 | 14 |
| 8 | 1.6 | 3.9 | 11 | 15 | 22 | 26 | 16 | 17 | 78 | 96 | 1.7 | 10 |
| 9 | 1.4 | 3.6 | 19 | 16 | 18 | 24 | 14 | 83 | 51 | 72 | 1.4 | 8.4 |
| 10 | 1.4 | 3.5 | 19 | 14 | 69 | 22 | 19 | 266 | 38 | 41 | .99 | 6.0 |
| 11 | 1.3 | 3.4 | 20 | 12 | 87 | 19 | 17 | 188 | 30 | 27 | .80 | 4.6 |
| 12 | 1.1 | 3.4 | 16 | 12 | 73 | 18 | 13 | 106 | 28 | 23 | .80 | 3.9 |
| 13 | .95 | 3.3 | 14 | 11 | 39 | 17 | 13 | 51 | 28 | 20 | .80 | 3.5 |
| 14 | .93 | 3.9 | 12 | 11 | 27 | 16 | 13 | 35 | 26 | 20 | .80 | 3.4 |
| 15 | .93 | 4.7 | 11 | 10 | 23 | 15 | 12 | 35 | 23 | 16 | .80 | 5.2 |
| 16 | 1.1 | 9.9 | 11 | 9.9 | 21 | 14 | 11 | 70 | 23 | 12 | .91 | 14 |
| 17 | 2.6 | 24 | 10 | 9.6 | 20 | 13 | 11 | 86 | 24 | 9.8 | 2.3 | 12 |
| 18 | 4.3 | 26 | 10 | 9.5 | 19 | 12 | 10 | 80 | 25 | 8.4 | 2.4 | 7.2 |
| 19 | 3.2 | 25 | 9.8 | 9.6 | 19 | 12 | 10 | 46 | 24 | 6.8 | 1.8 | 4.9 |
| 20 | 2.9 | 17 | 9.4 | 15 | 19 | 11 | 9.8 | 29 | 20 | 6.2 | 1.4 | 4.0 |
| 21 | 3.1 | 12 | 8.6 | 17 | 19 | 11 | 9.8 | 22 | 16 | 5.1 | 1.2 | 4.0 |
| 22 | 3.2 | 10 | 8.4 | 19 | 25 | 11 | 9.8 | 18 | 13 | 4.7 | 1.0 | 3.7 |
| 23 | 3.2 | 14 | 8.6 | 17 | 32 | 11 | 9.8 | 16 | 11 | 4.1 | .93 | 3.7 |
| 24 | 3.1 | 14 | 9.1 | 14 | 28 | 11 | 33 | 30 | 9.6 | 3.4 | .80 | 3.7 |
| 25 | 2.8 | 15 | 9.1 | 14 | 22 | 11 | 30 | 57 | 7.1 | 3.1 | .80 | 3.7 |
| 26 | 2.4 | 16 | 9.1 | 13 | 19 | 11 | 23 | 93 | 7.0 | 2.7 | .55 | 3.7 |
| 27 | 7.3 | 16 | 9.1 | 13 | 17 | 11 | 18 | 107 | 6.8 | 2.9 | .48 | 3.7 |
| 28 | 10 | 16 | 9.1 | 12 | 17 | 11 | 15 | 84 | 5.9 | 3.9 | .91 | 3.9 |
| 29 | 7.9 | 15 | 9.2 | 12 | --- | 20 | 13 | 79 | 5.2 | 3.3 | 3.8 | 3.6 |
| 30 | 8.2 | 13 | 9.5 | 12 | --- | 29 | 13 | 48 | 5.1 | 2.9 | 4.7 | 3.4 |
| 31 | 7.6 | --- | 9.5 | 12 | --- | 32 | --- | 34 | --- | 2.9 | 14 | --- |
| TOTAL | 111.71 | 308.6 | 340.3 | 382.1 | 753 | 684 | 508.2 | 1816 | 1167.7 | 918.3 | 60.97 | 280.2 |
| MEAN | 3.60 | 10.3 | 11.0 | 12.3 | 26.9 | 22.1 | 16.9 | 58.6 | 38.9 | 29.6 | 1.97 | 9.34 |
| MAX | 10 | 26 | 20 | 19 | 87 | 56 | 33 | 266 | 181 | 199 | 14 | 36 |
| MIN | .93 | 3.3 | 8.4 | 9.5 | 14 | 11 | 9.8 | 14 | 5.1 | 2.7 | .48 | 3.4 |
| CFSM | .08 | .22 | .23 | .26 | .56 | .46 | .35 | 1.22 | .81 | .62 | .04 | .20 |
| IN. | .09 | .24 | .26 | .30 | .58 | .53 | .39 | 1.41 | .91 | .71 | .05 | .22 |
| AC-FT | 222 | 612 | 675 | 758 | 1490 | 1360 | 1010 | 3600 | 2320 | 1820 | 121 | 556 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 11063.98 | MEAN 30.2 | MAX 406 | MIN .07 | CFSM .63 | IN 8.59 | AC-FT 21950 |
| WTR YR 1981 | TOTAL | 7331.08 | MEAN 20.1 | MAX 266 | MIN .48 | CFSM .42 | IN 5.69 | AC-FT 14540 |

## 08020990 TIAWICHI CREEK NEAR LONGVIEW, TX

LOCATION.--Lat 32°19'14", long 94°43'57", Rusk County, Hydrologic Unit 12010002, on downstream side of highway embankment, 120 ft (37 m) to left of downstream left abutment of main channel bridge on State Highway 322, 0.3 mi (0.5 km) downstream from Barnes Creek, 8.6 mi (13.8 km) south of intersection of Interstate Highway 20 and State Highway 149 in Longview, and 9.3 mi (15.0 km) upstream from right end of spillway of Lake Cherokee.

DRAINAGE AREA.--62.7 $mi^2$ (162.4 $km^2$).

PERIOD OF RECORD.--November 1977 to September 1981 (discontinued).

GAGE.--Water-stage recorders and concrete controls for both main and overflow channels. Datum of gage is 275.00 ft (83.820 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperture were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,360 $ft^3/s$ (123 $m^3/s$) July 5, 1981, maximum main channel gage height, 10.74 ft (3.274 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,360 $ft^3/s$ (123 $m^3/s$) July 5 at 1530 hours, maximum main channel gage height, 10.74 ft (3,274 m), at 1530 hours, no other peak above base of 1,500 $ft^3/s$ (42.5 $m^3/s$); minimum, 0.12 $ft^3/s$ (0.003 $m^3/s$) Aug. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.9 | 1.4 | 5.4 | 5.2 | 6.2 | 10 | 14 | 3.1 | 16 | 1.2 | 1.5 | 11 |
| 2 | 1.8 | 1.8 | 5.0 | 5.1 | 7.1 | 17 | 9.3 | 2.9 | 14 | 1.2 | 1.2 | 40 |
| 3 | 1.4 | 1.9 | 4.6 | 5.2 | 8.4 | 29 | 7.6 | 2.3 | 22 | 1.2 | .90 | 51 |
| 4 | .88 | 1.9 | 4.3 | 5.2 | 7.6 | 26 | 9.9 | 3.8 | 73 | 2.0 | .69 | 26 |
| 5 | .86 | 1.9 | 4.2 | 4.9 | 7.6 | 31 | 10 | 8.0 | 339 | 1540 | .58 | 18 |
| 6 | .60 | 1.9 | 4.2 | 5.9 | 9.0 | 27 | 13 | 7.8 | 179 | 1150 | .45 | 12 |
| 7 | .57 | 1.9 | 4.2 | 6.8 | 12 | 16 | 11 | 6.7 | 126 | 367 | .44 | 7.1 |
| 8 | .48 | 1.9 | 4.7 | 8.0 | 10 | 13 | 7.9 | 5.5 | 66 | 90 | .50 | 4.5 |
| 9 | .31 | 2.0 | 6.5 | 7.9 | 8.4 | 12 | 6.4 | 51 | 42 | 50 | .26 | 3.3 |
| 10 | .30 | 1.9 | 8.3 | 6.7 | 36 | 11 | 6.1 | 207 | 23 | 24 | .22 | 2.5 |
| 11 | .20 | 1.6 | 9.6 | 6.5 | 95 | 9.3 | 6.1 | 237 | 16 | 12 | .20 | 2.3 |
| 12 | .24 | 1.5 | 7.5 | 6.1 | 90 | 8.6 | 4.9 | 64 | 21 | 10 | .17 | 1.9 |
| 13 | .20 | 1.6 | 6.4 | 5.5 | 27 | 8.2 | 4.6 | 19 | 21 | 8.2 | .16 | 1.7 |
| 14 | .20 | 1.7 | 5.9 | 5.4 | 14 | 7.7 | 4.1 | 11 | 14 | 6.8 | .16 | 1.5 |
| 15 | .20 | 1.7 | 5.4 | 5.3 | 11 | 7.7 | 3.7 | 10 | 11 | 5.8 | .16 | 2.3 |
| 16 | .22 | 2.2 | 5.3 | 5.3 | 10 | 7.1 | 3.2 | 43 | 12 | 4.7 | .14 | 5.9 |
| 17 | .52 | 4.2 | 5.3 | 5.3 | 9.6 | 6.8 | 3.2 | 84 | 13 | 3.7 | .31 | 2.4 |
| 18 | 1.2 | 5.8 | 5.2 | 5.0 | 9.0 | 6.5 | 2.8 | 100 | 23 | 2.9 | .36 | 1.9 |
| 19 | 1.2 | 8.0 | 5.0 | 5.0 | 8.7 | 6.3 | 2.7 | 36 | 14 | 2.4 | .36 | 1.9 |
| 20 | 1.2 | 6.9 | 4.8 | 6.6 | 8.5 | 5.9 | 2.7 | 15 | 9.5 | 1.9 | .42 | 1.9 |
| 21 | 1.1 | 5.5 | 4.5 | 8.1 | 8.5 | 5.8 | 2.5 | 9.7 | 7.2 | 1.7 | .42 | 1.5 |
| 22 | .98 | 4.8 | 4.5 | 9.1 | 12 | 5.8 | 2.9 | 8.1 | 5.7 | 1.4 | .37 | 1.7 |
| 23 | .93 | 5.3 | 4.5 | 7.6 | 18 | 5.8 | 5.0 | 7.1 | 4.3 | 1.1 | .31 | 1.7 |
| 24 | .93 | 5.2 | 4.7 | 6.9 | 15 | 5.7 | 7.7 | 12 | 3.4 | .86 | .26 | 1.7 |
| 25 | .76 | 5.4 | 4.6 | 6.4 | 11 | 5.7 | 11 | 36 | 2.5 | .75 | .24 | 1.6 |
| 26 | .86 | 5.7 | 4.7 | 6.3 | 9.3 | 5.7 | 7.6 | 66 | 2.2 | .58 | .20 | 1.4 |
| 27 | 1.3 | 5.9 | 4.9 | 6.1 | 8.4 | 5.7 | 5.2 | 52 | 1.9 | .73 | .23 | 1.3 |
| 28 | 1.9 | 6.0 | 5.0 | 5.8 | 8.3 | 5.6 | 3.7 | 49 | 1.5 | .91 | .43 | 1.2 |
| 29 | 1.3 | 6.3 | 5.1 | 5.9 | --- | 9.9 | 3.2 | 60 | 1.4 | 1.6 | 1.5 | 1.2 |
| 30 | 1.3 | 5.8 | 5.1 | 5.5 | --- | 27 | 3.2 | 30 | 1.2 | 3.5 | 1.9 | 1.2 |
| 31 | 1.4 | --- | 5.2 | 5.3 | --- | 30 | --- | 20 | --- | 2.4 | 4.2 | --- |
| TOTAL | 27.24 | 109.6 | 164.6 | 189.9 | 485.6 | 378.8 | 185.2 | 1267.0 | 1085.8 | 3300.53 | 19.24 | 213.6 |
| MEAN | .88 | 3.65 | 5.31 | 6.13 | 17.3 | 12.2 | 6.17 | 40.9 | 36.2 | 106 | .62 | 7.12 |
| MAX | 1.9 | 8.0 | 9.6 | 9.1 | 95 | 31 | 14 | 237 | 339 | 1540 | 4.2 | 51 |
| MIN | .20 | 1.4 | 4.2 | 4.9 | 6.2 | 5.6 | 2.5 | 2.3 | 1.2 | .58 | .14 | 1.2 |
| CFSM | .01 | .06 | .09 | .10 | .28 | .20 | .10 | .65 | .58 | 1.69 | .01 | .11 |
| IN. | .02 | .07 | .10 | .11 | .29 | .22 | .11 | .75 | .64 | 1.96 | .01 | .13 |
| AC-FT | 54 | 217 | 326 | 377 | 963 | 751 | 367 | 2510 | 2150 | 6550 | 38 | 424 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 18958.20 | MEAN 51.8 | MAX 1750 | MIN .00 | CFSM .83 | IN 11.25 | AC-FT 37600 |
| WTR YR 1981 | TOTAL | 7427.11 | MEAN 20.3 | MAX 1540 | MIN .14 | CFSM .32 | IN 4.41 | AC-FT 14730 |

## 08021500 LAKE CHEROKEE NEAR LONGVIEW, TX

LOCATION.--Lat 32°22'36", long 94°38'30", Gregg-Rusk County line, Hydrologic Unit 12010002, on left wingwall of intake structure of electric generating plant of Southwestern Electric Power Co., 2.3 mi (3.7 km) upstream from dam on Cherokee Bayou, 10 mi (16 km) upstream from Sabine River, and 10.3 mi (16.6 km) southeast of Longview.

DRAINAGE AREA.--158 mi² (409 km²).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1951 to current year.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Nonrecording gage. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--The lake is formed by a rolled earthfill dam 4,000 ft (1,220 m) long. An uncontrolled concrete spillway 828 ft (252 m) long is located at left end of dam. An emergency spillway, 160 ft (49 m) wide, is cut in natural ground at right end of dam. Storage began in October 1948 and dam was completed Nov. 19, 1948. Lake was built for recreational purposes, to supply cooling water for generating plant of Southwestern Electric Power Co., and for municipal use by city of Longview. 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 | 295.0 | - |
| Design flood | 291.0 | - |
| Crest of spillway | 287.7 | - |
| Crest of spillway (top of conservation pool) | 280.0 | 46,710 |
| Lowest gated outlet (invert) | 260.0 | 4,510 |

COOPERATION.--Elevation record was furnished by Southwestern Electric Power Co. Record of diversions were furnished by city of Longview. Capacity curve data from "Report of Sedimentation of Lake Cherokee, Gregg & Rusk Counties, Apr. 4 to May 13, 1960", by Soil Conservation Service.

EXTREMES (at 0800) FOR PERIOD OF RECORD.--Maximum contents observed, 71,170 acre-ft (87.8 hm³) May 3, 1959, elevation, 285.5 ft (87.02 m); minimum observed, 30,500 acre-ft (37.6 hm³) Nov. 12-14, 1978, elevation, 275.20 ft (83.881 m).

EXTREMES (at 0800) FOR CURRENT YEAR.--Maximum contents observed, 49,880 acre-ft (61.5 hm³) July 5, elevation, 280.80 ft (85.588 m); minimum observed, 32,490 acre-ft (40.1 hm³) Nov. 9-15, elevation, 275.90 ft (84.094 m).

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

| | | | |
|---|---|---|---|
| 275.0 | 29,950 | 279.0 | 42,900 |
| 276.0 | 32,790 | 280.0 | 46,700 |
| 278.0 | 39,300 | 281.0 | 50,700 |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 0800

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 34940 | 33090 | 33090 | 34000 | 34000 | 37740 | 39300 | 39300 | 47880 | 46320 | 45150 | 43270 |
| 2 | 34940 | 33690 | 33090 | 33690 | 34000 | 37910 | 39300 | 39300 | 47490 | 46320 | 45150 | 44010 |
| 3 | 34940 | 33090 | 33090 | 33690 | 34000 | 37910 | 39300 | 39650 | 47880 | 46320 | 45150 | 44390 |
| 4 | 34940 | 32790 | 33090 | 33690 | 34310 | 38600 | 39300 | 39650 | 47880 | 46320 | 44770 | 44390 |
| 5 | 34620 | 32790 | 33390 | 33690 | 34310 | 38600 | 39300 | 40350 | 48470 | 49880 | 44010 | 44390 |
| 6 | 34620 | 32790 | 33390 | 34000 | 34310 | 38600 | 39300 | 40710 | 48670 | 49470 | 44010 | 44390 |
| 7 | 34310 | 32790 | 33390 | 34000 | 34310 | 38950 | 39300 | 41070 | 48270 | 49070 | 44010 | 44770 |
| 8 | 34310 | 32790 | 33390 | 34000 | 34310 | 38950 | 39300 | 41070 | 47880 | 48270 | 44010 | 44770 |
| 9 | 34310 | 32490 | 33390 | 34000 | 34620 | 38950 | 39300 | 43270 | 47880 | 48270 | 44010 | 44770 |
| 10 | 34310 | 32490 | 33690 | 34000 | 35580 | 38950 | 39300 | 44010 | 47490 | 47880 | 44010 | 44770 |
| 11 | 34000 | 32490 | 33690 | 34000 | 35580 | 38950 | 39300 | 44390 | 47490 | 47880 | 44010 | 44770 |
| 12 | 34000 | 32490 | 33690 | 34000 | 35900 | 38950 | 39300 | 45540 | 47880 | 47490 | 44010 | 44390 |
| 13 | 34000 | 32490 | 33690 | 34000 | 35900 | 38950 | 39300 | 45930 | 47100 | 47490 | 43640 | 44390 |
| 14 | 34000 | 32490 | 33690 | 34000 | 36560 | 38950 | 39300 | 46320 | 47100 | 47490 | 43640 | 44390 |
| 15 | 34000 | 32490 | 33690 | 34000 | 36560 | 39300 | 39300 | 46710 | 47100 | 47490 | 43090 | 44770 |
| 16 | 34000 | 32790 | 33690 | 34000 | 36560 | 39300 | 39300 | 47490 | 47100 | 47100 | 43090 | 44770 |
| 17 | 34000 | 32790 | 33690 | 34000 | 36560 | 39300 | 39300 | 47490 | 47100 | 46710 | 42900 | 44770 |
| 18 | 33690 | 32790 | 33690 | 34000 | 36560 | 39300 | 39300 | 47490 | 47100 | 46710 | 42900 | 44770 |
| 19 | 33690 | 32790 | 33690 | 34000 | 36560 | 39300 | 39300 | 47490 | 47100 | 45930 | 42900 | 44390 |
| 20 | 33690 | 32790 | 34000 | 34000 | 36560 | 39300 | 39300 | 47490 | 47100 | 45930 | 42900 | 44010 |
| 21 | 33690 | 32790 | 34000 | 34000 | 36890 | 38950 | 39300 | 47100 | 46710 | 45930 | 42530 | 44010 |
| 22 | 33690 | 32790 | 34000 | 34000 | 37570 | 39300 | 39300 | 47100 | 46710 | 45930 | 42530 | 44010 |
| 23 | 33690 | 32790 | 34000 | 34000 | 37570 | 38950 | 39300 | 47100 | 46710 | 45930 | 42530 | 44010 |
| 24 | 33690 | 32790 | 34000 | 34000 | 37570 | 38950 | 39300 | 47100 | 46710 | 45930 | 42160 | 44010 |
| 25 | 33390 | 32790 | 34000 | 34000 | 37570 | 38950 | 39300 | 47490 | 46710 | 45540 | 42160 | 44010 |
| 26 | 33690 | 32790 | 34000 | 34000 | 37570 | 38950 | 39300 | 47880 | 46710 | 44770 | 42160 | 44010 |
| 27 | 33390 | 32790 | 34000 | 34000 | 37570 | 39300 | 39300 | 47880 | 46710 | 44770 | 42160 | 43270 |
| 28 | 33090 | 32790 | 34000 | 34000 | 37570 | 39300 | 39300 | 47880 | 46710 | 45540 | 42160 | 43270 |
| 29 | 33690 | 32790 | 34000 | 34000 | --- | 39300 | 39300 | 47880 | 46320 | 45540 | 41790 | 42900 |
| 30 | 33690 | 33090 | 34000 | 34000 | --- | 39300 | 39300 | 47880 | 46320 | 45540 | 41790 | 42900 |
| 31 | 33690 | --- | 34000 | 34000 | --- | 39300 | --- | 47880 | --- | 45540 | 42160 | --- |
| MAX | 34940 | 33690 | 34000 | 34000 | 37570 | 39300 | 39300 | 47880 | 48670 | 49880 | 45150 | 44770 |
| MIN | 33090 | 32490 | 33090 | 33690 | 34000 | 37740 | 39300 | 39300 | 46320 | 44770 | 41790 | 42900 |
| (†) | 276.30 | 276.10 | 276.40 | 276.40 | 277.50 | 278.00 | 278.00 | 280.30 | 279.90 | 279.70 | 278.80 | 279.00 |
| (‡) | -1250 | -600 | +910 | 0 | +3570 | +1730 | 0 | +8580 | -1560 | -780 | -3380 | +740 |
| (††) | 1080 | 942 | 884 | 1150 | 1050 | 1130 | 1300 | 1080 | 1270 | 1780 | 1640 | 995 |

CAL YR 1980 MAX 50700 MIN 32490 ‡ -14670 †† 13800
WTR YR 1981 MAX 49880 MIN 32490 ‡ +7960 †† 14300

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, for municipal use by city of Longview.

08021500 LAKE CHEROKEE NEAR LONGVIEW, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | TEMPERATURE, WATER (DEG C) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|
| JAN 07... | 1010 | 157 | 11.0 | 32 | 20 | 7.3 | 3.3 | 14 |

| DATE | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| JAN 07... | 1.1 | 2.3 | 12 | 20 | 24 | .1 | 13 | 91 |

## 08022040 SABINE RIVER NEAR BECKVILLE, TX

LOCATION.--Lat 32°19'38", long 94°21'12", Panola County, Hydrologic Unit 12010002, on downstream side of highway embankment near right end of downstream bridge on U.S. Highway 59, 0.9 mi (1.4 km) upstream from Eightmile Creek, 6.0 mi (9.7 km) upstream from Farm Road 1794, 8.4 mi (13.5 km) northwest of Beckville, 12.4 mi (20.0 km) downstream from State Highway 43, and at mile 327.0 (526.3 km).

DRAINAGE AREA.--3,589 $mi^2$ (9,296 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1938 to current year. Prior to October 1978, published as "near Tatum".

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 190.00 ft (57.912 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1978, at site 12.4 mi (20.0 km) upstream at datum 14.18 ft (4.322 m) higher. Prior to Sept. 21, 1945, nonrecording gage.

REMARKS.--Water-stage records good. Eight major reservoirs, with a combined capacity of 1,701,000 acre-ft (2.10 $km^3$), largely regulate flow. Several diversions above station and below Lake Tawakoni for oilfield operation, municipal, and industrial uses. Low flows are sustained by sewage effluents returned to the river above the station. During the current year, the city of Longview reported that 8,860 acre-ft (10.9 $hm^3$) of sewage effluent was returned to the river above this station and that 4,710 acre-ft (5.07 $hm^3$) of water was diverted for municipal use. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08018500.

AVERAGE DISCHARGE.--22 years (water years 1939-60) prior to regualtion by Lake Tawakoni, 2,663 $ft^3/s$ (75.42 $m^3/s$), 1,929,000 acre-ft/yr (2.38 $km^3/yr$); 21 years (water years 1961-81) regulated, 2,276 $ft^3/s$ (64.46 $m^3/s$), 1,649,000 acre-ft/yr (2.03 $kn^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 123,000 $ft^3/s$ (3,480 $m^3/s$) Apr. 4, 1945, gage height, 33.80 ft (10.302 m), site and datum then in use, from graph based on gage readings, from rating curve extended above 66,000 $ft^3/s$ (1,870 $m^3/s$) on basis of partly estimated measurement of 88,900 $ft^3/s$ (2,520 $m^3/s$); minimum observed, 2.4 $ft^3/s$ (0.068 $m^3/s$) Aug. 11, 12, 1964.
Maximum stage since at least 1884, that of Apr, 1945.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1884 reached a stage of about 2 ft (0.61 m) 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).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,000 $ft^3/s$ (312 $m^3/s$) June 6 at 1900 hours, gage height, 25.32 ft (7.718 m); minimum, 77 $ft^3/s$ (2.18 $m^3/s$) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 191 | 151 | 259 | 236 | 324 | 458 | 705 | 446 | 3760 | 5510 | 465 | 472 |
| 2 | 237 | 163 | 249 | 227 | 358 | 667 | 631 | 519 | 3910 | 5580 | 402 | 2270 |
| 3 | 253 | 173 | 247 | 223 | 394 | 768 | 597 | 406 | 4050 | 5620 | 381 | 2380 |
| 4 | 275 | 164 | 236 | 232 | 437 | 735 | 572 | 314 | 5500 | 5620 | 343 | 3430 |
| 5 | 391 | 136 | 224 | 227 | 462 | 889 | 743 | 637 | 7150 | 5700 | 314 | 2450 |
| 6 | 458 | 136 | 222 | 242 | 513 | 1030 | 904 | 1040 | 10300 | 6060 | 287 | 1470 |
| 7 | 400 | 125 | 218 | 248 | 554 | 1180 | 744 | 802 | 10200 | 6070 | 261 | 903 |
| 8 | 330 | 117 | 225 | 268 | 544 | 1300 | 610 | 549 | 8470 | 6260 | 235 | 604 |
| 9 | 250 | 120 | 275 | 272 | 507 | 1370 | 516 | 1070 | 6930 | 5990 | 215 | 424 |
| 10 | 201 | 115 | 446 | 283 | 685 | 1280 | 452 | 4020 | 5980 | 5040 | 192 | 331 |
| 11 | 151 | 110 | 443 | 296 | 939 | 1120 | 412 | 4790 | 5530 | 3740 | 169 | 283 |
| 12 | 131 | 105 | 421 | 291 | 783 | 955 | 390 | 3690 | 5270 | 2970 | 171 | 246 |
| 13 | 105 | 101 | 599 | 307 | 591 | 828 | 366 | 2470 | 5130 | 2790 | 162 | 218 |
| 14 | 101 | 106 | 852 | 296 | 492 | 711 | 345 | 1990 | 5080 | 2750 | 143 | 194 |
| 15 | 91 | 104 | 959 | 294 | 459 | 603 | 324 | 1730 | 5010 | 2870 | 137 | 187 |
| 16 | 81 | 127 | 895 | 283 | 442 | 538 | 296 | 1610 | 4930 | 3030 | 136 | 202 |
| 17 | 87 | 221 | 726 | 277 | 425 | 475 | 283 | 2270 | 4930 | 3170 | 159 | 382 |
| 18 | 110 | 557 | 561 | 283 | 420 | 443 | 274 | 2870 | 4990 | 3330 | 302 | 307 |
| 19 | 318 | 507 | 430 | 296 | 407 | 412 | 260 | 2880 | 4950 | 3420 | 313 | 216 |
| 20 | 280 | 437 | 364 | 296 | 395 | 389 | 239 | 2900 | 4890 | 3440 | 265 | 172 |
| 21 | 190 | 397 | 307 | 321 | 389 | 380 | 265 | 2930 | 4830 | 3260 | 276 | 171 |
| 22 | 160 | 379 | 288 | 347 | 446 | 363 | 333 | 3010 | 4810 | 2910 | 273 | 179 |
| 23 | 151 | 358 | 277 | 358 | 470 | 350 | 320 | 3120 | 4830 | 2410 | 264 | 183 |
| 24 | 141 | 361 | 255 | 361 | 415 | 344 | 364 | 3170 | 4900 | 1970 | 235 | 180 |
| 25 | 136 | 341 | 247 | 391 | 385 | 335 | 420 | 2980 | 4960 | 1570 | 225 | 182 |
| 26 | 132 | 307 | 243 | 391 | 391 | 330 | 384 | 2610 | 5020 | 1250 | 225 | 182 |
| 27 | 149 | 304 | 242 | 364 | 410 | 320 | 346 | 2490 | 5100 | 989 | 193 | 176 |
| 28 | 135 | 302 | 240 | 347 | 431 | 316 | 304 | 2440 | 5180 | 838 | 180 | 161 |
| 29 | 144 | 280 | 234 | 335 | --- | 330 | 272 | 2790 | 5300 | 783 | 186 | 149 |
| 30 | 123 | 283 | 230 | 324 | --- | 489 | 293 | 3070 | 5410 | 640 | 228 | 143 |
| 31 | 135 | --- | 235 | 313 | --- | 710 | --- | 3350 | --- | 530 | 194 | --- |
| TOTAL | 6037 | 7087 | 11649 | 9229 | 13468 | 20418 | 12964 | 68963 | 167300 | 106110 | 7531 | 18847 |
| MEAN | 195 | 236 | 376 | 298 | 481 | 659 | 432 | 2225 | 5577 | 3423 | 243 | 628 |
| MAX | 458 | 557 | 959 | 391 | 939 | 1370 | 904 | 4790 | 10300 | 6260 | 465 | 3430 |
| MIN | 81 | 101 | 218 | 223 | 324 | 316 | 239 | 314 | 3760 | 530 | 136 | 143 |
| AC-FT | 11970 | 14060 | 23110 | 18310 | 26710 | 40500 | 25710 | 136800 | 331800 | 210500 | 14940 | 37380 |

CAL YR 1980 TOTAL 716278 MEAN 1957 MAX 9510 MIN 39 AC-FT 1421000
WTR YR 1981 TOTAL 449603 MEAN 1232 MAX 10300 MIN 81 AC-FT 891800

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 September 1981 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: February 1952 to current year.
WATER TEMPERATURES: 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, 3,040 micromhos Jan. 13, 1966; minimum, 53 micromhos Mar. 31, 1979.
WATER TEMPERATURES (water years 1952-62, 1964-81): Maximum, 38.0°C July 8, 1969; minimum, 2.0°C Jan. 12, 13, 1962, Feb. 9, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,050 micromhos Oct. 14; minimum daily, 116 micromhos Sept. 4.
WATER TEMPERATURES: Maximum daily, 33.0°C Aug. 15; minimum daily, 6.0°C on several days during January and February.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH FIELD (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, BIOCHEM UNINHIB 5 DAY (MG/L) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 09... | 1245 | 259 | 939 | 7.8 | 21.0 | 40 | 6.5 | 9.7 | 109 | 2.3 | 73 | 39 |
| JAN | | | | | | | | | | | | |
| 08... | 1255 | 255 | 644 | 7.7 | 6.5 | 15 | 1.1 | 12.6 | 102 | 1.3 | 91 | 37 |
| MAR | | | | | | | | | | | | |
| 26... | 1135 | 330 | 541 | 7.9 | 16.0 | 30 | 6.3 | 11.4 | 115 | 4.0 | 80 | 60 |
| APR | | | | | | | | | | | | |
| 30... | 1115 | 273 | 630 | 7.4 | 25.0 | 30 | 4.7 | 8.0 | 96 | 3.4 | 90 | 60 |
| JUN | | | | | | | | | | | | |
| 02... | 1520 | 4030 | 240 | 6.8 | 25.0 | 100 | 41 | 5.9 | 72 | 2.0 | 43 | 28 |
| AUG | | | | | | | | | | | | |
| 26... | 1325 | 232 | 730 | 8.7 | 30.0 | 40 | 7.9 | 11.6 | 155 | 5.6 | 81 | 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 (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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 09... | 20 | 5.6 | 150 | 7.6 | 5.0 | 34 | 46 | 240 | .2 | 8.8 | 487 |
| JAN | | | | | | | | | | | |
| 08... | 28 | 5.2 | 93 | 4.2 | 3.8 | 54 | 61 | 130 | .3 | 17 | 371 |
| MAR | | | | | | | | | | | |
| 26... | 22 | 6.2 | 70 | 3.4 | 3.6 | 20 | 57 | 120 | .2 | 14 | 305 |
| APR | | | | | | | | | | | |
| 30... | 25 | 6.7 | 88 | 4.0 | 4.4 | 30 | 50 | 150 | .2 | 14 | 356 |
| JUN | | | | | | | | | | | |
| 02... | 11 | 3.7 | 27 | 1.8 | 3.8 | 15 | 31 | 42 | .1 | 11 | 140 |
| AUG | | | | | | | | | | | |
| 26... | 24 | 5.2 | 120 | 6.1 | 4.5 | 150 | 16 | 130 | .3 | 5.0 | 395 |

| DATE | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, 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) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 09... | 27 | 21 | .49 | .020 | -- | .51 | .020 | 1.5 | 1.5 | .120 | 7.1 |
| JAN | | | | | | | | | | | |
| 08... | 9 | 8 | 1.1 | .020 | -- | 1.1 | .050 | 1.4 | 1.4 | .510 | 11 |
| MAR | | | | | | | | | | | |
| 26... | 18 | 18 | .21 | .030 | -- | .24 | .150 | 1.1 | 1.2 | .130 | 9.9 |
| APR | | | | | | | | | | | |
| 30... | 19 | 8 | .51 | .030 | .030 | .54 | .100 | 1.1 | 1.2 | .150 | 8.0 |
| JUN | | | | | | | | | | | |
| 02... | 56 | 56 | .18 | .010 | -- | .19 | .080 | 1.1 | 1.2 | .190 | 11 |
| AUG | | | | | | | | | | | |
| 26... | 27 | 13 | .11 | .030 | -- | .14 | .110 | 2.0 | 2.1 | .340 | 16 |

08022040 SABINE RIVER NEAR BECKVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | ARSENIC DIS- SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 09... | 1245 | 1 | 100 | <1 | 0 | <10 | 90 |
| JAN | | | | | | | |
| 08... | 1255 | 0 | 60 | 4 | 0 | 13 | 30 |
| JUN | | | | | | | |
| 02... | 1520 | 1 | 200 | <1 | 0 | <10 | 540 |
| AUG | | | | | | | |
| 26... | 1325 | 1 | 48 | <1 | 0 | <10 | 29 |

| DATE | 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) |
|---|---|---|---|---|---|---|
| OCT | | | | | | |
| 09... | 27 | 180 | .1 | 0 | 0 | <3 |
| JAN | | | | | | |
| 08... | 120 | 110 | .0 | 0 | 0 | 10 |
| JUN | | | | | | |
| 02... | <10 | 140 | .0 | 0 | 0 | 9 |
| AUG | | | | | | |
| 26... | <10 | 19 | .0 | 0 | 0 | 4 |

| DATE | TIME | PCB TOTAL (UG/L) | PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) | NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) | CHLOR- DANE, TOTAL (UG/L) | CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) | DDD, TOTAL (UG/L) | DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) | DDE, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | | |
| 08... | 1255 | .00 | 0 | .0 | .00 | .0 | .0 | 0 | .00 | .0 | .00 |
| JUN | | | | | | | | | | | |
| 02... | 1520 | .00 | 6 | .0 | .00 | .0 | .0 | 8 | .00 | .8 | .00 |

| DATE | DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) | DDT, TOTAL (UG/L) | DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) | DI- AZINON, TOTAL (UG/L) | DI- ELDRIN TOTAL (UG/L) | DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) | ENDO- SULFAN, TOTAL (UG/L) | ENDRIN, TOTAL (UG/L) | ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) | ETHION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 08... | .0 | .00 | .0 | .02 | .00 | .0 | .00 | .00 | .0 | .00 |
| JUN | | | | | | | | | | |
| 02... | .0 | .00 | .0 | .00 | .00 | .1 | .00 | .00 | .0 | .00 |

| DATE | HEPTA- CHLOR, TOTAL (UG/L) | HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) | HEPTA- CHLOR EPOXIDE TOTAL (UG/L) | HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) | LINDANE TOTAL (UG/L) | LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG) | MALA- THION, TOTAL (UG/L) | METH- OXY- CHLOR, TOTAL (UG/L) | METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG) | METHYL PARA- THION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 08... | .00 | .0 | .00 | .0 | .00 | .0 | .00 | .00 | .0 | .00 |
| JUN | | | | | | | | | | |
| 02... | .00 | .0 | .00 | .0 | .00 | .0 | .00 | .00 | .0 | .00 |

| DATE | METHYL TRI- THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) | MIREX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) | PARA- THION, TOTAL (UG/L) | TOX- APHENE, TOTAL (UG/L) | TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) | TOTAL TRI- THION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 08... | .00 | .00 | .0 | .00 | 0 | 0 | .00 | .00 | .00 | .00 |
| JUN | | | | | | | | | | |
| 02... | .00 | .00 | .0 | .00 | 0 | 0 | .00 | .04 | .01 | .00 |

08022040 SABINE RIVER NEAR BECKVILLE, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 6037 | 893 | 484 | 7890 | 200 | 3240 | 69 | 1130 | 110 |
| NOV. | 1980 | 7087 | 732 | 403 | 7710 | 150 | 2950 | 62 | 1190 | 100 |
| DEC. | 1980 | 11649 | 658 | 364 | 11400 | 140 | 4290 | 57 | 1800 | 96 |
| JAN. | 1981 | 9229 | 530 | 295 | 7360 | 110 | 2640 | 48 | 1200 | 84 |
| FEB. | 1981 | 13468 | 503 | 281 | 10200 | 100 | 3640 | 46 | 1670 | 81 |
| MAR. | 1981 | 20418 | 468 | 262 | 14400 | 92 | 5090 | 43 | 2390 | 76 |
| APR. | 1981 | 12964 | 516 | 288 | 10100 | 100 | 3600 | 47 | 1650 | 82 |
| MAY | 1981 | 68963 | 282 | 159 | 29700 | 53 | 9900 | 28 | 5120 | 50 |
| JUNE | 1981 | 167300 | 203 | 115 | 52100 | 37 | 16900 | 20 | 9190 | 38 |
| JULY | 1981 | 106110 | 242 | 137 | 39200 | 45 | 12900 | 24 | 6850 | 44 |
| AUG. | 1981 | 7531 | 607 | 335 | 6800 | 130 | 2580 | 52 | 1060 | 87 |
| SEPT | 1981 | 18847 | 333 | 186 | 9470 | 66 | 3340 | 31 | 1570 | 55 |
| TOTAL | | 449603 | ** | ** | 206000 | ** | 71000 | ** | 34800 | ** |
| WTD. AVG. | | 1232 | 303 | 170 | ** | 59 | ** | 29 | ** | 51 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 548 | 812 | 614 | 598 | 515 | 601 | 530 | 499 | 259 | 229 | 340 | 1250 |
| 2 | 714 | 849 | 615 | 578 | 534 | 550 | 491 | 386 | 238 | 221 | 337 | 308 |
| 3 | 740 | 843 | 616 | 572 | 577 | 485 | 475 | 369 | 246 | 219 | 346 | 265 |
| 4 | 715 | 859 | 628 | 629 | 534 | 474 | 432 | 447 | 223 | 225 | 347 | 116 |
| 5 | 635 | 783 | 646 | 613 | 479 | 485 | 458 | 357 | 201 | 227 | 365 | 219 |
| 6 | 844 | 784 | 593 | 612 | 528 | 436 | 412 | 413 | 184 | 216 | 365 | 287 |
| 7 | 1050 | 761 | 608 | 627 | 450 | 380 | 554 | 305 | 183 | 237 | 366 | 283 |
| 8 | 1070 | 786 | 614 | 652 | 474 | 338 | 435 | 322 | 181 | 212 | 383 | 249 |
| 9 | 1080 | 781 | 630 | 655 | 547 | 339 | 518 | 534 | 179 | 246 | 406 | 293 |
| 10 | 1480 | 788 | 816 | 550 | 491 | 562 | 481 | 217 | 199 | 264 | 409 | 361 |
| 11 | 1110 | 763 | 950 | 537 | 353 | 426 | 480 | 215 | 192 | 260 | 448 | 426 |
| 12 | 1230 | 803 | 846 | 557 | 403 | 527 | 498 | 256 | 200 | 331 | 539 | 485 |
| 13 | 1740 | 863 | 794 | 637 | 425 | 463 | 613 | 323 | 209 | 328 | 558 | 549 |
| 14 | 2050 | 859 | 716 | 582 | 460 | 447 | 741 | 334 | 217 | 297 | 667 | 606 |
| 15 | 1720 | 888 | 562 | 556 | 627 | 435 | 645 | 290 | 223 | 291 | 679 | 628 |
| 16 | 1340 | 844 | 800 | 528 | 685 | 447 | 590 | 349 | 215 | 278 | 725 | 596 |
| 17 | 1080 | 962 | 868 | 509 | 628 | 452 | 557 | 445 | 214 | 250 | 775 | 643 |
| 18 | 946 | 987 | 430 | 505 | 666 | 458 | 535 | 329 | 254 | 213 | 884 | 715 |
| 19 | 773 | 812 | 442 | 488 | 571 | 463 | 528 | 229 | 233 | 212 | 1090 | 519 |
| 20 | 971 | 743 | 462 | 491 | 545 | 481 | 556 | 226 | 208 | 217 | 973 | 502 |
| 21 | 959 | 645 | 471 | 487 | 541 | 483 | 542 | 225 | 189 | 216 | 658 | 452 |
| 22 | 471 | 722 | 502 | 492 | 515 | 510 | 663 | 225 | 181 | 220 | 509 | 641 |
| 23 | 464 | 606 | 552 | 480 | 463 | 540 | 574 | 250 | 182 | 227 | 676 | 662 |
| 24 | 602 | 520 | 582 | 501 | 455 | 563 | 461 | 236 | 191 | 238 | 727 | 549 |
| 25 | 548 | 531 | 594 | 495 | 447 | 561 | 483 | 259 | 205 | 246 | 731 | 502 |
| 26 | 574 | 590 | 592 | 482 | 476 | 545 | 504 | 293 | 191 | 255 | 711 | 475 |
| 27 | 659 | 692 | 627 | 453 | 502 | 540 | 419 | 274 | 182 | 269 | 793 | 466 |
| 28 | 718 | 626 | 634 | 415 | 520 | 531 | 579 | 270 | 187 | 276 | 738 | 493 |
| 29 | 700 | 553 | 648 | 439 | --- | 545 | 577 | 370 | 206 | 295 | 823 | 757 |
| 30 | 689 | 571 | 628 | 474 | --- | 540 | 621 | 268 | 220 | 298 | 919 | 743 |
| 31 | 834 | --- | 617 | 466 | --- | 507 | --- | 256 | --- | 284 | 1420 | --- |
| MEAN | 937 | 754 | 635 | 537 | 515 | 488 | 532 | 315 | 206 | 252 | 636 | 501 |

08022040 SABINE RIVER NEAR BECKVILLE, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 25.0 | 15.0 | 13.0 | 9.0 | 8.0 | 16.0 | 19.0 | 26.0 | 25.0 | 27.5 | 29.0 | 28.0 |
| 2 | 22.0 | 16.0 | --- | 8.0 | 7.0 | 16.0 | 21.0 | 24.0 | 25.5 | 28.5 | 29.0 | 28.0 |
| 3 | 23.0 | 17.0 | 11.0 | 7.0 | 7.0 | 14.0 | 20.0 | 23.0 | 25.5 | 27.5 | 29.5 | 25.0 |
| 4 | 22.0 | 19.0 | 13.0 | 8.0 | 7.0 | 14.0 | 20.5 | 23.0 | 24.0 | 27.5 | 30.0 | 24.0 |
| 5 | 23.0 | 19.0 | 14.0 | 7.0 | 6.0 | 15.0 | 21.0 | 22.5 | 24.0 | 27.5 | 30.0 | 24.5 |
| 6 | 21.0 | 18.0 | 15.0 | 7.0 | 7.0 | 14.0 | 20.5 | 22.5 | 24.0 | 26.5 | 30.0 | 25.0 |
| 7 | 22.0 | 18.0 | 15.0 | 8.0 | 7.0 | 14.0 | 21.0 | 23.5 | 24.5 | 26.5 | 30.0 | 25.0 |
| 8 | 23.0 | 20.0 | 15.0 | 8.0 | 7.0 | 14.0 | 19.5 | 23.0 | 24.5 | 27.0 | 28.5 | 26.5 |
| 9 | 23.0 | 20.0 | 13.0 | 9.0 | 8.0 | 14.0 | 21.5 | 21.5 | 25.0 | 27.0 | 27.5 | 24.5 |
| 10 | 24.0 | 20.0 | 12.0 | 9.0 | 9.0 | 13.0 | 23.0 | 19.5 | 25.5 | 27.5 | 27.0 | 24.0 |
| 11 | 23.0 | 20.0 | 12.0 | 7.0 | 6.0 | 14.0 | 21.5 | 20.0 | 26.5 | 28.0 | 28.0 | 24.0 |
| 12 | 22.0 | 19.0 | 12.0 | 7.0 | 7.0 | 14.0 | 21.5 | 20.5 | --- | 28.0 | 28.5 | 24.5 |
| 13 | 21.0 | 19.0 | 12.0 | 7.0 | 7.0 | 15.0 | 23.0 | 19.5 | 27.0 | 28.5 | 28.5 | 25.5 |
| 14 | 21.0 | 18.0 | 12.0 | 8.0 | 6.0 | 13.0 | 22.5 | 19.5 | 26.5 | 28.5 | 29.0 | 26.5 |
| 15 | 22.0 | 16.0 | 11.0 | 8.0 | 9.0 | 14.0 | 21.0 | 19.5 | 28.0 | 28.5 | 33.0 | 25.5 |
| 16 | 22.0 | 13.0 | 12.0 | 6.0 | 8.0 | 16.0 | 21.0 | 19.5 | 27.0 | 29.0 | 30.0 | 24.0 |
| 17 | 23.0 | 12.0 | 11.0 | 6.0 | 9.0 | 14.0 | 21.5 | 20.0 | 26.0 | 29.0 | 29.5 | 23.0 |
| 18 | 23.0 | 13.0 | 13.0 | 6.0 | 11.0 | 14.0 | 23.0 | 20.5 | 25.5 | 29.0 | 29.5 | 22.0 |
| 19 | 21.0 | 12.0 | 10.0 | 6.0 | 12.0 | 14.0 | 23.0 | 19.5 | 26.5 | 29.0 | 28.0 | 20.0 |
| 20 | 21.0 | 11.0 | 8.0 | 6.0 | 13.0 | 13.0 | 26.0 | 19.0 | 26.5 | 29.0 | 29.5 | 20.0 |
| 21 | 21.0 | 11.0 | 7.0 | 6.0 | 14.0 | 13.0 | 24.5 | --- | 27.0 | 29.5 | 27.0 | 20.0 |
| 22 | 21.0 | 10.0 | 7.0 | 6.0 | 13.0 | 14.0 | 23.5 | 20.0 | 27.0 | 29.5 | 28.0 | 21.5 |
| 23 | 21.0 | 11.0 | 9.0 | 7.0 | 12.0 | 16.0 | 22.0 | 20.5 | 27.0 | 29.5 | 27.0 | 22.5 |
| 24 | 16.0 | 11.0 | 9.0 | 9.0 | 11.0 | 17.0 | 24.0 | 21.0 | 27.0 | 29.5 | 28.0 | 24.0 |
| 25 | 18.0 | 12.0 | 7.0 | 9.0 | 13.0 | 16.0 | 22.0 | 21.5 | 28.0 | 30.0 | 27.5 | 24.0 |
| 26 | --- | --- | 7.0 | 10.0 | 14.0 | 15.0 | 21.0 | 23.5 | 27.5 | 30.0 | 27.5 | 24.5 |
| 27 | 16.0 | 11.0 | 8.0 | 9.0 | 15.0 | 16.0 | 26.0 | 22.5 | 27.0 | 30.0 | 28.5 | 24.5 |
| 28 | 13.0 | 9.0 | 9.0 | 10.0 | 16.0 | 17.0 | 26.5 | 23.0 | 26.5 | 30.0 | 28.0 | 25.0 |
| 29 | --- | 11.0 | 9.0 | 12.0 | --- | --- | 27.0 | --- | 27.0 | 29.0 | 27.0 | 25.5 |
| 30 | 14.0 | 11.0 | 10.0 | 10.0 | --- | 20.0 | 25.0 | 24.5 | 27.0 | 29.0 | 28.0 | 25.0 |
| 31 | 15.0 | --- | 9.0 | 8.0 | --- | 20.0 | --- | 25.0 | --- | 29.0 | 28.5 | --- |
| MEAN | 21.0 | 15.0 | 11.0 | 8.0 | 9.5 | 15.0 | 22.5 | 21.5 | 26.0 | 28.5 | 28.5 | 24.0 |

## 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 (9 m) to right of intake to generating plant No. 1, 1.9 mi (3.1 km) upstream from Martin Dam on Martin Creek, 5.8 mi (9.3 km) southwest of Tatum, and 21.9 mi (35.2 km) upstream from mouth.

DRAINAGE AREA.--130 mi² (337 km²).

### WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to May 15, 1976, nonrecording gage near left end of dam 1.9 mi (3.1 km) downstream at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 8,675 ft (2,644 m) long, including a 1,000-foot (305 m) uncontrolled emergency spillway. Deliberate impoundment began in April 1974. The uncontrolled emergency spillway is an excavated channel cut through natural ground and located at the left end of the dam. The controlled spillway is a concrete ogee design with four 14.0- by 40.0-foot-wide (4.3 by 12.2 m) tainter gates located near the left end of the dam. The low-flow outlet works consist of a 3.0- by 5.0-foot (0.9 by 1.5 m) conduit with a sluice gate located in one of the gate piers. In addition, there is an 8-inch (203 mm) 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 furnished by Forrest and Cotton, Consulting Engineers, for Texas Utilities Services, Inc.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 93,250 acre-ft (115 hm³) Mar. 31, 1979, elevation, 308.95 ft (94.168 m); minimum since first appreciable storage, 58,320 acre-ft (71.9 hm³) Feb. 4, 1981, elevation, 301.83 ft (91.998 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 81,000 acre-ft (99.9 hm³) June 6 at 1200 hours, elevation, 306.69 ft (93.479 m); minimum, 58,320 acre-ft (71.9 hm³) Feb. 4, elevation, 301.83 ft (91.998 m).

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

| | | | |
|---|---|---|---|
| 301.0 | 54,870 | 305.0 | 72,560 |
| 302.0 | 59,020 | 306.0 | 77,470 |
| 303.0 | 63,340 | 307.0 | 82,610 |
| 304.0 | 67,880 | | |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 63010 | 60140 | 60060 | 59040 | 58450 | 60440 | 60840 | 60580 | 74550 | 75850 | 75110 | 71870 |
| 2 | 62830 | 60100 | 59930 | 59040 | 58410 | 60800 | 60840 | 60530 | 74650 | 75760 | 74970 | 72200 |
| 3 | 62700 | 60010 | 59930 | 58990 | 58410 | 60890 | 60760 | 60580 | 75900 | 75610 | 74820 | 72390 |
| 4 | 62520 | 59930 | 59970 | 58910 | 58320 | 61200 | 60890 | 61690 | 77050 | 75950 | 74620 | 72440 |
| 5 | 62350 | 59840 | 59930 | 58870 | 58490 | 61200 | 60840 | 62040 | 80040 | 76800 | 74480 | 72390 |
| 6 | 62220 | 59760 | 59930 | 59040 | 58530 | 61240 | 60800 | 62090 | 80810 | 76800 | 74330 | 72250 |
| 7 | 62170 | 59670 | 60060 | 59080 | 58490 | 61240 | 60710 | 62090 | 79730 | 77150 | 74090 | 72110 |
| 8 | 62090 | 59630 | 60310 | 59080 | 58530 | 61240 | 60620 | 62040 | 78410 | 77150 | 73890 | 72060 |
| 9 | 61960 | 59500 | 60230 | 59080 | 58980 | 61240 | 60580 | 67100 | 77850 | 77100 | 73750 | 71910 |
| 10 | 61870 | 59540 | 60180 | 59040 | 59650 | 61240 | 60580 | 68950 | 77800 | 77100 | 73600 | 71770 |
| 11 | 61690 | 59420 | 60180 | 58950 | 59820 | 61200 | 60530 | 69360 | 77750 | 76900 | 73450 | 71630 |
| 12 | 61520 | 59290 | 60140 | 58950 | 59860 | 61200 | 60490 | 69460 | 77750 | 76850 | 73260 | 71580 |
| 13 | 61430 | 59200 | 60100 | 58910 | 59860 | 61200 | 60440 | 69410 | 77750 | 76750 | 73160 | 71480 |
| 14 | 61350 | 59250 | 60060 | 58820 | 59860 | 61240 | 60320 | 69500 | 77600 | 76600 | 73020 | 71390 |
| 15 | 61220 | 59120 | 59970 | 58780 | 59860 | 61200 | 60270 | 69640 | 77450 | 76500 | 72830 | 71290 |
| 16 | 61130 | 59890 | 59930 | 58490 | 59860 | 61150 | 60230 | 70100 | 77400 | 76350 | 72730 | 71060 |
| 17 | 61390 | 60140 | 59930 | 58450 | 59940 | 61110 | 60150 | 70430 | 77400 | 76200 | 72540 | 70820 |
| 18 | 61300 | 60100 | 59930 | 58410 | 59940 | 60800 | 60150 | 70480 | 77300 | 76050 | 72340 | 70680 |
| 19 | 61220 | 60100 | 59710 | 58490 | 59940 | 60760 | 60070 | 70380 | 77250 | 75850 | 72200 | 70540 |
| 20 | 61130 | 60010 | 59590 | 58610 | 59980 | 60800 | 60020 | 70340 | 77100 | 75710 | 72010 | 70390 |
| 21 | 61040 | 59970 | 59540 | 58610 | 60150 | 60620 | 59980 | 70290 | 76950 | 75560 | 71820 | 70300 |
| 22 | 60960 | 60180 | 59540 | 58610 | 60110 | 60580 | 59860 | 70240 | 76800 | 75410 | 71670 | 70210 |
| 23 | 60870 | 60140 | 59540 | 58610 | 60110 | 60580 | 60320 | 70200 | 76750 | 75260 | 71530 | 70110 |
| 24 | 60610 | 60140 | 59330 | 58610 | 60110 | 60530 | 60360 | 70660 | 76700 | 75110 | 71480 | 70060 |
| 25 | 60570 | 60100 | 59330 | 58610 | 60070 | 60710 | 60270 | 72660 | 76550 | 74920 | 71390 | 69970 |
| 26 | 60480 | 60140 | 59290 | 58610 | 60070 | 60710 | 60270 | 73650 | 76450 | 74770 | 71290 | 69880 |
| 27 | 60570 | 60180 | 59290 | 58530 | 60070 | 60620 | 60230 | 74100 | 76300 | 75560 | 71200 | 69740 |
| 28 | 60480 | 60100 | 59250 | 58490 | 60020 | 60620 | 60150 | 74400 | 76150 | 75660 | 71100 | 69640 |
| 29 | 60360 | 60100 | 59200 | 58490 | --- | 60890 | 60150 | 74500 | 76050 | 75560 | 71100 | 69590 |
| 30 | 60270 | 60100 | 59160 | 58410 | --- | 60890 | 60490 | 74550 | 75950 | 75410 | 71010 | 69450 |
| 31 | 60230 | --- | 59120 | 58410 | --- | 60890 | --- | 74550 | --- | 75260 | 70910 | --- |
| MAX | 63010 | 60180 | 60310 | 59080 | 60150 | 61240 | 60890 | 74550 | 80810 | 77150 | 75110 | 72440 |
| MIN | 60230 | 59120 | 59120 | 58410 | 58320 | 60440 | 59860 | 60530 | 74550 | 74770 | 70910 | 69450 |
| (†) | 302.28 | 302.25 | 302.02 | 301.85 | 302.24 | 302.44 | 302.35 | 305.40 | 305.69 | 305.55 | 304.65 | 304.34 |
| (‡) | -2820 | - 130 | - 980 | - 710 | +1610 | + 870 | - 400 | +14060 | +1400 | - 690 | -4350 | -1460 |

CAL YR 1980 MAX 86340 MIN 59120 ‡ -18780
WTR YR 1981 MAX 80810 MIN 58320 ‡ + 6400

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.

08022060 MARTIN LAKE NEAR TATUM, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | TEMPERATURE, WATER (DEG C) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|
| JAN 07... | 1120 | 321 | 11.5 | 92 | 54 | 22 | 9.1 | 22 |

| DATE | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| JAN 07... | 1.0 | 3.3 | 38 | 67 | 27 | .3 | 7.6 | 181 |

## 08022070 MARTIN CREEK NEAR TATUM, TX

LOCATION.--Lat 32°17'44", long 94°29'29", Panola County, Hydrologic Unit 12010002, on right bank 35 ft (11 m) downstream from right abutment and 360 ft (110 m) to right of bridge on State Highway 149, 50 ft (15 m) upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 1.7 mi (2.7 km) upstream from Hogan Creek, 2.0 mi (3.2 km) southeast of Tatum, 5.0 mi (8.0 km) downstream from Martin Lake, and 15.0 mi (24.1 km) upstream from mouth.

DRAINAGE AREA.--148 $mi^2$ (383 $km^2$).

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

REVISED RECORDS.--WDR TX-76-1: 1975.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 240.26 ft (73.231 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 31, 1978, at site 50 ft (15 m) upstream at same datum.

REMARKS.--Records good. Flow is largely regulated by Martin Lake located 5 mi (8 km) upstream. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--7 years (water years 1975-81), 84.5 $ft^3/s$ (2.393 $m^3/s$), 61,220 acre-ft/yr (75.5 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,540 $ft^3/s$ (71.9 $m^3/s$) Apr. 30, 1976, gage height, 13.76 ft (4.194 m); minimum, 0.25 $ft^3/s$ (0.007 $m^3/s$) Oct. 17, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1948, 18.15 ft (5.532 m) April 1969. The flood in April 1957 reached a stage of 13.95 ft (4.252 m), from information by State Department of Highways and Public Transporation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,360 $ft^3/s$ (38.5 $m^3/s$) May 9 at 2230 hours, gage height, 12.34 ft (3.761 m); minimum, 0.69 $ft^3/s$ (0.020 $m^3/s$) Nov. 6, 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.7 | 1.7 | 4.3 | 3.2 | 4.6 | 16 | 4.4 | 23 | 20 | 1.2 | 1.7 | 52 |
| 2 | 1.4 | 1.5 | 4.1 | 2.7 | 6.4 | 26 | 3.7 | 17 | 13 | 1.3 | 1.7 | 172 |
| 3 | 1.3 | 1.4 | 4.0 | 2.3 | 3.9 | 13 | 3.4 | 5.9 | 35 | 1.3 | 1.6 | 27 |
| 4 | 1.2 | 1.2 | 3.9 | 2.1 | 3.1 | 18 | 6.4 | 13 | 347 | 1.6 | 1.6 | 29 |
| 5 | 1.2 | 1.2 | 4.5 | 2.0 | 4.2 | 16 | 9.5 | 401 | 309 | 27 | 1.5 | 9.6 |
| 6 | 1.1 | .86 | 4.5 | 2.5 | 8.4 | 10 | 5.1 | 128 | 508 | 83 | 1.5 | 5.1 |
| 7 | 1.1 | .88 | 4.6 | 5.2 | 5.8 | 9.0 | 3.9 | 23 | 636 | 18 | 1.5 | 3.4 |
| 8 | 1.1 | 1.2 | 5.9 | 4.0 | 4.1 | 8.8 | 3.8 | 10 | 848 | 16 | 1.5 | 2.8 |
| 9 | 1.0 | 1.5 | 11 | 3.3 | 3.3 | 8.1 | 3.8 | 404 | 792 | 7.1 | 1.6 | 2.6 |
| 10 | .97 | 1.7 | 7.7 | 3.0 | 75 | 7.1 | 3.6 | 703 | 246 | 4.1 | 1.6 | 2.4 |
| 11 | .90 | 2.7 | 4.9 | 2.7 | 57 | 6.8 | 3.5 | 103 | 31 | 2.8 | 1.7 | 2.2 |
| 12 | .78 | 4.2 | 3.9 | 2.5 | 15 | 6.3 | 3.3 | 25 | 11 | 2.4 | 1.7 | 2.0 |
| 13 | .83 | 6.3 | 3.3 | 2.6 | 11 | 6.2 | 3.1 | 14 | 8.8 | 2.1 | 1.7 | 2.0 |
| 14 | .97 | 7.4 | 3.1 | 2.8 | 9.9 | 6.0 | 2.9 | 12 | 7.4 | 1.9 | 1.7 | 2.0 |
| 15 | .95 | 7.4 | 3.0 | 2.6 | 9.2 | 6.3 | 3.1 | 11 | 4.6 | 1.8 | 1.8 | 2.0 |
| 16 | 1.0 | 8.8 | 2.9 | 2.4 | 9.0 | 5.8 | 3.0 | 35 | 4.0 | 1.6 | 1.8 | 2.1 |
| 17 | 1.5 | 24 | 2.9 | 2.2 | 8.9 | 5.8 | 2.9 | 41 | 5.9 | 1.5 | 2.0 | 1.8 |
| 18 | 3.0 | 11 | 2.8 | 2.2 | 8.7 | 5.0 | 2.9 | 17 | 4.8 | 1.5 | 2.2 | 1.7 |
| 19 | 1.6 | 6.0 | 2.7 | 2.4 | 8.3 | 4.4 | 2.9 | 12 | 3.8 | 1.4 | 2.2 | 1.6 |
| 20 | 1.3 | 4.8 | 2.6 | 6.1 | 8.2 | 4.0 | 2.9 | 9.2 | 2.9 | 1.3 | 2.2 | 1.7 |
| 21 | 1.2 | 4.2 | 2.6 | 7.5 | 8.1 | 4.0 | 2.9 | 7.9 | 2.4 | 1.3 | 2.2 | 1.8 |
| 22 | 1.3 | 4.7 | 2.8 | 4.9 | 19 | 4.5 | 2.8 | 7.2 | 2.1 | 1.4 | 2.2 | 1.9 |
| 23 | 1.3 | 9.2 | 2.9 | 3.7 | 12 | 4.6 | 6.6 | 6.2 | 2.0 | 1.4 | 2.2 | 1.9 |
| 24 | 1.4 | 7.7 | 2.9 | 3.3 | 8.8 | 4.0 | 11 | 13 | 2.6 | 1.4 | 2.3 | 1.9 |
| 25 | 1.5 | 5.6 | 2.6 | 3.0 | 7.7 | 3.9 | 5.6 | 18 | 2.6 | 1.4 | 2.3 | 1.8 |
| 26 | 1.4 | 6.0 | 2.5 | 2.6 | 7.1 | 3.6 | 3.7 | 125 | 2.1 | 1.3 | 2.6 | 1.7 |
| 27 | 2.9 | 7.9 | 2.4 | 2.4 | 6.8 | 3.5 | 3.1 | 41 | 1.8 | 1.8 | 2.4 | 1.7 |
| 28 | 2.7 | 6.8 | 2.5 | 2.4 | 6.9 | 3.4 | 2.8 | 26 | 1.5 | 9.4 | 2.4 | 1.7 |
| 29 | 1.8 | 5.3 | 2.5 | 2.3 | --- | 6.7 | 2.6 | 15 | 1.4 | 4.9 | 6.5 | 1.7 |
| 30 | 1.5 | 4.5 | 2.5 | 2.2 | --- | 9.8 | 4.4 | 12 | 1.3 | 2.4 | 3.8 | 1.7 |
| 31 | 1.6 | --- | 2.6 | 2.2 | --- | 6.1 | --- | 11 | --- | 1.9 | 3.7 | --- |
| TOTAL | 43.50 | 157.64 | 115.4 | 95.3 | 340.4 | 242.7 | 123.6 | 2289.4 | 3858.0 | 207.5 | 67.4 | 342.8 |
| MEAN | 1.40 | 5.25 | 3.72 | 3.07 | 12.2 | 7.83 | 4.12 | 73.9 | 129 | 6.69 | 2.17 | 11.4 |
| MAX | 3.0 | 24 | 11 | 7.5 | 75 | 26 | 11 | 703 | 848 | 83 | 6.5 | 172 |
| MIN | .78 | .86 | 2.4 | 2.0 | 3.1 | 3.4 | 2.6 | 5.9 | 1.3 | 1.2 | 1.5 | 1.6 |
| AC-FT | 86 | 313 | 229 | 189 | 675 | 481 | 245 | 4540 | 7650 | 412 | 134 | 680 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 33262.84 | MEAN | 90.9 | MAX | 1780 | MIN | .78 | AC-FT 65980 |
| WTR YR 1981 | TOTAL | 7883.64 | MEAN | 21.6 | MAX | 848 | MIN | .78 | AC-FT 15640 |

## 08022300 MURVAUL BAYOU NEAR GARY, TX

LOCATION.--Lat 32°02'54", long 94°22'31", Panola County, Hydrologic Unit 12010002, near center of main channel on downstream side of bridge on Farm Road 10, 0.3 mi (0.5 km) downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 1.0 mi (1.6 km) downstream from Indian Creek, 1.5 mi (2.4 km) north of Gary, and 3 mi (5 km) downstream from Murvaul Lake.

DRAINAGE AREA.--134 $mi^2$ (347 $km^2$).

PERIOD OF RECORD.--April 1958 to current year.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 217.82 ft (66.392 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Discharge largely regulated by Murvaul Lake 3 mi (5 km) upstream. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--23 years (water years 1959-81), 84.5 $ft^3/s$ (2.393 $m^3/s$), 61,220 acre-ft/yr (75.5 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,590 $ft^3/s$ (102 $m^3/s$) Mar. 18, 1969, gage height, 11.57 ft (3.527 m); no flow at times in 1967-81.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1928, about 14.5 ft (4.42 m) in July 1933, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,400 $ft^3/s$ (39.6 $m^3/s$) June 6 at 0630 hours, gage height, 10.74 ft (3.274 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | 3.7 | 2.5 | 5.1 | 29 | .25 | .00 | 141 |
| 2 | .00 | .00 | .00 | .00 | .08 | 10 | .87 | 5.9 | 28 | .20 | .00 | 88 |
| 3 | .00 | .00 | .00 | .00 | .26 | 4.9 | .51 | 1.4 | 37 | .16 | .00 | 127 |
| 4 | .00 | .00 | .00 | .00 | .12 | 64 | .42 | 23 | 162 | .12 | .00 | 302 |
| 5 | .00 | .00 | .00 | .00 | .09 | 37 | .35 | 398 | 577 | .10 | .00 | 345 |
| 6 | .00 | .00 | .00 | .00 | .17 | 6.4 | .29 | 98 | 1360 | .08 | .00 | 284 |
| 7 | .00 | .00 | .00 | .00 | .45 | 3.7 | .23 | 22 | 1170 | .10 | .00 | 187 |
| 8 | .00 | .00 | .00 | .00 | .37 | 2.9 | .18 | 11 | 833 | .07 | .00 | 122 |
| 9 | .00 | .00 | .00 | .00 | .22 | 2.2 | .15 | 72 | 580 | .06 | .00 | 78 |
| 10 | .00 | .00 | .00 | .00 | 4.1 | 1.1 | .14 | 118 | 434 | .05 | .00 | 51 |
| 11 | .00 | .00 | .00 | .00 | 2.6 | .66 | .13 | 63 | 314 | .04 | .00 | 35 |
| 12 | .00 | .00 | .00 | .00 | 2.5 | .52 | .12 | 47 | 204 | .03 | .00 | 25 |
| 13 | .00 | .00 | .00 | .00 | .66 | .45 | .12 | 37 | 146 | .02 | .00 | 17 |
| 14 | .00 | .00 | .00 | .00 | .40 | .37 | .09 | 42 | 103 | .00 | .00 | 13 |
| 15 | .00 | .00 | .00 | .00 | .30 | .34 | .08 | 40 | 74 | .00 | .00 | 11 |
| 16 | .00 | .00 | .00 | .00 | .25 | .28 | .07 | 51 | 59 | .00 | .00 | 10 |
| 17 | .00 | .00 | .00 | .00 | .22 | .25 | .07 | 76 | 50 | .00 | .00 | 6.9 |
| 18 | .00 | .00 | .00 | .00 | .19 | .22 | .06 | 76 | 37 | .00 | .00 | 3.2 |
| 19 | .00 | .00 | .00 | .00 | .16 | .18 | .06 | 74 | 28 | .00 | .00 | 1.2 |
| 20 | .00 | .00 | .00 | .00 | .14 | .23 | .06 | 55 | 20 | .00 | .00 | .59 |
| 21 | .00 | .00 | .00 | .00 | .17 | .21 | .06 | 37 | 15 | .00 | .00 | .33 |
| 22 | .00 | .00 | .00 | .00 | .97 | .18 | .07 | 26 | 10 | .00 | .00 | .23 |
| 23 | .00 | .00 | .00 | .00 | .72 | .15 | 11 | 21 | 7.5 | .00 | .00 | .17 |
| 24 | .00 | .00 | .00 | .00 | .29 | .15 | 13 | 29 | 5.2 | .00 | .00 | .13 |
| 25 | .00 | .00 | .00 | .00 | .21 | .14 | 3.6 | 40 | 3.1 | .00 | .00 | .08 |
| 26 | .00 | .00 | .00 | .00 | .17 | .12 | .98 | 48 | 2.0 | .00 | .00 | .04 |
| 27 | .00 | .00 | .00 | .00 | .16 | .11 | .50 | 39 | 1.3 | .00 | .00 | .03 |
| 28 | .00 | .00 | .00 | .00 | .14 | .11 | .34 | 32 | .92 | .00 | .00 | .03 |
| 29 | .00 | .00 | .00 | .00 | --- | .98 | .30 | 27 | .56 | .00 | .00 | .03 |
| 30 | .00 | .00 | .00 | .00 | --- | 4.1 | .37 | 22 | .33 | .00 | .00 | .02 |
| 31 | .00 | --- | .00 | .00 | --- | 4.6 | --- | 29 | --- | .00 | .00 | --- |
| TOTAL | .00 | .00 | .00 | .00 | 16.11 | 150.25 | 36.72 | 1665.4 | 6290.91 | 1.28 | .00 | 1848.98 |
| MEAN | .000 | .000 | .000 | .000 | .58 | 4.85 | 1.22 | 53.7 | 210 | .041 | .000 | 61.6 |
| MAX | .00 | .00 | .00 | .00 | 4.1 | 64 | 13 | 398 | 1360 | .25 | .00 | 345 |
| MIN | .00 | .00 | .00 | .00 | .00 | .11 | .06 | 1.4 | .33 | .00 | .00 | .02 |
| AC-FT | .00 | .00 | .00 | .00 | 32 | 298 | 73 | 3300 | 12480 | 2.5 | .00 | 3670 |

CAL YR 1980 TOTAL 39550.53 MEAN 108 MAX 2600 MIN .00 AC-FT 78450
WTR YR 1981 TOTAL 10009.65 MEAN 27.4 MAX 1360 MIN .00 AC-FT 19850

## 08022500 SABINE RIVER AT LOGANSPORT, LA

LOCATION.--Lat 31°58'20", long 94°00'22", De Soto Parish, Louisiana-Shelby County, Texas State line at Logansport, Hydrologic Unit 12010004, just upstream from bridge on U.S. Highway 84, 3 mi (5 km) upstream from Bayou Castor, 111 mi (179 km) upstream from Toledo Bend Dam, and at mile 267.1 (429.8 km).

DRAINAGE AREA.--4,842 mi² (12,541 km²).

PERIOD OF RECORD.--Gage-height record March 1968 to current year. 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 (45.025 m) 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 (1,400 m) upstream. Jan. 16, 1964, to Dec. 10, 1968, water-stage recorder 4,700 ft (1,430 m) upstream. All gages to present datum except prior to Dec. 31, 1906, when datum was 2.00 ft (0.610 m) lower.

REMARKS.--Station discontinued as daily streamflow station 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 (2.25 km³), largely regulated the flow. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08018500. Numerous diversions above station for oilfield operations, municipal, and industrial uses.

AVERAGE DISCHARGE.--64 years (water years 1904-67), 3,208 ft³/s (90.85 m³/s), 2,324,000 acre-ft/yr (2.87 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height (1968-81), 32.50 ft (9.906 m) Apr. 20, 1969; minimum since initial filling of Toledo Bend Reservoir in June 1968, 17.97 ft (5.477 m) Nov. 29, 1977. Maximum discharge (1903-67), 92,000 ft³/s (2,610 m³/s) Apr. 8, 1945, gage height, 44.07 ft (13.433 m), from floodmark; minimum, 16 ft³/s (0.453 m³/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 (12.01 m), present site and datum.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 26.03 ft (7.934 m) June 10 at 1200 hours; minimum, 18.38 ft (5.602 m) Feb. 11.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 19.59 | 19.36 | 19.25 | 19.09 | 18.81 | 19.33 | 19.83 | 19.64 | 21.00 | 24.25 | 23.04 | 20.93 |
| 2 | 19.50 | 19.35 | 19.14 | 19.10 | 19.02 | 19.38 | 20.00 | 19.77 | 21.13 | 24.37 | 22.99 | 21.19 |
| 3 | 19.61 | 19.33 | 19.19 | 19.09 | 19.09 | 19.60 | 19.83 | 19.85 | 21.35 | 24.45 | 22.91 | 21.40 |
| 4 | 19.49 | 19.33 | 19.21 | 19.04 | 18.98 | 19.72 | 19.75 | 19.90 | 21.67 | 24.46 | 22.98 | 21.45 |
| 5 | 19.49 | 19.30 | 19.21 | 19.13 | 19.02 | 19.64 | 19.81 | 19.95 | 23.38 | 24.60 | 22.85 | 21.55 |
| 6 | 19.45 | 19.36 | 19.19 | 18.98 | 19.16 | 19.76 | 20.00 | 20.13 | 24.51 | 24.66 | 22.70 | 21.44 |
| 7 | 19.45 | 19.37 | 19.31 | 19.09 | 19.11 | 19.76 | 20.13 | 20.25 | 25.06 | 24.78 | 22.41 | 21.33 |
| 8 | 19.47 | 19.42 | 19.04 | 19.13 | 19.20 | 19.70 | 20.13 | 20.37 | 25.65 | 24.73 | 22.33 | 21.23 |
| 9 | 19.45 | 19.32 | 18.94 | 19.10 | 19.53 | 19.78 | 19.96 | 20.18 | 25.94 | 24.70 | 22.25 | 21.23 |
| 10 | 19.39 | 19.27 | 19.24 | 19.10 | 18.60 | 19.80 | 20.00 | 20.70 | 26.00 | 24.75 | 22.15 | 21.20 |
| 11 | 19.33 | 19.24 | 19.25 | 19.11 | 19.24 | 19.78 | 19.93 | 21.22 | 25.82 | 24.67 | 22.15 | 21.20 |
| 12 | 19.34 | 19.23 | 19.26 | 19.12 | 19.30 | 19.89 | 20.00 | 21.60 | 25.48 | 24.65 | 21.96 | 21.18 |
| 13 | 19.39 | 19.24 | 19.22 | 19.09 | 19.30 | 19.80 | 20.00 | 21.50 | --- | 24.54 | 21.90 | 21.19 |
| 14 | 19.47 | 19.03 | 19.24 | 19.03 | 19.28 | 19.87 | 19.70 | 20.85 | --- | 24.43 | 21.83 | 21.25 |
| 15 | 19.45 | 19.06 | 19.27 | 18.99 | 19.28 | 19.82 | 19.79 | 20.68 | --- | 24.40 | 21.70 | 21.15 |
| 16 | 19.50 | 19.11 | 19.22 | 18.93 | 19.28 | 19.80 | 20.06 | 20.83 | --- | 24.42 | 21.45 | 21.05 |
| 17 | 19.43 | 19.18 | 19.31 | 18.95 | 19.29 | 20.22 | 19.90 | 21.01 | --- | 24.40 | 21.47 | 20.95 |
| 18 | 19.46 | 19.27 | 19.45 | 19.00 | 19.32 | 19.45 | 20.00 | 20.98 | --- | 24.35 | 21.33 | 21.10 |
| 19 | 19.35 | 19.29 | 19.00 | 19.09 | 19.32 | 19.76 | 20.00 | 20.74 | --- | 24.30 | 21.26 | 21.10 |
| 20 | 19.36 | 19.30 | 19.04 | 19.09 | 19.34 | 20.00 | 19.78 | 20.92 | --- | 24.26 | 21.16 | 21.05 |
| 21 | 19.38 | 19.28 | 19.15 | 19.06 | 19.41 | 19.85 | 19.80 | 21.00 | --- | 24.19 | 21.10 | 21.03 |
| 22 | 19.34 | 19.22 | 19.25 | 19.12 | 19.42 | 19.59 | 19.75 | 21.17 | --- | 24.10 | 21.12 | 21.00 |
| 23 | 19.35 | 19.26 | 19.31 | 19.13 | 19.38 | 19.80 | 19.70 | 21.15 | --- | 23.98 | 21.25 | 20.99 |
| 24 | 19.18 | 19.25 | 18.75 | 19.14 | 19.34 | 19.75 | 19.75 | 20.93 | --- | 23.86 | 21.12 | 20.99 |
| 25 | 19.35 | 19.01 | 19.25 | 19.19 | 19.35 | 19.75 | 19.71 | 20.85 | 24.28 | 23.85 | 21.05 | 21.00 |
| 26 | 19.44 | 19.04 | 19.12 | 19.10 | 19.40 | 19.93 | 19.72 | 20.75 | 24.25 | 23.64 | 20.89 | 20.94 |
| 27 | 19.44 | 19.25 | 19.12 | 19.04 | 19.41 | 20.00 | 19.72 | 20.74 | 24.25 | 23.55 | 20.83 | 20.92 |
| 28 | 19.16 | 19.25 | 19.14 | 19.09 | 19.37 | 19.90 | 19.65 | 20.67 | 24.28 | 23.50 | 20.85 | 20.91 |
| 29 | 19.30 | 19.20 | 18.92 | 19.12 | --- | 19.82 | 19.62 | 20.70 | 24.35 | 23.35 | 20.87 | 20.91 |
| 30 | 19.33 | 19.35 | 19.13 | 18.92 | --- | 19.97 | 19.63 | 20.75 | 24.31 | 23.37 | 20.85 | 20.88 |
| 31 | 19.35 | --- | 19.09 | 19.12 | --- | 19.83 | --- | 20.86 | --- | 23.23 | 21.11 | --- |
| MAX | 19.61 | 19.42 | 19.45 | 19.19 | 19.53 | 20.22 | 20.13 | 21.60 | --- | 24.78 | 23.04 | 21.55 |
| MIN | 19.16 | 19.01 | 18.75 | 18.92 | 18.60 | 19.33 | 19.62 | 19.64 | --- | 23.23 | 20.83 | 20.88 |

CAL YR 1980 MAX 28.59 MIN 18.75
WTR YR 1981 MAX - MIN -

## 08023200 TENAHA CREEK NEAR SHELBYVILLE, TX

LOCATION.--Lat 31°45'56", long 94°05'02", Shelby County, Hydrologic Unit 12010004, near center of span at downstream side of bridge on State Highway 87, 0.5 mi (0.8 km) northwest of Shelbyville, 4.2 mi (6.8 km) downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, and 5.0 mi (8.0 km) upstream from Beauchamp Creek.

DRAINAGE AREA.--97.8 $mi^2$ (253.3 $km^2$).

PERIOD OF RECORD.--March 1952 to September 1981 (discharge measurements and supplemental peaks only Apr. 14 to Sept. 30, 1981), discontinued.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Prior to May 9, 1963, nonrecording gage at same site and datum. Datum of gage is 205.71 ft (62.700 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Minor diversions for municipal supply by city of Center from Mill Creek, a tributary of Tenaha Creek which enters above gage, and from Sandy Creek, a tributary of Attoyac Bayou in the Neches River basin. Sewage effluent is returned to Prairie Creek, a tributary of Tenaha Creek that enters 1.0 mi (1.6 km) downstream from gage. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--28 years (water years 1953-80), 84.6 $ft^3/s$ (2.396 $m^3/s$), 11.75 in/yr (298 mm/yr), 61,290 acre-ft/yr (75.6 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,900 $ft^3/s$ (620 $m^3/s$) Sept. 14, 1978, gage height, 14.79 ft (4.508 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1884, 15.0 ft (4.57 m) Nov. 23, 1940, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,630 $ft^3/s$ (131 $m^3/s$) Sept. 2 (time unknown), gage height, 11.01 ft (3.356 m), from peak mark, no peak above base of 1,000 $ft^3/s$ (28.3 $m^3/s$); minimum not determined.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.0 | 2.3 | 12 | 7.8 | 11 | 15 | 12 | --- | --- | | --- | --- |
| 2 | 2.3 | 2.4 | 10 | 7.1 | 21 | 19 | 11 | --- | --- | | --- | --- |
| 3 | 2.1 | 2.4 | 9.1 | 6.9 | 13 | 40 | 11 | --- | --- | | --- | --- |
| 4 | 2.1 | 2.1 | 8.8 | 8.2 | 11 | 100 | 11 | --- | --- | | 2.0 | --- |
| 5 | 2.3 | 1.8 | 9.1 | 7.0 | 9.5 | 180 | 8.4 | --- | --- | | --- | --- |
| 6 | 1.8 | 1.9 | 8.7 | 7.6 | 13 | 60 | 8.0 | --- | --- | | --- | --- |
| 7 | 1.4 | 1.8 | 9.6 | 13 | 26 | 25 | 7.9 | --- | --- | | --- | --- |
| 8 | 1.4 | 3.1 | 9.9 | 14 | 22 | 18 | 8.3 | --- | --- | | --- | --- |
| 9 | 1.3 | 2.9 | 12 | 12 | 20 | 15 | 8.0 | --- | --- | | --- | --- |
| 10 | 1.3 | 2.0 | 20 | 11 | 30 | 14 | 7.3 | --- | --- | | --- | --- |
| 11 | 1.1 | 1.5 | 13 | 9.9 | 90 | 17 | 7.5 | --- | --- | | --- | --- |
| 12 | 1.1 | 1.5 | 11 | 9.4 | 50 | 16 | 7.5 | --- | --- | | --- | --- |
| 13 | 1.2 | 2.0 | 11 | 8.5 | 30 | 15 | 7.3 | --- | --- | | --- | --- |
| 14 | 1.1 | 1.8 | 9.5 | 8.9 | 21 | 15 | 6.0 | 9.4 | --- | | --- | --- |
| 15 | 1.1 | 2.8 | 11 | 6.2 | 18 | 14 | --- | --- | --- | | --- | 113 |
| 16 | 1.1 | 7.9 | 10 | 7.0 | 17 | 13 | --- | --- | --- | | --- | --- |
| 17 | 1.4 | 15 | 9.0 | 6.9 | 17 | 12 | --- | --- | --- | | --- | --- |
| 18 | 4.9 | 15 | 9.3 | 6.4 | 16 | 12 | --- | --- | --- | | --- | --- |
| 19 | 3.5 | 12 | 10 | 7.3 | 16 | 11 | --- | --- | --- | | --- | --- |
| 20 | 2.4 | 8.4 | 5.5 | 12 | 15 | 11 | --- | --- | --- | | --- | --- |
| 21 | 2.5 | 4.7 | 9.2 | 34 | 15 | 11 | --- | --- | --- | | --- | --- |
| 22 | 2.7 | 4.5 | 8.9 | 16 | 20 | 12 | --- | --- | --- | | --- | --- |
| 23 | 2.3 | 9.5 | 8.4 | 12 | 25 | 12 | --- | --- | --- | | --- | --- |
| 24 | 2.0 | 11 | 9.7 | 11 | 17 | 11 | --- | --- | --- | | --- | --- |
| 25 | 2.0 | 10 | 7.8 | 10 | 15 | 11 | --- | --- | 10 | | --- | --- |
| 26 | 2.1 | 12 | 7.9 | 10 | 14 | 11 | --- | --- | --- | | --- | --- |
| 27 | 6.4 | 41 | 7.7 | 9.6 | 13 | 11 | --- | --- | --- | | --- | --- |
| 28 | 25 | 25 | 8.5 | 8.8 | 13 | 11 | --- | --- | --- | | --- | --- |
| 29 | 9.6 | 13 | 8.5 | 8.9 | --- | 12 | --- | --- | --- | | --- | --- |
| 30 | 3.9 | 11 | 7.9 | 9.2 | --- | 37 | --- | --- | --- | | --- | --- |
| 31 | 2.7 | --- | 8.0 | 5.7 | --- | 20 | --- | --- | --- | | --- | --- |
| TOTAL | 98.1 | 232.3 | 301.0 | 312.3 | 598.5 | 781 | --- | --- | --- | | --- | --- |
| MEAN | 3.16 | 7.74 | 9.71 | 10.1 | 21.4 | 25.2 | --- | --- | --- | | --- | --- |
| MAX | 25 | 41 | 20 | 34 | 90 | 180 | --- | --- | --- | | --- | --- |
| MIN | 1.1 | 1.5 | 5.5 | 5.7 | 9.5 | 11 | --- | --- | --- | | --- | --- |
| CFSM | .03 | .08 | .10 | .10 | .22 | .26 | --- | --- | --- | | --- | --- |
| IN. | .04 | .09 | .11 | .12 | .23 | .30 | --- | --- | --- | | --- | --- |
| AC-FT | 195 | 461 | 597 | 619 | 1190 | 1550 | --- | --- | --- | | --- | --- |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 49012.9 | MEAN | 134 | MAX | 6280 | MIN | 1.0 | CFSM | 1.37 | IN | 18.64 | AC-FT | 97220 |
| WTR YR 1981 | TOTAL | - | MEAN | - | MAX | - | MIN | - | CFSM | - | IN | - | AC-FT | - |

NOTE.--No gage-height record Feb. 6 to Mar. 18.

## 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 (24 km) northeast of Burkeville, and at mile 156.5 (251.8 km).

DRAINAGE AREA.--7,178 mi² (18,591 km²).

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 (revised) end of spillway 1.6 mi (2.6 km) 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 was begun 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- by 28-foot (12 by 9 m) tainter gates. An 8.33- by 12-foot (2.54 by 4 m) gated conduit through the dam is used for low-flow releases. Two additional 20-inch-diameter (508 mm) conduits, which bypass the larger conduit, may also be used for low-flow releases. Water for turbines is admitted through four 16.75- by 29-foot (5.11 by 9 m) penstocks and controlled by vertically operated caterpillar-type gates. The capacity table is based on 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, 4,739,000 acre-ft (5.84 km³) Mar. 21, 1969, elevation, 173.42 ft (52.858 m); minimum since initial filling of reservoir in June 1968, 3,433,000 acre-ft (4.23 km³) Nov. 27, 1977, elevation, 165.74 ft (50.518 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 4,498,000 acre-ft (5.55 km³) July 14 at 0700 hours, elevation, 172.12 ft (52.462 m); minimum, 3,595,000 acre-ft (4.43 km³) Jan. 29, elevation, 166.79 ft (50.838 m).

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

| | | | |
|---|---|---|---|
| 166.0 | 3,473,000 | 172.0 | 4,476,000 |
| 168.0 | 3,788,000 | 173.0 | 4,660,000 |
| 170.0 | 4,123,000 | | |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3700000 | 3655000 | 3628000 | 3628000 | 3644000 | 3673000 | 3740000 | 3722000 | 3824000 | 4394000 | 4294000 | 3923000 |
| 2 | 3705000 | 3654000 | 3642000 | 3613000 | 3619000 | 3663000 | 3727000 | 3706000 | 3849000 | 4410000 | 4264000 | 3937000 |
| 3 | 3689000 | 3654000 | 3628000 | 3614000 | 3605000 | 3654000 | 3729000 | 3702000 | 3872000 | 4404000 | 4243000 | 3958000 |
| 4 | 3692000 | 3654000 | 3628000 | 3614000 | 3616000 | 3694000 | 3754000 | 3742000 | 3892000 | 4417000 | 4227000 | 3972000 |
| 5 | 3684000 | 3649000 | 3628000 | 3603000 | 3631000 | 3713000 | 3751000 | 3759000 | 4019000 | 4453000 | 4210000 | 3985000 |
| 6 | 3681000 | 3641000 | 3628000 | 3631000 | 3617000 | 3710000 | 3734000 | 3769000 | 4109000 | 4444000 | 4191000 | 3999000 |
| 7 | 3676000 | 3639000 | 3625000 | 3620000 | 3625000 | 3721000 | 3727000 | 3761000 | 4158000 | 4453000 | 4196000 | 4002000 |
| 8 | 3673000 | 3636000 | 3673000 | 3617000 | 3622000 | 3726000 | 3721000 | 3742000 | 4180000 | 4462000 | 4175000 | 4009000 |
| 9 | 3668000 | 3647000 | 3674000 | 3625000 | 3622000 | 3724000 | 3729000 | 3786000 | 4205000 | 4467000 | 4147000 | 3987000 |
| 10 | 3668000 | 3647000 | 3646000 | 3622000 | 3708000 | 3724000 | 3727000 | 3788000 | 4250000 | 4473000 | 4123000 | 3984000 |
| 11 | 3671000 | 3646000 | 3644000 | 3616000 | 3644000 | 3724000 | 3735000 | 3785000 | 4274000 | 4480000 | 4106000 | 3968000 |
| 12 | 3663000 | 3636000 | 3641000 | 3613000 | 3644000 | 3724000 | 3730000 | 3769000 | 4290000 | 4485000 | 4094000 | 3972000 |
| 13 | 3655000 | 3638000 | 3644000 | 3613000 | 3644000 | 3729000 | 3729000 | 3783000 | 4317000 | 4490000 | 4072000 | 3970000 |
| 14 | 3644000 | 3650000 | 3644000 | 3620000 | 3647000 | 3724000 | 3753000 | 3834000 | 4329000 | 4487000 | 4055000 | 3968000 |
| 15 | 3636000 | 3650000 | 3644000 | 3620000 | 3647000 | 3732000 | 3740000 | 3838000 | 4351000 | 4480000 | 4038000 | 3984000 |
| 16 | 3633000 | 3668000 | 3657000 | 3619000 | 3652000 | 3732000 | 3719000 | 3834000 | 4399000 | 4480000 | 4033000 | 4001000 |
| 17 | 3660000 | 3673000 | 3628000 | 3619000 | 3652000 | 3695000 | 3724000 | 3833000 | 4383000 | 4476000 | 4018000 | 3982000 |
| 18 | 3671000 | 3657000 | 3628000 | 3609000 | 3649000 | 3754000 | 3719000 | 3856000 | 4387000 | 4462000 | 4018000 | 3960000 |
| 19 | 3673000 | 3652000 | 3660000 | 3614000 | 3649000 | 3724000 | 3710000 | 3887000 | 4376000 | 4446000 | 4004000 | 3955000 |
| 20 | 3665000 | 3652000 | 3649000 | 3625000 | 3644000 | 3706000 | 3724000 | 3866000 | 4374000 | 4451000 | 3994000 | 3933000 |
| 21 | 3660000 | 3649000 | 3641000 | 3625000 | 3654000 | 3724000 | 3713000 | 3864000 | 4378000 | 4437000 | 3980000 | 3937000 |
| 22 | 3665000 | 3660000 | 3626000 | 3619000 | 3649000 | 3740000 | 3711000 | 3841000 | 4403000 | 4426000 | 3975000 | 3937000 |
| 23 | 3658000 | 3660000 | 3625000 | 3617000 | 3652000 | 3724000 | 3726000 | 3828000 | 4426000 | 4417000 | 3958000 | 3937000 |
| 24 | 3670000 | 3657000 | 3662000 | 3613000 | 3649000 | 3724000 | 3714000 | 3841000 | 4428000 | 4388000 | 3951000 | 3937000 |
| 25 | 3650000 | 3660000 | 3622000 | 3613000 | 3647000 | 3721000 | 3708000 | 3841000 | 4440000 | 4379000 | 3938000 | 3918000 |
| 26 | 3622000 | 3658000 | 3626000 | 3613000 | 3647000 | 3706000 | 3703000 | 3829000 | 4438000 | 4369000 | 3933000 | 3920000 |
| 27 | 3678000 | 3641000 | 3625000 | 3613000 | 3646000 | 3705000 | 3694000 | 3826000 | 4410000 | 4363000 | 3920000 | 3925000 |
| 28 | 3690000 | 3631000 | 3626000 | 3600000 | 3647000 | 3695000 | 3692000 | 3814000 | 4397000 | 4361000 | 3907000 | 3933000 |
| 29 | 3674000 | 3631000 | 3646000 | 3600000 | --- | 3729000 | 3695000 | 3805000 | 4387000 | 4338000 | 3902000 | 3925000 |
| 30 | 3666000 | 3620000 | 3623000 | 3613000 | --- | 3726000 | 3705000 | 3816000 | 4401000 | 4310000 | 3887000 | 3907000 |
| 31 | 3658000 | --- | 3625000 | 3597000 | --- | 3738000 | --- | 3824000 | --- | 4297000 | 3880000 | --- |
| MAX | 3705000 | 3673000 | 3674000 | 3631000 | 3708000 | 3754000 | 3754000 | 3887000 | 4440000 | 4490000 | 4294000 | 4009000 |
| MIN | 3622000 | 3620000 | 3622000 | 3597000 | 3605000 | 3654000 | 3692000 | 3702000 | 3824000 | 4297000 | 3880000 | 3907000 |
| (†) | 167.19 | 166.95 | 166.98 | 166.80 | 167.12 | 167.69 | 167.48 | 168.22 | 171.58 | 171.00 | 168.56 | 168.72 |
| (‡) | -53000 | -38000 | +5000 | -28000 | +50000 | +91000 | -33000 | +119000 | +577000 | -104000 | -417000 | +27000 |

CAL YR 1980 MAX 4638000 MIN 3620000 ‡ -368000
WTR YR 1981 MAX 4490000 MIN 3597000 ‡ +196000

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.

## 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 (16 km) upstream from Sabine River near Burkeville gage, and at mile 156.5 (251.8 km).

DRAINAGE AREA.--7,178 $mi^2$ (18,591 $km^2$).

### WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorders. Datum of gages is National Geodetic Vertical Datum of 1929 (levels by Sabine River Authority).

REMARKS.--Water-discharge records fair. Low flows are based on operation logs and discharge measurements and include tainter gate releases, turbine leakage, and low-flow sluiceway discharges. Discharges during turbine release periods are based on scroll case differential pressure-discharge relationships. Discharges above 16,000 $ft^3/s$ (453 $m^3/s$) usually include tainter gate releases, which are computed using tainter gate rating.

AVERAGE DISCHARGE.--10 years, 5,577 $ft^3/s$ (157.9 $m^3/s$), 4,041,000 acre-ft/yr (4.98 $km^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 67,000 $ft^3/s$ (1,900 $m^3/s$) Jan. 28, 1974; minimum daily, 30 $ft^3/s$ (0.85 $m^3/s$) estimated Oct. 1-4, 1972.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 8,160 $ft^3/s$ (231 $m^3/s$) May 27; minimum daily, 144 $ft^3/s$ (4.08 $m^3/s$) July 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 177 | 779 | 853 | 194 | 194 | 194 | 882 | 827 | 1050 | 3620 | 7320 | 169 |
| 2 | 159 | 169 | 194 | 946 | 983 | 809 | 194 | 194 | 1620 | 2730 | 7490 | 812 |
| 3 | 202 | 827 | 880 | 194 | 194 | 194 | 848 | 767 | 194 | 178 | 7210 | 739 |
| 4 | 169 | 169 | 194 | 194 | 194 | 843 | 194 | 194 | 194 | 169 | 7010 | 739 |
| 5 | 169 | 761 | 884 | 955 | 194 | 194 | 194 | 850 | 858 | 169 | 7160 | 1360 |
| 6 | 833 | 169 | 194 | 194 | 194 | 194 | 847 | 194 | 194 | 2650 | 7350 | 169 |
| 7 | 777 | 999 | 194 | 927 | 194 | 194 | 194 | 784 | 848 | 5450 | 7100 | 793 |
| 8 | 758 | 169 | 930 | 194 | 194 | 194 | 857 | 194 | 259 | 5680 | 7710 | 822 |
| 9 | 817 | 169 | 194 | 918 | 194 | 194 | 194 | 967 | 2710 | 5410 | 7520 | 745 |
| 10 | 762 | 847 | 1010 | 194 | 194 | 194 | 835 | 566 | 2840 | 5320 | 7340 | 754 |
| 11 | 169 | 169 | 194 | 194 | 194 | 194 | 194 | 775 | 194 | 169 | 7550 | 743 |
| 12 | 169 | 853 | 194 | 995 | 194 | 194 | 194 | 168 | 2590 | 169 | 7150 | 1340 |
| 13 | 800 | 198 | 194 | 194 | 194 | 194 | 740 | 768 | 194 | 2580 | 7600 | 169 |
| 14 | 169 | 887 | 194 | 878 | 194 | 194 | 194 | 169 | 194 | 6280 | 7810 | 754 |
| 15 | 1220 | 194 | 194 | 194 | 194 | 194 | 807 | 819 | 2720 | 3330 | 7770 | 753 |
| 16 | 169 | 194 | 949 | 999 | 194 | 888 | 748 | 169 | 2840 | 144 | 7610 | 773 |
| 17 | 769 | 187 | 1070 | 194 | 194 | 194 | 831 | 763 | 2800 | 5200 | 7080 | 775 |
| 18 | 169 | 855 | 665 | 194 | 835 | 1220 | 860 | 169 | 2770 | 7370 | 4640 | 854 |
| 19 | 169 | 871 | 611 | 773 | 194 | 194 | 858 | 793 | 3360 | 3660 | 4640 | 1420 |
| 20 | 169 | 194 | 194 | 194 | 831 | 803 | 835 | 311 | 194 | 3390 | 4640 | 169 |
| 21 | 169 | 1110 | 194 | 796 | 194 | 194 | 2000 | 831 | 194 | 6980 | 4370 | 804 |
| 22 | 169 | 194 | 1020 | 194 | 194 | 194 | 2100 | 1820 | 2760 | 7420 | 169 | 790 |
| 23 | 169 | 194 | 194 | 1200 | 895 | 867 | 2150 | 7350 | 3080 | 7060 | 169 | 765 |
| 24 | 921 | 1460 | 1070 | 194 | 194 | 194 | 2170 | 7100 | 2750 | 7160 | 4790 | 762 |
| 25 | 169 | 4110 | 194 | 194 | 801 | 870 | 2640 | 7180 | 4760 | 7300 | 4500 | 763 |
| 26 | 169 | 4250 | 1020 | 3190 | 194 | 194 | 2830 | 7550 | 5030 | 6040 | 4540 | 1360 |
| 27 | 841 | 194 | 194 | 2850 | 883 | 773 | 2810 | 8160 | 5140 | 7300 | 4690 | 169 |
| 28 | 169 | 795 | 194 | 2770 | 194 | 194 | 194 | 5970 | 5130 | 7140 | 4520 | 745 |
| 29 | 450 | 194 | 979 | 194 | --- | 194 | 194 | 2470 | 4740 | 7340 | 169 | 747 |
| 30 | 335 | 194 | 194 | 892 | --- | 860 | 194 | 194 | 4710 | 3740 | 169 | 745 |
| 31 | 723 | --- | 1060 | 194 | --- | 194 | --- | 194 | --- | 7210 | 169 | --- |
| TOTAL | 13079 | 22355 | 16299 | 22387 | 9496 | 12201 | 28782 | 59260 | 66917 | 138358 | 167955 | 22502 |
| MEAN | 422 | 745 | 526 | 722 | 339 | 394 | 959 | 1912 | 2231 | 4463 | 5418 | 750 |
| MAX | 1220 | 4250 | 1070 | 3190 | 983 | 1220 | 2830 | 8160 | 5140 | 7420 | 7810 | 1420 |
| MIN | 159 | 169 | 194 | 194 | 194 | 194 | 194 | 168 | 194 | 144 | 169 | 169 |
| AC-FT | 25940 | 44340 | 32330 | 44400 | 18840 | 24200 | 57090 | 117500 | 132700 | 274400 | 333100 | 44630 |

CAL YR 1980 TOTAL 1939550 MEAN 5299 MAX 35400 MIN 150 AC-FT 3847000
WTR YR 1981 TOTAL 579591 MEAN 1588 MAX 8160 MIN 144 AC-FT 1150000

08025360 SABINE RIVER AT TOLEDO BEND RESERVOIR NEAR BURKEVILLE, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | PH FIELD (UNITS) | TEMPERATURE, WATER (DEG C) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | |
| 21... | 0935 | 164 | 7.3 | 14.0 | -- | -- | 1.2 | 34 | 11 |
| JAN | | | | | | | | | |
| 22... | 1110 | 165 | 6.4 | 9.5 | 11.9 | 103 | .8 | 34 | 18 |
| MAR | | | | | | | | | |
| 18... | 1340 | 168 | 7.4 | 14.0 | 10.8 | 105 | .9 | 34 | 15 |
| MAY | | | | | | | | | |
| 28... | 1015 | 164 | 7.5 | 23.0 | 9.1 | 106 | .4 | 33 | 14 |
| JUL | | | | | | | | | |
| 30... | 0820 | 164 | 6.7 | 25.5 | 4.4 | 53 | .2 | 31 | 8 |
| SEP | | | | | | | | | |
| 23... | 0825 | 166 | 6.5 | 20.0 | 3.6 | 39 | .7 | 33 | 11 |

| DATE | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) |
|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | |
| 21... | 8.0 | 3.3 | 17 | 1.3 | 3.3 | 22 | 21 | 24 | .1 |
| JAN | | | | | | | | | |
| 22... | 8.3 | 3.2 | 18 | 1.3 | 2.7 | 16 | 21 | 26 | .1 |
| MAR | | | | | | | | | |
| 18... | 8.2 | 3.2 | 18 | 1.4 | 4.7 | 19 | 22 | 23 | .1 |
| MAY | | | | | | | | | |
| 28... | 8.1 | 3.1 | 17 | 1.3 | 2.8 | 19 | 21 | 23 | .1 |
| JUL | | | | | | | | | |
| 30... | 7.5 | 3.0 | 17 | 1.4 | 2.8 | 23 | 14 | 22 | .4 |
| SEP | | | | | | | | | |
| 23... | 7.9 | 3.1 | 17 | 1.4 | 3.0 | 22 | 15 | 27 | .1 |

| DATE | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NITRATE TOTAL (MG/L AS N) | NITROGEN, NITRITE TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | |
| 21... | 6.9 | 95 | .00 | .000 | .00 | .010 | .62 | .63 | .090 |
| JAN | | | | | | | | | |
| 22... | 7.8 | 97 | .12 | .000 | .12 | .090 | .64 | .73 | .050 |
| MAR | | | | | | | | | |
| 18... | 6.9 | 97 | .09 | .010 | .10 | .070 | .42 | .49 | .020 |
| MAY | | | | | | | | | |
| 28... | 6.0 | 93 | .03 | .000 | .03 | .060 | .49 | .55 | .020 |
| JUL | | | | | | | | | |
| 30... | 7.6 | 88 | .10 | .020 | .12 | .160 | .94 | 1.1 | .050 |
| SEP | | | | | | | | | |
| 23... | 7.0 | 93 | .09 | .020 | .11 | .110 | .74 | .85 | .030 |

## 08026000 SABINE RIVER NEAR BURKEVILLE, TX

LOCATION.--Lat 31°03'50", long 93°31'10", Newton County, Texas-Vernon Parish, Lousiana State line, Hydrologic Unit 12010005, near left edge of low-water channel at downstream side of bridge on State Highway 63, about 200 ft (61 m) downstream from Pearl Creek, 10 mi (16 km) northeast of Burkeville, 16 mi (26 km) downstream from Bayou Toro, and at mile 139.7 (224.8 km).

DRAINAGE AREA.--7,482 $mi^2$ (19,378 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1955 to current year. Published as "below Toledo Bend near Burkeville" for period 1955-75.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 70.59 ft (21.516 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 23, 1958, nonrecording gage at same site and datum.

REMARKS.--Water-discharge records good. Flow regulated by Toledo Bend Reservoir (station 08025350) 16.8 mi (27.0 km) upstream, capacity 4,660,000 acre-ft (5.75 $km^3$).

AVERAGE DISCHARGE.--11 years (water years 1956-66) prior to completion of Toledo Bend Reservoir, 4,653 $ft^3/s$ (131.8 $m^3/s$), 3,371,000 acre-ft/yr (4.16 $km^3/yr$); 15 years (water years 1967-81) regulated, 5,031 $ft^3/s$ (142.5 $m^3/s$), 3,645,000 acre-ft/yr (4.49 $km^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 80,600 $ft^3/s$ (2,280 $m^3/s$) Jan. 29, 1974, gage height, 34.20 ft (10.424 m); minimum daily, 38 $ft^3/s$ (1.08 $m^3/s$) Sept. 14, 15, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1860, 35.9 ft (10.94 m) in May 1884, from information by local resident. Flood of Apr. 15, 1945, reached a stage of 35.8 ft (10.91 m), and flood of May 23, 1953, reached a stage of 35.3 ft (10.76 m), from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,500 $ft^3/s$ (326 $m^3/s$) Aug. 10 at 2200 hours, gage height, 15.83 ft (4.825 m); minimum daily, 216 $ft^3/s$ (6.12 $m^3/s$) Apr. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 378 | 903 | 558 | 407 | 325 | 250 | 745 | 670 | 690 | 4150 | 7180 | 269 |
| 2 | 273 | 262 | 614 | 799 | 898 | 789 | 360 | 414 | 872 | 3370 | 7270 | 780 |
| 3 | 239 | 521 | 780 | 395 | 414 | 365 | 706 | 718 | 1080 | 1820 | 7110 | 822 |
| 4 | 265 | 531 | 371 | 262 | 290 | 1440 | 355 | 580 | 414 | 379 | 6920 | 1090 |
| 5 | 265 | 525 | 778 | 781 | 295 | 1190 | 239 | 2370 | 1810 | 359 | 7100 | 1450 |
| 6 | 479 | 524 | 371 | 398 | 352 | 694 | 687 | 1260 | 3280 | 2250 | 7190 | 564 |
| 7 | 849 | 533 | 267 | 876 | 348 | 485 | 334 | 1030 | 3510 | 4220 | 7040 | 474 |
| 8 | 834 | 532 | 775 | 432 | 313 | 373 | 697 | 431 | 2820 | 5430 | 7280 | 858 |
| 9 | 834 | 234 | 481 | 850 | 300 | 323 | 337 | 886 | 2010 | 5380 | 7220 | 835 |
| 10 | 855 | 528 | 902 | 425 | 301 | 297 | 676 | 798 | 2890 | 5180 | 7310 | 812 |
| 11 | 631 | 537 | 439 | 282 | 291 | 284 | 324 | 975 | 2900 | 3180 | 7320 | 820 |
| 12 | 245 | 516 | 297 | 849 | 275 | 273 | 216 | 352 | 2900 | 515 | 6990 | 1280 |
| 13 | 385 | 528 | 285 | 416 | 272 | 274 | 264 | 683 | 1470 | 1390 | 7310 | 695 |
| 14 | 709 | 668 | 273 | 836 | 271 | 270 | 685 | 313 | 467 | 4510 | 7330 | 501 |
| 15 | 1070 | 448 | 266 | 410 | 268 | 264 | 653 | 689 | 1700 | 4840 | 7430 | 1130 |
| 16 | 497 | 327 | 778 | 835 | 265 | 732 | 656 | 407 | 2310 | 1810 | 7310 | 1010 |
| 17 | 569 | 445 | 972 | 391 | 262 | 351 | 843 | 1210 | 2890 | 2510 | 6980 | 889 |
| 18 | 696 | 619 | 657 | 242 | 807 | 788 | 779 | 597 | 2330 | 6600 | 5110 | 840 |
| 19 | 447 | 1160 | 738 | 727 | 373 | 346 | 782 | 832 | 2930 | 7020 | 4290 | 1290 |
| 20 | 320 | 486 | 337 | 475 | 807 | 682 | 767 | 397 | 1680 | 5160 | 4290 | 596 |
| 21 | 276 | 968 | 260 | 818 | 378 | 353 | 1550 | 587 | 320 | 5070 | 4240 | 506 |
| 22 | 248 | 610 | 823 | 423 | 271 | 279 | 1880 | 588 | 1330 | 6950 | 2130 | 776 |
| 23 | 236 | 377 | 406 | 832 | 789 | 735 | 2020 | 5620 | 2620 | 7010 | 325 | 843 |
| 24 | 444 | 1280 | 866 | 424 | 366 | 366 | 2040 | 6600 | 2550 | 6980 | 2440 | 853 |
| 25 | 639 | 1480 | 389 | 294 | 780 | 732 | 2360 | 6540 | 2950 | 6920 | 4260 | 849 |
| 26 | 229 | 5770 | 821 | 2170 | 367 | 360 | 2480 | 6830 | 5160 | 6020 | 4220 | 1360 |
| 27 | 480 | 1340 | 393 | 2710 | 786 | 705 | 2510 | 7710 | 4810 | 6700 | 4300 | 561 |
| 28 | 806 | 879 | 254 | 2740 | 364 | 349 | 820 | 5740 | 5280 | 7140 | 4380 | 586 |
| 29 | 386 | 431 | 815 | 849 | --- | 253 | 247 | 4770 | 3870 | 7180 | 2170 | 818 |
| 30 | 537 | 315 | 398 | 855 | --- | 731 | 228 | 547 | 4500 | 7300 | 319 | 837 |
| 31 | 319 | --- | 838 | 394 | --- | 368 | --- | 256 | --- | 7120 | 260 | --- |
| TOTAL | 15440 | 24277 | 17202 | 23597 | 11828 | 15701 | 27240 | 61400 | 74343 | 144463 | 165024 | 24994 |
| MEAN | 498 | 809 | 555 | 761 | 422 | 506 | 908 | 1981 | 2478 | 4660 | 5323 | 833 |
| MAX | 1070 | 5770 | 972 | 2740 | 898 | 1440 | 2510 | 7710 | 5280 | 7300 | 7430 | 1450 |
| MIN | 229 | 234 | 254 | 242 | 262 | 250 | 216 | 256 | 320 | 359 | 260 | 269 |
| AC-FT | 30630 | 48150 | 34120 | 46800 | 23460 | 31140 | 54030 | 121800 | 147500 | 286500 | 327300 | 49580 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 2030232 | MEAN | 5547 | MAX | 35300 | MIN | 229 | AC-FT | 4027000 |
| WTR YR 1981 | TOTAL | 605509 | MEAN | 1659 | MAX | 7710 | MIN | 216 | AC-FT | 1201000 |

08026000 SABINE RIVER NEAR BURKEVILLE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: May 1968 to current year. Pesticide analyses: October 1972 to September 1981 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: May 1968 to current year.
WATER TEMPERATURES: May 1968 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, 352 micromhos Mar. 15, 16, 1973; minimum, 31 micromhos Dec. 7, 1975, Jan. 24, Feb. 1, 1978.
WATER TEMPERATURES: Maximum, 32.0°C Aug. 20, 1975, and May 28, 1981; minimum, 4.5°C Feb. 1, 1977.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 175 micromhos July 5; minimum daily, 48 micromhos June 6.
WATER TEMPERATURES: Maximum daily, 32.0°C May 28; minimum daily, 6.0°C Jan. 19, 21, Feb. 5, 12.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (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 (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 20... | 1435 | 402 | 160 | 6.7 | 12.0 | 20 | 2.3 | -- | -- | .5 | 30 |
| JAN | | | | | | | | | | | |
| 22... | 1400 | 348 | 114 | 6.8 | 8.5 | 30 | .20 | 13.4 | 114 | .7 | 36 |
| FEB | | | | | | | | | | | |
| 10... | 1530 | 305 | 122 | -- | 15.0 | -- | -- | -- | -- | -- | 25 |
| MAR | | | | | | | | | | | |
| 18... | 1010 | 370 | 158 | 7.4 | 15.0 | 5 | 7.1 | 10.4 | 103 | 1.4 | 32 |
| MAY | | | | | | | | | | | |
| 28... | 1440 | 5540 | 158 | 7.2 | 21.0 | 5 | 5.4 | 10.0 | 111 | .5 | 34 |
| JUL | | | | | | | | | | | |
| 30... | 1245 | 4880 | 152 | 6.9 | 28.0 | 5 | 4.0 | 7.1 | 89 | .5 | 30 |
| SEP | | | | | | | | | | | |
| 22... | 1430 | 326 | 160 | 6.4 | 25.0 | 5 | 2.4 | 8.8 | 105 | .3 | 31 |

| DATE | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 20... | 13 | 7.7 | 2.7 | 16 | 1.3 | 3.2 | 17 | 21 | 22 | .1 | 8.6 |
| JAN | | | | | | | | | | | |
| 22... | 17 | 11 | 2.0 | 11 | .8 | 2.1 | 19 | 15 | 15 | .1 | 10 |
| FEB | | | | | | | | | | | |
| 10... | 16 | 6.2 | 2.3 | 13 | 1.1 | 2.3 | 9 | 18 | 20 | .1 | 13 |
| MAR | | | | | | | | | | | |
| 18... | 11 | 7.9 | 2.9 | 16 | 1.2 | 2.8 | 21 | 20 | 18 | .1 | 9.3 |
| MAY | | | | | | | | | | | |
| 28... | 16 | 8.3 | 3.1 | 17 | 1.3 | 2.8 | 18 | 21 | 22 | .1 | 6.6 |
| JUL | | | | | | | | | | | |
| 30... | 10 | 7.2 | 2.9 | 15 | 1.3 | 2.8 | 20 | 16 | 21 | .4 | 6.3 |
| SEP | | | | | | | | | | | |
| 22... | 0 | 7.2 | 3.1 | 16 | 1.4 | 3.1 | 32 | -- | 21 | .1 | 6.5 |

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (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) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 20... | 91 | 0 | 0 | .00 | .000 | .00 | .010 | .61 | .62 | .040 | 5.6 |
| JAN | | | | | | | | | | | |
| 22... | 78 | 11 | 4 | .11 | .010 | .12 | .030 | .62 | .65 | .030 | 6.2 |
| FEB | | | | | | | | | | | |
| 10... | 80 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | | |
| 18... | 90 | 2 | 0 | .03 | .000 | .03 | .030 | .77 | .80 | .200 | 6.4 |
| MAY | | | | | | | | | | | |
| 28... | 92 | 12 | 5 | .03 | .000 | .03 | .110 | .61 | .72 | .030 | 22 |
| JUL | | | | | | | | | | | |
| 30... | 84 | 7 | 4 | .11 | .020 | .13 | .230 | .68 | .91 | .030 | 4.6 |
| SEP | | | | | | | | | | | |
| 22... | -- | 10 | 2 | .10 | .030 | .13 | .100 | .49 | .59 | .020 | 5.8 |

08026000 SABINE RIVER NEAR BURKEVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | ARSENIC DIS- SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| NOV | | | | | | | |
| 20... | 1435 | 0 | 50 | 2 | 0 | <10 | 90 |
| MAY | | | | | | | |
| 28... | 1440 | 1 | 50 | <1 | 10 | <10 | <10 |
| JUL | | | | | | | |
| 30... | 1245 | 0 | 50 | <1 | 0 | <10 | 70 |

| DATE | 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 | | | | | | |
| 20... | <10 | 140 | 2.5 | 0 | 0 | 30 |
| MAY | | | | | | |
| 28... | <10 | 20 | .1 | 0 | 0 | 6 |
| JUL | | | | | | |
| 30... | <10 | 32 | .3 | 0 | 0 | 7 |

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT- ANCE (MICRO- MHOS) | DIS- SOLVED SOLIDS (MG/L) | DIS- SOLVED SOLIDS (TONS) | DIS- SOLVED CHLORIDE (MG/L) | DIS- SOLVED CHLORIDE (TONS) | DIS- SOLVED SULFATE (MG/L) | DIS- SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 15440 | 152 | 84 | 3510 | 21 | 886 | 14 | 602 | 32 |
| NOV. | 1980 | 24277 | 150 | 83 | 5450 | 21 | 1370 | 14 | 939 | 32 |
| DEC. | 1980 | 17202 | 150 | 83 | 3870 | 21 | 977 | 14 | 666 | 32 |
| JAN. | 1981 | 23597 | 155 | 86 | 5450 | 22 | 1380 | 15 | 931 | 33 |
| FEB. | 1981 | 11828 | 147 | 82 | 2610 | 21 | 655 | 14 | 452 | 31 |
| MAR. | 1981 | 15701 | 139 | 78 | 3290 | 19 | 820 | 14 | 575 | 29 |
| APR. | 1981 | 27240 | 160 | 88 | 6480 | 22 | 1650 | 15 | 1100 | 34 |
| MAY | 1981 | 61400 | 152 | 84 | 14000 | 21 | 3540 | 14 | 2400 | 32 |
| JUNE | 1981 | 74343 | 135 | 76 | 15200 | 19 | 3780 | 13 | 2650 | 29 |
| JULY | 1981 | 144463 | 146 | 82 | 31800 | 20 | 7980 | 14 | 5500 | 31 |
| AUG. | 1981 | 165024 | 154 | 85 | 38100 | 22 | 9640 | 15 | 6510 | 33 |
| SEPT | 1981 | 24994 | 152 | 84 | 5670 | 21 | 1430 | 14 | 974 | 32 |
| TOTAL | | 605509 | ** | ** | 135000 | ** | 34100 | ** | 23300 | ** |
| WTD. AVG. | | 1659 | 149 | 83 | ** | 21 | ** | 14 | ** | 32 |

08026000 SABINE RIVER NEAR BURKEVILLE, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 153 | 160 | 138 | 150 | 157 | 156 | 158 | 152 | 154 | 154 | 152 | 145 |
| 2 | 153 | 147 | 154 | 160 | 157 | 168 | 151 | 156 | 154 | 151 | 155 | 148 |
| 3 | 152 | 148 | 155 | 161 | 148 | 150 | 152 | 140 | 131 | 155 | 155 | 148 |
| 4 | 153 | 157 | 151 | 160 | 148 | 95 | 155 | 158 | 140 | 170 | 154 | 117 |
| 5 | 151 | 157 | 152 | 147 | 138 | 101 | 156 | 107 | 75 | 175 | 154 | 148 |
| 6 | 155 | 158 | 147 | 148 | 135 | 105 | 156 | 139 | 48 | 100 | 154 | 148 |
| 7 | 162 | 156 | 148 | 148 | 145 | 119 | 157 | 120 | 58 | 110 | 154 | 147 |
| 8 | 161 | 153 | 113 | 148 | 135 | 123 | 154 | 140 | 80 | 129 | 157 | 155 |
| 9 | 160 | 147 | 114 | 156 | 121 | 133 | 152 | 139 | 139 | 151 | 156 | 154 |
| 10 | 160 | 148 | 154 | 143 | 122 | 136 | 155 | 144 | 138 | 149 | 153 | 154 |
| 11 | 159 | 154 | 152 | 149 | 121 | 124 | 159 | 141 | 142 | 150 | 153 | 154 |
| 12 | 157 | 156 | 140 | 153 | 134 | 136 | 149 | 150 | 149 | 153 | 152 | 154 |
| 13 | 155 | 155 | 138 | 152 | 139 | 136 | 150 | 141 | 160 | 156 | 153 | 153 |
| 14 | 161 | 135 | 137 | 150 | 147 | 137 | 160 | 145 | 160 | 112 | 153 | 155 |
| 15 | 161 | 121 | 135 | 153 | 141 | 157 | 159 | 159 | 160 | 99 | 154 | 151 |
| 16 | 165 | 104 | 158 | 158 | 136 | 155 | 162 | 130 | 154 | 145 | 153 | 150 |
| 17 | 158 | 131 | 159 | 150 | 140 | 157 | 160 | 114 | 155 | 147 | 155 | 153 |
| 18 | 135 | 130 | 161 | 140 | 140 | 159 | 160 | 130 | 154 | 153 | 157 | 150 |
| 19 | 125 | 154 | 153 | 131 | 145 | 159 | 162 | 149 | 147 | 153 | 155 | 154 |
| 20 | 112 | 156 | 153 | 121 | 157 | 155 | 160 | 150 | 146 | 154 | 154 | 154 |
| 21 | 120 | 147 | 159 | 141 | 143 | 145 | 163 | 160 | 146 | 155 | 154 | 153 |
| 22 | 132 | 155 | 159 | 153 | 143 | 147 | 162 | 142 | 146 | 155 | 156 | 154 |
| 23 | 141 | 127 | 151 | 150 | 160 | 154 | 163 | 160 | 154 | 154 | 158 | 156 |
| 24 | 142 | 160 | 158 | 158 | 156 | 151 | 164 | 159 | 155 | 153 | 157 | 157 |
| 25 | 159 | 150 | 157 | 165 | 154 | 154 | 161 | 159 | 150 | 153 | 155 | 158 |
| 26 | 159 | 153 | 156 | 165 | 160 | 152 | 160 | 159 | 135 | 153 | 154 | 156 |
| 27 | 144 | 152 | 160 | 165 | 155 | 152 | 163 | 159 | 145 | 152 | 156 | 156 |
| 28 | 144 | 145 | 160 | 165 | 154 | 153 | 155 | 160 | 150 | 152 | 156 | 156 |
| 29 | 144 | 154 | 150 | 154 | --- | 146 | 157 | 154 | 153 | 150 | 158 | 156 |
| 30 | 142 | 137 | 150 | 152 | --- | 156 | 150 | 153 | 154 | 150 | 155 | 157 |
| 31 | 160 | --- | 155 | 150 | --- | 152 | --- | 155 | --- | 154 | 150 | --- |
| MEAN | 150 | 147 | 149 | 151 | 144 | 143 | 158 | 146 | 138 | 147 | 155 | 152 |

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 26.0 | 16.0 | 22.0 | 15.5 | 9.5 | 14.0 | 19.5 | 24.0 | 29.0 | --- | --- | 28.0 |
| 2 | 26.5 | 17.0 | 22.0 | 11.0 | 7.0 | 15.5 | 17.0 | 23.0 | 28.0 | --- | 29.0 | 27.0 |
| 3 | 24.5 | 18.0 | 21.5 | 16.5 | 9.5 | 13.0 | 19.0 | 23.5 | 29.5 | --- | 31.0 | 26.0 |
| 4 | 25.5 | 18.0 | 22.0 | 11.0 | 7.0 | 17.0 | 18.5 | 21.5 | 25.0 | --- | --- | 25.0 |
| 5 | 26.0 | 18.0 | 23.0 | 9.5 | 6.0 | 16.0 | 19.5 | 23.0 | 27.5 | --- | 30.0 | 27.0 |
| 6 | 24.0 | 18.5 | 25.0 | 9.0 | 6.5 | 15.0 | 17.5 | 25.0 | 25.5 | 29.0 | 29.0 | 29.0 |
| 7 | 23.0 | 18.5 | 26.5 | 10.0 | 8.0 | 12.5 | 18.0 | 24.0 | 29.5 | 27.0 | 29.0 | 27.0 |
| 8 | 24.0 | 19.0 | 26.0 | 9.5 | 7.0 | 14.5 | 19.5 | 25.5 | 28.0 | 28.0 | 29.0 | 27.5 |
| 9 | 23.5 | 19.5 | 21.5 | 9.0 | 8.5 | 14.0 | 20.0 | 25.0 | 29.0 | 30.0 | 28.0 | 26.0 |
| 10 | 23.5 | 20.0 | 20.5 | 8.5 | 15.0 | 15.0 | 21.0 | 22.0 | 27.0 | 29.0 | 28.5 | 25.0 |
| 11 | 23.5 | 20.0 | 22.5 | 8.0 | 6.5 | 16.5 | 19.5 | 20.0 | 25.5 | 30.0 | 28.5 | 24.5 |
| 12 | 23.0 | 19.5 | 20.0 | 8.0 | 6.0 | 15.0 | 19.5 | 24.0 | 27.0 | 29.0 | 29.0 | 24.5 |
| 13 | 25.0 | 18.0 | 20.5 | 8.0 | 8.0 | 16.0 | 21.0 | 26.0 | 28.5 | 29.0 | 29.0 | 28.0 |
| 14 | 21.0 | --- | 20.0 | 8.5 | 7.5 | 17.5 | 21.5 | --- | 27.0 | 28.5 | 29.0 | 28.0 |
| 15 | 20.0 | 17.5 | 20.0 | 9.0 | 10.0 | 17.0 | 21.0 | 25.5 | 24.5 | 28.5 | 29.0 | 27.0 |
| 16 | 23.0 | 15.5 | 21.0 | 8.5 | 9.5 | 16.5 | 22.0 | --- | 26.0 | 29.5 | 31.0 | 24.0 |
| 17 | 24.0 | 13.0 | 19.5 | 6.5 | 11.0 | 15.5 | 23.0 | 27.0 | 28.0 | 28.0 | 30.5 | 24.0 |
| 18 | 23.0 | 13.5 | 18.5 | 7.0 | 14.0 | 13.0 | 21.0 | 28.0 | 30.0 | 30.0 | 28.0 | 24.0 |
| 19 | 21.0 | 14.0 | 16.0 | 6.0 | 15.0 | 14.0 | 19.5 | 24.0 | 29.0 | 29.0 | 20.0 | 23.0 |
| 20 | 20.0 | 14.5 | 10.0 | 6.5 | 16.0 | 15.0 | 21.0 | 21.0 | 31.0 | 28.0 | 29.0 | 26.0 |
| 21 | 20.0 | --- | 10.5 | 6.0 | 16.0 | 16.0 | 22.0 | 25.0 | 31.5 | 31.0 | 29.0 | 23.0 |
| 22 | 20.0 | 22.5 | 11.0 | 7.0 | 17.0 | 15.0 | 22.5 | 27.5 | 29.0 | 30.0 | 29.5 | 24.0 |
| 23 | 19.5 | 23.5 | 11.5 | 7.5 | 12.0 | 14.5 | 24.0 | 23.0 | --- | 30.0 | 30.0 | --- |
| 24 | 18.0 | 19.5 | 11.5 | 9.0 | 15.5 | 16.5 | 21.0 | 29.0 | --- | 30.0 | 28.5 | 24.0 |
| 25 | 18.0 | 21.5 | 10.0 | 10.0 | 15.5 | 15.5 | 22.0 | 15.5 | --- | 31.0 | 29.0 | 25.0 |
| 26 | 18.0 | 20.0 | 12.0 | 10.5 | 17.0 | 17.0 | 21.0 | 26.0 | --- | 29.0 | 29.0 | 24.0 |
| 27 | 18.0 | 29.5 | 12.5 | 8.5 | 17.5 | 19.0 | 23.5 | 30.5 | --- | 30.0 | 28.0 | 25.0 |
| 28 | 17.0 | 17.5 | 13.0 | 10.0 | 16.0 | 18.0 | 24.0 | 32.0 | --- | 28.0 | --- | 25.0 |
| 29 | 15.0 | 26.5 | 14.5 | 11.0 | --- | 18.5 | 25.0 | 30.0 | --- | 30.0 | 28.5 | 25.0 |
| 30 | 15.0 | 28.5 | 14.0 | --- | --- | 18.5 | 23.5 | 27.0 | --- | 29.0 | 29.0 | 25.0 |
| 31 | --- | --- | 15.0 | 9.0 | --- | 18.0 | --- | 27.0 | --- | 30.0 | 27.0 | --- |
| MEAN | 21.5 | 19.0 | 18.0 | 9.0 | 11.0 | 16.0 | 21.0 | 25.0 | 28.0 | 29.5 | 28.5 | 25.5 |

## 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 (1.1 km) upstream from Quicksand Creek, 0.8 mi (1.3 km) upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 2.0 mi (3.2 km) east of Bon Wier, 2.4 mi (3.9 km) upstream from Caney Creek, and at mile 97.7 (157.2 km).

DRAINAGE AREA.--8,229 $mi^2$ (21,313 $km^2$).

### 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 43.42 ft (13.234 m) National Geodetic Vertical Datum of 1929. Prior to July 8, 1931, nonrecording gage at site 0.8 mi (1.3 km) downstream at datum 3.00 ft (0.914 m) higher. July 8, 1931, to Oct. 15, 1958, nonrecording gage at present site at datum 3.00 ft (0.914 m) higher. Oct. 16, 1958, to Sept. 30, 1975, water-stage recorder at present site at datum 3.00 ft (0.914 m) higher.

REMARKS.--Water-discharge records fair. Flow regulated by Toledo Bend Reservoir (station 08025350) located 58.8 mi (94.6 km) upstream. Gage-height telemeter at station.

AVERAGE DISCHARGE.--43 years (water years 1924-66) prior to completion of Toledo Bend Reservoir, 6,846 $ft^3/s$ (193.9 $m^3/s$), 4,960,000 acre-ft/yr (6.12 $km^3/yr$); 15 years (water years 1967-81) regulated, 6,011 $ft^3/s$ (170.2 $m^3/s$), 4,355,000 acre-ft/yr (5.37 $km^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 115,000 $ft^3/s$ (3,260 $m^3/s$) May 19, 1953, gage height, 28.70 ft (8.748 m); minimum daily, 134 $ft^3/s$ (3.79 $m^3/s$) Nov. 9, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1833, 33.5 ft (10.21 m) Apr. 23 or 24, 1913, from information by Gulf, Colorado, and Santa Fe Railway Co. and local residents. Flood in May 1884 reached a stage of 29 ft (8.8 m). Floods occurring about 1844 and 1860 were higher than flood in May 1884, from information by local residents. All flood data referenced to current datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,100 $ft^3/s$ (286 $m^3/s$) June 6 at 1600 hours, gage height, 12.62 ft (3.847 m); minimum daily, 462 $ft^3/s$ (13.1 $m^3/s$) Dec. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2070 | 742 | 707 | 854 | 1190 | 770 | 1040 | 700 | 731 | 5000 | 7700 | 708 |
| 2 | 813 | 1070 | 806 | 738 | 3190 | 554 | 1090 | 950 | 948 | 4570 | 7770 | 721 |
| 3 | 620 | 651 | 942 | 830 | 3670 | 873 | 970 | 850 | 1470 | 4280 | 7820 | 1120 |
| 4 | 537 | 694 | 947 | 738 | 2210 | 1330 | 1040 | 950 | 2070 | 2330 | 7660 | 1470 |
| 5 | 525 | 858 | 783 | 479 | 1320 | 5880 | 963 | 850 | 3010 | 1110 | 7540 | 1480 |
| 6 | 510 | 702 | 897 | 716 | 1060 | 4400 | 715 | 2500 | 9350 | 1810 | 7730 | 1730 |
| 7 | 612 | 849 | 760 | 672 | 1160 | 2460 | 969 | 1800 | 8240 | 4630 | 7800 | 993 |
| 8 | 962 | 694 | 570 | 927 | 1080 | 1590 | 924 | 1640 | 7400 | 6630 | 7680 | 795 |
| 9 | 962 | 849 | 978 | 806 | 928 | 1250 | 956 | 1090 | 4590 | 6760 | 7860 | 1070 |
| 10 | 952 | 544 | 1160 | 952 | 832 | 1060 | 923 | 1200 | 3590 | 6390 | 7980 | 1060 |
| 11 | 957 | 634 | 1350 | 806 | 775 | 931 | 931 | 1290 | 4400 | 6140 | 7920 | 1040 |
| 12 | 811 | 834 | 1020 | 551 | 741 | 862 | 899 | 1330 | 3430 | 3220 | 7900 | 1040 |
| 13 | 483 | 655 | 738 | 783 | 674 | 827 | 638 | 968 | 3300 | 1440 | 7650 | 1420 |
| 14 | 507 | 830 | 660 | 672 | 636 | 815 | 631 | 1010 | 2330 | 2440 | 7920 | 1080 |
| 15 | 788 | 792 | 614 | 830 | 618 | 793 | 1010 | 874 | 1270 | 5570 | 7940 | 939 |
| 16 | 993 | 883 | 578 | 694 | 616 | 756 | 918 | 1030 | 2300 | 4920 | 7980 | 1410 |
| 17 | 769 | 932 | 878 | 878 | 593 | 1050 | 1020 | 1290 | 3010 | 2010 | 7860 | 1260 |
| 18 | 962 | 1220 | 1080 | 760 | 580 | 936 | 1230 | 1860 | 3380 | 3710 | 7290 | 1140 |
| 19 | 1220 | 1280 | 783 | 533 | 928 | 1070 | 1170 | 1410 | 2920 | 7030 | 5460 | 1070 |
| 20 | 932 | 1550 | 854 | 854 | 783 | 924 | 1180 | 1300 | 3380 | 7360 | 4820 | 1440 |
| 21 | 694 | 1040 | 672 | 1120 | 931 | 989 | 1160 | 1000 | 1830 | 5150 | 4770 | 957 |
| 22 | 578 | 1230 | 462 | 1200 | 789 | 981 | 1860 | 876 | 782 | 6170 | 4680 | 784 |
| 23 | 533 | 1160 | 783 | 943 | 603 | 859 | 2450 | 1410 | 1740 | 7300 | 2200 | 1020 |
| 24 | 504 | 937 | 760 | 1010 | 923 | 1120 | 2830 | 6230 | 2910 | 7380 | 922 | 1030 |
| 25 | 578 | 1550 | 902 | 863 | 772 | 986 | 2980 | 7260 | 2910 | 7300 | 3080 | 1030 |
| 26 | 849 | 2700 | 694 | 624 | 888 | 1060 | 3150 | 7350 | 3870 | 7280 | 4570 | 1020 |
| 27 | 544 | 5260 | 830 | 2050 | 775 | 946 | 3190 | 7680 | 5440 | 6530 | 4600 | 1450 |
| 28 | 863 | 1860 | 738 | 2860 | 888 | 1010 | 3180 | 7980 | 5390 | 7620 | 4660 | 910 |
| 29 | 1320 | 1210 | 806 | 2920 | --- | 921 | 1480 | 6850 | 5600 | 7710 | 4720 | 724 |
| 30 | 878 | 907 | 1030 | 1310 | --- | 751 | 800 | 4420 | 4760 | 7720 | 2140 | 972 |
| 31 | 883 | --- | 694 | 1020 | --- | 1170 | --- | 1220 | --- | 7730 | 840 | --- |
| TOTAL | 25209 | 35117 | 25476 | 30993 | 30153 | 39924 | 42297 | 77168 | 106351 | 165240 | 187462 | 32883 |
| MEAN | 813 | 1171 | 822 | 1000 | 1077 | 1288 | 1410 | 2489 | 3545 | 5330 | 6047 | 1096 |
| MAX | 2070 | 5260 | 1350 | 2920 | 3670 | 5880 | 3190 | 7980 | 9350 | 7730 | 7980 | 1730 |
| MIN | 483 | 544 | 462 | 479 | 580 | 554 | 631 | 700 | 731 | 1110 | 840 | 708 |
| AC-FT | 50000 | 69650 | 50530 | 61470 | 59810 | 79190 | 83900 | 153100 | 210900 | 327800 | 371800 | 65220 |

CAL YR 1980 TOTAL 2452674 MEAN 6701 MAX 36700 MIN 462 AC-FT 4865000
WTR YR 1981 TOTAL 798273 MEAN 2187 MAX 9350 MIN 462 AC-FT 1583000

08028500 SABINE RIVER NEAR BON WEIR, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: January 1970 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1970 to current year.
WATER TEMPERATURES: January 1970 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 407 micromhos Aug. 31, 1978; minimum daily, 36 micromhos May 1, 1973.
WATER TEMPERATURES: Maximum daily, 33.0°C July 17, 1978, and July 14, 26, 1980; minimum daily, 4.0°C Feb. 2, 1980.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 302 micromhos May 22; minimum daily, 77 micromhos Feb. 2.
WATER TEMPERATURES: Maximum daily, 32.0°C July 17, 23; minimum daily, 8.0°C Jan. 18, 24, Feb. 12.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | 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 | | | | | | | |
| 07... | 1840 | 769 | 231 | 23.0 | -- | 28 | 24 |
| 14... | 1710 | 486 | 224 | 24.0 | -- | 28 | 25 |
| 21... | 1730 | 655 | 191 | 20.0 | -- | 13 | 29 |
| 28... | 0920 | 610 | 215 | 17.0 | -- | 27 | 22 |
| NOV | | | | | | | |
| 07... | 1000 | 888 | 190 | 18.0 | 60 | 29 | 23 |
| 14... | 1650 | 720 | 247 | 28.0 | 70 | 26 | 24 |
| 21... | 1530 | 937 | 252 | 11.0 | 120 | 46 | 28 |
| 28... | 1700 | 1380 | 195 | 13.0 | 60 | 30 | 28 |
| DEC | | | | | | | |
| 07... | 1020 | 765 | 195 | 17.0 | 60 | 35 | 21 |
| 14... | 1030 | 660 | 236 | 13.0 | 120 | 38 | 22 |
| 21... | 1155 | 660 | 203 | 9.0 | 70 | 37 | 22 |
| 28... | 1030 | 747 | 174 | 10.0 | 60 | 27 | 21 |
| JAN | | | | | | | |
| 07... | 1330 | 643 | 211 | 12.0 | 80 | 37 | 21 |
| 14... | 1510 | 618 | 194 | 12.0 | 60 | 30 | 21 |
| 21... | 1230 | 1040 | 208 | 9.0 | 120 | 36 | 20 |
| 28... | 1900 | 2730 | 174 | 12.0 | 100 | 26 | 22 |
| FEB | | | | | | | |
| 07... | 0955 | 1160 | 208 | 10.0 | 140 | 36 | 19 |
| 14... | 1050 | 634 | 203 | 9.0 | 120 | 30 | 23 |
| 21... | 0840 | 830 | 203 | 18.0 | 100 | 33 | 20 |
| 28... | 0945 | 816 | 197 | 18.0 | 70 | 30 | 37 |
| MAR | | | | | | | |
| 07... | 0915 | 2580 | 130 | 15.0 | 140 | 20 | 12 |
| 14... | 1100 | 816 | 182 | 19.0 | 140 | 33 | 28 |
| 21... | 0845 | 811 | 196 | 15.0 | 100 | 31 | 20 |
| 28... | 0950 | 912 | 212 | 18.0 | 60 | 34 | 21 |
| APR | | | | | | | |
| 07... | 1730 | 1230 | 196 | 19.0 | 50 | 38 | 24 |
| 14... | 1745 | 606 | 205 | 26.0 | 60 | 32 | 23 |
| 21... | 1810 | 1280 | 186 | 25.0 | 40 | 28 | 26 |
| 28... | 1810 | 3380 | 178 | 24.0 | 20 | 27 | 26 |
| MAY | | | | | | | |
| 07... | 1050 | 2060 | 177 | 22.0 | 80 | 45 | 19 |
| 14... | 1900 | 1230 | 240 | 25.0 | 80 | 49 | 23 |
| 21... | 1910 | 888 | 264 | 25.0 | 100 | 64 | 25 |
| 28... | 1800 | 7580 | 172 | 26.0 | 20 | 27 | 23 |
| JUN | | | | | | | |
| 07... | 0950 | 8490 | 95 | 26.0 | 100 | 17 | 10 |

08028500 SABINE RIVER NEAR BON WEIR, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | 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) |
|---|---|---|---|---|---|---|---|
| JUN | | | | | | | |
| 14... | 1000 | 2390 | 167 | 27.0 | 50 | 20 | 19 |
| 21... | 1745 | 1250 | 189 | 31.0 | 20 | 21 | 22 |
| JUL | | | | | | | |
| 07... | 1730 | 5630 | 89 | 28.0 | 70 | 12 | 12 |
| 14... | 1750 | 3570 | 132 | 31.0 | 30 | 15 | 13 |
| 21... | 1805 | 4760 | 156 | 31.0 | 10 | 15 | 22 |
| 28... | 0825 | 8210 | 150 | 28.0 | 10 | 15 | 23 |
| AUG | | | | | | | |
| 07... | 1725 | 7910 | 157 | 30.0 | 10 | 7.0 | 20 |
| 14... | 1810 | 8180 | 154 | 30.0 | 20 | 7.0 | 21 |
| 21... | 1835 | 5320 | 169 | 30.0 | 10 | 8.0 | 20 |
| 28... | 1935 | 5120 | 164 | 28.0 | 10 | 9.0 | 23 |
| SEP | | | | | | | |
| 14... | 1745 | 922 | 173 | 27.0 | 20 | 17 | 24 |
| 21... | 0910 | 1000 | 178 | 23.0 | 20 | 23 | 24 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 170 | 223 | 214 | 211 | 174 | 171 | 175 | 229 | 252 | 160 | 151 | 199 |
| 2 | 188 | 212 | 263 | 199 | 77 | 188 | 178 | 233 | 225 | 166 | 157 | 194 |
| 3 | 185 | 206 | 204 | 199 | 85 | 183 | 186 | 208 | 210 | 163 | 157 | 166 |
| 4 | 214 | 217 | 205 | 186 | 182 | 141 | 187 | 246 | 188 | 149 | 156 | 179 |
| 5 | 236 | 173 | 207 | 186 | 242 | 112 | 175 | 191 | 120 | 179 | 156 | 150 |
| 6 | 221 | 207 | 225 | 213 | 177 | 114 | 199 | 114 | 96 | 146 | 158 | 148 |
| 7 | 229 | 190 | 195 | 211 | 208 | 130 | 196 | 177 | 95 | 89 | 157 | 142 |
| 8 | 186 | 213 | 189 | 210 | 207 | 142 | 192 | 172 | 89 | 129 | 153 | 214 |
| 9 | 191 | 205 | 189 | 183 | 200 | 158 | 195 | 170 | 96 | 146 | 156 | 193 |
| 10 | 194 | 210 | 169 | 210 | 205 | 167 | 194 | 208 | 120 | 150 | 156 | 191 |
| 11 | 184 | 223 | 171 | 192 | 218 | 166 | 178 | 173 | 160 | 155 | 155 | 183 |
| 12 | 184 | 187 | 220 | 226 | 197 | 166 | 177 | 176 | 148 | 156 | 155 | 173 |
| 13 | 216 | 208 | 227 | 226 | 243 | 175 | 206 | 234 | 136 | 169 | 155 | 171 |
| 14 | 225 | 202 | 236 | 194 | 203 | 182 | 205 | 240 | 167 | 132 | 154 | 173 |
| 15 | 193 | 199 | 221 | 225 | 219 | 175 | 173 | 228 | 177 | 158 | 154 | 187 |
| 16 | 214 | 180 | 220 | 194 | 223 | 187 | 188 | 238 | 186 | 159 | 155 | 174 |
| 17 | 198 | 192 | 189 | 248 | 201 | 167 | 181 | 213 | 180 | 182 | 157 | 192 |
| 18 | 182 | 150 | 182 | 194 | 251 | 160 | 181 | 212 | 179 | 159 | 157 | 194 |
| 19 | 173 | 208 | 179 | 180 | 226 | 165 | 181 | 260 | 162 | 161 | 158 | 168 |
| 20 | 185 | 204 | 187 | 181 | 192 | 195 | 190 | 235 | 167 | 160 | 158 | 178 |
| 21 | 189 | 252 | 203 | 208 | 203 | 196 | 186 | 264 | 189 | 156 | 169 | 178 |
| 22 | 235 | 265 | 205 | 193 | 171 | 172 | 187 | 302 | 208 | 155 | 155 | 202 |
| 23 | 261 | 206 | 233 | 192 | 187 | 187 | 179 | 254 | 238 | 157 | 167 | 184 |
| 24 | 264 | 213 | 188 | 221 | 168 | 173 | 162 | 174 | 192 | 160 | 184 | 182 |
| 25 | 279 | 234 | 214 | 211 | 174 | 177 | 189 | 171 | 183 | 156 | 162 | 189 |
| 26 | 182 | 184 | 174 | 213 | 192 | 198 | 212 | 170 | 173 | 154 | 160 | 185 |
| 27 | 221 | 175 | 196 | 176 | 176 | 193 | 170 | 171 | 166 | 154 | 161 | 197 |
| 28 | 220 | 195 | 174 | 174 | 197 | 212 | 178 | 172 | 162 | 150 | 164 | 182 |
| 29 | 164 | 236 | 185 | 173 | --- | 179 | 198 | 167 | 163 | 153 | 157 | 214 |
| 30 | 186 | 215 | 179 | 204 | --- | 182 | 247 | 189 | 162 | 152 | 174 | 191 |
| 31 | 210 | --- | 178 | 247 | --- | 220 | --- | 208 | --- | 154 | 186 | --- |
| MEAN | 206 | 206 | 201 | 203 | 193 | 172 | 188 | 206 | 166 | 154 | 160 | 182 |

08028500 SABINE RIVER NEAR BON WEIR, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 23.0 | 14.0 | 19.0 | 12.0 | 13.0 | 18.0 | 17.0 | 27.0 | 28.0 | 31.0 | 30.0 | 29.0 |
| 2 | 25.0 | 16.0 | 16.0 | 11.0 | 13.0 | 19.0 | 19.0 | 25.0 | 28.0 | 27.0 | 30.0 | 27.0 |
| 3 | 23.0 | 15.0 | 14.0 | 9.0 | --- | 18.0 | 22.0 | 24.0 | 29.0 | 26.0 | 30.0 | 27.0 |
| 4 | 24.0 | 16.0 | 14.0 | 11.0 | 10.0 | 20.0 | 22.0 | 23.0 | 28.0 | 28.0 | 30.0 | 28.0 |
| 5 | 24.0 | 15.0 | 14.0 | 12.0 | 10.0 | 19.0 | 19.0 | 24.0 | 25.0 | 28.0 | 30.0 | 27.0 |
| 6 | 25.0 | 17.0 | 16.0 | 12.0 | 10.0 | 18.0 | 19.0 | 24.0 | 24.0 | 27.0 | 30.0 | 27.0 |
| 7 | 23.0 | 18.0 | 17.0 | 12.0 | 10.0 | 15.0 | 19.0 | 22.0 | 26.0 | 28.0 | 30.0 | 30.0 |
| 8 | 23.0 | 19.0 | --- | 11.0 | 13.0 | 18.0 | 19.0 | 22.0 | 28.0 | 27.0 | 30.0 | 28.0 |
| 9 | 22.0 | 19.0 | --- | 13.0 | 15.0 | 18.0 | 22.0 | 25.0 | 27.0 | 28.0 | 31.0 | 29.0 |
| 10 | 22.0 | 22.0 | --- | 11.0 | 15.0 | 17.0 | 22.0 | 22.0 | 28.0 | 28.0 | 30.0 | 28.0 |
| 11 | 22.0 | 21.0 | --- | 10.0 | 15.0 | 16.0 | 23.0 | 24.0 | 27.0 | 29.0 | 30.0 | 27.0 |
| 12 | 21.0 | 20.0 | --- | 9.0 | 8.0 | 17.0 | 24.0 | 24.0 | 25.0 | 29.0 | 30.0 | 27.0 |
| 13 | 21.0 | --- | 12.0 | 10.0 | 11.0 | 17.0 | 25.0 | 24.0 | 29.0 | 30.0 | 30.0 | 27.0 |
| 14 | 24.0 | 28.0 | 13.0 | 12.0 | 9.0 | 19.0 | 26.0 | 25.0 | 27.0 | 31.0 | 30.0 | 27.0 |
| 15 | 23.0 | 18.0 | 14.0 | 12.0 | 15.0 | 17.0 | 26.0 | 25.0 | 28.0 | 30.0 | 31.0 | 28.0 |
| 16 | 23.0 | 16.0 | 15.0 | 15.0 | 15.0 | 18.0 | 25.0 | 23.0 | 29.0 | 31.0 | 30.0 | 27.0 |
| 17 | 23.0 | 18.0 | 15.0 | 9.0 | 17.0 | 15.0 | 27.0 | 24.0 | 29.0 | 32.0 | 30.0 | 26.0 |
| 18 | 24.0 | 11.0 | 17.0 | 8.0 | 16.0 | 15.0 | 25.0 | 26.0 | 27.0 | 31.0 | 30.0 | 24.0 |
| 19 | 21.5 | 12.0 | 14.0 | 10.0 | 18.0 | 16.0 | 24.0 | 25.0 | 30.0 | 30.0 | 29.0 | 24.0 |
| 20 | 21.0 | 11.0 | 9.0 | 10.0 | 18.0 | 16.0 | 25.0 | 25.0 | 31.0 | 31.0 | 30.0 | 23.0 |
| 21 | 20.0 | 11.0 | 9.0 | 9.0 | 18.0 | 15.0 | 25.0 | 25.0 | 31.0 | 31.0 | 30.0 | 23.0 |
| 22 | 20.0 | 12.0 | 11.0 | 9.0 | 18.0 | 14.5 | 24.0 | 25.0 | 30.0 | 31.0 | 31.0 | 24.0 |
| 23 | 20.0 | 13.0 | 11.0 | 11.0 | 18.0 | 17.0 | 21.0 | 27.0 | 31.0 | 32.0 | 29.0 | 25.0 |
| 24 | 19.0 | 14.0 | 12.0 | 8.0 | 17.0 | 18.0 | 23.0 | 24.0 | 28.0 | 31.0 | 30.0 | 25.0 |
| 25 | 18.0 | 12.0 | 10.0 | 12.0 | 17.5 | 18.0 | 22.0 | 23.0 | 28.0 | 31.0 | 29.0 | 27.0 |
| 26 | 18.5 | 10.0 | 10.0 | 12.0 | 20.0 | 17.0 | 21.0 | 24.5 | 28.0 | 30.0 | 30.0 | 27.0 |
| 27 | 20.0 | 13.0 | 10.0 | 12.0 | 19.0 | 19.0 | 26.0 | 25.0 | 27.0 | 29.0 | 29.0 | 27.0 |
| 28 | 17.0 | 13.0 | 10.0 | 12.0 | 18.0 | 18.0 | 24.0 | 26.0 | 29.0 | 28.0 | 28.0 | 25.0 |
| 29 | 15.0 | 13.0 | 10.0 | 15.0 | --- | 17.0 | 25.5 | 26.0 | 29.0 | 29.0 | 29.0 | 27.0 |
| 30 | 14.5 | 17.0 | 10.0 | 15.0 | --- | 18.0 | 26.0 | 26.0 | 29.0 | 30.0 | 29.0 | 26.5 |
| 31 | 14.0 | --- | 11.0 | 13.0 | --- | 17.0 | --- | 26.0 | --- | 30.0 | 28.0 | --- |
| MEAN | 21.0 | 15.5 | 13.0 | 11.0 | 14.5 | 17.0 | 23.0 | 24.5 | 28.0 | 29.5 | 30.0 | 26.5 |

COLOR (PLATINUM-COBALT UNITS), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 30 | 120 | 120 | 70 | 140 | 70 | 50 | 70 | 35 | 20 | 10 | 20 |
| 2 | 30 | 70 | 120 | 70 | 140 | 70 | 60 | 70 | 40 | 30 | 10 | 30 |
| 3 | 50 | 70 | 120 | 60 | --- | 70 | 70 | 40 | 60 | 20 | 10 | 40 |
| 4 | 50 | 120 | 100 | 60 | 140 | 120 | 60 | 100 | 60 | 20 | 10 | 40 |
| 5 | 60 | 60 | 140 | 80 | 140 | 140 | 50 | 50 | 60 | 50 | 10 | 40 |
| 6 | 60 | 60 | 140 | 80 | 140 | 140 | 50 | 80 | 50 | 60 | 10 | 40 |
| 7 | 60 | 60 | 60 | 80 | 140 | 140 | 50 | 80 | 100 | 70 | 10 | 30 |
| 8 | 50 | 70 | 100 | 120 | 140 | 140 | 50 | 100 | 80 | 50 | 10 | 50 |
| 9 | 50 | 70 | 100 | 70 | 120 | 140 | 50 | 120 | 100 | 30 | 20 | 30 |
| 10 | 40 | 60 | 70 | 80 | 140 | 140 | 40 | 100 | 100 | 30 | 20 | 40 |
| 11 | 40 | 70 | 100 | 60 | 120 | 140 | 40 | 120 | 30 | 30 | 20 | 30 |
| 12 | 40 | 60 | 120 | 70 | 120 | 140 | 40 | 100 | 60 | 20 | 20 | 20 |
| 13 | 60 | 70 | 120 | 70 | 120 | 140 | 60 | 120 | 40 | 30 | 20 | 20 |
| 14 | 60 | 70 | 120 | 60 | 120 | 140 | 60 | 80 | 50 | 30 | 20 | 20 |
| 15 | 40 | 140 | 140 | 60 | 120 | 70 | 40 | 70 | 50 | 10 | 20 | 30 |
| 16 | 50 | 70 | 140 | 60 | 120 | 70 | 40 | 80 | 40 | 20 | 10 | 20 |
| 17 | 70 | 140 | 70 | 60 | 120 | 60 | 50 | 70 | 40 | 30 | 10 | 30 |
| 18 | 70 | 120 | 70 | 70 | 120 | 50 | 40 | 70 | 40 | 20 | 10 | 30 |
| 19 | 70 | 140 | 60 | 70 | 120 | 60 | 40 | 120 | 30 | 10 | 10 | 50 |
| 20 | 70 | 120 | 60 | 70 | 100 | 100 | 40 | 120 | 30 | 10 | 10 | 20 |
| 21 | 120 | 120 | 70 | 120 | 100 | 100 | 40 | 100 | 20 | 10 | 10 | 20 |
| 22 | 120 | 140 | 140 | 120 | 70 | 100 | 30 | 140 | 40 | 10 | 10 | 20 |
| 23 | 120 | 70 | 120 | 80 | 70 | 70 | 30 | 70 | 20 | 10 | 20 | 20 |
| 24 | 120 | 80 | 70 | 120 | 70 | 70 | 30 | 20 | 20 | 10 | 20 | 20 |
| 25 | 140 | 80 | 80 | 100 | 70 | 70 | 70 | 20 | 60 | 10 | 20 | 20 |
| 26 | 120 | 70 | 60 | 80 | 60 | 70 | 50 | 30 | 20 | 10 | 10 | 20 |
| 27 | 80 | 50 | 70 | 50 | 70 | 60 | 30 | 20 | 20 | 10 | 20 | 20 |
| 28 | 60 | 60 | 60 | 100 | 70 | 60 | 20 | 20 | 20 | 10 | 10 | 20 |
| 29 | 70 | 70 | 70 | 50 | --- | 40 | 40 | 20 | 20 | 10 | 10 | 30 |
| 30 | 80 | 70 | 70 | 50 | --- | 40 | 60 | 20 | 20 | 10 | 20 | 20 |
| 31 | 120 | --- | 60 | 120 | --- | 70 | --- | 20 | --- | 10 | 20 | --- |
| MEAN | 70 | 85 | 95 | 75 | 110 | 95 | 46 | 70 | 45 | 23 | 14 | 28 |

## 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 bridge on State Highway 87, 2.6 mi (4.2 km) southwest of Newton, 5.0 mi (8.0 km) downstream from Melhomes Creek, and 8.0 mi (12.9 km) upstream from White Oak Creek.

DRAINAGE AREA.--128 $mi^2$ (332 $km^2$).

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

GAGE.--Water-stage recorder. Datum of gage is 134.69 ft (41.054 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 19, 1957, nonrecording gage at same site and datum.

REMARKS.--Records good. No known diversion above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--29 years, 111 $ft^3/s$ (3.144 $m^3/s$), 11.78 in/yr (299 mm/yr), 80,420 acre-ft/yr (99.2 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,200 $ft^3/s$ (572 $m^3/s$) Apr. 29, 1953, gage height, 19.45 ft (5.928 m); minimum daily, 10 $ft^3/s$ (0.28 $m^3/s$) July 7, 8, 21-23, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1907, 27.5 ft (8.38 m) in April 1922, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,670 $ft^3/s$ (132 $m^3/s$) June 6 at 0800 hours, gage height, 16.34 ft (4.980 m), no other peak above base of 1,100 $ft^3/s$ (31.2 $m^3/s$); minimum, 21 $ft^3/s$ (0.59 $m^3/s$) Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 49 | 47 | 51 | 41 | 50 | 45 | 54 | 41 | 72 | 38 | 30 | 37 |
| 2 | 45 | 43 | 50 | 40 | 69 | 47 | 49 | 33 | 148 | 41 | 30 | 65 |
| 3 | 38 | 42 | 49 | 40 | 78 | 49 | 46 | 37 | 305 | 45 | 28 | 61 |
| 4 | 35 | 40 | 49 | 40 | 56 | 492 | 47 | 32 | 182 | 166 | 28 | 59 |
| 5 | 33 | 39 | 49 | 40 | 53 | 700 | 46 | 36 | 500 | 149 | 28 | 56 |
| 6 | 32 | 38 | 49 | 42 | 87 | 200 | 46 | 48 | 3120 | 416 | 28 | 42 |
| 7 | 31 | 37 | 49 | 56 | 116 | 100 | 42 | 41 | 1280 | 346 | 30 | 33 |
| 8 | 30 | 37 | 49 | 74 | 80 | 75 | 39 | 32 | 280 | 141 | 40 | 29 |
| 9 | 30 | 37 | 99 | 52 | 65 | 65 | 38 | 31 | 149 | 91 | 35 | 27 |
| 10 | 30 | 38 | 116 | 43 | 64 | 60 | 38 | 38 | 111 | 69 | 32 | 27 |
| 11 | 30 | 39 | 86 | 41 | 68 | 58 | 37 | 48 | 654 | 71 | 29 | 27 |
| 12 | 29 | 38 | 60 | 38 | 67 | 54 | 35 | 41 | 460 | 56 | 27 | 26 |
| 13 | 29 | 38 | 52 | 37 | 55 | 50 | 34 | 32 | 474 | 50 | 27 | 26 |
| 14 | 28 | 37 | 49 | 37 | 53 | 48 | 33 | 33 | 468 | 47 | 27 | 26 |
| 15 | 29 | 43 | 48 | 37 | 52 | 46 | 31 | 34 | 163 | 46 | 27 | 33 |
| 16 | 30 | 58 | 46 | 37 | 51 | 45 | 29 | 61 | 96 | 43 | 26 | 39 |
| 17 | 31 | 77 | 45 | 35 | 52 | 44 | 28 | 93 | 80 | 38 | 26 | 37 |
| 18 | 107 | 107 | 45 | 35 | 51 | 44 | 28 | 72 | 89 | 35 | 26 | 32 |
| 19 | 103 | 105 | 44 | 37 | 50 | 43 | 27 | 43 | 70 | 33 | 31 | 27 |
| 20 | 97 | 78 | 44 | 80 | 49 | 43 | 27 | 34 | 60 | 32 | 56 | 26 |
| 21 | 57 | 60 | 43 | 135 | 49 | 65 | 27 | 30 | 54 | 31 | 35 | 25 |
| 22 | 45 | 70 | 42 | 91 | 52 | 50 | 27 | 28 | 50 | 29 | 28 | 24 |
| 23 | 41 | 90 | 42 | 61 | 61 | 47 | 38 | 27 | 47 | 28 | 27 | 23 |
| 24 | 39 | 80 | 43 | 53 | 56 | 46 | 44 | 26 | 49 | 28 | 27 | 23 |
| 25 | 37 | 70 | 43 | 49 | 48 | 45 | 52 | 26 | 56 | 28 | 27 | 22 |
| 26 | 37 | 80 | 42 | 47 | 47 | 44 | 40 | 26 | 51 | 28 | 26 | 22 |
| 27 | 49 | 70 | 41 | 46 | 46 | 44 | 33 | 26 | 64 | 30 | 26 | 22 |
| 28 | 174 | 60 | 41 | 45 | 46 | 44 | 30 | 26 | 61 | 34 | 26 | 22 |
| 29 | 178 | 56 | 42 | 44 | --- | 45 | 30 | 25 | 48 | 35 | 25 | 21 |
| 30 | 83 | 53 | 41 | 42 | --- | 50 | 32 | 26 | 41 | 34 | 25 | 21 |
| 31 | 55 | --- | 41 | 41 | --- | 70 | --- | 39 | --- | 31 | 26 | --- |
| TOTAL | 1661 | 1707 | 1590 | 1536 | 1671 | 2858 | 1107 | 1165 | 9282 | 2289 | 909 | 960 |
| MEAN | 53.6 | 56.9 | 51.3 | 49.5 | 59.7 | 92.2 | 36.9 | 37.6 | 309 | 73.8 | 29.3 | 32.0 |
| MAX | 178 | 107 | 116 | 135 | 116 | 700 | 54 | 93 | 3120 | 416 | 56 | 65 |
| MIN | 28 | 37 | 41 | 35 | 46 | 43 | 27 | 25 | 41 | 28 | 25 | 21 |
| CFSM | .42 | .45 | .40 | .39 | .47 | .72 | .29 | .29 | 2.41 | .58 | .23 | .25 |
| IN. | .48 | .50 | .46 | .45 | .49 | .83 | .32 | .34 | 2.70 | .67 | .26 | .28 |
| AC-FT | 3290 | 3390 | 3150 | 3050 | 3310 | 5670 | 2200 | 2310 | 18410 | 4540 | 1800 | 1900 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 43681 | MEAN | 119 | MAX | 1600 | MIN 26 | CFSM .93 | IN 12.69 | AC-FT | 86640 |
| WTR YR 1981 | TOTAL | 26735 | MEAN | 73.2 | MAX | 3120 | MIN 21 | CFSM .57 | IN 7.77 | AC-FT | 53030 |

## 08030000 CYPRESS CREEK NEAR BUNA, TX

LOCATION.--Lat 30°25'52", long 93°54'28", Jasper County, Hydrologic Unit 12010005, near center of span at downstream side of bridge on Farm Road 253, 0.3 mi (0.5 km) downstream from Boggy Creek, 3.2 mi (5.1 km) east of Buna, and 9.5 mi (15.3 km) upstream from Little Cypress Creek.

DRAINAGE AREA.--69.2 $mi^2$ (179.2 $km^2$).

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

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 46.16 ft (14.070 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 23, 1957, nonrecording gage at same site and datum.

REMARKS.--Records fair. No known diversions above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--29 years, 68.1 $ft^3/s$ (1.929 $m^3/s$), 13.36 in/yr (339 mm/yr), 49,340 acre-ft/yr (60.8 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,100 $ft^3/s$ (201 $m^3/s$) Sept. 18, 1963, gage height, 13.28 ft (4.048 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 660 $ft^3/s$ (18.7 $m^3/s$) July 7 at 0500 hours, gage height, 9.16 ft (2.792 m), no peak above base of 1,000 $ft^3/s$ (28.3 $m^3/s$); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .58 | .59 | .11 | 42 | 1.0 | .70 | .35 | .00 | 5.1 | 5.5 | 3.8 |
| 2 | .00 | .36 | .38 | .08 | 296 | .88 | .60 | .25 | .00 | 12 | 3.6 | 15 |
| 3 | .00 | .26 | .28 | .05 | 70 | .77 | .45 | .18 | .68 | 101 | 1.8 | 147 |
| 4 | .00 | .20 | .21 | .04 | 18 | 126 | .35 | .12 | 1.7 | 30 | 1.3 | 351 |
| 5 | .00 | .17 | .18 | .03 | 12 | 544 | .27 | .10 | 32 | 39 | .99 | 396 |
| 6 | .00 | .15 | .16 | .04 | 301 | 293 | .20 | .07 | 141 | 437 | .70 | 132 |
| 7 | .00 | .13 | .15 | .08 | 224 | 127 | .15 | .05 | 41 | 617 | .98 | 29 |
| 8 | .00 | .10 | .16 | .05 | 60 | 52 | .12 | .04 | 17 | 390 | 1.0 | 10 |
| 9 | .00 | .08 | 125 | .06 | 28 | 22 | .09 | .03 | 13 | 189 | .68 | 6.4 |
| 10 | .00 | .07 | 169 | .09 | 42 | 12 | .07 | .02 | 6.8 | 71 | .43 | 3.8 |
| 11 | .00 | .05 | 30 | .11 | 76 | 8.5 | .05 | .01 | 317 | 30 | .36 | 2.6 |
| 12 | .00 | .04 | 11 | .12 | 27 | 6.4 | .04 | .00 | 420 | 61 | .30 | 1.9 |
| 13 | .00 | .03 | 7.2 | .12 | 12 | 5.1 | .03 | .00 | 309 | 25 | .43 | 1.2 |
| 14 | .00 | .03 | 5.7 | .12 | 8.3 | 4.3 | .02 | .00 | 252 | 7.5 | .54 | 26 |
| 15 | .00 | .03 | 4.4 | .12 | 6.4 | 4.2 | .01 | .00 | 98 | 4.0 | .59 | 100 |
| 16 | .00 | .08 | 3.3 | .11 | 5.3 | 3.7 | .01 | .14 | 52 | 2.1 | .63 | 36 |
| 17 | .00 | .29 | 2.3 | .08 | 4.4 | 3.2 | .00 | .51 | 23 | 1.4 | .63 | 8.5 |
| 18 | 4.2 | .26 | 1.7 | .06 | 3.8 | 2.5 | .00 | .83 | 10 | .99 | .50 | 3.6 |
| 19 | 38 | .27 | .93 | .12 | 3.2 | 2.0 | .00 | .73 | 5.9 | .72 | .33 | 1.8 |
| 20 | 14 | .57 | .63 | 9.8 | 2.5 | 1.5 | .00 | .50 | 3.1 | .63 | .23 | .99 |
| 21 | 4.4 | .44 | .47 | 36 | 2.0 | 1.3 | .00 | .35 | 2.0 | .46 | .09 | .61 |
| 22 | 1.8 | .41 | .36 | 13 | 2.0 | 1.3 | .00 | .25 | 1.9 | .36 | .05 | .47 |
| 23 | .71 | .59 | .33 | 7.4 | 6.3 | 1.4 | 15 | .18 | 1.8 | .30 | .01 | .39 |
| 24 | .37 | 1.3 | .30 | 5.2 | 6.2 | 1.4 | 89 | .12 | 5.6 | .18 | .00 | .30 |
| 25 | .25 | 2.2 | .25 | 3.8 | 3.9 | 1.3 | 13 | .09 | 36 | .14 | .30 | .28 |
| 26 | .21 | 1.7 | .23 | 2.9 | 2.4 | 1.0 | 4.4 | .06 | 95 | .82 | .36 | .20 |
| 27 | .23 | 1.8 | .20 | 2.1 | 1.7 | .90 | 1.9 | .04 | 156 | 8.5 | .30 | .18 |
| 28 | .32 | 2.2 | .18 | 1.7 | 1.3 | .80 | .99 | .03 | 49 | 154 | .25 | .16 |
| 29 | 4.0 | 1.7 | .18 | .93 | --- | .70 | .68 | .02 | 14 | 151 | .20 | .14 |
| 30 | 2.6 | .98 | .16 | .68 | --- | .79 | .50 | .01 | 7.2 | 38 | .14 | .12 |
| 31 | 1.1 | --- | .12 | .54 | --- | .77 | --- | .00 | --- | 9.6 | .11 | --- |
| TOTAL | 72.19 | 17.07 | 366.05 | 85.64 | 1267.7 | 1231.71 | 128.63 | 5.08 | 2111.68 | 2387.80 | 23.33 | 1279.44 |
| MEAN | 2.33 | .57 | 11.8 | 2.76 | 45.3 | 39.7 | 4.29 | .16 | 70.4 | 77.0 | .75 | 42.6 |
| MAX | 38 | 2.2 | 169 | 36 | 301 | 544 | 89 | .83 | 420 | 617 | 5.5 | 396 |
| MIN | .00 | .03 | .12 | .03 | 1.3 | .70 | .00 | .00 | .00 | .14 | .00 | .12 |
| CFSM | .03 | .008 | .17 | .04 | .66 | .57 | .06 | .002 | 1.02 | 1.11 | .01 | .62 |
| IN. | .04 | .01 | .20 | .05 | .68 | .66 | .07 | .00 | 1.14 | 1.28 | .01 | .69 |
| AC-FT | 143 | 34 | 726 | 170 | 2510 | 2440 | 255 | 10 | 4190 | 4740 | 46 | 2540 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 34669.26 | MEAN 94.7 | MAX 3680 | MIN .00 | CFSM 1.37 | IN 18.64 | AC-FT 68770 |
| WTR YR 1981 | TOTAL | 8976.32 | MEAN 24.6 | MAX 617 | MIN .00 | CFSM .36 | IN 4.83 | AC-FT 17800 |

## 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 (3.9 km) north of Ruliff, 4.2 mi (6.8 km) upstream from the Kansas City Southern Railway Co. bridge, 4.5 mi (7.2 km) downstream from Cypress Creek, and at mile 40.2 (64.7 km).

DRAINAGE AREA.--9,329 $mi^2$ (24,162 $km^2$).

### 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 4.08 ft (1.244 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 1, 1941, nonrecording gage at Kansas City Southern Railway Co. bridge, 4.2 mi (6.8 km) downstream and at datum 2.02 ft (0.616 m) lower. Mar. 1, 1941, to Dec. 8, 1948, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records fair. Flow is partly regulated by Toledo Bend Reservoir (station 08025350) 116.3 mi (187.1 km) upstream.

AVERAGE DISCHARGE.--42 years (water years 1925-66) prior to completion of Toledo Bend Reservoir, 8,422 $ft^3/s$ (238.5 $m^3/s$), 6,102,000 acre-ft/yr (7.52 $km^3/yr$); 15 years (water years 1967-81) regulated, 7,419 $ft^3/s$ (210.1 $m^3/s$), 5,375,000 acre-ft/yr (6.63 $km^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 121,000 $ft^3/s$ (3,430 $m^3/s$) May 22, 1953, gage height, 19.98 ft (6.090 m); minimum, 270 $ft^3/s$ (7.65 $m^3/s$) Sept. 27-30, Oct. 1-3, 17-20, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1835, 22.2 ft (6.77 m) in May or June 1884 (adjusted to present site and datum on basis of slope of flood of June 8, 9, 1950); flood of Apr. 26-29, 1913, reached a stage of 19.5 ft (5.94 m), present site and datum, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,100 $ft^3/s$ (314 $m^3/s$) June 11 at 0200 hours, gage height, 13.12 ft (3.999 m); minimum daily, 732 $ft^3/s$ (20.7 $m^3/s$) Oct. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7460 | 1340 | 1720 | 1140 | 1820 | 1340 | 1220 | 1590 | 4430 | 5310 | 8420 | 2470 |
| 2 | 5640 | 1180 | 1340 | 1060 | 2380 | 1440 | 1460 | 1090 | 2260 | 5300 | 8290 | 1470 |
| 3 | 3110 | 1170 | 1160 | 1180 | 3600 | 1260 | 1350 | 981 | 1690 | 5760 | 8160 | 1320 |
| 4 | 1610 | 1160 | 1280 | 1070 | 4650 | 1300 | 1400 | 1220 | 1950 | 6150 | 8130 | 1670 |
| 5 | 1130 | 928 | 1240 | 1150 | 4490 | 2650 | 1250 | 1200 | 3250 | 5350 | 8300 | 2180 |
| 6 | 949 | 1020 | 1270 | 1000 | 4110 | 5150 | 1310 | 1550 | 4310 | 4790 | 8330 | 2530 |
| 7 | 870 | 982 | 1140 | 949 | 3830 | 7220 | 1160 | 2730 | 6380 | 5720 | 8180 | 2590 |
| 8 | 822 | 1020 | 1220 | 1170 | 3640 | 7710 | 1050 | 2920 | 8360 | 6910 | 8070 | 2260 |
| 9 | 1020 | 963 | 1380 | 1180 | 3370 | 6110 | 1210 | 2190 | 9750 | 8200 | 8080 | 1500 |
| 10 | 1170 | 999 | 1990 | 1350 | 2950 | 4130 | 1120 | 1700 | 10700 | 9170 | 8080 | 1380 |
| 11 | 1190 | 941 | 2350 | 1230 | 2660 | 2990 | 1200 | 1350 | 10800 | 9780 | 8110 | 1430 |
| 12 | 1180 | 784 | 2420 | 1290 | 2410 | 2280 | 1090 | 1470 | 9710 | 9500 | 8170 | 1400 |
| 13 | 1160 | 926 | 2210 | 1090 | 2190 | 1910 | 1160 | 1510 | 9000 | 8970 | 8250 | 1370 |
| 14 | 919 | 931 | 1710 | 1000 | 1910 | 1700 | 1030 | 1470 | 8550 | 6260 | 8290 | 1470 |
| 15 | 732 | 965 | 1390 | 1190 | 1690 | 1580 | 879 | 1190 | 7940 | 3930 | 8230 | 1800 |
| 16 | 849 | 993 | 1210 | 1110 | 1550 | 1490 | 955 | 1220 | 6420 | 4230 | 8200 | 1590 |
| 17 | 950 | 1130 | 1100 | 1200 | 1470 | 1400 | 1050 | 1160 | 4650 | 5240 | 8200 | 1810 |
| 18 | 1400 | 1170 | 1090 | 1080 | 1400 | 1360 | 1110 | 1410 | 3970 | 4600 | 8230 | 1870 |
| 19 | 1840 | 1380 | 1360 | 1200 | 1340 | 1480 | 1200 | 1750 | 3840 | 3410 | 8210 | 1660 |
| 20 | 2010 | 1540 | 1430 | 1230 | 1360 | 1370 | 1280 | 1880 | 3640 | 4530 | 7810 | 1480 |
| 21 | 1890 | 1690 | 1330 | 1410 | 1560 | 1460 | 1280 | 1560 | 3500 | 5850 | 6780 | 1490 |
| 22 | 1570 | 1650 | 1240 | 1740 | 1470 | 1340 | 1270 | 1420 | 3250 | 6460 | 5780 | 1590 |
| 23 | 1200 | 1460 | 1040 | 1920 | 1560 | 1430 | 1460 | 1140 | 2130 | 6140 | 5230 | 1160 |
| 24 | 967 | 1600 | 990 | 1870 | 1380 | 1380 | 2190 | 1190 | 1660 | 6240 | 4320 | 1180 |
| 25 | 843 | 1460 | 1190 | 1590 | 1310 | 1370 | 2690 | 2890 | 2700 | 6770 | 2500 | 1270 |
| 26 | 780 | 1560 | 1110 | 1550 | 1500 | 1490 | 3020 | 4680 | 3190 | 7200 | 2140 | 1270 |
| 27 | 940 | 2190 | 1220 | 1320 | 1380 | 1340 | 3120 | 5610 | 3470 | 7460 | 3670 | 1260 |
| 28 | 958 | 3730 | 1090 | 1550 | 1460 | 1390 | 3170 | 6260 | 4320 | 7520 | 4330 | 1350 |
| 29 | 853 | 3560 | 1190 | 2640 | --- | 1270 | 3190 | 6820 | 5100 | 7460 | 4580 | 1510 |
| 30 | 1390 | 2330 | 1020 | 3030 | --- | 1350 | 2650 | 7100 | 5390 | 7740 | 4740 | 1080 |
| 31 | 1570 | --- | 929 | 2600 | --- | 1210 | --- | 6760 | --- | 8280 | 4200 | --- |
| TOTAL | 48972 | 42752 | 42359 | 44089 | 64440 | 70900 | 47524 | 77011 | 156310 | 200230 | 212010 | 48410 |
| MEAN | 1580 | 1425 | 1366 | 1422 | 2301 | 2287 | 1584 | 2484 | 5210 | 6459 | 6839 | 1614 |
| MAX | 7460 | 3730 | 2420 | 3030 | 4650 | 7710 | 3190 | 7100 | 10800 | 9780 | 8420 | 2590 |
| MIN | 732 | 784 | 929 | 949 | 1310 | 1210 | 879 | 981 | 1660 | 3410 | 2140 | 1080 |
| AC-FT | 97140 | 84800 | 84020 | 87450 | 127800 | 140600 | 94260 | 152800 | 310000 | 397200 | 420500 | 96020 |

CAL YR 1980 TOTAL 2995121 MEAN 8183 MAX 40000 MIN 732 AC-FT 5941000
WTR YR 1981 TOTAL 1055007 MEAN 2890 MAX 10800 MIN 732 AC-FT 2093000

08030500 SABINE RIVER NEAR RULIFF, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1945 to September 1946, October 1947 to current year. Chemical and biochemical analyses: October 1967 to current year. Pesticide analyses: January 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1945 to September 1946, October 1947 to current year.
WATER TEMPERATURES: October 1947 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 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 micromhos Aug. 31, 1966; minimum, 28 micromhos Sept. 19, 1963.
WATER TEMPERATURES: Maximum, 36.0°C Aug. 14, 1962; minimum, 1.0°C Jan. 28, 1948.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 237 micromhos Nov. 25; minimum daily, 62 micromhos Mar 8.
WATER TEMPERATURES: Maximum daily, 32.0°C July 18, 25; minimum daily, 8.0°C Jan. 21-24, Feb. 6.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (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) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 21... | 1140 | 1900 | 140 | 6.9 | 21.0 | -- | 24 | 7.9 | 88 | 1.1 | 280 | 40 |
| NOV | | | | | | | | | | | | |
| 19... | 1335 | 1400 | 164 | 6.9 | 13.0 | 50 | 7.6 | -- | -- | .8 | 80 | 48 |
| DEC | | | | | | | | | | | | |
| 16... | 1330 | 1210 | 170 | 7.0 | 12.0 | 80 | 6.8 | 10.9 | 100 | 1.0 | 48 | K16 |
| JAN | | | | | | | | | | | | |
| 21... | 0950 | 1370 | 156 | 7.3 | 8.0 | 100 | 15 | 13.2 | 110 | 1.7 | 310 | 410 |
| FEB | | | | | | | | | | | | |
| 26... | 1330 | 1530 | 153 | 7.0 | 16.5 | 50 | 17 | 8.6 | 87 | 1.1 | 52 | K16 |
| MAR | | | | | | | | | | | | |
| 17... | 0940 | 1410 | 136 | 6.9 | 16.0 | -- | 19 | 10.0 | 99 | 1.6 | 20 | K18 |
| APR | | | | | | | | | | | | |
| 22... | 1010 | 1280 | 170 | 7.4 | 25.0 | 40 | 14 | 7.9 | 94 | 1.1 | 20 | 88 |
| MAY | | | | | | | | | | | | |
| 27... | 1555 | 5740 | 170 | 7.0 | 25.5 | 30 | 25 | 8.5 | 104 | .9 | 84 | 230 |
| JUN | | | | | | | | | | | | |
| 23... | 0800 | 2270 | 145 | 6.7 | 29.0 | -- | 16 | 6.9 | 88 | .8 | 28 | 20 |
| JUL | | | | | | | | | | | | |
| 29... | 1330 | 7470 | 156 | 7.1 | 24.5 | 10 | 15 | 7.2 | 94 | .5 | 2200 | 3100 |
| AUG | | | | | | | | | | | | |
| 12... | 1010 | 8160 | 156 | 6.9 | 29.0 | -- | 15 | 6.1 | 78 | 1.4 | 180 | 150 |
| SEP | | | | | | | | | | | | |
| 22... | 1015 | 1650 | 160 | 6.6 | 23.5 | -- | 13 | 9.7 | 111 | .7 | 96 | 2100 |

| DATE | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 21... | 22 | 9 | 5.8 | 1.8 | 18 | 1.7 | 2.3 | 13 | 19 | 21 | .1 | 11 |
| NOV | | | | | | | | | | | | |
| 19... | 27 | 3 | 7.3 | 2.1 | 21 | 1.8 | 3.0 | 24 | 21 | 21 | .1 | 13 |
| DEC | | | | | | | | | | | | |
| 16... | 26 | 4 | 7.1 | 2.0 | 23 | 2.0 | 2.2 | 22 | 32 | 17 | .1 | 15 |
| JAN | | | | | | | | | | | | |
| 21... | 26 | 5 | 6.8 | 2.1 | 22 | 1.9 | 2.0 | 21 | 24 | 20 | .1 | 12 |
| FEB | | | | | | | | | | | | |
| 26... | 26 | 3 | 6.8 | 2.1 | 19 | 1.6 | 2.1 | 23 | 22 | 18 | .0 | 13 |
| MAR | | | | | | | | | | | | |
| 17... | 23 | 0 | 6.3 | 1.8 | 18 | 1.6 | 1.9 | 24 | 13 | 20 | .1 | 15 |
| APR | | | | | | | | | | | | |
| 22... | 29 | 8 | 7.5 | 2.5 | 19 | 1.5 | 2.7 | 21 | 26 | 18 | .1 | 11 |
| MAY | | | | | | | | | | | | |
| 27... | 31 | 14 | 8.1 | 2.6 | 20 | 1.6 | 2.9 | 17 | 24 | 23 | .1 | 7.1 |
| JUN | | | | | | | | | | | | |
| 23... | 28 | 8 | 7.1 | 2.4 | 15 | 1.2 | 2.7 | 20 | 10 | 20 | .1 | 10 |
| JUL | | | | | | | | | | | | |
| 29... | 31 | 11 | 7.6 | 2.8 | 16 | 1.4 | 2.7 | 20 | 8.0 | 27 | .4 | 6.5 |
| AUG | | | | | | | | | | | | |
| 12... | 30 | 14 | 7.2 | 2.9 | 17 | 1.5 | 2.6 | 20 | 11 | 24 | .1 | 5.9 |
| SEP | | | | | | | | | | | | |
| 22... | 27 | 9 | 7.0 | 2.4 | 19 | 1.7 | 2.9 | 26 | 15 | 21 | .1 | 12 |

08030500 SABINE RIVER NEAR RULIFF, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) | SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L) | SOLIDS, VOLA- TILE, SUS- PENDED (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, 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 21... | 93 | 87 | -- | -- | -- | -- | .12 | .08 | .090 | .070 | .58 |
| NOV | | | | | | | | | | | |
| 19... | 111 | 103 | 14 | 18 | -- | -- | .09 | .09 | .020 | .040 | .65 |
| DEC | | | | | | | | | | | |
| 16... | 121 | 112 | 10 | 3 | -- | -- | .11 | .10 | .120 | .080 | .52 |
| JAN | | | | | | | | | | | |
| 21... | 104 | 102 | 8 | 8 | -- | -- | .15 | .03 | .050 | .170 | .61 |
| FEB | | | | | | | | | | | |
| 26... | 100 | 97 | 15 | 1 | -- | -- | .00 | .00 | .200 | .040 | .63 |
| MAR | | | | | | | | | | | |
| 17... | 94 | 90 | -- | -- | -- | -- | .09 | .12 | .120 | .000 | .54 |
| APR | | | | | | | | | | | |
| 22... | 119 | 102 | 15 | 5 | .10 | .010 | .11 | .11 | .100 | .130 | .90 |
| MAY | | | | | | | | | | | |
| 27... | 109 | 96 | 52 | 20 | -- | -- | .05 | .07 | .150 | .040 | .50 |
| JUN | | | | | | | | | | | |
| 23... | 94 | 79 | -- | -- | -- | -- | .06 | .07 | .070 | .080 | .83 |
| JUL | | | | | | | | | | | |
| 29... | 96 | 83 | 79 | 24 | -- | -- | 1.2 | .11 | .280 | .190 | .82 |
| AUG | | | | | | | | | | | |
| 12... | 92 | 83 | -- | -- | -- | -- | .08 | .08 | .100 | .100 | .51 |
| SEP | | | | | | | | | | | |
| 22... | 112 | 96 | -- | -- | -- | -- | .18 | .19 | .140 | .090 | .51 |

| DATE | NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) | NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) | PHOS- PHORUS, TOTAL (MG/L AS P) | PHOS- PHORUS, DIS- SOLVED (MG/L AS P) | CARBON, ORGANIC TOTAL (MG/L AS C) | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 21... | 1.7 | .67 | 1.8 | .070 | .040 | 8.3 | -- | -- | 30 | 154 | 90 |
| NOV | | | | | | | | | | | |
| 19... | .50 | .67 | .54 | .050 | .040 | -- | 6.0 | .5 | 10 | 38 | 87 |
| DEC | | | | | | | | | | | |
| 16... | .61 | .64 | .69 | .080 | .050 | 13 | -- | -- | 9 | 29 | 100 |
| JAN | | | | | | | | | | | |
| 21... | .49 | .66 | .66 | .050 | .040 | -- | 11 | .5 | 17 | 63 | 88 |
| FEB | | | | | | | | | | | |
| 26... | .43 | .83 | .47 | .130 | .040 | 8.2 | -- | -- | 20 | 83 | 89 |
| MAR | | | | | | | | | | | |
| 17... | .51 | .66 | .51 | .060 | .020 | 11 | -- | -- | 17 | 65 | 84 |
| APR | | | | | | | | | | | |
| 22... | .67 | 1.00 | .80 | .060 | .020 | 5.9 | -- | -- | 20 | 69 | 97 |
| MAY | | | | | | | | | | | |
| 27... | .47 | .65 | .51 | .090 | .020 | -- | 5.6 | -- | 84 | 1300 | 89 |
| JUN | | | | | | | | | | | |
| 23... | .90 | .90 | .98 | .070 | .040 | 7.1 | -- | -- | 41 | 251 | 85 |
| JUL | | | | | | | | | | | |
| 29... | .91 | 1.10 | 1.1 | .050 | .040 | -- | 5.1 | .3 | 39 | 787 | 84 |
| AUG | | | | | | | | | | | |
| 12... | .45 | .61 | .55 | .060 | .020 | 6.3 | -- | -- | 37 | 815 | 88 |
| SEP | | | | | | | | | | | |
| 22... | .59 | .65 | .68 | .040 | .020 | 3.7 | -- | -- | 16 | 71 | 82 |

| DATE | TIME | ARSENIC TOTAL (UG/L AS AS) | ARSENIC SUS- PENDED TOTAL (UG/L AS AS) | ARSENIC DIS- SOLVED (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BARIUM, SUS- PENDED RECOV- ERABLE (UG/L AS BA) | BARIUM, DIS- SOLVED (UG/L AS BA) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CADMIUM DIS- SOLVED (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | CHRO- MIUM, SUS- PENDED RECOV. (UG/L AS CR) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 19... | 1335 | 1 | 1 | 0 | 0 | 0 | 50 | 2 | <1 | 0 | 0 |
| JAN | | | | | | | | | | | |
| 21... | 0950 | 0 | 0 | 0 | 100 | 60 | 40 | 1 | <1 | 0 | 0 |
| MAY | | | | | | | | | | | |
| 27... | 1555 | 1 | 0 | 1 | 100 | 0 | 200 | 2 | <1 | 0 | 0 |
| JUL | | | | | | | | | | | |
| 29... | 1330 | 8 | 8 | 0 | 0 | 0 | 50 | 1 | <1 | 20 | 10 |

08030500 SABINE RIVER NEAR RULIFF, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | CHRO-MIUM, DIS-SOLVED (UG/L AS CR) | COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) | COBALT, DIS-SOLVED (UG/L AS CO) | COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) | COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU) | COPPER, DIS-SOLVED (UG/L AS CU) | IRON, TOTAL RECOV-ERABLE (UG/L AS FE) | IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE) | IRON, DIS-SOLVED (UG/L AS FE) | LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | |
| 19... | 0 | 0 | <3 | 15 | 10 | 5 | 820 | 570 | 250 | 15 |
| JAN | | | | | | | | | | |
| 21... | 0 | 0 | <3 | 13 | 8 | 5 | 830 | 550 | 280 | 10 |
| MAY | | | | | | | | | | |
| 27... | 10 | 0 | <3 | 7 | 4 | 3 | 1400 | 1400 | 20 | 4 |
| JUL | | | | | | | | | | |
| 29... | 10 | 1 | <3 | 4 | 2 | 2 | 650 | 410 | 240 | 5 |

| DATE | LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB) | LEAD, DIS-SOLVED (UG/L AS PB) | MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) | MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) | MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) | MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG) | MERCURY DIS-SOLVED (UG/L AS HG) | NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) | NICKEL, SUS-PENDED RECOV-ERABLE (UG/L AS NI) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | |
| 19... | 4 | 11 | 90 | 40 | 50 | 2.0 | 1.5 | .5 | 6 | 5 |
| JAN | | | | | | | | | | |
| 21... | 0 | 10 | 110 | 20 | 90 | .4 | .0 | .4 | 8 | 5 |
| MAY | | | | | | | | | | |
| 27... | 4 | 0 | 200 | 120 | 80 | .5 | .4 | .1 | 2 | 0 |
| JUL | | | | | | | | | | |
| 29... | 0 | 7 | 130 | 60 | 69 | .5 | .3 | .2 | 2 | 0 |

| DATE | NICKEL, DIS-SOLVED (UG/L AS NI) | SELE-NIUM, TOTAL (UG/L AS SE) | SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE) | SELE-NIUM, DIS-SOLVED (UG/L AS SE) | SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) | SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG) | SILVER, DIS-SOLVED (UG/L AS AG) | ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) | ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN) | ZINC, DIS-SOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | |
| 19... | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 30 | 20 |
| JAN | | | | | | | | | | |
| 21... | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 20 |
| MAY | | | | | | | | | | |
| 27... | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 4 | 6 |
| JUL | | | | | | | | | | |
| 29... | 3 | 0 | 0 | 0 | 1 | 1 | 0 | 40 | 30 | 10 |

| DATE | TIME | GROSS ALPHA, DIS-SOLVED (PCI/L AS U-NAT) | GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT) | 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/YT-90) | GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) | RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L) | URANIUM DIS-SOLVED, EXTRAC-TION (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 21... | 1140 | <4.3 | 1.4 | <6.3 | 2.0 | <8.5 | 1.5 | <8.5 | 1.4 | .06 | .23 |
| AUG | | | | | | | | | | | |
| 12... | 1010 | -- | .8 | <2.5 | 1.2 | 4.0 | 1.0 | 3.8 | .9 | .08 | <.01 |

08030500 SABINE RIVER NEAR RULIFF, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

| DATE | NOV 19,80 | MAR 17,81 | MAY 27,81 | JUN 23,81 |
|---|---|---|---|---|
| TIME | 1335 | 0940 | 1555 | 0800 |
| TOTAL CELLS/ML | 13 | 180 | 1700 | 350 |
| DIVERSITY: DIVISION | 0.0 | 1.0 | 1.5 | 1.0 |
| .CLASS | 0.0 | 1.0 | 1.5 | 1.0 |
| ..ORDER | 0.0 | 1.0 | 2.1 | 1.3 |
| ...FAMILY | 0.0 | 1.1 | 2.6 | 1.5 |
| ....GENUS | 0.0 | 1.1 | 2.9 | 1.5 |

| ORGANISM | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT |
|---|---|---|---|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | | | | | |
| .CHLOROPHYCEAE | | | | | | | | |
| ..CHLOROCOCCALES | | | | | | | | |
| ...CHLOROCOCCACEAE | | | | | | | | |
| ....TETRAEDRON | -- | - | -- | - | 14 | 1 | -- | - |
| ...OOCYSTACEAE | | | | | | | | |
| ....ANKISTRODESMUS | -- | - | -- | - | 42 | 2 | -- | - |
| ....CHODATELLA | -- | - | -- | - | 14 | 1 | -- | - |
| ....FRANCEIA | -- | - | -- | - | 28 | 2 | -- | - |
| ....KIRCHNERIELLA | -- | - | -- | - | -- | - | -- | - |
| ....OOCYSTIS | -- | - | -- | - | 56 | 3 | -- | - |
| ...SCENEDESMACEAE | | | | | | | | |
| ....ACTINASTRUM | -- | - | -- | - | -- | - | -- | - |
| ....CRUCIGENIA | -- | - | -- | - | 56 | 3 | -- | - |
| ....SCENEDESMUS | -- | - | -- | - | 170 | 10 | 150# | 44 |
| ..VOLVOCALES | | | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | | | |
| ....CHLAMYDOMONAS | -- | - | 14 | 8 | 84 | 5 | -- | - |
| ..ZYGNEMATALES | | | | | | | | |
| ...DESMIDIACEAE | | | | | | | | |
| ....COSMARIUM | -- | - | -- | - | -- | - | -- | - |
| ....STAURASTRUM | -- | - | -- | - | -- | - | -- | - |
| CHRYSOPHYTA | | | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | | | |
| ..CENTRALES | | | | | | | | |
| ...COSCINODISCACEAE | | | | | | | | |
| ....CYCLOTELLA | -- | - | -- | - | 42 | 2 | -- | - |
| ....MELOSIRA | -- | - | -- | - | 130 | 7 | 26 | 7 |
| ..PENNALES | | | | | | | | |
| ...ACHNANTHACEAE | | | | | | | | |
| ....ACHNANTHES | -- | - | -- | - | 14 | 1 | -- | - |
| ...FRAGILARIACEAE | | | | | | | | |
| ....FRAGILARIA | -- | - | -- | - | -- | - | -- | - |
| ....SYNEDRA | -- | - | -- | - | 14 | 1 | -- | - |
| ...NAVICULACEAE | | | | | | | | |
| ....NAVICULA | -- | - | -- | - | 70 | 4 | 13 | 4 |
| ...NITZSCHIACEAE | | | | | | | | |
| ....NITZSCHIA | 13# | 100 | 14 | 8 | 110 | 6 | 150# | 44 |
| ...SURIRELLACEAE | | | | | | | | |
| ....SURIRELLA | -- | - | 14 | 8 | -- | - | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | | | |
| .CYANOPHYCEAE | | | | | | | | |
| ..CHROOCOCCALES | | | | | | | | |
| ...CHROOCOCCACEAE | | | | | | | | |
| ....AGMENELLUM | -- | - | -- | - | -- | - | -- | - |
| ....ANACYSTIS | -- | - | -- | - | 800# | 46 | -- | - |
| ..NOSTOCALES | | | | | | | | |
| ...NOSTOCACEAE | | | | | | | | |
| ....ANABAENA | -- | - | -- | - | -- | - | -- | - |
| ....APHANIZOMENON | -- | - | -- | - | -- | - | -- | - |
| ..OSCILLATORIALES | | | | | | | | |
| ...OSCILLATORIACEAE | | | | | | | | |
| ....LYNGBYA | -- | - | -- | - | -- | - | -- | - |
| ....OSCILLATORIA | -- | - | 140# | 77 | 110 | 6 | -- | - |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | | | |
| .EUGLENOPHYCEAE | | | | | | | | |
| ..EUGLENALES | | | | | | | | |
| ...EUGLENACEAE | | | | | | | | |
| ....TRACHELOMONAS | -- | - | -- | - | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

08030500 SABINE RIVER NEAR RULIFF, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

| DATE | JUL 29,81 | | AUG 12,81 | | SEP 22,81 | |
|---|---|---|---|---|---|---|
| TIME | 1330 | | 1010 | | 1015 | |
| TOTAL CELLS/ML | 6400 | | 18000 | | 86 | |
| DIVERSITY: DIVISION | 0.7 | | 0.1 | | 0.0 | |
| .CLASS | 0.7 | | 0.1 | | 0.0 | |
| ..ORDER | 1.7 | | 0.7 | | 0.0 | |
| ...FAMILY | 1.8 | | 0.7 | | 0.7 | |
| ....GENUS | 2.0 | | 1.0 | | 0.7 | |
| ORGANISM | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...CHLOROCOCCACEAE | | | | | | |
| ....TETRAEDRON | * | 0 | -- | - | -- | - |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | 41 | 1 | * | 0 | -- | - |
| ....CHODATELLA | * | 0 | -- | - | -- | - |
| ....FRANCEIA | -- | - | -- | - | -- | - |
| ....KIRCHNERIELLA | * | 0 | -- | - | -- | - |
| ....OOCYSTIS | * | 0 | -- | - | -- | - |
| ...SCENEDESMACEAE | | | | | | |
| ....ACTINASTRUM | * | 0 | -- | - | -- | - |
| ....CRUCIGENIA | -- | - | -- | - | -- | - |
| ....SCENEDESMUS | 55 | 1 | 110 | 1 | -- | - |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CHLAMYDOMONAS | 82 | 1 | -- | - | -- | - |
| ..ZYGNEMATALES | | | | | | |
| ...DESMIDIACEAE | | | | | | |
| ....COSMARIUM | 69 | 1 | -- | - | -- | - |
| ....STAURASTRUM | * | 0 | -- | - | -- | - |
| CHRYSOPHYTA | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..CENTRALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | * | 0 | -- | - | -- | - |
| ....MELOSIRA | 110 | 2 | -- | - | -- | - |
| ..PENNALES | | | | | | |
| ...ACHNANTHACEAE | | | | | | |
| ....ACHNANTHES | * | 0 | -- | - | -- | - |
| ...FRAGILARIACEAE | | | | | | |
| ....FRAGILARIA | 120 | 2 | -- | - | -- | - |
| ....SYNEDRA | -- | - | * | 0 | -- | - |
| ...NAVICULACEAE | | | | | | |
| ....NAVICULA | 96 | 1 | -- | - | 72# | 83 |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | 69 | 1 | -- | - | 14# | 17 |
| ...SURIRELLACEAE | | | | | | |
| ....SURIRELLA | -- | - | -- | - | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....AGMENELLUM | 210 | 3 | -- | - | -- | - |
| ....ANACYSTIS | 2100# | 32 | 100 | 1 | -- | - |
| ..NOSTOCALES | | | | | | |
| ...NOSTOCACEAE | | | | | | |
| ....ANABAENA | -- | - | 1800 | 10 | -- | - |
| ....APHANIZOMENON | -- | - | 130 | 1 | -- | - |
| ..OSCILLATORIALES | | | | | | |
| ...OSCILLATORIACEAE | | | | | | |
| ....LYNGBYA | -- | - | 15000# | 81 | -- | - |
| ....OSCILLATORIA | 3400# | 52 | 1200 | 6 | -- | - |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....TRACHELOMONAS | * | 0 | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

08030500 SABINE RIVER NEAR RULIFF, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 48972 | 161 | 89 | 11700 | 21 | 2800 | 16 | 2060 | 31 |
| NOV. | 1980 | 42752 | 176 | 95 | 11000 | 23 | 2660 | 17 | 1920 | 33 |
| DEC. | 1980 | 42359 | 165 | 91 | 10400 | 22 | 2490 | 16 | 1810 | 32 |
| JAN. | 1981 | 44089 | 170 | 93 | 11100 | 22 | 2660 | 16 | 1930 | 32 |
| FEB. | 1981 | 64440 | 133 | 75 | 13100 | 18 | 3060 | 13 | 2330 | 26 |
| MAR. | 1981 | 70900 | 110 | 64 | 12200 | 15 | 2810 | 11 | 2180 | 22 |
| APR. | 1981 | 47524 | 164 | 91 | 11600 | 22 | 2780 | 16 | 2040 | 32 |
| MAY | 1981 | 77011 | 167 | 91 | 19000 | 22 | 4560 | 16 | 3320 | 32 |
| JUNE | 1981 | 156310 | 109 | 63 | 26700 | 15 | 6150 | 11 | 4770 | 22 |
| JULY | 1981 | 200230 | 129 | 73 | 39700 | 17 | 9250 | 13 | 7060 | 26 |
| AUG. | 1981 | 212010 | 152 | 85 | 48700 | 20 | 11500 | 15 | 8590 | 30 |
| SEPT | 1981 | 48410 | 163 | 90 | 11700 | 21 | 2800 | 16 | 2060 | 31 |
| TOTAL | | 1055007 | ** | ** | 227000 | ** | 53500 | ** | 40100 | ** |
| WTD. AVG. | | 2890 | 142 | 80 | ** | 19 | ** | 14 | ** | 28 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 155 | 131 | 172 | 155 | 160 | 155 | 166 | 158 | 172 | 151 | 148 | 160 |
| 2 | 154 | 150 | 196 | 168 | 149 | 154 | 156 | 165 | 181 | 155 | 148 | 165 |
| 3 | 158 | 170 | 186 | 171 | 152 | 167 | 179 | 173 | 173 | 149 | 150 | 171 |
| 4 | 155 | 177 | 188 | 168 | 116 | 161 | 140 | 188 | 172 | 135 | 149 | 167 |
| 5 | 154 | 202 | 218 | 180 | 88 | 143 | 163 | 194 | 170 | 124 | 150 | 155 |
| 6 | 159 | 194 | 222 | 171 | 101 | 94 | 154 | 174 | 120 | 99 | 150 | 150 |
| 7 | 172 | 174 | 189 | 188 | 104 | 67 | 163 | 145 | 105 | 76 | 150 | 148 |
| 8 | 186 | 204 | 178 | 162 | 108 | 62 | 159 | 117 | 76 | 76 | 152 | 152 |
| 9 | 190 | 168 | 175 | 181 | 113 | 71 | 157 | 112 | 66 | 71 | 152 | 160 |
| 10 | 193 | 186 | 141 | 170 | 127 | 83 | 173 | 155 | 68 | 91 | 152 | 165 |
| 11 | 205 | 177 | 122 | 171 | 128 | 93 | 168 | 154 | 72 | 95 | 154 | 163 |
| 12 | 177 | 190 | 120 | 170 | 134 | 101 | 172 | 138 | 97 | 98 | 152 | 165 |
| 13 | 180 | 193 | 126 | 168 | 134 | 114 | 171 | 177 | 101 | 107 | 150 | 170 |
| 14 | 182 | 171 | 136 | 177 | 135 | 124 | 165 | 151 | 72 | 116 | 152 | 166 |
| 15 | 180 | 195 | 132 | 163 | 137 | 119 | 174 | 161 | 78 | 120 | 153 | 160 |
| 16 | 186 | 181 | 159 | 191 | 143 | 126 | 157 | 161 | 77 | 137 | 155 | 170 |
| 17 | 178 | 170 | 187 | 187 | 152 | 132 | 166 | 170 | 78 | 146 | 152 | 165 |
| 18 | 136 | 161 | 186 | 178 | 160 | 138 | 175 | 178 | 117 | 146 | 152 | 160 |
| 19 | 135 | 170 | 186 | 187 | 169 | 143 | 156 | 200 | 136 | 134 | 155 | 167 |
| 20 | 138 | 164 | 150 | 177 | 170 | 155 | 157 | 180 | 153 | 161 | 153 | 173 |
| 21 | 136 | 142 | 152 | 168 | 178 | 130 | 162 | 179 | 143 | 158 | 152 | 170 |
| 22 | 125 | 155 | 158 | 144 | 150 | 145 | 164 | 207 | 156 | 154 | 152 | 165 |
| 23 | 136 | 185 | 181 | 159 | 185 | 153 | 166 | 231 | 141 | 151 | 152 | 172 |
| 24 | 132 | 178 | 177 | 132 | 168 | 145 | 163 | 207 | 146 | 151 | 153 | 170 |
| 25 | 151 | 237 | 172 | 147 | 155 | 145 | 154 | 200 | 164 | 158 | 151 | 168 |
| 26 | 170 | 180 | 194 | 150 | 150 | 142 | 152 | 166 | 154 | 157 | 159 | 166 |
| 27 | 192 | 202 | 188 | 171 | 158 | 155 | 163 | 165 | 156 | 155 | 175 | 170 |
| 28 | 210 | 174 | 174 | 164 | 145 | 145 | 182 | 165 | 158 | 153 | 153 | 165 |
| 29 | 233 | 167 | 179 | 197 | --- | 163 | 177 | 166 | 151 | 153 | 155 | 155 |
| 30 | 172 | 171 | 161 | 179 | --- | 159 | 169 | 165 | 153 | 145 | 155 | 170 |
| 31 | 150 | --- | 178 | 178 | --- | 170 | --- | 168 | --- | 148 | 154 | --- |
| MEAN | 167 | 177 | 170 | 170 | 142 | 131 | 164 | 170 | 127 | 131 | 153 | 164 |

08030500 SABINE RIVER NEAR RULIFF, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 25.0 | 15.0 | 11.0 | 9.0 | 14.0 | 18.0 | 21.0 | 25.0 | 26.0 | 29.0 | 30.0 | |
| 2 | 25.0 | 15.0 | 11.0 | 9.0 | 11.0 | 18.0 | 21.0 | 25.0 | 27.0 | 30.0 | 30.0 | |
| 3 | 24.0 | 15.0 | 13.0 | 10.0 | 11.0 | 18.0 | 21.0 | 25.0 | 26.0 | 29.0 | 30.0 | |
| 4 | 25.0 | 15.0 | 14.0 | 11.0 | 10.0 | 17.0 | 21.0 | 24.0 | 28.0 | 28.0 | 30.0 | |
| 5 | 25.0 | 16.0 | 14.0 | 10.0 | 9.0 | 17.0 | 21.0 | 23.0 | 28.0 | 28.0 | 30.0 | |
| 6 | 23.0 | 16.0 | 15.0 | 11.0 | 8.0 | 17.0 | 20.0 | 24.0 | 26.0 | 26.0 | 29.0 | |
| 7 | 23.0 | 17.0 | 17.0 | 10.0 | 9.0 | 16.0 | 20.0 | 24.0 | 26.0 | 26.0 | 30.0 | |
| 8 | 22.0 | 17.0 | 17.0 | 10.0 | 10.0 | --- | 20.0 | 23.0 | 26.0 | 27.0 | 30.0 | |
| 9 | 22.0 | 17.0 | 16.0 | 10.0 | 10.0 | 15.0 | 21.0 | 23.0 | 26.0 | 27.0 | 30.0 | |
| 10 | 21.0 | 19.0 | 15.0 | 10.0 | 11.0 | 15.0 | 21.0 | 22.0 | 27.0 | 28.0 | 30.0 | |
| 11 | 22.0 | 19.0 | 12.0 | 10.0 | 11.0 | 16.0 | 23.0 | 23.0 | 26.0 | 28.0 | 30.0 | |
| 12 | 21.0 | 19.0 | 12.0 | --- | 9.0 | 16.0 | 24.0 | 22.0 | 27.0 | 28.0 | 30.0 | |
| 13 | 21.0 | 18.0 | 12.0 | 9.0 | 9.0 | 15.0 | 24.0 | 23.0 | 26.0 | 30.0 | 29.0 | |
| 14 | 22.0 | --- | 12.0 | 9.0 | --- | 16.0 | 24.0 | 24.0 | 27.0 | 29.0 | 29.0 | |
| 15 | 31.0 | 19.0 | 11.0 | 9.0 | 9.0 | 17.0 | 24.0 | 23.0 | 27.0 | 29.0 | --- | |
| 16 | 22.0 | 18.0 | 12.0 | 9.0 | 10.0 | 17.0 | 25.0 | 23.0 | 27.0 | 30.0 | 31.0 | |
| 17 | 22.0 | 16.0 | 15.0 | 9.0 | 11.0 | 16.0 | 25.0 | --- | 28.0 | 30.0 | 30.0 | |
| 18 | 23.0 | 17.0 | 12.0 | 9.0 | 13.0 | 17.0 | 25.0 | 25.0 | 28.0 | 32.0 | 31.0 | |
| 19 | 22.0 | 13.0 | 11.0 | 9.0 | 14.0 | 16.0 | 25.0 | 26.0 | 28.0 | 30.0 | 31.0 | |
| 20 | 23.0 | 12.0 | 11.0 | 9.0 | 15.0 | 15.0 | 25.0 | 25.0 | 28.0 | 31.0 | 30.0 | |
| 21 | 23.0 | 12.0 | 11.0 | 8.0 | 17.0 | 15.0 | 25.0 | 24.0 | 28.0 | --- | 29.0 | |
| 22 | 20.0 | 12.0 | 9.0 | 8.0 | 17.0 | 14.0 | 25.0 | 24.0 | 29.0 | --- | 28.0 | |
| 23 | 19.0 | 11.0 | 10.0 | 8.0 | 17.0 | 16.0 | 24.0 | 25.0 | 30.0 | 31.0 | 29.0 | |
| 24 | 22.0 | 12.0 | 11.0 | 8.0 | 16.0 | 16.0 | 23.0 | 25.0 | 29.0 | 31.0 | 29.0 | |
| 25 | 20.0 | 12.0 | 10.0 | 9.0 | 17.0 | 16.0 | 23.0 | 26.0 | 28.0 | 32.0 | 29.0 | |
| 26 | 18.0 | 12.0 | 10.0 | 11.0 | 17.0 | 16.0 | 23.0 | 24.0 | 29.0 | 31.0 | 29.0 | |
| 27 | 18.0 | 11.0 | 10.0 | 12.0 | 16.0 | 16.0 | 23.0 | 24.0 | --- | 30.0 | 30.0 | |
| 28 | 18.0 | 11.0 | 10.0 | 11.0 | 17.0 | 18.0 | 23.0 | 25.0 | 28.0 | 20.0 | 30.0 | |
| 29 | 17.0 | 10.0 | 9.0 | 13.0 | --- | 20.0 | 24.0 | 25.0 | 29.0 | 29.0 | 28.0 | |
| 30 | 16.0 | 10.0 | 9.0 | 13.0 | --- | 19.0 | 24.0 | 25.0 | 29.0 | 29.0 | 27.0 | |
| 31 | 16.0 | --- | 9.0 | 12.0 | --- | 20.0 | --- | 26.0 | --- | 29.0 | 27.0 | |
| MEAN | 21.5 | 14.5 | 12.0 | 10.0 | 12.5 | 16.5 | 23.0 | 24.0 | 27.5 | 29.0 | 29.5 | |

## 08031000 COW BAYOU NEAR MAURICEVILLE, TX

LOCATION.--Lat 30°11'10", long 93°54'30", Orange County, Hydrologic Unit 12010005, near center of span at downstream side of bridge on State Highway 12, 0.4 mi (0.6 km) upstream from Kansas City Southern Railway Co. bridge, and 2.7 mi (4.3 km) southwest of Mauriceville.

DRAINAGE AREA.--83.3 $mi^2$ (215.7 $km^2$).

PERIOD OF RECORD.--March 1952 to current year (October 1956 to September 1957, monthly discharge only).
Water-quality records: Sediment records: October 1976 to September 1979.

REVISED RECORD.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4.73 ft (1.442 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 23, 1957, nonrecording gage at same site and datum.

REMARKS.--Records fair. No large diversion above station. Base flow is partly sustained by springs. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--29 years, 101 $ft^3/s$ (2.860 $m^3/s$), 16.46 in/yr (418 mm/yr), 73,170 acre-ft/yr (90.2 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,600 $ft^3/s$ (130 $m^3/s$) Sept. 19, 1963, gage height, 18.15 ft (5.532 m); no flow at times.
Maximum stage since at least 1940, 18.16 ft (5.535 m) Oct. 28, 1970.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,150 $ft^3/s$ (32.6 $m^3/s$) Oct. 19 at 0200 hours, gage height, 13.16 ft (4.011 m), no other peaks above base of 900 $ft^3/s$ (25.5 $m^3/s$); minimum, 0.02 $ft^3/s$ (0.001 $m^3/s$) Aug. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 37 | 3.0 | 5.7 | 1.1 | 70 | 6.4 | 1.5 | 17 | 1.4 | 31 | 16 | .66 |
| 2 | 16 | 2.4 | 4.6 | .85 | 157 | 5.8 | 1.3 | 13 | .59 | 18 | 13 | .76 |
| 3 | 9.4 | 1.9 | 3.7 | .71 | 149 | 5.2 | 1.2 | 8.3 | 31 | 56 | 8.8 | 1.1 |
| 4 | 4.9 | 1.6 | 2.9 | .54 | 146 | 62 | 1.1 | 5.8 | 17 | 113 | 6.2 | 1.1 |
| 5 | 3.0 | 1.2 | 2.5 | .40 | 228 | 101 | .99 | 4.3 | 328 | 260 | 4.5 | 1.1 |
| 6 | 1.9 | .97 | 2.1 | .47 | 513 | 85 | .81 | 3.7 | 468 | 661 | 3.2 | 1.0 |
| 7 | 1.4 | .73 | 1.8 | 1.1 | 483 | 88 | .59 | 3.0 | 388 | 821 | 2.5 | .90 |
| 8 | 1.1 | .51 | 1.6 | 1.3 | 510 | 98 | .57 | 2.1 | 316 | 824 | 2.0 | .92 |
| 9 | .91 | .61 | 121 | 1.1 | 459 | 93 | .57 | 1.7 | 226 | 709 | 1.3 | 1.0 |
| 10 | .58 | .56 | 216 | .93 | 413 | 80 | .58 | 2.0 | 136 | 552 | .89 | .76 |
| 11 | .28 | .38 | 191 | .76 | 351 | 61 | .57 | 1.2 | 556 | 828 | .52 | .62 |
| 12 | .15 | .26 | 170 | .62 | 283 | 44 | .53 | .70 | 718 | 880 | .48 | .17 |
| 13 | .10 | .17 | 135 | .45 | 231 | 35 | .44 | .43 | 830 | 823 | .31 | .07 |
| 14 | .08 | .19 | 92 | .40 | 176 | 29 | .39 | .80 | 856 | 699 | .24 | .10 |
| 15 | .07 | .20 | 62 | .40 | 124 | 24 | .40 | .63 | 754 | 476 | .19 | .13 |
| 16 | .07 | .98 | 46 | .35 | 75 | 19 | .39 | 11 | 514 | 328 | .10 | .16 |
| 17 | .08 | 4.5 | 33 | .26 | 54 | 16 | .42 | 28 | 333 | 239 | .11 | .16 |
| 18 | 488 | 4.6 | 22 | .16 | 42 | 13 | .47 | 24 | 229 | 157 | .12 | .21 |
| 19 | 1120 | 3.4 | 16 | 1.9 | 31 | 11 | .45 | 17 | 143 | 88 | .08 | .21 |
| 20 | 1110 | 2.5 | 12 | 181 | 24 | 8.5 | .43 | 12 | 72 | 49 | .05 | .16 |
| 21 | 973 | 2.0 | 8.9 | 160 | 19 | 7.0 | .39 | 7.5 | 38 | 26 | .04 | .08 |
| 22 | 593 | 3.8 | 6.7 | 128 | 18 | 8.0 | .32 | 4.7 | 20 | 15 | .03 | 6.3 |
| 23 | 231 | 14 | 5.2 | 106 | 17 | 6.5 | 3.5 | 3.1 | 12 | 8.8 | .02 | 7.7 |
| 24 | 98 | 11 | 4.3 | 85 | 14 | 5.5 | 8.0 | 2.1 | 9.5 | 5.4 | .05 | 6.6 |
| 25 | 51 | 8.2 | 3.5 | 65 | 11 | 4.5 | 9.2 | 1.5 | 9.5 | 3.6 | .07 | 4.6 |
| 26 | 27 | 13 | 2.8 | 51 | 9.5 | 3.5 | 16 | 1.0 | 8.7 | 4.1 | .06 | 3.1 |
| 27 | 17 | 15 | 2.4 | 40 | 8.2 | 3.0 | 16 | .63 | 16 | 6.2 | .04 | 2.1 |
| 28 | 11 | 11 | 2.0 | 31 | 7.2 | 2.5 | 15 | .29 | 20 | 6.5 | .04 | 1.4 |
| 29 | 7.9 | 8.7 | 1.7 | 24 | --- | 2.0 | 16 | .10 | 25 | 7.3 | .06 | .95 |
| 30 | 5.6 | 6.9 | 1.4 | 19 | --- | 1.7 | 18 | .05 | 42 | 11 | .19 | .66 |
| 31 | 4.0 | --- | 1.2 | 14 | --- | 1.4 | --- | 2.7 | --- | 13 | .49 | --- |
| TOTAL | 4813.52 | 124.26 | 1181.0 | 917.80 | 4622.9 | 930.5 | 116.11 | 180.33 | 7117.69 | 8718.9 | 61.68 | 44.78 |
| MEAN | 155 | 4.14 | 38.1 | 29.6 | 165 | 30.0 | 3.87 | 5.82 | 237 | 281 | 1.99 | 1.49 |
| MAX | 1120 | 15 | 216 | 181 | 513 | 101 | 18 | 28 | 856 | 880 | 16 | 7.7 |
| MIN | .07 | .17 | 1.2 | .16 | 7.2 | 1.4 | .32 | .05 | .59 | 3.6 | .02 | .07 |
| CFSM | 1.86 | .05 | .46 | .36 | 1.98 | .36 | .05 | .07 | 2.85 | 3.37 | .02 | .02 |
| IN. | 2.15 | .06 | .53 | .41 | 2.06 | .42 | .05 | .08 | 3.18 | 3.89 | .03 | .02 |
| AC-FT | 9550 | 246 | 2340 | 1820 | 9170 | 1850 | 230 | 358 | 14120 | 17290 | 122 | 89 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 55677.43 | MEAN | 152 | MAX | 2150 | MIN | .03 | CFSM 1.83 | IN 24.86 | AC-FT | 110400 |
| WTR YR 1981 | TOTAL | 28829.47 | MEAN | 79.0 | MAX | 1120 | MIN | .02 | CFSM .95 | IN 12.87 | AC-FT | 57180 |

## 08031200 KICKAPOO CREEK NEAR BROWNSBORO, TX

LOCATION.--Lat 32°18'34", long 95°36'19", Henderson County, Hydrologic Unit 12020001, on left bank 94 ft (29 m) downstream from bridge on Farm Road 314, 1.0 mi (1.6 km) northeast of Brownsboro, and 11.5 mi (18.5 km) upstream from mouth.

DRAINAGE AREA.--232 $mi^2$ (601 $km^2$).

PERIOD OF RECORD.--April 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 358.62 ft (109.307 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those below 5.0 $ft^3/s$ (0.14 $m^3/s$), which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--19 years (water years 1963-81), 135 $ft^3/s$ (3.823 $m^3/s$), 7.90 in/yr (201 mm/yr), 97,810 acre-ft/yr (121 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,800 $ft^3/s$ (419 $m^3/s$), Apr. 27, 1966, gage height, 14.79 ft (4.508 m); maximum gage height, 15.34 ft (4.676 m) May 11, 1968; no flow for many days.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1935, 16.4 ft (5.00 m) in 1936 or 1937, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,220 $ft^3/s$ (148 $m^3/s$) June 5 at 1300 hours, gage height, 12.39 ft (3.776 m), no other peak above base of 1,000 $ft^3/s$ (28.3 $m^3/s$); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .28 | .00 | .00 | .60 | 15 | 22 | 34 | 12 | 360 | 14 | .00 | .83 |
| 2 | .18 | .00 | .00 | .58 | 16 | 24 | 38 | 11 | 285 | 12 | .00 | .40 |
| 3 | .07 | .00 | .00 | .56 | 16 | 26 | 39 | 10 | 389 | 11 | .00 | .35 |
| 4 | .02 | .00 | .00 | .55 | 16 | 62 | 39 | 10 | 1600 | 11 | .00 | .69 |
| 5 | .00 | .00 | .00 | .55 | 17 | 76 | 35 | 13 | 4480 | 12 | .00 | .79 |
| 6 | .00 | .00 | .00 | 1.0 | 18 | 84 | 34 | 14 | 3640 | 16 | .00 | .83 |
| 7 | .00 | .00 | .00 | 1.5 | 18 | 79 | 30 | 17 | 2700 | 21 | .00 | .63 |
| 8 | .00 | .00 | .29 | 1.6 | 17 | 75 | 28 | 18 | 1450 | 23 | .00 | .42 |
| 9 | .00 | .00 | .25 | 1.5 | 16 | 71 | 25 | 96 | 894 | 28 | .31 | .33 |
| 10 | .00 | .00 | .55 | 1.4 | 18 | 65 | 22 | 467 | 590 | 26 | .80 | .27 |
| 11 | .00 | .00 | .60 | 1.3 | 20 | 54 | 19 | 523 | 410 | 17 | 1.1 | .20 |
| 12 | .00 | .00 | .76 | 1.2 | 20 | 44 | 17 | 786 | 294 | 12 | .42 | .13 |
| 13 | .00 | .00 | .92 | 2.0 | 19 | 37 | 16 | 603 | 204 | 7.5 | .32 | .03 |
| 14 | .00 | .05 | 1.2 | 2.5 | 18 | 31 | 14 | 426 | 138 | 4.5 | .22 | .00 |
| 15 | .00 | .10 | 1.5 | 3.0 | 17 | 28 | 13 | 295 | 98 | 3.0 | .06 | .00 |
| 16 | .00 | .20 | 1.7 | 3.0 | 16 | 26 | 12 | 251 | 140 | 2.0 | .00 | .00 |
| 17 | .05 | .40 | 1.6 | 3.0 | 16 | 24 | 12 | 317 | 375 | 1.2 | .00 | .00 |
| 18 | .20 | .15 | 1.5 | 3.3 | 15 | 23 | 11 | 275 | 293 | .80 | .00 | .00 |
| 19 | .10 | .05 | 1.4 | 4.1 | 14 | 21 | 10 | 221 | 440 | .50 | .00 | .00 |
| 20 | .05 | .02 | 1.3 | 6.1 | 13 | 20 | 9.9 | 344 | 456 | .30 | .00 | .00 |
| 21 | .02 | .00 | 1.2 | 8.1 | 13 | 19 | 9.7 | 366 | 322 | .22 | .00 | .00 |
| 22 | .00 | .00 | 1.1 | 9.8 | 14 | 19 | 9.5 | 263 | 208 | .14 | .00 | .00 |
| 23 | .00 | .00 | 1.0 | 11 | 14 | 18 | 11 | 169 | 126 | .10 | .00 | .00 |
| 24 | .00 | .00 | .92 | 13 | 15 | 18 | 12 | 172 | 78 | .06 | .00 | .00 |
| 25 | .00 | .00 | .85 | 14 | 16 | 17 | 13 | 161 | 47 | .04 | .00 | .00 |
| 26 | .02 | .00 | .80 | 13 | 20 | 17 | 13 | 211 | 31 | .03 | .00 | .00 |
| 27 | .10 | .00 | .75 | 13 | 21 | 17 | 11 | 210 | 25 | .02 | .00 | .00 |
| 28 | .08 | .00 | .70 | 12 | 20 | 17 | 11 | 402 | 21 | .01 | .00 | .00 |
| 29 | .05 | .00 | .67 | 12 | --- | 23 | 11 | 479 | 18 | .00 | .00 | .00 |
| 30 | .02 | .00 | .65 | 12 | --- | 30 | 12 | 446 | 15 | .00 | .00 | .00 |
| 31 | .00 | --- | .62 | 11 | --- | 34 | --- | 447 | --- | .00 | .00 | --- |
| TOTAL | 1.24 | .97 | 22.83 | 168.24 | 468 | 1121 | 571.1 | 8035 | 20127 | 223.42 | 3.23 | 5.90 |
| MEAN | .040 | .032 | .74 | 5.43 | 16.7 | 36.2 | 19.0 | 259 | 671 | 7.21 | .10 | .20 |
| MAX | .28 | .40 | 1.7 | 14 | 21 | 84 | 39 | 786 | 4480 | 28 | 1.1 | .83 |
| MIN | .00 | .00 | .00 | .55 | 13 | 17 | 9.5 | 10 | 15 | .00 | .00 | .00 |
| CFSM | .000 | .000 | .003 | .02 | .07 | .16 | .08 | 1.12 | 2.89 | .03 | .000 | .001 |
| IN. | .00 | .00 | .00 | .03 | .08 | .18 | .09 | 1.29 | 3.23 | .04 | .00 | .00 |
| AC-FT | 2.5 | 1.9 | 45 | 334 | 928 | 2220 | 1130 | 15940 | 39920 | 443 | 6.4 | 12 |

CAL YR 1980 TOTAL 29271.13 MEAN 80.0 MAX 2330 MIN .00 CFSM .35 IN 4.69 AC-FT 58060
WTR YR 1981 TOTAL 30747.93 MEAN 84.2 MAX 4480 MIN .00 CFSM .36 IN 4.93 AC-FT 60990

## 08031290 LAKE ATHENS NEAR ATHENS, TX

LOCATION.--Lat 32°12'15", long 95°43'30", Henderson County, Hydrologic Unit 12020001, at upstream side of dam on Flat Creek, 5 mi (8 km) downstream from Underwood Lake, 8 mi (13 km) east of Athens, and 18 mi (29 km) upstream from Neches River.

DRAINAGE AREA.--21.6 mi® (55.9 km®).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1964 to current year. Prior to October 1972, published as Flat Creek Reservoir.

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

REMARKS.--The lake is formed by a rolled earthfill dam 3,000 ft (910 m) long. Deliberate impoundment began Nov. 1, 1962, and the dam was completed in May 1963. The emergency spillway is an uncontrolled 300-foot-wide (91 m) channel cut through natural ground at the left end of the dam. The service spillway is an uncontrolled 6- by 6-foot (2 by 2 m) square drop inlet that is connected to a concrete conduit of the same size that extends through the dam. A 4.0- by 5.5-foot (1 by 1.7 m) inlet box with slide valve that connects to an 18-inch-diameter (457 mm) concrete conduit extends through the dam and serves as the low-flow service outlet. Water is used for municipal supply by the city of Athens. 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 | 453 + | - |
| Crest of spillway | 446.0 | 42,600 |
| Crest of drop inlet (top of conservation pool) | 440.0 | 32,790 |
| Normal operating level | 440.0 | 32,790 |
| Lowest gated outlet (invert) | 396.5 | 100 |

COOPERATION.--The capacity table, furnished by the city of Athens, is based on Geological Survey topographic maps dated 1949-50.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 36,500 acre-ft (45.0 hm³) May 10, 1968, elevation, 442.37 ft (134.834 m); minimum since operating level was reached (May 7, 1968), 29,300 acre-ft (36.1 hm³) Nov. 9-13, 1980, elevation, 437.64 ft (133.393 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 33,850 acre-ft (41.7 hm³) June 5, 6 at 1700 to 0500 hours, elevation, 440.69 ft (134.322 m); minimum, 29,300 acre-ft (36.1 hm³) Nov. 9-13, elevation, 437.64 ft (133.393 m).

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

| | | | |
|---|---|---|---|
| 437.6 | 29,240 | 440.0 | 32,790 |
| 438.0 | 29,820 | 441.0 | 34,340 |
| 439.0 | 31,290 | | |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 29940 | 29370 | 29600 | 29810 | 30070 | 30380 | 31050 | 31190 | 32730 | 32840 | 32050 | 31240 |
| 2 | 29910 | 29360 | 29580 | 29810 | 30070 | 30390 | 31040 | 31140 | 32840 | 32790 | 32020 | 31240 |
| 3 | 29890 | 29340 | 29580 | 29810 | 30070 | 30700 | 31040 | 31170 | 33380 | 32760 | 31990 | 31230 |
| 4 | 29880 | 29330 | 29580 | 29810 | 30050 | 30800 | 31190 | 31170 | 33560 | 32790 | 31950 | 31300 |
| 5 | 29850 | 29320 | 29590 | 29810 | 30110 | 30800 | 31220 | 31190 | 33850 | 32810 | 31900 | 31290 |
| 6 | 29820 | 29320 | 29600 | 29810 | 30110 | 30830 | 31200 | 31200 | 33790 | 32790 | 31860 | 31270 |
| 7 | 29790 | 29320 | 29630 | 29790 | 30130 | 30860 | 31190 | 31190 | 33670 | 32790 | 31830 | 31260 |
| 8 | 29790 | 29320 | 29810 | 29790 | 30140 | 30890 | 31190 | 31190 | 33560 | 32790 | 31780 | 31230 |
| 9 | 29760 | 29300 | 29850 | 29790 | 30170 | 30920 | 31200 | 32020 | 33490 | 32760 | 31740 | 31190 |
| 10 | 29750 | 29300 | 29840 | 29790 | 30160 | 30920 | 31190 | 32070 | 33380 | 32750 | 31690 | 31160 |
| 11 | 29710 | 29300 | 29840 | 29790 | 30160 | 30920 | 31190 | 32110 | 33350 | 32730 | 31680 | 31130 |
| 12 | 29690 | 29300 | 29840 | 29790 | 30160 | 30920 | 31200 | 32110 | 33350 | 32700 | 31680 | 31080 |
| 13 | 29660 | 29300 | 29840 | 29780 | 30140 | 30920 | 31200 | 32110 | 33300 | 32690 | 31630 | 31070 |
| 14 | 29630 | 29400 | 29820 | 29780 | 30160 | 30920 | 31200 | 32100 | 33250 | 32630 | 31590 | 31050 |
| 15 | 29620 | 29400 | 29820 | 29790 | 30140 | 30920 | 31220 | 32130 | 33220 | 32600 | 31560 | 31130 |
| 16 | 29650 | 29590 | 29820 | 29760 | 30160 | 30920 | 31200 | 32290 | 33410 | 32570 | 31540 | 31070 |
| 17 | 29710 | 29590 | 29820 | 29750 | 30160 | 30910 | 31190 | 32340 | 33410 | 32540 | 31510 | 31040 |
| 18 | 29710 | 29590 | 29820 | 29750 | 30170 | 30860 | 31190 | 32340 | 33380 | 32490 | 31500 | 30990 |
| 19 | 29660 | 29590 | 29820 | 29850 | 30170 | 30860 | 31190 | 32340 | 33330 | 32460 | 31480 | 30850 |
| 20 | 29630 | 29590 | 29820 | 29920 | 30170 | 30850 | 31190 | 32320 | 33220 | 32430 | 31420 | 30930 |
| 21 | 29630 | 29590 | 29820 | 29940 | 30220 | 30850 | 31170 | 32290 | 33220 | 32390 | 31410 | 30920 |
| 22 | 29620 | 29590 | 29820 | 29940 | 30220 | 30820 | 31140 | 32290 | 33180 | 32340 | 31380 | 30920 |
| 23 | 29590 | 29590 | 29840 | 29940 | 30220 | 30820 | 31240 | 32310 | 33100 | 32310 | 31360 | 30890 |
| 24 | 29560 | 29590 | 29840 | 29950 | 30220 | 30820 | 31240 | 32540 | 33060 | 32260 | 31330 | 30890 |
| 25 | 29530 | 29600 | 29840 | 29950 | 30200 | 30820 | 31200 | 32570 | 33020 | 32230 | 31290 | 30860 |
| 26 | 29500 | 29600 | 29820 | 29950 | 30220 | 30820 | 31220 | 32600 | 32990 | 32220 | 31260 | 30850 |
| 27 | 29450 | 29600 | 29820 | 29970 | 30220 | 30820 | 31200 | 32670 | 32950 | 32220 | 31240 | 30830 |
| 28 | 29420 | 29600 | 29820 | 29970 | 30260 | 30830 | 31200 | 32690 | 32920 | 32190 | 31230 | 30800 |
| 29 | 29400 | 29600 | 29820 | 29970 | --- | 31040 | 31200 | 32700 | 32890 | 32160 | 31220 | 30770 |
| 30 | 29390 | 29600 | 29820 | 29940 | --- | 31050 | 31200 | 32720 | 32860 | 32130 | 31220 | 30770 |
| 31 | 29360 | --- | 29820 | 30000 | --- | 31070 | --- | 32720 | --- | 32100 | 31190 | --- |
| MAX | 29940 | 29600 | 29850 | 30000 | 30260 | 31070 | 31240 | 32720 | 33850 | 32840 | 32050 | 31300 |
| MIN | 29360 | 29300 | 29580 | 29750 | 30050 | 30380 | 31040 | 31140 | 32730 | 32100 | 31190 | 30770 |
| (†) | 437.68 | 437.85 | 438.00 | 438.12 | 438.30 | 438.85 | 438.94 | 439.95 | 440.04 | 439.54 | 438.93 | 438.65 |
| (®) | -590 | +240 | +220 | + 180 | +260 | +810 | +130 | +1520 | +140 | -760 | -910 | -420 |

CAL YR 1980 MAX 33640 MIN 29300 ® -3370
WTR YR 1981 MAX 33850 MIN 29300 ® + 820

† Elevation, in feet, at end of month.
® Change in contents, in acre-feet.

08031290 LAKE ATHENS NEAR ATHENS, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | TEMPERATURE, WATER (DEG C) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|
| JAN 15... | 1400 | 100 | 11.0 | 27 | 5 | 7.7 | 1.9 | 8.8 |

| DATE | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| JAN 15... | .7 | 2.7 | 22 | 9.3 | 12 | .1 | 6.6 | 62 |

## 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 (43 m) upstream from Blackburn Crossing Dam on Neches River, 5 mi (8 km) east of Frankston, 11 mi (18 km) upstream from gage (station 08032000), and at mile 354.0 (569.6 km).

DRAINAGE AREA.--839 mi² (2,173 km²).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Sept. 20, 1962, nonrecording gage read once daily.

REMARKS.--The lake is formed by a rolled earthfill dam with a 500-foot-wide (150 m) uncontrolled emergency spillway near the left end of dam. Deliberate impoundment began May 1, 1962. The enlargement of lake began Sept. 26, 1969, and was completed on Mar. 3, 1971. The outlet works consist of two 5- by 7-foot (1.5 by 2.1 m) gates located in concrete tower near center of dam and connected to an 8.5-foot-diameter (2.6 m) concrete conduit through the dam. The low-flow outlet consists of two 3.0-foot (0.9 m) 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, 501,300 acre-ft (618 hm³) June 7, 1973, elevation, 348.29 ft (106.159 m); minimum since first appreciable storage, 11,450 acre-ft (14.1 hm³) Nov. 28, 1970, elevation, 310.00 ft (94.488 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 460,300 acre-ft (568 hm³) June 7, 8 at 1800 to 0200 hours, elevation, 346.83 ft (105.714 m); minimum, 349,900 acre-ft (431 hm³) Nov. 8, 9, elevation, 342.45 ft (104.379 m).

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

| | | | |
|---|---|---|---|
| 342.0 | 339,500 | 345.0 | 411,800 |
| 343.0 | 362,600 | 346.0 | 437,900 |
| 344.0 | 386,700 | 347.0 | 464,900 |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 361400 | 352000 | 354500 | 356400 | 362600 | 369600 | 378300 | 382600 | 422200 | 417000 | 402000 | 391000 |
| 2 | 361200 | 351500 | 355700 | 355700 | 361200 | 369800 | 377800 | 381400 | 421500 | 416500 | 401500 | 391000 |
| 3 | 360300 | 352000 | 354100 | 356600 | 361000 | 369600 | 378000 | 380900 | 427700 | 414900 | 401000 | 391700 |
| 4 | 360300 | 351500 | 353400 | 355900 | 361900 | 371500 | 381200 | 381900 | 434000 | 414900 | 400300 | 391700 |
| 5 | 359100 | 351100 | 354100 | 355200 | 363600 | 372700 | 380900 | 382400 | 448200 | 416200 | 399300 | 391200 |
| 6 | 358900 | 350800 | 353800 | 357100 | 362800 | 373700 | 380200 | 381900 | 458200 | 415700 | 398700 | 391000 |
| 7 | 358400 | 350400 | 354100 | 356800 | 365500 | 375100 | 378700 | 380900 | 460300 | 415700 | 398700 | 391200 |
| 8 | 357300 | 349900 | 358000 | 356800 | 364000 | 375900 | 380200 | 380700 | 457900 | 416000 | 398000 | 390500 |
| 9 | 357100 | 350800 | 358700 | 357500 | 364300 | 376300 | 380400 | 389200 | 453300 | 416000 | 397500 | 389700 |
| 10 | 356800 | 350800 | 357300 | 357300 | 374200 | 375900 | 380200 | 391000 | 449000 | 414900 | 397200 | 389200 |
| 11 | 356600 | 350800 | 356800 | 358900 | 365500 | 375900 | 380700 | 394700 | 446000 | 414400 | 396500 | 388500 |
| 12 | 355900 | 350400 | 357500 | 356800 | 365300 | 376300 | 380900 | 396000 | 442000 | 413600 | 396000 | 388200 |
| 13 | 354300 | 350100 | 358000 | 356400 | 365700 | 376600 | 380700 | 401800 | 437600 | 412600 | 395200 | 387500 |
| 14 | 354100 | 352000 | 357500 | 357300 | 365700 | 375900 | 382100 | 402500 | 434000 | 412300 | 394500 | 387200 |
| 15 | 352900 | 352000 | 358000 | 357100 | 365700 | 377100 | 381400 | 403800 | 432700 | 411800 | 394200 | 387200 |
| 16 | 353800 | 354300 | 357700 | 358000 | 366000 | 376300 | 380900 | 408800 | 437900 | 411300 | 394200 | 387500 |
| 17 | 356600 | 355000 | 356600 | 357100 | 366000 | 374700 | 381200 | 409300 | 436600 | 410500 | 394200 | 386000 |
| 18 | 356800 | 353800 | 356400 | 356800 | 366200 | 377100 | 380400 | 412800 | 436100 | 410000 | 393700 | 384300 |
| 19 | 356400 | 353600 | 358700 | 358400 | 366500 | 375900 | 380400 | 414400 | 434800 | 409300 | 393000 | 383800 |
| 20 | 356100 | 353600 | 357500 | 359400 | 366200 | 374200 | 381400 | 413600 | 432700 | 408500 | 392500 | 383100 |
| 21 | 355700 | 353100 | 356600 | 359400 | 367400 | 375600 | 380700 | 413100 | 431400 | 408300 | 391700 | 383100 |
| 22 | 355700 | 354100 | 355900 | 358900 | 366700 | 376800 | 380700 | 413400 | 430100 | 407500 | 391200 | 383100 |
| 23 | 355000 | 354300 | 355900 | 359400 | 366700 | 375600 | 382800 | 413600 | 428200 | 407000 | 390500 | 382800 |
| 24 | 354500 | 354300 | 358000 | 359100 | 366500 | 375400 | 382800 | 418300 | 426200 | 406800 | 390000 | 382400 |
| 25 | 353800 | 354500 | 356100 | 359400 | 366700 | 375900 | 382600 | 419600 | 424900 | 405500 | 389200 | 381200 |
| 26 | 352700 | 354500 | 356400 | 359800 | 366500 | 373700 | 381900 | 420200 | 423500 | 405500 | 388700 | 381400 |
| 27 | 354700 | 354500 | 356400 | 359800 | 366200 | 374700 | 381400 | 420900 | 421700 | 403800 | 388500 | 381400 |
| 28 | 354500 | 354300 | 356400 | 358700 | 368600 | 374900 | 382400 | 420900 | 419600 | 403300 | 388500 | 381200 |
| 29 | 353400 | 354100 | 357100 | 359600 | --- | 377100 | 381900 | 421700 | 418300 | 404000 | 388000 | 380900 |
| 30 | 352700 | 353600 | 355900 | 359600 | --- | 377100 | 382100 | 421700 | 417500 | 403300 | 388000 | 380000 |
| 31 | 352400 | --- | 356400 | 359800 | --- | 378300 | --- | 422200 | --- | 402800 | 387200 | --- |
| MAX | 361400 | 355000 | 358700 | 359800 | 374200 | 378300 | 382800 | 422200 | 460300 | 417000 | 402000 | 391700 |
| MIN | 352400 | 349900 | 353400 | 355200 | 361000 | 369600 | 377800 | 380700 | 417500 | 402800 | 387200 | 380000 |
| (†) | 342.56 | 342.61 | 342.73 | 342.88 | 343.25 | 343.65 | 343.81 | 345.40 | 345.22 | 344.64 | 344.02 | 343.72 |
| (‡) | -9700 | +1200 | +2800 | +3400 | +8800 | +9700 | +3800 | +40100 | -4700 | -14700 | -15600 | -7200 |

CAL YR 1980 MAX 443800 MIN 349900 ‡ -66400
WTR YR 1981 MAX 460300 MIN 349900 ‡ +17900

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.

08031400 LAKE PALESTINE NEAR FRANKSTON, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | TEMPERATURE, WATER (DEG C) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|
| JAN 14... | 1520 | 207 | 9.5 | 47 | 23 | 11 | 4.8 | 20 |

| DATE | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| JAN 14... | 1.3 | 3.7 | 24 | 31 | 30 | .1 | 12 | 127 |

## 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 downstream from bridge on U.S. Highway 79, 1.0 mi (1.6 km) downstream from Missouri Pacific Railway Co. bridge, 1.4 mi (2.3 km) downstream from Walnut Creek, 4.4 mi (7.1 km) northeast of Neches, and at mile 333.2 (536.1 km).

DRAINAGE AREA.--1,145 mi² (2,966 km²).

### WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 264.06 ft (80.486 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 27, 1945, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good. Some regulation by Lake Palestine (station 08031400) 11 mi (18 km) upstream and by Lake Athens (station 08031290) 50 mi (80 km) upstream, capacity, 100,200 acre-ft (124 hm³). No large diversion above station.

AVERAGE DISCHARGE.--22 years (water years 1940-61) unregulated, 804 ft³/s (22.77 m³/s), 582,500 acre-ft/yr (718 hm³/yr); 20 years (water years 1962-81) regulated, 649 ft³/s (18.38 m³/s), 470,200 acre-ft/yr (580 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,500 ft³/s (1,290 m³/s), Apr. 2, 1945, gage height, 22.07 ft (6.727 m); no flow Oct. 3-5, 1939.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1908, stage 24.3 ft (7.41 m), was the highest since flood in May 1884, which was probably higher.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,150 ft³/s (174 m³/s) June 9 at 1100 hours, gage height, 15.82 ft (4.822 m); minimum daily, 33 ft³/s (0.93 m³/s) Oct. 11-15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 43 | 43 | 78 | 76 | 96 | 146 | 154 | 75 | 730 | 555 | 58 | 59 |
| 2 | 40 | 43 | 77 | 76 | 114 | 267 | 135 | 72 | 737 | 479 | 58 | 82 |
| 3 | 38 | 43 | 74 | 75 | 120 | 265 | 123 | 69 | 754 | 445 | 57 | 78 |
| 4 | 36 | 43 | 72 | 75 | 111 | 245 | 129 | 71 | 871 | 412 | 55 | 68 |
| 5 | 36 | 42 | 70 | 75 | 112 | 254 | 182 | 80 | 1220 | 391 | 55 | 68 |
| 6 | 35 | 42 | 71 | 76 | 149 | 217 | 190 | 84 | 1830 | 496 | 54 | 65 |
| 7 | 35 | 42 | 72 | 93 | 157 | 194 | 171 | 82 | 3310 | 554 | 54 | 60 |
| 8 | 35 | 42 | 76 | 107 | 144 | 201 | 141 | 77 | 5440 | 560 | 56 | 57 |
| 9 | 35 | 42 | 115 | 106 | 130 | 203 | 128 | 172 | 6000 | 515 | 58 | 55 |
| 10 | 34 | 44 | 146 | 108 | 297 | 182 | 131 | 393 | 5620 | 459 | 54 | 55 |
| 11 | 33 | 46 | 128 | 102 | 533 | 162 | 120 | 344 | 4910 | 405 | 52 | 56 |
| 12 | 33 | 48 | 110 | 98 | 410 | 149 | 107 | 258 | 4390 | 350 | 51 | 55 |
| 13 | 33 | 48 | 96 | 94 | 288 | 144 | 100 | 181 | 3870 | 320 | 51 | 54 |
| 14 | 33 | 49 | 88 | 88 | 224 | 142 | 95 | 149 | 3280 | 275 | 50 | 53 |
| 15 | 33 | 49 | 83 | 85 | 190 | 139 | 91 | 175 | 2750 | 221 | 50 | 53 |
| 16 | 35 | 56 | 81 | 82 | 175 | 135 | 86 | 205 | 2390 | 182 | 53 | 56 |
| 17 | 36 | 91 | 79 | 78 | 168 | 129 | 83 | 350 | 2220 | 157 | 55 | 56 |
| 18 | 38 | 121 | 77 | 77 | 158 | 123 | 81 | 321 | 2350 | 137 | 53 | 57 |
| 19 | 42 | 105 | 76 | 77 | 146 | 121 | 80 | 297 | 2430 | 118 | 54 | 54 |
| 20 | 42 | 91 | 75 | 107 | 141 | 119 | 79 | 373 | 2330 | 102 | 53 | 51 |
| 21 | 41 | 81 | 73 | 170 | 140 | 115 | 78 | 354 | 2150 | 89 | 52 | 51 |
| 22 | 39 | 75 | 72 | 194 | 154 | 115 | 77 | 280 | 1940 | 81 | 51 | 51 |
| 23 | 38 | 76 | 72 | 169 | 169 | 115 | 111 | 251 | 1710 | 75 | 50 | 51 |
| 24 | 38 | 84 | 73 | 125 | 163 | 113 | 157 | 318 | 1560 | 71 | 50 | 51 |
| 25 | 38 | 81 | 73 | 110 | 153 | 110 | 129 | 523 | 1410 | 68 | 50 | 50 |
| 26 | 38 | 81 | 73 | 104 | 142 | 108 | 103 | 633 | 1270 | 66 | 50 | 50 |
| 27 | 40 | 94 | 74 | 120 | 137 | 108 | 90 | 723 | 1150 | 65 | 50 | 50 |
| 28 | 42 | 97 | 75 | 112 | 133 | 109 | 87 | 735 | 1020 | 63 | 50 | 51 |
| 29 | 43 | 90 | 77 | 95 | --- | 120 | 80 | 726 | 854 | 63 | 52 | 51 |
| 30 | 43 | 83 | 78 | 100 | --- | 169 | 77 | 711 | 686 | 62 | 55 | 50 |
| 31 | 43 | --- | 77 | 112 | --- | 177 | --- | 717 | --- | 60 | 57 | --- |
| TOTAL | 1168 | 1972 | 2561 | 3166 | 5054 | 4896 | 3395 | 9799 | 71182 | 7896 | 1648 | 1698 |
| MEAN | 37.7 | 65.7 | 82.6 | 102 | 181 | 158 | 113 | 316 | 2373 | 255 | 53.2 | 56.6 |
| MAX | 43 | 121 | 146 | 194 | 533 | 267 | 190 | 735 | 6000 | 560 | 58 | 82 |
| MIN | 33 | 42 | 70 | 75 | 96 | 108 | 77 | 69 | 686 | 60 | 50 | 50 |
| AC-FT | 2320 | 3910 | 5080 | 6280 | 10020 | 9710 | 6730 | 19440 | 141200 | 15660 | 3270 | 3370 |

CAL YR 1980 TOTAL 190721 MEAN 521 MAX 3830 MIN 31 AC-FT 378300
WTR YR 1981 TOTAL 114435 MEAN 314 MAX 6000 MIN 33 AC-FT 227000

08032000 NECHES RIVER NEAR NECHES, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: December 1969 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1969 to current year.

INSTRUMENTATION.--Specific conductance is recorded continuously at this station.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE (1973-81): Maximum daily, 1,190 micromhos Aug. 29, 1976; minimum daily, 77 micromhos July 28, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 514 micromhos Apr. 24; minimum daily, 115 micromhos Feb. 11.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) |
|---|---|---|---|---|---|---|
| OCT | | | | | | |
| 02... | 1400 | 41 | 207 | 7.2 | 22.0 | 30 |
| 15... | 1030 | 34 | 225 | 7.0 | 19.0 | 28 |
| NOV | | | | | | |
| 13... | 1025 | 48 | 216 | -- | 15.0 | 27 |
| DEC | | | | | | |
| 10... | 1000 | 149 | 244 | -- | 12.0 | 44 |
| JAN | | | | | | |
| 08... | 1410 | 107 | 233 | -- | 8.0 | 39 |
| 14... | 1015 | 87 | 207 | -- | 7.0 | 32 |
| FEB | | | | | | |
| 25... | 1220 | 152 | 203 | -- | 14.0 | 32 |
| MAR | | | | | | |
| 17... | 1600 | 128 | 209 | -- | 16.0 | 32 |
| APR | | | | | | |
| 09... | 1030 | 128 | 207 | -- | 19.5 | 29 |
| MAY | | | | | | |
| 08... | 1020 | 78 | 225 | -- | 21.5 | 36 |
| JUN | | | | | | |
| 05... | 1045 | 1200 | 193 | -- | 23.5 | 30 |
| JUL | | | | | | |
| 06... | 1535 | 520 | 223 | -- | 27.0 | 33 |
| AUG | | | | | | |
| 06... | 1200 | 55 | 227 | -- | 29.0 | 56 |
| SEP | | | | | | |
| 02... | 1205 | 87 | 214 | -- | 25.5 | 33 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | 197 | 192 | 195 | 207 | 204 | 206 | 208 | 205 | 207 | 200 | 198 | 198 |
| 2 | 201 | 195 | 197 | 210 | 206 | 208 | 208 | 207 | 208 | 198 | 197 | 197 |
| 3 | 209 | 201 | 205 | 210 | 207 | 208 | 211 | 207 | 209 | 197 | 194 | 195 |
| 4 | 207 | 202 | 205 | 210 | 206 | 208 | 211 | 207 | 210 | 194 | 193 | 193 |
| 5 | 203 | 199 | 201 | 208 | 205 | 207 | 209 | 207 | 208 | 193 | 193 | 193 |
| 6 | 207 | 203 | 204 | 208 | 205 | 206 | 211 | 209 | 210 | 193 | 192 | 192 |
| 7 | 211 | 205 | 208 | 209 | 207 | 208 | 217 | 209 | 212 | 281 | 192 | 204 |
| 8 | 211 | 206 | 209 | 211 | 206 | 208 | 218 | 207 | 214 | 294 | 205 | 241 |
| 9 | 211 | 209 | 210 | 211 | 207 | 210 | 394 | 211 | 265 | 205 | 193 | 195 |
| 10 | 212 | 207 | 210 | 213 | 206 | 209 | 367 | 218 | 251 | 250 | 193 | 224 |
| 11 | 211 | 207 | 209 | 209 | 204 | 207 | 218 | 203 | 208 | 207 | 193 | 197 |
| 12 | 211 | 207 | 209 | 209 | 204 | 207 | 202 | 193 | 196 | 193 | 187 | 188 |
| 13 | 210 | 207 | 208 | 211 | 206 | 209 | 193 | 191 | 192 | 187 | 184 | 185 |
| 14 | 211 | 208 | 210 | 211 | 210 | 210 | 201 | 193 | 198 | 187 | 184 | 186 |
| 15 | 211 | 210 | 211 | 210 | 205 | 208 | 205 | 201 | 203 | 190 | 187 | 189 |
| 16 | 215 | 211 | 212 | 209 | 199 | 204 | 204 | 204 | 204 | 190 | 189 | 190 |
| 17 | 215 | 211 | 212 | 337 | 191 | 205 | 207 | 204 | 205 | 189 | 188 | 189 |
| 18 | 212 | 209 | 210 | 380 | 246 | 306 | 207 | 203 | 207 | 188 | 188 | 188 |
| 19 | 210 | 206 | 208 | 246 | 229 | 235 | 203 | 202 | 202 | 188 | 188 | 188 |
| 20 | 210 | 207 | 208 | 228 | 221 | 225 | 202 | 199 | 201 | 405 | 188 | 227 |
| 21 | 211 | 208 | 210 | 221 | 219 | 220 | 199 | 199 | 199 | 409 | 195 | 274 |
| 22 | 213 | 208 | 210 | 220 | 216 | 218 | 199 | 199 | 199 | 193 | 176 | 183 |
| 23 | 211 | 207 | 209 | 218 | 216 | 217 | 199 | 198 | 198 | 183 | 173 | 178 |
| 24 | 211 | 209 | 210 | 309 | 216 | 268 | 198 | 198 | 198 | 197 | 183 | 189 |
| 25 | 212 | 209 | 210 | 256 | 220 | 235 | 200 | 198 | 199 | 197 | 195 | 196 |
| 26 | 212 | 210 | 211 | 220 | 217 | 218 | 207 | 200 | 204 | 197 | 195 | 196 |
| 27 | 216 | 211 | 213 | 318 | 218 | 273 | 200 | 195 | 196 | 195 | 189 | 193 |
| 28 | 211 | 207 | 208 | 275 | 221 | 249 | 195 | 194 | 194 | 195 | 189 | 191 |
| 29 | 207 | 207 | 207 | 221 | 211 | 219 | 215 | 194 | 207 | 195 | 195 | 195 |
| 30 | 214 | 207 | 208 | 211 | 206 | 209 | 204 | 198 | 200 | 197 | 195 | 196 |
| 31 | 207 | 204 | 205 | --- | --- | --- | 202 | 198 | 199 | 194 | 182 | 187 |
| MONTH | 216 | 192 | 208 | 380 | 191 | 221 | 394 | 191 | 207 | 409 | 173 | 198 |

08032000 NECHES RIVER NEAR NECHES, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 187 | 182 | 184 | 239 | 202 | 209 | 194 | 190 | 192 | 226 | 225 | 226 |
| 2 | 268 | 187 | 229 | 346 | 180 | 232 | 201 | 194 | 198 | 239 | 225 | 232 |
| 3 | 224 | 183 | 193 | 179 | 169 | 177 | 203 | 201 | 202 | 235 | 225 | 230 |
| 4 | 183 | 179 | 180 | 258 | 169 | 205 | 214 | 203 | 208 | 227 | 227 | 227 |
| 5 | 195 | 175 | 178 | 238 | 182 | 200 | 392 | 199 | 267 | 314 | 227 | 261 |
| 6 | 328 | 200 | 266 | 181 | 179 | 179 | 199 | 187 | 189 | 367 | 261 | 298 |
| 7 | 236 | 193 | 206 | 183 | 179 | 180 | 187 | 185 | 186 | 261 | 229 | 241 |
| 8 | 193 | 190 | 193 | 279 | 183 | 221 | 196 | 187 | 192 | 229 | 221 | 226 |
| 9 | 189 | 178 | 186 | 203 | 184 | 193 | 204 | 196 | 200 | 437 | 187 | 265 |
| 10 | 330 | 146 | 206 | 184 | 179 | 183 | 219 | 204 | 214 | 343 | 168 | 215 |
| 11 | 145 | 115 | 130 | 188 | 179 | 184 | 211 | 209 | 209 | 168 | 162 | 166 |
| 12 | 134 | 122 | 125 | 194 | 188 | 191 | 209 | 203 | 205 | 166 | 159 | 161 |
| 13 | 175 | 135 | 163 | 199 | 194 | 196 | 209 | 205 | 207 | 204 | 167 | 195 |
| 14 | 179 | 175 | 177 | 206 | 199 | 203 | 211 | 209 | 210 | 199 | 196 | 196 |
| 15 | 181 | 179 | 180 | 203 | 199 | 202 | 211 | 211 | 211 | 196 | 187 | 189 |
| 16 | 184 | 181 | 182 | 199 | 199 | 199 | 212 | 211 | 211 | 448 | 191 | 281 |
| 17 | 189 | 184 | 186 | 203 | 195 | 199 | 217 | 212 | 214 | 268 | 175 | 195 |
| 18 | 190 | 186 | 188 | 202 | 200 | 202 | 217 | 217 | 217 | 175 | 155 | 159 |
| 19 | 191 | 179 | 186 | 200 | 195 | 198 | 219 | 217 | 218 | 177 | 156 | 169 |
| 20 | 199 | 191 | 195 | 195 | 195 | 195 | 221 | 219 | 220 | 203 | 177 | 191 |
| 21 | 198 | 193 | 195 | 201 | 195 | 197 | 222 | 218 | 221 | 206 | 203 | 204 |
| 22 | 318 | 193 | 230 | 201 | 201 | 201 | 222 | 221 | 221 | 209 | 206 | 207 |
| 23 | 243 | 189 | 205 | 201 | 201 | 201 | 326 | 203 | 235 | 212 | 209 | 210 |
| 24 | 189 | 183 | 186 | 201 | 200 | 200 | 514 | 266 | 371 | 380 | 207 | 254 |
| 25 | 194 | 183 | 190 | 200 | 200 | 200 | 265 | 229 | 245 | 242 | 185 | 199 |
| 26 | 197 | 188 | 195 | 200 | 200 | 200 | 227 | 220 | 221 | 201 | 158 | 184 |
| 27 | 203 | 197 | 200 | 200 | 200 | 200 | 221 | 220 | 220 | 187 | 162 | 174 |
| 28 | 205 | 203 | 204 | 204 | 200 | 201 | 225 | 223 | 225 | 203 | 187 | 197 |
| 29 | --- | --- | --- | 220 | 204 | 206 | 226 | 225 | 225 | 203 | 203 | 203 |
| 30 | --- | --- | --- | 383 | 220 | 278 | 226 | 226 | 226 | 204 | 202 | 203 |
| 31 | --- | --- | --- | 218 | 191 | 200 | --- | --- | --- | 207 | 204 | 206 |
| MONTH | 330 | 115 | 191 | 383 | 169 | 201 | 514 | 185 | 219 | 448 | 155 | 212 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 207 | 203 | 206 | 226 | 218 | 220 | 237 | 236 | 236 | 241 | 211 | 222 |
| 2 | 208 | 207 | 207 | 218 | 212 | 214 | 236 | 232 | 234 | 225 | 178 | 210 |
| 3 | 234 | 206 | 211 | 214 | 207 | 211 | 232 | 229 | 231 | 207 | 169 | 186 |
| 4 | 256 | 182 | 225 | 213 | 208 | 211 | 229 | 229 | 229 | 232 | 203 | 212 |
| 5 | 189 | 179 | 185 | 219 | 204 | 210 | 229 | 228 | 228 | 236 | 220 | 227 |
| 6 | 179 | 169 | 172 | 253 | 186 | 216 | 231 | 227 | 229 | 236 | 231 | 234 |
| 7 | 182 | 170 | 176 | 218 | 180 | 193 | 231 | 231 | 231 | 236 | 230 | 233 |
| 8 | 194 | 182 | 188 | 214 | 194 | 199 | 231 | 229 | 231 | 230 | 228 | 230 |
| 9 | 201 | 194 | 198 | 194 | 185 | 190 | 229 | 229 | 229 | 228 | 226 | 226 |
| 10 | 203 | 199 | 202 | 199 | 194 | 197 | 229 | 229 | 229 | 225 | 223 | 223 |
| 11 | 203 | 201 | 202 | 201 | 199 | 200 | 242 | 229 | 236 | 223 | 219 | 220 |
| 12 | 203 | 201 | 202 | 206 | 201 | 204 | 242 | 238 | 240 | 223 | 218 | 220 |
| 13 | 205 | 202 | 203 | 206 | 203 | 205 | 238 | 236 | 236 | 224 | 223 | 223 |
| 14 | 207 | 203 | 205 | 207 | 202 | 205 | 236 | 235 | 235 | 224 | 219 | 221 |
| 15 | 210 | 204 | 208 | 215 | 207 | 211 | 236 | 235 | 235 | 221 | 216 | 218 |
| 16 | 210 | 209 | 210 | 221 | 215 | 218 | 236 | 212 | 232 | 219 | 211 | 215 |
| 17 | 210 | 203 | 204 | 227 | 221 | 224 | 298 | 216 | 240 | 211 | 207 | 210 |
| 18 | 203 | 199 | 201 | 231 | 227 | 229 | 249 | 233 | 237 | 207 | 206 | 206 |
| 19 | 203 | 199 | 201 | 236 | 231 | 234 | 243 | 233 | 235 | 206 | 206 | 206 |
| 20 | 203 | 200 | 202 | 241 | 236 | 238 | 234 | 229 | 232 | 209 | 206 | 207 |
| 21 | 206 | 203 | 204 | 246 | 241 | 243 | 233 | 233 | 233 | 212 | 209 | 210 |
| 22 | 207 | 205 | 206 | 249 | 246 | 247 | 233 | 231 | 231 | 212 | 212 | 212 |
| 23 | 208 | 206 | 207 | 250 | 249 | 249 | 231 | 231 | 231 | 212 | 211 | 211 |
| 24 | 208 | 205 | 206 | 250 | 250 | 250 | 231 | 230 | 230 | 215 | 211 | 212 |
| 25 | 207 | 207 | 207 | 250 | 249 | 250 | 232 | 230 | 231 | 215 | 211 | 213 |
| 26 | 208 | 207 | 207 | 249 | 245 | 247 | 232 | 231 | 231 | 213 | 213 | 213 |
| 27 | 210 | 208 | 209 | 245 | 244 | 244 | 232 | 232 | 232 | 213 | 208 | 211 |
| 28 | 215 | 210 | 212 | 244 | 239 | 241 | 232 | 227 | 230 | 211 | 211 | 211 |
| 29 | 226 | 215 | 222 | 239 | 239 | 239 | 230 | 221 | 225 | 212 | 211 | 211 |
| 30 | 226 | 226 | 226 | 239 | 239 | 239 | 244 | 221 | 225 | 217 | 212 | 215 |
| 31 | --- | --- | --- | 239 | 237 | 238 | 244 | 219 | 223 | --- | --- | --- |
| MONTH | 256 | 169 | 204 | 253 | 180 | 223 | 298 | 212 | 232 | 241 | 169 | 216 |

## 08033000 NECHES RIVER NEAR DIBOLL, TX

LOCATION.--Lat 31°07'58", long 94°48'35", Angelina-Polk County line, Hydrologic Unit 12020002, near center of main span on downstream side of downstream bridge on U.S. Highway 59, 700 ft (210 m) downstream from Texas and New Orleans Railroad Co. bridge, 2.9 mi (4.7 km) downstream from Alabama Creek, 3.8 mi (6.1 km) south of Diboll, and at mile 203.5 (327.4 km).

DRAINAGE AREA.--2,724 $mi^2$ (7,055 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1923 to September 1925, March 1939 to current year. Monthly discharge only for some periods, published in WSP 1312.

REVISED RECORDS.--WSP 1242: 1950. WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 134.46 ft (40.983 m) National Geodetic Vertical Datum of 1929. Prior to July 10, 1925, nonrecording gage at site 630 ft (192 m) upstream; July 10 to Aug. 31, 1925, and Mar. 30, 1939, to Sept. 24, 1943, nonrecording gage at site 500 ft (150 m) upstream; Sept. 25, 1943, to Aug. 16, 1973, nonrecording gage at site 70 ft (21 m) upstream; all at present datum.

REMARKS.--Water-discharge records fair. At times low flow may be affected by regulation by Lake Athens (station 08031290), Lake Palestine (station 08031400), and Lake Jacksonville, combined capacity 130,700 acre-ft/yr (161 $hm^3$). During the current year, Upper Neches River Municipal Water Authority diverted 2,740 acre-ft (3.38 $hm^3$) from stream at Rocky Point Crossing 120 mi (193 km) upstream for municipal and industrial uses in the Palestine area.

AVERAGE DISCHARGE.--24 years (water years 1923-25, 1939-61) unregulated, 1,807 $ft^3/s$ (51.17 $m^3/s$), 1,309,000 acre-ft/yr (1.61 $km^3/yr$); 20 years (water years 1962-81) regulated, 1,353 $ft^3/s$ (38.32 $m^3/s$), 980,200 acre-ft/yr (1.21 $km^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,900 $ft^3/s$ (1,410 $m^3/s$) May 4, 1944, gage height, 18.70 ft (5.700 m); no flow Aug. 15-22, 1925.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1874, 21 ft (6.4 m) in May 1884, discharge, about 110,000 $ft^3/s$ (3,120 $m^3/s$), from rating curve extended above 40,000 $ft^3/s$ (1,130 $m^3/s$); flood in 1900 reached a stage of 19.9 ft (6.07 m), discharge, about 80,000 $ft^3/s$ (2,270 $m^3/s$); from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge estimated, 3,730 $ft^3/s$ (106 $m^3/s$) June 23, gage height, about 12.75 ft (3.886 m); minimum daily, 46 $ft^3/s$ (1.30 $m^3/s$) Oct. 16, 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 58 | 84 | 223 | 144 | 231 | 316 | 339 | 351 | 728 | 2440 | 173 | 170 |
| 2 | 65 | 96 | 215 | 143 | 221 | 317 | 383 | 297 | 775 | 2310 | 162 | 448 |
| 3 | 68 | 104 | 205 | 144 | 212 | 344 | 397 | 254 | 875 | 2230 | 147 | 791 |
| 4 | 70 | 104 | 195 | 145 | 207 | 396 | 389 | 232 | 993 | 2080 | 137 | 957 |
| 5 | 75 | 93 | 185 | 146 | 206 | 473 | 376 | 219 | 1260 | 2230 | 128 | 736 |
| 6 | 82 | 84 | 177 | 151 | 217 | 636 | 362 | 207 | 1750 | 2570 | 120 | 534 |
| 7 | 86 | 79 | 167 | 155 | 227 | 773 | 343 | 231 | 1960 | 2130 | 117 | 478 |
| 8 | 86 | 77 | 161 | 153 | 241 | 864 | 332 | 242 | 2260 | 1680 | 111 | 342 |
| 9 | 83 | 75 | 160 | 155 | 268 | 910 | 339 | 245 | 2440 | 1380 | 104 | 246 |
| 10 | 76 | 74 | 160 | 166 | 300 | 875 | 349 | 242 | 2530 | 1290 | 95 | 193 |
| 11 | 67 | 73 | 163 | 180 | 361 | 781 | 352 | 251 | 2590 | 1570 | 90 | 163 |
| 12 | 61 | 67 | 170 | 192 | 490 | 701 | 347 | 350 | 2630 | 1590 | 86 | 141 |
| 13 | 55 | 64 | 184 | 196 | 590 | 637 | 330 | 522 | 2750 | 1460 | 80 | 128 |
| 14 | 52 | 62 | 208 | 206 | 616 | 583 | 306 | 638 | 2730 | 1260 | 77 | 122 |
| 15 | 48 | 61 | 220 | 210 | 623 | 538 | 283 | 691 | 2700 | 1100 | 75 | 119 |
| 16 | 46 | 65 | 227 | 208 | 607 | 504 | 266 | 804 | 2720 | 941 | 72 | 113 |
| 17 | 46 | 79 | 228 | 200 | 593 | 476 | 251 | 846 | 2780 | 793 | 70 | 117 |
| 18 | 48 | 86 | 218 | 194 | 577 | 445 | 239 | 712 | 2890 | 673 | 68 | 138 |
| 19 | 50 | 100 | 205 | 190 | 539 | 415 | 230 | 645 | 3040 | 577 | 64 | 145 |
| 20 | 51 | 139 | 191 | 201 | 484 | 390 | 217 | 629 | 3310 | 490 | 64 | 141 |
| 21 | 51 | 197 | 181 | 209 | 428 | 368 | 207 | 630 | 3550 | 413 | 63 | 133 |
| 22 | 58 | 236 | 173 | 231 | 388 | 350 | 196 | 620 | 3660 | 357 | 62 | 119 |
| 23 | 71 | 246 | 166 | 267 | 359 | 333 | 194 | 603 | 3710 | 325 | 67 | 105 |
| 24 | 84 | 229 | 157 | 294 | 344 | 319 | 195 | 571 | 3620 | 295 | 76 | 97 |
| 25 | 87 | 211 | 154 | 308 | 351 | 309 | 192 | 552 | 3460 | 266 | 79 | 94 |
| 26 | 88 | 216 | 149 | 310 | 353 | 300 | 207 | 554 | 3310 | 235 | 80 | 92 |
| 27 | 87 | 222 | 146 | 305 | 339 | 293 | 286 | 593 | 3160 | 219 | 83 | 89 |
| 28 | 86 | 228 | 146 | 301 | 325 | 284 | 372 | 633 | 2970 | 208 | 81 | 87 |
| 29 | 84 | 237 | 146 | 287 | --- | 280 | 400 | 656 | 2770 | 198 | 100 | 84 |
| 30 | 83 | 233 | 146 | 264 | --- | 282 | 391 | 672 | 2590 | 188 | 130 | 82 |
| 31 | 83 | --- | 145 | 239 | --- | 294 | --- | 695 | --- | 183 | 147 | --- |
| TOTAL | 2135 | 3921 | 5571 | 6494 | 10697 | 14786 | 9070 | 15387 | 76511 | 33681 | 3008 | 7204 |
| MEAN | 68.9 | 131 | 180 | 209 | 382 | 477 | 302 | 496 | 2550 | 1086 | 97.0 | 240 |
| MAX | 88 | 246 | 228 | 310 | 623 | 910 | 400 | 846 | 3710 | 2570 | 173 | 957 |
| MIN | 46 | 61 | 145 | 143 | 206 | 280 | 192 | 207 | 728 | 183 | 62 | 82 |
| AC-FT | 4230 | 7780 | 11050 | 12880 | 21220 | 29330 | 17990 | 30520 | 151800 | 66810 | 5970 | 14290 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 551697 | MEAN | 1507 | MAX | 12300 | MIN 30 | AC-FT | 1094000 |
| WTR YR 1981 | TOTAL | 188465 | MEAN | 516 | MAX | 3710 | MIN 46 | AC-FT | 373800 |

NOTE.--No gage-height record June 20-25.

08033000 NECHES RIVER NEAR DIBOLL, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1969 to September 1981 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1969 to September 1981 (discontinued).
WATER TEMPERATURES: October 1969 to September 1981 (discontinued).

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, 614 micromhos May 2, 1971; minimum daily, 85 micromhos Jan. 27, 1974.
WATER TEMPERATURES: Maximum daily, 38.0°C Aug. 31, Sept. 6, 1970, Aug. 17, 18, 22, 1977; minimum daily, 3.0°C Jan. 21, 1970, Feb. 5, 6, 1979.

EXTREMES FOR CURENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 600 micromhos Feb. 4; minimum daily, 131 micromhos June 9.
WATER TEMPERATURES: Maximum daily, 35.0°C Aug. 24; minimum daily, 8.0°C on several days during December, January, and February.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (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 (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | |
| 05... | 1550 | 90 | 226 | 7.5 | 14.0 | 9.8 | 94 | .5 | 38 | 0 |
| JAN | | | | | | | | | | |
| 01... | 1545 | 155 | 218 | 7.4 | 8.0 | 11.3 | 95 | .6 | 38 | 13 |
| MAR | | | | | | | | | | |
| 10... | 1455 | 867 | 198 | 6.7 | 15.0 | 10.0 | 97 | 1.5 | 37 | 21 |
| MAY | | | | | | | | | | |
| 29... | 1130 | 655 | 182 | 7.6 | 24.0 | 7.6 | 89 | .7 | 36 | 13 |
| JUL | | | | | | | | | | |
| 30... | 1810 | 185 | 236 | 7.4 | 31.0 | 7.1 | 93 | .7 | 53 | 15 |
| SEP | | | | | | | | | | |
| 24... | 0945 | 97 | 220 | 7.4 | 23.5 | 7.6 | 88 | .9 | 44 | 8 |

| 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 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) |
|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | |
| 05... | 8.7 | 3.9 | 31 | 2.2 | 4.4 | 39 | 27 | 28 | .1 |
| JAN | | | | | | | | | |
| 01... | 8.5 | 4.0 | 26 | 1.8 | 3.7 | 25 | 24 | 33 | .1 |
| MAR | | | | | | | | | |
| 10... | 8.5 | 3.9 | 21 | 1.5 | 3.6 | 16 | 25 | 31 | .1 |
| MAY | | | | | | | | | |
| 29... | 8.5 | 3.7 | 20 | 1.4 | 3.3 | 23 | 26 | 25 | .1 |
| JUL | | | | | | | | | |
| 30... | 12 | 5.5 | 24 | 1.6 | 3.8 | 38 | 20 | 37 | .5 |
| SEP | | | | | | | | | |
| 24... | 10 | 4.6 | 25 | 1.8 | 4.4 | 36 | 20 | 35 | .2 |

| DATE | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | |
| 05... | 12 | 138 | .00 | .000 | .00 | .110 | .75 | .86 | .280 |
| JAN | | | | | | | | | |
| 01... | 14 | 128 | .10 | .000 | .10 | .060 | .70 | .76 | .070 |
| MAR | | | | | | | | | |
| 10... | 16 | 119 | .23 | .030 | .26 | .070 | .93 | 1.00 | .100 |
| MAY | | | | | | | | | |
| 29... | 15 | 115 | .16 | .020 | .18 | .140 | .70 | .84 | .130 |
| JUL | | | | | | | | | |
| 30... | 19 | 145 | .47 | .040 | .51 | .260 | .74 | 1.00 | .080 |
| SEP | | | | | | | | | |
| 24... | 14 | 135 | .25 | .040 | .29 | .110 | .70 | .81 | .120 |

08033000 NECHES RIVER NEAR DIBOLL, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 2135 | 276 | 154 | 886 | 36 | 207 | 31 | 178 | 50 |
| NOV. | 1980 | 3921 | 249 | 139 | 1470 | 33 | 346 | 28 | 298 | 47 |
| DEC. | 1980 | 5571 | 238 | 133 | 2000 | 31 | 471 | 27 | 406 | 46 |
| JAN. | 1981 | 6494 | 238 | 133 | 2320 | 31 | 548 | 27 | 472 | 46 |
| FEB. | 1981 | 10697 | 246 | 137 | 3960 | 32 | 930 | 28 | 799 | 46 |
| MAR. | 1981 | 14786 | 224 | 125 | 4990 | 30 | 1180 | 26 | 1020 | 44 |
| APR. | 1981 | 9070 | 228 | 127 | 3110 | 30 | 736 | 26 | 635 | 45 |
| MAY | 1981 | 15387 | 213 | 119 | 4940 | 28 | 1170 | 24 | 1010 | 43 |
| JUNE | 1981 | 76511 | 178 | 99 | 20500 | 24 | 4900 | 21 | 4250 | 38 |
| JULY | 1981 | 33681 | 201 | 112 | 10200 | 27 | 2430 | 23 | 2100 | 41 |
| AUG. | 1981 | 3008 | 246 | 137 | 1110 | 32 | 262 | 28 | 226 | 47 |
| SEPT | 1981 | 7204 | 187 | 104 | 2030 | 25 | 483 | 21 | 418 | 39 |
| TOTAL | | 188465 | ** | ** | 57500 | ** | 13700 | ** | 11800 | ** |
| WTD. AVG. | | 516 | 203 | 113 | ** | 27 | ** | 23 | ** | 41 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 325 | 259 | 219 | 221 | 228 | 241 | 228 | 211 | 200 | 207 | 245 | 263 |
| 2 | 297 | 258 | 218 | 221 | 250 | 248 | 210 | 208 | 197 | 206 | 244 | 238 |
| 3 | 298 | 244 | 219 | 221 | 475 | 311 | 218 | 204 | 188 | 208 | 240 | 168 |
| 4 | 295 | 242 | 225 | 222 | 600 | 269 | 210 | 212 | 188 | 219 | 245 | 144 |
| 5 | 280 | 219 | 229 | 224 | 400 | 211 | 215 | 244 | 223 | 165 | 244 | 161 |
| 6 | 268 | 218 | 235 | 222 | 255 | 277 | 218 | 266 | 177 | 219 | 243 | 172 |
| 7 | 270 | 223 | 240 | 235 | 246 | 229 | 217 | 304 | 148 | 211 | 241 | 171 |
| 8 | 268 | 235 | 246 | 227 | 255 | 195 | 222 | 337 | 139 | 220 | 246 | 180 |
| 9 | 272 | 233 | 250 | 237 | 257 | 194 | 227 | 277 | 131 | 216 | 236 | 196 |
| 10 | 272 | 245 | 260 | 233 | 247 | 195 | 243 | 270 | 132 | 189 | 235 | 192 |
| 11 | 270 | 255 | 270 | 231 | 256 | 214 | 236 | 264 | 138 | 171 | 240 | 199 |
| 12 | 268 | 254 | 283 | 244 | 239 | 214 | 222 | 219 | 147 | 168 | 241 | 190 |
| 13 | 264 | 251 | 255 | 232 | 238 | 210 | 220 | 206 | 156 | 173 | 243 | 192 |
| 14 | 263 | 250 | 245 | 214 | 219 | 225 | 211 | 174 | 158 | 187 | 245 | 194 |
| 15 | 270 | 252 | 257 | 216 | 201 | 237 | 226 | 164 | 164 | 196 | 252 | 195 |
| 16 | 285 | 250 | 239 | 280 | 213 | 220 | 225 | 269 | 166 | 201 | 246 | 204 |
| 17 | 287 | 248 | 226 | 325 | 195 | 220 | 249 | 237 | 172 | 201 | 246 | 215 |
| 18 | 287 | 290 | 230 | 250 | 206 | 217 | 223 | 244 | 170 | 208 | 247 | 209 |
| 19 | 289 | 313 | 238 | 217 | 215 | 228 | 231 | 231 | 179 | 205 | 247 | 199 |
| 20 | 315 | 280 | 237 | 263 | 226 | 225 | 232 | 212 | 179 | 215 | 247 | 214 |
| 21 | 323 | 250 | 238 | 274 | 214 | 221 | 235 | 192 | 183 | 206 | 243 | 227 |
| 22 | 307 | 231 | 234 | 315 | 215 | 220 | 270 | 190 | 189 | 209 | 246 | 231 |
| 23 | 264 | 230 | 234 | 300 | 235 | 225 | 269 | 187 | 194 | 213 | 248 | 224 |
| 24 | 269 | 267 | 235 | 257 | 235 | 228 | 288 | 190 | 199 | 214 | 243 | 224 |
| 25 | 276 | 268 | 238 | 233 | 249 | 224 | 270 | 219 | 202 | 224 | 241 | 222 |
| 26 | 265 | 268 | 234 | 215 | 251 | 226 | 258 | 211 | 206 | 218 | 242 | 216 |
| 27 | 255 | 255 | 234 | 205 | 308 | 227 | 241 | 196 | 205 | 224 | 236 | 228 |
| 28 | 252 | 252 | 234 | 212 | 255 | 240 | 224 | 189 | 206 | 233 | 239 | 221 |
| 29 | 257 | 235 | 234 | 206 | --- | 229 | 220 | 184 | 207 | 247 | 243 | 215 |
| 30 | 258 | 216 | 238 | 208 | --- | 232 | 199 | 189 | 208 | 239 | 280 | 211 |
| 31 | 258 | --- | 224 | 216 | --- | 230 | --- | 181 | --- | 238 | 275 | --- |
| MEAN | 278 | 250 | 239 | 238 | 264 | 228 | 232 | 222 | 178 | 208 | 245 | 204 |

08033000 NECHES RIVER NEAR DIBOLL, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 25.0 | 20.0 | 19.0 | 15.0 | 13.0 | 17.0 | 22.0 | 27.0 | 28.0 | 29.0 | 33.0 | 27.0 |
| 2 | 26.0 | 25.0 | 18.0 | 14.0 | 8.0 | 19.0 | 23.0 | 26.0 | 28.0 | 29.0 | 30.0 | 28.0 |
| 3 | 25.0 | 20.0 | 13.0 | 15.0 | 10.0 | 17.0 | 24.0 | 23.0 | 28.0 | 30.0 | 31.0 | 28.0 |
| 4 | 25.0 | 20.0 | 16.0 | 13.0 | 10.0 | 20.0 | 23.0 | 23.0 | 28.0 | 28.0 | 31.0 | 27.0 |
| 5 | 26.0 | 18.0 | 16.0 | 14.0 | 10.0 | 24.0 | --- | 25.0 | 30.0 | 29.0 | 31.0 | 27.0 |
| 6 | 27.0 | 20.0 | 18.0 | 8.0 | 10.0 | 17.0 | 24.0 | 25.0 | 27.0 | 26.0 | 32.5 | 31.0 |
| 7 | 27.0 | 22.0 | 19.0 | 10.0 | 10.0 | 15.0 | 23.0 | 24.0 | 27.0 | 26.0 | 32.0 | 32.0 |
| 8 | 25.0 | 23.0 | 20.0 | 10.0 | 11.0 | 16.0 | 22.0 | 26.0 | 28.0 | 27.0 | 31.0 | 31.0 |
| 9 | 26.0 | 23.0 | 15.0 | 12.0 | 13.0 | 18.0 | 23.0 | 24.0 | 29.0 | 28.0 | 32.0 | 29.0 |
| 10 | 26.0 | 25.0 | 13.0 | 10.0 | 14.0 | 15.0 | 23.0 | 24.0 | 29.0 | 28.0 | 31.0 | 30.0 |
| 11 | 26.0 | 24.0 | 10.0 | 9.0 | 8.0 | 16.0 | 25.0 | 24.0 | 28.0 | 30.0 | 32.0 | 30.0 |
| 12 | 25.0 | 25.0 | 12.0 | 10.0 | 8.0 | 16.0 | 23.0 | 25.0 | 27.0 | 31.0 | 32.5 | 29.0 |
| 13 | 25.0 | 22.0 | 16.0 | 13.0 | 9.0 | 18.0 | 23.5 | 25.0 | 27.0 | 31.0 | --- | 31.0 |
| 14 | 26.0 | 20.0 | 14.0 | 13.0 | 10.0 | 20.0 | 26.0 | 26.0 | 29.0 | 30.0 | 33.0 | 27.0 |
| 15 | 26.0 | 19.0 | 13.0 | 10.0 | 10.0 | 19.0 | 22.0 | 26.0 | 29.0 | 31.0 | 32.0 | 29.0 |
| 16 | 26.0 | 15.0 | 13.0 | 10.0 | 13.0 | 18.0 | 25.0 | 24.0 | 28.0 | 30.0 | 32.0 | 28.0 |
| 17 | 25.0 | 14.0 | 15.0 | 9.0 | 12.0 | 18.0 | 24.0 | 26.0 | 28.0 | 33.0 | 32.0 | 26.0 |
| 18 | 25.0 | 13.0 | 16.0 | 11.0 | 13.0 | 17.0 | 23.0 | 25.0 | 30.0 | 31.0 | 30.0 | 26.0 |
| 19 | 23.0 | 13.0 | 16.0 | 8.0 | 17.0 | 16.0 | 25.0 | 24.0 | 29.0 | 33.0 | 31.0 | 28.0 |
| 20 | 23.0 | 12.0 | 10.0 | 9.0 | 20.0 | 17.0 | --- | 25.0 | 30.0 | 30.0 | 30.5 | 26.0 |
| 21 | 23.0 | 12.0 | 10.0 | 9.0 | 19.0 | 20.0 | 29.0 | 26.0 | 30.0 | 32.0 | 30.0 | 26.0 |
| 22 | 25.0 | 15.0 | 12.0 | 9.0 | 16.0 | 18.0 | 20.0 | 26.0 | 31.0 | 33.0 | 31.0 | 26.0 |
| 23 | 23.0 | 14.0 | 14.0 | 11.0 | 17.0 | 19.0 | 20.0 | 26.0 | 29.0 | 32.0 | 31.0 | 26.0 |
| 24 | 23.0 | 16.0 | 13.0 | 11.0 | 16.0 | 18.0 | 23.0 | 26.0 | 29.0 | 31.0 | 35.0 | 29.0 |
| 25 | 22.0 | 14.0 | 8.0 | 13.0 | 16.0 | 18.0 | 24.0 | 25.0 | 29.0 | 28.0 | 30.0 | 28.0 |
| 26 | 22.0 | 13.0 | 14.0 | 13.0 | 16.0 | 19.0 | 26.0 | 26.0 | 30.0 | 30.0 | 30.0 | 28.0 |
| 27 | 25.0 | 13.0 | 12.0 | 15.0 | 17.0 | 19.0 | 25.0 | 27.0 | 20.0 | 30.0 | 31.0 | 28.0 |
| 28 | 20.0 | 14.0 | 15.0 | 15.0 | 18.0 | 25.0 | 26.0 | 28.0 | 30.0 | 31.0 | 30.5 | 29.0 |
| 29 | 20.0 | 12.0 | 16.0 | 14.0 | --- | 25.0 | 26.0 | 27.0 | 30.0 | 30.0 | 29.0 | 30.0 |
| 30 | 20.0 | 18.0 | 12.0 | 14.0 | --- | 25.0 | 27.0 | 27.0 | 30.0 | 31.0 | 28.0 | 27.0 |
| 31 | 20.0 | --- | 16.0 | 13.0 | --- | 20.0 | --- | 25.0 | --- | 32.0 | 27.0 | --- |
| MEAN | 24.0 | 18.0 | 14.5 | 11.5 | 13.0 | 18.5 | 24.0 | 25.5 | 28.5 | 30.0 | 31.0 | 28.0 |

## 08033300 PINEY CREEK NEAR GROVETON, TX

LOCATION.--Lat 31°08'25", long 95°05'11", Trinity County, Hydrologic Unit 12020002, on left bank at downstream side of bridge on State Highway 94, 6.3 mi (10.1 km) northeast of Groveton, and 7.3 mi (11.7 km) upstream from Caney Creek.

DRAINAGE AREA.--79.0 $mi^2$ (204.6 $km^2$).

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

GAGE.--Water-stage recorder. Datum of gage is 251.40 ft (76.627 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No diversions above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--20 years, 38.1 $ft^3/s$ (1.079 $m^3/s$), 6.55 in/yr (166 mm/yr), 27,600 acre-ft/yr (34.0 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,480 $ft^3/s$ (184 $m^3/s$) Apr. 20, 1979, gage height, 15.70 ft (4.785 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1921, 17 ft (5.2 m) in May 1942, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 494 $ft^3/s$ (14.0 $m^3/s$) July 13 at 0200 hours, gage height, 10.79 ft (3.289 m), no peak above base of 550 $ft^3/s$ (15.6 $m^3/s$); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 9.3 | .82 | 1.3 | .10 |
| 2 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 6.3 | .90 | .75 | 280 |
| 3 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 98 | .97 | .60 | 90 |
| 4 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 133 | 35 | .54 | 25 |
| 5 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 181 | 23 | .46 | 19 |
| 6 | .00 | .00 | .00 | .00 | .00 | 1.5 | .00 | .00 | 376 | 19 | .35 | 7.7 |
| 7 | .00 | .00 | .00 | .00 | .00 | 2.1 | .00 | .00 | 281 | 123 | .30 | 4.5 |
| 8 | .00 | .00 | .00 | .00 | .00 | 1.0 | .00 | .00 | 79 | 298 | .24 | 3.1 |
| 9 | .00 | .00 | .00 | .00 | .00 | .56 | .00 | .00 | 26 | 186 | .20 | 2.4 |
| 10 | .00 | .00 | .00 | .00 | .00 | .35 | .00 | .00 | 14 | 45 | .15 | 2.0 |
| 11 | .00 | .00 | .00 | .00 | .00 | .20 | .00 | .00 | 71 | 39 | .12 | 1.7 |
| 12 | .00 | .00 | .00 | .00 | .00 | .08 | .00 | .00 | 258 | 376 | .10 | 1.5 |
| 13 | .00 | .00 | .00 | .00 | .00 | .04 | .00 | .00 | 462 | 293 | .09 | 1.3 |
| 14 | .00 | .00 | .00 | .00 | .00 | .02 | .00 | .00 | 487 | 38 | .08 | 1.3 |
| 15 | .00 | .00 | .00 | .00 | .00 | .01 | .00 | .00 | 428 | 18 | .08 | 1.4 |
| 16 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 25 | 82 | 11 | .08 | 1.5 |
| 17 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 50 | 27 | 7.4 | .08 | 2.9 |
| 18 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 12 | 16 | 5.3 | .08 | 1.2 |
| 19 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 78 | 10 | 3.9 | .08 | .82 |
| 20 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 49 | 7.1 | 3.1 | .08 | .67 |
| 21 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 13 | 5.0 | 2.5 | .07 | .52 |
| 22 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 4.4 | 3.6 | 2.2 | .07 | .44 |
| 23 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 1.8 | 2.6 | 1.9 | .07 | .34 |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 3.0 | 2.3 | 1.6 | .07 | .28 |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 20 | 2.0 | 1.4 | .07 | .22 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 17 | 1.5 | 1.3 | .07 | .17 |
| 27 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 8.1 | 1.3 | 1.3 | .07 | .13 |
| 28 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 3.3 | 1.2 | 1.4 | .07 | .12 |
| 29 | .00 | .00 | .00 | .00 | --- | .00 | .00 | 1.5 | 1.1 | 11 | .07 | .12 |
| 30 | .00 | .00 | .00 | .00 | --- | .00 | .00 | .96 | .95 | 7.9 | .07 | .12 |
| 31 | .00 | --- | .00 | .00 | --- | .00 | --- | .84 | --- | 2.4 | .07 | --- |
| TOTAL | .00 | .00 | .00 | .00 | .00 | 5.86 | .00 | 287.90 | 3073.25 | 1561.29 | 6.53 | 450.55 |
| MEAN | .000 | .000 | .000 | .000 | .000 | .19 | .000 | 9.29 | 102 | 50.4 | .21 | 15.0 |
| MAX | .00 | .00 | .00 | .00 | .00 | 2.1 | .00 | 78 | 487 | 376 | 1.3 | 280 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .95 | .82 | .07 | .10 |
| CFSM | .000 | .000 | .000 | .000 | .000 | .002 | .000 | .12 | 1.29 | .64 | .003 | .19 |
| IN. | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .14 | 1.45 | .74 | .00 | .21 |
| AC-FT | .00 | .00 | .00 | .00 | .00 | 12 | .00 | 571 | 6100 | 3100 | 13 | 894 |

CAL YR 1980 TOTAL 24835.25 MEAN 67.9 MAX 4790 MIN .00 CFSM .86 IN 11.69 AC-FT 49260
WTR YR 1981 TOTAL 5385.38 MEAN 14.8 MAX 487 MIN .00 CFSM .19 IN 2.54 AC-FT 10680

## 08033500 NECHES RIVER NEAR ROCKLAND, TX

LOCATION.--Lat 31°01'29", long 94°23'55", Tyler County, Hydrologic Unit 12020003, on downstream side of bridge at U.S. Highway 69, 2,200 ft (671 m) upstream from abandoned ferry crossing, 0.8 mi (1.3 km) upstream from Texas and New Orleans Railway Co. bridge, 1.2 mi (1.9 km) north of Rockland, 3.2 mi (5.1 km) downstream from Billiams Creek, and 32.4 mi (52.1 km) upstream from Angelina River.

DRAINAGE AREA.--3,636 $mi^2$ (9,417 $km^2$).

### 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 (26.947 m) National Geodetic Vertical Datum of 1929. Prior to May 23, 1973, nonrecording gage located 2,200 ft (671 m) downstream at datum 3.00 ft (0.914 m) higher. May 23, 1973, to Sept. 30, 1975, recording gage at present site at datum 3.00 ft (0.914 m) higher.

REMARKS.--Water-discharge records good except those for June, which are fair, and those for period of no gage-height record, which are poor. No large diversions above station. At times flow may be affected by regulation from upstream reservoirs.

AVERAGE DISCHARGE.--58 years (water years 1904-61) unregulated, 2,362 $ft^3/s$ (66.89 $m^3/s$), 1,711,000 acre-ft/yr (2.11 $km^3/yr$); 20 years (water years 1962-81) regulated, 1,943 $ft^3/s$ (55.03 $m^3/s$), 1,408,000 acre-ft/yr (1.74 $km^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,800 $ft^3/s$ (1,410 $m^3/s$) May 6, 1944, gage height, 35.04 ft (10.680 m), present site; minimum observed during period of daily records, 1.6 $ft^3/s$ (0.045 $m^3/s$) Sept. 28-30, 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 (11.58 m), present site, from information by local resident, discharge, about 62,000 $ft^3/s$ (1,760 $m^3/s$).

EXTREMES FOR CURRENT YEAR.--Maximum discharge estimated, 7,900 $ft^3/s$ (224 $m^3/s$) June 7 at 1800 hours, gage height, about 17.0 ft (518 m); minimum daily, 57 $ft^3/s$ (1.61 $m^3/s$) Oct. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 76 | 95 | 252 | 182 | 320 | 394 | 376 | 400 | 971 | 3150 | 314 | 353 |
| 2 | 71 | 94 | 243 | 178 | 300 | 390 | 364 | 374 | 895 | 2970 | 276 | 559 |
| 3 | 66 | 92 | 231 | 178 | 280 | 384 | 399 | 341 | 860 | 2790 | 237 | 911 |
| 4 | 67 | 95 | 223 | 177 | 260 | 560 | 423 | 312 | 951 | 2640 | 211 | 1160 |
| 5 | 71 | 103 | 213 | 184 | 250 | 711 | 418 | 353 | 1860 | 2750 | 194 | 1350 |
| 6 | 73 | 106 | 203 | 190 | 240 | 761 | 403 | 387 | 2490 | 3690 | 179 | 1240 |
| 7 | 75 | 105 | 192 | 200 | 250 | 832 | 389 | 406 | 6060 | 3840 | 164 | 1000 |
| 8 | 82 | 97 | 187 | 190 | 260 | 905 | 373 | 400 | 6010 | 3780 | 152 | 748 |
| 9 | 87 | 88 | 207 | 200 | 270 | 934 | 358 | 368 | 4860 | 3490 | 146 | 558 |
| 10 | 89 | 83 | 208 | 210 | 300 | 961 | 352 | 369 | 3820 | 3010 | 141 | 397 |
| 11 | 89 | 79 | 192 | 220 | 350 | 970 | 356 | 356 | 3290 | 2550 | 129 | 308 |
| 12 | 83 | 75 | 190 | 230 | 450 | 921 | 363 | 350 | 3860 | 2820 | 120 | 251 |
| 13 | 77 | 72 | 200 | 240 | 600 | 833 | 364 | 393 | 6730 | 2700 | 113 | 215 |
| 14 | 71 | 70 | 207 | 242 | 650 | 749 | 355 | 524 | 5730 | 2490 | 109 | 209 |
| 15 | 67 | 68 | 214 | 245 | 640 | 672 | 336 | 645 | 5250 | 2330 | 105 | 209 |
| 16 | 65 | 70 | 237 | 247 | 660 | 607 | 313 | 877 | 4520 | 2110 | 102 | 206 |
| 17 | 64 | 84 | 249 | 247 | 660 | 557 | 294 | 1300 | 3960 | 1880 | 98 | 187 |
| 18 | 66 | 93 | 257 | 245 | 640 | 519 | 277 | 1410 | 3730 | 1690 | 95 | 181 |
| 19 | 71 | 88 | 257 | 247 | 620 | 481 | 268 | 1240 | 3880 | 1520 | 114 | 189 |
| 20 | 67 | 88 | 246 | 303 | 600 | 449 | 263 | 1060 | 3700 | 1280 | 106 | 193 |
| 21 | 59 | 93 | 233 | 317 | 560 | 423 | 249 | 975 | 3500 | 934 | 99 | 189 |
| 22 | 58 | 129 | 222 | 306 | 520 | 399 | 250 | 932 | 3400 | 657 | 93 | 176 |
| 23 | 57 | 197 | 214 | 320 | 470 | 376 | 244 | 835 | 3340 | 515 | 88 | 161 |
| 24 | 58 | 239 | 206 | 341 | 433 | 357 | 234 | 745 | 3910 | 434 | 86 | 146 |
| 25 | 61 | 247 | 199 | 360 | 419 | 340 | 223 | 694 | 3540 | 376 | 85 | 128 |
| 26 | 70 | 242 | 192 | 370 | 416 | 328 | 227 | 639 | 3610 | 335 | 88 | 117 |
| 27 | 89 | 233 | 186 | 370 | 416 | 319 | 222 | 599 | 3690 | 309 | 92 | 110 |
| 28 | 134 | 228 | 186 | 370 | 408 | 312 | 247 | 591 | 3650 | 318 | 94 | 105 |
| 29 | 114 | 227 | 184 | 360 | --- | 515 | 326 | 623 | 3530 | 537 | 98 | 100 |
| 30 | 105 | 241 | 184 | 350 | --- | 710 | 384 | 657 | 3350 | 436 | 99 | 95 |
| 31 | 97 | --- | 182 | 340 | --- | 462 | --- | 700 | --- | 318 | 133 | --- |
| TOTAL | 2379 | 3821 | 6596 | 8159 | 12242 | 18131 | 9650 | 19855 | 108947 | 58649 | 4160 | 11751 |
| MEAN | 76.7 | 127 | 213 | 263 | 437 | 585 | 322 | 640 | 3632 | 1892 | 134 | 392 |
| MAX | 134 | 247 | 257 | 370 | 660 | 970 | 423 | 1410 | 6730 | 3840 | 314 | 1350 |
| MIN | 57 | 68 | 182 | 177 | 240 | 312 | 222 | 312 | 860 | 309 | 85 | 95 |
| AC-FT | 4720 | 7580 | 13080 | 16180 | 24280 | 35960 | 19140 | 39380 | 216100 | 116300 | 8250 | 23310 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 816837 | MEAN | 2232 | MAX | 19200 | MIN 40 | AC-FT | 1620000 |
| WTR YR 1981 | TOTAL | 264340 | MEAN | 724 | MAX | 6730 | MIN 57 | AC-FT | 524300 |

NOTE.--No gage-height record Jan. 25 to Feb. 23.

08033500 NECHES RIVER NEAR ROCKLAND, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1945 to September 1947. Chemical and biochemical analyses: December 1967 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH FIELD (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, BIOCHEM UNINHIB 5 DAY (MG/L) | HARD-NESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 21... | 1510 | 95 | 240 | 7.4 | 10.5 | 80 | 26 | -- | -- | .7 | 37 |
| JAN | | | | | | | | | | | |
| 23... | 1050 | 317 | 195 | 7.5 | 6.0 | 50 | 14 | 13.2 | 105 | 1.0 | 38 |
| MAR | | | | | | | | | | | |
| 19... | 1245 | 484 | 220 | 7.3 | 15.0 | 60 | 29 | 9.5 | 93 | 1.5 | 43 |
| MAY | | | | | | | | | | | |
| 29... | 0755 | 617 | 220 | 7.4 | 25.5 | 100 | 43 | 8.4 | 102 | .8 | 56 |
| JUL | | | | | | | | | | | |
| 30... | 1620 | 400 | 181 | 5.4 | 29.5 | 140 | 60 | 6.6 | 86 | 1.0 | 44 |
| SEP | | | | | | | | | | | |
| 23... | 1515 | 159 | 210 | 7.5 | 26.0 | 70 | 35 | 10.2 | 124 | 1.1 | 43 |

| DATE | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 (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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 21... | 6 | 9.0 | 3.6 | 30 | 2.1 | 4.5 | 31 | 28 | 38 | .1 | 12 |
| JAN | | | | | | | | | | | |
| 23... | 12 | 10 | 3.1 | 24 | 1.7 | 3.1 | 26 | 23 | 30 | .1 | 14 |
| MAR | | | | | | | | | | | |
| 19... | 24 | 10 | 4.3 | 25 | 1.7 | 3.4 | 19 | 34 | 31 | .1 | 17 |
| MAY | | | | | | | | | | | |
| 29... | 34 | 16 | 3.9 | 26 | 1.5 | 3.6 | 22 | 39 | 36 | .1 | 16 |
| JUL | | | | | | | | | | | |
| 30... | 13 | 12 | 3.3 | 17 | 1.2 | 3.2 | 31 | 9.0 | 30 | .4 | 16 |
| SEP | | | | | | | | | | | |
| 23... | 7 | 11 | 3.8 | 25 | 1.8 | 4.4 | 36 | 15 | 39 | .1 | 14 |

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (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) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 21... | 144 | 9 | 9 | .00 | .000 | .00 | .010 | .75 | .76 | .080 | 5.8 |
| JAN | | | | | | | | | | | |
| 23... | 123 | 19 | 1 | .05 | .010 | .06 | .030 | .51 | .54 | .060 | 5.8 |
| MAR | | | | | | | | | | | |
| 19... | 136 | 11 | 0 | .27 | .010 | .28 | .080 | .70 | .78 | .090 | 7.5 |
| MAY | | | | | | | | | | | |
| 29... | 154 | 8 | 16 | .20 | .020 | .22 | .100 | .84 | .94 | .160 | 9.1 |
| JUL | | | | | | | | | | | |
| 30... | 110 | 22 | 14 | .37 | .040 | .41 | .300 | .80 | 1.1 | .100 | 17 |
| SEP | | | | | | | | | | | |
| 23... | 134 | 29 | 0 | .22 | .070 | .29 | .140 | 1.2 | 1.3 | .120 | 10 |

08033500 NECHES RIVER NEAR ROCKLAND, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | ARSENIC DIS-SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| NOV | | | | | | | |
| 21... | 1510 | 0 | 60 | 2 | 0 | <10 | 530 |
| MAY | | | | | | | |
| 29... | 0755 | 1 | 200 | <1 | 0 | <10 | 30 |
| JUL | | | | | | | |
| 30... | 1620 | 1 | 60 | <1 | 10 | <10 | 340 |

| DATE | 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 | | | | | | |
| 21... | 16 | 80 | .1 | 0 | 0 | 10 |
| MAY | | | | | | |
| 29... | <10 | 30 | .1 | 0 | 0 | 110 |
| JUL | | | | | | |
| 30... | <10 | 25 | .5 | 0 | 0 | 5 |

## 08033600 BOWLES CREEK NEAR SELMAN CITY, TX
(Low-flow partial-record station)

LOCATION.--Lat 32°11'41", long 94°58'36", Rusk County, Hydrologic Unit 12020004, at bridge on State Highway 64 and 1.5 mi (2.4 km) west of Selman City.

DRAINAGE AREA.--14.5 $mi^2$ (37.6 $km^2$).

PERIOD OF RECORD.--Occasional discharge measurements and water-quality data: November 1967 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | TEMPER-ATURE, WATER (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 15... | 1155 | .30 | 1290 | 17.5 | 44 | 0 | 11 | 4.0 | 270 |
| DEC | | | | | | | | | |
| 10... | 1205 | 2.9 | 713 | 8.5 | 66 | 55 | 17 | 5.8 | 110 |
| JAN | | | | | | | | | |
| 14... | 1250 | 1.9 | 787 | 6.5 | 70 | 69 | 17 | 6.7 | 120 |
| FEB | | | | | | | | | |
| 25... | 1520 | 2.4 | 810 | 16.0 | 70 | 65 | 17 | 6.8 | 130 |
| APR | | | | | | | | | |
| 09... | 1540 | 2.3 | 1100 | 21.5 | 89 | 83 | 22 | 8.2 | 170 |
| MAY | | | | | | | | | |
| 18... | 1055 | 8.0 | 586 | 24.0 | 56 | 45 | 14 | 5.2 | 86 |
| JUN | | | | | | | | | |
| 30... | 1320 | 1.0 | 957 | 28.0 | 76 | 62 | 18 | 7.6 | 150 |
| AUG | | | | | | | | | |
| 10... | 1020 | .04 | 1750 | 24.0 | 130 | 90 | 31 | 13 | 290 |
| SEP | | | | | | | | | |
| 22... | 1054 | .04 | 1620 | 19.0 | 75 | 0 | 18 | 7.3 | 300 |

| DATE | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY (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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 15... | 18 | 3.9 | 220 | 44 | 250 | .3 | 14 | 730 |
| DEC | | | | | | | | |
| 10... | 5.9 | 6.1 | 11 | 21 | 200 | .1 | 19 | 386 |
| JAN | | | | | | | | |
| 14... | 6.2 | 2.8 | 1 | 15 | 230 | .1 | 25 | 417 |
| FEB | | | | | | | | |
| 25... | 6.7 | 3.5 | 5 | 19 | 240 | .1 | 21 | 440 |
| APR | | | | | | | | |
| 09... | 7.9 | 4.6 | 6 | 18 | 330 | .2 | 20 | 577 |
| MAY | | | | | | | | |
| 18... | 5.0 | 3.9 | 11 | 26 | 160 | .1 | 17 | 319 |
| JUN | | | | | | | | |
| 30... | 8.2 | 3.5 | 14 | 2.0 | 280 | .1 | 23 | 493 |
| AUG | | | | | | | | |
| 10... | 12 | 4.8 | 41 | 28 | 500 | .1 | 19 | 911 |
| SEP | | | | | | | | |
| 22... | 16 | 3.8 | 170 | 31 | 390 | .3 | 15 | 868 |

08033800 STRIKER CREEK RESERVOIR NEAR NEW SALEM, TX

PERIOD OF RECORD.--Chemical analyses: December 1969 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | TEMPERATURE, WATER (DEG C) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|
| JAN 14... | 1110 | 504 | 11.5 | 55 | 55 | 11 | 6.8 | 75 |

| DATE | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| JAN 14... | 4.4 | 3.2 | 0 | 54 | 120 | .2 | 16 | 286 |

## 08033900 EAST FORK ANGELINA RIVER NEAR CUSHING, TX

LOCATION.--Lat 31°51'36", long 94°49'23", Rusk County, Hydrologic Unit 12020004, near left bank on downstream side of bridge on Farm Road 225, 0.1 mi (0.2 km) downstream from Everett Branch, 0.9 mi (1.4 km) upstream from Reagan Branch, 3.5 mi (5.6 km) north of Cushing, and 8 mi (13 km) upstream from Angelina River.

DRAINAGE AREA.--158 $mi^2$ (409 $km^2$).

PERIOD OF RECORD.--January 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is 275.29 ft (83.908 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No known diversion above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--17 years, 108 $ft^3/s$ (3.059 $m^3/s$), 9.29 in/yr (236 mm/yr), 78,250 acre-ft/yr (96.5 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,500 $ft^3/s$ (552 $m^3/s$) Apr. 12, 1980, gage height, 13.34 ft (4.066 m), from rating curve extended above 4,600 $ft^3/s$ (130 $m^3/s$) on basis of area-velocity study; minimum, 0.7 $ft^3/s$ (0.020 $m^3/s$) Aug. 14, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,460 $ft^3/s$ (41.3 $m^3/s$) Sept. 2 at 1800 hours, gage height, 10.06 ft (3.066 m), no other peak above base of 1,000 $ft^3/s$ (28.3 $m^3/s$); minimum, 4.9 (0.14 $m^3/s$) Aug. 16-18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 32 | 18 | 35 | 32 | 40 | 58 | 58 | 42 | 130 | 17 | 9.5 | 48 |
| 2 | 24 | 17 | 35 | 31 | 54 | 137 | 49 | 48 | 124 | 17 | 9.6 | 718 |
| 3 | 20 | 17 | 34 | 31 | 44 | 104 | 43 | 39 | 66 | 18 | 9.0 | 805 |
| 4 | 17 | 16 | 33 | 31 | 37 | 307 | 43 | 38 | 135 | 21 | 7.5 | 353 |
| 5 | 15 | 16 | 32 | 31 | 39 | 355 | 47 | 53 | 195 | 21 | 6.7 | 109 |
| 6 | 14 | 16 | 32 | 40 | 52 | 250 | 43 | 61 | 337 | 27 | 6.4 | 60 |
| 11 | 13 | 1[illegible] | 50 | 39 | 181 | 66 | 33 | 107 | 62 | 19 | 5.7 | 27 |
| 12 | 12 | 18 | 40 | 35 | 98 | 61 | 31 | 58 | 55 | 18 | 5.7 | 24 |
| 13 | 12 | 18 | 37 | 34 | 63 | 60 | 31 | 44 | 57 | 17 | 5.5 | 23 |
| 14 | 12 | 18 | 37 | 34 | 55 | 60 | 29 | 44 | 55 | 17 | 5.4 | 26 |
| 15 | 12 | 19 | 36 | 34 | 50 | 55 | 28 | 72 | 45 | 15 | 5.3 | 28 |
| 16 | 13 | 33 | 36 | 33 | 47 | 52 | 25 | 76 | 41 | 13 | 5.1 | 42 |
| 17 | 14 | 90 | 35 | 31 | 46 | 49 | 24 | 130 | 39 | 11 | 5.0 | 40 |
| 18 | 17 | 91 | 34 | 30 | 45 | 48 | 23 | 89 | 37 | 10 | 5.1 | 28 |
| 19 | 18 | 53 | 33 | 31 | 44 | 46 | 22 | 57 | 34 | 9.9 | 5.7 | 23 |
| 20 | 19 | 37 | 33 | 55 | 43 | 44 | 22 | 51 | 30 | 9.3 | 7.1 | 21 |
| 21 | 17 | 33 | 33 | 81 | 42 | 43 | 22 | 40 | 27 | 8.9 | 6.3 | 20 |
| 22 | 16 | 32 | 32 | 58 | 61 | 43 | 21 | 35 | 24 | 8.4 | 5.7 | 19 |
| 23 | 16 | 41 | 31 | 45 | 75 | 42 | 46 | 32 | 23 | 8.1 | 5.3 | 18 |
| 24 | 16 | 45 | 31 | 40 | 54 | 40 | 119 | 47 | 28 | 7.7 | 5.1 | 17 |
| 25 | 15 | 39 | 31 | 38 | 45 | 38 | 113 | 82 | 23 | 7.3 | 5.7 | 16 |
| 26 | 16 | 41 | 35 | 37 | 43 | 38 | 56 | 69 | 22 | 7.0 | 11 | 15 |
| 27 | 26 | 59 | 34 | 37 | 42 | 38 | 37 | 57 | 24 | 7.7 | 14 | 15 |
| 28 | 43 | 52 | 33 | 36 | 41 | 38 | 31 | 48 | 20 | 19 | 21 | 15 |
| 29 | 33 | 41 | 32 | 35 | --- | 55 | 29 | 42 | 18 | 21 | 24 | 14 |
| 30 | 22 | 36 | 32 | 33 | --- | 105 | 34 | 36 | 18 | 13 | 18 | 14 |
| 31 | 19 | --- | 32 | 32 | --- | 85 | --- | 42 | --- | 10 | 15 | --- |
| TOTAL | 558 | 983 | 1114 | 1211 | 1590 | 2690 | 1201 | 1844 | 2508 | 526.3 | 259.8 | 2678 |
| MEAN | 18.0 | 32.8 | 35.9 | 39.1 | 56.8 | 86.8 | 40.0 | 59.5 | 83.6 | 17.0 | 8.38 | 89.3 |
| MAX | 43 | 91 | 67 | 81 | 181 | 355 | 119 | 162 | 370 | 54 | 24 | 805 |
| MIN | 12 | 16 | 31 | 30 | 37 | 38 | 21 | 32 | 18 | 7.0 | 5.0 | 14 |
| CFSM | .11 | .21 | .23 | .25 | .36 | .55 | .25 | .38 | .53 | .11 | .05 | .57 |
| IN. | .13 | .23 | .26 | .29 | .37 | .63 | .28 | .43 | .59 | .12 | .06 | .63 |
| AC-FT | 1110 | 1950 | 2210 | 2400 | 3150 | 5340 | 2380 | 3660 | 4970 | 1040 | 515 | 5310 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 59080.1 | MEAN | 161 | MAX | 8620 | MIN | 7.7 | CFSM | 1.02 | IN | 13.91 | AC-FT | 117200 |
| WTR YR 1981 | TOTAL | 17163.1 | MEAN | 47.0 | MAX | 805 | MIN | 5.0 | CFSM | .30 | IN | 4.04 | AC-FT | 34040 |

## 08034000 LAKE TYLER NEAR WHITEHOUSE, TX

LOCATION.--Lat 32°14'30", long 95°10'33", Smith County, Hydrologic Unit 12020004, at city of Tyler pumphouse, 2.0 mi (3.2 km) north of Whitehouse Dam on Prairie Creek, 3.0 mi (4.8 km) northwest of Mud Creek, and 3.2 mi (5.1 km) northeast of Whitehouse.

DRAINAGE AREA.--107 mi² (277 km²). Prior to May 29, 1968, 45.3 mi² (117.3 km²).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1949 to current year.

GAGE.--Water-stage recorder and crest-stages gages. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to May 3, 1949, nonrecording gage at dam. May 3, 1949, to July 11, 1951, nonrecording gage at pumphouse. July 12, 1951, to Feb. 1, 1968, water-stage recorder at intake tower in lake 660 ft (201 m) south of pumphouse. All gages at same datum.

REMARKS.--Originally Lake Tyler was formed by Whitehouse Dam. Deliberate impoundment began Jan. 8, 1949, and the dam was completed May 13, 1949. The construction of Mud Creek Dam began Feb. 11, 1966, and deliberate impoundment began Nov. 22, 1966; final completion of dam was in January 1967. Whitehouse Dam is a rolled earthfill dam with an uncontrolled concrete spillway 200 ft (61 m) wide near left end of dam. Mud Creek Dam is a rolled earthfill dam with an uncontrolled concrete spillway 300 ft (91 m) wide near center of dam. On May 29, 1968, the lakes were joined through an interconnecting canal. An 18-inch (457 mm) conduit through the embankment of Mud Creek Dam serves as a low-flow outlet. Water is used for municipal supply for the cities of Tyler, Troop, and Whitehouse. The dam is owned and operated by the city of Tyler. 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 | 390.0 to 391.5 | - |
| Design flood | 386.0 | - |
| Crest of spillways | 375.4 | 80,900 |
| Bottom of interconnecting canal between lakes | 355.0 | 14,480 |
| Lowest gated outlet (invert at Mud Creek Dam) | 350.0 | 7,200 |

COOPERATION.--The capacity tables, furnished by the city of Tyler, are based on surveys made in 1948-49 and 1966-67.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 87,340 acre-ft (108 hm³) Feb. 3, 1975, elevation, 376.71 ft (114.821 m); maximum elevation, 378.3 ft (115.31 m) Apr. 24, 1966, prior to adjoining of lakes; minimum contents since joining of lakes, 63,100 acre-ft (77.8 hm³) Nov. 13, 1978, elevation, 371.44 ft (113.215 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 80,960 acre-ft (99.8 hm³) July 7, 8 at 2200 to 1900 hours, elevation, 375.41 ft (114.425 m); minimum, 65,000 acre-ft (80.1 hm³) Nov. 15, 16, elevation, 371.89 ft (113.352 m).

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

| | | | |
|---|---|---|---|
| 371.0 | 61,270 | 374.0 | 74,330 |
| 372.0 | 65,470 | 375.0 | 79,000 |
| 373.0 | 69,820 | 376.0 | 83,820 |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 67980 | 65860 | 65820 | 65560 | 66070 | 67810 | 68330 | 68510 | 75440 | 79330 | 78290 | 75300 |
| 2 | 67850 | 65770 | 65770 | 65510 | 66070 | 67850 | 68290 | 68510 | 75530 | 79380 | 78200 | 75390 |
| 3 | 67670 | 65770 | 65730 | 65470 | 66070 | 67980 | 68240 | 68510 | 76410 | 79290 | 78010 | 75350 |
| 4 | 67540 | 65690 | 65690 | 65470 | 66070 | 67980 | 68770 | 68510 | 77440 | 79290 | 77870 | 75250 |
| 5 | 67460 | 65600 | 65730 | 65390 | 66250 | 67980 | 68810 | 68510 | 78290 | 80430 | 77730 | 75160 |
| 6 | 67370 | 65510 | 65690 | 65390 | 66330 | 67980 | 68810 | 68510 | 78430 | 80580 | 77580 | 75070 |
| 7 | 67240 | 65340 | 65640 | 65340 | 66380 | 67980 | 68730 | 68510 | 78530 | 80960 | 77350 | 74980 |
| 8 | 67110 | 65340 | 66160 | 65340 | 66420 | 67980 | 68730 | 68810 | 79000 | 80910 | 77160 | 74840 |
| 9 | 67070 | 65340 | 66250 | 65300 | 66550 | 68200 | 68770 | 70400 | 78530 | 80860 | 77110 | 74750 |
| 10 | 66940 | 65340 | 66200 | 65300 | 66850 | 68240 | 68730 | 71120 | 78290 | 80720 | 76920 | 74650 |
| 11 | 66810 | 65340 | 66200 | 65340 | 67150 | 68240 | 68730 | 71160 | 79000 | 80630 | 76780 | 74470 |
| 12 | 66680 | 65220 | 66160 | 65340 | 67070 | 68240 | 68730 | 71160 | 79000 | 80580 | 76690 | 74330 |
| 13 | 66590 | 65130 | 66160 | 65560 | 67070 | 68240 | 68730 | 71390 | 79000 | 80480 | 76500 | 74240 |
| 14 | 66460 | 65090 | 66160 | 65600 | 67070 | 68240 | 68730 | 71840 | 79000 | 80390 | 76320 | 74100 |
| 15 | 66330 | 65000 | 66160 | 65600 | 67110 | 68240 | 68640 | 72420 | 79000 | 80240 | 76180 | 74010 |
| 16 | 66550 | 65730 | 66120 | 65560 | 67200 | 68240 | 68550 | 73200 | 80430 | 80100 | 76270 | 73880 |
| 17 | 67030 | 65820 | 66070 | 65470 | 67200 | 68110 | 68510 | 73650 | 80430 | 80000 | 76180 | 73650 |
| 18 | 67030 | 65770 | 66070 | 65560 | 67200 | 68070 | 68510 | 73650 | 80430 | 79860 | 76040 | 73510 |
| 19 | 66900 | 65770 | 66070 | 65690 | 67280 | 68070 | 68510 | 73560 | 80430 | 79720 | 75900 | 73330 |
| 20 | 66810 | 65640 | 65900 | 65690 | 67280 | 67940 | 68510 | 73560 | 80430 | 79620 | 75760 | 73240 |
| 21 | 66720 | 65600 | 65860 | 65730 | 67410 | 68020 | 68460 | 73560 | 80430 | 79430 | 75620 | 73150 |
| 22 | 66640 | 65770 | 65820 | 65770 | 67370 | 67980 | 68420 | 73470 | 80430 | 79330 | 75490 | 73100 |
| 23 | 66590 | 65820 | 65820 | 65770 | 67370 | 67940 | 68730 | 73470 | 80430 | 79140 | 75390 | 72970 |
| 24 | 66460 | 65770 | 65730 | 65770 | 67330 | 67890 | 68730 | 74240 | 80200 | 79050 | 75250 | 72830 |
| 25 | 66380 | 65820 | 65640 | 65770 | 67370 | 67850 | 68640 | 74700 | 79960 | 78910 | 75120 | 72740 |
| 26 | 66250 | 65820 | 65640 | 65770 | 67370 | 67850 | 68640 | 74840 | 79960 | 78950 | 74930 | 72560 |
| 27 | 66290 | 65820 | 65690 | 65820 | 67410 | 67850 | 68550 | 75210 | 79960 | 78910 | 74790 | 72510 |
| 28 | 66160 | 65820 | 65640 | 65770 | 67500 | 67940 | 68550 | 75390 | 79960 | 78810 | 74790 | 72420 |
| 29 | 66030 | 65770 | 65600 | 65770 | --- | 68290 | 68510 | 75390 | 79720 | 78720 | 74650 | 72330 |
| 30 | 66030 | 65770 | 65600 | 65770 | --- | 68290 | 68420 | 75490 | 79430 | 78620 | 74560 | 72200 |
| 31 | 65900 | --- | 65600 | 65730 | --- | 68330 | --- | 75440 | --- | 78430 | 74560 | --- |
| MAX | 67980 | 65860 | 66250 | 65820 | 67500 | 68330 | 68810 | 75490 | 80430 | 80960 | 78290 | 75390 |
| MIN | 65900 | 65000 | 65600 | 65300 | 66070 | 67810 | 68240 | 68510 | 75440 | 78430 | 74560 | 72200 |
| (†) | 372.10 | 372.07 | 372.03 | 372.06 | 372.47 | 372.66 | 372.68 | 374.24 | 375.09 | 374.88 | 374.05 | 373.53 |
| (‡) | -2080 | -130 | -170 | +130 | +1770 | +830 | +90 | +7020 | +3990 | -1000 | -3870 | -2360 |
| (††) | 1220 | 993 | 890 | 881 | 800 | 918 | 954 | 871 | 981 | 1360 | 1690 | 1250 |

CAL YR 1980 MAX 83820 MIN 65000 ‡ -15980 †† 13934
WTR YR 1981 MAX 80960 MIN 65000 ‡ +4220 †† 12808

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, for municipal use by city of Tyler.

08034000 LAKE TYLER NEAR WHITEHOUSE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | TEMPERATURE, WATER (DEG C) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|
| FEB 25... | 1600 | 97 | 16.0 | 26 | 8 | 6.2 | 2.6 | 7.8 |

| DATE | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| FEB 25... | .7 | 2.4 | 18 | 14 | 11 | .1 | 14 | 69 |

## 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 pier of bridge on State Highway 21, 0.4 mi (0.6 km) upstream from Allen Creek, 1.5 mi (2.4 km) upstream from Bingham Creek, 7.5 mi (12.1 km) east of Alto, and 149.3 mi (240.2 km) upstream from mouth.

DRAINAGE AREA.--1,276 $mi^2$ (3,305 $km^2$).

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.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 204.30 ft (62.271 m) National Geodetic Vertical Datum of 1929. May 9, 1940, to Mar. 31, 1949, nonrecording gage on bridge at natural channel 1,400 ft (427 m) to right at same datum. Feb. 18 to Sept. 15, 1959, nonrecording gage at present site and datum.

REMARKS.--Records good. No large diversion above station. Flow partly regulated since May 1957 by Lake Striker 35.5 mi (57.1 km) upstream and Lake Tyler 69.9 mi (112.5 km) upstream since January 1949, combined capacity, 110,700 acre-ft (136 $hm^3$). Recording rain gage at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--23 years (water years 1943, 1960-81), 773 $ft^3/s$ (21.89 $m^3/s$), 560,000 acre-ft/yr (690 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,600 $ft^3/s$ (867 $m^3/s$) Apr. 28, 1966, gage height, 21.51 ft (6.556 m), but may have been higher during period of no gage-height record in November 1940; minimum, 2.0 $ft^3/s$ (0.057 $m^3/s$) Aug. 14, 15, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1905, about 22 ft (6.7 m) in May 1908, from information by local residents. Flood in 1932 reached a stage of 21.5 ft (6.55 m), and flood in May 1958 reached a stage of 20.3 ft (6.19 m), from floodmarks and information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,380 $ft^3/s$ (67.4 $m^3/s$) June 12 at 1200 hours, gage height, 13.94 ft (4.249 m); minimum daily, 34 $ft^3/s$ (0.96 $m^3/s$) Aug. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 74 | 87 | 158 | 104 | 146 | 217 | 330 | 180 | 521 | 115 | 52 | 68 |
| 2 | 74 | 69 | 140 | 105 | 149 | 278 | 357 | 173 | 525 | 108 | 48 | 69 |
| 3 | 76 | 59 | 125 | 105 | 146 | 349 | 310 | 173 | 669 | 112 | 45 | 74 |
| 4 | 77 | 53 | 117 | 105 | 157 | 693 | 262 | 189 | 1180 | 99 | 43 | 138 |
| 5 | 68 | 49 | 111 | 105 | 180 | 856 | 241 | 181 | 1410 | 96 | 41 | 223 |
| 6 | 61 | 47 | 105 | 107 | 194 | 860 | 230 | 183 | 1590 | 105 | 40 | 306 |
| 7 | 57 | 45 | 100 | 113 | 204 | 867 | 242 | 219 | 1600 | 164 | 38 | 332 |
| 8 | 53 | 42 | 99 | 114 | 221 | 885 | 260 | 215 | 1720 | 261 | 37 | 232 |
| 9 | 49 | 39 | 108 | 125 | 246 | 878 | 244 | 232 | 1870 | 269 | 35 | 121 |
| 10 | 46 | 38 | 119 | 146 | 315 | 820 | 228 | 455 | 2070 | 335 | 34 | 80 |
| 11 | 44 | 38 | 136 | 158 | 383 | 692 | 223 | 622 | 2290 | 382 | 39 | 64 |
| 12 | 43 | 38 | 178 | 161 | 414 | 502 | 217 | 801 | 2380 | 361 | 50 | 57 |
| 13 | 42 | 38 | 193 | 162 | 490 | 379 | 208 | 898 | 2310 | 327 | 53 | 51 |
| 14 | 41 | 39 | 175 | 155 | 543 | 329 | 192 | 920 | 2100 | 281 | 54 | 47 |
| 15 | 40 | 41 | 158 | 145 | 522 | 309 | 177 | 844 | 1780 | 217 | 54 | 46 |
| 16 | 40 | 50 | 148 | 137 | 441 | 342 | 165 | 798 | 1410 | 174 | 54 | 47 |
| 17 | 39 | 90 | 138 | 130 | 382 | 364 | 154 | 876 | 1010 | 136 | 54 | 52 |
| 18 | 39 | 117 | 129 | 123 | 349 | 361 | 145 | 951 | 625 | 107 | 54 | 59 |
| 19 | 40 | 152 | 121 | 121 | 309 | 347 | 138 | 1020 | 440 | 85 | 55 | 60 |
| 20 | 41 | 200 | 115 | 140 | 267 | 334 | 133 | 1070 | 393 | 71 | 54 | 56 |
| 21 | 44 | 216 | 109 | 164 | 242 | 322 | 130 | 1090 | 372 | 63 | 55 | 49 |
| 22 | 49 | 179 | 106 | 184 | 249 | 269 | 127 | 1060 | 361 | 58 | 55 | 45 |
| 23 | 51 | 156 | 104 | 225 | 257 | 202 | 134 | 980 | 361 | 54 | 55 | 44 |
| 24 | 51 | 147 | 102 | 245 | 252 | 181 | 236 | 922 | 386 | 51 | 55 | 41 |
| 25 | 50 | 141 | 100 | 225 | 264 | 173 | 395 | 858 | 389 | 48 | 55 | 40 |
| 26 | 48 | 155 | 99 | 205 | 259 | 166 | 464 | 773 | 335 | 46 | 54 | 40 |
| 27 | 49 | 164 | 99 | 191 | 234 | 160 | 505 | 690 | 252 | 44 | 53 | 39 |
| 28 | 59 | 150 | 100 | 177 | 216 | 157 | 430 | 633 | 210 | 43 | 54 | 46 |
| 29 | 70 | 145 | 101 | 164 | --- | 173 | 287 | 534 | 170 | 41 | 56 | 67 |
| 30 | 98 | 160 | 100 | 154 | --- | 242 | 212 | 453 | 136 | 42 | 61 | 73 |
| 31 | 108 | --- | 103 | 147 | --- | 274 | --- | 523 | --- | 49 | 64 | --- |
| TOTAL | 1721 | 2944 | 3796 | 4642 | 8031 | 12981 | 7376 | 19516 | 30865 | 4344 | 1551 | 2666 |
| MEAN | 55.5 | 98.1 | 122 | 150 | 287 | 419 | 246 | 630 | 1029 | 140 | 50.0 | 88.9 |
| MAX | 108 | 216 | 193 | 245 | 543 | 885 | 505 | 1090 | 2380 | 382 | 64 | 332 |
| MIN | 39 | 38 | 99 | 104 | 146 | 157 | 127 | 173 | 136 | 41 | 34 | 39 |
| AC-FT | 3410 | 5840 | 7530 | 9210 | 15930 | 25750 | 14630 | 38710 | 61220 | 8620 | 3080 | 5290 |
| (††) | .71 | 3.99 | .55 | 1.87 | 3.52 | 3.89 | 1.46 | 6.06 | 5.14 | 4.42 | 2.21 | 1.69 |

CAL YR 1980 TOTAL 315731 MEAN 863 MAX 9600 MIN 34 AC-FT 626300 †† 25.38
WTR YR 1981 TOTAL 100433 MEAN 275 MAX 2380 MIN 34 AC-FT 199200 †† 35.51

†† Rainfall, in inches, at gaging station.

## 08036700 LAKE NACOGDOCHES NEAR NACOGDOCHES, TX

LOCATION.--Lat 31°35'19", long 94°49'31", Nacogdoches County, Hydrologic Unit 12020004, at upstream side of dam on Bayou Loco near service outlet tower and 10 mi (16 km) west of Nacogdoches.

DRAINAGE AREA.--87.9 $mi^2$ (227.7 $km^2$).

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

GAGE.--Water-stage recorder and crest-stage gage. 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 Nacogdoches. The emergency spillway is an uncontrolled 500-foot-wide (150 m) cut through natural ground located near the right end of the dam. There is an uncontrolled drop inlet with a 20.5-foot-diameter (6.2 m) top opening that is connected to an 8- by 7-foot (2.4 by 2.1 m) conduit that extends through the dam. A separate multi-gated inlet tower is connected to a valve box by a 30-inch (762 mm) conduit through the dam. The valve box directs water to a purificiation 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 Nacogdoches, is based on Geological Survey topographic maps dated 1952.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 53,550 acre-ft (66.0 $hm^3$) June 3, 1979, elevation, 283.76 ft (86.490 m); minimum since first appreciable storage, 20,540 acre-ft (25.3 $hm^3$) Nov. 26, 1977, elevation, 266.62 ft (81.266 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 37,500 acre-ft (46.2 $hm^3$) June 12, 13 at 2200 to 1000 hours, elevation, 276.68 ft (84.332 m); minimum, 34,090 acre-ft (42.0 $hm^3$) Jan. 18, elevation, 274.93 ft (83.799 m).

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

| | | | |
|---|---|---|---|
| 274.0 | 32,360 | 276.0 | 36,140 |
| 275.0 | 34,220 | 277.0 | 38,140 |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 36200 | 35220 | 34890 | 34450 | 34130 | 34740 | 35280 | 34930 | 35860 | 37180 | 36420 | 35610 |
| 2 | 36150 | 35200 | 34870 | 34430 | 34110 | 34740 | 35280 | 34870 | 35950 | 37340 | 36380 | 35760 |
| 3 | 36110 | 35180 | 34850 | 34410 | 34130 | 34800 | 35280 | 34930 | 36320 | 37260 | 36340 | 35740 |
| 4 | 36090 | 35140 | 34830 | 34390 | 34140 | 35070 | 35280 | 35050 | 36560 | 37220 | 36240 | 35760 |
| 5 | 36050 | 35100 | 34830 | 34370 | 34220 | 35180 | 35260 | 35050 | 37040 | 37240 | 36180 | 35760 |
| 6 | 36010 | 35070 | 34820 | 34350 | 34240 | 35180 | 35240 | 35050 | 37320 | 37240 | 36130 | 35640 |
| 7 | 35990 | 35030 | 34800 | 34330 | 34240 | 35220 | 35180 | 35050 | 37380 | 37340 | 36070 | 35610 |
| 8 | 35950 | 34990 | 34890 | 34310 | 34220 | 35220 | 35180 | 35070 | 37420 | 37340 | 36050 | 35570 |
| 9 | 35910 | 35090 | 35090 | 34310 | 34180 | 35180 | 35180 | 35090 | 37420 | 37340 | 35950 | 35570 |
| 10 | 35880 | 34990 | 35050 | 34300 | 34550 | 35220 | 35160 | 35090 | 37460 | 37420 | 35910 | 35490 |
| 11 | 35840 | 34950 | 35030 | 34300 | 34600 | 35220 | 35160 | 35070 | 37420 | 37360 | 35860 | 35430 |
| 12 | 35800 | 34910 | 34990 | 34280 | 34560 | 35240 | 35160 | 35050 | 37500 | 37360 | 35840 | 35370 |
| 13 | 35760 | 34850 | 34950 | 34240 | 34550 | 35240 | 35140 | 35050 | 37480 | 37300 | 35760 | 35350 |
| 14 | 35720 | 34800 | 34910 | 34180 | 34510 | 35220 | 35100 | 35160 | 37440 | 37280 | 35720 | 35410 |
| 15 | 35680 | 34760 | 34890 | 34160 | 34510 | 35240 | 35090 | 35200 | 37420 | 37220 | 35660 | 35490 |
| 16 | 35700 | 34720 | 34870 | 34130 | 34510 | 35200 | 35050 | 35320 | 37420 | 37160 | 35610 | 35470 |
| 17 | 35720 | 35090 | 34830 | 34110 | 34510 | 35180 | 35030 | 35320 | 37380 | 37100 | 35610 | 35370 |
| 18 | 35680 | 34990 | 34800 | 34090 | 34510 | 35140 | 35030 | 35350 | 37340 | 37040 | 35550 | 35320 |
| 19 | 35620 | 34930 | 34760 | 34180 | 34510 | 35140 | 35010 | 35350 | 37300 | 37020 | 35510 | 35300 |
| 20 | 35570 | 34890 | 34740 | 34300 | 34510 | 35120 | 35010 | 35390 | 37240 | 36940 | 35450 | 35280 |
| 21 | 35510 | 34830 | 34720 | 34280 | 34660 | 35140 | 34990 | 35340 | 37200 | 36900 | 35390 | 35180 |
| 22 | 35450 | 34800 | 34700 | 34280 | 34660 | 35090 | 34970 | 35320 | 37180 | 36860 | 35340 | 35140 |
| 23 | 35390 | 34890 | 34660 | 34260 | 34620 | 35090 | 35030 | 35320 | 37320 | 36800 | 35280 | 35140 |
| 24 | 35340 | 34890 | 34620 | 34240 | 34600 | 35070 | 35030 | 35550 | 37280 | 36780 | 35640 | 35100 |
| 25 | 35300 | 34870 | 34600 | 34200 | 34600 | 35050 | 35010 | 35680 | 37420 | 36680 | 35590 | 35090 |
| 26 | 35220 | 34850 | 34580 | 34260 | 34600 | 35030 | 34990 | 35720 | 37380 | 36640 | 35510 | 35050 |
| 27 | 35180 | 35090 | 34560 | 34240 | 34600 | 35030 | 34990 | 35700 | 37340 | 36640 | 35550 | 35010 |
| 28 | 35370 | 34990 | 34550 | 34220 | 34620 | 35010 | 34950 | 35680 | 37280 | 36600 | 35530 | 35010 |
| 29 | 35340 | 34950 | 34530 | 34180 | --- | 35240 | 34950 | 35660 | 37240 | 36580 | 35470 | 34970 |
| 30 | 35300 | 34910 | 34490 | 34160 | --- | 35240 | 34950 | 35860 | 37200 | 36540 | 35410 | 34930 |
| 31 | 35260 | --- | 34470 | 34140 | --- | 35280 | --- | 35860 | --- | 36480 | 35610 | --- |
| MAX | 36200 | 35220 | 35090 | 34450 | 34660 | 35280 | 35280 | 35860 | 37500 | 37420 | 36420 | 35760 |
| MIN | 35180 | 34720 | 34470 | 34090 | 34110 | 34740 | 34950 | 34870 | 35860 | 36480 | 35280 | 34930 |
| (†) | 275.54 | 275.36 | 275.13 | 274.96 | 275.21 | 275.55 | 275.38 | 275.85 | 276.53 | 276.17 | 275.72 | 275.37 |
| (‡) | -990 | -350 | -440 | -330 | +480 | +660 | -330 | +910 | +1340 | -720 | -870 | -680 |
| (††) | 292 | 250 | 238 | 229 | 219 | 264 | 278 | 286 | 291 | 347 | 378 | 311 |

CAL YR 1980 MAX 52240 MIN 34470 ‡ -8460 †† 3544
WTR YR 1981 MAX 37500 MIN 34090 ‡ -1320 †† 3383

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, by the city of Nacogdoches.

## 08037050 BAYOU LANANA AT NACOGDOCHES, TX

LOCATION.--Lat 31°36'58", long 94°38'28", Nacogdoches County, Hydrologic Unit 12020005, on right bank at downstream side of bridge on Farm Road 1878 in Nacogdoches and 14.5 mi (23.3 km) upstream from mouth.

DRAINAGE AREA.--31.3 mi² (81.1 km²).

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

GAGE.--Water-stage recorder. Prior to July 1974, concrete control. Datum of gage is 264.23 ft (80.537 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for period of no gage-height record, which are poor. No diversion above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--17 years, 29.9 ft³/s (0.847 m³/s), 12.97 in/yr (329 mm/yr), 21,660 acre-ft/yr (26.7 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,500 ft³/s (382 m³/s) June 2, 1979, gage height, 22.18 ft (6.760 m), from rating curve extended above 2,800 ft³/s (79.3 m³/s) on basis of indirect measurement of peak flow; no flow at times.
Maximum stage since at least 1956, that of June 2, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,450 ft³/s (69.4 m³/s) Sept. 1 at about 0800 hours, gage height, 17.17 ft (5.233 m), from peak mark, no other peak above base of 1,100 ft³/s (31.2 m³/s); minimum daily estimated, 0.04 ft³/s (0.001 m³/s) Aug. 21-23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.0 | .25 | 1.3 | 1.5 | 1.4 | 21 | 4.8 | 1.8 | 11 | 1.8 | 1.0 | 1000 |
| 2 | .45 | .24 | 1.1 | 1.2 | .99 | 7.5 | 3.8 | .54 | 13 | 73 | .70 | 66 |
| 3 | .16 | .23 | .94 | 1.4 | .88 | 5.0 | 3.4 | 3.2 | 14 | 10 | .43 | 16 |
| 4 | .12 | .20 | .97 | 1.5 | .95 | 66 | 3.0 | 4.7 | 28 | 1.6 | .30 | 10 |
| 5 | .10 | .17 | 1.1 | 1.4 | 7.5 | 13 | 2.3 | 4.5 | 363 | 6.0 | .23 | 7.1 |
| 6 | .11 | .20 | 1.0 | 7.5 | 5.1 | 7.9 | 2.0 | 1.7 | 77 | 1.9 | .20 | 5.5 |
| 7 | .11 | .20 | 1.1 | 2.8 | 1.8 | 6.5 | 1.9 | .96 | 28 | 7.5 | .17 | 4.7 |
| 8 | .10 | .25 | 6.1 | 1.8 | 1.4 | 5.6 | 2.0 | .74 | 16 | 2.9 | .15 | 4.2 |
| 9 | .11 | .30 | 7.4 | 3.6 | 1.4 | 4.6 | 1.9 | 16 | 11 | 1.5 | .13 | 3.7 |
| 10 | .10 | .31 | 2.0 | 1.7 | 93 | 4.1 | 1.8 | 4.5 | 8.6 | .72 | .11 | 3.2 |
| 11 | .09 | .30 | 1.6 | 1.5 | 7.6 | 3.8 | 1.6 | 1.7 | 8.3 | 84 | .10 | 2.9 |
| 12 | .08 | .24 | 1.4 | 1.3 | 4.3 | 3.6 | 1.7 | 1.0 | 8.9 | 39 | .09 | 2.8 |
| 13 | .09 | .24 | 1.6 | 1.7 | 3.5 | 3.9 | 1.8 | .85 | 13 | 4.9 | .08 | 2.6 |
| 14 | .10 | .28 | 1.8 | 1.9 | 2.9 | 3.4 | 1.7 | 34 | 6.1 | 1.9 | .07 | 5.0 |
| 15 | .12 | .35 | 1.9 | 1.9 | 2.8 | 3.1 | 1.3 | 6.8 | 3.6 | 1.3 | .06 | 22 |
| 16 | .14 | 16 | 1.6 | 1.7 | 2.7 | 2.7 | 1.3 | 20 | 2.5 | .89 | .06 | 7.2 |
| 17 | 5.5 | 15 | 1.4 | 1.6 | 2.4 | 2.7 | 1.3 | 9.3 | 2.0 | .66 | .06 | 2.8 |
| 18 | 1.3 | 1.6 | 1.3 | 1.5 | 2.3 | 2.7 | 2.3 | 4.7 | 1.6 | .53 | .05 | 2.3 |
| 19 | .35 | .77 | 1.3 | 7.1 | 2.1 | 2.8 | 1.9 | 53 | 1.2 | .40 | .05 | 1.7 |
| 20 | .15 | .59 | 1.1 | 14 | 2.1 | 2.4 | 1.2 | 9.7 | .84 | .23 | .05 | 1.6 |
| 21 | .13 | .60 | 1.2 | 3.0 | 20 | 2.7 | 2.4 | 5.0 | .58 | .16 | .04 | 1.3 |
| 22 | .12 | 6.5 | 1.4 | 1.7 | 14 | 2.3 | 1.5 | 2.9 | .47 | 1.1 | .04 | 1.0 |
| 23 | .12 | 4.2 | 1.3 | 1.4 | 4.5 | 1.9 | 7.2 | 1.6 | .54 | 27 | .04 | .82 |
| 24 | .10 | 1.6 | 1.3 | 1.3 | 3.1 | 1.8 | 2.6 | 55 | .91 | 14 | 1.6 | 1.0 |
| 25 | .10 | 5.4 | 1.1 | 1.2 | 2.6 | 2.0 | 1.2 | 28 | 3.1 | 2.3 | 1.0 | .74 |
| 26 | .11 | 18 | 1.5 | 1.2 | 2.4 | 1.7 | .75 | 21 | 29 | .42 | 5.0 | .82 |
| 27 | 12 | 4.8 | 1.6 | 1.1 | 2.3 | 1.7 | .68 | 11 | 2.0 | 3.0 | 16 | .68 |
| 28 | .66 | 2.8 | 1.6 | 1.0 | 2.3 | 1.7 | .61 | 7.3 | .48 | 120 | 2.5 | .63 |
| 29 | .35 | 1.8 | 1.7 | 1.0 | --- | 28 | .57 | 4.8 | .26 | 60 | .50 | .60 |
| 30 | .29 | 1.4 | 1.5 | .96 | --- | 12 | .53 | 21 | 1.0 | 20 | .30 | .48 |
| 31 | .25 | --- | 1.5 | .92 | --- | 6.4 | --- | 28 | --- | 6.0 | .50 | --- |
| TOTAL | 24.51 | 84.82 | 53.71 | 73.38 | 198.32 | 234.5 | 61.04 | 365.29 | 655.98 | 494.71 | 31.61 | 1179.37 |
| MEAN | .79 | 2.83 | 1.73 | 2.37 | 7.08 | 7.56 | 2.03 | 11.8 | 21.9 | 16.0 | 1.02 | 39.3 |
| MAX | 12 | 18 | 7.4 | 14 | 93 | 66 | 7.2 | 55 | 363 | 120 | 16 | 1000 |
| MIN | .08 | .17 | .94 | .92 | .88 | 1.7 | .53 | .54 | .26 | .16 | .04 | .48 |
| CFSM | .03 | .09 | .06 | .08 | .23 | .24 | .07 | .38 | .70 | .51 | .03 | 1.26 |
| IN. | .03 | .10 | .06 | .09 | .24 | .28 | .07 | .43 | .78 | .59 | .04 | 1.40 |
| AC-FT | 49 | 168 | 107 | 146 | 393 | 465 | 121 | 725 | 1300 | 981 | 63 | 2340 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 9478.71 | MEAN | 25.9 | MAX | 1200 | MIN | .06 | CFSM | .83 | IN | 11.27 | AC-FT | 18800 |
| WTR YR 1981 | TOTAL | 3457.24 | MEAN | 9.47 | MAX | 1000 | MIN | .04 | CFSM | .30 | IN | 4.11 | AC-FT | 6860 |

NOTE.--No gage-height record July 27 to Sept. 1.

## 08038000 ATTOYAC BAYOU NEAR CHIRENO, TX

LOCATION.--Lat 31°30'15", long 94°18'15", Nacogdoches-San Augustine County line, Hydrologic Unit 12020005, near right bank on downstream side of pier of bridge on State Highway 21, 2.2 mi (3.5 km) upstream from Amaladeros Creek, 2.8 mi (4.5 km) east of Chireno, 5.4 mi (8.7 km) downstream from Arenoso Creek, and 41 mi (66 km) upstream from mouth.

DRAINAGE AREA.--503 $mi^2$ (1,303 $km^2$).

PERIOD OF RECORD.--January 1924 to September 1925, July 1939 to November 1954, and October 1955 to current year. Monthly discharge only for some periods, published in WSP 1312 and 1732.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 169.58 ft (51.688 m) 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.--Records good. Flow is affected at times by discharge from the flood-detention pools of twelve flood-water-retarding structures with a combined detention capacity of 15,870 acre-ft (19.6 $hm^3$). These structures control runoff from 46.7 $mi^2$ (121.0 $km^2$). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--42 years, 446 $ft^3/s$ (12.63 $m^3/s$), 12.04 in/yr (306 mm/yr), 323,100 acre-ft/yr (398 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,900 $ft^3/s$ (903 $m^3/s$), Nov. 24, 1940, gage height, 25.97 ft (7.916 m); minimum, 0.8 $ft^3/s$ (0.023 $m^3/s$) Aug. 26, 27, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1865, 29.9 ft (9.11 m) June 29, 1902, from information by local residents. Flood in July 1933 reached a stage of 25.2 ft (7.68 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 23,100 $ft^3/s$ (654 $m^3/s$) Sept. 2 at 1800 hours, gage-height, 23.88 ft (7.279 m), no other peak above base of 2,500 $ft^3/s$ (70.8 $m^3/s$); minimum, 18 $ft^3/s$ (0.51 $m^3/s$) Aug. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 48 | 64 | 129 | 86 | 109 | 156 | 211 | 70 | 187 | 55 | 74 | 264 |
| 2 | 47 | 53 | 110 | 85 | 168 | 215 | 225 | 126 | 272 | 80 | 50 | 15300 |
| 3 | 52 | 47 | 100 | 84 | 158 | 252 | 181 | 123 | 640 | 69 | 44 | 15500 |
| 4 | 51 | 43 | 93 | 87 | 125 | 310 | 143 | 104 | 650 | 60 | 36 | 5950 |
| 5 | 43 | 40 | 89 | 89 | 131 | 526 | 125 | 156 | 1040 | 69 | 31 | 3270 |
| 6 | 38 | 38 | 88 | 88 | 163 | 542 | 113 | 227 | 1430 | 80 | 27 | 2490 |
| 7 | 35 | 38 | 87 | 120 | 198 | 496 | 104 | 169 | 1460 | 88 | 26 | 2050 |
| 8 | 33 | 37 | 87 | 158 | 181 | 436 | 101 | 133 | 1450 | 89 | 40 | 1810 |
| 9 | 32 | 36 | 105 | 137 | 167 | 345 | 97 | 144 | 1340 | 96 | 37 | 1540 |
| 10 | 31 | 37 | 161 | 134 | 260 | 267 | 96 | 324 | 1360 | 82 | 28 | 1350 |
| 11 | 30 | 38 | 158 | 124 | 633 | 229 | 92 | 313 | 1440 | 82 | 23 | 1170 |
| 12 | 29 | 38 | 148 | 113 | 682 | 200 | 88 | 185 | 1430 | 294 | 23 | 878 |
| 13 | 28 | 38 | 138 | 108 | 478 | 183 | 85 | 154 | 1380 | 209 | 22 | 486 |
| 14 | 28 | 39 | 123 | 101 | 366 | 174 | 81 | 152 | 1200 | 143 | 21 | 380 |
| 15 | 28 | 41 | 111 | 98 | 277 | 164 | 75 | 262 | 623 | 108 | 20 | 369 |
| 16 | 28 | 47 | 104 | 95 | 223 | 151 | 70 | 280 | 321 | 73 | 19 | 318 |
| 17 | 32 | 95 | 101 | 91 | 199 | 143 | 67 | 355 | 236 | 54 | 19 | 239 |
| 18 | 57 | 167 | 97 | 88 | 184 | 137 | 64 | 291 | 188 | 44 | 19 | 184 |
| 19 | 89 | 149 | 94 | 88 | 174 | 131 | 62 | 239 | 154 | 40 | 37 | 166 |
| 20 | 70 | 135 | 93 | 119 | 166 | 123 | 61 | 208 | 132 | 36 | 63 | 140 |
| 21 | 58 | 123 | 89 | 213 | 159 | 118 | 62 | 198 | 116 | 33 | 34 | 114 |
| 22 | 52 | 96 | 86 | 203 | 166 | 119 | 64 | 173 | 111 | 31 | 25 | 99 |
| 23 | 49 | 89 | 86 | 182 | 231 | 119 | 85 | 120 | 104 | 29 | 22 | 89 |
| 24 | 45 | 106 | 87 | 167 | 241 | 114 | 106 | 95 | 93 | 27 | 21 | 81 |
| 25 | 43 | 102 | 88 | 140 | 211 | 111 | 116 | 98 | 89 | 26 | 20 | 75 |
| 26 | 41 | 117 | 86 | 124 | 181 | 108 | 95 | 119 | 85 | 26 | 20 | 69 |
| 27 | 45 | 199 | 85 | 116 | 166 | 106 | 91 | 179 | 80 | 27 | 22 | 64 |
| 28 | 144 | 210 | 85 | 110 | 158 | 105 | 77 | 165 | 75 | 31 | 60 | 61 |
| 29 | 143 | 175 | 85 | 105 | --- | 112 | 67 | 133 | 66 | 32 | 51 | 58 |
| 30 | 73 | 155 | 86 | 101 | --- | 172 | 60 | 110 | 60 | 56 | 36 | 55 |
| 31 | 74 | --- | 86 | 98 | --- | 198 | --- | 165 | --- | 112 | 43 | --- |
| TOTAL | 1596 | 2592 | 3165 | 3652 | 6555 | 6562 | 2964 | 5570 | 17812 | 2281 | 1013 | 54619 |
| MEAN | 51.5 | 86.4 | 102 | 118 | 234 | 212 | 98.8 | 180 | 594 | 73.6 | 32.7 | 1821 |
| MAX | 144 | 210 | 161 | 213 | 682 | 542 | 225 | 355 | 1460 | 294 | 74 | 15500 |
| MIN | 28 | 36 | 85 | 84 | 109 | 105 | 60 | 70 | 60 | 26 | 19 | 55 |
| CFSM | .10 | .17 | .20 | .24 | .47 | .42 | .20 | .36 | 1.18 | .15 | .07 | 3.62 |
| IN. | .12 | .19 | .23 | .27 | .48 | .49 | .22 | .41 | 1.32 | .17 | .07 | 4.04 |
| AC-FT | 3170 | 5140 | 6280 | 7240 | 13000 | 13020 | 5880 | 11050 | 35330 | 4520 | 2010 | 108300 |

CAL YR 1980 TOTAL 206838 MEAN 565 MAX 16700 MIN 22 CFSM 1.12 IN 15.30 AC-FT 410300
WTR YR 1981 TOTAL 108381 MEAN 297 MAX 15500 MIN 19 CFSM .59 IN 8.02 AC-FT 215000

## 08039100 AYISH BAYOU NEAR SAN AUGUSTINE, TX

LOCATION.--Lat 31°23'46", long 94°09'03", San Augustine County, Hydrologic Unit 12020005, near center of span at downstream side of pier of bridge on State Highway 103, 3.0 mi (4.8 km) upstream from Turkey Creek, and 9.5 mi (15.3 km) south of San Augustine.

DRAINAGE AREA.--89.0 $mi^2$ (230.5 $km^2$).

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

REVISED RECORDS.--WSP 1922: 1959(M).

GAGE.--Water-stage recorder. Datum of gage is 190.22 ft (57.979 m) National Geodetic Vertical Datum of 1929. Prior to June 2, 1959, nonrecording gage at same site and datum.

REMARKS.--Records good. No known diversion above station. Recording rain gage located at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--22 years (water years 1960-81), 81.0 $ft^3/s$ (2.294 $m^3/s$), 12.36 in/yr (314 mm/yr), 58,680 acre-ft/yr (72.4 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,200 $ft^3/s$ (515 $m^3/s$) Sept. 14, 1978, gage height, 18.02 ft (5.492 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Between October 1957 and February 1959, the maximum discharge was 15,900 $ft^3/s$ (450 $m^3/s$) Sept. 21 or 22, 1958, gage height, 17.5 ft (5.33 m), from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,420 $ft^3/s$ (40.2 $m^3/s$) June 6 at 1000 hours, gage height, 12.08 ft (3.682 m), no peak above base of 1,500 $ft^3/s$ (42.5 $m^3/s$); minimum, 0.45 $ft^3/s$ (0.013 $m^3/s$) Oct. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.5 | 3.1 | 6.5 | 4.3 | 11 | 8.6 | 31 | 8.6 | 27 | 17 | 3.8 | 57 |
| 2 | 1.4 | 2.3 | 5.5 | 4.3 | 37 | 14 | 22 | 64 | 23 | 16 | 3.4 | 130 |
| 3 | 1.4 | 1.9 | 5.2 | 4.2 | 31 | 19 | 18 | 29 | 72 | 25 | 3.6 | 99 |
| 4 | 1.3 | 1.6 | 4.9 | 4.2 | 17 | 54 | 17 | 18 | 85 | 21 | 4.1 | 53 |
| 5 | 1.1 | 1.5 | 4.7 | 4.2 | 12 | 104 | 16 | 35 | 344 | 27 | 3.5 | 37 |
| 6 | 1.0 | 1.4 | 4.7 | 4.8 | 13 | 49 | 13 | 59 | 1010 | 113 | 2.9 | 20 |
| 7 | .88 | 1.4 | 4.9 | 6.1 | 21 | 32 | 12 | 36 | 636 | 57 | 2.5 | 14 |
| 8 | .77 | 1.4 | 5.8 | 9.4 | 18 | 25 | 11 | 21 | 130 | 44 | 9.6 | 11 |
| 9 | .65 | 1.5 | 7.5 | 10 | 14 | 22 | 11 | 22 | 69 | 28 | 9.0 | 9.5 |
| 10 | .62 | 1.6 | 12 | 8.2 | 16 | 19 | 11 | 173 | 49 | 21 | 6.3 | 9.2 |
| 11 | .64 | 1.9 | 14 | 6.9 | 62 | 17 | 10 | 100 | 43 | 32 | 4.5 | 7.9 |
| 12 | .54 | 1.9 | 12 | 6.1 | 37 | 16 | 9.5 | 42 | 39 | 290 | 3.1 | 7.1 |
| 13 | .55 | 2.1 | 8.3 | 5.4 | 22 | 15 | 8.9 | 26 | 164 | 78 | 2.4 | 6.6 |
| 14 | .56 | 2.2 | 6.7 | 5.1 | 16 | 15 | 8.3 | 34 | 141 | 34 | 2.0 | 6.9 |
| 15 | .60 | 2.4 | 6.1 | 4.9 | 13 | 14 | 7.6 | 57 | 62 | 24 | 1.7 | 12 |
| 16 | .62 | 3.0 | 5.8 | 4.9 | 12 | 13 | 6.7 | 86 | 41 | 18 | 1.5 | 22 |
| 17 | .79 | 4.9 | 5.5 | 4.7 | 11 | 12 | 6.0 | 155 | 32 | 14 | 1.8 | 15 |
| 18 | .94 | 9.1 | 5.3 | 4.7 | 11 | 12 | 5.6 | 62 | 27 | 12 | 9.3 | 9.1 |
| 19 | 2.7 | 10 | 5.2 | 4.8 | 10 | 11 | 5.5 | 39 | 23 | 10 | 32 | 7.1 |
| 20 | 7.8 | 29 | 5.0 | 7.8 | 9.7 | 10 | 5.1 | 31 | 20 | 8.6 | 32 | 6.1 |
| 21 | 6.1 | 13 | 4.9 | 15 | 9.4 | 9.9 | 12 | 25 | 17 | 7.4 | 15 | 5.5 |
| 22 | 4.1 | 7.0 | 4.7 | 17 | 10 | 11 | 33 | 20 | 14 | 6.6 | 7.6 | 5.2 |
| 23 | 2.9 | 5.0 | 4.6 | 12 | 13 | 12 | 24 | 16 | 13 | 5.8 | 5.2 | 5.1 |
| 24 | 2.4 | 4.7 | 4.6 | 9.1 | 13 | 11 | 27 | 14 | 17 | 5.1 | 4.1 | 4.8 |
| 25 | 2.0 | 5.0 | 4.6 | 7.7 | 10 | 9.6 | 21 | 12 | 19 | 4.5 | 3.3 | 4.7 |
| 26 | 1.9 | 5.6 | 4.6 | 7.2 | 8.5 | 9.1 | 13 | 14 | 156 | 4.1 | 2.9 | 4.5 |
| 27 | 2.0 | 6.7 | 4.7 | 6.9 | 7.8 | 9.0 | 8.7 | 18 | 143 | 4.0 | 2.4 | 4.4 |
| 28 | 2.3 | 9.9 | 4.6 | 6.7 | 7.6 | 8.8 | 6.5 | 13 | 38 | 5.0 | 6.6 | 4.4 |
| 29 | 9.2 | 10 | 4.6 | 6.3 | --- | 28 | 5.4 | 11 | 25 | 7.7 | 14 | 4.2 |
| 30 | 10 | 8.1 | 4.4 | 6.1 | --- | 66 | 5.0 | 13 | 20 | 6.3 | 13 | 4.0 |
| 31 | 5.8 | --- | 4.4 | 5.8 | --- | 49 | --- | 24 | --- | 4.7 | 7.2 | --- |
| TOTAL | 75.06 | 159.2 | 186.3 | 214.8 | 473.0 | 705.0 | 390.8 | 1277.6 | 3499 | 950.8 | 220.3 | 586.3 |
| MEAN | 2.42 | 5.31 | 6.01 | 6.93 | 16.9 | 22.7 | 13.0 | 41.2 | 117 | 30.7 | 7.11 | 19.5 |
| MAX | 10 | 29 | 14 | 17 | 62 | 104 | 33 | 173 | 1010 | 290 | 32 | 130 |
| MIN | .54 | 1.4 | 4.4 | 4.2 | 7.6 | 8.6 | 5.0 | 8.6 | 13 | 4.0 | 1.5 | 4.0 |
| CFSM | .03 | .06 | .07 | .08 | .19 | .26 | .15 | .46 | 1.32 | .35 | .08 | .22 |
| IN. | .03 | .07 | .08 | .09 | .20 | .29 | .16 | .53 | 1.46 | .40 | .09 | .25 |
| AC-FT | 149 | 316 | 370 | 426 | 938 | 1400 | 775 | 2530 | 6940 | 1890 | 437 | 1160 |
| (††) | 1.16 | 2.68 | .86 | 2.15 | 2.29 | 3.78 | 2.37 | 5.28 | 5.30 | 4.17 | 2.58 | 4.98 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 29642.87 | MEAN | 81.0 | MAX | 2420 | MIN | .00 | CFSM | .91 | IN | 12.39 | AC-FT | 58800 | †† 30.81 |
| WTR YR 1981 | TOTAL | 8738.16 | MEAN | 23.9 | MAX | 1010 | MIN | .54 | CFSM | .27 | IN | 3.65 | AC-FT | 17330 | †† 37.60 |

†† Rainfall, in inches.

## 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 (16 km) northwest of Jasper, and 25.2 mi (40.5 km) upstream from mouth.

DRAINAGE AREA.--3,449 mi² (8,933 km²).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1965 to current year.

GAGE.--Stevens-type AP recording transmitter. Datum of gage is National Geodetic Vertical Datum of 1929 (level by Corps of Engineers). Prior to Apr. 20, 1965, nonrecording gage at same site and datum. Corps of Engineers gage-height telemeter at station.

REMARKS.--The reservoir is formed by a rolled earthfill dam 19,430 ft (5,920 m) long, including spillway and dikes. The dam was completed and deliberate impoundment began Mar. 29, 1965. The spillway is an uncontrolled broad-crested weir 2,200 ft (670 m) wide, on right bank 7,000 ft (2,100 m) to right of outlet works, and is designed to discharge 125,300 ft³/s (3,550 m³/s) at maximum flood design. The flood-control outlet works consists of two 10.0- by 20.0-foot (3.0 by 6.1 m) rectangular concrete-lined conduits controlled by two 10.0- by 20.0-foot (3.0 by 6.1 m) tractor-type service gates and one 10.0- by 20.0-foot (3.0 by 6.1 m) tractor-type emergency gate. Water for turbines is admitted through four 18.0- by 26.0-foot (5.5 by 7.9 m) penstocks and controlled by two wheeled-leaf-type headgates. The reservoir is operated for flood control and power generation. The area-capacity tables are based on topographic maps prepared by the Corps of Engineers and detailed sedimentation ranges established in 1961 and dated February 1965. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08038000. 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 Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 3,881,000 acre-ft (4.79 km³) Feb. 7, 1974, elevation, 172.17 ft (52.477 m); minimum since conservation storage was reached in 1968, 1,797,000 acre-ft (2.22 km³) Nov. 15, 1977, elevation, 153.35 ft (46.741 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 2,180,000 acre-ft (2.69 km³) Oct. 1 at 0001 hours, elevation, 157.58 ft (48.030 m); minimum, 1,783,000 acre-ft (2.20 km³) Jan. 31 at 1630 hours, elevation, 153.18 ft (46.689 m).

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

| | | | |
|---|---|---|---|
| 152.0 | 1,685,000 | 156.0 | 2,032,000 |
| 154.0 | 1,853,000 | 158.0 | 2,221,000 |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2171000 | 2034000 | 1938000 | 1845000 | 1801000 | 1835000 | 1900000 | 1846000 | 1882000 | 2085000 | 2094000 | 1977000 |
| 2 | 2165000 | 2033000 | 1939000 | 1834000 | 1793000 | 1836000 | 1900000 | 1840000 | 1886000 | 2088000 | 2079000 | 1998000 |
| 3 | 2154000 | 2026000 | 1932000 | 1835000 | 1791000 | 1834000 | 1900000 | 1841000 | 1892000 | 2089000 | 2075000 | 2029000 |
| 4 | 2154000 | 2020000 | 1924000 | 1828000 | 1793000 | 1852000 | 1903000 | 1847000 | 1903000 | 2087000 | 2074000 | 2054000 |
| 5 | 2147000 | 2012000 | 1921000 | 1828000 | 1799000 | 1858000 | 1903000 | 1842000 | 1952000 | 2106000 | 2070000 | 2059000 |
| 6 | 2148000 | 2002000 | 1922000 | 1830000 | 1798000 | 1858000 | 1894000 | 1842000 | 1976000 | 2109000 | 2066000 | 2060000 |
| 7 | 2141000 | 1991000 | 1919000 | 1822000 | 1798000 | 1866000 | 1888000 | 1840000 | 1989000 | 2114000 | 2065000 | 2063000 |
| 8 | 2133000 | 1991000 | 1931000 | 1816000 | 1799000 | 1865000 | 1879000 | 1840000 | 1994000 | 2114000 | 2063000 | 2065000 |
| 9 | 2128000 | 1992000 | 1923000 | 1817000 | 1798000 | 1866000 | 1872000 | 1848000 | 2001000 | 2115000 | 2055000 | 2066000 |
| 10 | 2123000 | 1992000 | 1917000 | 1817000 | 1802000 | 1868000 | 1871000 | 1846000 | 2010000 | 2116000 | 2042000 | 2064000 |
| 11 | 2118000 | 1990000 | 1909000 | 1816000 | 1804000 | 1871000 | 1870000 | 1843000 | 2016000 | 2118000 | 2034000 | 2066000 |
| 12 | 2114000 | 1983000 | 1903000 | 1804000 | 1806000 | 1874000 | 1870000 | 1839000 | 2033000 | 2118000 | 2020000 | 2064000 |
| 13 | 2106000 | 1978000 | 1905000 | 1804000 | 1807000 | 1875000 | 1870000 | 1838000 | 2046000 | 2119000 | 2012000 | 2063000 |
| 14 | 2099000 | 1974000 | 1905000 | 1804000 | 1809000 | 1875000 | 1868000 | 1836000 | 2050000 | 2119000 | 2001000 | 2071000 |
| 15 | 2090000 | 1970000 | 1905000 | 1799000 | 1811000 | 1879000 | 1866000 | 1836000 | 2059000 | 2118000 | 2001000 | 2078000 |
| 16 | 2083000 | 1983000 | 1902000 | 1796000 | 1814000 | 1880000 | 1859000 | 1846000 | 2069000 | 2117000 | 2001000 | 2083000 |
| 17 | 2085000 | 1990000 | 1889000 | 1796000 | 1815000 | 1881000 | 1859000 | 1852000 | 2071000 | 2116000 | 1992000 | 2075000 |
| 18 | 2089000 | 1972000 | 1887000 | 1794000 | 1816000 | 1882000 | 1856000 | 1848000 | 2074000 | 2115000 | 1986000 | 2067000 |
| 19 | 2085000 | 1966000 | 1894000 | 1801000 | 1817000 | 1881000 | 1852000 | 1852000 | 2077000 | 2114000 | 1984000 | 2058000 |
| 20 | 2084000 | 1962000 | 1882000 | 1803000 | 1817000 | 1883000 | 1844000 | 1848000 | 2079000 | 2114000 | 1983000 | 2048000 |
| 21 | 2084000 | 1960000 | 1877000 | 1802000 | 1819000 | 1882000 | 1842000 | 1848000 | 2080000 | 2114000 | 1975000 | 2048000 |
| 22 | 2084000 | 1959000 | 1870000 | 1798000 | 1824000 | 1884000 | 1842000 | 1848000 | 2084000 | 2112000 | 1973000 | 2045000 |
| 23 | 2077000 | 1959000 | 1871000 | 1798000 | 1825000 | 1884000 | 1851000 | 1849000 | 2087000 | 2110000 | 1970000 | 2040000 |
| 24 | 2072000 | 1959000 | 1865000 | 1798000 | 1825000 | 1884000 | 1849000 | 1853000 | 2087000 | 2106000 | 1968000 | 2034000 |
| 25 | 2064000 | 1964000 | 1865000 | 1800000 | 1825000 | 1882000 | 1848000 | 1858000 | 2090000 | 2104000 | 1968000 | 2029000 |
| 26 | 2050000 | 1964000 | 1857000 | 1800000 | 1827000 | 1880000 | 1847000 | 1859000 | 2089000 | 2107000 | 1962000 | 2025000 |
| 27 | 2069000 | 1949000 | 1852000 | 1801000 | 1827000 | 1880000 | 1846000 | 1859000 | 2088000 | 2109000 | 1950000 | 2025000 |
| 28 | 2062000 | 1941000 | 1852000 | 1798000 | 1828000 | 1886000 | 1847000 | 1861000 | 2086000 | 2109000 | 1949000 | 2024000 |
| 29 | 2051000 | 1944000 | 1852000 | 1800000 | --- | 1893000 | 1848000 | 1864000 | 2085000 | 2109000 | 1947000 | 2023000 |
| 30 | 2056000 | 1941000 | 1845000 | 1794000 | --- | 1895000 | 1848000 | 1872000 | 2085000 | 2103000 | 1948000 | 2017000 |
| 31 | 2038000 | --- | 1844000 | 1787000 | --- | 1899000 | --- | 1882000 | --- | 2101000 | 1956000 | --- |
| MAX | 2171000 | 2034000 | 1939000 | 1845000 | 1828000 | 1899000 | 1903000 | 1882000 | 2090000 | 2119000 | 2094000 | 2083000 |
| MIN | 2038000 | 1941000 | 1844000 | 1787000 | 1791000 | 1834000 | 1842000 | 1836000 | 1882000 | 2085000 | 1947000 | 1977000 |
| (†) | 156.07 | 155.00 | 153.89 | 153.22 | 153.71 | 154.52 | 153.94 | 154.33 | 156.58 | 156.75 | 155.16 | 155.84 |
| (‡) | -142000 | -97000 | -97000 | -57000 | +41000 | +71000 | -51000 | +34000 | +203000 | +16000 | -145000 | +61000 |

CAL YR 1980 MAX 3347000 MIN 1844000 ‡ -683000
WTR YR 1981 MAX 2171000 MIN 1787000 ‡ -163000

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.

08039300 SAM RAYBURN RESERVOIR NEAR JASPER, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1964 to current year. Biochemical analyses: November 1967 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | TEMPERATURE, WATER (DEG C) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|
| MAR 19... | 0840 | 166 | 12.5 | 28 | 9 | 5.8 | 3.2 | 20 |

| DATE | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| MAR 19... | 1.7 | 2.4 | 19 | 23 | 21 | .2 | 11 | 98 |

## 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 (21 m) upstream from outlet structure of Town Bluff Dam on Neches River, 0.4 mi (0.6 km) north of Town Bluff, and at mile 113.7 (182.9 km).

DRAINAGE AREA.--7,573 mi² (19,614 km²).

### WATER-DISCHARGE RECORDS

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 (149 m) 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 (2,042 m), including a concrete spillway and nonoverflow section. Deliberate impoundment of water began Apr. 16, 1951, and the dam was completed in June 1951. The uncontrolled spillway is 6,100 ft (1,860 m) long. A 326-foot-long (99 m) gated service spillway with six 40.0- by 35.0-foot (12.2 by 10.7 m) tainter gates is located near right end of dam. The capacity of the spillways at maximum flood design is 218,300 ft³/s (6,180 m³/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 Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 128,400 acre-ft (158 hm³) May 22, 1953, elevation, 85.21 ft (25.972 m); no storage Sept. 18 to Oct. 13, 1954.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 104,800 acre-ft (129 hm³) May 19 at 2400 hours, elevation, 83.74 ft (25.524 m); minimum, 28,760 acre-ft (35.5 hm³) Apr. 5 at 0930 hours, elevation, 76.13 ft (23.204 m).

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

| | | | |
|---|---|---|---|
| 76.0 | 27,960 | 82.0 | 81,280 |
| 78.0 | 41,830 | 84.0 | 108,700 |
| 80.0 | 59,320 | | |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81280 | 83880 | 68150 | 57590 | 58940 | 89410 | 43330 | 67720 | 78370 | 93980 | 59030 | 62510 |
| 2 | 82510 | 81030 | 66980 | 61000 | 63420 | 89020 | 38710 | 71670 | 79690 | 93160 | 67300 | 61300 |
| 3 | 82510 | 79940 | 69240 | 58260 | 64560 | 88490 | 34120 | 70560 | 80060 | 91810 | 67940 | 61500 |
| 4 | 78850 | 82630 | 71780 | 55600 | 65920 | 92620 | 30530 | 69460 | 81280 | 89680 | 66550 | 65390 |
| 5 | 74160 | 84510 | 72450 | 57680 | 68370 | 91540 | 29450 | 76950 | 91940 | 90600 | 65500 | 71110 |
| 6 | 69780 | 89540 | 68590 | 58840 | 69130 | 86930 | 30400 | 76950 | 92890 | 91410 | 64140 | 77070 |
| 7 | 68050 | 95910 | 63940 | 60800 | 70780 | 84760 | 41290 | 76830 | 102000 | 89410 | 65600 | 78730 |
| 8 | 68800 | 92750 | 63320 | 65180 | 71560 | 83750 | 47180 | 77870 | 90870 | 88360 | 64140 | 79690 |
| 9 | 69680 | 89150 | 69130 | 62910 | 72120 | 83130 | 53750 | 78850 | 79330 | 87450 | 63940 | 78970 |
| 10 | 70220 | 86680 | 70780 | 59330 | 73700 | 82880 | 56260 | 79810 | 71670 | 87060 | 68150 | 79330 |
| 11 | 70560 | 82880 | 68260 | 57970 | 75080 | 82880 | 58360 | 81150 | 69350 | 87710 | 74500 | 77300 |
| 12 | 68150 | 80660 | 72340 | 60010 | 76010 | 83000 | 56730 | 80660 | 70220 | 88620 | 77420 | 76830 |
| 13 | 66660 | 81520 | 68260 | 60800 | 77070 | 82760 | 55600 | 84760 | 80300 | 89150 | 81280 | 73470 |
| 14 | 66660 | 85400 | 64250 | 61100 | 78250 | 82510 | 54030 | 88890 | 88100 | 89810 | 86040 | 70220 |
| 15 | 67830 | 84130 | 62300 | 62610 | 80060 | 82260 | 52840 | 86680 | 89150 | 90600 | 85650 | 67300 |
| 16 | 70000 | 80910 | 60310 | 63830 | 81770 | 80300 | 56070 | 92620 | 86810 | 90740 | 81520 | 64350 |
| 17 | 76600 | 76710 | 63830 | 61400 | 83130 | 77660 | 59030 | 93160 | 81640 | 91000 | 83250 | 60010 |
| 18 | 76600 | 76950 | 65710 | 58160 | 84380 | 76950 | 58740 | 102000 | 80060 | 90870 | 89680 | 58360 |
| 19 | 72230 | 78610 | 63830 | 56830 | 85400 | 74270 | 59230 | 104800 | 80660 | 90340 | 87710 | 57680 |
| 20 | 69680 | 77780 | 67400 | 58260 | 85780 | 71560 | 67300 | 101900 | 81520 | 89020 | 82630 | 59910 |
| 21 | 70670 | 75310 | 64970 | 58550 | 87320 | 69680 | 72120 | 98290 | 82140 | 86160 | 81770 | 60400 |
| 22 | 71110 | 72790 | 62910 | 58360 | 87840 | 67720 | 71560 | 94800 | 83250 | 83250 | 79210 | 59810 |
| 23 | 73130 | 73700 | 63420 | 57490 | 88230 | 65080 | 72000 | 92210 | 85650 | 79690 | 74850 | 61400 |
| 24 | 73700 | 70000 | 64350 | 56070 | 88100 | 62610 | 71000 | 90210 | 86930 | 75890 | 70890 | 62400 |
| 25 | 73590 | 66550 | 59910 | 54030 | 88360 | 60410 | 70000 | 87190 | 88490 | 71890 | 66870 | 62300 |
| 26 | 72680 | 62910 | 63320 | 52750 | 88360 | 57590 | 68370 | 85780 | 89810 | 68370 | 67620 | 61400 |
| 27 | 76710 | 62910 | 62610 | 51140 | 88360 | 54950 | 66340 | 83250 | 90870 | 65710 | 71780 | 60800 |
| 28 | 79570 | 69460 | 62710 | 49570 | 88760 | 53110 | 66020 | 81520 | 92210 | 63530 | 71890 | 57200 |
| 29 | 81280 | 68800 | 62910 | 49570 | --- | 50970 | 66130 | 79940 | 92890 | 61400 | 67510 | 53480 |
| 30 | 82140 | 65290 | 62300 | 53110 | --- | 49400 | 64350 | 79210 | 94110 | 59720 | 63830 | 52930 |
| 31 | 80910 | --- | 61300 | 58070 | --- | 47680 | --- | 78970 | --- | 57870 | 61900 | --- |
| MAX | 82510 | 95910 | 72450 | 65180 | 88760 | 92620 | 72120 | 104800 | 102000 | 93980 | 89680 | 79690 |
| MIN | 66660 | 62910 | 59910 | 49570 | 58940 | 47680 | 29450 | 67720 | 69350 | 57870 | 59030 | 52930 |
| (†) | 81.97 | 80.59 | 80.20 | 79.87 | 82.59 | 78.72 | 80.50 | 81.81 | 82.99 | 79.85 | 80.26 | 79.32 |
| (‡) | -370 | -15620 | -3990 | -3230 | +30690 | -41080 | +16670 | +14620 | +15140 | -36240 | +4030 | -8970 |

CAL YR 1980 MAX 99420 MIN 59910 ‡ -16000
WTR YR 1981 MAX 104800 MIN 29450 ‡ -28350

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.

08040000 B. A. STEINHAGEN LAKE AT TOWN BLUFF, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1981.

304749094105401 B. A. STEINHAGEN LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) | STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 13... | 1330 | 1.00 | 146 | 6.9 | 9.5 | 1.00 | 10.8 | 93 | <1 | <1 |
| 13... | 1331 | 1.00 | -- | -- | 9.5 | -- | -- | -- | -- | -- |
| 13... | 1332 | 10.0 | 146 | 6.9 | 9.5 | -- | 10.7 | 92 | -- | -- |
| 13... | 1334 | 20.0 | 146 | 6.9 | 9.0 | -- | 10.7 | 91 | -- | -- |
| 13... | 1336 | 30.0 | 146 | 6.9 | 9.0 | -- | 10.7 | 91 | -- | -- |
| 13... | 1338 | 38.0 | 146 | 6.8 | 9.0 | -- | 10.9 | 93 | -- | -- |
| MAY | | | | | | | | | | |
| 20... | 1040 | 1.00 | 165 | 6.9 | 23.5 | .25 | 6.8 | 79 | K6 | 20 |
| 20... | 1042 | 10.0 | 165 | 7.0 | 23.5 | -- | 6.9 | 80 | -- | -- |
| 20... | 1044 | 20.0 | 165 | 7.0 | 23.5 | -- | 6.9 | 80 | -- | -- |
| 20... | 1046 | 30.0 | 166 | 7.0 | 23.0 | -- | 6.9 | 80 | -- | -- |
| 20... | 1048 | 40.0 | 166 | 6.9 | 23.0 | -- | 6.9 | 80 | -- | -- |
| AUG | | | | | | | | | | |
| 18... | 1012 | 1.00 | 156 | 7.0 | 32.5 | .75 | 6.4 | 88 | K6 | 130 |
| 18... | 1014 | 10.0 | 156 | 6.7 | 31.5 | -- | 5.7 | 77 | -- | -- |
| 18... | 1016 | 20.0 | 156 | 6.2 | 30.5 | -- | 3.4 | 45 | -- | -- |
| 18... | 1018 | 30.0 | 156 | 6.1 | 30.0 | -- | 2.1 | 28 | -- | -- |
| 18... | 1020 | 38.0 | 156 | 6.1 | 30.0 | -- | 2.5 | 33 | -- | -- |

| DATE | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 13... | 28 | 12 | 5.9 | 3.3 | 16 | 1.3 | 2.5 | 16 | 22 | 20 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | 29 | -- | 6.0 | 3.4 | 17 | 1.4 | 2.5 | -- | 23 | 27 |
| MAY | | | | | | | | | | |
| 20... | 31 | 11 | 6.8 | 3.3 | 19 | 1.5 | 2.8 | 20 | 21 | 23 |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | 31 | 10 | 6.9 | 3.3 | 19 | 1.5 | 2.9 | 21 | 21 | 23 |
| AUG | | | | | | | | | | |
| 18... | 29 | 9 | 6.5 | 3.2 | 17 | 1.5 | 2.7 | 20 | 19 | 23 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | 29 | 8 | 6.2 | 3.2 | 18 | 1.6 | 2.7 | 21 | 17 | 22 |

| DATE | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 13... | .1 | 11 | 84 | .08 | .65 | .73 | .040 | 10 | 10 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | .09 | .75 | .84 | .050 | 20 | 10 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | 11 | -- | .06 | .62 | .68 | .050 | 50 | 20 |
| MAY | | | | | | | | | |
| 20... | .1 | 11 | 99 | .02 | .99 | 1.0 | .060 | 280 | 7 |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | -- | -- | -- | .02 | 1.00 | 1.0 | .060 | 180 | 10 |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | -- | 11 | 100 | .02 | .86 | .88 | .060 | 200 | 4 |
| AUG | | | | | | | | | |
| 18... | .0 | 12 | 95 | .11 | .62 | .73 | .040 | <10 | 7 |
| 18... | -- | -- | -- | <.10 | .65 | -- | .040 | 60 | 10 |
| 18... | -- | -- | -- | .12 | .62 | .74 | .060 | 240 | 310 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | 12 | 96 | .12 | .67 | .79 | .050 | 69 | 1700 |

B. A. STEINHAGEN LAKE AT TOWN BLUFF, TX--Continued

305110094115001 B. A. STEINHAGEN LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) | STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 13... | 1400 | 1.00 | 140 | 6.7 | 10.0 | 1.20 | 10.4 | 91 | K4 | K11 |
| 13... | 1402 | 10.0 | 140 | 6.7 | 10.0 | -- | 10.2 | 90 | -- | -- |
| 13... | 1404 | 16.0 | 140 | 6.7 | 10.0 | -- | 10.3 | 90 | -- | -- |
| MAY | | | | | | | | | | |
| 20... | 1000 | 1.00 | 158 | 6.6 | 22.5 | .44 | 6.9 | 79 | K17 | 42 |
| 20... | 1002 | 9.00 | 158 | 6.6 | 22.5 | -- | 6.7 | 76 | -- | -- |
| 20... | 1004 | 19.0 | 161 | 6.5 | 22.5 | -- | 6.2 | 71 | -- | -- |
| AUG | | | | | | | | | | |
| 18... | 0941 | 1.00 | 159 | 6.3 | 30.5 | .90 | 4.8 | 64 | 390 | 770 |
| 18... | 0943 | 8.00 | 154 | 6.3 | 30.0 | -- | 4.8 | 63 | -- | -- |
| 18... | 0945 | 17.0 | 153 | 6.3 | 30.0 | -- | 4.8 | 63 | -- | -- |

| DATE | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 13... | 27 | 16 | 5.5 | 3.3 | 15 | 1.2 | 2.4 | 11 | 23 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | 29 | 14 | 6.0 | 3.3 | 16 | 1.3 | 2.4 | 15 | 24 |
| MAY | | | | | | | | | |
| 20... | 29 | 11 | 6.2 | 3.4 | 18 | 1.4 | 2.7 | 18 | 20 |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | 30 | 13 | 6.3 | 3.4 | 19 | 1.5 | 2.7 | 17 | 28 |
| AUG | | | | | | | | | |
| 18... | 29 | 10 | 6.2 | 3.3 | 17 | 1.5 | 2.7 | 19 | 18 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | 28 | 12 | 5.6 | 3.3 | 16 | 1.5 | 2.6 | 16 | 21 |

| DATE | CHLORIDE, DISSOLVED (MG/L AS CL) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 13... | 20 | 11 | 83 | .15 | .63 | .78 | .050 | 30 | 20 |
| 13... | -- | -- | -- | .14 | .60 | .74 | .050 | 30 | 20 |
| 13... | 20 | 11 | 88 | .13 | .63 | .76 | .040 | 90 | 40 |
| MAY | | | | | | | | | |
| 20... | 21 | 12 | 94 | .07 | .73 | .80 | .040 | 120 | 5 |
| 20... | -- | -- | -- | .07 | .94 | 1.0 | .050 | 160 | 10 |
| 20... | 21 | 12 | 103 | .07 | .71 | .78 | .050 | 170 | 20 |
| AUG | | | | | | | | | |
| 18... | 23 | 11 | 93 | .12 | .66 | .78 | .050 | 74 | 200 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | 22 | 11 | 91 | .12 | .52 | .64 | .040 | 68 | 250 |

305346094114101 B. A. STEINHAGEN LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 13... | 1514 | 1.00 | 140 | 6.7 | 10.5 | 1.10 | 10.3 |
| 13... | 1516 | 10.0 | 140 | 6.7 | 10.0 | -- | 10.2 |
| 13... | 1518 | 23.0 | 140 | 6.7 | 10.0 | -- | 10.2 |
| MAY | | | | | | | |
| 20... | 0850 | 1.00 | 190 | 6.6 | 23.0 | .25 | 6.2 |
| 20... | 0852 | 10.0 | 190 | 6.5 | 22.5 | -- | 6.2 |
| 20... | 0854 | 23.0 | 145 | 6.3 | 21.0 | -- | 6.4 |
| AUG | | | | | | | |
| 18... | 0826 | 1.00 | 153 | 6.3 | 29.0 | 1.03 | 5.0 |
| 18... | 0828 | 10.0 | 153 | 6.3 | 29.0 | -- | 4.9 |
| 18... | 0830 | 22.0 | 153 | 6.2 | 29.0 | -- | 5.0 |

B. A. STEINHAGEN LAKE AT TOWN BLUFF, TX--Continued

305346094114101 B. A. STEINHAGEN LAKE SITE CC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | IRON, DIS-SOLVED (UG/L AS FE) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 13... | 92 | .21 | .83 | 1.0 | .020 | 30 | 10 |
| 13... | 90 | -- | -- | -- | -- | -- | -- |
| 13... | 90 | .22 | .67 | .89 | .040 | 50 | 20 |
| MAY | | | | | | | |
| 20... | 71 | .29 | .94 | 1.2 | .100 | 80 | 10 |
| 20... | 71 | -- | -- | -- | -- | -- | -- |
| 20... | 71 | .09 | .79 | .88 | .020 | 70 | 10 |
| AUG | | | | | | | |
| 18... | 65 | <.10 | .48 | -- | .040 | 80 | 330 |
| 18... | 64 | -- | -- | -- | -- | -- | -- |
| 18... | 65 | .11 | .45 | .56 | .030 | 40 | 330 |

305358094124201 B. A. STEINHAGEN LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMP-LING DEPTH (FT) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (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 | | | | | | | | | | |
| 13... | 1440 | 1.00 | 244 | 6.7 | 9.5 | .80 | 10.4 | 90 | K17 | K3 |
| 13... | 1441 | 1.00 | -- | -- | 9.5 | -- | -- | -- | -- | -- |
| 13... | 1442 | 10.0 | 244 | 6.8 | 9.0 | -- | 10.5 | 90 | -- | -- |
| 13... | 1444 | 14.0 | 244 | 6.7 | 9.0 | -- | 10.4 | 89 | -- | -- |
| MAY | | | | | | | | | | |
| 20... | 0915 | 1.00 | 155 | 6.4 | 23.5 | .17 | 5.9 | 69 | 46 | 62 |
| 20... | 0917 | 8.00 | 155 | 6.3 | 23.5 | -- | 5.2 | 60 | -- | -- |
| 20... | 0919 | 17.0 | 155 | 6.5 | 23.0 | -- | 5.7 | 66 | -- | -- |
| AUG | | | | | | | | | | |
| 18... | 0854 | 1.00 | 214 | 6.5 | 31.0 | .53 | 3.9 | 52 | 180 | 780 |
| 18... | 0856 | 5.00 | 209 | 6.4 | 31.0 | -- | 3.5 | 47 | -- | -- |
| 18... | 0858 | 8.00 | 191 | 6.2 | 30.5 | -- | 2.7 | 36 | -- | -- |
| 18... | 0900 | 16.5 | 166 | 6.0 | 29.5 | -- | .0 | 0 | -- | -- |

| DATE | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 FIELD (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 13... | 41 | 15 | 9.9 | 3.9 | 28 | 1.9 | 3.7 | 26 | 27 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | |
| 20... | 28 | 10 | 6.9 | 2.5 | 19 | 1.6 | 3.2 | 18 | 24 |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | 27 | 7 | 6.5 | 2.5 | 18 | 1.5 | 3.2 | 20 | 21 |
| AUG | | | | | | | | | |
| 18... | 44 | 11 | 11 | 4.0 | 21 | 1.5 | 3.3 | 33 | 8.0 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | 32 | 10 | 7.1 | 3.4 | 17 | 1.4 | 2.7 | 22 | 15 |

| DATE | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | IRON, DIS-SOLVED (UG/L AS FE) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 13... | 34 | 16 | 138 | .05 | .72 | .77 | .070 | 20 | 80 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | .06 | .88 | .94 | .070 | 80 | 80 |
| 13... | -- | -- | -- | .05 | .74 | .79 | .070 | 320 | 80 |
| MAY | | | | | | | | | |
| 20... | 21 | 14 | 102 | .36 | 1.20 | 1.6 | .120 | 440 | 20 |
| 20... | -- | -- | -- | .35 | 1.10 | 1.5 | .110 | 250 | 20 |
| 20... | 21 | 14 | 99 | .36 | 1.10 | 1.5 | .110 | 480 | 20 |
| AUG | | | | | | | | | |
| 18... | 33 | 17 | 117 | .15 | .95 | 1.1 | .080 | 150 | 170 |
| 18... | -- | -- | -- | .15 | .75 | .90 | .070 | 140 | 220 |
| 18... | -- | -- | -- | .13 | .70 | .83 | .080 | 70 | 360 |
| 18... | 23 | 12 | 95 | .14 | .66 | .80 | .060 | 83 | 1100 |

B. A. STEINHAGEN LAKE AT TOWN BLUFF, TX--Continued

304749094105401 B. A. STEINHAGEN LAKE SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | JAN 13,81 | MAY 20,81 | AUG 18,81 |
|---|---|---|---|
| TIME | 1331 | 1041 | 1011 |
| TOTAL CELLS/ML | 170 | 20000 | 1400 |
| DIVERSITY: DIVISION | 1.0 | 0.4 | 1.7 |
| .CLASS | 1.0 | 0.4 | 1.7 |
| ..ORDER | 1.2 | 0.8 | 0.0 |
| ...FAMILY | 1.9 | 0.8 | 0.0 |
| ....GENUS | 2.2 | 1.1 | 0.0 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|
| BACILLARIOPHYTA (DIATOMS) | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..ACHNANTHALES | | | | | | |
| ...ACHNANTHACEAE | | | | | | |
| ....ACHNANTHES | -- | - | -- | - | 22 | 1 |
| ..BACILLARIALES | | | | | | |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | 13 | 8 | 1800 | 9 | -- | - |
| ..EUPODISCALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | 26# | 15 | 16000# | 81 | 22 | 1 |
| ....MELOSIRA | 26# | 15 | 880 | 4 | -- | - |
| ..FRAGILARIALES | | | | | | |
| ...FRAGILARIACEAE | | | | | | |
| ....FRAGILARIA | -- | - | -- | - | 65 | 4 |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | -- | - | -- | - | 260# | 18 |
| ..CHLOROCOCCALES | | | | | | |
| ...DICTYOSPHAERIACEAE | | | | | | |
| ....DICTYOSPHAERIUM | 51# | 31 | -- | - | -- | - |
| ...HYDRODICTYACEAE | | | | | | |
| ....PEDIASTRUM | -- | - | -- | - | 170 | 12 |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | 51# | 31 | 180 | 1 | 43 | 3 |
| ....KIRCHNERIELLA | -- | - | -- | - | 22 | 1 |
| ....SELENASTRUM | -- | - | -- | - | 22 | 1 |
| ....TREUBARIA | -- | - | 180 | 1 | -- | - |
| ...SCENEDESMACEAE | | | | | | |
| ....SCENEDESMUS | -- | - | -- | - | 43 | 3 |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CHLAMYDOMONAS | -- | - | 180 | 1 | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....ANACYSTIS | -- | - | 530 | 3 | 22 | 1 |
| ..OSCILLATORIALES | | | | | | |
| ...OSCILLATORIACEAE | | | | | | |
| ....LYNGBYA | -- | - | -- | - | 650# | 45 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....TRACHELOMONAS | -- | - | -- | - | 65 | 4 |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | |
| .DINOPHYCEAE | | | | | | |
| ..DINOKONTAE | | | | | | |
| ...GLENODINIACEAE | | | | | | |
| ....GLENODINIUM | -- | - | -- | - | 43 | 3 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

B. A. STEINHAGEN LAKE AT TOWN BLUFF, TX--Continued

305358094124201 B. A. STEINHAGEN LAKE SITE DC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | JAN 13,81 | MAY 20,81 | AUG 18,81 |
|---|---|---|---|
| TIME | 1441 | 0916 | 0855 |
| TOTAL CELLS/ML | 370 | 630 | 2100 |
| DIVERSITY: DIVISION | 1.5 | 2.0 | 1.3 |
| .CLASS | 1.5 | 2.0 | 1.3 |
| ..ORDER | 1.8 | 2.8 | 2.5 |
| ...FAMILY | 1.8 | 3.0 | 2.8 |
| ....GENUS | 2.2 | 3.3 | 2.9 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|
| BACILLARIOPHYTA (DIATOMS) | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..ACHNANTHALES | | | | | | |
| ...ACHNANTHACEAE | | | | | | |
| ....ACHNANTHES | -- | - | 14 | 2 | -- | - |
| ..BACILLARIALES | | | | | | |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | 26 | 7 | 170# | 27 | 83 | 4 |
| ..EUPODISCALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | 90# | 24 | 70 | 11 | -- | - |
| ....MELOSIRA | 51 | 14 | 14 | 2 | 14 | 1 |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...CHLOROCOCCACEAE | | | | | | |
| ....SCHROEDERIA | -- | - | -- | - | 14 | 1 |
| ....TETRAEDRON | -- | - | -- | - | 69 | 3 |
| ...MICRACTINIACEAE | | | | | | |
| ....GOLENKINIA | -- | - | -- | - | 14 | 1 |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | -- | - | 28 | 4 | 150 | 7 |
| ...SCENEDESMACEAE | | | | | | |
| ....ACTINASTRUM | -- | - | 28 | 4 | -- | - |
| ....CRUCIGENIA | -- | - | -- | - | 56 | 3 |
| ....SCENEDESMUS | -- | - | 84 | 13 | 110 | 5 |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CHLAMYDOMONAS | 140# | 38 | 14 | 2 | -- | - |
| ...VOLVOCACEAE | | | | | | |
| ....PANDORINA | -- | - | -- | - | 240 | 11 |
| ..ZYGNEMATALES | | | | | | |
| ...DESMIDIACEAE | | | | | | |
| ....COSMARIUM | -- | - | -- | - | 14 | 1 |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....ANACYSTIS | -- | - | 56 | 9 | 580# | 27 |
| ..NOSTOCALES | | | | | | |
| ...HAMMATOIDEACEAE | | | | | | |
| ....RAPHIDIOPSIS | -- | - | 56 | 9 | -- | - |
| ...NOSTOCACEAE | | | | | | |
| ....APHANIZOMENON | -- | - | -- | - | 97 | 5 |
| ..OSCILLATORIALES | | | | | | |
| ...OSCILLATORIACEAE | | | | | | |
| ....LYNGBYA | -- | - | -- | - | 630# | 29 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....EUGLENA | 51 | 14 | 28 | 4 | -- | - |
| ....TRACHELOMONAS | 13 | 3 | 42 | 7 | 28 | 1 |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | |
| .DINOPHYCEAE | | | | | | |
| ..DINOKONTAE | | | | | | |
| ...GLENODINIACEAE | | | | | | |
| ....GLENODINIUM | -- | - | -- | - | 28 | 1 |
| ...GYMNODINIACEAE | | | | | | |
| ....GYMNODINIUM | -- | - | 14 | 2 | -- | - |
| ...PERIDINIACEAE | | | | | | |
| ....PERIDINIUM | -- | - | 14 | 2 | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 08040500 NECHES RIVER AT TOWN BLUFF, TX

LOCATION.--Lat 30°47'36", long 94°10'28", Jasper-Tyler County line, Hydrologic Unit 12020003, on left bank 0.3 mi (0.5 km) downstream from Town Bluff Dam, 0.5 mi (0.8 km) northeast of Town Bluff, 2.5 mi (4.0 km) upstream from Walnut Run, 8 mi (13 km) downstream from Wolf Creek, and at mile 113.4 (182.5 km).

DRAINAGE AREA.--7,573 $mi^2$ (19,614 $km^2$).

### WATER-DISCHARGE RECORD

PERIOD OF RECORD.--March 1951 to current year.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to May 21, 1953, water-stage recorder, and May 21, 1953, to Dec. 3, 1954, nonrecording gage at present site and datum.

REMARKS.--Records good. Flow regulated by B. A. Steinhagen Lake (station 08040000) 0.3 mi (0.5 km) upstream and by Sam Rayburn Reservoir (station 08039300) 37.9 mi (61.0 km) upstream. Some diversions above station. Elevation telemeter at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--13 years (water years 1952-64) prior to regulation by Sam Rayburn Reservoir, 4,406 $ft^3/s$ (124.8 $m^3/s$), 3,192,000 acre-ft/yr (3.94 $km^3/yr$); 17 years (water years 1965-81) regulated, 4,623 $ft^3/s$ (130.9 $m^3/s$), 3,349,000 acre-ft/yr (4.13 $km^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 90,900 $ft^3/s$ (2,570 $m^3/s$) May 21, 22, 1953, elevation, 82.85 ft (25.253 m); 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 (26.46 m), discharge about 120,000 $ft^3/s$ (3,400 $m^3/s$), and is the highest since that date, from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14,900 $ft^3/s$ (422 $m^3/s$) June 8 at 1200 hours, elevation, 65.67 ft (20.016 m); minimum daily estimated, 135 $ft^3/s$ (3.82 $m^3/s$) for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2400 | 2200 | 2280 | 2130 | 1140 | 401 | 2330 | 1090 | 1320 | 3150 | 1960 | 1980 |
| 2 | 2390 | 2200 | 2250 | 2130 | 135 | 393 | 2360 | 1100 | 1320 | 3640 | 1970 | 1970 |
| 3 | 2390 | 2180 | 2170 | 2140 | 135 | 396 | 2350 | 1100 | 1430 | 3750 | 1990 | 1970 |
| 4 | 2390 | 2170 | 2350 | 2120 | 135 | 667 | 2310 | 979 | 1170 | 3780 | 1990 | 1860 |
| 5 | 2370 | 2180 | 2360 | 2140 | 135 | 2150 | 1190 | 814 | 2840 | 3450 | 1990 | 1680 |
| 6 | 2360 | 2170 | 2360 | 2140 | 135 | 3240 | 1030 | 911 | 8910 | 4140 | 1990 | 1670 |
| 7 | 2340 | 2190 | 2340 | 2140 | 135 | 2450 | 1430 | 489 | 11300 | 5920 | 1980 | 1670 |
| 8 | 2350 | 2190 | 2340 | 2150 | 135 | 1630 | 1370 | 135 | 14800 | 5170 | 1970 | 1660 |
| 9 | 2350 | 2180 | 2360 | 2160 | 135 | 1450 | 1190 | 135 | 13100 | 4330 | 1970 | 1650 |
| 10 | 2350 | 2170 | 2390 | 2140 | 135 | 1250 | 1190 | 135 | 9220 | 4030 | 1970 | 1650 |
| 11 | 2340 | 2160 | 2390 | 2130 | 135 | 1150 | 1200 | 135 | 7550 | 3220 | 1980 | 1790 |
| 12 | 2340 | 2150 | 2350 | 2030 | 135 | 1070 | 1190 | 447 | 6140 | 2720 | 1990 | 1960 |
| 13 | 2330 | 2300 | 2300 | 1860 | 135 | 1060 | 1190 | 800 | 4380 | 2680 | 2000 | 1960 |
| 14 | 2340 | 2490 | 2280 | 1850 | 135 | 1060 | 1180 | 962 | 4170 | 2370 | 2010 | 1950 |
| 15 | 2340 | 2510 | 2270 | 1840 | 135 | 1050 | 1170 | 873 | 4930 | 2050 | 2010 | 1970 |
| 16 | 2340 | 2520 | 2250 | 1850 | 135 | 1260 | 1170 | 782 | 6680 | 2030 | 2000 | 1950 |
| 17 | 2350 | 2520 | 2230 | 1850 | 135 | 1670 | 1180 | 821 | 6710 | 1860 | 1990 | 1930 |
| 18 | 2410 | 2520 | 2180 | 1840 | 148 | 1660 | 1180 | 773 | 5300 | 1690 | 2000 | 1930 |
| 19 | 2400 | 2430 | 2160 | 1850 | 300 | 1660 | 1180 | 1310 | 3090 | 1680 | 2000 | 1930 |
| 20 | 1590 | 2320 | 2160 | 1830 | 296 | 1660 | 1070 | 1970 | 3000 | 1890 | 2000 | 1940 |
| 21 | 174 | 2320 | 2180 | 1680 | 291 | 1660 | 1070 | 2430 | 2980 | 2290 | 1990 | 1940 |
| 22 | 135 | 2310 | 2170 | 1600 | 280 | 1650 | 1070 | 2590 | 2980 | 2280 | 1980 | 1940 |
| 23 | 1030 | 2310 | 2170 | 1580 | 365 | 1640 | 1080 | 1980 | 2980 | 2250 | 1970 | 1930 |
| 24 | 2120 | 2300 | 2140 | 1570 | 438 | 1640 | 246 | 1960 | 3020 | 2240 | 1960 | 1930 |
| 25 | 2160 | 2290 | 2160 | 1570 | 419 | 1630 | 594 | 1950 | 3000 | 2230 | 1950 | 1940 |
| 26 | 2180 | 2290 | 2150 | 1560 | 412 | 1630 | 1070 | 1810 | 2980 | 2230 | 1940 | 1930 |
| 27 | 2200 | 2290 | 2160 | 1550 | 409 | 1620 | 1070 | 1650 | 2980 | 2250 | 1950 | 1920 |
| 28 | 2250 | 2310 | 2160 | 1550 | 405 | 1620 | 625 | 1520 | 2980 | 2240 | 1960 | 1920 |
| 29 | 2240 | 2310 | 2150 | 1540 | --- | 1610 | 566 | 1320 | 2990 | 2220 | 1960 | 1910 |
| 30 | 2210 | 2290 | 2150 | 1530 | --- | 1600 | 1090 | 1320 | 2990 | 2150 | 1940 | 1900 |
| 31 | 2200 | --- | 2150 | 1550 | --- | 1700 | --- | 1330 | --- | 1980 | 1970 | --- |
| TOTAL | 65369 | 68770 | 69510 | 57600 | 7063 | 45327 | 36941 | 35621 | 147240 | 87910 | 61330 | 56330 |
| MEAN | 2109 | 2292 | 2242 | 1858 | 252 | 1462 | 1231 | 1149 | 4908 | 2836 | 1978 | 1878 |
| MAX | 2410 | 2520 | 2390 | 2160 | 1140 | 3240 | 2360 | 2590 | 14800 | 5920 | 2010 | 1980 |
| MIN | 135 | 2150 | 2140 | 1530 | 135 | 393 | 246 | 135 | 1170 | 1680 | 1940 | 1650 |
| AC-FT | 129700 | 136400 | 137900 | 114200 | 14010 | 89910 | 73270 | 70650 | 292100 | 174400 | 121600 | 111700 |

CAL YR 1980 TOTAL 2285119 MEAN 6243 MAX 17600 MIN 135 AC-FT 4533000
WTR YR 1981 TOTAL 739011 MEAN 2025 MAX 14800 MIN 135 AC-FT 1466000

08040500 NECHES RIVER AT TOWN BLUFF, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH FIELD (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, BIOCHEM UNINHIB 5 DAY (MG/L) | HARD-NESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | | |
| 13... | 1710 | 1860 | 140 | 6.9 | 9.5 | 10 | 7.4 | 10.9 | 94 | -- | 28 |
| MAY | | | | | | | | | | | |
| 20... | 1345 | 1960 | 168 | 7.2 | 24.5 | 50 | 38 | -- | -- | 2.2 | 31 |
| AUG | | | | | | | | | | | |
| 18... | 1255 | 2000 | 156 | 6.6 | 31.0 | 10 | 11 | 6.9 | 92 | .7 | 33 |

| DATE | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 (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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | | |
| 13... | 11 | 5.9 | 3.2 | 16 | 1.3 | 2.5 | 17 | 23 | 14 | .1 | 11 |
| MAY | | | | | | | | | | | |
| 20... | 11 | 7.3 | 3.1 | 19 | 1.5 | 2.7 | 20 | 20 | 23 | .1 | 11 |
| AUG | | | | | | | | | | | |
| 18... | 17 | 7.7 | 3.3 | 18 | 1.5 | 3.0 | 16 | 17 | 26 | .0 | 13 |

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (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) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | | |
| 13... | 86 | -- | -- | .00 | .000 | .00 | .030 | .54 | .57 | -- | 5.7 |
| MAY | | | | | | | | | | | |
| 20... | 99 | 178 | 43 | .02 | .000 | .02 | .040 | .79 | .83 | .070 | 5.2 |
| AUG | | | | | | | | | | | |
| 18... | 98 | 12 | 12 | -- | .030 | <.10 | .250 | .51 | .76 | .060 | 5.2 |

| DATE | TIME | ARSENIC DIS-SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 13... | 1710 | 0 | 30 | <1 | 0 | 14 | 60 |
| MAY | | | | | | | |
| 20... | 1345 | 0 | 200 | <1 | 0 | <10 | 170 |
| AUG | | | | | | | |
| 18... | 1255 | 1 | 60 | <1 | 0 | <10 | 96 |

| DATE | 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) |
|---|---|---|---|---|---|---|
| JAN | | | | | | |
| 13... | <10 | 10 | .6 | 0 | 0 | 20 |
| MAY | | | | | | |
| 20... | <10 | 4 | .0 | 0 | 0 | 9 |
| AUG | | | | | | |
| 18... | <10 | 150 | .0 | 0 | 0 | 5 |

## 08041000 NECHES RIVER AT EVADALE, TX
(National stream-quality accounting network)

LOCATION.--Lat 30°21'22", long 94°05'36", Jasper-Hardin County line, Hydrologic Unit 12020003, near center of channel on downstream side of pier of bridge on U.S. Highway 96 at Evadale, 0.8 mi (1.3 km) upstream from Mill Creek, 16 mi (26 km) upstream from Village Creek, and at mile 55.6 (89.5 km).

DRAINAGE AREA.--7,951 $mi^2$ (20,593 $km^2$).

### 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: 1905-7, 1924. WSP 1732: Drainage area at former site.

GAGE.--Water-stage recorder. Datum of gage is 8.25 ft (2.515 m) 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 (1.9 km) downstream at datum 5.50 ft (1.676 m) lower; Apr. 1, 1921, to Dec. 7, 1948, nonrecording gages at site 1.2 mi (1.9 km) downstream at present datum; Dec. 8, 1948, to Nov. 8, 1963, water-stage recorder at site 1.2 mi (1.9 km) downstream at present datum.

REMARKS.--Water-discharge records fair. Flow regulated by B. A. Steinhagen Lake (station 08040000) 58.1 mi (93.5 km) upstream, capacity 124,700 acre-ft (154 $hm^3$), and Sam Rayburn Reservoir (station 08039300), 95.7 mi (154.0 km) upstream, capacity 4,442,000 acre-ft (5.48 $km^3$). Some diversions upstream from municipal use. Gage-height telemeter at station.

AVERAGE DISCHARGE.--45 years (water years 1905-6, 1922-64) unregulated, 6,308 $ft^3/s$ (178.6 $m^3/s$), 4,570,000 acre-ft/yr (5.63 $km^3/yr$); 17 years (water years 1965-81) regulated, 5,200 $ft^3/s$ (147.3 $m^3/s$), 3,767,000 acre-ft/yr (4.64 $km^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 92,100 $ft^3/s$ (2,610 $m^3/s$) May 11, 1944, gage height, 23.58 ft (7.187 m), from floodmark, at site then in use; minimum daily, 63 $ft^3/s$ (1.78 $m^3/s$) Nov. 26-28, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1884 reached a stage of 26.2 ft (7.99 m) at former site with a discharge of about 125,000 $ft^3/s$ (3,540 $m^3/s$), and flood in August 1915 reached a stage of 24.5 ft (7.47 m) at former site with a discharge of about 102,000 $ft^3/s$ (2,890 $m^3/s$). These are the highest floods since at least 1884. Stages furnished by Gulf, Colorado, and Santa Fe Railway Co.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16,100 $ft^3/s$ (456 $m^3/s$) June 11 at 1600 hours, gage height, 16.03 ft (4.886 m); minimum daily, 250 $ft^3/s$ (7.08 $m^3/s$) Feb. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2640 | 2290 | 2390 | 2320 | 1800 | 634 | 1860 | 893 | 1340 | 3070 | 2340 | 2280 |
| 2 | 2600 | 2280 | 2370 | 2310 | 1810 | 634 | 2340 | 1140 | 1350 | 3180 | 2230 | 2380 |
| 3 | 2570 | 2280 | 2350 | 2290 | 1160 | 630 | 2640 | 1160 | 1400 | 3940 | 2210 | 2430 |
| 4 | 2560 | 2280 | 2260 | 2300 | 766 | 763 | 2500 | 1200 | 1550 | 4590 | 2200 | 2630 |
| 5 | 2540 | 2290 | 2420 | 2290 | 626 | 1740 | 2480 | 1210 | 2100 | 4950 | 2190 | 2590 |
| 6 | 2510 | 2290 | 2510 | 2290 | 631 | 2880 | 2100 | 1030 | 3620 | 5200 | 2190 | 2380 |
| 7 | 2510 | 2280 | 2520 | 2320 | 639 | 3890 | 1180 | 1020 | 6610 | 5550 | 2180 | 2100 |
| 8 | 2480 | 2280 | 2530 | 2320 | 618 | 3730 | 1160 | 979 | 9160 | 6470 | 2170 | 1960 |
| 9 | 2460 | 2300 | 2740 | 2340 | 576 | 2680 | 1460 | 651 | 11300 | 6850 | 2160 | 1930 |
| 10 | 2470 | 2290 | 2760 | 2340 | 523 | 2080 | 1460 | 447 | 13700 | 6020 | 2150 | 1890 |
| 11 | 2460 | 2280 | 2760 | 2330 | 484 | 1690 | 1320 | 374 | 15800 | 5390 | 2160 | 1880 |
| 12 | 2440 | 2260 | 2750 | 2310 | 442 | 1490 | 1320 | 351 | 14900 | 4810 | 2160 | 1900 |
| 13 | 2440 | 2260 | 2670 | 2270 | 402 | 1340 | 1320 | 328 | 13100 | 4070 | 2170 | 2070 |
| 14 | 2430 | 2320 | 2580 | 2100 | 364 | 1270 | 1320 | 576 | 10500 | 3640 | 2170 | 2170 |
| 15 | 2430 | 2530 | 2520 | 2030 | 331 | 1230 | 1310 | 893 | 7890 | 3300 | 2180 | 2170 |
| 16 | 2430 | 2650 | 2500 | 1990 | 302 | 1200 | 1300 | 1010 | 6470 | 2780 | 2180 | 2200 |
| 17 | 2430 | 2710 | 2470 | 1980 | 281 | 1230 | 1300 | 938 | 6590 | 2510 | 2160 | 2190 |
| 18 | 2440 | 2680 | 2440 | 1980 | 262 | 1610 | 1300 | 943 | 7060 | 2320 | 2160 | 2140 |
| 19 | 2480 | 2630 | 2370 | 2000 | 250 | 1770 | 1280 | 929 | 6950 | 2050 | 2160 | 2100 |
| 20 | 2670 | 2610 | 2340 | 2110 | 291 | 1780 | 1280 | 991 | 5510 | 1940 | 2160 | 2090 |
| 21 | 2370 | 2480 | 2330 | 2160 | 496 | 1780 | 1250 | 1710 | 4030 | 1990 | 2160 | 2090 |
| 22 | 1030 | 2450 | 2320 | 2090 | 534 | 1800 | 1170 | 2130 | 3390 | 2340 | 2150 | 2100 |
| 23 | 510 | 2480 | 2340 | 1940 | 535 | 1820 | 1200 | 2620 | 3220 | 2490 | 2140 | 2080 |
| 24 | 456 | 2450 | 2320 | 1850 | 535 | 1810 | 1240 | 2240 | 3210 | 2500 | 2140 | 2070 |
| 25 | 1500 | 2450 | 2310 | 1800 | 606 | 1790 | 1180 | 2020 | 3250 | 2500 | 2140 | 2060 |
| 26 | 2100 | 2440 | 2310 | 1780 | 643 | 1780 | 762 | 1990 | 3290 | 2550 | 2130 | 2060 |
| 27 | 2210 | 2380 | 2300 | 1760 | 643 | 1760 | 960 | 1920 | 3310 | 2560 | 2120 | 2060 |
| 28 | 2290 | 2400 | 2310 | 1740 | 634 | 1740 | 1150 | 1740 | 3260 | 2580 | 2120 | 2060 |
| 29 | 2340 | 2400 | 2310 | 1730 | --- | 1730 | 1100 | 1640 | 3190 | 2660 | 2120 | 2060 |
| 30 | 2360 | 2400 | 2320 | 1710 | --- | 1740 | 706 | 1420 | 3130 | 2630 | 2120 | 2040 |
| 31 | 2330 | --- | 2310 | 1700 | --- | 1760 | --- | 1330 | --- | 2500 | 2150 | --- |
| TOTAL | 69486 | 72120 | 75730 | 64480 | 17184 | 53781 | 42948 | 37823 | 180180 | 109930 | 67170 | 64160 |
| MEAN | 2241 | 2404 | 2443 | 2080 | 614 | 1735 | 1432 | 1220 | 6006 | 3546 | 2167 | 2139 |
| MAX | 2670 | 2710 | 2760 | 2340 | 1810 | 3890 | 2640 | 2620 | 15800 | 6850 | 2340 | 2630 |
| MIN | 456 | 2260 | 2260 | 1700 | 250 | 630 | 706 | 328 | 1340 | 1940 | 2120 | 1880 |
| AC-FT | 137800 | 143000 | 150200 | 127900 | 34080 | 106700 | 85190 | 75020 | 357400 | 218000 | 133200 | 127300 |

CAL YR 1980 TOTAL 2491606 MEAN 6808 MAX 17800 MIN 456 AC-FT 4942000
WTR YR 1981 TOTAL 854992 MEAN 2342 MAX 15800 MIN 250 AC-FT 1696000

08041000 NECHES RIVER AT EVADALE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1947 to current year. Pesticide analyses: January 1968 to September 1981 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1947 to current year.
WATER TEMPERATURES: October 1947 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 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 micromhos Jan. 25, 1957; minimum daily, 23 micromhos Sept. 19, 1963.
WATER TEMPERATURES: Maximum daily, 34.0°C June 29, 1953; minimum daily, 3.0°C Jan. 30, 31, 1948, Jan. 31, 1949, and Jan. 24, 1963.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 191 micromhos May 12; minimum daily, 74 micromhos June 14, 15.
WATER TEMPERATURES: Maximum daily, 32°C July 23, 24, Aug. 15-17; minimum daily, 9.0°C on several days during January and February.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (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) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 20... | 1650 | 2730 | 148 | 7.0 | 22.5 | -- | 21 | 8.5 | 97 | 1.3 | 230 | 80 |
| NOV | | | | | | | | | | | | |
| 18... | 1600 | 2680 | 154 | 6.9 | 14.0 | 20 | 13 | -- | -- | 1.5 | 84 | 24 |
| DEC | | | | | | | | | | | | |
| 16... | 1100 | 2490 | 154 | 7.4 | 12.0 | 22 | 8.6 | 11.0 | 102 | 1.0 | 20 | 20 |
| JAN | | | | | | | | | | | | |
| 20... | 1300 | 2120 | 150 | 6.8 | 8.0 | 30 | -- | 12.8 | 108 | 1.8 | K4 | 80 |
| FEB | | | | | | | | | | | | |
| 27... | 0950 | 643 | 154 | 6.9 | 15.5 | 40 | 20 | 9.2 | 90 | 1.4 | 40 | 36 |
| MAR | | | | | | | | | | | | |
| 16... | 1150 | 1200 | 170 | 7.2 | 17.0 | -- | 24 | 11.8 | 119 | 2.5 | 44 | 28 |
| APR | | | | | | | | | | | | |
| 21... | 1530 | 1220 | 160 | 7.5 | 25.0 | 60 | 32 | 9.4 | 11 | 1.6 | 40 | 92 |
| MAY | | | | | | | | | | | | |
| 27... | 1110 | 1940 | 168 | 7.6 | 26.0 | 50 | 37 | 8.8 | 107 | 1.4 | K16 | 40 |
| JUN | | | | | | | | | | | | |
| 22... | 1530 | 3350 | 108 | 6.6 | 30.0 | -- | 35 | 6.2 | 82 | .7 | 32 | 24 |
| JUL | | | | | | | | | | | | |
| 28... | 1330 | 2600 | 157 | 7.1 | 30.0 | 120 | 32 | 7.4 | 96 | 1.0 | 80 | 240 |
| AUG | | | | | | | | | | | | |
| 11... | 1515 | 2140 | 156 | 7.4 | -- | -- | 20 | 7.6 | 101 | 2.1 | 40 | 150 |
| SEP | | | | | | | | | | | | |
| 21... | 1325 | 2090 | 160 | 7.4 | 24.0 | -- | 19 | 9.8 | 114 | 1.5 | 40 | 600 |

| DATE | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 20... | 29 | 11 | 6.4 | 3.2 | 17 | 1.4 | 2.6 | 18 | 25 | 17 | .3 | 12 |
| NOV | | | | | | | | | | | | |
| 18... | 35 | 17 | 7.7 | 3.8 | 18 | 1.3 | 2.9 | 18 | 28 | 21 | .1 | 11 |
| DEC | | | | | | | | | | | | |
| 16... | 29 | 12 | 6.3 | 3.1 | 17 | 1.4 | 2.4 | 16 | 22 | 19 | .1 | 12 |
| JAN | | | | | | | | | | | | |
| 20... | -- | -- | -- | -- | -- | -- | -- | 17 | -- | -- | -- | -- |
| FEB | | | | | | | | | | | | |
| 27... | 31 | 9 | 7.5 | 2.9 | 17 | 1.3 | 2.2 | 22 | 20 | 19 | .0 | 13 |
| MAR | | | | | | | | | | | | |
| 16... | 31 | 12 | 7.5 | 3.0 | 19 | 1.5 | 2.6 | 19 | 24 | 21 | .1 | 13 |
| APR | | | | | | | | | | | | |
| 21... | 30 | 12 | 6.8 | 3.2 | 17 | 1.3 | 2.9 | 18 | 25 | 19 | .1 | 12 |
| MAY | | | | | | | | | | | | |
| 27... | 32 | 16 | 7.6 | 3.1 | 20 | 1.5 | 2.9 | 21 | 24 | 23 | .1 | 11 |
| JUN | | | | | | | | | | | | |
| 22... | 26 | 6 | 7.3 | 2.0 | 9.2 | .8 | 3.4 | 20 | 13 | 12 | .1 | 14 |
| JUL | | | | | | | | | | | | |
| 28... | 38 | 8 | 9.8 | 3.2 | 14 | 1.1 | 3.0 | 30 | 7.0 | 21 | .4 | 14 |
| AUG | | | | | | | | | | | | |
| 11... | 31 | 10 | 7.6 | 3.0 | 16 | 1.4 | 2.7 | 21 | 20 | 20 | .1 | 14 |
| SEP | | | | | | | | | | | | |
| 21... | 30 | 6 | 6.9 | 3.1 | 17 | 1.5 | 3.1 | 24 | 18 | 21 | .1 | 12 |

08041000 NECHES RIVER AT EVADALE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (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, 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 20... | 88 | 94 | -- | -- | -- | -- | .00 | .00 | .040 | .040 | .67 | .75 |
| NOV | | | | | | | | | | | | |
| 18... | 97 | 104 | 25 | 21 | -- | -- | .00 | .44 | .020 | .220 | .80 | .33 |
| DEC | | | | | | | | | | | | |
| 16... | 108 | 92 | 15 | 11 | -- | -- | .01 | .01 | .040 | .030 | .48 | .51 |
| JAN | | | | | | | | | | | | |
| 20... | -- | -- | 77 | 2 | -- | -- | .04 | .00 | .030 | .030 | .57 | .52 |
| FEB | | | | | | | | | | | | |
| 27... | 98 | 95 | 21 | 0 | -- | -- | .00 | .00 | .080 | .020 | .59 | .45 |
| MAR | | | | | | | | | | | | |
| 16... | 104 | 102 | -- | -- | -- | -- | .01 | .02 | .070 | .000 | 1.3 | .57 |
| APR | | | | | | | | | | | | |
| 21... | 117 | 97 | 27 | 5 | .03 | .000 | .03 | .06 | .080 | .280 | 1.4 | .20 |
| MAY | | | | | | | | | | | | |
| 27... | 110 | 104 | 25 | 9 | .00 | .000 | .00 | .00 | .130 | .020 | .87 | .62 |
| JUN | | | | | | | | | | | | |
| 22... | 121 | 73 | -- | -- | -- | -- | .04 | .04 | .080 | .110 | 1.3 | .99 |
| JUL | | | | | | | | | | | | |
| 28... | 117 | 107 | 52 | 34 | -- | -- | .18 | .12 | .320 | .260 | 1.3 | 1.0 |
| AUG | | | | | | | | | | | | |
| 11... | 105 | 96 | -- | -- | -- | -- | .10 | .10 | .100 | .100 | .78 | .39 |
| SEP | | | | | | | | | | | | |
| 21... | 110 | 95 | -- | -- | -- | -- | .12 | .11 | .160 | .180 | .94 | .31 |

| DATE | NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, AM-MONIA + ORGANIC DIS. (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) | CARBON, ORGANIC TOTAL (MG/L AS C) | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 20... | .71 | .79 | .050 | .030 | -- | 7.0 | -- | -- | 64 | 472 | 62 |
| NOV | | | | | | | | | | | |
| 18... | .82 | .55 | .050 | .030 | -- | -- | 6.2 | .4 | 76 | 550 | 44 |
| DEC | | | | | | | | | | | |
| 16... | .52 | .54 | .040 | .020 | .010 | 6.5 | -- | -- | 22 | 148 | 77 |
| JAN | | | | | | | | | | | |
| 20... | .60 | .55 | .040 | .030 | -- | -- | 5.3 | .5 | 35 | 200 | 40 |
| FEB | | | | | | | | | | | |
| 27... | .67 | .47 | .120 | .020 | -- | -- | 5.8 | 1.9 | 24 | 42 | 97 |
| MAR | | | | | | | | | | | |
| 16... | 1.40 | .57 | .050 | .020 | -- | 7.5 | -- | -- | 34 | 110 | 86 |
| APR | | | | | | | | | | | |
| 21... | 1.50 | .48 | .060 | .020 | -- | 6.9 | -- | -- | 49 | 161 | 96 |
| MAY | | | | | | | | | | | |
| 27... | 1.00 | .64 | .110 | .030 | -- | -- | 6.8 | -- | 84 | 440 | 70 |
| JUN | | | | | | | | | | | |
| 22... | 1.40 | 1.1 | .090 | .090 | -- | 20 | -- | -- | 93 | 841 | 74 |
| JUL | | | | | | | | | | | |
| 28... | 1.60 | 1.3 | .100 | .110 | -- | -- | 11 | .4 | 89 | 625 | 46 |
| AUG | | | | | | | | | | | |
| 11... | .88 | .49 | .090 | .030 | -- | 9.2 | -- | -- | 56 | 324 | 67 |
| SEP | | | | | | | | | | | |
| 21... | 1.10 | .49 | .060 | .020 | -- | 8.9 | -- | -- | 55 | 310 | 95 |

| DATE | TIME | ARSENIC TOTAL (UG/L AS AS) | ARSENIC SUS-PENDED TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) | BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA) | BARIUM, DIS-SOLVED (UG/L AS BA) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD) | CADMIUM DIS-SOLVED (UG/L AS CD) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 18... | 1600 | 2 | 1 | 1 | 3 | 0 | 40 | 1 | 0 | 2 | 10 |
| FEB | | | | | | | | | | | |
| 27... | 0950 | 1 | 1 | 0 | 100 | 60 | 40 | 0 | -- | <1 | 10 |
| MAY | | | | | | | | | | | |
| 27... | 1110 | 2 | 1 | 1 | 100 | 60 | 40 | 2 | -- | <1 | 10 |
| JUL | | | | | | | | | | | |
| 28... | 1330 | 3 | 1 | 2 | 0 | 0 | 50 | 0 | -- | <1 | 10 |

08041000 NECHES RIVER AT EVADALE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | CHROMIUM, SUSPENDED RECOV. (UG/L AS CR) | CHROMIUM, DISSOLVED (UG/L AS CR) | COBALT, TOTAL RECOVERABLE (UG/L AS CO) | COBALT, DISSOLVED (UG/L AS CO) | COPPER, TOTAL RECOVERABLE (UG/L AS CU) | COPPER, SUSPENDED RECOVERABLE (UG/L AS CU) | COPPER, DISSOLVED (UG/L AS CU) | IRON, TOTAL RECOVERABLE (UG/L AS FE) | IRON, SUSPENDED RECOVERABLE (UG/L AS FE) | IRON, DISSOLVED (UG/L AS FE) | LEAD, TOTAL RECOVERABLE (UG/L AS PB) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV 18... | 10 | 0 | 0 | <3 | 11 | 6 | 5 | 800 | 690 | 110 | 17 |
| FEB 27... | 10 | 0 | 0 | <3 | 3 | 2 | 1 | 1500 | 1400 | 140 | 14 |
| MAY 27... | 10 | 0 | 0 | <3 | 10 | 4 | 6 | 2900 | 2900 | 40 | 4 |
| JUL 28... | 10 | 0 | 2 | <3 | 4 | 3 | 1 | 2500 | 1600 | 920 | 2 |

| DATE | LEAD, SUSPENDED RECOVERABLE (UG/L AS PB) | LEAD, DISSOLVED (UG/L AS PB) | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MANGANESE, SUSPENDED RECOV. (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | MERCURY SUSPENDED RECOVERABLE (UG/L AS HG) | MERCURY DISSOLVED (UG/L AS HG) | NICKEL, TOTAL RECOVERABLE (UG/L AS NI) | NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV 18... | 14 | 3 | 150 | 140 | 7 | 2.2 | .7 | 1.5 | 6 | 0 |
| FEB 27... | 14 | 0 | 190 | 110 | 80 | .1 | .1 | .0 | 3 | 0 |
| MAY 27... | 4 | 0 | 260 | 260 | 3 | .6 | .5 | .1 | 3 | 0 |
| JUL 28... | 0 | 7 | 350 | 280 | 75 | .4 | .0 | .7 | 4 | 1 |

| DATE | NICKEL, DISSOLVED (UG/L AS NI) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, SUSPENDED TOTAL (UG/L AS SE) | SELENIUM, DISSOLVED (UG/L AS SE) | SILVER, TOTAL RECOVERABLE (UG/L AS AG) | SILVER, SUSPENDED RECOVERABLE (UG/L AS AG) | SILVER, DISSOLVED (UG/L AS AG) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN) | ZINC, DISSOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV 18... | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 70 | 30 | 40 |
| FEB 27... | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 5 | 5 |
| MAY 27... | 4 | 0 | 0 | 0 | 1 | 1 | 0 | 20 | 10 | 10 |
| JUL 28... | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 90 | 70 | 22 |

| DATE | TIME | PCB, TOTAL (UG/L) | PCB, TOTAL IN BOTTOM MATERIAL (UG/KG) | NAPHTHALENES, POLYCHLOR. TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | CHLORDANE, TOTAL (UG/L) | CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG) | DDD, TOTAL (UG/L) | DDD, TOTAL IN BOTTOM MATERIAL (UG/KG) | DDE, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN 20... | 1300 | .00 | 0 | .00 | .00 | .0 | .00 | .0 | .00 | .0 | .00 |
| JUL 28... | 1330 | .00 | 0 | .00 | .00 | .0 | .00 | .0 | .00 | .0 | .00 |

| DATE | DDE, TOTAL IN BOTTOM MATERIAL (UG/KG) | DDT, TOTAL (UG/L) | DDT, TOTAL IN BOTTOM MATERIAL (UG/KG) | DIAZINON, TOTAL (UG/L) | DIELDRIN TOTAL (UG/L) | DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | ENDOSULFAN, TOTAL (UG/L) | ENDRIN, TOTAL (UG/L) | ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | ETHION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN 20... | .0 | .00 | .0 | .01 | .00 | .0 | .00 | .00 | .0 | .00 |
| JUL 28... | .0 | .00 | .0 | .00 | .00 | .0 | .00 | .00 | .0 | .00 |

| DATE | HEPTACHLOR, TOTAL (UG/L) | HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG) | HEPTACHLOR EPOXIDE TOTAL (UG/L) | HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) | LINDANE TOTAL (UG/L) | LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG) | MALATHION, TOTAL (UG/L) | METHOXYCHLOR, TOTAL (UG/L) | METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG) | METHYL PARATHION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN 20... | .00 | .0 | .00 | .0 | .00 | .0 | .00 | .00 | .0 | .00 |
| JUL 28... | .00 | .0 | .00 | .0 | .00 | .0 | .00 | .00 | .0 | .00 |

08041000 NECHES RIVER AT EVADALE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | METHYL TRI-THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) | MIREX, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | PARA-THION, TOTAL (UG/L) | TOX-APHENE, TOTAL (UG/L) | TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | TOTAL TRI-THION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 20... | .00 | .00 | .0 | .00 | 0 | .0 | .00 | .00 | .00 | .00 |
| JUL | | | | | | | | | | |
| 28... | .00 | .00 | .0 | .00 | 0 | .0 | .00 | .03 | .01 | .00 |

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

| DATE | NOV 18,80 | MAR 16,81 | MAY 27,81 | JUN 22,81 |
|---|---|---|---|---|
| TIME | 1600 | 1150 | 1110 | 1530 |
| TOTAL CELLS/ML | 520 | 20000 | 31000 | 19000 |
| DIVERSITY: DIVISION | 1.3 | 1.1 | 1.1 | 1.0 |
| .CLASS | 1.3 | 1.1 | 1.1 | 1.0 |
| ..ORDER | 2.1 | 1.9 | 1.6 | 1.2 |
| ...FAMILY | 2.6 | 2.0 | 1.7 | 1.4 |
| ....GENUS | 3.0 | 2.0 | 2.2 | 2.2 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|---|---|
| BACILLARIOPHYTA (DIATOMS) | | | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | | | |
| ..BACILLARIALES | | | | | | | | |
| ...NITZSCHIACEAE | | | | | | | | |
| ....NITZSCHIA | 140# | 27 | 600 | 3 | 1900 | 6 | 470 | 2 |
| ..EUPODISCALES | | | | | | | | |
| ...COSCINODISCACEAE | | | | | | | | |
| ....CYCLOTELLA | 52 | 10 | 4700# | 23 | 18000# | 58 | 550 | 3 |
| ....MELOSIRA | -- | - | 130 | 1 | 1200 | 4 | 220 | 1 |
| ..FRAGILARIALES | | | | | | | | |
| ...FRAGILARIACEAE | | | | | | | | |
| ....SYNEDRA | 13 | 2 | -- | - | -- | - | -- | - |
| ..NAVICULALES | | | | | | | | |
| ...NAVICULACEAE | | | | | | | | |
| ....GYROSIGMA | -- | - | -- | - | -- | - | -- | - |
| ....NAVICULA | -- | - | * | 0 | -- | - | -- | - |
| ..SURIRELLALES | | | | | | | | |
| ...SURIRELLACEAE | | | | | | | | |
| ....SURIRELLA | -- | - | -- | - | 190 | 1 | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

08041000 NECHES RIVER AT EVADALE, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

| DATE | NOV 18,80 | | MAR 16,81 | | MAY 27,81 | | JUN 22,81 | |
|---|---|---|---|---|---|---|---|---|
| TIME | 1600 | | 1150 | | 1110 | | 1530 | |
| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | | | |
| .CHLOROPHYCEAE | | | | | | | | |
| ..CHLOROCOCCALES | | | | | | | | |
| ...CHLOROCOCCACEAE | | | | | | | | |
| ....SCHROEDERIA | -- | - | -- | - | -- | - | -- | - |
| ....TETRAEDRON | -- | - | -- | - | -- | - | * | 0 |
| ...DICTYOSPHAERIACEAE | | | | | | | | |
| ....DICTYOSPHAERIUM | -- | - | -- | - | -- | - | 520 | 3 |
| ...MICRACTINIACEAE | | | | | | | | |
| ....MICRACTINIUM | 13 | 2 | -- | - | -- | - | -- | - |
| ...OOCYSTACEAE | | | | | | | | |
| ....ANKISTRODESMUS | 52 | 10 | 340 | 2 | 190 | 1 | 140 | 1 |
| ....CHODATELLA | -- | - | * | 0 | 190 | 1 | * | 0 |
| ....KIRCHNERIELLA | -- | - | -- | - | 780 | 3 | * | 0 |
| ....OOCYSTIS | -- | - | * | 0 | -- | - | * | 0 |
| ....SELENASTRUM | -- | - | -- | - | -- | - | -- | - |
| ....TREUBARIA | 13 | 2 | -- | - | -- | - | -- | - |
| ...PALMELLACEAE | | | | | | | | |
| ....SPHAEROCYSTIS | -- | - | -- | - | -- | - | -- | - |
| ...SCENEDESMACEAE | | | | | | | | |
| ....CRUCIGENIA | 52 | 10 | -- | - | -- | - | 110 | 1 |
| ....GLOEOACTINIUM | -- | - | -- | - | -- | - | 220 | 1 |
| ....SCENEDESMUS | 100# | 20 | 200 | 1 | 390 | 1 | 690 | 4 |
| ....TETRASTRUM | -- | - | -- | - | 780 | 3 | 770 | 4 |
| ..VOLVOCALES | | | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | | | |
| ....CHLAMYDOMONAS | 52 | 10 | 270 | 1 | -- | - | 280 | 1 |
| ...PHACOTACEAE | | | | | | | | |
| ....PTEROMONAS | -- | - | -- | - | -- | - | -- | - |
| ..ZYGNEMATALES | | | | | | | | |
| ...DESMIDIACEAE | | | | | | | | |
| ....COSMARIUM | -- | - | -- | - | -- | - | * | 0 |
| CHRYSOPHYTA | | | | | | | | |
| .XANTHOPHYCEAE | | | | | | | | |
| ..MISCHOCOCCALES | | | | | | | | |
| ...SCIADACEAE | | | | | | | | |
| ....OPHIOCYTIUM | -- | - | -- | - | -- | - | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | | | |
| .CYANOPHYCEAE | | | | | | | | |
| ..CHROOCOCCALES | | | | | | | | |
| ...CHROOCOCCACEAE | | | | | | | | |
| ....AGMENELLUM | -- | - | -- | - | 3100 | 10 | 3500# | 19 |
| ....ANACYSTIS | 13 | 2 | 9600# | 48 | 3300 | 11 | 11000# | 57 |
| ..NOSTOCALES | | | | | | | | |
| ...NOSTOCACEAE | | | | | | | | |
| ....ANABAENA | -- | - | -- | - | -- | - | -- | - |
| ....CYLINDROSPERMUM | -- | - | -- | - | -- | - | -- | - |
| ..OSCILLATORIALES | | | | | | | | |
| ...OSCILLATORIACEAE | | | | | | | | |
| ....LYNGBYA | -- | - | -- | - | -- | - | -- | - |
| ....OSCILLATORIA | -- | - | 4000# | 20 | 780 | 3 | -- | - |
| ....PHORMIDIUM | -- | - | -- | - | -- | - | 220 | 1 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | | | |
| .EUGLENOPHYCEAE | | | | | | | | |
| ..EUGLENALES | | | | | | | | |
| ...EUGLENACEAE | | | | | | | | |
| ....EUGLENA | -- | - | * | 0 | -- | - | -- | - |
| ....PHACUS | -- | - | -- | - | -- | - | -- | - |
| ....TRACHELOMONAS | 13 | 2 | * | 0 | -- | - | * | 0 |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | | | |
| .DINOPHYCEAE | | | | | | | | |
| ..DINOKONTAE | | | | | | | | |
| ...PERIDINIACEAE | | | | | | | | |
| ....PERIDINIUM | -- | - | -- | - | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

08041000 NECHES RIVER AT EVADALE, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

| DATE | JUL 28,81 | AUG 11,81 | SEP 21,81 |
|---|---|---|---|
| TIME | 1330 | 1515 | 1325 |
| TOTAL CELLS/ML | 10000 | 15000 | 28000 |
| DIVERSITY: DIVISION | 1.3 | 0.3 | 0.5 |
| .CLASS | 1.3 | 0.3 | 0.5 |
| ..ORDER | 1.9 | 0.8 | 1.3 |
| ...FAMILY | 2.2 | 0.8 | 1.4 |
| ....GENUS | 2.9 | 0.9 | 1.5 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|
| BACILLARIOPHYTA (DIATOMS) | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..BACILLARIALES | | | | | | |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | 220 | 2 | * | 0 | * | 0 |
| ..EUPODISCALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | 440 | 4 | -- | - | -- | - |
| ....MELOSIRA | 55 | 1 | * | 0 | 220 | 1 |
| ..FRAGILARIALES | | | | | | |
| ...FRAGILARIACEAE | | | | | | |
| ....SYNEDRA | -- | - | * | 0 | -- | - |
| ..NAVICULALES | | | | | | |
| ...NAVICULACEAE | | | | | | |
| ....GYROSIGMA | -- | - | -- | - | * | 0 |
| ....NAVICULA | 83 | 1 | * | 0 | -- | - |
| ..SURIRELLALES | | | | | | |
| ...SURIRELLACEAE | | | | | | |
| ....SURIRELLA | -- | - | -- | - | -- | - |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...CHLOROCOCCACEAE | | | | | | |
| ....SCHROEDERIA | * | 0 | 100 | 1 | 160 | 1 |
| ....TETRAEDRON | -- | - | -- | - | -- | - |
| ...DICTYOSPHAERIACEAE | | | | | | |
| ....DICTYOSPHAERIUM | -- | - | 100 | 1 | -- | - |
| ...MICRACTINIACEAE | | | | | | |
| ....MICRACTINIUM | * | 0 | -- | - | -- | - |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | 410 | 4 | * | 0 | 610 | 2 |
| ....CHODATELLA | -- | - | -- | - | -- | - |
| ....KIRCHNERIELLA | -- | - | -- | - | * | 0 |
| ....OOCYSTIS | -- | - | -- | - | -- | - |
| ....SELENASTRUM | 55 | 1 | -- | - | -- | - |
| ....TREUBARIA | * | 0 | -- | - | -- | - |
| ...PALMELLACEAE | | | | | | |
| ....SPHAEROCYSTIS | * | 0 | -- | - | -- | - |
| ...SCENEDESMACEAE | | | | | | |
| ....CRUCIGENIA | 830 | 8 | -- | - | -- | - |
| ....GLOEOACTINIUM | -- | - | -- | - | -- | - |
| ....SCENEDESMUS | 1100 | 11 | * | 0 | 770 | 3 |
| ....TETRASTRUM | -- | - | -- | - | -- | - |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CHLAMYDOMONAS | 83 | 1 | * | 0 | -- | - |
| ...PHACOTACEAE | | | | | | |
| ....PTEROMONAS | 83 | 1 | -- | - | -- | - |
| ..ZYGNEMATALES | | | | | | |
| ...DESMIDIACEAE | | | | | | |
| ....COSMARIUM | -- | - | -- | - | * | 0 |
| CHRYSOPHYTA | | | | | | |
| .XANTHOPHYCEAE | | | | | | |
| ..MISCHOCOCCALES | | | | | | |
| ...SCIADACEAE | | | | | | |
| ....OPHIOCYTIUM | -- | - | * | 0 | * | 0 |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....AGMENELLUM | 1400 | 14 | 230 | 2 | -- | - |
| ....ANACYSTIS | 4100# | 41 | -- | - | -- | - |
| ..NOSTOCALES | | | | | | |
| ...NOSTOCACEAE | | | | | | |
| ....ANABAENA | 170 | 2 | 390 | 3 | 670 | 2 |
| ....CYLINDROSPERMUM | -- | - | 790 | 5 | 5900# | 21 |
| ..OSCILLATORIALES | | | | | | |
| ...OSCILLATORIACEAE | | | | | | |
| ....LYNGBYA | 110 | 1 | 13000# | 88 | 19000# | 68 |
| ....OSCILLATORIA | 660 | 7 | -- | - | -- | - |
| ....PHORMIDIUM | -- | - | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

08041000 NECHES RIVER AT EVADALE, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

| DATE | JUL 28,81 | | AUG 11,81 | | SEP 21,81 | |
|---|---|---|---|---|---|---|
| TIME | 1330 | | 1515 | | 1325 | |
| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....EUGLENA | * | 0 | -- | - | -- | - |
| ....PHACUS | -- | - | * | 0 | -- | - |
| ....TRACHELOMONAS | * | 0 | * | 0 | 290 | 1 |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | |
| .DINOPHYCEAE | | | | | | |
| ..DINOKONTAE | | | | | | |
| ...PERIDINIACEAE | | | | | | |
| ....PERIDINIUM | -- | - | * | 0 | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 69486 | 148 | 86 | 16100 | 19 | 3530 | 18 | 3370 | 31 |
| NOV. | 1980 | 72120 | 144 | 84 | 16300 | 18 | 3570 | 18 | 3410 | 30 |
| DEC. | 1980 | 75730 | 151 | 87 | 17800 | 19 | 3920 | 18 | 3730 | 31 |
| JAN. | 1981 | 64480 | 148 | 86 | 14900 | 19 | 3290 | 18 | 3130 | 31 |
| FEB. | 1981 | 17184 | 160 | 92 | 4250 | 21 | 955 | 19 | 902 | 32 |
| MAR. | 1981 | 53781 | 166 | 94 | 13700 | 21 | 3110 | 20 | 2920 | 33 |
| APR. | 1981 | 42948 | 166 | 94 | 10900 | 21 | 2480 | 20 | 2330 | 33 |
| MAY | 1981 | 37823 | 162 | 92 | 9430 | 21 | 2120 | 20 | 2000 | 33 |
| JUNE | 1981 | 180180 | 104 | 63 | 30500 | 13 | 6300 | 13 | 6160 | 23 |
| JULY | 1981 | 109930 | 146 | 85 | 25200 | 19 | 5520 | 18 | 5270 | 30 |
| AUG. | 1981 | 67170 | 156 | 90 | 16300 | 20 | 3630 | 19 | 3440 | 32 |
| SEPT | 1981 | 64160 | 159 | 91 | 15800 | 20 | 3540 | 19 | 3350 | 32 |
| TOTAL | | 854992 | ** | ** | 191000 | ** | 42000 | ** | 40000 | ** |
| WTD. AVG. | | 2342 | 143 | 83 | ** | 18 | ** | 17 | ** | 30 |

08041000 NECHES RIVER AT EVADALE, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 143 | 143 | 143 | 151 | 148 | 165 | 175 | 157 | 177 | 144 | 148 | 158 |
| 2 | 144 | 144 | 144 | 150 | 171 | 163 | 147 | 154 | 174 | 149 | 148 | 156 |
| 3 | 159 | 143 | 149 | 150 | 169 | 160 | 183 | 153 | 169 | 147 | 142 | 153 |
| 4 | 146 | 144 | 153 | 151 | 158 | 129 | 184 | 151 | 146 | 137 | 142 | 150 |
| 5 | 150 | 142 | 154 | 149 | 172 | 134 | 187 | 156 | 144 | 140 | 149 | 144 |
| 6 | 152 | 144 | 154 | 149 | 174 | 102 | 187 | 166 | 105 | 139 | 151 | 133 |
| 7 | 150 | 143 | 155 | 154 | 184 | 140 | 187 | 161 | 87 | 134 | 151 | 169 |
| 8 | 152 | 142 | 153 | 153 | 170 | 172 | 183 | 182 | 110 | 141 | 152 | 170 |
| 9 | 151 | 143 | 150 | 150 | 160 | 148 | 183 | 181 | 119 | 153 | 153 | 167 |
| 10 | 149 | 144 | 146 | 149 | 159 | 152 | 174 | 182 | 127 | 159 | 154 | 167 |
| 11 | 148 | 143 | 141 | 149 | 165 | 159 | 172 | 188 | 97 | 149 | 155 | 166 |
| 12 | 151 | 142 | 145 | 148 | 166 | 166 | 157 | 191 | 96 | 152 | 158 | 160 |
| 13 | 151 | 141 | 149 | 147 | 162 | 166 | 153 | 189 | 82 | 136 | 159 | 151 |
| 14 | 151 | 143 | 152 | 149 | 157 | 166 | 152 | 173 | 74 | 137 | 155 | 164 |
| 15 | 151 | 144 | 152 | 147 | 156 | 169 | 154 | 121 | 74 | 137 | 158 | 165 |
| 16 | 151 | 145 | 148 | 148 | 158 | 170 | 152 | 115 | 88 | 149 | 160 | 165 |
| 17 | 150 | 146 | 150 | 149 | 160 | 172 | 153 | 119 | 91 | 147 | 158 | 162 |
| 18 | 142 | 150 | 147 | 126 | 160 | 180 | 154 | 156 | 93 | 153 | 158 | 165 |
| 19 | 143 | 146 | 149 | 129 | 160 | 171 | 155 | 146 | 91 | 152 | 159 | 162 |
| 20 | 143 | 143 | 147 | 149 | 159 | 178 | 162 | 143 | 107 | 153 | 158 | 162 |
| 21 | 144 | 144 | 157 | 148 | 121 | 186 | 157 | 162 | 113 | 153 | 160 | 161 |
| 22 | 165 | 145 | 156 | 145 | 121 | 184 | 156 | 166 | 103 | 153 | 160 | 160 |
| 23 | 163 | 145 | 150 | 144 | 169 | 183 | 150 | 164 | 110 | 152 | 172 | 163 |
| 24 | 174 | 146 | 156 | 145 | 153 | 183 | 150 | 166 | 110 | 152 | 166 | 162 |
| 25 | 150 | 150 | 154 | 154 | 155 | 185 | 153 | 168 | 115 | 151 | 160 | 161 |
| 26 | 146 | 144 | 150 | 150 | 161 | 185 | 165 | 167 | 118 | 152 | 162 | 159 |
| 27 | 142 | 146 | 152 | 152 | 155 | 187 | 160 | 169 | 134 | 152 | 162 | 159 |
| 28 | 146 | 147 | 158 | 154 | 167 | 189 | 153 | 169 | 133 | 148 | 162 | 160 |
| 29 | 143 | 144 | 153 | 152 | --- | 187 | 153 | 171 | 144 | 146 | 163 | 160 |
| 30 | 141 | 141 | 152 | 152 | --- | 187 | 165 | 174 | 149 | 148 | 164 | 160 |
| 31 | 141 | --- | 151 | 155 | --- | 185 | --- | 178 | --- | 147 | 155 | --- |
| MEAN | 149 | 144 | 151 | 148 | 160 | 168 | 164 | 163 | 116 | 147 | 157 | 160 |

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 28.0 | 16.0 | 14.0 | 11.0 | 12.0 | 17.0 | 20.0 | --- | 29.0 | 29.0 | 31.0 | 30.0 |
| 2 | 27.0 | 17.0 | 14.0 | 11.0 | 12.0 | 17.0 | 20.0 | 26.0 | 29.0 | 28.0 | 31.0 | 30.0 |
| 3 | 27.0 | 18.0 | 14.0 | 12.0 | 11.0 | 17.0 | 20.0 | 25.0 | 29.0 | 27.0 | 31.0 | --- |
| 4 | 26.0 | 18.0 | 15.0 | --- | 11.0 | 17.0 | --- | 25.0 | 27.0 | 24.0 | 31.0 | 30.0 |
| 5 | 25.0 | 18.0 | 15.0 | --- | 11.0 | 17.0 | 21.0 | 25.0 | 27.0 | 24.0 | 31.0 | 30.0 |
| 6 | 26.0 | 18.0 | 15.0 | 11.0 | 11.0 | 17.0 | 21.0 | 25.0 | 27.0 | 25.0 | 31.0 | 30.0 |
| 7 | 25.0 | 19.0 | 17.0 | 11.0 | 12.0 | 16.0 | 21.0 | 25.0 | 27.0 | 27.0 | 31.0 | 30.0 |
| 8 | 25.0 | 20.0 | 17.0 | 11.0 | 12.0 | 16.0 | 21.0 | 25.0 | 29.0 | 28.0 | 31.0 | --- |
| 9 | 25.0 | 20.0 | 15.0 | 11.0 | 12.0 | 17.0 | 22.0 | 25.0 | 29.0 | 28.0 | --- | 30.0 |
| 10 | 24.0 | 20.0 | 13.0 | 11.0 | 13.0 | 17.0 | 22.0 | 25.0 | 29.0 | 29.0 | 31.0 | 30.0 |
| 11 | 24.0 | 20.0 | 13.0 | 11.0 | 11.0 | 17.0 | 20.0 | 25.0 | 29.0 | 29.0 | 31.0 | 30.0 |
| 12 | 24.0 | 19.0 | 13.0 | 11.0 | 9.0 | 17.0 | 22.0 | 26.0 | 29.0 | 28.0 | 31.0 | 30.0 |
| 13 | 24.0 | 19.0 | 13.0 | 11.0 | 9.0 | 17.0 | 23.0 | 26.0 | 29.0 | 29.0 | 31.0 | 30.0 |
| 14 | 24.0 | 20.0 | 13.0 | 11.0 | 11.0 | 17.0 | 23.0 | 26.0 | 29.0 | 29.0 | 31.0 | 29.0 |
| 15 | 24.0 | 18.0 | 13.0 | 11.0 | 12.0 | 17.0 | 25.0 | 26.0 | 29.0 | 31.0 | 32.0 | 28.0 |
| 16 | 24.0 | 17.0 | 14.0 | 10.0 | 14.0 | 17.0 | 25.0 | 25.0 | 29.0 | 30.0 | 32.0 | 28.0 |
| 17 | 24.0 | 16.0 | 15.0 | 10.0 | 16.0 | 17.0 | 25.0 | 26.0 | 29.0 | 30.0 | 32.0 | 28.0 |
| 18 | 24.0 | 15.0 | 15.0 | 9.0 | 16.0 | 17.0 | 25.0 | 25.0 | 30.0 | 31.0 | 31.0 | 28.0 |
| 19 | 24.0 | 14.0 | 11.0 | 9.0 | 18.0 | --- | 25.0 | 26.0 | 30.0 | 31.0 | 31.0 | 28.0 |
| 20 | 22.0 | 13.0 | 10.0 | 9.0 | 18.0 | 17.0 | 25.0 | 26.0 | 30.0 | 31.0 | 31.0 | 28.0 |
| 21 | 22.0 | 13.0 | 10.0 | 9.0 | 17.0 | 17.0 | 25.0 | 26.0 | 25.0 | 31.0 | 31.0 | 28.0 |
| 22 | 23.0 | 13.0 | 10.0 | 9.0 | 18.0 | 17.0 | 25.0 | 26.0 | 27.0 | 31.0 | 31.0 | 28.0 |
| 23 | 23.0 | 13.0 | 12.0 | 11.0 | 18.0 | 17.0 | 25.0 | 26.0 | 29.0 | 32.0 | 31.0 | 28.0 |
| 24 | 21.0 | 13.0 | 12.0 | 11.0 | 18.0 | 17.0 | 25.0 | 26.0 | 29.0 | 32.0 | 31.0 | 28.0 |
| 25 | 20.0 | 13.0 | 12.0 | 13.0 | 17.0 | 17.0 | 25.0 | 26.0 | 28.0 | 31.0 | 31.0 | 28.0 |
| 26 | 20.0 | 11.0 | 11.0 | 13.0 | 18.0 | 17.0 | 25.0 | 27.0 | 28.0 | 30.0 | 31.0 | 28.0 |
| 27 | 20.0 | 11.0 | 11.0 | 12.0 | 18.0 | 18.0 | 25.0 | 27.0 | 28.0 | 31.0 | 31.0 | 28.0 |
| 28 | 18.0 | 12.0 | 11.0 | 12.0 | 18.0 | 19.0 | 25.0 | 28.0 | 28.0 | 31.0 | 31.0 | 29.0 |
| 29 | 16.0 | 12.0 | 11.0 | 12.0 | --- | 19.0 | 25.0 | 28.0 | 29.0 | 31.0 | 31.0 | 29.0 |
| 30 | 16.0 | 12.0 | 11.0 | 14.0 | --- | 19.0 | 25.0 | --- | 29.0 | 31.0 | 31.0 | 29.0 |
| 31 | 16.0 | --- | 11.0 | 11.0 | --- | 20.0 | --- | 28.0 | --- | 31.0 | 31.0 | --- |
| MEAN | 23.0 | 16.0 | 13.0 | 11.0 | 14.0 | 17.5 | 23.5 | 26.0 | 28.5 | 29.5 | 31.0 | 29.0 |

## 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 (2.6 km) upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 3.1 mi (5.0 km) upstream from Cypress Creek, 3.4 mi (5.5 km) northeast of Kountze, and 4.3 mi (6.9 km) downstream from Beech Creek.

DRAINAGE AREA.--860 $mi^2$ (2,227 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1924 to September 1927, October 1927 to November 1929 (discharge measurements only), April 1939 to current year.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 25.12 ft (7.657 m) National Geodetic Vertical Datum of 1929. Prior to Apr. 30, 1939, nonrecording gage at site 1.6 mi (2.6 km) downstream at different datum. Apr. 30, 1939, to Sept. 30, 1966, water-stage recorder at site 2,000 ft (610 m) downstream at present datum.

REMARKS.--Water-discharge records good. Small diversions above station. Gage-height telemeter at station.

AVERAGE DISCHARGE.--45 years, 836 $ft^3/s$ (23.68 $m^3/s$), 13.21 in/yr (336 mm/yr), 605,700 acre-ft/yr (747 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 67,200 $ft^3/s$ (1,900 $m^3/s$) Nov. 26, 1940, gage height, 27.6 ft (8.41 m), former site, from floodmark, from rating curve extended above 32,000 $ft^3/s$ (906 $m^3/s$); minimum not determined, probably occurred during period of no gage-height record Sept. 16 to Oct. 3, 1956; minimum daily, 16 $ft^3/s$ (0.45 $m^3/s$) Oct. 1, 2, 1956.

Flood of May 27, 1929, reached a stage of about 32 ft (9.8 m) at site 2,000 ft (610 m) downstream at present datum; stage was determined on basis of information by engineers of Gulf, Colorado, and Santa Fe Railway Co. for site 1.6 mi (2.6 km) downstream.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1884, about 34 ft (10.4 m) in August 1915 at site 2,000 ft (610 m) 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 (2.6 km) downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21,100 $ft^3/s$ (598 $m^3/s$) June 12 at 0500 hours, gage height, 21.74 ft (6.626 m); minimum, 79 $ft^3/s$ (2.24 $m^3/s$) Aug. 27, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 132 | 296 | 276 | 211 | 253 | 262 | 366 | 200 | 132 | 416 | 238 | 191 |
| 2 | 139 | 241 | 243 | 207 | 272 | 250 | 408 | 185 | 131 | 421 | 212 | 373 |
| 3 | 172 | 211 | 224 | 203 | 303 | 244 | 338 | 174 | 224 | 713 | 192 | 612 |
| 4 | 174 | 193 | 212 | 200 | 360 | 514 | 292 | 167 | 1090 | 891 | 185 | 891 |
| 5 | 145 | 181 | 206 | 197 | 360 | 1360 | 265 | 205 | 3230 | 1100 | 176 | 854 |
| 6 | 124 | 174 | 200 | 196 | 440 | 1710 | 251 | 474 | 5820 | 1920 | 162 | 789 |
| 7 | 111 | 166 | 196 | 204 | 538 | 1730 | 243 | 667 | 6560 | 2740 | 155 | 532 |
| 8 | 103 | 159 | 194 | 230 | 584 | 1490 | 239 | 681 | 5850 | 3300 | 155 | 349 |
| 9 | 97 | 154 | 286 | 267 | 558 | 1060 | 222 | 529 | 5630 | 3470 | 151 | 260 |
| 10 | 93 | 150 | 371 | 294 | 480 | 731 | 206 | 367 | 9660 | 3390 | 140 | 213 |
| 11 | 90 | 149 | 389 | 283 | 448 | 586 | 196 | 316 | 15400 | 2850 | 134 | 185 |
| 12 | 88 | 148 | 422 | 260 | 415 | 487 | 193 | 349 | 20100 | 2240 | 128 | 165 |
| 13 | 85 | 145 | 381 | 243 | 385 | 438 | 188 | 348 | 14400 | 2100 | 119 | 152 |
| 14 | 83 | 145 | 334 | 232 | 350 | 425 | 180 | 302 | 9430 | 2010 | 114 | 145 |
| 15 | 81 | 143 | 298 | 212 | 319 | 434 | 173 | 252 | 6650 | 1950 | 109 | 144 |
| 16 | 82 | 145 | 276 | 205 | 301 | 426 | 166 | 245 | 6560 | 1820 | 104 | 153 |
| 17 | 81 | 152 | 263 | 201 | 290 | 388 | 160 | 264 | 5540 | 1420 | 100 | 146 |
| 18 | 102 | 167 | 252 | 199 | 284 | 350 | 154 | 345 | 4140 | 910 | 96 | 155 |
| 19 | 324 | 211 | 243 | 201 | 280 | 321 | 148 | 493 | 2700 | 550 | 92 | 154 |
| 20 | 434 | 276 | 237 | 246 | 276 | 297 | 144 | 471 | 1570 | 424 | 89 | 136 |
| 21 | 417 | 273 | 285 | 348 | 271 | 281 | 140 | 342 | 869 | 363 | 86 | 123 |
| 22 | 353 | 238 | 297 | 500 | 269 | 279 | 140 | 272 | 612 | 325 | 86 | 115 |
| 23 | 265 | 226 | 278 | 570 | 280 | 287 | 150 | 235 | 492 | 283 | 89 | 112 |
| 24 | 215 | 230 | 239 | 477 | 299 | 293 | 343 | 212 | 432 | 256 | 86 | 108 |
| 25 | 188 | 245 | 227 | 378 | 315 | 285 | 627 | 190 | 423 | 237 | 83 | 106 |
| 26 | 172 | 268 | 226 | 329 | 303 | 265 | 607 | 175 | 545 | 235 | 82 | 103 |
| 27 | 166 | 276 | 226 | 304 | 280 | 248 | 455 | 164 | 682 | 235 | 79 | 100 |
| 28 | 169 | 282 | 224 | 289 | 267 | 238 | 320 | 154 | 603 | 245 | 81 | 98 |
| 29 | 187 | 314 | 220 | 277 | --- | 233 | 254 | 146 | 524 | 274 | 82 | 96 |
| 30 | 348 | 312 | 221 | 266 | --- | 232 | 223 | 140 | 451 | 294 | 81 | 93 |
| 31 | 366 | --- | 215 | 256 | --- | 245 | --- | 134 | --- | 282 | 90 | --- |
| TOTAL | 5586 | 6270 | 8161 | 8485 | 9780 | 16389 | 7791 | 9198 | 130450 | 37664 | 3776 | 7653 |
| MEAN | 180 | 209 | 263 | 274 | 349 | 529 | 260 | 297 | 4348 | 1215 | 122 | 255 |
| MAX | 434 | 314 | 422 | 570 | 584 | 1730 | 627 | 681 | 20100 | 3470 | 238 | 891 |
| MIN | 81 | 143 | 194 | 196 | 253 | 232 | 140 | 134 | 131 | 235 | 79 | 93 |
| CFSM | .21 | .24 | .31 | .32 | .41 | .62 | .30 | .35 | 5.06 | 1.41 | .14 | .30 |
| IN. | .24 | .27 | .35 | .37 | .42 | .71 | .34 | .40 | 5.64 | 1.63 | .16 | .33 |
| AC-FT | 11080 | 12440 | 16190 | 16830 | 19400 | 32510 | 15450 | 18240 | 258700 | 74710 | 7490 | 15180 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR | 1980 | TOTAL | 318311 | MEAN | 870 | MAX | 8890 | MIN | 59 | CFSM | 1.01 | IN | 13.77 | AC-FT | 631400 |
| WTR YR | 1981 | Total | 251203 | MEAN | 688 | MAX | 20100 | MIN | 79 | CFSM | .08 | IN | 10.87 | AC-FT | 498300 |

08041500 VILLAGE CREEK NEAR KOUNTZE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: November 1967 to current year. Water temperatures: November 1967 to September 1970.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | TEMPER-ATURE, WATER (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 15... | 1345 | 82 | 92 | 19.0 | 15 | 3 | 4.3 | 1.1 | 9.2 |
| DEC | | | | | | | | | |
| 10... | 1630 | 377 | 77 | 14.0 | 15 | 7 | 4.1 | 1.2 | 10 |
| JAN | | | | | | | | | |
| 21... | 1130 | 342 | 89 | 7.0 | 15 | 4 | 3.9 | 1.2 | 12 |
| JUL | | | | | | | | | |
| 08... | 1710 | 3360 | 44 | 25.0 | 11 | 1 | 3.3 | .7 | 4.3 |
| SEP | | | | | | | | | |
| 23... | 1530 | 112 | 105 | 23.5 | 19 | 6 | 5.4 | 1.4 | 12 |

| DATE | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY (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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 15... | 1.0 | 1.0 | 12 | 3.3 | 20 | .1 | 14 | 60 |
| DEC | | | | | | | | |
| 10... | 1.1 | 1.3 | 8 | 4.1 | 17 | .0 | 13 | 56 |
| JAN | | | | | | | | |
| 21... | 1.4 | 1.0 | 11 | 2.2 | 20 | .1 | 13 | 60 |
| JUL | | | | | | | | |
| 08... | .6 | 1.1 | 3 | 5.0 | 8.1 | .0 | 8.4 | 33 |
| SEP | | | | | | | | |
| 23... | 1.3 | 1.3 | 13 | 5.0 | 21 | .1 | 14 | 68 |

## 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 5.1 mi (8.2 km) southeast of Sour Lake.

DRAINAGE AREA.--336 $mi^2$ (870 $km^2$).

### WATER-DISCHARGE RECORDS

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

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

REMARKS.--Water-discharge records fair. No known diversions. Low flow for period March through September usually sustained by drainage from ricefields. Gage-height telemeter at this station.

AVERAGE DISCHARGE.--14 years, 470 $ft^3/s$ (13.31 $m^3/s$), 340,500 acre-ft/yr (420 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,000 $ft^3/s$ (708 $m^3/s$) Apr. 22, 1979, elevation, 34.29 ft (10.452 m); minimum daily, 0.38 $ft^3/s$ (0.011 $m^3/s$) Nov. 5, 1978.
Maximum stage since at least 1917, that of Apr. 22, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,300 $ft^3/s$ (207 $m^3/s$) June 7 at 1100 hours, elevation, 29.42 ft (8.967 m); minimum daily, 2.3 $ft^3/s$ (0.065 $m^3/s$) Oct. 17, Jan. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 517 | 84 | 55 | 4.7 | 246 | 22 | 15 | 92 | 21 | 516 | 53 | 42 |
| 2 | 392 | 62 | 46 | 4.0 | 489 | 20 | 19 | 49 | 27 | 464 | 39 | 35 |
| 3 | 241 | 50 | 39 | 3.6 | 418 | 18 | 30 | 30 | 705 | 740 | 27 | 26 |
| 4 | 148 | 41 | 31 | 3.2 | 285 | 26 | 16 | 26 | 1040 | 780 | 22 | 37 |
| 5 | 76 | 33 | 24 | 2.9 | 323 | 164 | 59 | 29 | 1800 | 820 | 25 | 39 |
| 6 | 44 | 26 | 19 | 3.0 | 1150 | 475 | 25 | 29 | 5560 | 1550 | 57 | 78 |
| 7 | 27 | 20 | 13 | 3.8 | 1330 | 659 | 14 | 29 | 7180 | 2100 | 45 | 93 |
| 8 | 16 | 16 | 8.2 | 3.7 | 1400 | 733 | 24 | 29 | 6100 | 2010 | 45 | 101 |
| 9 | 9.5 | 12 | 281 | 3.9 | 1330 | 748 | 33 | 42 | 4650 | 1860 | 29 | 87 |
| 10 | 11 | 9.0 | 569 | 4.0 | 1260 | 639 | 43 | 413 | 3730 | 1750 | 22 | 61 |
| 11 | 6.4 | 5.8 | 614 | 3.9 | 1060 | 535 | 52 | 542 | 3770 | 1750 | 19 | 44 |
| 12 | 2.6 | 7.8 | 581 | 3.6 | 843 | 430 | 61 | 492 | 3640 | 1710 | 18 | 28 |
| 13 | 4.0 | 7.3 | 453 | 3.3 | 610 | 281 | 49 | 393 | 4950 | 1640 | 14 | 19 |
| 14 | 3.4 | 4.3 | 314 | 3.2 | 371 | 164 | 53 | 329 | 6830 | 1530 | 12 | 15 |
| 15 | 2.6 | 2.8 | 212 | 3.0 | 216 | 120 | 64 | 268 | 6540 | 1380 | 13 | 17 |
| 16 | 2.4 | 3.5 | 142 | 2.9 | 143 | 99 | 36 | 202 | 5310 | 1160 | 24 | 17 |
| 17 | 2.3 | 4.6 | 100 | 2.6 | 105 | 78 | 37 | 182 | 4210 | 821 | 15 | 12 |
| 18 | 409 | 6.6 | 74 | 2.3 | 79 | 59 | 42 | 196 | 3410 | 456 | 12 | 10 |
| 19 | 3210 | 4.6 | 57 | 6.1 | 63 | 44 | 21 | 189 | 2810 | 226 | 20 | 9.2 |
| 20 | 4430 | 4.6 | 43 | 121 | 50 | 34 | 29 | 170 | 2350 | 148 | 20 | 10 |
| 21 | 3770 | 5.6 | 34 | 228 | 45 | 29 | 75 | 124 | 2000 | 128 | 10 | 13 |
| 22 | 2960 | 7.5 | 27 | 261 | 42 | 43 | 46 | 83 | 1650 | 101 | 9.1 | 8.2 |
| 23 | 2350 | 41 | 22 | 255 | 38 | 31 | 96 | 61 | 1290 | 71 | 8.4 | 6.9 |
| 24 | 1910 | 38 | 17 | 215 | 36 | 22 | 252 | 57 | 960 | 57 | 8.1 | 8.2 |
| 25 | 1500 | 52 | 14 | 162 | 33 | 16 | 233 | 48 | 659 | 50 | 7.8 | 8.7 |
| 26 | 1120 | 69 | 12 | 121 | 33 | 14 | 180 | 42 | 465 | 59 | 7.5 | 8.5 |
| 27 | 805 | 55 | 9.9 | 95 | 29 | 11 | 176 | 30 | 557 | 99 | 7.5 | 9.2 |
| 28 | 529 | 96 | 9.3 | 95 | 26 | 10 | 129 | 23 | 546 | 102 | 7.7 | 9.5 |
| 29 | 287 | 91 | 8.0 | 99 | --- | 16 | 81 | 20 | 548 | 88 | 9.7 | 10 |
| 30 | 165 | 70 | 6.5 | 91 | --- | 11 | 92 | 20 | 548 | 70 | 11 | 6.2 |
| 31 | 116 | --- | 5.4 | 77 | --- | 14 | --- | 18 | --- | 60 | 17 | --- |
| TOTAL | 25066.2 | 930.0 | 3840.3 | 1887.7 | 12053 | 5565 | 2082 | 4257 | 83856 | 24296 | 634.8 | 868.6 |
| MEAN | 809 | 31.0 | 124 | 60.9 | 430 | 180 | 69.4 | 137 | 2795 | 784 | 20.5 | 29.0 |
| MAX | 4430 | 96 | 614 | 261 | 1400 | 748 | 252 | 542 | 7180 | 2100 | 57 | 101 |
| MIN | 2.3 | 2.8 | 5.4 | 2.3 | 26 | 10 | 14 | 18 | 21 | 50 | 7.5 | 6.2 |
| AC-FT | 49720 | 1840 | 7620 | 3740 | 23910 | 11040 | 4130 | 8440 | 166300 | 48190 | 1260 | 1720 |

CAL YR 1980 TOTAL 202716.2 MEAN 554 MAX 5900 MIN 1.3 AC-FT 402100
WTR YR 1981 TOTAL 165336.6 MEAN 453 MAX 7180 MIN 2.3 AC-FT 327900

08041700 PINE ISLAND BAYOU NEAR SOUR LAKE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: February 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: February 1968 to current year.
WATER TEMPERATURES: February 1968 to current year.

REMARKS.--Mean monthly and annual concentrations and loads were estimated from records of discharge versus specific conductance relationship. Information is on file in the Geological Survey District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE (1968-79): Maximum daily, 11,600 micromhos Mar. 23, 1968; minimum daily, 34 micromhos June 12, 1975, July 28, 1979.
WATER TEMPERATURES (1968-76): Maximum daily, 37.0°C Sept. 15, 1972; minimum daily, 2.0°C Jan. 11, 1973.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 16... | 0915 | 2.3 | 466 | 21.0 | 63 | 11 | 20 | 3.2 | 57 |
| NOV | | | | | | | | | |
| 10... | 1400 | 8.7 | 299 | 18.5 | 42 | 3 | 13 | 2.2 | 45 |
| JUN | | | | | | | | | |
| 03... | 0920 | 755 | 71 | 23.0 | 16 | 8 | 5.1 | .8 | 7.2 |
| JUL | | | | | | | | | |
| 08... | 1530 | 1990 | 59 | 25.5 | 18 | 5 | 5.3 | 1.1 | 6.3 |
| AUG | | | | | | | | | |
| 05... | 1040 | 21 | 256 | 28.0 | 57 | 7 | 18 | 2.9 | 29 |
| SEP | | | | | | | | | |
| 23... | 1420 | 6.9 | 344 | 24.0 | 57 | 8 | 18 | 3.0 | 42 |

| DATE | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY 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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 16... | 3.1 | 3.3 | 52 | 12 | 95 | .1 | 7.6 | 229 |
| NOV | | | | | | | | |
| 10... | 3.0 | 2.5 | 39 | 6.3 | 61 | .1 | 7.2 | 160 |
| JUN | | | | | | | | |
| 03... | .8 | 1.5 | 8 | 8.6 | 12 | .1 | 3.1 | 43 |
| JUL | | | | | | | | |
| 08... | .7 | 1.0 | 13 | 6.5 | 7.8 | .1 | 4.9 | 41 |
| AUG | | | | | | | | |
| 05... | 1.7 | 1.8 | 50 | 5.0 | 47 | .1 | 9.1 | 143 |
| SEP | | | | | | | | |
| 23... | 2.5 | 3.9 | 49 | 6.0 | 64 | .2 | 12 | 179 |

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 25066.2 | 96 | 51 | 3430 | 15 | 1020 | 5.1 | 344 | 20 |
| NOV. | 1980 | 930.0 | 249 | 128 | 322 | 44 | 109 | 11 | 28 | 46 |
| DEC. | 1980 | 3840.3 | 161 | 84 | 871 | 27 | 275 | 7.9 | 82 | 31 |
| JAN. | 1981 | 1887.7 | 189 | 98 | 501 | 32 | 162 | 9.0 | 46 | 36 |
| FEB. | 1981 | 12053 | 124 | 65 | 2110 | 20 | 640 | 6.3 | 207 | 25 |
| MAR. | 1981 | 5565 | 150 | 78 | 1180 | 24 | 368 | 7.5 | 112 | 30 |
| APR. | 1981 | 2082 | 208 | 108 | 607 | 35 | 199 | 9.8 | 55 | 40 |
| MAY | 1981 | 4257 | 169 | 88 | 1010 | 28 | 320 | 8.3 | 95 | 33 |
| JUNE | 1981 | 83856 | 81 | 43 | 9660 | 12 | 2800 | 4.3 | 984 | 17 |
| JULY | 1981 | 24296 | 109 | 57 | 3760 | 17 | 1120 | 5.7 | 374 | 22 |
| AUG. | 1981 | 654.8 | 318 | 163 | 287 | 59 | 104 | 13 | 23 | 57 |
| SEPT | 1981 | 875.5 | 252 | 130 | 307 | 44 | 104 | 11 | 27 | 47 |
| TOTAL | | 165363.5 | ** | ** | 24000 | ** | 7230 | ** | 2380 | ** |
| WTD. AVG. | | 451 | 103 | 54 | ** | 16 | ** | 5.3 | ** | 21 |

## 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 (1.1 km) south of LaBelle, 6.0 mi (9.7 km) upstream from Hillebrandt Bayou, 7.2 mi (11.6 km) upstream from State Highway 73, and 11.2 mi (18.0 km) upstream from saltwater gates and barge locks. Distances are measured along rectified channel.

DRAINAGE AREA.--262 $mi^2$ (679 $km^2$).

PERIOD OF RECORD.--April 1954 to current year, complete records for storms of 1.0 inch (25.4 mm) or more runoff, except for the period Sept. 10-22, 1961.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4.63 ft (1.411 m) below National Geodetic Vertical Datum of 1929, determined by several comparisons of water surface with auxiliary water-stage recorder 7.2 mi (11.6 km) downstream during times of no flow and ideal weather conditions.

REMARKS.--Records poor. Discharge is computed using fall as a factor. Discharge for recessions of large rises with insufficient fall are estimated. Small rises with insufficient fall are not computed. Low flow is regulated by drainage from ricefields and operation of saltwater gates and barge locks. An unknown amount of water is diverted above and below gage for rice irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,590 $ft^3/s$ (272 $m^3/s$) Sept. 22, 1963, and Apr. 23, 1979; maximum gage height, 11.78 ft (3.591 m) Sept. 20, 1963 (backwater from Hillebrandt Bayou); minimum discharge not determined (affected by tides and pumping); minimum gage height, 2.31 ft (0.704 m) July 17, 1954.
Maximum stage since at least 1941, that of Sept. 20, 1963, and Apr. 23, 1979. Flood of Sept. 13, 1961 (Hurricane Carla), reached a stage of 11.51 ft (3.508 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1941 reached a stage of 11.3 ft (3.44 m), from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,110 $ft^3/s$ (145 $m^3/s$) June 13 at 1700 to 2400 hours, gage height, 8.48 ft (2.585 m); minimum discharge not determined (affected by tides and pumping); minimum gage height, 4.41 ft (1.344 m) Oct. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | | | | | | | | --- | --- | | |
| 2 | --- | | | | | | | | --- | 520 | | |
| 3 | --- | | | | | | | | 440 | 2250 | | |
| 4 | --- | | | | | | | | 840 | 2630 | | |
| 5 | --- | | | | | | | | 1550 | 2450 | | |
| 6 | --- | | | | | | | | 3270 | 3900 | | |
| 7 | --- | | | | | | | | 4040 | 4130 | | |
| 8 | --- | | | | | | | | 4040 | 3600 | | |
| 9 | --- | | | | | | | | 3270 | 2830 | | |
| 10 | --- | | | | | | | | 1910 | 1800 | | |
| 11 | --- | | | | | | | | 3120 | 1000 | | |
| 12 | --- | | | | | | | | 4470 | --- | | |
| 13 | --- | | | | | | | | 5000 | --- | | |
| 14 | --- | | | | | | | | 4780 | --- | | |
| 15 | --- | | | | | | | | 4120 | --- | | |
| 16 | --- | | | | | | | | 3200 | --- | | |
| 17 | --- | | | | | | | | 2530 | --- | | |
| 18 | 1020 | | | | | | | | 1710 | --- | | |
| 19 | 2940 | | | | | | | | 1000 | --- | | |
| 20 | 4060 | | | | | | | | --- | --- | | |
| 21 | 4290 | | | | | | | | --- | --- | | |
| 22 | 3500 | | | | | | | | --- | --- | | |
| 23 | 1970 | | | | | | | | --- | --- | | |
| 24 | 800 | | | | | | | | --- | --- | | |
| 25 | --- | | | | | | | | --- | --- | | |
| 26 | --- | | | | | | | | --- | --- | | |
| 27 | --- | | | | | | | | --- | --- | | |
| 28 | --- | | | | | | | | --- | --- | | |
| 29 | --- | | | | | | | | --- | --- | | |
| 30 | --- | | | | | | | | --- | --- | | |
| 31 | --- | | | | | | | | --- | --- | | |
| TOTAL | --- | | | | | | | | --- | --- | | |
| MEAN | --- | | | | | | | | --- | --- | | |
| MAX | --- | | | | | | | | --- | --- | | |
| MIN | --- | | | | | | | | --- | --- | | |
| AC-FT | --- | | | | | | | | --- | --- | | |

## 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 (2.1 km) southeast of Lovell Lake, and 4.4 mi (7.1 km) upstream (along rectified channel) from Taylor Bayou.

DRAINAGE AREA.--128 $mi^2$ (332 $km^2$).

PERIOD OF RECORD.--April 1954 to current year, complete records for storms of 1.0 inch (25.4 mm) or more runoff, except for the period Sept. 11-18, 1961.

GAGE.--Water-stage recorder. Auxiliary water-stage recorder 3.0 mi (4.8 km) downstream. Datum of gage is 4.63 ft (1.411 m) below National Geodetic Vertical Datum of 1929, determined by comparisons of water surface with Taylor Bayou near LaBelle, auxiliary gage 5.6 mi (9.0 km) downstream, during times of no flow and ideal weather conditions. Prior to Aug. 28, 1963, auxiliary water-stage recorder on Taylor Bayou 1.2 mi (1.9 km) downstream from Hillebrandt Bayou, nonrecording gages on Taylor Bayou 2.3 and 5.2 mi (3.7 and 8.4 km) downstream from Hillebrandt Bayou.

REMARKS.--Records poor. Discharge computed using fall as a factor. Discharge for recessions of large rises with insufficient fall are estimated. Small rises with insufficient fall are not computed. Low flow is regulated by drainage from ricefields and operation of saltwater gates and barge locks. An unknown amount of water is diverted above and below gage for rice irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,000 $ft^3/s$ (425 $m^3/s$) Sept. 18, 1963; maximum gage height, 12.34 ft (3.761 m) Sept. 19, 1963; minimum discharge not determined (affected by tides and pumping); minimum gage height, 2.33 ft (0.710 m) July 17, 1954.
Maximum stage since 1941, 12.34 ft (3.761 m) Sept. 19, 1963.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,640 $ft^3/s$ (216 $m^3/s$) Oct. 19 at 0400 hours; maximum gage height, 9.23 ft (2.813 m) Oct. 19 at 0900 hours; minimum discharge not determined (affected by tides and pumping); minimum gage height, 4.42 ft (1.347 m) Oct. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | | | | | | | | --- | --- | | |
| 2 | --- | | | | | | | | --- | --- | | |
| 3 | --- | | | | | | | | --- | --- | | |
| 4 | --- | | | | | | | | --- | --- | | |
| 5 | --- | | | | | | | | --- | 770 | | |
| 6 | --- | | | | | | | | --- | 2080 | | |
| 7 | --- | | | | | | | | --- | 1340 | | |
| 8 | --- | | | | | | | | --- | 300 | | |
| 9 | --- | | | | | | | | --- | --- | | |
| 10 | --- | | | | | | | | 100 | --- | | |
| 11 | --- | | | | | | | | 2250 | --- | | |
| 12 | --- | | | | | | | | 2050 | --- | | |
| 13 | --- | | | | | | | | 1670 | --- | | |
| 14 | --- | | | | | | | | 500 | --- | | |
| 15 | --- | | | | | | | | --- | --- | | |
| 16 | --- | | | | | | | | --- | --- | | |
| 17 | --- | | | | | | | | --- | --- | | |
| 18 | 3050 | | | | | | | | --- | --- | | |
| 19 | 7080 | | | | | | | | --- | --- | | |
| 20 | 4360 | | | | | | | | --- | --- | | |
| 21 | 1450 | | | | | | | | --- | --- | | |
| 22 | 400 | | | | | | | | --- | --- | | |
| 23 | --- | | | | | | | | --- | --- | | |
| 24 | --- | | | | | | | | --- | --- | | |
| 25 | --- | | | | | | | | --- | --- | | |
| 26 | --- | | | | | | | | --- | --- | | |
| 27 | --- | | | | | | | | --- | --- | | |
| 28 | --- | | | | | | | | --- | --- | | |
| 29 | --- | | | | | | | | --- | --- | | |
| 30 | --- | | | | | | | | --- | --- | | |
| 31 | --- | | | | | | | | --- | --- | | |
| TOTAL | --- | | | | | | | | --- | --- | | |
| MEAN | --- | | | | | | | | --- | --- | | |
| MAX | --- | | | | | | | | --- | --- | | |
| MIN | --- | | | | | | | | --- | --- | | |
| AC-FT | --- | | | | | | | | --- | --- | | |

## 08042800 WEST FORK TRINITY RIVER NEAR JACKSBORO, TX

LOCATION.--Lat 33°17'36", long 98°04'43", Jack County, Hydrologic Unit 12030101, near left bank on downstream side of bridge on State Highway 59, 4 mi (6 km) downstream from Big Cleveland Creek, 7 mi (11 km) upstream from Carroll Creek, 7 mi (11 km) northeast of Jacksboro, and at mile 660 (1,060 km).

DRAINAGE AREA.--683 $mi^2$ (1,769 $km^2$).

PERIOD OF RECORD.--March 1956 to current year.
Water-quality records: October 1976 to September 1978.

GAGE.--Water-stage recorder. Datum of gage is 869.28 ft (264.96 m) State Department of Highways and Public Transportation datum. Sept. 20, 1960, to May 30, 1961, nonrecording gage at same site and datum.

REMARKS.--Records good. At end of year, flow from 70.9 $mi^2$ (183.6 $km^2$) above this station was partly controlled by 21 floodwater-retarding structures with a combined detention capacity of 19,780 acre-ft (24.4 $hm^3$). Gage-height telemeter located at station.

AVERAGE DISCHARGE.--25 years (water years 1957-81), 90.1 $ft^3/s$ (2.552 $m^3/s$), 1.79 in/yr (45 mm/yr), 65,280 acre-ft/yr (80.5 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,100 $ft^3/s$ (994 $m^3/s$) Apr. 27, 1957, gage height, 32.10 ft (9.784 m), from floodmark; no flow at times each year.
Maximum stage since at least 1900, that of Apr. 27, 1957.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1941 reached a stage of 30 ft (9.1 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,180 $ft^3/s$ (61.7 $m^3/s$) Oct. 1, stage falling, gage height, 19.38 ft (5.907 m), peak occurred Sept. 30, 1980; maximum peak discharge, 1,150 $ft^3/s$ (32.6 $m^3/s$) June 6 at 1800 hours, gage height, 15.66 ft (4.773 m), no peak above base of 1,200 $ft^3/s$ (34.0 $m^3/s$); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1890 | 12 | 1.3 | .09 | .00 | .01 | .01 | 8.6 | 6.7 | .42 | .00 | .00 |
| 2 | 1380 | 7.7 | .97 | .09 | .00 | .02 | .00 | 5.3 | 4.7 | .31 | .00 | .00 |
| 3 | 814 | 5.0 | .78 | .08 | .00 | 38 | .00 | 4.3 | 3.4 | .46 | .00 | .00 |
| 4 | 57 | 3.3 | .71 | .04 | .00 | 171 | .00 | 3.5 | 2.8 | .51 | .00 | .02 |
| 5 | 16 | 2.1 | .57 | .04 | .00 | 387 | .00 | 3.1 | 283 | .32 | .00 | .10 |
| 6 | 8.5 | 1.4 | .54 | .04 | .00 | 519 | .00 | 2.6 | 861 | .18 | .00 | .06 |
| 7 | 5.9 | 1.2 | .46 | .03 | .00 | 253 | .00 | 2.3 | 1050 | .09 | .00 | .35 |
| 8 | 4.0 | 1.1 | 68 | .02 | .00 | 127 | .00 | 26 | 861 | .04 | .00 | 1.6 |
| 9 | 2.9 | .92 | 258 | .02 | .00 | 215 | .00 | 932 | 826 | .02 | .00 | 1.3 |
| 10 | 2.2 | .68 | 457 | .02 | .00 | 246 | .00 | 727 | 731 | .00 | .00 | .29 |
| 11 | 1.7 | .58 | 461 | .02 | .00 | 224 | .00 | 470 | 313 | .00 | .00 | .09 |
| 12 | 1.6 | .51 | 235 | .01 | .00 | 128 | .00 | 247 | 47 | .00 | .00 | .13 |
| 13 | 1.3 | .40 | 64 | .01 | .00 | 41 | .00 | 100 | 19 | .00 | .00 | .16 |
| 14 | .96 | .34 | 29 | .01 | .00 | 19 | .00 | 39 | 11 | .00 | .00 | 35 |
| 15 | .84 | .27 | 14 | .00 | .00 | 9.7 | .00 | 23 | 8.0 | .00 | .00 | 63 |
| 16 | .79 | .32 | 7.9 | .00 | .00 | 5.2 | .00 | 20 | 37 | .00 | .00 | 46 |
| 17 | 3.5 | 1.1 | 4.7 | .00 | .00 | 2.7 | .00 | 11 | 401 | .00 | .00 | 32 |
| 18 | 1.5 | .96 | 3.2 | .00 | .00 | 1.3 | .00 | 7.2 | 577 | .00 | .00 | 33 |
| 19 | .93 | 1.1 | 2.2 | .00 | .00 | .75 | .03 | 4.7 | 430 | .00 | .00 | 24 |
| 20 | 1.2 | 1.7 | 1.5 | .00 | .00 | .55 | 108 | 3.1 | 76 | .00 | .00 | 12 |
| 21 | 4.4 | 24 | 1.1 | .00 | .00 | .34 | 480 | 2.5 | 34 | .00 | 1.0 | 7.3 |
| 22 | 5.4 | 21 | .96 | .00 | .00 | .26 | 563 | 2.2 | 18 | .00 | 11 | 4.4 |
| 23 | 5.0 | 16 | .75 | .00 | .00 | .19 | 497 | 2.2 | 11 | .00 | 7.5 | 2.5 |
| 24 | 3.4 | 11 | .45 | .00 | .00 | .07 | 308 | 49 | 7.3 | .00 | 3.5 | 1.6 |
| 25 | 2.4 | 7.7 | .23 | .00 | .00 | .05 | 215 | 457 | 4.7 | .00 | 1.8 | .89 |
| 26 | 2.1 | 5.5 | .18 | .00 | .00 | .04 | 105 | 401 | 3.6 | .00 | .85 | .53 |
| 27 | 7.8 | 3.7 | .14 | .00 | .00 | .03 | 47 | 83 | 2.7 | .00 | .40 | .33 |
| 28 | 2.5 | 2.6 | .12 | .00 | .00 | .03 | 25 | 70 | 2.0 | .00 | .20 | .22 |
| 29 | 15 | 1.9 | .08 | .00 | --- | .03 | 14 | 38 | 1.5 | .00 | .08 | .13 |
| 30 | 46 | 1.5 | .07 | .00 | --- | .02 | 6.9 | 18 | .76 | .00 | .02 | .07 |
| 31 | 23 | --- | .08 | .00 | --- | .02 | --- | 11 | --- | .00 | .00 | --- |
| TOTAL | 4311.82 | 137.58 | 1614.99 | .52 | .00 | 2389.31 | 2368.94 | 3773.6 | 6634.16 | 2.35 | 26.35 | 267.07 |
| MEAN | 139 | 4.59 | 52.1 | .017 | .000 | 77.1 | 79.0 | 122 | 221 | .076 | .85 | 8.90 |
| MAX | 1890 | 24 | 461 | .09 | .00 | 519 | 563 | 932 | 1050 | .51 | 11 | 63 |
| MIN | .79 | .27 | .07 | .00 | .00 | .01 | .00 | 2.2 | .76 | .00 | .00 | .00 |
| CFSM | .20 | .007 | .08 | .000 | .000 | .11 | .12 | .18 | .32 | .000 | .001 | .01 |
| IN. | .23 | .01 | .09 | .00 | .00 | .13 | .13 | .21 | .36 | .00 | .00 | .01 |
| AC-FT | 8550 | 273 | 3200 | 1.0 | .00 | 4740 | 4700 | 7480 | 13160 | 4.7 | 52 | 530 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 17461.53 | MEAN 47.7 | MAX 2440 | MIN .00 | CFSM .07 | IN .95 | AC-FT 34630 |
| WTR YR 1981 | TOTAL | 21526.69 | MEAN 59.0 | MAX 1890 | MIN .00 | CFSM .09 | IN 1.17 | AC-FT 42700 |

## 08043000 BRIDGEPORT RESERVOIR ABOVE BRIDGEPORT, TX

LOCATION.--Lat 33°13'22", long 97°49'54", Wise County, Hydrologic Unit 12030101, at left end of Bridgeport Dam on West Fork Trinity River, 4.6 mi (7.4 km) west of Bridgeport, 13 mi (21 km) upstream from Big Sandy Creek, and at mile 626 (1,007 km).

DRAINAGE AREA.--1,111 mi² (2,877 km²).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1932 to current year (prior to October 1950, monthend figures only).

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Nonrecording gage read once daily. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Jan. 26, 1944, 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 (622 m) long. The dam was completed in December 1931 and storage began Apr. 1, 1932. The original dam was 1,900 ft (580 m) long, but was lengthened to the present length (2,040 ft or 622 m) in 1971-72. The original service spillway was eliminated during construction (1971-72), and a new spillway with approach and discharge channels was built through natural ground 2,800 ft (850 m) from the left end of dam. The new spillway is 90 ft (27 m) wide and has eight vertical lift gates that are 11.25 by 22 ft (3.43 by 7 m). The controlled outlet works consist of a 48-inch-diameter (1,219 mm) and an 18-inch-diameter (457 mm) pipe encased in a concrete conduit extending through the dam. In addition, a controlled 60-inch-diameter (1,524 mm) steel pipe extends through the service spillway wall to the spillway discharge basin. Flow is affected at times by discharge from the flood-detention pools of 25 flood-water-retarding structures with a combined detention capacity of 21,720 acre-ft (26.8 hm³). These structures control runoff from 80.3 mi² (208.0 km²) above the reservoir. 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 | 902,000 |
| Top of gates | 842.0 | 469,300 |
| Top of conservation pool | 836.0 | 387,000 |
| Crest of spillway | 820.0 | 212,400 |
| Lowest gated outlet (invert, at spillway) | 810.0 | 133,200 |
| Lowest gated outlet (invert) | 751.4 | 0 |

COOPERATION.--Daily elevation and monthly diversion records furnished by Tarrant County Water Control and Improvement District No. 1. Capacity table furnished by Freese and Nichols, Consulting Engineers, for Tarrant County Water Control and Improvement District No. 1.

EXTREMES (at 0730) FOR PERIOD OF RECORD.--Maximum contents observed, 407,600 acre-ft (503 hm³) Apr. 29, 30, 1942, elevation, 836.2 ft (254.87 m); maximum elevation, 836.55 ft (254.980 m) May 27, 1977; minimum contents since first appreciable storage in 1935, 7,170 acre-ft (8.84 hm³) Oct. 12-16, 1956.

EXTREMES (at 0730) FOR CURRENT YEAR.--Maximum contents observed, 173,800 acre-ft (214 hm³) June 11, elevation, 815.45 ft (248.549 m); minimum observed, 92,740 acre-ft (114 hm³) Oct. 1, elevation, 803.53 ft (244.916 m).

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

| | | | |
|---|---|---|---|
| 803.0 | 89,780 | 811.0 | 140,200 |
| 805.0 | 101,200 | 815.0 | 170,200 |
| 807.0 | 113,400 | 816.0 | 178,200 |
| 809.0 | 126,400 | | |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 0730

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 92740 | 104700 | 104100 | 109700 | 109000 | 108900 | 122900 | 132700 | 153900 | 160900 | 136800 | 110600 |
| 2 | 97180 | 104700 | 104000 | 109600 | 108900 | 108900 | 122800 | 132500 | 153800 | 160100 | 135800 | 112100 |
| 3 | 100500 | 104700 | 104000 | 109500 | 108900 | 108900 | 122700 | 132400 | 153900 | 159400 | 135000 | 112300 |
| 4 | 102900 | 104700 | 104000 | 109500 | 108800 | 114200 | 122800 | 132300 | 155700 | 158900 | 133900 | 112200 |
| 5 | 103200 | 104700 | 104000 | 109500 | 108700 | 115400 | 122700 | 132300 | 156000 | 159600 | 133000 | 112200 |
| 6 | 103200 | 104600 | 104000 | 109500 | 108700 | 116100 | 122500 | 132300 | 156600 | 159400 | 132100 | 112600 |
| 7 | 103200 | 104600 | 104100 | 109500 | 108700 | 117300 | 122500 | 132200 | 164700 | 159100 | 131500 | 112500 |
| 8 | 103200 | 104600 | 105100 | 109400 | 108700 | 119900 | 122300 | 132500 | 168400 | 157700 | 130500 | 112400 |
| 9 | 103200 | 104600 | 107000 | 109500 | 108600 | 120800 | 122300 | 137300 | 170600 | 157000 | 129600 | 112200 |
| 10 | 103100 | 104500 | 107600 | 109600 | 108900 | 121400 | 122300 | 141700 | 171400 | 156400 | 128700 | 112100 |
| 11 | 103100 | 104500 | 108400 | 109500 | 108800 | 122000 | 122400 | 143400 | 173800 | 155800 | 127800 | 112000 |
| 12 | 102900 | 104400 | 109200 | 109500 | 108700 | 122600 | 122300 | 144400 | 173000 | 154900 | 126900 | 111800 |
| 13 | 102800 | 104300 | 109800 | 109500 | 108600 | 123100 | 122300 | 145100 | 172600 | 154400 | 126200 | 111900 |
| 14 | 102600 | 104300 | 110100 | 109400 | 108500 | 123200 | 122200 | 145300 | 171900 | 153700 | 125200 | 112700 |
| 15 | 102600 | 104200 | 110200 | 109400 | 108400 | 123300 | 122100 | 145200 | 171300 | 153000 | 124400 | 112600 |
| 16 | 102600 | 104100 | 110300 | 109400 | 108400 | 123400 | 122000 | 145500 | 170800 | 152300 | 123500 | 112500 |
| 17 | 103100 | 104400 | 110200 | 109300 | 108400 | 123400 | 121900 | 145900 | 170700 | 150900 | 122900 | 112400 |
| 18 | 103300 | 104400 | 110200 | 109200 | 108400 | 123300 | 121900 | 146100 | 170800 | 150000 | 121900 | 112200 |
| 19 | 103200 | 104300 | 110200 | 109200 | 108300 | 123200 | 122300 | 146100 | 169900 | 149100 | 121000 | 112100 |
| 20 | 103100 | 104200 | 110200 | 109200 | 108300 | 123100 | 122300 | 145900 | 169700 | 148400 | 120200 | 112000 |
| 21 | 103000 | 104200 | 110000 | 109200 | 108300 | 123100 | 122300 | 145700 | 169000 | 147600 | 119300 | 111900 |
| 22 | 103000 | 104100 | 110000 | 109200 | 108300 | 122900 | 125300 | 145500 | 168400 | 146300 | 118600 | 111800 |
| 23 | 102900 | 104300 | 109900 | 109200 | 108200 | 122900 | 128900 | 145600 | 167600 | 145200 | 117700 | 111800 |
| 24 | 102800 | 104400 | 109900 | 109200 | 108200 | 122800 | 130700 | 146300 | 166600 | 144300 | 117000 | 111500 |
| 25 | 102600 | 104300 | 109800 | 109200 | 108200 | 122800 | 131500 | 147600 | 165600 | 143300 | 116200 | 111600 |
| 26 | 102500 | 104300 | 109800 | 109200 | 108200 | 122900 | 131900 | 148600 | 164700 | 142200 | 115300 | 111500 |
| 27 | 103800 | 104300 | 109700 | 109100 | 108200 | 122800 | 132200 | 150400 | 163500 | 141400 | 114500 | 111400 |
| 28 | 104600 | 104300 | 109700 | 109100 | 108300 | 122700 | 132300 | 152400 | 162600 | 140400 | 113900 | 111300 |
| 29 | 104700 | 104200 | 109700 | 109000 | --- | 122900 | 132600 | 152500 | 161400 | 139500 | 113000 | 110300 |
| 30 | 104700 | 104100 | 109700 | 109000 | --- | 122900 | 132800 | 153100 | 161300 | 138600 | 112200 | 109700 |
| 31 | 104700 | --- | 109700 | 109000 | --- | 122900 | --- | 153900 | --- | 137800 | 111300 | --- |
| MAX | 104700 | 104700 | 110300 | 109700 | 109000 | 123400 | 132800 | 153900 | 173800 | 160900 | 136800 | 112700 |
| MIN | 92740 | 104100 | 104000 | 109000 | 108200 | 108900 | 121900 | 132200 | 153800 | 137800 | 111300 | 109700 |
| (†) | 805.59 | 805.49 | 806.40 | 806.29 | 806.18 | 808.47 | 809.94 | 812.88 | 813.86 | 810.66 | 806.67 | 806.41 |
| (‡) | +16080 | -600 | +5600 | -700 | -700 | +14600 | +9900 | +21100 | +7400 | -23500 | -26500 | -1600 |
| (††) | 235 | 231 | 236 | 229 | 264 | 195 | 206 | 233 | 275 | 530 | 629 | 288 |

CAL YR 1980 MAX 142900 MIN 79150 ‡ -33500 †† 4380
WTR YR 1981 MAX 173800 MIN 92740 ‡ +21080 †† 3550

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, for municipal and industrial uses.

08043000 BRIDGEPORT RESERVOIR ABOVE BRIDGEPORT, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO |
|---|---|---|---|---|---|---|---|---|
| NOV 24... | 1435 | 354 | 120 | 5 | 35 | 6.8 | 20 | .8 |

| DATE | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|
| NOV 24... | 5.8 | 110 | 21 | 30 | .3 | 5.6 | 191 |

## 08044000 BIG SANDY CREEK NEAR BRIDGEPORT, TX

LOCATION.--Lat 33°13'54", long 97°41'40", Wise County, Hydrologic Unit 12030101, on downstream side of bridge on U.S. Highway 380, 1.9 mi (3.1 km) upstream from Greathouse Branch, 4.0 mi (6.4 km) east of Bridgeport, and 4.4 mi (7.1 km) upstream from mouth.

DRAINAGE AREA.--333 $mi^2$ (862 $km^2$).

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

REVISED RECORDS.--WSP 1148: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 727.44 ft (221.724 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Since May 1, 1956, flow from 100 $mi^2$ (259 $km^2$) above station is affected at times by storage in Lake Amon G. Carter 30 mi (48 km) upstream, capacity 15,240 acre-ft (18.8 $hm^3$) at elevation 920.0 ft (280.42 m), spillway crest. Records furnished by city of Bowie show that during the current year 893 acre-ft (1.10 $hm^3$) was diverted from Lake Amon G. Carter for municipal use and 93 acre-ft (115,000 $m^3$) of sewage effluent was discharged into tributaries above station. Flow was also affected at times by discharge from 17 flood-detention pools of floodwater-retarding structures with a combined capacity of 11,030 acre-ft (13.6 $hm^3$). These structures control runoff from 44.1 $mi^2$ (114.2 $km^2$) between this station and Lake Amon G. Carter. Gage-height telemeter at this station. Satellite telemeter at station.

AVERAGE DISCHARGE.--45 years, 68.4 $ft^3/s$ (1.937 $m^3/s$), 49,560 acre-ft/yr (61.1 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,000 $ft^3/s$ (1,500 $m^3/s$) June 10, 1941, gage height, 15.69 ft (4.782 m), from floodmark, from rating curve extended above 22,000 $ft^3/s$ (623 $m^3/s$); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1887 occurred in 1908 and 1915 and reached about the same stage as that of June 10, 1941.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,420 $ft^3/s$ (40.2 $m^3/s$) May 27 at 1400 hours, gage height, 8.02 ft (2.444 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 37 | 1.2 | .00 | .58 | 1.3 | 7.9 | 4.0 | 42 | 540 | .40 | .00 | .00 |
| 2 | 14 | .49 | .00 | .58 | .94 | 7.4 | 3.6 | 78 | 149 | .29 | .00 | .00 |
| 3 | 5.4 | .12 | .00 | .67 | .94 | 125 | 3.3 | 42 | 72 | .26 | .00 | .00 |
| 4 | 2.9 | .00 | .00 | .50 | 1.1 | 553 | 3.2 | 21 | 158 | 38 | .00 | .00 |
| 5 | 1.4 | .00 | .00 | .50 | 1.2 | 285 | 2.9 | 13 | 67 | 34 | .00 | .00 |
| 6 | .35 | .00 | .00 | .67 | 1.3 | 49 | 2.7 | 9.0 | 285 | 8.5 | .00 | .00 |
| 7 | .02 | .00 | .00 | .58 | 1.5 | 135 | 2.5 | 6.4 | 476 | 3.8 | .00 | .00 |
| 8 | .00 | .00 | 133 | .76 | 1.5 | 215 | 2.6 | 7.0 | 86 | 2.1 | .00 | .00 |
| 9 | .00 | .00 | 109 | 2.2 | 2.4 | 73 | 2.5 | 789 | 40 | 1.1 | .00 | .00 |
| 10 | .00 | .00 | 24 | 1.2 | 2.9 | 35 | 2.4 | 244 | 26 | .57 | .00 | .00 |
| 11 | .00 | .00 | 12 | .85 | 2.9 | 24 | 2.1 | 57 | 18 | .30 | .00 | .00 |
| 12 | .00 | .00 | 7.2 | .94 | 2.7 | 19 | 2.0 | 27 | 16 | .13 | .00 | .00 |
| 13 | .00 | .00 | 4.9 | 1.1 | 2.6 | 15 | 1.9 | 17 | 14 | .05 | .00 | .05 |
| 14 | .00 | .00 | 3.4 | 1.1 | 2.2 | 13 | 1.4 | 12 | 13 | .01 | .00 | 21 |
| 15 | .00 | .00 | 2.9 | .85 | 2.1 | 12 | 1.2 | 9.4 | 12 | .00 | .00 | 4.8 |
| 16 | .00 | .00 | 2.2 | .85 | 2.2 | 11 | 1.2 | 11 | 14 | .00 | .00 | 1.0 |
| 17 | 27 | .00 | 1.9 | .85 | 2.7 | 9.7 | 1.2 | 20 | 13 | .00 | .00 | .00 |
| 18 | 6.2 | .00 | 1.5 | .85 | 2.9 | 8.8 | 1.3 | 54 | 12 | .00 | .00 | .00 |
| 19 | 2.5 | .00 | .76 | .94 | 2.9 | 7.4 | 1.8 | 33 | 9.2 | .00 | .00 | .00 |
| 20 | .67 | .00 | .36 | 1.2 | 3.1 | 6.4 | 2.4 | 15 | 7.2 | .00 | .00 | .00 |
| 21 | .04 | .00 | .36 | .94 | 3.3 | 6.6 | 8.3 | 10 | 5.3 | .00 | .00 | .00 |
| 22 | .00 | .00 | .50 | 1.2 | 3.1 | 6.3 | 33 | 7.4 | 4.2 | .00 | .00 | .00 |
| 23 | .00 | .00 | .58 | 1.3 | 3.1 | 5.4 | 29 | 6.4 | 3.1 | .00 | .00 | .00 |
| 24 | .00 | .00 | .36 | 1.4 | 2.9 | 4.8 | 22 | 81 | 2.4 | .00 | .00 | .00 |
| 25 | .00 | .00 | .30 | 1.4 | 2.9 | 4.8 | 13 | 637 | 1.8 | .00 | .00 | .00 |
| 26 | .00 | .00 | .50 | 1.4 | 2.9 | 4.8 | 7.0 | 449 | 1.4 | .00 | .00 | .00 |
| 27 | 145 | .00 | .50 | 1.3 | 2.9 | 4.9 | 3.9 | 784 | 1.2 | .00 | .00 | .00 |
| 28 | 46 | .00 | .58 | 1.2 | 3.8 | 5.4 | 2.8 | 1140 | .94 | .00 | .00 | .00 |
| 29 | 13 | .00 | .50 | 1.3 | --- | 6.1 | 6.0 | 858 | .76 | .00 | .00 | .00 |
| 30 | 5.1 | .00 | .50 | .94 | --- | 5.4 | 26 | 614 | .56 | .00 | .00 | .00 |
| 31 | 2.2 | --- | .67 | 1.2 | --- | 4.9 | --- | 540 | --- | .00 | .00 | --- |
| TOTAL | 308.78 | 1.81 | 308.47 | 31.35 | 66.28 | 1671.0 | 197.2 | 6633.6 | 2049.06 | 89.51 | .00 | 26.85 |
| MEAN | 9.96 | .060 | 9.95 | 1.01 | 2.37 | 53.9 | 6.57 | 214 | 68.3 | 2.89 | .000 | .90 |
| MAX | 145 | 1.2 | 133 | 2.2 | 3.8 | 553 | 33 | 1140 | 540 | 38 | .00 | 21 |
| MIN | .00 | .00 | .00 | .50 | .94 | 4.8 | 1.2 | 6.4 | .56 | .00 | .00 | .00 |
| AC-FT | 612 | 3.6 | 612 | 62 | 131 | 3310 | 391 | 13160 | 4060 | 178 | .00 | 53 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 1455.47 | MEAN | 3.98 | MAX | 376 | MIN | .00 | AC-FT | 2890 |
| WTR YR 1981 | TOTAL | 11383.91 | MEAN | 31.2 | MAX | 1140 | MIN | .00 | AC-FT | 22580 |

## 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 (3 m) right of right abutment of bridge on Farm Road 730, 0.6 mi (1.0 km) northeast of Boyd, 3.5 mi (5.6 km) downstream from Boggy Creek, and at mile 602 (969 km).

DRAINAGE AREA.--1,725 mi² (4,468 km²).

PERIOD OF RECORD.--January 1947 to current year.

GAGE.--Water-stage recorder. Datum of gage is 660.57 ft (201.342 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 14, 1954, water-stage recorder at site 2.2 mi (3.5 km) downstream at datum 5.48 ft (1.670 m) lower.

REMARKS.--Records fair. During the current year, sustained flows were the result of releases for water supply from Bridgeport Reservoir (station 08043000) 25 mi (40 km) upstream from this station, drainage area 1,111 mi² (2,877 km²). In addition, flow from 100 mi² (259 km²) is affected by storage in Lake Amon G. Carter, capacity 15,240 acre-ft (18.8 hm³), on Big Sandy Creek. Flow is also affected at times by 34 floodwater-detention structures with a combined detention capacity of 24,050 acre-ft (30.0 hm³). These structures control runoff from 89.3 mi² (231 km²) in the Big Sandy and Salt Creeks drainage basins. Several observations of water temperature were made during the year. Gage-height satellite telemeters at station.

AVERAGE DISCHARGE.--34 years, 210 ft³/s (5.947 m³/s), 152,100 acre-ft/yr (188 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,300 ft³/s (773 m³/s) Oct. 5, 1959, gage height, 22.17 ft (6.757 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1880, about 25 ft (7.6 m) 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 (6.28 m), present site and datum, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,330 ft³/s (66.0 m³/s) May 10 at 1800 hours, gage height, 17.37 ft (5.294 m); minimum, 3.0 ft³/s (0.085 m³/s) Feb. 25-28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 600 | 6.9 | 4.1 | 4.5 | 3.8 | 25 | 8.5 | 33 | 560 | 319 | 375 | 371 |
| 2 | 150 | 5.6 | 4.1 | 4.4 | 3.8 | 16 | 7.7 | 51 | 428 | 318 | 375 | 91 |
| 3 | 60 | 5.2 | 4.1 | 4.2 | 4.0 | 40 | 7.6 | 73 | 215 | 320 | 372 | 11 |
| 4 | 20 | 6.6 | 4.1 | 4.1 | 4.4 | 805 | 7.6 | 36 | 634 | 323 | 372 | 7.7 |
| 5 | 15 | 5.5 | 4.1 | 4.0 | 4.2 | 665 | 7.5 | 22 | 421 | 184 | 371 | 6.3 |
| 6 | 10 | 4.6 | 4.3 | 3.9 | 4.0 | 216 | 7.0 | 15 | 1170 | 49 | 370 | 5.6 |
| 7 | 9.0 | 4.5 | 5.7 | 3.9 | 4.0 | 227 | 6.7 | 11 | 843 | 34 | 374 | 5.7 |
| 8 | 7.7 | 4.6 | 257 | 3.9 | 4.0 | 610 | 6.3 | 12 | 812 | 215 | 374 | 5.2 |
| 9 | 7.0 | 4.5 | 660 | 4.0 | 4.1 | 267 | 11 | 954 | 286 | 271 | 371 | 4.5 |
| 10 | 6.3 | 4.3 | 154 | 4.2 | 4.6 | 103 | 9.1 | 2030 | 147 | 271 | 371 | 3.9 |
| 11 | 5.9 | 4.2 | 51 | 4.3 | 4.1 | 55 | 7.0 | 1220 | 96 | 271 | 371 | 3.7 |
| 12 | 5.6 | 4.9 | 34 | 4.0 | 4.0 | 39 | 6.4 | 321 | 349 | 269 | 367 | 3.8 |
| 13 | 5.4 | 5.3 | 23 | 4.0 | 4.0 | 30 | 6.1 | 128 | 376 | 269 | 365 | 4.3 |
| 14 | 5.2 | 4.3 | 17 | 4.1 | 3.8 | 25 | 5.6 | 71 | 376 | 268 | 364 | 87 |
| 15 | 5.1 | 3.7 | 14 | 4.1 | 3.8 | 21 | 5.3 | 50 | 382 | 268 | 364 | 28 |
| 16 | 5.0 | 3.4 | 13 | 4.1 | 3.8 | 17 | 4.8 | 72 | 393 | 273 | 362 | 5.8 |
| 17 | 5.0 | 3.5 | 9.8 | 4.0 | 3.8 | 16 | 4.6 | 67 | 320 | 331 | 363 | 4.2 |
| 18 | 25 | 6.0 | 9.0 | 4.0 | 3.7 | 14 | 4.4 | 60 | 292 | 333 | 364 | 3.5 |
| 19 | 9.0 | 8.4 | 8.8 | 4.0 | 3.7 | 12 | 5.2 | 77 | 405 | 334 | 367 | 3.3 |
| 20 | 7.5 | 6.8 | 7.0 | 4.0 | 3.7 | 11 | 10 | 45 | 448 | 335 | 358 | 3.3 |
| 21 | 6.5 | 6.1 | 6.4 | 4.4 | 3.6 | 9.8 | 9.7 | 31 | 447 | 330 | 356 | 3.3 |
| 22 | 6.6 | 6.0 | 6.0 | 5.1 | 3.4 | 9.8 | 429 | 25 | 446 | 361 | 363 | 3.1 |
| 23 | 5.3 | 6.0 | 6.0 | 4.7 | 3.3 | 9.6 | 597 | 22 | 445 | 379 | 362 | 3.1 |
| 24 | 6.1 | 6.1 | 5.8 | 4.4 | 3.1 | 8.8 | 208 | 21 | 445 | 379 | 361 | 3.1 |
| 25 | 6.0 | 6.0 | 5.7 | 4.1 | 3.0 | 8.1 | 78 | 846 | 445 | 381 | 360 | 3.1 |
| 26 | 5.1 | 5.3 | 5.5 | 4.1 | 3.0 | 8.8 | 34 | 1100 | 445 | 381 | 356 | 3.1 |
| 27 | 181 | 4.9 | 5.5 | 4.0 | 3.0 | 9.0 | 17 | 997 | 445 | 381 | 360 | 3.1 |
| 28 | 367 | 4.4 | 5.3 | 3.8 | 3.7 | 9.3 | 11 | 1600 | 444 | 380 | 355 | 3.1 |
| 29 | 57 | 4.2 | 5.2 | 3.8 | --- | 22 | 20 | 1430 | 443 | 378 | 353 | 81 |
| 30 | 20 | 4.1 | 5.1 | 3.8 | --- | 15 | 25 | 1010 | 378 | 376 | 351 | 203 |
| 31 | 10 | --- | 5.0 | 3.8 | --- | 9.9 | --- | 657 | --- | 375 | 351 | --- |
| TOTAL | 1634.3 | 155.9 | 1349.6 | 127.7 | 105.4 | 3334.1 | 1567.1 | 13087 | 13336 | 9356 | 11298 | 967.8 |
| MEAN | 52.7 | 5.20 | 43.5 | 4.12 | 3.76 | 108 | 52.2 | 422 | 445 | 302 | 364 | 32.3 |
| MAX | 600 | 8.4 | 660 | 5.1 | 4.6 | 805 | 597 | 2030 | 1170 | 381 | 375 | 371 |
| MIN | 5.0 | 3.4 | 4.1 | 3.8 | 3.0 | 8.1 | 4.4 | 11 | 96 | 34 | 351 | 3.1 |
| AC-FT | 3240 | 309 | 2680 | 253 | 209 | 6610 | 3110 | 25960 | 26450 | 18560 | 22410 | 1920 |

CAL YR 1980 TOTAL 36354.42 MEAN 99.3 MAX 998 MIN .00 AC-FT 72110
WTR YR 1981 TOTAL 56318.90 MEAN 154 MAX 2030 MIN 3.0 AC-FT 111700

## 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 (19.0 km) northwest of Fort Worth, and at mile 583.3 (938.5 km).

DRAINAGE AREA.--1,970 mi² (5,102 km²).

PERIOD OF RECORD.--February 1934 to current year (prior to October 1950, monthend figures only).

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Nonrecording gage read once daily. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Feb. 24, 1943, nonrecording gages at several sites within 1.0 mi (1.6 km) 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. The total length of the dam, including spillway, is 4,800 ft (1,500 m). The dam was completed Oct. 24, 1932, and storage began Feb. 28, 1934. The emergency spillway is a 1,300-foot-wide (400 m) cut through natural ground located between the two sections of earthfill that make up the dam. The original service spillway, located in the section to the right of the main dam, contains a concrete spillway with four 25-foot (8 m) 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 (90 m) to the left of the original service spillway and has six 11.25- by 22-foot-wide (3.43 by 7 m) roller lift gates. The main section of the dam contains the outlet works that consist of two concrete conduits with two 48-inch-diameter (1,219 mm) 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. Tarrant County Water Control and Improvement District No. 1 reported that 61,850 acre-ft (76.3 hm³) was released to Lake Worth and subsequently used for municipal supply by the city of Fort Worth. Total monthly diversions for seven other users are referenced below. 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 | 558,000 |
| Top of gates (new side-channel spillway) | 659.0 | 295,400 |
| Crest of (old service) spillway (top of conservation pool) | 649.1 | 190,400 |
| Crest of spillway (new side-channel spillway) | 637.0 | 99,120 |
| Lowest gated outlet (invert) | 599.9 | 94 |

COOPERATION.--Daily elevation and monthly diversion records furnished by Tarrant County Water Control and Improvement District No. 1. Capacity table furnished by Freese and Nichols, Consulting Engineers, for Tarrant County Water Control and Improvement District No. 1.

EXTREMES (at 0700) FOR PERIOD OF RECORD.--Maximum contents observed, 333,500 acre-ft (411 hm³) Apr. 26, 1942, elevation, 659.9 ft (201.14 m); minimum observed since first appreciable storage in 1935, 57,690 acre-ft (71.1 hm³) Nov. 19, 20, 1956.

EXTREMES (at 0700) FOR CURRENT YEAR.--Maximum contents observed, 173,600 acre-ft (214 hm³) July 6, elevation, 647.22 ft (197.273 m); minimum observed, 111,000 acre-ft (137 hm³) Feb. 26-28, elevation, 638.87 ft (194.728 m).

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

| | | | |
|---|---|---|---|
| 638.0 | 105,400 | 646.0 | 163,300 |
| 639.0 | 111,900 | 647.0 | 171,700 |
| 642.0 | 132,600 | 648.0 | 180,400 |
| 645.0 | 155,300 | | |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 0700

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 124000 | 119900 | 116000 | 117000 | 112600 | 111900 | 121200 | 123200 | 152500 | 172100 | 170100 | 170100 |
| 2 | 124300 | 119800 | 115900 | 116900 | 112600 | 111800 | 121200 | 123000 | 154200 | 172200 | 170000 | 172000 |
| 3 | 124600 | 119600 | 115700 | 116800 | 112400 | 111600 | 121100 | 122800 | 156100 | 172400 | 169900 | 172600 |
| 4 | 124600 | 119400 | 115600 | 116700 | 112300 | 113400 | 121400 | 122900 | 157100 | 172900 | 169800 | 172300 |
| 5 | 124500 | 119200 | 115600 | 116600 | 112300 | 114500 | 121400 | 123000 | 158700 | 173400 | 169600 | 172200 |
| 6 | 124300 | 118900 | 115600 | 116500 | 112300 | 116200 | 121200 | 123000 | 160400 | 173600 | 169500 | 172000 |
| 7 | 124000 | 118600 | 115400 | 116400 | 112200 | 117000 | 121000 | 122800 | 163500 | 173300 | 170000 | 172000 |
| 8 | 123800 | 118500 | 116900 | 116200 | 112200 | 119200 | 120700 | 122600 | 165200 | 172700 | 170000 | 172600 |
| 9 | 123400 | 118300 | 117100 | 116200 | 112100 | 120000 | 120700 | 126300 | 166900 | 172600 | 169800 | 172200 |
| 10 | 123100 | 118100 | 118100 | 116000 | 112400 | 120800 | 120700 | 128600 | 167800 | 172700 | 169600 | 171500 |
| 11 | 122700 | 118100 | 118500 | 115800 | 112100 | 121100 | 120600 | 130500 | 168200 | 172700 | 169500 | 170700 |
| 12 | 122300 | 117900 | 118700 | 115500 | 111900 | 121400 | 120400 | 132400 | 168200 | 172700 | 169500 | 170100 |
| 13 | 121800 | 117700 | 118800 | 115300 | 111800 | 121500 | 120300 | 133800 | 168400 | 172700 | 169400 | 169800 |
| 14 | 121400 | 117700 | 118800 | 115200 | 111800 | 121500 | 120200 | 134300 | 168500 | 172500 | 169300 | 170500 |
| 15 | 121200 | 117600 | 118800 | 115000 | 111700 | 121600 | 120000 | 134600 | 169000 | 172400 | 169300 | 170400 |
| 16 | 121000 | 117800 | 118900 | 114800 | 111700 | 121600 | 119900 | 135700 | 170100 | 172300 | 169200 | 170300 |
| 17 | 121500 | 117700 | 118800 | 114400 | 111600 | 121600 | 119700 | 135800 | 170400 | 172000 | 169400 | 169500 |
| 18 | 122500 | 117300 | 118600 | 114100 | 111600 | 121700 | 119600 | 136300 | 170500 | 171900 | 170400 | 168900 |
| 19 | 122500 | 117100 | 118600 | 113800 | 111500 | 121400 | 119800 | 136300 | 170600 | 171700 | 170400 | 168200 |
| 20 | 122400 | 117100 | 118300 | 113600 | 111500 | 121300 | 119600 | 136000 | 170600 | 171600 | 170300 | 167500 |
| 21 | 122100 | 116900 | 118100 | 113400 | 111400 | 121200 | 119400 | 135900 | 170900 | 171500 | 170200 | 166900 |
| 22 | 121900 | 116800 | 117900 | 113300 | 111500 | 121200 | 119500 | 135900 | 171000 | 171300 | 170200 | 166400 |
| 23 | 121700 | 116900 | 117700 | 113200 | 111400 | 120700 | 121200 | 135800 | 171400 | 171100 | 170200 | 166000 |
| 24 | 121400 | 116900 | 117700 | 113200 | 111300 | 120600 | 122400 | 135900 | 171500 | 171000 | 170200 | 165400 |
| 25 | 121000 | 116700 | 117600 | 113100 | 111100 | 120500 | 123100 | 136000 | 171500 | 170900 | 170100 | 164800 |
| 26 | 120600 | 116600 | 117600 | 113100 | 111000 | 120400 | 123200 | 138500 | 171800 | 170700 | 170100 | 164300 |
| 27 | 120600 | 116300 | 117500 | 113000 | 111000 | 120200 | 123300 | 140600 | 172600 | 170600 | 170100 | 163800 |
| 28 | 120500 | 116200 | 117300 | 112900 | 111000 | 120000 | 123300 | 142700 | 172100 | 170500 | 170200 | 163300 |
| 29 | 120300 | 116100 | 117300 | 112800 | --- | 121300 | 123500 | 144700 | 171000 | 170500 | 170200 | 163000 |
| 30 | 120300 | 116000 | 117200 | 112800 | --- | 121300 | 123300 | 147200 | 172000 | 170400 | 170100 | 162900 |
| 31 | 120000 | --- | 117100 | 112600 | --- | 121300 | --- | 149400 | --- | 170300 | 170100 | --- |
| MAX | 124600 | 119900 | 118900 | 117000 | 112600 | 121700 | 123500 | 149400 | 172600 | 173600 | 170400 | 172600 |
| MIN | 120000 | 116000 | 115400 | 112600 | 111000 | 111600 | 119400 | 122600 | 152500 | 170300 | 169200 | 162900 |
| (†) | 640.22 | 639.62 | 639.78 | 639.12 | 638.87 | 640.40 | 640.68 | 644.25 | 647.03 | 646.83 | 646.81 | 645.94 |
| (‡) | -2300 | -4000 | +1100 | -4500 | -1600 | +10300 | +2000 | +26100 | +22600 | -1700 | -200 | -7200 |
| (††) | 296 | 300 | 297 | 250 | 277 | 265 | 293 | 263 | 337 | 632 | 550 | 446 |

CAL YR 1980 MAX 162800 MIN 115400 ‡ -42400 †† 4580
WTR YR 1981 MAX 173600 MIN 111000 ‡ +40600 †† 4210

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, for municipal and industrial uses.

08045400 LAKE WORTH ABOVE FORT WORTH, TX

PERIOD OF RECORD.--Chemical analyses: January 1970 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | TEMPERATURE, WATER (DEG C) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|
| DEC 01... | 1425 | 436 | 13.5 | 130 | 12 | 38 | 9.1 | 30 |

| DATE | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| DEC 01... | 1.1 | 6.4 | 120 | 29 | 42 | .4 | 4.7 | 232 |

## 08045850 CLEAR FORK TRINITY RIVER NEAR WEATHERFORD, TX

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 (46 m) downstream from Squaw Creek, 2.8 mi (4.5 km) downstream from Lake Weatherford Dam on the Clear Fork Trinity River, 3.8 mi (6.1 km) upstream from South Fork Trinity River, and 8.5 mi (13.7 km) east of county courthouse in Weatherford.

DRAINAGE AREA.--121 $mi^2$ (313 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1980 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 810.00 ft (246.888 m) National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation bench mark).

REMARKS.--Water-discharge records good. Flow is regulated by Lake Weatherford (see station 08045800). Records furnished by the city of Weatherford show that 2,250 acre-ft (2.77 $hm^3$) was diverted from Lake Weatherford for municipal use and that 1,450 acre-ft (1.79 $hm^3$) was returned to the South Fork Trinity River, a tributary downstream from this station. Telemeter was installed Jan. 14, 1981.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 874 $ft^3/s$ (24.8 $m^3/s$) May 8, 1981, gage height, 14.06 ft (4.285 m); minimum, 0.29 $ft^3/s$ (0.008 $m^3/s$) Aug. 27, 28, Sept. 1-6, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 874 $ft^3/s$ (24.8 $m^3/s$) May 8 at 2130 hours, gage height, 14.06 ft (4.285 m); minimum, 0.46 $ft^3/s$ (0.013 $m^3/s$) Aug. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .87 | .87 | 1.2 | 1.0 | 1.5 | 1.8 | 1.1 | .87 | 2.6 | .87 | .52 | 2.1 |
| 2 | .79 | .87 | 1.1 | 1.0 | 1.6 | 1.3 | 1.1 | .87 | 2.6 | .87 | .52 | 2.0 |
| 3 | .75 | .87 | 1.1 | 1.0 | 1.6 | 12 | 1.3 | .87 | 3.1 | .87 | .49 | .93 |
| 4 | .75 | .87 | 1.1 | 1.0 | 1.5 | 4.3 | 1.2 | 2.2 | 2.7 | .93 | .49 | .81 |
| 5 | .75 | .87 | 1.2 | 1.0 | 1.5 | 1.7 | 1.1 | 1.3 | 3.1 | 1.1 | .49 | .81 |
| 6 | .75 | .87 | 1.2 | 1.1 | 1.5 | 1.7 | 1.1 | 1.1 | 4.4 | 1.0 | .46 | .81 |
| 7 | .78 | .87 | 1.2 | 1.1 | 1.3 | 12 | 1.1 | 1.0 | 2.5 | .93 | .77 | .90 |
| 8 | .75 | .87 | 12 | 1.1 | 1.3 | 2.3 | 1.1 | 80 | 2.5 | .93 | .59 | .96 |
| 9 | .75 | .81 | 1.9 | 1.1 | 1.2 | 1.7 | 1.1 | 50 | 2.6 | .81 | .55 | .75 |
| 10 | .75 | .81 | 1.3 | 1.1 | 1.2 | 1.6 | 1.1 | 35 | 2.7 | .66 | .55 | .75 |
| 11 | .75 | .84 | 1.2 | 1.1 | 1.2 | 1.5 | 1.1 | 15 | 2.9 | .66 | .55 | .68 |
| 12 | .73 | .87 | 1.2 | 1.1 | 1.2 | 1.5 | 1.1 | 5.3 | 2.7 | .66 | .55 | .65 |
| 13 | .78 | .87 | 1.2 | 1.1 | 1.2 | 1.5 | 1.1 | 3.9 | 2.7 | .66 | .61 | .80 |
| 14 | .81 | .87 | 1.2 | 1.1 | 1.2 | 1.5 | 1.1 | 3.5 | 2.5 | .66 | .60 | 1.2 |
| 15 | .81 | .83 | 1.2 | 1.1 | 1.2 | 1.5 | 1.0 | 6.2 | 2.4 | .66 | .58 | .70 |
| 16 | .81 | 1.0 | 1.2 | 1.1 | 1.3 | 1.4 | 1.0 | 4.6 | 5.3 | .66 | .58 | .61 |
| 17 | 2.2 | 1.2 | 1.2 | 1.1 | 1.5 | 1.3 | 1.0 | 4.1 | 2.7 | .58 | 1.3 | .59 |
| 18 | 1.0 | .95 | 1.2 | 1.1 | 1.5 | 1.3 | 1.0 | 3.5 | 2.5 | .55 | .81 | .60 |
| 19 | 1.0 | .93 | 1.0 | 1.1 | 1.5 | 1.2 | 1.0 | 3.1 | 2.1 | .62 | .76 | .60 |
| 20 | .93 | .93 | .93 | 1.3 | 1.5 | 1.3 | .93 | 3.1 | 2.0 | .62 | .75 | .60 |
| 21 | .93 | .93 | .93 | 1.3 | 1.5 | 1.3 | .93 | 2.9 | 1.8 | .62 | .71 | .58 |
| 22 | .93 | 1.2 | .97 | 1.3 | 1.3 | 1.3 | 1.3 | 2.9 | 1.7 | .62 | .70 | .56 |
| 23 | .93 | 1.2 | 1.0 | 1.4 | 1.3 | 1.2 | 2.2 | 3.0 | 1.2 | .62 | .73 | .55 |
| 24 | .87 | 1.2 | 1.0 | 1.5 | 1.3 | 1.2 | 1.0 | 3.0 | 1.2 | .62 | .75 | .55 |
| 25 | .91 | 1.2 | 1.0 | 1.5 | 1.2 | 1.2 | .93 | 3.0 | 1.1 | .58 | .75 | .55 |
| 26 | .93 | 1.1 | 1.0 | 1.3 | 1.2 | 1.3 | .93 | 2.7 | 1.0 | .58 | .75 | .55 |
| 27 | .92 | 1.1 | 1.0 | 1.3 | 1.2 | 1.3 | .93 | 2.7 | .93 | .58 | .75 | .52 |
| 28 | .81 | 1.1 | 1.0 | 1.3 | 1.7 | 13 | .93 | 2.7 | .93 | .58 | .74 | .53 |
| 29 | .86 | 1.1 | 1.0 | 1.5 | --- | 2.5 | .87 | 2.6 | .93 | .56 | .73 | .54 |
| 30 | .87 | 1.1 | 1.0 | 1.5 | --- | 1.2 | .87 | 2.6 | 1.0 | .55 | .75 | .52 |
| 31 | .87 | --- | 1.0 | 1.5 | --- | 1.2 | --- | 2.6 | --- | .52 | .75 | --- |
| TOTAL | 27.34 | 29.10 | 45.73 | 37.1 | 38.2 | 81.1 | 32.52 | 256.21 | 68.39 | 21.73 | 20.63 | 23.30 |
| MEAN | .88 | .97 | 1.48 | 1.20 | 1.36 | 2.62 | 1.08 | 8.26 | 2.28 | .70 | .67 | .78 |
| MAX | 2.2 | 1.2 | 12 | 1.5 | 1.7 | 13 | 2.2 | 80 | 5.3 | 1.1 | 1.3 | 2.1 |
| MIN | .73 | .81 | .93 | 1.0 | 1.2 | 1.2 | .87 | .87 | .93 | .52 | .46 | .52 |
| AC-FT | 54 | 58 | 91 | 74 | 76 | 161 | 65 | 508 | 136 | 43 | 41 | 46 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | - | MEAN | - | MAX | - | MIN | - | AC-FT | - |
| WTR YR 1981 | TOTAL | 681.35 | MEAN | 1.87 | MAX | 80 | MIN | .46 | AC-FT | 1350 |

08045850 CLEAR FORK TRINITY RIVER NEAR WEATHERFORD, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH FIELD (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, BIOCHEM UNINHIB 5 DAY (MG/L) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 20... | 1130 | .93 | 613 | 7.6 | 15.5 | 5 | .50 | 6.4 | 65 | 1.7 | 250 | 38 |
| JAN | | | | | | | | | | | | |
| 12... | 1350 | 1.0 | 699 | 7.6 | 6.0 | 5 | .50 | 9.6 | 77 | .2 | 310 | 38 |
| APR | | | | | | | | | | | | |
| 06... | 1100 | 1.2 | 700 | 7.7 | 14.0 | 3 | 17 | 5.5 | 53 | 1.1 | 330 | 34 |
| JUN | | | | | | | | | | | | |
| 01... | 0955 | 2.0 | 686 | 7.8 | 22.0 | 5 | 7.9 | -- | -- | 1.0 | 310 | 39 |
| JUL | | | | | | | | | | | | |
| 06... | 1030 | .80 | 636 | 7.9 | 24.5 | 0 | 5.2 | 4.0 | 49 | 1.1 | 280 | 35 |
| SEP | | | | | | | | | | | | |
| 14... | 1100 | 7.4 | 582 | 7.7 | 22.5 | 5 | 34 | 5.1 | 61 | 1.7 | 250 | 35 |

| 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 (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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 20... | 88 | 6.9 | 21 | .6 | 2.8 | 210 | 35 | 38 | .3 | 14 | 332 |
| JAN | | | | | | | | | | | |
| 12... | 110 | 8.1 | 27 | .7 | 1.7 | 270 | 44 | 37 | .4 | 15 | 405 |
| APR | | | | | | | | | | | |
| 06... | 120 | 8.4 | 27 | .6 | 2.0 | 300 | 42 | 35 | .3 | 15 | 430 |
| JUN | | | | | | | | | | | |
| 01... | 110 | 8.4 | 26 | .6 | 2.2 | 270 | 36 | 34 | .3 | 16 | 395 |
| JUL | | | | | | | | | | | |
| 06... | 100 | 8.5 | 27 | .7 | 2.3 | 250 | 43 | 39 | .3 | 16 | 387 |
| SEP | | | | | | | | | | | |
| 14... | 86 | 7.4 | 28 | .8 | 3.3 | 210 | 36 | 40 | .3 | 15 | 342 |

| DATE | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (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, DIS-SOLVED (MG/L AS P) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 20... | 16 | 3 | .02 | .000 | .02 | .030 | .48 | .51 | .030 | .090 | 7.2 |
| JAN | | | | | | | | | | | |
| 12... | 0 | 0 | .00 | .000 | .00 | .060 | .54 | .60 | .030 | -- | 3.8 |
| APR | | | | | | | | | | | |
| 06... | 28 | 8 | .01 | .000 | .01 | .120 | .41 | .53 | .060 | -- | 9.7 |
| JUN | | | | | | | | | | | |
| 01... | 81 | 81 | .09 | .000 | .09 | .130 | .64 | .77 | .040 | -- | 6.2 |
| JUL | | | | | | | | | | | |
| 06... | 10 | 9 | .00 | .010 | .00 | .070 | .81 | .88 | .030 | -- | 3.7 |
| SEP | | | | | | | | | | | |
| 14... | 45 | 10 | .15 | .040 | .19 | .190 | .65 | .84 | .030 | -- | 4.9 |

08045850 CLEAR FORK TRINITY RIVER NEAR WEATHERFORD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | ARSENIC DIS-SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 12... | 1350 | 1 | 100 | <1 | 0 | <10 | 10 |
| APR | | | | | | | |
| 06... | 1100 | 1 | 100 | <1 | 10 | <10 | <10 |
| JUL | | | | | | | |
| 06... | 1030 | 2 | 200 | 2 | 10 | <10 | 70 |

| DATE | 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) |
|---|---|---|---|---|---|---|
| JAN | | | | | | |
| 12... | 75 | 60 | .0 | 0 | 1 | 10 |
| APR | | | | | | |
| 06... | 11 | 180 | .2 | 0 | 2 | 6 |
| JUL | | | | | | |
| 06... | <10 | 60 | .0 | 0 | 0 | 80 |

## 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 (4.0 km) south of Benbrook, 3.5 mi (5.6 km) upstream from Marys Creek, and 14.6 mi (23.5 km) upstream from mouth.

DRAINAGE AREA.--429 $mi^2$ (1,111 $km^2$).

### WATER-DISCHARGE 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 (2,780 m) long, including a 500-foot (150 m) uncontrolled off-channel concrete-gravity spillway with a 100-foot (30 m) notch in center of ogee weir section. The outlet works consist of a 13.0-foot-diameter (4.0 m) concrete conduit controlled by two 6.5- by 13.0-foot (2.0 by 4.0 m) broome-type gates and two 30-inch (762 mm) 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. 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 Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 185,000 acre-ft (228 $hm^3$) June 6, 1957, elevation, 713.35 ft (217.429 m); minimum since lake first filled in 1957, 64,630 acre-ft (79.7 $hm^3$) Sept. 15, 1964, elevation, 687.18 ft (209.452 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 79,300 acre-ft (97.8 $hm^3$) June 16 at 1130 hours, elevation, 691.55 ft (210.784 m); minimum, 70,830 acre-ft (87.3 $hm^3$) Sept. 30 at 2400 hours, elevation, 689.09 ft (210.035 m).

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

| | |
|---|---|
| 688.0 | 67,250 |
| 690.0 | 73,900 |
| 692.0 | 80,890 |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 76070 | 72880 | 71740 | 71770 | 71640 | 72180 | 74960 | 75620 | 78090 | 77810 | 74310 | 72880 |
| 2 | 75900 | 72820 | 71710 | 71740 | 71640 | 72180 | 75030 | 75590 | 78160 | 77770 | 74170 | 72950 |
| 3 | 75860 | 72780 | 71670 | 71710 | 71640 | 72880 | 75210 | 75590 | 78410 | 77770 | 74030 | 72850 |
| 4 | 75790 | 72720 | 71640 | 71740 | 71610 | 73090 | 75210 | 75550 | 78480 | 77880 | 73860 | 72850 |
| 5 | 75660 | 72680 | 71670 | 71740 | 71640 | 73150 | 75170 | 75550 | 78590 | 77810 | 73730 | 72780 |
| 6 | 75550 | 72620 | 71670 | 71740 | 71640 | 73190 | 75170 | 75520 | 78730 | 77740 | 73660 | 72750 |
| 7 | 75450 | 72550 | 71710 | 71710 | 71670 | 73830 | 75240 | 75520 | 78840 | 77630 | 73560 | 73460 |
| 8 | 75280 | 72510 | 72350 | 71740 | 71710 | 74100 | 75170 | 76140 | 78910 | 77490 | 73420 | 73420 |
| 9 | 75070 | 72480 | 72380 | 71770 | 71770 | 74170 | 75170 | 77070 | 78940 | 77420 | 73320 | 73320 |
| 10 | 74860 | 72450 | 72380 | 71770 | 71710 | 74270 | 75210 | 77350 | 78910 | 77280 | 73260 | 73260 |
| 11 | 74690 | 72410 | 72350 | 71740 | 71670 | 74340 | 75280 | 77420 | 78870 | 77170 | 73120 | 73150 |
| 12 | 74450 | 72350 | 72350 | 71740 | 71640 | 74410 | 75280 | 77600 | 78840 | 77070 | 73050 | 73050 |
| 13 | 74240 | 72310 | 72310 | 71710 | 71670 | 74450 | 75240 | 77490 | 78800 | 76900 | 72980 | 72980 |
| 14 | 74030 | 72210 | 72350 | 71670 | 71670 | 74520 | 75170 | 77560 | 78760 | 76800 | 72880 | 72980 |
| 15 | 73930 | 72110 | 72310 | 71640 | 71670 | 74520 | 75140 | 77880 | 78690 | 76660 | 72780 | 72920 |
| 16 | 73730 | 72250 | 72280 | 71610 | 71670 | 74520 | 75140 | 77950 | 79260 | 76520 | 72780 | 72780 |
| 17 | 73890 | 72210 | 72280 | 71610 | 71710 | 74550 | 75140 | 78020 | 79260 | 76380 | 73460 | 72650 |
| 18 | 73890 | 72180 | 72180 | 71570 | 71710 | 74550 | 75520 | 78020 | 79190 | 76210 | 73390 | 72510 |
| 19 | 73830 | 72140 | 72110 | 71610 | 71710 | 74480 | 75550 | 77910 | 79120 | 76100 | 73320 | 72450 |
| 20 | 73790 | 72080 | 72040 | 71610 | 71740 | 74520 | 75520 | 77880 | 79010 | 75930 | 73260 | 72310 |
| 21 | 73730 | 72080 | 72010 | 71570 | 71770 | 74450 | 75520 | 77840 | 78910 | 75830 | 73150 | 72210 |
| 22 | 73690 | 72140 | 71980 | 71570 | 71770 | 74410 | 75660 | 77840 | 78760 | 75660 | 73050 | 72040 |
| 23 | 73590 | 72110 | 71940 | 71610 | 71740 | 74410 | 75760 | 78060 | 78690 | 75520 | 73020 | 71880 |
| 24 | 73520 | 72040 | 71940 | 71610 | 71740 | 74450 | 75790 | 78130 | 78590 | 75340 | 72950 | 71710 |
| 25 | 73420 | 72010 | 71910 | 71610 | 71770 | 74520 | 75760 | 78130 | 78480 | 75210 | 72820 | 71570 |
| 26 | 73390 | 71940 | 71840 | 71610 | 71810 | 74550 | 75760 | 78160 | 78410 | 75030 | 72750 | 71400 |
| 27 | 73360 | 71880 | 71810 | 71610 | 71810 | 74550 | 75720 | 78130 | 78270 | 74930 | 72780 | 71240 |
| 28 | 73120 | 71840 | 71770 | 71610 | 72010 | 74830 | 75720 | 78130 | 78130 | 74860 | 72720 | 71100 |
| 29 | 73020 | 71810 | 71770 | 71610 | --- | 74930 | 75690 | 78090 | 78020 | 74720 | 72650 | 70970 |
| 30 | 72980 | 71810 | 71770 | 71610 | --- | 74960 | 75690 | 78060 | 77910 | 74590 | 72550 | 70830 |
| 31 | 72920 | --- | 71740 | 71640 | --- | 74960 | --- | 78020 | --- | 74410 | 72450 | --- |
| MAX | 76070 | 72880 | 72380 | 71770 | 72010 | 74960 | 75790 | 78160 | 79260 | 77880 | 74310 | 73460 |
| MIN | 72920 | 71810 | 71640 | 71570 | 71610 | 72180 | 74960 | 75520 | 77910 | 74410 | 72450 | 70830 |
| (†) | 689.71 | 689.38 | 689.36 | 689.33 | 689.44 | 690.31 | 690.52 | 691.19 | 691.16 | 690.15 | 689.57 | 689.09 |
| (‡) | -3250 | -1110 | -70 | -100 | +370 | +2950 | +730 | +2330 | -110 | -3500 | -1960 | -1620 |

CAL YR 1980 MAX 93990 MIN 71640 ‡ -14050
WTR YR 1981 MAX 79260 MIN 70830 ‡ - 5340

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.

08046500 BENBROOK LAKE NEAR BENBROOK, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to current year.

323858097265601 BENBROOK LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) | STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 13... | 1045 | 1.0 | 333 | 8.0 | 8.0 | 1.10 | 10.3 | 89 | <1 | <1 |
| 13... | 1046 | 1.8 | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | 1047 | 10 | 333 | 8.0 | 8.0 | -- | 10.3 | 89 | -- | -- |
| 13... | 1049 | 20 | 333 | 8.0 | 8.0 | -- | 10.3 | 89 | -- | -- |
| 13... | 1051 | 30 | 333 | 8.0 | 8.0 | -- | 10.3 | 89 | -- | -- |
| 13... | 1053 | 40 | 333 | 8.0 | 8.0 | -- | 10.3 | 89 | -- | -- |
| 13... | 1055 | 50 | 333 | 8.0 | 8.0 | -- | 10.3 | 89 | -- | -- |
| 13... | 1057 | 55 | 333 | 8.0 | 8.0 | -- | 10.3 | 89 | -- | -- |
| MAY | | | | | | | | | | |
| 04... | 1330 | 1.0 | 358 | 7.8 | 23.5 | 1.50 | 7.7 | 93 | K1 | K1 |
| 04... | 1331 | 2.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | 1332 | 10 | 358 | 7.8 | 23.5 | -- | 7.5 | 90 | -- | -- |
| 04... | 1333 | 20 | 358 | 7.8 | 23.5 | -- | 6.8 | 82 | -- | -- |
| 04... | 1334 | 30 | 364 | 7.3 | 22.0 | -- | 3.7 | 43 | -- | -- |
| 04... | 1335 | 35 | 364 | 7.1 | 21.0 | -- | 2.6 | 30 | -- | -- |
| 04... | 1336 | 40 | 366 | 7.1 | 20.5 | -- | .9 | 10 | -- | -- |
| 04... | 1337 | 50 | 369 | 7.0 | 20.0 | -- | .2 | 2 | -- | -- |
| 04... | 1338 | 55 | 372 | 7.0 | 20.0 | -- | .2 | 2 | -- | -- |
| AUG | | | | | | | | | | |
| 03... | 1135 | 1.0 | 324 | 8.1 | 29.5 | 1.20 | 8.0 | 108 | <1 | <1 |
| 03... | 1136 | 2.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | 1137 | 10 | 324 | 8.1 | 29.5 | -- | 7.7 | 104 | -- | -- |
| 03... | 1138 | 20 | 324 | 8.0 | 29.5 | -- | 7.6 | 103 | -- | -- |
| 03... | 1139 | 30 | 324 | 8.0 | 29.5 | -- | 7.3 | 99 | -- | -- |
| 03... | 1140 | 35 | 339 | 7.2 | 29.0 | -- | 1.5 | 20 | -- | -- |
| 03... | 1141 | 40 | 367 | 6.9 | 26.0 | -- | .1 | 1 | -- | -- |
| 03... | 1142 | 54 | 392 | 6.7 | 23.0 | -- | .0 | 0 | -- | -- |

| DATE | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 13... | 130 | 17 | 41 | 5.9 | 19 | .7 | 3.8 | 110 | 30 | 20 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | 130 | 18 | 41 | 6.2 | 20 | .8 | 3.7 | 110 | 28 | 20 |
| MAY | | | | | | | | | | |
| 04... | 140 | 20 | 46 | 6.2 | 19 | .7 | 3.9 | 120 | 32 | 22 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | 150 | 18 | 49 | 6.3 | 19 | .7 | 3.8 | 130 | 32 | 25 |
| AUG | | | | | | | | | | |
| 03... | 110 | 18 | 34 | 6.1 | 19 | .8 | 4.5 | 92 | 28 | 25 |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | 150 | 0 | 48 | 6.5 | 19 | .7 | 4.7 | 150 | 5.0 | 28 |

BENBROOK LAKE NEAR BENBROOK, TX--Continued

323858097265601 BENBROOK LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 13... | .3 | .2 | 186 | .24 | 1.00 | 1.2 | .030 | <10 | 1 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | .24 | 1.20 | 1.4 | .030 | 10 | 10 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | .2 | 185 | .24 | 1.10 | 1.3 | .030 | <10 | 1 |
| MAY | | | | | | | | | |
| 04... | .3 | 1.4 | 203 | .03 | .81 | .84 | .150 | <10 | <1 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | .19 | .95 | 1.1 | .150 | 0 | 0 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | .40 | .94 | 1.3 | .150 | 40 | 40 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | 5.5 | 220 | .30 | 1.00 | 1.3 | .270 | 440 | 610 |
| AUG | | | | | | | | | |
| 03... | .2 | 4.3 | 176 | <.10 | .80 | -- | .040 | <10 | 2 |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | -- | -- | -- | .10 | .77 | .87 | .040 | 20 | 10 |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | -- | -- | -- | <.10 | 1.30 | -- | .180 | 420 | 550 |
| 03... | -- | 11 | 214 | .10 | 2.40 | 2.5 | .550 | 420 | 1100 |

323908097273401 BENBROOK LAKE SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 13... | 1120 | 1.0 | 333 | 7.9 | 8.0 | 10.0 | 86 |
| 13... | 1122 | 10 | 333 | 7.9 | 7.5 | 10.0 | 85 |
| 13... | 1124 | 20 | 333 | 7.9 | 7.5 | 10.0 | 85 |
| 13... | 1126 | 30 | 333 | 7.9 | 7.5 | 10.0 | 85 |
| 13... | 1128 | 36 | 333 | 7.9 | 7.5 | 10.0 | 85 |
| MAY | | | | | | | |
| 04... | 1300 | 1.0 | 358 | 7.9 | 23.5 | 7.7 | 93 |
| 04... | 1301 | 10 | 358 | 7.8 | 23.5 | 7.7 | 93 |
| 04... | 1302 | 20 | 358 | 7.9 | 23.5 | 7.2 | 87 |
| 04... | 1303 | 30 | 366 | 7.3 | 22.0 | 4.3 | 50 |
| 04... | 1304 | 35 | 366 | 7.2 | 21.5 | 3.2 | 37 |
| AUG | | | | | | | |
| 03... | 1215 | 1.0 | 324 | 8.2 | 29.5 | 8.2 | 111 |
| 03... | 1216 | 10 | 325 | 8.1 | 29.5 | 8.1 | 109 |
| 03... | 1217 | 20 | 325 | 8.1 | 29.5 | 7.8 | 105 |
| 03... | 1218 | 30 | 325 | 8.1 | 29.5 | 7.7 | 104 |
| 03... | 1219 | 35 | 327 | 8.0 | 29.5 | 7.1 | 96 |
| 03... | 1220 | 40 | 370 | 6.9 | 26.0 | .2 | 3 |
| 03... | 1221 | 45 | 385 | 6.8 | 24.5 | .2 | 2 |

323735097274701 BENBROOK LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) | STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 13... | 1155 | 1.0 | 334 | 7.9 | 8.0 | .90 | 10.2 | 88 | <1 | <1 |
| 13... | 1157 | 10 | 334 | 7.9 | 8.0 | -- | 10.2 | 88 | -- | -- |
| 13... | 1159 | 20 | 334 | 7.9 | 8.0 | -- | 10.2 | 88 | -- | -- |
| 13... | 1201 | 30 | 334 | 7.9 | 8.0 | -- | 10.2 | 88 | -- | -- |
| 13... | 1203 | 34 | 334 | 7.9 | 8.0 | -- | 10.2 | 88 | -- | -- |
| MAY | | | | | | | | | | |
| 04... | 1400 | 1.0 | 358 | 7.8 | 23.5 | 1.60 | 7.8 | 94 | <1 | K1 |
| 04... | 1401 | 10 | 358 | 7.8 | 23.5 | -- | 7.5 | 90 | -- | -- |
| 04... | 1402 | 20 | 360 | 7.7 | 23.0 | -- | 6.7 | 80 | -- | -- |
| 04... | 1403 | 30 | 369 | 7.2 | 22.0 | -- | 2.5 | 29 | -- | -- |
| 04... | 1404 | 35 | 371 | 7.0 | 21.0 | -- | .6 | 7 | -- | -- |
| 04... | 1405 | 38 | 373 | 7.0 | 21.0 | -- | .2 | 2 | -- | -- |
| AUG | | | | | | | | | | |
| 03... | 1245 | 1.0 | 329 | 8.0 | 29.0 | 1.10 | 7.3 | 97 | <1 | <1 |
| 03... | 1246 | 10 | 330 | 8.0 | 29.0 | -- | 7.1 | 95 | -- | -- |
| 03... | 1247 | 20 | 334 | 7.7 | 29.0 | -- | 5.8 | 77 | -- | -- |
| 03... | 1248 | 25 | 339 | 7.3 | 29.0 | -- | 3.1 | 41 | -- | -- |
| 03... | 1249 | 30 | 344 | 7.1 | 28.5 | -- | .2 | 3 | -- | -- |
| 03... | 1250 | 37 | 377 | 6.9 | 27.0 | -- | .2 | 3 | -- | -- |

| DATE | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 13... | 130 | 17 | 41 | 6.0 | 19 | .7 | 3.8 | 110 | 30 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | 130 | 18 | 41 | 6.1 | 19 | .7 | 3.7 | 110 | 30 |
| MAY | | | | | | | | | |
| 04... | 140 | 0 | 46 | 6.3 | 19 | .7 | 3.9 | 140 | 32 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | 150 | 5 | 48 | 6.2 | 18 | .7 | 3.8 | 140 | 31 |
| AUG | | | | | | | | | |
| 03... | 120 | 18 | 36 | 6.3 | 19 | .8 | 4.4 | 98 | 28 |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | 130 | 0 | 42 | 6.1 | 18 | .7 | 4.1 | 130 | 18 |

| DATE | CHLORIDE, DISSOLVED (MG/L AS CL) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 13... | 20 | 1.9 | 188 | .22 | 1.10 | 1.3 | .030 | <10 | 1 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | .23 | 1.10 | 1.3 | .030 | 10 | 10 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | 20 | .2 | 186 | .23 | 1.20 | 1.4 | .040 | <10 | 2 |
| MAY | | | | | | | | | |
| 04... | 22 | 18 | 231 | .03 | .99 | 1.0 | .150 | 10 | 1 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | .05 | .99 | 1.0 | .160 | 20 | 0 |
| 04... | -- | -- | -- | .18 | .86 | 1.0 | .160 | 10 | 20 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | 22 | 4.7 | 218 | .32 | .88 | 1.2 | .190 | 20 | 410 |
| AUG | | | | | | | | | |
| 03... | 25 | 4.4 | 182 | .10 | .76 | .86 | .040 | <10 | 2 |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | -- | -- | -- | .10 | .91 | 1.0 | .050 | 10 | 30 |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | -- | -- | -- | <.10 | 1.00 | -- | .080 | 70 | 140 |
| 03... | 25 | 8.9 | 202 | <.10 | 1.90 | -- | .290 | 630 | 1400 |

BENBROOK LAKE NEAR BENBROOK, TX--Continued

323628097275101 BENBROOK LAKE SITE CR

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 13... | 1340 | 1.0 | 335 | 8.0 | 7.5 | 10.7 | 91 |
| 13... | 1342 | 10 | 335 | 8.0 | 7.5 | 10.6 | 90 |
| 13... | 1344 | 21 | 335 | 8.0 | 7.5 | 10.6 | 90 |
| MAY | | | | | | | |
| 04... | 1530 | 1.0 | 363 | 7.7 | 23.0 | 7.1 | 85 |
| 04... | 1531 | 10 | 363 | 7.7 | 23.0 | 6.5 | 77 |
| 04... | 1532 | 20 | 371 | 7.1 | 22.0 | 2.5 | 29 |
| AUG | | | | | | | |
| 03... | 1415 | 1.0 | 344 | 7.9 | 29.0 | 7.4 | 99 |
| 03... | 1416 | 10 | 344 | 7.7 | 28.5 | 5.8 | 76 |
| 03... | 1417 | 21 | 346 | 7.5 | 28.5 | 4.5 | 59 |

323629097280901 BENBROOK LAKE SITE CL

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 13... | 1325 | 1.0 | 335 | 8.0 | 8.0 | 10.6 | 91 |
| 13... | 1327 | 10 | 335 | 8.0 | 8.0 | 10.6 | 91 |
| 13... | 1329 | 19 | 335 | 8.0 | 8.0 | 10.6 | 91 |
| MAY | | | | | | | |
| 04... | 1515 | 1.0 | 365 | 7.1 | 23.0 | 7.1 | 85 |
| 04... | 1516 | 10 | 365 | 7.7 | 23.0 | 6.8 | 81 |
| 04... | 1517 | 18 | 365 | 7.6 | 23.0 | 5.8 | 69 |
| AUG | | | | | | | |
| 03... | 1400 | 1.0 | 347 | 8.0 | 29.0 | 7.5 | 100 |
| 03... | 1401 | 10 | 347 | 7.8 | 28.5 | 6.7 | 88 |
| 03... | 1402 | 18 | 347 | 7.7 | 28.5 | 5.9 | 78 |

323652097291901 BENBROOK LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) | STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 13... | 1225 | 1.0 | 362 | 8.1 | 7.5 | .50 | 11.4 | 97 | K3 | K2 |
| 13... | 1226 | .9 | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | 1227 | 10 | 362 | 8.1 | 7.5 | -- | 11.3 | 96 | -- | -- |
| 13... | 1229 | 21 | 362 | 8.0 | 7.0 | -- | 10.8 | 91 | -- | -- |
| MAY | | | | | | | | | | |
| 04... | 1445 | 1.0 | 361 | 7.8 | 23.5 | .60 | 7.6 | 92 | K2 | K7 |
| 04... | 1446 | 1.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | 1448 | 10 | 361 | 7.7 | 23.5 | -- | 6.9 | 83 | -- | -- |
| 04... | 1449 | 20 | 367 | 7.4 | 23.0 | -- | 4.9 | 58 | -- | -- |
| 04... | 1450 | 25 | 375 | 7.1 | 22.5 | -- | .8 | 9 | -- | -- |
| AUG | | | | | | | | | | |
| 03... | 1315 | 1.0 | 339 | 8.0 | 29.0 | .50 | 7.4 | 99 | K10 | K16 |
| 03... | 1316 | .8 | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | 1317 | 10 | 339 | 7.8 | 28.5 | -- | 6.2 | 82 | -- | -- |
| 03... | 1318 | 20 | 339 | 7.7 | 28.5 | -- | 5.7 | 75 | -- | -- |
| 03... | 1319 | 25 | 339 | 7.6 | 28.5 | -- | 5.6 | 74 | -- | -- |

BENBROOK LAKE NEAR BENBROOK, TX--Continued

323652097291901 BENBROOK LAKE SITE DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 13... | 140 | 16 | 44 | 6.4 | 22 | .8 | 3.9 | 120 | 31 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | 140 | 16 | 44 | 6.4 | 21 | .8 | 3.8 | 120 | 31 |
| MAY | | | | | | | | | |
| 04... | 140 | 10 | 46 | 6.2 | 19 | .7 | 3.9 | 130 | 32 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | 150 | 6 | 48 | 6.3 | 18 | .6 | 4.0 | 140 | 30 |
| AUG | | | | | | | | | |
| 03... | 120 | 18 | 37 | 6.3 | 19 | .8 | 4.5 | 100 | 28 |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | 120 | 18 | 37 | 6.2 | 19 | .8 | 4.6 | 100 | 28 |

| DATE | CHLORIDE, DISSOLVED (MG/L AS CL) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 13... | 22 | .2 | 202 | .22 | 1.30 | 1.5 | .060 | 10 | 2 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 13... | -- | -- | -- | .21 | 1.10 | 1.3 | .060 | 10 | 10 |
| 13... | 22 | .4 | 201 | .24 | .67 | .91 | .080 | 10 | 5 |
| MAY | | | | | | | | | |
| 04... | 22 | 1.6 | 209 | .03 | .91 | .94 | .180 | <10 | <1 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | .07 | .96 | 1.0 | .170 | 10 | 0 |
| 04... | 21 | 4.0 | 216 | .11 | 1.30 | 1.4 | .200 | 40 | 30 |
| AUG | | | | | | | | | |
| 03... | 25 | 5.0 | 185 | .11 | .89 | 1.0 | .070 | <10 | 1 |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 03... | 25 | 5.1 | 185 | <.10 | 1.00 | -- | .080 | <10 | 13 |

BENBROOK LAKE NEAR BENBROOK, TX--Continued

323858097265601 BENBROOK LAKE SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | JAN 13,81 | MAY 4,81 | AUG 3,81 |
|---|---|---|---|
| TIME | 1046 | 1331 | 1136 |
| TOTAL CELLS/ML | 280 | 3900 | 160000 |
| DIVERSITY: DIVISION | 1.9 | 1.7 | 0.3 |
| .CLASS | 1.9 | 1.7 | 0.3 |
| ..ORDER | 1.9 | 1.9 | 1.2 |
| ...FAMILY | 2.2 | 2.0 | 2.0 |
| ....GENUS | 2.2 | 2.3 | 2.5 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...CHARACIACEAE | | | | | | |
| ....SCHROEDERIA | -- | - | 25 | 1 | -- | - |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | -- | - | 130 | 3 | * | 0 |
| ....DICTYOSPHAERIUM | -- | - | 150 | 4 | -- | - |
| ....OOCYSTIS | 51# | 18 | 150 | 4 | -- | - |
| ....SELENASTRUM | -- | - | 25 | 1 | -- | - |
| ...SCENEDESMACEAE | | | | | | |
| ....SCENEDESMUS | -- | - | 100 | 3 | 1700 | 1 |
| ..TETRASPORALES | | | | | | |
| ...COCCOMYXACEAE | | | | | | |
| ....ELAKATOTHRIX | -- | - | -- | - | * | 0 |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CHLAMYDOMONAS | -- | - | 250 | 7 | * | 0 |
| ...VOLVOCACEAE | | | | | | |
| ....PANDORINA | -- | - | -- | - | 1900 | 1 |
| CHRYSOPHYTA | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..CENTRALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | 100# | 36 | 960# | 25 | -- | - |
| ....STEPHANODISCUS | -- | - | 100 | 3 | -- | - |
| ..PENNALES | | | | | | |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | -- | - | -- | - | * | 0 |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | |
| .CRYPTOPHYCEAE | | | | | | |
| ..CRYPTOMONADALES | | | | | | |
| ...CRYPTOCHRYSIDACEAE | | | | | | |
| ....CHROOMONAS | 39 | 14 | 100 | 3 | -- | - |
| ...CRYPTOMONADACEAE | | | | | | |
| ....CRYPTOMONAS | 51# | 18 | 25 | 1 | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....AGMENELLUM | -- | - | -- | - | 1400 | 1 |
| ....ANACYSTIS | -- | - | 1800# | 48 | 47000# | 30 |
| ..HORMOGONALES | | | | | | |
| ...NOSTOCACEAE | | | | | | |
| ....ANABAENA | -- | - | -- | - | 4100 | 3 |
| ....ANABAENOPSIS | -- | - | -- | - | 860 | 1 |
| ....APHANIZOMENON | -- | - | -- | - | 1900 | 1 |
| ....CYLINDROSPERMUM | -- | - | -- | - | 49000# | 31 |
| ...OSCILLATORIACEAE | | | | | | |
| ....LYNGBYA | -- | - | -- | - | 11000 | 7 |
| ....OSCILLATORIA | -- | - | -- | - | 31000# | 20 |
| ...RIVULARIACEAE | | | | | | |
| ....RAPHIDIOPSIS | -- | - | -- | - | 5800 | 4 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....EUGLENA | 39 | 14 | -- | - | -- | - |
| ....TRACHELOMONAS | -- | - | -- | - | * | 0 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

BENBROOK LAKE NEAR BENBROOK, TX--Continued

323652097291901 BENBROOK LAKE SITE DC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | JAN 13,81 | MAY 4,81 | AUG 3,81 |
|---|---|---|---|
| TIME | 1226 | 1446 | 1316 |
| TOTAL CELLS/ML | 6000 | 9300 | 330000 |
| DIVERSITY: DIVISION | 1.1 | 1.7 | 0.3 |
| .CLASS | 1.1 | 1.7 | 0.3 |
| ..ORDER | 1.2 | 2.0 | 1.3 |
| ...FAMILY | 1.4 | 2.5 | 1.7 |
| ....GENUS | 1.5 | 3.1 | 2.1 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...HYDRODICTYACEAE | | | | | | |
| ....PEDIASTRUM | -- | - | 810 | 9 | * | 0 |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | 150 | 3 | 250 | 3 | 2100 | 1 |
| ....DICTYOSPHAERIUM | -- | - | 150 | 2 | * | 0 |
| ....KIRCHNERIELLA | -- | - | 200 | 2 | * | 0 |
| ....OOCYSTIS | 400 | 7 | 600 | 7 | -- | - |
| ....SELENASTRUM | 100 | 2 | -- | - | -- | - |
| ...SCENEDESMACEAE | | | | | | |
| ....ACTINASTRUM | -- | - | -- | - | 2700 | 1 |
| ....CRUCIGENIA | -- | - | 1000 | 11 | -- | - |
| ....SCENEDESMUS | 400 | 7 | 200 | 2 | 2700 | 1 |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CHLAMYDOMONAS | 150 | 3 | 400 | 4 | * | 0 |
| ..ZYGNEMATALES | | | | | | |
| ...DESMIDIACEAE | | | | | | |
| ....COSMARIUM | -- | - | -- | - | * | 0 |
| CHRYSOPHYTA | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..CENTRALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | 4400# | 73 | 2500# | 27 | -- | - |
| ....MELOSIRA | -- | - | 100 | 1 | -- | - |
| ....STEPHANODISCUS | -- | - | 600 | 7 | -- | - |
| ..PENNALES | | | | | | |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | -- | - | 150 | 2 | 1700 | 1 |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | |
| .CRYPTOPHYCEAE | | | | | | |
| ..CRYPTOMONADALES | | | | | | |
| ...CRYPTOCHRYSIDACEAE | | | | | | |
| ....CHROOMONAS | 300 | 5 | 250 | 3 | -- | - |
| ...CRYPTOMONADACEAE | | | | | | |
| ....CRYPTOMONAS | 100 | 2 | -- | - | * | 0 |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....AGMENELLUM | -- | - | -- | - | 12000 | 4 |
| ....ANACYSTIS | -- | - | 2000# | 22 | 170000# | 52 |
| ..HORMOGONALES | | | | | | |
| ...NOSTOCACEAE | | | | | | |
| ....ANABAENA | -- | - | -- | - | 2700 | 1 |
| ....ANABAENOPSIS | -- | - | -- | - | 2700 | 1 |
| ....CYLINDROSPERMUM | -- | - | -- | - | 61000# | 19 |
| ...OSCILLATORIACEAE | | | | | | |
| ....OSCILLATORIA | -- | - | -- | - | 64000# | 19 |
| ...RIVULARIACEAE | | | | | | |
| ....RAPHIDIOPSIS | -- | - | -- | - | 1700 | 1 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....TRACHELOMONAS | -- | - | -- | - | * | 0 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 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 (2.4 km) downstream from Benbrook Dam, 1.7 mi (2.7 km) southeast of Benbrook, 2.9 mi (4.7 km) upstream from Marys Creek, and 13.1 mi (21.1 km) upstream from mouth.

DRAINAGE AREA.--431 $mi^2$ (1,116 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1947 to current year.

GAGE.--Water-stage recorder. Datum of gage is 604.22 ft (184.166 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark).

REMARKS.--Water-discharge records good. Flow regulated by Benbrook Lake (station 08046500) since September 1952. Diversion 1.0 mi (1.6 km) upstream for Pecan Valley Golf Course. A gage-height telemeter was installed at this station on Nov. 29, 1977.

AVERAGE DISCHARGE.--5 years (water years 1948-52) prior to regulation by Benbrook Lake, 105 $ft^3/s$ (2.974 $m^3/s$), 76,070 acre-ft/yr (93.8 $hm^3/yr$); 29 years (water years 1953-81) regulated, unadjusted, 63.8 $ft^3/s$ (1.807 $m^3/s$), 46,220 acre-ft/yr (57.0 $hm^3/yr$).

The figure published in the 1980 report was in error; the correct figure is 28 years, 65.7 $ft^3/s$ (1.861 $m^3/s$), 47,600 acre-ft/yr (58.7 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 82,900 $ft^3/s$ (2,350 $m^3/s$) May 17, 1949, gage height, 28.72 ft (8.754 m), from rating curve extended above 11,000 $ft^3/s$ (312 $m^3/s$) on basis of velocity-area studies and slope-area measurement of 82,900 $ft^3/s$ (2,350 $m^3/s$); no flow at times most years. Maximum discharge since construction of Benbrook Dam in 1952, 4,710 $ft^3/s$ (133 $m^3/s$) May 7, 1979, gage height, 11.27 ft (3.435 m); maximum gage height, 12.20 ft (3.719 m) Apr. 7, 1977.

Maximum stage since at least 1922, that of May 17, 1949.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 356 $ft^3/s$ (10.1 $m^3/s$) May 8 at 2230 hours, gage height, 4.26 ft (1.298 m); minimum daily, 0.04 $ft^3/s$ (0.001 $m^3/s$) Mar. 5, 6.

CORRECTIONS.--The maximum discharge for water year 1980 is 319 $ft^3/s$ (9.03 $m^3/s$) May 21-23, gage height, 4.18 ft (1.274 m); minimum daily, 0.20 $ft^3/s$ (0.006 $m^3/s$) Feb. 28. Previously published figures are in error.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 59 | 8.5 | 9.0 | 11 | 1.1 | 6.7 | .05 | 8.2 | 20 | 23 | 25 | 23 |
| 2 | 39 | 8.5 | 8.8 | 11 | .62 | 2.9 | .05 | 9.5 | 12 | 24 | 25 | 15 |
| 3 | 12 | 7.9 | 9.4 | 10 | .52 | 15 | .11 | 9.0 | 16 | 25 | 16 | 14 |
| 4 | 11 | 8.5 | 9.4 | 10 | .45 | 1.0 | .56 | 13 | 19 | 24 | 37 | 13 |
| 5 | 11 | 7.9 | 9.8 | 10 | .56 | .04 | 1.0 | 4.9 | 14 | 23 | 12 | 13 |
| 6 | 11 | 7.8 | 10 | 10 | .34 | .04 | 1.3 | .64 | 18 | 23 | 9.9 | 13 |
| 7 | 45 | 8.0 | 10 | 11 | .34 | 8.4 | 1.3 | .40 | 13 | 23 | 10 | 23 |
| 8 | 70 | 8.3 | 19 | 11 | .43 | .21 | 1.1 | 24 | 12 | 23 | 11 | 14 |
| 9 | 70 | 8.6 | 11 | 11 | .71 | .08 | 1.0 | 15 | 10 | 23 | 10 | 13 |
| 10 | 70 | 7.9 | 11 | 11 | .70 | .07 | .78 | .86 | 5.6 | 24 | 9.6 | 13 |
| 11 | 70 | 8.3 | 11 | 11 | .36 | .09 | .78 | .67 | 1.2 | 24 | 9.6 | 12 |
| 12 | 71 | 8.4 | 10 | 12 | .34 | .10 | .74 | .51 | 9.3 | 23 | 9.6 | 13 |
| 13 | 70 | 9.0 | 10 | 12 | .36 | .12 | .73 | .62 | 25 | 23 | 9.3 | 11 |
| 14 | 70 | 9.0 | 10 | 11 | .53 | .15 | 17 | .71 | 25 | 23 | 9.7 | 13 |
| 15 | 70 | 9.0 | 10 | 12 | .80 | .15 | 13 | 6.4 | 26 | 24 | 9.8 | 13 |
| 16 | 34 | 9.0 | 10 | 11 | .86 | .16 | 6.6 | 2.3 | 34 | 23 | 9.7 | 13 |
| 17 | 10 | 8.6 | 11 | 11 | .70 | .15 | 5.6 | 1.5 | 26 | 23 | 13 | 12 |
| 18 | 9.5 | 8.5 | 11 | 11 | .36 | .13 | 9.7 | 1.9 | 26 | 23 | 11 | 12 |
| 19 | 9.5 | 8.5 | 10 | 12 | .32 | .28 | 6.5 | 2.1 | 25 | 23 | 11 | 12 |
| 20 | 9.0 | 8.5 | 11 | 11 | .41 | .07 | 5.7 | 2.3 | 25 | 22 | 11 | 11 |
| 21 | 9.0 | 8.5 | 11 | 7.8 | .86 | .15 | 6.2 | 16 | 25 | 22 | 9.8 | 15 |
| 22 | 9.3 | 8.9 | 11 | .65 | 1.5 | .23 | 6.9 | 19 | 25 | 22 | 9.5 | 33 |
| 23 | 8.9 | 9.0 | 11 | .58 | 1.6 | .11 | 8.6 | 20 | 23 | 21 | 9.1 | 43 |
| 24 | 8.9 | 8.9 | 11 | .65 | .93 | .23 | 7.0 | 20 | 23 | 23 | 8.3 | 44 |
| 25 | 9.0 | 8.2 | 11 | 1.1 | .74 | .10 | 7.6 | 12 | 23 | 23 | 16 | 44 |
| 26 | 8.8 | 8.1 | 12 | 1.5 | 1.1 | .18 | 7.8 | 12 | 24 | 23 | 15 | 45 |
| 27 | 8.4 | 8.1 | 11 | 1.5 | 2.0 | .32 | 6.8 | 12 | 24 | 23 | 15 | 45 |
| 28 | 8.3 | 8.1 | 11 | 1.4 | 2.7 | .45 | 8.1 | 7.6 | 24 | 24 | 15 | 46 |
| 29 | 8.4 | 8.3 | 12 | 1.5 | --- | .53 | 7.2 | 2.8 | 23 | 24 | 14 | 45 |
| 30 | 8.2 | 8.7 | 12 | 1.5 | --- | .42 | 8.4 | 3.6 | 23 | 23 | 13 | 46 |
| 31 | 8.2 | --- | 11 | 1.5 | --- | .24 | --- | 2.5 | --- | 23 | 13 | --- |
| TOTAL | 916.4 | 253.5 | 335.4 | 239.68 | 22.24 | 38.80 | 148.20 | 232.01 | 599.1 | 717 | 406.9 | 682 |
| MEAN | 29.6 | 8.45 | 10.8 | 7.73 | .79 | 1.25 | 4.94 | 7.48 | 20.0 | 23.1 | 13.1 | 22.7 |
| MAX | 71 | 9.0 | 19 | 12 | 2.7 | 15 | 17 | 24 | 34 | 25 | 37 | 46 |
| MIN | 8.2 | 7.8 | 8.8 | .58 | .32 | .04 | .05 | .40 | 1.2 | 21 | 8.3 | 11 |
| AC-FT | 1820 | 503 | 665 | 475 | 44 | 77 | 294 | 460 | 1190 | 1420 | 807 | 1350 |

CAL YR 1980 TOTAL 16276.86 MEAN 44.5 MAX 319 MIN .20 AC-FT 32290
WTR YR 1981 TOTAL 4591.23 MEAN 12.6 MAX 71 MIN .04 AC-FT 9110

08047000 CLEAR FORK TRINITY RIVER NEAR BENBROOK, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH FIELD (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, BIOCHEM UNINHIB 5 DAY (MG/L) | HARD-NESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | | |
| 13... | 1435 | 12 | 342 | 7.9 | 8.5 | 5 | .40 | 11.1 | 97 | .5 | 130 |
| MAY | | | | | | | | | | | |
| 04... | 1630 | .70 | 366 | 7.5 | 22.0 | 10 | 2.6 | 6.2 | 72 | 1.0 | 140 |
| AUG | | | | | | | | | | | |
| 03... | 1530 | 34 | 323 | 8.1 | 30.0 | 5 | 1.2 | 7.6 | 103 | 2.2 | 110 |

| DATE | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 (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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | | |
| 13... | 20 | 43 | 5.6 | 18 | .7 | 3.6 | 110 | 30 | 23 | .3 | .5 |
| MAY | | | | | | | | | | | |
| 04... | 21 | 46 | 6.3 | 19 | .7 | 3.8 | 120 | 31 | 21 | .3 | 2.3 |
| AUG | | | | | | | | | | | |
| 03... | 12 | 34 | 6.2 | 19 | .8 | 4.1 | 98 | 28 | 19 | .3 | 4.5 |

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (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) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | | |
| 13... | 190 | 1 | 3 | .18 | .010 | .19 | .080 | .61 | .69 | .030 | 8.4 |
| MAY | | | | | | | | | | | |
| 04... | 202 | 4 | 4 | .24 | .000 | .24 | .120 | 2.7 | 2.8 | .160 | 5.0 |
| AUG | | | | | | | | | | | |
| 03... | 174 | 0 | 0 | .08 | .020 | .10 | .120 | .64 | .76 | .040 | 4.4 |

| DATE | TIME | ARSENIC DIS-SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 13... | 1435 | 1 | 50 | <1 | 0 | <10 | <10 |
| MAY | | | | | | | |
| 04... | 1630 | 2 | 60 | <1 | 0 | <10 | <10 |
| AUG | | | | | | | |
| 03... | 1530 | 4 | 50 | <1 | 0 | <10 | <10 |

| DATE | 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) |
|---|---|---|---|---|---|---|
| JAN | | | | | | |
| 13... | 12 | 8 | .0 | 0 | 1 | 9 |
| MAY | | | | | | |
| 04... | <10 | 6 | .0 | 0 | 0 | <3 |
| AUG | | | | | | |
| 03... | <10 | 10 | .0 | 0 | 0 | <3 |

## 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 (73 m) upstream from the Texas and Pacific Railway Co. bridge in Fort Worth, 830 ft (253 m) upstream from East-West Expressway bridge, 2.5 mi (4.0 km) upstream from mouth, 5 mi (8 km) downstream from Marys Creek, and 10 mi (16 km) downstream from Benbrook Dam.

DRAINAGE AREA.--518 $mi^2$ (1,342 $km^2$).

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 (162.431 m) National Geodetic Vertical Datum of 1929. Prior to Apr. 3, 1970, various nonrecording and recording gages were located within 650 ft (198 m) of present site at different datums.

REMARKS.--Records fair. Flow largely regulated by Benbrook Lake (station 08046500). Records furnished by city of Fort Worth show 3,090 acre-ft (3.81 $hm^3$) was pumped from pool behind dam during current year. Records furnished by the Benbrook Water and Sewage Authority show that 511 acre-ft (630,000 $m^3$) of water was diverted from the river upstream from station for municipal use. Several observations of water temperature were made during the year. Gage-height telemeter is located at station.

AVERAGE DISCHARGE.--28 years (water years 1925-52) prior to regulation by Benbrook Lake, 112 $ft^3/s$ (3.172 $m^3/s$), 81,140 acre-ft/yr (100 $hm^3/yr$); 29 years (water years 1953-81) regulated, unadjusted, 94.1 $ft^3/s$ (2.665 $m^3/s$), 68,180 acre-ft/yr (84.1 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 107,000 $ft^3/s$ (3,030 $m^3/s$) May 17, 1949, gage height, 28.20 ft (8.595 m), present datum, from rating curve extended above 16,000 $ft^3/s$ (453 $m^3/s$) on basis of contracted-opening measurement of 107,000 $ft^3/s$ (3,030 $m^3/s$); no flow at times most years.
Maximum stage since at least 1900, 28.20 ft (8.595 m) May 17, 1949, present datum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 25, 1922, reached a stage of 27.5 ft (8.38 m) present datum, discharge, 74,300 $ft^3/s$ (2,100 $m^3/s$), by slope-area measurement of peak flow; data furnished by Fort Worth city engineer.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,610 $ft^3/s$ (187 $m^3/s$) May 8 at 2215 hours, gage height, 12.51 ft (3.813 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.0 | 8.8 | 11 | 10 | 16 | 66 | 9.7 | 26 | 39 | 20 | 16 | 637 |
| 2 | 24 | 9.5 | 9.0 | 10 | 7.1 | 18 | 9.8 | 14 | 29 | 52 | 16 | 127 |
| 3 | 21 | 10 | 8.7 | 9.7 | 4.9 | 450 | 34 | 17 | 70 | 289 | 15 | 36 |
| 4 | 13 | 9.2 | 9.2 | 9.0 | 4.1 | 84 | 26 | 20 | 55 | 284 | 11 | 21 |
| 5 | 11 | 9.3 | 9.8 | 9.1 | 7.6 | 26 | 9.3 | 14 | 104 | 36 | 14 | 17 |
| 6 | 10 | 8.8 | 10 | 9.9 | 7.5 | 17 | 7.0 | 9.3 | 136 | 31 | 5.0 | 17 |
| 7 | 3.9 | 9.0 | 10 | 10 | 6.2 | 330 | 8.1 | 7.3 | 37 | 27 | 1.1 | 45 |
| 8 | .05 | 8.9 | 417 | 10 | 4.6 | 51 | 8.1 | 730 | 24 | 25 | .91 | 57 |
| 9 | .00 | 9.5 | 33 | 15 | 7.0 | 30 | 7.3 | 663 | 15 | 25 | 1.7 | 11 |
| 10 | .00 | 9.2 | 19 | 13 | 13 | 22 | 6.7 | 47 | 11 | 26 | 2.3 | 1.0 |
| 11 | .00 | 8.6 | 15 | 12 | 6.3 | 18 | 5.6 | 29 | 8.4 | 26 | 1.7 | 5.3 |
| 12 | .01 | 8.2 | 13 | 12 | 4.4 | 15 | 5.7 | 19 | 6.6 | 21 | .64 | .00 |
| 13 | .00 | 9.4 | 13 | 12 | 2.5 | 16 | 5.7 | 14 | 21 | 19 | .43 | 1.5 |
| 14 | .00 | 9.1 | 12 | 11 | 2.3 | 16 | 8.3 | 11 | 32 | 16 | .43 | 57 |
| 15 | 4.0 | 8.8 | 12 | 11 | 2.0 | 15 | 20 | 138 | 105 | 16 | .43 | 15 |
| 16 | 16 | 38 | 12 | 11 | 3.7 | 14 | 14 | 51 | 482 | 16 | .29 | 1.4 |
| 17 | 132 | 38 | 13 | 11 | 3.6 | 12 | 10 | 27 | 52 | 16 | 73 | .00 |
| 18 | 23 | 17 | 13 | 11 | 3.1 | 9.8 | 198 | 18 | 41 | 14 | 25 | .00 |
| 19 | 14 | 12 | 9.7 | 13 | 4.3 | 9.8 | 49 | 14 | 37 | 15 | 13 | .00 |
| 20 | 11 | 11 | 9.0 | 15 | 5.3 | 10 | 19 | 11 | 36 | 16 | 10 | .00 |
| 21 | 10 | 11 | 9.0 | 13 | 7.5 | 9.9 | 13 | 9.4 | 33 | 15 | 8.0 | .00 |
| 22 | 10 | 23 | 9.3 | 11 | 6.1 | 8.7 | 38 | 14 | 31 | 14 | 6.8 | .00 |
| 23 | 10 | 19 | 10 | 7.0 | 3.6 | 8.5 | 164 | 94 | 30 | 15 | 6.8 | 5.0 |
| 24 | 9.2 | 12 | 9.7 | 4.7 | 1.9 | 7.1 | 32 | 104 | 28 | 15 | 6.7 | 1.4 |
| 25 | 8.4 | 11 | 10 | 4.5 | 1.8 | 7.0 | 19 | 22 | 27 | 14 | 5.1 | .00 |
| 26 | 10 | 11 | 11 | 4.5 | 2.9 | 9.0 | 15 | 13 | 26 | 14 | 8.2 | .00 |
| 27 | 11 | 11 | 11 | 4.5 | 3.6 | 10 | 12 | 15 | 26 | 13 | 24 | .00 |
| 28 | 10 | 11 | 10 | 4.1 | 34 | 12 | 10 | 12 | 25 | 53 | 17 | .00 |
| 29 | 9.2 | 11 | 9.6 | 4.0 | --- | 95 | 10 | 9.1 | 24 | 32 | 11 | .00 |
| 30 | 8.7 | 11 | 9.8 | 3.2 | --- | 25 | 9.3 | 8.3 | 23 | 23 | 9.0 | .00 |
| 31 | 9.0 | --- | 10 | 3.0 | --- | 14 | --- | 7.6 | --- | 17 | 8.9 | --- |
| TOTAL | 393.46 | 383.3 | 767.8 | 288.2 | 176.9 | 1435.8 | 783.6 | 2188.0 | 1614.0 | 1215 | 319.43 | 1055.60 |
| MEAN | 12.7 | 12.8 | 24.8 | 9.30 | 6.32 | 46.3 | 26.1 | 70.6 | 53.8 | 39.2 | 10.3 | 35.2 |
| MAX | 132 | 38 | 417 | 15 | 34 | 450 | 198 | 730 | 482 | 289 | 73 | 637 |
| MIN | .00 | 8.2 | 8.7 | 3.0 | 1.8 | 7.0 | 5.6 | 7.3 | 6.6 | 13 | .29 | .00 |
| AC-FT | 780 | 760 | 1520 | 572 | 351 | 2850 | 1550 | 4340 | 3200 | 2410 | 634 | 2090 |

CAL YR 1980 TOTAL 18756.30 MEAN 51.2 MAX 419 MIN .00 AC-FT 37200
WTR YR 1981 TOTAL 10621.09 MEAN 29.1 MAX 730 MIN .00 AC-FT 21070

## 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 (38 m) upstream from Texas Electric Service Co.'s concrete dam, 980 ft (299 m) downstream from centerline of Paddock Viaduct (North Main Street) at Fort Worth, 2,600 ft (792 m) downstream from Clear Fork Trinity River, and at mile 556.8 (895.9 km).

DRAINAGE AREA.--2,615 mi² (6,773 km²).

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 (1.42 m³/s). Datum of gage is 519.24 ft (158.264 m) Texas Reclamation Department datum. Prior to Aug. 22, 1954, at site 1,200 ft (366 m) upstream at same datum. Aug. 22, 1954, to Oct. 15, 1955, at site 2,000 ft (610 m) upstream at same datum.

REMARKS.--Records good. Flow is largely regulated by Lake Worth on the West Fork Trinity River and by Benbrook Lake (station 08046500) on the Clear Fork Trinity River. At times, flow is sustained by releases from the flood-detention pool of Benbrook Lake. Records furnished by the city of Fort Worth show that during the year 60,840 acre-ft (75.0 hm³) was diverted above station and that 53,000 acre-ft (65.3 hm³) was diverted from Cedar Creek Reservoir for municipal and industrial uses. Many small diversions above station. Gage-height telemeter is located at station.

AVERAGE DISCHARGE.--61 years, 355 ft³/s (10.05 m³/s), 257,200 acre-ft/yr (317 hm³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 85,000 ft³/s (2,410 m³/s), Apr. 25, 1922, gage height, 23.95 ft (7.300 m), site then in use, by slope-area measurement of peak flow by city engineer of Fort Worth; maximum gage height, 25.91 ft (7.897 m) May 17, 1949, site then in use, discharge, 64,300 ft³/s (1,820 m³/s); no flow at times.
Maximum stage since at least 1866, that of May 17, 1949. Maximum stages have been affected by levee construction, levee breaks, and channel rectification.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,400 ft³/s (295 m³/s) May 8 at 2215 hours, gage height, 4.84 ft (1.475 m); minimum daily, 4.2 ft³/s (0.12 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 26 | 18 | 23 | 29 | 32 | 177 | 22 | 26 | 131 | 36 | 26 | 1180 |
| 2 | 39 | 20 | 21 | 29 | 26 | 41 | 19 | 28 | 52 | 44 | 27 | 281 |
| 3 | 45 | 22 | 19 | 28 | 20 | 918 | 25 | 38 | 164 | 511 | 25 | 54 |
| 4 | 43 | 24 | 20 | 27 | 18 | 284 | 72 | 59 | 104 | 821 | 19 | 33 |
| 5 | 43 | 25 | 22 | 26 | 19 | 46 | 36 | 34 | 296 | 60 | 20 | 28 |
| 6 | 42 | 26 | 22 | 26 | 23 | 33 | 24 | 31 | 354 | 45 | 15 | 21 |
| 7 | 42 | 26 | 21 | 28 | 22 | 703 | 19 | 27 | 96 | 41 | 15 | 27 |
| 8 | 40 | 25 | 899 | 29 | 19 | 122 | 19 | 1350 | 50 | 35 | 19 | 100 |
| 9 | 38 | 25 | 76 | 31 | 19 | 48 | 19 | 1170 | 40 | 35 | 15 | 25 |
| 10 | 38 | 25 | 34 | 31 | 40 | 40 | 18 | 100 | 33 | 35 | 13 | 13 |
| 11 | 42 | 22 | 29 | 31 | 30 | 36 | 17 | 46 | 28 | 34 | 10 | 10 |
| 12 | 44 | 19 | 28 | 31 | 23 | 32 | 17 | 41 | 25 | 35 | 8.1 | 10 |
| 13 | 46 | 19 | 27 | 32 | 20 | 30 | 17 | 34 | 29 | 32 | 7.5 | 13 |
| 14 | 38 | 19 | 26 | 36 | 19 | 30 | 16 | 28 | 49 | 31 | 6.4 | 161 |
| 15 | 31 | 19 | 27 | 49 | 19 | 29 | 17 | 207 | 93 | 29 | 5.7 | 34 |
| 16 | 65 | 57 | 29 | 37 | 18 | 25 | 24 | 128 | 995 | 29 | 6.2 | 16 |
| 17 | 289 | 111 | 29 | 26 | 17 | 24 | 24 | 42 | 97 | 28 | 81 | 8.7 |
| 18 | 44 | 39 | 29 | 23 | 17 | 21 | 284 | 33 | 64 | 25 | 106 | 6.4 |
| 19 | 28 | 30 | 23 | 23 | 17 | 18 | 121 | 25 | 49 | 26 | 30 | 5.9 |
| 20 | 22 | 27 | 20 | 26 | 16 | 19 | 32 | 21 | 43 | 28 | 22 | 5.7 |
| 21 | 20 | 26 | 19 | 27 | 18 | 21 | 24 | 19 | 39 | 27 | 19 | 5.7 |
| 22 | 20 | 42 | 19 | 25 | 24 | 20 | 33 | 19 | 38 | 26 | 16 | 5.3 |
| 23 | 20 | 52 | 19 | 22 | 22 | 18 | 421 | 40 | 40 | 27 | 15 | 5.5 |
| 24 | 21 | 33 | 20 | 19 | 19 | 18 | 59 | 294 | 35 | 29 | 14 | 6.9 |
| 25 | 19 | 26 | 20 | 16 | 18 | 18 | 39 | 46 | 31 | 30 | 11 | 5.9 |
| 26 | 19 | 24 | 21 | 15 | 17 | 24 | 36 | 32 | 32 | 34 | 10 | 4.7 |
| 27 | 22 | 23 | 23 | 14 | 16 | 24 | 33 | 62 | 34 | 32 | 24 | 4.4 |
| 28 | 18 | 23 | 25 | 14 | 108 | 45 | 31 | 31 | 35 | 126 | 36 | 4.7 |
| 29 | 17 | 23 | 25 | 14 | --- | 189 | 29 | 21 | 33 | 69 | 26 | 4.7 |
| 30 | 17 | 23 | 26 | 15 | --- | 44 | 27 | 20 | 34 | 34 | 19 | 4.2 |
| 31 | 16 | --- | 26 | 14 | --- | 29 | --- | 18 | --- | 28 | 17 | --- |
| TOTAL | 1254 | 893 | 1667 | 793 | 676 | 3126 | 1574 | 4070 | 3143 | 2422 | 683.9 | 2084.7 |
| MEAN | 40.5 | 29.8 | 53.8 | 25.6 | 24.1 | 101 | 52.5 | 131 | 105 | 78.1 | 22.1 | 69.5 |
| MAX | 289 | 111 | 899 | 49 | 108 | 918 | 421 | 1350 | 995 | 821 | 106 | 1180 |
| MIN | 16 | 18 | 19 | 14 | 16 | 18 | 16 | 18 | 25 | 25 | 5.7 | 4.2 |
| AC-FT | 2490 | 1770 | 3310 | 1570 | 1340 | 6200 | 3120 | 8070 | 6230 | 4800 | 1360 | 4140 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 29018.96 | MEAN 79.3 | MAX | 1770 | MIN | .00 | AC-FT | 57560 |
| WTR YR 1981 | TOTAL | 22386.60 | MEAN 61.3 | MAX | 1350 | MIN | 4.2 | AC-FT | 44400 |

## 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 (518 m) downstream from Sycamore Creek, 0.9 mi (1.4 km) downstream from Riverside Drive bridge, 2.6 mi (4.2 km) east of the Tarrant County Courthouse, and at mile 549.6 (884.3 km).

DRAINAGE AREA.--2,685 $mi^2$ (6,954 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is 478.70 ft (145.908 m) State Department of Highways and Public Transportation datum.

REMARKS.--Water-discharge records good. Flow is largely regulated by Lake Worth on the West Fork Trinity River and by Benbrook Lake (station 08046500) on the Clear Fork Trinity River. At times, flow is sustained by releases from the flood-detention pool of Benbrook Lake. There are many diversions upstream from this station for municipal, industrial, and other uses. For diversions by city of Fort Worth, see West Fork Trinity River at Fort Worth (station 08048000).

AVERAGE DISCHARGE.--5 year, 215 $ft^3/s$ (6.089 $m^3/s$), 155,800 acre-ft/yr (192 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,800 $ft^3/s$ (532 $m^3/s$) Mar. 27, 1977, gage height, 34.27 ft (10.445 m); minimum, 0.84 $ft^3/s$ (0.024 $m^3/s$) July 25, 1977.

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.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,960 $ft^3/s$ (225 $m^3/s$) May 9 at 0130 hours, gage height, 22.39 ft (6.824 m); minimum daily, 8.6 $ft^3/s$ (0.24 $m^3/s$) Aug. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 64 | 26 | 34 | 32 | 71 | 255 | 39 | 101 | 624 | 42 | 19 | 1820 |
| 2 | 45 | 29 | 32 | 30 | 39 | 79 | 34 | 43 | 170 | 49 | 19 | 474 |
| 3 | 54 | 31 | 31 | 31 | 32 | 1380 | 75 | 101 | 275 | 362 | 19 | 121 |
| 4 | 34 | 32 | 31 | 30 | 30 | 615 | 112 | 108 | 170 | 2190 | 17 | 66 |
| 5 | 31 | 32 | 34 | 29 | 42 | 100 | 47 | 47 | 788 | 131 | 17 | 44 |
| 6 | 30 | 34 | 32 | 29 | 37 | 72 | 36 | 42 | 660 | 75 | 17 | 30 |
| 7 | 29 | 32 | 30 | 30 | 31 | 1010 | 33 | 34 | 147 | 66 | 18 | 33 |
| 8 | 26 | 34 | 1540 | 32 | 28 | 216 | 34 | 649 | 77 | 56 | 17 | 137 |
| 9 | 24 | 33 | 148 | 39 | 43 | 104 | 31 | 3190 | 62 | 51 | 14 | 38 |
| 10 | 23 | 34 | 61 | 33 | 63 | 79 | 30 | 160 | 52 | 50 | 13 | 27 |
| 11 | 22 | 37 | 48 | 30 | 35 | 70 | 28 | 64 | 44 | 48 | 12 | 19 |
| 12 | 23 | 33 | 42 | 30 | 29 | 62 | 27 | 49 | 44 | 48 | 11 | 17 |
| 13 | 24 | 32 | 39 | 32 | 27 | 57 | 28 | 41 | 46 | 45 | 10 | 18 |
| 14 | 24 | 31 | 36 | 32 | 26 | 52 | 29 | 33 | 66 | 40 | 9.2 | 292 |
| 15 | 18 | 31 | 35 | 57 | 25 | 51 | 32 | 326 | 456 | 42 | 8.6 | 60 |
| 16 | 27 | 126 | 33 | 51 | 25 | 49 | 38 | 204 | 2200 | 36 | 11 | 27 |
| 17 | 450 | 184 | 33 | 37 | 26 | 44 | 36 | 61 | 185 | 36 | 357 | 19 |
| 18 | 63 | 57 | 34 | 35 | 27 | 40 | 373 | 43 | 105 | 34 | 206 | 15 |
| 19 | 34 | 41 | 34 | 38 | 25 | 37 | 239 | 35 | 78 | 38 | 40 | 14 |
| 20 | 28 | 35 | 31 | 46 | 24 | 38 | 58 | 31 | 67 | 41 | 27 | 14 |
| 21 | 26 | 33 | 31 | 41 | 28 | 40 | 44 | 27 | 61 | 35 | 24 | 13 |
| 22 | 23 | 73 | 32 | 39 | 29 | 37 | 82 | 26 | 55 | 29 | 21 | 14 |
| 23 | 24 | 81 | 31 | 36 | 24 | 36 | 636 | 100 | 57 | 29 | 18 | 34 |
| 24 | 27 | 44 | 30 | 32 | 23 | 36 | 88 | 563 | 53 | 31 | 17 | 15 |
| 25 | 24 | 37 | 30 | 30 | 24 | 39 | 55 | 77 | 49 | 29 | 16 | 13 |
| 26 | 22 | 34 | 33 | 28 | 24 | 40 | 43 | 47 | 47 | 29 | 14 | 22 |
| 27 | 25 | 34 | 33 | 27 | 23 | 39 | 39 | 196 | 47 | 31 | 23 | 23 |
| 28 | 27 | 35 | 32 | 28 | 158 | 68 | 36 | 63 | 50 | 213 | 40 | 21 |
| 29 | 25 | 34 | 31 | 28 | --- | 277 | 35 | 44 | 44 | 90 | 26 | 11 |
| 30 | 26 | 35 | 31 | 28 | --- | 71 | 32 | 46 | 41 | 28 | 22 | 9.5 |
| 31 | 25 | --- | 31 | 27 | --- | 50 | --- | 33 | --- | 21 | 21 | --- |
| TOTAL | 1347 | 1364 | 2683 | 1047 | 1018 | 5143 | 2449 | 6584 | 6820 | 4045 | 1103.8 | 3460.5 |
| MEAN | 43.5 | 45.5 | 86.5 | 33.8 | 36.4 | 166 | 81.6 | 212 | 227 | 130 | 35.6 | 115 |
| MAX | 450 | 184 | 1540 | 57 | 158 | 1380 | 636 | 3190 | 2200 | 2190 | 357 | 1820 |
| MIN | 18 | 26 | 30 | 27 | 23 | 36 | 27 | 26 | 41 | 21 | 8.6 | 9.5 |
| AC-FT | 2670 | 2710 | 5320 | 2080 | 2020 | 10200 | 4860 | 13060 | 13530 | 8020 | 2190 | 6860 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 41406.7 | MEAN 113 | MAX | 3890 | MIN 2.0 | AC-FT | 82130 |
| WTR YR 1981 | TOTAL | 37064.3 | MEAN 102 | MAX | 3190 | MIN 8.6 | AC-FT | 73520 |

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1976 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1976 to current year.
pH: October 1976 to current year.
WATER TEMPERATURES: October 1976 to current year.
DISSOLVED OXYGEN: October 1976 to current year.

INSTRUMENTATION.--Water-quality monitor since October 1976.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. Where maximum or minimum 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, 2,000 micromhos Nov. 6, 1978; minimum, 104 micromhos June 15, 1981.
pH: Maximum, 9.8 units Aug. 8, Sept. 2. 1980; minimum, 6.7 units Aug. 18, 1981.
WATER TEMPERATURES: Maximum, 38.0°C July 14, 16, 1978; minimum, 0.5°C Jan. 11, 19, 20, 1978, Jan. 8, 14, 1979.
DISSOLVED OXYGEN: Maximum, 19.3 mg/L Sept. 20, 1980; minimum, 0.0 mg/L on several days during 1977 and 1980.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 952 micromhos Mar. 29; minimum, 104 micromhos June 15.
pH: Maximum, 9.0 units June 1, 2, Aug. 6; minimum, 6.7 units Aug. 18.
WATER TEMPERATURES: Maximum, 36.0°C Aug. 15; minimum, 2.5°C Feb. 12.
DISSOLVED OXYGEN: Maximum, 18.8 mg/L Jan. 24; minimum, 0.9 mg/L Nov. 12.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (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 (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | |
| 06... | 1155 | 34 | 588 | 7.7 | 18.0 | 10.6 | 112 | 3.0 | 180 | 12 |
| DEC | | | | | | | | | | |
| 04... | 1430 | 32 | 580 | 7.5 | 11.0 | 11.2 | 102 | 1.9 | 190 | 31 |
| JAN | | | | | | | | | | |
| 22... | 1250 | 39 | 623 | 7.9 | 8.0 | 13.1 | 110 | 1.9 | 220 | 47 |
| MAR | | | | | | | | | | |
| 12... | 1345 | 55 | 600 | 7.9 | 15.0 | 7.7 | 76 | 1.6 | 190 | 35 |
| APR | | | | | | | | | | |
| 09... | 1410 | 31 | 603 | 8.1 | 23.0 | 10.2 | 119 | 2.9 | 200 | 39 |
| JUN | | | | | | | | | | |
| 11... | 1250 | 43 | 627 | 7.9 | 27.0 | 8.3 | 105 | 2.0 | 180 | 37 |
| JUL | | | | | | | | | | |
| 06... | 1345 | 75 | 538 | 7.9 | 30.0 | 6.4 | 85 | 2.5 | 160 | 18 |
| AUG | | | | | | | | | | |
| 11... | 1515 | 38 | 549 | 8.3 | 32.0 | 14.4 | 200 | 2.1 | 130 | 35 |
| SEP | | | | | | | | | | |
| 10... | 1520 | 57 | 433 | 7.8 | 29.0 | 8.6 | 113 | 2.1 | 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 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) |
|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | |
| 06... | 60 | 8.3 | 44 | 1.4 | 6.5 | 170 | 58 | 48 | .5 |
| DEC | | | | | | | | | |
| 04... | 64 | 7.6 | 37 | 1.2 | 6.5 | 160 | 52 | 53 | .4 |
| JAN | | | | | | | | | |
| 22... | 73 | 8.4 | 45 | 1.3 | 5.8 | 170 | 64 | 54 | .4 |
| MAR | | | | | | | | | |
| 12... | 65 | 5.6 | 43 | 1.4 | 16 | 150 | 75 | 45 | .4 |
| APR | | | | | | | | | |
| 09... | 67 | 7.6 | 43 | 1.3 | 9.3 | 160 | 70 | 53 | .5 |
| JUN | | | | | | | | | |
| 11... | 61 | 5.9 | 44 | 1.4 | 28 | 140 | 88 | 49 | .4 |
| JUL | | | | | | | | | |
| 06... | 55 | 5.1 | 29 | 1.0 | 33 | 140 | 78 | 35 | .3 |
| AUG | | | | | | | | | |
| 11... | 42 | 7.2 | 63 | 2.5 | 6.6 | 100 | 65 | 69 | .4 |
| SEP | | | | | | | | | |
| 10... | 48 | 4.5 | 28 | 1.1 | 7.0 | 120 | 36 | 43 | .3 |

08048543 WEST FORK TRINITY RIVER AT BEACH STREET FORT WORTH, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | |
| 06... | 3.4 | 332 | .41 | .060 | .47 | .490 | .71 | 1.20 | .140 |
| DEC | | | | | | | | | |
| 04... | 4.3 | 321 | .45 | .050 | .50 | .310 | .79 | 1.10 | .100 |
| JAN | | | | | | | | | |
| 22... | 3.3 | 356 | .35 | .030 | .38 | .710 | 1.1 | 1.80 | .200 |
| MAR | | | | | | | | | |
| 12... | 6.6 | 347 | 1.4 | .110 | 1.5 | .770 | 1.0 | 1.80 | .260 |
| APR | | | | | | | | | |
| 09... | 2.8 | 349 | .30 | .080 | .38 | .340 | 1.7 | 2.00 | .190 |
| JUN | | | | | | | | | |
| 11... | 6.0 | 366 | .76 | .070 | .83 | .240 | .26 | .50 | .080 |
| JUL | | | | | | | | | |
| 06... | 8.4 | 328 | .91 | .070 | .98 | .300 | 1.0 | 1.30 | .140 |
| AUG | | | | | | | | | |
| 11... | 7.4 | 321 | .13 | .020 | .15 | .170 | .93 | 1.10 | .030 |
| SEP | | | | | | | | | |
| 10... | 6.4 | 245 | .22 | .070 | .29 | .200 | .63 | .83 | .060 |

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 1347 | 471 | 267 | 973 | 37 | 134 | 46 | 169 | 160 |
| NOV. | 1980 | 1364 | 533 | 302 | 1110 | 45 | 167 | 53 | 195 | 170 |
| DEC. | 1980 | 2683 | 361 | 205 | 1480 | 24 | 174 | 35 | 255 | 130 |
| JAN. | 1981 | 1047 | 594 | 336 | 951 | 56 | 158 | 60 | 168 | 180 |
| FEB. | 1981 | 1018 | 581 | 329 | 905 | 54 | 148 | 58 | 160 | 180 |
| MAR. | 1981 | 5143 | 463 | 263 | 3650 | 36 | 504 | 46 | 634 | 160 |
| APR. | 1981 | 2449 | 482 | 273 | 1810 | 39 | 255 | 48 | 315 | 160 |
| MAY | 1981 | 6584 | 337 | 191 | 3400 | 20 | 355 | 33 | 578 | 130 |
| JUNE | 1981 | 6820 | 426 | 242 | 4460 | 30 | 560 | 42 | 769 | 150 |
| JULY | 1981 | 4045 | 400 | 227 | 2480 | 28 | 304 | 39 | 427 | 140 |
| AUG. | 1981 | 1103.8 | 491 | 278 | 830 | 39 | 116 | 48 | 144 | 160 |
| SEPT | 1981 | 3460.5 | 429 | 244 | 2280 | 31 | 286 | 42 | 393 | 150 |
| TOTAL | | 37064.3 | ** | ** | 24300 | ** | 3160 | ** | 4210 | ** |
| WTD. AVG. | | 102 | 428 | 243 | ** | 32 | ** | 42 | ** | 150 |

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORTH WORTH, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | --- | --- | 420 | 560 | 516 | 532 | 612 | 562 | 580 | 594 | 570 | 582 |
| 2 | --- | --- | 600 | 586 | 552 | 569 | 696 | 554 | 588 | 600 | 568 | 584 |
| 3 | 582 | 454 | 500 | 610 | 584 | 593 | 640 | 556 | 579 | 600 | 576 | 582 |
| 4 | 538 | 464 | 507 | 606 | 572 | 583 | 580 | 556 | 560 | 610 | 582 | 597 |
| 5 | 560 | 532 | 549 | 588 | 548 | 559 | 594 | 564 | 578 | --- | --- | 590 |
| 6 | 532 | 506 | 521 | 560 | 544 | 554 | 592 | 562 | 576 | 608 | 564 | 582 |
| 7 | 556 | 514 | 534 | 624 | 554 | 577 | --- | --- | 560 | 566 | 562 | 564 |
| 8 | 804 | 562 | 703 | 600 | 564 | 575 | --- | --- | 250 | 600 | 560 | 571 |
| 9 | 674 | 602 | 626 | 588 | 558 | 568 | --- | --- | 320 | 618 | 598 | 603 |
| 10 | 676 | 612 | 645 | 570 | 548 | 557 | --- | --- | 370 | 626 | 600 | 614 |
| 11 | 676 | 592 | 633 | 606 | 542 | 559 | --- | --- | 420 | 610 | 588 | 597 |
| 12 | 660 | 608 | 628 | 600 | 556 | 575 | --- | --- | 450 | 600 | 588 | 594 |
| 13 | 628 | 586 | 608 | 598 | 568 | 580 | --- | --- | 470 | 590 | 572 | 577 |
| 14 | 704 | 538 | 591 | 630 | 576 | 592 | --- | --- | 480 | 580 | 564 | 571 |
| 15 | 652 | --- | 630 | 630 | 614 | 622 | --- | --- | 490 | 570 | 530 | 549 |
| 16 | 630 | 528 | 603 | 628 | 428 | 539 | --- | --- | 500 | 562 | 540 | 548 |
| 17 | 512 | 240 | 359 | 452 | 410 | 430 | 528 | 494 | 508 | 568 | 546 | 558 |
| 18 | 442 | 350 | 401 | --- | --- | 480 | 610 | 528 | 574 | 586 | 570 | 580 |
| 19 | 468 | 446 | 460 | 512 | 502 | 507 | 600 | 574 | 584 | 628 | 584 | 599 |
| 20 | 494 | 460 | 483 | 534 | 512 | 525 | 576 | 574 | 576 | 628 | 624 | 625 |
| 21 | 480 | 468 | 474 | 604 | 532 | 569 | 584 | 574 | 581 | 620 | 594 | 605 |
| 22 | 498 | 474 | 483 | 596 | 420 | 547 | 584 | 578 | 580 | 618 | 598 | 609 |
| 23 | 508 | 496 | 503 | 616 | 476 | 510 | 578 | 574 | 577 | 623 | 610 | 626 |
| 24 | 768 | 484 | 573 | 520 | 504 | 513 | 580 | 574 | 576 | 636 | 618 | 626 |
| 25 | 670 | 482 | 520 | 530 | 518 | 523 | 612 | 564 | 588 | 632 | 604 | 616 |
| 26 | 524 | 480 | 497 | 524 | 512 | 515 | 598 | 592 | 594 | 634 | 610 | 624 |
| 27 | 548 | 512 | 530 | 530 | 516 | 524 | 604 | 590 | 595 | 628 | 604 | 619 |
| 28 | 508 | 486 | 495 | 542 | 532 | 538 | 598 | 582 | 589 | 624 | 602 | 615 |
| 29 | 520 | 494 | 503 | 614 | 542 | 567 | 594 | 584 | 586 | 652 | 598 | 619 |
| 30 | 520 | 510 | 517 | 676 | 610 | 644 | 594 | 582 | 589 | 646 | 598 | 619 |
| 31 | 530 | 510 | 517 | --- | --- | --- | 586 | 580 | 584 | 638 | 614 | 621 |
| MONTH | 804 | 240 | 536 | 676 | 410 | 551 | 696 | 494 | 531 | 652 | 530 | 596 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 536 | --- | 450 | 496 | 294 | 414 | 778 | 714 | 751 | 490 | 188 | 385 |
| 2 | --- | --- | 550 | 536 | 434 | 515 | 868 | 738 | 778 | 570 | 440 | 472 |
| 3 | 598 | 572 | 581 | 560 | 246 | 401 | 800 | 328 | 626 | 484 | 256 | 422 |
| 4 | 642 | 596 | 612 | 398 | 282 | 355 | 556 | 474 | 542 | 444 | 350 | 389 |
| 5 | 644 | 566 | 598 | 466 | 402 | 432 | 632 | 560 | 611 | 498 | 450 | 484 |
| 6 | 622 | 598 | 612 | 492 | 462 | 478 | 640 | 610 | 623 | 482 | 460 | 471 |
| 7 | 612 | 596 | 600 | 520 | 214 | 377 | 648 | 626 | 640 | 490 | 458 | 474 |
| 8 | 612 | 592 | 599 | 508 | 392 | 448 | 644 | 614 | 628 | 490 | 114 | 356 |
| 9 | 602 | 452 | 564 | 554 | 502 | 521 | 626 | 590 | 608 | 298 | 178 | 244 |
| 10 | 648 | 458 | 550 | 556 | 510 | 528 | 626 | 594 | 606 | --- | --- | 300 |
| 11 | 576 | 556 | 567 | 660 | 512 | 557 | 618 | 594 | 606 | 474 | 462 | 468 |
| 12 | 668 | 566 | 606 | 612 | 566 | 580 | 614 | 584 | 600 | 490 | 468 | 479 |
| 13 | 640 | 608 | 622 | 594 | 572 | 582 | 598 | 568 | 584 | 506 | 482 | 494 |
| 14 | 646 | 618 | 632 | 598 | 574 | 585 | 604 | 558 | 578 | 580 | 506 | 549 |
| 15 | 656 | 636 | 641 | 592 | 560 | 572 | 662 | 596 | 619 | 582 | 304 | 484 |
| 16 | 664 | 628 | 641 | 614 | 592 | 601 | 664 | 612 | 635 | 490 | 326 | 437 |
| 17 | 650 | 632 | 642 | 596 | 580 | 586 | 626 | 612 | 620 | 534 | 490 | 514 |
| 18 | 656 | 634 | 644 | 632 | 592 | 606 | 630 | 314 | 516 | 514 | 492 | 499 |
| 19 | 644 | 584 | 595 | 674 | 618 | 641 | 442 | 378 | 416 | 552 | 518 | 543 |
| 20 | 608 | 572 | 593 | 686 | 640 | 661 | 470 | 442 | 452 | 556 | 530 | 537 |
| 21 | 602 | --- | 600 | 680 | 614 | 633 | 500 | 468 | 487 | 566 | 534 | 545 |
| 22 | --- | --- | 610 | 640 | 594 | 615 | 512 | 216 | 474 | 584 | 564 | 572 |
| 23 | 630 | --- | 620 | 664 | 622 | 637 | 426 | 288 | 357 | 580 | 164 | 511 |
| 24 | 626 | 540 | 582 | 682 | 630 | 652 | 446 | 420 | 433 | 412 | 236 | 350 |
| 25 | 578 | 548 | 564 | 706 | 638 | 666 | 442 | 424 | 433 | 472 | 416 | 453 |
| 26 | 644 | 578 | 600 | 904 | 658 | 770 | 466 | 440 | 453 | 510 | 462 | 483 |
| 27 | 670 | 646 | 659 | 796 | 712 | 764 | 466 | 456 | 461 | 670 | 274 | 443 |
| 28 | 686 | 340 | 553 | 784 | 700 | 739 | 474 | 460 | 465 | 676 | 584 | 626 |
| 29 | --- | --- | --- | 952 | 656 | 725 | 486 | 460 | 471 | 594 | 570 | 580 |
| 30 | --- | --- | --- | 694 | 662 | 672 | 506 | 474 | 491 | 584 | 466 | 533 |
| 31 | --- | --- | --- | 732 | 670 | 710 | --- | --- | --- | 582 | 538 | 561 |
| MONTH | 686 | 340 | 596 | 952 | 214 | 581 | 868 | 216 | 552 | 676 | 114 | 473 |

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 674 | 290 | 526 | 670 | 608 | 631 | 502 | 464 | 475 | 550 | 144 | 470 |
| 2 | 676 | 382 | 561 | 644 | 476 | 617 | 474 | 456 | 463 | 310 | 164 | 245 |
| 3 | 414 | 318 | 387 | 588 | 160 | 499 | 508 | 442 | 462 | --- | --- | 350 |
| 4 | 468 | 356 | 423 | 512 | 178 | 296 | 518 | 480 | 493 | --- | --- | 400 |
| 5 | 488 | 202 | 363 | 562 | 452 | 526 | 552 | 494 | 514 | --- | --- | 450 |
| 6 | 476 | 276 | 390 | 564 | 538 | 546 | 560 | 518 | 533 | --- | --- | 500 |
| 7 | 540 | 392 | 477 | 582 | 500 | 533 | 590 | 538 | 563 | --- | --- | 490 |
| 8 | 602 | 542 | 565 | 638 | 544 | 579 | 828 | 582 | 676 | --- | --- | 370 |
| 9 | 608 | 590 | 595 | 618 | 552 | 591 | 826 | 570 | 659 | --- | --- | 450 |
| 10 | 624 | 604 | 608 | 570 | 538 | 551 | 568 | 518 | 544 | --- | --- | 500 |
| 11 | 656 | 606 | 622 | 554 | 544 | 549 | 578 | 548 | 564 | 496 | 460 | 479 |
| 12 | 686 | 640 | 657 | 554 | 530 | 542 | 584 | 564 | 578 | 524 | 490 | 501 |
| 13 | 674 | 622 | 657 | 550 | 536 | 541 | 580 | 552 | 568 | 526 | 492 | 513 |
| 14 | 630 | 564 | 596 | 556 | 536 | 543 | 586 | 556 | 572 | 514 | 296 | 392 |
| 15 | 586 | 104 | 467 | 592 | 532 | 549 | 608 | 562 | 579 | 448 | 396 | 421 |
| 16 | 426 | 232 | 332 | 552 | 526 | 536 | 690 | 600 | 629 | 476 | 448 | 463 |
| 17 | 510 | 430 | 482 | 560 | 528 | 543 | 656 | 130 | 485 | 514 | 478 | 491 |
| 18 | 526 | 502 | 514 | 612 | 542 | 572 | 414 | 356 | 392 | 554 | 516 | 526 |
| 19 | 536 | 510 | 521 | 608 | 574 | 593 | 468 | 406 | 438 | 560 | 534 | 549 |
| 20 | 568 | 526 | 545 | 628 | 606 | 618 | 552 | 470 | 486 | 598 | 558 | 573 |
| 21 | 566 | 548 | 557 | 616 | 582 | 605 | 510 | 500 | 504 | 610 | 584 | 595 |
| 22 | 572 | 556 | 563 | 586 | 526 | 545 | 510 | 498 | 504 | 662 | 614 | 647 |
| 23 | 570 | 548 | 556 | 586 | 500 | 530 | 530 | 500 | 511 | 780 | 520 | 626 |
| 24 | 586 | 568 | 576 | 540 | 520 | 529 | 520 | 486 | 503 | 518 | 506 | 515 |
| 25 | 628 | 572 | 592 | 566 | 516 | 535 | 524 | 492 | 509 | 554 | 518 | 529 |
| 26 | 594 | 574 | 585 | 562 | 518 | 532 | 530 | 492 | 518 | 784 | 556 | 622 |
| 27 | 596 | 572 | 583 | 552 | 510 | 532 | 706 | 530 | 577 | 670 | 510 | 540 |
| 28 | 604 | 582 | 588 | 552 | --- | 417 | 864 | 502 | 636 | 556 | 534 | 544 |
| 29 | 604 | 584 | 596 | --- | --- | 469 | 502 | 472 | 484 | 558 | 536 | 549 |
| 30 | 624 | 586 | 596 | --- | --- | 480 | 562 | 500 | 527 | 582 | 550 | 565 |
| 31 | --- | --- | --- | 494 | --- | 490 | 584 | 554 | 568 | --- | --- | --- |
| MONTH | 686 | 104 | 536 | 670 | 160 | 536 | 864 | 130 | 533 | 784 | 144 | 496 |
| YEAR | 952 | 104 | 543 | | | | | | | | | |

PH (STANDARD UNITS), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | 7.6 | --- | --- | 8.4 | 7.7 | 8.0 | 8.2 | 7.8 | 8.0 | 8.4 | 8.3 | 8.3 |
| 2 | 7.7 | --- | --- | 8.5 | 7.6 | 7.9 | 8.4 | 7.8 | 8.1 | 8.4 | 8.0 | 8.2 |
| 3 | 7.7 | 7.5 | 7.6 | 8.6 | 7.5 | 7.9 | 8.4 | 8.1 | 8.2 | 8.4 | 8.0 | 8.3 |
| 4 | 7.7 | 7.5 | 7.6 | 8.6 | 7.5 | 7.9 | 8.2 | 7.9 | 8.1 | 8.5 | --- | --- |
| 5 | 7.8 | 7.5 | 7.6 | 8.5 | 7.5 | 7.8 | 8.0 | 7.7 | 7.8 | --- | --- | --- |
| 6 | 7.9 | 7.5 | 7.7 | 8.5 | 7.5 | 7.8 | 8.0 | 7.6 | 7.8 | 8.5 | 8.0 | 8.2 |
| 7 | 8.0 | 7.6 | 7.7 | 8.6 | 7.5 | 7.9 | --- | --- | --- | 8.5 | 8.4 | 8.4 |
| 8 | 8.0 | 7.6 | 7.7 | 8.5 | 7.4 | 7.8 | 8.8 | --- | --- | 8.5 | 8.0 | 8.3 |
| 9 | 8.1 | 7.5 | 7.7 | 8.4 | 7.4 | 7.7 | --- | --- | --- | 8.4 | 7.8 | 8.1 |
| 10 | 8.0 | 7.5 | 7.6 | 8.3 | 7.4 | 7.7 | --- | --- | --- | 8.2 | 7.8 | 8.0 |
| 11 | 8.0 | 7.4 | 7.6 | 8.3 | 7.4 | 7.7 | --- | --- | --- | 8.5 | 7.8 | 8.1 |
| 12 | 8.0 | 7.5 | 7.6 | 8.4 | 7.4 | 7.7 | --- | --- | --- | 8.5 | 8.1 | 8.3 |
| 13 | 8.0 | 7.5 | 7.7 | 8.6 | 7.5 | 7.9 | --- | --- | --- | 8.6 | 8.0 | 8.3 |
| 14 | 8.1 | 7.5 | 7.7 | 8.1 | 7.5 | 7.7 | --- | --- | --- | 8.6 | 7.9 | 8.3 |
| 15 | 8.6 | --- | --- | 8.5 | 7.7 | 8.0 | --- | --- | --- | 8.6 | 7.9 | 8.3 |
| 16 | 8.2 | 7.5 | 7.8 | 8.0 | 7.8 | 7.8 | --- | --- | --- | 8.7 | 8.0 | 8.3 |
| 17 | 7.8 | 7.5 | 7.6 | 8.1 | 7.8 | 7.9 | 7.9 | 7.6 | 7.8 | 8.7 | 8.1 | 8.4 |
| 18 | 7.6 | 7.5 | 7.5 | 8.2 | --- | --- | 8.1 | 7.9 | 8.0 | 8.4 | 8.0 | 8.2 |
| 19 | 7.7 | 7.4 | 7.6 | 7.9 | 7.9 | 7.9 | 8.3 | 8.0 | 8.2 | 8.3 | 7.9 | 8.2 |
| 20 | 7.7 | 7.5 | 7.6 | 7.9 | 7.7 | 7.8 | 8.2 | 8.2 | 8.2 | 8.1 | 7.9 | 8.0 |
| 21 | 7.8 | 7.4 | 7.6 | 8.0 | 7.7 | 7.8 | 8.3 | 8.2 | 8.3 | 8.3 | 7.9 | 8.1 |
| 22 | 7.6 | 7.5 | 7.5 | 7.9 | 7.7 | 7.8 | 8.3 | 8.2 | 8.3 | 8.5 | 7.9 | 8.2 |
| 23 | 8.1 | 7.5 | 7.7 | 7.9 | 7.8 | 7.8 | 8.2 | 8.0 | 8.1 | 8.5 | 7.9 | 8.1 |
| 24 | 8.2 | 7.6 | 7.8 | 7.9 | 7.7 | 7.8 | 8.2 | 8.1 | 8.1 | 8.5 | 7.9 | 8.1 |
| 25 | 8.3 | 7.7 | 7.9 | 8.0 | 7.7 | 7.8 | 8.4 | 8.0 | 8.2 | 8.6 | 7.8 | 8.1 |
| 26 | 7.8 | 7.6 | 7.7 | 8.1 | 7.8 | 7.9 | 8.3 | 8.2 | 8.2 | 8.6 | 7.8 | 8.1 |
| 27 | 8.5 | 7.5 | 7.9 | 8.1 | 7.9 | 8.0 | 8.4 | 8.3 | 8.3 | 8.7 | 7.8 | 8.2 |
| 28 | 8.3 | 7.7 | 8.0 | 8.2 | 8.0 | 8.1 | 8.4 | 8.0 | 8.3 | 8.7 | 7.9 | 8.2 |
| 29 | 8.5 | 7.9 | 8.1 | 8.2 | 7.9 | 8.1 | 8.4 | 8.1 | 8.4 | 8.7 | 7.8 | 8.1 |
| 30 | 8.5 | 7.8 | 8.1 | 8.2 | 7.8 | 8.0 | 8.2 | 8.0 | 8.1 | 8.6 | 7.8 | 8.1 |
| 31 | 8.4 | 7.7 | 8.0 | --- | --- | --- | 8.3 | 8.2 | 8.2 | 8.2 | 7.8 | 7.9 |
| MONTH | 8.6 | 7.4 | 7.7 | 8.6 | 7.4 | 7.9 | 8.8 | 7.6 | 8.1 | 8.7 | 7.8 | 8.2 |

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 7.9 | --- | --- | 7.9 | 7.7 | 7.8 | 8.2 | 7.6 | 7.8 | 8.0 | 7.4 | 7.6 |
| 2 | 8.6 | --- | --- | 7.9 | 7.7 | 7.8 | 8.1 | 7.5 | 7.7 | 7.9 | 7.4 | 7.6 |
| 3 | 8.5 | 8.1 | 8.3 | 8.0 | 7.6 | 7.8 | 8.4 | 7.5 | 7.9 | 7.8 | 7.4 | 7.5 |
| 4 | 8.4 | 8.0 | 8.2 | 8.2 | 7.8 | 8.0 | 8.0 | 7.6 | 7.8 | 7.6 | 7.5 | 7.6 |
| 5 | 8.1 | 7.9 | 8.0 | 7.8 | 7.7 | 7.8 | 8.1 | 7.6 | 7.8 | 7.7 | 7.4 | 7.5 |
| 6 | 8.2 | 7.9 | 8.0 | 7.8 | 7.7 | 7.7 | 8.0 | 7.6 | 7.7 | 7.9 | 7.4 | 7.6 |
| 7 | 8.5 | 7.9 | 8.2 | 8.1 | 7.6 | 7.9 | 8.3 | 7.6 | 7.9 | 7.9 | 7.4 | 7.6 |
| 8 | 8.6 | 8.0 | 8.2 | 8.0 | 7.8 | 7.9 | 8.2 | 7.6 | 7.8 | 8.2 | 7.5 | 7.7 |
| 9 | 8.2 | 7.9 | 8.1 | 7.9 | 7.7 | 7.8 | 8.2 | 7.5 | 7.8 | 8.3 | 7.6 | 7.8 |
| 10 | 8.5 | 7.7 | 8.0 | 7.8 | 7.7 | 7.7 | 8.0 | 7.5 | 7.7 | 7.6 | 7.5 | 7.5 |
| 11 | 8.5 | 8.3 | 8.4 | 7.7 | 7.7 | 7.7 | 8.2 | 7.5 | 7.7 | 7.6 | 7.5 | 7.5 |
| 12 | 8.4 | 8.2 | 8.3 | 7.7 | 7.6 | 7.7 | 8.2 | 7.5 | 7.8 | 7.6 | 7.5 | 7.6 |
| 13 | 8.5 | 8.2 | 8.3 | 7.8 | 7.7 | 7.7 | 8.2 | 7.4 | 7.7 | 7.6 | 7.5 | 7.6 |
| 14 | 8.5 | 8.1 | 8.3 | 7.8 | 7.7 | 7.7 | 7.7 | 7.4 | 7.5 | 7.7 | 7.5 | 7.6 |
| 15 | 8.5 | 8.0 | 8.2 | 8.0 | 7.7 | 7.8 | 7.9 | 7.5 | 7.6 | 7.8 | 7.5 | 7.6 |
| 16 | 8.6 | 8.0 | 8.2 | 8.0 | 7.7 | 7.8 | 8.1 | 7.6 | 7.8 | 7.8 | 7.7 | 7.8 |
| 17 | 8.7 | 8.0 | 8.2 | 7.8 | 7.7 | 7.7 | 8.0 | 7.6 | 7.7 | 7.7 | 7.5 | 7.6 |
| 18 | 8.7 | 7.9 | 8.2 | 8.4 | 7.8 | 8.1 | 7.8 | 7.5 | 7.6 | 7.7 | 7.5 | 7.6 |
| 19 | 8.8 | 7.8 | 8.4 | 8.5 | 7.8 | 8.1 | 7.8 | 7.5 | 7.7 | 7.9 | 7.6 | 7.7 |
| 20 | 8.8 | 7.8 | 8.2 | 8.5 | 7.8 | 8.1 | 7.7 | 7.4 | 7.5 | 8.0 | 7.7 | 7.8 |
| 21 | --- | --- | --- | 8.6 | 7.8 | 8.1 | 7.7 | 7.4 | 7.5 | 8.0 | 7.6 | 7.8 |
| 22 | --- | --- | --- | 8.5 | 7.9 | 8.1 | 8.0 | 7.4 | 7.7 | 7.9 | 7.6 | 7.7 |
| 23 | 8.9 | --- | --- | 8.7 | 7.8 | 8.2 | 7.9 | 7.6 | 7.7 | 8.1 | 7.6 | 7.8 |
| 24 | 8.9 | 7.9 | 8.3 | 8.6 | 7.7 | 8.1 | 7.9 | 7.5 | 7.7 | 8.1 | 7.7 | 7.8 |
| 25 | 8.9 | 7.9 | 8.3 | 8.1 | 7.7 | 7.8 | 7.7 | 7.5 | 7.6 | 7.7 | 7.5 | 7.6 |
| 26 | 8.9 | 7.8 | 8.3 | 8.1 | 7.7 | 7.8 | 7.8 | 7.4 | 7.6 | 7.7 | 7.4 | 7.5 |
| 27 | 8.8 | 7.7 | 8.1 | 7.8 | 7.6 | 7.7 | 8.0 | 7.4 | 7.6 | 8.2 | 7.5 | 7.7 |
| 28 | 7.9 | 7.6 | 7.7 | 8.6 | 7.6 | 7.8 | 8.2 | 7.5 | 7.7 | 8.8 | 7.9 | 8.3 |
| 29 | --- | --- | --- | 8.9 | 8.0 | 8.4 | 8.5 | 7.5 | 7.9 | 8.4 | 7.7 | 8.0 |
| 30 | --- | --- | --- | 8.2 | 7.9 | 8.1 | 8.4 | 7.4 | 7.8 | 8.2 | 7.5 | 7.7 |
| 31 | --- | --- | --- | 8.2 | 7.7 | 7.9 | --- | --- | --- | 8.2 | 7.4 | 7.7 |
| MONTH | 8.9 | 7.6 | 8.2 | 8.9 | 7.6 | 7.9 | 8.5 | 7.4 | 7.7 | 8.8 | 7.4 | 7.7 |

PH (STANDARD UNITS), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 9.0 | 7.4 | 8.4 | 8.6 | 7.5 | 8.1 | 8.6 | 7.4 | 7.9 | 8.4 | 7.6 | 7.7 |
| 2 | 9.0 | 7.8 | 8.6 | 8.6 | 7.5 | 8.0 | 8.9 | 7.5 | 8.2 | 7.8 | 7.7 | 7.7 |
| 3 | 8.0 | 7.6 | 7.8 | 8.1 | 7.4 | 7.7 | 8.8 | 7.6 | 8.2 | 7.7 | 7.4 | 7.5 |
| 4 | 7.7 | 7.6 | 7.7 | 8.1 | 7.6 | 7.7 | 8.9 | 7.5 | 8.2 | 7.5 | 7.4 | 7.4 |
| 5 | 8.0 | 7.6 | 7.7 | 7.9 | 7.5 | 7.6 | 8.9 | 7.5 | 8.2 | 7.5 | 7.3 | 7.4 |
| 6 | 7.8 | 7.6 | 7.7 | 7.8 | 7.4 | 7.6 | 9.0 | 7.4 | 8.2 | 7.6 | 7.3 | 7.5 |
| 7 | 7.7 | 7.6 | 7.7 | 7.8 | 7.5 | 7.6 | 8.6 | 7.6 | 8.0 | 7.7 | 7.4 | 7.6 |
| 8 | 7.8 | 7.6 | 7.7 | 7.9 | 7.5 | 7.7 | 8.7 | 7.4 | 7.9 | 7.8 | 7.3 | 7.6 |
| 9 | 8.1 | 7.6 | 7.8 | 8.0 | 7.5 | 7.7 | 8.8 | 7.6 | 8.1 | 7.8 | 7.4 | 7.6 |
| 10 | 8.2 | 7.7 | 7.9 | 8.2 | 7.4 | 7.7 | 8.7 | 7.5 | 8.0 | 7.9 | 7.4 | 7.6 |
| 11 | 8.1 | 7.6 | 7.7 | 8.4 | 7.4 | 7.8 | 8.6 | 7.4 | 7.9 | 8.1 | 7.6 | 7.8 |
| 12 | 8.3 | 7.5 | 7.8 | 8.4 | 7.4 | 7.8 | 8.6 | 7.3 | 7.8 | 8.3 | 7.6 | 7.8 |
| 13 | 8.1 | 7.5 | 7.7 | 8.5 | 7.5 | 7.9 | 8.6 | 7.4 | 7.9 | 8.3 | 7.5 | 7.8 |
| 14 | 8.0 | 7.5 | 7.7 | 8.5 | 7.5 | 8.0 | 8.7 | 7.3 | 7.9 | 7.8 | 7.5 | 7.7 |
| 15 | 8.4 | 7.6 | 7.9 | 8.6 | 7.6 | 8.1 | 8.7 | 7.4 | 7.9 | 7.9 | 7.4 | 7.6 |
| 16 | 8.1 | 7.8 | 8.0 | 8.6 | 7.7 | 8.1 | 8.7 | 7.4 | 7.9 | 8.0 | 7.4 | 7.6 |
| 17 | 7.8 | 7.6 | 7.8 | 8.5 | 7.7 | 8.1 | 8.5 | 7.5 | 7.8 | 8.2 | 7.6 | 7.8 |
| 18 | 7.8 | 7.6 | 7.7 | 8.5 | 7.7 | 8.1 | 7.7 | 6.7 | 7.5 | 8.4 | 7.7 | 7.9 |
| 19 | 7.8 | 7.6 | 7.7 | 8.4 | 7.7 | 8.0 | 8.3 | 7.4 | 7.8 | 8.5 | 7.7 | 8.0 |
| 20 | 8.0 | 7.6 | 7.8 | 8.5 | 7.7 | 8.1 | 8.1 | 7.5 | 7.8 | 8.5 | 7.6 | 8.0 |
| 21 | 8.2 | 7.7 | 7.9 | 8.6 | 7.6 | 8.1 | 8.4 | 7.5 | 7.8 | 8.5 | 7.6 | 8.0 |
| 22 | 8.2 | 7.7 | 7.9 | 8.6 | 7.6 | 8.1 | 8.6 | 7.6 | 8.0 | 8.5 | 7.6 | 8.0 |
| 23 | 8.0 | 7.6 | 7.8 | 8.5 | 7.7 | 8.1 | 8.7 | 7.6 | 8.1 | 8.3 | 7.5 | 7.9 |
| 24 | 8.1 | 7.5 | 7.8 | 8.5 | 7.7 | 8.0 | 8.7 | 7.6 | 8.0 | 8.6 | 7.8 | 8.1 |
| 25 | 8.0 | 7.5 | 7.7 | 8.4 | 7.7 | 8.0 | 8.7 | 7.5 | 8.0 | 8.8 | 7.7 | 8.2 |
| 26 | 8.0 | 7.4 | 7.7 | 8.4 | 7.7 | 8.0 | 8.9 | 7.5 | 8.0 | 8.2 | 7.7 | 8.0 |
| 27 | 8.2 | 7.5 | 7.8 | 8.1 | 7.5 | 7.8 | 8.7 | 7.5 | 8.0 | 8.3 | 7.6 | 8.0 |
| 28 | 8.3 | 7.5 | 7.9 | 8.2 | --- | --- | 8.5 | 7.4 | 8.0 | 8.4 | 7.7 | 8.0 |
| 29 | 8.3 | 7.5 | 7.9 | --- | --- | --- | 8.4 | 7.5 | 8.0 | 8.7 | 7.7 | 8.1 |
| 30 | 8.4 | 7.4 | 7.9 | --- | --- | --- | 8.5 | 7.6 | 8.0 | 8.6 | 7.5 | 7.9 |
| 31 | --- | --- | --- | 8.3 | --- | --- | 8.3 | 7.6 | 7.8 | --- | --- | --- |
| MONTH | 9.0 | 7.4 | 7.8 | 8.6 | 7.4 | 7.9 | 9.0 | 6.7 | 8.0 | 8.8 | 7.3 | 7.8 |
| YEAR | 9.0 | 6.7 | 7.9 | | | | | | | | | |

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | --- | --- | --- | 17.5 | 13.5 | 15.5 | 16.5 | 13.0 | 14.5 | 11.5 | 10.5 | 11.0 |
| 2 | --- | --- | --- | 19.0 | 15.5 | 17.0 | 15.5 | 10.5 | 13.5 | 11.5 | 8.5 | 10.0 |
| 3 | --- | --- | --- | 19.5 | 16.0 | 18.5 | 11.0 | 9.0 | 10.0 | 11.5 | 7.5 | 10.5 |
| 4 | 24.0 | 20.0 | 22.0 | 19.0 | 17.0 | 18.0 | 13.0 | 10.5 | 11.5 | 8.5 | 7.5 | 8.0 |
| 5 | 23.5 | 20.5 | 22.0 | 18.5 | 15.5 | 17.0 | 16.5 | 13.0 | 14.5 | --- | --- | --- |
| 6 | 21.5 | 19.5 | 20.5 | 19.5 | 16.0 | 17.5 | 17.5 | 14.0 | 16.5 | 9.5 | 7.5 | 8.5 |
| 7 | 23.5 | 19.0 | 21.0 | 20.0 | 17.0 | 18.5 | --- | --- | --- | 9.5 | 8.5 | 9.0 |
| 8 | 26.0 | 21.0 | 23.5 | 21.0 | 17.5 | 19.0 | 15.0 | 13.5 | 15.0 | 9.5 | 8.5 | 9.5 |
| 9 | 26.0 | 22.0 | 23.5 | 22.0 | 18.5 | 20.0 | --- | --- | --- | 11.0 | 9.5 | 10.0 |
| 10 | 26.0 | 21.0 | 23.5 | 22.5 | 19.0 | 20.5 | --- | --- | --- | 11.0 | 10.0 | 10.0 |
| 11 | 25.0 | 21.0 | 23.0 | 21.5 | 19.5 | 20.5 | --- | --- | --- | 11.0 | 9.0 | 10.0 |
| 12 | 23.5 | 19.0 | 21.0 | 21.0 | 18.5 | 19.5 | --- | --- | --- | 8.5 | 6.5 | 7.5 |
| 13 | 23.5 | 18.5 | 21.0 | 19.5 | 16.5 | 18.0 | --- | --- | --- | 10.0 | 6.5 | 8.5 |
| 14 | 24.0 | 20.0 | 22.0 | 17.0 | 14.0 | 16.0 | --- | --- | --- | 10.5 | 8.5 | 9.5 |
| 15 | 25.0 | --- | 22.5 | 14.0 | 11.5 | 12.5 | --- | --- | --- | 10.0 | 7.0 | 9.0 |
| 16 | 24.5 | 22.0 | 23.0 | 11.5 | 10.5 | 11.0 | --- | --- | --- | 9.0 | 7.0 | 8.0 |
| 17 | 23.5 | 21.5 | 22.5 | 10.5 | 9.5 | 10.0 | --- | --- | --- | 7.5 | 5.0 | 6.5 |
| 18 | 22.0 | 20.5 | 21.0 | --- | --- | --- | 10.5 | 4.0 | 7.5 | 7.5 | 6.5 | 7.0 |
| 19 | 20.5 | 18.5 | 20.0 | 11.5 | 10.5 | 11.0 | 10.0 | 4.0 | 5.5 | 7.0 | 6.5 | 7.0 |
| 20 | 21.5 | 18.0 | 19.5 | 12.0 | 9.5 | 11.5 | 6.5 | 5.5 | 6.0 | 6.5 | 6.5 | 6.5 |
| 21 | 23.0 | 19.0 | 21.0 | 11.5 | 10.5 | 11.0 | 7.0 | 6.5 | 6.5 | 8.0 | 7.0 | 7.5 |
| 22 | 20.5 | 19.0 | 20.0 | 11.0 | 10.5 | 11.0 | 7.5 | 7.0 | 7.0 | 9.5 | 6.0 | 8.0 |
| 23 | 23.0 | 19.0 | 21.0 | 11.0 | 10.5 | 10.5 | 8.0 | 7.0 | 7.5 | --- | 7.0 | 10.5 |
| 24 | 19.5 | 15.5 | 17.5 | 11.0 | 10.5 | 10.5 | 9.5 | 8.0 | 8.5 | 12.5 | 8.0 | 10.0 |
| 25 | 18.0 | 14.0 | 16.0 | 10.5 | 9.0 | 9.5 | 11.0 | 8.0 | 9.5 | 12.5 | 10.0 | 11.0 |
| 26 | 16.0 | 15.5 | 16.0 | 9.0 | 7.5 | 8.5 | 9.5 | 8.5 | 9.0 | 12.0 | 9.5 | 10.5 |
| 27 | 20.0 | 16.0 | 18.0 | 9.0 | 6.5 | 8.0 | 10.0 | 9.5 | 9.5 | 12.5 | 8.5 | 10.5 |
| 28 | 16.0 | 10.5 | 13.0 | 9.5 | 6.5 | 8.0 | 11.0 | 8.5 | 10.0 | 13.5 | 8.5 | 11.0 |
| 29 | 13.5 | 10.0 | 11.5 | 11.0 | 8.5 | 9.5 | 11.5 | 10.0 | 11.0 | 16.5 | 12.0 | 14.0 |
| 30 | 14.5 | 10.0 | 12.0 | 13.5 | 10.5 | 11.5 | 10.0 | 8.0 | 9.5 | 13.0 | 9.0 | 10.5 |
| 31 | 17.0 | 12.0 | 14.0 | --- | --- | --- | 10.5 | 10.0 | 10.5 | 9.5 | 8.0 | 8.5 |
| MONTH | 26.0 | 10.0 | 19.5 | 22.5 | 6.5 | 14.0 | 17.5 | 4.0 | 10.0 | 16.5 | 5.0 | 9.5 |

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | --- | --- | --- | 17.0 | 13.5 | 15.5 | 22.5 | 17.5 | 20.0 | 28.0 | 21.5 | 25.5 |
| 2 | --- | --- | --- | 17.5 | 14.0 | 17.0 | 23.0 | 18.5 | 20.5 | 26.5 | 24.0 | 25.5 |
| 3 | 11.0 | 7.5 | 8.5 | 16.5 | 13.5 | 15.0 | 24.0 | 20.5 | 22.0 | 24.5 | 22.0 | 23.0 |
| 4 | 8.0 | 7.0 | 7.5 | 17.0 | 14.0 | 15.5 | 22.5 | 19.0 | 21.0 | 23.5 | 22.0 | 23.0 |
| 5 | 7.5 | 6.5 | 7.0 | 15.0 | 13.0 | 13.5 | 22.0 | 17.0 | 19.5 | 24.5 | 22.5 | 23.0 |
| 6 | 8.0 | 7.5 | 8.0 | 15.0 | 12.0 | 13.5 | 20.5 | 17.0 | 18.5 | 26.0 | 21.5 | 24.0 |
| 7 | 12.5 | 8.0 | 10.0 | 14.5 | 12.0 | 13.0 | 22.5 | 16.5 | 19.5 | 26.0 | 22.0 | 24.0 |
| 8 | 12.0 | 9.5 | 10.5 | 12.5 | 12.0 | 12.5 | 21.5 | 19.0 | 20.0 | 24.5 | 14.5 | 22.0 |
| 9 | 11.0 | 9.0 | 9.5 | 13.0 | 11.0 | 12.0 | 23.5 | 20.0 | 21.5 | --- | --- | --- |
| 10 | 11.0 | 4.5 | 9.0 | 16.0 | 11.0 | 13.5 | 23.0 | 21.0 | 21.5 | 19.5 | --- | --- |
| 11 | 4.5 | --- | 2.5 | 15.5 | 13.5 | 14.5 | 24.0 | 20.5 | 22.0 | --- | --- | 21.0 |
| 12 | 6.0 | 2.5 | 4.0 | 16.0 | 13.0 | 14.5 | 26.5 | 21.0 | 23.5 | 24.0 | 18.5 | 21.5 |
| 13 | 8.0 | 4.0 | 6.0 | 18.0 | 13.0 | 15.5 | 26.5 | 22.0 | 24.0 | 26.0 | 21.0 | 23.5 |
| 14 | 11.0 | 6.0 | 8.0 | 19.0 | 14.0 | 16.5 | 24.0 | 19.0 | 21.5 | 24.5 | 20.5 | 22.5 |
| 15 | 13.0 | 7.5 | 10.0 | 19.5 | 14.5 | 17.0 | 20.0 | 17.5 | 18.5 | 22.0 | 18.5 | 20.0 |
| 16 | 14.5 | 9.0 | 11.5 | 17.5 | 15.0 | 16.5 | 23.0 | 18.5 | 20.5 | 20.0 | 18.0 | 19.0 |
| 17 | 16.0 | 10.5 | 13.0 | 16.0 | 14.0 | 15.0 | 24.5 | 21.5 | 23.0 | 25.5 | 20.0 | 22.5 |
| 18 | 16.5 | 12.5 | 14.0 | 16.0 | 12.0 | 14.0 | 22.5 | 21.0 | 21.5 | 28.0 | 23.5 | 25.5 |
| 19 | --- | --- | --- | 16.0 | 10.5 | 13.0 | 25.0 | 20.5 | 22.5 | 25.0 | 20.5 | 22.5 |
| 20 | --- | --- | --- | 16.5 | 12.5 | 14.5 | 28.0 | 22.0 | 25.0 | 24.0 | 19.5 | 22.0 |
| 21 | --- | --- | --- | 18.0 | 14.0 | 15.5 | 26.0 | 23.5 | 24.5 | 25.0 | 21.5 | 23.0 |
| 22 | --- | --- | --- | 15.0 | 12.0 | 13.5 | 25.0 | 21.0 | 23.5 | 24.0 | 22.0 | 23.0 |
| 23 | --- | --- | --- | 17.0 | 11.5 | 14.0 | 23.5 | 20.0 | 22.0 | 28.0 | 22.0 | 24.5 |
| 24 | 17.0 | 12.0 | 14.5 | 19.0 | 13.5 | 16.0 | 25.5 | 20.0 | 22.5 | 25.0 | 21.5 | 23.5 |
| 25 | 17.0 | 13.0 | 15.0 | 16.5 | 13.5 | 15.5 | 26.0 | 21.0 | 23.5 | 27.5 | 22.5 | 25.0 |
| 26 | 19.0 | 16.0 | 17.5 | 18.5 | 13.0 | 15.5 | 27.0 | 21.5 | 24.5 | 29.5 | 24.5 | 27.0 |
| 27 | 21.0 | 17.5 | 19.0 | 17.5 | 16.5 | 17.0 | 27.5 | 23.5 | 25.5 | 27.5 | 22.5 | 26.0 |
| 28 | 18.5 | 15.5 | 17.5 | 18.0 | 16.5 | 17.0 | 28.0 | 24.0 | 25.5 | 30.0 | 25.0 | 27.5 |
| 29 | --- | --- | --- | 20.0 | 15.5 | 17.5 | 29.5 | 24.0 | 26.5 | 28.5 | 26.0 | 27.0 |
| 30 | --- | --- | --- | 21.0 | 16.0 | 20.5 | 31.5 | 26.0 | 28.5 | 29.5 | 24.0 | 27.0 |
| 31 | --- | --- | --- | 22.0 | 16.5 | 19.5 | --- | --- | --- | 30.5 | 26.0 | 28.0 |
| MONTH | 21.0 | 2.5 | 10.5 | 22.0 | 10.5 | 15.5 | 31.5 | 16.5 | 22.5 | 30.5 | 14.5 | 24.0 |

0848543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 28.0 | 21.0 | 25.5 | 33.0 | 29.5 | 31.0 | 33.0 | 29.5 | 31.0 | 28.5 | 25.0 | 27.5 |
| 2 | 25.5 | 23.5 | 24.5 | 33.5 | 28.5 | 31.0 | 33.0 | 29.5 | 31.0 | 25.5 | 24.5 | 25.0 |
| 3 | 24.0 | 22.5 | 23.5 | 31.5 | 25.5 | 30.0 | 32.0 | 29.0 | 30.5 | 28.0 | 24.5 | 26.0 |
| 4 | 24.5 | 22.0 | 23.0 | 29.0 | 25.5 | 27.0 | 33.0 | 28.5 | 30.5 | 28.5 | 26.5 | 27.5 |
| 5 | 24.5 | 22.5 | 23.5 | 29.5 | 26.5 | 28.0 | 33.5 | 29.0 | 31.0 | 29.5 | 26.5 | 28.0 |
| 6 | 25.5 | 22.5 | 24.0 | 31.0 | 27.5 | 29.5 | 34.0 | 29.5 | 31.5 | 30.0 | 27.0 | 28.5 |
| 7 | 29.5 | 24.0 | 26.5 | 30.5 | 27.5 | 29.0 | 32.0 | 29.5 | 30.5 | 30.5 | 27.5 | 29.0 |
| 8 | 32.0 | 26.0 | 29.0 | 31.0 | 27.5 | 29.0 | 31.5 | 27.5 | 29.5 | 29.0 | 27.0 | 28.0 |
| 9 | 32.0 | 27.0 | 29.5 | 32.5 | 28.5 | 30.5 | 32.0 | 27.0 | 29.5 | 28.5 | 25.0 | 27.0 |
| 10 | 31.5 | 27.0 | 29.5 | 33.0 | 29.5 | 31.5 | 32.5 | 27.5 | 29.5 | 29.5 | 25.0 | 27.0 |
| 11 | 29.0 | 26.0 | 27.5 | 33.5 | 30.5 | 32.0 | 33.0 | 28.0 | 30.0 | 30.0 | 25.5 | 27.5 |
| 12 | 28.0 | 25.0 | 26.0 | 33.0 | 30.5 | 32.0 | 32.0 | 28.0 | 30.0 | 29.5 | 26.5 | 28.0 |
| 13 | 27.5 | 25.5 | 26.5 | 33.0 | 30.0 | 31.5 | 33.5 | 27.5 | 30.5 | 30.5 | 26.5 | 28.0 |
| 14 | 26.5 | 25.0 | 26.0 | 33.0 | 30.0 | 31.5 | 35.0 | 28.5 | 31.0 | 27.0 | 23.5 | 26.0 |
| 15 | 29.5 | 24.0 | 26.0 | 33.5 | 30.0 | 31.5 | 36.0 | 29.5 | 32.0 | 28.5 | 25.0 | 27.0 |
| 16 | 24.5 | 22.5 | 23.0 | 33.0 | 29.5 | 31.0 | 33.5 | 29.0 | 31.0 | 27.5 | 24.5 | 26.5 |
| 17 | 25.5 | 21.5 | 23.5 | 33.5 | 29.5 | 31.0 | 30.5 | 25.5 | 28.0 | 25.0 | 22.0 | 23.5 |
| 18 | 28.5 | 24.0 | 26.5 | 33.5 | 29.5 | 31.5 | 28.0 | 26.0 | 27.0 | 24.5 | 20.0 | 22.0 |
| 19 | 30.0 | 25.5 | 28.0 | 33.5 | 29.5 | 31.5 | 29.5 | 25.5 | 27.5 | 25.0 | 19.0 | 22.0 |
| 20 | 30.5 | 26.0 | 28.5 | 34.5 | 30.0 | 32.0 | 30.5 | 25.0 | 28.0 | 25.5 | 20.0 | 22.5 |
| 21 | 30.5 | 26.5 | 28.5 | 34.5 | 30.5 | 32.5 | 30.5 | 26.0 | 28.0 | 27.5 | 21.5 | 24.0 |
| 22 | 30.5 | 27.0 | 29.0 | 34.5 | 30.0 | 32.0 | 30.5 | 26.0 | 28.5 | 29.0 | 23.0 | 25.5 |
| 23 | 32.0 | 28.0 | 30.0 | 34.0 | 29.5 | 31.5 | 31.5 | 26.5 | 29.0 | 26.5 | 25.0 | 25.5 |
| 24 | 32.0 | 28.0 | 30.0 | 34.0 | 29.5 | 31.5 | 32.0 | 27.0 | 29.0 | 28.0 | 23.5 | 25.5 |
| 25 | 31.5 | 29.0 | 30.5 | 33.5 | 29.5 | 31.5 | 33.0 | 28.0 | 30.0 | 29.0 | 24.0 | 26.0 |
| 26 | 32.0 | 29.5 | 31.0 | 33.5 | 29.5 | 31.0 | 33.5 | 28.0 | 30.5 | 28.0 | 24.5 | 26.0 |
| 27 | 32.0 | 29.5 | 30.5 | 32.0 | 29.0 | 30.0 | 31.5 | 28.0 | 29.5 | 29.0 | 25.5 | 27.0 |
| 28 | 31.5 | 29.0 | 30.5 | --- | --- | 30.5 | 31.5 | 28.0 | 29.5 | 29.0 | 25.5 | 27.0 |
| 29 | 31.5 | 28.5 | 30.0 | --- | --- | 31.0 | 32.5 | 28.0 | 30.0 | 29.5 | 25.0 | 27.0 |
| 30 | 32.5 | 29.0 | 31.0 | --- | --- | 30.5 | 32.5 | 28.5 | 30.5 | 29.5 | 24.5 | 27.0 |
| 31 | --- | --- | --- | 33.0 | --- | 31.0 | 30.0 | 28.0 | 29.0 | --- | --- | --- |
| MONTH | 32.5 | 21.0 | 27.5 | 34.5 | 25.5 | 31.0 | 36.0 | 25.0 | 30.0 | 30.5 | 19.0 | 26.0 |
| YEAR | 36.0 | 2.5 | 20.5 | | | | | | | | | |

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | --- | --- | --- | 9.5 | 8.1 | 8.7 | 11.3 | 6.6 | 9.3 | --- | --- | --- |
| 2 | --- | --- | --- | 8.9 | 7.6 | 8.3 | 12.0 | 6.6 | 9.2 | --- | --- | --- |
| 3 | 7.1 | 5.1 | 6.0 | 13.9 | 6.8 | 10.2 | 12.1 | 8.9 | 10.5 | --- | --- | --- |
| 4 | 7.5 | 4.7 | 6.0 | 13.5 | 4.4 | 8.0 | 10.5 | 7.6 | 9.4 | --- | --- | --- |
| 5 | 8.1 | 4.6 | 6.4 | 13.2 | 4.3 | 7.7 | 8.4 | 5.6 | 7.3 | --- | --- | --- |
| 6 | 8.8 | 5.3 | 6.9 | 11.8 | 4.0 | 6.9 | 8.1 | 4.6 | 6.0 | 13.5 | 10.0 | 11.8 |
| 7 | 10.1 | 6.4 | 7.9 | 12.7 | 2.7 | 6.6 | --- | --- | --- | 14.2 | 13.2 | 13.9 |
| 8 | 8.2 | 4.7 | 6.5 | 11.9 | 2.8 | 6.4 | --- | --- | --- | 14.7 | 10.1 | 13.0 |
| 9 | 11.2 | 5.1 | 7.5 | 10.2 | 2.4 | 5.3 | --- | --- | --- | 12.6 | 8.2 | 10.2 |
| 10 | 10.9 | 3.5 | 6.3 | 7.6 | 2.2 | 4.1 | --- | --- | --- | 12.4 | 8.6 | 10.7 |
| 11 | 10.9 | 3.4 | 6.4 | 5.7 | 1.3 | 3.1 | --- | --- | --- | 15.5 | 9.5 | 12.5 |
| 12 | 11.1 | 5.3 | 7.6 | 11.2 | .9 | 4.3 | --- | --- | --- | 16.2 | 11.5 | 13.8 |
| 13 | 10.7 | 6.4 | 8.3 | 12.9 | 4.6 | 7.7 | --- | --- | --- | 16.3 | 12.1 | 14.3 |
| 14 | 11.2 | 5.3 | 8.0 | 9.9 | 5.2 | 7.0 | --- | --- | --- | 16.3 | 10.8 | 13.6 |
| 15 | 14.3 | --- | --- | 12.4 | 6.6 | 8.6 | --- | --- | --- | 14.8 | 10.0 | 12.8 |
| 16 | 11.9 | 5.1 | 8.1 | 11.6 | 7.5 | 9.6 | --- | --- | --- | 15.5 | 9.4 | 12.6 |
| 17 | 8.2 | 5.3 | 7.0 | --- | --- | --- | --- | --- | --- | 16.2 | 10.9 | 13.7 |
| 18 | 8.4 | 5.8 | 6.8 | --- | --- | --- | 11.8 | 8.8 | 10.7 | 14.0 | 11.2 | 12.5 |
| 19 | 9.5 | 5.7 | 7.7 | 9.9 | 9.6 | 9.8 | 11.4 | 10.0 | 10.6 | 11.8 | 9.7 | 10.6 |
| 20 | 9.5 | 6.3 | 7.9 | 10.1 | 7.4 | 9.6 | 10.9 | 10.7 | 10.8 | 9.8 | 8.5 | 9.1 |
| 21 | 9.3 | 6.3 | 7.7 | 10.0 | 7.6 | 9.2 | 11.0 | 10.9 | 10.9 | 13.1 | 9.3 | 11.8 |
| 22 | 7.4 | 6.0 | 6.8 | 10.2 | 8.0 | 8.9 | 11.0 | 11.0 | 11.0 | 16.6 | 10.4 | 13.6 |
| 23 | 11.5 | 6.1 | 8.5 | 9.4 | 8.1 | 8.6 | 11.0 | 8.9 | 9.9 | 17.4 | 11.9 | 14.7 |
| 24 | 12.8 | 6.7 | 9.6 | 9.2 | 7.1 | 8.2 | 10.2 | 9.6 | 9.8 | 18.8 | 13.5 | 15.6 |
| 25 | 14.4 | 8.9 | 11.4 | 9.8 | 7.8 | 9.7 | --- | --- | --- | 17.8 | 12.9 | 14.8 |
| 26 | 11.4 | 8.9 | 10.1 | 10.7 | 8.6 | 9.7 | --- | --- | --- | 15.9 | 12.0 | 13.6 |
| 27 | 14.7 | 8.2 | 11.2 | 11.4 | 9.4 | 10.6 | --- | --- | --- | 16.9 | 10.3 | 13.0 |
| 28 | 13.4 | 9.4 | 11.5 | 11.6 | 9.4 | 10.8 | --- | --- | --- | 18.4 | 10.3 | 13.2 |
| 29 | 14.0 | 10.4 | 12.0 | 11.5 | 9.0 | 10.7 | --- | --- | --- | 14.4 | 8.3 | 11.0 |
| 30 | 11.3 | 9.1 | 10.1 | 11.5 | 8.2 | 10.2 | --- | --- | --- | 9.0 | 7.3 | 8.0 |
| 31 | 10.1 | 8.5 | 9.1 | --- | --- | --- | --- | --- | --- | 8.3 | 7.4 | 7.9 |
| MONTH | 14.7 | 3.4 | 8.2 | 13.9 | .9 | 8.2 | 12.1 | 4.6 | 9.7 | 18.8 | 7.3 | 12.4 |

0848543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 9.6 | 8.5 | 9.3 | 8.1 | 6.5 | 7.4 | 11.2 | 4.8 | 7.7 | 6.8 | 4.3 | 6.0 |
| 2 | 10.9 | 9.7 | 10.3 | 8.2 | 6.1 | 7.6 | 10.6 | 5.4 | 7.4 | 9.0 | 4.1 | 6.4 |
| 3 | 13.8 | 10.6 | 11.8 | 8.6 | 5.6 | 7.3 | 11.6 | 4.7 | 7.2 | 7.4 | 4.2 | 5.6 |
| 4 | 12.3 | 9.7 | 10.8 | 8.7 | 7.2 | 8.0 | 8.8 | 5.1 | 6.8 | 6.7 | 4.9 | 5.7 |
| 5 | 10.1 | 9.1 | 9.6 | 8.1 | 7.2 | 7.7 | 10.1 | 5.0 | 7.3 | 7.8 | 3.8 | 5.5 |
| 6 | 10.3 | 8.6 | 9.5 | 7.7 | 6.9 | 7.4 | 9.9 | 5.8 | 7.5 | 9.5 | 4.0 | 6.6 |
| 7 | 14.0 | 8.6 | 10.9 | 9.3 | 6.6 | 8.1 | 11.3 | 5.9 | 8.0 | 10.0 | 4.3 | 6.8 |
| 8 | 13.8 | 9.1 | 11.1 | 8.8 | 8.3 | 8.6 | 10.1 | 5.2 | 6.8 | 7.9 | 5.5 | 6.6 |
| 9 | 11.0 | 8.6 | 10.1 | 8.7 | 7.7 | 8.3 | 10.3 | 3.9 | 6.6 | 6.3 | --- | --- |
| 10 | 10.8 | 6.7 | 8.9 | 8.2 | 7.0 | 7.7 | 9.0 | 3.3 | 5.4 | --- | --- | --- |
| 11 | 13.2 | 10.4 | 11.7 | 7.6 | 6.5 | 7.0 | 10.2 | 3.1 | 5.8 | 6.7 | --- | --- |
| 12 | 13.1 | 11.4 | 12.2 | 7.5 | 6.6 | 7.0 | 10.8 | 3.1 | 6.2 | 6.5 | 5.5 | 6.0 |
| 13 | 13.3 | 11.4 | 12.3 | 7.6 | 6.5 | 7.0 | 10.6 | 2.6 | 6.0 | 6.4 | 5.1 | 5.7 |
| 14 | 14.1 | 10.8 | 12.3 | 8.0 | 6.1 | 6.8 | 6.9 | 3.3 | 4.6 | 7.2 | 4.8 | 5.8 |
| 15 | 14.7 | 10.3 | 12.1 | 8.5 | 6.2 | 7.1 | 9.2 | 4.4 | 5.9 | 7.5 | 5.1 | 6.4 |
| 16 | 14.9 | 10.0 | 11.9 | 8.8 | 5.7 | 7.0 | 10.4 | 5.7 | 7.5 | 7.6 | 6.8 | 7.2 |
| 17 | 13.8 | 9.3 | 11.1 | 7.2 | 6.4 | 6.6 | 9.5 | 4.9 | 6.8 | 7.1 | 5.7 | 6.4 |
| 18 | 14.2 | 8.3 | 10.5 | 11.1 | 6.8 | 8.7 | 6.9 | 4.4 | 5.5 | 7.7 | 5.0 | 6.3 |
| 19 | 16.6 | 8.3 | 12.4 | 12.3 | 7.8 | 9.5 | 6.9 | 4.8 | 6.3 | 9.0 | 5.6 | 7.1 |
| 20 | 16.8 | 7.7 | 11.3 | 12.7 | 7.1 | 9.6 | 7.0 | 3.8 | 5.3 | 10.2 | 6.8 | 8.3 |
| 21 | --- | --- | --- | 12.1 | 6.8 | 8.5 | 6.7 | 3.6 | 5.0 | 11.0 | 7.2 | 8.9 |
| 22 | --- | --- | --- | 9.7 | 6.4 | 7.6 | 8.6 | 3.6 | 6.2 | 9.0 | 5.1 | 7.1 |
| 23 | 16.1 | --- | --- | 10.1 | 5.5 | 7.4 | 7.9 | 6.3 | 7.1 | 6.1 | 4.3 | 5.1 |
| 24 | 17.4 | 8.5 | 11.9 | 8.8 | 4.2 | 6.4 | 8.5 | 5.3 | 6.6 | 5.5 | 4.5 | 4.9 |
| 25 | 16.5 | 8.2 | 11.1 | 5.7 | 3.3 | 4.4 | 7.5 | 4.5 | 5.9 | 5.5 | 4.3 | 4.8 |
| 26 | 16.7 | 6.9 | 10.8 | 5.2 | 3.1 | 3.9 | 8.2 | 4.4 | 6.1 | 8.4 | 4.4 | 6.1 |
| 27 | 16.4 | 5.9 | 9.4 | 3.8 | 2.3 | 2.9 | 9.1 | 4.3 | 6.5 | 6.3 | 4.9 | 5.8 |
| 28 | 7.2 | 4.7 | 6.1 | 2.8 | 1.7 | 2.4 | 10.5 | 4.4 | 6.7 | 12.9 | 4.8 | 8.1 |
| 29 | --- | --- | --- | 3.6 | 2.3 | 2.9 | 12.6 | 5.2 | 8.5 | 11.1 | 3.9 | 7.0 |
| 30 | --- | --- | --- | 9.9 | 2.2 | 8.8 | 12.3 | 4.5 | 8.0 | 9.1 | 4.3 | 6.3 |
| 31 | --- | --- | --- | 11.2 | 5.4 | 8.0 | --- | --- | --- | 10.4 | 3.9 | 6.8 |
| MONTH | 17.4 | 4.7 | 10.8 | 12.7 | 1.7 | 7.0 | 12.6 | 2.6 | 6.6 | 12.9 | 3.8 | 6.4 |

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 6.7 | 4.4 | 6.0 | 12.5 | 5.1 | 8.9 | 12.7 | 3.9 | 8.0 | 6.4 | 4.8 | 5.4 |
| 2 | 6.1 | 5.6 | 5.9 | 11.7 | 5.0 | 8.4 | 14.4 | 5.6 | 10.0 | 5.4 | 4.8 | 5.0 |
| 3 | 6.4 | 5.7 | 6.0 | 10.0 | 3.2 | 6.4 | 14.1 | 6.4 | 10.2 | --- | --- | --- |
| 4 | 6.4 | 5.7 | 6.1 | 6.6 | 4.5 | 5.4 | 14.7 | 6.5 | 9.8 | --- | --- | --- |
| 5 | 6.9 | 5.2 | 6.4 | 6.5 | 4.3 | 5.2 | 14.6 | 5.1 | 9.7 | --- | --- | --- |
| 6 | 6.6 | 5.6 | 6.1 | 7.2 | --- | 5.6 | 15.6 | 4.1 | 9.2 | --- | --- | --- |
| 7 | 6.5 | 5.3 | 6.0 | 8.3 | 4.9 | 6.6 | 13.5 | 5.1 | 7.9 | --- | --- | --- |
| 8 | 6.7 | 4.7 | 5.5 | 9.7 | 5.3 | 7.4 | 14.6 | 3.6 | 8.5 | --- | --- | --- |
| 9 | 8.5 | 4.8 | 6.4 | 10.9 | 6.0 | 8.3 | 15.1 | 6.5 | 9.9 | --- | --- | --- |
| 10 | 10.3 | 5.1 | 7.4 | 11.9 | 6.6 | 9.1 | 14.6 | 5.6 | 9.3 | --- | --- | --- |
| 11 | 9.9 | 6.0 | 7.3 | 12.2 | 6.3 | 9.1 | 14.4 | 5.0 | 8.6 | 11.3 | 6.3 | 8.2 |
| 12 | 10.5 | 4.4 | 7.3 | 11.5 | 6.2 | 8.9 | 15.5 | 3.8 | 8.4 | 12.7 | 6.2 | 8.6 |
| 13 | 9.3 | 4.7 | 6.6 | 11.7 | 6.8 | 9.3 | 16.0 | 3.7 | 9.1 | 13.0 | 5.7 | 8.4 |
| 14 | 7.8 | 4.1 | 5.7 | 13.4 | 7.4 | 10.1 | 15.7 | 4.1 | 9.1 | 6.8 | 4.5 | 5.3 |
| 15 | 8.0 | 4.2 | 5.8 | 14.0 | 6.4 | 10.3 | 16.0 | 3.4 | 8.7 | 8.0 | 3.5 | 5.5 |
| 16 | 7.2 | 6.0 | 6.8 | 14.0 | 7.7 | 10.9 | 15.3 | 3.3 | 8.2 | 9.2 | 3.7 | 6.2 |
| 17 | 6.6 | 5.6 | 6.3 | 13.4 | 8.2 | 10.8 | 11.2 | 4.3 | 5.7 | 11.8 | 6.9 | 8.7 |
| 18 | 6.6 | 5.1 | 5.7 | 13.4 | 8.4 | 10.8 | 5.6 | 3.5 | 4.5 | 14.4 | 7.3 | 9.9 |
| 19 | 7.6 | 4.9 | 6.1 | 12.5 | 8.7 | 10.6 | 9.7 | 3.1 | 6.1 | 15.4 | 7.4 | 10.7 |
| 20 | 9.5 | 5.7 | 7.4 | 13.5 | 8.7 | 11.0 | 9.6 | 3.5 | 7.0 | 14.9 | 7.4 | 10.6 |
| 21 | 11.0 | 6.4 | 8.5 | 14.0 | 9.3 | 11.6 | 11.3 | 6.0 | 8.0 | 15.3 | 7.4 | 10.8 |
| 22 | 11.2 | 6.6 | 8.8 | 13.7 | 9.7 | 11.6 | 13.2 | 6.6 | 9.0 | 15.5 | 7.0 | 10.7 |
| 23 | 10.5 | 6.5 | 8.5 | 13.3 | 9.6 | 11.3 | 13.9 | 6.4 | 9.5 | 11.2 | 5.2 | 8.7 |
| 24 | 10.1 | 6.1 | 7.9 | 12.9 | 9.7 | 11.0 | 13.3 | 6.1 | 9.0 | 12.9 | 8.0 | 10.2 |
| 25 | 9.5 | 5.0 | 7.3 | 12.0 | 9.0 | 10.5 | 13.5 | 5.8 | 8.8 | 14.6 | 6.7 | 10.1 |
| 26 | 9.7 | 4.2 | 7.1 | 11.3 | 8.6 | 9.7 | 15.1 | 4.8 | 8.6 | 10.9 | 7.8 | 9.3 |
| 27 | 11.2 | 5.2 | 8.2 | 9.7 | 7.0 | 8.4 | 13.6 | 4.3 | 8.2 | 10.6 | 7.2 | 9.3 |
| 28 | 11.4 | 5.7 | 8.7 | 9.5 | --- | --- | 10.1 | 3.9 | 7.5 | 10.9 | 7.8 | 9.3 |
| 29 | 10.8 | 5.2 | 8.2 | --- | --- | --- | 10.5 | 4.5 | 7.7 | 14.2 | 6.8 | 10.0 |
| 30 | 12.0 | 4.8 | 8.7 | --- | --- | --- | 11.0 | 5.5 | 7.9 | 13.8 | 5.3 | 8.6 |
| 31 | --- | --- | --- | 10.9 | --- | --- | 10.2 | 4.9 | 7.0 | --- | --- | --- |
| MONTH | 12.0 | 4.1 | 7.0 | 14.0 | 3.2 | 9.2 | 16.0 | 3.1 | 8.4 | 15.5 | 3.5 | 8.6 |
| YEAR | 18.8 | .9 | 8.4 | | | | | | | | | |

## 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 (2.4 km) upstream from The Texas and Pacific Railway Co. bridge, and 7 mi (11 km) upstream from mouth.

DRAINAGE AREA.--143 mi² (370 km²).

### WATER-DISCHARGE 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, nonrecording gage at same site and datum.

REMARKS.--Lake is formed by a rolled earthfill dam 6,482 ft (1,976 m) long. The service spillway is a 10-foot-diameter (3 m) uncontrolled circular drop inlet. The emergency spillway is an 882-foot-wide (269 m) 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 1955 survey. The dam was built by city of Arlington to impound water for municipal and industrial uses. Records furnished by the Tarrant County Water Control and Improvement District No. 1 show that 46,340 acre-ft (57.1 hm³) was diverted from Cedar Creek Reservoir (station 08063010) into Lake Arlington during the current year. Water is circulated for cooling purposes from lake to generating plant of Texas Electric Service Co. Monthly diversions given in table below do not include consumption of water during cooling since Texas Electric Service Co. did not have this data available. 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 | 70,140 |
| Crest of drop inlet (top of conservation pool) | 550.0 | 45,710 |
| Lowest gated outlet (invert) | 505.0 | 180 |

COOPERATION.--Records of diversions furnished by city of Arlington, Texas Electric Service Co., and Tarrant County Water Control and Improvement District No. 1. Capacity table furnished by Freese and Nichols, Inc., Consulting Engineers, for the city of Arlington.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 60,580 acre-ft (74.7 hm³) May 4, 1979, elevation, 556.20 ft (169.530 m); minimum since lake first filled in April 1957, 18,110 acre-ft (22.3 hm³) Oct. 17, 1971, elevation, 534.27 ft (162.845 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 43,650 acre-ft (53.8 hm³) June 17 at 0200 hours, elevation, 549.05 ft (167.350 m); minimum, 28,730 acre-ft (35.4 hm³) Oct. 2, elevation, 541.30 ft (164.988 m).

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

| | | | |
|---|---|---|---|
| 541.0 | 28,210 | 547.0 | 39,380 |
| 543.0 | 31,740 | 549.0 | 43,540 |
| 545.0 | 35,460 | 550.0 | 45,710 |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 28810 | 31690 | 32630 | 34570 | 35650 | 36750 | 38640 | 39830 | 40130 | 40940 | 35770 | 33290 |
| 2 | 28790 | 31830 | 32670 | 34610 | 35690 | 36870 | 38800 | 39850 | 40220 | 40750 | 35460 | 33400 |
| 3 | 28980 | 31890 | 32800 | 34610 | 35690 | 37570 | 39040 | 39970 | 40540 | 40830 | 35180 | 33440 |
| 4 | 29090 | 31890 | 32890 | 34620 | 35690 | 37770 | 39140 | 40010 | 40480 | 41870 | 34870 | 33480 |
| 5 | 29210 | 31890 | 33020 | 34570 | 35770 | 37790 | 39180 | 40110 | 38710 | 41960 | 34660 | 33570 |
| 6 | 29230 | 31870 | 33130 | 34450 | 35810 | 37770 | 39160 | 40130 | 38710 | 41850 | 34360 | 33650 |
| 7 | 29300 | 31810 | 33260 | 34380 | 35840 | 38060 | 39220 | 40130 | 38710 | 41700 | 34190 | 33650 |
| 8 | 29330 | 31760 | 34170 | 34270 | 35900 | 38120 | 39140 | 41640 | 38710 | 41560 | 34120 | 33440 |
| 9 | 29420 | 31670 | 34360 | 34150 | 36000 | 38080 | 39020 | 42380 | 38710 | 41330 | 33930 | 33420 |
| 10 | 29510 | 31600 | 34420 | 34130 | 35940 | 38060 | 39020 | 42190 | 40840 | 41120 | 33700 | 33290 |
| 11 | 29560 | 31520 | 34530 | 34150 | 35840 | 38040 | 39160 | 42060 | 40810 | 40960 | 33510 | 33150 |
| 12 | 29580 | 31470 | 34640 | 34130 | 35820 | 38100 | 39220 | 41850 | 40770 | 40810 | 33330 | 33110 |
| 13 | 29630 | 31400 | 34740 | 34080 | 35840 | 38200 | 39240 | 41640 | 40690 | 40560 | 33170 | 32910 |
| 14 | 29760 | 31340 | 34870 | 34060 | 35840 | 38240 | 39340 | 41470 | 40730 | 40360 | 32960 | 32960 |
| 15 | 29840 | 31290 | 34950 | 34060 | 35840 | 38280 | 39460 | 41470 | 41490 | 40090 | 32740 | 33020 |
| 16 | 29950 | 31490 | 34970 | 34020 | 35860 | 38300 | 39460 | 41490 | 43630 | 39870 | 32450 | 33040 |
| 17 | 30340 | 31540 | 34990 | 33960 | 35900 | 38300 | 39380 | 41370 | 43600 | 39580 | 33090 | 33000 |
| 18 | 30500 | 31650 | 34910 | 34190 | 35840 | 38100 | 39360 | 41240 | 43500 | 39300 | 33220 | 33020 |
| 19 | 30630 | 31740 | 34850 | 34490 | 35860 | 38060 | 39480 | 41040 | 43330 | 39080 | 33290 | 33050 |
| 20 | 30700 | 31780 | 34810 | 34720 | 35900 | 38000 | 39460 | 40960 | 43160 | 38800 | 33260 | 33070 |
| 21 | 30800 | 31830 | 34830 | 34970 | 36000 | 37920 | 39520 | 40770 | 43010 | 38580 | 33290 | 33070 |
| 22 | 30950 | 31980 | 34890 | 35190 | 35980 | 37870 | 39670 | 40610 | 42800 | 38300 | 33280 | 33070 |
| 23 | 31020 | 32070 | 34800 | 35250 | 36000 | 37850 | 39850 | 40590 | 42540 | 37980 | 33240 | 33070 |
| 24 | 31060 | 32120 | 34720 | 35350 | 36020 | 37810 | 39890 | 40730 | 42290 | 37630 | 33200 | 33050 |
| 25 | 31160 | 32200 | 34640 | 35400 | 36060 | 37830 | 39870 | 40670 | 42060 | 37330 | 33110 | 32740 |
| 26 | 31270 | 32230 | 34590 | 35420 | 36150 | 37870 | 39830 | 40440 | 41810 | 37040 | 33040 | 32720 |
| 27 | 31290 | 32320 | 34510 | 35460 | 36210 | 37940 | 39790 | 40360 | 41580 | 36790 | 32940 | 32720 |
| 28 | 31200 | 32400 | 34470 | 35580 | 36340 | 38060 | 39790 | 40240 | 41330 | 36630 | 32850 | 32710 |
| 29 | 31250 | 32500 | 34420 | 35540 | --- | 38300 | 39790 | 40130 | 41140 | 36460 | 32740 | 32780 |
| 30 | 31400 | 32630 | 34490 | 35520 | --- | 38480 | 39770 | 40160 | 41040 | 36290 | 32650 | 32830 |
| 31 | 31560 | --- | 34530 | 35650 | --- | 38500 | --- | 40110 | --- | 36060 | 32540 | --- |
| MAX | 31560 | 32630 | 34990 | 35650 | 36340 | 38500 | 39890 | 42380 | 43630 | 41960 | 35770 | 33650 |
| MIN | 28790 | 31290 | 32630 | 33960 | 35650 | 36750 | 38640 | 39830 | 38710 | 36060 | 32450 | 32710 |
| (†) | 542.90 | 543.49 | 544.51 | 545.10 | 545.46 | 546.56 | 547.19 | 547.36 | 547.81 | 545.31 | 543.44 | 543.60 |
| (‡) | +2820 | +1070 | +1900 | +1120 | +690 | +2160 | +1270 | +340 | +930 | -4980 | -3520 | +290 |
| (††) | 3620 | 3170 | 2770 | 2780 | 2480 | 2710 | 3110 | 3330 | 3870 | 5400 | 5710 | 3960 |

CAL YR 1980 MAX 48510 MIN 23470 ‡ -440 †† 51320
WTR YR 1981 MAX 43630 MIN 28790 ‡ +4090 †† 42910

† Elevation at end of month.
‡ Change of contents in acre-feet.
†† Diversions, in acre-feet, for municipal and industrial use.

08049200 LAKE ARLINGTON AT ARLINGTON, TX--Continued

WATER-QUALITY RECORDS

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

324304097113601 LAKE ARLINGTON SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | HARDNESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | |
| 12... | 1405 | 1.0 | 284 | 7.6 | 8.0 | .60 | 11.0 | 92 | 110 |
| 12... | 1406 | 1.0 | -- | -- | -- | -- | -- | -- | -- |
| 12... | 1407 | 10 | 286 | 7.6 | 8.0 | -- | 11.0 | 92 | -- |
| 12... | 1409 | 20 | 286 | 7.6 | 8.0 | -- | 11.0 | 92 | -- |
| 12... | 1411 | 30 | 286 | 7.6 | 8.0 | -- | 11.0 | 92 | -- |
| 12... | 1413 | 34 | 286 | 7.6 | 8.0 | -- | 11.0 | 92 | 110 |
| JUN | | | | | | | | | |
| 04... | 0945 | 1.0 | 305 | 8.4 | 26.0 | 1.50 | 7.0 | 88 | 110 |
| 04... | 0946 | 2.5 | -- | -- | -- | -- | -- | -- | -- |
| 04... | 0948 | 10 | 305 | 8.4 | 26.0 | -- | 7.0 | 88 | -- |
| 04... | 0949 | 20 | 305 | 8.3 | 25.5 | -- | 6.8 | 84 | -- |
| 04... | 0950 | 25 | 316 | 7.4 | 23.5 | -- | 1.5 | 18 | -- |
| 04... | 0951 | 30 | 318 | 7.3 | 23.0 | -- | .8 | 9 | -- |
| 04... | 0952 | 35 | 319 | 7.3 | 23.0 | -- | .6 | 7 | -- |
| 04... | 0953 | 42 | 321 | 7.3 | 22.5 | -- | .2 | 2 | 110 |
| AUG | | | | | | | | | |
| 20... | 1020 | 1.0 | 309 | 8.0 | 29.0 | 1.20 | 4.6 | 60 | 110 |
| 20... | 1021 | 2.0 | -- | -- | -- | -- | -- | -- | -- |
| 20... | 1022 | 10 | 309 | 7.9 | 28.5 | -- | 4.5 | 58 | -- |
| 20... | 1023 | 20 | 309 | 7.9 | 28.5 | -- | 4.2 | 54 | -- |
| 20... | 1024 | 25 | 320 | 7.5 | 28.0 | -- | .2 | 3 | -- |
| 20... | 1025 | 30 | 344 | 7.2 | 25.0 | -- | .2 | 2 | -- |
| 20... | 1026 | 39 | 353 | 7.2 | 24.0 | -- | .2 | 2 | 130 |

| DATE | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) |
|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | |
| 12... | 16 | 34 | 4.9 | 19 | .8 | 4.3 | 89 | 33 | 18 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | 16 | 34 | 4.9 | 19 | .8 | 4.3 | 89 | 33 | 18 |
| JUN | | | | | | | | | |
| 04... | 17 | 36 | 4.6 | 18 | .8 | 4.5 | 92 | 29 | 19 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | 16 | 38 | 4.7 | 19 | .8 | 4.4 | 98 | 29 | 19 |
| AUG | | | | | | | | | |
| 20... | 16 | 37 | 4.6 | 17 | .7 | 4.9 | 95 | 27 | 20 |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | 0 | 43 | 5.0 | 18 | .7 | 4.8 | 140 | 5.0 | 25 |

LAKE ARLINGTON AT ARLINGTON, TX--Continued

324304097113601 LAKE ARLINGTON SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | |
| 12... | .2 | 1.8 | 169 | .07 | .71 | .78 | .040 | <10 | <1 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | .07 | .81 | .88 | .040 | 20 | 0 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | 1.9 | 169 | .07 | .71 | .78 | .040 | 20 | 1 |
| JUN | | | | | | | | | |
| 04... | .2 | 1.7 | 168 | .02 | .82 | .84 | .030 | 20 | 2 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | .03 | .74 | .77 | .030 | 0 | 20 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | .26 | 1.00 | 1.3 | .050 | 20 | 140 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | 2.8 | 176 | .25 | .93 | 1.2 | .050 | 20 | 500 |
| AUG | | | | | | | | | |
| 20... | .3 | 3.8 | 172 | .00 | .86 | .86 | .020 | <10 | 9 |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | -- | -- | -- | .00 | .71 | .71 | .020 | 40 | 50 |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | -- | -- | -- | .00 | 1.90 | 1.9 | .060 | 630 | 2000 |
| 20... | -- | 7.5 | 192 | .00 | 2.80 | 2.8 | .110 | 710 | 1900 |

324320097121101 LAKE ARLINGTON SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|
| FEB | | | | | | | |
| 12... | 1430 | 1.0 | 284 | 7.7 | 9.0 | 10.8 | 92 |
| 12... | 1432 | 10 | 284 | 7.7 | 9.0 | 10.8 | 92 |
| 12... | 1434 | 20 | 284 | 7.7 | 9.0 | 10.8 | 92 |
| 12... | 1436 | 30 | 284 | 7.7 | 9.0 | 10.8 | 92 |
| JUN | | | | | | | |
| 04... | 1020 | 1.0 | 305 | 8.6 | 26.0 | 7.0 | 88 |
| 04... | 1021 | 10 | 305 | 8.5 | 26.0 | 6.9 | 86 |
| 04... | 1022 | 20 | 306 | 8.4 | 26.0 | 6.6 | 82 |
| 04... | 1023 | 30 | 317 | 7.1 | 23.0 | 1.1 | 13 |
| 04... | 1024 | 35 | 319 | 7.4 | 23.0 | .3 | 4 |
| AUG | | | | | | | |
| 20... | 1100 | 1.0 | 309 | 7.9 | 29.0 | 4.3 | 56 |
| 20... | 1101 | 10 | 309 | 7.8 | 29.0 | 3.9 | 51 |
| 20... | 1102 | 20 | 309 | 7.6 | 28.5 | .2 | 3 |
| 20... | 1103 | 30 | 309 | 7.3 | 26.5 | .2 | 2 |

LAKE ARLINGTON AT ARLINGTON, TX--Continued

324253097121801 LAKE ARLINGTON SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMP-LING DEPTH (FT) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) |
|---|---|---|---|---|---|---|---|
| FEB | | | | | | | |
| 12... | 1445 | 1.0 | 284 | 7.6 | 8.0 | 10.6 | 88 |
| 12... | 1447 | 10 | 284 | 7.6 | 8.0 | 10.6 | 88 |
| 12... | 1449 | 20 | 284 | 7.6 | 8.0 | 10.6 | 88 |
| 12... | 1451 | 31 | 284 | 7.6 | 8.0 | 10.6 | 88 |
| JUN | | | | | | | |
| 04... | 1030 | 1.0 | 304 | 8.5 | 26.0 | 6.9 | 86 |
| 04... | 1031 | 10 | 304 | 8.4 | 26.0 | 6.7 | 84 |
| 04... | 1032 | 20 | 312 | 7.7 | 25.0 | 3.5 | 43 |
| 04... | 1033 | 30 | 320 | 7.4 | 23.0 | .7 | 8 |
| 04... | 1034 | 38 | 320 | 7.4 | 23.0 | .2 | 2 |
| AUG | | | | | | | |
| 20... | 1110 | 1.0 | 312 | 8.5 | 29.5 | 7.3 | 96 |
| 20... | 1111 | 10 | 314 | 8.2 | 29.0 | 5.9 | 77 |
| 20... | 1112 | 20 | 316 | 7.9 | 28.5 | 4.3 | 55 |
| 20... | 1113 | 30 | 348 | 7.2 | 26.0 | .2 | 2 |
| 20... | 1114 | 34 | 356 | 7.2 | 25.0 | .2 | 2 |

324301097123301 LAKE ARLINGTON SITE BL

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMP-LING DEPTH (FT) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) |
|---|---|---|---|---|---|---|---|
| FEB | | | | | | | |
| 12... | 1455 | 1.0 | 284 | 7.7 | 10.0 | 10.6 | 92 |
| 12... | 1457 | 10 | 284 | 7.7 | 9.5 | 10.6 | 91 |
| 12... | 1459 | 20 | 284 | 7.7 | 9.0 | 10.5 | 91 |
| 12... | 1501 | 26 | 284 | 7.7 | 8.5 | 10.6 | 90 |
| JUN | | | | | | | |
| 04... | 1040 | 1.0 | 304 | 8.6 | 26.0 | 6.9 | 86 |
| 04... | 1041 | 10 | 304 | 8.4 | 26.0 | 6.6 | 82 |
| 04... | 1042 | 20 | 319 | 7.9 | 25.5 | 4.7 | 58 |
| 04... | 1043 | 32 | 320 | 7.4 | 23.5 | .5 | 6 |
| AUG | | | | | | | |
| 20... | 1120 | 1.0 | 314 | 8.4 | 29.5 | 6.9 | 91 |
| 20... | 1121 | 10 | 314 | 8.3 | 29.0 | 6.5 | 84 |
| 20... | 1122 | 20 | 317 | 8.0 | 29.0 | 4.2 | 55 |
| 20... | 1123 | 27 | 313 | 7.6 | 28.0 | .6 | 8 |

324257097130301 LAKE ARLINGTON SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMP-LING DEPTH (FT) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) |
|---|---|---|---|---|---|---|---|
| FEB | | | | | | | |
| 12... | 1510 | 1.0 | 288 | 7.7 | 13.0 | 10.4 | 97 |
| 12... | 1512 | 10 | 288 | 7.7 | 13.0 | 10.4 | 97 |
| JUN | | | | | | | |
| 04... | 1200 | 1.0 | 306 | 8.4 | 30.0 | 6.8 | 92 |
| 04... | 1201 | 10 | 306 | 8.4 | 30.0 | 6.8 | 92 |
| 04... | 1202 | 14 | 306 | 8.3 | 29.5 | 6.7 | 89 |
| AUG | | | | | | | |
| 20... | 1135 | 1.0 | 298 | 8.1 | 33.5 | 6.2 | 86 |
| 20... | 1136 | 5.0 | 298 | 8.1 | 33.5 | 6.2 | 86 |
| 20... | 1137 | 10 | 298 | 8.1 | 33.5 | 6.2 | 86 |
| 20... | 1138 | 13 | 298 | 8.1 | 33.5 | 6.2 | 86 |

LAKE ARLINGTON AT ARLINGTON, TX--Continued

324228097130301 LAKE ARLINGTON SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|
| FEB | | | | | | | |
| 12... | 1525 | 1.0 | 288 | 7.6 | 12.5 | 10.5 | 97 |
| 12... | 1527 | 10 | 284 | 7.6 | 8.5 | 10.3 | 87 |
| 12... | 1529 | 16 | 284 | 7.6 | 8.5 | 10.3 | 87 |
| JUN | | | | | | | |
| 04... | 1215 | 1.0 | 304 | 8.4 | 28.0 | 6.8 | 88 |
| 04... | 1216 | 10 | 304 | 8.4 | 26.5 | 6.5 | 81 |
| 04... | 1217 | 18 | 305 | 8.2 | 26.5 | 6.1 | 76 |
| AUG | | | | | | | |
| 20... | 1155 | 1.0 | 305 | 8.1 | 31.5 | 6.4 | 86 |
| 20... | 1156 | 10 | 305 | 8.2 | 29.5 | 6.1 | 80 |
| 20... | 1157 | 15 | 305 | 8.1 | 29.5 | 5.2 | 68 |

324143097132201 LAKE ARLINGTON SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | HARDNESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | |
| 12... | 1540 | 1.0 | 280 | 7.8 | 7.0 | .40 | 11.4 | 93 | 100 |
| 12... | 1542 | 10 | 280 | 7.8 | 7.0 | -- | 11.4 | 93 | -- |
| 12... | 1544 | 20 | 280 | 7.8 | 6.5 | -- | 11.4 | 92 | 100 |
| JUN | | | | | | | | | |
| 04... | 1100 | 1.0 | 306 | 8.5 | 26.0 | .90 | 6.9 | 86 | 110 |
| 04... | 1101 | 10 | 306 | 8.4 | 25.0 | -- | 6.6 | 80 | -- |
| 04... | 1102 | 20 | 310 | 8.1 | 24.5 | -- | 5.1 | 62 | -- |
| 04... | 1103 | 23 | 315 | 7.7 | 24.5 | -- | 3.2 | 39 | 110 |
| AUG | | | | | | | | | |
| 20... | 1215 | 1.0 | 308 | 8.4 | 30.0 | 1.00 | 7.1 | 95 | 100 |
| 20... | 1216 | 10 | 304 | 8.4 | 28.5 | -- | 6.9 | 88 | -- |
| 20... | 1217 | 20 | 307 | 8.3 | 27.5 | -- | 6.3 | 80 | 110 |

| DATE | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) |
|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | |
| 12... | 17 | 34 | 4.8 | 19 | .8 | 4.4 | 88 | 33 | 18 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | 16 | 33 | 4.9 | 19 | .8 | 4.4 | 87 | 34 | 18 |
| JUN | | | | | | | | | |
| 04... | 13 | 35 | 4.5 | 16 | .7 | 4.4 | 93 | 29 | 19 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | 13 | 37 | 4.6 | 18 | .7 | 4.2 | 98 | 29 | 20 |
| AUG | | | | | | | | | |
| 20... | 11 | 34 | 4.8 | 18 | .8 | 4.7 | 94 | 28 | 21 |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | 12 | 34 | 4.9 | 18 | .8 | 4.7 | 93 | 30 | 21 |

| DATE | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | |
| 12... | 1.9 | 168 | .07 | .75 | .82 | .040 | <10 | <1 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | 2.0 | 168 | .07 | .92 | .99 | .050 | 20 | <1 |
| JUN | | | | | | | | |
| 04... | 1.9 | 166 | .03 | .95 | .98 | .040 | <10 | <1 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | .05 | .90 | .95 | .060 | 50 | 20 |
| 04... | 2.5 | 174 | .12 | .87 | .99 | .060 | <10 | 40 |
| AUG | | | | | | | | |
| 20... | 3.6 | 171 | .00 | 1.00 | 1.0 | .020 | <10 | <1 |
| 20... | -- | -- | .00 | .88 | .88 | .030 | 30 | 0 |
| 20... | 3.7 | 172 | .00 | 1.10 | 1.1 | .040 | <10 | 6 |

LAKE ARLINGTON AT ARLINGTON, TX--Continued

324133097130601 LAKE ARLINGTON SITE EL

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|
| FEB | | | | | | | |
| 12... | 1555 | 1.0 | 278 | 7.8 | 6.0 | 11.5 | 91 |
| 12... | 1557 | 10 | 278 | 7.8 | 6.0 | 11.5 | 91 |
| JUN | | | | | | | |
| 04... | 1110 | 1.0 | 306 | 8.6 | 26.0 | 6.8 | 85 |
| 04... | 1111 | 10 | 306 | 8.4 | 25.0 | 6.6 | 80 |
| 04... | 1112 | 18 | 309 | 8.1 | 25.0 | 5.4 | 66 |
| AUG | | | | | | | |
| 20... | 1225 | 1.0 | 308 | 8.4 | 30.0 | 7.2 | 96 |
| 20... | 1226 | 10 | 295 | 8.4 | 28.5 | 7.3 | 94 |
| 20... | 1227 | 14 | 297 | 8.4 | 28.5 | 6.5 | 83 |

324041097134601 LAKE ARLINGTON SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | HARDNESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | |
| 12... | 1610 | 1.0 | 274 | 7.9 | 4.5 | .50 | 12.0 | 92 | 100 |
| 12... | 1611 | .8 | -- | -- | -- | -- | -- | -- | -- |
| 12... | 1612 | 10 | 274 | 7.9 | 4.5 | -- | 12.0 | 92 | 100 |
| JUN | | | | | | | | | |
| 04... | 1130 | 1.0 | 305 | 8.3 | 24.5 | .60 | 6.9 | 84 | 110 |
| 04... | 1131 | 1.0 | -- | -- | -- | -- | -- | -- | -- |
| 04... | 1132 | 10 | 280 | 7.7 | 23.5 | -- | 4.6 | 55 | -- |
| 04... | 1133 | 14 | 276 | 7.7 | 23.5 | -- | 4.4 | 52 | 98 |
| AUG | | | | | | | | | |
| 20... | 1300 | 1.0 | 268 | 8.3 | 28.0 | .40 | 7.2 | 92 | 88 |
| 20... | 1301 | .6 | -- | -- | -- | -- | -- | -- | -- |
| 20... | 1302 | 10 | 237 | 8.1 | 27.0 | -- | 6.0 | 75 | 76 |

| DATE | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) |
|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | |
| 12... | 16 | 32 | 4.8 | 19 | .8 | 4.3 | 84 | 33 | 18 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | 19 | 33 | 4.9 | 19 | .8 | 4.3 | 84 | 33 | 18 |
| JUN | | | | | | | | | |
| 04... | 12 | 35 | 4.3 | 16 | .7 | 4.3 | 93 | 29 | 18 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | 2 | 33 | 3.7 | 17 | .7 | 4.0 | 96 | 26 | 15 |
| AUG | | | | | | | | | |
| 20... | 8 | 28 | 4.3 | 16 | .8 | 4.5 | 80 | 25 | 17 |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | 8 | 24 | 4.0 | 14 | .7 | 4.4 | 68 | 17 | 15 |

| DATE | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | |
| 12... | 2.1 | 164 | .03 | .76 | .79 | .050 | 10 | <1 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | 2.1 | 165 | .03 | 1.40 | 1.4 | .060 | 20 | 2 |
| JUN | | | | | | | | |
| 04... | 2.3 | 165 | .02 | .98 | 1.0 | .050 | <10 | <1 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | | | | | | | | |
| AUG | | | | | | | | |
| 20... | 3.8 | 147 | .00 | .95 | .95 | .050 | <10 | <1 |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- |
| 20... | 3.9 | 123 | .03 | .98 | 1.0 | .070 | <10 | 8 |

LAKE ARLINGTON AT ARLINGTON, TX--Continued

324304097113601 LAKE ARLINGTON SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMP-LING DEPTH (FT) | ARSENIC DIS-SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| FEB | | | | | | | |
| 12... | 1405 | 1.0 | 1 | 60 | 1 | 0 | <10 |
| 12... | 1409 | 20 | -- | -- | -- | -- | -- |
| 12... | 1413 | 34 | 1 | 60 | 1 | 0 | <10 |
| JUN | | | | | | | |
| 04... | 0945 | 1.0 | 1 | 90 | <1 | 0 | <10 |
| 04... | 0949 | 20 | -- | -- | -- | -- | -- |
| 04... | 0951 | 30 | -- | -- | -- | -- | -- |
| 04... | 0953 | 42 | 1 | 100 | <1 | 0 | <10 |
| AUG | | | | | | | |
| 20... | 1020 | 1.0 | 2 | 38 | <1 | 0 | <10 |
| 20... | 1023 | 20 | -- | -- | -- | -- | -- |
| 20... | 1025 | 30 | -- | -- | -- | -- | -- |
| 20... | 1026 | 39 | 7 | 57 | <1 | 0 | <10 |

| DATE | 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) |
|---|---|---|---|---|---|---|---|
| FEB | | | | | | | |
| 12... | <10 | <10 | <1 | .0 | 0 | 0 | 4 |
| 12... | 20 | -- | 0 | -- | -- | -- | -- |
| 12... | 20 | <10 | 1 | .0 | 0 | 0 | 8 |
| JUN | | | | | | | |
| 04... | 20 | <10 | 2 | .1 | 0 | 0 | 3 |
| 04... | 0 | -- | 20 | -- | -- | -- | -- |
| 04... | 20 | -- | 140 | -- | -- | -- | -- |
| 04... | 20 | 11 | 500 | .1 | 0 | 0 | 8 |
| AUG | | | | | | | |
| 20... | <10 | <10 | 9 | .0 | 0 | 0 | 19 |
| 20... | 40 | -- | 50 | -- | -- | -- | -- |
| 20... | 630 | -- | 2000 | -- | -- | -- | -- |
| 20... | 710 | <10 | 1900 | .0 | 0 | 0 | 6 |

LAKE ARLINGTON AT ARLINGTON, TX--Continued

324304097113601 LAKE ARLINGTON SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | FEB 12,81 | JUN 4,81 | AUG 20,81 |
|---|---|---|---|
| TIME | 1406 | 0946 | 1021 |
| TOTAL CELLS/ML | 3600 | 3100 | 70000 |
| DIVERSITY: DIVISION | 1.6 | 1.6 | 0.5 |
| .CLASS | 1.6 | 1.6 | 0.5 |
| ..ORDER | 1.8 | 2.0 | 1.4 |
| ...FAMILY | 2.2 | 2.5 | 1.8 |
| ....GENUS | 3.2 | 2.8 | 2.6 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...COELASTRACEAE | | | | | | |
| ....COELASTRUM | -- | - | 180 | 6 | -- | - |
| ...HYDRODICTYACEAE | | | | | | |
| ....PEDIASTRUM | -- | - | 90 | 3 | -- | - |
| ...MICRACTINIACEAE | | | | | | |
| ....GOLENKINIA | -- | - | -- | - | * | 0 |
| ....MICRACTINIUM | -- | - | 210 | 7 | -- | - |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | 170 | 5 | * | 0 | 540 | 1 |
| ....CHODATELLA | 77 | 2 | -- | - | -- | - |
| ....DICTYOSPHAERIUM | 38 | 1 | -- | - | -- | - |
| ....KIRCHNERIELLA | 38 | 1 | -- | - | * | 0 |
| ....OOCYSTIS | 96 | 3 | 26 | 1 | * | 0 |
| ....SELENASTRUM | 77 | 2 | * | 0 | -- | - |
| ....TETRAEDRON | 19 | 1 | * | 0 | * | 0 |
| ....TREUBARIA | -- | - | -- | - | * | 0 |
| ...SCENEDESMACEAE | | | | | | |
| ....CRUCIGENIA | -- | - | 52 | 2 | -- | - |
| ....SCENEDESMUS | 650# | 18 | 100 | 3 | 870 | 1 |
| ....TETRASTRUM | 230 | 6 | 52 | 2 | -- | - |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CARTERIA | -- | - | * | 0 | -- | - |
| ....CHLAMYDOMONAS | 19 | 1 | 230 | 7 | -- | - |
| ..ZYGNEMATALES | | | | | | |
| ...DESMIDIACEAE | | | | | | |
| ....COSMARIUM | -- | - | * | 0 | -- | - |
| ....EUASTRUM | -- | - | -- | - | * | 0 |
| ...ZYGNEMATACEAE | | | | | | |
| ....MOUGEOTIA | -- | - | -- | - | 760 | 1 |
| CHRYSOPHYTA | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..CENTRALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | 630# | 18 | 140 | 5 | * | 0 |
| ....MELOSIRA | 190 | 5 | 90 | 3 | * | 0 |
| ..PENNALES | | | | | | |
| ...ACHNANTHACEAE | | | | | | |
| ....ACHNANTHES | -- | - | * | 0 | -- | - |
| ...FRAGILARIACEAE | | | | | | |
| ....ASTERIONELLA | -- | - | * | 0 | -- | - |
| ....FRAGILARIA | -- | - | -- | - | 870 | 1 |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | 150 | 4 | 100 | 3 | * | 0 |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | |
| .CRYPTOPHYCEAE | | | | | | |
| ..CRYPTOMONADALES | | | | | | |
| ...CRYPTOCHRYSIDACEAE | | | | | | |
| ....CHROOMONAS | -- | - | * | 0 | -- | - |
| ...CRYPTOMONADACEAE | | | | | | |
| ....CRYPTOMONAS | 19 | 1 | * | 0 | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

LAKE ARLINGTON AT ARLINGTON, TX--Continued

324304097113601 LAKE ARLINGTON SITE AC--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | FEB 12,81 | | JUN 4,81 | | AUG 20,81 | |
|---|---|---|---|---|---|---|
| TIME | 1406 | | 0946 | | 1021 | |
| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....AGMENELLUM | -- | - | -- | - | 8700 | 12 |
| ....ANACYSTIS | 850# | 23 | 1700# | 53 | 25000# | 35 |
| ....COCCOCHLORIS | -- | - | -- | - | 650 | 1 |
| ....COMPHOSPHAERIA | 350 | 10 | -- | - | -- | - |
| ..HORMOGONALES | | | | | | |
| ...NOSTOCACEAE | | | | | | |
| ....APHANIZOMENON | -- | - | -- | - | 3800 | 5 |
| ...OSCILLATORIACEAE | | | | | | |
| ....LYNGBYA | -- | - | -- | - | 15000# | 21 |
| ....OSCILLATORIA | -- | - | -- | - | 12000# | 17 |
| ...RIVULARIACEAE | | | | | | |
| ....RAPHIDIOPSIS | -- | - | -- | - | * | 0 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....TRACHELOMONAS | -- | - | 64 | 2 | * | 0 |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | |
| .DINOPHYCEAE | | | | | | |
| ..PERIDINIALES | | | | | | |
| ...GLENODINIACEAE | | | | | | |
| ....GLENODINIUM | -- | - | * | 0 | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

LAKE ARLINGTON AT ARLINGTON, TX--Continued

324041097134601 LAKE ARLINGTON SITE FC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | FEB 21,81 | | JUN 4,81 | | AUG 20,81 | |
|---|---|---|---|---|---|---|
| TIME | 1611 | | 1131 | | 1301 | |
| TOTAL CELLS/ML | 3900 | | 4300 | | 66000 | |
| DIVERSITY: DIVISION | 1.5 | | 1.9 | | 0.3 | |
| .CLASS | 1.5 | | 1.9 | | 0.3 | |
| ..ORDER | 1.7 | | 2.3 | | 1.3 | |
| ...FAMILY | 2.1 | | 3.0 | | 1.7 | |
| ....GENUS | 3.2 | | 3.2 | | 2.0 | |
| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...CHARACIACEAE | | | | | | |
| ....SCHROEDERIA | -- | - | 60 | 1 | * | 0 |
| ...HYDRODICTYACEAE | | | | | | |
| ....PEDIASTRUM | -- | - | 320 | 8 | -- | - |
| ...MICRACTINIACEAE | | | | | | |
| ....GOLENKINIA | -- | - | -- | - | * | 0 |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | 150 | 4 | 80 | 2 | 430 | 1 |
| ....CHODATELLA | 67 | 2 | -- | - | -- | - |
| ....DICTYOSPHAERIUM | 67 | 2 | -- | - | -- | - |
| ....FRANCEIA | -- | - | -- | - | * | 0 |
| ....KIRCHNERIELLA | 33 | 1 | -- | - | -- | - |
| ....OOCYSTIS | 33 | 1 | 400 | 9 | 430 | 1 |
| ....SELENASTRUM | 100 | 3 | 40 | 1 | -- | - |
| ....TETRAEDRON | * | 0 | -- | - | -- | - |
| ....TREUBARIA | -- | - | * | 0 | * | 0 |
| ...SCENEDESMACEAE | | | | | | |
| ....CRUCIGENIA | 67 | 2 | -- | - | -- | - |
| ....SCENEDESMUS | 1000# | 27 | 260 | 6 | 430 | 1 |
| ....TETRASTRUM | 270 | 7 | 80 | 2 | -- | - |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CHLAMYDOMONAS | 33 | 1 | 200 | 5 | 540 | 1 |
| ..ZYGNEMATALES | | | | | | |
| ...DESMIDIACEAE | | | | | | |
| ....COSMARIUM | -- | - | -- | - | * | 0 |
| CHRYSOPHYTA | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..CENTRALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | 750# | 20 | 640# | 15 | * | 0 |
| ....MELOSIRA | 67 | 2 | 40 | 1 | -- | - |
| ..PENNALES | | | | | | |
| ...ACHNANTHACEAE | | | | | | |
| ....ACHNANTHES | -- | - | * | 0 | -- | - |
| ...FRAGILARIACEAE | | | | | | |
| ....FRAGILARIA | -- | - | -- | - | * | 0 |
| ....SYNEDRA | -- | - | 80 | 2 | * | 0 |
| ...NAVICULACEAE | | | | | | |
| ....NAVICULA | * | 0 | -- | - | -- | - |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | 130 | 3 | 280 | 7 | * | 0 |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | |
| .CRYPTOPHYCEAE | | | | | | |
| ..CRYPTOMONADALES | | | | | | |
| ...CRYPTOCHRYSIDACEAE | | | | | | |
| ....CHROOMONAS | -- | - | 120 | 3 | -- | - |
| ...CRYPTOMONADACEAE | | | | | | |
| ....CRYPTOMONAS | -- | - | 40 | 1 | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....AGMENELLUM | 540 | 14 | -- | - | 4800 | 7 |
| ....ANACYSTIS | 490 | 13 | 1500# | 34 | 23000# | 34 |
| ..HORMOGONALES | | | | | | |
| ...OSCILLATORIACEAE | | | | | | |
| ....LYNGBYA | -- | - | -- | - | 30000# | 45 |
| ...RIVULARIACEAE | | | | | | |
| ....RAPHIDIOPSIS | -- | - | -- | - | 5500 | 8 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....EUGLENA | -- | - | * | 0 | * | 0 |
| ....TRACHELOMONAS | -- | - | 60 | 1 | * | 0 |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | |
| .DINOPHYCEAE | | | | | | |
| ..PERIDINIALES | | | | | | |
| ...GLENODINIACEAE | | | | | | |
| ....GLENODINIUM | -- | - | * | 0 | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 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 (2.1 km) northeast of Grand Prairie, 3.7 mi (6.0 km) upstream from Bear Creek, 6.5 mi (10.5 km) upstream from Mountain Creek, and at mile 514.6 (828.0 km).

DRAINAGE AREA.--3,065 $mi^2$ (7,938 $km^2$).

### 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 410.42 ft (125.096 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 6, 1933, nonrecording gage at bridge on old channel 2,500 ft (762 m) southeast of present site at datum 2.56 ft (0.780 m) higher. Dec. 6, 1933, to May 24, 1956, water-stage recorder at site 440 ft (134 m) downstream from site of nonrecording gage at datum 2.56 ft (0.780 m) higher than present datum. May 25, 1956, to Apr. 18, 1957, nonrecording gage at site 1.5 mi (2.4 km) downstream at different datum. Apr. 19 to Aug. 13, 1957, nonrecording gage on bridge at present site and datum.

REMARKS.--Water-discharge records good. Flow is affected at times by three upstream reservoirs with a combined capacity of 248,600 acre-ft (307 $hm^3$), of which 76,550 acre-ft (94.4 $hm^3$) is for flood control. During the current year, 86,580 acre-ft (107 $hm^3$) of sewage effluent was discharged into river upstream from this station by the city of Fort Worth. There are many diversions upstream from this station for municipal, industrial, and other uses. The river channel at this station was relocated and rectified in 1956. Gage-height telemeter at station.

AVERAGE DISCHARGE.--56 years (water years 1926-81), 534 $ft^3/s$ (15.12 $m^3/s$), 386,900 acre-ft/yr (477 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 62,000 $ft^3/s$ (1,760 $m^3/s$) May 17, 1949, gage height, 28.00 ft (8.534 m), site and datum then in use, from rating curve extended above 36,000 $ft^3/s$ (1,020 $m^3/s$); minimum observed, 3.2 $ft^3/s$ (0.091 $m^3/s$) June 6, 1925.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, 30.6 ft (9.33 m) in May 1908, former site and datum, from information by local resident. Flood in April 1922 reached a stage of 29.0 ft (8.84 m), former site and datum, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,090 $ft^3/s$ (201 $m^3/s$) May 9 at 1745 hours, gage height, 17.48 ft (5.328 m); minimum daily, 121 $ft^3/s$ (3.43 $m^3/s$) Nov. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 494 | 129 | 142 | 150 | 225 | 718 | 180 | 358 | 3060 | 190 | 161 | 975 |
| 2 | 271 | 129 | 142 | 136 | 210 | 498 | 159 | 246 | 2190 | 184 | 154 | 2260 |
| 3 | 233 | 136 | 142 | 152 | 171 | 543 | 174 | 177 | 1660 | 283 | 148 | 796 |
| 4 | 221 | 141 | 145 | 150 | 154 | 3030 | 332 | 405 | 857 | 4520 | 160 | 380 |
| 5 | 189 | 134 | 151 | 152 | 168 | 551 | 225 | 256 | 2820 | 1610 | 153 | 292 |
| 6 | 174 | 133 | 148 | 155 | 180 | 300 | 165 | 195 | 2730 | 394 | 146 | 242 |
| 7 | 175 | 133 | 151 | 152 | 165 | 673 | 154 | 180 | 1570 | 286 | 156 | 203 |
| 8 | 168 | 128 | 1790 | 152 | 156 | 1660 | 148 | 453 | 534 | 256 | 154 | 323 |
| 9 | 161 | 127 | 1580 | 158 | 165 | 521 | 154 | 5800 | 381 | 233 | 146 | 297 |
| 10 | 146 | 133 | 339 | 163 | 246 | 356 | 159 | 2760 | 315 | 218 | 139 | 218 |
| 11 | 132 | 142 | 243 | 161 | 210 | 303 | 154 | 460 | 268 | 209 | 150 | 195 |
| 12 | 129 | 143 | 213 | 152 | 168 | 268 | 151 | 306 | 258 | 190 | 145 | 170 |
| 13 | 126 | 130 | 192 | 157 | 162 | 250 | 151 | 275 | 243 | 195 | 144 | 166 |
| 14 | 139 | 129 | 183 | 156 | 151 | 237 | 162 | 228 | 262 | 202 | 143 | 546 |
| 15 | 140 | 121 | 180 | 155 | 151 | 222 | 154 | 297 | 280 | 188 | 140 | 510 |
| 16 | 127 | 213 | 174 | 186 | 148 | 207 | 156 | 967 | 4450 | 184 | 133 | 262 |
| 17 | 664 | 473 | 162 | 175 | 154 | 198 | 165 | 408 | 2480 | 182 | 191 | 204 |
| 18 | 576 | 271 | 178 | 160 | 154 | 186 | 329 | 294 | 524 | 177 | 652 | 177 |
| 19 | 236 | 183 | 170 | 160 | 156 | 177 | 793 | 269 | 383 | 168 | 275 | 159 |
| 20 | 201 | 154 | 165 | 188 | 156 | 171 | 259 | 222 | 311 | 167 | 187 | 151 |
| 21 | 185 | 142 | 158 | 179 | 180 | 168 | 177 | 195 | 275 | 179 | 158 | 154 |
| 22 | 163 | 171 | 158 | 171 | 174 | 168 | 159 | 179 | 250 | 173 | 148 | 174 |
| 23 | 161 | 259 | 168 | 162 | 186 | 165 | 1140 | 179 | 241 | 170 | 141 | 165 |
| 24 | 209 | 198 | 161 | 152 | 165 | 168 | 677 | 811 | 225 | 170 | 139 | 198 |
| 25 | 151 | 159 | 150 | 146 | 159 | 165 | 256 | 455 | 220 | 161 | 143 | 186 |
| 26 | 143 | 142 | 141 | 140 | 162 | 174 | 198 | 236 | 212 | 161 | 151 | 170 |
| 27 | 139 | 140 | 150 | 146 | 165 | 174 | 174 | 893 | 200 | 167 | 152 | 185 |
| 28 | 138 | 126 | 150 | 148 | 253 | 180 | 168 | 658 | 190 | 209 | 159 | 192 |
| 29 | 135 | 131 | 146 | 148 | --- | 650 | 183 | 286 | 194 | 476 | 183 | 196 |
| 30 | 132 | 134 | 151 | 151 | --- | 375 | 165 | 244 | 195 | 245 | 173 | 179 |
| 31 | 135 | --- | 151 | 151 | --- | 222 | --- | 222 | --- | 186 | 170 | --- |
| TOTAL | 6393 | 4884 | 8274 | 4864 | 4894 | 13678 | 7621 | 18914 | 27778 | 12333 | 5394 | 10325 |
| MEAN | 206 | 163 | 267 | 157 | 175 | 441 | 254 | 610 | 926 | 398 | 174 | 344 |
| MAX | 664 | 473 | 1790 | 188 | 253 | 3030 | 1140 | 5800 | 4450 | 4520 | 652 | 2260 |
| MIN | 126 | 121 | 141 | 136 | 148 | 165 | 148 | 177 | 190 | 161 | 133 | 151 |
| AC-FT | 12680 | 9690 | 16410 | 9650 | 9710 | 27130 | 15120 | 37520 | 55100 | 24460 | 10700 | 20480 |

CAL YR 1980 TOTAL 109192 MEAN 298 MAX 4280 MIN 105 AC-FT 216600
WTR YR 1981 TOTAL 125352 MEAN 343 MAX 5800 MIN 121 AC-FT 248600

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1956 to current year. Chemical and biochemical analyses: January 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1966 to current year.
pH: October 1976 to current year.
WATER TEMPERATURES: October 1966 to current year.
DISSOLVED OXYGEN: October 1976 to current year.

INSTRUMENTATION.--Water-quality monitor since Oct. 29, 1976.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. Where maximum or minimum 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, 1,320 micromhos Dec. 12, 1978; minimum, 188 micromhos May 28, 1978.
pH: Maximum, 8.6 units July 2, 1981; minimum, 6.6 units Jan. 6, 1979.
WATER TEMPERATURES: Maximum, 34.0°C Aug. 9, 1970, Aug. 2, 1974, July 12, 16, 1978; minimum, 3.0°C Jan. 9, 1973.
DISSOLVED OXYGEN: Maximum, 12.8 mg/L Aug. 13, 1981; minimum, 0.0 mg/L on several days each year.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 1,110 micromhos Apr. 13; minimum, 208 micromhos May 9.
pH: Maximum, 8.6 units July 2; minimum, 6.7 units Dec. 5.
WATER TEMPERATURES: Maximum, 32.5°C July 20-22; minimum, 8.0°C Feb. 12.
DISSOLVED OXYGEN: Maximum 12.8 mg/L Aug. 13; minimum, 0.0 mg/L on several days during year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (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 (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 09... | 1215 | 180 | 838 | 7.7 | 24.5 | 15 | .20 | 1.2 | 15 | 12 | 150 |
| DEC | | | | | | | | | | | |
| 03... | 1520 | 148 | 851 | 7.1 | 15.0 | 20 | 3.6 | 3.2 | 32 | 10 | 140 |
| JAN | | | | | | | | | | | |
| 15... | 1420 | 156 | 934 | 7.5 | 13.0 | 20 | .80 | 4.3 | 41 | 15 | 180 |
| MAR | | | | | | | | | | | |
| 12... | 0945 | 284 | 798 | 7.7 | 16.0 | 20 | 16 | 6.2 | 63 | 16 | 190 |
| APR | | | | | | | | | | | |
| 09... | 1240 | 162 | 1030 | 7.4 | 21.0 | 20 | 4.8 | .5 | 6 | 9.6 | 170 |
| JUN | | | | | | | | | | | |
| 09... | 1015 | 395 | 717 | 7.6 | 27.0 | 20 | 48 | 4.5 | 57 | 16 | 200 |
| JUL | | | | | | | | | | | |
| 16... | 1350 | 192 | 899 | 7.7 | 30.5 | 20 | 10 | 1.9 | 25 | 3.4 | 170 |
| AUG | | | | | | | | | | | |
| 06... | 1430 | 151 | 904 | 7.7 | 31.0 | 10 | 3.0 | 7.1 | 96 | 1.6 | 150 |
| SEP | | | | | | | | | | | |
| 10... | 1345 | 180 | 680 | 7.7 | 27.0 | 10 | 13 | 5.0 | 63 | 3.4 | 150 |

| DATE | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 09... | 0 | 51 | 6.4 | 110 | 3.9 | 12 | 230 | 84 | 81 | .4 | 11 |
| DEC | | | | | | | | | | | |
| 03... | 0 | 45 | 6.7 | 110 | 4.0 | 13 | 190 | 120 | 70 | .6 | 9.1 |
| JAN | | | | | | | | | | | |
| 15... | 0 | 57 | 8.5 | 110 | 3.6 | 11 | 220 | 100 | 86 | 1.0 | 9.0 |
| MAR | | | | | | | | | | | |
| 12... | 0 | 66 | 6.2 | 82 | 2.6 | 13 | 190 | 110 | 55 | .6 | 8.6 |
| APR | | | | | | | | | | | |
| 09... | 0 | 57 | 7.4 | 130 | 4.3 | 12 | 250 | 140 | 89 | .8 | 8.8 |
| JUN | | | | | | | | | | | |
| 09... | 7 | 68 | 6.5 | 64 | 2.0 | 12 | 190 | 96 | 47 | .5 | 11 |
| JUL | | | | | | | | | | | |
| 16... | 0 | 56 | 8.2 | 120 | 4.0 | 15 | 210 | 120 | 84 | .9 | 11 |
| AUG | | | | | | | | | | | |
| 06... | 0 | 48 | 7.4 | 130 | 4.8 | 12 | 190 | 100 | 95 | .8 | 10 |
| SEP | | | | | | | | | | | |
| 10... | 0 | 50 | 7.0 | 79 | 2.9 | 11 | 160 | 74 | 65 | .8 | 9.8 |

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (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) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 09... | 495 | 24 | 7 | 1.6 | .980 | 2.6 | 3.60 | 2.4 | 6.00 | 2.30 | 11 |
| DEC | | | | | | | | | | | |
| 03... | 489 | 10 | 8 | 1.2 | .520 | 1.7 | 4.90 | 8.1 | 13.0 | .540 | 13 |
| JAN | | | | | | | | | | | |
| 15... | 514 | 11 | 3 | .46 | .540 | 1.0 | 6.10 | 7.9 | 14.0 | 4.40 | 23 |
| MAR | | | | | | | | | | | |
| 12... | 456 | 39 | 19 | .72 | .480 | 1.2 | 4.80 | .20 | 5.00 | 2.80 | 19 |
| APR | | | | | | | | | | | |
| 09... | 596 | 13 | 5 | .02 | .180 | .20 | .000 | 15 | 15.0 | 3.30 | 26 |
| JUN | | | | | | | | | | | |
| 09... | 419 | 112 | 23 | .98 | .620 | 1.6 | 3.20 | .70 | 3.90 | 2.10 | 9.8 |
| JUL | | | | | | | | | | | |
| 16... | 542 | 12 | 5 | 1.2 | .500 | 1.7 | 3.60 | 1.2 | 4.80 | 3.10 | 10 |
| AUG | | | | | | | | | | | |
| 06... | 517 | 0 | 0 | 2.9 | 1.10 | 4.0 | .200 | 1.6 | 1.80 | 1.30 | 10 |
| SEP | | | | | | | | | | | |
| 10... | 393 | 47 | 4 | 2.4 | .380 | 2.8 | .610 | 1.2 | 1.80 | 2.90 | 9.9 |

| DATE | TIME | ARSENIC DIS-SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 09... | 1215 | 3 | 30 | <1 | 0 | <10 | 20 |
| JAN | | | | | | | |
| 15... | 1420 | 1 | 20 | <1 | 10 | <10 | 50 |
| APR | | | | | | | |
| 09... | 1240 | 1 | 20 | 1 | 0 | <10 | 60 |
| JUL | | | | | | | |
| 16... | 1350 | 4 | 40 | <1 | 10 | <10 | 70 |

| DATE | 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) |
|---|---|---|---|---|---|---|
| OCT | | | | | | |
| 09... | 37 | 110 | .0 | 0 | 0 | 30 |
| JAN | | | | | | |
| 15... | 45 | 120 | .0 | 0 | 0 | 40 |
| APR | | | | | | |
| 09... | 15 | 290 | .1 | 0 | 2 | 30 |
| JUL | | | | | | |
| 16... | <10 | 170 | .1 | 0 | 0 | 50 |

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 6393 | 766 | 429 | 7400 | 66 | 1130 | 85 | 1470 | 180 |
| NOV. | 1980 | 4884 | 848 | 475 | 6270 | 75 | 993 | 97 | 1270 | 190 |
| DEC. | 1980 | 8274 | 706 | 395 | 8820 | 60 | 1340 | 78 | 1740 | 170 |
| JAN. | 1981 | 4864 | 937 | 526 | 6910 | 86 | 1130 | 110 | 1440 | 190 |
| FEB. | 1981 | 4894 | 900 | 505 | 6670 | 81 | 1080 | 100 | 1370 | 190 |
| MAR. | 1981 | 13678 | 604 | 337 | 12500 | 49 | 1800 | 64 | 2380 | 160 |
| APR. | 1981 | 7621 | 779 | 436 | 8970 | 68 | 1400 | 88 | 1800 | 180 |
| MAY | 1981 | 18914 | 508 | 283 | 14500 | 39 | 1980 | 52 | 2670 | 150 |
| JUNE | 1981 | 27778 | 483 | 269 | 20200 | 36 | 2730 | 49 | 3680 | 140 |
| JULY | 1981 | 12333 | 615 | 344 | 11400 | 51 | 1690 | 66 | 2210 | 160 |
| AUG. | 1981 | 5394 | 849 | 476 | 6940 | 76 | 1100 | 97 | 1410 | 180 |
| SEPT | 1981 | 10325 | 658 | 367 | 10200 | 54 | 1500 | 71 | 1980 | 170 |
| TOTAL | | 125352 | ** | ** | 121000 | ** | 17900 | ** | 23400 | ** |
| WTD. AVG. | | 343 | 638 | 357 | ** | 53 | ** | 69 | ** | 160 |

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | 594 | 408 | 513 | 1000 | 948 | 972 | 912 | 882 | 899 | 946 | 910 | 932 |
| 2 | 702 | 596 | 651 | 1040 | 980 | 1010 | 890 | 838 | 874 | 948 | 900 | 922 |
| 3 | 764 | 704 | 743 | 1040 | 934 | 979 | 872 | 834 | 851 | 918 | 854 | 885 |
| 4 | 784 | 754 | 767 | 948 | 912 | 932 | 900 | 858 | 877 | 890 | 850 | 877 |
| 5 | 812 | 760 | 792 | 1100 | 920 | 988 | 886 | 850 | 866 | 906 | 872 | 888 |
| 6 | 844 | 816 | 832 | 1100 | 970 | 1030 | 934 | 214 | 785 | 914 | 876 | 893 |
| 7 | 814 | 794 | 806 | 1010 | 968 | 986 | 796 | --- | 700 | 914 | 874 | 895 |
| 8 | 854 | 794 | 824 | 978 | 928 | 954 | 878 | 376 | 457 | 916 | 888 | 905 |
| 9 | 862 | 838 | 847 | 918 | 852 | 870 | --- | --- | 473 | 906 | 884 | 894 |
| 10 | 846 | 824 | 838 | 912 | 876 | 898 | --- | --- | 724 | 882 | 854 | 863 |
| 11 | 860 | 838 | 847 | 902 | 878 | 893 | --- | --- | 794 | 890 | 864 | 877 |
| 12 | 876 | 846 | 863 | 940 | 874 | 917 | --- | --- | 824 | 892 | 872 | 884 |
| 13 | 874 | 866 | 871 | 960 | 934 | 949 | --- | --- | 848 | 878 | 856 | 869 |
| 14 | 868 | 780 | 819 | 960 | 942 | 953 | --- | --- | 860 | 928 | 860 | 900 |
| 15 | 846 | 772 | 802 | 954 | 930 | 940 | --- | --- | 864 | 960 | 928 | 946 |
| 16 | 958 | 848 | 892 | 954 | 682 | 837 | --- | --- | 872 | 972 | 936 | 954 |
| 17 | 958 | --- | 601 | 784 | 666 | 726 | --- | --- | 889 | 960 | 920 | 943 |
| 18 | --- | --- | 625 | 696 | 618 | 648 | 956 | 930 | 944 | 976 | 932 | 957 |
| 19 | --- | --- | 701 | 738 | 660 | 689 | 996 | 932 | 973 | 1030 | 936 | 995 |
| 20 | --- | --- | 750 | 796 | 742 | 766 | 974 | 922 | 957 | 1020 | 956 | 1000 |
| 21 | 846 | 744 | 791 | 830 | 786 | 808 | 940 | 914 | 926 | 1010 | 940 | 982 |
| 22 | 930 | 858 | 901 | 840 | 600 | 783 | 956 | 916 | 936 | 984 | 938 | 965 |
| 23 | 954 | 870 | 919 | 842 | 750 | 809 | 942 | 884 | 919 | 994 | 942 | 970 |
| 24 | 940 | 732 | 876 | 792 | 682 | 723 | 924 | 886 | 913 | 992 | 964 | 975 |
| 25 | 952 | 886 | 922 | 814 | 766 | 783 | 972 | 920 | 953 | 988 | 958 | 974 |
| 26 | 974 | 892 | 945 | 896 | 820 | 864 | 964 | 910 | 941 | 990 | 974 | 985 |
| 27 | 974 | 936 | 960 | 896 | 852 | 874 | 920 | 858 | 882 | 966 | 928 | 948 |
| 28 | 968 | 908 | 948 | 938 | 876 | 911 | 890 | 852 | 873 | 972 | 926 | 950 |
| 29 | 964 | 882 | 922 | 926 | 792 | 861 | 902 | 852 | 882 | 1020 | 956 | 983 |
| 30 | 960 | 932 | 942 | 904 | 784 | 832 | 920 | 888 | 909 | 1020 | 988 | 1000 |
| 31 | 998 | 964 | 988 | --- | --- | --- | 972 | 904 | 947 | 1030 | 998 | 1010 |
| MONTH | 998 | 408 | 823 | 1100 | 600 | 873 | 996 | 214 | 852 | 1030 | 850 | 936 |

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 998 | 866 | 924 | 858 | 538 | 665 | 872 | 828 | 859 | 912 | 488 | 763 |
| 2 | 968 | 836 | 909 | 558 | 492 | 542 | 920 | 858 | 898 | 856 | 690 | 747 |
| 3 | 876 | 824 | 855 | 568 | 338 | 491 | 940 | 674 | 910 | 834 | 710 | 788 |
| 4 | 958 | 848 | 915 | 528 | 332 | 362 | 940 | 660 | 856 | 864 | 504 | 739 |
| 5 | 956 | 910 | 932 | 604 | 396 | 501 | 818 | 776 | 794 | 654 | 542 | 583 |
| 6 | 994 | 924 | 955 | 712 | 600 | 654 | 878 | 788 | 841 | 780 | 662 | 721 |
| 7 | 962 | 926 | 945 | 762 | 444 | 650 | 894 | 816 | 870 | 866 | 792 | 838 |
| 8 | 966 | 914 | 940 | 464 | 330 | 391 | 1010 | 888 | 966 | 830 | 244 | 714 |
| 9 | 934 | 762 | 910 | 602 | 472 | 547 | 1040 | 998 | 1020 | 384 | 208 | 310 |
| 10 | 864 | 720 | 820 | 736 | 612 | 670 | 1090 | 1010 | 1060 | 452 | 272 | 378 |
| 11 | 888 | 780 | 825 | 776 | 726 | 742 | 1070 | 1020 | 1050 | 614 | 450 | 534 |
| 12 | 852 | 790 | 830 | 798 | 776 | 788 | 1070 | 1010 | 1040 | 712 | 606 | 644 |
| 13 | 864 | 848 | 857 | 830 | 786 | 809 | 1110 | 1060 | 1090 | 784 | 718 | 746 |
| 14 | 890 | 846 | 866 | 858 | 818 | 839 | 1070 | 986 | 1040 | 802 | 680 | 752 |
| 15 | 890 | 864 | 879 | 886 | 834 | 871 | 1030 | 980 | 1000 | 806 | 562 | 745 |
| 16 | 920 | 860 | 893 | 914 | 860 | 890 | 1090 | 1020 | 1060 | 818 | 458 | 592 |
| 17 | 928 | 886 | 910 | 900 | 868 | 883 | 1090 | 1050 | 1080 | 636 | 470 | 574 |
| 18 | 914 | 882 | 901 | 970 | 894 | 942 | 1060 | 444 | 886 | 736 | 622 | 666 |
| 19 | 956 | 896 | 928 | 970 | 920 | 950 | 948 | 482 | 675 | 776 | 730 | 755 |
| 20 | 974 | 934 | 953 | 952 | 918 | 935 | 676 | 538 | 599 | 816 | 776 | 794 |
| 21 | 938 | 724 | 876 | 942 | 918 | 930 | 788 | 686 | 734 | 896 | 818 | 857 |
| 22 | 952 | 868 | 935 | 944 | 906 | 929 | 888 | 664 | 839 | 932 | 898 | 916 |
| 23 | 950 | 892 | 928 | 930 | 864 | 910 | 708 | 372 | 553 | 946 | 704 | 917 |
| 24 | 902 | 862 | 880 | 902 | 862 | 885 | 558 | 432 | 483 | 848 | 402 | 652 |
| 25 | 974 | 868 | 929 | 922 | 876 | 906 | 702 | 558 | 617 | 572 | 420 | 528 |
| 26 | 970 | 936 | 951 | 940 | 894 | 919 | 834 | 710 | 777 | 736 | 572 | 646 |
| 27 | 970 | 954 | 959 | 934 | 908 | 921 | 872 | 830 | 857 | 768 | 260 | 560 |
| 28 | 958 | 612 | 863 | 924 | 714 | 903 | 886 | 840 | 866 | 496 | 370 | 445 |
| 29 | --- | --- | --- | 918 | 582 | 753 | 938 | 846 | 894 | 654 | 492 | 562 |
| 30 | --- | --- | --- | 794 | 616 | 713 | 934 | 884 | 918 | 718 | 662 | 694 |
| 31 | --- | --- | --- | 822 | 780 | 796 | --- | --- | --- | 748 | 616 | 687 |
| MONTH | 998 | 612 | 902 | 970 | 330 | 764 | 1110 | 372 | 871 | 946 | 208 | 672 |

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 736 | 262 | 430 | 910 | 876 | 897 | 880 | 806 | 851 | 920 | 242 | 651 |
| 2 | 422 | 264 | 356 | 942 | --- | 858 | 920 | 846 | 887 | 406 | --- | 400 |
| 3 | 490 | 232 | 408 | --- | --- | 762 | 888 | 866 | 875 | --- | --- | 572 |
| 4 | 530 | 464 | 495 | 360 | --- | 353 | 864 | 788 | 826 | --- | --- | 702 |
| 5 | 538 | 284 | 387 | --- | --- | 470 | 882 | 784 | 836 | --- | --- | 755 |
| 6 | 412 | 308 | 353 | 628 | --- | 600 | 932 | 880 | 909 | --- | --- | 796 |
| 7 | 476 | 388 | 419 | 772 | 632 | 702 | 990 | 932 | 955 | --- | --- | 835 |
| 8 | 630 | 480 | 576 | 804 | 772 | 793 | 980 | 938 | 956 | 752 | 454 | 710 |
| 9 | 776 | 616 | 703 | 850 | 804 | 821 | 946 | 918 | 933 | 692 | 590 | 648 |
| 10 | 832 | 754 | 790 | 902 | 862 | 884 | 946 | 916 | 935 | 736 | 658 | 690 |
| 11 | 876 | 804 | 833 | 918 | 886 | 902 | 932 | 880 | 905 | 808 | 752 | 788 |
| 12 | 890 | 806 | 857 | 944 | 890 | 917 | 952 | 882 | 927 | 878 | 812 | 851 |
| 13 | 898 | 862 | 883 | 898 | 846 | 880 | 960 | 932 | 942 | 932 | 872 | 905 |
| 14 | 914 | 786 | 859 | 908 | 850 | 870 | 1010 | 958 | 990 | 904 | 384 | 692 |
| 15 | 892 | 602 | 834 | 952 | 898 | 932 | 1020 | 982 | 1000 | 534 | 442 | 508 |
| 16 | 552 | 302 | 388 | 930 | 906 | 918 | 980 | 914 | 939 | 654 | 516 | 568 |
| 17 | 518 | 304 | 412 | 946 | 908 | 928 | 936 | 750 | 882 | 760 | 656 | 721 |
| 18 | 676 | 526 | 614 | 954 | 920 | 943 | 904 | 330 | 664 | 838 | 768 | 810 |
| 19 | 802 | 670 | 735 | 960 | 920 | 941 | 614 | 338 | 480 | 878 | 822 | 847 |
| 20 | 848 | 772 | 810 | 980 | 948 | 967 | 742 | 618 | 683 | 882 | 870 | 875 |
| 21 | 862 | 802 | 835 | 936 | 884 | 908 | 856 | 748 | 812 | 892 | 860 | 872 |
| 22 | 870 | 820 | 847 | 962 | 884 | 927 | 898 | 854 | 883 | 882 | 826 | 843 |
| 23 | 892 | 838 | 864 | 944 | 898 | 920 | 904 | 874 | 889 | 852 | 820 | 832 |
| 24 | 918 | 888 | 903 | 942 | 924 | 935 | 892 | 876 | 882 | 904 | 850 | 879 |
| 25 | 936 | 872 | 906 | 920 | 888 | 907 | 900 | 870 | 884 | 892 | 806 | 831 |
| 26 | 952 | 892 | 913 | 958 | 904 | 932 | 966 | 878 | 929 | 902 | 812 | 856 |
| 27 | 1000 | 946 | 968 | 970 | 918 | 945 | 962 | 906 | 946 | 980 | 902 | 929 |
| 28 | 954 | 906 | 933 | 932 | 748 | 870 | 958 | 896 | 930 | 982 | 900 | 939 |
| 29 | 914 | 862 | 893 | 928 | 684 | 800 | 960 | 906 | 930 | 918 | 888 | 903 |
| 30 | 898 | 862 | 879 | 708 | 588 | 639 | 928 | 872 | 911 | 918 | 894 | 907 |
| 31 | --- | --- | --- | 800 | 714 | 768 | 938 | 908 | 925 | --- | --- | --- |
| MONTH | 1000 | 232 | 703 | 980 | 588 | 835 | 1020 | 330 | 881 | 982 | 242 | 771 |

PH (STANDARD UNITS), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | 7.4 | 7.3 | 7.4 | 7.5 | 7.5 | 7.5 |
| 2 | 7.6 | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | 7.4 | 7.3 | 7.4 | 7.5 | 7.5 | 7.5 |
| 3 | 7.6 | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | 7.4 | 7.4 | 7.4 | 7.5 | 7.5 | 7.5 |
| 4 | 7.5 | 7.4 | 7.5 | 7.5 | 7.5 | 7.5 | 7.4 | 7.3 | 7.3 | 7.6 | 7.5 | 7.5 |
| 5 | 7.5 | 7.4 | 7.5 | 7.6 | 7.5 | 7.5 | 7.4 | 6.7 | 7.3 | 7.6 | 7.5 | 7.6 |
| 6 | 7.5 | 7.4 | 7.5 | 7.6 | 7.5 | 7.6 | 7.4 | 7.3 | 7.3 | 7.5 | 7.4 | 7.5 |
| 7 | 7.4 | 7.3 | 7.4 | 7.5 | 7.5 | 7.5 | 7.4 | 7.3 | 7.4 | 7.5 | 7.4 | 7.4 |
| 8 | 7.4 | 7.3 | 7.3 | 7.5 | 7.4 | 7.4 | 7.9 | 7.3 | 7.5 | 7.4 | 7.4 | 7.4 |
| 9 | 7.4 | 7.3 | 7.4 | 7.4 | 7.4 | 7.4 | --- | --- | --- | 7.4 | 7.3 | 7.4 |
| 10 | 7.4 | 7.3 | 7.4 | 7.4 | 7.4 | 7.4 | --- | --- | --- | 7.4 | 7.3 | 7.4 |
| 11 | 7.5 | 7.4 | 7.4 | 7.4 | 7.4 | 7.4 | --- | --- | --- | 7.5 | 7.3 | 7.4 |
| 12 | 7.5 | 7.4 | 7.5 | 7.4 | 7.4 | 7.4 | --- | --- | --- | 7.5 | 7.4 | 7.5 |
| 13 | 7.6 | 7.5 | 7.5 | 7.4 | 7.4 | 7.4 | --- | --- | --- | 7.5 | 7.4 | 7.5 |
| 14 | 7.5 | 7.4 | 7.5 | 7.4 | 7.4 | 7.4 | --- | --- | --- | 7.5 | 7.4 | 7.4 |
| 15 | 7.5 | 7.4 | 7.4 | 7.5 | 7.4 | 7.4 | --- | --- | --- | 7.5 | 7.4 | 7.5 |
| 16 | 7.5 | 7.4 | 7.4 | 7.6 | 7.4 | 7.5 | --- | --- | --- | 7.5 | 7.4 | 7.5 |
| 17 | 7.9 | 7.4 | 7.5 | 7.6 | 7.4 | 7.5 | --- | --- | --- | 7.5 | 7.5 | 7.5 |
| 18 | 7.5 | --- | 7.4 | 7.6 | 7.5 | 7.6 | 7.6 | 7.5 | 7.6 | 7.5 | 7.5 | 7.5 |
| 19 | 7.6 | 7.1 | 7.4 | 7.6 | 7.5 | 7.5 | 7.6 | 7.5 | 7.6 | 7.5 | 7.4 | 7.5 |
| 20 | 7.5 | 7.4 | 7.4 | 7.5 | 7.4 | 7.5 | 7.7 | 7.6 | 7.7 | 7.5 | 7.4 | 7.4 |
| 21 | 7.5 | 7.4 | 7.5 | 7.4 | 7.4 | 7.4 | 7.7 | 7.7 | 7.7 | 7.5 | 7.4 | 7.4 |
| 22 | 7.5 | 7.5 | 7.5 | 7.5 | 7.4 | 7.4 | 7.7 | 7.7 | 7.7 | 7.4 | 7.4 | 7.4 |
| 23 | 7.5 | 7.5 | 7.5 | 7.5 | 7.4 | 7.4 | 7.7 | 7.6 | 7.6 | 7.5 | 7.4 | 7.5 |
| 24 | 7.6 | 7.5 | 7.5 | 7.5 | 7.4 | 7.5 | 7.6 | 7.6 | 7.6 | 7.5 | 7.4 | 7.5 |
| 25 | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | 7.7 | 7.6 | 7.6 | 7.4 | 7.4 | 7.4 |
| 26 | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | 7.7 | 7.6 | 7.6 | 7.4 | 7.4 | 7.4 |
| 27 | 7.5 | 7.5 | 7.5 | 7.5 | 7.4 | 7.4 | 7.6 | 7.6 | 7.6 | 7.4 | 7.4 | 7.4 |
| 28 | 7.5 | 7.5 | 7.5 | 7.5 | 7.4 | 7.5 | 7.6 | 7.6 | 7.6 | 7.4 | 7.4 | 7.4 |
| 29 | 7.6 | 7.5 | 7.5 | 7.4 | 7.4 | 7.4 | 7.6 | 7.6 | 7.6 | 7.4 | 7.3 | 7.4 |
| 30 | 7.6 | 7.5 | 7.5 | 7.4 | 7.4 | 7.4 | 7.6 | 7.6 | 7.6 | 7.4 | 7.3 | 7.4 |
| 31 | 7.5 | 7.5 | 7.5 | --- | --- | --- | 7.6 | 7.5 | 7.6 | 7.4 | 7.4 | 7.4 |
| MONTH | 7.9 | 7.1 | 7.5 | 7.6 | 7.4 | 7.5 | 7.9 | 6.7 | 7.5 | 7.6 | 7.3 | 7.5 |

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 7.5 | 7.4 | 7.4 | 7.3 | 7.2 | 7.2 | 7.4 | 7.3 | 7.4 | 7.5 | 7.3 | 7.3 |
| 2 | 7.5 | 7.4 | 7.4 | 7.4 | 7.2 | 7.3 | 7.4 | 7.3 | 7.4 | 7.3 | 7.2 | 7.3 |
| 3 | 7.5 | 7.4 | 7.4 | 7.6 | 7.3 | 7.4 | 7.4 | 7.4 | 7.4 | 7.3 | 7.3 | 7.3 |
| 4 | 7.4 | 7.4 | 7.4 | 7.6 | --- | 7.4 | 7.5 | 7.3 | 7.4 | 7.3 | 7.2 | 7.3 |
| 5 | 7.4 | 7.4 | 7.4 | 7.5 | 7.5 | 7.5 | 7.4 | 7.3 | 7.4 | 7.3 | 7.3 | 7.3 |
| 6 | 7.4 | 7.3 | 7.3 | 7.5 | 7.5 | 7.5 | 7.4 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 |
| 7 | 7.4 | 7.3 | 7.3 | 7.7 | 7.5 | 7.6 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 |
| 8 | 7.3 | 7.3 | 7.3 | 7.6 | 7.5 | 7.6 | 7.4 | 7.3 | 7.4 | 7.9 | 7.3 | 7.3 |
| 9 | 7.4 | 7.3 | 7.3 | 7.6 | 7.6 | 7.6 | 7.4 | 7.3 | 7.3 | 8.0 | 7.5 | 7.7 |
| 10 | 7.4 | 7.3 | 7.3 | 7.6 | 7.5 | 7.6 | 7.4 | 7.3 | 7.3 | 7.8 | 7.4 | 7.6 |
| 11 | 7.5 | 7.4 | 7.5 | 7.6 | 7.5 | 7.5 | 7.3 | 7.3 | 7.3 | 7.5 | 7.4 | 7.5 |
| 12 | 7.5 | 7.4 | 7.5 | 7.5 | 7.5 | 7.5 | 7.4 | 7.3 | 7.4 | 7.5 | 7.4 | 7.5 |
| 13 | 7.5 | 7.4 | 7.4 | 7.5 | 7.5 | 7.5 | 7.4 | 7.4 | 7.4 | 7.5 | 7.3 | 7.4 |
| 14 | 7.4 | 7.4 | 7.4 | 7.5 | 7.5 | 7.5 | 7.4 | 7.3 | 7.3 | 7.4 | 7.3 | 7.4 |
| 15 | 7.4 | 7.3 | 7.4 | 7.5 | 7.4 | 7.5 | 7.5 | 7.4 | 7.4 | 7.6 | 7.4 | 7.4 |
| 16 | 7.4 | 7.3 | 7.3 | 7.4 | 7.4 | 7.4 | 7.4 | 7.4 | 7.4 | 7.4 | 7.3 | 7.4 |
| 17 | 7.4 | 7.3 | 7.3 | 7.5 | 7.4 | 7.4 | 7.4 | 7.4 | 7.4 | 7.4 | 7.3 | 7.4 |
| 18 | 7.3 | 7.3 | 7.3 | 7.5 | 7.4 | 7.5 | 7.8 | 7.4 | 7.4 | 7.3 | 7.3 | 7.3 |
| 19 | 7.3 | 7.3 | 7.3 | 7.5 | 7.4 | 7.4 | 7.4 | 7.2 | 7.3 | 7.4 | 7.3 | 7.3 |
| 20 | 7.3 | 7.3 | 7.3 | 7.5 | 7.4 | 7.4 | 7.3 | 7.3 | 7.3 | 7.4 | 7.3 | 7.4 |
| 21 | 7.3 | 7.3 | 7.3 | 7.4 | 7.4 | 7.4 | 7.3 | 7.3 | 7.3 | 7.4 | 7.3 | 7.4 |
| 22 | 7.4 | 7.3 | 7.3 | 7.5 | 7.4 | 7.4 | 7.4 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 |
| 23 | 7.4 | 7.3 | 7.4 | 7.5 | 7.4 | 7.4 | 7.5 | 7.2 | 7.3 | 7.4 | 7.3 | 7.3 |
| 24 | 7.4 | 7.3 | 7.4 | 7.4 | 7.4 | 7.4 | 7.4 | 7.3 | 7.4 | 7.6 | 7.3 | 7.4 |
| 25 | 7.4 | 7.3 | 7.3 | 7.4 | 7.3 | 7.3 | 7.4 | 7.3 | 7.4 | 7.4 | 7.3 | 7.3 |
| 26 | 7.3 | 7.3 | 7.3 | 7.4 | 7.3 | 7.4 | 7.4 | 7.3 | 7.3 | 7.4 | 7.3 | 7.3 |
| 27 | 7.3 | 7.3 | 7.3 | 7.4 | 7.4 | 7.4 | 7.3 | 7.3 | 7.3 | 7.8 | 7.3 | 7.4 |
| 28 | 7.5 | 7.3 | 7.3 | 7.4 | 7.4 | 7.4 | 7.3 | 7.3 | 7.3 | 7.5 | 7.4 | 7.4 |
| 29 | --- | --- | --- | 7.5 | 7.2 | 7.4 | 7.3 | 7.3 | 7.3 | 7.4 | 7.4 | 7.4 |
| 30 | --- | --- | --- | 7.5 | 7.4 | 7.5 | 7.3 | 7.3 | 7.3 | 7.4 | 7.4 | 7.4 |
| 31 | --- | --- | --- | 7.4 | 7.4 | 7.4 | --- | --- | --- | 7.4 | 7.3 | 7.4 |
| MONTH | 7.5 | 7.3 | 7.4 | 7.7 | 7.2 | 7.4 | 7.8 | 7.2 | 7.4 | 8.0 | 7.2 | 7.4 |

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 7.8 | 7.4 | 7.7 | 7.5 | 7.4 | 7.4 | 7.5 | 7.4 | 7.4 | 8.0 | --- | 7.6 |
| 2 | 7.8 | 7.5 | 7.6 | 8.6 | 7.4 | 7.4 | 7.5 | 7.4 | 7.5 | 7.7 | --- | 7.6 |
| 3 | 7.9 | 7.5 | 7.6 | --- | --- | --- | 7.6 | 7.4 | 7.5 | --- | --- | --- |
| 4 | 7.6 | 7.4 | 7.5 | --- | --- | --- | 7.7 | 7.5 | 7.6 | --- | --- | --- |
| 5 | 7.8 | 7.5 | 7.6 | --- | --- | --- | 7.8 | 7.6 | 7.7 | --- | --- | --- |
| 6 | 7.7 | 7.4 | 7.5 | --- | --- | --- | 8.0 | --- | 7.7 | --- | --- | --- |
| 7 | 7.6 | 7.5 | 7.5 | 7.5 | 7.4 | 7.5 | 7.9 | 7.6 | 7.7 | --- | --- | --- |
| 8 | 7.6 | 7.5 | 7.5 | 7.6 | 7.5 | 7.5 | 7.8 | 7.6 | 7.7 | 7.5 | --- | --- |
| 9 | 7.6 | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | 7.8 | 7.5 | 7.7 | 7.5 | 7.4 | 7.5 |
| 10 | 7.6 | 7.5 | 7.5 | 7.5 | 7.4 | 7.4 | 8.0 | --- | 7.7 | 7.6 | 7.5 | 7.5 |
| 11 | 7.5 | 7.4 | 7.4 | 7.6 | 7.5 | 7.5 | 8.0 | --- | 7.7 | 7.6 | 7.5 | 7.6 |
| 12 | 7.5 | 7.4 | 7.4 | 7.5 | 7.4 | 7.5 | 8.0 | --- | 7.7 | 7.6 | 7.5 | 7.6 |
| 13 | 7.5 | 7.4 | 7.4 | 7.5 | 7.4 | 7.4 | 7.9 | --- | 7.7 | 7.6 | 7.5 | 7.5 |
| 14 | 7.5 | 7.4 | 7.5 | 7.5 | 7.4 | 7.5 | 8.0 | --- | 7.7 | 7.6 | 7.3 | 7.5 |
| 15 | 7.6 | 7.4 | 7.4 | 7.5 | 7.4 | 7.5 | 8.0 | --- | 7.7 | 7.5 | 7.4 | 7.4 |
| 16 | 7.7 | 7.5 | 7.7 | 7.5 | 7.4 | 7.5 | 8.0 | --- | 7.7 | 7.5 | 7.4 | 7.4 |
| 17 | 7.8 | 7.5 | 7.6 | 7.6 | 7.4 | 7.5 | 7.8 | 7.6 | 7.7 | 7.5 | 7.4 | 7.5 |
| 18 | 7.6 | 7.5 | 7.5 | 7.5 | 7.4 | 7.4 | 7.7 | 7.4 | 7.5 | 7.5 | 7.5 | 7.5 |
| 19 | 7.5 | 7.4 | 7.5 | 7.5 | 7.4 | 7.4 | 7.7 | 7.6 | 7.6 | 7.6 | 7.5 | 7.5 |
| 20 | 7.5 | 7.4 | 7.5 | 7.5 | 7.4 | 7.5 | 7.7 | 7.6 | 7.6 | 7.6 | 7.5 | 7.5 |
| 21 | 7.5 | 7.3 | 7.4 | 7.5 | 7.4 | 7.5 | 7.7 | 7.6 | 7.6 | 7.6 | 7.5 | 7.5 |
| 22 | 7.5 | 7.4 | 7.5 | 7.6 | 7.4 | 7.5 | 7.6 | 7.6 | 7.6 | 7.6 | 7.4 | 7.5 |
| 23 | 7.5 | 7.4 | 7.4 | 7.6 | 7.4 | 7.5 | 7.6 | 7.6 | 7.6 | 7.5 | 7.4 | 7.4 |
| 24 | 7.5 | 7.4 | 7.4 | 7.6 | 7.4 | 7.5 | 7.7 | 7.6 | 7.6 | 7.5 | 7.3 | 7.4 |
| 25 | 7.4 | 7.4 | 7.4 | 7.6 | 7.4 | 7.4 | 7.8 | 7.6 | 7.7 | 7.6 | 7.4 | 7.4 |
| 26 | 7.5 | 7.4 | 7.4 | 7.5 | 7.4 | 7.4 | 7.8 | 7.7 | 7.7 | 7.6 | 7.4 | 7.5 |
| 27 | 7.5 | 7.4 | 7.5 | 7.5 | 7.3 | 7.4 | 7.7 | 7.6 | 7.7 | 7.6 | 7.4 | 7.5 |
| 28 | 7.5 | 7.4 | 7.5 | 7.5 | 7.3 | 7.4 | 7.7 | 7.5 | 7.6 | 7.6 | 7.4 | 7.5 |
| 29 | 7.5 | 7.4 | 7.5 | 7.5 | 7.3 | 7.4 | 7.7 | 7.6 | 7.7 | 7.6 | 7.4 | 7.5 |
| 30 | 7.5 | 7.4 | 7.4 | 7.4 | 7.4 | 7.4 | 7.8 | 7.6 | 7.6 | 7.6 | 7.4 | 7.5 |
| 31 | --- | --- | --- | 7.6 | 7.4 | 7.5 | 7.7 | 7.5 | 7.6 | --- | --- | --- |
| MONTH | 7.9 | 7.3 | 7.5 | 8.6 | 7.3 | 7.5 | 8.0 | 7.4 | 7.6 | 8.0 | 7.3 | 7.5 |

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 13.0 | 11.5 | 12.5 | 17.5 | 16.0 | 17.0 | 21.5 | 18.5 | 20.0 | 27.0 | 23.5 | 25.5 |
| 2 | 12.5 | 10.5 | 12.0 | 17.0 | 16.5 | 16.5 | 21.5 | 19.5 | 20.5 | 26.0 | 24.0 | 25.0 |
| 3 | 11.5 | 10.0 | 11.0 | 16.5 | 14.5 | 16.0 | 22.5 | 21.0 | 21.5 | 25.0 | 23.5 | 24.0 |
| 4 | 12.0 | 11.5 | 11.5 | 17.0 | 15.5 | 16.0 | 22.5 | 21.0 | 21.5 | 23.5 | 23.0 | 23.5 |
| 5 | 11.5 | 11.5 | 11.5 | 15.5 | 15.0 | 15.5 | 21.5 | 19.5 | 20.5 | 23.5 | 23.0 | 23.0 |
| 6 | 12.5 | 11.5 | 12.5 | 16.0 | 14.5 | 15.5 | 20.5 | 19.0 | 19.5 | 25.0 | 22.5 | 23.5 |
| 7 | 14.0 | 12.5 | 13.0 | 16.0 | 13.5 | 15.0 | 21.0 | 19.0 | 20.0 | 25.0 | 23.0 | 24.0 |
| 8 | 14.5 | 13.0 | 13.5 | 13.5 | 13.0 | 13.5 | 21.0 | 20.0 | 20.5 | 24.5 | 20.5 | 23.5 |
| 9 | 13.0 | 12.5 | 13.0 | 14.5 | 13.0 | 13.5 | 22.5 | 21.0 | 21.5 | 21.5 | 20.0 | 20.5 |
| 10 | 13.5 | 11.5 | 13.0 | 16.0 | 13.5 | 14.5 | 22.5 | 21.5 | 22.0 | 20.5 | 19.0 | 20.0 |
| 11 | 11.5 | 9.0 | 9.5 | 16.5 | 15.0 | 16.0 | 23.0 | 21.5 | 22.5 | 21.5 | 19.0 | 20.5 |
| 12 | 9.5 | 8.0 | 9.0 | 16.5 | 15.5 | 16.0 | 24.0 | 22.0 | 23.0 | 23.0 | 20.0 | 21.5 |
| 13 | 11.0 | 9.0 | 10.0 | 18.0 | 16.0 | 17.0 | 24.5 | 23.0 | 24.0 | 24.5 | 22.0 | 23.5 |
| 14 | 12.5 | 10.5 | 11.5 | 19.0 | 16.5 | 17.5 | 24.0 | 21.5 | 23.0 | 24.0 | 22.0 | 23.0 |
| 15 | 14.0 | 12.0 | 13.0 | 19.0 | 17.0 | 18.0 | 21.5 | 20.5 | 21.0 | 23.0 | 20.0 | 21.5 |
| 16 | 15.0 | 13.0 | 14.0 | 18.5 | 17.5 | 18.0 | 22.5 | 20.5 | 21.5 | 20.5 | 19.5 | 20.0 |
| 17 | 15.5 | 13.5 | 14.5 | 18.5 | 16.5 | 18.0 | 23.5 | 22.0 | 23.0 | 23.0 | 19.5 | 21.5 |
| 18 | 16.5 | 15.0 | 16.0 | 18.0 | 16.0 | 16.5 | 23.5 | 21.0 | 22.5 | 25.5 | 22.5 | 24.0 |
| 19 | 18.0 | 16.0 | 17.0 | 17.0 | 14.5 | 15.5 | 22.5 | 21.5 | 22.0 | 24.5 | 22.5 | 23.5 |
| 20 | 18.0 | 16.5 | 17.5 | 17.5 | 15.0 | 16.0 | 25.0 | 22.0 | 23.5 | 24.0 | 21.5 | 23.0 |
| 21 | 19.0 | 17.5 | 18.0 | 18.5 | 16.5 | 17.5 | 24.5 | 23.5 | 24.0 | 24.5 | 22.0 | 23.0 |
| 22 | 17.5 | 16.5 | 17.0 | 17.5 | 16.0 | 16.5 | 24.0 | 22.5 | 23.5 | 24.0 | 23.0 | 23.5 |
| 23 | 17.0 | 15.0 | 16.0 | 17.5 | 15.5 | 16.5 | 23.5 | 21.5 | 22.0 | 26.0 | 23.5 | 24.5 |
| 24 | 16.5 | 15.0 | 16.0 | 18.5 | 15.5 | 17.0 | 23.0 | 21.0 | 22.0 | 25.0 | 23.0 | 24.0 |
| 25 | 17.0 | 16.0 | 16.5 | 18.0 | 17.0 | 17.5 | 24.0 | 21.5 | 23.0 | 25.5 | 23.0 | 24.0 |
| 26 | 18.5 | 17.0 | 18.0 | 18.5 | 16.5 | 17.5 | 25.0 | 22.0 | 23.5 | 27.0 | 24.0 | 25.5 |
| 27 | 19.5 | 18.5 | 19.0 | 18.5 | 18.0 | 18.5 | 25.5 | 23.0 | 24.5 | 26.5 | 22.5 | 24.5 |
| 28 | 19.5 | 17.0 | 18.5 | 18.5 | 18.0 | 18.5 | 26.0 | 24.0 | 25.0 | 27.0 | 24.5 | 26.0 |
| 29 | --- | --- | --- | 20.0 | 16.5 | 18.0 | 26.5 | 24.0 | 25.5 | 27.0 | 26.0 | 26.5 |
| 30 | --- | --- | --- | 20.0 | 17.0 | 18.5 | 28.0 | 25.0 | 26.5 | 27.5 | 25.5 | 26.5 |
| 31 | --- | --- | --- | 21.0 | 18.5 | 19.5 | --- | --- | --- | 28.0 | 25.5 | 27.0 |
| MONTH | 19.5 | 8.0 | 14.0 | 21.0 | 13.0 | 16.5 | 28.0 | 18.5 | 22.5 | 28.0 | 19.0 | 23.5 |

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 27.0 | 22.5 | 24.5 | 31.0 | 29.0 | 30.0 | 32.0 | 30.0 | 31.0 | 29.5 | 25.0 | 27.5 |
| 2 | 24.5 | 23.0 | 24.0 | --- | 29.5 | 31.0 | 32.0 | 30.0 | 31.0 | 26.5 | 25.5 | 26.0 |
| 3 | 24.0 | 21.5 | 23.0 | --- | 29.5 | 31.0 | 31.5 | 30.0 | 30.5 | --- | --- | --- |
| 4 | 24.0 | 23.0 | 23.5 | --- | --- | --- | 31.5 | 29.5 | 30.5 | --- | --- | --- |
| 5 | 24.0 | 23.0 | 23.5 | --- | 27.0 | 30.0 | 31.5 | 29.5 | 30.5 | --- | --- | --- |
| 6 | 25.5 | 24.0 | 24.5 | --- | 27.0 | 28.5 | 32.0 | 30.0 | 31.0 | --- | --- | --- |
| 7 | 26.5 | 24.5 | 25.5 | 29.0 | 27.5 | 28.5 | 31.5 | 30.0 | 30.5 | --- | --- | --- |
| 8 | 28.5 | 26.0 | 27.0 | 30.5 | 28.0 | 29.0 | 30.5 | 29.0 | 29.5 | 30.0 | 28.0 | 28.5 |
| 9 | 29.5 | 27.5 | 28.0 | 31.0 | 28.5 | 30.0 | 30.5 | 28.0 | 29.5 | 28.5 | 26.5 | 27.5 |
| 10 | 29.5 | 28.0 | 28.5 | 31.5 | 29.0 | 30.5 | 30.0 | 28.0 | 29.0 | 28.5 | 26.0 | 27.5 |
| 11 | 28.5 | 26.5 | 27.5 | 32.0 | 29.5 | 30.5 | 30.0 | 28.5 | 29.5 | 29.0 | 27.0 | 28.0 |
| 12 | 27.5 | 26.0 | 26.5 | 32.0 | 29.5 | 31.0 | 30.5 | 29.0 | 29.5 | 29.0 | 27.5 | 28.5 |
| 13 | 27.5 | 26.0 | 26.5 | 31.5 | 29.5 | 30.5 | 31.0 | 29.0 | 30.0 | 29.5 | 27.5 | 28.5 |
| 14 | 26.5 | 26.0 | 26.5 | 32.0 | 29.5 | 30.5 | 31.5 | 29.5 | 30.5 | 28.5 | 25.5 | 27.0 |
| 15 | 28.0 | 26.0 | 26.5 | 32.0 | 29.5 | 31.0 | 32.0 | 30.0 | 31.0 | 27.5 | 26.0 | 27.0 |
| 16 | 25.5 | 24.0 | 24.5 | 32.0 | 29.5 | 31.0 | 31.5 | 30.5 | 31.0 | 27.5 | 26.0 | 26.5 |
| 17 | 24.5 | 22.5 | 24.0 | 32.0 | 30.0 | 31.0 | 30.5 | 29.0 | 29.5 | 26.0 | 24.5 | 25.5 |
| 18 | 27.0 | 24.5 | 25.5 | 32.0 | 30.0 | 31.0 | 29.0 | 26.5 | 28.0 | 25.0 | 23.5 | 24.0 |
| 19 | 28.5 | 26.0 | 27.0 | 32.0 | 30.0 | 31.0 | 28.5 | 26.0 | 27.0 | 25.0 | 23.0 | 24.0 |
| 20 | 29.0 | 26.5 | 28.0 | 32.5 | 30.5 | 31.5 | 29.5 | 27.0 | 28.0 | 25.5 | 23.5 | 24.5 |
| 21 | 29.5 | 27.5 | 28.5 | 32.5 | 30.5 | 31.5 | 29.5 | 27.0 | 28.5 | 26.5 | 24.0 | 25.5 |
| 22 | 30.0 | 27.5 | 29.0 | 32.5 | 30.0 | 31.5 | 29.5 | 27.5 | 28.5 | 27.5 | 25.5 | 26.5 |
| 23 | 30.5 | 28.0 | 29.0 | 32.0 | 30.5 | 31.5 | 29.5 | 27.5 | 28.5 | 27.5 | 26.5 | 27.0 |
| 24 | 30.5 | 28.0 | 29.0 | 32.0 | 30.0 | 31.5 | 30.0 | 28.0 | 29.0 | 28.0 | 26.5 | 27.0 |
| 25 | 30.5 | 28.0 | 29.5 | 32.0 | 30.5 | 31.5 | 30.5 | 28.5 | 29.5 | 28.0 | 26.5 | 27.0 |
| 26 | 31.0 | 28.5 | 29.5 | 32.0 | 30.5 | 31.0 | 30.0 | 28.5 | 29.5 | 28.0 | 26.5 | 27.5 |
| 27 | 31.0 | 28.5 | 29.5 | 31.0 | 30.0 | 30.5 | 30.0 | 29.0 | 29.5 | 29.0 | 27.0 | 28.0 |
| 28 | 30.5 | 28.5 | 29.5 | 30.5 | 29.5 | 30.0 | 30.5 | 28.5 | 29.5 | 28.5 | 27.0 | 28.0 |
| 29 | 30.5 | 28.5 | 29.5 | 31.5 | 29.0 | 30.0 | 30.5 | 28.5 | 29.5 | 28.0 | 27.0 | 27.5 |
| 30 | 31.0 | 28.5 | 30.0 | 31.5 | 29.5 | 30.5 | 30.5 | 29.0 | 30.0 | 28.0 | 26.5 | 27.0 |
| 31 | --- | --- | --- | 32.0 | 29.5 | 31.0 | 30.0 | 29.0 | 29.5 | --- | --- | --- |
| MONTH | 31.0 | 21.5 | 27.0 | 32.5 | 27.0 | 30.5 | 32.0 | 26.0 | 29.5 | 30.0 | 23.0 | 27.0 |

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | 3.3 | 2.8 | 3.1 | 3.0 | 2.4 | 2.7 | 3.5 | 2.8 | 3.2 | 3.6 | 3.0 | 3.2 |
| 2 | 2.7 | 2.0 | 2.4 | 2.8 | 2.1 | 2.5 | 3.2 | 2.4 | 2.9 | 3.1 | 2.7 | 2.9 |
| 3 | 2.4 | 1.6 | 2.0 | 2.9 | 2.3 | 2.6 | 3.2 | 2.6 | 2.8 | 3.4 | 2.7 | 3.1 |
| 4 | 2.3 | 1.2 | 1.9 | 2.7 | 2.1 | 2.5 | 2.7 | 1.8 | 2.3 | 3.4 | 2.8 | 3.1 |
| 5 | 2.0 | 1.0 | 1.6 | 2.9 | 2.2 | 2.5 | 7.9 | 1.5 | 2.8 | 3.2 | 3.0 | 3.1 |
| 6 | 2.3 | .8 | 1.4 | 2.7 | 2.0 | 2.4 | 7.6 | 5.8 | 7.0 | 5.7 | 2.9 | 4.4 |
| 7 | 2.3 | .5 | 1.2 | 2.5 | 1.6 | 2.2 | 8.7 | --- | --- | 6.0 | 5.0 | 5.5 |
| 8 | 1.9 | .3 | 1.0 | 2.0 | .9 | 1.5 | 8.8 | .3 | 5.2 | 5.3 | 4.2 | 4.7 |
| 9 | 1.7 | .2 | .8 | 1.9 | .8 | 1.5 | --- | --- | --- | 4.6 | 3.9 | 4.2 |
| 10 | 2.2 | .3 | 1.1 | 1.7 | .6 | 1.2 | --- | --- | --- | 4.1 | 3.7 | 3.9 |
| 11 | 3.3 | 1.7 | 2.4 | 2.1 | 1.1 | 1.7 | --- | --- | --- | 4.6 | 3.3 | 3.9 |
| 12 | 3.7 | 2.1 | 2.8 | 2.1 | 1.5 | 1.8 | --- | --- | --- | 4.6 | 3.9 | 4.3 |
| 13 | 4.2 | 2.6 | 3.1 | 2.3 | 1.4 | 1.8 | --- | --- | --- | 5.4 | 4.4 | 4.8 |
| 14 | 3.8 | 2.6 | 3.0 | 1.9 | 1.4 | 1.6 | --- | --- | --- | 4.8 | 3.6 | 4.3 |
| 15 | 3.5 | 2.8 | 3.1 | 2.1 | 1.3 | 1.7 | --- | --- | --- | 4.8 | 3.5 | 4.3 |
| 16 | 3.2 | 2.4 | 2.8 | 6.0 | 1.4 | 3.6 | --- | --- | --- | 5.0 | 4.1 | 4.7 |
| 17 | --- | 2.5 | 3.9 | 6.0 | 2.3 | 3.5 | --- | --- | --- | 6.4 | 4.9 | 5.8 |
| 18 | 3.5 | --- | 1.4 | 5.9 | 4.4 | 5.6 | --- | 4.3 | 4.4 | 6.1 | 4.8 | 5.4 |
| 19 | 4.3 | 3.5 | 4.0 | 5.8 | 4.8 | 5.3 | 4.5 | 3.4 | 3.9 | 5.4 | 3.3 | 4.0 |
| 20 | 3.4 | 2.9 | 3.2 | 4.7 | 4.0 | 4.3 | 5.6 | 4.6 | 5.1 | 4.6 | 3.3 | 4.1 |
| 21 | 3.4 | --- | 3.1 | 3.9 | 3.6 | 3.7 | 6.5 | 5.6 | 6.1 | 4.3 | 2.7 | 3.5 |
| 22 | 3.2 | 2.7 | 2.9 | 6.3 | 3.4 | 4.1 | 6.2 | 5.8 | 5.9 | 4.6 | 3.5 | 3.9 |
| 23 | 3.2 | 2.5 | 2.7 | 4.4 | 3.5 | 3.9 | 6.0 | 5.4 | 5.6 | 4.1 | 2.6 | 3.2 |
| 24 | 4.7 | 3.0 | 3.4 | 6.0 | 4.1 | 5.3 | 5.5 | 4.8 | 5.0 | 3.4 | 2.6 | 3.0 |
| 25 | 3.1 | 2.8 | 3.0 | 4.9 | 4.4 | 4.6 | 5.7 | 5.0 | 5.4 | 2.7 | 1.7 | 2.3 |
| 26 | 3.1 | 2.6 | 2.9 | 4.5 | 3.5 | 3.9 | 5.8 | 5.1 | 5.5 | 2.0 | 1.4 | 1.6 |
| 27 | 3.3 | 2.7 | 2.9 | 4.2 | 3.7 | 3.9 | 5.8 | 4.8 | 5.2 | 2.9 | 1.8 | 2.3 |
| 28 | 3.8 | 3.3 | 3.5 | 4.0 | 3.5 | 3.8 | 5.1 | 4.3 | 4.7 | 3.1 | 2.1 | 2.6 |
| 29 | 4.3 | 3.6 | 4.0 | 3.7 | 3.2 | 3.5 | 4.8 | 4.2 | 4.4 | 2.1 | 1.3 | 1.8 |
| 30 | 3.8 | 3.5 | 3.7 | 3.9 | 3.4 | 3.7 | 4.4 | 3.7 | 4.1 | 1.9 | 1.3 | 1.6 |
| 31 | 3.5 | 3.0 | 3.2 | --- | --- | --- | 4.1 | 3.4 | 3.7 | 2.1 | 1.0 | 1.6 |
| MONTH | 4.7 | .2 | 2.6 | 6.3 | .6 | 3.1 | 8.8 | .3 | 4.5 | 6.4 | 1.0 | 3.6 |

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 4.7 | 2.0 | 3.1 | 1.4 | .0 | .2 | 2.5 | 1.9 | 2.3 | 4.8 | .5 | 1.9 |
| 2 | 4.2 | 1.4 | 3.0 | 3.2 | .0 | 1.7 | 2.4 | .9 | 1.8 | 1.5 | .5 | 1.1 |
| 3 | 4.6 | 2.8 | 3.9 | 6.5 | 2.1 | 4.0 | 3.5 | .8 | 1.3 | 1.6 | .7 | 1.0 |
| 4 | 4.5 | 2.4 | 3.3 | 8.0 | .1 | 3.4 | 3.7 | .0 | .7 | 2.1 | .6 | 1.2 |
| 5 | 3.5 | 2.6 | 3.0 | 7.0 | 4.4 | 6.5 | 1.7 | .0 | 1.0 | 1.7 | 1.4 | 1.6 |
| 6 | 2.9 | 1.2 | 1.9 | 7.3 | 6.4 | 7.0 | 1.3 | .0 | .8 | 1.6 | 1.1 | 1.3 |
| 7 | 1.9 | 1.4 | 1.7 | 8.9 | 4.9 | 7.1 | 1.4 | .3 | .8 | 1.1 | .6 | .8 |
| 8 | 1.3 | .6 | .9 | 8.2 | 5.7 | 7.4 | 1.1 | .2 | .6 | 6.1 | .7 | 2.1 |
| 9 | 3.7 | .6 | 1.1 | 8.3 | 8.1 | 8.2 | 1.0 | .0 | .4 | 9.2 | 5.8 | 8.2 |
| 10 | 4.0 | .8 | 1.9 | 8.1 | 5.6 | 7.6 | .9 | .2 | .5 | 9.0 | 4.6 | 6.0 |
| 11 | 4.6 | 1.5 | 3.2 | 7.6 | 6.7 | 7.2 | .9 | .1 | .4 | 5.7 | 4.7 | 5.4 |
| 12 | 4.8 | 2.6 | 4.1 | 6.7 | 6.3 | 6.5 | 1.3 | .1 | .5 | 5.6 | 4.7 | 5.3 |
| 13 | 4.4 | 3.2 | 3.7 | 6.2 | 5.6 | 5.9 | 1.4 | .2 | .5 | 4.6 | 1.4 | 3.5 |
| 14 | 3.4 | 1.8 | 2.6 | 5.7 | 5.0 | 5.2 | .5 | .1 | .4 | 3.5 | 1.7 | 2.7 |
| 15 | 2.0 | .8 | 1.6 | 5.0 | 4.1 | 4.5 | 1.5 | .4 | .8 | 6.1 | 3.0 | 3.7 |
| 16 | 1.1 | .4 | .8 | 4.3 | 2.2 | 3.5 | 2.3 | .6 | 1.3 | 5.0 | 3.1 | 4.0 |
| 17 | .9 | .4 | .5 | 4.1 | 3.3 | 3.8 | 2.1 | .8 | 1.3 | 5.2 | 2.4 | 3.9 |
| 18 | .8 | .4 | .6 | 3.7 | 3.0 | 3.3 | 5.5 | .7 | 2.0 | 3.6 | 2.7 | 3.1 |
| 19 | .7 | .1 | .4 | 3.5 | 2.2 | 3.1 | 2.4 | .4 | 1.0 | 3.1 | 2.1 | 2.8 |
| 20 | .4 | .0 | .2 | 3.9 | 2.9 | 3.4 | 2.7 | 2.1 | 2.5 | 3.1 | 2.1 | 2.8 |
| 21 | 2.0 | .0 | .5 | 3.6 | 2.6 | 3.0 | 2.4 | 2.0 | 2.1 | 2.8 | 2.4 | 2.6 |
| 22 | .6 | .2 | .3 | 3.1 | 2.2 | 2.6 | 3.9 | 1.9 | 2.2 | 2.7 | 2.5 | 2.6 |
| 23 | .9 | .2 | .4 | 3.3 | 2.3 | 2.9 | 5.6 | 2.2 | 3.6 | 4.3 | 2.3 | 2.7 |
| 24 | 1.0 | .3 | .5 | 2.8 | 1.5 | 2.1 | 4.7 | 3.7 | 4.4 | 6.0 | 2.8 | 4.0 |
| 25 | .6 | .2 | .4 | 1.5 | 1.2 | 1.3 | 4.1 | 3.3 | 3.8 | 4.4 | 3.3 | 3.9 |
| 26 | .3 | .0 | .2 | 2.3 | 1.4 | 1.9 | 3.6 | 3.1 | 3.4 | 4.5 | 3.2 | 3.7 |
| 27 | .2 | .0 | .0 | 2.0 | 1.5 | 1.7 | 3.3 | 2.9 | 3.1 | 6.1 | 2.9 | 4.4 |
| 28 | 3.6 | .0 | .9 | 3.3 | 1.2 | 1.5 | 2.9 | 2.1 | 2.5 | 4.3 | 2.6 | 3.9 |
| 29 | --- | --- | --- | 6.1 | .0 | 2.8 | 2.2 | 1.5 | 1.9 | 4.0 | 3.3 | 3.6 |
| 30 | --- | --- | --- | 4.8 | 2.5 | 3.9 | 1.6 | .6 | 1.2 | 3.3 | 3.0 | 3.1 |
| 31 | --- | --- | --- | 3.2 | 1.8 | 2.6 | --- | --- | --- | 3.3 | 2.9 | 3.1 |
| MONTH | 4.8 | .0 | 1.6 | 8.9 | .0 | 4.1 | 5.6 | .0 | 1.6 | 9.2 | .5 | 3.2 |

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 7.9 | 3.1 | 6.1 | 3.2 | 1.3 | 2.1 | 4.1 | 2.8 | 3.4 | 6.3 | 3.1 | 4.4 |
| 2 | 7.4 | 4.0 | 5.0 | 2.4 | 1.3 | 1.7 | 4.8 | 2.5 | 3.5 | 4.2 | .8 | 3.1 |
| 3 | 7.1 | 4.9 | 5.7 | --- | --- | --- | 5.6 | 2.6 | 4.0 | --- | --- | --- |
| 4 | 5.8 | 4.1 | 4.8 | --- | --- | --- | 7.5 | 3.7 | 5.3 | --- | --- | --- |
| 5 | 7.2 | 4.7 | 6.0 | --- | --- | --- | 7.9 | 4.5 | 6.0 | --- | --- | --- |
| 6 | 7.0 | 4.0 | 5.4 | --- | --- | --- | 11.3 | 4.6 | 7.3 | --- | --- | --- |
| 7 | 5.0 | 4.4 | 4.7 | 4.5 | 4.3 | 4.4 | 7.2 | 4.3 | 5.7 | --- | --- | --- |
| 8 | 5.0 | 4.4 | 4.7 | 4.8 | 4.0 | 4.2 | 7.5 | 4.4 | 5.7 | 8.2 | 4.5 | 5.1 |
| 9 | 4.8 | 3.9 | 4.6 | 3.9 | 3.3 | 3.7 | 8.4 | 4.4 | 6.1 | 5.6 | 4.1 | 5.0 |
| 10 | 4.3 | 3.3 | 4.0 | 3.1 | 1.8 | 2.4 | 10.3 | 4.6 | 7.1 | 5.5 | 4.7 | 5.1 |
| 11 | 3.9 | 3.2 | 3.6 | 5.8 | 2.0 | 3.2 | 11.1 | 5.4 | 8.2 | 5.0 | 4.1 | 4.6 |
| 12 | 4.0 | 2.4 | 3.3 | 3.9 | 1.8 | 2.9 | 12.1 | 5.8 | 8.7 | 5.0 | 3.9 | 4.3 |
| 13 | 3.2 | 1.6 | 2.5 | 3.7 | 2.0 | 2.8 | 12.8 | 5.5 | 8.8 | 4.3 | 2.9 | 3.5 |
| 14 | 4.2 | 1.5 | 2.8 | 3.7 | 2.1 | 2.9 | 12.1 | 5.6 | 8.6 | 5.3 | .9 | 3.2 |
| 15 | 5.6 | 2.7 | 3.6 | 3.5 | 1.9 | 2.6 | 11.9 | 5.2 | 8.2 | 2.5 | 1.6 | 2.1 |
| 16 | 8.3 | 5.7 | 7.4 | 3.7 | 1.8 | 2.6 | 10.9 | 5.3 | 7.9 | 4.3 | 1.5 | 2.5 |
| 17 | 8.4 | 5.3 | 6.5 | 4.4 | 1.7 | 2.9 | 7.9 | 5.3 | 6.4 | 3.9 | 3.2 | 3.6 |
| 18 | 6.0 | 3.7 | 4.9 | 3.8 | 1.7 | 2.7 | 6.0 | 2.9 | 4.6 | 4.4 | 3.4 | 3.8 |
| 19 | 4.8 | 2.4 | 3.6 | 3.8 | 1.5 | 2.6 | 5.5 | 4.7 | 5.2 | 4.8 | 3.7 | 4.1 |
| 20 | 4.2 | 2.0 | 3.3 | 4.7 | 1.5 | 2.9 | 5.9 | 5.3 | 5.6 | 5.3 | 3.5 | 4.1 |
| 21 | 4.0 | .3 | 2.4 | 5.2 | 1.8 | 3.3 | 6.1 | 5.4 | 5.8 | 5.1 | 3.4 | 4.0 |
| 22 | 3.4 | 1.0 | 2.7 | 5.4 | 2.2 | 3.6 | 6.1 | 5.1 | 5.6 | 4.8 | 2.9 | 3.7 |
| 23 | 3.6 | 2.9 | 3.3 | 5.5 | 1.9 | 3.5 | 6.2 | 4.7 | 5.4 | 4.6 | 2.7 | 3.5 |
| 24 | 3.5 | 2.7 | 3.2 | 5.7 | 1.8 | 3.4 | 6.3 | 4.6 | 5.4 | 4.8 | 2.8 | 3.6 |
| 25 | 3.3 | 1.2 | 2.6 | 5.6 | 1.4 | 3.1 | 7.4 | 5.4 | 6.3 | 5.3 | 2.9 | 3.8 |
| 26 | 3.1 | .3 | 1.6 | 5.0 | 1.5 | 3.0 | 7.2 | 5.6 | 6.3 | 5.2 | 2.8 | 3.7 |
| 27 | 3.5 | .8 | 2.0 | 4.7 | 1.4 | 2.9 | 6.4 | 4.9 | 5.6 | 4.9 | 2.7 | 3.5 |
| 28 | 3.3 | 1.1 | 2.0 | 5.2 | 2.1 | 3.5 | 6.2 | 4.2 | 5.0 | 4.8 | 2.7 | 3.5 |
| 29 | 3.3 | 1.1 | 2.1 | 4.0 | 2.1 | 3.2 | 6.0 | 3.7 | 4.8 | 6.5 | 2.9 | 4.3 |
| 30 | 3.5 | 1.4 | 2.3 | 3.0 | 2.3 | 2.7 | 6.7 | 3.3 | 4.6 | 6.4 | 2.9 | 4.4 |
| 31 | --- | --- | --- | 5.8 | 2.4 | 3.4 | 6.0 | 3.3 | 4.4 | --- | --- | --- |
| MONTH | 8.4 | .3 | 3.9 | 5.8 | 1.3 | 3.0 | 12.8 | 2.5 | 6.0 | 8.2 | .8 | 3.9 |

## 08049600 MOUNTAIN CREEK NEAR CEDAR HILL, TX

LOCATION.--Lat 32°35'03", long 97°01'23", Dallas County, Hydrologic Unit 12030102, on left bank at downstream side of county road bridge, 3.5 mi (5.6 km) downstream from Texas and New Orleans Railroad Co. bridge, 4.5 mi (7.2 km) southwest of Cedar Hill, and 12 mi (19 km) upstream from Mountain Creek Lake Dam.

DRAINAGE AREA.--119 $mi^2$ (308 $km^2$).

### WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 478.31 ft (145.789 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 25, 1960, nonrecording gage at same site and datum.

REMARKS.--Water-discharge records good. This station is used to aid in the operation of Mountain Creek Lake. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see Mountain Creek near Cedar Hill (station 08049600). Gage-height telemeter is located at station.

AVERAGE DISCHARGE.--21 years, 48.4 $ft^3/s$ (1.371 $m^3/s$), 35,070 acre-ft/yr (43.2 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,300 $ft^3/s$ (801 $m^3/s$) May 7, 1969, gage height, 25.10 ft (7.650 m), from rating curve extended above 14,000 $ft^3/s$ (396 $m^3/s$); maximum gage height, 25.11 ft (7.654 m) May 3, 1979; no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1910, 30 ft (9.1 m) May 25, 1922, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 $ft^3/s$ (42.5 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mar. 29 | 0645 | 7,880 | 223 | 22.66 | 6.907 | May 24 | 1345 | 1,600 | 45.3 | 17.58 | 5.358 |
| May 9 | 1130 | 2,340 | 66.3 | 19.01 | 5.794 | June 16 | 0915 | 6,830 | 193 | 22.51 | 6.861 |

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.2 | .00 | .00 | .00 | .66 | 1.2 | 77 | .38 | 2.3 | 1.1 | .00 | .00 |
| 2 | .18 | .00 | .00 | .00 | .32 | 1.9 | 82 | .24 | 174 | 1.0 | .00 | .00 |
| 3 | .06 | .00 | .00 | .00 | .25 | 1.8 | 81 | .18 | 364 | .90 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | .23 | 16 | 110 | .18 | 177 | .80 | .00 | .00 |
| 5 | .00 | .00 | .00 | .00 | .25 | 7.4 | 75 | .14 | 665 | .70 | .00 | .00 |
| 6 | .00 | .00 | .00 | .00 | .16 | 3.1 | 57 | .10 | 219 | 78 | .00 | .00 |
| 11 | .00 | .00 | 1.7 | .00 | .10 | 2.4 | 11 | 95 | 6.5 | 4.7 | .00 | .00 |
| 12 | .00 | .00 | 1.0 | .00 | .45 | 1.8 | 6.2 | 82 | 3.0 | 2.8 | .00 | .00 |
| 13 | .00 | .00 | .79 | .00 | .54 | 1.4 | 3.8 | 73 | 1.5 | 2.0 | .00 | .00 |
| 14 | .00 | .00 | .66 | .01 | .43 | 1.2 | 2.2 | 35 | 4.4 | 1.5 | .00 | .00 |
| 15 | .00 | .00 | .64 | .05 | .36 | 1.0 | 1.1 | 13 | 81 | 1.1 | .00 | .00 |
| 16 | .00 | .00 | .56 | .04 | .31 | .88 | 1.1 | 490 | 3720 | .87 | .00 | .00 |
| 17 | .00 | .00 | .57 | .03 | .11 | .74 | .70 | 120 | 346 | .55 | .00 | .00 |
| 18 | .00 | .00 | .58 | .02 | .06 | .49 | 3.4 | 42 | 134 | .32 | .00 | .00 |
| 19 | .00 | .00 | .27 | .04 | .05 | .53 | 40 | 20 | 45 | .19 | .00 | .00 |
| 20 | .00 | .00 | .21 | .09 | .05 | .57 | 18 | 10 | 20 | .10 | .00 | .00 |
| 21 | .00 | .00 | .14 | .04 | .17 | .27 | 7.6 | 7.8 | 10 | .04 | .00 | .00 |
| 22 | .00 | .00 | .10 | .34 | .68 | .09 | 4.0 | 6.8 | 7.0 | .01 | .00 | .00 |
| 23 | .00 | .00 | .06 | .52 | .70 | .05 | 3.6 | 6.0 | 5.0 | .00 | .00 | .00 |
| 24 | .00 | .00 | .04 | .47 | .69 | .03 | 11 | 812 | 4.0 | .00 | .00 | .00 |
| 25 | .00 | .00 | .01 | .42 | .51 | .02 | 6.5 | 100 | 3.0 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | .42 | .35 | .02 | 3.8 | 45 | 2.5 | .00 | .00 | .00 |
| 27 | .00 | .00 | .00 | .42 | .28 | .02 | 2.0 | 30 | 2.0 | .00 | .00 | .00 |
| 28 | .00 | .00 | .00 | .34 | .58 | 34 | 1.2 | 9.4 | 1.7 | .00 | .00 | .00 |
| 29 | .00 | .00 | .00 | .20 | --- | 3170 | .70 | 6.0 | 1.5 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .19 | --- | 151 | .47 | 4.2 | 1.3 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | .63 | --- | 99 | --- | 3.0 | --- | .00 | .00 | --- |
| TOTAL | 1.44 | .00 | 72.23 | 4.27 | 8.62 | 3524.31 | 774.37 | 3565.41 | 6255.7 | 277.28 | .00 | .00 |
| MEAN | .046 | .000 | 2.33 | .14 | .31 | 114 | 25.8 | 115 | 209 | 8.94 | .000 | .000 |
| MAX | 1.2 | .00 | 39 | .63 | .70 | 3170 | 110 | 1260 | 3720 | 115 | .00 | .00 |
| MIN | .00 | .00 | .00 | .00 | .04 | .02 | .47 | .09 | 1.3 | .00 | .00 | .00 |
| AC-FT | 2.9 | .00 | 143 | 8.5 | 17 | 6990 | 1540 | 7070 | 12410 | 550 | .00 | .00 |

CAL YR 1980 TOTAL 5860.89 MEAN 16.0 MAX 1810 MIN .00 AC-FT 11630
WTR YR 1981 TOTAL 14483.63 MEAN 39.7 MAX 3720 MIN .00 AC-FT 28730

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: September 1974 to current year. Sediment analyses: October 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH FIELD (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, BIOCHEM UNINHIB 5 DAY (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | | | |
| 09... | 1230 | 47 | 820 | 7.5 | 10.0 | 50 | 190 | 10.2 | 90 | 5.0 |
| 18... | 1100 | .57 | -- | -- | 12.0 | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | |
| 22... | 0930 | .18 | 1260 | 7.5 | 5.0 | 30 | 1.1 | 9.3 | 73 | 1.7 |
| 28... | 1145 | .35 | -- | -- | 9.0 | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | |
| 09... | 1600 | 4.8 | -- | -- | 13.0 | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | |
| 13... | 1145 | 17 | 840 | 7.9 | 22.0 | 50 | 120 | 6.4 | 74 | 4.0 |
| 15... | 1530 | 1.3 | -- | -- | 19.0 | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | |
| 09... | 1310 | 2250 | 316 | 7.9 | 19.0 | 720 | 550 | 6.2 | 68 | 5.1 |
| 20... | 1300 | 10.0 | -- | -- | 19.0 | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | |
| 07... | 1400 | 84 | 619 | 8.2 | 27.0 | 10 | 230 | 7.3 | 92 | 2.7 |
| 08... | 1545 | 36 | -- | -- | 29.0 | -- | -- | -- | -- | -- |

| DATE | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) |
|---|---|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | | | |
| 09... | 220 | 140 | 80 | 4.6 | 88 | 2.6 | 7.4 | 80 | 270 | 34 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | | |
| 22... | 310 | 140 | 110 | 7.8 | 170 | 4.2 | 8.0 | 170 | 370 | 76 |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | | |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | |
| 13... | 180 | 27 | 63 | 4.8 | 110 | 3.6 | 13 | 150 | 210 | 38 |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | |
| 09... | 110 | 41 | 39 | 2.2 | 21 | .9 | 4.7 | 66 | 73 | 7.4 |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | | |
| 07... | 180 | 56 | 63 | 4.5 | 51 | 1.7 | 23 | 120 | 170 | 19 |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| 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) | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (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) |
|---|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | | |
| 09... | .8 | 9.5 | 542 | 204 | 22 | 6.3 | .370 | 6.7 | .050 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JAN | | | | | | | | | |
| 22... | .6 | 2.9 | 848 | 8 | 9 | .00 | .000 | .00 | .010 |
| 28... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | |
| 13... | .7 | 7.6 | 537 | 147 | 25 | .43 | .090 | .52 | .070 |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | |
| 09... | .5 | 8.3 | 196 | 1820 | 37 | .45 | .300 | .75 | .560 |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | |
| 07... | .5 | 13 | 416 | 380 | 80 | .13 | .130 | .26 | .270 |
| 08... | -- | -- | -- | -- | -- | -- | -- | -- | -- |

08049600 MOUNTAIN CREEK NEAR CEDAR HILL, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | NITROGEN, AMMONIA DISSOLVED (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | PHOSPHORUS, DISSOLVED (MG/L AS P) | CARBON, ORGANIC TOTAL (MG/L AS C) | SEDIMENT, SUSPENDED (MG/L) | SEDIMENT DISCHARGE, SUSPENDED (T/DAY) | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM |
|---|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | | |
| 09... | -- | 1.9 | 1.9 | .110 | -- | 19 | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | 29 | .04 | -- |
| JAN | | | | | | | | | |
| 22... | .010 | .50 | .51 | .050 | .010 | 18 | -- | -- | -- |
| 28... | -- | -- | -- | -- | -- | -- | 35 | .03 | -- |
| MAR | | | | | | | | | |
| 09... | -- | -- | -- | -- | -- | -- | 21 | .27 | 100 |
| APR | | | | | | | | | |
| 13... | -- | 1.6 | 1.7 | .210 | -- | 15 | -- | -- | -- |
| 15... | -- | -- | -- | -- | -- | -- | 106 | .37 | 100 |
| MAY | | | | | | | | | |
| 09... | -- | 2.8 | 3.4 | .550 | -- | 34 | -- | -- | -- |
| 20... | -- | -- | -- | -- | -- | -- | 155 | 4.2 | 100 |
| JUL | | | | | | | | | |
| 07... | -- | 1.3 | 1.6 | .090 | -- | -- | -- | -- | -- |
| 08... | -- | -- | -- | -- | -- | -- | 202 | 20 | -- |

| DATE | TIME | ARSENIC DISSOLVED (UG/L AS AS) | BARIUM, DISSOLVED (UG/L AS BA) | CADMIUM DISSOLVED (UG/L AS CD) | CHROMIUM, DISSOLVED (UG/L AS CR) | COPPER, DISSOLVED (UG/L AS CU) | IRON, DISSOLVED (UG/L AS FE) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 22... | 0930 | 1 | 50 | <1 | 0 | <10 | 30 |
| APR | | | | | | | |
| 13... | 1145 | 2 | 90 | <1 | 10 | <10 | 30 |
| MAY | | | | | | | |
| 09... | 1310 | 5 | 100 | 0 | 0 | 0 | 70 |

| DATE | LEAD, DISSOLVED (UG/L AS PB) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY DISSOLVED (UG/L AS HG) | SELENIUM, DISSOLVED (UG/L AS SE) | SILVER, DISSOLVED (UG/L AS AG) | ZINC, DISSOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|
| JAN | | | | | | |
| 22... | <10 | 50 | .0 | 0 | 0 | 3 |
| APR | | | | | | |
| 13... | <10 | 5 | .0 | 1 | 0 | <3 |
| MAY | | | | | | |
| 09... | 0 | 0 | .0 | 0 | 0 | 10 |

## 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 (4.2 km) northeast of Mansfield, 3.3 mi (5.3 km) downstream from Texas and New Orleans Railroad Co. bridge, and 10.2 mi (16.4 km) upstream from mouth.

DRAINAGE AREA.--62.8 $mi^2$ (162.7 $km^2$).

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

GAGE.--Water-stage recorder. Datum of gage is 531.08 ft (161.873 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. During the current year, the city of Mansfield diverted 1,360 acre-ft (1.68 $hm^3$) from the Cedar Creek Reservoir pipeline to Fort Worth for municipal use and discharged 786 acre-ft (969,000 $m^3$) of sewage effluent into a tributary 2.5 mi (4.0 km) upstream from station. Several observations of water temperature were made during the year. Gage-height telemeter at this station.

AVERAGE DISCHARGE.--21 years, 15.5 $ft^3/s$ (0.439 $m^3/s$), 3.35 in/yr (85 mm/yr), 11,230 acre-ft/yr (13.8 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,570 $ft^3/s$ (271 $m^3/s$) May 3, 1979, gage height, 29.7 ft (9.05 m), from floodmark; no flow at times in 1960-74, 1976-81.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 551 $ft^3/s$ (15.6 $m^3/s$) June 16 at 1200 hours, gage height, 12.48 ft (3.804 m), no peak above base of 700 $ft^3/s$ (19.8 $m^3/s$); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.5 | .00 | .00 | .00 | .00 | 1.8 | .27 | .00 | .10 | .00 | .00 | .00 |
| 2 | 1.0 | .00 | .00 | .00 | .00 | .12 | .22 | .00 | 1.1 | .00 | .00 | .00 |
| 3 | .33 | .00 | .00 | .00 | .00 | 4.9 | .70 | .12 | 26 | .00 | .00 | .00 |
| 4 | .06 | .00 | .00 | .00 | .00 | 3.3 | 1.3 | .13 | 6.1 | 4.9 | .00 | .00 |
| 5 | .01 | .00 | .00 | .00 | .00 | .39 | .08 | .03 | 66 | .28 | .00 | .00 |
| 6 | .00 | .00 | .00 | .00 | .00 | .10 | .05 | .02 | 7.9 | .11 | .00 | .00 |
| 7 | .00 | .00 | .00 | .00 | .00 | 4.4 | .06 | .02 | .94 | .08 | .00 | .00 |
| 8 | .00 | .00 | 49 | .00 | .00 | 1.3 | .05 | 37 | .29 | .06 | .00 | .00 |
| 9 | .00 | .00 | 22 | .00 | .00 | .22 | .05 | 126 | .15 | .00 | .00 | .00 |
| 10 | .00 | .00 | 1.3 | .00 | .00 | .09 | .05 | 11 | .12 | .00 | .00 | .00 |
| 11 | .00 | .00 | .31 | .00 | .00 | .06 | .05 | 1.4 | .11 | .00 | .00 | .00 |
| 12 | .00 | .00 | .08 | .00 | .00 | .06 | .05 | .84 | .11 | .00 | .00 | .00 |
| 13 | .00 | .00 | .00 | .00 | .00 | .06 | .04 | .61 | .11 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | .00 | .06 | .03 | 14 | .15 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | .00 | .00 | .08 | .03 | 16 | 1.7 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | .00 | .00 | .06 | .04 | 8.4 | 280 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | .00 | .00 | .06 | .04 | .70 | 31 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | .00 | .00 | .04 | 7.2 | .25 | 1.3 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | .00 | .00 | .00 | .87 | .07 | .39 | .00 | .00 | .00 |
| 20 | .00 | .00 | .00 | .00 | .00 | .02 | .05 | .05 | .16 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | .00 | .20 | .06 | .03 | .05 | .13 | .00 | .00 | .00 |
| 22 | .00 | .00 | .00 | .00 | .12 | .06 | .03 | .05 | .12 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | .00 | .01 | .04 | 4.9 | 1.3 | .11 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | .00 | .06 | 3.3 | 60 | .11 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .07 | .81 | 6.7 | .11 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .08 | .09 | .45 | .10 | .00 | .00 | .00 |
| 27 | .00 | .00 | .00 | .00 | .00 | .08 | .05 | .56 | .08 | .00 | .00 | .00 |
| 28 | .00 | .00 | .00 | .00 | .07 | 6.5 | .03 | 1.8 | .02 | .00 | .00 | .00 |
| 29 | .00 | .00 | .00 | .00 | --- | 207 | .03 | 1.7 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .00 | .00 | --- | 13 | .03 | .16 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .00 | .00 | --- | 1.1 | --- | .10 | --- | .00 | .00 | --- |
| TOTAL | 2.90 | .00 | 72.69 | .00 | .40 | 245.17 | 20.53 | 289.51 | 424.51 | 5.43 | .00 | .00 |
| MEAN | .094 | .000 | 2.34 | .000 | .014 | 7.91 | .68 | 9.34 | 14.2 | .18 | .000 | .000 |
| MAX | 1.5 | .00 | 49 | .00 | .20 | 207 | 7.2 | 126 | 280 | 4.9 | .00 | .00 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .03 | .00 | .00 | .00 | .00 | .00 |
| CFSM | .001 | .000 | .04 | .000 | .000 | .13 | .01 | .15 | .23 | .003 | .000 | .000 |
| IN. | .00 | .00 | .04 | .00 | .00 | .15 | .01 | .17 | .25 | .00 | .00 | .00 |
| AC-FT | 5.8 | .00 | 144 | .00 | .8 | 486 | 41 | 574 | 842 | 11 | .00 | .00 |

CAL YR 1980 TOTAL 1718.15 MEAN 4.69 MAX 428 MIN .00 CFSM .08 IN 1.02 AC-FT 3410
WTR YR 1981 TOTAL 1061.14 MEAN 2.91 MAX 280 MIN .00 CFSM .05 IN .63 AC-FT 2100

## 08049900 MOUNTAIN CREEK NEAR DUNCANVILLE, TX

LOCATION.--Lat 32°39'43", long 96°58'56", Dallas County, Hydrologic Unit 12030102, at downstream side of bridge on Farm Road 1382, 2.3 mi (3.7 km) downstream from Walnut Creek, 4.5 mi (7.2 km) west of Duncanville, and 5.5 mi (8.8 km) upstream from Mountain Creek Lake Dam.

DRAINAGE AREA.--225 $mi^2$ (583 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1970 to current year.

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

REMARKS.--Elevation records good. This station is used to aid in the operation of Mountain Creek Lake. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see Mountain Creek near Cedar Hill (station 08049600). Gage-height telemeter at this station.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 469.83 ft (143.204 m) Apr. 19, 1976; channel dry at times June 16 to Sept. 28, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 465.51 ft (141.887 m) June 16 at 1700 hours; minimum, 455.65 ft (138.882 m) Nov. 15, 16.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 457.58 | 456.13 | 455.92 | 456.91 | 456.95 | 457.41 | 458.63 | 456.46 | 458.43 | 458.25 | 456.70 | 456.25 |
| 2 | 457.12 | 456.12 | 455.90 | 456.88 | 456.98 | 457.39 | 458.49 | 456.40 | 460.19 | 458.18 | 456.67 | 456.31 |
| 3 | 456.97 | 456.09 | 455.89 | 456.86 | 456.99 | 457.65 | 458.66 | 456.39 | 460.72 | 457.96 | 456.63 | 456.30 |
| 4 | 456.92 | 456.05 | 455.89 | 456.82 | 456.98 | 457.77 | 458.94 | 456.41 | 460.00 | 458.28 | 456.59 | 456.28 |
| 5 | 456.81 | 455.96 | 455.90 | 457.03 | 456.97 | 457.57 | 458.39 | 456.42 | 461.78 | 458.12 | 456.55 | 456.40 |
| 6 | 456.75 | 455.91 | 455.90 | 456.95 | 456.97 | 457.38 | 458.03 | 456.39 | 460.43 | 458.87 | 456.52 | 456.38 |
| 7 | 456.71 | 455.90 | 455.89 | 456.85 | 456.99 | 457.52 | 457.89 | 456.35 | 459.45 | 459.07 | 456.49 | 456.41 |
| 8 | 456.68 | 455.88 | 458.84 | 456.79 | 456.99 | 457.69 | 457.85 | 460.88 | 458.98 | 458.39 | 456.45 | 456.39 |
| 9 | 456.65 | 455.88 | 458.63 | 456.73 | 457.06 | 457.55 | 457.69 | 462.58 | 458.64 | 457.90 | 456.42 | 456.36 |
| 10 | 456.63 | 455.87 | 457.58 | 456.68 | 457.05 | 457.40 | 457.24 | 460.62 | 458.11 | 457.67 | 456.40 | 456.33 |
| 11 | 456.61 | 455.79 | 457.26 | 456.69 | 457.05 | 457.28 | 456.98 | 459.38 | 457.78 | 457.53 | 456.37 | 456.31 |
| 12 | 456.59 | 455.74 | 457.04 | 457.23 | 457.05 | 457.20 | 456.83 | 459.07 | 457.56 | 457.44 | 456.34 | 456.28 |
| 13 | 456.57 | 455.69 | 456.92 | 457.07 | 457.04 | 457.12 | 456.74 | 458.93 | 457.43 | 457.36 | 456.31 | 456.26 |
| 14 | 456.56 | 455.68 | 456.87 | 456.94 | 457.04 | 457.06 | 456.73 | 458.32 | 458.43 | 457.30 | 456.28 | 456.32 |
| 15 | 456.52 | 455.66 | 456.86 | 456.85 | 457.04 | 457.02 | 456.65 | 458.69 | 460.60 | 457.26 | 456.24 | 456.29 |
| 16 | 456.43 | 455.90 | 456.85 | 456.78 | 457.03 | 456.95 | 456.61 | 460.67 | 464.49 | 457.21 | 456.22 | 456.26 |
| 17 | 456.53 | 455.94 | 456.84 | 456.72 | 457.03 | 456.91 | 456.60 | 459.65 | 460.58 | 457.20 | 456.35 | 456.22 |
| 18 | 456.51 | 455.93 | 456.82 | 456.67 | 457.08 | 456.87 | 456.68 | 458.70 | 459.61 | 457.19 | 456.36 | 456.19 |
| 19 | 456.49 | 455.92 | 456.79 | 456.67 | 457.11 | 456.82 | 457.72 | 458.07 | 459.35 | 457.16 | 456.34 | 456.16 |
| 20 | 456.48 | 455.91 | 456.81 | 456.64 | 457.12 | 456.72 | 457.30 | 457.70 | 459.23 | 457.13 | 456.31 | 456.13 |
| 21 | 456.41 | 455.91 | 456.81 | 456.61 | 457.29 | 456.68 | 456.87 | 457.43 | 459.13 | 457.08 | 456.28 | 456.10 |
| 22 | 456.34 | 455.97 | 456.81 | 456.58 | 457.26 | 456.67 | 456.70 | 457.26 | 459.06 | 457.04 | 456.26 | 456.08 |
| 23 | 456.32 | 455.97 | 456.82 | 456.56 | 457.25 | 456.67 | 456.72 | 457.29 | 459.03 | 457.01 | 456.23 | 456.05 |
| 24 | 456.30 | 455.96 | 456.87 | 456.56 | 457.21 | 456.65 | 457.08 | 461.29 | 458.96 | 456.97 | 456.19 | 456.02 |
| 25 | 456.28 | 455.95 | 456.90 | 456.58 | 457.19 | 456.66 | 457.02 | 459.78 | 458.87 | 456.94 | 456.16 | 455.99 |
| 26 | 456.27 | 455.94 | 456.90 | 456.59 | 457.17 | 456.73 | 456.83 | 458.68 | 458.60 | 456.91 | 456.11 | 455.96 |
| 27 | 456.24 | 455.94 | 456.90 | 456.66 | 457.15 | 456.80 | 456.63 | 458.68 | 458.44 | 456.88 | 456.09 | 455.95 |
| 28 | 456.22 | 455.93 | 456.91 | 456.78 | 457.21 | 458.06 | 456.56 | 458.01 | 458.36 | 456.86 | 456.07 | 455.91 |
| 29 | 456.21 | 455.92 | 456.92 | 456.86 | --- | 462.71 | 456.49 | 457.86 | 458.32 | 456.82 | 456.03 | 455.88 |
| 30 | 456.19 | 455.92 | 456.93 | 456.88 | --- | 460.36 | 456.45 | 457.62 | 458.27 | 456.78 | 456.00 | 455.86 |
| 31 | 456.14 | --- | 456.95 | 456.94 | --- | 458.96 | --- | 457.33 | --- | 456.74 | 455.98 | --- |
| MAX | 457.58 | 456.13 | 458.84 | 457.23 | 457.29 | 462.71 | 458.94 | 462.58 | 464.49 | 459.07 | 456.70 | 456.41 |
| MIN | 456.14 | 455.66 | 455.89 | 456.56 | 456.95 | 456.65 | 456.45 | 456.35 | 457.43 | 456.74 | 455.98 | 455.86 |

WTR YR 1981 MAX 464.49 MIN 455.66

08049900 MOUNTAIN CREEK NEAR DUNCANVILLE, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | PH FIELD (UNITS) | TEMPERATURE, WATER (DEG C) | COLOR (PLATINUM COBALT UNITS) | TURBIDITY (NTU) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | | | | |
| 09... | 1405 | 630 | 7.1 | 12.0 | 70 | 37 | 5.6 | 52 | 11 | 200 | 92 |
| JAN | | | | | | | | | | | |
| 22... | 1050 | 733 | 8.0 | 5.5 | 30 | 1.5 | 11.8 | 94 | 2.7 | 240 | 110 |
| APR | | | | | | | | | | | |
| 13... | 1030 | 760 | 7.6 | 21.5 | 50 | 100 | 6.4 | 73 | 3.6 | 150 | 2 |
| MAY | | | | | | | | | | | |
| 09... | 1515 | 313 | 7.9 | 17.0 | 60 | 500 | 6.4 | 67 | 6.2 | 100 | 39 |
| JUL | | | | | | | | | | | |
| 10... | 0815 | 622 | 7.7 | 27.0 | 20 | -- | 5.5 | 69 | 2.1 | 190 | 70 |

| DATE | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | | | | |
| 09... | 71 | 6.1 | 42 | 1.3 | 7.9 | 110 | 150 | 20 | .5 | 7.8 | 371 |
| JAN | | | | | | | | | | | |
| 22... | 85 | 5.8 | 69 | 2.0 | 5.9 | 130 | 200 | 39 | .5 | 6.6 | 490 |
| APR | | | | | | | | | | | |
| 13... | 54 | 4.1 | 94 | 3.3 | 12 | 150 | 170 | 35 | .7 | 7.5 | 468 |
| MAY | | | | | | | | | | | |
| 09... | 38 | 2.4 | 21 | .9 | 5.4 | 66 | 72 | 7.3 | .4 | 6.9 | 193 |
| JUL | | | | | | | | | | | |
| 10... | 68 | 4.9 | 46 | 1.5 | 16 | 120 | 160 | 17 | .5 | 11 | 396 |

| DATE | SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L) | SOLIDS, VOLATILE, SUSPENDED (MG/L) | NITROGEN, NITRATE TOTAL (MG/L AS N) | NITROGEN, NITRITE TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|
| DEC | | | | | | | | | | |
| 09... | 256 | 30 | 1.2 | .060 | 1.3 | 1.600 | 1.2 | 2.8 | .530 | 12 |
| JAN | | | | | | | | | | |
| 22... | 12 | 10 | .84 | .020 | .86 | .050 | 1.2 | 1.2 | .050 | 18 |
| APR | | | | | | | | | | |
| 13... | 81 | 16 | .55 | .090 | .64 | .170 | 1.4 | 1.6 | .170 | 13 |
| MAY | | | | | | | | | | |
| 09... | 1950 | 77 | .55 | .130 | .68 | .350 | 7.1 | 7.4 | .640 | 32 |
| JUL | | | | | | | | | | |
| 10... | 50 | 27 | .25 | .020 | .27 | .200 | 1.0 | 1.2 | .090 | 5.5 |

08049900 MOUNTAIN CREEK NEAR DUNCANVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | ARSENIC DIS-SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 22... | 1050 | 1 | 50 | <1 | 0 | <10 | 20 |
| APR | | | | | | | |
| 13... | 1030 | 1 | 80 | <1 | 10 | <10 | 30 |
| MAY | | | | | | | |
| 09... | 1515 | 3 | 0 | 6 | 0 | 0 | 90 |

| DATE | 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) |
|---|---|---|---|---|---|---|
| JAN | | | | | | |
| 22... | <10 | 7 | .0 | 0 | 0 | 20 |
| APR | | | | | | |
| 13... | <10 | 8 | .0 | 1 | 0 | <3 |
| MAY | | | | | | |
| 09... | 0 | 10 | .0 | 0 | 0 | 10 |

## 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 (4.0 km) upstream from Texas and Pacific Railway Co. bridge, and 3.7 mi (6.0 km) southeast of Grand Prairie.

DRAINAGE AREA.--295 $mi^2$ (764 $km^2$).

### WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 21, 1960, nonrecording gage at powerplant at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 5,800 ft (1,770 m) long, including a controlled spillway six 34- by 27-foot (10 by 8 m) tainter gates. The dam was completed in December 1936 and deliberate impoundment began on Mar. 24, 1937. The lake was built and is operated by Dallas Power and Light Co. to supply cooling water for their generating plant. The capacity curve is based on a survey made in 1963. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08049600. Figures given herein represent total contents. Gage-height telemeter located at station. Data regarding the dam and lake are given in the following table:

| | Elevation (feet) | Capacity (acre-feet) |
|---|---|---|
| Top of dam | 467.0 | - |
| Top of gates | 458.0 | 25,720 |
| Top of dry weather conservation pool | 457.0 | 22,840 |
| Top of wet weather conservation pool | 456.0 | 20,260 |
| Crest of spillway (sill of tainter gates) | 431.0 | 0 |

COOPERATION.--The capacity curve was furnished by the Dallas Power and Light Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 27,440 acre-ft (33.8 $hm^3$) Mar. 27, 1977, elevation, 458.52 ft (139.757 m); minimum, 14,120 acre-ft (17.4 $hm^3$) Oct. 18, 1972, elevation, 453.25 ft (138.151 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 24,940 acre-ft (30.8 $hm^3$) May 9 at 0100 hours, elevation, 457.73 ft (139.516 m); minimum, 18,080 acre-ft (22.3 $hm^3$) Nov. 15, elevation, 455.08 ft (138.708 m).

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

| | | | |
|---|---|---|---|
| 455.0 | 17,890 | 457.0 | 22,840 |
| 456.0 | 20,260 | 458.0 | 25,720 |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 19080 | 18480 | 18200 | 19690 | 19710 | 20120 | 22840 | 22980 | 23210 | 23990 | 22040 | 20750 |
| 2 | 19100 | 18480 | 18360 | 19710 | 19710 | 20140 | 23040 | 22980 | 23130 | 23960 | 21940 | 20880 |
| 3 | 19120 | 18460 | 18360 | 19690 | 19690 | 20650 | 23270 | 23040 | 22960 | 24080 | 21830 | 20910 |
| 4 | 19050 | 18440 | 18390 | 19690 | 19670 | 20780 | 23390 | 23010 | 22870 | 23360 | 21760 | 20880 |
| 5 | 19000 | 18410 | 18410 | 19710 | 19690 | 20700 | 23530 | 22960 | 22630 | 23440 | 21680 | 20850 |
| 6 | 18960 | 18460 | 18440 | 19690 | 19710 | 20700 | 23650 | 22930 | 23360 | 23440 | 21630 | 20830 |
| 7 | 18960 | 18360 | 18510 | 19710 | 19690 | 20960 | 23820 | 22900 | 23440 | 23650 | 21500 | 20780 |
| 8 | 18960 | 18510 | 19450 | 19740 | 19710 | 21010 | 23700 | 24880 | 23760 | 23730 | 21420 | 20700 |
| 9 | 18930 | 18360 | 19760 | 19740 | 19880 | 21060 | 23760 | 22400 | 23850 | 23730 | 21370 | 20670 |
| 10 | 18860 | 18340 | 19860 | 19710 | 19690 | 21090 | 23820 | 22840 | 23850 | 23730 | 21270 | 20620 |
| 11 | 18810 | 18320 | 19930 | 19690 | 19740 | 21090 | 23820 | 23470 | 23880 | 23730 | 21190 | 20570 |
| 12 | 18740 | 18290 | 19930 | 19740 | 19710 | 21140 | 23790 | 23760 | 23880 | 23680 | 21160 | 20520 |
| 13 | 18740 | 18250 | 19930 | 19710 | 19710 | 21110 | 23790 | 23700 | 23650 | 23620 | 21090 | 20440 |
| 14 | 18770 | 18200 | 19930 | 19690 | 19710 | 21140 | 23590 | 23790 | 23650 | 23560 | 21030 | 20540 |
| 15 | 18720 | 18080 | 19950 | 19690 | 19740 | 21060 | 23590 | 22610 | 22840 | 23440 | 21010 | 20470 |
| 16 | 18670 | 18320 | 19930 | 19620 | 19740 | 21060 | 23620 | 23010 | 24080 | 23360 | 20980 | 20340 |
| 17 | 18960 | 18390 | 20000 | 19640 | 19740 | 21060 | 23590 | 23680 | 22530 | 23270 | 21010 | 20240 |
| 18 | 18910 | 18410 | 19880 | 19640 | 19760 | 20850 | 23910 | 23790 | 23330 | 23160 | 20980 | 20210 |
| 19 | 18890 | 18410 | 19740 | 19690 | 19760 | 20850 | 22870 | 23760 | 23620 | 23100 | 20930 | 20190 |
| 20 | 18890 | 18390 | 19740 | 19710 | 19790 | 20880 | 22810 | 23820 | 23820 | 23010 | 20850 | 20120 |
| 21 | 18810 | 18390 | 19760 | 19710 | 19900 | 20780 | 22840 | 23850 | 23960 | 22900 | 20830 | 20090 |
| 22 | 18810 | 18460 | 19790 | 19740 | 19830 | 20700 | 23040 | 23880 | 24020 | 22810 | 20490 | 20070 |
| 23 | 18770 | 18460 | 19690 | 19760 | 19830 | 20700 | 23270 | 23330 | 24020 | 22710 | 20700 | 20050 |
| 24 | 18740 | 18440 | 19670 | 19810 | 19830 | 20700 | 23270 | 23210 | 24110 | 22630 | 20650 | 20000 |
| 25 | 18720 | 18460 | 19740 | 19790 | 19830 | 20670 | 23270 | 23130 | 23820 | 22560 | 20620 | 19980 |
| 26 | 18740 | 18440 | 19740 | 19740 | 19810 | 20670 | 23240 | 23420 | 23910 | 22480 | 20540 | 19900 |
| 27 | 18580 | 18410 | 19740 | 19740 | 19830 | 20650 | 23210 | 23390 | 23930 | 22400 | 20490 | 19860 |
| 28 | 18530 | 18410 | 19740 | 19810 | 19880 | 20930 | 23190 | 23500 | 23960 | 22350 | 20410 | 19810 |
| 29 | 18510 | 18410 | 19710 | 19690 | --- | 23910 | 23190 | 23620 | 23960 | 22300 | 20390 | 19790 |
| 30 | 18510 | 18480 | 19790 | 19670 | --- | 23360 | 23130 | 23680 | 23990 | 22220 | 20290 | 19740 |
| 31 | 18480 | --- | 19710 | 19710 | --- | 22580 | --- | 23680 | --- | 22120 | 20260 | --- |
| MAX | 19120 | 18510 | 20000 | 19810 | 19900 | 23910 | 23910 | 24880 | 24110 | 24080 | 22040 | 20910 |
| MIN | 18480 | 18080 | 18200 | 19620 | 19670 | 20120 | 22810 | 22400 | 22530 | 22120 | 20260 | 19740 |
| (†) | 455.25 | 455.25 | 455.77 | 455.77 | 455.84 | 456.90 | 457.10 | 457.29 | 457.40 | 456.72 | 456.00 | 455.78 |
| (‡) | -380 | 0 | +1230 | 0 | +170 | +2700 | +550 | +550 | +310 | -1870 | -1860 | -520 |

CAL YR 1980 MAX 23960 MIN 15090 ‡ -2950
WTR YR 1981 MAX 24880 MIN 18080 ‡ +880

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.

08050050 MOUNTAIN CREEK LAKE NEAR GRAND PRAIRIE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | TEMPERATURE, WATER (DEG C) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|
| JAN 27... | 1445 | 571 | 13.0 | 170 | 60 | 58 | 6.0 | 48 |

| DATE | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| JAN 27... | 1.6 | 6.4 | 110 | 150 | 21 | .6 | 1.5 | 358 |

## 08050100 MOUNTAIN CREEK AT GRAND PRAIRIE, TX

LOCATION.--Lat 32°44'52", long 96°55'33", Dallas County, Hydrologic Unit 12030102, on right bank at downstream side of downstream bridge on Jefferson Street, 1,000 ft (305 m) upstream from bridge on U.S. Highway 80, 1.2 mi (1.9 km) upstream from Texas and Pacific Railroad Co. bridge, 1.5 mi (2.4 km) downstream from Mountain Creek Lake Dam, and 4.4 mi (7.1 km) east of Grand Prairie.

DRAINAGE AREA.--298 $mi^2$ (772 $km^2$).

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

GAGE.--Water-stage recorder. Datum of gage is 407.31 ft (124.148 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow regulated by Mountain Creek Lake (station 08050050). Gage-height telemeter is located at station. Several observations of water temperature were made during the year. Gage-height telemeter (data collection platform, solar panel, battery, and antenna) was installed Jan. 16, 1981.

AVERAGE DISCHARGE.--21 years, 100 $ft^3/s$ (2.832 $m^3/s$), 72,400 acre-ft/yr (89.3 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,100 $ft^3/s$ (1,080 $m^3/s$) Apr. 19, 1976, gage height, 24.21 ft (7.379 m); maximum gage height, 24.62 ft (7.504 m) May 7, 1969; no flow in 1964, 1972-74.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,150 $ft^3/s$ (231 $m^3/s$) May 9 at 0600 hours, gage height, 16.95 ft (5.166 m); minimum daily, 0.10 $ft^3/s$ (0.003 $m^3/s$) Aug. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.3 | .49 | .47 | .39 | .46 | 1.2 | 2.3 | 247 | 727 | 1.4 | .80 | 1.9 |
| 2 | .94 | .51 | .42 | .39 | .45 | .90 | 1.5 | 2.0 | 278 | 1.3 | .80 | 3.6 |
| 3 | .86 | .47 | .44 | .40 | .45 | 1.1 | 5.2 | 1.5 | 1260 | 1.4 | .80 | 2.8 |
| 4 | .79 | .49 | .50 | .38 | .42 | 1.7 | 2.3 | 1.8 | 564 | 987 | .80 | 1.1 |
| 5 | .78 | .51 | .54 | .39 | .44 | .72 | 1.4 | 1.6 | 2270 | 3.1 | .77 | .77 |
| 6 | .73 | .54 | .51 | .42 | .44 | .56 | 1.2 | 1.5 | 1120 | 2.3 | .72 | .77 |
| 7 | .78 | .52 | .47 | .40 | .43 | 1.0 | 3.0 | 1.4 | 308 | 2.1 | .69 | .72 |
| 8 | .74 | .46 | 7.0 | .40 | .42 | 1.1 | 3.4 | 597 | 4.3 | 2.1 | .77 | .72 |
| 9 | .71 | .45 | 1.6 | .40 | .48 | .72 | 1.8 | 4290 | 4.1 | 1.7 | .84 | .77 |
| 10 | .64 | .44 | .80 | .36 | .56 | .61 | 1.5 | 1220 | 3.5 | 1.5 | .84 | 2.8 |
| 11 | .58 | .44 | .67 | .36 | .52 | .58 | 1.5 | 4.4 | 2.7 | 1.6 | .80 | .77 |
| 12 | .54 | .42 | .60 | .36 | .52 | .68 | 1.5 | 3.5 | 2.3 | 1.6 | .80 | .64 |
| 13 | .54 | .41 | .59 | .39 | .49 | .53 | 1.4 | 4.4 | 124 | 1.7 | .80 | .72 |
| 14 | .54 | .39 | .56 | .40 | .47 | .51 | 1.3 | 2.5 | 169 | 1.8 | .77 | 1.1 |
| 15 | .56 | .43 | .54 | .36 | .43 | .49 | 1.2 | 704 | 706 | 1.8 | .74 | 1.1 |
| 16 | .49 | .67 | .52 | .37 | .40 | .51 | 1.1 | 6.3 | 2390 | 1.6 | .69 | .93 |
| 17 | 2.2 | .92 | .52 | .39 | .38 | 8.7 | 1.0 | 119 | 201 | 1.6 | 1.1 | 1.1 |
| 18 | .68 | .69 | .50 | .41 | .38 | 1.1 | 1.2 | 3.8 | 4.6 | 1.4 | 1.0 | 1.3 |
| 19 | .46 | .60 | .44 | .45 | .38 | .67 | 513 | 2.5 | 7.9 | 1.3 | .24 | 1.3 |
| 20 | .41 | .59 | .52 | .46 | .38 | .59 | 3.2 | 2.4 | 3.5 | 1.2 | .15 | 1.0 |
| 21 | .43 | .56 | .60 | .43 | .43 | .54 | 1.5 | 2.2 | 3.8 | 1.1 | .36 | .74 |
| 22 | .45 | .59 | .64 | .41 | .54 | .51 | 1.4 | 2.1 | 3.0 | 1.0 | .40 | .64 |
| 23 | .49 | .63 | .59 | .36 | .49 | .51 | 1.3 | 245 | 86 | 1.1 | .66 | .56 |
| 24 | .56 | .58 | .54 | .35 | .41 | .53 | 1.2 | 341 | 2.0 | .93 | .77 | .52 |
| 25 | .55 | .53 | .61 | .33 | .40 | .52 | 1.3 | 721 | 150 | .87 | .20 | .49 |
| 26 | .51 | .55 | .66 | .32 | .41 | .52 | 1.3 | 5.7 | 1.9 | .90 | .10 | .43 |
| 27 | .48 | .54 | .59 | .32 | .41 | .51 | 1.2 | 568 | 1.6 | 1.0 | .36 | .41 |
| 28 | .43 | .54 | .51 | .33 | .51 | .64 | 1.1 | 75 | 1.5 | 1.1 | 1.4 | .41 |
| 29 | .48 | .51 | .44 | .34 | --- | 811 | 1.1 | 3.6 | 1.5 | 1.0 | .90 | .41 |
| 30 | .51 | .50 | .40 | .33 | --- | 1590 | 1.1 | 3.1 | 1.4 | .84 | .77 | .47 |
| 31 | .50 | --- | .39 | .37 | --- | 638 | --- | 2.5 | --- | .77 | .74 | --- |
| TOTAL | 20.66 | 15.97 | 24.18 | 11.77 | 12.50 | 3067.25 | 562.5 | 9185.8 | 10402.6 | 1030.11 | 21.58 | 30.99 |
| MEAN | .67 | .53 | .78 | .38 | .45 | 98.9 | 18.8 | 296 | 347 | 33.2 | .70 | 1.03 |
| MAX | 2.2 | .92 | 7.0 | .46 | .56 | 1590 | 513 | 4290 | 2390 | 987 | 1.4 | 3.6 |
| MIN | .41 | .39 | .39 | .32 | .38 | .49 | 1.0 | 1.4 | 1.4 | .77 | .10 | .41 |
| AC-FT | 41 | 32 | 48 | 23 | 25 | 6080 | 1120 | 18220 | 20630 | 2040 | 43 | 61 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 11024.27 | MEAN | 30.1 | MAX | 2050 | MIN | .19 | AC-FT | 21870 |
| WTR YR 1981 | TOTAL | 24385.91 | MEAN | 66.8 | MAX | 4290 | MIN | .10 | AC-FT | 48370 |

## 08050500 ELM FORK TRINITY RIVER NEAR SANGER, TX

LOCATION.--Lat 33°23'11", long 97°05'05", Denton County, Hydrologic Unit 12030103, on right bank on downstream side of pier of bridge on Farm Road 455, 4.1 mi (6.6 km) downstream from Spring Creek, 5.0 mi (8.0 km) upstream from Isle du Bois Creek, and 5.4 mi (8.7 km) northeast of Sanger.

DRAINAGE AREA.--381 $mi^2$ (987 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1949 to current year.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 553.72 ft (168.774 m) National Geodetic Vertical Datum of 1929. Prior to May 7, 1955, at site 500 ft (150 m) downstream at same datum.

REMARKS.--Water-discharge records good. Flow is affected at times by discharge from the flood-detention pools of 41 floodwater-retarding structures with a combined capacity of 26,790 acre-ft (33.0 $hm^3$). These structures control runoff from 94.7 $mi^2$ (245.3 $km^2$) in the Elm Fork Trinity River watershed. Records furnished by the city of Gainesville show that 3,290 acre-ft (4.06 $hm^3$) of sewage effluent was discharged into the river above this station. On Jan. 12, 1981, telemeter (data collection platform, solar panel, battery, and antenna) was installed at station.

AVERAGE DISCHARGE.--32 years, 140 $ft^3/s$ (3.965 $m^3/s$), 101,400 acre-ft/yr (125 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 $ft^3/s$ (1,420 $m^3/s$) Oct. 31, 1974, gage height, 29.10 ft (8.870 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1903, 30.7 ft (9.36 m) in May 1908, from information by local residents. Flood of May 18, 1935, reached a stage of 29.7 ft (9.05 m), from floodmarks.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 $ft^3/s$ (113 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 7 | 0700 | 4,700 | 133 | 20.75 | 6.325 | May 25 | 1330 | 4,270 | 121 | 19.48 | 5.938 |
| Mar. 4 | 0430 | *8,230 | 233 | 24.67 | 7.519 | May 27 | 1700 | 8,090 | 229 | 24.59 | 7.495 |

Minimum discharge, 1.3 $ft^3/s$ (0.037 $m^3/s$) Aug. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 287 | 28 | 9.5 | 25 | 13 | 191 | 40 | 1430 | 312 | 16 | 3.8 | 1.6 |
| 2 | 224 | 24 | 8.8 | 23 | 13 | 55 | 36 | 207 | 250 | 15 | 4.7 | 42 |
| 3 | 194 | 21 | 8.8 | 22 | 13 | 1010 | 34 | 98 | 219 | 18 | 3.6 | 17 |
| 4 | 172 | 19 | 9.2 | 22 | 14 | 5230 | 34 | 91 | 192 | 23 | 3.0 | 4.0 |
| 5 | 156 | 17 | 9.3 | 21 | 13 | 569 | 31 | 86 | 189 | 18 | 3.0 | 35 |
| 6 | 339 | 15 | 10 | 21 | 14 | 239 | 27 | 74 | 678 | 15 | 3.1 | 11 |
| 7 | 2550 | 14 | 9.4 | 20 | 17 | 1100 | 24 | 58 | 303 | 14 | 3.9 | 43 |
| 8 | 412 | 13 | 1570 | 20 | 19 | 1370 | 24 | 52 | 159 | 17 | 3.3 | 15 |
| 9 | 173 | 12 | 745 | 19 | 19 | 320 | 24 | 56 | 121 | 14 | 3.1 | 15 |
| 10 | 99 | 11 | 157 | 18 | 29 | 187 | 24 | 84 | 104 | 12 | 3.2 | 12 |
| 11 | 74 | 10 | 99 | 17 | 24 | 140 | 23 | 59 | 95 | 11 | 3.0 | 4.4 |
| 12 | 56 | 10 | 76 | 15 | 19 | 116 | 23 | 43 | 90 | 10 | 3.2 | 2.8 |
| 13 | 46 | 9.6 | 64 | 14 | 17 | 104 | 22 | 35 | 87 | 9.5 | 4.2 | 187 |
| 14 | 41 | 9.1 | 55 | 14 | 17 | 94 | 20 | 29 | 84 | 8.6 | 4.0 | 391 |
| 15 | 36 | 8.9 | 49 | 14 | 16 | 88 | 18 | 26 | 86 | 8.1 | 3.9 | 226 |
| 16 | 33 | 9.6 | 46 | 13 | 15 | 80 | 18 | 31 | 280 | 7.4 | 3.7 | 149 |
| 17 | 175 | 20 | 43 | 13 | 15 | 72 | 18 | 46 | 97 | 6.2 | 8.4 | 105 |
| 18 | 125 | 26 | 41 | 13 | 15 | 66 | 18 | 62 | 79 | 5.2 | 8.3 | 68 |
| 19 | 47 | 21 | 39 | 13 | 16 | 60 | 77 | 34 | 69 | 4.8 | 4.9 | 53 |
| 20 | 35 | 16 | 36 | 13 | 15 | 56 | 56 | 28 | 61 | 4.4 | 6.8 | 45 |
| 21 | 30 | 14 | 33 | 14 | 15 | 53 | 41 | 23 | 52 | 4.1 | 3.8 | 39 |
| 22 | 26 | 14 | 32 | 15 | 13 | 53 | 91 | 21 | 42 | 3.6 | 3.4 | 39 |
| 23 | 24 | 16 | 32 | 15 | 16 | 50 | 260 | 22 | 36 | 3.1 | 3.7 | 36 |
| 24 | 21 | 16 | 31 | 15 | 18 | 47 | 102 | 246 | 31 | 2.8 | 3.4 | 29 |
| 25 | 18 | 15 | 30 | 14 | 17 | 46 | 63 | 2180 | 28 | 2.4 | 2.9 | 18 |
| 26 | 16 | 13 | 28 | 14 | 15 | 45 | 51 | 294 | 25 | 2.7 | 2.9 | 13 |
| 27 | 1720 | 12 | 29 | 13 | 13 | 46 | 43 | 4660 | 23 | 2.7 | 11 | 9.2 |
| 28 | 248 | 11 | 28 | 13 | 106 | 58 | 39 | 2220 | 21 | 2.7 | 2.4 | 6.1 |
| 29 | 63 | 10 | 27 | 13 | --- | 82 | 41 | 402 | 19 | 2.8 | 1.4 | 4.7 |
| 30 | 40 | 9.8 | 27 | 12 | --- | 58 | 39 | 743 | 17 | 2.7 | 1.6 | 3.9 |
| 31 | 33 | --- | 26 | 12 | --- | 47 | --- | 850 | --- | 3.0 | 1.6 | --- |
| TOTAL | 7513 | 445.0 | 3408.0 | 500 | 546 | 11732 | 1361 | 14290 | 3849 | 269.8 | 123.2 | 1624.7 |
| MEAN | 242 | 14.8 | 110 | 16.1 | 19.5 | 378 | 45.4 | 461 | 128 | 8.70 | 3.97 | 54.2 |
| MAX | 2550 | 28 | 1570 | 25 | 106 | 5230 | 260 | 4660 | 678 | 23 | 11 | 391 |
| MIN | 16 | 8.9 | 8.8 | 12 | 13 | 45 | 18 | 21 | 17 | 2.4 | 1.4 | 1.6 |
| AC-FT | 14900 | 883 | 6760 | 992 | 1080 | 23270 | 2700 | 28340 | 7630 | 535 | 244 | 3220 |

CAL YR 1980 TOTAL 21352.31 MEAN 58.3 MAX 5520 MIN .00 AC-FT 42350
WTR YR 1981 TOTAL 45661.70 MEAN 125 MAX 5230 MIN 1.4 AC-FT 90570

08050500 ELM FORK TRINITY RIVER NEAR SANGER, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1969 to current year. Sediment records: January 1966 to September 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH FIELD (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, BIOCHEM UNINHIB 5 DAY (MG/L) | HARD-NESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 23... | 0930 | 25 | 498 | 7.8 | 16.5 | 36 | 31 | 8.3 | 86 | .8 | 150 |
| JAN | | | | | | | | | | | |
| 19... | 1515 | 12 | 828 | 8.3 | 4.5 | 10 | .90 | 16.6 | 130 | 1.4 | 250 |
| APR | | | | | | | | | | | |
| 08... | 1230 | 24 | 780 | 8.2 | 18.5 | 20 | 2.4 | 9.8 | 105 | 3.0 | 230 |
| JUN | | | | | | | | | | | |
| 04... | 0930 | 175 | 425 | 8.1 | 23.0 | 70 | 35 | 7.6 | 88 | 2.3 | 160 |
| JUL | | | | | | | | | | | |
| 15... | 1435 | 4.8 | 772 | 8.1 | 27.0 | 20 | 12 | 5.4 | 68 | 1.2 | 230 |
| SEP | | | | | | | | | | | |
| 16... | 1320 | 121 | 361 | 8.1 | 23.5 | 40 | 100 | 7.3 | 87 | 3.5 | 120 |

| DATE | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 (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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 23... | 9 | 54 | 3.4 | 43 | 1.5 | 4.3 | 140 | 35 | 49 | .2 | 9.5 |
| JAN | | | | | | | | | | | |
| 19... | 10 | 90 | 6.0 | 85 | 2.3 | 3.9 | 240 | 68 | 76 | .2 | .5 |
| APR | | | | | | | | | | | |
| 08... | 4 | 83 | 6.5 | 73 | 2.1 | 4.3 | 230 | 66 | 76 | .3 | .4 |
| JUN | | | | | | | | | | | |
| 04... | 14 | 60 | 3.4 | 23 | .8 | 3.9 | 150 | 16 | 35 | .2 | 11 |
| JUL | | | | | | | | | | | |
| 15... | 0 | 80 | 6.4 | 78 | 2.3 | 4.6 | 270 | 52 | 59 | .2 | 10 |
| SEP | | | | | | | | | | | |
| 16... | 11 | 44 | 2.8 | 24 | 1.0 | 5.4 | 110 | 6.0 | 31 | .2 | 11 |

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (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) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 23... | 294 | 30 | 5 | 1.8 | .050 | 1.8 | .020 | 1.1 | 1.1 | .310 | 7.8 |
| JAN | | | | | | | | | | | |
| 19... | 474 | 0 | 0 | 2.3 | .040 | 2.3 | .020 | .49 | .51 | .740 | 15 |
| APR | | | | | | | | | | | |
| 08... | 448 | 15 | 11 | .87 | .020 | .89 | .040 | 1.3 | 1.3 | .370 | 9.8 |
| JUN | | | | | | | | | | | |
| 04... | 242 | 83 | 12 | .60 | .030 | .63 | .110 | 1.2 | 1.3 | .210 | 5.7 |
| JUL | | | | | | | | | | | |
| 15... | 453 | 23 | 16 | 1.1 | .010 | 1.1 | .120 | 1.2 | 1.3 | .430 | 5.4 |
| SEP | | | | | | | | | | | |
| 16... | 191 | 178 | 32 | 1.3 | .090 | 1.4 | .240 | 1.8 | 2.0 | .320 | 9.9 |

08050500 ELM FORK TRINITY RIVER NEAR SANGER, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | ARSENIC DIS-SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 23... | 0930 | 2 | 70 | <1 | 0 | <10 | 20 |
| JAN | | | | | | | |
| 19... | 1515 | 1 | 80 | <1 | 0 | <10 | 20 |
| APR | | | | | | | |
| 08... | 1230 | 1 | 90 | <1 | 0 | <10 | 20 |
| JUL | | | | | | | |
| 15... | 1435 | 4 | 100 | <1 | 0 | <10 | <10 |

| DATE | 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) |
|---|---|---|---|---|---|---|
| OCT | | | | | | |
| 23... | <10 | 5 | .2 | 0 | 0 | <3 |
| JAN | | | | | | |
| 19... | <10 | 20 | .0 | 1 | 0 | 9 |
| APR | | | | | | |
| 08... | <10 | 6 | .2 | 0 | 2 | 10 |
| JUL | | | | | | |
| 15... | <10 | 10 | .0 | 1 | 0 | 20 |

## 08051000 ISLE DU BOIS CREEK NEAR PILOT POINT, TX

LOCATION.--Lat 33°24'23", long 97°00'45", Denton County, Hydrologic Unit 12030103, on left bank at downstream side of bridge on Farm Road 372, 2.4 mi (3.9 km) downstream from Wolf Creek, 3.0 mi (4.8 km) west of Pilot Point, and 6.3 mi (10.1 km) upstream from mouth.

DRAINAGE AREA.--266 $mi^2$ (689 $km^2$).

PERIOD OF RECORD.--April 1949 to current year.
Water-quality records: Chemical analyses: November 1961 to April 1963. Sediment records: February 1966 to September 1975.

REVISED RECORDS.--WSP 1512: 1950. WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 555.48 ft (169.310 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Feb. 8, 1958, water-stage recorder at site 1.0 mi (1.6 km) upstream at datum 4.22 ft (1.286 m) higher.

REMARKS.--Records fair except those for Dec. 6 to Jan. 12, which are poor. No known diversion above station. Gage-height telemeter installed Jan. 9, 1981. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--32 years (water years 1950-81), 111 $ft^3/s$ (3.144 $m^3/s$), 5.67 in/yr (144 mm/yr), 80,420 acre-ft/yr (99.2 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,000 $ft^3/s$ (1,130 $m^3/s$) Oct. 31, 1974, gage height, 29.43 ft (8.970 m), present site and datum; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, 30.4 ft (9.27 m) in May 1908, present site and datum, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 $ft^3/s$ (70.8 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| Mar. 4 | 2230 | 2,640 | 74.8 | 15.56 | 4.743 |
| May 28 | 1030 | *4,180 | 118 | 20.67 | 6.300 |

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 119 | 6.4 | .27 | .17 | .72 | 335 | 5.3 | 234 | 121 | .54 | .00 | .00 |
| 2 | 29 | 4.0 | .27 | .17 | 1.2 | 126 | 4.1 | 370 | 86 | .39 | .00 | 4.1 |
| 3 | 10 | 2.6 | .22 | .22 | .85 | 205 | 3.3 | 77 | 68 | .54 | .00 | .20 |
| 4 | 4.4 | 1.8 | .22 | .22 | .59 | 2370 | 3.2 | 32 | 56 | 67 | .00 | .05 |
| 5 | 2.3 | 1.4 | .17 | .17 | .62 | 1390 | 2.0 | 24 | 278 | 155 | .00 | 35 |
| 6 | 2.0 | 1.2 | .17 | .17 | .77 | 97 | 2.0 | 17 | 1330 | 155 | .00 | 22 |
| 7 | 36 | 1.3 | .14 | .22 | .59 | 290 | 3.3 | 10 | 798 | 36 | .00 | 3.2 |
| 8 | 27 | 1.5 | 280 | .22 | .09 | 698 | 1.9 | 6.2 | 141 | 32 | .00 | 1.9 |
| 9 | 11 | 1.7 | 61 | .22 | .16 | 166 | 1.3 | 6.5 | 93 | 6.8 | .00 | .98 |
| 10 | 4.5 | 1.5 | 24 | .17 | .50 | 66 | 1.1 | 189 | 81 | 2.5 | .00 | .62 |
| 11 | 1.9 | .49 | 14 | .17 | .45 | 36 | .98 | 99 | 67 | 1.1 | .00 | .32 |
| 12 | .85 | .33 | 6.4 | .17 | .37 | 22 | .88 | 22 | 54 | .70 | .00 | .17 |
| 13 | .57 | .50 | 4.5 | .17 | .37 | 15 | .79 | 8.8 | 43 | .39 | .00 | .10 |
| 14 | .79 | .38 | 1.9 | .15 | .22 | 12 | .79 | 5.3 | 33 | .22 | .00 | 64 |
| 15 | .84 | .24 | 1.4 | .11 | .21 | 11 | 5.0 | 5.7 | 29 | .13 | .00 | 114 |
| 16 | .95 | .47 | 1.1 | .07 | .22 | 10 | 2.8 | 5.0 | 1490 | .07 | .00 | 17 |
| 17 | 387 | 1.6 | .98 | .05 | .23 | 10 | 1.2 | 4.0 | 1790 | .04 | .00 | 3.8 |
| 18 | 490 | 2.6 | .88 | .06 | .21 | 8.8 | .84 | 11 | 149 | .03 | .00 | .93 |
| 19 | 54 | 1.4 | .79 | .19 | .28 | 17 | 8.5 | 4.6 | 94 | .02 | .00 | .39 |
| 20 | 12 | .85 | .62 | .44 | .27 | 5.7 | 42 | 4.2 | 81 | .02 | .00 | .27 |
| 21 | 4.8 | .62 | .54 | .52 | .28 | 4.3 | 19 | 2.6 | 63 | .01 | .00 | .17 |
| 22 | 2.8 | .59 | .47 | .72 | .09 | 3.2 | 145 | 1.0 | 49 | .00 | .00 | .14 |
| 23 | 1.7 | .56 | .47 | 1.0 | .11 | 5.9 | 1430 | .86 | 38 | .00 | .00 | .10 |
| 24 | 1.1 | .53 | .39 | .90 | .07 | 4.6 | 956 | 357 | 24 | .00 | .00 | .07 |
| 25 | .79 | .49 | .39 | .89 | .04 | 2.7 | 89 | 1590 | 13 | .00 | .00 | .05 |
| 26 | .72 | .47 | .32 | .90 | .00 | 2.2 | 32 | 1860 | 7.6 | .00 | .00 | .03 |
| 27 | 808 | .47 | .32 | .80 | .00 | 2.3 | 15 | 2080 | 5.1 | .00 | .00 | .01 |
| 28 | 1340 | .39 | .27 | .75 | 43 | 3.0 | 8.7 | 3730 | 2.4 | .00 | .00 | .00 |
| 29 | 127 | .39 | .27 | .61 | --- | 15 | 7.1 | 803 | 1.6 | .00 | .00 | .00 |
| 30 | 25 | .32 | .22 | .40 | --- | 29 | 7.1 | 174 | .79 | .00 | .00 | .00 |
| 31 | 11 | --- | .22 | .37 | --- | 10 | --- | 423 | --- | .00 | .00 | --- |
| TOTAL | 3517.01 | 37.09 | 402.91 | 11.39 | 52.51 | 5972.7 | 2800.18 | 12156.76 | 7086.49 | 458.50 | .00 | 269.60 |
| MEAN | 113 | 1.24 | 13.0 | .37 | 1.88 | 193 | 93.3 | 392 | 236 | 14.8 | .000 | 8.99 |
| MAX | 1340 | 6.4 | 280 | 1.0 | 43 | 2370 | 1430 | 3730 | 1790 | 155 | .00 | 114 |
| MIN | .57 | .24 | .14 | .05 | .00 | 2.2 | .79 | .86 | .79 | .00 | .00 | .00 |
| CFSM | .43 | .005 | .05 | .001 | .007 | .73 | .35 | 1.47 | .89 | .06 | .000 | .03 |
| IN. | .49 | .01 | .06 | .00 | .01 | .84 | .39 | 1.70 | .99 | .06 | .00 | .04 |
| AC-FT | 6980 | 74 | 799 | 23 | 104 | 11850 | 5550 | 24110 | 14060 | 909 | .00 | 535 |

CAL YR 1980 TOTAL 14884.64 MEAN 40.7 MAX 6770 MIN .00 CFSM .15 IN 2.08 AC-FT 29520
WTR YR 1981 TOTAL 32765.14 MEAN 89.8 MAX 3730 MIN .00 CFSM .34 IN 4.58 AC-FT 64990

## 08051500 CLEAR CREEK NEAR SANGER, TX

LOCATION.--Lat 33°20'21", long 97°10'51", Denton County, Hydrologic Unit 12030103, at the downstream side of left abutment of main channel bridge on Interstate Highway 35, 600 ft (180 m) downstream from Duck Creek, 1.3 mi (2.1 km) upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, and 1.7 mi (2.7 km) south of Sanger.

DRAINAGE AREA.--295 $mi^2$ (764 $km^2$).

PERIOD OF RECORD.--March 1949 to current year.
Water-quality records: Specific conductance, water temperature, and sediment records: May 1968 to September 1976.

REVISED RECORDS.--WSP 1512: 1950, 1955. WSP 1922: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 582.23 ft (177.464 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Apr. 18, 1975, water-stage recorder at site 950 ft (290 m) downstream at datum 5.00 ft (1.524 m) higher.

REMARKS.--Records good. No appreciable diversion above station. Flow is 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 (47.9 $hm^3$). These structures control runoff from 149 $mi^2$ (386 $km^2$) in the Clear Creek watershed. Several observations of water temperature were made during the year. A crest-stage gage was installed on May 7, 1979.

AVERAGE DISCHARGE.--31 years (water years 1950-80) prior to completion of floodwater-retarding structures, 74.3 $ft^3/s$ (2.104 $m^3/s$), 53,830 acre-ft/yr (66.4 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,200 $ft^3/s$ (515 $m^3/s$) Sept. 13, 1950, gage height, 24.80 ft (7.559 m), site and datum then in use; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1880, 31.5 ft (9.60 m) in May 1908, from information by Gulf, Colorado, and Santa Fe Railway Co. Flood in May 1935 reached a stage of 29.0 ft (8.84 m), from information by State Department of Highways and Public Transportation. Both peaks referenced to site and datum used prior to Apr. 18, 1975.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,460 $ft^3/s$ (155 $m^3/s$) May 27 at 1845 hours, gage height, 25.09 ft (7.647 m); no flow for many days. Supplemental peaks above base discontinued this year due to regulation by floodwater-retarding structures.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 10 | 1.0 | 3.2 | 11 | 4.2 | 67 | 45 | 1000 | 253 | 21 | .02 | .00 |
| 2 | .96 | .73 | 3.5 | 9.4 | 4.4 | 52 | 38 | 419 | 173 | 20 | .00 | .00 |
| 3 | .18 | .33 | 2.1 | 8.9 | 4.4 | 303 | 35 | 181 | 122 | 340 | .00 | .00 |
| 4 | .11 | .16 | 3.0 | 8.9 | 3.9 | 1860 | 35 | 100 | 113 | 136 | .00 | .00 |
| 5 | .07 | .13 | 3.8 | 8.9 | 3.7 | 757 | 31 | 67 | 110 | 92 | .00 | .00 |
| 6 | .02 | .11 | 5.2 | 8.9 | 3.8 | 444 | 26 | 52 | 395 | 51 | .00 | .00 |
| 7 | 4.2 | .11 | 6.9 | 7.8 | 4.2 | 479 | 24 | 38 | 437 | 30 | .00 | .00 |
| 8 | 9.5 | .10 | 203 | 8.9 | 4.4 | 684 | 22 | 34 | 197 | 26 | .00 | .00 |
| 9 | .73 | .10 | 349 | 8.9 | 4.9 | 435 | 21 | 31 | 107 | 17 | .00 | .00 |
| 10 | .15 | .08 | 142 | 8.9 | 7.8 | 301 | 19 | 27 | 73 | 12 | .00 | .00 |
| 11 | .03 | .06 | 81 | 8.9 | 9.8 | 242 | 17 | 26 | 55 | 9.6 | .00 | .00 |
| 12 | .00 | .05 | 61 | 6.9 | 7.1 | 206 | 16 | 24 | 56 | 7.6 | .00 | .00 |
| 13 | .00 | .08 | 48 | 4.8 | 6.4 | 185 | 14 | 22 | 44 | 6.3 | .00 | 44 |
| 14 | .00 | .07 | 40 | 4.8 | 7.3 | 168 | 11 | 19 | 40 | 5.0 | .00 | 388 |
| 15 | .00 | .05 | 36 | 4.8 | 7.1 | 150 | 9.0 | 18 | 38 | 4.1 | .00 | 152 |
| 16 | .00 | .03 | 34 | 4.8 | 6.9 | 132 | 8.9 | 22 | 164 | 3.4 | .00 | 60 |
| 17 | 8.2 | .12 | 30 | 4.2 | 6.9 | 118 | 8.9 | 32 | 92 | 2.6 | .00 | 33 |
| 18 | 1.7 | .14 | 26 | 4.1 | 6.9 | 106 | 10 | 85 | 55 | 2.0 | .00 | 23 |
| 19 | .30 | .13 | 23 | 4.1 | 6.9 | 86 | 15 | 51 | 40 | 1.5 | .00 | 17 |
| 20 | .38 | .22 | 18 | 4.5 | 6.8 | 77 | 39 | 31 | 32 | 1.2 | .00 | 12 |
| 21 | .41 | .58 | 15 | 5.1 | 8.0 | 73 | 31 | 24 | 26 | .97 | .00 | 9.4 |
| 22 | .32 | .60 | 14 | 5.9 | 8.4 | 68 | 80 | 20 | 22 | .73 | .00 | 7.3 |
| 23 | 1.5 | 1.6 | 15 | 6.4 | 12 | 61 | 94 | 18 | 20 | .59 | .00 | 4.5 |
| 24 | 4.0 | 2.9 | 15 | 6.5 | 16 | 56 | 52 | 106 | 17 | .52 | .00 | 3.3 |
| 25 | .53 | 3.0 | 15 | 6.9 | 19 | 54 | 34 | 544 | 15 | .33 | .00 | 3.2 |
| 26 | .14 | 3.5 | 12 | 6.9 | 21 | 51 | 25 | 308 | 12 | .15 | .00 | 3.0 |
| 27 | 384 | 3.5 | 12 | 6.5 | 23 | 48 | 20 | 2970 | 19 | .13 | .00 | 2.7 |
| 28 | 100 | 4.8 | 13 | 5.9 | 33 | 54 | 18 | 1450 | 21 | .12 | .00 | 2.4 |
| 29 | 19 | 5.2 | 13 | 4.9 | --- | 77 | 18 | 1040 | 21 | .11 | .00 | 1.7 |
| 30 | 5.7 | 3.2 | 12 | 3.9 | --- | 76 | 15 | 583 | 20 | .09 | .00 | .91 |
| 31 | 2.3 | --- | 12 | 3.8 | --- | 57 | --- | 397 | --- | .05 | .00 | --- |
| TOTAL | 554.43 | 32.68 | 1266.7 | 205.1 | 258.2 | 7527 | 831.8 | 9739 | 2789 | 792.09 | .02 | 767.41 |
| MEAN | 17.9 | 1.09 | 40.9 | 6.62 | 9.22 | 243 | 27.7 | 314 | 93.0 | 25.6 | .001 | 25.6 |
| MAX | 384 | 5.2 | 349 | 11 | 33 | 1860 | 94 | 2970 | 437 | 340 | .02 | 388 |
| MIN | .00 | .03 | 2.1 | 3.8 | 3.7 | 48 | 8.9 | 18 | 12 | .05 | .00 | .00 |
| AC-FT | 1100 | 65 | 2510 | 407 | 512 | 14930 | 1650 | 19320 | 5530 | 1570 | .04 | 1520 |

CAL YR 1980 TOTAL 3270.19 MEAN 8.93 MAX 497 MIN .00 AC-FT 6490
WTR YR 1981 TOTAL 24763.43 MEAN 67.8 MAX 2970 MIN .00 AC-FT 49120

## 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 (2.4 km) upstream from Mustang Creek, 5.5 mi (8.8 km) east of Aubrey, and 18 mi (29 km) upstream from Lewisville Dam on the Elm Fork Trinity River.

DRAINAGE AREA.--75.5 $mi^2$ (195.5 $km^2$).

PERIOD OF RECORD.--June 1956 to September 1976, October 1979 to current year.
Water-quality records: Chemical analyses: January 1968. Specific conductance: December 1966 to September 1975. Water temperatures: February 1966 to September 1975. Sediment records: February 1966 to September 1975.

REVISED RECORDS.--WRD TX-70-1: 1969.

GAGE.--Water-stage recorder. Datum of gage is 534.76 ft (162.995 m) National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation bench mark).

REMARKS.--Records good. Some small diversions for irrigation above station. Flow is 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 (12.9 $hm^3$). These structures control runoff from 36.4 $mi^2$ (94.3 $km^2$) above station. Several observations of water temperature were obtained during the year.

AVERAGE DISCHARGE.--22 years (water year 1957-76, 1980-1981), 44.4 $ft^3/s$ (1.257 $m^3/s$), 32,170 acre-ft/yr (39.7 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,920 $ft^3/s$ (224 $m^3/s$) Oct. 31, 1974, gage height, 17.04 ft (5.194 m); maximum gage height, 17.34 ft (5.285 m) Apr. 26, 1957; no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1900, 18.2 ft (5.55 m) in May 1941, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,040 $ft^3/s$ (114 $m^3/s$) May 28 at 0015 hours, gage height, 15.98 ft (4.871 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 337 | 21 | .89 | .99 | .51 | 5.9 | 5.0 | 29 | 82 | 1.2 | .00 | .00 |
| 2 | 212 | 13 | .84 | .88 | .49 | 6.8 | 2.7 | 26 | 50 | 1.1 | .00 | .00 |
| 3 | 104 | 7.4 | .84 | .78 | .50 | 87 | 3.0 | 15 | 45 | 1.4 | .00 | .00 |
| 4 | 75 | 4.4 | .86 | .68 | .59 | 580 | 16 | 11 | 45 | 381 | .00 | .00 |
| 5 | 43 | 3.1 | .93 | .63 | .55 | 169 | 6.1 | 8.4 | 424 | 544 | .00 | .00 |
| 6 | 29 | 2.2 | .92 | .59 | .37 | 84 | 2.9 | 7.2 | 952 | 192 | .00 | .00 |
| 7 | 25 | 1.8 | .75 | .53 | .29 | 100 | 1.6 | 5.8 | 553 | 98 | .00 | .00 |
| 8 | 9.6 | 1.6 | 1030 | .49 | .29 | 109 | 1.3 | 7.2 | 178 | 57 | .00 | .00 |
| 9 | 5.6 | 1.4 | 587 | .53 | .40 | 59 | 1.1 | 87 | 87 | 32 | .00 | .00 |
| 10 | 3.7 | 1.2 | 216 | .63 | .79 | 36 | .95 | 122 | 46 | 21 | .00 | .00 |
| 11 | 2.5 | 1.1 | 107 | .53 | 1.1 | 22 | .79 | 32 | 24 | 13 | .00 | .00 |
| 12 | 1.5 | .92 | 63 | .38 | 1.2 | 13 | .65 | 15 | 13 | 8.2 | .00 | .00 |
| 13 | .99 | .80 | 41 | .40 | .85 | 9.5 | .55 | 9.0 | 7.3 | 5.1 | .00 | .00 |
| 14 | .92 | .72 | 26 | .41 | .78 | 7.6 | .53 | 6.9 | 5.0 | 3.2 | .00 | .00 |
| 15 | .98 | .65 | 15 | .33 | .79 | 6.6 | .59 | 5.6 | 112 | 1.9 | .00 | .00 |
| 16 | .58 | .77 | 9.3 | .29 | .82 | 5.4 | .48 | 16 | 2080 | 1.3 | .00 | .00 |
| 17 | 883 | 1.1 | 6.6 | .26 | .78 | 4.2 | .63 | 14 | 697 | .89 | .00 | .00 |
| 18 | 417 | 1.2 | 4.7 | .28 | .71 | 3.6 | .56 | 8.2 | 233 | .65 | .00 | .00 |
| 19 | 148 | 1.2 | 4.2 | .30 | .64 | 3.1 | 1.2 | 6.6 | 136 | .46 | .00 | .00 |
| 20 | 75 | .81 | 3.4 | .41 | .65 | 2.2 | 2.2 | 4.1 | 76 | .21 | .00 | .00 |
| 21 | 34 | .68 | 2.1 | .57 | .64 | 1.6 | 2.4 | 2.8 | 46 | .07 | .00 | .00 |
| 22 | 15 | .76 | 1.6 | .97 | .33 | 1.6 | 190 | 2.0 | 26 | .07 | .00 | .00 |
| 23 | 7.6 | 1.0 | 1.5 | 1.1 | .24 | 1.5 | 262 | 2.1 | 16 | .07 | .00 | .00 |
| 24 | 4.1 | 1.3 | 1.4 | 1.2 | .34 | 1.3 | 131 | 84 | 10 | .02 | .00 | .00 |
| 25 | 1.8 | 1.3 | 1.3 | 1.1 | .28 | 1.1 | 74 | 305 | 5.8 | .00 | .00 | .00 |
| 26 | 1.1 | 1.0 | 1.7 | 1.0 | .41 | 2.9 | 53 | 185 | 3.9 | .00 | .00 | .00 |
| 27 | 394 | .92 | 1.4 | .90 | .53 | 11 | 38 | 1110 | 2.2 | .00 | .00 | .00 |
| 28 | 291 | .83 | 1.4 | .81 | 1.1 | 12 | 24 | 1470 | 1.2 | .00 | .00 | .00 |
| 29 | 101 | .83 | 1.6 | .68 | --- | 159 | 21 | 405 | .80 | .00 | .00 | .00 |
| 30 | 53 | .81 | 1.5 | .55 | --- | 51 | 13 | 277 | .59 | .00 | .00 | .00 |
| 31 | 33 | --- | 1.3 | .47 | --- | 14 | --- | 154 | --- | .00 | .00 | --- |
| TOTAL | 3309.97 | 75.80 | 2136.03 | 19.67 | 16.97 | 1570.9 | 857.23 | 4432.9 | 5957.79 | 1363.84 | .00 | .00 |
| MEAN | 107 | 2.53 | 68.9 | .63 | .61 | 50.7 | 28.6 | 143 | 199 | 44.0 | .000 | .000 |
| MAX | 883 | 21 | 1030 | 1.2 | 1.2 | 580 | 262 | 1470 | 2080 | 544 | .00 | .00 |
| MIN | .58 | .65 | .75 | .26 | .24 | 1.1 | .48 | 2.0 | .59 | .00 | .00 | .00 |
| AC-FT | 6570 | 150 | 4240 | 39 | 34 | 3120 | 1700 | 8790 | 11820 | 2710 | .00 | .00 |

CAL YR 1980 TOTAL 9354.58 MEAN 25.6 MAX 2920 MIN .00 AC-FT 18550
WTR YR 1981 TOTAL 19741.10 MEAN 54.1 MAX 2080 MIN .00 AC-FT 39160

## 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 (3 km) upstream from bridge on State Highway 121, 2.4 mi (3.9 km) northeast of Lewisville, 12 mi (19 km) upstream from Denton Creek, and 30.0 mi (48.3 km) upstream from mouth.

DRAINAGE AREA.--1,660 mi² (4,299 km²).

### WATER-DISCHARGE 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, nonrecording gage at site 4,000 ft (1,220 m) upstream at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 32,888 ft (10,024 m) long, including a 560-foot (171 m) uncontrolled off-channel concrete-gravity spillway with ogee weir section. Deliberate impoundment began Nov. 1, 1954, and the dam was completed in August 1955. The controlled low-flow outlet works consist of a 16.0-foot-diameter (4.9 m) conduit that is controlled by three 6.5- by 13.0-foot (2.0 by 4.0 m) broome-type gates and two 60-inch (1,524 mm) steel pipes with service valves. The lake was built for flood control and water conservation. The city of Dallas obtains most of its water for municipal use 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 combined detention capacity of 81,670 acre-ft (101 hm³). These structures control runoff from 298 mi² (772 km²) in the Elm Fork Trinity River, Clear, Little Elm, and Hickory Creeks watersheds. 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 Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,146,000 acre-ft (1.41 km³) June 3, 1957, elevation, 535.57 ft (163.242 m); minimum since initial filling in 1957, 184,700 acre-ft (228 hm³) Sept. 28, 1980, elevation, 498.65 ft (151.989 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 517,900 acre-ft (639 hm³) June 18 at 0800 hours, elevation, 517.49 ft (157.731 m); minimum, 225,200 acre-ft (278 hm³) Oct. 1 at 0001 hours, elevation, 501.85 ft (152.964 m).

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

| | | | |
|---|---|---|---|
| 500.0 | 201,200 | 510.0 | 351,900 |
| 502.0 | 227,200 | 512.0 | 391,000 |
| 504.0 | 254,900 | 514.0 | 434,700 |
| 506.0 | 284,800 | 516.0 | 481,200 |
| 508.0 | 317,300 | 518.0 | 530,800 |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 237800 | 265400 | 255000 | 268800 | 262100 | 254300 | 318200 | 330000 | 447900 | 471000 | 449800 | 414600 |
| 2 | 243500 | 265300 | 254200 | 268800 | 261800 | 254900 | 317300 | 334100 | 450200 | 469800 | 447900 | 414600 |
| 3 | 244500 | 265100 | 253300 | 268400 | 261500 | 259000 | 317800 | 336700 | 451600 | 473600 | 446800 | 414000 |
| 4 | 244800 | 264800 | 252900 | 267600 | 261500 | 269700 | 318300 | 337900 | 453000 | 482200 | 445400 | 413800 |
| 5 | 244600 | 264400 | 252500 | 267500 | 260900 | 285400 | 318000 | 338900 | 465100 | 484100 | 443800 | 413800 |
| 6 | 244500 | 263800 | 252000 | 267300 | 260700 | 292800 | 317200 | 338900 | 478600 | 484900 | 442700 | 412900 |
| 7 | 244800 | 263500 | 252200 | 267000 | 260600 | 297500 | 316700 | 338900 | 490500 | 483700 | 440800 | 412400 |
| 8 | 246200 | 263200 | 257700 | 266700 | 260300 | 304800 | 316700 | 340700 | 491200 | 482900 | 439500 | 412400 |
| 9 | 247700 | 262900 | 266600 | 266600 | 260900 | 310400 | 316700 | 344200 | 491900 | 482000 | 438300 | 411300 |
| 10 | 248000 | 262200 | 272100 | 266400 | 260700 | 312200 | 316000 | 345200 | 492200 | 480500 | 437000 | 410300 |
| 11 | 248000 | 261900 | 273800 | 266000 | 260200 | 313700 | 315700 | 345400 | 491200 | 479300 | 435600 | 409600 |
| 12 | 247800 | 261200 | 274700 | 265900 | 260200 | 314000 | 315200 | 345200 | 490500 | 477900 | 434200 | 408700 |
| 13 | 247600 | 260900 | 274800 | 265400 | 259700 | 314800 | 315000 | 345800 | 490000 | 476900 | 432900 | 408300 |
| 14 | 247300 | 260500 | 274800 | 265300 | 259400 | 315000 | 314800 | 345800 | 489700 | 475700 | 431500 | 410500 |
| 15 | 246700 | 260200 | 274800 | 265000 | 259000 | 315200 | 314000 | 346100 | 497100 | 474100 | 430200 | 410900 |
| 16 | 246800 | 260200 | 274800 | 264700 | 258700 | 315200 | 313300 | 347700 | 510400 | 472600 | 429100 | 410700 |
| 17 | 249500 | 259900 | 274100 | 264400 | 257900 | 315000 | 313300 | 348300 | 516900 | 471200 | 429100 | 410000 |
| 18 | 252600 | 259300 | 274100 | 263800 | 257400 | 315700 | 313800 | 349200 | 513400 | 469300 | 428400 | 409400 |
| 19 | 253700 | 258900 | 273600 | 263900 | 257300 | 314800 | 314000 | 348600 | 507900 | 468600 | 426800 | 408500 |
| 20 | 254600 | 258700 | 272700 | 263900 | 256400 | 314300 | 313800 | 348300 | 499000 | 467000 | 425700 | 407400 |
| 21 | 254700 | 258000 | 272200 | 263800 | 256400 | 313800 | 314000 | 347600 | 491400 | 465600 | 424400 | 406800 |
| 22 | 254600 | 258000 | 271900 | 263800 | 256300 | 313800 | 315500 | 347600 | 483700 | 464100 | 423300 | 405900 |
| 23 | 254500 | 258000 | 271900 | 263500 | 255200 | 313500 | 317700 | 347900 | 480800 | 462500 | 422400 | 405000 |
| 24 | 254000 | 257900 | 271800 | 263200 | 254300 | 313300 | 321000 | 348800 | 479300 | 460900 | 421000 | 404000 |
| 25 | 253500 | 257400 | 270900 | 263200 | 253700 | 313200 | 322200 | 360500 | 478400 | 459700 | 419700 | 402900 |
| 26 | 253500 | 256900 | 270300 | 263100 | 253500 | 313000 | 322700 | 367500 | 477200 | 457600 | 418600 | 401800 |
| 27 | 254900 | 256300 | 270400 | 262900 | 252900 | 312700 | 322700 | 389100 | 476200 | 456500 | 418200 | 401200 |
| 28 | 259200 | 256000 | 270300 | 262900 | 254200 | 313300 | 323000 | 416000 | 474300 | 455300 | 416600 | 400300 |
| 29 | 263900 | 255600 | 270000 | 263100 | --- | 317800 | 323700 | 434700 | 473600 | 454100 | 415300 | 399200 |
| 30 | 265100 | 255000 | 269400 | 262300 | --- | 318000 | 324200 | 440800 | 471900 | 452800 | 414200 | 398200 |
| 31 | 265400 | --- | 269200 | 262300 | --- | 318300 | --- | 446500 | --- | 450900 | 413800 | --- |
| MAX | 265400 | 265400 | 274800 | 268800 | 262100 | 318300 | 324200 | 446500 | 516900 | 484900 | 449800 | 414600 |
| MIN | 237800 | 255000 | 252000 | 262300 | 252900 | 254300 | 313300 | 330000 | 447900 | 450900 | 413800 | 398200 |
| (†) | 504.73 | 504.01 | 504.99 | 504.52 | 503.95 | 508.06 | 508.41 | 514.52 | 515.61 | 514.71 | 513.06 | 512.34 |
| (‡) | +40200 | -10400 | +14200 | -6900 | -8100 | +64100 | +5900 | +122300 | +25400 | -21000 | -37100 | -15600 |
| (††) | 980 | 837 | 826 | 820 | 773 | 817 | 935 | 841 | 1080 | 1660 | 1730 | 1150 |

CAL YR 1980 MAX 340300 MIN 184800 ‡ - 71300 †† 14930
WTR YR 1981 MAX 516900 MIN 237800 ‡ +173000 †† 12450

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, for municipal use by cities of Denton and Lewisville.

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

WATER-QUALITY RECORDS

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

330419096575401 LEWISVILLE LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) | STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 14... | 1130 | 1.0 | 371 | 7.8 | 7.5 | .50 | 10.7 | 91 | K10 | K2 |
| 14... | 1131 | .9 | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | 1132 | 10 | 371 | 7.8 | 7.5 | -- | 10.7 | 91 | -- | -- |
| 14... | 1134 | 20 | 371 | 7.8 | 7.5 | -- | 10.7 | 91 | -- | -- |
| 14... | 1136 | 30 | 374 | 7.8 | 7.5 | -- | 10.7 | 91 | -- | -- |
| 14... | 1138 | 40 | 374 | 7.8 | 7.5 | -- | 10.7 | 91 | -- | -- |
| 14... | 1140 | 48 | 374 | 7.8 | 7.5 | -- | 10.7 | 91 | -- | -- |
| MAY | | | | | | | | | | |
| 18... | 1250 | 1.0 | 388 | 7.9 | 22.0 | .70 | 8.4 | 98 | K5 | K5 |
| 18... | 1251 | 1.2 | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | 1252 | 10 | 388 | 7.9 | 21.5 | -- | 8.4 | 97 | -- | -- |
| 18... | 1253 | 20 | 388 | 7.9 | 21.5 | -- | 8.3 | 95 | -- | -- |
| 18... | 1254 | 30 | 388 | 7.8 | 21.0 | -- | 8.0 | 91 | -- | -- |
| 18... | 1255 | 40 | 388 | 7.8 | 20.5 | -- | 7.6 | 85 | -- | -- |
| 18... | 1256 | 50 | 389 | 7.7 | 20.5 | -- | 7.0 | 79 | -- | -- |
| 18... | 1257 | 53 | 392 | 7.5 | 20.0 | -- | 6.0 | 67 | -- | -- |
| AUG | | | | | | | | | | |
| 05... | 1005 | 1.0 | 339 | 8.0 | 29.5 | 1.00 | 6.5 | 86 | <1 | <1 |
| 05... | 1006 | 1.6 | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | 1007 | 10 | 341 | 7.8 | 28.5 | -- | 5.4 | 70 | -- | -- |
| 05... | 1008 | 20 | 341 | 7.6 | 28.5 | -- | 4.5 | 58 | -- | -- |
| 05... | 1009 | 30 | 344 | 7.3 | 28.0 | -- | 1.9 | 24 | -- | -- |
| 05... | 1010 | 35 | 380 | 7.2 | 24.5 | -- | .0 | 0 | -- | -- |
| 05... | 1011 | 40 | 384 | 7.2 | 23.5 | -- | .0 | 0 | -- | -- |
| 05... | 1012 | 50 | 390 | 7.2 | 22.5 | -- | .0 | 0 | -- | -- |
| 05... | 1013 | 54 | 411 | 7.1 | 21.5 | -- | .0 | 0 | -- | -- |

| DATE | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 14... | 130 | 28 | 44 | 4.4 | 26 | 1.0 | 4.8 | 100 | 45 | 25 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | 130 | 26 | 43 | 4.4 | 26 | 1.0 | 4.8 | 100 | 45 | 25 |
| MAY | | | | | | | | | | |
| 18... | 140 | 25 | 47 | 4.3 | 23 | .9 | 4.8 | 110 | 46 | 24 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | 140 | 20 | 49 | 4.3 | 23 | .8 | 4.8 | 120 | 46 | 24 |
| AUG | | | | | | | | | | |
| 05... | 110 | 16 | 39 | 4.1 | 21 | .9 | 6.2 | 98 | 37 | 22 |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | 140 | 1 | 49 | 4.4 | 24 | .9 | 5.0 | 140 | 32 | 25 |

LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330419096575401 LEWISVILLE LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 14... | .3 | 3.9 | 214 | .57 | .71 | 1.3 | .060 | <10 | 0 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | .54 | .89 | 1.4 | .060 | 20 | 10 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | 5.0 | 234 | .57 | .69 | 1.3 | .060 | <10 | <1 |
| MAY | | | | | | | | | |
| 18... | .3 | 3.2 | 219 | .68 | .82 | 1.5 | .060 | <10 | 2 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | .69 | .90 | 1.6 | .030 | 20 | 0 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | .71 | .87 | 1.6 | .070 | 20 | 0 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | 3.8 | 227 | .70 | 1.20 | 1.9 | .110 | <10 | 10 |
| AUG | | | | | | | | | |
| 05... | .2 | 4.4 | 193 | .10 | .90 | 1.0 | .030 | <10 | 4 |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | -- | -- | -- | .15 | .73 | .88 | .030 | 20 | 30 |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | -- | -- | -- | <.10 | 1.20 | -- | .080 | 230 | 560 |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | -- | 8.7 | 234 | .11 | 2.00 | 2.1 | .360 | 930 | 1000 |

330410096584501 LEWISVILLE LAKE SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 14... | 1200 | 1.0 | 370 | 7.8 | 7.5 | 10.8 | 92 |
| 14... | 1202 | 10 | 370 | 7.8 | 7.5 | 10.8 | 92 |
| 14... | 1204 | 20 | 370 | 7.8 | 7.5 | 10.8 | 92 |
| 14... | 1206 | 30 | 370 | 7.8 | 7.5 | 10.8 | 92 |
| 14... | 1208 | 39 | 370 | 7.8 | 7.5 | 10.7 | 91 |
| MAY | | | | | | | |
| 18... | 1340 | 1.0 | 388 | 7.9 | 22.0 | 8.4 | 98 |
| 18... | 1341 | 10 | 388 | 7.9 | 21.5 | 8.4 | 97 |
| 18... | 1342 | 20 | 388 | 7.9 | 21.5 | 8.3 | 95 |
| 18... | 1343 | 30 | 388 | 7.8 | 20.5 | 8.0 | 90 |
| 18... | 1344 | 40 | 388 | 7.7 | 20.5 | 8.0 | 90 |
| AUG | | | | | | | |
| 05... | 1045 | 1.0 | 344 | 7.7 | 29.0 | 5.4 | 71 |
| 05... | 1046 | 10 | 344 | 7.7 | 28.5 | 4.9 | 64 |
| 05... | 1047 | 20 | 344 | 7.6 | 28.5 | 4.5 | 58 |
| 05... | 1048 | 30 | 349 | 7.3 | 28.0 | 1.5 | 19 |
| 05... | 1049 | 40 | 390 | 7.2 | 23.5 | .1 | 1 |
| 05... | 1050 | 46 | 396 | 7.1 | 23.0 | .1 | 1 |

LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330450096560501 LEWISVILLE LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMP-LING DEPTH (FT) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 14... | 1300 | 1.0 | 396 | 7.9 | 7.5 | 11.1 | 94 |
| 14... | 1302 | 10 | 410 | 8.0 | 7.0 | 11.1 | 92 |
| 14... | 1304 | 20 | 419 | 8.0 | 7.0 | 11.1 | 92 |
| MAY | | | | | | | |
| 18... | 1400 | 1.0 | 392 | 7.9 | 23.0 | 8.4 | 99 |
| 18... | 1401 | 10 | 398 | 7.9 | 22.0 | 8.3 | 97 |
| 18... | 1402 | 20 | 432 | 7.9 | 21.5 | 8.1 | 93 |
| 18... | 1403 | 25 | 432 | 7.9 | 21.5 | 8.0 | 92 |
| AUG | | | | | | | |
| 05... | 1100 | 1.0 | 338 | 8.0 | 30.0 | 7.1 | 95 |
| 05... | 1101 | 10 | 358 | 8.0 | 29.5 | 7.0 | 92 |
| 05... | 1102 | 20 | 361 | 7.8 | 29.0 | 5.2 | 68 |
| 05... | 1103 | 25 | 248 | 7.3 | 28.5 | .9 | 12 |
| 05... | 1104 | 30 | 285 | 7.1 | 27.0 | .1 | 1 |

330606097025601 LEWISVILLE LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMP-LING DEPTH (FT) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 14... | 1550 | 1.0 | 393 | 8.0 | 8.0 | 11.2 | 96 |
| 14... | 1552 | 10 | 390 | 8.0 | 7.5 | 11.1 | 94 |
| 14... | 1554 | 15 | 390 | 8.0 | 7.5 | 11.0 | 93 |
| MAY | | | | | | | |
| 18... | 1215 | 1.0 | 356 | 7.9 | 22.5 | 8.4 | 98 |
| 18... | 1216 | 10 | 361 | 7.7 | 21.5 | 7.4 | 85 |
| 18... | 1217 | 15 | 352 | 7.4 | 20.5 | 5.9 | 66 |
| 18... | 1218 | 20 | 346 | 7.3 | 20.5 | 4.7 | 53 |
| AUG | | | | | | | |
| 05... | 0930 | 1.0 | 345 | 7.8 | 30.0 | 6.2 | 83 |
| 05... | 0931 | 10 | 348 | 7.6 | 30.0 | 5.3 | 71 |
| 05... | 0932 | 20 | 357 | 7.3 | 29.5 | 3.2 | 42 |
| 05... | 0933 | 24 | 359 | 7.2 | 29.5 | 2.1 | 28 |

330755096572001 LEWISVILLE LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMP-LING DEPTH (FT) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TRANS-PAR-ENCY (SECCHI DISK) (M) | OXYGEN, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 14... | 1330 | 1.0 | 368 | 7.8 | 7.0 | .30 | 10.8 |
| 14... | 1332 | 10 | 368 | 7.8 | 7.0 | -- | 10.7 |
| 14... | 1334 | 20 | 368 | 7.8 | 7.0 | -- | 10.7 |
| 14... | 1336 | 26 | 368 | 7.8 | 7.0 | -- | 10.7 |
| MAY | | | | | | | |
| 18... | 1425 | 1.0 | 390 | 7.9 | 22.5 | .30 | 8.3 |
| 18... | 1426 | 10 | 390 | 7.8 | 21.0 | -- | 7.9 |
| 18... | 1427 | 20 | 390 | 7.8 | 21.0 | -- | 7.9 |
| 18... | 1428 | 25 | 370 | 7.5 | 20.5 | -- | 6.6 |
| 18... | 1429 | 31 | 370 | 7.4 | 20.5 | -- | 6.0 |
| AUG | | | | | | | |
| 05... | 1200 | 1.0 | 341 | 8.0 | 30.5 | .40 | 7.1 |
| 05... | 1201 | 10 | 341 | 7.9 | 30.0 | -- | 6.6 |
| 05... | 1202 | 20 | 341 | 7.9 | 30.0 | -- | 6.5 |
| 05... | 1203 | 30 | 349 | 7.9 | 29.5 | -- | 6.2 |
| 05... | 1204 | 35 | 349 | 7.8 | 29.5 | -- | 5.9 |

LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330755096572001 LEWISVILLE LAKE SITE DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | IRON, DIS-SOLVED (UG/L AS FE) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 14... | 90 | .85 | .87 | 1.7 | .070 | 30 | 10 |
| 14... | 89 | -- | -- | -- | -- | -- | -- |
| 14... | 89 | -- | -- | -- | -- | -- | -- |
| 14... | 89 | .85 | .68 | 1.5 | .070 | 30 | 20 |
| MAY | | | | | | | |
| 18... | 97 | .66 | .83 | 1.5 | .070 | 10 | 0 |
| 18... | 90 | -- | -- | -- | -- | -- | -- |
| 18... | 90 | -- | -- | -- | -- | -- | -- |
| 18... | 74 | -- | -- | -- | -- | -- | -- |
| 18... | 67 | .74 | 1.10 | 1.8 | .090 | 30 | -- |
| AUG | | | | | | | |
| 05... | 96 | <.10 | .99 | -- | .050 | 10 | 0 |
| 05... | 88 | -- | -- | -- | -- | -- | -- |
| 05... | 87 | -- | -- | -- | -- | -- | -- |
| 05... | 82 | -- | -- | -- | -- | -- | -- |
| 05... | 78 | <.10 | .95 | -- | .080 | 30 | 60 |

330959096565301 LEWISVILLE LAKE SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMP-LING DEPTH (FT) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (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 | | | | | | | | | | |
| 14... | 1355 | 1.0 | 370 | 7.9 | 7.5 | .20 | 11.3 | 96 | 50 | 27 |
| 14... | 1357 | 10 | 370 | 7.9 | 7.5 | -- | 11.3 | 96 | -- | -- |
| 14... | 1359 | 15 | 370 | 7.9 | 7.5 | -- | 11.3 | 96 | -- | -- |
| MAY | | | | | | | | | | |
| 18... | 1500 | 1.0 | 381 | 7.7 | 23.0 | .20 | 7.7 | 91 | 28 | 200 |
| 18... | 1501 | 10 | 380 | 7.7 | 22.5 | -- | 7.6 | 88 | -- | -- |
| 18... | 1502 | 21 | 369 | 7.4 | 21.5 | -- | 6.0 | 69 | -- | -- |
| AUG | | | | | | | | | | |
| 05... | 1245 | 1.0 | 344 | 8.0 | 31.0 | .30 | 6.8 | 92 | K4 | K4 |
| 05... | 1246 | 10 | 344 | 7.8 | 30.0 | -- | 5.9 | 79 | -- | -- |
| 05... | 1247 | 20 | 350 | 7.5 | 30.0 | -- | 4.6 | 61 | -- | -- |
| 05... | 1248 | 24 | 350 | 7.4 | 30.0 | -- | 4.3 | 57 | -- | -- |

| DATE | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 FIELD (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 14... | 140 | 33 | 50 | 4.5 | 21 | .8 | 4.5 | 110 | 57 | 15 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | 150 | 36 | 51 | 4.6 | 22 | .8 | 4.5 | 110 | 56 | 14 |
| MAY | | | | | | | | | | |
| 18... | 140 | 30 | 49 | 4.2 | 20 | .7 | 5.1 | 110 | 49 | 18 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | 140 | 27 | 48 | 4.1 | 18 | .7 | 5.1 | 110 | 50 | 14 |
| AUG | | | | | | | | | | |
| 05... | 120 | 22 | 42 | 4.2 | 20 | .8 | 6.8 | 100 | 37 | 21 |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | 120 | 21 | 42 | 4.0 | 20 | .8 | 6.9 | 100 | 38 | 20 |

LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330959096565301 LEWISVILLE LAKE SITE EC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | 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) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | IRON, DIS-SOLVED (UG/L AS FE) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 14... | 4.8 | 223 | 1.3 | -- | -- | 1.10 | 2.4 | .060 | <10 | 1 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | 6.1 | 224 | 1.2 | -- | -- | 1.30 | 2.5 | .060 | <10 | 0 |
| MAY | | | | | | | | | | |
| 18... | 4.2 | 216 | .62 | .150 | .71 | .86 | 1.5 | .080 | 20 | 2 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | 5.1 | 210 | .76 | -- | -- | 1.10 | 1.9 | .140 | 10 | 10 |
| AUG | | | | | | | | | | |
| 05... | 4.7 | 196 | .10 | -- | -- | 1.00 | 1.1 | .060 | 18 | 8 |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | 4.8 | 196 | .10 | -- | -- | 1.10 | 1.2 | .140 | <10 | 66 |

330722096592201 -LEWISVILLE LAKE SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMP-LING DEPTH (FT) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TRANS-PAR-ENCY (SECCHI DISK) (M) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| 14... | 1520 | 1.0 | 375 | 7.9 | 7.5 | .40 | 11.5 | 97 |
| 14... | 1522 | 10 | 394 | 7.9 | 7.5 | -- | 11.6 | 98 |
| 14... | 1524 | 20 | 397 | 7.9 | 7.5 | -- | 11.6 | 98 |
| 14... | 1526 | 26 | 397 | 7.9 | 7.5 | -- | 11.6 | 98 |
| MAY | | | | | | | | |
| 18... | 1600 | 1.0 | 400 | 7.8 | 22.5 | .30 | 8.4 | 99 |
| 18... | 1601 | 10 | 390 | 7.8 | 21.0 | -- | 8.2 | 93 |
| 18... | 1602 | 20 | 390 | 7.8 | 21.0 | -- | 8.2 | 93 |
| 18... | 1603 | 33 | 390 | 7.8 | 21.0 | -- | 8.2 | 93 |
| AUG | | | | | | | | |
| 05... | 1130 | 1.0 | 338 | 8.1 | 30.5 | .80 | 7.2 | 97 |
| 05... | 1131 | 10 | 351 | 7.7 | 29.0 | -- | 5.4 | 71 |
| 05... | 1132 | 20 | 351 | 7.7 | 29.0 | -- | 5.0 | 66 |
| 05... | 1133 | 30 | 351 | 7.7 | 29.0 | -- | 4.9 | 64 |
| 05... | 1134 | 35 | 351 | 7.7 | 29.0 | -- | 4.9 | 64 |

| DATE | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | IRON, DIS-SOLVED (UG/L AS FE) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| 14... | K3 | <1 | .86 | 1.20 | 2.1 | .100 | 20 | 10 |
| 14... | -- | -- | 1.0 | .90 | 1.9 | .130 | 30 | 10 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | 1.0 | 1.20 | 2.2 | .060 | 40 | 20 |
| MAY | | | | | | | | |
| 18... | -- | -- | .66 | .83 | 1.5 | .160 | 10 | 0 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | .69 | 1.30 | 2.0 | .070 | 40 | 0 |
| AUG | | | | | | | | |
| 05... | -- | -- | .10 | .85 | .95 | .050 | 0 | 10 |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | -- | -- | .16 | .81 | .97 | .100 | 20 | 70 |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | -- | -- | .16 | 1.00 | 1.2 | .090 | 20 | 20 |

LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330944097003601 LEWISVILLE LAKE SITE GC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) | STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 14... | 1445 | 1.0 | 431 | 8.0 | 8.0 | .30 | 12.0 | 103 | -- | -- |
| 14... | 1446 | .5 | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | 1447 | 3.0 | 432 | 8.0 | 8.0 | -- | 12.0 | 103 | -- | -- |
| MAY | | | | | | | | | | |
| 18... | 1630 | 1.0 | 441 | 7.7 | 24.0 | .10 | 7.7 | 93 | K11 | 90 |
| 18... | 1631 | .2 | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | 1632 | 6.0 | 439 | 7.7 | 24.0 | -- | 7.7 | 93 | -- | -- |
| AUG | | | | | | | | | | |
| 05... | 1330 | 1.0 | 386 | 8.2 | 31.5 | .60 | 8.4 | 114 | <1 | <1 |
| 05... | 1331 | .9 | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | 1335 | 10 | 375 | 7.9 | 30.0 | -- | 5.7 | 76 | -- | -- |

| DATE | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 14... | 150 | 24 | 54 | 4.6 | 27 | .9 | 4.5 | 130 | 45 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | |
| 18... | 160 | 25 | 58 | 4.8 | 25 | .8 | 5.3 | 140 | 37 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | |
| 05... | 140 | 13 | 50 | 4.5 | 20 | .7 | 7.5 | 130 | 13 |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | 140 | 6 | 47 | 4.4 | 20 | .8 | 7.3 | 130 | 14 |

| DATE | CHLORIDE, DISSOLVED (MG/L AS CL) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 14... | 30 | 2.9 | 246 | .64 | .86 | 1.5 | .100 | <10 | 2 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | |
| 18... | 31 | 5.8 | 251 | .52 | 1.20 | 1.7 | .230 | 10 | 2 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | |
| 05... | 26 | 3.3 | 202 | .10 | 1.20 | 1.3 | .130 | <10 | 3 |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | 25 | 3.4 | 199 | .10 | 1.00 | 1.1 | .130 | <10 | 5 |

TRINITY RIVER BASIN

LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330419096575401 LEWISVILLE LAKE SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | JAN 14,81 | MAY 18,81 | AUG 5,81 |
|---|---|---|---|
| TIME | 1131 | 1251 | 1006 |
| TOTAL CELLS/ML | 150 | 4500 | 86 |
| DIVERSITY: DIVISION | 1.5 | 1.1 | 0.7 |
| .CLASS | 1.5 | 1.1 | 0.7 |
| ..ORDER | 1.5 | 1.6 | 0.7 |
| ...FAMILY | 2.1 | 2.6 | 0.7 |
| ....GENUS | 2.6 | 2.8 | 0.7 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...CHARACIACEAE | | | | | | |
| ....SCHROEDERIA | 13 | 8 | 28 | 1 | -- | - |
| ...COELASTRACEAE | | | | | | |
| ....COELASTRUM | -- | - | 280 | 6 | -- | - |
| ...HYDRODICTYACEAE | | | | | | |
| ....PEDIASTRUM | -- | - | 550 | 12 | -- | - |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | 39# | 25 | 84 | 2 | -- | - |
| ....KIRCHNERIELLA | -- | - | * | 0 | -- | - |
| ....OOCYSTIS | 13 | 8 | 390 | 9 | -- | - |
| ....SELENASTRUM | 13 | 8 | -- | - | -- | - |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CHLAMYDOMONAS | -- | - | 28 | 1 | -- | - |
| ..ZYGNEMATALES | | | | | | |
| ...DESMIDIACEAE | | | | | | |
| ....COSMARIUM | -- | - | -- | - | 14# | 17 |
| CHRYSOPHYTA | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..CENTRALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | 26# | 17 | -- | - | -- | - |
| ....MELOSIRA | -- | - | * | 0 | -- | - |
| ..PENNALES | | | | | | |
| ...NAVICULACEAE | | | | | | |
| ....NAVICULA | -- | - | -- | - | 72# | 83 |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | |
| .CRYPTOPHYCEAE | | | | | | |
| ..CRYPTOMONADALES | | | | | | |
| ...CRYPTOCHRYSIDACEAE | | | | | | |
| ....CHROOMONAS | 13 | 8 | 98 | 2 | -- | - |
| ...CRYPTOMONADACEAE | | | | | | |
| ....CRYPTOMONAS | 39# | 25 | 42 | 1 | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....AGMENELLUM | -- | - | 450 | 10 | -- | - |
| ....ANACYSTIS | -- | - | 84 | 2 | -- | - |
| ..HORMOGONALES | | | | | | |
| ...NOSTOCACEAE | | | | | | |
| ....APHANIZOMENON | -- | - | 1800# | 40 | -- | - |
| ...OSCILLATORIACEAE | | | | | | |
| ....LYNGBYA | -- | - | 110 | 2 | -- | - |
| ....OSCILLATORIA | -- | - | 520 | 12 | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330944097003601 LEWISVILLE LAKE SITE GC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | JAN 14,81 | MAY 18,81 | AUG 5,81 |
|---|---|---|---|
| TIME | 1446 | 1631 | 1331 |
| TOTAL CELLS/ML | 4500 | 6800 | 7100 |
| DIVERSITY: DIVISION | 1.8 | 1.8 | 1.4 |
| .CLASS | 1.8 | 1.8 | 1.4 |
| ..ORDER | 2.1 | 2.4 | 2.1 |
| ...FAMILY | 2.5 | 3.1 | 2.6 |
| ....GENUS | 2.6 | 4.0 | 3.4 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...COELASTRACEAE | | | | | | |
| ....COELASTRUM | -- | - | 220 | 3 | -- | - |
| ...HYDRODICTYACEAE | | | | | | |
| ....PEDIASTRUM | -- | - | 220 | 3 | 230 | 3 |
| ...MICRACTINIACEAE | | | | | | |
| ....MICRACTINIUM | 290 | 6 | -- | - | -- | - |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | 360 | 8 | 81 | 1 | 72 | 1 |
| ....DICTYOSPHAERIUM | -- | - | 160 | 2 | 760 | 11 |
| ....GLOEOACTINIUM | -- | - | -- | - | * | 0 |
| ....KIRCHNERIELLA | -- | - | 620 | 9 | -- | - |
| ....OOCYSTIS | -- | - | 320 | 5 | -- | - |
| ....SELENASTRUM | 33 | 1 | -- | - | -- | - |
| ....TETRAEDRON | -- | - | -- | - | * | 0 |
| ...SCENEDESMACEAE | | | | | | |
| ....CRUCIGENIA | -- | - | 540 | 8 | 110 | 2 |
| ....SCENEDESMUS | 33 | 1 | 380 | 6 | 290 | 4 |
| ....TETRASTRUM | 260 | 6 | 110 | 2 | -- | - |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CHLAMYDOMONAS | 420 | 9 | 300 | 4 | 72 | 1 |
| ...PHACOTACEAE | | | | | | |
| ....PHACOTUS | -- | - | * | 0 | -- | - |
| CHRYSOPHYTA | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..CENTRALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | 1800# | 39 | 890 | 13 | 290 | 4 |
| ....MELOSIRA | -- | - | 860 | 13 | 390 | 5 |
| ..PENNALES | | | | | | |
| ...FRAGILARIACEAE | | | | | | |
| ....SYNEDRA | -- | - | -- | - | 170 | 2 |
| ...NAVICULACEAE | | | | | | |
| ....NAVICULA | -- | - | * | 0 | -- | - |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | -- | - | 240 | 4 | * | 0 |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | |
| .CRYPTOPHYCEAE | | | | | | |
| ..CRYPTOMONADALES | | | | | | |
| ...CRYPTOCHRYSIDACEAE | | | | | | |
| ....CHROOMONAS | 33 | 1 | -- | - | -- | - |
| ...CRYPTOMONADACEAE | | | | | | |
| ....CRYPTOMONAS | -- | - | 110 | 2 | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....AGMENELLUM | -- | - | -- | - | 1100# | 16 |
| ....ANACYSTIS | 1000# | 23 | 860 | 13 | 2000# | 28 |
| ....GOMPHOSPHAERIA | -- | - | * | 0 | -- | - |
| ..HORMOGONALES | | | | | | |
| ...NOSTOCACEAE | | | | | | |
| ....ANABAENA | -- | - | -- | - | 220 | 3 |
| ....CYLINDROSPERMUM | -- | - | -- | - | 420 | 6 |
| ...OSCILLATORIACEAE | | | | | | |
| ....LYNGBYA | -- | - | 220 | 3 | -- | - |
| ....OSCILLATORIA | -- | - | 270 | 4 | 650 | 9 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....EUGLENA | 230 | 5 | 110 | 2 | 100 | 1 |
| ....PHACUS | -- | - | 110 | 2 | -- | - |
| ....TRACHELOMONAS | 65 | 1 | 110 | 2 | 100 | 1 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 08053000 ELM FORK TRINITY RIVER NEAR LEWISVILLE, TX

LOCATION.--Lat 33°02'43", long 96°57'41", Denton County, Hydrologic Unit 12030103, on left bank at downstream side of pier of bridge on State Highway 121, 1.8 mi (2.9 km) east of Lewisville, 1.9 mi (3.1 km) downstream from Lewisville Lake, 8.3 mi (13.4 km) upstream from Denton Creek, and 28.2 mi (45.4 km) upstream from mouth.

DRAINAGE AREA.--1,673 mi² (4,333 km²).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1949 to current year.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 432.39 ft (131.792 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Jan. 6, 1950, nonrecording gage 0.6 mi (1.0 km) upstream at datum 3.26 ft (0.994 m) lower.

REMARKS.--Water-discharge records good. Flow regulated by Lewisville Lake (see station 08052800) since November 1954. Most of low flow is used by city of Dallas for municipal supply (see station 08055500). Gage-height telemeter located at station. On Jan. 7, 1981, an additional telemeter (data collection platform, solar panel, battery, and antenna) was installed at station.

AVERAGE DISCHARGE.--5 years (water years 1950-54), prior to regulation, 402 ft³/s (11.38 m³/s), 291,200 acre-ft/yr (359 hm³/yr); 27 years (water years (1955-81), regulated, 584 ft³/s (16.54 m³/s), 423,100 acre-ft/yr (522 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,700 ft³/s (615 m³/s) Sept. 15, 1950, gage height, 30.75 ft (9.373 m); minimum daily, 0.8 ft³/s (0.023 m³/s) Jan. 19, 1955. Maximum discharge since construction of Lewisville Dam in 1954, 11,400 ft³/s (323 m³/s) May 27, 1957, and does not include about 4,000 ft³/s (113 m³/s) that discharged over spillway of Lewisville Dam and by-passed this gaging station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1907, 33.8 ft (10.30 m) in 1908, present site and datum, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,110 ft³/s (116 m³/s) June 20 at 1830 hours, gage height, 19.98 ft (6.090 m); minimum daily, 47 ft³/s (1.33 m³/s) May 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 199 | 136 | 186 | 163 | 64 | 226 | 171 | 136 | 136 | 378 | 377 | 204 |
| 2 | 147 | 135 | 279 | 145 | 88 | 202 | 185 | 71 | 136 | 377 | 376 | 146 |
| 3 | 147 | 141 | 299 | 130 | 104 | 231 | 176 | 73 | 111 | 399 | 377 | 144 |
| 4 | 145 | 158 | 299 | 153 | 82 | 205 | 142 | 66 | 61 | 560 | 377 | 155 |
| 5 | 171 | 166 | 278 | 161 | 81 | 79 | 124 | 78 | 672 | 468 | 392 | 140 |
| 6 | 184 | 168 | 224 | 128 | 69 | 101 | 124 | 91 | 193 | 388 | 402 | 181 |
| 7 | 148 | 172 | 241 | 121 | 64 | 122 | 135 | 83 | 86 | 382 | 375 | 223 |
| 8 | 156 | 173 | 254 | 121 | 74 | 85 | 145 | 62 | 238 | 380 | 310 | 223 |
| 9 | 209 | 200 | 137 | 122 | 79 | 92 | 145 | 85 | 371 | 379 | 345 | 186 |
| 10 | 239 | 230 | 241 | 112 | 65 | 103 | 165 | 51 | 372 | 379 | 399 | 171 |
| 11 | 212 | 230 | 231 | 105 | 56 | 102 | 187 | 47 | 372 | 377 | 405 | 250 |
| 12 | 194 | 219 | 222 | 113 | 70 | 108 | 187 | 54 | 373 | 378 | 399 | 274 |
| 13 | 192 | 199 | 221 | 119 | 110 | 127 | 185 | 63 | 374 | 378 | 392 | 263 |
| 14 | 173 | 199 | 210 | 110 | 139 | 163 | 184 | 67 | 376 | 377 | 393 | 216 |
| 15 | 123 | 120 | 200 | 100 | 139 | 148 | 183 | 87 | 398 | 377 | 400 | 160 |
| 16 | 140 | 138 | 206 | 92 | 198 | 113 | 166 | 93 | 770 | 377 | 394 | 222 |
| 17 | 164 | 147 | 232 | 92 | 276 | 125 | 152 | 56 | 291 | 377 | 285 | 241 |
| 18 | 94 | 124 | 269 | 92 | 261 | 151 | 151 | 64 | 1820 | 379 | 192 | 214 |
| 19 | 117 | 138 | 280 | 92 | 248 | 152 | 123 | 67 | 3800 | 379 | 288 | 232 |
| 20 | 121 | 151 | 234 | 83 | 267 | 149 | 105 | 77 | 4090 | 323 | 325 | 255 |
| 21 | 119 | 163 | 222 | 76 | 316 | 188 | 104 | 118 | 4090 | 296 | 324 | 254 |
| 22 | 107 | 176 | 185 | 77 | 254 | 158 | 104 | 144 | 3880 | 394 | 352 | 283 |
| 23 | 108 | 138 | 150 | 76 | 235 | 132 | 121 | 105 | 2560 | 407 | 325 | 297 |
| 24 | 109 | 122 | 139 | 85 | 262 | 149 | 84 | 78 | 397 | 459 | 339 | 278 |
| 25 | 109 | 135 | 130 | 93 | 253 | 177 | 127 | 69 | 374 | 414 | 365 | 293 |
| 26 | 109 | 171 | 122 | 89 | 236 | 177 | 127 | 71 | 383 | 377 | 366 | 304 |
| 27 | 111 | 177 | 112 | 83 | 215 | 170 | 125 | 295 | 387 | 377 | 340 | 281 |
| 28 | 112 | 149 | 112 | 82 | 227 | 164 | 127 | 51 | 385 | 322 | 313 | 283 |
| 29 | 120 | 139 | 112 | 82 | --- | 153 | 119 | 53 | 383 | 297 | 312 | 311 |
| 30 | 138 | 196 | 121 | 87 | --- | 112 | 83 | 49 | 381 | 375 | 311 | 310 |
| 31 | 136 | --- | 148 | 82 | --- | 136 | --- | 111 | --- | 376 | 293 | --- |
| TOTAL | 4553 | 4910 | 6296 | 3266 | 4532 | 4500 | 4256 | 2615 | 28260 | 11906 | 10843 | 6994 |
| MEAN | 147 | 164 | 203 | 105 | 162 | 145 | 142 | 84.4 | 942 | 384 | 350 | 233 |
| MAX | 239 | 230 | 299 | 163 | 316 | 231 | 187 | 295 | 4090 | 560 | 405 | 311 |
| MIN | 94 | 120 | 112 | 76 | 56 | 79 | 83 | 47 | 61 | 296 | 192 | 140 |
| AC-FT | 9030 | 9740 | 12490 | 6480 | 8990 | 8930 | 8440 | 5190 | 56050 | 23620 | 21510 | 13870 |

CAL YR 1980 TOTAL 72807 MEAN 199 MAX 428 MIN 35 AC-FT 144400
WTR YR 1981 TOTAL 92931 MEAN 255 MAX 4090 MIN 47 AC-FT 184300

08053000 ELM FORK TRINITY RIVER NEAR LEWISVILLE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1981 (discontinued).

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: November 1976 to September 1980.

INSTRUMENTATION.--Water temperature was recorded continuously at this station (November 1976 to September 1980).

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 33.0°C July 27, 1977; minimum, 0.0°C Jan. 31 and Feb. 9, 1979.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH FIELD (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, BIOCHEM UNINHIB 5 DAY (MG/L) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN 14... | 1645 | 108 | 378 | 8.1 | 7.5 | 20 | 5.8 | 11.7 | 99 | .6 | 120 | 14 |
| MAY 18... | 1830 | 74 | 435 | 7.9 | 24.5 | 40 | 20 | 8.7 | 106 | 1.9 | 140 | 34 |
| AUG 05... | 1530 | 397 | 344 | 7.8 | 28.5 | 5 | 1.5 | 7.8 | 101 | 1.0 | 110 | 16 |

| 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 (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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN 14... | 43 | 4.1 | 24 | .9 | 4.9 | 110 | 47 | 24 | .4 | 3.5 | 217 |
| MAY 18... | 50 | 4.7 | 28 | 1.0 | 5.2 | 110 | 55 | 27 | .3 | 4.3 | 241 |
| AUG 05... | 38 | 3.9 | 20 | .9 | 5.4 | 95 | 36 | 19 | .3 | 4.5 | 184 |

| DATE | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (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) | CARBON, ORGANIC TOTAL (MG/L AS C) | CARBON, ORGANIC DIS-SOLVED (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN 14... | 7 | 7 | .55 | .010 | .56 | .060 | 1.0 | 1.1 | .060 | 5.7 | -- |
| MAY 18... | 26 | 15 | .74 | .160 | .90 | .410 | 1.1 | 1.5 | .380 | 8.2 | 8.2 |
| AUG 05... | 0 | 0 | .09 | .030 | .12 | .200 | .72 | .92 | .030 | 7.4 | -- |

| DATE | TIME | ARSENIC DIS-SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| JAN 14... | 1645 | 1 | 50 | <1 | 0 | <10 | 20 |
| MAY 18... | 1830 | 2 | 50 | <1 | 10 | <10 | 20 |
| AUG 05... | 1530 | 4 | 40 | <1 | 0 | <10 | <10 |

| DATE | 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) |
|---|---|---|---|---|---|---|
| JAN 14... | 20 | 7 | .1 | 0 | 0 | 10 |
| MAY 18... | 23 | 20 | .0 | 0 | 0 | 3 |
| AUG 05... | <10 | 80 | .0 | 0 | 0 | <3 |

## 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 (30 m) upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 2.2 mi (3.5 km) north of Justin, 3.0 mi (4.8 km) upstream from Olivers Creek, 12.9 mi (20.8 km) upstream from Harriet Creek, and 32.9 mi (52.9 km) upstream from Grapevine Dam.

DRAINAGE AREA.--400 $mi^2$ (1,036 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1949 to current year.

REVISED RECORDS.--WSP 1732: 1950(M). WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 606.66 ft (184.910 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. 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 (65.0 $hm^3$). These structures control runoff from 197 $mi^2$ (510 $km^2$) in the Denton Creek watershed.

AVERAGE DISCHARGE.--31 years (water years 1950-80) prior to completion of floodwater-retarding structures, 77.4 $ft^3/s$ (2.192 $m^3/s$), 56,080 acre-ft/yr (69.1 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,800 $ft^3/s$ (844 $m^3/s$) May 24, 1957, gage height, 17.64 ft (5.377 m); 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 (6.28 m) at site about 1,500 ft (457 m) upstream, from information by local resident. Flood in May 1908 reached a stage about 1.0 ft (0.30 m) higher than flood in May 1935, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,360 $ft^3/s$ (38.5 $m^3/s$) May 28 at 1100 hours, gage height, 9.60 ft (2.926 m); no flow for many days. Supplemental peaks above base were discontinued this year due to regulation by floodwater-retarding structures upstream.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 23 | 2.4 | .00 | 1.9 | 8.8 | 32 | 14 | 200 | 508 | 8.7 | .00 | .00 |
| 2 | 8.3 | 1.8 | .00 | 1.9 | 11 | 21 | 12 | 259 | 283 | 8.0 | .00 | .00 |
| 3 | 3.9 | 1.3 | .00 | 1.8 | 11 | 39 | 12 | 121 | 181 | 23 | .00 | .00 |
| 4 | 1.8 | 1.2 | .00 | 1.8 | 11 | 675 | 15 | 77 | 198 | 22 | .00 | .00 |
| 5 | .95 | .85 | .00 | 1.9 | 11 | 207 | 13 | 50 | 423 | 16 | .00 | .00 |
| 6 | .60 | .59 | .00 | 2.1 | 11 | 104 | 10 | 32 | 534 | 11 | .00 | .00 |
| 7 | .21 | .32 | .00 | 2.4 | 13 | 210 | 9.8 | 22 | 655 | 8.3 | .00 | .00 |
| 8 | .03 | .12 | 15 | 2.6 | 14 | 407 | 9.4 | 24 | 252 | 6.7 | .00 | .00 |
| 9 | .00 | .04 | 74 | 2.9 | 15 | 194 | 9.4 | 426 | 137 | 5.7 | .00 | .00 |
| 10 | .00 | .00 | 14 | 3.1 | 17 | 113 | 9.3 | 168 | 91 | 5.0 | .00 | .00 |
| 11 | .00 | .00 | 3.6 | 3.8 | 16 | 81 | 9.0 | 75 | 71 | 4.5 | .00 | .00 |
| 12 | .00 | .00 | 1.5 | 3.1 | 7.8 | 63 | 8.6 | 49 | 61 | 4.1 | .00 | .00 |
| 13 | .00 | .00 | .80 | 2.9 | 5.5 | 53 | 8.3 | 33 | 55 | 3.7 | .00 | .00 |
| 14 | .00 | .00 | .47 | 2.9 | 6.8 | 43 | 8.0 | 24 | 50 | 3.3 | .00 | 1.6 |
| 15 | .00 | .00 | .36 | 3.4 | 7.9 | 36 | 7.5 | 21 | 47 | 2.7 | .00 | 27 |
| 16 | .00 | .00 | .33 | 3.3 | 10 | 29 | 7.8 | 53 | 77 | 2.1 | .00 | 13 |
| 17 | 12 | .00 | .26 | 3.0 | 13 | 25 | 8.4 | 53 | 64 | 1.7 | .00 | 3.9 |
| 18 | 2.5 | .00 | .17 | 3.3 | 14 | 23 | 9.1 | 121 | 49 | 1.5 | .00 | 1.8 |
| 19 | 5.4 | .00 | .09 | 2.8 | 16 | 21 | 12 | 92 | 41 | 1.2 | .00 | .67 |
| 20 | 2.7 | .00 | .04 | 4.1 | 18 | 18 | 11 | 45 | 33 | .90 | .00 | .20 |
| 21 | 1.1 | .00 | .08 | 5.6 | 19 | 17 | 13 | 26 | 28 | .58 | .00 | .03 |
| 22 | .35 | .00 | .11 | 6.8 | 18 | 16 | 132 | 19 | 24 | .30 | .00 | .00 |
| 23 | .08 | .00 | .23 | 6.8 | 18 | 14 | 80 | 16 | 24 | .10 | .00 | .00 |
| 24 | .00 | .00 | .35 | 6.7 | 18 | 13 | 51 | 31 | 22 | .02 | .00 | .00 |
| 25 | .00 | .00 | .37 | 6.8 | 19 | 13 | 29 | 708 | 19 | .00 | .00 | .00 |
| 26 | .00 | .00 | .50 | 7.0 | 20 | 15 | 18 | 319 | 18 | .00 | .00 | .00 |
| 27 | 80 | .00 | .85 | 7.2 | 21 | 16 | 12 | 618 | 16 | .00 | .00 | .00 |
| 28 | 94 | .00 | 1.1 | 8.7 | 25 | 17 | 10 | 1040 | 13 | .00 | .00 | .00 |
| 29 | 15 | .00 | 1.5 | 7.6 | --- | 32 | 30 | 650 | 12 | .00 | .00 | .00 |
| 30 | 5.7 | .00 | 1.6 | 7.5 | --- | 35 | 32 | 427 | 10 | .00 | .00 | .00 |
| 31 | 3.3 | --- | 1.8 | 7.6 | --- | 20 | --- | 368 | --- | .00 | .00 | --- |
| TOTAL | 260.92 | 8.62 | 119.11 | 133.3 | 395.8 | 2602 | 610.6 | 6167 | 3996 | 141.10 | .00 | 48.20 |
| MEAN | 8.42 | .29 | 3.84 | 4.30 | 14.1 | 83.9 | 20.4 | 199 | 133 | 4.55 | .000 | 1.61 |
| MAX | 94 | 2.4 | 74 | 8.7 | 25 | 675 | 132 | 1040 | 655 | 23 | .00 | 27 |
| MIN | .00 | .00 | .00 | 1.8 | 5.5 | 13 | 7.5 | 16 | 10 | .00 | .00 | .00 |
| AC-FT | 518 | 17 | 236 | 264 | 785 | 5160 | 1210 | 12230 | 7930 | 280 | .00 | 96 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 2172.18 | MEAN | 5.93 | MAX | 914 | MIN | .00 | AC-FT | 4310 |
| WTR YR 1981 | TOTAL | 14482.65 | MEAN | 39.7 | MAX | 1040 | MIN | .00 | AC-FT | 28730 |

08053500 DENTON CREEK NEAR JUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH FIELD (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, BIOCHEM UNINHIB 5 DAY (MG/L) | HARD-NESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 23... | 1245 | .04 | 375 | 7.4 | 17.0 | 30 | 5.6 | 6.8 | 71 | 2.5 | 160 |
| JAN | | | | | | | | | | | |
| 19... | 1345 | 2.9 | 601 | 7.8 | 4.0 | 5 | 2.1 | 10.5 | 81 | .9 | 260 |
| APR | | | | | | | | | | | |
| 08... | 1445 | 8.4 | 563 | 8.0 | 18.5 | 10 | 1.6 | 7.0 | 76 | 1.7 | 250 |
| JUN | | | | | | | | | | | |
| 04... | 1150 | 197 | 424 | 8.1 | 22.0 | 40 | 68 | 7.6 | 86 | 2.5 | 180 |
| JUL | | | | | | | | | | | |
| 16... | 0910 | 2.7 | 565 | 7.9 | 27.0 | 10 | 5.6 | 4.2 | 53 | 1.5 | 230 |
| SEP | | | | | | | | | | | |
| 16... | 1445 | 9.4 | 385 | 8.1 | 23.0 | 30 | 130 | 6.8 | 80 | 2.5 | 140 |

| DATE | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 (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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 23... | 20 | 56 | 5.0 | 12 | .4 | 4.8 | 140 | 35 | 13 | .3 | 8.5 |
| JAN | | | | | | | | | | | |
| 19... | 61 | 92 | 7.6 | 23 | .6 | 3.1 | 200 | 74 | 22 | .2 | 2.4 |
| APR | | | | | | | | | | | |
| 08... | 37 | 85 | 8.4 | 23 | .6 | 4.2 | 210 | 62 | 21 | .3 | 2.0 |
| JUN | | | | | | | | | | | |
| 04... | 20 | 64 | 4.9 | 12 | .4 | 5.2 | 160 | 22 | 21 | .2 | 13 |
| JUL | | | | | | | | | | | |
| 16... | 23 | 79 | 8.7 | 28 | .8 | 4.0 | 210 | 59 | 27 | .3 | 12 |
| SEP | | | | | | | | | | | |
| 16... | 33 | 46 | 6.8 | 21 | .8 | 6.6 | 110 | 45 | 20 | .3 | 8.8 |

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (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) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 23... | 219 | 12 | 1 | .15 | .000 | .15 | .050 | .71 | .76 | .060 | 10 |
| JAN | | | | | | | | | | | |
| 19... | 345 | 11 | 3 | .03 | .010 | .04 | .070 | .76 | .83 | .040 | 8.2 |
| APR | | | | | | | | | | | |
| 08... | 332 | 8 | 0 | .00 | .000 | .00 | .110 | .55 | .66 | .050 | 5.4 |
| JUN | | | | | | | | | | | |
| 04... | 239 | 124 | 46 | .17 | .020 | .19 | .220 | 1.1 | 1.3 | .170 | 11 |
| JUL | | | | | | | | | | | |
| 16... | 344 | 9 | 12 | .07 | .010 | .08 | .170 | .60 | .77 | .050 | 4.7 |
| SEP | | | | | | | | | | | |
| 16... | 221 | 58 | 13 | .23 | .100 | .33 | .250 | 1.4 | 1.6 | .320 | 9.9 |

08053500 DENTON CREEK NEAR JUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | ARSENIC DIS- SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 19... | 1345 | 1 | 80 | <1 | 0 | <10 | 20 |
| APR | | | | | | | |
| 08... | 1445 | 1 | 100 | 1 | 0 | <10 | 20 |
| JUL | | | | | | | |
| 16... | 0910 | 3 | 100 | <1 | 0 | <10 | <10 |

| DATE | 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) |
|---|---|---|---|---|---|---|
| JAN | | | | | | |
| 19... | <10 | 10 | .0 | 0 | 0 | 10 |
| APR | | | | | | |
| 08... | 14 | 20 | .0 | 0 | 0 | 4 |
| JUL | | | | | | |
| 16... | <10 | 10 | .1 | 0 | 0 | 10 |

## 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 (4.3 km) northeast of Grapevine, 4.3 mi (6.9 km) upstream from bridge on State Highway 121, and 11.7 mi (18.8 km) upstream from mouth.

DRAINAGE AREA.--695 mi² (1,800 km²).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1952 to current year. Prior to October 1970, published as Grapevine Reservoir.

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, nonrecording gage at site 1,000 ft (305 m) upstream at present datum.

REMARKS.--The lake is formed by a rolled earthfill dam 12,850 ft (3,917 m) long, including a 500-foot (150 m) uncontrolled off-channel concrete-gravity spillway with an ogee weir section. The dam was completed in June 1952 and deliberate impoundment began July 3, 1952. The controlled outlet works consist of a 13.0-foot-diameter (4.0 m) concrete conduit that is controlled by two 6.5- by 13.0-foot (2.0 by 4.0 m) broome-type gates and two 30-inch (762 mm) steel pipes with service valves. The capacity table used since April 1972 is based on a survey made in October 1966. The lake was built for flood control, navigation, and water conservation. The city of Dallas uses part of this water for their municipal supply. Inflow is affected at times by discharge from the flood-detention pools of 87 floodwater-retarding structures with a combined detention capacity of 57,850 acre-ft (71.3 hm³). These structures control runoff from 217 mi² (562 km²) in the Denton Creek watershed. Gage-height telemeter at station. Figures give 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 Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 445,800 acre-ft (550 hm³) June 6, 1957, elevation, 560.80 ft (170.932 m); minimum since lake first filled in 1957, 94,480 acre-ft (116 hm³) Feb. 26, 1979, elevation, 520.67 ft (158.700 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 171,600 acre-ft (212 hm³) June 19 at 1200 hours, elevation, 533.68 ft (162.666 m); minimum, 98,150 acre-ft (121 hm³) Feb. 24 at 2100 hours, elevation, 521.39 ft (158.920 m).

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

| | | | |
|---|---|---|---|
| 521.0 | 96,200 | 528.0 | 134,300 |
| 522.0 | 101,300 | 530.0 | 146,800 |
| 524.0 | 111,800 | 532.0 | 160,000 |
| 526.0 | 123,700 | 534.0 | 173,900 |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 106400 | 104300 | 102000 | 101800 | 99900 | 98820 | 109900 | 112100 | 145600 | 170100 | 165200 | 159100 |
| 2 | 106300 | 104300 | 101900 | 101800 | 99790 | 98770 | 109900 | 112600 | 147100 | 169900 | 165000 | 159200 |
| 3 | 106200 | 104300 | 101700 | 101700 | 99640 | 100300 | 110000 | 113100 | 148600 | 170300 | 164600 | 159100 |
| 4 | 106000 | 104200 | 101700 | 101600 | 99490 | 102600 | 110100 | 113400 | 150300 | 171400 | 164400 | 158900 |
| 5 | 105800 | 104100 | 101800 | 101400 | 99430 | 103400 | 110000 | 113600 | 157300 | 171500 | 164200 | 158700 |
| 6 | 105600 | 104000 | 101800 | 101500 | 99380 | 103600 | 109900 | 113600 | 163100 | 171300 | 163900 | 158500 |
| 7 | 105600 | 103900 | 101700 | 101300 | 99330 | 105200 | 109700 | 113500 | 166000 | 171100 | 163700 | 158500 |
| 8 | 105600 | 103800 | 103000 | 101300 | 99280 | 107000 | 109500 | 114300 | 167300 | 171000 | 163500 | 158300 |
| 9 | 105500 | 103800 | 103300 | 101200 | 99490 | 107900 | 109500 | 119500 | 167900 | 170800 | 163200 | 158000 |
| 10 | 105400 | 103600 | 103400 | 101200 | 99490 | 108300 | 109500 | 120800 | 168200 | 170600 | 162900 | 157700 |
| 11 | 105300 | 103600 | 103300 | 101200 | 99130 | 108600 | 109500 | 121300 | 168400 | 170500 | 162700 | 157500 |
| 12 | 105200 | 103600 | 103300 | 101100 | 98920 | 108700 | 109500 | 121400 | 168400 | 170300 | 162500 | 157400 |
| 13 | 104900 | 103600 | 103300 | 100900 | 98920 | 108800 | 109500 | 121700 | 168500 | 170100 | 162200 | 157500 |
| 14 | 104800 | 103400 | 103300 | 100900 | 98870 | 109000 | 109400 | 121600 | 168600 | 169900 | 162000 | 157700 |
| 15 | 104600 | 103300 | 103300 | 100800 | 98820 | 109100 | 109300 | 122000 | 169300 | 169500 | 161800 | 157600 |
| 16 | 104500 | 103300 | 103200 | 100800 | 98710 | 109100 | 109200 | 122400 | 170900 | 169400 | 161700 | 157300 |
| 17 | 105700 | 103400 | 103100 | 100600 | 98710 | 109100 | 109100 | 122600 | 171400 | 169100 | 161700 | 157100 |
| 18 | 105800 | 103200 | 103100 | 100500 | 98660 | 109100 | 109200 | 123100 | 171500 | 168900 | 161700 | 156800 |
| 19 | 105700 | 103100 | 103000 | 100500 | 98660 | 108900 | 109300 | 123300 | 171500 | 168700 | 161500 | 156500 |
| 20 | 105600 | 102900 | 102900 | 100500 | 98560 | 108800 | 109300 | 123300 | 171500 | 168400 | 161300 | 156100 |
| 21 | 105500 | 102900 | 102800 | 100500 | 98510 | 108900 | 109300 | 123200 | 171400 | 168200 | 161000 | 155900 |
| 22 | 105400 | 102900 | 102600 | 100400 | 98510 | 108700 | 110000 | 123200 | 171400 | 168000 | 160800 | 155700 |
| 23 | 105300 | 102900 | 102500 | 100400 | 98460 | 108500 | 111000 | 123500 | 171300 | 167600 | 160600 | 155500 |
| 24 | 105100 | 102800 | 102500 | 100300 | 98350 | 108500 | 111300 | 123900 | 171200 | 167300 | 160300 | 155400 |
| 25 | 104900 | 102700 | 102300 | 100200 | 98250 | 108500 | 111300 | 124000 | 171100 | 167100 | 160100 | 155200 |
| 26 | 104800 | 102600 | 102200 | 100200 | 98200 | 108500 | 111300 | 127700 | 170900 | 166800 | 159900 | 155100 |
| 27 | 104800 | 102500 | 102200 | 100100 | 98150 | 108400 | 111300 | 132800 | 170800 | 166500 | 159800 | 154900 |
| 28 | 104700 | 102300 | 102000 | 100100 | 98560 | 108400 | 111300 | 138700 | 170600 | 166400 | 159600 | 154600 |
| 29 | 104700 | 102200 | 102000 | 100000 | --- | 109900 | 111400 | 140100 | 170500 | 166100 | 159400 | 154500 |
| 30 | 104600 | 102100 | 102000 | 99850 | --- | 109900 | 111300 | 142200 | 170300 | 165900 | 159200 | 154300 |
| 31 | 104500 | --- | 101900 | 99790 | --- | 110000 | --- | 143300 | --- | 165500 | 158900 | --- |
| MAX | 106400 | 104300 | 103400 | 101800 | 99900 | 110000 | 111400 | 143300 | 171500 | 171500 | 165200 | 159200 |
| MIN | 104500 | 102100 | 101700 | 99790 | 98150 | 98770 | 109100 | 112100 | 145600 | 165500 | 158900 | 154300 |
| (†) | 522.61 | 522.15 | 522.11 | 521.71 | 521.07 | 523.65 | 523.91 | 529.45 | 533.49 | 532.81 | 531.84 | 531.15 |
| (‡) | -1700 | -2400 | -200 | -2110 | -1230 | +11440 | +1300 | +32000 | +27000 | -4000 | -6600 | -4600 |
| (††) | 137 | 117 | 94 | 83 | 79 | 144 | 143 | 150 | 168 | 244 | 241 | 184 |

CAL YR 1980 MAX 146900 MIN 101700 ‡ - 4300 †† 1890
WTR YR 1981 MAX 171500 MIN 98150 ‡ +48100 †† 1780

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, for municipal use by city of Grapevine.

08054500 GRAPEVINE LAKE NEAR GRAPEVINE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to current year.

325751097033001 GRAPEVINE LAKE SITE AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 15... | 0930 | 1.0 | 380 | 7.7 | 7.5 | 11.1 | 92 |
| 15... | 0932 | 10 | 380 | 7.7 | 7.5 | 11.1 | 92 |
| 15... | 0934 | 20 | 380 | 7.7 | 7.5 | 11.1 | 92 |
| 15... | 0936 | 30 | 380 | 7.7 | 7.5 | 11.1 | 92 |
| JUN | | | | | | | |
| 02... | 1020 | 1.0 | 375 | 8.2 | 24.5 | 7.4 | 90 |
| 02... | 1021 | 10 | 377 | 8.1 | 24.0 | 6.9 | 83 |
| 02... | 1022 | 20 | 382 | 8.0 | 23.5 | 6.6 | 79 |
| 02... | 1023 | 30 | 386 | 7.8 | 22.0 | 5.9 | 69 |
| 02... | 1024 | 40 | 388 | 7.8 | 21.5 | 5.6 | 64 |
| 02... | 1025 | 49 | 391 | 7.6 | 21.0 | 4.0 | 45 |
| AUG | | | | | | | |
| 04... | 1205 | 1.0 | 358 | 7.9 | 29.5 | 6.8 | 91 |
| 04... | 1206 | 10 | 358 | 7.9 | 29.5 | 6.8 | 91 |
| 04... | 1207 | 20 | 358 | 7.9 | 29.0 | 6.5 | 86 |
| 04... | 1208 | 30 | 374 | 7.1 | 27.0 | .2 | 3 |
| 04... | 1209 | 43 | 393 | 7.1 | 23.5 | .1 | 1 |

325822097030401 GRAPEVINE LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) | STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 15... | 0905 | 1.0 | 380 | 7.7 | 7.5 | .70 | 11.1 | 92 | <1 | K2 |
| 15... | 0906 | 1.2 | -- | -- | -- | -- | -- | -- | -- | -- |
| 15... | 0907 | 10 | 380 | 7.7 | 7.5 | -- | 11.1 | 92 | -- | -- |
| 15... | 0909 | 20 | 380 | 7.7 | 7.5 | -- | 11.1 | 92 | -- | -- |
| 15... | 0911 | 30 | 380 | 7.7 | 7.5 | -- | 11.1 | 92 | -- | -- |
| 15... | 0913 | 40 | 380 | 7.7 | 7.5 | -- | 11.1 | 92 | -- | -- |
| 15... | 0915 | 44 | 380 | 7.7 | 7.0 | -- | 11.0 | 91 | -- | -- |
| JUN | | | | | | | | | | |
| 02... | 1040 | 1.0 | 373 | 8.3 | 24.5 | .80 | 7.6 | 93 | 6 | 5 |
| 02... | 1041 | 1.4 | -- | -- | -- | -- | -- | -- | -- | -- |
| 02... | 1042 | 10 | 375 | 8.2 | 24.5 | -- | 7.5 | 91 | -- | -- |
| 02... | 1043 | 20 | 380 | 7.8 | 23.0 | -- | 5.9 | 69 | -- | -- |
| 02... | 1044 | 30 | 383 | 7.8 | 22.5 | -- | 5.9 | 69 | -- | -- |
| 02... | 1045 | 40 | 387 | 7.8 | 21.5 | -- | 5.9 | 68 | -- | -- |
| 02... | 1046 | 46 | 388 | 7.7 | 21.5 | -- | 5.4 | 62 | -- | -- |
| AUG | | | | | | | | | | |
| 04... | 1100 | 1.0 | 356 | 7.9 | 29.5 | 1.50 | 6.9 | 92 | K2 | K1 |
| 04... | 1101 | 2.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | 1102 | 10 | 356 | 7.9 | 29.5 | -- | 6.8 | 91 | -- | -- |
| 04... | 1103 | 20 | 356 | 7.8 | 29.0 | -- | 6.5 | 86 | -- | -- |
| 04... | 1104 | 25 | 360 | 7.3 | 28.5 | -- | 3.2 | 42 | -- | -- |
| 04... | 1105 | 30 | 380 | 7.1 | 26.0 | -- | .1 | 1 | -- | -- |
| 04... | 1106 | 40 | 390 | 7.1 | 23.5 | -- | .0 | 0 | -- | -- |
| 04... | 1107 | 51 | 402 | 7.0 | 22.0 | -- | .0 | 0 | -- | -- |

GRAPEVINE LAKE NEAR GRAPEVINE, TX--Continued

325822097030401 GRAPEVINE LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 15... | 130 | 21 | 42 | 6.4 | 24 | .9 | 4.7 | 110 | 38 | 25 |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 15... | 130 | 24 | 43 | 6.5 | 24 | .9 | 4.7 | 110 | 37 | 24 |
| JUN | | | | | | | | | | |
| 02... | 140 | 18 | 46 | 5.6 | 19 | .7 | 4.7 | 120 | 35 | 22 |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 02... | 140 | 18 | 46 | 5.7 | 18 | .7 | 4.5 | 120 | 36 | 23 |
| AUG | | | | | | | | | | |
| 04... | 130 | 8 | 42 | 5.5 | 18 | .7 | 5.9 | 120 | 25 | 21 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | 150 | 5 | 48 | 6.1 | 20 | .7 | 5.2 | 140 | 23 | 25 |

| DATE | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 15... | .4 | 1.0 | 208 | .16 | .91 | 1.1 | .030 | 10 | 2 |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 15... | -- | -- | -- | .15 | .78 | .93 | .030 | 10 | 10 |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 15... | -- | 1.0 | 206 | .18 | .71 | .89 | .030 | <10 | 2 |
| JUN | | | | | | | | | |
| 02... | .3 | 3.4 | 208 | .25 | .82 | 1.1 | .040 | <10 | <1 |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 02... | -- | -- | -- | .26 | .98 | 1.2 | .040 | 30 | 0 |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 02... | -- | -- | -- | .37 | .76 | 1.1 | .040 | 30 | 0 |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 02... | -- | 3.6 | 209 | .48 | 1.60 | 2.1 | .060 | <10 | 2 |
| AUG | | | | | | | | | |
| 04... | .2 | 5.3 | 195 | .10 | .87 | .97 | .030 | <10 | 2 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | .10 | .68 | .78 | .030 | 60 | 10 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | .10 | .81 | .91 | .030 | 20 | 700 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | 8.6 | 222 | .11 | 1.30 | 1.4 | .200 | 450 | 1200 |

GRAPEVINE LAKE NEAR GRAPEVINE, TX--Continued

325930097053801 GRAPEVINE LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) | STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 15... | 0950 | 1.0 | 380 | 7.7 | 7.5 | .60 | 11.0 | 92 | <1 | K2 |
| 15... | 0952 | 10 | 380 | 7.7 | 7.5 | -- | 11.0 | 92 | -- | -- |
| 15... | 0954 | 20 | 380 | 7.7 | 7.5 | -- | 11.0 | 92 | -- | -- |
| 15... | 0956 | 30 | 380 | 7.7 | 7.5 | -- | 10.9 | 91 | -- | -- |
| 15... | 0958 | 40 | 380 | 7.7 | 7.5 | -- | 10.9 | 91 | -- | -- |
| 15... | 1000 | 43 | 380 | 7.7 | 7.5 | -- | 10.9 | 91 | -- | -- |
| JUN | | | | | | | | | | |
| 02... | 1110 | 1.0 | 351 | 8.1 | 25.5 | .40 | 6.6 | 81 | 55 | 41 |
| 02... | 1112 | 10 | 352 | 8.1 | 25.5 | -- | 6.6 | 81 | -- | -- |
| 02... | 1114 | 20 | 367 | 7.8 | 24.0 | -- | 5.3 | 64 | -- | -- |
| 02... | 1115 | 25 | 385 | 7.8 | 22.0 | -- | 5.0 | 58 | -- | -- |
| 02... | 1116 | 30 | 387 | 7.7 | 21.5 | -- | 4.9 | 56 | -- | -- |
| 02... | 1117 | 41 | 388 | 7.7 | 21.5 | -- | 4.7 | 54 | -- | -- |
| AUG | | | | | | | | | | |
| 04... | 1225 | 1.0 | 354 | 7.8 | 30.5 | 1.00 | 7.1 | 96 | K10 | <1 |
| 04... | 1226 | 10 | 354 | 7.8 | 30.0 | -- | 6.9 | 93 | -- | -- |
| 04... | 1227 | 20 | 354 | 8.0 | 29.5 | -- | 6.8 | 91 | -- | -- |
| 04... | 1228 | 25 | 367 | 7.1 | 28.5 | -- | 1.0 | 13 | -- | -- |
| 04... | 1229 | 30 | 375 | 7.1 | 27.0 | -- | .2 | 3 | -- | -- |
| 04... | 1230 | 38 | 392 | 7.0 | 25.0 | -- | .2 | 2 | -- | -- |

| DATE | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 15... | 130 | 22 | 42 | 6.6 | 23 | .9 | 4.6 | 110 | 37 |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 15... | 130 | 22 | 42 | 6.5 | 25 | .9 | 4.7 | 110 | 39 |
| JUN | | | | | | | | | |
| 02... | 130 | 10 | 44 | 4.9 | 16 | .6 | 5.0 | 120 | 32 |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 02... | 140 | 21 | 47 | 5.8 | 19 | .7 | 4.6 | 120 | 35 |
| AUG | | | | | | | | | |
| 04... | 130 | 16 | 41 | 5.7 | 18 | .7 | 6.0 | 110 | 31 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | 140 | 4 | 48 | 5.9 | 19 | .7 | 5.5 | 140 | 25 |

| DATE | CHLORIDE, DISSOLVED (MG/L AS CL) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 15... | 25 | 1.1 | 205 | .15 | .74 | .89 | .030 | <10 | 2 |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 15... | -- | -- | -- | .15 | 1.10 | 1.3 | .030 | 10 | 10 |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 15... | 25 | 1.1 | 209 | .15 | .78 | .93 | .040 | 10 | 4 |
| JUN | | | | | | | | | |
| 02... | 19 | 4.8 | 198 | .28 | 1.10 | 1.4 | .060 | <10 | <1 |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 02... | -- | -- | -- | .32 | .99 | 1.3 | .060 | 20 | 10 |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 02... | -- | -- | -- | .42 | .83 | 1.3 | .050 | 20 | 10 |
| 02... | 23 | 4.2 | 211 | .41 | .94 | 1.4 | .070 | 10 | 30 |
| AUG | | | | | | | | | |
| 04... | 23 | 5.4 | 196 | <.10 | .77 | -- | .030 | <10 | 5 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | <.10 | .75 | -- | .030 | 20 | 40 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | -- | -- | -- | .10 | .67 | .77 | .040 | 30 | 320 |
| 04... | 24 | 8.3 | 222 | .11 | 1.10 | 1.2 | .100 | 900 | 1100 |

GRAPEVINE LAKE NEAR GRAPEVINE, TX--Continued

325933097081401 GRAPEVINE LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 15... | 1020 | 1.0 | 381 | 7.8 | 7.0 | .40 | 11.4 |
| 15... | 1022 | 4.0 | 381 | 7.8 | 7.0 | -- | 11.4 |
| JUN | | | | | | | |
| 02... | 1200 | 1.0 | 330 | 8.1 | 26.5 | .30 | 6.3 |
| 02... | 1201 | 9.0 | 330 | 8.0 | 26.0 | -- | 6.2 |
| AUG | | | | | | | |
| 04... | 1315 | 1.0 | 356 | 7.9 | 30.5 | .80 | 7.0 |
| 04... | 1316 | 10 | 356 | 7.8 | 29.5 | -- | 6.4 |
| 04... | 1317 | 15 | 356 | 7.7 | 29.5 | -- | 5.8 |

| DATE | OXYGEN, DISSOLVED (PERCENT SATURATION) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 15... | 94 | .13 | .83 | .96 | .030 | 10 | 10 |
| 15... | 94 | .13 | 1.10 | 1.2 | .030 | 20 | 10 |
| JUN | | | | | | | |
| 02... | 79 | .28 | 1.00 | 1.3 | .070 | 30 | 10 |
| 02... | 78 | .27 | 1.10 | 1.4 | .070 | 20 | 10 |
| AUG | | | | | | | |
| 04... | 95 | .10 | .82 | .92 | .030 | 0 | 0 |
| 04... | 85 | -- | -- | -- | -- | -- | -- |
| 04... | 77 | .10 | .75 | .85 | .040 | 60 | 0 |

330106097094601 GRAPEVINE LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|
| JUN | | | | | | | |
| 02... | 1225 | 1.0 | 327 | 7.9 | 26.5 | .20 | 6.0 |
| 02... | 1226 | 5.0 | 316 | 7.7 | 25.5 | -- | 5.1 |
| 02... | 1227 | 10 | 297 | 7.6 | 25.0 | -- | 4.5 |
| AUG | | | | | | | |
| 04... | 1400 | 1.0 | 364 | 7.9 | 31.5 | .80 | 7.2 |
| 04... | 1401 | 12 | 364 | 7.7 | 30.5 | -- | 5.7 |

| DATE | OXYGEN, DISSOLVED (PERCENT SATURATION) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|
| JUN | | | | | | | |
| 02... | 75 | .23 | 1.20 | 1.4 | .110 | 0 | 10 |
| 02... | 63 | -- | -- | -- | -- | -- | -- |
| 02... | 55 | .39 | 1.40 | 1.8 | .110 | 10 | 10 |
| AUG | | | | | | | |
| 04... | 99 | .10 | .95 | 1.1 | .050 | 0 | 0 |
| 04... | 77 | <.10 | .85 | -- | .060 | 0 | 20 |

330207097103701 GRAPEVINE LAKE SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) | STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 15... | 1055 | 2.0 | 382 | 7.9 | 7.0 | .20 | 11.4 | 94 | <1 | <1 |
| 15... | 1056 | .4 | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | |
| 02... | 1240 | 1.0 | 285 | 7.6 | 24.5 | .20 | 5.3 | 65 | 530 | 2900 |
| 02... | 1241 | .2 | -- | -- | -- | -- | -- | -- | -- | -- |
| 02... | 1242 | 9.0 | 257 | 7.5 | 24.0 | -- | 4.4 | 53 | -- | -- |
| AUG | | | | | | | | | | |
| 04... | 1415 | 1.0 | 365 | 8.0 | 31.5 | .50 | 7.5 | 103 | K1 | K5 |
| 04... | 1416 | .8 | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | 1417 | 12 | 365 | 7.4 | 30.5 | -- | 4.1 | 55 | -- | -- |

| DATE | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 15... | 130 | 25 | 43 | 6.6 | 24 | .9 | 4.7 | 110 | 38 |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | |
| 02... | 110 | 9 | 39 | 2.9 | 8.7 | .4 | 6.0 | 100 | 2.4 |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 02... | 100 | 5 | 37 | 2.6 | 8.0 | .3 | 6.1 | 98 | 2.0 |
| AUG | | | | | | | | | |
| 04... | 130 | 21 | 43 | 5.7 | 19 | .8 | 6.3 | 110 | 31 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | 130 | 18 | 42 | 5.6 | 19 | .8 | 6.3 | 110 | 30 |

| DATE | CHLORIDE, DISSOLVED (MG/L AS CL) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 15... | 25 | 1.1 | 209 | .13 | .86 | .99 | .030 | <10 | 1 |
| 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | |
| 02... | 18 | 11 | 148 | .41 | 1.50 | 1.9 | .180 | 20 | 1 |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 02... | 20 | 11 | 146 | .45 | 1.30 | 1.8 | .220 | 40 | 2 |
| AUG | | | | | | | | | |
| 04... | 23 | 5.8 | 200 | <.10 | .80 | -- | .050 | <10 | 5 |
| 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 04... | 23 | 5.8 | 198 | <.10 | 1.10 | -- | .090 | <10 | 94 |

GRAPEVINE LAKE NEAR GRAPEVINE, TX--Continued

325822097030401 GRAPEVINE LAKE SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | JAN 15,81 | JUN 2,81 | AUG 4,81 |
|---|---|---|---|
| TIME | 0906 | 1041 | 1101 |
| TOTAL CELLS/ML | 1600 | 3800 | 210000 |
| DIVERSITY: DIVISION | 0.8 | 1.4 | 0.1 |
| .CLASS | 0.8 | 1.4 | 0.1 |
| ..ORDER | 1.6 | 2.0 | 0.8 |
| ...FAMILY | 1.7 | 2.2 | 1.5 |
| ....GENUS | 1.8 | 2.6 | 2.1 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...CHARACIACEAE | | | | | | |
| ....SCHROEDERIA | 13 | 1 | * | 0 | -- | - |
| ...COELASTRACEAE | | | | | | |
| ....COELASTRUM | -- | - | 230 | 6 | -- | - |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | 90 | 6 | -- | - | * | 0 |
| ....OOCYSTIS | -- | - | 72 | 2 | * | 0 |
| ....SELENASTRUM | -- | - | -- | - | * | 0 |
| ...SCENEDESMACEAE | | | | | | |
| ....CRUCIGENIA | -- | - | 230 | 6 | -- | - |
| ....SCENEDESMUS | -- | - | -- | - | * | 0 |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CHLAMYDOMONAS | -- | - | 290 | 8 | * | 0 |
| ...PHACOTACEAE | | | | | | |
| ....PHACOTUS | -- | - | -- | - | * | 0 |
| CHRYSOPHYTA | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..CENTRALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | 51 | 3 | 720# | 19 | -- | - |
| ....MELOSIRA | 64 | 4 | 29 | 1 | -- | - |
| ....STEPHANODISCUS | 51 | 3 | -- | - | -- | - |
| ..PENNALES | | | | | | |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | -- | - | -- | - | * | 0 |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | |
| .CRYPTOPHYCEAE | | | | | | |
| ..CRYPTOMONADALES | | | | | | |
| ...CRYPTOMONADACEAE | | | | | | |
| ....CRYPTOMONAS | -- | - | -- | - | * | 0 |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....AGMENELLUM | -- | - | 1400# | 36 | 12000 | 6 |
| ....ANACYSTIS | 770# | 48 | 480 | 13 | 28000 | 14 |
| ..HORMOGONALES | | | | | | |
| ...NOSTOCACEAE | | | | | | |
| ....ANABAENA | -- | - | 360 | 9 | -- | - |
| ....CYLINDROSPERMUM | -- | - | -- | - | 46000# | 22 |
| ...OSCILLATORIACEAE | | | | | | |
| ....LYNGBYA | 570# | 35 | -- | - | 27000 | 13 |
| ....OSCILLATORIA | -- | - | -- | - | 92000# | 44 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

330207097103701 GRAPEVINE LAKE SITE EC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | JAN 15,81 | JUN 2,81 | AUG 4,81 |
|---|---|---|---|
| TIME | 1056 | 1241 | 1416 |
| TOTAL CELLS/ML | 530 | 7600 | 230000 |
| DIVERSITY: DIVISION | 0.9 | 1.7 | 0.3 |
| .CLASS | 0.9 | 1.7 | 0.3 |
| ..ORDER | 1.2 | 2.2 | 1.2 |
| ...FAMILY | 1.2 | 2.8 | 1.4 |
| ....GENUS | 2.0 | 3.7 | 2.6 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...CHARACIACEAE | | | | | | |
| ....SCHROEDERIA | -- | - | 56 | 1 | -- | - |
| ...COELASTRACEAE | | | | | | |
| ....COELASTRUM | -- | - | 420 | 6 | -- | - |
| ...MICRACTINIACEAE | | | | | | |
| ....MICRACTINIUM | -- | - | -- | - | * | 0 |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | 140# | 27 | 480 | 6 | * | 0 |
| ....DICTYOSPHAERIUM | 260# | 49 | 340 | 4 | -- | - |
| ....GLOEOACTINIUM | -- | - | -- | - | 1400 | 1 |
| ....KIRCHNERIELLA | -- | - | * | 0 | * | 0 |
| ....OOCYSTIS | -- | - | 84 | 1 | -- | - |
| ....TREUBARIA | -- | - | -- | - | * | 0 |
| ...SCENEDESMACEAE | | | | | | |
| ....ACTINASTRUM | -- | - | 220 | 3 | -- | - |
| ....CRUCIGENIA | -- | - | 420 | 6 | -- | - |
| ....SCENEDESMUS | -- | - | 280 | 4 | * | 0 |
| ....TETRASTRUM | -- | - | 110 | 1 | -- | - |
| ..TETRASPORALES | | | | | | |
| ...PALMELLACEAE | | | | | | |
| ....SPHAEROCYSTIS | -- | - | -- | - | * | 0 |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CHLAMYDOMONAS | 13 | 2 | 250 | 3 | * | 0 |
| ...PHACOTACEAE | | | | | | |
| ....PHACOTUS | -- | - | -- | - | 2300 | 1 |
| ..ZYGNEMATALES | | | | | | |
| ...DESMIDIACEAE | | | | | | |
| ....COSMARIUM | -- | - | -- | - | * | 0 |
| CHRYSOPHYTA | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..CENTRALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | 26 | 5 | 810 | 11 | * | 0 |
| ....MELOSIRA | -- | - | 360 | 5 | * | 0 |
| ....STEPHANODISCUS | 26 | 5 | -- | - | -- | - |
| ..PENNALES | | | | | | |
| ...ACHNANTHACEAE | | | | | | |
| ....ACHNANTHES | -- | - | 56 | 1 | -- | - |
| ...FRAGILARIACEAE | | | | | | |
| ....SYNEDRA | -- | - | * | 0 | -- | - |
| ...NAVICULACEAE | | | | | | |
| ....DIPLONEIS | -- | - | * | 0 | -- | - |
| ....NAVICULA | -- | - | 110 | 1 | -- | - |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | 51 | 10 | 560 | 7 | -- | - |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | |
| .CRYPTOPHYCEAE | | | | | | |
| ..CRYPTOMONADALES | | | | | | |
| ...CRYPTOMONADACEAE | | | | | | |
| ....CRYPTOMONAS | -- | - | -- | - | * | 0 |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....AGMENELLUM | -- | - | 1800# | 24 | 55000# | 24 |
| ....ANACYSTIS | -- | - | 930 | 12 | 57000# | 24 |
| ....EUCAPSIS | -- | - | -- | - | 26000 | 11 |
| ..HORMOGONALES | | | | | | |
| ...NOSTOCACEAE | | | | | | |
| ....ANABAENA | -- | - | 110 | 1 | 5700 | 2 |
| ....CYLINDROSPERMUM | -- | - | -- | - | 3200 | 1 |
| ...OSCILLATORIACEAE | | | | | | |
| ....LYNGBYA | -- | - | -- | - | 11000 | 5 |
| ....OSCILLATORIA | -- | - | -- | - | 69000# | 29 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....EUGLENA | 13 | 2 | 110 | 1 | -- | - |
| ....TRACHELOMONAS | -- | - | * | 0 | * | 0 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 08055000 DENTON CREEK NEAR GRAPEVINE, TX

LOCATION.--Lat 32°59'13", long 97°00'45", Denton County, Hydrologic Unit 12030104, on left bank at downstream side of left pier of bridge on State Highway 121, 1.3 mi (2.1 km) downstream from Bakers Branch, 4.1 mi (6.6 km) downstream from Grapevine Dam, 5.0 mi (8.0 km) northeast of Grapevine, and 6.1 mi (9.8 km) upstream from mouth.

DRAINAGE AREA.--705 $mi^2$ (1,826 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1947 to current year.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 439.11 ft (133.841 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow regulated by Grapevine Lake since July 1952 (see preceding page). Much of flow is used by the city of Dallas for municipal supply (see station 08055500). Records furnished by the Corps of Engineers indicate that 1,780 acre-ft (2.19 $hm^3$) was diverted during year from Denton Creek just downstream from Grapevine Dam. Several observations of water temperature were made during the year. Gage-height telemeter (DARDC) located at station. DARDC telemeter removed on Nov. 20, 1980. On Jan. 7, 1982, telemeter (data collection platform, solar panel, battery, and antenna) was installed at station.

AVERAGE DISCHARGE.--5 years (water years 1948-52), prior to regulation, 140 $ft^3/s$ (3.965 $m^3/s$), 101,400 acre-ft/yr (126 $hm^3/yr$); 29 years (water years 1953-81), regulated, unadjusted, 132 $ft^3/s$ (3.738 $m^3/s$), 95,630 acre-ft/yr (118 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,900 $ft^3/s$ (394 $m^3/s$) Feb. 26, 1948, gage height, 30.38 ft (9.260 m), from rating curve extended above 6,000 $ft^3/s$ (170 $m^3/s$) on basis of conveyance-slope study; no flow at times. Maximum discharge since construction of Grapevine Dam in 1952, 6,430 $ft^3/s$ (182 $m^3/s$) Sept. 21, 1964, gage height, 26.50 ft (8.077 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1908 was slightly higher than the flood in April 1942, which reached a stage of 35.9 ft (10.94 m), from floodmarks, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,140 $ft^3/s$ (323 $m^3/s$) June 5 at 1430 hours, gage height, 13.61 ft (4.148 m); minimum daily, 16 $ft^3/s$ (0.45 $m^3/s$) Oct. 4, 5, 21-23, Nov. 2-4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 17 | 18 | 23 | 24 | 25 | 27 | 25 | 56 | 97 | 24 | 42 | 42 |
| 2 | 17 | 16 | 23 | 24 | 25 | 25 | 25 | 27 | 92 | 24 | 42 | 42 |
| 3 | 17 | 16 | 23 | 24 | 25 | 82 | 27 | 28 | 83 | 27 | 42 | 42 |
| 4 | 16 | 16 | 23 | 24 | 25 | 71 | 27 | 27 | 67 | 42 | 42 | 43 |
| 5 | 16 | 17 | 24 | 23 | 26 | 35 | 26 | 27 | 442 | 27 | 42 | 42 |
| 6 | 17 | 18 | 24 | 24 | 24 | 33 | 27 | 27 | 41 | 25 | 42 | 41 |
| 7 | 17 | 18 | 24 | 24 | 25 | 53 | 24 | 27 | 29 | 24 | 43 | 42 |
| 8 | 17 | 19 | 45 | 24 | 24 | 37 | 25 | 32 | 28 | 24 | 43 | 41 |
| 9 | 18 | 20 | 26 | 24 | 25 | 32 | 26 | 56 | 26 | 25 | 41 | 39 |
| 10 | 18 | 20 | 24 | 24 | 24 | 30 | 23 | 28 | 24 | 23 | 38 | 34 |
| 11 | 19 | 19 | 24 | 24 | 24 | 30 | 24 | 26 | 24 | 22 | 40 | 32 |
| 12 | 20 | 20 | 24 | 24 | 24 | 29 | 22 | 25 | 24 | 22 | 42 | 32 |
| 13 | 21 | 21 | 24 | 24 | 24 | 28 | 20 | 25 | 24 | 22 | 41 | 33 |
| 14 | 21 | 21 | 24 | 24 | 24 | 28 | 22 | 24 | 26 | 22 | 41 | 36 |
| 15 | 21 | 21 | 23 | 25 | 24 | 28 | 24 | 29 | 34 | 22 | 41 | 35 |
| 16 | 22 | 23 | 23 | 24 | 24 | 27 | 22 | 31 | 71 | 21 | 41 | 34 |
| 17 | 32 | 23 | 23 | 24 | 24 | 25 | 22 | 28 | 30 | 21 | 47 | 33 |
| 18 | 18 | 22 | 23 | 24 | 24 | 25 | 24 | 28 | 24 | 21 | 44 | 32 |
| 19 | 17 | 20 | 23 | 24 | 24 | 25 | 25 | 29 | 22 | 20 | 43 | 32 |
| 20 | 17 | 20 | 23 | 25 | 24 | 26 | 23 | 27 | 20 | 23 | 42 | 32 |
| 21 | 16 | 20 | 24 | 25 | 25 | 25 | 24 | 27 | 19 | 28 | 41 | 31 |
| 22 | 16 | 21 | 26 | 25 | 25 | 25 | 24 | 27 | 18 | 28 | 42 | 31 |
| 23 | 16 | 19 | 23 | 25 | 25 | 25 | 31 | 28 | 18 | 27 | 41 | 31 |
| 24 | 17 | 34 | 24 | 25 | 25 | 25 | 25 | 29 | 18 | 28 | 41 | 31 |
| 25 | 17 | 22 | 24 | 25 | 25 | 25 | 25 | 31 | 18 | 28 | 39 | 31 |
| 26 | 17 | 23 | 25 | 24 | 27 | 26 | 24 | 26 | 18 | 28 | 39 | 32 |
| 27 | 17 | 23 | 24 | 24 | 25 | 25 | 24 | 58 | 19 | 32 | 41 | 31 |
| 28 | 17 | 23 | 24 | 25 | 29 | 26 | 26 | 29 | 21 | 42 | 41 | 31 |
| 29 | 18 | 23 | 24 | 25 | --- | 27 | 23 | 27 | 23 | 41 | 40 | 32 |
| 30 | 18 | 23 | 23 | 25 | --- | 26 | 22 | 42 | 23 | 40 | 40 | 32 |
| 31 | 18 | --- | 23 | 26 | --- | 26 | --- | 87 | --- | 42 | 40 | --- |
| TOTAL | 565 | 619 | 757 | 755 | 694 | 977 | 731 | 1018 | 1423 | 845 | 1284 | 1052 |
| MEAN | 18.2 | 20.6 | 24.4 | 24.4 | 24.8 | 31.5 | 24.4 | 32.8 | 47.4 | 27.3 | 41.4 | 35.1 |
| MAX | 32 | 34 | 45 | 26 | 29 | 82 | 31 | 87 | 442 | 42 | 47 | 43 |
| MIN | 16 | 16 | 23 | 23 | 24 | 25 | 20 | 24 | 18 | 20 | 38 | 31 |
| AC-FT | 1120 | 1230 | 1500 | 1500 | 1380 | 1940 | 1450 | 2020 | 2820 | 1680 | 2550 | 2090 |

CAL YR 1980 TOTAL 16762.7 MEAN 45.8 MAX 116 MIN 2.4 AC-FT 33250
WTR YR 1981 TOTAL 10720.0 MEAN 29.4 MAX 442 MIN 16 AC-FT 21260

08055000 DENTON CREEK NEAR GRAPEVINE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH FIELD (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, BIOCHEM UNINHIB 5 DAY (MG/L) | HARD-NESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | | |
| 15... | 1245 | 25 | 386 | 7.8 | 6.5 | 5 | 1.2 | 11.9 | 98 | .5 | 140 |
| JUN | | | | | | | | | | | |
| 02... | 1430 | 64 | 393 | 7.9 | 23.0 | 20 | 46 | 6.2 | 73 | 1.5 | 140 |
| AUG | | | | | | | | | | | |
| 04... | 1600 | 44 | 364 | 7.7 | 29.0 | 10 | 6.7 | 6.8 | 89 | .8 | 130 |

| DATE | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 (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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | | |
| 15... | 28 | 45 | 6.2 | 23 | .9 | 4.5 | 110 | 41 | 26 | .4 | .9 |
| JUN | | | | | | | | | | | |
| 02... | 22 | 47 | 5.9 | 23 | .8 | 5.0 | 120 | 39 | 24 | .3 | 4.2 |
| AUG | | | | | | | | | | | |
| 04... | 8 | 42 | 5.5 | 19 | .8 | 5.3 | 120 | 30 | 18 | .3 | 5.7 |

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (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) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | | |
| 15... | 213 | 7 | 0 | .09 | .010 | .10 | .040 | .66 | .70 | .070 | 6.3 |
| JUN | | | | | | | | | | | |
| 02... | 221 | 50 | 14 | .32 | .020 | .34 | .290 | .60 | .89 | .110 | 6.7 |
| AUG | | | | | | | | | | | |
| 04... | 198 | 23 | 20 | .12 | .030 | .15 | .180 | .80 | .98 | .050 | 5.3 |

| DATE | TIME | ARSENIC DIS-SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 15... | 1245 | 1 | 60 | <1 | 0 | <10 | 20 |
| JUN | | | | | | | |
| 02... | 1430 | 1 | 100 | <1 | 0 | <10 | 20 |
| AUG | | | | | | | |
| 04... | 1600 | 2 | 60 | <1 | 0 | <10 | <10 |

| DATE | 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) |
|---|---|---|---|---|---|---|
| JAN | | | | | | |
| 15... | <10 | 10 | .0 | 0 | 0 | 20 |
| JUN | | | | | | |
| 02... | 14 | 10 | .0 | 0 | 0 | 10 |
| AUG | | | | | | |
| 04... | <10 | 5 | .1 | 0 | 0 | <3 |

## 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 (12 m) upstream from Carrollton Dam, 0.3 mi (0.5 km) downstream from Denton Creek, 1.0 mi (1.6 km) upstream from St. Louis Southwestern Railway Lines bridge, 2.3 mi (3.7 km) northwest of Carrollton, and 18.2 mi (29.3 km) upstream from mouth.

DRAINAGE AREA.--2,459 mi² (6,369 km²).

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 433.40 ft (132.100 m) National Geodetic Vertical Datum of 1929. Prior to November 1923, nonrecording gage at site 15.5 mi (24.9 km) downstream at different datum. Nov. 1, 1923, to Nov. 13, 1934, nonrecording gage, and Nov. 14, 1934, to July 6, 1938, water-stage recorder at present site and datum. July 7, 1938, to Apr. 14, 1939, nonrecording gage at site 9.3 mi (15.0 km) downstream at datum 22.94 ft (6.992 m) lower. Apr. 15, 1939, to Sept. 30, 1955, water-stage recorder at site 8.5 mi (13.7 km) downstream at datum 22.94 ft (6.992 m) lower.

REMARKS.--Records good. Flow is largely regulated by Lewisville Lake (station 08052800) since November 1954 and by Grapevine Lake (station 08054500) since July 1952. Records furnished by the city of Dallas show that during the year 103,900 acre-ft (128 hm³) was diverted from pool at gage and 69,200 acre-ft (85.3 hm³) was diverted from river channel 14 mi (23 km) downstream for municipal use. Also, 1,870 acre-ft (2.31 hm³) was returned from a water treatment plant to the river below this station. Records furnished by the Dallas Power and Light Co. show that during the year 4,080 acre-ft (5.03 hm³) was diverted from pool at gage into North Lake for cooling water at electric generating plant. Several observations of water temperature were made during the year. Gage-height telemeters located at station. An additional gage-height telemeter was installed on Jan. 6, 1981.

AVERAGE DISCHARGE.--47 years (water years 1908-54), prior to regulation by Lewisville and Grapevine Lakes, 818 ft³/s (23.17 m³/s), 592,600 acre-ft/yr (731 hm³/yr); 27 years (water years 1955-81), regulated, unadjusted, 639 ft³/s (18.10 m³/s), 463,000 acre-ft/yr (571 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, about 17 ft (5.2 m) May 25, 1908, present site and datum, from information by local resident, estimated discharge, 145,000 ft³/s (4,110 m³/s), at site 8.5 mi (13.7 km) downstream (from information by Corps of Engineers); maximum gage height subsequent to 1908, 14.5 ft (4.42 m) Apr. 26, 1942, present site and datum, from observation by National Weather Service; discharge at site 8.5 mi (13.7 km) downstream, 90,700 ft³/s (2,570 m³/s); no flow at times.
Flood in 1866 reached about the same stage as flood of May 25, 1908.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,970 ft³/s (141 m³/s) June 5 at 1800 hours, gage height, 5.06 ft (1.542 m); no flow Oct. 23 to Nov. 8, May 20, 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 96 | .00 | 53 | 81 | 138 | 104 | 76 | 254 | 31 | 160 | 170 | 65 |
| 2 | 50 | .00 | 109 | 87 | 107 | 113 | 113 | 14 | 12 | 200 | 154 | 8.9 |
| 3 | 49 | .00 | 144 | 68 | 120 | 290 | 115 | 17 | 56 | 222 | 145 | 12 |
| 4 | 35 | .00 | 144 | 87 | 46 | 517 | 92 | 8.9 | 1.4 | 975 | 144 | 18 |
| 5 | 39 | .00 | 144 | 159 | 73 | 21 | 78 | 10 | 2110 | 658 | 155 | 17 |
| 6 | 58 | .00 | 100 | 164 | 60 | 29 | 62 | 34 | 686 | 371 | 172 | 48 |
| 7 | 23 | .00 | 103 | 156 | 43 | 107 | 52 | 37 | 115 | 363 | 201 | 104 |
| 8 | 13 | .00 | 268 | 160 | 38 | 48 | 72 | 57 | 109 | 338 | 123 | 112 |
| 9 | 54 | 7.3 | 11 | 162 | 74 | 8.9 | 63 | 319 | 232 | 252 | 124 | 80 |
| 10 | 78 | 53 | 91 | 159 | 78 | 38 | 59 | 26 | 230 | 223 | 189 | 10 |
| 11 | 76 | 60 | 101 | 148 | 38 | 34 | 94 | 15 | 225 | 236 | 188 | 37 |
| 12 | 52 | 49 | 112 | 150 | 22 | 36 | 91 | 13 | 224 | 231 | 189 | 96 |
| 13 | 40 | 51 | 95 | 164 | 39 | 35 | 63 | 16 | 227 | 201 | 166 | 93 |
| 14 | 61 | 70 | 104 | 157 | 95 | 104 | 77 | 14 | 310 | 195 | 164 | 101 |
| 15 | 21 | 3.1 | 62 | 154 | 113 | 113 | 109 | 23 | 544 | 142 | 175 | 9.3 |
| 16 | 8.5 | 35 | 32 | 140 | 121 | 51 | 69 | 73 | 2550 | 157 | 188 | 83 |
| 17 | 87 | 52 | 61 | 140 | 235 | 37 | 10 | 15 | 260 | 174 | 168 | 133 |
| 18 | .96 | 38 | 106 | 140 | 219 | 82 | 85 | 17 | 1480 | 166 | 34 | 115 |
| 19 | 11 | 22 | 154 | 142 | 173 | 89 | 48 | .87 | 3760 | 166 | 158 | 102 |
| 20 | 5.1 | 23 | 145 | 146 | 149 | 62 | 27 | .00 | 4020 | 124 | 200 | 150 |
| 21 | 2.8 | 29 | 133 | 130 | 221 | 115 | 23 | .00 | 4070 | 47 | 132 | 124 |
| 22 | .11 | 82 | 92 | 130 | 112 | 107 | 21 | .06 | 3880 | 137 | 199 | 133 |
| 23 | .00 | 36 | 52 | 130 | 128 | 59 | 86 | 38 | 2770 | 189 | 168 | 185 |
| 24 | .00 | 27 | 62 | 133 | 178 | 18 | 4.3 | 50 | 296 | 224 | 139 | 168 |
| 25 | .00 | 26 | 60 | 154 | 168 | 49 | 28 | 54 | 199 | 228 | 172 | 180 |
| 26 | .00 | 44 | 53 | 154 | 152 | 65 | 33 | 30 | 198 | 141 | 138 | 195 |
| 27 | .00 | 104 | 43 | 146 | 125 | 73 | 29 | 680 | 217 | 162 | 152 | 180 |
| 28 | .00 | 84 | 25 | 143 | 144 | 71 | 33 | 45 | 213 | 185 | 94 | 151 |
| 29 | .00 | 32 | 27 | 142 | --- | 91 | 77 | 35 | 200 | 54 | 95 | 184 |
| 30 | .00 | 61 | 17 | 144 | --- | 9.8 | 35 | 18 | 176 | 156 | 91 | 201 |
| 31 | .00 | --- | 48 | 155 | --- | 39 | --- | 21 | --- | 149 | 107 | --- |
| TOTAL | 860.47 | 988.40 | 2751 | 4325 | 3209 | 2615.7 | 1824.3 | 1934.83 | 29401.4 | 7226 | 4694 | 3095.2 |
| MEAN | 27.8 | 32.9 | 88.7 | 140 | 115 | 84.4 | 60.8 | 62.4 | 980 | 233 | 151 | 103 |
| MAX | 96 | 104 | 268 | 164 | 235 | 517 | 115 | 680 | 4070 | 975 | 201 | 201 |
| MIN | .00 | .00 | 11 | 68 | 22 | 8.9 | 4.3 | .00 | 1.4 | 47 | 34 | 8.9 |
| AC-FT | 1710 | 1960 | 5460 | 8580 | 6370 | 5190 | 3620 | 3840 | 58320 | 14330 | 9310 | 6140 |

CAL YR 1980 TOTAL 30112.97 MEAN 82.3 MAX 409 MIN .00 AC-FT 59730
WTR YR 1981 TOTAL 62925.30 MEAN 172 MAX 4070 MIN .00 AC-FT 124800

## 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 (27 m) downstream from Commerce Street viaduct in Dallas, 5.2 mi (8.4 km) downstream from confluence of West and Elm Forks, and at mile 500.3 (805.0 km).

DRAINAGE AREA.--6,106 $mi^2$ (15,815 $km^2$).

PERIOD OF RECORD.--October 1898 to December 1899 (gage heights only published in WSP 28 and 37), July 1903 to current year.

REVISED RECORDS.--WSP 850: 1903-6 (monthly and annual means). WSP 1732: 1937(M). WSP 1922: Drainage area. WRD TX-73-1: 1972.

GAGE.--Water-stage recorder. Datum of gage is 368.02 ft (112.172 m) National Geodetic Vertical Datum of 1929. Oct. 1, 1898, to Dec. 31, 1899, nonrecording gage at site 2 mi (3 km) upstream at different datum. July 1, 1903, to July 20, 1930, nonrecording gage at present site and datum. July 21, 1930, to Sept. 30, 1932, nonrecording gage at site 6 mi (10 km) downstream at datum 3.08 ft (0.939 m) lower. On Jan. 17, 1981, telemeter (data collection platform, solar panel, battery, and antenna) was installed at site.

REMARKS.--Records good. At times flow is affected by storage in seven upstream reservoirs, combined capacity 1,703,700 acre-ft (2.10 $km^3$), of which 846,200 acre-ft (1.04 $km^3$) is for flood control. During the year, the city of Dallas reported the diversion for municipal use of 177,160 acre-ft (218 $hm^3$) from the Elm Fork, 53,170 acre-ft (65.6 $hm^3$) from Lake Tawakoni (on Sabine River), the purchase of 10,430 acre-ft (12.9 $hm^3$) from North Texas Municipal Water District (from the East Fork), and returned 187,050 acre-ft (231 $hm^3$) of sewage effluent to the river downstream from station. The Trinity River Authority reported a discharge of 69,530 acre-ft (85.7 $hm^3$) of sewage effluent into the river above the station. For other diversions and effluent returns above station, see stations 08048000, 08049200, and 08049500. City of Dallas gage-height telemeter located at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--78 years, 1,467 $ft^3/s$ (41.55 $m^3/s$), 1,063,000 acre-ft/yr (1.31 $km^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 184,000 $ft^3/s$ (5,210 $m^3/s$) May 25, 1908, gage height, 52.6 ft (16.03 m), from rating curve extended above 109,000 $ft^3/s$ (3,090 $m^3/s$); minimum observed for periods 1903-6, 1920-75, 1.2 $ft^3/s$ (0.034 $m^3/s$) July 4, 1953, result of storage behind temporary dam 4 mi (6 km) upstream. Maximum stage since at least 1840, that of May 25, 1908.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1866 reached about the same stage.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14,600 $ft^3/s$ (413 $m^3/s$) June 17 at 0915 hours, gage height, 34.99 ft (10.665 m); minimum daily, 224 $ft^3/s$ (6.34 $m^3/s$) Feb. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2960 | 244 | 252 | 247 | 346 | 1190 | 401 | 2980 | 4090 | 425 | 345 | 1270 |
| 2 | 623 | 232 | 264 | 240 | 323 | 838 | 305 | 1210 | 6810 | 395 | 328 | 3450 |
| 3 | 326 | 239 | 259 | 251 | 270 | 919 | 389 | 409 | 5960 | 760 | 331 | 1770 |
| 4 | 306 | 246 | 264 | 249 | 249 | 4960 | 742 | 528 | 5420 | 6400 | 335 | 898 |
| 5 | 282 | 246 | 275 | 251 | 270 | 2390 | 474 | 482 | 7960 | 6670 | 336 | 701 |
| 6 | 268 | 251 | 275 | 272 | 273 | 561 | 316 | 358 | 12100 | 2810 | 327 | 424 |
| 7 | 263 | 250 | 284 | 258 | 265 | 827 | 294 | 325 | 7350 | 1120 | 350 | 342 |
| 8 | 264 | 243 | 2540 | 257 | 247 | 2730 | 289 | 729 | 3610 | 720 | 346 | 407 |
| 9 | 258 | 247 | 3920 | 259 | 283 | 1040 | 282 | 10100 | 1730 | 678 | 325 | 522 |
| 10 | 246 | 247 | 920 | 254 | 416 | 541 | 283 | 9730 | 976 | 554 | 316 | 384 |
| 11 | 231 | 253 | 417 | 254 | 325 | 426 | 281 | 3790 | 786 | 518 | 323 | 349 |
| 12 | 234 | 247 | 340 | 249 | 257 | 378 | 270 | 1380 | 729 | 496 | 322 | 317 |
| 13 | 235 | 244 | 320 | 256 | 247 | 351 | 266 | 563 | 838 | 457 | 323 | 307 |
| 14 | 250 | 243 | 297 | 255 | 237 | 325 | 269 | 478 | 1490 | 475 | 322 | 1480 |
| 15 | 255 | 231 | 293 | 254 | 232 | 303 | 260 | 1220 | 2640 | 402 | 320 | 1300 |
| 16 | 248 | 397 | 290 | 266 | 224 | 278 | 260 | 1900 | 9740 | 385 | 308 | 543 |
| 17 | 1390 | 874 | 285 | 264 | 249 | 288 | 268 | 954 | 13400 | 380 | 638 | 381 |
| 18 | 1430 | 608 | 275 | 256 | 273 | 289 | 517 | 569 | 6070 | 364 | 1010 | 340 |
| 19 | 399 | 338 | 255 | 261 | 271 | 262 | 1810 | 466 | 4260 | 360 | 644 | 314 |
| 20 | 291 | 282 | 257 | 329 | 240 | 253 | 693 | 384 | 4360 | 350 | 398 | 305 |
| 21 | 295 | 269 | 258 | 298 | 249 | 252 | 336 | 346 | 4260 | 328 | 363 | 300 |
| 22 | 276 | 329 | 255 | 280 | 245 | 242 | 332 | 323 | 4210 | 323 | 322 | 308 |
| 23 | 254 | 435 | 258 | 268 | 245 | 244 | 1850 | 613 | 4050 | 316 | 328 | 301 |
| 24 | 300 | 372 | 263 | 253 | 257 | 243 | 1670 | 1710 | 2450 | 312 | 313 | 324 |
| 25 | 262 | 296 | 243 | 255 | 249 | 247 | 468 | 1500 | 1020 | 335 | 309 | 342 |
| 26 | 240 | 267 | 229 | 255 | 240 | 244 | 331 | 899 | 579 | 326 | 311 | 310 |
| 27 | 246 | 259 | 238 | 244 | 244 | 259 | 294 | 3360 | 531 | 314 | 314 | 311 |
| 28 | 239 | 240 | 245 | 247 | 330 | 315 | 340 | 3670 | 498 | 362 | 318 | 316 |
| 29 | 237 | 237 | 240 | 245 | --- | 2110 | 555 | 1180 | 474 | 623 | 326 | 327 |
| 30 | 237 | 244 | 253 | 238 | --- | 3760 | 321 | 731 | 483 | 485 | 321 | 322 |
| 31 | 243 | --- | 250 | 242 | --- | 1250 | --- | 458 | --- | 371 | 326 | --- |
| TOTAL | 13588 | 9110 | 15014 | 8007 | 7556 | 28315 | 15166 | 53345 | 118874 | 28814 | 11498 | 18965 |
| MEAN | 438 | 304 | 484 | 258 | 270 | 913 | 506 | 1721 | 3962 | 929 | 371 | 632 |
| MAX | 2960 | 874 | 3920 | 329 | 416 | 4960 | 1850 | 10100 | 13400 | 6670 | 1010 | 3450 |
| MIN | 231 | 231 | 229 | 238 | 224 | 242 | 260 | 323 | 474 | 312 | 308 | 300 |
| AC-FT | 26950 | 18070 | 29780 | 15880 | 14990 | 56160 | 30080 | 105800 | 235800 | 57150 | 22810 | 37620 |

CAL YR 1980 TOTAL 190644 MEAN 521 MAX 7660 MIN 186 AC-FT 378100
WTR YR 1981 TOTAL 328252 MEAN 899 MAX 13400 MIN 224 AC-FT 651100

## 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 (1.6 km) downstream from White Rock Creek, 1.5 mi (2.4 km) upstream from Fivemile Creek, 6.4 mi (10.3 km) southeast of Dallas County Courthouse in Dallas, and at mile 491.8 (791.3 km).

DRAINAGE AREA.--6,278 $mi^2$ (16,260 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1956 to September 1961 (monthly records only), October 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 365.89 ft (111.523 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Flow is affected at times by eight upstream reservoirs with a combined capacity of 1,714,400 acre-ft (2.11 $km^3$), of which 846,200 acre-ft (1.04 $km^3$) is for flood control. Several cities within the Fort Worth-Dallas metroplex divert water for municipal use and return it to the river as sewage effluents above this station. Low flows are sustained by sewage effluents.

AVERAGE DISCHARGE.--24 years (water years 1958-81), 1,612 $ft^3/s$ (45.65 $m^3/s$), 1,168,000 acre-ft/yr (1.44 $km^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65,700 $ft^3/s$ (1,860 $m^3/s$) May 27, 1957, gage height, 32.02 ft (9.760 m); minimum daily, 131 $ft^3/s$ (3.71 $m^3/s$) Dec. 9, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 25, 1908, reached a stage of 41.1 ft (12.53 m), from information by Corps of Engineers, and is the highest since that date. Floods in 1866 and 1908 reached about the same stage at Dallas.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 17,200 $ft^3/s$ (487 $m^3/s$) June 6 at 1330 hours, gage height, 26.33 ft (8.025 m); minimum daily, 398 $ft^3/s$ (11.3 $m^3/s$) Oct. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5370 | 419 | 435 | 444 | 546 | 1660 | 892 | 3070 | 3310 | 586 | 481 | 1060 |
| 2 | 1510 | 403 | 450 | 441 | 543 | 1670 | 592 | 2090 | 7530 | 553 | 452 | 3210 |
| 3 | 661 | 418 | 456 | 451 | 484 | 1080 | 592 | 849 | 6970 | 1280 | 473 | 2320 |
| 4 | 520 | 428 | 447 | 443 | 446 | 4420 | 1050 | 787 | 7490 | 6100 | 474 | 1160 |
| 5 | 464 | 425 | 460 | 462 | 470 | 3730 | 870 | 827 | 8500 | 9470 | 482 | 990 |
| 6 | 446 | 427 | 452 | 493 | 476 | 1190 | 615 | 660 | 16400 | 5730 | 481 | 663 |
| 7 | 438 | 429 | 447 | 472 | 455 | 1080 | 544 | 585 | 13000 | 3220 | 495 | 555 |
| 8 | 439 | 413 | 2210 | 463 | 437 | 2770 | 524 | 963 | 7220 | 1380 | 491 | 563 |
| 9 | 437 | 410 | 4590 | 467 | 464 | 1630 | 514 | 9110 | 3100 | 1040 | 445 | 677 |
| 10 | 432 | 419 | 1820 | 449 | 717 | 986 | 511 | 13200 | 1330 | 879 | 452 | 608 |
| 11 | 404 | 438 | 880 | 443 | 679 | 825 | 502 | 8000 | 1060 | 782 | 465 | 542 |
| 12 | 398 | 443 | 687 | 456 | 523 | 743 | 479 | 3040 | 998 | 725 | 464 | 501 |
| 13 | 411 | 436 | 626 | 458 | 490 | 706 | 485 | 934 | 994 | 705 | 462 | 479 |
| 14 | 430 | 435 | 577 | 456 | 466 | 663 | 488 | 749 | 1480 | 691 | 460 | 1270 |
| 15 | 441 | 417 | 566 | 447 | 447 | 622 | 487 | 1130 | 3170 | 697 | 452 | 1720 |
| 16 | 433 | 551 | 555 | 450 | 446 | 618 | 475 | 2350 | 10200 | 626 | 449 | 944 |
| 17 | 1380 | 1060 | 547 | 449 | 428 | 628 | 471 | 1580 | 15200 | 604 | 700 | 663 |
| 18 | 2030 | 966 | 532 | 437 | 437 | 625 | 645 | 1100 | 11700 | 585 | 1090 | 566 |
| 19 | 971 | 623 | 512 | 442 | 447 | 579 | 1780 | 828 | 6790 | 555 | 917 | 512 |
| 20 | 591 | 534 | 520 | 551 | 453 | 564 | 1250 | 709 | 5050 | 558 | 580 | 479 |
| 21 | 531 | 490 | 497 | 506 | 574 | 552 | 658 | 635 | 4280 | 532 | 547 | 470 |
| 22 | 493 | 532 | 491 | 499 | 666 | 531 | 594 | 608 | 4120 | 532 | 481 | 489 |
| 23 | 457 | 663 | 495 | 480 | 529 | 540 | 1820 | 780 | 3970 | 503 | 464 | 489 |
| 24 | 499 | 634 | 493 | 452 | 474 | 547 | 2180 | 1840 | 2570 | 514 | 475 | 493 |
| 25 | 462 | 543 | 459 | 437 | 441 | 546 | 943 | 1750 | 1060 | 485 | 468 | 530 |
| 26 | 411 | 502 | 441 | 426 | 435 | 534 | 618 | 1340 | 748 | 498 | 470 | 509 |
| 27 | 431 | 459 | 440 | 440 | 438 | 555 | 557 | 3450 | 654 | 481 | 475 | 466 |
| 28 | 434 | 432 | 442 | 437 | 551 | 575 | 550 | 5310 | 623 | 561 | 479 | 479 |
| 29 | 443 | 419 | 448 | 438 | --- | 3260 | 948 | 2450 | 612 | 703 | 468 | 497 |
| 30 | 427 | 420 | 472 | 442 | --- | 4200 | 718 | 1580 | 614 | 714 | 481 | 499 |
| 31 | 423 | --- | 463 | 417 | --- | 1870 | --- | 1100 | --- | 536 | 503 | --- |
| TOTAL | 23217 | 15188 | 22910 | 14148 | 13962 | 40499 | 23352 | 73404 | 150743 | 42825 | 16076 | 24403 |
| MEAN | 749 | 506 | 739 | 456 | 499 | 1306 | 778 | 2368 | 5025 | 1381 | 519 | 813 |
| MAX | 5370 | 1060 | 4590 | 551 | 717 | 4420 | 2180 | 13200 | 16400 | 9470 | 1090 | 3210 |
| MIN | 398 | 403 | 435 | 417 | 428 | 531 | 471 | 585 | 612 | 481 | 445 | 466 |
| AC-FT | 46050 | 30130 | 45440 | 28060 | 27690 | 80330 | 46320 | 145600 | 299000 | 84940 | 31890 | 48400 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 287536 | MEAN | 786 | MAX | 8370 | MIN 398 | AC-FT | 570300 |
| WTR YR 1981 | TOTAL | 460727 | MEAN | 1262 | MAX | 16400 | MIN 398 | AC-FT | 913900 |

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 1971 to September 1981 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1967 to current year.
pH: January 1977 to current year.
WATER TEMPERATURES: October 1967 to current year.
DISSOLVED OXYGEN: January 1977 to current year.

INSTRUMENTATION.--Water-quality monitor since Jan. 6, 1977.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. Where maximum or minimum 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 (1967-68, 1973-81): Maximum, 1,130 micromhos Dec. 17, 1977; minimum, 164 micromhos Aug. 20, 1977.
pH: Maximum, 8.8 units Jan. 23, 1980; minimum, 6.8 units Sept. 17, 18, 1981.
WATER TEMPERATURES (1967-68, 1973-81): Maximum, 34.0°C June 30, Aug. 31, 1977; minimum, 4.0°C Jan. 10, 1968.
DISSOLVED OXYGEN: Maximum, 11.4 mg/L Feb. 13, 1978; minimum, 0.0 mg/L on many days during spring and summer of 1977-81.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 1,000 micromhos Nov. 1; minimum, 180 micromhos May 9.
pH: Maximum, 7.9 units Oct. 19; minimum, 6.8 units Sept. 17, 18.
WATER TEMPERATURES: Maximum, 32.0°C on several days during July and August; minimum, 7.0°C Feb. 11.
DISSOLVED OXYGEN: Maximum, 8.3 mg/L Feb. 11; minimum, 0.0 mg/L Aug. 1.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (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 (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 09... | 1010 | 339 | 857 | 7.7 | 24.5 | 30 | 2.3 | 3.8 | 29 | 5.7 | 150 |
| DEC | | | | | | | | | | | |
| 04... | 1130 | 468 | 900 | 7.1 | 16.0 | 25 | 11 | 5.5 | 56 | 6.8 | 130 |
| JAN | | | | | | | | | | | |
| 15... | 1145 | 417 | 852 | 7.2 | 13.0 | 40 | 3.3 | 6.4 | 60 | 6.3 | 150 |
| MAR | | | | | | | | | | | |
| 09... | 1505 | 1450 | 558 | 7.6 | 14.0 | 40 | 110 | 7.4 | 71 | 11 | 170 |
| APR | | | | | | | | | | | |
| 09... | 0920 | 452 | 845 | 7.4 | 21.0 | 15 | 8.9 | 4.4 | 49 | 8.7 | 170 |
| JUN | | | | | | | | | | | |
| 09... | 1245 | 2980 | 588 | 7.6 | 27.0 | 30 | 58 | 3.4 | 43 | 10 | 200 |
| JUL | | | | | | | | | | | |
| 09... | 1400 | 1200 | 667 | 7.5 | 28.5 | 5 | 34 | 5.1 | 65 | 5.2 | 190 |
| AUG | | | | | | | | | | | |
| 06... | 1130 | 642 | 825 | 7.2 | 29.0 | 10 | 4.4 | 1.3 | 17 | 15 | 150 |
| SEP | | | | | | | | | | | |
| 08... | 1200 | 790 | 661 | 7.4 | 28.0 | 10 | 13 | 4.7 | 60 | 4.8 | 140 |

| DATE | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 09... | 0 | 52 | 5.6 | 110 | 3.9 | 14 | 170 | 110 | 76 | .6 | 18 |
| DEC | | | | | | | | | | | |
| 04... | 0 | 44 | 5.2 | 110 | 4.2 | 14 | 150 | 130 | 77 | 1.3 | 12 |
| JAN | | | | | | | | | | | |
| 15... | 0 | 52 | 5.6 | 110 | 3.9 | 11 | 160 | 120 | 78 | 1.5 | 10 |
| MAR | | | | | | | | | | | |
| 09... | 41 | 62 | 4.0 | 42 | 1.4 | 9.0 | 130 | 83 | 32 | .5 | 9.0 |
| APR | | | | | | | | | | | |
| 09... | 0 | 57 | 5.6 | 97 | 3.3 | 12 | 170 | 130 | 66 | 1.3 | 12 |
| JUN | | | | | | | | | | | |
| 09... | 32 | 74 | 4.2 | 36 | 1.1 | 8.5 | 170 | 82 | 30 | .4 | 12 |
| JUL | | | | | | | | | | | |
| 09... | 31 | 68 | 5.1 | 63 | 2.0 | 10 | 160 | 100 | 50 | .6 | 12 |
| AUG | | | | | | | | | | | |
| 06... | 3 | 51 | 6.2 | 100 | 3.6 | 12 | 150 | 110 | 85 | 1.1 | 13 |
| SEP | | | | | | | | | | | |
| 08... | 3 | 49 | 5.0 | 78 | 2.9 | 9.9 | 140 | 81 | 62 | .8 | 14 |

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (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) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 09... | 488 | 15 | 11 | 2.2 | .620 | 2.8 | 4.90 | 2.5 | 7.40 | 4.00 | 16 |
| DEC | | | | | | | | | | | |
| 04... | 484 | 9 | 8 | 3.9 | .760 | 4.7 | 4.60 | 1.9 | 6.50 | 5.30 | 19 |
| JAN | | | | | | | | | | | |
| 15... | 485 | 11 | 2 | 4.2 | .660 | 4.9 | 6.00 | 2.5 | 8.50 | 4.50 | 20 |
| MAR | | | | | | | | | | | |
| 09... | 320 | 142 | 26 | 2.4 | .590 | 3.0 | 2.00 | 1.6 | 3.60 | 2.00 | 18 |
| APR | | | | | | | | | | | |
| 09... | 483 | 30 | 33 | 3.1 | .420 | 3.5 | -- | -- | 9.10 | 5.00 | 14 |
| JUN | | | | | | | | | | | |
| 09... | 349 | 134 | 35 | 1.6 | .270 | 1.9 | .910 | .89 | 1.80 | 1.30 | 13 |
| JUL | | | | | | | | | | | |
| 09... | 405 | 73 | 20 | 2.7 | .220 | 2.9 | .770 | 2.0 | 2.80 | 1.70 | 9.4 |
| AUG | | | | | | | | | | | |
| 06... | 468 | 7 | 6 | 3.2 | 1.00 | 4.2 | 4.00 | 3.9 | 7.90 | 4.00 | 15 |
| SEP | | | | | | | | | | | |
| 08... | 384 | 39 | 6 | 3.9 | .270 | 4.2 | .690 | 1.4 | 2.10 | 2.80 | 11 |

| DATE | TIME | ARSENIC DIS-SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 09... | 1010 | 6 | 20 | 2 | 10 | <10 | 40 |
| JAN | | | | | | | |
| 15... | 1145 | 2 | 20 | 2 | 10 | 10 | 70 |
| APR | | | | | | | |
| 09... | 0920 | 7 | 20 | 2 | 10 | <10 | 60 |
| JUL | | | | | | | |
| 09... | 1400 | 4 | 100 | 1 | 10 | <10 | 80 |

| DATE | 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) |
|---|---|---|---|---|---|---|
| OCT | | | | | | |
| 09... | 80 | 80 | .0 | 0 | 0 | 40 |
| JAN | | | | | | |
| 15... | 40 | 90 | .2 | 0 | 2 | 50 |
| APR | | | | | | |
| 09... | 20 | 150 | .1 | 0 | 0 | 30 |
| JUL | | | | | | |
| 09... | <10 | 40 | .1 | 0 | 0 | 20 |

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | PCB, TOTAL (UG/L) | PCB, TOTAL IN BOTTOM MATERIAL (UG/KG) | NAPHTHALENES, POLYCHLOR. TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | CHLORDANE, TOTAL (UG/L) | CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG) | DDD, TOTAL (UG/L) | DDD, TOTAL IN BOTTOM MATERIAL (UG/KG) | DDE, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | | |
| 15... | 1145 | .00 | 230 | .00 | .00 | .0 | .10 | 270 | .00 | 15 | .00 |
| JUL | | | | | | | | | | | |
| 09... | 1400 | -- | 25 | -- | -- | .0 | -- | 23 | -- | .8 | -- |

| DATE | DDE, TOTAL IN BOTTOM MATERIAL (UG/KG) | DDT, TOTAL (UG/L) | DDT, TOTAL IN BOTTOM MATERIAL (UG/KG) | DIAZINON, TOTAL (UG/L) | DIELDRIN TOTAL (UG/L) | DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | ENDOSULFAN, TOTAL (UG/L) | ENDRIN, TOTAL (UG/L) | ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | ETHION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 15... | <10 | .00 | .0 | .97 | .01 | 5.7 | .00 | .00 | .0 | .00 |
| JUL | | | | | | | | | | |
| 09... | 1.3 | -- | .2 | -- | -- | 1.2 | -- | -- | .0 | -- |

| DATE | HEPTACHLOR, TOTAL (UG/L) | HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG) | HEPTACHLOR EPOXIDE TOTAL (UG/L) | HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) | LINDANE TOTAL (UG/L) | LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG) | MALATHION, TOTAL (UG/L) | METHOXYCHLOR, TOTAL (UG/L) | METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG) | METHYL PARATHION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 15... | .00 | <5.0 | .01 | .0 | .05 | 2.0 | .17 | .00 | -- | .00 |
| JUL | | | | | | | | | | |
| 09... | -- | .2 | -- | .0 | -- | .0 | -- | -- | .0 | -- |

| DATE | METHYL TRITHION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) | MIREX, TOTAL IN BOTTOM MATERIAL (UG/KG) | PARATHION, TOTAL (UG/L) | TOXAPHENE, TOTAL (UG/L) | TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG) | TOTAL TRITHION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 15... | .00 | .00 | .0 | .00 | 0 | .0 | .00 | .32 | .00 | .00 |
| JUL | | | | | | | | | | |
| 09... | -- | -- | .0 | -- | -- | .0 | -- | -- | -- | -- |

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 23217 | 644 | 365 | 22900 | 49 | 3050 | 89 | 5590 | 160 |
| NOV. | 1980 | 15188 | 784 | 446 | 18300 | 64 | 2610 | 110 | 4440 | 170 |
| DEC. | 1980 | 22910 | 687 | 390 | 24100 | 53 | 3280 | 95 | 5870 | 160 |
| JAN. | 1981 | 14148 | 821 | 467 | 17800 | 68 | 2600 | 110 | 4330 | 170 |
| FEB. | 1981 | 13962 | 776 | 441 | 16600 | 63 | 2360 | 110 | 4040 | 170 |
| MAR. | 1981 | 40499 | 611 | 346 | 37800 | 44 | 4820 | 84 | 9240 | 160 |
| APR. | 1981 | 23352 | 692 | 393 | 24800 | 53 | 3340 | 96 | 6030 | 160 |
| MAY | 1981 | 73404 | 475 | 268 | 53200 | 30 | 6040 | 66 | 13000 | 140 |
| JUNE | 1981 | 150743 | 414 | 233 | 95000 | 25 | 10100 | 57 | 23300 | 130 |
| JULY | 1981 | 42825 | 515 | 292 | 33700 | 36 | 4160 | 71 | 8250 | 140 |
| AUG. | 1981 | 16076 | 761 | 432 | 18800 | 61 | 2630 | 110 | 4570 | 170 |
| SEPT | 1981 | 24403 | 656 | 372 | 24500 | 49 | 3210 | 91 | 5980 | 160 |
| TOTAL | | 460727 | ** | ** | 388000 | ** | 48200 | ** | 94700 | ** |
| WTD. AVG. | | 1262 | 550 | 312 | ** | 39 | ** | 76 | ** | 150 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | 470 | 308 | 370 | 1000 | 910 | 923 | 798 | 740 | 771 | 838 | 784 | 815 |
| 2 | 622 | 482 | 558 | 958 | 894 | 918 | 830 | 774 | 806 | 844 | 774 | 806 |
| 3 | 710 | 614 | 653 | 902 | 846 | 876 | 860 | 836 | 845 | 828 | 778 | 805 |
| 4 | 756 | 712 | 732 | 950 | 864 | 902 | 910 | 842 | 858 | 832 | 770 | 796 |
| 5 | 760 | 736 | 747 | 912 | 854 | 882 | 862 | 842 | 852 | 800 | 734 | 770 |
| 6 | 780 | 724 | 747 | 898 | 848 | 869 | 858 | 822 | 846 | 826 | 774 | 795 |
| 7 | 834 | 790 | 815 | 910 | 854 | 877 | 836 | 790 | 817 | 840 | 794 | 817 |
| 8 | 852 | 814 | 838 | 922 | 836 | 890 | 802 | 348 | 541 | 850 | 822 | 836 |
| 9 | 870 | 846 | 859 | 876 | 802 | 843 | 510 | 390 | 439 | 850 | 824 | 837 |
| 10 | 880 | 854 | 869 | 836 | 776 | 801 | 596 | 488 | 553 | 852 | 804 | 833 |
| 11 | 876 | 838 | 859 | 838 | 794 | 821 | 686 | 592 | 632 | 830 | 768 | 802 |
| 12 | 844 | 788 | 817 | 874 | 838 | 853 | 756 | 688 | 720 | 800 | 740 | 770 |
| 13 | 830 | 784 | 813 | 864 | 832 | 847 | 808 | 758 | 782 | 818 | 776 | 794 |
| 14 | 868 | 834 | 852 | 874 | 844 | 859 | 796 | 772 | 781 | 832 | 796 | 814 |
| 15 | 880 | 852 | 867 | 906 | 862 | 881 | 826 | 782 | 804 | 840 | 788 | 814 |
| 16 | 882 | 842 | 864 | 866 | 622 | 799 | 856 | 810 | 834 | 854 | 812 | 832 |
| 17 | 874 | 362 | 658 | 680 | 614 | 645 | 858 | 828 | 838 | 872 | 798 | 838 |
| 18 | 648 | 422 | 538 | 670 | 614 | 647 | 882 | 844 | 865 | 850 | 786 | 816 |
| 19 | 860 | 516 | 553 | 700 | 674 | 686 | 870 | 824 | 853 | 850 | 762 | 800 |
| 20 | 790 | 594 | 636 | 736 | 698 | 718 | 854 | 834 | 843 | 818 | 736 | 776 |
| 21 | 696 | 682 | 690 | 762 | 738 | 753 | 878 | 832 | 854 | 854 | 814 | 830 |
| 22 | 802 | 764 | 777 | 794 | 660 | 761 | 862 | 812 | 837 | 852 | 822 | 839 |
| 23 | 820 | 700 | 798 | 716 | 636 | 685 | 848 | 828 | 838 | 870 | 832 | 852 |
| 24 | 854 | 748 | 824 | 724 | 662 | 699 | 862 | 806 | 835 | 862 | 826 | 849 |
| 25 | 878 | 792 | 837 | 750 | 718 | 735 | 830 | 774 | 809 | 856 | 792 | 830 |
| 26 | 850 | 794 | 818 | 774 | 728 | 747 | 822 | 768 | 794 | 850 | 790 | 820 |
| 27 | 858 | 798 | 816 | 796 | 776 | 786 | 844 | 784 | 809 | 866 | 820 | 834 |
| 28 | 880 | 820 | 846 | 822 | 776 | 796 | 854 | 784 | 813 | 886 | 852 | 865 |
| 29 | 890 | 836 | 868 | 828 | 788 | 805 | 812 | 758 | 781 | 878 | 848 | 861 |
| 30 | 930 | 874 | 902 | 824 | 778 | 800 | 832 | 780 | 801 | 868 | 842 | 856 |
| 31 | 924 | 894 | 906 | --- | --- | --- | 844 | 806 | 819 | 892 | 854 | 867 |
| MONTH | 930 | 308 | 765 | 1000 | 614 | 803 | 910 | 348 | 783 | 892 | 734 | 822 |

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 868 | 768 | 820 | 764 | 514 | 626 | 794 | 628 | 707 | 730 | 264 | 442 |
| 2 | 826 | 754 | 797 | 606 | 522 | 571 | 834 | 788 | 805 | 584 | 436 | 502 |
| 3 | 844 | 804 | 824 | 624 | 498 | 577 | 848 | 664 | 828 | 644 | 588 | 615 |
| 4 | 844 | 806 | 830 | 516 | 422 | 464 | 828 | 592 | 679 | 748 | 630 | 663 |
| 5 | 836 | 804 | 823 | 570 | 420 | 484 | 764 | 644 | 717 | 754 | 646 | 721 |
| 6 | 862 | 810 | 841 | 658 | 566 | 605 | 768 | 716 | 734 | 674 | 618 | 639 |
| 7 | 870 | 836 | 853 | 688 | 568 | 646 | 816 | 774 | 790 | 738 | 680 | 699 |
| 8 | 880 | 822 | 851 | 656 | 426 | 506 | 848 | 788 | 812 | 754 | 368 | 688 |
| 9 | 870 | 812 | 841 | 562 | 460 | 514 | 846 | 820 | 832 | 426 | 180 | 363 |
| 10 | 812 | 584 | 753 | 660 | 572 | 615 | 898 | 856 | 874 | 376 | 350 | 360 |
| 11 | 742 | 510 | 573 | 720 | 648 | 679 | 904 | 860 | 883 | 452 | 376 | 404 |
| 12 | 658 | 588 | 622 | 764 | 720 | 733 | 914 | 852 | 879 | 646 | 462 | 538 |
| 13 | 684 | 632 | 655 | 796 | 766 | 782 | 892 | 828 | 855 | 720 | 656 | 682 |
| 14 | 824 | 640 | 722 | 830 | 790 | 806 | 892 | 856 | 871 | 764 | 720 | 736 |
| 15 | 740 | 712 | 726 | 826 | 804 | 815 | 916 | 876 | 888 | 776 | 500 | 720 |
| 16 | 796 | 728 | 758 | 818 | 784 | 801 | 910 | 868 | 889 | 672 | 474 | 558 |
| 17 | 830 | 766 | 809 | 842 | 812 | 822 | 912 | 864 | 889 | 564 | 496 | 530 |
| 18 | 874 | 808 | 839 | 848 | 804 | 823 | 944 | 330 | 844 | 664 | 534 | 596 |
| 19 | 876 | 788 | 846 | 850 | 820 | 828 | 834 | 524 | 672 | 676 | --- | 650 |
| 20 | 840 | 790 | 817 | 876 | 836 | 864 | 650 | 542 | 587 | --- | --- | 729 |
| 21 | 870 | 508 | 774 | 870 | 830 | 854 | 684 | 588 | 633 | --- | --- | 751 |
| 22 | 690 | 584 | 657 | 856 | 812 | 835 | 696 | 674 | 686 | --- | --- | 760 |
| 23 | 788 | 676 | 720 | 848 | 784 | 816 | 698 | 444 | 543 | --- | --- | 711 |
| 24 | 834 | 742 | 782 | 846 | 796 | 824 | 550 | 446 | 484 | --- | --- | 565 |
| 25 | 844 | 746 | 795 | 860 | 814 | 840 | 588 | 482 | 525 | --- | --- | 573 |
| 26 | 936 | 758 | 818 | 862 | 820 | 847 | 628 | 570 | 598 | --- | --- | 615 |
| 27 | 956 | 828 | 886 | 870 | 834 | 858 | 758 | 644 | 686 | 498 | 256 | 386 |
| 28 | 936 | 652 | 869 | 886 | 532 | 836 | 816 | 684 | 776 | 444 | 370 | 412 |
| 29 | --- | --- | --- | 602 | 304 | 445 | 752 | 498 | 623 | 574 | 452 | 497 |
| 30 | --- | --- | --- | 664 | 558 | 598 | 710 | 618 | 651 | 540 | 478 | 512 |
| 31 | --- | --- | --- | 766 | 590 | 625 | --- | --- | --- | 634 | 542 | 590 |
| MONTH | 956 | 508 | 782 | 886 | 304 | 708 | 944 | 330 | 741 | 776 | 180 | 587 |

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 640 | 214 | 452 | 822 | 754 | 780 | 806 | 740 | 761 | 790 | --- | 655 |
| 2 | 384 | 302 | 336 | 828 | 782 | 802 | 800 | 752 | 774 | --- | --- | 487 |
| 3 | 410 | 352 | 382 | 830 | 210 | 706 | 804 | 766 | 785 | --- | --- | 531 |
| 4 | 440 | 374 | 411 | 416 | 292 | 332 | 834 | 774 | 800 | --- | --- | 639 |
| 5 | 470 | 250 | 358 | 316 | 282 | 298 | 834 | 788 | 810 | --- | --- | 667 |
| 6 | 348 | 318 | 334 | 406 | 320 | 352 | 818 | 782 | 800 | --- | --- | 742 |
| 7 | 388 | 350 | 370 | 542 | 412 | 473 | 818 | 788 | 800 | --- | --- | 778 |
| 8 | 482 | 382 | 426 | 658 | 548 | 605 | 824 | 786 | 802 | --- | --- | 775 |
| 9 | 634 | 488 | 569 | 680 | 656 | 669 | 832 | 786 | 805 | --- | --- | 738 |
| 10 | 722 | 636 | 676 | 710 | 656 | 683 | 840 | 788 | 804 | --- | --- | 760 |
| 11 | 742 | 702 | 723 | 746 | 710 | 729 | 846 | 810 | 825 | --- | --- | 783 |
| 12 | 750 | 724 | 740 | 754 | 708 | 727 | 838 | 808 | 823 | --- | --- | 800 |
| 13 | 760 | 728 | 740 | 744 | 704 | 723 | 832 | 794 | 814 | --- | --- | 810 |
| 14 | 764 | 376 | 619 | 762 | 726 | 739 | 856 | 808 | 826 | --- | --- | 623 |
| 15 | 540 | 244 | 430 | 758 | 710 | 728 | 836 | 802 | 820 | 520 | 508 | 512 |
| 16 | 424 | 228 | 340 | 808 | 714 | 750 | 846 | 778 | 811 | 604 | 504 | 555 |
| 17 | 372 | 338 | 356 | 794 | 742 | 773 | 784 | 630 | 717 | 656 | 600 | 624 |
| 18 | 416 | 368 | 388 | 794 | 750 | 774 | 786 | 372 | 604 | 722 | 660 | 685 |
| 19 | 472 | 418 | 456 | 764 | 720 | 737 | 764 | 556 | 650 | 746 | 728 | 740 |
| 20 | 462 | 440 | 454 | 792 | 710 | 740 | 672 | 554 | 596 | 794 | 736 | 748 |
| 21 | 458 | 446 | 453 | 846 | 786 | 806 | 730 | 680 | 700 | 794 | 734 | 756 |
| 22 | 464 | 442 | 451 | 870 | 816 | 838 | 788 | 740 | 756 | 836 | 776 | 801 |
| 23 | 526 | 442 | 457 | 852 | 812 | 828 | 818 | 772 | 794 | 818 | 768 | 791 |
| 24 | 636 | 452 | 523 | 872 | 836 | 849 | 814 | 750 | 780 | 796 | 764 | 778 |
| 25 | 780 | 610 | 698 | 862 | 798 | 826 | 816 | 780 | 797 | 808 | 748 | 781 |
| 26 | 796 | 630 | 724 | 830 | 724 | 781 | 806 | 774 | 788 | 824 | 776 | 798 |
| 27 | 822 | 792 | 805 | 820 | 756 | 790 | 814 | 776 | 791 | 790 | 726 | 755 |
| 28 | 804 | 764 | 782 | 848 | 798 | 817 | 836 | 798 | 813 | 832 | 726 | 752 |
| 29 | 816 | 750 | 782 | 854 | 776 | 817 | 848 | 792 | 817 | 812 | 772 | 793 |
| 30 | 820 | 776 | 789 | 872 | 756 | 820 | 834 | 764 | 797 | 834 | 782 | 803 |
| 31 | --- | --- | --- | 762 | 720 | 747 | 790 | 610 | 737 | --- | --- | --- |
| MONTH | 822 | 214 | 534 | 872 | 210 | 711 | 856 | 372 | 774 | 836 | 504 | 715 |
| YEAR | 1000 | 180 | 727 | | | | | | | | | |

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 7.3 | 7.2 | 7.2 | 7.4 | 7.3 | 7.4 | 7.4 | 7.2 | 7.3 | 7.4 | 7.2 | 7.3 |
| 2 | 7.2 | 7.2 | 7.2 | 7.3 | 7.2 | 7.2 | 7.4 | 7.3 | 7.3 | 7.3 | 7.1 | 7.2 |
| 3 | 7.4 | 7.2 | 7.3 | 7.4 | 7.2 | 7.3 | 7.4 | 7.3 | 7.3 | 7.2 | 7.2 | 7.2 |
| 4 | 7.4 | 7.2 | 7.2 | 7.5 | 7.2 | 7.4 | 7.4 | 7.2 | 7.3 | 7.3 | 7.1 | 7.2 |
| 5 | 7.4 | 7.3 | 7.3 | 7.5 | 7.3 | 7.4 | 7.4 | 7.3 | 7.3 | 7.3 | 7.2 | 7.2 |
| 6 | 7.4 | 7.3 | 7.4 | 7.4 | 7.3 | 7.3 | 7.3 | 7.2 | 7.3 | 7.2 | 7.2 | 7.2 |
| 7 | 7.5 | 7.4 | 7.4 | 7.4 | 7.3 | 7.4 | 7.3 | 7.3 | 7.3 | 7.2 | 7.2 | 7.2 |
| 8 | 7.4 | 7.3 | 7.4 | 7.5 | 7.4 | 7.4 | 7.3 | 7.2 | 7.3 | 7.4 | 7.1 | 7.2 |
| 9 | 7.4 | 7.3 | 7.4 | 7.4 | 7.3 | 7.4 | 7.3 | 7.2 | 7.3 | 7.6 | 7.2 | 7.3 |
| 10 | 7.4 | 7.3 | 7.4 | 7.4 | 7.3 | 7.4 | 7.4 | 7.3 | 7.3 | 7.4 | 7.3 | 7.4 |
| 11 | 7.6 | 7.4 | 7.5 | 7.4 | 7.3 | 7.4 | 7.4 | 7.3 | 7.3 | 7.4 | 7.3 | 7.3 |
| 12 | 7.4 | 7.4 | 7.4 | 7.4 | 7.3 | 7.4 | 7.4 | 7.2 | 7.3 | 7.3 | 7.2 | 7.3 |
| 13 | 7.5 | 7.3 | 7.4 | 7.4 | 7.3 | 7.3 | 7.3 | 7.2 | 7.2 | 7.4 | 7.2 | 7.3 |
| 14 | 7.5 | 7.3 | 7.4 | 7.4 | 7.3 | 7.4 | 7.3 | 7.2 | 7.2 | 7.4 | 7.3 | 7.3 |
| 15 | 7.4 | 7.3 | 7.3 | 7.4 | 7.3 | 7.4 | 7.4 | 7.2 | 7.2 | 7.4 | 7.2 | 7.3 |
| 16 | 7.4 | 7.3 | 7.3 | 7.4 | 7.3 | 7.3 | 7.2 | 7.2 | 7.2 | 7.4 | 7.2 | 7.3 |
| 17 | 7.4 | 7.3 | 7.3 | 7.4 | 7.2 | 7.4 | 7.3 | 7.2 | 7.2 | 7.2 | 7.1 | 7.2 |
| 18 | 7.4 | 7.3 | 7.3 | 7.4 | 7.3 | 7.4 | 7.4 | 7.2 | 7.3 | 7.3 | 7.2 | 7.3 |
| 19 | 7.4 | 7.3 | 7.3 | 7.4 | 7.3 | 7.3 | 7.4 | 7.2 | 7.3 | 7.4 | --- | --- |
| 20 | 7.4 | 7.3 | 7.3 | 7.4 | 7.2 | 7.3 | 7.3 | 7.1 | 7.2 | --- | --- | --- |
| 21 | 7.4 | 7.3 | 7.4 | 7.3 | 7.3 | 7.3 | 7.3 | 7.2 | 7.2 | --- | --- | --- |
| 22 | 7.4 | 7.3 | 7.4 | 7.3 | 7.2 | 7.3 | 7.3 | 7.2 | 7.2 | --- | --- | --- |
| 23 | 7.4 | 7.3 | 7.3 | 7.4 | 7.1 | 7.3 | 7.4 | 7.2 | 7.3 | --- | --- | --- |
| 24 | 7.4 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.2 | 7.2 | --- | --- | --- |
| 25 | 7.4 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.2 | 7.2 | 7.2 | --- | --- | --- |
| 26 | 7.4 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.2 | 7.2 | 7.2 | --- | --- | --- |
| 27 | 7.4 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.2 | 7.1 | 7.2 | 7.4 | 7.2 | 7.3 |
| 28 | 7.4 | 7.3 | 7.3 | 7.4 | 7.3 | 7.3 | 7.3 | 7.1 | 7.2 | 7.3 | 7.3 | 7.3 |
| 29 | --- | --- | --- | 7.5 | 7.3 | 7.4 | 7.3 | 7.1 | 7.2 | 7.2 | 7.1 | 7.2 |
| 30 | --- | --- | --- | 7.7 | 7.4 | 7.6 | 7.2 | 7.2 | 7.2 | 7.2 | 7.1 | 7.2 |
| 31 | --- | --- | --- | 7.5 | 7.2 | 7.3 | --- | --- | --- | 7.3 | 7.2 | 7.2 |
| MONTH | 7.6 | 7.2 | 7.3 | 7.7 | 7.1 | 7.4 | 7.4 | 7.1 | 7.3 | 7.6 | 7.1 | 7.3 |

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 7.5 | 7.2 | 7.3 | 7.3 | 7.2 | 7.3 | 7.3 | 7.1 | 7.1 | 7.3 | --- | --- |
| 2 | 7.4 | 7.3 | 7.4 | 7.4 | 7.2 | 7.2 | 7.2 | 7.1 | 7.1 | --- | --- | --- |
| 3 | 7.4 | 7.3 | 7.3 | 7.6 | 7.2 | 7.3 | 7.2 | 7.1 | 7.1 | --- | --- | --- |
| 4 | 7.4 | 7.3 | 7.4 | 7.4 | 7.2 | 7.3 | 7.2 | 7.1 | 7.1 | --- | --- | --- |
| 5 | 7.4 | 7.3 | 7.4 | 7.4 | 7.3 | 7.4 | 7.3 | 7.1 | 7.2 | --- | --- | --- |
| 6 | 7.4 | 7.3 | 7.4 | 7.3 | 7.3 | 7.3 | 7.2 | 7.1 | 7.1 | --- | --- | --- |
| 7 | 7.4 | 7.3 | 7.4 | 7.3 | 7.2 | 7.2 | 7.2 | 7.1 | 7.2 | --- | --- | --- |
| 8 | 7.3 | 7.2 | 7.3 | 7.4 | 7.2 | 7.3 | 7.2 | 7.1 | 7.2 | --- | --- | --- |
| 9 | 7.4 | 7.3 | 7.3 | 7.4 | 7.3 | 7.3 | 7.2 | 7.1 | 7.2 | --- | --- | --- |
| 10 | 7.4 | 7.3 | 7.4 | 7.3 | 7.3 | 7.3 | 7.2 | 7.1 | 7.1 | --- | --- | --- |
| 11 | 7.4 | 7.3 | 7.4 | 7.4 | 7.3 | 7.3 | 7.2 | 7.1 | 7.2 | --- | --- | --- |
| 12 | 7.4 | 7.3 | 7.4 | 7.4 | 7.3 | 7.3 | 7.2 | 7.1 | 7.2 | --- | --- | --- |
| 13 | 7.4 | 7.3 | 7.4 | 7.4 | 7.3 | 7.3 | 7.3 | 7.1 | 7.2 | --- | --- | --- |
| 14 | 7.5 | 7.4 | 7.4 | 7.4 | 7.3 | 7.3 | 7.2 | 7.1 | 7.1 | --- | --- | --- |
| 15 | 7.5 | 7.4 | 7.5 | 7.4 | 7.3 | 7.3 | 7.2 | 7.1 | 7.2 | 7.1 | 7.1 | 7.1 |
| 16 | 7.6 | 7.5 | 7.5 | 7.4 | 7.3 | 7.3 | 7.2 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 |
| 17 | 7.6 | 7.5 | 7.5 | 7.4 | 7.3 | 7.3 | 7.2 | 7.1 | 7.2 | 7.1 | 6.8 | 6.9 |
| 18 | 7.5 | 7.4 | 7.5 | 7.4 | 7.3 | 7.3 | 7.4 | 7.1 | 7.2 | 7.1 | 6.8 | 7.0 |
| 19 | 7.5 | 7.4 | 7.5 | 7.4 | 7.3 | 7.3 | 7.3 | 7.1 | 7.2 | 7.0 | 6.9 | 6.9 |
| 20 | 7.6 | 7.5 | 7.6 | 7.4 | 7.2 | 7.3 | 7.2 | 7.1 | 7.1 | 7.1 | 7.0 | 7.0 |
| 21 | 7.7 | 7.6 | 7.6 | 7.3 | 7.1 | 7.2 | 7.2 | 7.1 | 7.2 | 7.1 | 7.0 | 7.0 |
| 22 | 7.7 | 7.6 | 7.6 | 7.3 | 7.2 | 7.2 | 7.2 | 7.1 | 7.1 | 7.2 | 7.0 | 7.1 |
| 23 | 7.6 | 7.6 | 7.6 | 7.3 | 7.1 | 7.2 | 7.2 | 7.1 | 7.1 | 7.2 | 7.0 | 7.1 |
| 24 | 7.6 | 7.3 | 7.4 | 7.3 | 7.2 | 7.2 | 7.2 | 7.0 | 7.1 | 7.2 | 7.1 | 7.1 |
| 25 | 7.3 | 7.2 | 7.2 | 7.3 | 7.2 | 7.2 | 7.1 | 7.0 | 7.1 | 7.2 | 7.1 | 7.2 |
| 26 | 7.3 | 7.2 | 7.3 | 7.3 | 7.2 | 7.2 | 7.2 | 7.1 | 7.1 | 7.2 | 7.1 | 7.2 |
| 27 | 7.3 | 7.3 | 7.3 | 7.3 | 7.2 | 7.3 | 7.3 | 7.1 | 7.2 | 7.2 | 6.9 | 7.1 |
| 28 | 7.3 | 7.2 | 7.3 | 7.3 | 7.2 | 7.2 | 7.2 | 7.1 | 7.2 | 7.2 | 6.9 | 6.9 |
| 29 | 7.4 | 7.2 | 7.3 | 7.4 | 7.2 | 7.2 | 7.2 | 7.2 | 7.2 | 7.3 | 6.9 | 7.1 |
| 30 | 7.3 | 7.2 | 7.3 | 7.3 | 7.2 | 7.2 | 7.3 | 7.2 | 7.2 | 7.3 | 7.1 | 7.2 |
| 31 | --- | --- | --- | 7.2 | 7.1 | 7.2 | 7.3 | 7.1 | 7.2 | --- | --- | --- |
| MONTH | 7.7 | 7.2 | 7.4 | 7.6 | 7.1 | 7.3 | 7.4 | 7.0 | 7.2 | 7.3 | 6.8 | 7.1 |
| YEAR | 7.9 | 6.8 | 7.3 | | | | | | | | | |

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | 22.0 | 19.0 | 20.0 | 21.0 | 19.0 | 20.0 | 18.5 | 16.5 | 17.5 | 15.5 | 14.5 | 15.0 |
| 2 | 23.5 | 21.5 | 22.5 | 21.5 | 20.0 | 20.5 | 18.5 | 16.0 | 17.5 | 15.0 | 14.0 | 14.5 |
| 3 | 24.0 | 22.0 | 23.0 | 22.0 | 20.5 | 21.0 | 16.5 | 15.0 | 16.0 | 15.0 | 14.0 | 14.5 |
| 4 | 25.0 | 23.0 | 24.0 | 22.5 | 21.5 | 21.5 | 17.5 | 16.0 | 16.5 | 15.0 | 13.5 | 14.0 |
| 5 | 25.0 | 23.5 | 24.5 | 22.0 | 20.5 | 21.5 | 19.0 | 17.5 | 18.5 | 14.5 | 13.0 | 14.0 |
| 6 | 24.5 | 23.0 | 24.0 | 22.0 | 20.5 | 21.5 | 20.0 | 19.0 | 19.5 | 15.0 | 14.0 | 14.5 |
| 7 | 25.0 | 23.0 | 24.5 | 22.5 | 21.0 | 22.0 | 20.5 | 19.5 | 20.0 | 15.5 | 14.0 | 14.5 |
| 8 | 26.0 | 24.5 | 25.0 | 23.0 | 21.5 | 22.0 | 20.5 | 14.5 | 17.5 | 16.0 | 14.5 | 15.5 |
| 9 | 26.0 | 25.0 | 25.5 | 23.5 | 22.5 | 23.0 | 15.0 | 13.5 | 14.0 | 17.0 | 15.5 | 16.0 |
| 10 | 26.5 | 25.0 | 25.5 | 24.0 | 23.0 | 23.5 | 14.0 | 13.0 | 13.5 | 17.0 | 16.0 | 16.5 |
| 11 | 26.0 | 24.5 | 25.5 | 24.0 | 23.0 | 23.5 | 15.0 | 12.0 | 14.0 | 16.5 | 15.0 | 15.5 |
| 12 | 24.5 | 23.5 | 24.0 | 23.5 | 22.0 | 22.5 | 16.0 | 13.5 | 15.0 | 15.5 | 13.5 | 14.5 |
| 13 | 24.5 | 23.0 | 23.5 | 22.0 | 21.0 | 21.5 | 17.0 | 15.0 | 16.0 | 15.5 | 13.5 | 14.5 |
| 14 | 24.5 | 23.5 | 24.0 | 21.5 | 20.5 | 21.0 | 17.5 | 16.0 | 17.0 | 16.0 | 14.0 | 15.0 |
| 15 | 25.5 | 24.5 | 25.0 | 20.0 | 18.5 | 19.0 | 18.5 | 17.0 | 17.5 | 15.5 | 14.0 | 15.0 |
| 16 | 26.0 | 25.0 | 25.5 | 18.5 | 15.0 | 17.0 | 18.5 | 17.0 | 18.0 | 15.0 | 14.0 | 14.5 |
| 17 | 26.5 | 22.5 | 24.5 | 15.0 | 13.0 | 14.0 | 18.5 | 16.5 | 18.0 | 14.0 | 12.5 | 13.5 |
| 18 | 23.0 | 22.0 | 22.5 | 14.5 | 12.5 | 13.5 | 18.5 | 17.5 | 18.0 | 13.5 | 12.5 | 13.5 |
| 19 | 22.0 | 21.0 | 21.5 | 15.5 | 13.0 | 14.5 | 18.0 | 14.0 | 16.0 | 14.0 | 12.5 | 13.5 |
| 20 | 23.0 | 20.5 | 22.0 | 16.5 | 14.0 | 15.5 | 14.0 | 11.5 | 12.5 | 13.5 | 12.0 | 13.0 |
| 21 | 22.5 | 21.5 | 22.5 | 16.5 | 15.5 | 16.0 | 12.5 | 11.0 | 12.0 | 14.0 | 13.0 | 13.5 |
| 22 | 23.5 | 21.5 | 23.0 | 17.0 | 15.5 | 16.0 | 13.0 | 11.5 | 12.5 | 14.5 | 12.0 | 13.5 |
| 23 | 24.0 | 22.5 | 23.0 | 16.0 | 14.5 | 15.5 | 15.0 | 13.0 | 14.0 | 15.0 | 13.0 | 14.0 |
| 24 | 23.0 | 21.0 | 22.0 | 16.0 | 14.5 | 15.5 | 15.5 | 13.5 | 14.5 | 15.5 | 13.5 | 14.5 |
| 25 | 21.0 | 19.5 | 20.5 | 16.0 | 15.0 | 15.5 | 13.5 | 11.0 | 12.0 | 16.0 | 14.5 | 15.5 |
| 26 | 21.0 | 20.0 | 20.5 | 15.0 | 13.5 | 14.5 | 13.0 | 11.5 | 12.0 | 16.5 | 15.0 | 15.5 |
| 27 | 22.5 | 20.5 | 21.5 | 14.5 | 13.5 | 14.0 | 14.0 | 12.5 | 13.0 | 16.5 | 14.5 | 15.5 |
| 28 | 21.5 | 18.5 | 20.0 | 15.0 | 13.5 | 14.0 | 14.5 | 13.0 | 14.0 | 16.5 | 14.5 | 15.5 |
| 29 | 19.0 | 17.5 | 18.5 | 16.0 | 14.5 | 15.0 | 15.0 | 14.0 | 14.5 | 18.0 | 16.0 | 17.0 |
| 30 | 19.5 | 18.0 | 18.5 | 17.0 | 15.5 | 16.0 | 15.5 | 13.5 | 14.5 | 17.5 | 15.0 | 16.5 |
| 31 | 20.5 | 18.5 | 19.0 | --- | --- | --- | 15.5 | 14.0 | 15.0 | 15.5 | 14.0 | 14.5 |
| MONTH | 26.5 | 17.5 | 23.0 | 24.0 | 12.5 | 18.5 | 20.5 | 11.0 | 15.5 | 18.0 | 12.0 | 14.5 |

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 14.5 | 13.0 | 14.0 | 18.0 | 15.5 | 17.0 | 21.5 | 19.0 | 20.0 | 27.0 | 20.0 | 23.0 |
| 2 | 13.5 | 11.0 | 12.5 | 17.0 | 16.0 | 16.5 | 22.0 | 20.0 | 21.5 | 24.0 | 22.5 | 23.5 |
| 3 | 13.5 | 11.5 | 12.5 | 17.0 | 15.5 | 16.5 | 23.0 | 22.0 | 22.5 | 24.0 | 23.0 | 23.5 |
| 4 | 14.0 | 12.5 | 13.5 | 16.0 | 15.0 | 15.5 | 23.0 | 21.5 | 22.0 | 23.5 | 22.5 | 23.0 |
| 5 | 13.5 | 12.0 | 13.0 | 15.0 | 14.5 | 15.0 | 22.0 | 20.0 | 21.0 | 24.0 | 23.0 | 23.5 |
| 6 | 14.0 | 12.5 | 13.5 | 16.5 | 14.5 | 15.5 | 21.0 | 19.5 | 20.5 | 25.0 | 22.5 | 24.0 |
| 7 | 15.0 | 13.0 | 14.0 | 16.5 | 14.5 | 15.5 | 21.5 | 20.0 | 21.0 | 25.0 | 23.5 | 24.5 |
| 8 | 15.0 | 14.0 | 14.5 | 15.0 | 13.5 | 14.0 | 21.5 | 21.0 | 21.5 | 25.0 | 21.0 | 24.0 |
| 9 | 15.0 | 14.0 | 14.5 | 14.5 | 13.0 | 14.0 | 23.0 | 21.5 | 22.5 | 21.5 | 19.5 | 21.0 |
| 10 | 14.5 | 11.5 | 13.5 | 16.5 | 14.0 | 15.0 | 23.5 | 22.5 | 23.0 | 20.0 | 19.0 | 19.5 |
| 11 | 11.0 | 7.0 | 9.0 | 17.5 | 15.5 | 16.5 | 23.5 | 22.5 | 23.0 | 21.0 | 19.0 | 20.0 |
| 12 | 11.5 | 9.0 | 10.5 | 17.5 | 16.0 | 17.0 | 24.5 | 23.0 | 23.5 | 22.0 | 20.0 | 21.0 |
| 13 | 13.0 | 10.0 | 11.5 | 18.5 | 16.5 | 17.5 | 25.0 | 24.0 | 24.5 | 24.5 | 22.5 | 23.0 |
| 14 | 14.0 | 11.5 | 13.0 | 19.5 | 17.5 | 18.5 | 25.0 | 23.0 | 24.0 | 24.0 | 22.5 | 23.5 |
| 15 | 15.0 | 13.0 | 14.0 | 19.5 | 18.0 | 19.0 | 22.5 | 21.5 | 22.0 | 23.5 | 20.5 | 22.5 |
| 16 | 16.0 | 14.0 | 15.0 | 19.0 | 18.0 | 18.5 | 23.5 | 22.0 | 22.5 | 20.5 | 19.5 | 20.0 |
| 17 | 17.0 | 15.0 | 16.0 | 19.5 | 17.5 | 18.5 | 24.5 | 23.5 | 24.0 | 23.0 | 20.0 | 21.5 |
| 18 | 18.0 | 16.5 | 17.0 | 19.0 | 16.0 | 17.5 | 24.0 | 22.0 | 23.5 | 25.5 | 23.0 | 24.0 |
| 19 | 19.0 | 17.0 | 18.0 | 17.5 | 15.0 | 16.0 | 23.5 | 22.5 | 23.0 | --- | --- | --- |
| 20 | 19.0 | 17.5 | 18.5 | 18.0 | 16.0 | 17.0 | 25.5 | 23.0 | 24.0 | --- | --- | --- |
| 21 | 20.0 | 18.5 | 19.0 | 19.0 | 17.5 | 18.0 | 25.5 | 24.5 | 25.0 | --- | --- | --- |
| 22 | 18.5 | 16.5 | 17.0 | 18.5 | 16.5 | 17.5 | 25.5 | 24.5 | 25.0 | --- | --- | --- |
| 23 | 17.0 | 15.0 | 16.5 | 18.5 | 16.0 | 17.0 | 25.0 | 22.5 | 23.5 | --- | --- | --- |
| 24 | 18.0 | 16.0 | 17.0 | 19.5 | 17.5 | 18.5 | 23.5 | 22.0 | 23.0 | --- | --- | --- |
| 25 | 18.0 | 17.0 | 17.5 | 19.0 | 18.5 | 18.5 | 24.5 | 22.5 | 23.5 | --- | --- | --- |
| 26 | 19.5 | 17.5 | 18.5 | 20.0 | 17.5 | 19.0 | 25.5 | 23.0 | 24.5 | --- | --- | --- |
| 27 | 20.0 | 19.0 | 19.5 | 20.0 | 19.0 | 19.5 | 25.5 | 24.5 | 25.0 | 24.5 | 22.0 | 23.5 |
| 28 | 20.0 | 18.5 | 19.5 | 20.0 | 17.5 | 19.0 | 25.5 | 24.5 | 25.0 | 26.5 | 24.0 | 25.0 |
| 29 | --- | --- | --- | 18.5 | 16.0 | 17.5 | 26.0 | 23.5 | 25.0 | 26.5 | 25.0 | 26.0 |
| 30 | --- | --- | --- | 19.0 | 17.5 | 18.5 | 27.5 | 25.5 | 26.5 | 27.0 | 25.0 | 26.0 |
| 31 | --- | --- | --- | 21.0 | 18.5 | 19.5 | --- | --- | --- | 27.5 | 26.0 | 26.5 |
| MONTH | 20.0 | 7.0 | 15.0 | 21.0 | 13.0 | 17.0 | 27.5 | 19.0 | 23.0 | 27.5 | 19.0 | 23.0 |

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 27.5 | 22.5 | 25.0 | 30.5 | 29.5 | 30.0 | 32.0 | 30.5 | 31.0 | --- | --- | --- |
| 2 | 25.0 | 23.5 | 24.0 | 31.0 | 30.0 | 30.0 | 32.0 | 30.5 | 31.0 | --- | --- | --- |
| 3 | 24.5 | 23.5 | 24.0 | 30.5 | 26.0 | 29.5 | 31.5 | 30.5 | 31.0 | --- | --- | --- |
| 4 | 24.0 | 23.0 | 23.5 | 28.5 | 26.0 | 27.0 | 31.0 | 30.0 | 30.5 | --- | --- | --- |
| 5 | 24.5 | 23.0 | 23.5 | 28.0 | 27.0 | 27.5 | 31.5 | 30.0 | 31.0 | --- | --- | --- |
| 6 | 25.0 | 23.5 | 24.5 | 28.0 | 27.5 | 27.5 | 32.0 | 30.5 | 31.0 | --- | --- | --- |
| 7 | 26.5 | 25.0 | 25.5 | 28.5 | 27.5 | 28.0 | 31.5 | 30.5 | 31.0 | --- | --- | --- |
| 8 | 28.0 | 26.0 | 27.0 | 29.5 | 28.0 | 28.5 | 31.0 | 29.5 | 30.0 | --- | --- | --- |
| 9 | 29.0 | 27.5 | 28.0 | 30.0 | 28.5 | 29.5 | 30.0 | 29.0 | 29.5 | --- | --- | --- |
| 10 | 29.0 | 28.0 | 28.5 | 30.5 | 29.5 | 30.0 | 30.5 | 29.0 | 29.5 | --- | --- | --- |
| 11 | 28.5 | 27.0 | 28.0 | 31.0 | 29.5 | 30.5 | 30.5 | 29.5 | 30.0 | --- | --- | --- |
| 12 | 27.5 | 26.5 | 27.0 | 31.0 | 30.0 | 30.5 | 30.5 | 30.0 | 30.0 | --- | --- | --- |
| 13 | 27.0 | 26.5 | 27.0 | 31.0 | 30.0 | 30.5 | 31.0 | 30.0 | 30.5 | --- | --- | --- |
| 14 | 27.0 | 26.5 | 27.0 | 31.5 | 29.5 | 30.5 | 31.5 | 30.0 | 31.0 | --- | --- | --- |
| 15 | 27.0 | 25.0 | 26.5 | 31.0 | 30.0 | 30.5 | 32.0 | 30.5 | 31.5 | 27.5 | 27.0 | 27.5 |
| 16 | 25.5 | 24.5 | 25.0 | 31.5 | 30.0 | 30.5 | 31.5 | 30.5 | 31.0 | 27.5 | 26.5 | 27.0 |
| 17 | 25.0 | 23.5 | 24.5 | 31.5 | 30.0 | 30.5 | 30.5 | 29.0 | 29.5 | 26.5 | 25.0 | 25.5 |
| 18 | 26.5 | 24.5 | 25.5 | 31.5 | 30.0 | 31.0 | 29.5 | 26.5 | 28.0 | 25.5 | 24.0 | 24.5 |
| 19 | 27.0 | 26.0 | 26.5 | 31.5 | 30.0 | 31.0 | 29.0 | 27.5 | 28.5 | 25.0 | 24.0 | 24.5 |
| 20 | 27.0 | 26.0 | 26.5 | 32.0 | 30.0 | 31.0 | 29.0 | 27.5 | 28.5 | 25.5 | 24.0 | 24.5 |
| 21 | 27.0 | 25.5 | 26.5 | 32.0 | 31.5 | 31.5 | 29.5 | 28.0 | 28.5 | 26.0 | 24.5 | 25.5 |
| 22 | 27.0 | 26.0 | 26.5 | 32.0 | 30.5 | 31.5 | 29.5 | 28.0 | 29.0 | 27.0 | 26.0 | 26.5 |
| 23 | 28.0 | 26.0 | 27.0 | 31.5 | 30.5 | 31.0 | 30.0 | 28.5 | 29.0 | 27.5 | 26.5 | 27.0 |
| 24 | 28.5 | 26.5 | 27.5 | 32.0 | 30.5 | 31.0 | 30.0 | 28.5 | 29.5 | 27.5 | 26.5 | 27.0 |
| 25 | 29.5 | 28.0 | 28.5 | 32.0 | 30.5 | 31.5 | 30.5 | 29.5 | 30.0 | 28.0 | 27.0 | 27.5 |
| 26 | 30.0 | 28.5 | 29.5 | 31.5 | 30.5 | 31.0 | 31.0 | 29.5 | 30.0 | 28.0 | 27.0 | 27.5 |
| 27 | 30.0 | 28.5 | 29.5 | 31.0 | 30.0 | 30.5 | 30.5 | 29.5 | 30.0 | 28.0 | 27.5 | 27.5 |
| 28 | 30.0 | 28.5 | 29.0 | 30.5 | 29.5 | 30.0 | 31.0 | 29.0 | 30.0 | 28.0 | 27.5 | 27.5 |
| 29 | 30.0 | 29.0 | 29.5 | 31.5 | 29.5 | 30.5 | 31.0 | 29.5 | 30.0 | 28.0 | 27.0 | 27.5 |
| 30 | 30.5 | 29.0 | 30.0 | 31.5 | 30.0 | 31.0 | 30.5 | 30.0 | 30.5 | 28.0 | 27.5 | 27.5 |
| 31 | --- | --- | --- | 31.5 | 30.5 | 31.0 | 30.0 | 29.0 | 29.5 | --- | --- | --- |
| MONTH | 30.5 | 22.5 | 26.5 | 32.0 | 26.0 | 30.0 | 32.0 | 26.5 | 30.0 | 28.0 | 24.0 | 26.5 |
| YEAR | 32.0 | 7.0 | 22.0 | | | | | | | | | |

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | 3.9 | 3.0 | 3.5 | 5.3 | 4.6 | 5.0 | 5.5 | 4.8 | 5.3 | 6.6 | 5.6 | 6.1 |
| 2 | 4.6 | 3.5 | 4.1 | 5.1 | 4.4 | 4.8 | 5.4 | 4.7 | 5.1 | 6.6 | 5.9 | 6.2 |
| 3 | 4.9 | 4.2 | 4.6 | 4.9 | 4.3 | 4.7 | 5.6 | 4.9 | 5.4 | 6.5 | 5.6 | 6.1 |
| 4 | 4.8 | 3.8 | 4.4 | 4.8 | 4.0 | 4.5 | 5.7 | 4.8 | 5.4 | 6.8 | 6.0 | 6.4 |
| 5 | 5.1 | 4.3 | 4.8 | 4.6 | 3.7 | 4.4 | 5.2 | 4.5 | 4.9 | 7.3 | 6.2 | 6.7 |
| 6 | 5.2 | 4.5 | 5.0 | 4.7 | 4.2 | 4.5 | 4.7 | 3.9 | 4.4 | 7.2 | 6.5 | 7.0 |
| 7 | 5.2 | 4.0 | 4.2 | 4.7 | 3.9 | 4.4 | 4.4 | 3.5 | 4.1 | 7.3 | 6.6 | 7.0 |
| 8 | 4.3 | 3.7 | 4.0 | 4.4 | 3.8 | 4.2 | 6.4 | 3.7 | 5.0 | 7.3 | 6.5 | 7.0 |
| 9 | 4.1 | 3.6 | 3.9 | 4.4 | 3.6 | 4.1 | 5.2 | 1.7 | 4.0 | 7.5 | 6.7 | 7.0 |
| 10 | 4.3 | 3.6 | 4.1 | 4.2 | 3.3 | 3.9 | 5.9 | 4.8 | 5.2 | 7.1 | 6.1 | 6.7 |
| 11 | 4.6 | 3.8 | 4.2 | 4.2 | 3.2 | 3.9 | 7.3 | 5.9 | 6.8 | 7.1 | 6.1 | 6.7 |
| 12 | 5.0 | 4.2 | 4.6 | 4.4 | 3.7 | 4.1 | 7.3 | 6.8 | 7.0 | 7.8 | 6.7 | 7.1 |
| 13 | 5.0 | 4.4 | 4.7 | 4.5 | 3.9 | 4.3 | 7.1 | 6.3 | 6.7 | 7.5 | 6.7 | 7.2 |
| 14 | 4.9 | 4.0 | 4.6 | 4.7 | 3.8 | 4.5 | 6.6 | 6.1 | 6.4 | 7.4 | 6.5 | 7.0 |
| 15 | 4.5 | 3.8 | 4.3 | 5.1 | 3.9 | 4.6 | 6.4 | 5.7 | 6.1 | 7.3 | 6.5 | 6.9 |
| 16 | 4.3 | 3.7 | 4.1 | 6.4 | 5.1 | 5.5 | 6.1 | 5.4 | 5.9 | 7.0 | 6.3 | 6.7 |
| 17 | 4.9 | 3.2 | 4.0 | 6.4 | 5.6 | 6.0 | 6.5 | 5.5 | 6.0 | 7.5 | 6.6 | 7.0 |
| 18 | 4.0 | 2.5 | 3.4 | 6.1 | 5.4 | 5.8 | 6.0 | 5.4 | 5.7 | 7.6 | 6.7 | 7.1 |
| 19 | 4.4 | 2.7 | 3.5 | 6.4 | 6.0 | 6.2 | 6.5 | 5.1 | 5.8 | 7.4 | 6.7 | 7.1 |
| 20 | 4.8 | 4.3 | 4.6 | 6.4 | 6.0 | 6.2 | 6.7 | 5.6 | 6.2 | 7.1 | 6.2 | 6.7 |
| 21 | 4.8 | 4.6 | 4.7 | 6.1 | 5.8 | 5.9 | 6.7 | 5.4 | 6.2 | 6.9 | 6.1 | 6.6 |
| 22 | 5.0 | 4.7 | 4.8 | 6.3 | 5.1 | 5.7 | 6.7 | 5.8 | 6.3 | 7.3 | 6.6 | 7.0 |
| 23 | 5.4 | 4.5 | 4.8 | 6.1 | 5.4 | 5.7 | 6.6 | 6.0 | 6.3 | 6.7 | 6.0 | 6.4 |
| 24 | 5.3 | 4.6 | 4.9 | 5.8 | 5.2 | 5.6 | 6.4 | 5.7 | 6.1 | 6.4 | 5.8 | 6.1 |
| 25 | 5.4 | 5.0 | 5.1 | 6.0 | 5.2 | 5.6 | 7.1 | 6.1 | 6.6 | 6.3 | 5.7 | 6.0 |
| 26 | 5.2 | 4.6 | 5.0 | 6.2 | 5.8 | 6.1 | 7.0 | 6.0 | 6.4 | 6.2 | 5.6 | 6.0 |
| 27 | 5.1 | 4.4 | 4.8 | 6.2 | 5.3 | 5.9 | 6.7 | 6.0 | 6.4 | 6.3 | 5.2 | 6.0 |
| 28 | 5.5 | 4.5 | 5.0 | 6.0 | 5.3 | 5.8 | 6.7 | 5.9 | 6.3 | 6.4 | 5.3 | 5.9 |
| 29 | 5.7 | 5.2 | 5.5 | 6.0 | 5.4 | 5.7 | 6.5 | 5.8 | 6.2 | 6.2 | 5.5 | 5.9 |
| 30 | 5.7 | 5.3 | 5.5 | 5.8 | 5.2 | 5.4 | 6.6 | 5.9 | 6.3 | 6.1 | 5.3 | 5.8 |
| 31 | 5.6 | 4.9 | 5.3 | --- | --- | --- | 6.5 | 5.7 | 6.2 | 6.2 | 5.3 | 5.8 |
| MONTH | 5.7 | 2.5 | 4.5 | 6.4 | 3.2 | 5.1 | 7.3 | 1.7 | 5.8 | 7.8 | 5.2 | 6.6 |

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 6.3 | 5.2 | 5.9 | 5.6 | .6 | 4.0 | 6.3 | 3.5 | 5.1 | 5.9 | 3.7 | 4.7 |
| 2 | 7.2 | 5.5 | 6.3 | 3.0 | .6 | 1.8 | 5.2 | 3.7 | 4.6 | 4.7 | 3.4 | 3.8 |
| 3 | 6.7 | 5.9 | 6.3 | 6.1 | 2.8 | 4.2 | 5.9 | 4.1 | 4.8 | 4.5 | 3.4 | 3.9 |
| 4 | 6.6 | 5.9 | 6.3 | 5.1 | .3 | 3.3 | 4.2 | 2.3 | 3.4 | 4.6 | 4.0 | 4.3 |
| 5 | 6.7 | 6.0 | 6.5 | 5.6 | 4.7 | 5.2 | 4.0 | 2.9 | 3.6 | 4.0 | 2.9 | 3.6 |
| 6 | 6.6 | 5.6 | 6.1 | 6.4 | 5.5 | 6.0 | 4.9 | 3.4 | 4.3 | 4.6 | 3.7 | 4.2 |
| 7 | 6.0 | 4.9 | 5.6 | 6.8 | 5.7 | 6.2 | 5.4 | 3.9 | 4.7 | 4.3 | 3.5 | 4.1 |
| 8 | 5.7 | 5.1 | 5.4 | 7.2 | 5.0 | 6.1 | 5.2 | 4.0 | 4.7 | 6.4 | 3.7 | 4.4 |
| 9 | 6.1 | 5.1 | 5.5 | 7.1 | 6.4 | 6.8 | 4.8 | 4.0 | 4.5 | 6.8 | 2.9 | 4.4 |
| 10 | 6.4 | 5.5 | 6.1 | 7.2 | 6.7 | 7.0 | 4.6 | 3.7 | 4.2 | 4.5 | 3.0 | 3.8 |
| 11 | 8.3 | 6.5 | 7.8 | 6.8 | 5.6 | 6.3 | 4.5 | 3.5 | 4.0 | 3.8 | 2.9 | 3.4 |
| 12 | 7.9 | 7.6 | 7.8 | 6.1 | 5.4 | 5.8 | 4.4 | 3.6 | 4.0 | 4.7 | 3.2 | 4.0 |
| 13 | 8.1 | 7.6 | 7.9 | 5.5 | 4.8 | 5.2 | 4.3 | 3.4 | 4.0 | 5.3 | 4.7 | 5.0 |
| 14 | 7.7 | 7.1 | 7.5 | 5.4 | 4.4 | 4.9 | 4.5 | 1.3 | 4.1 | 5.3 | 4.9 | 5.1 |
| 15 | 7.2 | 6.7 | 7.0 | 5.4 | 4.4 | 5.0 | 5.1 | 4.2 | 4.6 | 6.5 | 4.4 | 5.0 |
| 16 | 7.0 | 6.2 | 6.7 | 5.5 | 4.7 | 5.2 | 4.7 | 3.8 | 4.4 | 6.8 | 4.1 | 5.5 |
| 17 | 6.5 | 5.7 | 6.3 | 5.2 | 4.7 | 4.9 | 4.5 | 3.4 | 4.2 | 5.2 | 4.3 | 4.8 |
| 18 | 6.2 | 5.4 | 5.9 | 6.1 | 4.5 | 5.3 | 5.6 | 3.2 | 4.0 | 6.1 | 4.6 | 5.2 |
| 19 | 6.2 | 5.1 | 5.7 | 6.6 | 5.4 | 6.0 | 4.8 | 1.0 | 2.9 | 4.9 | --- | --- |
| 20 | 5.8 | 4.7 | 5.5 | 5.9 | 4.9 | 5.5 | 3.8 | 1.8 | 2.7 | --- | --- | --- |
| 21 | 5.7 | 3.8 | 4.6 | 5.3 | 4.2 | 5.0 | 4.4 | 3.5 | 4.1 | --- | --- | --- |
| 22 | 5.5 | 3.7 | 4.6 | 6.0 | 4.8 | 5.3 | 4.5 | 3.5 | 4.1 | --- | --- | --- |
| 23 | 5.6 | 4.8 | 5.3 | 6.2 | 5.0 | 5.7 | 5.0 | 3.5 | 4.2 | --- | --- | --- |
| 24 | 5.5 | 4.6 | 5.2 | 5.9 | 5.0 | 5.4 | 3.9 | 2.1 | 3.1 | --- | --- | --- |
| 25 | 5.7 | 4.8 | 5.4 | 5.8 | 4.7 | 5.2 | 4.9 | 3.6 | 4.3 | --- | --- | --- |
| 26 | 5.7 | 4.5 | 5.3 | 5.6 | 4.9 | 5.3 | 5.0 | 4.1 | 4.6 | --- | --- | --- |
| 27 | 5.1 | 3.8 | 4.8 | 5.4 | 4.5 | 5.0 | 4.8 | 3.1 | 4.3 | 6.3 | 4.4 | 5.1 |
| 28 | 5.0 | 3.3 | 4.3 | 7.0 | 3.9 | 4.9 | 5.0 | 3.1 | 4.2 | 4.2 | 3.6 | 3.9 |
| 29 | --- | --- | --- | 7.4 | 4.9 | 5.8 | 5.4 | 2.3 | 3.6 | 4.6 | 3.2 | 3.7 |
| 30 | --- | --- | --- | 7.2 | 2.2 | 5.7 | 4.5 | 3.2 | 4.1 | 4.9 | 3.7 | 4.3 |
| 31 | --- | --- | --- | 6.9 | 4.1 | 5.1 | --- | --- | --- | 5.0 | 4.1 | 4.6 |
| MONTH | 8.3 | 3.3 | 6.0 | 7.4 | .3 | 5.3 | 6.3 | 1.0 | 4.1 | 6.8 | 2.9 | 4.4 |

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 6.4 | 4.1 | 4.9 | 6.0 | 4.2 | 5.4 | 4.1 | .0 | 3.1 | 4.0 | --- | --- |
| 2 | 4.4 | 3.4 | 3.9 | 5.5 | 3.8 | 4.9 | 4.7 | 1.7 | 3.7 | --- | --- | --- |
| 3 | 5.4 | 3.8 | 4.6 | 7.0 | 3.7 | 5.0 | 4.4 | 2.1 | 3.6 | --- | --- | --- |
| 4 | 5.3 | 4.3 | 4.8 | 5.7 | 3.0 | 4.1 | 4.7 | 2.0 | 3.8 | --- | --- | --- |
| 5 | 6.4 | 4.0 | 5.2 | 3.9 | 3.3 | 3.6 | 4.7 | 2.8 | 4.0 | --- | --- | --- |
| 6 | 4.5 | 3.4 | 3.7 | 4.1 | 3.7 | 3.9 | 4.6 | 1.7 | 3.4 | --- | --- | --- |
| 7 | 3.5 | 3.1 | 3.4 | 4.5 | 3.7 | 4.2 | 4.5 | 2.9 | 3.9 | --- | --- | --- |
| 8 | 3.3 | 2.5 | 2.9 | 5.1 | 1.3 | 4.3 | 5.4 | 2.8 | 3.7 | --- | --- | --- |
| 9 | 3.9 | 2.9 | 3.3 | 4.9 | 4.6 | 4.8 | 5.1 | 3.9 | 4.4 | --- | --- | --- |
| 10 | 4.0 | 2.6 | 3.5 | 4.9 | 4.5 | 4.7 | 4.8 | 3.9 | 4.4 | --- | --- | --- |
| 11 | 4.2 | 3.8 | 4.0 | 4.7 | 4.2 | 4.6 | 4.8 | 4.2 | 4.6 | --- | --- | --- |
| 12 | 4.7 | 3.9 | 4.4 | 5.2 | 4.4 | 4.8 | 4.5 | 4.1 | 4.3 | --- | --- | --- |
| 13 | 4.8 | 4.3 | 4.6 | 5.4 | 4.2 | 4.7 | 4.5 | 3.4 | 4.2 | --- | --- | --- |
| 14 | 5.5 | 4.4 | 4.9 | 4.5 | 4.1 | 4.3 | 4.2 | 3.6 | 3.9 | --- | --- | --- |
| 15 | 6.4 | 4.6 | 5.3 | 4.6 | 3.7 | 4.2 | 4.1 | 3.3 | 3.8 | 3.1 | 2.8 | 3.0 |
| 16 | 6.2 | 4.2 | 5.2 | 4.7 | 3.7 | 4.3 | 4.1 | 3.2 | 3.7 | 4.1 | 3.0 | 3.6 |
| 17 | 4.7 | 4.1 | 4.4 | 4.7 | 3.4 | 4.1 | 4.5 | 1.4 | 3.2 | 4.5 | 3.9 | 4.2 |
| 18 | 4.5 | 3.8 | 4.2 | 6.3 | 3.2 | 4.3 | 4.2 | 2.0 | 3.4 | 4.8 | 4.2 | 4.5 |
| 19 | 5.7 | 4.0 | 4.7 | 4.9 | 3.1 | 4.3 | 3.4 | 2.8 | 3.2 | 4.6 | 4.1 | 4.3 |
| 20 | 6.4 | 5.6 | 6.0 | 5.2 | 3.8 | 4.4 | 4.1 | 3.3 | 3.5 | 4.6 | 4.0 | 4.3 |
| 21 | 6.7 | 6.4 | 6.6 | 4.6 | 4.0 | 4.3 | 4.0 | 3.1 | 3.6 | 4.4 | 3.8 | 4.2 |
| 22 | 6.9 | 6.7 | 6.8 | 4.2 | 2.3 | 3.7 | 4.1 | 3.0 | 3.5 | 4.0 | 3.3 | 3.8 |
| 23 | 6.9 | 6.3 | 6.7 | 4.6 | 2.8 | 4.1 | 4.1 | 3.1 | 3.6 | 4.1 | 3.5 | 3.8 |
| 24 | 6.7 | 6.1 | 6.4 | 4.8 | 3.6 | 4.3 | 4.3 | 3.5 | 3.9 | 3.9 | 2.0 | 3.3 |
| 25 | 6.1 | 5.0 | 5.8 | 6.0 | 3.9 | 4.7 | 4.4 | 3.6 | 4.0 | 4.1 | 3.3 | 3.8 |
| 26 | 6.2 | 5.2 | 5.8 | 6.0 | 3.9 | 4.8 | 4.4 | 3.5 | 4.0 | 4.0 | 2.6 | 3.5 |
| 27 | 5.6 | 4.8 | 5.3 | 4.7 | 2.6 | 3.9 | 4.6 | 2.8 | 3.9 | 4.2 | 3.3 | 3.9 |
| 28 | 6.7 | 5.2 | 5.8 | 4.4 | 2.2 | 3.7 | 4.6 | 3.3 | 4.2 | 4.3 | 3.2 | 3.9 |
| 29 | 6.7 | 5.0 | 5.9 | 4.1 | 1.6 | 3.3 | 4.0 | 2.6 | 3.5 | 4.3 | 3.3 | 3.8 |
| 30 | 6.4 | 5.2 | 5.9 | 3.6 | 1.9 | 2.9 | 4.0 | 3.3 | 3.6 | 4.3 | 2.7 | 3.8 |
| 31 | --- | --- | --- | 3.7 | 2.2 | 3.3 | 3.5 | 2.2 | 3.0 | --- | --- | --- |
| MONTH | 6.9 | 2.5 | 5.0 | 7.0 | 1.3 | 4.3 | 5.4 | .0 | 3.8 | 4.8 | 2.0 | 3.9 |
| YEAR | 8.3 | .0 | 4.9 | | | | | | | | | |

## 08058900 EAST FORK TRINITY RIVER AT MCKINNEY, TX

LOCATION.--Lat 33°14'38", long 96°36'31", Collin County, Hydrologic Unit 12030106, on downstream side of highway embankment near left end of main channel bridge on State Highways 5 and 121, 750 ft (230 m) downstream from Honey Creek, 1.2 mi (1.9 km) upstream from Southern Pacific Railway Co. bridge, 1.7 mi (2.7 km) upstream from Clemons Creek, 3.3 mi (5.3 km) north of McKinney, 26.1 mi (42.0 km) upstream from Lavon Dam, and 86.5 mi (139.2 km) upstream from mouth.

DRAINAGE AREA.--164 $mi^2$ (425 $km^2$).

### WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 528.74 ft (161.160 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. At end of year, flow from 89.1 $mi^2$ (230.8 $km^2$) above this station was affected at times by discharge from the flood-detention pools of 49 floodwater-retarding structures with a combined detention capacity of 26,080 acre-ft (32.2 $hm^3$). A nonrecording rain gage is located at station. On Jan. 8, 1981, telemeter (data collection platform, solar panel, and antenna) was installed at site.

AVERAGE DISCHARGE.--6 years, 52.6 $ft^3/s$ (1.490 $m^3/s$), 38,110 acre-ft/yr (47.0 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,100 $ft^3/s$ (371 $m^3/s$) Mar. 27, 1977, gage height, 19.84 ft (6.047 m), from rating curve extended above 800 $ft^3/s$ (22.7 $m^3/s$); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1913, about 28 ft (8.5 m) in April 1942, discharge not determined, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,320 $ft^3/s$ (94.0 $m^3/s$) June 5 at 1945 hours, gage height, 18.52 ft (5.645 m); no flow Aug. 3, 11, 12, 16-18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 180 | 31 | 8.9 | 22 | 12 | 123 | 80 | 235 | 190 | 30 | .12 | .01 |
| 2 | 98 | 26 | 8.3 | 18 | 14 | 105 | 58 | 143 | 155 | 28 | .07 | .01 |
| 3 | 39 | 23 | 8.1 | 23 | 13 | 134 | 48 | 65 | 211 | 25 | .00 | .03 |
| 4 | 27 | 19 | 7.8 | 21 | 11 | 780 | 91 | 50 | 163 | 161 | 1.6 | 8.5 |
| 5 | 22 | 16 | 7.4 | 18 | 11 | 296 | 51 | 43 | 1410 | 195 | 3.6 | 6.4 |
| 6 | 20 | 14 | 8.0 | 16 | 11 | 194 | 35 | 39 | 1570 | 138 | 2.9 | 3.6 |
| 7 | 18 | 13 | 8.8 | 16 | 11 | 167 | 30 | 34 | 806 | 89 | 1.2 | .20 |
| 8 | 19 | 12 | 531 | 15 | 12 | 196 | 27 | 46 | 450 | 55 | .01 | 2.7 |
| 9 | 16 | 11 | 520 | 15 | 12 | 140 | 26 | 265 | 294 | 40 | .01 | 1.4 |
| 10 | 15 | 11 | 256 | 14 | 15 | 121 | 26 | 326 | 229 | 32 | .01 | .03 |
| 11 | 14 | 10 | 179 | 14 | 27 | 101 | 25 | 131 | 203 | 25 | .00 | .03 |
| 12 | 13 | 9.6 | 135 | 15 | 15 | 83 | 22 | 78 | 152 | 21 | .00 | .01 |
| 13 | 11 | 9.2 | 105 | 15 | 14 | 71 | 20 | 51 | 117 | 18 | .01 | .03 |
| 14 | 8.8 | 8.1 | 85 | 14 | 13 | 57 | 18 | 41 | 98 | 17 | .01 | .44 |
| 15 | 12 | 6.9 | 71 | 15 | 13 | 49 | 20 | 32 | 194 | 15 | .01 | 7.1 |
| 16 | 14 | 6.8 | 61 | 13 | 13 | 43 | 19 | 52 | 2200 | 14 | .00 | 3.1 |
| 17 | 374 | 6.8 | 52 | 13 | 12 | 37 | 17 | 56 | 713 | 12 | .00 | .06 |
| 18 | 273 | 15 | 47 | 12 | 11 | 37 | 16 | 47 | 361 | 11 | .00 | .03 |
| 19 | 163 | 14 | 41 | 12 | 11 | 34 | 33 | 38 | 247 | 10 | .02 | .03 |
| 20 | 115 | 11 | 32 | 15 | 11 | 30 | 37 | 32 | 190 | 9.3 | .02 | .03 |
| 21 | 69 | 9.6 | 26 | 18 | 10 | 27 | 40 | 27 | 161 | 6.9 | .02 | .03 |
| 22 | 44 | 8.8 | 26 | 19 | 10 | 25 | 427 | 23 | 141 | 6.2 | .01 | .03 |
| 23 | 30 | 9.2 | 27 | 20 | 10 | 23 | 835 | 23 | 128 | 5.1 | .02 | .03 |
| 24 | 21 | 11 | 39 | 19 | 9.0 | 22 | 357 | 434 | 115 | 4.2 | .01 | .20 |
| 25 | 17 | 12 | 31 | 18 | 7.8 | 21 | 209 | 491 | 95 | 3.4 | .01 | .44 |
| 26 | 15 | 11 | 27 | 17 | 7.8 | 20 | 140 | 252 | 78 | 2.4 | .01 | 2.7 |
| 27 | 273 | 11 | 25 | 15 | 6.2 | 22 | 105 | 1380 | 65 | 2.0 | .01 | 4.0 |
| 28 | 210 | 10 | 22 | 14 | 10 | 19 | 79 | 976 | 50 | 1.8 | .03 | 4.0 |
| 29 | 85 | 9.9 | 21 | 13 | --- | 467 | 94 | 508 | 40 | 1.8 | .03 | 3.1 |
| 30 | 46 | 9.8 | 23 | 12 | --- | 213 | 64 | 410 | 34 | .76 | .03 | 2.7 |
| 31 | 37 | --- | 24 | 11 | --- | 127 | --- | 258 | --- | .42 | .01 | --- |
| TOTAL | 2298.8 | 375.7 | 2463.3 | 492 | 332.8 | 3784 | 3049 | 6586 | 10860 | 980.28 | 9.78 | 50.97 |
| MEAN | 74.2 | 12.5 | 79.5 | 15.9 | 11.9 | 122 | 102 | 212 | 362 | 31.6 | .32 | 1.70 |
| MAX | 374 | 31 | 531 | 23 | 27 | 780 | 835 | 1380 | 2200 | 195 | 3.6 | 8.5 |
| MIN | 8.8 | 6.8 | 7.4 | 11 | 6.2 | 19 | 16 | 23 | 34 | .42 | .00 | .01 |
| AC-FT | 4560 | 745 | 4890 | 976 | 660 | 7510 | 6050 | 13060 | 21540 | 1940 | 19 | 101 |

CAL YR 1980 TOTAL 6787.01 MEAN 18.5 MAX 557 MIN .00 AC-FT 13460
WTR YR 1981 TOTAL 31282.63 MEAN 85.7 MAX 2200 MIN .00 AC-FT 62050

08058900 EAST FORK TRINITY RIVER AT MCKINNEY, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH FIELD (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, BIOCHEM UNINHIB 5 DAY (MG/L) | HARD-NESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 08... | 1500 | 20 | 296 | 8.0 | 19.0 | 60 | 1.9 | 7.0 | 19 | 1.7 | 120 |
| JAN | | | | | | | | | | | |
| 20... | 1300 | 14 | 491 | 7.8 | 4.5 | 10 | 2.6 | 12.4 | 97 | 1.0 | 220 |
| APR | | | | | | | | | | | |
| 08... | 0950 | 28 | 515 | 7.9 | 17.5 | 10 | 42 | 7.3 | 77 | 1.7 | 240 |
| JUN | | | | | | | | | | | |
| 03... | 1220 | 254 | 363 | 7.9 | 22.0 | 20 | 410 | 6.7 | 76 | 4.6 | 160 |
| JUL | | | | | | | | | | | |
| 15... | 0915 | 8.5 | 478 | 7.9 | 29.5 | 20 | 30 | 5.9 | 79 | 1.6 | 220 |
| SEP | | | | | | | | | | | |
| 16... | 1120 | 3.6 | 419 | 7.7 | 22.0 | 10 | 25 | 4.6 | 53 | 2.0 | 190 |

| DATE | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 (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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 08... | 11 | 46 | 1.4 | 8.5 | .3 | 2.8 | 110 | 32 | 3.7 | .4 | 8.7 |
| JAN | | | | | | | | | | | |
| 20... | 41 | 84 | 2.8 | 16 | .5 | 2.2 | 180 | 59 | 8.3 | .3 | 2.4 |
| APR | | | | | | | | | | | |
| 08... | 31 | 92 | 2.8 | 17 | .5 | 3.1 | 210 | 59 | 10 | .4 | 4.4 |
| JUN | | | | | | | | | | | |
| 03... | 22 | 62 | 1.8 | 7.7 | .3 | 4.5 | 140 | 36 | 6.3 | .3 | 9.4 |
| JUL | | | | | | | | | | | |
| 15... | 23 | 85 | 2.7 | 15 | .4 | 4.1 | 200 | 50 | 9.0 | .3 | 11 |
| SEP | | | | | | | | | | | |
| 16... | 18 | 71 | 2.6 | 12 | .4 | 4.7 | 170 | 35 | 6.5 | .4 | 9.7 |

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (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) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 08... | 170 | 63 | 56 | .76 | .020 | .78 | .030 | .97 | 1.0 | .090 | 7.3 |
| JAN | | | | | | | | | | | |
| 20... | 283 | 12 | 0 | .99 | .010 | 1.0 | .050 | .74 | .79 | .040 | 10 |
| APR | | | | | | | | | | | |
| 08... | 315 | 77 | 17 | .34 | .020 | .36 | .090 | .78 | .87 | .090 | 8.0 |
| JUN | | | | | | | | | | | |
| 03... | 212 | 174 | 36 | .64 | .050 | .69 | .270 | 1.4 | 1.7 | .390 | 20 |
| JUL | | | | | | | | | | | |
| 15... | 298 | 37 | 15 | .29 | .010 | .30 | .140 | 1.3 | 1.4 | .080 | 6.1 |
| SEP | | | | | | | | | | | |
| 16... | 244 | 39 | 11 | .17 | .040 | .21 | .190 | 1.0 | 1.2 | .050 | 7.1 |

08058900 EAST FORK TRINITY RIVER AT MCKINNEY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | ARSENIC DIS- SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 20... | 1300 | 1 | 60 | <1 | 0 | <10 | 20 |
| APR | | | | | | | |
| 08... | 0950 | 1 | 200 | <1 | 10 | <10 | 40 |
| JUL | | | | | | | |
| 15... | 0915 | 4 | 90 | <1 | 0 | <10 | 470 |

| DATE | 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) |
|---|---|---|---|---|---|---|
| JAN | | | | | | |
| 20... | <10 | 40 | .0 | 1 | 0 | 5 |
| APR | | | | | | |
| 08... | <10 | 40 | .1 | 1 | 0 | 7 |
| JUL | | | | | | |
| 15... | <10 | 170 | .1 | 0 | 0 | 50 |

## 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 (5.6 km) upstream from Hatler Banch, 4.8 mi (7.7 km) west of Blue Ridge, 7.4 mi (11.9 km) upstream from Stiff Creek, 14.7 mi (23.7 km) upstream from mouth, and 24.7 mi (39.7 km) upstream from Lavon Dam.

DRAINAGE AREA.--83.1 $mi^2$ (215.2 $km^2$).

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

GAGE.--Water-stage recorder. Datum of gage is 536.29 ft (163.461 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. At end of year, flow from 47.4 $mi^2$ (122.8 $km^2$) above this station was affected at times by discharge from the flood-detention pools of 34 floodwater-retarding structures with a combined detention capacity of 12,710 acre-ft (15.7 $hm^3$). Several observations of water temperature were made during the year. On Jan. 9, 1981, telemeter (data collection platform, solar panel, battery, and antenna) was installed a station.

AVERAGE DISCHARGE.--6 years, 26.1 $ft^3/s$ (0.739 $m^3/s$), 18,910 acre-ft/yr (23.3 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,650 $ft^3/s$ (132 $m^3/s$) Apr. 19, 1977, gage height, 16.93 ft (5.160 m); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1900, 20.7 ft (6.31 m) probably in July 1913, from information furnished by State Department of Highways and Public Transportation. The probable date is from published records for discontinued station 08059500 located 9.7 mi (15.6 km) downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,060 $ft^3/s$ (30.0 $m^3/s$) June 5 at 1700 hours, gage height, 13.40 ft (4.084 m); minimum, 0.28 $ft^3/s$ (0.008 $m^3/s$) Oct. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 17 | 17 | 10 | 18 | 11 | 46 | 42 | 28 | 68 | 14 | 2.4 | .73 |
| 2 | 8.9 | 14 | 10 | 17 | 12 | 40 | 34 | 27 | 61 | 14 | 2.4 | 17 |
| 3 | 4.5 | 12 | 9.9 | 17 | 12 | 44 | 30 | 21 | 79 | 13 | 2.2 | 35 |
| 4 | 2.8 | 10 | 9.1 | 16 | 11 | 288 | 38 | 22 | 91 | 30 | 1.8 | 11 |
| 5 | 1.7 | 8.6 | 8.9 | 14 | 10 | 142 | 31 | 23 | 550 | 42 | 1.6 | 6.9 |
| 6 | 1.2 | 7.8 | 9.2 | 14 | 10 | 98 | 24 | 22 | 610 | 30 | 1.4 | 5.3 |
| 7 | 1.1 | 7.8 | 10 | 14 | 10 | 74 | 22 | 19 | 336 | 25 | 1.3 | 6.3 |
| 8 | 1.3 | 7.1 | 167 | 14 | 10 | 71 | 21 | 21 | 239 | 20 | 3.4 | 2.7 |
| 9 | 1.4 | 7.1 | 200 | 13 | 10 | 59 | 20 | 121 | 173 | 15 | 3.9 | 2.3 |
| 10 | .94 | 7.1 | 121 | 13 | 15 | 53 | 19 | 223 | 134 | 12 | 3.7 | 1.9 |
| 11 | .63 | 7.1 | 81 | 13 | 19 | 48 | 18 | 74 | 114 | 10 | 2.9 | 1.5 |
| 12 | .45 | 6.8 | 65 | 12 | 12 | 42 | 17 | 49 | 92 | 9.1 | 1.4 | 3.0 |
| 13 | .35 | 6.8 | 52 | 12 | 11 | 39 | 16 | 38 | 67 | 8.1 | 1.0 | 3.9 |
| 14 | 4.2 | 6.8 | 44 | 12 | 11 | 36 | 15 | 31 | 53 | 7.5 | .97 | 2.4 |
| 15 | 18 | 6.5 | 40 | 12 | 11 | 37 | 15 | 26 | 110 | 7.5 | .90 | 3.7 |
| 16 | 6.5 | 6.2 | 36 | 12 | 11 | 35 | 15 | 35 | 848 | 6.6 | .82 | 2.6 |
| 17 | 103 | 8.9 | 32 | 11 | 11 | 33 | 14 | 38 | 379 | 6.0 | .85 | 1.6 |
| 18 | 110 | 13 | 30 | 11 | 11 | 36 | 12 | 36 | 267 | 5.5 | .87 | 1.1 |
| 19 | 64 | 12 | 26 | 11 | 11 | 31 | 22 | 30 | 206 | 4.8 | .95 | 2.7 |
| 20 | 30 | 7.7 | 22 | 12 | 11 | 28 | 24 | 25 | 145 | 4.6 | .95 | 3.7 |
| 21 | 16 | 8.6 | 19 | 14 | 11 | 25 | 16 | 21 | 100 | 4.6 | .95 | 1.8 |
| 22 | 12 | 10 | 18 | 14 | 12 | 23 | 100 | 22 | 71 | 4.1 | .85 | .92 |
| 23 | 8.9 | 11 | 22 | 15 | 11 | 20 | 219 | 19 | 54 | 3.7 | .71 | .85 |
| 24 | 7.1 | 13 | 23 | 15 | 10 | 18 | 98 | 188 | 45 | 3.6 | .92 | .82 |
| 25 | 5.6 | 13 | 21 | 14 | 9.0 | 17 | 68 | 237 | 34 | 3.2 | .73 | .75 |
| 26 | 5.3 | 13 | 20 | 13 | 9.3 | 17 | 51 | 156 | 28 | 2.9 | .60 | .64 |
| 27 | 83 | 12 | 21 | 12 | 9.9 | 17 | 39 | 367 | 23 | 2.9 | .56 | .58 |
| 28 | 108 | 11 | 22 | 11 | 11 | 17 | 33 | 335 | 20 | 3.0 | 2.2 | .50 |
| 29 | 62 | 10 | 21 | 11 | --- | 137 | 36 | 152 | 18 | 3.0 | 1.7 | .46 |
| 30 | 32 | 10 | 20 | 10 | --- | 86 | 36 | 147 | 15 | 2.7 | .95 | .42 |
| 31 | 22 | --- | 19 | 9.9 | --- | 55 | --- | 90 | --- | 2.4 | .82 | --- |
| TOTAL | 739.87 | 291.9 | 1209.1 | 406.9 | 313.2 | 1712 | 1145 | 2643 | 5030 | 320.8 | 46.70 | 123.07 |
| MEAN | 23.9 | 9.73 | 39.0 | 13.1 | 11.2 | 55.2 | 38.2 | 85.3 | 168 | 10.3 | 1.51 | 4.10 |
| MAX | 110 | 17 | 200 | 18 | 19 | 288 | 219 | 367 | 848 | 42 | 3.9 | 35 |
| MIN | .35 | 6.2 | 8.9 | 9.9 | 9.0 | 17 | 12 | 19 | 15 | 2.4 | .56 | .42 |
| AC-FT | 1470 | 579 | 2400 | 807 | 621 | 3400 | 2270 | 5240 | 9980 | 636 | 93 | 244 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 3568.95 | MEAN | 9.75 | MAX 200 | MIN | .00 | AC-FT | 7080 |
| WTR YR 1981 | TOTAL | 13981.54 | MEAN | 38.3 | MAX 848 | MIN | .35 | AC-FT | 27730 |

## 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 (1,170 m) upstream from St. Louis Southwestern Railway Lines bridge, 4,000 ft (1,200 m) upstream from bridge on State Highway 78, 2.9 mi (4.7 km) west of Lavon, and 55.9 mi (89.9 km) upstream from mouth.

DRAINAGE AREA.--770 mi² (1,990 km²).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1953 to current year. Prior to October 1970, published as Lavon Reservoir.

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, nonrecording gage in the approach channel at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 18,860 ft (5,749 m) long, including a 568-foot (173 m) gated spillway with twelve 40.0- by 28.0-foot (12.2 by 8.5 m) tainter gates. The original dam was 9,499 ft (2,895 m) long, but conservation capacity was increased to the present size in December 1975. Deliberate impoundment began Sept. 14, 1953, and the dam was completed in October 1953. The low-flow outlets consist of five 36-inch-diameter (914 mm) controlled sluice gates. The capacity table is based on Table No. 9 (Design Memo 1970 Conditions). The lake was designed for flood control and water conservation. Water for municipal supply can be released down to elevation 453.0 ft (138.07 m). 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 (85.3 hm³). These structures control runoff from 242 mi² (627 km²) in the East Fork Trinity River, Pilot Grove Creek, and Sister Grove Creek drainage basins. 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 | 514.0 | - |
| Design flood | 509.0 | 921,200 |
| Top of tainter gates | 503.5 | 748,200 |
| Top of conservation pool | 492.0 | 456,500 |
| Crest of spillway (sill of tainter gates) | 475.5 | 178,300 |
| Lowest gated outlet (invert) | 453.0 | 12,700 |

COOPERATION.--Records furnished by the Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 523,500 acre-ft (645 hm³) June 4, 1979, elevation, 494.98 ft (150.870 m); minimum since lake first filled in 1957, 80,150 acre-ft (98.8 hm³) Apr. 17, 1976, elevation, 465.96 ft (142.025 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 482,100 acre-ft (594 hm³) July 6 at 0800 hours, elevation, 493.16 ft (150.315 m); minimum, 285,400 acre-ft (352 hm³) Feb. 27 at 1300 hours, elevation, 482.86 ft (147.176 m).

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

| | | | |
|---|---|---|---|
| 482.0 | 271,400 | 489.0 | 395,500 |
| 483.0 | 287,600 | 491.0 | 435,500 |
| 485.0 | 321,500 | 493.0 | 478,200 |
| 487.0 | 357,500 | 494.0 | 500,600 |

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 302200 | 296500 | 290500 | 295200 | 290500 | 288000 | 307200 | 313700 | 353600 | 466100 | 455800 | 433700 |
| 2 | 302100 | 296700 | 290200 | 294800 | 289800 | 288000 | 306500 | 313700 | 356800 | 465700 | 454700 | 433300 |
| 3 | 301400 | 296700 | 289700 | 295000 | 289700 | 291700 | 307700 | 313900 | 360500 | 465400 | 453600 | 433100 |
| 4 | 301400 | 296200 | 289500 | 294300 | 289500 | 297200 | 307800 | 314000 | 364400 | 478500 | 452600 | 432900 |
| 5 | 300500 | 296000 | 289300 | 294000 | 289300 | 301700 | 307500 | 314000 | 381800 | 481200 | 451900 | 433100 |
| 6 | 299700 | 295500 | 289300 | 294300 | 288800 | 303200 | 306600 | 313900 | 404100 | 482100 | 451100 | 432700 |
| 7 | 298800 | 295200 | 290000 | 294000 | 289000 | 304400 | 305800 | 313200 | 414400 | 481800 | 450400 | 432500 |
| 8 | 298700 | 295000 | 294000 | 293800 | 289000 | 304900 | 306600 | 314000 | 418800 | 481400 | 449600 | 431700 |
| 9 | 298300 | 295000 | 295700 | 293800 | 289500 | 305100 | 306600 | 316300 | 421100 | 480300 | 448500 | 431000 |
| 10 | 298000 | 294800 | 297200 | 293500 | 290700 | 305400 | 306500 | 318900 | 422500 | 479000 | 447300 | 430200 |
| 11 | 297300 | 294500 | 297700 | 293500 | 288700 | 305800 | 306300 | 319800 | 423300 | 477200 | 447100 | 429400 |
| 12 | 296800 | 294000 | 298200 | 292800 | 288500 | 305800 | 305600 | 319200 | 423900 | 475700 | 446200 | 428800 |
| 13 | 296000 | 293800 | 298500 | 292800 | 288300 | 306000 | 306000 | 320500 | 424100 | 474100 | 445200 | 430600 |
| 14 | 295700 | 294000 | 298500 | 293000 | 288000 | 305600 | 306100 | 319600 | 424700 | 472400 | 444300 | 430800 |
| 15 | 295000 | 293500 | 298700 | 292700 | 288000 | 306000 | 305100 | 320100 | 429600 | 470900 | 443500 | 430600 |
| 16 | 294800 | 294000 | 298500 | 292700 | 287700 | 305600 | 305100 | 321500 | 446200 | 469600 | 442600 | 429600 |
| 17 | 296500 | 293700 | 298300 | 291800 | 287500 | 305400 | 304400 | 322000 | 460900 | 468500 | 443500 | 428800 |
| 18 | 298000 | 293200 | 299400 | 291700 | 287300 | 305300 | 303900 | 323400 | 465400 | 467600 | 443300 | 428200 |
| 19 | 298200 | 292700 | 298500 | 291800 | 287200 | 304900 | 304400 | 323600 | 467000 | 466700 | 442600 | 426500 |
| 20 | 298200 | 292500 | 297700 | 291800 | 286900 | 303900 | 304400 | 322900 | 468000 | 466100 | 441600 | 425500 |
| 21 | 297800 | 292200 | 297000 | 292000 | 287300 | 304900 | 304800 | 322400 | 468700 | 465000 | 440800 | 425100 |
| 22 | 297500 | 292700 | 296700 | 292000 | 286900 | 304400 | 306300 | 322200 | 469600 | 464100 | 439900 | 424900 |
| 23 | 298500 | 292700 | 297000 | 291800 | 286700 | 303900 | 308200 | 322000 | 469100 | 463100 | 439100 | 424500 |
| 24 | 296800 | 292500 | 296800 | 291800 | 286500 | 303700 | 310600 | 324700 | 469100 | 462400 | 438500 | 423500 |
| 25 | 296200 | 292000 | 296200 | 291700 | 286000 | 303700 | 311100 | 328200 | 468900 | 461800 | 437900 | 422700 |
| 26 | 295800 | 291700 | 296000 | 291700 | 286000 | 303200 | 311100 | 330000 | 468300 | 460900 | 437000 | 422300 |
| 27 | 296700 | 291300 | 296000 | 291500 | 286000 | 303200 | 311100 | 337300 | 468000 | 459600 | 437200 | 422100 |
| 28 | 297000 | 291000 | 296000 | 290800 | 287300 | 304100 | 312100 | 343000 | 467400 | 459200 | 436200 | 421500 |
| 29 | 296800 | 290700 | 295800 | 291500 | --- | 305300 | 312100 | 348500 | 467000 | 458300 | 435400 | 420900 |
| 30 | 296800 | 290300 | 295300 | 290800 | --- | 306100 | 312100 | 351200 | 466300 | 457500 | 434500 | 420000 |
| 31 | 296700 | --- | 295300 | 291200 | --- | 307000 | --- | 352700 | --- | 456400 | 433700 | --- |
| MAX | 302200 | 296700 | 299400 | 295200 | 290700 | 307000 | 312100 | 352700 | 469600 | 482100 | 455800 | 433700 |
| MIN | 294800 | 290300 | 289300 | 290800 | 286000 | 288000 | 303900 | 313200 | 353600 | 456400 | 433700 | 420000 |
| (†) | 483.54 | 483.16 | 483.46 | 483.21 | 482.98 | 484.15 | 484.45 | 486.73 | 492.44 | 491.98 | 490.90 | 490.23 |
| (‡) | -5200 | -6400 | +5000 | -4100 | -3900 | +19700 | +5100 | +40600 | +113600 | -9900 | -22700 | -13700 |
| (††) | 7160 | 6530 | 7610 | 7040 | 6920 | 7280 | 7790 | 7260 | 8080 | 11240 | 12610 | 8570 |

CAL YR 1980 MAX 396700 MIN 289300 ‡ - 93400 †† 107700
WTR YR 1981 MAX 482100 MIN 286000 ‡ -118100 †† 98090

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, for municipal and industrial uses by North Texas Municipal Water District and city of Garland.

08060500 LAVON LAKE NEAR LAVON, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to September 1974, October 1975 to current year.

330203096284901 LAVON LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) | STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARDNESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | | |
| 11... | 1400 | 1.00 | 276 | 7.8 | 6.0 | 1.00 | 11.8 | 94 | <1 | <1 | 120 |
| 11... | 1402 | 10.0 | 276 | 7.9 | 5.0 | -- | 11.8 | 91 | -- | -- | -- |
| 11... | 1404 | 20.0 | 276 | 7.9 | 5.0 | -- | 11.8 | 91 | -- | -- | -- |
| 11... | 1406 | 30.0 | 276 | 7.9 | 5.0 | -- | 11.8 | 91 | -- | -- | 120 |
| 11... | 1407 | 1.70 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | | |
| 14... | 1000 | 1.00 | 309 | 8.5 | 20.5 | .60 | 9.2 | 103 | K1 | K4 | 130 |
| 14... | 1001 | 1.00 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | 1002 | 10.0 | 309 | 8.5 | 20.5 | -- | 9.0 | 101 | -- | -- | -- |
| 14... | 1003 | 20.0 | 309 | 8.4 | 20.5 | -- | 9.0 | 101 | -- | -- | -- |
| 14... | 1004 | 30.0 | 309 | 8.4 | 20.5 | -- | 8.8 | 99 | -- | -- | -- |
| 14... | 1005 | 37.0 | 312 | 8.4 | 20.5 | -- | 8.5 | 94 | -- | -- | 130 |
| AUG | | | | | | | | | | | |
| 06... | 1030 | 1.00 | 290 | 7.8 | 29.5 | 2.10 | 6.2 | 83 | <1 | <1 | 120 |
| 06... | 1031 | 3.50 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | 1032 | 10.0 | 290 | 7.7 | 29.0 | -- | 5.5 | 72 | -- | -- | -- |
| 06... | 1033 | 20.0 | 290 | 7.7 | 29.0 | -- | 5.3 | 70 | -- | -- | -- |
| 06... | 1034 | 30.0 | 291 | 7.4 | 28.5 | -- | 3.0 | 39 | -- | -- | -- |
| 06... | 1035 | 35.0 | 300 | 7.0 | 27.5 | -- | .0 | 0 | -- | -- | -- |
| 06... | 1036 | 41.0 | 310 | 6.8 | 25.5 | -- | .0 | 0 | -- | -- | 120 |

| DATE | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) |
|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | |
| 11... | 3 | 44 | 3.3 | 13 | .5 | 4.1 | 120 | 30 | 8.1 | .3 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | 1 | 43 | 3.2 | 14 | .6 | 4.1 | 120 | 30 | 8.2 | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | |
| 14... | 8 | 46 | 3.3 | 13 | .5 | 4.0 | 120 | 31 | 8.0 | .3 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | 18 | 46 | 3.3 | 13 | .5 | 4.2 | 110 | 31 | 8.0 | -- |
| AUG | | | | | | | | | | |
| 06... | 1 | 43 | 3.2 | 11 | .4 | 5.3 | 120 | 20 | 7.2 | .3 |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | 0 | 44 | 3.3 | 11 | .4 | 5.0 | 140 | 4.0 | 7.5 | -- |

| DATE | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | |
| 11... | 3.6 | 179 | .01 | .050 | .74 | .79 | .80 | .030 | <10 | 2 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | .00 | -- | -- | .73 | .73 | .050 | 10 | 0 |
| 11... | 3.5 | 178 | .00 | -- | -- | 1.40 | 1.4 | .050 | <10 | 2 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | |
| 14... | .2 | 178 | .05 | -- | -- | 1.10 | 1.2 | .060 | <10 | <1 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | .05 | -- | -- | 1.10 | 1.2 | .060 | 20 | 0 |
| 14... | -- | -- | .06 | -- | -- | .78 | .84 | .060 | 10 | 0 |
| 14... | .3 | 172 | .06 | -- | -- | .99 | 1.0 | .060 | <10 | 4 |
| AUG | | | | | | | | | | |
| 06... | 5.5 | 168 | .11 | -- | -- | .82 | .93 | .030 | 17 | 4 |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | -- | <.10 | -- | -- | .85 | -- | .040 | 10 | 50 |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | 8.9 | 170 | <.10 | -- | -- | 1.70 | -- | .260 | 1100 | 920 |

LAVON LAKE NEAR LAVON, TX--Continued

330205096280001 LAVON LAKE SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|
| FEB | | | | | | | |
| 11... | 1420 | 1.00 | 276 | 7.8 | 6.5 | 11.6 | 94 |
| 11... | 1422 | 10.0 | 276 | 7.8 | 6.0 | 11.6 | 92 |
| 11... | 1424 | 20.0 | 276 | 7.8 | 6.0 | 11.6 | 92 |
| 11... | 1426 | 27.0 | 276 | 7.8 | 6.0 | 11.6 | 92 |
| MAY | | | | | | | |
| 14... | 0945 | 1.00 | 309 | 8.4 | 20.5 | 9.4 | 106 |
| 14... | 0946 | 10.0 | 309 | 8.3 | 20.5 | 9.2 | 103 |
| 14... | 0947 | 20.0 | 309 | 8.3 | 20.5 | 9.2 | 103 |
| 14... | 0948 | 30.0 | 309 | 8.3 | 20.5 | 9.1 | 102 |
| 14... | 0949 | 36.0 | 309 | 8.3 | 20.5 | 9.1 | 102 |
| AUG | | | | | | | |
| 06... | 1105 | 1.00 | 290 | 7.9 | 29.5 | 6.6 | 88 |
| 06... | 1106 | 10.0 | 290 | 7.8 | 29.0 | 6.0 | 79 |
| 06... | 1107 | 20.0 | 290 | 7.5 | 29.0 | 4.1 | 54 |
| 06... | 1108 | 30.0 | 290 | 7.4 | 28.5 | 4.3 | 57 |
| 06... | 1109 | 40.0 | 306 | 6.9 | 25.5 | .0 | 0 |

330654096273201 LAVON LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) |
|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | |
| 11... | 1600 | 1.00 | 272 | 7.9 | 6.0 | .70 | 11.5 | 91 | K2 |
| 11... | 1602 | 10.0 | 272 | 7.8 | 5.5 | -- | 11.5 | 90 | -- |
| 11... | 1604 | 19.0 | 272 | 7.8 | 5.0 | -- | 11.5 | 89 | -- |
| MAY | | | | | | | | | |
| 14... | 1130 | 1.00 | 303 | 8.7 | 21.0 | .60 | 9.2 | 103 | <1 |
| 14... | 1131 | 10.0 | 305 | 8.6 | 21.0 | -- | 9.0 | 101 | -- |
| 14... | 1132 | 21.0 | 305 | 8.5 | 21.0 | -- | 8.6 | 97 | -- |
| AUG | | | | | | | | | |
| 06... | 1230 | 1.00 | 294 | 7.9 | 31.0 | .70 | 7.3 | 99 | <1 |
| 06... | 1231 | 10.0 | 294 | 7.7 | 30.5 | -- | 6.3 | 85 | -- |
| 06... | 1232 | 20.0 | 294 | 7.7 | 30.5 | -- | 5.8 | 78 | -- |
| 06... | 1233 | 26.0 | 294 | 7.6 | 30.5 | -- | 5.3 | 72 | -- |

| DATE | STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | |
| 11... | <1 | .02 | -- | -- | .81 | .83 | .040 | 10 | 10 |
| 11... | -- | .03 | .030 | .74 | .77 | .80 | .040 | 10 | 10 |
| 11... | -- | .03 | .040 | .68 | .72 | .75 | .040 | 40 | 10 |
| MAY | | | | | | | | | |
| 14... | <1 | .02 | -- | -- | .93 | .95 | .050 | 10 | 0 |
| 14... | -- | .05 | -- | -- | .95 | 1.0 | .050 | 0 | 0 |
| 14... | -- | .05 | -- | -- | .89 | .94 | .060 | 20 | 0 |
| AUG | | | | | | | | | |
| 06... | <1 | .10 | -- | -- | .88 | .98 | .040 | 0 | 0 |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | .10 | -- | -- | .86 | .96 | .070 | 30 | 10 |

LAVON LAKE NEAR LAVON, TX--Continued

330954096261201 LAVON LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|
| AUG | | | | | | | |
| 06... | 1430 | 1.00 | 307 | 7.7 | 32.0 | .90 | 7.3 |
| 06... | 1431 | 5.00 | 314 | 7.5 | 30.0 | -- | 6.0 |
| 06... | 1432 | 10.0 | 319 | 7.5 | 30.0 | -- | 5.0 |
| 06... | 1433 | 14.0 | 326 | 7.2 | 30.0 | -- | 3.0 |

| DATE | OXYGEN, DISSOLVED (PERCENT SATURATION) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|
| AUG | | | | | | | |
| 06... | 101 | .10 | .90 | 1.0 | .050 | 20 | 0 |
| 06... | 81 | -- | -- | -- | -- | -- | -- |
| 06... | 68 | -- | -- | -- | -- | -- | -- |
| 06... | 41 | .10 | 1.00 | 1.1 | .090 | 0 | 60 |

331023096250101 LAVON LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) | STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | |
| 11... | 1720 | 3.00 | 414 | 7.9 | 3.5 | .70 | 13.6 | 101 | K6 | K2 |
| MAY | | | | | | | | | | |
| 14... | 1215 | 1.00 | 346 | 8.2 | 21.0 | .20 | 7.6 | 85 | 92 | 250 |
| 14... | 1217 | 7.00 | 346 | 8.1 | 21.0 | -- | 7.2 | 81 | -- | -- |
| AUG | | | | | | | | | | |
| 06... | 1345 | 1.00 | 334 | 7.5 | 33.0 | 1.10 | 6.2 | 87 | K1 | K1 |
| 06... | 1346 | 10.0 | 324 | 7.2 | 30.5 | -- | 3.0 | 41 | -- | -- |
| 06... | 1348 | 15.0 | 335 | 6.9 | 30.5 | -- | .0 | 0 | -- | -- |

| DATE | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | |
| 11... | 210 | 13 | 80 | 3.2 | 16 | .5 | 2.2 | 200 | 35 |
| MAY | | | | | | | | | |
| 14... | 150 | 13 | 57 | 2.6 | 9.9 | .3 | 4.5 | 140 | 32 |
| 14... | 150 | 9 | 55 | 2.8 | 11 | .4 | 4.4 | 140 | 32 |
| AUG | | | | | | | | | |
| 06... | 140 | 0 | 52 | 3.5 | 9.7 | .4 | 6.8 | 150 | 5.0 |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | 140 | 0 | 51 | 3.4 | 9.5 | .4 | 6.7 | 150 | 7.0 |

| DATE | CHLORIDE, DISSOLVED (MG/L AS CL) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | |
| 11... | 10 | 1.2 | 268 | .37 | .85 | 1.2 | .050 | 10 | 20 |
| MAY | | | | | | | | | |
| 14... | 5.9 | 7.1 | 203 | .70 | 1.20 | 1.9 | .120 | <10 | 4 |
| 14... | 5.9 | 8.1 | 203 | .73 | 1.30 | 2.0 | .120 | 20 | 20 |
| AUG | | | | | | | | | |
| 06... | 6.7 | 8.1 | 182 | <.10 | 1.00 | -- | .050 | 15 | 9 |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | 6.5 | 8.7 | 183 | .11 | 1.50 | 1.6 | .160 | 370 | 420 |

LAVON LAKE NEAR LAVON, TX--Continued

330448096315601 LAVON LAKE SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | |
| 11... | 1625 | 1.00 | 365 | 7.9 | 5.0 | .60 | 12.4 | 96 | 160 | 27 |
| 11... | 1626 | 1.00 | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | |
| 14... | 1045 | 1.00 | 322 | 7.9 | 21.5 | .60 | 7.6 | 86 | 130 | 13 |
| 14... | 1046 | 1.00 | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | 1047 | 5.00 | 322 | 8.1 | 21.5 | -- | 7.6 | 86 | -- | -- |
| 14... | 1048 | 10.0 | 322 | 8.1 | 21.5 | -- | 7.4 | 84 | 130 | 13 |
| AUG | | | | | | | | | | |
| 06... | 1140 | 1.00 | 312 | 7.5 | 31.5 | .40 | 5.5 | 75 | 130 | 0 |
| 06... | 1141 | .60 | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | 1142 | 5.00 | 307 | 7.6 | 30.5 | -- | 5.0 | 68 | -- | -- |
| 06... | 1144 | 10.0 | 333 | 6.9 | 30.0 | -- | .0 | 0 | 140 | 1 |

| DATE | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | SILICA, DISSOLVED (MG/L AS SIO2) |
|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | |
| 11... | 58 | 2.9 | 20 | .7 | 3.6 | 130 | 51 | 11 | .3 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | |
| 14... | 48 | 3.1 | 12 | .5 | 4.1 | 120 | 33 | 8.0 | 1.9 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | 48 | 3.1 | 12 | .5 | 4.2 | 120 | 33 | 8.1 | 1.4 |
| AUG | | | | | | | | | |
| 06... | 47 | 3.0 | 10 | .4 | 5.9 | 130 | 11 | 7.4 | 5.9 |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | 51 | 3.2 | 10 | .4 | 6.2 | 140 | 6.0 | 7.3 | 6.0 |

| DATE | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | |
| 11... | 225 | .46 | .360 | 1.4 | 1.80 | 2.3 | .270 | 20 | 9 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | |
| 14... | 182 | .03 | -- | -- | 1.40 | 1.4 | .080 | <10 | 2 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | 182 | .05 | -- | -- | .97 | 1.0 | .080 | <10 | 4 |
| AUG | | | | | | | | | |
| 06... | 171 | .10 | -- | -- | .96 | 1.1 | .050 | <10 | -- |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | 174 | .11 | -- | -- | 1.00 | 1.1 | .070 | 280 | 310 |

LAVON LAKE NEAR LAVON, TX--Continued

330203096284901 LAVON LAKE SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | FEB 11,81 | MAY 14,81 | AUG 6,81 |
|---|---|---|---|
| TIME | 1407 | 1001 | 1031 |
| TOTAL CELLS/ML | 1900 | 6800 | 290000 |
| DIVERSITY: DIVISION | 1.1 | 1.2 | 0.2 |
| .CLASS | 1.1 | 1.2 | 0.2 |
| ..ORDER | 1.6 | 1.4 | 0.5 |
| ...FAMILY | 1.9 | 1.7 | 1.2 |
| ....GENUS | 2.1 | 1.9 | 1.4 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|
| BACILLARIOPHYTA (DIATOMS) | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..BACILLARIALES | | | | | | |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | 67 | 4 | 42 | 1 | -- | - |
| ..EUPODISCALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | 1300# | 66 | 4300# | 64 | -- | - |
| ....MELOSIRA | -- | - | 250 | 4 | -- | - |
| ..FRAGILARIALES | | | | | | |
| ...FRAGILARIACEAE | | | | | | |
| ....SYNEDRA | 33 | 2 | -- | - | * | 0 |
| ..NAVICULALES | | | | | | |
| ...CYMBELLACEAE | | | | | | |
| ....CYMBELLA | 17 | 1 | -- | - | -- | - |
| ...NAVICULACEAE | | | | | | |
| ....NAVICULA | -- | - | 42 | 1 | -- | - |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...DICTYOSPHAERIACEAE | | | | | | |
| ....DICTYOSPHAERIUM | 67 | 4 | -- | - | -- | - |
| ...HYDRODICTYACEAE | | | | | | |
| ....PEDIASTRUM | -- | - | -- | - | 4600 | 2 |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | 100 | 5 | -- | - | -- | - |
| ....CHODATELLA | 67 | 4 | -- | - | -- | - |
| ....OOCYSTIS | 17 | 1 | -- | - | -- | - |
| ....SELENASTRUM | 84 | 4 | 250 | 4 | -- | - |
| ...PALMELLACEAE | | | | | | |
| ....SPHAEROCYSTIS | -- | - | 380 | 6 | -- | - |
| ...SCENEDESMACEAE | | | | | | |
| ....COELASTRUM | -- | - | 630 | 9 | -- | - |
| ....SCENEDESMUS | 50 | 3 | -- | - | * | 0 |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CARTERIA | -- | - | 42 | 1 | -- | - |
| ....CHLAMYDOMONAS | 17 | 1 | -- | - | -- | - |
| ...PHACOTACEAE | | | | | | |
| ....PHACOTUS | -- | - | 130 | 2 | -- | - |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | |
| .CRYPTOPHYCEAE | | | | | | |
| ..CRYPTOMONADALES | | | | | | |
| ...CRYPTOCHRYSIDACEAE | | | | | | |
| ....CHROOMONAS | 17 | 1 | -- | - | -- | - |
| ...CRYPTOMONADACEAE | | | | | | |
| ....CRYPTOMONAS | 50 | 3 | -- | - | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....ANACYSTIS | 33 | 2 | -- | - | -- | - |
| ..NOSTOCALES | | | | | | |
| ...HAMMATOIDEACEAE | | | | | | |
| ....RAPHIDIOPSIS | -- | - | -- | - | 200000# | 71 |
| ...NOSTOCACEAE | | | | | | |
| ....ANABAENA | -- | - | -- | - | 12000 | 4 |
| ....ANABAENOPSIS | -- | - | -- | - | * | 0 |
| ....APHANIZOMENON | -- | - | -- | - | 43000 | 15 |
| ..OSCILLATORIALES | | | | | | |
| ...OSCILLATORIACEAE | | | | | | |
| ....LYNGBYA | -- | - | -- | - | 22000 | 8 |
| ....OSCILLATORIA | -- | - | 710 | 10 | -- | - |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....TRACHELOMONAS | 17 | 1 | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

LAVON LAKE NEAR LAVON, TX--Continued

330448096315601 LAVON LAKE SITE EC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | FEB 11,81 | MAY 14,81 | AUG 6,81 |
|---|---|---|---|
| TIME | 1626 | 1046 | 1141 |
| TOTAL CELLS/ML | 15000 | 6000 | 29 |
| DIVERSITY: DIVISION | 1.5 | 1.8 | 0.0 |
| .CLASS | 1.5 | 1.8 | 0.0 |
| ..ORDER | 1.7 | 2.5 | 0.0 |
| ...FAMILY | 1.7 | 3.3 | 0.0 |
| ....GENUS | 1.8 | 4.0 | 0.0 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|
| BACILLARIOPHYTA (DIATOMS) | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..BACILLARIALES | | | | | | |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | 140 | 1 | 110 | 2 | -- | - |
| ..EUPODISCALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | 5300# | 34 | 580 | 10 | -- | - |
| ....STEPHANODISCUS | -- | - | * | 0 | -- | - |
| ..FRAGILARIALES | | | | | | |
| ...FRAGILARIACEAE | | | | | | |
| ....SYNEDRA | * | 0 | -- | - | -- | - |
| ..NAVICULALES | | | | | | |
| ...NAVICULACEAE | | | | | | |
| ....NAVICULA | -- | - | -- | - | 29# | 100 |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...CHLOROCOCCACEAE | | | | | | |
| ....SCHROEDERIA | -- | - | * | 0 | -- | - |
| ....TETRAEDRON | -- | - | 55 | 1 | -- | - |
| ...DICTYOSPHAERIACEAE | | | | | | |
| ....DICTYOSPHAERIUM | -- | - | 250 | 4 | -- | - |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | 280 | 2 | 250 | 4 | -- | - |
| ....CHODATELLA | 140 | 1 | -- | - | -- | - |
| ....KIRCHNERIELLA | -- | - | 82 | 1 | -- | - |
| ....OOCYSTIS | -- | - | 82 | 1 | -- | - |
| ....SELENASTRUM | * | 0 | * | 0 | -- | - |
| ....TREUBARIA | -- | - | 82 | 1 | -- | - |
| ...RADIOCOCCACEAE | | | | | | |
| ....RADIOCOCCUS | -- | - | 110 | 2 | -- | - |
| ...SCENEDESMACEAE | | | | | | |
| ....GLOEOACTINIUM | -- | - | 960# | 16 | -- | - |
| ....SCENEDESMUS | -- | - | 380 | 6 | -- | - |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CARTERIA | -- | - | 250 | 4 | -- | - |
| ....CHLAMYDOMONAS | 1300 | 8 | 520 | 9 | -- | - |
| ....CHLOROGONIUM | * | 0 | -- | - | -- | - |
| ...PHACOTACEAE | | | | | | |
| ....PHACOTUS | -- | - | 160 | 3 | -- | - |
| ....PTEROMONAS | * | 0 | -- | - | -- | - |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | |
| .CRYPTOPHYCEAE | | | | | | |
| ..CRYPTOMONADALES | | | | | | |
| ...CRYPTOCHRYSIDACEAE | | | | | | |
| ....CHROOMONAS | * | 0 | * | 0 | -- | - |
| ...CRYPTOMONADACEAE | | | | | | |
| ....CRYPTOMONAS | * | 0 | * | 0 | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....AGMENELLUM | -- | - | 440 | 7 | -- | - |
| ....ANACYSTIS | 7700# | 50 | 160 | 3 | -- | - |
| ..OSCILLATORIALES | | | | | | |
| ...OSCILLATORIACEAE | | | | | | |
| ....LYNGBYA | -- | - | 960# | 16 | -- | - |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....EUGLENA | -- | - | 160 | 3 | -- | - |
| ....TRACHELOMONAS | * | 0 | 220 | 4 | -- | - |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | |
| .DINOPHYCEAE | | | | | | |
| ..DINOKONTAE | | | | | | |
| ...CERATIACEAE | | | | | | |
| ....CERATIUM | -- | - | * | 0 | -- | - |
| ...PERIDINIACEAE | | | | | | |
| ....PERIDINIUM | -- | - | 55 | 1 | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 08061000 EAST FORK TRINITY RIVER NEAR LAVON, TX

LOCATION.--Lat 33°01'25", long 96°28'31", Collin County, Hydrologic Unit 12030106, on left bank at downstream side of St. Louis Southwestern Railway Lines bridge, 150 ft (46 m) upstream from bridge on State Highway 78, 3,550 ft (1,082 m) downstream from Lavon Dam, 2.5 mi (4.0 km) west of Lavon, and 54.9 mi (88.3 km) upstream from mouth.

DRAINAGE AREA.--773 $mi^2$ (2,002 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1953 to current year.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder, concrete control, and crest-stage gage. Datum of gage is 429.58 ft (130.936 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1969, at site 150 ft (46 m) downstream at same datum.

REMARKS.--Water-discharge records fair. Flow is regulated by Lavon Lake (station 08060500). Gage-height telemeter at station.

AVERAGE DISCHARGE.--28 years, 320 $ft^3/s$ (9.062 $m^3/s$), 231,800 acre-ft/yr (286 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,000 $ft^3/s$ (1,100 $m^3/s$) May 26, 27, 1957, from records of released flow from Lavon Lake furnished by Corps of Engineers; maximum gage height, 17.34 ft (5.285 m) May 26, 1957; no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1894, 22.3 ft (6.80 m) in 1913 and in April 1942, from information by St. Louis Southwestern Railway Lines and local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 565 $ft^3/s$ (16.0 $m^3/s$) July 14 at 1000 hours, gage height, 10.40 ft (3.170 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .33 | .07 | .23 | .00 | .56 | 1.8 | .00 | 1.4 | .29 | .00 | .00 | .00 |
| 2 | .22 | .10 | .07 | .00 | .56 | .82 | .00 | .70 | 2.7 | .00 | .00 | .00 |
| 3 | .22 | .13 | .03 | .02 | .56 | 3.3 | .07 | .52 | 6.8 | .00 | .01 | .00 |
| 4 | .22 | .16 | .03 | .03 | .56 | 5.7 | .21 | .53 | 1.4 | 14 | .00 | .00 |
| 5 | .22 | .16 | .03 | .03 | .56 | .74 | .03 | .43 | 20 | 1.6 | .00 | .00 |
| 6 | .20 | .16 | .03 | .03 | .56 | .36 | 4.0 | .52 | .81 | 1.0 | .00 | .00 |
| 7 | .16 | .16 | .03 | .03 | .81 | .74 | .84 | .31 | .65 | .58 | .00 | .00 |
| 8 | 1.8 | .16 | 2.8 | .07 | .82 | .72 | .36 | 1.6 | .22 | 202 | .00 | .00 |
| 9 | .51 | .16 | .37 | .07 | .81 | .36 | .26 | 1.9 | .22 | 458 | .00 | .00 |
| 10 | .22 | .16 | .06 | .07 | .82 | .36 | .24 | .59 | .20 | 477 | .00 | .00 |
| 11 | .22 | .11 | .03 | .07 | .82 | .22 | .16 | .38 | .26 | 491 | .00 | .00 |
| 12 | .22 | .11 | .03 | .07 | .62 | .22 | .16 | .27 | .22 | 478 | .00 | .00 |
| 13 | .22 | .10 | .01 | .07 | .36 | .16 | .16 | .25 | .22 | 499 | .00 | .00 |
| 14 | .36 | .26 | .00 | .11 | .36 | .16 | .16 | .34 | .22 | 546 | .00 | .00 |
| 15 | .56 | .22 | .00 | .11 | .36 | .11 | .16 | .99 | 5.4 | 415 | .00 | .00 |
| 16 | .36 | .16 | .00 | .11 | .36 | .11 | .16 | 5.8 | 25 | 177 | .00 | .00 |
| 17 | 1.7 | .14 | .00 | .14 | .52 | .08 | .16 | 2.3 | 1.3 | 87 | .07 | .00 |
| 18 | .38 | .06 | .00 | .16 | .56 | .03 | .16 | .36 | .28 | 33 | .56 | .00 |
| 19 | .17 | .03 | .00 | .16 | .56 | .04 | .20 | .56 | .16 | 2.0 | .11 | .00 |
| 20 | .16 | .03 | .00 | .34 | .48 | .03 | .11 | .26 | .11 | 1.5 | .03 | .00 |
| 21 | .19 | .03 | .00 | .36 | 1.0 | .04 | .32 | .23 | .05 | .36 | .01 | .00 |
| 22 | .22 | .08 | .00 | .36 | .72 | .00 | .82 | .18 | .03 | .07 | .01 | .00 |
| 23 | .22 | .16 | .00 | .56 | .36 | .00 | 1.4 | .16 | .02 | .00 | .00 | .00 |
| 24 | .22 | .12 | .00 | .56 | .36 | .00 | 1.5 | 3.7 | .00 | .00 | .00 | .00 |
| 25 | .22 | .11 | .03 | .56 | .36 | .07 | 1.4 | .18 | .00 | .00 | .00 | .00 |
| 26 | .16 | .11 | .03 | .81 | .36 | .09 | 1.4 | .08 | .00 | .00 | .00 | .00 |
| 27 | .31 | .10 | .03 | .82 | .36 | .05 | .52 | 9.5 | .00 | .00 | .00 | .00 |
| 28 | .14 | .27 | .03 | .51 | .65 | .04 | .70 | 1.1 | .00 | .00 | .00 | .00 |
| 29 | .11 | .36 | .01 | .36 | --- | .73 | 1.7 | 2.5 | .00 | .00 | .00 | .00 |
| 30 | .07 | .29 | .00 | .36 | --- | .11 | 1.4 | .58 | .00 | .00 | .00 | .00 |
| 31 | .07 | --- | .00 | .36 | --- | .02 | --- | .17 | --- | .00 | .00 | --- |
| TOTAL | 10.38 | 4.27 | 3.88 | 7.31 | 15.79 | 17.21 | 18.76 | 38.39 | 66.56 | 3884.11 | .80 | .00 |
| MEAN | .33 | .14 | .13 | .24 | .56 | .56 | .63 | 1.24 | 2.22 | 125 | .026 | .000 |
| MAX | 1.8 | .36 | 2.8 | .82 | 1.0 | 5.7 | 4.0 | 9.5 | 25 | 546 | .56 | .00 |
| MIN | .07 | .03 | .00 | .00 | .36 | .00 | .00 | .08 | .00 | .00 | .00 | .00 |
| AC-FT | 21 | 8.5 | 7.7 | 14 | 31 | 34 | 37 | 76 | 132 | 7700 | 1.6 | .00 |

CAL YR 1980 TOTAL 168.35 MEAN .46 MAX 18 MIN .00 AC-FT 334
WTR YR 1981 TOTAL 4067.46 MEAN 11.1 MAX 546 MIN .00 AC-FT 8070

08061000 EAST FORK TRINITY RIVER NEAR LAVON, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH FIELD (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, BIOCHEM UNINHIB 5 DAY (MG/L) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | | | |
| 12... | 1000 | .80 | 415 | 7.9 | 4.0 | 5 | 3.0 | 11.8 | 89 | .6 | 150 | 15 |
| MAY | | | | | | | | | | | | |
| 14... | 1330 | .60 | 439 | 7.8 | 22.0 | 10 | 2.2 | 7.5 | 86 | 1.5 | 160 | 8 |
| AUG | | | | | | | | | | | | |
| 06... | 1600 | .01 | 358 | 7.8 | 32.0 | 5 | 3.8 | 7.0 | 97 | 1.8 | 140 | 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 (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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | | |
| 12... | 54 | 4.8 | 31 | 1.1 | 3.8 | 140 | 58 | 22 | .3 | 2.7 | 261 |
| MAY | | | | | | | | | | | |
| 14... | 56 | 4.4 | 29 | 1.0 | 3.9 | 150 | 48 | 20 | .4 | 5.3 | 257 |
| AUG | | | | | | | | | | | |
| 06... | 49 | 3.6 | 18 | .7 | 4.5 | 140 | 21 | 12 | .3 | 8.0 | 201 |

| DATE | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (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) | CARBON, ORGANIC TOTAL (MG/L AS C) | CARBON, ORGANIC DIS-SOLVED (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | | |
| 12... | 9 | 5 | .12 | .010 | .13 | .040 | .91 | .95 | .040 | 7.5 | -- |
| MAY | | | | | | | | | | | |
| 14... | 3 | 6 | .03 | .010 | .04 | .110 | 1.1 | 1.2 | .040 | 19 | 19 |
| AUG | | | | | | | | | | | |
| 06... | 3 | 3 | .08 | .020 | .10 | .140 | .70 | .84 | .050 | 5.5 | -- |

| DATE | TIME | ARSENIC DIS-SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| FEB | | | | | | | |
| 12... | 1000 | 1 | 70 | <1 | 0 | <10 | <10 |
| MAY | | | | | | | |
| 14... | 1330 | 4 | 70 | <1 | 10 | <10 | <10 |
| AUG | | | | | | | |
| 06... | 1600 | 13 | 60 | <1 | 0 | <10 | <10 |

| DATE | 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) |
|---|---|---|---|---|---|---|
| FEB | | | | | | |
| 12... | <10 | 5 | .0 | 0 | 1 | <3 |
| MAY | | | | | | |
| 14... | <10 | 8 | .0 | 0 | 0 | 3 |
| AUG | | | | | | |
| 06... | 11 | 2 | .0 | 0 | 0 | <3 |

## 08061540 ROWLETT CREEK NEAR SACHSE, TX

LOCATION.--Lat 32°57'35", long 96°36'51", Dallas County, Hydrologic Unit 12030106, on left bank at downstream side of bridge on State Highway 78, 150 ft (46 m) downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 250 ft (76 m) downstream from Spring Creek, and 1.5 mi (2.4 km) southwest of Sachse.

DRAINAGE AREA.--120 $mi^2$ (311 $km^2$).

PERIOD OF RECORD.--March 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 450.00 ft (137.160 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No known diversions above station. The North Texas Municipal Water District reported that they returned 10,360 acre-ft (12.8 $hm^3$) of sewage effluent into a tributary above station. A rain gage and a gage-height telemeter are located at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--13 years (water years 1969-81), 80.1 $ft^3/s$ (2.268 $m^3/s$), 58,030 acre-ft (71.6 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,500 $ft^3/s$ (835 $m^3/s$) Mar. 27, 1977, gage height, 29.31 ft (8.934 m); no flow Aug. 24 to Sept. 2, 1969.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1942, 35.4 ft (10.79 m) in 1942, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 $ft^3/s$ (56.6 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mar. 4 | 0015 | 2,170 | 61.5 | 17.06 | 5.200 | June 16 | 0915 | 10,000 | 283 | 25.59 | 7.800 |
| May 27 | 1130 | 3,600 | 102 | 21.25 | 6.477 | July 4 | 1215 | 7,760 | 220 | 24.79 | 7.556 |
| June 5 | 1445 | *14,000 | 396 | 26.60 | 8.108 | | | | | | |

Minimum discharge, 3.9 $ft^3/s$ (0.11 $m^3/s$) Sept. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 59 | 14 | 22 | 18 | 43 | 179 | 43 | 272 | 33 | 50 | 25 | 102 |
| 2 | 39 | 15 | 17 | 18 | 22 | 58 | 42 | 51 | 351 | 68 | 25 | 34 |
| 3 | 29 | 17 | 15 | 18 | 17 | 376 | 69 | 42 | 617 | 136 | 23 | 30 |
| 4 | 23 | 13 | 16 | 18 | 16 | 557 | 117 | 49 | 183 | 2940 | 20 | 19 |
| 5 | 17 | 15 | 19 | 18 | 19 | 72 | 47 | 47 | 5720 | 350 | 20 | 39 |
| 6 | 18 | 13 | 20 | 18 | 18 | 56 | 42 | 38 | 1180 | 143 | 19 | 17 |
| 7 | 18 | 15 | 17 | 19 | 17 | 182 | 36 | 29 | 295 | 111 | 37 | 66 |
| 8 | 16 | 13 | 575 | 18 | 16 | 78 | 36 | 170 | 165 | 94 | 26 | 64 |
| 9 | 15 | 17 | 92 | 24 | 37 | 56 | 36 | 370 | 130 | 84 | 23 | 16 |
| 10 | 15 | 16 | 42 | 19 | 77 | 51 | 34 | 60 | 107 | 76 | 21 | 13 |
| 11 | 13 | 16 | 34 | 18 | 25 | 47 | 33 | 48 | 92 | 71 | 18 | 11 |
| 12 | 12 | 15 | 31 | 18 | 21 | 44 | 33 | 39 | 96 | 68 | 22 | 11 |
| 13 | 16 | 14 | 30 | 17 | 22 | 42 | 33 | 33 | 86 | 64 | 19 | 26 |
| 14 | 16 | 15 | 26 | 17 | 20 | 41 | 28 | 30 | 170 | 58 | 19 | 256 |
| 15 | 15 | 15 | 27 | 15 | 21 | 39 | 30 | 87 | 358 | 55 | 19 | 26 |
| 16 | 17 | 54 | 26 | 15 | 21 | 37 | 22 | 271 | 5790 | 50 | 16 | 19 |
| 17 | 237 | 114 | 26 | 15 | 20 | 36 | 24 | 78 | 374 | 46 | 198 | 13 |
| 18 | 32 | 28 | 26 | 15 | 19 | 36 | 71 | 118 | 195 | 42 | 52 | 13 |
| 19 | 22 | 22 | 24 | 18 | 19 | 33 | 151 | 56 | 148 | 39 | 31 | 12 |
| 20 | 21 | 19 | 22 | 41 | 18 | 33 | 46 | 45 | 128 | 38 | 20 | 13 |
| 21 | 18 | 19 | 26 | 23 | 33 | 33 | 32 | 39 | 112 | 38 | 18 | 13 |
| 22 | 16 | 30 | 24 | 30 | 27 | 32 | 51 | 39 | 100 | 35 | 17 | 12 |
| 23 | 16 | 37 | 24 | 22 | 20 | 31 | 132 | 37 | 91 | 32 | 14 | 11 |
| 24 | 22 | 26 | 22 | 19 | 19 | 28 | 47 | 266 | 82 | 34 | 17 | 11 |
| 25 | 15 | 21 | 21 | 19 | 20 | 28 | 33 | 64 | 74 | 34 | 16 | 11 |
| 26 | 15 | 18 | 21 | 19 | 18 | 28 | 30 | 49 | 70 | 33 | 14 | 11 |
| 27 | 29 | 19 | 20 | 17 | 19 | 28 | 28 | 1120 | 64 | 36 | 19 | 11 |
| 28 | 19 | 19 | 19 | 15 | 157 | 39 | 28 | 136 | 59 | 38 | 17 | 10 |
| 29 | 15 | 17 | 20 | 16 | --- | 250 | 57 | 254 | 56 | 34 | 14 | 9.2 |
| 30 | 15 | 17 | 20 | 15 | --- | 58 | 32 | 170 | 55 | 28 | 13 | 11 |
| 31 | 16 | --- | 20 | 16 | --- | 47 | --- | 33 | --- | 26 | 15 | --- |
| TOTAL | 846 | 683 | 1344 | 588 | 801 | 2655 | 1443 | 4140 | 16981 | 4951 | 827 | 910.2 |
| MEAN | 27.3 | 22.8 | 43.4 | 19.0 | 28.6 | 85.6 | 48.1 | 134 | 566 | 160 | 26.7 | 30.3 |
| MAX | 237 | 114 | 575 | 41 | 157 | 557 | 151 | 1120 | 5790 | 2940 | 198 | 256 |
| MIN | 12 | 13 | 15 | 15 | 16 | 28 | 22 | 29 | 33 | 26 | 13 | 9.2 |
| AC-FT | 1680 | 1350 | 2670 | 1170 | 1590 | 5270 | 2860 | 8210 | 33680 | 9820 | 1640 | 1810 |

CAL YR 1980 TOTAL 14711.9 MEAN 40.2 MAX 959 MIN 5.1 AC-FT 29180
WTR YR 1981 TOTAL 36169.2 MEAN 99.1 MAX 5790 MIN 9.2 AC-FT 71740

## 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 in Forney Dam on East Fork Trinity River, 0.5 mi (0.8 km) upstream from Duck Creek, 1.8 mi (2.9 km) upstream from bridge on Interstate Highway 20, 3.8 mi (6.1 km) northwest of Forney, 24 mi (39 km) downstream from Lavon Dam, and 31.8 mi (51.2 km) upstream from mouth.

DRAINAGE AREA.--1,071 $mi^2$ (2,774 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1968 to current year.
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 (3,810 m) long, including a 664-foot (202 m) gated spillway with fourteen 40- by 28-foot (12 by 9 m) tainter gates. Closure was made in September 1967, but the gates were not closed until Mar. 22, 1970. Low-flow releases are made through three 4.5- by 6.75-foot (1.4 by 2.06 m) sluiceways. Flow in each sluiceway is controlled by three sluice gates. The lake was built by the city of Dallas for municipal water supply. During the current year, records furnished by the city of Dallas show that they diverted 49,490 acre-ft (61.0 $hm^3$) from the lake for municipal use. The North Texas Municipal Water District reported 11,250 acre-ft (13.9 $hm^3$) of sewage effluent returned to lake. Flow is affected at times by discharge from the flood-detention pools of 14 floodwater-retarding structures with a combined detention capacity of 14,470 acre-ft (17.8 $hm^3$). These structures control runoff from 44.5 $mi^3$ (115.3 $km^3$) above this station and below Lavon Lake station (08060500). City of Dallas gage-height telemeter at station. On Jan. 21, 1981, another gage-height telemeter, using satellite relay, was installed. The 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.--Record of diversions were furnished by the city of Dallas. The area and capacity tables were furnished by Forrest and Cotton, Consulting Engineers for the city of Dallas.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 500,900 acre-ft (618 $hm^3$) June 4, 1973, elevation, 435.98 ft (132.887 m); minimum since first appreciable filling following closure of gates on Mar. 22, 1970, 326,600 acre-ft (403 $hm^3$) Sept. 29, 30, 1978, elevation, 427.48 ft (130.296 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 494,300 acre-ft (609 $hm^3$) July 5 at 0115 hours, elevation, 435.69 ft (132.798 m); minimum 349,600 acre-ft (431 $hm^3$) Nov. 30, elevation, 428.73 ft (130.677 m).

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

| | | | |
|---|---|---|---|
| 428.0 | 336,100 | 434.0 | 456,500 |
| 430.0 | 373,900 | 436.0 | 501,400 |
| 432.0 | 414,000 | | |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 370400 | 354100 | 351700 | 356000 | 355600 | 359100 | 374700 | 376400 | 400700 | 474200 | 471500 | 454300 |
| 2 | 369600 | 353700 | 351500 | 355400 | 354500 | 359400 | 373700 | 375800 | 404800 | 473500 | 470400 | 454300 |
| 3 | 368500 | 353700 | 350700 | 356400 | 354500 | 361300 | 375300 | 375600 | 410900 | 475700 | 469300 | 453900 |
| 4 | 369000 | 353400 | 350700 | 355400 | 354700 | 364400 | 376000 | 376800 | 415000 | 493600 | 467900 | 453900 |
| 5 | 367700 | 353400 | 351100 | 355100 | 354900 | 364400 | 375600 | 377200 | 435000 | 487900 | 467500 | 453400 |
| 6 | 367300 | 352400 | 350900 | 356000 | 354300 | 364200 | 374500 | 376600 | 442400 | 481800 | 466600 | 452800 |
| 7 | 366100 | 352600 | 351100 | 355600 | 354900 | 365800 | 372700 | 376000 | 443700 | 480000 | 466800 | 453700 |
| 8 | 365800 | 352000 | 358300 | 355800 | 354700 | 366100 | 374500 | 381300 | 444600 | 480700 | 465300 | 452100 |
| 9 | 365200 | 352400 | 358100 | 356000 | 355400 | 365800 | 375100 | 386100 | 445000 | 481600 | 464200 | 451100 |
| 10 | 365000 | 352200 | 357500 | 356000 | 359400 | 365800 | 374900 | 385900 | 446100 | 482700 | 463500 | 449800 |
| 11 | 363800 | 352000 | 357100 | 356600 | 354700 | 366100 | 374900 | 385500 | 446500 | 482900 | 462900 | 449100 |
| 12 | 362900 | 351700 | 357300 | 354900 | 354700 | 365600 | 374700 | 383700 | 446700 | 483800 | 461800 | 448500 |
| 13 | 361900 | 351500 | 357300 | 355600 | 354700 | 365800 | 374700 | 386700 | 445700 | 484000 | 460900 | 450600 |
| 14 | 361300 | 352600 | 357300 | 355800 | 354500 | 365000 | 375600 | 384300 | 446700 | 484000 | 460000 | 449800 |
| 15 | 360600 | 352200 | 357700 | 355400 | 354500 | 366100 | 374700 | 384500 | 456500 | 484300 | 459100 | 449500 |
| 16 | 359800 | 352800 | 357500 | 356400 | 354900 | 365800 | 374300 | 386500 | 475500 | 483600 | 458900 | 449300 |
| 17 | 363100 | 353200 | 357000 | 354900 | 354700 | 365800 | 373900 | 386700 | 476400 | 483100 | 462400 | 447600 |
| 18 | 362900 | 351900 | 359800 | 354700 | 354700 | 365900 | 373900 | 388700 | 477500 | 482500 | 462900 | 446500 |
| 19 | 362100 | 351500 | 358500 | 355300 | 354700 | 364800 | 375300 | 385900 | 477700 | 481300 | 462600 | 445200 |
| 20 | 361300 | 351700 | 357300 | 355600 | 354300 | 362700 | 375600 | 386300 | 477700 | 480700 | 461500 | 444600 |
| 21 | 360800 | 351300 | 356400 | 355400 | 356600 | 364800 | 374900 | 385700 | 477500 | 480200 | 460700 | 444100 |
| 22 | 360200 | 352000 | 355600 | 355300 | 356000 | 365200 | 375600 | 384700 | 478200 | 478600 | 460000 | 443900 |
| 23 | 361500 | 352600 | 357700 | 355400 | 356000 | 364200 | 376200 | 387700 | 477500 | 477700 | 459300 | 443900 |
| 24 | 358900 | 353000 | 357300 | 355300 | 355600 | 364000 | 376000 | 388900 | 477300 | 477100 | 458500 | 443500 |
| 25 | 358100 | 352600 | 355800 | 355400 | 355600 | 364000 | 375500 | 389700 | 477500 | 475700 | 458000 | 442900 |
| 26 | 357700 | 351500 | 356000 | 355800 | 356000 | 363300 | 375500 | 389700 | 476900 | 475500 | 456900 | 442600 |
| 27 | 359200 | 351500 | 355800 | 355400 | 356200 | 363100 | 375100 | 396500 | 476900 | 474800 | 456900 | 442400 |
| 28 | 357900 | 351500 | 356000 | 354500 | 358100 | 370000 | 375100 | 397500 | 475700 | 474800 | 456100 | 442200 |
| 29 | 355600 | 350200 | 356400 | 356200 | --- | 373900 | 375300 | 399100 | 475300 | 473700 | 455000 | 441800 |
| 30 | 354900 | 350400 | 355400 | 354900 | --- | 373900 | 375100 | 400500 | 474400 | 472800 | 454300 | 441400 |
| 31 | 354300 | --- | 356200 | 355100 | --- | 374700 | --- | 400500 | --- | 472100 | 453900 | --- |
| MAX | 370400 | 354100 | 359800 | 356600 | 359400 | 374700 | 376200 | 400500 | 478200 | 493600 | 471500 | 454300 |
| MIN | 354300 | 350200 | 350700 | 354500 | 354300 | 359100 | 372700 | 375600 | 400700 | 472100 | 453900 | 441400 |
| (†) | 428.98 | 428.77 | 429.08 | 429.02 | 429.18 | 430.04 | 430.06 | 431.34 | 434.81 | 434.71 | 433.88 | 433.30 |
| (‡) | -16500 | -3900 | +5800 | -1100 | +3000 | +16600 | +400 | +25400 | +73900 | -2300 | -18200 | -12500 |
| (††) | 10840 | 1590 | 48 | 1190 | 929 | 1060 | 2280 | 2300 | 3470 | 9510 | 10630 | 5640 |

CAL YR 1980 MAX 467500 MIN 350200 ‡ -94900 †† 94170
WTR YR 1981 MAX 493600 MIN 350200 ‡ +70600 †† 49490

† Elevation, in acre-feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet.

08061550 LAKE RAY HUBBARD NEAR FORNEY, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SPECIFIC CONDUCTANCE (MICROMHOS) | TEMPERATURE, WATER (DEG C) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|
| MAY 07... | 0845 | 353 | 22.0 | 120 | 11 | 43 | 3.4 | 21 |

| DATE | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| MAY 07... | .8 | 5.9 | 110 | 40 | 13 | .4 | 1.1 | 194 |

## 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 (9.7 km) southeast of Garland, and 7.7 mi (12.4 km) upstream from mouth.

DRAINAGE AREA.--31.6 mi² (81.8 km²).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1958 to current year.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 430.02 ft (131.070 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1962, at datum 4.00 ft (1.219 m) higher.

REMARKS.--Water discharge records fair except those for Nov. 8-21, Dec. 15, and Dec. 21 to Jan. 5, which are poor. Flow slightly regulated by several small on-channel dams. Small diversions for irrigation of golf course above station. Low flows may be sustained by effluents from city of Garland. A recording rain gage is located at station.

AVERAGE DISCHARGE.--23 years, 27.8 ft³/s (0.787 m³/s), 11.95 in/yr (304 mm/yr), 20,140 acre-ft/yr (24.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,000 ft³/s (453 m³/s) July 27, 1962, gage height, 20.80 ft (6.340 m), present datum; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1895, 21.5 ft (6.55 m), present datum, June 13, 1949, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft³/s (56.6 m³/s) and maximum (*):

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mar. 29 | 0130 | 2,170 | 61.5 | 15.54 | 4.737 | June 5 | 1145 | 9,020 | 255 | 18.81 | 5.733 |
| May 9 | 0045 | 6,160 | 174 | 17.76 | 5.413 | June 16 | 0445 | 3,840 | 109 | 16.67 | 5.081 |
| May 27 | 1015 | 4,500 | 127 | 17.03 | 5.191 | July 4 | 1030 | *10,700 | 303 | 19.33 | 5.892 |

Minimum discharge, 0.01 ft³/s (0.0003 m³/s) Aug. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11 | 1.1 | .95 | .94 | 9.3 | 165 | 8.4 | 132 | 76 | 3.3 | 2.0 | 192 |
| 2 | 4.5 | 1.1 | .87 | .94 | 1.1 | 9.4 | 7.9 | 6.2 | 325 | 29 | 1.8 | 20 |
| 3 | 8.5 | 1.1 | .56 | 1.1 | .37 | 203 | 61 | 8.7 | 553 | 270 | 1.5 | 7.6 |
| 4 | 8.4 | .99 | .56 | 1.2 | .22 | 142 | 62 | 30 | 217 | 2230 | 1.4 | 4.5 |
| 5 | 4.8 | .85 | 1.5 | 1.2 | 2.8 | 11 | 5.5 | 24 | 2550 | 156 | 1.2 | 3.4 |
| 6 | 3.7 | .31 | 3.0 | 2.3 | 1.3 | 6.9 | 4.7 | 5.9 | 159 | 24 | 1.4 | 2.1 |
| 7 | 3.5 | .21 | 1.3 | 2.0 | .56 | 113 | 4.4 | 3.9 | 41 | 13 | 1.4 | 1.4 |
| 8 | 3.5 | .23 | 570 | 1.3 | .42 | 17 | 4.1 | 237 | 21 | 9.7 | 1.8 | 5.6 |
| 9 | 3.6 | .23 | 16 | 3.2 | 36 | 7.7 | 3.7 | 1830 | 13 | 8.2 | 1.4 | 2.8 |
| 10 | 5.4 | .18 | 3.8 | 2.7 | 41 | 6.1 | 3.3 | 20 | 10 | 6.3 | 1.0 | 2.5 |
| 11 | 4.3 | .23 | 2.6 | 1.3 | 2.2 | 5.5 | 3.1 | 10 | 8.3 | 5.4 | 1.3 | 1.9 |
| 12 | 2.1 | .38 | 1.9 | 2.0 | 1.8 | 5.3 | 2.6 | 8.0 | 9.1 | 4.7 | 1.0 | 1.0 |
| 13 | 1.6 | .38 | 1.5 | .94 | 1.8 | 4.8 | 2.2 | 6.8 | 7.2 | 4.2 | .24 | 15 |
| 14 | 5.8 | .38 | 1.1 | .85 | 1.7 | 5.7 | 2.2 | 5.3 | 109 | 3.7 | 1.8 | 364 |
| 15 | 5.9 | .38 | 1.3 | .80 | 1.6 | 5.5 | 2.2 | 100 | 441 | 3.2 | 3.1 | 6.5 |
| 16 | 2.7 | 4.0 | 1.6 | .58 | 1.7 | 4.0 | 2.7 | 223 | 1480 | 3.3 | 2.7 | 3.5 |
| 17 | 314 | 162 | 1.3 | .55 | 1.7 | 3.7 | 2.7 | 15 | 39 | 3.2 | 34 | 3.1 |
| 18 | 4.5 | 9.0 | 1.4 | .56 | 1.7 | 9.7 | 78 | 37 | 17 | 2.9 | 10 | 2.6 |
| 19 | 1.7 | 1.9 | 1.3 | .99 | 1.8 | 4.1 | 25 | 7.5 | 12 | 2.4 | 4.6 | 1.4 |
| 20 | 1.6 | 1.3 | 1.2 | 15 | 1.9 | 3.2 | 4.5 | 6.5 | 9.0 | 2.0 | 1.6 | 1.2 |
| 21 | 1.8 | .94 | 1.1 | 2.3 | 102 | 3.1 | 4.0 | 5.0 | 7.2 | 1.7 | 1.6 | 1.0 |
| 22 | 2.2 | 35 | 1.1 | 4.2 | 16 | 2.8 | 5.1 | 4.0 | 6.2 | 1.8 | 1.5 | 1.3 |
| 23 | 2.0 | 9.5 | 1.1 | 1.2 | 6.2 | 2.7 | 165 | 12 | 4.9 | 1.6 | .76 | 1.4 |
| 24 | 1.2 | 2.4 | 1.1 | .79 | 4.2 | 2.7 | 5.9 | 179 | 4.3 | 1.8 | .63 | .79 |
| 25 | .73 | 1.6 | .94 | .87 | 2.7 | 2.7 | 3.5 | 7.5 | 4.0 | .94 | 1.2 | 1.1 |
| 26 | .54 | 1.2 | .84 | .60 | 2.4 | 3.0 | 2.9 | 5.9 | 3.2 | .81 | .17 | .93 |
| 27 | .83 | 1.1 | .94 | .56 | 2.4 | 3.1 | 2.6 | 1090 | 2.6 | 3.5 | .23 | 1.1 |
| 28 | 2.9 | .94 | .94 | .49 | 155 | 56 | 2.9 | 21 | 2.9 | 6.9 | .85 | 1.2 |
| 29 | 1.7 | 1.0 | .94 | .52 | --- | 556 | 24 | 259 | 2.9 | 3.2 | .55 | 1.2 |
| 30 | 1.6 | .90 | .84 | .38 | --- | 13 | 4.2 | 26 | 3.2 | 2.4 | .41 | .74 |
| 31 | 1.6 | --- | .84 | .36 | --- | 8.8 | --- | 9.5 | --- | 2.5 | 5.6 | --- |
| TOTAL | 418.20 | 240.83 | 624.42 | 52.72 | 401.87 | 1386.5 | 510.3 | 4335.7 | 6138.0 | 2811.65 | 88.74 | 652.86 |
| MEAN | 13.5 | 8.03 | 20.1 | 1.70 | 14.4 | 44.7 | 17.0 | 140 | 205 | 90.7 | 2.86 | 21.8 |
| MAX | 314 | 162 | 570 | 15 | 155 | 556 | 165 | 1830 | 2550 | 2230 | 34 | 364 |
| MIN | .54 | .18 | .56 | .36 | .22 | 2.7 | 2.2 | 3.9 | 2.6 | .81 | .17 | .74 |
| CFSM | .43 | .25 | .64 | .05 | .46 | 1.42 | .54 | 4.43 | 6.49 | 2.87 | .09 | .69 |
| IN. | .49 | .28 | .74 | .06 | .47 | 1.63 | .60 | 5.10 | 7.23 | 3.31 | .10 | .77 |
| AC-FT | 829 | 478 | 1240 | 105 | 797 | 2750 | 1010 | 8600 | 12170 | 5580 | 176 | 1290 |
| (††) | 1.60 | 1.40 | 1.76 | .25 | 1.50 | 5.30 | .88 | 8.98 | 12.40 | 4.75 | .58 | 1.31 |

CAL YR 1980 TOTAL 9792.21 MEAN 26.8 MAX 1490 MIN .00 CFSM .85 IN 11.53 AC-FT 19420 †† 21.95
WTR YR 1981 TOTAL 17661.79 MEAN 48.4 MAX 2550 MIN .17 CFSM 1.53 IN 20.79 AC-FT 35030 †† 40.71

†† Rainfall, in inches.

08061700 DUCK CREEK NEAR GARLAND, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Sediment records: October 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | TEMPER-ATURE (DEG C) | SEDI-MENT, SUS-PENDED (MG/L) | SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) |
|---|---|---|---|---|---|
| FEB | | | | | |
| 17... | 1742 | 1.9 | 12.5 | 21 | .11 |
| MAY | | | | | |
| 09... | 1400 | 299 | 19.5 | 817 | 660 |

## 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 (8 m) downstream from bridge on Interstate Highway 20, 0.2 mi (0.3 km) downstream from Duck Creek, 1.9 mi (3.1 km) downstream from Lake Ray Hubbard Dam, 2.5 mi (4.0 km) upstream from Texas and Pacific Railroad Co. bridge, 2.6 mi (4.2 km) northwest of Forney, and 30.8 mi (49.6 km) upstream from mouth.

DRAINAGE AREA.--1,118 mi² (2,896 km²), of which 1,071 mi² (2,774 km²) is above Lake Ray Hubbard.

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 377.86 ft (115.17 m) National Geodetic Vertical Datum of 1929 (from State Department of Highways and Public Transportation bridge plans). Prior to Aug. 26, 1975, recording gage at same datum located at site 126 ft (38 m) upstream (corrected) and 868 ft (265 m) to left. From Aug. 26, 1975, to May 12, 1977, recording gage at same datum located at site 105 ft (32 m) downstream.

REMARKS.--Records good except those for periods Oct. 31 to Jan. 9 and Apr. 16 to May 7, which are fair. Flow is regulated by Lake Ray Hubbard (station 08061550). Low flow is sustained by sewage effluent from the city of Garland. Records furnished by the city of Garland show that 20,860 acre-ft (25.7 hm³) of sewage effluent was discharged into Duck Creek which enters East Fork Trinity River 0.2 mi (0.3 km) upstream from this station. The city of Dallas maintains a gage-height telemeter at this station. On Jan. 21, 1981, telemeter (data collection platform, solar, panel, battery, and antenna) was installed at site. Several observations of water temeperature were made during the year.

AVERAGE DISCHARGE.--8 years (water years 1974-81), 410 ft³/s (11.61 m³/s), 297,000 acre-ft/yr (366 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,400 ft³/s (861 m³/s) Mar. 27, 1977, gage height, 16.34 ft (4.980 m); minimum daily, 13 ft³/s (0.37 m³/s) Oct. 18, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,000 ft³/s (312 m³/s) July 4 at 1900 hours, gage height, 12.81 ft (3.904 m); minimum daily, 14 ft³/s (0.40 m³/s) Sept. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 77 | 24 | 25 | 25 | 30 | 281 | 44 | 140 | 98 | 35 | 30 | 85 |
| 2 | 53 | 26 | 30 | 24 | 37 | 114 | 40 | 50 | 402 | 35 | 30 | 188 |
| 3 | 41 | 24 | 27 | 23 | 28 | 47 | 41 | 38 | 880 | 61 | 30 | 58 |
| 4 | 33 | 29 | 24 | 23 | 26 | 456 | 141 | 36 | 958 | 4260 | 31 | 34 |
| 5 | 30 | 29 | 26 | 23 | 23 | 77 | 53 | 35 | 2860 | 5770 | 31 | 28 |
| 6 | 25 | 27 | 25 | 24 | 32 | 50 | 42 | 34 | 1830 | 4390 | 31 | 25 |
| 7 | 26 | 30 | 200 | 26 | 30 | 68 | 42 | 33 | 323 | 1740 | 30 | 21 |
| 8 | 26 | 28 | 650 | 25 | 25 | 129 | 43 | 65 | 123 | 140 | 29 | 24 |
| 9 | 24 | 30 | 250 | 26 | 24 | 49 | 43 | 2880 | 89 | 63 | 30 | 28 |
| 10 | 19 | 27 | 130 | 26 | 89 | 39 | 39 | 473 | 75 | 55 | 32 | 23 |
| 11 | 21 | 25 | 70 | 25 | 42 | 25 | 37 | 78 | 67 | 48 | 30 | 23 |
| 12 | 21 | 25 | 45 | 22 | 27 | 23 | 37 | 49 | 58 | 44 | 32 | 23 |
| 13 | 22 | 23 | 40 | 22 | 26 | 23 | 36 | 49 | 54 | 42 | 25 | 21 |
| 14 | 19 | 21 | 36 | 23 | 24 | 22 | 32 | 38 | 50 | 44 | 27 | 415 |
| 15 | 26 | 23 | 33 | 22 | 24 | 24 | 27 | 34 | 175 | 38 | 30 | 71 |
| 16 | 27 | 30 | 30 | 22 | 24 | 22 | 25 | 301 | 3370 | 36 | 33 | 28 |
| 17 | 271 | 165 | 28 | 20 | 25 | 35 | 25 | 149 | 636 | 40 | 35 | 20 |
| 18 | 148 | 62 | 27 | 21 | 25 | 42 | 125 | 72 | 190 | 41 | 62 | 18 |
| 19 | 33 | 38 | 27 | 21 | 26 | 42 | 55 | 68 | 91 | 38 | 45 | 18 |
| 20 | 22 | 30 | 25 | 35 | 25 | 34 | 40 | 42 | 68 | 33 | 36 | 18 |
| 21 | 26 | 26 | 23 | 42 | 28 | 33 | 30 | 35 | 58 | 32 | 32 | 18 |
| 22 | 25 | 33 | 21 | 30 | 118 | 35 | 28 | 31 | 52 | 34 | 29 | 17 |
| 23 | 27 | 36 | 22 | 31 | 35 | 31 | 26 | 31 | 48 | 33 | 26 | 17 |
| 24 | 24 | 39 | 23 | 26 | 28 | 30 | 30 | 241 | 45 | 35 | 27 | 17 |
| 25 | 28 | 36 | 23 | 24 | 25 | 34 | 150 | 56 | 41 | 33 | 28 | 16 |
| 26 | 22 | 32 | 23 | 23 | 25 | 33 | 60 | 35 | 42 | 28 | 27 | 15 |
| 27 | 22 | 29 | 23 | 23 | 23 | 31 | 45 | 950 | 40 | 31 | 26 | 15 |
| 28 | 22 | 26 | 23 | 22 | 35 | 33 | 33 | 627 | 35 | 37 | 28 | 14 |
| 29 | 32 | 23 | 23 | 24 | --- | 1440 | 40 | 128 | 34 | 39 | 27 | 16 |
| 30 | 27 | 23 | 24 | 22 | --- | 158 | 35 | 350 | 35 | 35 | 27 | 16 |
| 31 | 24 | --- | 25 | 22 | --- | 54 | --- | 67 | --- | 34 | 28 | --- |
| TOTAL | 1243 | 1019 | 2001 | 767 | 929 | 3514 | 1444 | 7215 | 12827 | 17324 | 964 | 1330 |
| MEAN | 40.1 | 34.0 | 64.5 | 24.7 | 33.2 | 113 | 48.1 | 233 | 428 | 559 | 31.1 | 44.3 |
| MAX | 271 | 165 | 650 | 42 | 118 | 1440 | 150 | 2880 | 3370 | 5770 | 62 | 415 |
| MIN | 19 | 21 | 21 | 20 | 23 | 22 | 25 | 31 | 34 | 28 | 25 | 14 |
| AC-FT | 2470 | 2020 | 3970 | 1520 | 1840 | 6970 | 2860 | 14310 | 25440 | 34360 | 1910 | 2640 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 18813 | MEAN | 51.4 | MAX | 1250 | MIN 17 | AC-FT | 37320 |
| WTR YR 1981 | TOTAL | 50577 | MEAN | 139 | MAX | 5770 | MIN 14 | AC-FT | 100300 |

NOTE.--No gage-height record Oct. 31 to Jan. 9 and Apr. 16 to May 7.

## 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 (5 m) downstream from downstream eastbound bridge on U.S. Highway 175, 0.7 mi (1.1 km) downstream from Mustang Creek, 1.8 mi (2.9 km) northwest of Crandall, 4.0 mi (6.4 km) upstream from Buffalo Creek, and 11.0 mi (17.7 km) upstream from mouth.

DRAINAGE AREA.--1,256 $mi^2$ (3,253 $km^2$).

### 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 343.69 ft (104.757 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Flow largely regulated by Lavon Lake (station 08060500) since September 1953 and Lake Ray Hubbard (station 08061550) since Mar. 22, 1970. Records furnished by the city of Forney show that 198 acre-ft (244,000 $m^3$) of sewage effluent was returned to a tributary below Lake Ray Hubbard and above this station. Records furnished by the North Texas Municipal Water District show that 8,570 acre-ft (10.6 $hm^3$) of sewage effluent was returned to tributaries above station from the Mesquite and Chandler's Landing sewage treatment plants. Gage-height telemeter located at station.

AVERAGE DISCHARGE.--4 years (water years 1950-53) prior to regulation by Lavon Lake, 652 $ft^3/s$ (18.46 $m^3/s$), 472,400 acre-ft/yr (582 $hm^3/yr$); 28 years (water years 1954-81) regulated, 549 $ft^3/s$ (15.55 $m^3/s$), 397,800 acre-ft/yr (490 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,000 $ft^3/s$ (935 $m^3/s$), May 28, 1957, gage height, 22.81 ft (6.952 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,040 $ft^3/s$ (228 $m^3/s$) June 16 at 1700 hours, gage height, 15.72 ft (4.791 m), from graph based on daily wire-weight gage readings; minimum daily, 28 $ft^3/s$ (0.79 $m^3/s$) Nov. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 245 | 35 | 32 | 40 | 42 | 202 | 200 | 123 | 430 | 103 | 49 | 76 |
| 2 | 82 | 35 | 39 | 39 | 55 | 296 | 115 | 186 | 961 | 100 | 46 | 208 |
| 3 | 65 | 37 | 34 | 40 | 52 | 95 | 93 | 90 | 1630 | 112 | 44 | 93 |
| 4 | 53 | 41 | 32 | 38 | 46 | 442 | 154 | 80 | 2370 | 668 | 45 | 77 |
| 5 | 48 | 36 | 32 | 38 | 45 | 281 | 141 | 94 | 3900 | 4090 | 44 | 54 |
| 6 | 46 | 34 | 33 | 39 | 46 | 90 | 93 | 93 | 6210 | 6200 | 44 | 42 |
| 7 | 43 | 37 | 33 | 43 | 52 | 73 | 71 | 60 | 4130 | 4440 | 46 | 43 |
| 8 | 43 | 34 | 382 | 41 | 47 | 187 | 60 | 58 | 1070 | 1750 | 45 | 52 |
| 9 | 45 | 35 | 945 | 42 | 45 | 100 | 59 | 1490 | 526 | 315 | 43 | 48 |
| 10 | 44 | 31 | 232 | 41 | 97 | 74 | 60 | 3660 | 402 | 206 | 43 | 38 |
| 11 | 38 | 33 | 89 | 43 | 113 | 62 | 60 | 1970 | 297 | 156 | 44 | 43 |
| 12 | 39 | 33 | 68 | 43 | 55 | 47 | 59 | 318 | 192 | 132 | 45 | 51 |
| 13 | 39 | 31 | 57 | 38 | 50 | 50 | 61 | 182 | 151 | 122 | 46 | 46 |
| 14 | 39 | 28 | 54 | 37 | 47 | 48 | 63 | 132 | 154 | 118 | 40 | 130 |
| 15 | 38 | 29 | 49 | 37 | 45 | 49 | 62 | 160 | 223 | 109 | 45 | 265 |
| 16 | 46 | 31 | 44 | 36 | 44 | 46 | 63 | 421 | 5840 | 99 | 42 | 72 |
| 17 | 134 | 121 | 42 | 36 | 43 | 49 | 63 | 370 | 6680 | 94 | 63 | 56 |
| 18 | 550 | 151 | 41 | 36 | 41 | 40 | 64 | 160 | 2450 | 88 | 121 | 49 |
| 19 | 96 | 51 | 38 | 38 | 43 | 46 | 106 | 127 | 702 | 84 | 77 | 48 |
| 20 | 47 | 41 | 42 | 52 | 44 | 44 | 107 | 92 | 446 | 77 | 59 | 48 |
| 21 | 38 | 36 | 40 | 72 | 43 | 46 | 78 | 70 | 268 | 70 | 52 | 46 |
| 22 | 39 | 33 | 40 | 58 | 147 | 38 | 74 | 55 | 194 | 70 | 50 | 47 |
| 23 | 37 | 62 | 40 | 52 | 89 | 38 | 101 | 54 | 180 | 63 | 47 | 49 |
| 24 | 40 | 71 | 40 | 49 | 50 | 35 | 175 | 246 | 168 | 57 | 47 | 47 |
| 25 | 34 | 45 | 38 | 45 | 45 | 37 | 103 | 213 | 160 | 54 | 49 | 49 |
| 26 | 39 | 38 | 40 | 43 | 41 | 39 | 91 | 380 | 149 | 50 | 51 | 50 |
| 27 | 34 | 33 | 41 | 43 | 40 | 35 | 88 | 966 | 139 | 45 | 51 | 48 |
| 28 | 33 | 32 | 40 | 43 | 38 | 34 | 85 | 2210 | 122 | 48 | 52 | 46 |
| 29 | 35 | 31 | 40 | 42 | --- | 1030 | 94 | 416 | 106 | 55 | 52 | 48 |
| 30 | 44 | 31 | 38 | 42 | --- | 2030 | 82 | 288 | 104 | 49 | 52 | 52 |
| 31 | 37 | --- | 39 | 41 | --- | 348 | --- | 223 | --- | 51 | 51 | --- |
| TOTAL | 2190 | 1316 | 2754 | 1327 | 1545 | 6031 | 2725 | 14987 | 40354 | 19675 | 1585 | 2021 |
| MEAN | 70.6 | 43.9 | 88.8 | 42.8 | 55.2 | 195 | 90.8 | 483 | 1345 | 635 | 51.1 | 67.4 |
| MAX | 550 | 151 | 945 | 72 | 147 | 2030 | 200 | 3660 | 6680 | 6200 | 121 | 265 |
| MIN | 33 | 28 | 32 | 36 | 38 | 34 | 59 | 54 | 104 | 45 | 40 | 38 |
| AC-FT | 4340 | 2610 | 5460 | 2630 | 3060 | 11960 | 5410 | 29730 | 80040 | 39030 | 3140 | 4010 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 35747 | MEAN | 97.7 | MAX | 1310 | MIN 28 | AC-FT | 70900 |
| WTR YR 1981 | TOTAL | 96510 | MEAN | 264 | MAX | 6680 | MIN 28 | AC-FT | 191400 |

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical biochemical analyses: October 1967 to September 1981 (discontinued). Pesticide analyses: October 1976 to September 1981 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1967 to September 1981 (discontinued).
pH: March to September 1977.
WATER TEMPERATURES: October 1967 to September 1981 (discontinued).
DISSOLVED OXYGEN: March to September 1977.

INSTRUMENTATION.--Water-quality monitor discontinued Nov. 22, 1977.

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, 1,010 micromhos Nov. 23, 1968; minimum, 193 micromhos June 16, 1981.
WATER TEMPERATURES: Maximum, 34.0°C June 26, July 1, and Aug. 16, 17, 1980; minimum, 1.0°C Jan. 3, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 887 micromhos Jan. 17; minimum daily, 193 micromhos June 16.
WATER TEMPERATURES: Maximum daily, 33.0°C July 21, Aug. 6; minimum daily, 5.0°C Dec. 20.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (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 (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 09... | 0830 | 40 | 643 | 7.8 | 21.0 | 30 | .80 | .0 | 0 | 12 | 140 |
| DEC | | | | | | | | | | | |
| 09... | 0930 | 1070 | 270 | 7.3 | 11.5 | 100 | 260 | 4.9 | 45 | 12 | 88 |
| JAN | | | | | | | | | | | |
| 15... | 0900 | 42 | 708 | 7.2 | 7.0 | 40 | 2.0 | 1.8 | 15 | 18 | 140 |
| MAR | | | | | | | | | | | |
| 09... | 1345 | 99 | 498 | 7.7 | 13.0 | 20 | 9.0 | 4.6 | 43 | 6.8 | 160 |
| APR | | | | | | | | | | | |
| 14... | 1145 | 55 | 780 | 7.5 | 22.5 | 50 | 11 | .0 | 0 | 34 | 170 |
| JUN | | | | | | | | | | | |
| 09... | 1415 | 492 | 348 | 7.6 | 27.5 | 40 | 26 | 2.6 | 33 | 8.1 | 140 |
| JUL | | | | | | | | | | | |
| 09... | 1215 | 258 | 396 | 7.6 | 28.5 | 15 | 18 | 2.8 | 36 | 5.6 | 150 |
| AUG | | | | | | | | | | | |
| 05... | 1400 | 72 | 614 | 7.8 | 30.5 | 100 | 4.5 | 7.9 | 107 | 14 | 140 |
| SEP | | | | | | | | | | | |
| 09... | 0910 | 151 | 652 | 7.8 | 25.5 | 30 | 2.8 | .6 | 7 | 21 | 140 |

| DATE | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 09... | 0 | 50 | 3.6 | 60 | 2.2 | 11 | 160 | 63 | 44 | .7 | 10 |
| DEC | | | | | | | | | | | |
| 09... | 7 | 32 | 2.0 | 14 | .6 | 6.1 | 81 | 27 | 14 | .4 | 6.5 |
| JAN | | | | | | | | | | | |
| 15... | 0 | 50 | 4.3 | 66 | 2.4 | 10 | 190 | 70 | 56 | 1.2 | 9.3 |
| MAR | | | | | | | | | | | |
| 09... | 12 | 60 | 3.0 | 34 | 1.2 | 5.9 | 150 | 51 | 24 | .6 | 7.6 |
| APR | | | | | | | | | | | |
| 14... | 0 | 62 | 4.5 | 69 | 2.3 | 11 | 240 | 51 | 58 | 1.7 | 9.9 |
| JUN | | | | | | | | | | | |
| 09... | 0 | 51 | 2.4 | 13 | .5 | 6.7 | 140 | -- | 10 | .2 | 16 |
| JUL | | | | | | | | | | | |
| 09... | 2 | 56 | 2.9 | 21 | .7 | 6.2 | 150 | 42 | 17 | .4 | 11 |
| AUG | | | | | | | | | | | |
| 05... | 0 | 48 | 3.9 | 58 | 2.2 | 10 | 180 | 46 | 42 | .8 | 11 |
| SEP | | | | | | | | | | | |
| 09... | 0 | 51 | 3.6 | 62 | 2.3 | 9.7 | 200 | 45 | 47 | .8 | 12 |

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (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) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 09... | 338 | 11 | 4 | .03 | .040 | .07 | 1.10 | 12 | 13.0 | 4.40 | 15 |
| DEC | | | | | | | | | | | |
| 09... | 151 | 404 | 36 | 1.0 | .090 | 1.1 | 1.30 | 1.7 | 3.00 | .400 | 39 |
| JAN | | | | | | | | | | | |
| 15... | 381 | 3 | 4 | .09 | .010 | .10 | 18.0 | 2.0 | 20.0 | 5.10 | 38 |
| MAR | | | | | | | | | | | |
| 09... | 276 | 15 | 10 | .99 | .110 | 1.1 | 4.60 | .20 | 4.80 | 2.80 | 17 |
| APR | | | | | | | | | | | |
| 14... | 412 | 12 | 16 | .06 | .020 | .08 | 1.00 | 18 | 19.0 | 7.90 | 36 |
| JUN | | | | | | | | | | | |
| 09... | -- | 102 | 35 | .22 | .130 | .35 | .640 | .76 | 1.40 | .690 | 15 |
| JUL | | | | | | | | | | | |
| 09... | 247 | 35 | 6 | .07 | .060 | .13 | 1.50 | 1.4 | 2.90 | .740 | 8.2 |
| AUG | | | | | | | | | | | |
| 05... | 328 | 21 | 8 | .00 | .000 | .00 | 10.0 | 3.0 | 13.0 | 5.10 | 24 |
| SEP | | | | | | | | | | | |
| 09... | 351 | 2 | 8 | -- | .030 | <.10 | <.070 | -- | 15.0 | 6.50 | 24 |

| DATE | TIME | ARSENIC DIS-SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 09... | 0830 | 3 | 30 | <1 | 0 | <10 | 120 |
| JAN | | | | | | | |
| 15... | 0900 | 2 | 20 | <1 | 0 | 18 | 120 |
| APR | | | | | | | |
| 14... | 1145 | 1 | 90 | <1 | 20 | <10 | 90 |
| JUL | | | | | | | |
| 09... | 1215 | 11 | 200 | <1 | 20 | <10 | 190 |

| DATE | 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) |
|---|---|---|---|---|---|---|
| OCT | | | | | | |
| 09... | 48 | 70 | .0 | 0 | 0 | 20 |
| JAN | | | | | | |
| 15... | 20 | 70 | .1 | 0 | 1 | 40 |
| APR | | | | | | |
| 14... | <10 | 120 | .1 | 0 | 0 | 10 |
| JUL | | | | | | |
| 09... | <10 | 20 | .1 | 0 | 0 | 20 |

| DATE | TIME | PCB, TOTAL (UG/L) | PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | CHLOR-DANE, TOTAL (UG/L) | CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | DDD, TOTAL (UG/L) | DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | DDE, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | | |
| 15... | 0900 | .00 | 23 | .00 | .00 | .0 | .00 | 44 | .00 | 1.3 | .00 |
| JUL | | | | | | | | | | | |
| 09... | 1215 | .00 | 13 | .00 | .00 | .0 | .00 | 51 | .00 | .0 | .00 |

| DATE | DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | DDT, TOTAL (UG/L) | DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | DI-AZINON, TOTAL (UG/L) | DI-ELDRIN TOTAL (UG/L) | DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | ENDO-SULFAN, TOTAL (UG/L) | ENDRIN, TOTAL (UG/L) | ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | ETHION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 15... | <3.7 | .00 | .0 | 1.2 | .00 | .8 | .00 | .00 | .0 | .00 |
| JUL | | | | | | | | | | |
| 09... | 1.4 | .00 | .0 | .22 | .00 | 2.2 | .00 | .00 | .0 | .00 |

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | HEPTA-CHLOR, TOTAL (UG/L) | HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | HEPTA-CHLOR EPOXIDE TOTAL (UG/L) | HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) | LINDANE TOTAL (UG/L) | LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | MALA-THION, TOTAL (UG/L) | METH-OXY-CHLOR, TOTAL (UG/L) | METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (UG/KG) | METHYL PARA-THION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 15... | .00 | .5 | .00 | .0 | .03 | .7 | .14 | .00 | .0 | .00 |
| JUL | | | | | | | | | | |
| 09... | .00 | .2 | .00 | .4 | .00 | .0 | .05 | .00 | .0 | .00 |

| DATE | METHYL TRI-THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) | MIREX, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | PARA-THION, TOTAL (UG/L) | TOX-APHENE, TOTAL (UG/L) | TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | TOTAL TRI-THION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 15... | .00 | .00 | .0 | .00 | 0 | .0 | .00 | .00 | .00 | .00 |
| JUL | | | | | | | | | | |
| 09... | .00 | .00 | .0 | .00 | 0 | .0 | .00 | -- | -- | -- |

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 2190 | 524 | 283 | 1670 | 35 | 206 | 43 | 251 | 130 |
| NOV. | 1980 | 1316 | 608 | 325 | 1150 | 46 | 163 | 48 | 169 | 130 |
| DEC. | 1980 | 2754 | 464 | 251 | 1870 | 30 | 225 | 38 | 282 | 120 |
| JAN. | 1981 | 1327 | 725 | 381 | 1360 | 65 | 234 | 54 | 193 | 120 |
| FEB. | 1981 | 1545 | 665 | 352 | 1470 | 55 | 231 | 51 | 211 | 130 |
| MAR. | 1981 | 6031 | 416 | 228 | 3710 | 23 | 372 | 35 | 573 | 120 |
| APR. | 1981 | 2725 | 557 | 300 | 2200 | 39 | 284 | 45 | 329 | 140 |
| MAY | 1981 | 14987 | 319 | 178 | 7220 | 12 | 478 | 29 | 1160 | 110 |
| JUNE | 1981 | 40354 | 269 | 152 | 16500 | 7.6 | 824 | 25 | 2720 | 110 |
| JULY | 1981 | 19675 | 337 | 188 | 10000 | 13 | 670 | 30 | 1610 | 120 |
| AUG. | 1981 | 1585 | 654 | 347 | 1490 | 52 | 224 | 50 | 216 | 130 |
| SEPT | 1981 | 2021 | 497 | 270 | 1470 | 30 | 166 | 41 | 224 | 140 |
| TOTAL | | 96510 | ** | ** | 50200 | ** | 4070 | ** | 7940 | ** |
| WTD. AVG. | | 264 | 348 | 193 | ** | 16 | ** | 30 | ** | 110 |

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 337 | 650 | 710 | 644 | 664 | 609 | 451 | 558 | 434 | 521 | 628 | 600 |
| 2 | 416 | 591 | 620 | 710 | 776 | 389 | 479 | 370 | 279 | 442 | 683 | 435 |
| 3 | 421 | 577 | 437 | 745 | 686 | 476 | 533 | 481 | 287 | 387 | 624 | 559 |
| 4 | 509 | 563 | 553 | 762 | 349 | 509 | 521 | 523 | 272 | 393 | 616 | 554 |
| 5 | 516 | 441 | 581 | 629 | 556 | 442 | 431 | 587 | 238 | 302 | 614 | 558 |
| 6 | 528 | 509 | 507 | 612 | 757 | 551 | 519 | 467 | 246 | 298 | 606 | 631 |
| 7 | 573 | 719 | 793 | 678 | 635 | 610 | 555 | 546 | 329 | 321 | 625 | 633 |
| 8 | 551 | 644 | 329 | 652 | 692 | 649 | 571 | 632 | 336 | 361 | 622 | 631 |
| 9 | 666 | 682 | 270 | 765 | 701 | 502 | 661 | 239 | 362 | 417 | 645 | 652 |
| 10 | 671 | 720 | 403 | 768 | 721 | 602 | 697 | 257 | 374 | 425 | 627 | 647 |
| 11 | 690 | 781 | 501 | 746 | 484 | 551 | 683 | 331 | 413 | 440 | 670 | 341 |
| 12 | 617 | 655 | 470 | 791 | 686 | 631 | 735 | 380 | 453 | 460 | 682 | 544 |
| 13 | 658 | 648 | 579 | 760 | 684 | 697 | 783 | 432 | 483 | 480 | 567 | 622 |
| 14 | 729 | 714 | 641 | 695 | 726 | 704 | 764 | 475 | 489 | 456 | 628 | 581 |
| 15 | 618 | 720 | 667 | 718 | 722 | 689 | 662 | 486 | 400 | 475 | 673 | 565 |
| 16 | 632 | 743 | 669 | 826 | 768 | 762 | 725 | 502 | 193 | 489 | 645 | 286 |
| 17 | 748 | 586 | 678 | 887 | 737 | 754 | 716 | 357 | 226 | 496 | 668 | 400 |
| 18 | 409 | 398 | 676 | 847 | 704 | 602 | 762 | 451 | 274 | 525 | 564 | 519 |
| 19 | 406 | 488 | 746 | 831 | 735 | 777 | 418 | 510 | 321 | 558 | 502 | 652 |
| 20 | 431 | 586 | 799 | 808 | 807 | 817 | 418 | 524 | 334 | 546 | 621 | 530 |
| 21 | 542 | 666 | 804 | 623 | 822 | 760 | 497 | 589 | 379 | 485 | 740 | 409 |
| 22 | 559 | 675 | 839 | 632 | 673 | 645 | 550 | 608 | 398 | 488 | 722 | 284 |
| 23 | 644 | 670 | 836 | 679 | 459 | 704 | 678 | 648 | 390 | 523 | 735 | 333 |
| 24 | 706 | 644 | 831 | 681 | 557 | 784 | 367 | 524 | 422 | 553 | 710 | 283 |
| 25 | 727 | 501 | 739 | 709 | 648 | 710 | 450 | 398 | 442 | 584 | 636 | 290 |
| 26 | 725 | 578 | 807 | 739 | 720 | 694 | 522 | 292 | 369 | 615 | 735 | 281 |
| 27 | 729 | 669 | 773 | 776 | 781 | 738 | 684 | 288 | 325 | 669 | 731 | 574 |
| 28 | 721 | 731 | 738 | 669 | 792 | 777 | 658 | 240 | 358 | 621 | 723 | 450 |
| 29 | 678 | 796 | 712 | 682 | --- | 326 | 581 | 300 | 454 | 567 | 718 | 409 |
| 30 | 680 | 798 | 736 | 786 | --- | 262 | 632 | 395 | 556 | 683 | 730 | 411 |
| 31 | 761 | --- | 740 | 785 | --- | 413 | --- | 433 | --- | 645 | 745 | --- |
| MEAN | 600 | 638 | 651 | 730 | 680 | 617 | 590 | 446 | 361 | 491 | 659 | 489 |

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | 15.0 | --- | 11.0 | 12.0 | 17.0 | 21.0 | 27.0 | 24.5 | 29.0 | 30.0 | 29.0 |
| 2 | --- | 17.0 | --- | 10.0 | 9.0 | 16.0 | 21.0 | 24.0 | 23.0 | 30.0 | 31.0 | 29.0 |
| 3 | --- | 18.0 | 12.0 | 10.0 | 9.0 | 15.0 | 23.0 | 23.0 | 21.5 | 28.5 | 30.0 | 28.0 |
| 4 | --- | 18.0 | 12.0 | 9.0 | 8.0 | 17.0 | 21.0 | 23.0 | 22.5 | 27.0 | 30.0 | 28.5 |
| 5 | --- | 18.0 | 15.0 | 9.0 | 8.0 | 15.0 | 21.0 | 22.5 | 24.0 | 27.0 | 32.0 | 29.0 |
| 6 | --- | 18.0 | 16.0 | 9.0 | 9.0 | 15.0 | 20.0 | 24.0 | 25.5 | 27.5 | 33.0 | 27.5 |
| 7 | --- | 19.0 | 17.0 | 9.0 | 10.0 | 15.0 | 21.0 | 24.0 | 27.0 | 28.0 | 32.0 | 26.0 |
| 8 | --- | 20.0 | 13.0 | 9.0 | 11.0 | 14.0 | 20.0 | 23.5 | 27.0 | 28.5 | 32.5 | 25.5 |
| 9 | --- | --- | 10.0 | 10.0 | 10.0 | 14.0 | 21.5 | 19.5 | 28.0 | 29.5 | 30.0 | 25.0 |
| 10 | 25.0 | --- | 11.0 | 10.0 | 10.0 | 14.0 | 22.5 | 20.0 | 29.0 | 30.0 | 29.0 | 28.0 |
| 11 | 23.0 | --- | 11.0 | 10.0 | 8.0 | 16.0 | 21.5 | 19.0 | 27.5 | 29.0 | 29.0 | 29.0 |
| 12 | 22.0 | --- | 11.0 | 8.0 | 8.0 | 16.0 | 24.5 | 21.5 | 27.0 | 31.5 | 29.5 | 29.0 |
| 13 | 22.0 | --- | 11.0 | 8.0 | 8.0 | 17.0 | 24.0 | 24.0 | 27.5 | 32.0 | 30.0 | 28.0 |
| 14 | 22.0 | --- | 12.0 | 8.0 | 9.0 | 18.0 | 22.0 | 23.5 | 26.5 | 31.0 | 29.0 | 27.0 |
| 15 | 23.0 | --- | 14.0 | 8.0 | 10.0 | 18.0 | 22.0 | 20.0 | 26.0 | 31.0 | 31.0 | 27.5 |
| 16 | 24.0 | --- | 14.0 | 7.0 | 12.0 | 16.0 | 23.0 | 19.0 | 24.0 | 31.5 | 29.0 | 27.0 |
| 17 | 24.0 | --- | 14.0 | 6.0 | 14.0 | 17.0 | 23.0 | 21.0 | 24.5 | 32.0 | 29.0 | 26.0 |
| 18 | 22.0 | 11.0 | 15.0 | 6.0 | 14.0 | 15.0 | 19.5 | 25.0 | 24.0 | 32.5 | 26.5 | 26.5 |
| 19 | 20.0 | 10.0 | 11.0 | 7.0 | 16.0 | 15.0 | 20.0 | 24.0 | 24.5 | 30.0 | 28.0 | 27.0 |
| 20 | 21.0 | 9.0 | 5.0 | 7.0 | 18.0 | 15.0 | 24.5 | 23.5 | 27.0 | 31.5 | 28.5 | 24.5 |
| 21 | 20.0 | 10.0 | 6.0 | 6.0 | 18.0 | 16.0 | 25.0 | 24.0 | 28.5 | 33.0 | 29.0 | 24.0 |
| 22 | 20.0 | 10.0 | 7.0 | 8.0 | 16.0 | 15.0 | 24.5 | 24.0 | 29.0 | 31.5 | 29.0 | 23.5 |
| 23 | 21.0 | 10.0 | 9.0 | 9.0 | 16.0 | 17.0 | 24.0 | 26.0 | 28.0 | 32.5 | 29.0 | 24.0 |
| 24 | 19.0 | 10.0 | 8.0 | 12.0 | 16.0 | 18.0 | 23.5 | 22.0 | 28.5 | 31.0 | 29.5 | 25.0 |
| 25 | 19.0 | 12.0 | 7.0 | 12.0 | 15.0 | 16.0 | 23.0 | 23.0 | 29.5 | 31.0 | 30.5 | 24.0 |
| 26 | 16.0 | 10.0 | 7.0 | 12.0 | 17.0 | 18.0 | 24.0 | 23.0 | 29.0 | 30.5 | 28.0 | 24.0 |
| 27 | 19.0 | 9.0 | 8.0 | 13.0 | 17.0 | 19.0 | 24.5 | 24.0 | 28.5 | 29.0 | 29.0 | 25.0 |
| 28 | 15.0 | 9.0 | 8.0 | 12.0 | 18.0 | 19.0 | 26.0 | 26.0 | 29.5 | 30.5 | 29.0 | 26.5 |
| 29 | 15.0 | 10.0 | 8.0 | 15.0 | --- | 17.0 | 27.0 | 26.5 | 29.0 | 30.0 | 30.0 | 26.0 |
| 30 | 14.0 | 11.0 | 10.0 | 13.0 | --- | 19.0 | 27.5 | 26.0 | 30.0 | 31.0 | 29.0 | 25.0 |
| 31 | 15.0 | --- | 10.0 | 12.0 | --- | 20.0 | --- | 27.0 | --- | 32.0 | 28.5 | --- |
| MEAN | 20.0 | 13.0 | 11.0 | 9.5 | 12.5 | 16.5 | 23.0 | 23.5 | 26.5 | 30.5 | 29.5 | 26.5 |

## 08062500 TRINITY RIVER NEAR ROSSER, TX

LOCATION.--Lat 32°25'35", long 96°27'46", Ellis-Kaufman County line, Hydrologic Unit 12030105, on right bank at downstream side of right pier of bridge on State Highway 34, 2.5 mi (4.0 km) south of Rosser, 8.5 mi (13.7 km) downstream from East Fork Trinity River, and at mile 451.4 (726.3 km).

DRAINAGE AREA.--8,147 mi² (21,101 km²).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1924 to September 1925, October 1938 to current year. Monthly discharge only for some periods, published in WSP 1312.

REVISED RECORDS.--WSP 1922: Drainage area. WDR TX-77-1: 1942(M), drainage area.

GAGE.--Water-stage recorder. Datum of gage is 302.65 ft (92.248 m) 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 (2.7 km) upstream from present site at datum 6.94 ft (2.115 m) higher.

REMARKS.--Water-discharge records good. At times, flow is affected by storage in 15 upstream reservoirs having a combined capacity of 3,572,000 acre-ft (4.40 km³), of which 1,138,000 acre-ft (1.40 km³) is for flood control. A levee system constructed in 1916 extends several miles upstream and downstream from station. The cities of Fort Worth and Dallas and several small cities divert considerable water for municipal use, of which about 60 percent is returned as sewage effluents which sustain low flows at this site. Gage-height telemeter at station. On Aug. 6, 1981, an additional telemeter was installed at station.

AVERAGE DISCHARGE.--44 years (water years 1925, 1939-81), 2,498 ft³/s (70.74 m³/s), 1,810,000 acre-ft/yr (2.23 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 150,000 ft³/s (4,250 m³/s) Apr. 23, 1942, following numerous breaks in levee systems along both banks; maximum gage height, 41.55 ft (12.664 m) Apr. 22, 1942, just prior to levee breaks; minimum discharge, 32 ft³/s (0.91 m³/s) for several days in 1924-25.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1908 reached a stage of about 33 ft (10.1 m), present site and datum, from information by Corps of Engineers (discharged believed to have been about the same as that of Apr. 22, 1942).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 25,200 ft³/s (714 m³/s) June 17 at 0700 hours, gage height, 30.61 ft (9.330 m); minimum daily, 475 ft³/s (13.5 m³/s) Sept. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7790 | 522 | 515 | 531 | 552 | 1200 | 2020 | 1200 | 1730 | 982 | 611 | 602 |
| 2 | 5300 | 520 | 528 | 508 | 700 | 2460 | 951 | 3730 | 6290 | 941 | 570 | 2220 |
| 3 | 1710 | 503 | 545 | 504 | 689 | 1820 | 729 | 1910 | 10800 | 899 | 537 | 3510 |
| 4 | 909 | 535 | 548 | 511 | 610 | 2090 | 992 | 882 | 13400 | 4260 | 560 | 2190 |
| 5 | 724 | 542 | 544 | 509 | 576 | 5130 | 1300 | 912 | 15500 | 10100 | 562 | 1210 |
| 6 | 626 | 535 | 547 | 537 | 606 | 3260 | 887 | 866 | 19300 | 13200 | 568 | 915 |
| 7 | 592 | 536 | 549 | 578 | 614 | 1200 | 674 | 717 | 19900 | 14200 | 552 | 675 |
| 8 | 566 | 539 | 842 | 560 | 593 | 1700 | 610 | 656 | 18200 | 8930 | 575 | 569 |
| 9 | 557 | 511 | 4810 | 555 | 566 | 2940 | 594 | 6260 | 13800 | 2930 | 551 | 615 |
| 10 | 544 | 507 | 4800 | 559 | 692 | 1580 | 575 | 13200 | 5970 | 1730 | 516 | 678 |
| 11 | 534 | 519 | 1850 | 545 | 946 | 1040 | 566 | 12900 | 2910 | 1370 | 526 | 582 |
| 12 | 496 | 540 | 978 | 537 | 797 | 873 | 544 | 10200 | 2170 | 1170 | 537 | 547 |
| 13 | 484 | 541 | 789 | 549 | 630 | 787 | 518 | 3990 | 1890 | 1060 | 536 | 505 |
| 14 | 500 | 536 | 712 | 551 | 594 | 752 | 528 | 1450 | 1810 | 1000 | 534 | 556 |
| 15 | 524 | 527 | 661 | 551 | 566 | 704 | 524 | 1100 | 3380 | 986 | 529 | 1970 |
| 16 | 532 | 525 | 643 | 546 | 554 | 668 | 517 | 2610 | 14300 | 949 | 529 | 1640 |
| 17 | 560 | 871 | 618 | 545 | 550 | 656 | 509 | 3390 | 24200 | 849 | 577 | 817 |
| 18 | 2270 | 1380 | 612 | 545 | 547 | 636 | 509 | 2150 | 20300 | 801 | 1110 | 628 |
| 19 | 2140 | 1040 | 583 | 543 | 555 | 642 | 1090 | 1380 | 16800 | 770 | 1370 | 556 |
| 20 | 1010 | 724 | 569 | 583 | 577 | 615 | 2080 | 1100 | 12300 | 733 | 874 | 508 |
| 21 | 701 | 633 | 572 | 709 | 574 | 597 | 1100 | 910 | 7450 | 706 | 646 | 475 |
| 22 | 637 | 603 | 551 | 663 | 895 | 585 | 687 | 818 | 5690 | 673 | 600 | 483 |
| 23 | 591 | 708 | 549 | 626 | 859 | 557 | 793 | 786 | 5170 | 652 | 534 | 502 |
| 24 | 555 | 850 | 541 | 602 | 656 | 569 | 2440 | 2400 | 4600 | 613 | 523 | 503 |
| 25 | 591 | 755 | 537 | 569 | 590 | 572 | 1970 | 3200 | 2870 | 616 | 527 | 514 |
| 26 | 547 | 648 | 510 | 555 | 560 | 572 | 880 | 2400 | 1720 | 609 | 534 | 545 |
| 27 | 503 | 603 | 491 | 551 | 554 | 564 | 645 | 2430 | 1290 | 586 | 527 | 496 |
| 28 | 514 | 555 | 491 | 553 | 550 | 585 | 589 | 7170 | 1150 | 587 | 533 | 481 |
| 29 | 522 | 526 | 497 | 550 | --- | 3850 | 707 | 6380 | 1050 | 717 | 534 | 494 |
| 30 | 536 | 513 | 503 | 543 | --- | 7240 | 975 | 3480 | 1010 | 891 | 527 | 509 |
| 31 | 533 | --- | 527 | 548 | --- | 4880 | --- | 2300 | --- | 726 | 552 | --- |
| TOTAL | 34598 | 18847 | 28012 | 17316 | 17752 | 51324 | 27503 | 102877 | 256950 | 75236 | 18761 | 26495 |
| MEAN | 1116 | 628 | 904 | 559 | 634 | 1656 | 917 | 3319 | 8565 | 2427 | 605 | 883 |
| MAX | 7790 | 1380 | 4810 | 709 | 946 | 7240 | 2440 | 13200 | 24200 | 14200 | 1370 | 3510 |
| MIN | 484 | 503 | 491 | 504 | 547 | 557 | 509 | 656 | 1010 | 586 | 516 | 475 |
| AC-FT | 68630 | 37380 | 55560 | 34350 | 35210 | 101800 | 54550 | 204100 | 509700 | 149200 | 37210 | 52550 |

CAL YR 1980 TOTAL 376726 MEAN 1029 MAX 10500 MIN 457 AC-FT 747200
WTR YR 1981 TOTAL 675671 MEAN 1851 MAX 24200 MIN 475 AC-FT 1340000

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 September 1981 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1954 to current year.
pH: March 1977 to current year.
WATER TEMPERATURES: October 1954 to current year.
DISSOLVED OXYGEN: March 1977 to current year.

INSTRUMENTATION.--Water-quality monitor since Mar. 1, 1977.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. Where maximum or minimum 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 micromhos Oct. 13, 1956; minimum, 122 micromhos Sept. 30, 1981.
pH: Maximum, 7.8 units Mar. 3, 5, 6, 1977, Jan. 23, 1979; minimum, 6.8 units Oct. 3, 19, 20, Nov. 19, 1980.
WATER TEMPERATURES: Maximum, 36.0°C July 1, 1955; minimum, 1.0°C on many days during winter months.
DISSOLVED OXYGEN: Maximum, 10.7 mg/L Nov. 9, 1977; minimum, 0.0 mg/L on several days during 1979-81.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 892 micromhos Feb. 21, 27; minimum, 122 micromhos Sept. 30.
pH: Maximum, 8.0 units July 21, Aug. 4; minimum, 6.8 units Oct. 3, 19, 20, Nov. 19.
WATER TEMPERATURE: Maximum, 32.5°C July 3; minimum, 8.5°C Feb. 13, 14.
DISSOLVED OXYGEN: Maximum, 9.0 mg/L Aug. 4; minimum, 0.0 mg/L Oct. 18, Mar. 3, 5.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (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 (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 22... | 0940 | 652 | 608 | 7.3 | 20.0 | 29 | 34 | 4.4 | 48 | 11 | 140 |
| DEC | | | | | | | | | | | |
| 08... | 1620 | 757 | 830 | 7.1 | 18.0 | 25 | 7.9 | 4.0 | 42 | 26 | 130 |
| JAN | | | | | | | | | | | |
| 21... | 0950 | 753 | 798 | 7.2 | 10.0 | 30 | 8.2 | 7.2 | 63 | 15 | 150 |
| MAR | | | | | | | | | | | |
| 11... | 1100 | 1040 | 578 | 7.9 | 14.0 | 20 | 90 | 5.9 | 57 | 16 | 170 |
| APR | | | | | | | | | | | |
| 14... | 0950 | 539 | 845 | 7.4 | 23.0 | 15 | 13 | 3.1 | 36 | 18 | 170 |
| JUN | | | | | | | | | | | |
| 11... | 0835 | 2980 | 491 | 7.7 | 27.0 | 45 | 160 | 2.0 | 25 | 11 | 180 |
| JUL | | | | | | | | | | | |
| 09... | 0915 | 2980 | 473 | 7.9 | 28.0 | 10 | 210 | 2.8 | 35 | 5.6 | 160 |
| AUG | | | | | | | | | | | |
| 11... | 1040 | 614 | 788 | 7.4 | 29.0 | 10 | 7.0 | 4.8 | 62 | 6.9 | 150 |
| SEP | | | | | | | | | | | |
| 08... | 1430 | 818 | 575 | 7.5 | 28.5 | 5 | 14 | 4.1 | 53 | 7.8 | 140 |

| DATE | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 22... | 32 | 50 | 4.2 | 63 | 2.3 | 9.8 | 110 | 87 | 51 | .8 | 9.2 |
| DEC | | | | | | | | | | | |
| 08... | 0 | 43 | 5.1 | 100 | 3.8 | 15 | 140 | 100 | 75 | 1.7 | 13 |
| JAN | | | | | | | | | | | |
| 21... | 0 | 49 | 5.5 | 93 | 3.4 | 10 | 150 | 100 | 76 | .8 | 9.9 |
| MAR | | | | | | | | | | | |
| 11... | 36 | 60 | 3.9 | 46 | 1.6 | 8.8 | 130 | 79 | 35 | .6 | 9.7 |
| APR | | | | | | | | | | | |
| 14... | 1 | 60 | 5.2 | 95 | 3.2 | 11 | 170 | 120 | 69 | 1.3 | 12 |
| JUN | | | | | | | | | | | |
| 11... | 17 | 65 | 3.5 | 26 | .9 | 8.5 | 160 | 60 | 22 | .4 | 15 |
| JUL | | | | | | | | | | | |
| 09... | 22 | 59 | 3.6 | 31 | 1.1 | 6.7 | 140 | 60 | 24 | .4 | 11 |
| AUG | | | | | | | | | | | |
| 11... | 11 | 51 | 5.7 | 100 | 3.7 | 9.8 | 140 | 110 | 85 | 1.2 | 12 |
| SEP | | | | | | | | | | | |
| 08... | 20 | 49 | 4.2 | 61 | 2.3 | 8.0 | 120 | 86 | 45 | .9 | 12 |

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (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) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 22... | 341 | 46 | 5 | 3.8 | .710 | 4.5 | 1.40 | 1.2 | 2.60 | 2.30 | 11 |
| DEC | | | | | | | | | | | |
| 08... | 437 | 26 | 10 | 3.4 | .990 | 4.4 | 4.40 | 3.2 | 7.60 | 5.10 | 27 |
| JAN | | | | | | | | | | | |
| 21... | 435 | 30 | 11 | 6.3 | 1.10 | 7.4 | 6.50 | -- | -- | 4.60 | 19 |
| MAR | | | | | | | | | | | |
| 11... | 321 | 124 | 15 | 2.7 | .780 | 3.5 | 1.90 | 2.3 | 4.20 | 2.30 | 16 |
| APR | | | | | | | | | | | |
| 14... | 476 | 40 | 7 | 4.2 | .850 | 5.0 | 3.80 | 6.2 | 10.0 | 4.50 | 17 |
| JUN | | | | | | | | | | | |
| 11... | 297 | 333 | 63 | 1.2 | .260 | 1.5 | .690 | 1.1 | 1.80 | 1.50 | 7.0 |
| JUL | | | | | | | | | | | |
| 09... | 280 | 203 | 78 | 1.4 | .260 | 1.7 | .550 | 2.3 | 2.80 | .840 | 11 |
| AUG | | | | | | | | | | | |
| 11... | 459 | 13 | 4 | 4.0 | .760 | 4.8 | 1.10 | 1.9 | 3.00 | 3.00 | 13 |
| SEP | | | | | | | | | | | |
| 08... | 338 | 46 | 11 | 2.8 | .580 | 3.4 | 1.10 | 1.9 | 3.00 | 2.40 | 12 |

| DATE | TIME | ARSENIC DIS-SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 22... | 0940 | 5 | 40 | 1 | 0 | <10 | 20 |
| JAN | | | | | | | |
| 21... | 0950 | 3 | 20 | 1 | 10 | <10 | 50 |
| APR | | | | | | | |
| 14... | 0950 | 5 | 60 | 1 | 20 | <10 | 50 |
| JUL | | | | | | | |
| 09... | 0915 | 7 | 100 | <1 | 10 | <10 | 110 |

| DATE | 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) |
|---|---|---|---|---|---|---|
| OCT | | | | | | |
| 22... | <10 | 40 | .2 | 0 | 0 | 20 |
| JAN | | | | | | |
| 21... | <10 | 70 | .0 | 0 | 0 | 30 |
| APR | | | | | | |
| 14... | 13 | 50 | .0 | 0 | 0 | 40 |
| JUL | | | | | | |
| 09... | <10 | 3 | .1 | 0 | 0 | 20 |

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | PCB, TOTAL (UG/L) | PCB, TOTAL IN BOTTOM MATERIAL (UG/KG) | NAPHTHALENES, POLYCHLOR. TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | CHLORDANE, TOTAL (UG/L) | CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG) | DDD, TOTAL (UG/L) | DDD, TOTAL IN BOTTOM MATERIAL (UG/KG) | DDE, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | | |
| 21... | 0950 | .00 | 23 | .00 | .00 | .0 | .00 | 24 | .00 | .6 | .00 |
| JUL | | | | | | | | | | | |
| 09... | 0915 | .00 | 20 | .00 | .00 | .0 | .00 | 15 | .00 | .4 | .00 |

| DATE | DDE, TOTAL IN BOTTOM MATERIAL (UG/KG) | DDT, TOTAL (UG/L) | DDT, TOTAL IN BOTTOM MATERIAL (UG/KG) | DIAZINON, TOTAL (UG/L) | DIELDRIN TOTAL (UG/L) | DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | ENDOSULFAN, TOTAL (UG/L) | ENDRIN, TOTAL (UG/L) | ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | ETHION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 21... | 1.1 | .00 | .0 | .72 | .00 | .9 | .00 | .00 | .0 | .00 |
| JUL | | | | | | | | | | |
| 09... | 1.3 | .00 | .0 | .81 | .01 | .7 | .00 | .00 | .0 | .00 |

| DATE | HEPTACHLOR, TOTAL (UG/L) | HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG) | HEPTACHLOR EPOXIDE TOTAL (UG/L) | HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) | LINDANE TOTAL (UG/L) | LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG) | MALATHION, TOTAL (UG/L) | METHOXYCHLOR, TOTAL (UG/L) | METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG) | METHYL PARATHION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 21... | .00 | .2 | .00 | .0 | .02 | .2 | .03 | .00 | .0 | .00 |
| JUL | | | | | | | | | | |
| 09... | .00 | .1 | .00 | .0 | .01 | .0 | .14 | .00 | .0 | .00 |

| DATE | METHYL TRITHION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) | MIREX, TOTAL IN BOTTOM MATERIAL (UG/KG) | PARATHION, TOTAL (UG/L) | TOXAPHENE, TOTAL (UG/L) | TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG) | TOTAL TRITHION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 21... | .00 | .00 | .0 | .00 | 0 | .0 | .00 | .05 | .00 | .00 |
| JUL | | | | | | | | | | |
| 09... | .00 | .00 | .0 | .00 | 0 | .0 | .00 | -- | -- | -- |

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 34598 | 535 | 299 | 28000 | 36 | 3340 | 64 | 5940 | 150 |
| NOV. | 1980 | 18847 | 766 | 428 | 21800 | 60 | 3070 | 94 | 4780 | 160 |
| DEC. | 1980 | 28012 | 649 | 363 | 27500 | 47 | 3580 | 78 | 5930 | 160 |
| JAN. | 1981 | 17316 | 811 | 453 | 21200 | 66 | 3090 | 100 | 4690 | 160 |
| FEB. | 1981 | 17752 | 793 | 443 | 21200 | 64 | 3050 | 98 | 4680 | 160 |
| MAR. | 1981 | 51324 | 579 | 324 | 44900 | 39 | 5400 | 69 | 9540 | 160 |
| APR. | 1981 | 27503 | 674 | 377 | 28000 | 49 | 3640 | 81 | 6040 | 160 |
| MAY | 1981 | 102877 | 436 | 244 | 67900 | 24 | 6790 | 50 | 13900 | 140 |
| JUNE | 1981 | 256950 | 353 | 198 | 137000 | 18 | 12200 | 40 | 27700 | 130 |
| JULY | 1981 | 75236 | 446 | 250 | 50700 | 27 | 5410 | 52 | 10500 | 140 |
| AUG. | 1981 | 18761 | 756 | 423 | 21400 | 59 | 2980 | 93 | 4690 | 160 |
| SEPT | 1981 | 26495 | 602 | 337 | 24100 | 41 | 2940 | 72 | 5130 | 160 |
| TOTAL | | 675671 | ** | ** | 494000 | ** | 55400 | ** | 104000 | ** |
| WTD. AVG. | | 1851 | 484 | 271 | ** | 30 | ** | 57 | ** | 140 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | | |
| 1 | 302 | 280 | 292 | 844 | 820 | 828 | 802 | 780 | 790 | 824 | 768 | 782 |
| 2 | 396 | 302 | 339 | 858 | 834 | 846 | 812 | 788 | 799 | 816 | 786 | 798 |
| 3 | 512 | 402 | 467 | 852 | 840 | 845 | 804 | 778 | 790 | 820 | 804 | 813 |
| 4 | 590 | 516 | 560 | 870 | 852 | 856 | 796 | 750 | 771 | 818 | 788 | 807 |
| 5 | 664 | 596 | 621 | 858 | 816 | 840 | 828 | 796 | 809 | 818 | 796 | 806 |
| 6 | 708 | 666 | 693 | 834 | 788 | 807 | 852 | 824 | 831 | 822 | 786 | 803 |
| 7 | 740 | 698 | 721 | 866 | 836 | 848 | 856 | 836 | 847 | 810 | 772 | 788 |
| 8 | 744 | 734 | 739 | 866 | 832 | 849 | 850 | 796 | 826 | 808 | 764 | 782 |
| 9 | 802 | 730 | 760 | 858 | 830 | 845 | 774 | 372 | 517 | 814 | 782 | 798 |
| 10 | 826 | 784 | 802 | 886 | 838 | 851 | 450 | 380 | 402 | 848 | 810 | 829 |
| 11 | 820 | 792 | 807 | 888 | 836 | 866 | 514 | 426 | 472 | 852 | 840 | 846 |
| 12 | 828 | 808 | 814 | 848 | 792 | 822 | 580 | 518 | 557 | 852 | 842 | 847 |
| 13 | 828 | 808 | 818 | 806 | 778 | 791 | 654 | 580 | 608 | 852 | 808 | 829 |
| 14 | 818 | 792 | 804 | 824 | 792 | 801 | 714 | 656 | 678 | 818 | 776 | 795 |
| 15 | 790 | 762 | 776 | 832 | 818 | 826 | 752 | 710 | 725 | 796 | 764 | 778 |
| 16 | 794 | 762 | 776 | 834 | 814 | 825 | 762 | 748 | 756 | 806 | 784 | 795 |
| 17 | 806 | 788 | 795 | 862 | 826 | 838 | 788 | 752 | 766 | 828 | 806 | 818 |
| 18 | 832 | 390 | 672 | 824 | 610 | 710 | 818 | 766 | 789 | 834 | 812 | 824 |
| 19 | 576 | 402 | 503 | 650 | 592 | 620 | 822 | 788 | 802 | 852 | 838 | 847 |
| 20 | 534 | 496 | 518 | 652 | 604 | 631 | 862 | 818 | 836 | 850 | 808 | 830 |
| 21 | 568 | 522 | 536 | 686 | 646 | 669 | 872 | 848 | 856 | 830 | 792 | 809 |
| 22 | 644 | 566 | 603 | 718 | 682 | 699 | 864 | 838 | 849 | 808 | 748 | 785 |
| 23 | 718 | 638 | 675 | 752 | 714 | 733 | 862 | 846 | 850 | 822 | 746 | 788 |
| 24 | 750 | 710 | 735 | 768 | 720 | 754 | 862 | 842 | 852 | 818 | 800 | 811 |
| 25 | 790 | 744 | 770 | 702 | 644 | 677 | 850 | 832 | 841 | 842 | 808 | 822 |
| 26 | 808 | 764 | 783 | 704 | 666 | 687 | 860 | 846 | 849 | 842 | 828 | 834 |
| 27 | 832 | 798 | 808 | 746 | 694 | 721 | 848 | 818 | 832 | 840 | 816 | 827 |
| 28 | 832 | 770 | 795 | 736 | 722 | 729 | 826 | 782 | 809 | 824 | 790 | 807 |
| 29 | 802 | 772 | 786 | 778 | 732 | 756 | 802 | 778 | 791 | 824 | 792 | 805 |
| 30 | 810 | 772 | 787 | 796 | 776 | 780 | 820 | 782 | 800 | 832 | 804 | 816 |
| 31 | 830 | 796 | 812 | --- | --- | --- | 822 | 774 | 797 | 844 | 832 | 840 |
| MONTH | 832 | 280 | 689 | 888 | 592 | 778 | 872 | 372 | 758 | 852 | 746 | 812 |

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 848 | 832 | 839 | 848 | 820 | 833 | 678 | 518 | 568 | 670 | 558 | 622 |
| 2 | 856 | 822 | 836 | 832 | 490 | 645 | 688 | 596 | 617 | 646 | 298 | 435 |
| 3 | 854 | 762 | 820 | 592 | 508 | 548 | 724 | 624 | 675 | 482 | 430 | 458 |
| 4 | 794 | 766 | 785 | 618 | 510 | 579 | 784 | 730 | 754 | 590 | 488 | 547 |
| 5 | 810 | 756 | 781 | 504 | 410 | 443 | 766 | 616 | 702 | 650 | 594 | 625 |
| 6 | 826 | 794 | 810 | 542 | 408 | 480 | 674 | 640 | 660 | 738 | 640 | 686 |
| 7 | 828 | 814 | 822 | 616 | 544 | 581 | 734 | 644 | 697 | 728 | 676 | 718 |
| 8 | 826 | 800 | 810 | 716 | 616 | 664 | 738 | 712 | 723 | 668 | 626 | 642 |
| 9 | 836 | 824 | 830 | 698 | 472 | 550 | 766 | 720 | 750 | --- | --- | 410 |
| 10 | 828 | 800 | 815 | 550 | 474 | 510 | 798 | 768 | 788 | --- | --- | 331 |
| 11 | 822 | 746 | 779 | 646 | 556 | 603 | 820 | 778 | 802 | --- | --- | 333 |
| 12 | 738 | 668 | 700 | 716 | 646 | 679 | 860 | 808 | 829 | --- | --- | 355 |
| 13 | 718 | 684 | 704 | 810 | 714 | 734 | 860 | 834 | 846 | 518 | 456 | 486 |
| 14 | 768 | 696 | 735 | 780 | 758 | 773 | 860 | 832 | 842 | 592 | 522 | 558 |
| 15 | 816 | 768 | 792 | 780 | 758 | 772 | 862 | 824 | 838 | 648 | 588 | 619 |
| 16 | 820 | 786 | 802 | 806 | 782 | 790 | 846 | 814 | 830 | 646 | --- | 515 |
| 17 | 826 | 812 | 818 | 808 | 784 | 796 | 858 | 838 | 846 | --- | --- | 479 |
| 18 | 818 | 790 | 807 | 810 | 790 | 800 | 874 | 854 | 861 | --- | --- | 543 |
| 19 | 830 | 794 | 812 | 814 | 792 | 804 | 876 | 756 | 827 | --- | --- | 613 |
| 20 | 854 | 818 | 832 | 824 | 804 | 817 | 838 | 464 | 681 | --- | --- | 652 |
| 21 | 892 | 852 | 864 | 824 | 808 | 817 | 654 | 604 | 628 | --- | --- | 687 |
| 22 | 884 | 830 | 852 | 862 | 818 | 837 | 600 | 566 | 584 | --- | --- | 707 |
| 23 | 862 | 630 | 787 | 860 | 842 | 848 | 696 | 598 | 629 | --- | --- | 715 |
| 24 | 708 | 602 | 654 | 846 | 818 | 828 | 702 | 496 | 600 | --- | --- | 527 |
| 25 | 734 | 696 | 709 | 836 | 812 | 822 | 568 | 462 | 503 | --- | --- | 487 |
| 26 | 856 | 730 | 774 | 826 | 794 | 811 | 542 | 490 | 509 | --- | --- | 527 |
| 27 | 892 | 814 | 826 | 830 | 802 | 818 | 612 | 544 | 569 | --- | --- | 525 |
| 28 | 844 | 824 | 834 | 846 | 816 | 831 | 646 | 614 | 632 | --- | --- | 391 |
| 29 | --- | --- | --- | 842 | 218 | 609 | 718 | 648 | 677 | 406 | 386 | 395 |
| 30 | --- | --- | --- | 540 | 276 | 360 | 768 | 576 | 728 | 486 | 412 | 448 |
| 31 | --- | --- | --- | 546 | 520 | 530 | --- | --- | --- | 484 | 446 | 462 |
| MONTH | 892 | 602 | 794 | 862 | 218 | 694 | 876 | 462 | 707 | 738 | 298 | 532 |

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 578 | 486 | 519 | --- | --- | 672 | 828 | 786 | 806 | 822 | 772 | 771 |
| 2 | 600 | 270 | 383 | --- | --- | 680 | 792 | 736 | 752 | 800 | 440 | 651 |
| 3 | 334 | 300 | 315 | --- | --- | 689 | 732 | 712 | 722 | 540 | 384 | 426 |
| 4 | 338 | 318 | 329 | 716 | --- | 450 | 796 | 740 | 754 | 468 | 396 | 430 |
| 5 | 344 | 328 | 334 | 336 | 282 | 307 | 792 | 744 | 757 | 520 | 466 | 500 |
| 6 | 344 | 270 | 290 | 294 | --- | 280 | 802 | 754 | 771 | 568 | 518 | 542 |
| 7 | 320 | 288 | 304 | 350 | 338 | 343 | 814 | 768 | 785 | 556 | 498 | 527 |
| 8 | 372 | 322 | 347 | 428 | 350 | 388 | 866 | 790 | 802 | 626 | 558 | 588 |
| 9 | 408 | 374 | 387 | 546 | 434 | 488 | 850 | 780 | 790 | 688 | 632 | 661 |
| 10 | 488 | 412 | 455 | 602 | 552 | 582 | 862 | 784 | 795 | 724 | 682 | 692 |
| 11 | 546 | 486 | 510 | 622 | 604 | 617 | 864 | 784 | 792 | 752 | 722 | 735 |
| 12 | 596 | 548 | 575 | 664 | 616 | 646 | 856 | 774 | 788 | 756 | 722 | 742 |
| 13 | 634 | 600 | 622 | 692 | 664 | 680 | 862 | 780 | 792 | --- | --- | 750 |
| 14 | 668 | 628 | 649 | 692 | 668 | 681 | 888 | 792 | 804 | --- | --- | 786 |
| 15 | 652 | --- | 480 | 694 | 666 | 680 | 838 | 804 | 809 | 748 | 488 | 592 |
| 16 | --- | --- | 324 | 710 | 688 | 699 | 810 | 792 | 800 | 538 | 474 | 510 |
| 17 | --- | --- | 281 | 710 | 678 | 691 | 824 | 806 | 814 | 548 | 520 | 528 |
| 18 | --- | --- | 295 | 736 | 682 | 700 | 816 | 644 | 765 | 600 | 536 | 561 |
| 19 | --- | --- | 310 | 744 | 724 | 737 | 722 | 528 | 641 | 640 | 602 | 623 |
| 20 | --- | --- | 338 | 754 | 726 | 738 | 770 | 604 | 708 | 686 | 644 | 670 |
| 21 | --- | --- | 387 | 754 | 706 | 711 | 744 | 630 | 681 | 742 | 688 | 716 |
| 22 | --- | --- | 416 | 714 | 700 | 708 | 624 | 590 | 604 | 748 | 740 | 744 |
| 23 | 464 | --- | 430 | 752 | 696 | 726 | 706 | 624 | 674 | 762 | 732 | 745 |
| 24 | 514 | 450 | 465 | 792 | 752 | 773 | 750 | 702 | 725 | 792 | 742 | 765 |
| 25 | 522 | 458 | 487 | 786 | 764 | 774 | 798 | 754 | 775 | 800 | 792 | 796 |
| 26 | 610 | 528 | 576 | 806 | 764 | 780 | 810 | 784 | 794 | 794 | 778 | 784 |
| 27 | 646 | 566 | 610 | 804 | 788 | 793 | 798 | 766 | 783 | 794 | 770 | 782 |
| 28 | 680 | 578 | 638 | 794 | 766 | 778 | 802 | 784 | 789 | 796 | 758 | 778 |
| 29 | 692 | 670 | 681 | 766 | 708 | 741 | 792 | 778 | 785 | 814 | 772 | 799 |
| 30 | --- | --- | 667 | 784 | 734 | 759 | 808 | 792 | 799 | 768 | 122 | 726 |
| 31 | --- | --- | --- | 802 | 762 | 783 | 846 | 804 | 816 | --- | --- | --- |
| MONTH | 692 | 270 | 447 | 806 | 282 | 648 | 888 | 528 | 764 | 822 | 122 | 664 |
| YEAR | 892 | 122 | 690 | | | | | | | | | |

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | 7.0 | 6.9 | 7.0 | 7.1 | 7.0 | 7.0 | 7.1 | 7.1 | 7.1 | 7.3 | 7.2 | 7.3 |
| 2 | 6.9 | 6.9 | 6.9 | 7.1 | 7.0 | 7.0 | 7.1 | 7.0 | 7.1 | 7.3 | 7.2 | 7.3 |
| 3 | 6.9 | 6.8 | 6.9 | 7.1 | 7.0 | 7.1 | 7.1 | 7.0 | 7.0 | 7.3 | 7.2 | 7.3 |
| 4 | 6.9 | 6.9 | 6.9 | 7.2 | 7.1 | 7.1 | 7.0 | 7.0 | 7.0 | 7.3 | 7.2 | 7.3 |
| 5 | 6.9 | 6.9 | 6.9 | 7.2 | 7.1 | 7.1 | 7.0 | 7.0 | 7.0 | 7.3 | 7.2 | 7.3 |
| 6 | 6.9 | 6.9 | 6.9 | 7.1 | 7.1 | 7.1 | 7.1 | 7.0 | 7.0 | 7.2 | 7.2 | 7.2 |
| 7 | 7.1 | 6.9 | 7.0 | 7.2 | 7.1 | 7.2 | 7.1 | 7.0 | 7.1 | 7.2 | 7.2 | 7.2 |
| 8 | 7.1 | 7.1 | 7.1 | 7.2 | 7.2 | 7.2 | 7.1 | 7.0 | 7.1 | 7.2 | 7.2 | 7.2 |
| 9 | 7.1 | 7.0 | 7.1 | 7.2 | 7.1 | 7.2 | 7.1 | 6.9 | 7.0 | 7.2 | 7.2 | 7.2 |
| 10 | 7.1 | 7.1 | 7.1 | 7.2 | 7.1 | 7.2 | 7.1 | 7.0 | 7.0 | 7.2 | 7.2 | 7.2 |
| 11 | 7.1 | 7.1 | 7.1 | 7.2 | 7.1 | 7.2 | 7.0 | 7.0 | 7.0 | 7.2 | 7.2 | 7.2 |
| 12 | 7.2 | 7.0 | 7.1 | 7.2 | 7.1 | 7.1 | 7.0 | 7.0 | 7.0 | 7.2 | 7.2 | 7.2 |
| 13 | 7.0 | 7.0 | 7.0 | 7.1 | 7.1 | 7.1 | 7.1 | 7.0 | 7.0 | 7.2 | 7.2 | 7.2 |
| 14 | 7.0 | 6.9 | 7.0 | 7.1 | 7.1 | 7.1 | 7.1 | 7.0 | 7.0 | 7.2 | 7.2 | 7.2 |
| 15 | 6.9 | 6.9 | 6.9 | 7.1 | 7.0 | 7.1 | 7.1 | 7.0 | 7.0 | 7.2 | 7.2 | 7.2 |
| 16 | 6.9 | 6.9 | 6.9 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.2 | 7.2 | 7.2 |
| 17 | 7.0 | 6.9 | 6.9 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.2 | 7.2 | 7.2 |
| 18 | 7.0 | 6.9 | 6.9 | 7.0 | 6.9 | 6.9 | 7.1 | 7.0 | 7.0 | 7.2 | 7.1 | 7.2 |
| 19 | 6.9 | 6.8 | 6.9 | 7.1 | 6.8 | 7.0 | 7.4 | 7.0 | 7.2 | 7.2 | 7.2 | 7.2 |
| 20 | 7.2 | 6.8 | 7.0 | 7.1 | 7.0 | 7.1 | 7.4 | 7.4 | 7.4 | 7.2 | 7.1 | 7.2 |
| 21 | 7.2 | 7.1 | 7.1 | 7.1 | 7.0 | 7.1 | 7.4 | 7.3 | 7.3 | 7.2 | 7.1 | 7.1 |
| 22 | 7.1 | 7.1 | 7.1 | 7.1 | 7.0 | 7.0 | 7.4 | 7.3 | 7.4 | 7.3 | 7.1 | 7.2 |
| 23 | 7.2 | 7.1 | 7.1 | 7.1 | 7.0 | 7.0 | 7.4 | 7.3 | 7.4 | 7.3 | 7.2 | 7.3 |
| 24 | 7.2 | 7.1 | 7.2 | 7.1 | 7.1 | 7.1 | 7.4 | 7.3 | 7.3 | 7.3 | 7.2 | 7.3 |
| 25 | 7.2 | 7.1 | 7.1 | 7.1 | 7.0 | 7.0 | 7.3 | 7.3 | 7.3 | 7.3 | 7.2 | 7.2 |
| 26 | 7.1 | 7.1 | 7.1 | 7.1 | 7.0 | 7.0 | 7.3 | 7.3 | 7.3 | 7.3 | 7.2 | 7.2 |
| 27 | 7.2 | 7.1 | 7.1 | 7.0 | 7.0 | 7.0 | 7.4 | 7.3 | 7.3 | 7.3 | 7.2 | 7.2 |
| 28 | 7.2 | 7.1 | 7.1 | 7.0 | 7.0 | 7.0 | 7.3 | 7.3 | 7.3 | 7.3 | 7.2 | 7.3 |
| 29 | 7.1 | 7.0 | 7.1 | 7.0 | 7.0 | 7.0 | 7.3 | 7.3 | 7.3 | 7.2 | 7.2 | 7.2 |
| 30 | 7.1 | 7.0 | 7.0 | 7.1 | 7.0 | 7.1 | 7.3 | 7.3 | 7.3 | 7.2 | 7.2 | 7.2 |
| 31 | 7.1 | 7.0 | 7.1 | --- | --- | --- | 7.3 | 7.3 | 7.3 | 7.2 | 7.2 | 7.2 |
| MONTH | 7.2 | 6.8 | 7.0 | 7.2 | 6.8 | 7.1 | 7.4 | 6.9 | 7.2 | 7.3 | 7.1 | 7.2 |

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 7.2 | 7.2 | 7.2 | 7.2 | 7.2 | 7.2 | 7.4 | 7.2 | 7.3 | 7.3 | 7.1 | 7.2 |
| 2 | 7.2 | 7.2 | 7.2 | 7.2 | 7.2 | 7.2 | 7.3 | 7.3 | 7.3 | 7.4 | 7.2 | 7.3 |
| 3 | 7.2 | 7.2 | 7.2 | 7.2 | 7.1 | 7.2 | 7.3 | 7.3 | 7.3 | 7.3 | 7.2 | 7.2 |
| 4 | 7.3 | 7.2 | 7.3 | 7.2 | 7.1 | 7.2 | 7.4 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 |
| 5 | 7.3 | 7.3 | 7.3 | 7.3 | 7.2 | 7.3 | 7.3 | 7.2 | 7.3 | 7.3 | 7.3 | 7.3 |
| 6 | 7.3 | 7.3 | 7.3 | 7.4 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 |
| 7 | 7.3 | 7.3 | 7.3 | 7.4 | 7.3 | 7.3 | 7.4 | 7.3 | 7.4 | 7.3 | 7.2 | 7.3 |
| 8 | 7.3 | 7.3 | 7.3 | 7.4 | 7.3 | 7.3 | 7.4 | 7.3 | 7.3 | 7.3 | 7.2 | 7.3 |
| 9 | 7.3 | 7.3 | 7.3 | 7.4 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | --- | --- | --- |
| 10 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | --- | --- | --- |
| 11 | 7.4 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.2 | 7.3 | --- | --- | --- |
| 12 | 7.4 | 7.3 | 7.3 | 7.3 | 7.2 | 7.3 | 7.3 | 7.3 | 7.3 | --- | --- | --- |
| 13 | 7.5 | 7.3 | 7.4 | 7.2 | 7.2 | 7.2 | 7.7 | 7.3 | 7.3 | 7.4 | 7.4 | 7.4 |
| 14 | 7.4 | 7.4 | 7.4 | 7.3 | 7.2 | 7.2 | 7.3 | 7.3 | 7.3 | 7.4 | 7.4 | 7.4 |
| 15 | 7.4 | 7.3 | 7.3 | 7.3 | 7.2 | 7.2 | 7.3 | 7.2 | 7.3 | 7.4 | 7.4 | 7.4 |
| 16 | 7.4 | 7.3 | 7.3 | 7.3 | 7.2 | 7.2 | 7.3 | 7.2 | 7.3 | 7.4 | --- | --- |
| 17 | 7.4 | 7.3 | 7.3 | 7.2 | 7.2 | 7.2 | 7.3 | 7.3 | 7.3 | --- | --- | --- |
| 18 | 7.3 | 7.3 | 7.3 | 7.3 | 7.2 | 7.2 | 7.3 | 7.3 | 7.3 | --- | --- | --- |
| 19 | 7.3 | 7.2 | 7.3 | 7.2 | 7.2 | 7.2 | 7.3 | 7.2 | 7.3 | --- | --- | --- |
| 20 | 7.3 | 7.2 | 7.3 | 7.3 | 7.2 | 7.3 | 7.3 | 7.1 | 7.2 | --- | --- | --- |
| 21 | 7.3 | 7.3 | 7.3 | 7.4 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | --- | --- | --- |
| 22 | 7.3 | 7.2 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | --- | --- | --- |
| 23 | 7.3 | 7.2 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.2 | 7.3 | --- | --- | --- |
| 24 | 7.3 | 7.2 | 7.2 | 7.3 | 7.3 | 7.3 | 7.3 | 7.2 | 7.2 | --- | --- | --- |
| 25 | 7.3 | 7.2 | 7.2 | 7.3 | 7.3 | 7.3 | 7.2 | 7.2 | 7.2 | --- | --- | --- |
| 26 | 7.2 | 7.2 | 7.2 | 7.3 | 7.3 | 7.3 | 7.3 | 7.2 | 7.2 | --- | --- | --- |
| 27 | 7.3 | 7.2 | 7.2 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 | --- | --- | --- |
| 28 | 7.2 | 7.2 | 7.2 | 7.3 | 7.2 | 7.3 | 7.3 | 7.3 | 7.3 | --- | --- | --- |
| 29 | --- | --- | --- | 7.7 | 7.2 | 7.4 | 7.3 | 7.2 | 7.3 | 7.3 | 7.3 | 7.3 |
| 30 | --- | --- | --- | 7.4 | 7.3 | 7.3 | 7.3 | 7.1 | 7.2 | 7.3 | 7.2 | 7.3 |
| 31 | --- | --- | --- | 7.5 | 7.3 | 7.4 | --- | --- | --- | 7.3 | 7.2 | 7.3 |
| MONTH | 7.5 | 7.2 | 7.3 | 7.7 | 7.1 | 7.3 | 7.7 | 7.1 | 7.3 | 7.4 | 7.1 | 7.3 |

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 7.4 | 7.3 | 7.3 | 7.5 | 7.4 | 7.5 | 7.6 | 7.4 | 7.5 | 7.4 | 7.3 | 7.4 |
| 2 | 7.5 | 7.2 | 7.3 | 7.5 | 7.0 | 7.5 | 7.5 | 7.4 | 7.4 | 7.4 | 7.3 | 7.3 |
| 3 | 7.5 | 7.4 | 7.4 | 7.6 | --- | --- | 7.4 | 7.3 | 7.3 | 7.4 | 7.3 | 7.4 |
| 4 | 7.4 | 7.4 | 7.4 | 7.5 | --- | 7.4 | 8.0 | 7.5 | 7.7 | 7.4 | 7.4 | 7.4 |
| 5 | 7.4 | 7.4 | 7.4 | 7.4 | 7.3 | 7.4 | 7.9 | 7.6 | 7.8 | 7.4 | 7.3 | 7.4 |
| 6 | 7.4 | 7.3 | 7.4 | 7.6 | 7.1 | 7.3 | 7.8 | 7.5 | 7.7 | 7.4 | 7.3 | 7.3 |
| 7 | 7.3 | 7.3 | 7.3 | 7.5 | 7.2 | 7.4 | 7.7 | 7.5 | 7.6 | 7.4 | 7.4 | 7.4 |
| 8 | 7.3 | 7.3 | 7.3 | 7.5 | 7.4 | 7.5 | 7.7 | 7.5 | 7.6 | 7.5 | 7.3 | 7.4 |
| 9 | 7.3 | 7.2 | 7.3 | 7.5 | 7.4 | 7.5 | 7.7 | 7.5 | 7.6 | 7.5 | 7.4 | 7.4 |
| 10 | 7.3 | 7.2 | 7.3 | 7.6 | 7.5 | 7.5 | 7.7 | 7.5 | 7.6 | 7.5 | 7.4 | 7.4 |
| 11 | 7.3 | 7.3 | 7.3 | 7.6 | 7.5 | 7.5 | 7.8 | 7.6 | 7.6 | 7.5 | 7.4 | 7.4 |
| 12 | 7.3 | 7.3 | 7.3 | 7.6 | 7.6 | 7.6 | 7.8 | 7.6 | 7.6 | 7.5 | 7.4 | 7.4 |
| 13 | 7.3 | 7.3 | 7.3 | 7.6 | 7.5 | 7.6 | 7.7 | 7.5 | 7.6 | 7.4 | --- | --- |
| 14 | 7.3 | 7.2 | 7.2 | 7.5 | 7.4 | 7.5 | 7.7 | 7.5 | 7.6 | --- | --- | --- |
| 15 | 7.2 | 7.1 | 7.2 | 7.5 | 7.3 | 7.4 | 7.7 | 7.5 | 7.6 | 7.3 | 7.2 | 7.3 |
| 16 | --- | --- | --- | 7.5 | 7.3 | 7.4 | 7.6 | --- | --- | 7.4 | 7.3 | 7.3 |
| 17 | --- | --- | --- | 7.6 | 7.3 | 7.5 | 7.5 | 7.4 | 7.4 | 7.4 | 7.3 | 7.3 |
| 18 | --- | --- | --- | 7.7 | 7.5 | 7.6 | 7.4 | 7.3 | 7.3 | 7.4 | 7.4 | 7.4 |
| 19 | --- | --- | --- | 7.7 | 7.6 | 7.6 | 7.3 | 7.3 | 7.3 | 7.4 | 7.4 | 7.4 |
| 20 | --- | --- | --- | 7.7 | 7.5 | 7.6 | 7.4 | 7.3 | 7.4 | 7.4 | 7.4 | 7.4 |
| 21 | --- | --- | --- | 8.0 | 7.6 | 7.8 | 7.5 | 7.4 | 7.4 | 7.4 | 7.4 | 7.4 |
| 22 | --- | --- | --- | 7.8 | 7.6 | 7.7 | 7.4 | 7.3 | 7.4 | 7.4 | 7.4 | 7.4 |
| 23 | 7.5 | --- | --- | 7.8 | 7.5 | 7.7 | 7.5 | 7.3 | 7.4 | 7.5 | 7.4 | 7.4 |
| 24 | 7.5 | 7.4 | 7.5 | 7.8 | 7.5 | 7.7 | 7.5 | 7.3 | 7.4 | 7.5 | 7.4 | 7.4 |
| 25 | 7.4 | 7.4 | 7.4 | 7.9 | 7.5 | 7.7 | 7.5 | 7.4 | 7.4 | 7.5 | 7.4 | 7.5 |
| 26 | 7.4 | 7.3 | 7.3 | 7.7 | 7.5 | 7.6 | 7.5 | 7.4 | 7.4 | 7.5 | 7.4 | 7.4 |
| 27 | 7.6 | 7.4 | 7.5 | 7.6 | 7.4 | 7.5 | 7.4 | 7.3 | 7.4 | 7.5 | 7.4 | 7.4 |
| 28 | 7.6 | 7.5 | 7.6 | 7.6 | 7.4 | 7.5 | 7.4 | 7.3 | 7.3 | 7.4 | 7.4 | 7.4 |
| 29 | 7.5 | 7.4 | 7.5 | 7.5 | 7.3 | 7.4 | 7.5 | 7.4 | 7.4 | 7.4 | 7.4 | 7.4 |
| 30 | 7.4 | 7.3 | 7.4 | 7.4 | 7.4 | 7.4 | 7.5 | 7.4 | 7.4 | 7.5 | --- | --- |
| 31 | --- | --- | --- | 7.5 | 7.4 | 7.4 | 7.4 | 7.3 | 7.4 | --- | --- | --- |
| MONTH | 7.6 | 7.1 | 7.4 | 8.0 | 7.0 | 7.5 | 8.0 | 7.3 | 7.5 | 7.5 | 7.2 | 7.4 |
| YEAR | 8.0 | 6.8 | 7.3 | | | | | | | | | |

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

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

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 13.0 | 12.5 | 13.0 | 18.0 | 17.0 | 17.5 | 20.5 | 18.5 | 19.5 | 27.0 | 26.0 | 26.5 |
| 2 | 13.0 | 11.0 | 12.0 | 18.5 | 16.5 | 17.0 | 20.5 | 19.0 | 20.0 | 25.5 | 21.0 | 23.0 |
| 3 | 11.0 | 10.5 | 11.0 | 17.0 | 15.5 | 16.0 | 21.5 | 20.5 | 21.0 | 23.5 | 22.5 | 23.0 |
| 4 | 11.0 | 10.0 | 10.5 | 17.5 | 16.0 | 16.5 | 22.0 | 21.0 | 21.5 | 23.0 | 22.5 | 22.5 |
| 5 | 10.5 | 10.0 | 10.0 | 16.0 | 15.0 | 15.0 | 22.0 | 20.5 | 21.0 | 23.0 | 22.5 | 22.5 |
| 6 | 11.0 | 10.0 | 10.5 | 15.0 | 14.5 | 15.0 | 21.0 | 19.5 | 20.0 | 24.0 | 22.5 | 23.5 |
| 7 | 12.0 | 11.0 | 11.5 | 15.0 | 14.5 | 14.5 | 20.5 | 19.5 | 20.0 | 24.0 | 23.5 | 24.0 |
| 8 | 12.0 | 11.5 | 12.0 | 15.5 | 14.5 | 15.0 | 20.5 | 20.0 | 20.0 | 24.0 | 23.5 | 24.0 |
| 9 | 12.0 | 11.5 | 12.0 | 15.0 | 13.5 | 14.0 | 21.5 | 20.0 | 20.5 | --- | --- | --- |
| 10 | 12.5 | 11.5 | 12.0 | 14.5 | 13.0 | 13.5 | 22.0 | 21.5 | 21.5 | --- | --- | --- |
| 11 | 11.0 | 9.5 | 10.0 | 15.0 | 14.5 | 14.5 | 22.5 | 21.5 | 22.0 | --- | --- | --- |
| 12 | 9.5 | 9.0 | 9.5 | 15.5 | 15.0 | 15.5 | 23.0 | 22.5 | 23.0 | --- | --- | --- |
| 13 | 9.0 | 8.5 | 8.5 | 16.5 | 15.5 | 16.0 | 23.5 | 23.0 | 23.0 | 22.5 | 21.0 | 22.0 |
| 14 | 10.0 | 8.5 | 9.0 | 17.5 | 16.5 | 17.0 | 23.5 | 22.5 | 23.0 | 23.0 | 21.5 | 22.5 |
| 15 | 11.0 | 10.0 | 10.5 | 18.0 | 17.0 | 17.5 | 22.5 | 21.5 | 22.0 | 23.0 | 21.5 | 22.5 |
| 16 | 12.5 | 11.0 | 11.5 | 18.0 | 17.5 | 18.0 | 23.0 | 22.0 | 22.5 | --- | --- | --- |
| 17 | 14.0 | 12.5 | 13.0 | 18.0 | 17.0 | 17.5 | 23.0 | 22.5 | 23.0 | --- | --- | --- |
| 18 | 14.5 | 14.0 | 14.5 | 18.0 | 15.5 | 16.5 | 23.0 | 22.5 | 22.5 | --- | --- | --- |
| 19 | 16.5 | 15.0 | 15.5 | 16.0 | 15.0 | 15.5 | 23.0 | 22.0 | 22.5 | --- | --- | --- |
| 20 | 17.5 | 16.5 | 17.0 | 16.5 | 16.0 | 16.0 | 24.0 | 22.0 | 23.0 | --- | --- | --- |
| 21 | 18.0 | 17.5 | 18.0 | 16.5 | 16.0 | 16.5 | 24.0 | 23.5 | 24.0 | --- | --- | --- |
| 22 | 18.0 | 16.5 | 17.0 | 16.5 | 15.5 | 16.0 | 24.0 | 23.5 | 24.0 | --- | --- | --- |
| 23 | 17.0 | 16.0 | 16.5 | 16.5 | 15.0 | 16.0 | 24.0 | 23.0 | 23.5 | --- | --- | --- |
| 24 | 16.5 | 16.0 | 16.0 | 17.5 | 16.0 | 17.0 | 23.5 | 22.0 | 23.0 | --- | --- | --- |
| 25 | 16.0 | 15.5 | 16.0 | 17.0 | 16.5 | 17.0 | 22.5 | 22.0 | 22.5 | --- | --- | --- |
| 26 | 17.0 | 15.5 | 16.5 | 18.0 | 16.0 | 17.0 | 23.5 | 22.0 | 23.0 | --- | --- | --- |
| 27 | 18.0 | 17.0 | 17.5 | 18.5 | 18.0 | 18.5 | 24.0 | 23.0 | 23.5 | --- | --- | --- |
| 28 | 18.0 | 18.0 | 18.0 | 18.5 | 18.5 | 18.5 | 25.0 | 24.0 | 24.5 | --- | --- | --- |
| 29 | --- | --- | --- | 18.5 | 16.0 | 17.5 | 26.0 | 24.5 | 25.0 | 26.0 | 25.5 | 26.0 |
| 30 | --- | --- | --- | 18.5 | 16.5 | 17.5 | 27.0 | 25.5 | 26.0 | 26.5 | 25.0 | 26.0 |
| 31 | --- | --- | --- | 19.0 | 18.0 | 18.5 | --- | --- | --- | 27.5 | 25.5 | 26.5 |
| MONTH | 18.0 | 8.5 | 13.0 | 19.0 | 13.0 | 16.5 | 27.0 | 18.5 | 22.5 | 27.5 | 21.0 | 24.0 |

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 27.5 | 26.0 | 27.0 | 30.0 | 29.5 | 30.0 | 31.5 | 30.5 | 31.0 | 29.0 | 27.0 | 28.0 |
| 2 | 26.5 | 23.5 | 24.0 | 30.5 | 29.5 | 30.0 | 31.5 | 30.5 | 31.0 | 27.0 | 26.0 | 26.5 |
| 3 | 24.0 | 22.5 | 23.0 | 32.5 | 29.0 | 30.5 | 31.0 | 30.5 | 30.5 | 26.5 | 26.0 | 26.5 |
| 4 | 22.5 | 22.0 | 22.0 | --- | 26.5 | 28.0 | 31.0 | 30.5 | 31.0 | 27.0 | 26.5 | 27.0 |
| 5 | 23.5 | 22.5 | 22.5 | 27.5 | 26.5 | 27.0 | 31.0 | 30.5 | 31.0 | 28.5 | 27.0 | 27.5 |
| 6 | 24.5 | 23.5 | 24.0 | 29.0 | 27.0 | 27.5 | 31.5 | 31.0 | 31.0 | 28.5 | 27.5 | 28.0 |
| 7 | 26.0 | 24.0 | 25.0 | 27.5 | 26.5 | 27.5 | 31.5 | 30.5 | 31.0 | 29.0 | 28.0 | 28.5 |
| 8 | 27.0 | 25.5 | 26.0 | 28.5 | 27.5 | 28.0 | 30.0 | 29.5 | 30.0 | 29.0 | 28.0 | 28.5 |
| 9 | 28.5 | 27.0 | 27.5 | 30.0 | 28.0 | 29.0 | 30.0 | 29.0 | 29.5 | 28.0 | 27.0 | 27.5 |
| 10 | 29.0 | 28.0 | 28.5 | 31.0 | 29.0 | 30.0 | 29.5 | 28.5 | 29.0 | 28.0 | 27.0 | 27.5 |
| 11 | 28.5 | 27.0 | 27.5 | 31.5 | 29.5 | 30.5 | 30.0 | 29.0 | 29.5 | 28.0 | 27.0 | 27.5 |
| 12 | 27.5 | 26.5 | 27.0 | 31.5 | 30.0 | 30.5 | 30.0 | 29.5 | 29.5 | 28.5 | 27.0 | 28.0 |
| 13 | 27.5 | 26.5 | 26.5 | 31.0 | 30.5 | 30.5 | 30.0 | 29.0 | 30.0 | --- | --- | --- |
| 14 | 27.0 | 26.0 | 26.5 | 31.0 | 30.0 | 30.5 | 31.0 | 30.0 | 30.5 | --- | --- | --- |
| 15 | 27.0 | --- | --- | 31.0 | 30.0 | 30.5 | 31.5 | 30.5 | 31.0 | --- | --- | --- |
| 16 | --- | --- | --- | 31.0 | 30.0 | 30.5 | 31.5 | --- | 31.0 | 27.0 | 25.5 | 26.0 |
| 17 | --- | --- | --- | 31.0 | 30.5 | 31.0 | 30.5 | 30.0 | 30.0 | 25.5 | 24.5 | 25.0 |
| 18 | --- | --- | --- | 31.0 | 30.5 | 31.0 | 30.5 | 27.5 | 29.0 | 24.5 | 23.5 | 24.0 |
| 19 | --- | --- | --- | 31.5 | 30.5 | 31.0 | 28.0 | 27.5 | 27.5 | 23.5 | 23.0 | 23.0 |
| 20 | --- | --- | --- | 31.5 | 30.5 | 31.0 | 28.5 | 27.5 | 28.0 | 23.5 | 22.5 | 23.0 |
| 21 | --- | --- | --- | 31.5 | 20.5 | 31.5 | 28.0 | 27.5 | 28.0 | 24.0 | 23.0 | 23.5 |
| 22 | --- | --- | --- | 31.5 | 31.0 | 31.5 | 28.5 | 27.5 | 28.0 | 25.5 | 24.0 | 24.5 |
| 23 | 27.5 | --- | --- | 31.5 | 31.0 | 31.5 | 29.0 | 27.5 | 28.0 | 26.0 | 25.0 | 25.5 |
| 24 | 28.0 | 26.5 | 27.5 | 32.0 | 31.0 | 31.5 | 29.5 | 28.0 | 28.5 | 26.5 | 25.5 | 26.0 |
| 25 | 29.0 | 27.5 | 28.0 | 32.0 | 31.0 | 31.5 | 30.0 | 28.5 | 29.0 | 26.5 | 26.0 | 26.5 |
| 26 | 30.0 | 28.0 | 29.0 | 31.5 | 31.0 | 31.0 | 30.0 | 29.5 | 30.0 | 27.0 | 26.0 | 26.5 |
| 27 | 30.0 | 28.5 | 29.5 | 31.0 | 30.5 | 30.5 | 30.0 | 29.0 | 29.0 | 27.5 | 26.5 | 27.0 |
| 28 | 30.0 | 29.0 | 29.5 | 31.0 | 30.0 | 30.5 | 29.5 | 28.0 | 29.0 | 27.5 | 27.0 | 27.0 |
| 29 | 29.5 | 29.0 | 29.5 | 31.0 | 30.0 | 30.5 | 30.0 | 29.0 | 29.5 | 27.5 | 26.5 | 27.0 |
| 30 | 30.5 | 29.5 | 29.5 | 31.0 | 30.0 | 30.5 | 30.0 | 29.5 | 29.5 | 31.0 | 27.0 | 27.5 |
| 31 | --- | --- | --- | 31.0 | 30.0 | 30.5 | 29.5 | 29.0 | 29.0 | --- | --- | --- |
| MONTH | 30.5 | 22.0 | 26.5 | 32.5 | 20.5 | 30.0 | 31.5 | 27.5 | 29.5 | 31.0 | 22.5 | 26.5 |
| YEAR | 32.5 | 8.5 | 20.5 | | | | | | | | | |

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | 3.5 | 2.2 | 3.1 | 4.4 | 3.8 | 4.1 | 4.3 | 3.8 | 4.1 | 5.3 | 4.9 | 5.1 |
| 2 | 3.5 | 3.2 | 3.3 | 3.9 | 3.5 | 3.7 | 4.0 | 3.6 | 3.7 | 5.0 | 4.4 | 4.7 |
| 3 | 4.4 | 3.2 | 3.6 | 3.9 | 3.6 | 3.7 | 4.0 | 3.7 | 3.8 | 5.0 | 4.4 | 4.7 |
| 4 | 4.2 | 3.6 | 3.8 | 3.8 | 3.2 | 3.5 | 3.7 | 3.2 | 3.5 | 5.4 | 4.4 | 5.0 |
| 5 | 4.1 | 3.4 | 3.7 | 3.9 | 3.4 | 3.6 | 3.3 | 3.1 | 3.2 | 5.7 | 5.0 | 5.3 |
| 6 | 4.0 | 3.5 | 3.7 | 3.8 | 3.5 | 3.7 | 3.2 | 2.8 | 3.0 | 5.7 | 5.0 | 5.3 |
| 7 | 3.9 | 3.5 | 3.7 | 3.8 | 3.4 | 3.6 | 2.8 | 2.3 | 2.5 | 5.9 | 5.0 | 5.5 |
| 8 | 3.7 | 3.5 | 3.6 | 3.6 | 3.0 | 3.3 | 3.2 | 2.5 | 2.8 | 5.7 | 4.5 | 5.3 |
| 9 | 3.5 | 3.1 | 3.2 | 3.1 | 2.8 | 2.9 | 3.9 | 2.0 | 2.6 | 5.1 | 4.7 | 4.9 |
| 10 | 3.2 | 2.7 | 2.9 | 3.3 | 3.0 | 3.1 | 5.2 | 2.2 | 4.4 | 4.9 | 4.4 | 4.6 |
| 11 | 3.2 | 2.8 | 3.0 | 3.3 | 2.8 | 3.0 | 6.3 | 5.3 | 5.7 | 4.8 | 4.5 | 4.6 |
| 12 | 3.0 | 2.6 | 2.8 | 3.2 | 2.7 | 2.9 | 6.6 | 6.2 | 6.3 | 5.1 | 4.8 | 4.9 |
| 13 | 3.2 | 2.6 | 2.9 | 3.1 | 2.8 | 2.9 | 6.8 | 5.5 | 6.3 | 5.3 | 5.0 | 5.2 |
| 14 | 2.9 | 2.7 | 2.8 | 3.0 | 2.6 | 2.8 | 5.8 | 5.0 | 5.5 | 5.5 | 5.1 | 5.2 |
| 15 | 3.0 | 2.7 | 2.8 | 3.5 | 2.7 | 3.2 | 5.0 | 4.8 | 4.9 | 5.5 | 5.2 | 5.3 |
| 16 | 2.9 | 2.7 | 2.8 | 3.8 | 3.5 | 3.7 | 4.8 | 4.3 | 4.5 | 5.5 | 5.3 | 5.3 |
| 17 | 2.9 | 2.7 | 2.8 | 4.2 | 3.7 | 3.9 | 4.8 | 4.4 | 4.6 | 5.6 | 5.4 | 5.4 |
| 18 | 3.1 | .0 | 1.4 | 4.8 | 3.7 | 4.2 | 4.7 | 4.1 | 4.4 | 5.6 | 5.0 | 5.3 |
| 19 | 3.1 | 1.4 | 2.6 | 5.6 | 4.9 | 5.3 | 5.1 | 4.3 | 4.6 | 5.3 | 4.7 | 5.0 |
| 20 | 4.0 | 3.1 | 3.5 | 5.6 | 5.1 | 5.4 | 5.3 | 4.9 | 5.2 | 5.2 | 4.8 | 5.0 |
| 21 | 4.4 | 3.8 | 4.1 | 5.3 | 4.6 | 4.9 | 5.5 | 5.1 | 5.3 | 5.4 | 4.7 | 5.0 |
| 22 | 4.2 | 3.8 | 4.1 | 5.0 | 4.3 | 4.5 | 6.1 | 5.4 | 5.7 | 5.4 | 4.5 | 4.8 |
| 23 | 4.1 | 3.2 | 3.5 | 4.6 | 3.7 | 4.2 | 6.1 | 5.6 | 5.9 | 5.4 | 4.8 | 5.1 |
| 24 | 4.0 | 3.5 | 3.7 | 4.5 | 3.8 | 4.1 | 5.9 | 5.5 | 5.6 | 5.4 | 5.0 | 5.1 |
| 25 | 4.1 | 3.3 | 3.7 | 4.2 | 3.8 | 4.1 | 5.7 | 5.5 | 5.6 | 5.2 | 4.6 | 4.8 |
| 26 | 3.7 | 2.7 | 3.3 | 4.7 | 4.0 | 4.4 | 5.7 | 5.1 | 5.4 | 4.8 | 4.1 | 4.5 |
| 27 | 3.8 | 3.2 | 3.5 | 4.6 | 4.2 | 4.4 | 5.5 | 4.9 | 5.3 | 4.6 | 4.1 | 4.4 |
| 28 | 3.8 | 3.6 | 3.7 | 4.6 | 4.3 | 4.4 | 6.0 | 5.5 | 5.8 | 4.9 | 4.4 | 4.6 |
| 29 | 4.1 | 3.9 | 4.0 | 4.7 | 4.2 | 4.4 | 5.8 | 5.2 | 5.5 | 4.7 | 4.1 | 4.4 |
| 30 | 4.2 | 3.8 | 3.9 | 4.5 | 4.2 | 4.3 | 5.5 | 5.0 | 5.3 | 4.6 | 4.0 | 4.3 |
| 31 | 4.2 | 3.9 | 4.1 | --- | --- | --- | 5.5 | 5.1 | 5.3 | 4.4 | 3.8 | 4.1 |
| MONTH | 4.4 | .0 | 3.3 | 5.6 | 2.6 | 3.9 | 6.8 | 2.0 | 4.7 | 5.9 | 3.8 | 4.9 |

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 4.2 | 3.8 | 4.0 | 3.3 | 2.7 | 2.9 | 4.3 | 3.2 | 3.8 | 2.9 | 1.9 | 2.5 |
| 2 | 5.1 | 4.1 | 4.7 | 3.9 | 1.2 | 2.7 | 4.5 | 3.0 | 4.1 | 3.1 | .8 | 2.1 |
| 3 | 5.3 | 4.8 | 5.1 | 1.9 | .0 | .5 | 4.5 | 4.1 | 4.3 | 3.7 | 2.6 | 3.1 |
| 4 | 5.8 | 5.0 | 5.4 | 3.4 | .9 | 2.6 | 4.2 | 3.5 | 3.8 | 3.9 | 3.4 | 3.7 |
| 5 | 6.0 | 5.4 | 5.7 | 4.4 | .0 | 2.2 | 3.5 | 1.3 | 2.5 | 4.2 | 3.5 | 3.9 |
| 6 | 5.5 | 5.1 | 5.3 | 5.1 | 4.5 | 4.9 | 4.5 | 2.8 | 3.9 | 4.2 | 3.3 | 3.7 |
| 7 | 5.4 | 4.8 | 5.1 | 5.6 | 4.9 | 5.1 | 4.9 | 4.5 | 4.7 | 3.9 | 3.2 | 3.6 |
| 8 | 5.5 | 4.8 | 5.0 | 5.5 | 4.7 | 5.2 | 4.8 | 4.4 | 4.6 | 3.9 | 3.4 | 3.6 |
| 9 | 5.1 | 4.6 | 4.8 | 5.9 | 4.3 | 5.2 | 4.4 | 3.9 | 4.2 | --- | --- | --- |
| 10 | 4.8 | 4.5 | 4.6 | 6.1 | 5.6 | 6.0 | 3.9 | 3.7 | 3.8 | --- | --- | --- |
| 11 | 5.0 | 4.4 | 4.7 | 5.6 | 5.1 | 5.4 | 3.8 | 2.9 | 3.3 | --- | --- | --- |
| 12 | 6.0 | 4.7 | 5.6 | 5.2 | 4.6 | 4.9 | 3.5 | 3.2 | 3.4 | --- | --- | --- |
| 13 | 7.2 | 5.7 | 6.5 | 5.0 | 4.4 | 4.7 | 3.4 | 3.0 | 3.2 | 4.6 | 4.3 | 4.4 |
| 14 | 7.1 | 5.6 | 6.1 | 4.9 | 4.1 | 4.5 | 3.3 | 2.8 | 3.1 | 4.2 | 3.8 | 4.0 |
| 15 | 6.0 | 4.7 | 5.1 | 4.6 | 3.8 | 4.3 | 3.3 | 2.7 | 3.0 | 4.3 | 3.9 | 4.2 |
| 16 | 5.4 | 4.6 | 4.9 | 4.2 | 3.7 | 4.0 | 3.5 | 2.1 | 2.9 | 4.9 | --- | --- |
| 17 | 4.8 | 3.9 | 4.3 | 4.6 | 4.1 | 4.4 | 3.7 | 3.5 | 3.6 | --- | --- | --- |
| 18 | 4.4 | 4.0 | 4.2 | 5.0 | 4.6 | 4.8 | 3.5 | 3.0 | 3.2 | --- | --- | --- |
| 19 | 4.1 | 3.8 | 3.9 | 5.1 | 4.4 | 4.7 | 3.4 | 2.8 | 3.1 | --- | --- | --- |
| 20 | 4.0 | 3.4 | 3.6 | 5.1 | 4.3 | 4.6 | 2.8 | .5 | 1.5 | --- | --- | --- |
| 21 | 3.6 | 2.7 | 3.1 | 5.2 | 4.9 | 5.1 | 3.4 | 1.7 | 2.4 | --- | --- | --- |
| 22 | 3.7 | 2.8 | 3.1 | 5.3 | 4.7 | 4.9 | 3.7 | 3.3 | 3.5 | --- | --- | --- |
| 23 | 3.3 | 2.2 | 2.7 | 5.0 | 4.6 | 4.8 | 4.3 | 3.0 | 3.7 | --- | --- | --- |
| 24 | 3.6 | 2.5 | 3.2 | 5.1 | 4.7 | 4.9 | 3.0 | 2.2 | 2.7 | --- | --- | --- |
| 25 | 3.8 | 3.5 | 3.6 | 5.0 | 4.8 | 4.9 | 3.0 | 1.9 | 2.6 | --- | --- | --- |
| 26 | 3.8 | 3.4 | 3.6 | 5.1 | 4.5 | 4.7 | 4.2 | 3.2 | 3.7 | --- | --- | --- |
| 27 | 3.6 | 2.9 | 3.2 | 4.8 | 4.3 | 4.6 | 4.3 | 3.9 | 4.1 | --- | --- | --- |
| 28 | 3.1 | 2.7 | 2.9 | 4.6 | 3.8 | 4.2 | 4.0 | 3.8 | 3.9 | --- | --- | --- |
| 29 | --- | --- | --- | 5.4 | 2.2 | 4.4 | 3.8 | 3.0 | 3.5 | 3.2 | 3.0 | 3.1 |
| 30 | --- | --- | --- | 4.2 | 2.1 | 3.6 | 3.0 | 1.8 | 2.6 | 3.9 | 2.1 | 3.2 |
| 31 | --- | --- | --- | 5.3 | 1.9 | 4.4 | --- | --- | --- | 4.0 | 2.3 | 3.3 |
| MONTH | 7.2 | 2.2 | 4.4 | 6.1 | .0 | 4.3 | 4.9 | .5 | 3.4 | 4.9 | .8 | 3.5 |

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 4.0 | 3.4 | 3.7 | 5.3 | 5.0 | 5.1 | 6.4 | 3.6 | 5.0 | 7.4 | 2.9 | 3.4 |
| 2 | 3.6 | 2.8 | 3.2 | 5.5 | 4.9 | 5.0 | 5.7 | 3.5 | 4.8 | 3.1 | .8 | 1.9 |
| 3 | 4.6 | 3.1 | 4.1 | 5.6 | 5.0 | 5.3 | 5.0 | 3.7 | 4.3 | 2.7 | 1.3 | 1.8 |
| 4 | 5.5 | 4.7 | 5.1 | 5.4 | 3.6 | 4.6 | 9.0 | 4.9 | 6.9 | 3.7 | 2.7 | 3.4 |
| 5 | 5.5 | 4.9 | 5.2 | 4.3 | 3.6 | 3.9 | 8.7 | 5.9 | 7.3 | 3.7 | 3.1 | 3.4 |
| 6 | 5.0 | 4.2 | 4.7 | 7.1 | 3.1 | 3.8 | 7.6 | 5.4 | 6.5 | 3.6 | 2.4 | 3.1 |
| 7 | 4.1 | 3.6 | 3.8 | 7.3 | 2.0 | 5.0 | 6.7 | 5.0 | 6.0 | 4.5 | 3.7 | 4.1 |
| 8 | 3.6 | 3.2 | 3.5 | 4.5 | 3.6 | 4.2 | 7.2 | 4.9 | 6.1 | 5.0 | 3.5 | 4.2 |
| 9 | 3.2 | 2.0 | 2.6 | 4.4 | 3.6 | 3.9 | 7.3 | 4.8 | 6.1 | 4.8 | 3.9 | 4.4 |
| 10 | 2.1 | 1.8 | 2.0 | 4.6 | 3.4 | 3.8 | 7.0 | 5.2 | 6.2 | 5.5 | 3.6 | 4.5 |
| 11 | 2.2 | 1.8 | 2.0 | 4.6 | 3.9 | 4.2 | 7.3 | 5.2 | 6.3 | 5.5 | 4.0 | 4.7 |
| 12 | 3.0 | 1.6 | 2.3 | 4.9 | 4.3 | 4.6 | 7.2 | 5.5 | 6.3 | 5.6 | 4.2 | 5.0 |
| 13 | 3.6 | 2.8 | 3.0 | 4.8 | 4.6 | 4.7 | 7.1 | 4.9 | 6.0 | --- | --- | --- |
| 14 | 3.7 | 3.3 | 3.5 | 4.9 | 4.8 | 4.9 | 6.4 | 4.6 | 5.6 | --- | --- | --- |
| 15 | 4.1 | 2.3 | 3.7 | 5.2 | 4.8 | 5.0 | 6.7 | 4.3 | 5.6 | --- | 1.1 | 3.7 |
| 16 | --- | --- | --- | 5.1 | 4.8 | 5.0 | 5.9 | --- | --- | 3.3 | 2.0 | 2.8 |
| 17 | --- | --- | --- | 5.8 | 4.8 | 5.2 | 5.1 | 3.6 | 4.4 | 4.1 | 2.7 | 3.4 |
| 18 | --- | --- | --- | 5.8 | 4.7 | 5.2 | 4.0 | 1.8 | 2.5 | 5.1 | 4.0 | 4.6 |
| 19 | --- | --- | --- | 5.7 | 4.6 | 5.1 | 2.8 | 1.1 | 2.1 | 5.0 | 4.2 | 4.6 |
| 20 | --- | --- | --- | 6.0 | 4.8 | 5.3 | 3.3 | 2.4 | 2.9 | 4.9 | 3.9 | 4.5 |
| 21 | --- | --- | --- | 8.0 | 5.0 | 6.8 | 5.3 | 3.2 | 4.2 | 5.2 | 4.5 | 4.8 |
| 22 | --- | --- | --- | 7.0 | 5.1 | 6.0 | 5.0 | 3.2 | 4.1 | 5.2 | 4.4 | 4.8 |
| 23 | 5.4 | --- | 5.0 | 7.0 | 4.9 | 6.0 | 5.8 | 3.4 | 4.5 | 5.6 | 4.7 | 5.1 |
| 24 | 5.7 | 5.0 | 5.5 | 7.4 | 4.8 | 5.9 | 5.7 | 3.6 | 4.6 | 5.7 | 4.5 | 5.1 |
| 25 | 5.3 | 4.0 | 4.8 | 7.9 | 4.5 | 6.0 | 5.6 | 3.6 | 4.5 | 5.8 | 4.6 | 5.2 |
| 26 | 4.0 | 3.5 | 3.7 | 7.0 | 4.5 | 5.8 | 5.7 | 3.6 | 4.6 | 5.3 | 4.2 | 4.8 |
| 27 | 5.1 | 3.6 | 4.3 | 6.2 | 4.1 | 5.2 | 4.4 | 3.4 | 3.8 | 5.3 | 3.9 | 4.6 |
| 28 | 5.3 | 5.0 | 5.2 | 7.0 | 4.3 | 5.6 | 3.6 | 3.0 | 3.4 | 5.3 | 3.8 | 4.5 |
| 29 | 5.1 | 4.9 | 5.1 | 6.4 | 4.3 | 5.5 | 5.2 | 3.6 | 4.3 | 5.3 | 4.0 | 4.6 |
| 30 | 5.1 | 4.9 | 5.0 | 5.6 | 3.4 | 4.5 | 4.7 | 3.6 | 4.2 | 7.4 | 4.5 | 5.1 |
| 31 | --- | --- | --- | 6.0 | 3.7 | 4.8 | 4.4 | 3.2 | 3.9 | --- | --- | --- |
| MONTH | 5.7 | 1.6 | 4.0 | 8.0 | 2.0 | 5.0 | 9.0 | 1.1 | 4.9 | 7.4 | .8 | 4.2 |
| YEAR | 9.0 | .0 | 4.3 | | | | | | | | | |

## 08062650 CEDAR CREEK RESERVOIR SPILLWAY OUTFLOW NEAR TRINIDAD, TX

LOCATION.--Lat 32°14'16", long 96°08'36", Henderson County, Hydrologic Unit 12030107, at upstream side of highway embankment near left end of bridge on State Highway 274, 0.2 mi (0.3 km) downstream from Cedar Creek Reservoir Spillway, 1.8 mi (2.9 km) upstream from mouth of cut channel at Trinity River, and 7.6 mi (12.2 km) north of Trinidad.

DRAINAGE AREA.--1,007 $mi^2$ (2,608 $km^2$), that of Cedar Creek Reservoir.

PERIOD OF RECORD.--October 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Jan. 20, 1980, at site 385 ft (117 m) to right of present gage at present datum. Mar. 10, 1965, to July 8, 1966, nonrecording gage at 379 ft (116 m) to right of present gage at present datum. Auxiliary water-stage recorder 6,000 ft (1,830 m) downstream from base gage at same datum.

REMARKS.--Records fair. Except for a small amount of local runoff and seepage around gates, all flow is water released from Cedar Creek Reservoir (station 08063010). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--16 years, 527 $ft^3/s$ (14.92 $m^3/s$), 381,800 acre-ft/yr (471 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 110,000 $ft^3/s$ (3,120 $m^3/s$) June 4, 1973, elevation, 300.75 ft (91.669 m); no flow at times each year except 1971.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 24,200 $ft^3/s$ (685 $m^3/s$) June 16, elevation, 284.80 ft (86.807 m); maximum elevation, 286.45 ft (87.310 m) June 17, (backwater from Trinity River); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .50 | .25 | .42 | .42 | .50 | .25 | .25 | .00 | .00 | .17 | .00 | .25 |
| 2 | .33 | .25 | .42 | .42 | .33 | .00 | .17 | .00 | .17 | .17 | .00 | .25 |
| 3 | .08 | .25 | .33 | .42 | .33 | .25 | .08 | .00 | .86 | .17 | .00 | .17 |
| 4 | .08 | .25 | .33 | .42 | .42 | .08 | .08 | .00 | .08 | .17 | .00 | .17 |
| 5 | .08 | .17 | .42 | .42 | .33 | .00 | .00 | .00 | .08 | 444 | .00 | .08 |
| 6 | .08 | .17 | .42 | .50 | .33 | .00 | .00 | .00 | 11600 | 1330 | .00 | .08 |
| 7 | .00 | .17 | .42 | .42 | .33 | .17 | .00 | .00 | 10200 | 2670 | .00 | .08 |
| 8 | .08 | .17 | 1.4 | .42 | .25 | .00 | .00 | .00 | 4250 | 852 | .00 | .08 |
| 9 | .08 | .17 | .50 | .50 | .33 | .00 | .00 | .86 | 1670 | .17 | .00 | .00 |
| 10 | .08 | .17 | .42 | .50 | .42 | .00 | .00 | .17 | 2230 | .17 | .00 | .00 |
| 11 | .08 | .25 | .42 | .50 | .25 | .08 | .00 | .08 | 223 | .17 | .00 | .00 |
| 12 | .00 | .25 | .42 | .33 | .17 | .08 | .08 | .08 | 37 | .17 | .00 | .00 |
| 13 | .00 | .25 | .50 | .33 | .08 | .08 | .08 | .08 | 594 | .17 | .00 | .00 |
| 14 | .00 | .25 | .42 | .42 | .08 | .17 | .08 | .08 | .08 | .08 | .00 | .08 |
| 15 | .17 | .25 | .42 | .42 | .08 | .08 | .00 | .08 | .08 | .08 | .00 | .25 |
| 16 | .17 | .42 | .42 | .33 | .08 | .00 | .00 | .17 | 13300 | .08 | .00 | .25 |
| 17 | .86 | .33 | .25 | .25 | .08 | .00 | .00 | .00 | 15400 | .08 | .17 | .08 |
| 18 | .42 | .25 | .25 | .25 | .08 | .00 | .00 | .00 | 8130 | .08 | .17 | .00 |
| 19 | .33 | .25 | .25 | .42 | .00 | .00 | .00 | .00 | 4010 | .08 | .17 | .00 |
| 20 | .08 | .33 | .08 | .50 | .00 | .00 | .00 | .00 | 1710 | .08 | .17 | .00 |
| 21 | .08 | .33 | .33 | .42 | .17 | .00 | .00 | .00 | .10 | .00 | .08 | .00 |
| 22 | .08 | .42 | .33 | .42 | .08 | .00 | .00 | .00 | 529 | .00 | .00 | .00 |
| 23 | .08 | .86 | .25 | .33 | .00 | .00 | .00 | .00 | 1410 | .00 | .00 | .08 |
| 24 | .17 | .86 | .33 | .33 | .00 | .08 | .00 | .33 | 411 | .00 | .00 | .08 |
| 25 | .08 | .25 | .25 | .33 | .00 | .08 | .00 | .25 | .17 | .00 | .00 | .08 |
| 26 | .08 | .33 | .33 | .42 | .17 | .08 | .00 | .00 | .17 | .08 | .00 | .08 |
| 27 | .42 | .42 | .33 | .50 | .25 | .17 | .00 | .08 | .17 | .17 | .00 | .17 |
| 28 | .17 | .42 | .33 | .42 | .33 | .17 | .00 | .00 | .17 | .08 | .00 | .17 |
| 29 | .08 | .42 | .42 | .33 | --- | .17 | .00 | .00 | .17 | .00 | .00 | .17 |
| 30 | .17 | .42 | .42 | .33 | --- | .00 | .00 | .00 | .17 | .00 | .00 | .17 |
| 31 | .25 | --- | .42 | .33 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | 5.16 | 9.58 | 12.25 | 12.35 | 5.47 | 1.99 | .82 | 2.26 | 75706.47 | 5298.42 | .76 | 2.82 |
| MEAN | .17 | .32 | .40 | .40 | .20 | .064 | .027 | .073 | 2524 | 171 | .025 | .094 |
| MAX | .86 | .86 | 1.4 | .50 | .50 | .25 | .25 | .86 | 15400 | 2670 | .17 | .25 |
| MIN | .00 | .17 | .08 | .25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 10 | 19 | 24 | 24 | 11 | 3.9 | 1.6 | 4.5 | 150200 | 10510 | 1.5 | 5.6 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 89280.68 | MEAN | 244 | MAX | 12600 | MIN | .00 | AC-FT | 177100 |
| WTR YR 1981 | TOTAL | 81058.35 | MEAN | 222 | MAX | 15400 | MIN | .00 | AC-FT | 160800 |

## 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 (0.8 km) downstream from St. Louis Southwestern Railway Lines bridge, 0.9 mi (1.4 km) downstream from bridge on State Highway 31, 8 mi (13 km) upstream from Cedar Creek, and at mile 391.2 (629.4 km).

DRAINAGE AREA.--8,538 mi² (22,113 km²), not including 1,007 mi² (2,608 km²) 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 Corps of Engineers, and records collected since October 1915 are contained in reports of the National Weather Service.

GAGE.--Water-stage recorder. Datum of gage is 239.21 ft (72.911 m) National Geodetic Vertical Datum of 1929. Prior to May 3, 1967, at site 0.9 mi (1.4 km) upstream at datum 1.28 ft (0.390 m) higher.

REMARKS.--Water-discharge records good. For regulation by upstream reservoirs, see Trinity River near Rosser (station 08062500). The spillway outflow from Cedar Creek Reservoir (station 08062650) enters the Trinity River 13 mi (21 km) upstream from station. Many diversions above station for municipal supply for the cities of Fort Worth, Dallas, and several small towns. Low flows are maintained by sewage effluent from the Dallas-Fort Worth metroplex. A gage-height telemeter is located at station. On Jan. 22, 1981, an additional telemeter (data collection platform, battery, and antenna) was installed at site.

AVERAGE DISCHARGE.--17 years, 3,420 ft³/s (96.85 m³/s), 2,478,000 acre-ft/yr (3.06 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 83,000 ft³/s (2,350 m³/s) May 8, 1969, gage height, 44.10 ft (13.442 m); minimum daily, 312 ft³/s (8.84 m³/s) Aug. 9, 1972.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1908, 49.8 ft (15.18 m) Apr. 25, 1942 (present site and datum), from records of the National Weather Service. Flood in 1908 reached a stage of 48.3 ft (14.72 m), present site and datum, from records of the National Weather Service.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 28,000 ft³/s (793 m³/s) June 7 at 1800 hours, gage height, 38.10 ft (11.613 m); minimum daily, 527 ft³/s (14.9 m³/s) Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5180 | 564 | 559 | 551 | 583 | 587 | 4980 | 989 | 2180 | 1040 | 813 | 576 |
| 2 | 6450 | 551 | 557 | 593 | 575 | 913 | 2210 | 1270 | 2010 | 1010 | 692 | 704 |
| 3 | 5300 | 554 | 564 | 564 | 677 | 2050 | 1070 | 3130 | 7500 | 977 | 647 | 2000 |
| 4 | 2040 | 547 | 581 | 578 | 707 | 2100 | 812 | 1900 | 12000 | 959 | 609 | 3250 |
| 5 | 918 | 559 | 590 | 589 | 650 | 2370 | 955 | 963 | 13800 | 4100 | 616 | 2170 |
| 6 | 740 | 572 | 585 | 580 | 609 | 4500 | 1230 | 912 | 18000 | 8110 | 619 | 1270 |
| 7 | 661 | 565 | 586 | 586 | 620 | 3030 | 946 | 894 | 26500 | 9270 | 622 | 1140 |
| 8 | 643 | 565 | 625 | 620 | 634 | 1270 | 760 | 784 | 26500 | 10300 | 608 | 803 |
| 9 | 608 | 570 | 972 | 622 | 621 | 1580 | 703 | 2470 | 24300 | 10500 | 616 | 633 |
| 10 | 596 | 555 | 4060 | 606 | 607 | 2520 | 681 | 7320 | 21300 | 9390 | 607 | 645 |
| 11 | 585 | 546 | 4430 | 608 | 654 | 1520 | 665 | 8340 | 19000 | 3920 | 573 | 690 |
| 12 | 573 | 553 | 2040 | 597 | 894 | 1030 | 654 | 8830 | 14500 | 1530 | 571 | 667 |
| 13 | 545 | 574 | 1040 | 590 | 819 | 872 | 634 | 9160 | 9190 | 1240 | 580 | 613 |
| 14 | 531 | 581 | 836 | 594 | 659 | 793 | 601 | 8640 | 4520 | 1110 | 579 | 580 |
| 15 | 540 | 578 | 762 | 597 | 618 | 757 | 610 | 3880 | 2780 | 1060 | 576 | 576 |
| 16 | 559 | 584 | 715 | 596 | 594 | 720 | 610 | 2010 | 8060 | 1030 | 579 | 1530 |
| 17 | 578 | 588 | 696 | 592 | 580 | 692 | 600 | 4010 | 15700 | 998 | 577 | 1500 |
| 18 | 613 | 773 | 674 | 588 | 576 | 674 | 589 | 3710 | 24000 | 923 | 599 | 932 |
| 19 | 1780 | 1200 | 665 | 597 | 561 | 656 | 585 | 2270 | 26200 | 882 | 963 | 691 |
| 20 | 1870 | 1040 | 644 | 611 | 569 | 658 | 1060 | 1430 | 25200 | 856 | 1190 | 613 |
| 21 | 1050 | 772 | 621 | 611 | 578 | 632 | 1840 | 1150 | 21800 | 829 | 923 | 560 |
| 22 | 747 | 676 | 626 | 706 | 597 | 617 | 1170 | 972 | 18000 | 803 | 692 | 532 |
| 23 | 678 | 643 | 609 | 694 | 757 | 604 | 791 | 869 | 14300 | 773 | 639 | 529 |
| 24 | 634 | 695 | 606 | 660 | 858 | 578 | 914 | 1270 | 11400 | 758 | 582 | 543 |
| 25 | 595 | 834 | 608 | 633 | 670 | 583 | 2200 | 3130 | 7640 | 722 | 562 | 544 |
| 26 | 619 | 786 | 591 | 605 | 593 | 588 | 1800 | 3370 | 4340 | 715 | 560 | 551 |
| 27 | 604 | 691 | 547 | 589 | 587 | 588 | 975 | 2380 | 2220 | 703 | 560 | 574 |
| 28 | 556 | 644 | 535 | 581 | 578 | 576 | 735 | 2750 | 1370 | 692 | 558 | 556 |
| 29 | 551 | 602 | 530 | 579 | --- | 611 | 677 | 5970 | 1150 | 672 | 562 | 527 |
| 30 | 554 | 572 | 530 | 577 | --- | 3510 | 744 | 6100 | 1070 | 758 | 568 | 533 |
| 31 | 566 | --- | 568 | 568 | --- | 6300 | --- | 3750 | --- | 897 | 558 | --- |
| TOTAL | 38464 | 19534 | 28552 | 18662 | 18025 | 44479 | 32801 | 104623 | 386530 | 77527 | 20000 | 27032 |
| MEAN | 1241 | 651 | 921 | 602 | 644 | 1435 | 1093 | 3375 | 12880 | 2501 | 645 | 901 |
| MAX | 6450 | 1200 | 4430 | 706 | 894 | 6300 | 4980 | 9160 | 26500 | 10500 | 1190 | 3250 |
| MIN | 531 | 546 | 530 | 551 | 561 | 576 | 585 | 784 | 1070 | 672 | 558 | 527 |
| AC-FT | 76290 | 38750 | 56630 | 37020 | 35750 | 88220 | 65060 | 207500 | 766700 | 153800 | 39670 | 53620 |

CAL YR 1980 TOTAL 492418 MEAN 1345 MAX 17800 MIN 460 AC-FT 976700
WTR YR 1981 TOTAL 816229 MEAN 2236 MAX 26500 MIN 527 AC-FT 1619000

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1967 to current year.
SPECIFIC CONDUCTANCE: November 1977 to current year.
WATER TEMPERATURES: November 1977 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 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 daily, 1,000 micromhos Dec. 28, 1977; minimum daily, 240 micromhos June 5, 1981.
WATER TEMPERATURES: Maximum daily, 34.0°C July 17, 1979, and July 9, 13, 1980; minimum daily 3.5°C Jan. 5, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 859 micromhos Dec. 25; minimum daily, 240 micromhos June 5.
WATER TEMPERATURES: Maximum daily, 32.5°C on several days during July and August; minimum daily, 7.0°C Dec. 25.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 21... | 1150 | 1000 | 530 | 7.4 | 20.0 | 9.7 | 2.4 | 26 | 30 | 960 | 2000 |
| NOV | | | | | | | | | | | |
| 05... | 1230 | 558 | 828 | 7.1 | 16.5 | 1.1 | 5.5 | 56 | 9.0 | 53 | 52 |
| DEC | | | | | | | | | | | |
| 08... | 1200 | 626 | 775 | 7.2 | 16.0 | 23 | 4.8 | 48 | 13 | K60 | 150 |
| JAN | | | | | | | | | | | |
| 21... | 1300 | 612 | 812 | 7.3 | 8.0 | 6.3 | 7.4 | 62 | 13 | 50 | K15 |
| FEB | | | | | | | | | | | |
| 18... | 1130 | 562 | 762 | 7.6 | 11.5 | 3.4 | 5.6 | 51 | 18 | K13 | K3 |
| MAR | | | | | | | | | | | |
| 10... | 1130 | 2700 | 578 | 7.9 | 14.0 | 31 | 4.6 | 44 | 21 | 270 | 410 |
| APR | | | | | | | | | | | |
| 13... | 1500 | 641 | 775 | 7.5 | 23.0 | 23 | 4.3 | 50 | 19 | 200 | 62 |
| MAY | | | | | | | | | | | |
| 07... | 0930 | 909 | 580 | 7.8 | 23.0 | 45 | 3.6 | 42 | 19 | 320 | 360 |
| JUN | | | | | | | | | | | |
| 10... | 1330 | 21100 | 321 | 8.1 | 27.5 | 29 | 3.4 | 43 | 3.5 | 150 | 560 |
| JUL | | | | | | | | | | | |
| 08... | 1230 | 10500 | 304 | 8.0 | 27.5 | 110 | 4.7 | 59 | 3.8 | 700 | 3200 |
| AUG | | | | | | | | | | | |
| 10... | 1330 | 562 | 768 | 7.9 | 29.0 | 5.0 | 6.4 | 83 | 5.3 | 62 | K13 |
| SEP | | | | | | | | | | | |
| 08... | 1610 | 727 | 520 | 8.0 | 29.0 | 44 | 5.9 | 78 | 3.5 | 120 | 1300 |

| DATE | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 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 | | | | | | | | | | | |
| 21... | 140 | 26 | 48 | 3.8 | 49 | 1.8 | 7.6 | 110 | 77 | 36 | .7 |
| NOV | | | | | | | | | | | |
| 05... | 150 | 16 | 50 | 5.2 | 110 | 4.0 | 14 | 156 | 110 | 78 | 1.3 |
| DEC | | | | | | | | | | | |
| 08... | 130 | 25 | 46 | 4.8 | 91 | 3.4 | 12 | 130 | 98 | 70 | 1.1 |
| JAN | | | | | | | | | | | |
| 21... | 150 | 14 | 52 | 5.8 | 110 | 3.9 | 11 | 140 | 120 | 79 | 1.2 |
| 13... | 180 | 31 | 64 | 5.2 | 84 | 2.7 | 11 | 150 | 110 | 61 | 1.0 |
| MAY | | | | | | | | | | | |
| 07... | 160 | 17 | 56 | 4.2 | 55 | 1.9 | 7.8 | 140 | 82 | 38 | .6 |
| JUN | | | | | | | | | | | |
| 10... | 130 | 16 | 46 | 2.8 | 12 | .5 | 6.5 | 110 | 38 | 10 | .2 |
| JUL | | | | | | | | | | | |
| 08... | 110 | 17 | 41 | 2.7 | 15 | .6 | 5.3 | 97 | 41 | 12 | .2 |
| AUG | | | | | | | | | | | |
| 10... | 150 | 12 | 52 | 5.4 | 100 | 3.6 | 9.5 | 140 | 97 | 89 | 1.0 |
| SEP | | | | | | | | | | | |
| 08... | 140 | 19 | 49 | 4.1 | 52 | 2.0 | 7.4 | 120 | 62 | 45 | .6 |

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| 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 TOTAL (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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 21... | 7.6 | 320 | 299 | -- | -- | 3.3 | 3.3 | .320 | .390 | 3.7 | 1.1 |
| NOV | | | | | | | | | | | |
| 05... | 12 | 492 | 499 | -- | -- | 8.9 | 9.1 | 1.40 | 1.30 | 1.5 | 1.4 |
| DEC | | | | | | | | | | | |
| 08... | 14 | 458 | 452 | -- | -- | 10 | 11 | 2.90 | 2.60 | 1.5 | .00 |
| JAN | | | | | | | | | | | |
| 21... | 9.7 | 481 | 492 | -- | -- | 5.9 | 4.3 | 4.10 | 4.10 | 2.2 | 2.7 |
| FEB | | | | | | | | | | | |
| 18... | 9.1 | 440 | 434 | -- | -- | 4.4 | 4.4 | 3.40 | 3.70 | .00 | .00 |
| MAR | | | | | | | | | | | |
| 10... | 9.0 | 374 | 355 | 2.9 | .520 | 3.4 | 3.4 | 2.10 | 2.10 | 2.9 | 1.4 |
| APR | | | | | | | | | | | |
| 13... | 12 | 465 | 459 | -- | -- | 6.2 | 6.0 | 2.30 | 2.30 | 2.5 | 1.5 |
| MAY | | | | | | | | | | | |
| 07... | 9.4 | 362 | 355 | -- | -- | 4.0 | 4.1 | 1.40 | 1.40 | 1.8 | 1.0 |
| JUN | | | | | | | | | | | |
| 10... | 12 | 200 | 194 | .34 | .070 | .41 | .46 | .150 | .120 | 1.2 | .74 |
| JUL | | | | | | | | | | | |
| 08... | 7.0 | 183 | 185 | -- | -- | .69 | .54 | .220 | .190 | 1.2 | .62 |
| AUG | | | | | | | | | | | |
| 10... | 11 | 478 | 472 | -- | -- | 6.1 | 5.1 | .320 | .230 | 2.3 | 1.4 |
| SEP | | | | | | | | | | | |
| 08... | 11 | 313 | 306 | -- | -- | 2.6 | 2.7 | .240 | .190 | 1.5 | 1.0 |

| DATE | NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) | PHOS- PHORUS, TOTAL (MG/L AS P) | PHOS- PHORUS, DIS- SOLVED (MG/L AS P) | CARBON, ORGANIC TOTAL (MG/L AS C) | 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 21... | 4.00 | 1.5 | 1.60 | .880 | -- | 7.5 | 5.7 | 546 | 1470 | 95 |
| NOV | | | | | | | | | | |
| 05... | 2.90 | 2.7 | 4.00 | 3.70 | 25 | -- | -- | 18 | 27 | 92 |
| DEC | | | | | | | | | | |
| 08... | 4.40 | .04 | 4.80 | 4.70 | 19 | -- | -- | 54 | 91 | 96 |
| JAN | | | | | | | | | | |
| 21... | 6.30 | 6.8 | 4.70 | 4.60 | -- | 15 | 1.2 | 14 | 23 | 90 |
| FEB | | | | | | | | | | |
| 18... | 2.10 | .38 | 2.50 | 3.50 | 20 | -- | -- | 16 | 24 | 98 |
| MAR | | | | | | | | | | |
| 10... | 5.00 | 3.5 | 2.90 | 1.50 | 19 | -- | -- | 435 | 3170 | 85 |
| APR | | | | | | | | | | |
| 13... | 4.80 | 3.8 | 4.30 | 4.00 | -- | 12 | .9 | 56 | 97 | 99 |
| MAY | | | | | | | | | | |
| 07... | 3.20 | 2.4 | 2.40 | 2.30 | 12 | -- | -- | 152 | 373 | 91 |
| JUN | | | | | | | | | | |
| 10... | 1.30 | .86 | .390 | .310 | 6.7 | -- | -- | 238 | 13600 | 28 |
| JUL | | | | | | | | | | |
| 08... | 1.40 | .81 | .250 | .180 | 7.1 | -- | -- | 380 | 10800 | 44 |
| AUG | | | | | | | | | | |
| 10... | 2.60 | 1.6 | 3.60 | 3.40 | -- | 10 | 2.8 | 43 | 65 | 98 |
| SEP | | | | | | | | | | |
| 08... | 1.70 | 1.2 | 1.30 | 1.20 | 9.1 | -- | -- | 81 | 159 | 97 |

| DATE | TIME | ARSENIC TOTAL (UG/L AS AS) | ARSENIC SUS- PENDED TOTAL (UG/L AS AS) | ARSENIC DIS- SOLVED (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BARIUM, SUS- PENDED RECOV- ERABLE (UG/L AS BA) | BARIUM, DIS- SOLVED (UG/L AS BA) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CADMIUM SUS- PENDED RECOV- ERABLE (UG/L AS CD) | CADMIUM DIS- SOLVED (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 21... | 1150 | 5 | 2 | 3 | 100 | 60 | 40 | 2 | 0 | 2 | 20 |
| JAN | | | | | | | | | | | |
| 21... | 1300 | 3 | 0 | 3 | 0 | 0 | 20 | 0 | -- | <1 | 0 |
| APR | | | | | | | | | | | |
| 13... | 1500 | 8 | 1 | 7 | 0 | 0 | 80 | 1 | 0 | 1 | 40 |
| AUG | | | | | | | | | | | |
| 10... | 1330 | -- | -- | 6 | 200 | 200 | 40 | 1 | -- | <1 | 0 |

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | CHROMIUM, SUSPENDED RECOV. (UG/L AS CR) | CHROMIUM, DISSOLVED (UG/L AS CR) | COBALT, TOTAL RECOVERABLE (UG/L AS CO) | COBALT, DISSOLVED (UG/L AS CO) | COPPER, TOTAL RECOVERABLE (UG/L AS CU) | COPPER, SUSPENDED RECOVERABLE (UG/L AS CU) | COPPER, DISSOLVED (UG/L AS CU) | IRON, TOTAL RECOVERABLE (UG/L AS FE) | IRON, SUSPENDED RECOVERABLE (UG/L AS FE) | IRON, DISSOLVED (UG/L AS FE) | LEAD, TOTAL RECOVERABLE (UG/L AS PB) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 21... | 20 | 0 | 10 | <3 | 24 | 19 | 5 | 12000 | 12000 | 30 | 44 |
| JAN | | | | | | | | | | | |
| 21... | 0 | 0 | 2 | <3 | 7 | 1 | 6 | 260 | 230 | 30 | 13 |
| APR | | | | | | | | | | | |
| 13... | 30 | 10 | 0 | <3 | 8 | 3 | 5 | 1300 | 1300 | 20 | 4 |
| AUG | | | | | | | | | | | |
| 10... | 0 | 0 | 0 | <3 | 7 | 3 | 4 | 760 | -- | <10 | 7 |

| DATE | LEAD, SUSPENDED RECOVERABLE (UG/L AS PB) | LEAD, DISSOLVED (UG/L AS PB) | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MANGANESE, SUSPENDED RECOV. (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | MERCURY SUSPENDED RECOVERABLE (UG/L AS HG) | MERCURY DISSOLVED (UG/L AS HG) | NICKEL, TOTAL RECOVERABLE (UG/L AS NI) | NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 21... | 44 | 0 | 410 | 410 | 2 | .3 | .2 | .1 | 28 | 20 |
| JAN | | | | | | | | | | |
| 21... | 1 | 12 | 40 | 20 | 20 | .1 | -- | -- | 26 | 3 |
| APR | | | | | | | | | | |
| 13... | 2 | 2 | 90 | 50 | 40 | .1 | .0 | .1 | 23 | 9 |
| AUG | | | | | | | | | | |
| 10... | 7 | 0 | 70 | 70 | 3 | -- | -- | .0 | 17 | 2 |

| DATE | NICKEL, DISSOLVED (UG/L AS NI) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, SUSPENDED TOTAL (UG/L AS SE) | SELENIUM, DISSOLVED (UG/L AS SE) | SILVER, TOTAL RECOVERABLE (UG/L AS AG) | SILVER, SUSPENDED RECOVERABLE (UG/L AS AG) | SILVER, DISSOLVED (UG/L AS AG) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN) | ZINC, DISSOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | |
| 21... | 8 | 0 | 0 | 0 | 1 | 1 | 0 | 80 | 50 | 30 |
| JAN | | | | | | | | | | |
| 21... | 23 | 0 | 0 | 0 | 2 | 2 | 0 | 40 | 10 | 30 |
| APR | | | | | | | | | | |
| 13... | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 20 | 10 |
| AUG | | | | | | | | | | |
| 10... | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 60 | 40 | 18 |

| DATE | TIME | ALDRIN, TOTAL (UG/L) | CHLORDANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DIAZINON, TOTAL (UG/L) | DIELDRIN TOTAL (UG/L) | ENDRIN, TOTAL (UG/L) | ETHION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | |
| 05... | 1230 | ND | ND | ND | ND | ND | ND | ND | ND | ND |

| DATE | HEPTACHLOR, TOTAL (UG/L) | HEPTACHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALATHION, TOTAL (UG/L) | METHOXYCHLOR, TOTAL (UG/L) | METHYL PARATHION, TOTAL (UG/L) | METHYL TRITHION, TOTAL (UG/L) | PARATHION, TOTAL (UG/L) | TOXAPHENE, TOTAL (UG/L) | TOTAL TRITHION (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | |
| 05... | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

| DATE | NOV 5,80 | | MAR 10,81 | | MAY 7,81 | | JUN 10,81 | |
|---|---|---|---|---|---|---|---|---|
| TIME | 1230 | | 1130 | | 0930 | | 1330 | |
| TOTAL CELLS/ML | 1900 | | 4000 | | 8800 | | 16000 | |
| DIVERSITY: DIVISION | 1.6 | | 1.5 | | 1.3 | | 1.3 | |
| .CLASS | 1.6 | | 1.5 | | 1.3 | | 1.3 | |
| ..ORDER | 2.3 | | 2.2 | | 1.5 | | 2.0 | |
| ...FAMILY | 2.8 | | 2.5 | | 2.0 | | 2.3 | |
| ....GENUS | 3.3 | | 2.6 | | 2.7 | | 2.9 | |
| ORGANISM | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT |
| BACILLARIOPHYTA (DIATOMS) | | | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | | | |
| ..ACHNANTHALES | | | | | | | | |
| ...ACHNANTHACEAE | | | | | | | | |
| ....ACHNANTHES | -- | - | -- | - | -- | - | * | 0 |
| ..BACILLARIALES | | | | | | | | |
| ...NITZSCHIACEAE | | | | | | | | |
| ....NITZSCHIA | 140 | 8 | 450 | 11 | 75 | 1 | 280 | 2 |
| ..EUPODISCALES | | | | | | | | |
| ...COSCINODISCACEAE | | | | | | | | |
| ....COSCINODISCUS | -- | - | -- | - | -- | - | -- | - |
| ....CYCLOTELLA | 190 | 10 | 62 | 2 | 380 | 4 | 1400 | 9 |
| ....MELOSIRA | 240 | 13 | 31 | 1 | -- | - | 730 | 5 |
| ..FRAGILARIALES | | | | | | | | |
| ...FRAGILARIACEAE | | | | | | | | |
| ....SYNEDRA | -- | - | 31 | 1 | -- | - | -- | - |
| ..NAVICULALES | | | | | | | | |
| ...GOMPHONEMACEAE | | | | | | | | |
| ....GOMPHONEMA | 13 | 1 | 78 | 2 | * | 0 | -- | - |
| ...NAVICULACEAE | | | | | | | | |
| ....NAVICULA | 90 | 5 | 330 | 8 | 75 | 1 | * | 0 |
| ..SURIRELLALES | | | | | | | | |
| ...SURIRELLACEAE | | | | | | | | |
| ....SURIRELLA | -- | - | 78 | 2 | -- | - | -- | - |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | | | |
| .CHLOROPHYCEAE | | | | | | | | |
| ..CHLOROCOCCALES | | | | | | | | |
| ...CHLOROCOCCACEAE | | | | | | | | |
| ....SCHROEDERIA | -- | - | -- | - | -- | - | * | 0 |
| ...COCCOMYXACEAE | | | | | | | | |
| ....ELAKATOTHRIX | -- | - | -- | - | -- | - | 140 | 1 |
| ...DICTYOSPHAERIACEAE | | | | | | | | |
| ....DICTYOSPHAERIUM | 77 | 4 | -- | - | 200 | 2 | 170 | 1 |
| ...MICRACTINIACEAE | | | | | | | | |
| ....GOLENKINIA | -- | - | -- | - | -- | - | -- | - |
| ....MICRACTINIUM | 26 | 1 | -- | - | 880 | 10 | * | 0 |
| ...OOCYSTACEAE | | | | | | | | |
| ....ANKISTRODESMUS | 39 | 2 | 78 | 2 | 100 | 1 | 500 | 3 |
| ....CLOSTERIOPSIS | -- | - | -- | - | -- | - | * | 0 |
| ....KIRCHNERIELLA | -- | - | -- | - | -- | - | -- | - |
| ....OOCYSTIS | 13 | 1 | 140 | 4 | 150 | 2 | -- | - |
| ....SELENASTRUM | 64 | 3 | -- | - | * | 0 | -- | - |
| ....TREUBARIA | 13 | 1 | -- | - | -- | - | * | 0 |
| ...PALMELLACEAE | | | | | | | | |
| ....SPHAEROCYSTIS | -- | - | 120 | 3 | -- | - | -- | - |
| ...SCENEDESMACEAE | | | | | | | | |
| ....ACTINASTRUM | 100 | 5 | -- | - | -- | - | -- | - |
| ....COELASTRUM | -- | - | -- | - | -- | - | 450 | 3 |
| ....CRUCIGENIA | -- | - | 120 | 3 | 400 | 5 | 450 | 3 |
| ....GLOEOACTINIUM | -- | - | -- | - | -- | - | -- | - |
| ....SCENEDESMUS | 210 | 11 | 62 | 2 | 780 | 9 | 220 | 1 |
| ....TETRASTRUM | -- | - | -- | - | -- | - | -- | - |
| ..VOLVOCALES | | | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | | | |
| ....CARTERIA | -- | - | -- | - | -- | - | -- | - |
| ....CHLAMYDOMONAS | 130 | 7 | 230 | 6 | 250 | 3 | 220 | 1 |
| ..ZYGNEMATALES | | | | | | | | |
| ...ZYGNEMATACEAE | | | | | | | | |
| ....MOUGEOTIA | -- | - | -- | - | -- | - | 170 | 1 |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | | | |
| .CRYPTOPHYCEAE | | | | | | | | |
| ..CRYPTOMONADALES | | | | | | | | |
| ...CRYPTOCHRYSIDACEAE | | | | | | | | |
| ....CHROOMONAS | -- | - | -- | - | * | 0 | -- | - |
| ...CRYPTOMONADACEAE | | | | | | | | |
| ....CRYPTOMONAS | -- | - | -- | - | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981--Continued

| DATE | NOV 5,80 | | MAR 10,81 | | MAY 7,81 | | JUN 10,81 | |
|---|---|---|---|---|---|---|---|---|
| TIME | 1230 | | 1130 | | 0930 | | 1330 | |
| ORGANISM | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | | | |
| .CYANOPHYCEAE | | | | | | | | |
| ..CHROOCOCCALES | | | | | | | | |
| ...CHROOCOCCACEAE | | | | | | | | |
| ....AGMENELLUM | -- | - | -- | - | 3200# | 37 | 1300 | 9 |
| ....ANACYSTIS | 530# | 28 | -- | - | 2100# | 24 | 7800# | 50 |
| ..NOSTOCALES | | | | | | | | |
| ...HAMMATOIDEACEAE | | | | | | | | |
| ....RAPHIDIOPSIS | -- | - | -- | - | -- | - | -- | - |
| ...NOSTOCACEAE | | | | | | | | |
| ....ANABAENA | -- | - | -- | - | -- | - | 670 | 4 |
| ..OSCILLATORIALES | | | | | | | | |
| ...OSCILLATORIACEAE | | | | | | | | |
| ....OSCILLATORIA | -- | - | 2100# | 53 | -- | - | 780 | 5 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | | | |
| .EUGLENOPHYCEAE | | | | | | | | |
| ..EUGLENALES | | | | | | | | |
| ...EUGLENACEAE | | | | | | | | |
| ....EUGLENA | -- | - | 47 | 1 | 50 | 1 | * | 0 |
| ....PHACUS | -- | - | -- | - | -- | - | * | 0 |
| ....TRACHELOMONAS | -- | - | * | 0 | -- | - | * | 0 |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | | | |
| .DINOPHYCEAE | | | | | | | | |
| ..DINOKONTAE | | | | | | | | |
| ...PERIDINIACEAE | | | | | | | | |
| ....PERIDINIUM | -- | - | -- | - | -- | - | * | 0 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

| DATE | JUL 8,81 | | AUG 10,81 | | SEP 8,81 | |
|---|---|---|---|---|---|---|
| TIME | 1230 | | 1330 | | 1610 | |
| TOTAL CELLS/ML | 13000 | | 13000 | | 4800 | |
| DIVERSITY: DIVISION | 1.1 | | 0.7 | | 1.3 | |
| .CLASS | 1.1 | | 0.7 | | 1.3 | |
| ..ORDER | 1.8 | | 0.8 | | 1.5 | |
| ...FAMILY | 2.1 | | 1.5 | | 2.4 | |
| ....GENUS | 2.4 | | 2.1 | | 2.7 | |
| ORGANISM | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT |
| BACILLARIOPHYTA (DIATOMS) | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..ACHNANTHALES | | | | | | |
| ...ACHNANTHACEAE | | | | | | |
| ....ACHNANTHES | -- | - | -- | - | -- | - |
| ..BACILLARIALES | | | | | | |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | 440 | 3 | -- | - | -- | - |
| ..EUPODISCALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....COSCINODISCUS | * | 0 | -- | - | -- | - |
| ....CYCLOTELLA | 510 | 4 | 1000 | 8 | 1200# | 24 |
| ....MELOSIRA | 230 | 2 | -- | - | -- | - |
| ..FRAGILARIALES | | | | | | |
| ...FRAGILARIACEAE | | | | | | |
| ....SYNEDRA | * | 0 | -- | - | 52 | 1 |
| ..NAVICULALES | | | | | | |
| ...GOMPHONEMACEAE | | | | | | |
| ....GOMPHONEMA | -- | - | -- | - | -- | - |
| ...NAVICULACEAE | | | | | | |
| ....NAVICULA | * | 0 | -- | - | 100 | 2 |
| ..SURIRELLALES | | | | | | |
| ...SURIRELLACEAE | | | | | | |
| ....SURIRELLA | -- | - | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981--Continued

| DATE | JUL 8,81 | | AUG 10,81 | | SEP 8,81 | |
|---|---|---|---|---|---|---|
| TIME | 1230 | | 1330 | | 1610 | |
| ORGANISM | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...CHLOROCOCCACEAE | | | | | | |
| ....SCHROEDERIA | -- | - | -- | - | 79 | 2 |
| ...COCCOMYXACEAE | | | | | | |
| ....ELAKATOTHRIX | * | 0 | 140 | 1 | -- | - |
| ...DICTYOSPHAERIACEAE | | | | | | |
| ....DICTYOSPHAERIUM | 210 | 2 | -- | - | -- | - |
| ...MICRACTINIACEAE | | | | | | |
| ....GOLENKINIA | -- | - | 110 | 1 | -- | - |
| ....MICRACTINIUM | -- | - | 2300# | 18 | 1700# | 36 |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | 120 | 1 | * | 0 | 240 | 5 |
| ....CLOSTERIOPSIS | -- | - | -- | - | -- | - |
| ....KIRCHNERIELLA | 140 | 1 | -- | - | -- | - |
| ....OOCYSTIS | 210 | 2 | -- | - | -- | - |
| ....SELENASTRUM | 70 | 1 | -- | - | -- | - |
| ....TREUBARIA | -- | - | -- | - | -- | - |
| ...PALMELLACEAE | | | | | | |
| ....SPHAEROCYSTIS | -- | - | -- | - | -- | - |
| ...SCENEDESMACEAE | | | | | | |
| ....ACTINASTRUM | -- | - | 1300 | 10 | 160 | 3 |
| ....COELASTRUM | 560 | 4 | 250 | 2 | -- | - |
| ....CRUCIGENIA | -- | - | -- | - | -- | - |
| ....GLOEOACTINIUM | 580 | 4 | -- | - | -- | - |
| ....SCENEDESMUS | 330 | 2 | 7000# | 54 | 710 | 15 |
| ....TETRASTRUM | * | 0 | -- | - | 210 | 4 |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CARTERIA | * | 0 | -- | - | -- | - |
| ....CHLAMYDOMONAS | 140 | 1 | -- | - | 26 | 1 |
| ..ZYGNEMATALES | | | | | | |
| ...ZYGNEMATACEAE | | | | | | |
| ....MOUGEOTIA | -- | - | -- | - | -- | - |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | |
| .CRYPTOPHYCEAE | | | | | | |
| ..CRYPTOMONADALES | | | | | | |
| ...CRYPTOCHRYSIDACEAE | | | | | | |
| ....CHROOMONAS | -- | - | -- | - | -- | - |
| ...CRYPTOMONADACEAE | | | | | | |
| ....CRYPTOMONAS | * | 0 | -- | - | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....AGMENELLUM | -- | - | -- | - | -- | - |
| ....ANACYSTIS | 190 | 1 | -- | - | 180 | 4 |
| ..NOSTOCALES | | | | | | |
| ...HAMMATOIDEACEAE | | | | | | |
| ....RAPHIDIOPSIS | 610 | 5 | 220 | 2 | -- | - |
| ...NOSTOCACEAE | | | | | | |
| ....ANABAENA | 370 | 3 | -- | - | -- | - |
| ..OSCILLATORIALES | | | | | | |
| ...OSCILLATORIACEAE | | | | | | |
| ....OSCILLATORIA | 8400# | 63 | 540 | 4 | -- | - |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....EUGLENA | -- | - | -- | - | -- | - |
| ....PHACUS | -- | - | -- | - | -- | - |
| ....TRACHELOMONAS | * | 0 | -- | - | 180 | 4 |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | |
| .DINOPHYCEAE | | | | | | |
| ..DINOKONTAE | | | | | | |
| ...PERIDINIACEAE | | | | | | |
| ....PERIDINIUM | -- | - | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 38464 | 518 | 294 | 30500 | 36 | 3700 | 63 | 6580 | 140 |
| NOV. | 1980 | 19534 | 757 | 424 | 22400 | 62 | 3280 | 93 | 4920 | 160 |
| DEC. | 1980 | 28552 | 658 | 370 | 28600 | 51 | 3910 | 81 | 6240 | 160 |
| JAN. | 1981 | 18662 | 780 | 436 | 22000 | 65 | 3280 | 96 | 4850 | 160 |
| FEB. | 1981 | 18025 | 761 | 427 | 20800 | 63 | 3050 | 94 | 4570 | 160 |
| MAR. | 1981 | 44479 | 604 | 342 | 41000 | 44 | 5310 | 74 | 8900 | 150 |
| APR. | 1981 | 32801 | 642 | 362 | 32100 | 48 | 4260 | 79 | 6980 | 160 |
| MAY | 1981 | 104623 | 433 | 248 | 70000 | 26 | 7370 | 53 | 14900 | 140 |
| JUNE | 1981 | 386530 | 327 | 188 | 196000 | 17 | 18000 | 40 | 41300 | 110 |
| JULY | 1981 | 77527 | 460 | 262 | 54800 | 30 | 6270 | 56 | 11700 | 130 |
| AUG. | 1981 | 20000 | 740 | 415 | 22400 | 60 | 3240 | 91 | 4920 | 160 |
| SEPT | 1981 | 27032 | 580 | 329 | 24000 | 41 | 3010 | 71 | 5190 | 150 |
| TOTAL | | 816229 | ** | ** | 565000 | ** | 64700 | ** | 121000 | ** |
| WTD. AVG. | | 2236 | 450 | 256 | ** | 29 | ** | 55 | ** | 130 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 359 | 790 | 736 | 778 | 764 | 697 | 520 | 643 | 473 | 599 | 737 | 751 |
| 2 | 370 | 772 | 685 | 762 | 814 | 780 | 545 | 761 | 451 | 630 | 757 | 757 |
| 3 | 363 | 783 | 763 | 774 | 803 | 801 | 737 | 386 | 447 | 640 | 761 | 650 |
| 4 | 414 | 795 | 694 | 763 | 814 | 571 | 629 | 462 | 279 | 650 | 786 | 512 |
| 5 | 478 | 815 | 770 | 765 | 796 | 489 | 640 | 479 | 240 | 695 | 771 | 396 |
| 6 | 539 | 819 | 775 | 772 | 814 | 487 | 598 | 510 | 254 | 339 | 721 | 426 |
| 7 | 603 | 824 | 768 | 789 | 754 | 465 | 740 | 592 | 382 | 295 | 752 | 489 |
| 8 | 646 | 834 | 762 | 772 | 755 | 501 | 654 | 630 | 308 | 325 | 753 | 513 |
| 9 | 712 | 802 | 712 | 780 | 768 | 556 | 648 | 451 | 289 | 355 | 760 | 526 |
| 10 | 744 | 801 | 460 | 765 | 786 | 619 | 690 | 443 | 329 | 376 | 772 | 505 |
| 11 | 742 | 832 | 550 | 751 | 782 | 476 | 702 | 354 | 355 | 489 | 777 | 575 |
| 12 | 743 | 816 | 565 | 780 | 786 | 552 | 716 | 353 | 382 | 553 | 780 | 648 |
| 13 | 791 | 820 | 489 | 784 | 788 | 650 | 765 | 375 | 366 | 588 | 770 | 667 |
| 14 | 810 | 837 | 510 | 813 | 744 | 675 | 767 | 445 | 283 | 630 | 783 | 722 |
| 15 | 806 | 778 | 580 | 820 | 667 | 707 | 783 | 449 | 275 | 667 | 793 | 719 |
| 16 | 810 | 770 | 634 | 800 | 695 | 748 | 809 | 544 | 315 | 662 | 788 | 625 |
| 17 | 803 | 763 | 701 | 783 | 685 | 783 | 811 | 453 | 257 | 673 | 790 | 517 |
| 18 | 782 | 804 | 774 | 757 | 750 | 776 | 812 | 439 | 246 | 679 | 796 | 482 |
| 19 | 625 | 740 | 779 | 762 | 765 | 786 | 803 | 532 | 259 | 680 | 775 | 524 |
| 20 | 579 | 734 | 776 | 769 | 782 | 793 | 826 | 513 | 284 | 701 | 761 | 549 |
| 21 | 592 | 660 | 793 | 793 | 777 | 774 | 700 | 530 | 346 | 697 | 665 | 559 |
| 22 | 534 | 618 | 808 | 808 | 757 | 783 | 605 | 547 | 414 | 717 | 564 | 600 |
| 23 | 540 | 617 | 852 | 801 | 785 | 792 | 635 | 625 | 370 | 725 | 685 | 629 |
| 24 | 539 | 750 | 855 | 792 | 832 | 801 | 601 | 565 | 408 | 706 | 679 | 675 |
| 25 | 582 | 650 | 859 | 767 | 750 | 810 | 654 | 380 | 440 | 703 | 598 | 699 |
| 26 | 651 | 700 | 838 | 752 | 742 | 805 | 555 | 448 | 438 | 720 | 621 | 722 |
| 27 | 695 | 748 | 840 | 736 | 593 | 809 | 714 | 493 | 470 | 735 | 696 | 746 |
| 28 | 729 | 761 | 844 | 790 | 690 | 818 | 505 | 472 | 535 | 750 | 730 | 769 |
| 29 | 773 | 755 | 835 | 799 | --- | 827 | 520 | 385 | 597 | 765 | 781 | 767 |
| 30 | 796 | 695 | 839 | 799 | --- | 595 | 566 | 390 | 568 | 782 | 770 | 761 |
| 31 | 815 | --- | 821 | 785 | --- | 495 | --- | 408 | --- | 769 | 778 | --- |
| MEAN | 644 | 763 | 731 | 779 | 759 | 685 | 675 | 486 | 369 | 622 | 740 | 616 |

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | 19.0 | --- | 11.0 | 12.0 | 17.0 | --- | 31.0 | 27.0 | 30.0 | 31.5 | 27.5 |
| 2 | --- | 19.0 | --- | 12.0 | 12.0 | 18.0 | 21.0 | 29.0 | 21.0 | 30.0 | 31.0 | 27.5 |
| 3 | --- | 21.0 | --- | 11.0 | 11.0 | 17.0 | 21.0 | 27.0 | 21.0 | 30.0 | 32.0 | 27.0 |
| 4 | --- | 20.0 | --- | 9.0 | 11.0 | 17.0 | 21.0 | 29.0 | 22.5 | 29.0 | 32.0 | 27.0 |
| 5 | --- | 19.0 | --- | 11.0 | 10.0 | 15.0 | 20.0 | 28.0 | 24.0 | 28.5 | 32.0 | 27.5 |
| 6 | 20.0 | 18.0 | --- | 12.0 | 10.0 | 15.0 | 21.5 | 29.0 | 24.0 | 28.5 | 32.5 | 28.5 |
| 7 | --- | 19.0 | --- | 12.0 | 10.0 | 17.0 | 21.0 | 29.0 | 27.0 | 28.0 | 32.0 | 27.0 |
| 8 | 20.5 | 20.0 | 16.0 | 12.0 | 9.0 | 16.0 | --- | 29.0 | 27.0 | 28.5 | 30.5 | 28.5 |
| 9 | 20.5 | 22.0 | --- | 12.0 | 10.0 | 15.0 | --- | 26.0 | 28.0 | 29.5 | 29.0 | 28.0 |
| 10 | 21.0 | 21.0 | 14.5 | 9.0 | 9.5 | 15.0 | --- | 26.0 | 26.0 | 30.5 | 32.0 | 28.0 |
| 11 | 20.0 | 22.0 | 14.0 | 10.0 | 9.0 | 15.0 | --- | 25.0 | 27.0 | 31.0 | --- | 28.0 |
| 12 | 18.5 | 22.0 | 14.0 | 11.0 | 10.0 | 16.0 | --- | 25.0 | 27.0 | 31.5 | 32.0 | 28.5 |
| 13 | 19.0 | 20.0 | 14.5 | 12.0 | 10.5 | 17.0 | 23.0 | 26.5 | 27.0 | 32.0 | 31.0 | 28.5 |
| 14 | --- | 17.0 | 12.0 | 12.0 | 10.0 | 17.0 | --- | 26.0 | 26.0 | 32.0 | 32.0 | 28.0 |
| 15 | 20.0 | 15.5 | 16.0 | 12.0 | 11.0 | 18.0 | --- | 26.0 | 26.0 | 32.0 | 31.5 | 29.0 |
| 16 | 20.5 | --- | 15.0 | 11.5 | 12.0 | 18.0 | --- | 26.0 | 25.0 | 31.0 | 31.0 | 27.0 |
| 17 | 20.0 | 14.5 | 15.0 | 10.0 | 12.0 | 17.0 | --- | --- | 26.0 | 32.5 | 29.0 | 25.0 |
| 18 | 20.0 | 13.0 | 14.0 | 10.0 | 13.0 | 17.0 | --- | --- | 26.0 | 32.5 | 29.0 | 24.5 |
| 19 | 19.0 | 13.5 | 14.0 | 9.5 | 17.0 | 18.0 | --- | --- | 27.0 | 32.0 | 29.0 | 23.5 |
| 20 | 19.0 | 13.0 | 11.0 | 10.0 | 17.0 | 18.0 | --- | --- | 27.0 | 32.0 | 29.0 | 25.0 |
| 21 | 18.0 | --- | 9.0 | 10.0 | 16.0 | 18.0 | --- | --- | 28.5 | 32.0 | 29.0 | 25.0 |
| 22 | 23.0 | 13.0 | 11.0 | 11.0 | 16.0 | 18.0 | --- | --- | 29.0 | 32.5 | 28.0 | 25.5 |
| 23 | 18.0 | 13.0 | 8.0 | 11.0 | 17.0 | --- | 21.0 | --- | 29.0 | 32.0 | 28.0 | 26.0 |
| 24 | 21.0 | 19.0 | 8.0 | 11.0 | --- | 17.0 | 21.0 | --- | 27.0 | 32.5 | 30.0 | 26.5 |
| 25 | 15.0 | --- | 7.0 | 11.0 | 13.0 | --- | 21.0 | --- | 29.0 | 32.5 | 30.0 | 27.0 |
| 26 | 15.0 | --- | 8.0 | 13.0 | 17.0 | --- | 21.0 | --- | 29.0 | 32.0 | 30.5 | 27.0 |
| 27 | 17.0 | --- | 8.0 | 19.0 | 18.0 | --- | 22.0 | --- | 29.0 | 31.0 | 29.5 | 26.0 |
| 28 | 16.5 | --- | 9.0 | 12.5 | 17.0 | --- | 29.0 | --- | 29.5 | 32.0 | 30.5 | --- |
| 29 | 16.0 | --- | 8.0 | 15.0 | --- | --- | 29.5 | --- | 30.0 | 32.5 | 30.5 | --- |
| 30 | 16.0 | --- | 9.0 | 14.0 | --- | --- | 31.0 | --- | 31.5 | 32.0 | 29.0 | --- |
| 31 | 14.0 | --- | 8.0 | 12.0 | --- | --- | --- | --- | --- | 32.0 | 29.0 | --- |
| MEAN | 18.5 | 18.0 | 11.5 | 11.5 | 12.5 | 17.0 | 23.0 | 27.5 | 27.0 | 31.0 | 30.5 | 27.0 |

## 08062800 CEDAR CREEK NEAR KEMP, TX

LOCATION.--Lat 32°30'18", long 96°06'57", Kaufman County, Hydrologic Unit 12030107, on left bank at downstream side of bridge on Farm Road 1836, 3.6 mi (5.8 km) upstream from Williams Creek, 8.1 mi (13.0 km) northeast of Kemp, and 51.5 mi (82.9 km) upstream from mouth.

DRAINAGE AREA.--189 $mi^2$ (490 $km^2$).

PERIOD OF RECORD.--January 1963 to current year.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 341.48 ft (104.083 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those below 10 $ft^3/s$ (0.28 $m^3/s$), which are fair. Flow is affected at times by storage in Terrell Municipal Lake, capacity 8,300 acre-ft (10.2 $hm^3$). Records furnished by the city of Terrell show that during the current year 3,140 acre-ft (3.87 $hm^3$) was diverted from Terrell Municipal Lake for municipal use and 1,700 acre-ft (2.10 $hm^3$) of sewage effluent was returned to a tributary of Kings Creek that enters downstream from this station. Flow is affected at times by discharge from the flood-detention pools of 19 floodwater-retarding structures with a combined detention capacity of 18,660 acre-ft (23.0 $hm^3$). These structures control runoff from 55.2 $mi^2$ (143.0 $km^2$). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--18 years (water years 1964-81), 114 $ft^3/s$ (3.228 $m^3/s$), 82,590 acre-ft/yr (102 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,000 $ft^3/s$ (821 $m^3/s$) Apr. 26, 1966, gage height, 16.8 ft (5.12 m); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1889, about 20.5 ft (6.25 m) in 1945, from information by State Department of Highways and Public Transportation and local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 $ft^3/s$ (56.6 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| June 6 | 0400 | 5,530 | 157 | 13.55 | 4.130 |
| June 16 | 0100 | *7,110 | 201 | 13.85 | 4.221 |

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 147 | .08 | .00 | 1.9 | .41 | .35 | .26 | .00 | 36 | 5.3 | .00 | .09 |
| 2 | 58 | .08 | .00 | 1.7 | .32 | .60 | .48 | .00 | 24 | 5.0 | .00 | .17 |
| 3 | 27 | .05 | .00 | 1.3 | .30 | 11 | .30 | .02 | 181 | 4.3 | .00 | .09 |
| 4 | 18 | .00 | .00 | 1.1 | .30 | 12 | .25 | .00 | 979 | 20 | .00 | .08 |
| 5 | 12 | .00 | .00 | .86 | .74 | 33 | .16 | .09 | 2120 | 96 | .00 | .06 |
| 6 | 10 | .00 | .00 | .87 | 1.0 | 20 | .14 | .01 | 4140 | 76 | .00 | 33 |
| 7 | 9.0 | .00 | .00 | .87 | .88 | 11 | .13 | .00 | 2240 | 40 | .00 | 14 |
| 8 | 7.5 | .00 | 14 | .68 | .64 | 6.1 | .11 | .06 | 1080 | 17 | .00 | 7.5 |
| 9 | 6.2 | .00 | 205 | .61 | .51 | 4.5 | .05 | 238 | 305 | 8.6 | .00 | 4.0 |
| 10 | 5.1 | .00 | 195 | .50 | .48 | 3.9 | .03 | 308 | 179 | 5.0 | .00 | 2.3 |
| 11 | 4.2 | .00 | 72 | .44 | .44 | 3.3 | .11 | 52 | 86 | 3.6 | .00 | 1.3 |
| 12 | 4.2 | .00 | 38 | .41 | .41 | 2.3 | .14 | 22 | 48 | 2.6 | .00 | .56 |
| 13 | 3.6 | .00 | 25 | .35 | .35 | 1.9 | .07 | 12 | 32 | 2.0 | .00 | .21 |
| 14 | 3.1 | .00 | 16 | .32 | .48 | 1.2 | .00 | 9.3 | 24 | 1.4 | .00 | .14 |
| 15 | 2.5 | .00 | 12 | .32 | .78 | 1.0 | .00 | 8.2 | 20 | 1.1 | .00 | .12 |
| 16 | 1.9 | .00 | 8.7 | .32 | .78 | .76 | .02 | 171 | 1990 | .78 | .00 | .08 |
| 17 | 1.9 | .00 | 6.7 | .32 | .64 | .49 | .13 | 262 | 5140 | .60 | .07 | .03 |
| 18 | 1.5 | .00 | 5.1 | .30 | .48 | .43 | .08 | 72 | 2360 | .54 | .14 | .00 |
| 19 | 1.1 | .00 | 5.1 | .30 | .42 | .34 | .08 | 21 | 780 | .40 | .04 | .00 |
| 20 | .94 | .00 | 4.4 | .35 | .39 | .26 | .03 | 11 | 186 | .32 | .02 | .00 |
| 21 | .78 | .00 | 4.2 | .38 | .36 | .25 | .03 | 7.7 | 98 | .25 | .00 | .00 |
| 22 | 1.0 | .00 | 4.1 | .35 | .32 | .18 | .00 | 5.5 | 60 | .18 | .00 | .00 |
| 23 | .74 | .00 | 3.8 | .30 | .25 | .29 | .04 | 4.5 | 35 | .12 | .00 | .00 |
| 24 | .48 | .00 | 3.7 | 1.0 | .22 | .11 | .00 | 102 | 24 | .10 | .00 | .00 |
| 25 | .35 | .00 | 3.4 | 1.0 | .22 | .05 | .00 | 243 | 18 | .09 | .00 | .00 |
| 26 | .30 | .00 | 3.2 | .89 | .21 | .08 | .01 | 505 | 15 | .05 | .00 | .00 |
| 27 | .30 | .00 | 2.9 | .78 | .17 | .09 | .00 | 446 | 12 | .04 | .00 | .00 |
| 28 | .25 | .00 | 2.9 | .78 | .17 | .13 | .00 | 1030 | 8.8 | .04 | .00 | .00 |
| 29 | .16 | .00 | 2.6 | .74 | --- | .17 | .06 | 395 | 7.2 | .09 | .00 | .00 |
| 30 | .12 | .00 | 2.3 | .69 | --- | .08 | .00 | 111 | 6.1 | .02 | .00 | .00 |
| 31 | .10 | --- | 2.2 | .51 | --- | .05 | --- | 69 | --- | .00 | .00 | --- |
| TOTAL | 329.32 | .21 | 642.30 | 21.24 | 12.67 | 115.91 | 2.71 | 4105.38 | 22234.1 | 291.52 | .27 | 63.73 |
| MEAN | 10.6 | .007 | 20.7 | .69 | .45 | 3.74 | .090 | 132 | 741 | 9.40 | .009 | 2.12 |
| MAX | 147 | .08 | 205 | 1.9 | 1.0 | 33 | .48 | 1030 | 5140 | 96 | .14 | 33 |
| MIN | .10 | .00 | .00 | .30 | .17 | .05 | .00 | .00 | 6.1 | .00 | .00 | .00 |
| AC-FT | 653 | .4 | 1270 | 42 | 25 | 230 | 5.4 | 8140 | 44100 | 578 | .5 | 126 |

CAL YR 1980 TOTAL 34002.19 MEAN 92.9 MAX 4160 MIN .00 AC-FT 67440
WTR YR 1981 TOTAL 27819.36 MEAN 76.2 MAX 5140 MIN .00 AC-FT 55180

## 08062900 KINGS CREEK NEAR KAUFMAN, TX

LOCATION.--Lat 32°30'48", long 96°19'44", Kaufman County, Hydrologic Unit 12030107, on left bank at downstream side of bridge on Farm Road 1388, 3.6 mi (5.8 km) upstream from Big Cottonwood Creek, 4.8 mi (7.7 km) downstream from Big Brushy Creek, and 5.3 mi (8.5 km) south of Kaufman.

DRAINAGE AREA.--233 $mi^2$ (603 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is 343.24 ft (104.620 m) State Department of Highways and Public Transportation datum.

REMARKS.--Water-discharge records good. During the year, the city of Terrell diverted 3,140 acre-ft (3.87 $hm^3$) from Terrell Municipal Lake in the Cedar Creek basin and returned 1,700 acre-ft (2.10 $hm^3$) of sewage effluent into the creek above this station. The city of Kaufman diverted 734 acre-ft (0.905 $hm^3$) from Lavon Lake (on East Fork Trinity River) during year and returned 379 acre-ft (0.467 $hm^3$) of sewage effluent into Kings Creek above this station. Flow is affected at times by discharge from flood-detention pools of 28 floodwater-retarding structures with combined detention capacity of 14,560 acre-ft (18.0 $hm^3$). These structures control runoff from 46.8 $mi^2$ (121.2 $km^2$) in the Cedar Creek drainage basins. Gage-height telemeter located at station.

AVERAGE DISCHARGE.--18 years (water years 1964-81), 156 $ft^3/s$ (4.418 $m^3/s$), 113,000 acre-ft/yr (139 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 56,200 $ft^3/s$ (1,590 $m^3/s$) Apr. 19, 1976, gage height, 26.19 ft (7.983 m), from rating curve extended above 50,000 $ft^3/s$ (1,420 $m^3/s$); no flow at times most years.
Maximum stage since at least 1942, that of Apr. 19, 1976.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1949 reached a stage of 23.1 ft (7.04 m), from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 $ft^3/s$ (85.0 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| June 16 | 2200 | *13,700 | 388 | 21.02 | 6.407 |
| July 5 | 1800 | 4,910 | 139 | 18.95 | 5.776 |

Minimum discharge, no flow Sept. 9-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 224 | 64 | 6.3 | 3.0 | 2.2 | 4.2 | 25 | 4.0 | 5.0 | 7.6 | 4.7 | 392 |
| 2 | 89 | 33 | 6.7 | 3.0 | 2.2 | 30 | 12 | 3.7 | 35 | 7.6 | 4.5 | 452 |
| 3 | 44 | 13 | 6.3 | 2.8 | 2.2 | 52 | 10 | 3.5 | 30 | 24 | 4.4 | 27 |
| 4 | 18 | 6.7 | 6.3 | 2.7 | 2.2 | 30 | 12 | 3.4 | 1200 | 354 | 4.2 | 3.0 |
| 5 | 8.4 | 5.5 | 6.3 | 2.8 | 2.2 | 88 | 14 | 3.2 | 2500 | 3100 | 4.2 | .66 |
| 6 | 4.7 | 4.9 | 6.7 | 3.0 | 2.2 | 64 | 14 | 3.4 | 5000 | 2920 | 4.0 | 1.3 |
| 7 | 3.9 | 4.7 | 6.7 | 3.5 | 2.6 | 20 | 8.1 | 4.5 | 3000 | 1130 | 3.9 | 2.4 |
| 8 | 3.0 | 4.5 | 124 | 3.4 | 2.4 | 16 | 6.5 | 3.9 | 1500 | 762 | 3.7 | .06 |
| 9 | 2.4 | 4.5 | 1220 | 3.4 | 2.0 | 17 | 5.5 | 250 | 600 | 305 | 3.7 | .00 |
| 10 | 2.2 | 4.4 | 377 | 3.4 | 2.7 | 13 | 5.3 | 350 | 250 | 220 | 3.5 | .00 |
| 11 | 2.4 | 4.2 | 98 | 3.4 | 3.4 | 7.8 | 5.1 | 70 | 120 | 185 | 3.5 | .00 |
| 12 | 2.1 | 4.0 | 56 | 3.0 | 6.7 | 6.5 | 4.5 | 25 | 65 | 163 | 3.5 | .00 |
| 13 | 2.1 | 3.9 | 32 | 2.8 | 4.9 | 4.5 | 4.2 | 15 | 40 | 121 | 3.4 | .00 |
| 14 | 2.0 | 5.3 | 17 | 2.7 | 4.0 | 3.2 | 4.0 | 12 | 30 | 117 | 3.4 | .00 |
| 15 | 2.0 | 5.1 | 11 | 2.7 | 3.5 | 2.6 | 3.2 | 10 | 26 | 80 | 3.7 | .00 |
| 16 | 1.9 | 5.1 | 8.1 | 2.7 | 3.2 | 2.4 | 4.4 | 200 | 6920 | 60 | 3.5 | .00 |
| 17 | 3.5 | 5.5 | 6.7 | 2.7 | 3.1 | 1.9 | 4.2 | 300 | 8640 | 74 | 3.1 | .00 |
| 18 | 8.1 | 7.1 | 6.1 | 2.7 | 3.0 | 1.2 | 4.5 | 80 | 2520 | 67 | 2.8 | .00 |
| 19 | 23 | 7.3 | 5.3 | 2.7 | 2.8 | 1.3 | 4.4 | 35 | 809 | 62 | 6.0 | .00 |
| 20 | 12 | 5.8 | 4.5 | 3.1 | 3.0 | 1.4 | 3.7 | 20 | 535 | 53 | 24 | .00 |
| 21 | 4.9 | 5.3 | 4.2 | 4.5 | 3.1 | 1.3 | 3.4 | 13 | 345 | 26 | 9.0 | .00 |
| 22 | 2.3 | 5.1 | 4.4 | 5.3 | 3.1 | 1.1 | 3.4 | 10 | 266 | 7.8 | 6.1 | .00 |
| 23 | 2.7 | 5.1 | 4.2 | 3.7 | 3.5 | 1.1 | 3.9 | 8.0 | 202 | 5.1 | 5.6 | .00 |
| 24 | 2.4 | 5.5 | 4.0 | 3.0 | 4.9 | 1.1 | 4.4 | 12 | 148 | 4.9 | 5.6 | .00 |
| 25 | 2.0 | 6.3 | 3.9 | 2.7 | 3.4 | 1.1 | 5.1 | 25 | 92 | 4.9 | 5.5 | .00 |
| 26 | 1.9 | 6.5 | 3.5 | 2.6 | 2.7 | 1.1 | 4.0 | 55 | 53 | 5.1 | 5.5 | .00 |
| 27 | 2.2 | 5.5 | 3.2 | 2.4 | 3.1 | 1.1 | 3.1 | 50 | 32 | 5.1 | 5.3 | .00 |
| 28 | 2.6 | 5.6 | 3.2 | 2.3 | 2.7 | 1.1 | 3.2 | 120 | 20 | 5.1 | 5.5 | .00 |
| 29 | 2.5 | 5.6 | 3.1 | 2.0 | --- | 54 | 2.7 | 35 | 14 | 5.1 | 5.3 | .00 |
| 30 | 2.5 | 5.6 | 3.1 | 2.2 | --- | 320 | 3.0 | 15 | 9.3 | 5.1 | 3.9 | .00 |
| 31 | 45 | --- | 3.0 | 2.2 | --- | 56 | --- | 8.0 | --- | 4.9 | 1.8 | --- |
| TOTAL | 529.7 | 254.6 | 2050.8 | 92.4 | 87.0 | 806.0 | 190.8 | 1747.6 | 35006.3 | 9891.3 | 156.8 | 878.42 |
| MEAN | 17.1 | 8.49 | 66.2 | 2.98 | 3.11 | 26.0 | 6.36 | 56.4 | 1167 | 319 | 5.06 | 29.3 |
| MAX | 224 | 64 | 1220 | 5.3 | 6.7 | 320 | 25 | 350 | 8640 | 3100 | 24 | 452 |
| MIN | 1.9 | 3.9 | 3.0 | 2.0 | 2.0 | 1.1 | 2.7 | 3.2 | 5.0 | 4.9 | 1.8 | .00 |
| AC-FT | 1050 | 505 | 4070 | 183 | 173 | 1600 | 378 | 3470 | 69430 | 19620 | 311 | 1740 |

CAL YR 1980 TOTAL 29169.54 MEAN 79.7 MAX 4440 MIN .30 AC-FT 57860
WTR YR 1981 TOTAL 51691.72 MEAN 142 MAX 8640 MIN .00 AC-FT 102500

08062900 KINGS CREEK NEAR KAUFMAN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Sediment records: October 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | TEMPER-ATURE (DEG C) | SEDI-MENT, SUS-PENDED (MG/L) | SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) |
|---|---|---|---|---|---|
| OCT | | | | | |
| 10... | 1315 | 4.2 | 20.5 | 100 | 1.1 |
| NOV | | | | | |
| 18... | 1224 | 8.2 | -- | 28 | .62 |
| JAN | | | | | |
| 06... | 1305 | 2.8 | 8.0 | 30 | .23 |
| FEB | | | | | |
| 18... | 1315 | 2.9 | 13.0 | 29 | .23 |
| MAR | | | | | |
| 31... | 1355 | 46 | 18.0 | 624 | 78 |
| JUN | | | | | |
| 15... | 1429 | 20 | 27.5 | 122 | 6.5 |

## 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 (300 m) north of spillway, 5.5 mi (8.8 km) upstream from Joe B. Hogsett Dam on Cedar Creek, and 8.0 mi (12.9 km) northwest of Trinidad.

DRAINAGE AREA.--1,007 mi² (2,608 km²).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1965 to current year.

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 (0.40 km) north and upstream from pumphouse at same datum.

REMARKS.--The reservoir is formed by a rolled earthfill dam 17,539 ft (5,346 m) long. The spillway is located on the right bank 5.5 mi (8.8 km) upstream from the dam and discharges into the Trinity River through a cut channel 2 mi (3 km) long. Deliberate impoundment began July 2, 1965, and the dam was completed in February 1966. The spillway is 474 ft (144 m) long and has eight 40- by 24-foot (12 by 7 m) radial gates and two automatically operated 40- by 8.5-foot (12 by 2.6 m) hinged gates. Low-flow releases may be made downstream through a 5.0-foot-diameter (1.5 m) conduit through the dam. The dam is the property of Tarrant County Water Control and Improvement District No. 1 and was built for municipal and industrial supply and for recreational purposes. The area and capacity tables were based on a survey during the period 1940-58. During the current year, records furnished by Tarrant County Water Control and Improvement District No. 1 show that a total of 99,950 acre-ft (123 hm³) was diverted from the reservoir for municipal and industrial uses by lakeside developments and by the cities of Arlington, Fort Worth, Mansfield, Kemp, Trinidad, and Mabank. Flow is affected at times by discharge from the flood-detention pools of 82 floodwater-retarding structures with a combined detention capacity of 54,490 acre-ft (67.2 hm³). These structures control runoff from 173 mi² (448 km²). Figures given herein represent total contents. Gage-height telemeter located at station. Data regarding the dam and reservoir are given in the following table:

| | Elevation (feet) | Capacity (acre-feet) |
|---|---|---|
| Top of dam | 340.0 | - |
| Top of radial gates | 325.0 | 785,100 |
| Top of automatic gates | 322.5 | 696,400 |
| Top of conservation pool | 322.0 | 679,200 |
| Crest of spillway (automatic gates) | 314.0 | 441,000 |
| Crest of spillway (radial gates) | 302.0 | 197,800 |
| Lowest gated outlet (invert) | 263.5 | 430 |

COOPERATION.--Records of diversions furnished by the Tarrant County Water Control and Improvement District No. 1. The area and capacity tables were furnished by Freese 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 (890 hm³) June 4, 1973, elevation, 323.24 ft (98.524 m); minimum since first appreciable storage in 1966, 332,900 acre-ft (410 hm³) Mar. 19, 1967, elevation, 309.42 ft (94.311 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 688,800 acre-ft (849 hm³) June 16 at 0500 hours, elevation, 322.27 ft (98.228 m); minimum, 488,100 acre-ft (602 hm³) May 7, elevation, 315.76 ft (96.244 m).

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

| | | | |
|---|---|---|---|
| 315.0 | 467,300 | 320.0 | 613,800 |
| 317.0 | 523,000 | 323.0 | 713,500 |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 567200 | 544100 | 530100 | 527100 | 519600 | 511400 | 505400 | 492400 | 572300 | 674900 | 665600 | 650000 |
| 2 | 566600 | 543200 | 529500 | 526300 | 517900 | 511400 | 504900 | 491400 | 578100 | 675600 | 664600 | 652000 |
| 3 | 565400 | 543500 | 528600 | 526800 | 517400 | 513400 | 503400 | 490500 | 607900 | 675900 | 663300 | 651000 |
| 4 | 564800 | 542700 | 528300 | 524800 | 517400 | 515600 | 504900 | 490800 | 633800 | 676600 | 662300 | 650700 |
| 5 | 563800 | 542100 | 528000 | 523300 | 517900 | 515600 | 504000 | 490500 | 675200 | 681300 | 661600 | 649700 |
| 6 | 562300 | 540900 | 527400 | 524800 | 516800 | 515600 | 501700 | 489700 | 682700 | 683000 | 661000 | 649000 |
| 7 | 561100 | 540600 | 527100 | 524500 | 516800 | 516200 | 501200 | 488100 | 680900 | 680900 | 661000 | 649400 |
| 8 | 560500 | 539400 | 536200 | 524800 | 516500 | 516500 | 501400 | 490500 | 681600 | 680900 | 660300 | 647700 |
| 9 | 559300 | 539700 | 537100 | 524800 | 516200 | 515900 | 500300 | 520500 | 680900 | 681600 | 659300 | 646000 |
| 10 | 559000 | 539400 | 537400 | 524500 | 520800 | 515400 | 500600 | 526800 | 680300 | 681600 | 657700 | 645400 |
| 11 | 558400 | 538600 | 537100 | 524500 | 515400 | 515100 | 500300 | 528000 | 682700 | 679600 | 656700 | 644100 |
| 12 | 557200 | 538000 | 537100 | 523300 | 514500 | 514200 | 499700 | 527400 | 682000 | 680600 | 655300 | 643800 |
| 13 | 555100 | 537100 | 537100 | 523300 | 513900 | 513700 | 499500 | 529500 | 680300 | 679600 | 655000 | 643500 |
| 14 | 554500 | 539100 | 536500 | 523600 | 513900 | 512800 | 499700 | 527400 | 679900 | 679200 | 654000 | 643100 |
| 15 | 552600 | 537400 | 536500 | 523300 | 513700 | 512800 | 498600 | 528000 | 684000 | 678200 | 653700 | 643500 |
| 16 | 554100 | 538600 | 535300 | 523300 | 513100 | 512000 | 497500 | 539100 | 684700 | 677900 | 653300 | 643100 |
| 17 | 555700 | 537700 | 534500 | 522200 | 512800 | 510800 | 496900 | 543500 | 685100 | 677200 | 652700 | 640200 |
| 18 | 555700 | 537100 | 535300 | 521600 | 512800 | 510800 | 496100 | 545900 | 684400 | 676200 | 652000 | 638600 |
| 19 | 554500 | 535300 | 535000 | 522700 | 512500 | 509400 | 495500 | 544100 | 684400 | 675200 | 651000 | 637000 |
| 20 | 553500 | 534800 | 533300 | 523000 | 512000 | 507400 | 495800 | 543500 | 682700 | 674900 | 650300 | 636700 |
| 21 | 552900 | 534500 | 532100 | 523000 | 513700 | 508500 | 495500 | 542400 | 683700 | 673600 | 649700 | 635400 |
| 22 | 552000 | 535000 | 531200 | 522200 | 512000 | 508000 | 494600 | 541500 | 684400 | 672600 | 649000 | 635400 |
| 23 | 553500 | 534200 | 530600 | 521900 | 511700 | 506800 | 496100 | 544400 | 679900 | 671600 | 648000 | 634800 |
| 24 | 550300 | 534500 | 532100 | 521000 | 510500 | 506000 | 495800 | 550300 | 679600 | 671300 | 645700 | 634100 |
| 25 | 548500 | 534200 | 529500 | 520500 | 510300 | 506000 | 494400 | 553800 | 679200 | 669900 | 645700 | 632500 |
| 26 | 546800 | 532100 | 529800 | 520800 | 510300 | 504300 | 494100 | 555100 | 679200 | 670300 | 644100 | 632500 |
| 27 | 550300 | 531800 | 529200 | 520200 | 509100 | 504000 | 493500 | 560200 | 678200 | 668300 | 643800 | 632500 |
| 28 | 548800 | 531200 | 528900 | 518800 | 511400 | 504000 | 494900 | 566600 | 676900 | 668900 | 642800 | 631900 |
| 29 | 546200 | 530900 | 529200 | 519900 | --- | 506000 | 493300 | 570500 | 675900 | 667900 | 641800 | 630300 |
| 30 | 545300 | 529800 | 527400 | 518800 | --- | 505700 | 493000 | 571100 | 675600 | 667600 | 641800 | 629000 |
| 31 | 544400 | --- | 527400 | 518800 | --- | 505700 | --- | 572000 | --- | 666300 | 640200 | --- |
| MAX | 567200 | 544100 | 537400 | 527100 | 520800 | 516500 | 505400 | 572000 | 685100 | 683000 | 665600 | 652000 |
| MIN | 544400 | 529800 | 527100 | 518800 | 509100 | 504000 | 493000 | 488100 | 572300 | 666300 | 640200 | 629000 |
| (†) | 317.73 | 317.23 | 317.15 | 316.85 | 316.59 | 316.39 | 315.94 | 318.65 | 321.89 | 321.61 | 320.82 | 320.47 |
| (‡) | -21900 | -14600 | -2400 | -8600 | -7400 | -5700 | -12700 | +79000 | +103600 | -9300 | -26100 | -11200 |
| (††) | 7750 | 9560 | 9360 | 6870 | 9040 | 9690 | 9160 | 10580 | 7480 | 7930 | 8100 | 4430 |

CAL YR 1980 MAX 684000 MIN 527100 ‡ -135900 †† 105000
WTR YR 1981 MAX 685100 MIN 488100 ‡ + 62700 †† 99950

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions in acre-feet for municipal and industrial use by private lakeside companies, nearby cities, and cities of Arlington, Fort Worth, and Mansfield.

08063010 CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX--Continued

WATER-QUALITY RECORDS

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

321111096042901 CEDAR CREEK RESERVOIR SITE AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|
| MAR | | | | | | | |
| 10... | 1320 | 1.00 | 238 | 7.5 | 13.5 | 10.5 | 100 |
| 10... | 1322 | 10.0 | 238 | 7.5 | 12.5 | 10.3 | 95 |
| 10... | 1324 | 20.0 | 238 | 7.4 | 12.0 | 10.1 | 93 |
| 10... | 1326 | 30.0 | 238 | 7.4 | 12.0 | 10.0 | 92 |
| 10... | 1328 | 40.0 | 238 | 7.4 | 12.0 | 9.9 | 91 |
| MAY | | | | | | | |
| 06... | 1215 | 1.00 | 237 | 7.6 | 23.0 | 7.8 | 92 |
| 06... | 1216 | 10.0 | 237 | 7.6 | 22.5 | 7.8 | 91 |
| 06... | 1217 | 20.0 | 237 | 7.5 | 22.5 | 7.6 | 88 |
| 06... | 1218 | 30.0 | 237 | 7.5 | 22.5 | 7.1 | 83 |
| 06... | 1219 | 40.0 | 237 | 6.6 | 19.5 | 1.7 | 18 |
| 06... | 1220 | 45.0 | 240 | 6.6 | 19.0 | 1.2 | 13 |
| AUG | | | | | | | |
| 11... | 1300 | 1.00 | 207 | 8.4 | 30.0 | 7.6 | 103 |
| 11... | 1301 | 10.0 | 207 | 8.1 | 29.0 | 6.1 | 80 |
| 11... | 1302 | 20.0 | 207 | 7.6 | 29.0 | 5.4 | 71 |
| 11... | 1303 | 30.0 | 208 | 7.1 | 27.5 | .2 | 3 |
| 11... | 1304 | 40.0 | 232 | 7.1 | 24.5 | .2 | 2 |
| 11... | 1305 | 45.0 | 239 | 7.1 | 23.5 | .2 | 2 |

321113096041201 CEDAR CREEK RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | HARDNESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | |
| 10... | 1330 | 2.10 | -- | -- | -- | -- | -- | -- | -- |
| 10... | 1335 | 1.00 | 238 | 7.6 | 14.0 | 1.30 | 10.3 | 99 | 73 |
| 10... | 1337 | 5.00 | 238 | 7.6 | 13.0 | -- | 10.3 | 95 | -- |
| 10... | 1339 | 10.0 | 238 | 7.5 | 12.5 | -- | 10.0 | 93 | -- |
| 10... | 1341 | 20.0 | 238 | 7.3 | 12.0 | -- | 9.8 | 90 | -- |
| 10... | 1343 | 30.0 | 238 | 7.3 | 12.0 | -- | 9.8 | 90 | -- |
| 10... | 1345 | 40.0 | 238 | 7.3 | 12.0 | -- | 9.7 | 89 | -- |
| 10... | 1347 | 52.0 | 238 | 7.3 | 12.0 | -- | 9.6 | 88 | 68 |
| MAY | | | | | | | | | |
| 06... | 1145 | 1.00 | 237 | 7.5 | 22.5 | 1.40 | 7.8 | 91 | 71 |
| 06... | 1146 | 2.30 | -- | -- | -- | -- | -- | -- | -- |
| 06... | 1148 | 10.0 | 237 | 7.5 | 22.5 | -- | 7.7 | 90 | -- |
| 06... | 1149 | 20.0 | 237 | 7.5 | 22.5 | -- | 7.2 | 84 | -- |
| 06... | 1150 | 30.0 | 237 | 7.4 | 22.5 | -- | 7.1 | 83 | -- |
| 06... | 1151 | 35.0 | 239 | 6.7 | 19.5 | -- | 2.4 | 26 | -- |
| 06... | 1152 | 40.0 | 239 | 6.7 | 19.0 | -- | 1.5 | 16 | -- |
| 06... | 1153 | 50.0 | 250 | 6.8 | 18.0 | -- | .2 | 2 | -- |
| 06... | 1154 | 53.0 | 250 | 6.8 | 17.0 | -- | .2 | 2 | 74 |
| AUG | | | | | | | | | |
| 11... | 1230 | 1.00 | 203 | 8.4 | 30.0 | 1.50 | 7.3 | 99 | 61 |
| 11... | 1231 | 2.50 | -- | -- | -- | -- | -- | -- | -- |
| 11... | 1232 | 10.0 | 203 | 8.1 | 29.0 | -- | 6.1 | 80 | -- |
| 11... | 1233 | 20.0 | 203 | 7.6 | 29.0 | -- | 5.3 | 70 | -- |
| 11... | 1234 | 25.0 | 203 | 7.1 | 28.5 | -- | .2 | 3 | -- |
| 11... | 1235 | 30.0 | 205 | 7.1 | 27.5 | -- | .2 | 3 | -- |
| 11... | 1236 | 40.0 | 228 | 7.1 | 24.0 | -- | .2 | 2 | -- |
| 11... | 1237 | 50.0 | 236 | 7.1 | 22.5 | -- | .2 | 2 | -- |
| 11... | 1238 | 58.0 | 245 | 7.1 | 21.5 | -- | .2 | 2 | 71 |

CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX--Continued

321113096041201 CEDAR CREEK RESERVOIR SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) |
|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 17 | 22 | 4.4 | 19 | 1.0 | 4.0 | 56 | 28 | 22 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 12 | 20 | 4.4 | 19 | 1.0 | 4.0 | 56 | 27 | 19 |
| MAY | | | | | | | | | |
| 06... | 7 | 21 | 4.4 | 19 | 1.0 | 4.0 | 64 | 30 | 18 |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | 0 | 22 | 4.6 | 19 | 1.0 | 4.2 | 66 | 29 | 18 |
| AUG | | | | | | | | | |
| 11... | 9 | 18 | 3.8 | 13 | .8 | 4.3 | 52 | 15 | 19 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | 0 | 21 | 4.4 | 16 | .9 | 3.7 | 78 | 2.0 | 18 |

| DATE | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | .2 | 2.8 | 136 | .04 | .67 | .71 | .030 | <10 | 3 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | .04 | .98 | 1.0 | .040 | 30 | 10 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | 3.0 | 130 | .04 | .77 | .81 | .040 | 10 | 10 |
| MAY | | | | | | | | | |
| 06... | .2 | 2.4 | 138 | .03 | .85 | .88 | .150 | <10 | 10 |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | -- | -- | .02 | 1.20 | 1.2 | .160 | 30 | 20 |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | -- | -- | .27 | 1.00 | 1.3 | .170 | 10 | 600 |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | 5.8 | 155 | .18 | 1.30 | 1.5 | .190 | 30 | 2500 |
| AUG | | | | | | | | | |
| 11... | .2 | 3.0 | 108 | .00 | 1.00 | 1.0 | .040 | <10 | 4 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | .01 | 1.20 | 1.2 | .040 | 20 | 70 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | .01 | .97 | .98 | .050 | 260 | 630 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | 9.6 | 122 | .03 | 2.00 | 2.0 | .680 | 1900 | 2900 |

CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX--Continued

321116096035301 CEDAR CREEK RESERVOIR SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|
| MAR | | | | | | | |
| 10... | 1355 | 1.00 | 238 | 7.7 | 14.0 | 10.3 | 98 |
| 10... | 1357 | 10.0 | 238 | 7.4 | 12.5 | 9.8 | 91 |
| 10... | 1359 | 20.0 | 238 | 7.4 | 12.0 | 9.7 | 89 |
| 10... | 1401 | 30.0 | 238 | 7.3 | 12.0 | 9.6 | 88 |
| 10... | 1403 | 45.0 | 238 | 7.3 | 12.0 | 9.3 | 85 |
| MAY | | | | | | | |
| 06... | 1230 | 1.00 | 238 | 7.6 | 23.0 | 8.0 | 94 |
| 06... | 1231 | 10.0 | 238 | 7.6 | 22.5 | 7.8 | 91 |
| 06... | 1232 | 20.0 | 238 | 7.5 | 22.5 | 7.6 | 88 |
| 06... | 1233 | 30.0 | 238 | 7.5 | 22.5 | 7.4 | 86 |
| 06... | 1234 | 42.0 | 240 | 6.6 | 19.0 | 1.4 | 15 |
| AUG | | | | | | | |
| 11... | 1200 | 1.00 | 202 | 8.3 | 29.5 | 7.2 | 96 |
| 11... | 1201 | 10.0 | 202 | 7.9 | 29.0 | 5.5 | 72 |
| 11... | 1202 | 20.0 | 202 | 7.7 | 29.0 | 5.2 | 68 |
| 11... | 1203 | 30.0 | 203 | 7.1 | 27.5 | .1 | 1 |
| 11... | 1204 | 40.0 | 227 | 7.1 | 24.5 | .1 | 1 |
| 11... | 1205 | 48.0 | 233 | 7.1 | 23.0 | .1 | 1 |

321227096032701 CEDAR CREEK RESERVOIR SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|
| MAR | | | | | | | |
| 10... | 1250 | 1.00 | 238 | 7.4 | 12.5 | 1.00 | 10.1 |
| 10... | 1252 | 10.0 | 238 | 7.4 | 12.0 | -- | 10.0 |
| 10... | 1254 | 20.0 | 238 | 7.3 | 12.0 | -- | 9.7 |
| 10... | 1256 | 30.0 | 238 | 7.2 | 12.0 | -- | 9.6 |
| 10... | 1258 | 44.0 | 238 | 7.0 | 11.5 | -- | 8.9 |
| MAY | | | | | | | |
| 06... | 1300 | 1.00 | 240 | 7.5 | 23.0 | 1.70 | 7.7 |
| 06... | 1301 | 10.0 | 240 | 7.4 | 22.5 | -- | 7.6 |
| 06... | 1302 | 20.0 | 240 | 7.4 | 22.5 | -- | 7.2 |
| 06... | 1303 | 30.0 | 240 | 7.3 | 22.0 | -- | 6.7 |
| 06... | 1304 | 40.0 | 240 | 6.7 | 19.5 | -- | 1.3 |
| 06... | 1305 | 44.0 | 240 | 6.7 | 19.5 | -- | 1.1 |
| AUG | | | | | | | |
| 11... | 1400 | 1.00 | 205 | 8.4 | 31.0 | 1.50 | 8.3 |
| 11... | 1401 | 10.0 | 207 | 8.1 | 29.5 | -- | 7.1 |
| 11... | 1402 | 20.0 | 207 | 7.6 | 29.0 | -- | 5.7 |
| 11... | 1403 | 30.0 | 208 | 7.2 | 27.5 | -- | .2 |
| 11... | 1404 | 40.0 | 233 | 7.1 | 24.0 | -- | .2 |
| 11... | 1405 | 49.0 | 242 | 7.1 | 23.0 | -- | .2 |

| DATE | OXYGEN, DISSOLVED (PERCENT SATURATION) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|
| MAR | | | | | | | |
| 10... | 94 | .04 | .62 | .66 | .040 | 20 | 0 |
| 10... | 92 | -- | -- | -- | -- | -- | -- |
| 10... | 89 | -- | -- | -- | -- | -- | -- |
| 10... | 88 | -- | -- | -- | -- | -- | -- |
| 10... | 81 | .05 | 1.20 | 1.3 | .040 | 20 | 40 |
| MAY | | | | | | | |
| 06... | 91 | .02 | .72 | .74 | .160 | 10 | 70 |
| 06... | 88 | -- | -- | -- | -- | -- | -- |
| 06... | 84 | -- | -- | -- | -- | -- | -- |
| 06... | 77 | -- | -- | -- | -- | -- | -- |
| 06... | 14 | -- | -- | -- | -- | -- | -- |
| 06... | 12 | .21 | 1.40 | 1.6 | .180 | 40 | 1100 |
| AUG | | | | | | | |
| 11... | 112 | .01 | .93 | .94 | .040 | 20 | 100 |
| 11... | 95 | -- | -- | -- | -- | -- | -- |
| 11... | 75 | -- | -- | -- | -- | -- | -- |
| 11... | 3 | -- | -- | -- | -- | -- | -- |
| 11... | 2 | -- | -- | -- | -- | -- | -- |
| 11... | 2 | .01 | 1.80 | 1.8 | .470 | 1500 | 2100 |

CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX--Continued

321403096060601 CEDAR CREEK RESERVOIR SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|
| MAR | | | | | | | |
| 10... | 1425 | 1.00 | 235 | 7.5 | 14.5 | 10.1 | 98 |
| 10... | 1427 | 10.0 | 235 | 7.3 | 12.5 | 9.7 | 90 |
| 10... | 1429 | 20.0 | 235 | 7.2 | 12.0 | 9.3 | 85 |
| 10... | 1431 | 30.0 | 235 | 7.1 | 12.0 | 9.2 | 84 |
| 10... | 1433 | 40.0 | 235 | 7.1 | 12.0 | 9.0 | 83 |
| 10... | 1435 | 46.0 | 235 | 7.0 | 12.0 | 8.7 | 80 |
| MAY | | | | | | | |
| 06... | 1100 | 1.00 | 237 | 7.4 | 23.0 | 7.5 | 88 |
| 06... | 1101 | 10.0 | 237 | 7.3 | 22.5 | 7.4 | 86 |
| 06... | 1102 | 20.0 | 237 | 7.3 | 22.5 | 7.0 | 81 |
| 06... | 1103 | 30.0 | 240 | 6.7 | 20.5 | 2.6 | 29 |
| 06... | 1104 | 40.0 | 240 | 6.6 | 20.0 | 1.8 | 20 |
| 06... | 1105 | 45.0 | 240 | 6.6 | 20.0 | 1.7 | 19 |
| AUG | | | | | | | |
| 11... | 1140 | 1.00 | 200 | 8.3 | 29.5 | 7.6 | 101 |
| 11... | 1145 | 10.0 | 200 | 8.1 | 29.0 | 7.2 | 95 |
| 11... | 1146 | 20.0 | 200 | 7.8 | 29.0 | 6.7 | 88 |
| 11... | 1147 | 30.0 | 203 | 7.4 | 28.0 | 1.2 | 16 |
| 11... | 1148 | 40.0 | 231 | 7.1 | 24.5 | .2 | 2 |
| 11... | 1149 | 49.0 | 242 | 7.1 | 23.5 | .2 | 2 |

321548096082301 CEDAR CREEK RESERVOIR SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | |
| 10... | 1150 | 1.00 | 235 | 7.6 | 13.5 | .60 | 10.1 | 96 | 67 | 13 |
| 10... | 1152 | 10.0 | 235 | 7.5 | 13.5 | -- | 9.9 | 94 | -- | -- |
| 10... | 1154 | 20.0 | 235 | 7.3 | 13.0 | -- | 9.4 | 89 | -- | -- |
| 10... | 1156 | 30.0 | 235 | 7.0 | 12.5 | -- | 9.1 | 84 | -- | -- |
| 10... | 1158 | 41.0 | 235 | 7.0 | 12.5 | -- | 8.9 | 82 | 68 | 12 |
| MAY | | | | | | | | | | |
| 06... | 1020 | 1.00 | 240 | 7.4 | 23.0 | .80 | 7.7 | 91 | 73 | 8 |
| 06... | 1021 | 10.0 | 240 | 7.3 | 23.0 | -- | 7.6 | 89 | -- | -- |
| 06... | 1022 | 20.0 | 240 | 7.3 | 23.0 | -- | 7.6 | 89 | -- | -- |
| 06... | 1023 | 30.0 | 240 | 7.2 | 23.0 | -- | 7.1 | 63 | -- | -- |
| 06... | 1024 | 38.0 | 240 | 6.9 | 22.5 | -- | 5.4 | 63 | 76 | 10 |
| AUG | | | | | | | | | | |
| 11... | 1100 | 1.00 | 200 | 8.6 | 30.0 | 1.10 | 7.7 | 104 | 57 | 5 |
| 11... | 1101 | 10.0 | 202 | 8.1 | 29.5 | -- | 6.7 | 89 | -- | -- |
| 11... | 1102 | 20.0 | 202 | 7.7 | 29.0 | -- | 5.3 | 70 | -- | -- |
| 11... | 1103 | 30.0 | 202 | 7.3 | 28.5 | -- | 3.1 | 41 | -- | -- |
| 11... | 1104 | 35.0 | 235 | 7.1 | 27.5 | -- | .2 | 3 | -- | -- |
| 11... | 1105 | 42.0 | 242 | 7.1 | 25.0 | -- | .2 | 2 | 68 | 0 |

| DATE | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | SILICA, DISSOLVED (MG/L AS SIO2) |
|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | |
| 10... | 20 | 4.1 | 18 | 1.0 | 3.9 | 54 | 27 | 18 | 2.7 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 20 | 4.3 | 18 | 1.0 | 4.0 | 56 | 27 | 18 | 3.2 |
| MAY | | | | | | | | | |
| 06... | 22 | 4.4 | 18 | .9 | 3.9 | 65 | 30 | 18 | 2.7 |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | 23 | 4.5 | 18 | .9 | 3.9 | 66 | 30 | 18 | 3.5 |
| AUG | | | | | | | | | |
| 11... | 17 | 3.6 | 13 | .8 | 4.4 | 52 | 9.0 | 23 | 3.2 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | 20 | 4.3 | 15 | .8 | 4.2 | 71 | 3.0 | 17 | 9.3 |

CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX--Continued

321548096082301 CEDAR CREEK RESERVOIR SITE DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | 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) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | IRON, DIS-SOLVED (UG/L AS FE) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | |
| 10... | 126 | .00 | -- | -- | .90 | .90 | .040 | <10 | <1 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | .00 | -- | -- | .87 | .87 | .050 | 0 | 10 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 128 | .03 | -- | -- | .87 | .90 | .050 | <10 | 20 |
| MAY | | | | | | | | | |
| 06... | 137 | .01 | -- | -- | .69 | .70 | .170 | 20 | 6 |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | .11 | .160 | .94 | 1.10 | 1.2 | .190 | 10 | 100 |
| 06... | 140 | .07 | -- | -- | 1.00 | 1.1 | .250 | 40 | 340 |
| AUG | | | | | | | | | |
| 11... | 104 | .01 | -- | -- | 1.10 | 1.1 | .050 | <10 | 2 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | .00 | -- | -- | .96 | .96 | .060 | 30 | 20 |
| 11... | -- | .01 | -- | -- | 1.00 | 1.0 | .070 | 200 | 210 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | 120 | .01 | -- | -- | 2.10 | 2.1 | .750 | 2500 | 2500 |

321818096064301 CEDAR CREEK RESERVOIR SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMP-LING DEPTH (FT) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TRANS-PAR-ENCY (SECCHI DISK) (M) | OXYGEN, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|
| MAR | | | | | | | |
| 10... | 1105 | 1.00 | 244 | 7.6 | 13.5 | .50 | 10.1 |
| 10... | 1107 | 5.00 | 241 | 7.4 | 13.0 | -- | 9.8 |
| 10... | 1109 | 10.0 | 241 | 7.4 | 12.5 | -- | 9.7 |
| 10... | 1111 | 15.0 | 248 | 7.3 | 12.5 | -- | 9.5 |
| MAY | | | | | | | |
| 06... | 0945 | 1.00 | 245 | 7.6 | 22.5 | .60 | 8.4 |
| 06... | 0946 | 10.0 | 245 | 7.6 | 22.5 | -- | 8.3 |
| 06... | 0947 | 14.0 | 245 | 7.6 | 22.5 | -- | 8.1 |
| AUG | | | | | | | |
| 11... | 1130 | 1.00 | 201 | 8.6 | 30.0 | .90 | 8.2 |
| 11... | 1131 | 10.0 | 209 | 7.9 | 29.5 | -- | 5.1 |
| 11... | 1132 | 20.0 | 209 | 7.3 | 29.0 | -- | 1.9 |

| DATE | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | IRON, DIS-SOLVED (UG/L AS FE) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|
| MAR | | | | | | | |
| 10... | 96 | .00 | .89 | .89 | .040 | 20 | 0 |
| 10... | 92 | -- | -- | -- | -- | -- | -- |
| 10... | 90 | -- | -- | -- | -- | -- | -- |
| 10... | 88 | .00 | .94 | .94 | .060 | 20 | 10 |
| MAY | | | | | | | |
| 06... | 98 | .00 | 1.10 | 1.1 | .180 | 0 | 0 |
| 06... | 97 | -- | -- | -- | -- | -- | -- |
| 06... | 94 | .00 | .93 | .93 | .190 | 20 | 0 |
| AUG | | | | | | | |
| 11... | 111 | .00 | 1.30 | 1.3 | .060 | 20 | 30 |
| 11... | 68 | -- | -- | -- | -- | -- | -- |
| 11... | 25 | .01 | 1.10 | 1.1 | .100 | 20 | 90 |

CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX--Continued

321843096101701 CEDAR CREEK RESERVOIR SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|
| MAR | | | | | | | |
| 10... | 1455 | 1.00 | 237 | 7.6 | 15.0 | 10.2 | 99 |
| 10... | 1457 | 10.0 | 234 | 7.5 | 13.0 | 9.9 | 93 |
| 10... | 1459 | 20.0 | 234 | 7.5 | 13.0 | 9.7 | 92 |
| 10... | 1501 | 26.0 | 234 | 7.4 | 13.0 | 9.6 | 91 |
| MAY | | | | | | | |
| 06... | 1345 | 1.00 | 244 | 7.5 | 23.5 | 8.0 | 95 |
| 06... | 1346 | 10.0 | 244 | 7.4 | 23.0 | 7.6 | 89 |
| 06... | 1347 | 20.0 | 244 | 7.4 | 23.0 | 7.6 | 89 |
| 06... | 1348 | 24.0 | 244 | 7.3 | 23.0 | 7.4 | 87 |
| AUG | | | | | | | |
| 11... | 1000 | 1.00 | 199 | 8.0 | 29.5 | 7.1 | 95 |
| 11... | 1001 | 10.0 | 198 | 7.6 | 29.0 | 6.3 | 83 |
| 11... | 1002 | 20.0 | 196 | 7.2 | 29.0 | 4.4 | 58 |
| 11... | 1003 | 30.0 | 199 | 7.1 | 28.5 | 3.4 | 45 |

322119096104901 CEDAR CREEK RESERVOIR SITE GR

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | | |
| 10... | 1520 | 1.00 | 235 | 8.0 | 14.0 | 10.9 | 105 | -- | -- | -- | -- |
| 10... | 1522 | 10.0 | 235 | 7.3 | 13.0 | 9.4 | 89 | -- | -- | -- | -- |
| 10... | 1524 | 13.0 | 235 | 7.2 | 13.0 | 9.3 | 88 | -- | -- | -- | -- |
| MAY | | | | | | | | | | | |
| 06... | 1430 | 1.00 | -- | -- | -- | -- | -- | .02 | .72 | .74 | .220 |
| 06... | 1500 | 1.00 | 245 | 7.4 | 24.0 | 7.8 | 93 | -- | -- | -- | -- |
| 06... | 1501 | 11.0 | 245 | 7.3 | 23.5 | 7.3 | 86 | -- | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 11... | 0916 | 1.00 | 195 | 8.0 | 29.0 | 6.3 | 83 | -- | -- | -- | -- |
| 11... | 0917 | 10.0 | 195 | 7.8 | 29.0 | 5.8 | 76 | -- | -- | -- | -- |
| 11... | 0918 | 16.0 | 195 | 7.6 | 29.0 | 5.4 | 71 | -- | -- | -- | -- |

322119096095401 CEDAR CREEK RESERVOIR SITE GC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | HARDNESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | |
| 10... | 1535 | 1.00 | 235 | 7.7 | 15.5 | .40 | 10.3 | 102 | 68 |
| 10... | 1536 | .60 | -- | -- | -- | -- | -- | -- | -- |
| 10... | 1537 | 5.00 | 235 | 7.7 | 13.5 | -- | 10.1 | 96 | -- |
| 10... | 1539 | 10.0 | 235 | 7.3 | 13.0 | -- | 9.5 | 90 | -- |
| 10... | 1541 | 19.0 | 235 | 7.2 | 13.0 | -- | 9.2 | 87 | 68 |
| MAY | | | | | | | | | |
| 06... | 1430 | 1.00 | 245 | 7.4 | 23.5 | .20 | 7.8 | 92 | 73 |
| 06... | 1431 | .40 | -- | -- | -- | -- | -- | -- | -- |
| 06... | 1432 | 10.0 | 245 | 7.2 | 23.0 | -- | 7.0 | 82 | -- |
| 06... | 1433 | 18.0 | 245 | 7.2 | 23.0 | -- | 7.0 | 82 | 71 |
| AUG | | | | | | | | | |
| 11... | 0900 | 1.00 | 182 | 8.0 | 29.0 | .50 | 6.1 | 80 | 62 |
| 11... | 0901 | .90 | -- | -- | -- | -- | -- | -- | -- |
| 11... | 0902 | 10.0 | 182 | 7.8 | 29.0 | -- | 6.0 | 79 | -- |
| 11... | 0903 | 20.0 | 184 | 7.4 | 29.0 | -- | 4.2 | 55 | -- |
| 11... | 0904 | 23.0 | 185 | 7.4 | 28.5 | -- | 3.6 | 47 | 60 |

CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX--Continued

322119096095401 CEDAR CREEK RESERVOIR SITE GC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) |
|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | |
| 10... | 18 | 20 | 4.3 | 19 | 1.0 | 3.8 | 55 | 29 | 18 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 19 | 20 | 4.3 | 19 | 1.0 | 3.8 | 54 | 29 | 18 |
| MAY | | | | | | | | | |
| 06... | 8 | 22 | 4.4 | 19 | 1.0 | 4.1 | 65 | 32 | 19 |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | 5 | 21 | 4.4 | 22 | 1.1 | 3.9 | 66 | 32 | 19 |
| AUG | | | | | | | | | |
| 11... | 7 | 19 | 3.6 | 13 | .8 | 4.9 | 55 | 5.0 | 20 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | 4 | 18 | 3.7 | 12 | .7 | 4.6 | 56 | 6.0 | 18 |

| DATE | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | |
| 10... | 3.1 | 132 | .00 | .81 | .81 | .050 | 20 | 4 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 3.3 | 132 | .00 | 1.00 | 1.0 | .080 | 20 | 20 |
| MAY | | | | | | | | |
| 06... | 3.4 | 141 | .02 | .72 | .74 | .220 | <10 | 5 |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | -- | -- | -- | -- | -- | -- | -- |
| 06... | -- | -- | .02 | .76 | .78 | .220 | 20 | 30 |
| AUG | | | | | | | | |
| 11... | 4.3 | 103 | .01 | 1.00 | 1.0 | .100 | <10 | 2 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | .01 | 1.50 | 1.5 | .100 | 30 | 10 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | 4.8 | 101 | .01 | 1.20 | 1.2 | .140 | 12 | 65 |

321113096041201 CEDAR CREEK RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | ARSENIC DISSOLVED (UG/L AS AS) | BARIUM, DISSOLVED (UG/L AS BA) | CADMIUM DISSOLVED (UG/L AS CD) | CHROMIUM, DISSOLVED (UG/L AS CR) | COPPER, DISSOLVED (UG/L AS CU) |
|---|---|---|---|---|---|---|---|
| MAR | | | | | | | |
| 10... | 1335 | 1.00 | 0 | 60 | <1 | 0 | <10 |
| 10... | 1341 | 20.0 | -- | -- | -- | -- | -- |
| 10... | 1347 | 52.0 | 0 | 60 | <1 | 0 | <10 |
| MAY | | | | | | | |
| 06... | 1145 | 1.00 | 1 | 60 | <1 | 0 | <10 |
| 06... | 1150 | 30.0 | -- | -- | -- | -- | -- |
| 06... | 1152 | 40.0 | -- | -- | -- | -- | -- |
| 06... | 1154 | 53.0 | 1 | 90 | <1 | 0 | <10 |
| AUG | | | | | | | |
| 11... | 1230 | 1.00 | 1 | 50 | <1 | 0 | <10 |
| 11... | 1233 | 20.0 | -- | -- | -- | -- | -- |
| 11... | 1235 | 30.0 | -- | -- | -- | -- | -- |
| 11... | 1238 | 58.0 | 19 | 80 | <1 | 0 | <10 |

CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX--Continued

321113096041201 CEDAR CREEK RESERVOIR SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | 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) |
|---|---|---|---|---|---|---|---|
| MAR | | | | | | | |
| 10... | <10 | <10 | 3 | .0 | 0 | 0 | 30 |
| 10... | 30 | -- | 10 | -- | -- | -- | -- |
| 10... | 10 | 15 | 10 | .0 | 0 | 0 | <3 |
| MAY | | | | | | | |
| 06... | <10 | <10 | 10 | .0 | 0 | 0 | 9 |
| 06... | 30 | -- | 20 | -- | -- | -- | -- |
| 06... | 10 | -- | 600 | -- | -- | -- | -- |
| 06... | 30 | 14 | 2500 | .0 | 0 | 0 | 7 |
| AUG | | | | | | | |
| 11... | <10 | <10 | 4 | .0 | 0 | 0 | <3 |
| 11... | 20 | -- | 70 | -- | -- | -- | -- |
| 11... | 260 | -- | 630 | -- | -- | -- | -- |
| 11... | 1900 | <10 | 2900 | .0 | 0 | 0 | <3 |

CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX--Continued

321113096041201 CEDAR CREEK RESERVOIR SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | MAR 10,81 | | MAY 6,81 | | AUG 11,81 | |
|---|---|---|---|---|---|---|
| TIME | 1330 | | 1146 | | 1231 | |
| TOTAL CELLS/ML | 18000 | | 2400 | | 190000 | |
| DIVERSITY: DIVISION | 1.6 | | 1.6 | | 0.1 | |
| .CLASS | 1.6 | | 1.6 | | 0.1 | |
| ..ORDER | 2.1 | | 2.1 | | 0.9 | |
| ...FAMILY | 2.6 | | 2.7 | | 1.7 | |
| ....GENUS | 3.3 | | 2.9 | | 2.1 | |
| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
| BACILLARIOPHYTA (DIATOMS) | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..ACHNANTHALES | | | | | | |
| ...ACHNANTHACEAE | | | | | | |
| ....COCCONEIS | -- | - | -- | - | * | 0 |
| ..BACILLARIALES | | | | | | |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | 380 | 2 | 13 | 1 | -- | - |
| ..EUPODISCALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | 3300# | 19 | 52 | 2 | -- | - |
| ....MELOSIRA | 690 | 4 | 180 | 8 | -- | - |
| ....STEPHANODISCUS | -- | - | 39 | 2 | -- | - |
| ..FRAGILARIALES | | | | | | |
| ...FRAGILARIACEAE | | | | | | |
| ....SYNEDRA | -- | - | 13 | 1 | * | 0 |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...CHLOROCOCCACEAE | | | | | | |
| ....TETRAEDRON | -- | - | -- | - | * | 0 |
| ...DICTYOSPHAERIACEAE | | | | | | |
| ....DICTYOSPHAERIUM | 460 | 3 | -- | - | -- | - |
| ...HYDRODICTYACEAE | | | | | | |
| ....PEDIASTRUM | -- | - | 100 | 4 | -- | - |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | 610 | 3 | 64 | 3 | -- | - |
| ....CHODATELLA | * | 0 | -- | - | -- | - |
| ....KIRCHNERIELLA | 1400 | 8 | -- | - | -- | - |
| ....OOCYSTIS | 690 | 4 | -- | - | -- | - |
| ....SELENASTRUM | 310 | 2 | -- | - | -- | - |
| ...PALMELLACEAE | | | | | | |
| ....SPHAEROCYSTIS | -- | - | 310 | 13 | -- | - |
| ...SCENEDESMACEAE | | | | | | |
| ....GLOEOACTINIUM | -- | - | -- | - | * | 0 |
| ....SCENEDESMUS | 1800 | 10 | 310 | 13 | * | 0 |
| ....TETRASTRUM | 1500 | 9 | -- | - | -- | - |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CHLAMYDOMONAS | 380 | 2 | 13 | 1 | -- | - |
| ..ZYGNEMATALES | | | | | | |
| ...DESMIDIACEAE | | | | | | |
| ....COSMARIUM | -- | - | -- | - | * | 0 |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....AGMENELLUM | -- | - | -- | - | 4300 | 2 |
| ....ANACYSTIS | 3400# | 19 | 850# | 36 | -- | - |
| ..NOSTOCALES | | | | | | |
| ...HAMMATOIDEACEAE | | | | | | |
| ....RAPHIDIOPSIS | -- | - | -- | - | 98000# | 51 |
| ...NOSTOCACEAE | | | | | | |
| ....ANABAENA | -- | - | -- | - | 8200 | 4 |
| ....APHANIZOMENON | -- | - | -- | - | * | 0 |
| ....CYLINDROSPERMUM | -- | - | -- | - | 43000# | 22 |
| ..OSCILLATORIALES | | | | | | |
| ...OSCILLATORIACEAE | | | | | | |
| ....LYNGBYA | 2500 | 14 | 310 | 13 | 19000 | 10 |
| ....OSCILLATORIA | -- | - | -- | - | 20000 | 10 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....EUGLENA | -- | - | 26 | 1 | -- | - |
| ....TRACHELOMONAS | * | 0 | 77 | 3 | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX--Continued

322119096095401 CEDAR CREEK RESERVOIR SITE GC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | MAR 10,81 | | MAY 6,81 | | AUG 11,81 | |
|---|---|---|---|---|---|---|
| TIME | 1536 | | 1431 | | 0901 | |
| TOTAL CELLS/ML | 13000 | | 14000 | | 100000 | |
| DIVERSITY: DIVISION | 1.4 | | 0.9 | | 0.4 | |
| .CLASS | 1.4 | | 0.9 | | 0.4 | |
| ..ORDER | 1.7 | | 1.0 | | 1.5 | |
| ...FAMILY | 2.2 | | 1.1 | | 1.9 | |
| ....GENUS | 3.0 | | 1.8 | | 2.0 | |
| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
| BACILLARIOPHYTA (DIATOMS) | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..BACILLARIALES | | | | | | |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | 1200 | 10 | 1100 | 8 | * | 0 |
| ..EUPODISCALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | 2000# | 16 | 180 | 1 | -- | - |
| ....MELOSIRA | 170 | 1 | -- | - | 1200 | 1 |
| ..FRAGILARIALES | | | | | | |
| ...FRAGILARIACEAE | | | | | | |
| ....FRAGILARIA | -- | - | -- | - | * | 0 |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...CHLOROCOCCACEAE | | | | | | |
| ....TETRAEDRON | 87 | 1 | * | 0 | -- | - |
| ...DICTYOSPHAERIACEAE | | | | | | |
| ....DICTYOSPHAERIUM | 260 | 2 | -- | - | -- | - |
| ...HYDRODICTYACEAE | | | | | | |
| ....PEDIASTRUM | -- | - | -- | - | 1500 | 1 |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | 650 | 5 | -- | - | -- | - |
| ....CHODATELLA | 87 | 1 | * | 0 | -- | - |
| ....KIRCHNERIELLA | -- | - | -- | - | * | 0 |
| ....SELENASTRUM | 130 | 1 | -- | - | -- | - |
| ...SCENEDESMACEAE | | | | | | |
| ....COELASTRUM | -- | - | 400 | 3 | -- | - |
| ....CRUCIGENIA | 3500# | 27 | -- | - | 760 | 1 |
| ....SCENEDESMUS | 1200 | 10 | 400 | 3 | * | 0 |
| ....TETRASTRUM | 1600 | 12 | 300 | 2 | -- | - |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CHLAMYDOMONAS | 130 | 1 | 75 | 1 | * | 0 |
| ..ZYGNEMATALES | | | | | | |
| ...DESMIDIACEAE | | | | | | |
| ....COSMARIUM | -- | - | * | 0 | -- | - |
| ....STAURASTRUM | -- | - | -- | - | * | 0 |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....AGMENELLUM | -- | - | 8700# | 63 | 1500 | 1 |
| ....ANACYSTIS | 1600 | 13 | 2500# | 18 | 4400 | 4 |
| ..NOSTOCALES | | | | | | |
| ...HAMMATOIDEACEAE | | | | | | |
| ....RAPHIDIOPSIS | -- | - | -- | - | 55000# | 54 |
| ...NOSTOCACEAE | | | | | | |
| ....ANABAENA | -- | - | -- | - | 4100 | 4 |
| ....CYLINDROSPERMUM | -- | - | -- | - | 3000 | 3 |
| ..OSCILLATORIALES | | | | | | |
| ...OSCILLATORIACEAE | | | | | | |
| ....OSCILLATORIA | -- | - | -- | - | 29000# | 28 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....EUGLENA | -- | - | -- | - | * | 0 |
| ....PHACUS | -- | - | * | 0 | -- | - |
| ....TRACHELOMONAS | 87 | 1 | -- | - | * | 0 |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | |
| .DINOPHYCEAE | | | | | | |
| ..DINOKONTAE | | | | | | |
| ...PERIDINIACEAE | | | | | | |
| ....PERIDINIUM | -- | - | -- | - | * | 0 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 08063045 RICHLAND CREEK NEAR IRENE, TX

LOCATION.--Lat 31°58'37", long 96°48'52", Navarro County, Hydrologic Unit 12030108, at bridge on Farm Road 744, 0.3 mi (0.5 km) northeast of intersection of Farm Road 744 and 1946, 2.4 mi (3.9 km) upstream from Hackberry Creek, and 3.5 mi (5.6 km) southeast of Irene.

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1981

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH FIELD (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, BIOCHEM UNINHIB 5 DAY (MG/L) | HARD-NESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | | |
| 24... | 0945 | .78 | 580 | 7.8 | 9.5 | 25 | 1.4 | 4.8 | 42 | 3.1 | 240 |
| APR | | | | | | | | | | | |
| 07... | 0825 | .14 | 471 | 7.9 | 15.0 | 15 | 17 | 6.2 | 61 | 2.0 | 180 |
| MAY | | | | | | | | | | | |
| 19... | 0835 | 1.6 | 413 | 7.6 | 19.0 | 20 | 190 | 5.3 | 58 | 2.9 | 150 |
| JUN | | | | | | | | | | | |
| 30... | 0825 | 12 | 360 | 8.1 | 25.5 | 15 | 48 | 6.8 | 83 | 1.7 | 180 |
| AUG | | | | | | | | | | | |
| 11... | 0755 | .04 | 420 | 7.7 | 23.0 | 5 | 8.2 | 3.8 | 44 | 1.6 | 160 |

| DATE | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 (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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | | |
| 24... | 43 | 90 | 4.3 | 32 | .9 | 4.2 | 200 | 80 | 29 | .2 | 5.4 |
| APR | | | | | | | | | | | |
| 07... | 33 | 67 | 3.8 | 25 | .8 | 4.0 | 150 | 59 | 23 | .4 | 1.7 |
| MAY | | | | | | | | | | | |
| 19... | 43 | 56 | 3.1 | 23 | .8 | 4.5 | 110 | 61 | 27 | .2 | 8.7 |
| JUN | | | | | | | | | | | |
| 30... | 18 | 68 | 2.0 | 6.0 | .2 | 3.0 | 160 | 24 | 6.5 | .1 | 10 |
| AUG | | | | | | | | | | | |
| 11... | 25 | 61 | 3.0 | 22 | .8 | 2.7 | 140 | 45 | 25 | .3 | 5.0 |

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (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) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FEB | | | | | | | | | | | |
| 24... | 366 | 0 | 0 | .00 | .000 | .00 | .010 | .99 | 1.0 | .060 | 14 |
| APR | | | | | | | | | | | |
| 07... | 274 | 26 | 6 | .06 | .010 | .07 | .090 | .83 | .92 | .080 | 16 |
| MAY | | | | | | | | | | | |
| 19... | 250 | 388 | 88 | 1.1 | .080 | 1.2 | .160 | 1.3 | 1.5 | .210 | 11 |
| JUN | | | | | | | | | | | |
| 30... | 216 | 81 | 23 | .88 | .010 | .89 | .060 | .93 | .99 | .130 | 5.3 |
| AUG | | | | | | | | | | | |
| 11... | 248 | 16 | 8 | .11 | .010 | .12 | .070 | 1.2 | 1.3 | .050 | 3.9 |

| DATE | TIME | ARSENIC DIS-SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| FEB | | | | | | | |
| 24... | 0945 | 2 | 90 | <1 | 0 | <10 | 30 |
| APR | | | | | | | |
| 07... | 0825 | 5 | 80 | <1 | 0 | <10 | 20 |
| JUN | | | | | | | |
| 30... | 0825 | 3 | 100 | <1 | 10 | <10 | 10 |

| DATE | 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) |
|---|---|---|---|---|---|---|
| FEB | | | | | | |
| 24... | <10 | 20 | .0 | 0 | 0 | 7 |
| APR | | | | | | |
| 07... | <10 | 40 | .1 | 0 | 0 | <3 |
| JUN | | | | | | |
| 30... | <10 | 4 | .1 | 0 | 1 | <3 |

## 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 (2.7 km) upstream from bridge on State Highway 31, 3.0 mi (4.8 km) upstream from St. Louis Southwestern Railway Lines bridge, 4.2 mi (6.8 km) upstream from Post Oak Creek, 4.6 mi (7.4 km) north of Dawson, and 63.9 mi (102.8 km) upstream from mouth.

DRAINAGE AREA.--320 mi² (829 km²).

### WATER-DISCHARGE RECORDS

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 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 (2,310 m) long, including a 240-foot (73 m) off-channel gated spillway with six 40.0- by 29.0-foot (12.2 by 8.8 m) tainter gates. From Aug. 27, 1962, to Mar. 14, 1963, the lake was operated as a detention basin only. Deliberate impoundment began Mar. 15, 1963, and the dam was completed in September 1963. The low-flow outlet works consist of two 36-inch-diameter (914 mm) gate-controlled conduits. The lake was built for flood control and water conservation. The capacity table prior to September 1976 is based on a survey made in February 1956 by the Corps of Engineers. Capacity table after Aug. 31, 1976, is based on a sedimentation survey made in September 1972. Flow is affected at times by discharge from flood-detention pools of 51 floodwater-retarding structures with combined detention capacity of 26,160 acre-ft (32.3 hm³). These structures control runoff from 86.9 mi² (225.1 km²) in the Richland Creek drainage basin. 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 | 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 Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 183,300 acre-ft (226 hm³) May 18, 1968, elevation, 440.36 ft (134.222 m); minimum since initial filling in May 1965, 32,490 acre-ft (40.1 hm³) Dec. 28, 1978, elevation, 418.89 ft (127.678 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 111,900 acre-ft (138 hm³) June 22 at 1030 hours, elevation, 433.06 ft (131.997 m); minimum, 37,560 acre-ft (46.3 hm³) May 9 at 0430 hours, elevation, 420.23 ft (128.086 m).

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

| | | | |
|---|---|---|---|
| 419.0 | 32,950 | 427.0 | 70,390 |
| 421.0 | 40,710 | 429.0 | 82,620 |
| 423.0 | 49,590 | 431.0 | 96,400 |
| 425.0 | 59,520 | 433.0 | 111,500 |

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 43720 | 41350 | 40210 | 40540 | 39290 | 38280 | 40160 | 37920 | 42940 | 78470 | 54810 | 52690 |
| 2 | 43580 | 41310 | 40080 | 40420 | 39130 | 38240 | 40080 | 37840 | 43500 | 75390 | 54660 | 52690 |
| 3 | 43460 | 41310 | 39950 | 40370 | 39130 | 39000 | 39250 | 37800 | 50310 | 72770 | 54510 | 52640 |
| 4 | 43370 | 41270 | 40000 | 40290 | 39050 | 40840 | 39170 | 38000 | 69820 | 70160 | 54310 | 52590 |
| 5 | 43200 | 41180 | 39910 | 40290 | 39210 | 40710 | 39130 | 38000 | 75450 | 67730 | 54160 | 52540 |
| 6 | 43110 | 41140 | 39870 | 40250 | 39210 | 40630 | 39000 | 37960 | 77350 | 65580 | 54010 | 52490 |
| 7 | 43070 | 41050 | 39910 | 40210 | 39170 | 40930 | 38880 | 37880 | 78720 | 63040 | 53910 | 52440 |
| 8 | 43020 | 41010 | 41560 | 40210 | 39050 | 41010 | 38840 | 37840 | 79540 | 60610 | 53770 | 52340 |
| 9 | 42980 | 40970 | 41990 | 40160 | 39170 | 41010 | 38840 | 38560 | 80310 | 58750 | 53570 | 52200 |
| 10 | 42900 | 40930 | 41950 | 40120 | 39250 | 40970 | 38760 | 38560 | 80690 | 57620 | 53470 | 52050 |
| 11 | 42770 | 40840 | 41910 | 40040 | 38880 | 40970 | 38720 | 38520 | 79100 | 57170 | 53370 | 51950 |
| 12 | 42640 | 40800 | 41860 | 40000 | 38840 | 41010 | 38680 | 38480 | 76120 | 57060 | 53220 | 51860 |
| 13 | 42510 | 40750 | 41780 | 39910 | 38800 | 41010 | 38680 | 38440 | 72880 | 57060 | 53130 | 51760 |
| 14 | 42460 | 40750 | 41780 | 39870 | 38720 | 40970 | 38440 | 38320 | 71540 | 56960 | 53030 | 51760 |
| 15 | 42420 | 40670 | 41780 | 39790 | 38720 | 40930 | 38520 | 38440 | 71830 | 56860 | 52880 | 51610 |
| 16 | 42460 | 40840 | 41650 | 39660 | 38680 | 40880 | 38440 | 42210 | 99100 | 56760 | 53080 | 51470 |
| 17 | 42420 | 40840 | 41610 | 39580 | 38640 | 40840 | 38400 | 43150 | 104100 | 56710 | 52880 | 51230 |
| 18 | 42380 | 40750 | 41560 | 39540 | 38600 | 40670 | 38360 | 43410 | 106600 | 56660 | 52930 | 51130 |
| 19 | 42290 | 40670 | 41350 | 39750 | 38560 | 40500 | 38360 | 43330 | 108500 | 56460 | 52780 | 51030 |
| 20 | 42210 | 40630 | 41220 | 39750 | 38520 | 40500 | 38320 | 43280 | 110000 | 56360 | 52740 | 50890 |
| 21 | 42120 | 40540 | 41140 | 39700 | 38560 | 40630 | 38200 | 43200 | 111000 | 56210 | 52640 | 50790 |
| 22 | 42040 | 40630 | 41100 | 39620 | 38400 | 40330 | 38240 | 43150 | 110100 | 56060 | 52490 | 50740 |
| 23 | 42121 | 40590 | 41100 | 39540 | 38360 | 40290 | 38440 | 43200 | 107000 | 55960 | 52340 | 50600 |
| 24 | 42080 | 40500 | 41010 | 39540 | 38240 | 40210 | 38400 | 43410 | 104200 | 55750 | 52250 | 50550 |
| 25 | 41860 | 40500 | 40880 | 39460 | 38160 | 40210 | 38320 | 43370 | 100300 | 55650 | 52150 | 50410 |
| 26 | 41990 | 40540 | 40880 | 39460 | 38120 | 40160 | 38240 | 43330 | 96690 | 55550 | 51950 | 50360 |
| 27 | 41910 | 40500 | 40800 | 39330 | 38120 | 40080 | 38160 | 43240 | 92970 | 55450 | 52150 | 50260 |
| 28 | 41740 | 40330 | 40710 | 39540 | 38120 | 40160 | 38120 | 43200 | 89200 | 55300 | 52050 | 50170 |
| 29 | 41610 | 40250 | 40710 | 39290 | --- | 40420 | 38080 | 43150 | 85660 | 55200 | 52000 | 50120 |
| 30 | 41520 | 40210 | 40670 | 39170 | --- | 40290 | 38000 | 43070 | 82040 | 55100 | 51910 | 50020 |
| 31 | 41440 | --- | 40590 | 39250 | --- | 40210 | --- | 42940 | --- | 54960 | 52000 | --- |
| MAX | 43720 | 41350 | 41990 | 40540 | 39290 | 41010 | 40160 | 43410 | 111000 | 78470 | 54810 | 52690 |
| MIN | 41440 | 40210 | 39870 | 39170 | 38120 | 38240 | 38000 | 37800 | 42940 | 54960 | 51910 | 50020 |
| (†) | 421.17 | 420.88 | 420.97 | 420.65 | 420.37 | 420.88 | 420.34 | 421.52 | 428.91 | 424.10 | 423.50 | 423.09 |
| (‡) | -2320 | -1230 | +380 | -1340 | -1130 | +2090 | -2090 | +4940 | +39100 | -27100 | -2960 | -1980 |
| (††) | 516 | 476 | 472 | 486 | 441 | 491 | 493 | 496 | 489 | 614 | 646 | 569 |

CAL YR 1980 MAX 91910 MIN 39870 ‡ -17590 †† 6550
WTR YR 1981 MAX 111000 MIN 37800 ‡ + 6260 †† 6190

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, for municipal use by cites of Dawson, Corsicana, and Post Oak.

08063050 NAVARRO MILLS LAKE NEAR DAWSON, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to current year.

315706096420201 NAVARRO MILLS LAKE SITE AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|
| MAR | | | | | | | |
| 09... | 1310 | 1.00 | 330 | 7.8 | 14.0 | 8.6 | 83 |
| 09... | 1312 | 10.0 | 330 | 7.7 | 13.5 | 8.5 | 81 |
| 09... | 1314 | 24.0 | 330 | 7.7 | 13.5 | 8.5 | 81 |
| MAY | | | | | | | |
| 07... | 1050 | 1.00 | 352 | 7.8 | 23.5 | 7.7 | 91 |
| 07... | 1051 | 10.0 | 352 | 7.7 | 23.0 | 7.0 | 82 |
| 07... | 1052 | 16.0 | 352 | 7.6 | 23.0 | 6.3 | 74 |
| AUG | | | | | | | |
| 10... | 1430 | 1.00 | 300 | 8.1 | 31.0 | 7.1 | 96 |
| 10... | 1431 | 10.0 | 300 | 7.7 | 29.0 | 5.4 | 71 |
| 10... | 1432 | 20.0 | 303 | 7.2 | 29.0 | 2.4 | 32 |

315730096412601 NAVARRO MILLS LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) | STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARDNESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | | |
| 09... | 1250 | 1.00 | 330 | 7.8 | 14.0 | .40 | 8.7 | 84 | -- | 31 | 130 |
| 09... | 1251 | .60 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 09... | 1252 | 10.0 | 330 | 7.7 | 13.5 | -- | 8.5 | 81 | -- | -- | -- |
| 09... | 1254 | 21.0 | 330 | 7.7 | 13.5 | -- | 8.5 | 81 | -- | -- | 130 |
| MAY | | | | | | | | | | | |
| 07... | 1035 | 1.00 | 352 | 7.8 | 23.5 | .40 | 7.6 | 89 | <1 | K4 | 140 |
| 07... | 1036 | .60 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 07... | 1038 | 5.00 | 352 | 7.8 | 23.0 | -- | 7.5 | 88 | -- | -- | -- |
| 07... | 1039 | 10.0 | 352 | 7.8 | 23.0 | -- | 7.4 | 87 | -- | -- | -- |
| 07... | 1040 | 15.0 | 352 | 7.8 | 23.0 | -- | 7.2 | 85 | -- | -- | -- |
| 07... | 1041 | 20.0 | 356 | 7.4 | 22.5 | -- | 4.3 | 50 | -- | -- | 140 |
| AUG | | | | | | | | | | | |
| 10... | 1400 | 1.00 | 294 | 8.1 | 31.5 | 1.00 | 7.4 | 100 | <1 | K3 | 120 |
| 10... | 1401 | 1.60 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 1402 | 10.0 | 294 | 7.8 | 29.5 | -- | 6.0 | 79 | -- | -- | -- |
| 10... | 1403 | 20.0 | 294 | 7.6 | 29.0 | -- | 5.5 | 72 | -- | -- | -- |
| 10... | 1404 | 24.0 | 294 | 7.6 | 29.0 | -- | 5.5 | 72 | -- | -- | 120 |

| DATE | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) | FLUORIDE, DISSOLVED (MG/L AS F) |
|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | |
| 09... | 20 | 46 | 3.7 | 16 | .6 | 3.5 | 110 | 38 | 12 | .4 |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 09... | 7 | 45 | 3.6 | 16 | .6 | 3.5 | 120 | 37 | 12 | -- |
| MAY | | | | | | | | | | |
| 07... | 11 | 50 | 4.0 | 17 | .6 | 3.6 | 130 | 43 | 11 | .4 |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 07... | 8 | 49 | 3.9 | 17 | .6 | 3.7 | 130 | 43 | 10 | -- |
| AUG | | | | | | | | | | |
| 10... | 2 | 44 | 3.0 | 11 | .4 | 4.6 | 120 | 26 | 7.6 | .3 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 0 | 43 | 3.1 | 11 | .4 | 4.7 | 120 | 25 | 7.7 | -- |

NAVARRO MILLS LAKE NEAR DAWSON, TX--Continued

315730096412601 NAVARRO MILLS LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | 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) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | IRON, DIS-SOLVED (UG/L AS FE) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | |
| 09... | 5.8 | 192 | .10 | .040 | .64 | .68 | .78 | .050 | <10 | 2 |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 09... | -- | -- | .11 | .070 | .58 | .65 | .76 | .050 | 30 | 0 |
| 09... | 5.9 | 195 | -- | -- | -- | -- | -- | -- | 10 | 20 |
| MAY | | | | | | | | | | |
| 07... | 3.5 | 211 | .25 | -- | -- | .72 | .97 | .160 | 10 | 2 |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 07... | -- | -- | .25 | -- | -- | .84 | 1.1 | .170 | 20 | 10 |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 07... | 4.8 | 210 | .28 | -- | -- | .90 | 1.2 | .180 | 10 | 20 |
| AUG | | | | | | | | | | |
| 10... | 4.2 | 173 | .00 | -- | -- | .70 | .70 | .050 | <10 | 2 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | .01 | -- | -- | .76 | .77 | .050 | 30 | 10 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 4.2 | 171 | .01 | -- | -- | .61 | .62 | .050 | <10 | 5 |

315710096431301 NAVARRO MILLS LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMP-LING DEPTH (FT) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (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) |
|---|---|---|---|---|---|---|---|---|---|---|
| MAY | | | | | | | | | | |
| 07... | 1105 | 1.00 | 352 | 7.8 | 23.5 | .40 | 7.8 | 93 | K8 | K1 |
| 07... | 1106 | 10.0 | 352 | 7.8 | 23.0 | -- | 7.5 | 88 | -- | -- |
| 07... | 1107 | 20.0 | 355 | 7.6 | 23.0 | -- | 5.6 | 66 | -- | -- |
| 07... | 1108 | 25.0 | 363 | 7.2 | 22.0 | -- | .8 | 9 | -- | -- |
| AUG | | | | | | | | | | |
| 10... | 1530 | 1.00 | 300 | 8.2 | 31.5 | .70 | 8.5 | 115 | <1 | K10 |
| 10... | 1532 | 10.0 | 303 | 7.8 | 29.0 | -- | 6.0 | 79 | -- | -- |
| 10... | 1533 | 20.0 | 307 | 7.7 | 28.5 | -- | 5.8 | 75 | -- | -- |
| 10... | 1534 | 23.0 | 307 | 7.7 | 28.5 | -- | 5.8 | 75 | -- | -- |

| DATE | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 FIELD (MG/L AS CACO3) | SULFATE DIS-SOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|
| MAY | | | | | | | | | |
| 07... | 140 | 9 | 49 | 4.0 | 18 | .7 | 3.7 | 130 | 44 |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 07... | 140 | 9 | 49 | 4.0 | 17 | .6 | 3.6 | 130 | 42 |
| AUG | | | | | | | | | |
| 10... | 120 | 0 | 43 | 3.0 | 12 | .5 | 4.7 | 120 | 26 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 120 | 3 | 44 | 3.2 | 12 | .5 | 4.8 | 120 | 27 |

| DATE | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | IRON, DIS-SOLVED (UG/L AS FE) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| MAY | | | | | | | | | |
| 07... | 10 | 4.1 | 211 | .23 | .83 | 1.1 | .160 | 150 | 6 |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 07... | -- | -- | -- | .21 | .87 | 1.1 | .180 | 30 | 30 |
| 07... | 10 | 6.3 | 210 | .33 | .82 | 1.2 | .200 | 10 | 110 |
| AUG | | | | | | | | | |
| 10... | 7.7 | 4.1 | 173 | .01 | .72 | .73 | .060 | <10 | 2 |
| 10... | -- | -- | -- | .01 | .66 | .67 | .060 | 30 | 0 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 7.9 | 4.2 | 175 | .02 | .80 | .82 | .070 | <10 | 5 |

NAVARRO MILLS LAKE NEAR DAWSON, TX--Continued

315642096444401 NAVARRO MILLS LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) | STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | |
| 09... | 1350 | 1.00 | 332 | 7.8 | 14.0 | .30 | 8.9 | 86 | -- | 35 |
| 09... | 1351 | .50 | -- | -- | -- | -- | -- | -- | -- | -- |
| 09... | 1352 | 5.00 | 332 | 7.8 | 13.0 | -- | 8.8 | 83 | -- | -- |
| 09... | 1354 | 10.0 | 354 | 7.7 | 12.5 | -- | 8.7 | 81 | -- | -- |
| 09... | 1356 | 14.0 | 358 | 7.7 | 12.5 | -- | 8.7 | 81 | -- | -- |
| MAY | | | | | | | | | | |
| 07... | 1130 | 1.00 | 355 | 8.0 | 23.0 | .20 | 8.5 | 100 | K1 | K4 |
| 07... | 1131 | .40 | -- | -- | -- | -- | -- | -- | -- | -- |
| 07... | 1132 | 10.0 | 355 | 7.9 | 23.0 | -- | 8.0 | 94 | -- | -- |
| 07... | 1133 | 13.0 | 371 | 7.7 | 22.5 | -- | 6.6 | 77 | -- | -- |
| AUG | | | | | | | | | | |
| 10... | 1500 | 1.00 | 304 | 8.1 | 32.5 | .30 | 7.3 | 101 | <1 | 21 |
| 10... | 1501 | .50 | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 1502 | 10.0 | 310 | 7.7 | 28.5 | -- | 5.5 | 71 | -- | -- |
| 10... | 1503 | 16.0 | 312 | 7.6 | 28.5 | -- | 4.5 | 58 | -- | -- |

| DATE | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) |
|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | |
| 09... | 130 | 7 | 45 | 3.6 | 17 | .7 | 3.5 | 120 | 39 | 12 |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 09... | 130 | 23 | 47 | 3.9 | 20 | .8 | 3.6 | 110 | 47 | 14 |
| MAY | | | | | | | | | | |
| 07... | 140 | 6 | 48 | 4.0 | 18 | .7 | 3.8 | 130 | 45 | 11 |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 07... | 140 | 22 | 50 | 4.1 | 19 | .7 | 3.6 | 120 | 50 | 12 |
| AUG | | | | | | | | | | |
| 10... | 120 | 0 | 43 | 3.1 | 11 | .4 | 4.7 | 120 | 27 | 7.9 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 130 | 6 | 45 | 3.3 | 12 | .5 | 4.8 | 120 | 27 | 7.9 |

| DATE | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | |
| 09... | 5.6 | 198 | .21 | .030 | .59 | .62 | .83 | .070 | <10 | <1 |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 09... | 5.6 | 207 | .74 | .040 | .77 | .81 | 1.6 | .090 | <10 | 2 |
| MAY | | | | | | | | | | |
| 07... | 3.4 | 211 | .27 | -- | -- | .73 | 1.0 | .180 | 10 | 2 |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 07... | -- | -- | .23 | -- | -- | 1.00 | 1.2 | .170 | 30 | 10 |
| 07... | 3.8 | 215 | .71 | -- | -- | 1.40 | 2.1 | .200 | 20 | 6 |
| AUG | | | | | | | | | | |
| 10... | 3.9 | 173 | .01 | -- | -- | .69 | .70 | .040 | <10 | 4 |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 10... | 4.8 | 177 | .02 | -- | -- | 1.00 | 1.0 | .080 | <10 | 10 |

NAVARRO MILLS LAKE NEAR DAWSON, TX--Continued

315730096412601 NAVARRO MILLS LAKE SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | MAR 9,81 | MAY 7,81 | AUG 10,81 |
|---|---|---|---|
| TIME | 1251 | 1036 | 1401 |
| TOTAL CELLS/ML | 39 | 4700 | 8900 |
| DIVERSITY: DIVISION | 0.9 | 0.6 | 0.9 |
| .CLASS | 0.9 | 0.6 | 0.9 |
| ..ORDER | 0.9 | 0.6 | 1.0 |
| ...FAMILY | 0.9 | 0.6 | 1.1 |
| ....GENUS | 0.9 | 0.6 | 1.1 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | -- | - | * | 0 | * | 0 |
| ....DICTYOSPHAERIUM | -- | - | -- | - | 57 | 1 |
| CHRYSOPHYTA | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..CENTRALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | -- | - | -- | - | * | 0 |
| ....MELOSIRA | -- | - | 530 | 11 | 760 | 9 |
| ....STEPHANODISCUS | 13# | 33 | -- | - | -- | - |
| ..PENNALES | | | | | | |
| ...FRAGILARIACEAE | | | | | | |
| ....SYNEDRA | -- | - | -- | - | 170 | 2 |
| ...NAVICULACEAE | | | | | | |
| ....NAVICULA | -- | - | * | 0 | -- | - |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | -- | - | -- | - | 57 | 1 |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | |
| .CRYPTOPHYCEAE | | | | | | |
| ..CRYPTOMONADALES | | | | | | |
| ...CRYPTOCHRYSIDACEAE | | | | | | |
| ....CHROOMONAS | -- | - | * | 0 | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....ANACYSTIS | 26# | 67 | 26 | 1 | -- | - |
| ..HORMOGONALES | | | | | | |
| ...NOSTOCACEAE | | | | | | |
| ....APHANIZOMENON | -- | - | 4100# | 87 | -- | - |
| ....CYLINDROSPERMUM | -- | - | -- | - | 130 | 1 |
| ...OSCILLATORIACEAE | | | | | | |
| ....OSCILLATORIA | -- | - | -- | - | 7200# | 81 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....EUGLENA | -- | - | -- | - | * | 0 |
| ....TRACHELOMONAS | -- | - | -- | - | 440 | 5 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

NAVARRO MILLS LAKE NEAR DAWSON, TX--Continued

315642096444401 NAVARRO MILLS LAKE SITE CC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | MAR 9,81 | MAY 7,81 | AUG 10,81 |
|---|---|---|---|
| TIME | 1351 | 1131 | 1501 |
| TOTAL CELLS/ML | 1500 | 3000 | 430 |
| DIVERSITY: DIVISION | 1.4 | 0.4 | 1.0 |
| .CLASS | 1.4 | 0.4 | 1.0 |
| ..ORDER | 1.6 | 0.5 | 1.0 |
| ...FAMILY | 1.6 | 0.5 | 1.1 |
| ....GENUS | 2.0 | 0.5 | 1.8 |

| ORGANISM | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT |
|---|---|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...CHARACIACEAE | | | | | | |
| ....SCHROEDERIA | -- | - | 26 | 1 | -- | - |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | 14 | 1 | -- | - | -- | - |
| ....CHODATELLA | 14 | 1 | -- | - | -- | - |
| ....KIRCHNERIELLA | 14 | 1 | -- | - | -- | - |
| ....OOCYSTIS | 56 | 4 | -- | - | -- | - |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CHLAMYDOMONAS | 28 | 2 | 64 | 2 | 14 | 3 |
| CHRYSOPHYTA | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..CENTRALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | 42 | 3 | * | 0 | -- | - |
| ....MELOSIRA | 960# | 63 | -- | - | -- | - |
| ..PENNALES | | | | | | |
| ...FRAGILARIACEAE | | | | | | |
| ....SYNEDRA | -- | - | -- | - | 86# | 20 |
| ...NAVICULACEAE | | | | | | |
| ....NAVICULA | 14 | 1 | * | 0 | 14 | 3 |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | 14 | 1 | * | 0 | -- | - |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | |
| .CRYPTOPHYCEAE | | | | | | |
| ..CRYPTOMONADALES | | | | | | |
| ...CRYPTOCHRYSIDACEAE | | | | | | |
| ....CHROOMONAS | 130 | 8 | -- | - | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....ANACYSTIS | 130 | 8 | -- | - | -- | - |
| ....COCCOCHLORIS | 110 | 7 | -- | - | -- | - |
| ..HORMOGONALES | | | | | | |
| ...NOSTOCACEAE | | | | | | |
| ....APHANIZOMENON | -- | - | 2800# | 94 | -- | - |
| ...OSCILLATORIACEAE | | | | | | |
| ....LYNGBYA | -- | - | -- | - | 220# | 50 |
| ....OSCILLATORIA | -- | - | -- | - | 100# | 23 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....TRACHELOMONAS | -- | - | 52 | 2 | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 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 (2.1 km) upstream from St. Louis Southwestern Railway Lines bridge, 1.7 mi (2.7 km) downstream from Navarro Mills Dam, 2.5 mi (4.0 km) upstream from Post Oak Creek, and 3.6 mi (5.8 km) northeast of Dawson.

DRAINAGE AREA.--333 $mi^2$ (862 $km^2$).

### WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 370.52 ft (112.934 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 21, 1960, nonrecording gage at same site and datum.

REMARKS.--Water-discharge records fair. Flow regulated since Mar. 15, 1963, by Navarro Mills Lake (station 08063050). Water is diverted from Navarro Mills Lake for municipal use. Flow is affected at times by discharge from the flood-detention pool of a floodwater-retarding structure with a detention capacity of 297 acre-ft (366,000 $m^3$). This structure controls runoff from 1.28 $mi^2$ (3.32 $km^2$). On Jan. 23, 1981, gage-height telemeter (data collection platform, solar panel, battery, and antenna) was installed.

AVERAGE DISCHARGE.--21 years, 151 $ft^3/s$ (4.276 $m^3/s$), 109,400 acre-ft/yr (135 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,500 $ft^3/s$ (722 $m^3/s$) July 3, 1961, gage height, 22.50 ft (6.858 m), from rating curve extended above 14,000 $ft^3/s$ (396 $m^3/s$); no flow at times. Maximum discharge since completion of Navarro Mills Dam in 1963, 3,850 $ft^3/s$ (109 $m^3/s$) Nov. 24, 1974, gage height, 19.85 ft (6.050 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1895, about 28 ft (8.5 m) June 19, 1929, from information by local residents. Floods in 1946 and 1957 reached a stage of about 23 ft (7.0 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,960 $ft^3/s$ (55.5 $m^3/s$) June 23 at 1130 hours, gage height, 17.09 ft (5.209 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .02 | 3.6 | 7.2 | 11 | 11 | 9.6 | .44 | .29 | .00 | 1740 | .00 | 3.8 |
| 2 | .01 | 2.5 | 8.0 | 11 | 11 | 9.5 | .47 | .29 | .25 | 1640 | .00 | 1.8 |
| 3 | .00 | .00 | 8.2 | 11 | 10 | 14 | 429 | .41 | 65 | 1330 | .01 | .23 |
| 4 | .00 | .00 | 8.2 | 11 | 10 | 72 | 68 | .78 | 96 | 1310 | .02 | .25 |
| 5 | .00 | .00 | 8.5 | 11 | 11 | 9.0 | 2.6 | 1.0 | 21 | 1290 | .01 | .48 |
| 6 | .00 | .00 | 8.6 | 11 | 11 | 4.3 | 1.2 | .54 | 7.2 | 1280 | .00 | .19 |
| 7 | 2.4 | .00 | 8.7 | 11 | 11 | 11 | .87 | .32 | 2.1 | 1250 | .00 | .08 |
| 8 | .25 | .00 | 115 | 11 | 11 | 12 | 3.1 | .29 | .29 | 1230 | .02 | .07 |
| 9 | .00 | .00 | 19 | 11 | 11 | 4.5 | 3.1 | 1.9 | .06 | 1000 | .02 | .05 |
| 10 | .00 | .00 | 11 | 11 | 11 | 2.1 | 1.1 | 1.5 | .02 | 507 | .02 | .05 |
| 11 | .00 | .00 | 11 | 11 | 11 | .94 | .60 | .60 | 879 | 259 | .03 | 2.6 |
| 12 | .00 | .02 | 11 | 11 | 11 | .75 | .46 | .42 | 1690 | 11 | .03 | .44 |
| 13 | .00 | .28 | 10 | 11 | 10 | .74 | .36 | .31 | 1660 | 9.6 | .04 | .11 |
| 14 | .00 | 2.0 | 10 | 11 | 10 | .66 | .36 | .29 | 876 | 7.8 | .03 | .10 |
| 15 | .00 | 6.7 | 10 | 14 | 10 | .88 | .40 | .72 | 7.2 | 6.0 | .02 | .10 |
| 16 | .00 | 7.1 | 9.9 | 11 | 10 | 3.3 | .49 | 25 | 100 | 4.1 | .03 | .08 |
| 17 | .00 | 7.0 | 9.8 | 11 | 12 | 4.8 | .53 | 5.7 | 16 | 1.8 | .22 | .08 |
| 18 | .00 | 6.7 | 9.8 | 11 | 11 | 1.4 | .45 | .98 | 6.7 | .74 | .09 | .07 |
| 19 | .00 | 6.8 | 9.8 | 11 | 10 | .46 | .40 | .07 | 3.4 | .29 | .22 | .07 |
| 20 | .00 | 7.4 | 9.8 | 11 | 10 | .37 | .36 | .01 | 1.8 | .10 | .06 | .06 |
| 21 | .00 | 7.0 | 9.8 | 11 | 10 | .36 | .36 | .00 | .63 | 1.4 | .05 | .08 |
| 22 | .00 | 6.8 | 9.8 | 11 | 10 | .36 | .44 | .00 | 835 | 1.0 | .03 | .08 |
| 23 | .00 | 7.0 | 9.9 | 11 | 10 | .39 | 2.0 | .00 | 1950 | 2.6 | .04 | .08 |
| 24 | .00 | 6.7 | 9.8 | 10 | 9.9 | .63 | .86 | .92 | 1950 | .38 | .04 | .10 |
| 25 | .00 | 6.7 | 11 | 10 | 9.8 | .63 | .32 | .10 | 1930 | .08 | .02 | .08 |
| 26 | .00 | 7.2 | 11 | 10 | 9.8 | 1.1 | .26 | .04 | 1900 | .04 | .14 | .09 |
| 27 | .00 | 7.1 | 11 | 11 | 9.8 | .65 | .23 | .00 | 1870 | .75 | .32 | .32 |
| 28 | .00 | 6.9 | 11 | 11 | 9.6 | .63 | .25 | .00 | 1830 | .42 | .39 | .53 |
| 29 | .00 | 6.7 | 11 | 11 | --- | 2.5 | .29 | .00 | 1800 | .07 | .08 | .44 |
| 30 | .00 | 6.7 | 11 | 11 | --- | .83 | .29 | .00 | 1770 | .12 | .05 | .44 |
| 31 | .71 | --- | 11 | 11 | --- | .44 | --- | .00 | --- | .04 | .07 | --- |
| TOTAL | 3.39 | 118.90 | 419.8 | 341 | 291.9 | 170.82 | 519.59 | 42.48 | 21267.65 | 12884.33 | 2.10 | 12.95 |
| MEAN | .11 | 3.96 | 13.5 | 11.0 | 10.4 | 5.51 | 17.3 | 1.37 | 709 | 416 | .068 | .43 |
| MAX | 2.4 | 7.4 | 115 | 14 | 12 | 72 | 429 | 25 | 1950 | 1740 | .39 | 3.8 |
| MIN | .00 | .00 | 7.2 | 10 | 9.6 | .36 | .23 | .00 | .00 | .04 | .00 | .05 |
| AC-FT | 6.7 | 236 | 833 | 676 | 579 | 339 | 1030 | 84 | 42180 | 25560 | 4.2 | 26 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 70478.27 | MEAN | 193 | MAX | 1940 | MIN | .00 | AC-FT | 139800 |
| WTR YR 1981 | TOTAL | 36074.91 | MEAN | 98.8 | MAX | 1950 | MIN | .00 | AC-FT | 71550 |

08063100 RICHLAND CREEK NEAR DAWSON, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analysis: October 1980 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH FIELD (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, BIOCHEM UNINHIB 5 DAY (MG/L) | HARD-NESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | | |
| 09... | 1630 | 3.2 | 312 | 7.2 | 13.5 | 120 | 120 | 7.5 | 71 | 2.4 | 110 |
| MAY | | | | | | | | | | | |
| 07... | 1230 | .08 | 777 | 7.4 | 22.0 | 10 | 24 | 4.1 | 47 | 2.0 | 240 |
| AUG | | | | | | | | | | | |
| 10... | 1630 | .01 | 1280 | 7.4 | 28.0 | 5 | 11 | 8.0 | 103 | 1.4 | 350 |

| DATE | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 (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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | | |
| 09... | 11 | 38 | 3.4 | 19 | .8 | 3.9 | 98 | 36 | 16 | .3 | 7.2 |
| MAY | | | | | | | | | | | |
| 07... | 60 | 83 | 8.0 | 74 | 2.1 | 3.9 | 180 | 110 | 67 | .5 | 7.1 |
| AUG | | | | | | | | | | | |
| 10... | 130 | 120 | 12 | 140 | 3.4 | 3.1 | 220 | 210 | 150 | .5 | 12 |

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (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) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | | |
| 09... | 183 | 92 | 11 | .11 | .030 | .14 | .060 | 1.1 | 1.2 | .110 | 14 |
| MAY | | | | | | | | | | | |
| 07... | 462 | 40 | 6 | .01 | .000 | .01 | .160 | .94 | 1.1 | .190 | 9.4 |
| AUG | | | | | | | | | | | |
| 10... | 780 | 29 | 9 | .09 | .020 | .11 | .090 | .71 | .80 | .020 | 3.9 |

| DATE | TIME | ARSENIC DIS-SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| MAR | | | | | | | |
| 09... | 1630 | 2 | 50 | 2 | 0 | <10 | 70 |
| MAY | | | | | | | |
| 07... | 1230 | 3 | 100 | <1 | 10 | <10 | <10 |
| AUG | | | | | | | |
| 10... | 1630 | 2 | 140 | <1 | 0 | <10 | <10 |

| DATE | 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) |
|---|---|---|---|---|---|---|
| MAR | | | | | | |
| 09... | <10 | 30 | .0 | 0 | 0 | 6 |
| MAY | | | | | | |
| 07... | <10 | 130 | .0 | 0 | 0 | <3 |
| AUG | | | | | | |
| 10... | <10 | 19 | .0 | 0 | 0 | <3 |

## 08063500 RICHLAND CREEK NEAR RICHLAND, TX

LOCATION.--Lat 31°57'02", long 96°25'16", Navarro County, Hydrologic Unit 12030108, at left end of downstream bridge on U.S. Highway 75 (Interstate Highway 45), 800 ft (240 m) downstream from Texas and New Orleans Railroad Co. bridge, 1.0 mi (1.6 km) north of Richland, 3.5 mi (5.6 km) downstream from Pin Oak Creek, and 36.7 mi (59.1 km) upstream from mouth.

DRAINAGE AREA.--734 $mi^2$ (1,901 $km^2$).

PERIOD OF RECORD.--December 1924 to February 1925 (discharge measurements and gage heights only), March 1939 to current year.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 299.12 ft (91.172 m) National Geodetic Vertical Datum of 1929. Dec. 11, 1924, to Feb. 11, 1925, nonrecording gage at site 800 ft (240 m) upstream. Mar. 17, 1939, to Feb. 14, 1958, water-stage recorder at site 50 ft (15 m) upstream. Feb. 15, 1958, to Jan. 28, 1959, nonrecording gage at present site. June 8, 1955, to Feb. 14, 1958, and since Feb. 6, 1959, supplementary water-stage recorder at overflow channel 3,900 ft (1,190 m) to right of main channel gage. All gages at present datum.

REMARKS.--Records good. Since October 1962, flow is partly regulated by Navarro Mills Lake (station 08063050) located 25 mi (40 km) upstream. Flow is also affected at times by discharge from the flood-detention pools of 73 floodwater-retarding structures with combined detention capacity of 42,060 acre-ft (51.9 $hm^3$). These structures control runoff from 143 $mi^2$ (370 $km^2$) in the Richland Creek drainage basin. Several observations of water temperature were made during the year. On Jan. 23, 1981, telemeter equipment (data collection platform, solar panel, battery, and antenna) was installed.

AVERAGE DISCHARGE.--23 years (water years 1940-62) prior to regulation by Navarro Mills Lake, 404 $ft^3/s$ (11.44 $m^3/s$), 292,700 acre-ft/yr (361 $hm^3/yr$); 19 years (water years 1963-81) regulated, unadjusted, 343 $ft^3/s$ (9.714 $m^3/s$), 248,500 acre-ft/yr (306 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58,900 $ft^3/s$ (1,670 $m^3/s$) May 12, 1948, gage height, 24.16 ft (7.364 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1899, 25.5 ft (7.77 m) in December 1913 (discharge not determined), from information by Texas and New Orleans Railroad Co.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,540 $ft^3/s$ (129 $m^3/s$) June 17 at 1700 hours, gage height, 20.91 ft (6.373 m) from stage graph; maximum gage height at main channel, 20.94 ft (6.383 m) June 17, from stage graph; no flow Oct. 1 to Nov. 15 and Sept. 19-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | 13 | 15 | 12 | 12 | 1.3 | .29 | .49 | 1840 | .76 | .11 |
| 2 | .00 | .00 | 12 | 11 | 13 | 12 | 1.3 | .29 | .99 | 1800 | .76 | .10 |
| 3 | .00 | .00 | 13 | 11 | 12 | 17 | 118 | .29 | 132 | 1610 | .76 | .10 |
| 4 | .00 | .00 | 16 | 11 | 12 | 584 | 295 | .30 | 1870 | 1410 | .62 | 5.4 |
| 5 | .00 | .00 | 17 | 13 | 13 | 265 | 45 | .38 | 2250 | 1380 | .50 | 6.9 |
| 6 | .00 | .00 | 17 | 12 | 12 | 56 | 7.9 | .22 | 1660 | 1400 | .38 | 4.0 |
| 7 | .00 | .00 | 17 | 12 | 12 | 26 | 4.0 | .21 | 1090 | 1370 | .38 | 4.6 |
| 8 | .00 | .00 | 25 | 12 | 12 | 22 | 2.7 | .21 | 584 | 1320 | .29 | 4.3 |
| 9 | .00 | .00 | 379 | 12 | 12 | 30 | 1.9 | 1.9 | 355 | 1280 | .21 | 2.5 |
| 10 | .00 | .00 | 159 | 12 | 12 | 16 | 1.7 | 134 | 225 | 795 | .21 | 1.5 |
| 11 | .00 | .00 | 53 | 11 | 12 | 8.9 | 1.7 | 25 | 178 | 529 | .15 | .85 |
| 12 | .00 | .00 | 30 | 10 | 11 | 4.7 | 1.5 | 5.7 | 1470 | 139 | .15 | .49 |
| 13 | .00 | .00 | 20 | 11 | 10 | 3.0 | 1.3 | 3.1 | 1800 | 24 | .15 | .35 |
| 14 | .00 | .00 | 16 | 11 | 9.8 | 2.4 | 1.3 | 2.4 | 3280 | 14 | .14 | .37 |
| 15 | .00 | .00 | 14 | 11 | 10 | 2.2 | 1.1 | 2.2 | 1540 | 12 | .10 | .20 |
| 16 | .00 | .73 | 12 | 11 | 10 | 1.7 | .92 | 128 | 2150 | 9.8 | .11 | .10 |
| 17 | .00 | .31 | 11 | 18 | 9.8 | 1.5 | .76 | 511 | 4320 | 8.3 | .40 | .08 |
| 18 | .00 | .13 | 9.4 | 14 | 10 | 1.1 | .76 | 127 | 2880 | 6.4 | .47 | .03 |
| 19 | .00 | .18 | 3.5 | 13 | 13 | .76 | .62 | 49 | 964 | 5.5 | .36 | .00 |
| 20 | .00 | 3.7 | 7.0 | 14 | 11 | .76 | .50 | 25 | 542 | 4.3 | .28 | .00 |
| 21 | .00 | 6.1 | 11 | 14 | 8.8 | .76 | .50 | 14 | 306 | 3.6 | .21 | .00 |
| 22 | .00 | 9.3 | 10 | 13 | 8.3 | .92 | .38 | 6.8 | 186 | 2.7 | .16 | .00 |
| 23 | .00 | 12 | 10 | 12 | 7.8 | .92 | 1.1 | 3.6 | 1550 | 2.4 | .15 | .00 |
| 24 | .00 | 14 | 10 | 12 | 8.8 | .92 | .71 | 25 | 2030 | 1.9 | .12 | .00 |
| 25 | .00 | 13 | 9.8 | 11 | 13 | .76 | .44 | 21 | 2040 | 1.9 | .10 | .00 |
| 26 | .00 | 13 | 9.8 | 10 | 10 | .76 | .40 | 9.4 | 2020 | 2.2 | .07 | .00 |
| 27 | .00 | 14 | 11 | 11 | 8.8 | .76 | .38 | 3.6 | 1990 | 2.4 | .07 | .00 |
| 28 | .00 | 14 | 11 | 14 | 9.3 | .76 | .38 | 2.1 | 1950 | 1.9 | .07 | .00 |
| 29 | .00 | 14 | 10 | 12 | --- | 1.7 | .38 | 1.5 | 1910 | 1.5 | .07 | .00 |
| 30 | .00 | 16 | 13 | 11 | --- | 1.2 | .29 | 1.0 | 1880 | 1.3 | .07 | .00 |
| 31 | .00 | --- | 11 | 9.2 | --- | 1.3 | --- | .75 | --- | .92 | .07 | --- |
| TOTAL | .00 | 130.45 | 960.5 | 374.2 | 303.4 | 1077.78 | 494.22 | 1105.24 | 43153.48 | 14980.02 | 8.34 | 31.98 |
| MEAN | .000 | 4.35 | 31.0 | 12.1 | 10.8 | 34.8 | 16.5 | 35.7 | 1438 | 483 | .27 | 1.07 |
| MAX | .00 | 16 | 379 | 18 | 13 | 584 | 295 | 511 | 4320 | 1840 | .76 | 6.9 |
| MIN | .00 | .00 | 3.5 | 9.2 | 7.8 | .76 | .29 | .21 | .49 | .92 | .07 | .00 |
| AC-FT | .00 | 259 | 1910 | 742 | 602 | 2140 | 980 | 2190 | 85590 | 29710 | 17 | 63 |

CAL YR 1980 TOTAL 128689.13 MEAN 352 MAX 8580 MIN .00 AC-FT 255300
WTR YR 1981 TOTAL 62619.61 MEAN 172 MAX 4320 MIN .00 AC-FT 124200

## 08063685 WAXAHACHIE CREEK NEAR WAXAHACHIE, TX

LOCATION.--Lat 32°18'27", long 96°44'19", Ellis County, Hydrologic Unit 12030109, at bridge on County road, 1.0 mi (2.1 km) northeast of intersection of County road and Farm Road 984, 1.3 mi (2.1 km) upstream from normal pool of Bardwell Lake and 8.4 mi (13.5 km) southeast of Waxahachie.

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH FIELD (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, BIOCHEM UNINHIB 5 DAY (MG/L) | HARD-NESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 20... | 0950 | 2.1 | 680 | 7.8 | 21.5 | 15 | 3.3 | 6.6 | 68 | 1.4 | 170 |
| JAN | | | | | | | | | | | |
| 14... | 1430 | 2.8 | 583 | 8.5 | 7.0 | 10 | .60 | 13.6 | 112 | .9 | 190 |
| APR | | | | | | | | | | | |
| 09... | 0945 | 49 | 377 | 8.0 | 19.0 | 25 | 48 | 7.2 | 77 | 2.3 | 160 |
| MAY | | | | | | | | | | | |
| 21... | 0930 | 71 | 450 | 8.2 | 23.0 | 10 | 30 | 8.1 | 94 | 2.0 | 190 |
| JUL | | | | | | | | | | | |
| 02... | 0950 | 80 | 420 | 8.0 | 26.0 | 5 | 15 | 6.6 | 81 | 1.9 | 190 |
| AUG | | | | | | | | | | | |
| 12... | 1420 | 4.1 | 570 | 8.1 | 26.0 | 5 | 7.1 | 7.1 | 88 | .8 | 220 |

| DATE | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 (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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 20... | 0 | 62 | 2.8 | 65 | 2.2 | 8.3 | 150 | 54 | 78 | .7 | 11 |
| JAN | | | | | | | | | | | |
| 14... | 11 | 72 | 2.7 | 48 | 1.5 | 5.9 | 180 | 49 | 41 | .7 | 4.2 |
| APR | | | | | | | | | | | |
| 09... | 19 | 61 | 1.7 | 16 | .6 | 4.4 | 140 | 29 | 15 | .3 | 7.0 |
| MAY | | | | | | | | | | | |
| 21... | 15 | 75 | 1.8 | 16 | .5 | 4.5 | 180 | 37 | 13 | .2 | 5.9 |
| JUL | | | | | | | | | | | |
| 02... | 8 | 72 | 1.9 | 14 | .4 | 4.1 | 180 | 18 | 14 | .2 | 9.8 |
| AUG | | | | | | | | | | | |
| 12... | 25 | 82 | 2.5 | 37 | 1.1 | 4.5 | 190 | 56 | 27 | .3 | 9.1 |

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (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) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 20... | 150 | 31 | 7 | 4.3 | .020 | 4.3 | .050 | 1.2 | 1.3 | 4.000 | 14 |
| JAN | | | | | | | | | | | |
| 14... | 332 | 5 | 0 | 2.7 | .210 | 2.9 | .100 | 1.2 | 1.3 | 2.600 | 12 |
| APR | | | | | | | | | | | |
| 09... | 219 | 66 | 15 | .88 | .010 | .89 | .040 | 1.1 | 1.1 | .480 | -- |
| MAY | | | | | | | | | | | |
| 21... | 262 | 63 | 35 | .99 | .010 | 1.0 | .090 | 1.3 | 1.4 | .270 | 11 |
| JUL | | | | | | | | | | | |
| 02... | 242 | 19 | 13 | .69 | .020 | .71 | .050 | 1.3 | 1.3 | .160 | 5.4 |
| AUG | | | | | | | | | | | |
| 12... | 333 | 19 | 10 | 3.0 | .000 | 3.0 | .070 | 1.3 | 1.4 | .790 | 4.0 |

| DATE | TIME | ARSENIC DIS-SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| OCT | | | | | | | |
| 20... | 0950 | 7 | 70 | 2 | 0 | <10 | <10 |
| JAN | | | | | | | |
| 14... | 1430 | 4 | 50 | <1 | 0 | <10 | 20 |
| JUL | | | | | | | |
| 02... | 0950 | 3 | 100 | 1 | 10 | <10 | 20 |

| DATE | 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) |
|---|---|---|---|---|---|---|
| OCT | | | | | | |
| 20... | <10 | 20 | .0 | 0 | 0 | <3 |
| JAN | | | | | | |
| 14... | 24 | 30 | .0 | 0 | 0 | 5 |
| JUL | | | | | | |
| 02... | 17 | 10 | .0 | 0 | 0 | 9 |

## 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 (8 km) south of Ennis, and 5.6 mi (9.0 km) upstream from mouth.

DRAINAGE AREA.--178 $mi^2$ (461 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1965 to current year. Prior to October 1970, published as Bardwell Reservoir. Water-quality records: Chemical analyses: October 1969 to September 1978.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (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 (4,690 m) long, including a 350-foot (107 m) uncontrolled off-channel concrete-gravity spillway with ogee weir section. Deliberate impoundment began Nov. 20, 1965, and the dam was completed Mar. 27, 1966. The controlled low-flow outlet works consists of a 10.0-foot-diameter (3.0 m) concrete conduit with two 5.0- by 10.0-foot (1.5 by 3.0 m) sluice gates. The lake was built for flood control and water conservation. The capacity table beginning October 1976 is based on a survey completed in 1972. Flow from 81.4 $mi^2$ (210.8 $km^2$) above this lake is modified by Lake Waxahachie, with a capacity of 13,500 acre-ft (16.6 $hm^3$), at spillway elevation. During the current year, the city of Waxahachie diverted 3,020 acre-ft (3.72 $hm^3$) from Lake Waxahachie and returned 1,660 acre-ft (2.05 $hm^3$) to Waxahachie Creek. Inflow is affected at times by discharge from the flood-detention pools of 23 floodwater-retarding structures with combined detention capacity of 15,370 acre-ft (19.0 $hm^3$). These structures control runoff from 52.4 $mi^2$ (135.7 $km^2$) 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 Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 103,300 acre-ft (127 $hm^3$) May 19, 1969, elevation, 432.35 ft (131.780 m); minimum since initial filling, 39,720 acre-ft (49.0 $hm^3$) Nov. 10, 1978, elevation, 417.21 ft (127.166 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 89,700 acre-ft (111 $hm^3$) June 23 at 1400 hours, elevation, 430.07 ft (131.085 m); minimum, 41,140 acre-ft (50.7 $hm^3$) Mar. 28 at 1900 hours, elevation, 417.67 ft (127.306 m).

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

| | | | | | |
|---|---|---|---|---|---|
| 416.0 | 36,170 | 422.0 | 55,920 | 428.0 | 80,300 |
| 418.0 | 42,170 | 424.0 | 63,550 | 430.0 | 89,370 |
| 420.0 | 48,780 | 426.0 | 71,630 | 432.0 | 99,020 |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 43860 | 42170 | 41580 | 41980 | 41890 | 41860 | 42550 | 43020 | 53510 | 70800 | 54200 | 53010 |
| 2 | 43820 | 42140 | 41640 | 41950 | 41790 | 41860 | 42580 | 42930 | 54090 | 69070 | 54050 | 53010 |
| 3 | 43760 | 42140 | 41580 | 42010 | 41730 | 42010 | 42740 | 42930 | 56670 | 67400 | 53910 | 53080 |
| 4 | 43730 | 42080 | 41550 | 41920 | 41730 | 42140 | 42930 | 42960 | 60060 | 66440 | 53870 | 53040 |
| 5 | 43540 | 42050 | 41550 | 41860 | 41760 | 42080 | 42960 | 42990 | 63150 | 65010 | 53760 | 53010 |
| 6 | 43470 | 42010 | 41550 | 41920 | 41760 | 42080 | 42930 | 42930 | 65240 | 63550 | 53650 | 52970 |
| 7 | 43410 | 41950 | 41580 | 41890 | 41790 | 42080 | 42860 | 42830 | 66240 | 61950 | 53690 | 52930 |
| 8 | 43380 | 41920 | 42420 | 41950 | 41760 | 42110 | 42960 | 42900 | 66840 | 60440 | 53580 | 52900 |
| 9 | 43310 | 41920 | 42490 | 41980 | 41790 | 42080 | 42960 | 46970 | 67240 | 59340 | 53510 | 52760 |
| 10 | 43220 | 41920 | 42450 | 41950 | 42260 | 42050 | 43020 | 47580 | 67610 | 58200 | 53400 | 52650 |
| 11 | 43220 | 41860 | 42390 | 41950 | 41730 | 42010 | 43020 | 47820 | 67400 | 57080 | 53330 | 52610 |
| 12 | 43120 | 41830 | 42390 | 41890 | 41670 | 41980 | 43020 | 48020 | 66360 | 55920 | 53260 | 52500 |
| 13 | 43060 | 41790 | 42390 | 41890 | 41670 | 41980 | 43020 | 48430 | 64610 | 55190 | 53180 | 52650 |
| 14 | 42990 | 41860 | 42390 | 41860 | 41670 | 41980 | 43060 | 48430 | 64060 | 55190 | 53150 | 52470 |
| 15 | 42900 | 41790 | 42390 | 41860 | 41670 | 41950 | 43060 | 49060 | 64650 | 55190 | 53040 | 52430 |
| 16 | 42860 | 41920 | 42390 | 41890 | 41670 | 41860 | 43060 | 50450 | 81230 | 55150 | 53360 | 52400 |
| 17 | 43020 | 41890 | 42360 | 41790 | 41670 | 41860 | 43020 | 50880 | 84410 | 55150 | 53440 | 52260 |
| 18 | 43020 | 41760 | 42390 | 41730 | 41670 | 41760 | 42900 | 51330 | 85910 | 55080 | 53510 | 52080 |
| 19 | 42960 | 41730 | 42450 | 41860 | 41670 | 41670 | 43060 | 51400 | 87240 | 55000 | 53400 | 52010 |
| 20 | 42900 | 41730 | 42300 | 41790 | 41640 | 41510 | 42900 | 51400 | 88250 | 54970 | 53330 | 51900 |
| 21 | 42860 | 41670 | 42140 | 41890 | 41730 | 41480 | 42900 | 51480 | 89040 | 54890 | 53260 | 51830 |
| 22 | 42800 | 41730 | 42080 | 41890 | 41640 | 41550 | 43090 | 51550 | 89600 | 54780 | 53180 | 51760 |
| 23 | 42900 | 41790 | 42080 | 41860 | 41640 | 41420 | 43250 | 51690 | 89140 | 54750 | 53110 | 51720 |
| 24 | 42640 | 41760 | 42170 | 41860 | 41580 | 41390 | 43250 | 52580 | 86690 | 54710 | 53080 | 51650 |
| 25 | 42580 | 41790 | 42050 | 41860 | 41580 | 41360 | 43180 | 52970 | 83550 | 54640 | 53010 | 51580 |
| 26 | 42480 | 41830 | 42010 | 41890 | 41510 | 41300 | 43150 | 53010 | 80610 | 54560 | 52900 | 51550 |
| 27 | 42580 | 41760 | 42010 | 41830 | 41550 | 41270 | 43120 | 53150 | 78360 | 54490 | 52930 | 51510 |
| 28 | 42420 | 41640 | 42010 | 41760 | 41760 | 41230 | 43120 | 53220 | 76820 | 54490 | 52830 | 51480 |
| 29 | 42300 | 41640 | 42050 | 41860 | --- | 41920 | 43120 | 53370 | 74730 | 54380 | 52760 | 51400 |
| 30 | 42230 | 41580 | 41980 | 41830 | --- | 42230 | 43090 | 53440 | 72800 | 54340 | 52680 | 51330 |
| 31 | 42200 | --- | 41980 | 41860 | --- | 42420 | --- | 53470 | --- | 54270 | 52650 | --- |
| MAX | 43860 | 42170 | 42490 | 42010 | 42260 | 42420 | 43250 | 53470 | 89600 | 70800 | 54200 | 53080 |
| MIN | 42200 | 41580 | 41550 | 41730 | 41510 | 41230 | 42550 | 42830 | 53510 | 54270 | 52650 | 51330 |
| (†) | 418.01 | 417.81 | 417.94 | 417.90 | 417.87 | 418.08 | 418.29 | 421.33 | 426.28 | 421.55 | 421.10 | 420.73 |
| (‡) | -1660 | -620 | +400 | -120 | -100 | +600 | +670 | +10380 | +19330 | -18530 | -1620 | -1320 |
| (††) | 155 | 151 | 144 | 141 | 133 | 224 | 470 | 458 | 336 | 221 | 238 | 204 |

CAL YR 1980 MAX 62020 MIN 41550 ‡ -9350 †† 2130
WTR YR 1981 MAX 89600 MIN 41230 ‡ +7470 †† 2880

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, for municipal use by city of Ennis.

08063700 BARDWELL LAKE NEAR ENNIS, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to current year.

321506096382601 BARDWELL LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) | STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | |
| 11... | 0950 | 1.0 | 330 | 7.8 | 13.0 | .50 | 9.7 | 92 | K4 | <1 |
| 11... | 0951 | .8 | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | 0952 | 5.0 | 330 | 7.7 | 13.0 | -- | 9.7 | 92 | -- | -- |
| 11... | 0954 | 10 | 330 | 7.7 | 13.0 | -- | 9.6 | 91 | -- | -- |
| 11... | 0956 | 20 | 330 | 7.6 | 12.5 | -- | 9.1 | 85 | -- | -- |
| 11... | 0958 | 30 | 332 | 7.6 | 12.5 | -- | 8.8 | 82 | -- | -- |
| 11... | 1000 | 39 | 336 | 7.4 | 12.5 | -- | 7.9 | 74 | -- | -- |
| MAY | | | | | | | | | | |
| 05... | 1100 | 1.0 | 336 | 7.7 | 22.5 | .90 | 7.0 | 81 | <1 | K2 |
| 05... | 1101 | 1.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | 1102 | 10 | 336 | 7.7 | 22.5 | -- | 7.0 | 81 | -- | -- |
| 05... | 1104 | 20 | 336 | 7.7 | 22.5 | -- | 6.8 | 79 | -- | -- |
| 05... | 1106 | 25 | 336 | 7.7 | 22.5 | -- | 6.5 | 76 | -- | -- |
| 05... | 1108 | 30 | 345 | 7.1 | 21.0 | -- | 1.7 | 19 | -- | -- |
| 05... | 1110 | 37 | 354 | 7.0 | 20.5 | -- | .7 | 8 | -- | -- |
| AUG | | | | | | | | | | |
| 12... | 0945 | 1.0 | 291 | 7.9 | 28.5 | 1.00 | 5.5 | 71 | <1 | K1 |
| 12... | 0946 | 1.6 | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | 0947 | 10 | 291 | 7.8 | 28.0 | -- | 4.9 | 63 | -- | -- |
| 12... | 0948 | 20 | 292 | 7.8 | 28.0 | -- | 4.4 | 56 | -- | -- |
| 12... | 0949 | 30 | 295 | 7.4 | 27.5 | -- | 1.0 | 13 | -- | -- |
| 12... | 0950 | 35 | 318 | 7.4 | 24.5 | -- | .2 | 2 | -- | -- |
| 12... | 0951 | 41 | 353 | 7.2 | 22.5 | -- | .2 | 2 | -- | -- |

| DATE | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) |
|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | |
| 11... | 120 | 7 | 42 | 2.9 | 21 | .8 | 3.8 | 110 | 31 | 18 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | 120 | 7 | 42 | 2.9 | 21 | .8 | 3.7 | 110 | 30 | 18 |
| MAY | | | | | | | | | | |
| 05... | 120 | 3 | 44 | 3.1 | 20 | .8 | 3.8 | 120 | 33 | 16 |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | 130 | 1 | 47 | 3.2 | 20 | .8 | 3.7 | 130 | 32 | 16 |
| AUG | | | | | | | | | | |
| 12... | 110 | 0 | 39 | 2.5 | 14 | .6 | 4.3 | 110 | 21 | 11 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | 120 | 0 | 45 | 2.9 | 15 | .6 | 3.9 | 140 | 2.0 | 11 |

BARDWELL LAKE NEAR ENNIS, TX--Continued

321506096382601 BARDWELL LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | |
| 11... | .4 | 1.8 | 187 | .19 | .86 | 1.1 | .050 | <10 | 1 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | .24 | .99 | 1.2 | .050 | 10 | 0 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | 2.2 | 186 | .20 | 1.10 | 1.3 | .070 | <10 | 4 |
| MAY | | | | | | | | | |
| 05... | .3 | 1.1 | 193 | .19 | 1.20 | 1.4 | .170 | 10 | 3 |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | -- | -- | -- | .18 | 1.00 | 1.2 | .170 | 10 | 10 |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | -- | -- | -- | .40 | .92 | 1.3 | .170 | 20 | 50 |
| 05... | -- | 3.4 | 204 | .31 | .82 | 1.1 | .180 | 40 | 750 |
| AUG | | | | | | | | | |
| 12... | .3 | 3.5 | 162 | .01 | .73 | .74 | .050 | <10 | 6 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | .01 | .99 | 1.0 | .040 | 30 | 80 |
| 12... | -- | -- | -- | .01 | .98 | .99 | .060 | 630 | 770 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | 15 | 185 | .01 | 3.00 | 3.0 | 1.00 | 4200 | 2300 |

321704096393501 BARDWELL LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) | STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | |
| 11... | 1040 | 1.0 | 330 | 7.8 | 13.5 | .40 | 9.5 | 90 | K2 | <1 |
| 11... | 1042 | 10 | 332 | 7.7 | 13.0 | -- | 9.3 | 88 | -- | -- |
| 11... | 1044 | 19 | 332 | 7.6 | 12.5 | -- | 8.8 | 82 | -- | -- |
| MAY | | | | | | | | | | |
| 05... | 1200 | 1.0 | 334 | 7.7 | 22.5 | .50 | 7.5 | 87 | <1 | <1 |
| 05... | 1201 | 10 | 334 | 7.7 | 22.5 | -- | 7.5 | 87 | -- | -- |
| 05... | 1202 | 20 | 334 | 7.7 | 22.5 | -- | 7.4 | 86 | -- | -- |
| AUG | | | | | | | | | | |
| 12... | 1025 | 1.0 | 285 | 8.2 | 29.0 | .80 | 8.0 | 105 | K1 | K1 |
| 12... | 1026 | 10 | 287 | 8.1 | 29.0 | -- | 7.3 | 96 | -- | -- |
| 12... | 1027 | 15 | 292 | 7.9 | 28.5 | -- | 4.7 | 61 | -- | -- |
| 12... | 1028 | 22 | 303 | 7.6 | 28.5 | -- | 1.0 | 13 | -- | -- |

| DATE | HARDNESS (MG/L AS CACO3) | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) |
|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | |
| 11... | 110 | 17 | 41 | 2.9 | 20 | .8 | 3.6 | 97 | 30 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | 120 | 16 | 42 | 2.8 | 21 | .8 | 3.7 | 100 | 31 |
| MAY | | | | | | | | | |
| 05... | 120 | 3 | 44 | 3.1 | 20 | .8 | 3.5 | 120 | 34 |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | 120 | 0 | 43 | 3.1 | 21 | .8 | 3.9 | 120 | 34 |
| AUG | | | | | | | | | |
| 12... | 110 | 6 | 38 | 2.6 | 14 | .6 | 4.3 | 100 | 22 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | 110 | 0 | 39 | 2.5 | 13 | .6 | 4.3 | 110 | 22 |

BARDWELL LAKE NEAR ENNIS, TX--Continued

321704096393501 BARDWELL LAKE SITE BC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | CHLORIDE, DISSOLVED (MG/L AS CL) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | |
| 11... | 17 | 1.7 | 175 | .20 | .69 | .89 | .050 | <10 | <1 |
| 11... | -- | -- | -- | .21 | .76 | .97 | .050 | 10 | 0 |
| 11... | 18 | 1.8 | 180 | .22 | .87 | 1.1 | .060 | <10 | 1 |
| MAY | | | | | | | | | |
| 05... | 16 | 1.1 | 194 | .12 | .88 | 1.0 | .170 | 10 | 3 |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | 16 | 1.2 | 194 | .11 | .91 | 1.0 | .200 | 10 | 6 |
| AUG | | | | | | | | | |
| 12... | 11 | 3.2 | 155 | .01 | .93 | .94 | .040 | <10 | 4 |
| 12... | -- | -- | -- | .01 | .73 | .74 | .060 | 20 | 10 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | 11 | 4.0 | 162 | .01 | 1.00 | 1.0 | .080 | <10 | 42 |

321830096404001 BARDWELL LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) |
|---|---|---|---|---|---|---|---|
| MAR | | | | | | | |
| 11... | 1120 | 1.0 | 330 | 7.7 | 14.0 | .30 | 10.0 |
| 11... | 1123 | 3.0 | 330 | 7.7 | 14.0 | -- | 10.0 |
| MAY | | | | | | | |
| 05... | 1245 | 1.0 | 332 | 7.8 | 22.0 | .30 | 7.9 |
| 05... | 1246 | 3.0 | 332 | 7.8 | 22.0 | -- | 7.9 |
| AUG | | | | | | | |
| 12... | 1045 | 1.0 | 284 | 8.2 | 29.5 | .40 | 7.8 |
| 12... | 1046 | 5.0 | 270 | 8.1 | 29.5 | -- | 7.7 |

| DATE | OXYGEN, DISSOLVED (PERCENT SATURATION) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|
| MAR | | | | | | | |
| 11... | 96 | -- | -- | -- | -- | -- | -- |
| 11... | 96 | .19 | 1.20 | 1.4 | .050 | 10 | 10 |
| MAY | | | | | | | |
| 05... | 91 | .09 | .97 | 1.1 | .190 | 20 | 0 |
| 05... | 91 | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | |
| 12... | 103 | .01 | .84 | .85 | .040 | 20 | 10 |
| 12... | 101 | .01 | .78 | .79 | .050 | 20 | 0 |

BARDWELL LAKE NEAR ENNIS, TX--Continued

321758096412901 BARDWELL LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) | STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | |
| 11... | 1140 | 1.0 | 332 | 7.7 | 14.5 | .30 | 10.8 | 106 | K2 | <1 |
| 11... | 1141 | .6 | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | 1142 | 4.0 | 332 | 7.7 | 14.5 | -- | 10.7 | 105 | -- | -- |
| MAY | | | | | | | | | | |
| 05... | 1330 | 1.0 | 332 | 7.8 | 21.5 | .30 | 8.3 | 94 | K2 | K7 |
| 05... | 1331 | .5 | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | 1335 | 5.0 | 332 | 7.8 | 21.5 | -- | 8.2 | 93 | -- | -- |
| AUG | | | | | | | | | | |
| 12... | 1110 | 1.0 | 288 | 8.2 | 30.0 | .40 | 7.5 | 100 | K3 | K4 |
| 12... | 1111 | .6 | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | 1115 | 8.0 | 290 | 8.0 | 30.0 | -- | 6.2 | 83 | -- | -- |

| | HARDNESS (MG/L AS | HARDNESS, NONCARBONATE (MG/L | CALCIUM DISSOLVED (MG/L | MAGNESIUM, DISSOLVED (MG/L | SODIUM, DISSOLVED (MG/L | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L | ALKALINITY FIELD (MG/L AS | SULFATE DISSOLVED (MG/L |
|---|---|---|---|---|---|---|---|---|---|
| 05... | 120 | 0 | 43 | 3.0 | 21 | .8 | 3.6 | 120 | 34 |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | |
| 12... | 100 | 2 | 36 | 2.5 | 14 | .6 | 4.5 | 98 | 22 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | 100 | 2 | 36 | 2.5 | 14 | .6 | 4.3 | 98 | 22 |

| DATE | CHLORIDE, DISSOLVED (MG/L AS CL) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | |
| 11... | 17 | 1.6 | 184 | .21 | .75 | .96 | .050 | <10 | <1 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | |
| 05... | 17 | 1.1 | 195 | .08 | .98 | 1.1 | .220 | 20 | 1 |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | |
| 12... | 11 | 3.2 | 152 | .01 | .97 | .98 | .060 | <10 | <1 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12... | 12 | 3.3 | 153 | .01 | 1.10 | 1.1 | .110 | <10 | 6 |

BARDWELL LAKE NEAR ENNIS, TX--Continued

321506096382601 BARDWELL LAKE SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | MAR 11,81 | MAY 5,81 | AUG 12,81 |
|---|---|---|---|
| TIME | 0951 | 1101 | 0946 |
| TOTAL CELLS/ML | 180 | 760 | 25000 |
| DIVERSITY: DIVISION | 0.7 | 1.1 | 0.6 |
| .CLASS | 0.7 | 1.1 | 0.6 |
| ..ORDER | 1.1 | 1.9 | 0.8 |
| ...FAMILY | 1.1 | 2.1 | 1.4 |
| ....GENUS | 2.3 | 2.3 | 1.4 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...CHARACIACEAE | | | | | | |
| ....SCHROEDERIA | -- | - | 13 | 2 | -- | - |
| ...COELASTRACEAE | | | | | | |
| ....COELASTRUM | -- | - | 77 | 10 | -- | - |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | 13 | 7 | 52 | 7 | -- | - |
| ....DICTYOSPHAERIUM | -- | - | -- | - | 980 | 4 |
| ....OOCYSTIS | -- | - | 13 | 2 | -- | - |
| ...SCENEDESMACEAE | | | | | | |
| ....SCENEDESMUS | -- | - | -- | - | * | 0 |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CHLAMYDOMONAS | -- | - | -- | - | * | 0 |
| ..ZYGNEMATALES | | | | | | |
| ...DESMIDIACEAE | | | | | | |
| ....EUASTRUM | -- | - | -- | - | * | 0 |
| CHRYSOPHYTA | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..CENTRALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | 51# | 29 | 39 | 5 | * | 0 |
| ....MELOSIRA | 39# | 21 | -- | - | 1200 | 5 |
| ....STEPHANODISCUS | 51# | 29 | 13 | 2 | -- | - |
| ..PENNALES | | | | | | |
| ...NAVICULACEAE | | | | | | |
| ....NAVICULA | -- | - | -- | - | * | 0 |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | 13 | 7 | 13 | 2 | * | 0 |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....ANACYSTIS | 13 | 7 | 220# | 29 | 690 | 3 |
| ..HORMOGONALES | | | | | | |
| ...NOSTOCACEAE | | | | | | |
| ....CYLINDROSPERMUM | -- | - | -- | - | 170 | 1 |
| ...OSCILLATORIACEAE | | | | | | |
| ....OSCILLATORIA | -- | - | 320# | 42 | 18000# | 73 |
| ...RIVULARIACEAE | | | | | | |
| ....RAPHIDIOPSIS | -- | - | -- | - | 3500 | 14 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

BARDWELL LAKE NEAR ENNIS, TX--Continued

321758096412901 BARDWELL LAKE SITE DC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | MAR 11,81 | MAY 5,81 | AUG 12,81 |
|---|---|---|---|
| TIME | 1141 | 1331 | 1111 |
| TOTAL CELLS/ML | 690 | 21000 | 120000 |
| DIVERSITY: DIVISION | 1.6 | 1.2 | 0.2 |
| .CLASS | 1.6 | 1.2 | 0.2 |
| ..ORDER | 1.9 | 1.5 | 0.2 |
| ...FAMILY | 2.3 | 1.7 | 0.5 |
| ....GENUS | 3.0 | 2.2 | 1.4 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...CHARACIACEAE | | | | | | |
| ....SCHROEDERIA | 39 | 6 | * | 0 | -- | - |
| ...MICRACTINIACEAE | | | | | | |
| ....MICRACTINIUM | -- | - | * | 0 | -- | - |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | 77 | 11 | * | 0 | * | 0 |
| ....OOCYSTIS | 120# | 17 | * | 0 | -- | - |
| ....SELENASTRUM | 51 | 7 | -- | - | -- | - |
| ....TREUBARIA | -- | - | * | 0 | -- | - |
| ...SCENEDESMACEAE | | | | | | |
| ....ACTINASTRUM | -- | - | 400 | 2 | -- | - |
| ....CRUCIGENIA | -- | - | -- | - | * | 0 |
| ....SCENEDESMUS | -- | - | 750 | 4 | * | 0 |
| ....TETRASTRUM | -- | - | 400 | 2 | -- | - |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CHLAMYDOMONAS | -- | - | 250 | 1 | * | 0 |
| ...PHACOTACEAE | | | | | | |
| ....PTEROMONAS | 13 | 2 | -- | - | -- | - |
| ..ZYGNEMATALES | | | | | | |
| ...DESMIDIACEAE | | | | | | |
| ....EUASTRUM | -- | - | * | 0 | -- | - |
| CHRYSOPHYTA | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..CENTRALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | 64 | 9 | 250 | 1 | -- | - |
| ....MELOSIRA | 100 | 15 | 400 | 2 | 1400 | 1 |
| ....STEPHANODISCUS | -- | - | 960 | 4 | -- | - |
| ..PENNALES | | | | | | |
| ...FRAGILARIACEAE | | | | | | |
| ....SYNEDRA | 13 | 2 | -- | - | -- | - |
| ...NAVICULACEAE | | | | | | |
| ....NAVICULA | 13 | 2 | 500 | 2 | -- | - |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | 26 | 4 | 2300 | 11 | -- | - |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | |
| .CRYPTOPHYCEAE | | | | | | |
| ..CRYPTOMONADALES | | | | | | |
| ...CRYTPOMONADACEAE | | | | | | |
| ....CRYPTOMONAS | -- | - | * | 0 | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....AGMENELLUM | -- | - | 1600 | 7 | -- | - |
| ....ANACYSTIS | 180# | 26 | 13000# | 61 | -- | - |
| ..HORMOGONALES | | | | | | |
| ...NOSTOCACEAE | | | | | | |
| ....ANABAENA | -- | - | -- | - | 1200 | 1 |
| ....CYLINDROSPERMUM | -- | - | -- | - | 3900 | 3 |
| ...OSCILLATORIACEAE | | | | | | |
| ....LYNGBYA | -- | - | -- | - | 60000# | 50 |
| ....OSCILLATORIA | -- | - | -- | - | 53000# | 44 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAF | | | | | | |
| ....EUGLENA | -- | - | * | 0 | * | 0 |
| ....TRACHELOMONAS | -- | - | * | 0 | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 08063800 WAXAHACHIE CREEK NEAR BARDWELL, TX

LOCATION.--Lat 32°14'36", long 96°38'24", Ellis County, Hydrologic Unit 12030109, on right bank 0.8 mi (1.3 km) downstream from Bardwell Dam, 3.6 mi (5.8 km) southeast of Bardwell, 3.8 mi (6.1 km) downstream from bridge on State Highway 34, and 4.1 mi (6.6 km) upstream from mouth.

DRAINAGE AREA.--178 $mi^2$ (461 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is 370.18 ft (112.831 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark).

REMARKS.--Water-discharge records fair. Flow is regulated by Bardwell Lake (station 08063700) 0.8 mi (1.3 km) upstream. Gage-height telemeter at station was removed during year; another gage-height telemeter was installed Jan. 24, 1981.

AVERAGE DISCHARGE.--18 years, 75.5 $ft^3/s$ (2.138 $m^3/s$), 54,700 acre-ft/yr (67.4 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,960 $ft^3/s$ (83.8 $m^3/s$) Feb. 9, 1965, gage height, 17.55 ft (5.349 m); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1944, about 23 ft (7.0 m) in 1944 and 1945, from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,960 $ft^3/s$ (55.5 $m^3/s$) June 25 at 1245 hours, gage height, 18.13 ft (5.526 m); minimum daily, 0.13 $ft^3/s$ (0.004 $m^3/s$) Mar. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.0 | .97 | .99 | .88 | 1.0 | .92 | 2.4 | 1.7 | 1.2 | 1060 | 2.3 | 2.8 |
| 2 | 1.9 | 1.0 | .92 | .88 | 1.1 | .88 | 2.4 | 1.5 | 2.7 | 1050 | 2.2 | 2.0 |
| 3 | 1.8 | .95 | .92 | .88 | 1.1 | 1.0 | 2.4 | 1.7 | 22 | 1040 | 2.2 | 1.5 |
| 4 | 1.5 | .99 | .92 | .88 | 1.1 | 1.0 | 2.4 | 1.8 | 34 | 1040 | 2.4 | 2.6 |
| 5 | 1.6 | .96 | .92 | .88 | 1.1 | .78 | 2.4 | 1.8 | 5.1 | 1040 | 2.4 | 3.3 |
| 6 | 1.6 | 1.0 | .85 | .79 | 1.0 | .80 | 2.1 | 1.6 | 3.7 | 1040 | 2.6 | 3.5 |
| 7 | 1.7 | 1.0 | .87 | .41 | 1.0 | .83 | 2.0 | 1.3 | 2.1 | 1030 | 2.2 | 3.6 |
| 8 | 1.7 | 1.1 | 1.1 | 1.1 | 1.0 | .81 | 2.3 | 1.4 | 1.8 | 926 | 2.2 | 3.2 |
| 9 | 1.6 | 1.0 | .85 | 1.7 | 1.1 | .76 | 1.9 | 1.9 | 2.1 | 721 | 2.3 | 3.3 |
| 10 | 1.6 | .99 | .85 | 1.6 | 1.1 | .76 | 1.9 | 1.6 | 2.1 | 718 | 2.4 | 3.5 |
| 11 | 1.6 | 1.0 | .85 | 1.6 | .81 | .77 | 1.9 | 1.5 | 278 | 710 | 2.3 | 3.7 |
| 12 | 1.5 | .97 | .87 | 1.6 | .70 | .84 | 1.9 | 1.5 | 673 | 705 | 2.1 | 4.0 |
| 13 | 1.6 | .92 | .88 | 1.7 | .68 | .85 | 1.8 | 1.6 | 1030 | 329 | 2.2 | 4.0 |
| 14 | 1.7 | .94 | .88 | 1.6 | .68 | .78 | 1.9 | 1.6 | 543 | 2.9 | 2.4 | 3.1 |
| 15 | 1.7 | 1.0 | .88 | 1.5 | .68 | .71 | 1.9 | 1.5 | 90 | 2.5 | 2.5 | 2.4 |
| 16 | 1.6 | 1.0 | .88 | 1.4 | .70 | .67 | 1.8 | 3.0 | 283 | 2.4 | 3.1 | 2.3 |
| 17 | 1.5 | 1.0 | .85 | 1.4 | .71 | .61 | 2.1 | 1.8 | 227 | 2.4 | 3.1 | 2.1 |
| 18 | 1.4 | .99 | .85 | 1.2 | .73 | .18 | 2.9 | 1.6 | 53 | 2.5 | 2.9 | 2.1 |
| 19 | 1.3 | 1.0 | .85 | 1.2 | .92 | .13 | 2.9 | 1.3 | 4.3 | 2.6 | 2.2 | 2.2 |
| 20 | 1.3 | 1.0 | .85 | 1.2 | .75 | 1.3 | 2.8 | 1.1 | 4.4 | 3.4 | 2.1 | 2.3 |
| 21 | 1.2 | 1.0 | .85 | 1.2 | .81 | 3.2 | 2.5 | 1.1 | 4.1 | 3.0 | 1.8 | 2.3 |
| 22 | 1.2 | 1.0 | .85 | 1.2 | .79 | 3.1 | 2.6 | 1.2 | 165 | 2.7 | 1.9 | 1.8 |
| 23 | 1.2 | 1.0 | .85 | 1.2 | .74 | 3.0 | 2.6 | 1.1 | 649 | 2.9 | 2.0 | 1.6 |
| 24 | 1.1 | 1.0 | .88 | 1.2 | .72 | 3.0 | 2.5 | 1.6 | 1420 | 3.0 | 2.1 | 1.5 |
| 25 | 1.0 | .99 | .88 | 1.2 | .78 | 3.0 | 2.6 | 1.4 | 1880 | 3.1 | 2.0 | 1.6 |
| 26 | 1.0 | .99 | .88 | 1.2 | .81 | 2.9 | 2.7 | 1.4 | 1490 | 2.9 | 1.9 | 1.5 |
| 27 | 1.1 | 1.0 | .88 | 1.2 | .80 | 2.9 | 2.8 | 1.3 | 1100 | 2.4 | 2.1 | 1.6 |
| 28 | 1.1 | 1.0 | .88 | 1.1 | .86 | 2.5 | 2.8 | 1.4 | 1090 | 2.1 | 2.1 | 1.7 |
| 29 | 1.0 | 1.0 | .88 | 1.1 | --- | 2.4 | 2.2 | 1.3 | 1080 | 2.3 | 2.5 | 1.6 |
| 30 | .91 | 1.1 | .88 | 1.1 | --- | 2.4 | 1.8 | 1.3 | 1070 | 2.5 | 2.7 | 1.8 |
| 31 | .92 | --- | .88 | 1.1 | --- | 2.4 | --- | 1.3 | --- | 2.3 | 2.8 | --- |
| TOTAL | 43.93 | 29.86 | 27.42 | 37.20 | 24.27 | 46.18 | 69.2 | 47.2 | 13210.6 | 11456.9 | 72.0 | 74.5 |
| MEAN | 1.42 | 1.00 | .88 | 1.20 | .87 | 1.49 | 2.31 | 1.52 | 440 | 370 | 2.32 | 2.48 |
| MAX | 2.0 | 1.1 | 1.1 | 1.7 | 1.1 | 3.2 | 2.9 | 3.0 | 1880 | 1060 | 3.1 | 4.0 |
| MIN | .91 | .92 | .85 | .41 | .68 | .13 | 1.8 | 1.1 | 1.2 | 2.1 | 1.8 | 1.5 |
| AC-FT | 87 | 59 | 54 | 74 | 48 | 92 | 137 | 94 | 26200 | 22720 | 143 | 148 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 12524.32 | MEAN | 34.2 | MAX | 1460 | MIN | .23 | AC-FT | 24840 |
| WTR YR 1981 | TOTAL | 25139.26 | MEAN | 68.9 | MAX | 1880 | MIN | .13 | AC-FT | 49860 |

08063800 WAXAHACHIE CREEK NEAR BARDWELL, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analysis: October 1980 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH FIELD (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, BIOCHEM UNINHIB 5 DAY (MG/L) | HARD-NESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | | |
| 11... | 1230 | 5.6 | 374 | 7.3 | 14.0 | 10 | 24 | 9.6 | 92 | .9 | 130 |
| MAY | | | | | | | | | | | |
| 05... | 1400 | 2.0 | 348 | 7.3 | 21.5 | 10 | 20 | 6.3 | 72 | 1.0 | 120 |
| AUG | | | | | | | | | | | |
| 12... | 1215 | .30 | 309 | 8.0 | 27.0 | 5 | 17 | 4.8 | 61 | 1.6 | 120 |

| DATE | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 (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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | | |
| 11... | 19 | 46 | 3.5 | 25 | 1.0 | 3.7 | 110 | 43 | 20 | .4 | 2.0 |
| MAY | | | | | | | | | | | |
| 05... | 12 | 44 | 3.0 | 22 | .9 | 3.9 | 110 | 35 | 17 | .4 | 1.7 |
| AUG | | | | | | | | | | | |
| 12... | 12 | 44 | 2.7 | 15 | .6 | 3.8 | 110 | 25 | 13 | .3 | 4.3 |

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (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) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAR | | | | | | | | | | | |
| 11... | 210 | 28 | 10 | .20 | .020 | .22 | .020 | .47 | .49 | .060 | 6.9 |
| MAY | | | | | | | | | | | |
| 05... | 193 | 33 | 6 | .23 | .010 | .24 | .160 | 1.1 | 1.3 | .190 | 7.0 |
| AUG | | | | | | | | | | | |
| 12... | 175 | 35 | 16 | .18 | .030 | .21 | .190 | .60 | .79 | .040 | 5.1 |

| DATE | TIME | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, DIS-SOLVED (UG/L AS BA) | 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) |
|---|---|---|---|---|---|---|---|
| MAR | | | | | | | |
| 11... | 1230 | 2 | 60 | 8 | 0 | -- | <10 |
| MAY | | | | | | | |
| 05... | 1400 | 2 | 70 | <1 | 0 | -- | <10 |
| AUG | | | | | | | |
| 12... | 1215 | 7 | 60 | <1 | 0 | <3 | <10 |

| DATE | 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) |
|---|---|---|---|---|---|---|---|
| MAR | | | | | | | |
| 11... | 10 | <10 | 10 | .0 | 0 | 0 | 6 |
| MAY | | | | | | | |
| 05... | <10 | <10 | 4 | .0 | 0 | 0 | 5 |
| AUG | | | | | | | |
| 12... | <10 | <10 | 3 | .0 | 0 | 0 | 7 |

## 08064500 CHAMBERS CREEK NEAR CORSICANA, TX

LOCATION.--Lat 32°06'29", long 96°22'14", Navarro County, Hydrologic Unit 12030109, near center of channel at downstream side of downstream bridge on State Highway 31, 430 ft (131 m) upstream from St. Louis Southwestern Railway Lines bridge, 6,000 ft (1,829 m) upstream from city of Corsicana diversion dam, 5.3 mi (8.5 km) east of Corsicana, and 23.0 mi (37.0 km) upstream from mouth.

DRAINAGE AREA.--963 $mi^2$ (2,494 $km^2$).

### WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 294.28 ft (89.696 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Since November 1965, flow from 178 $mi^2$ (461 $km^2$) has been affected by Bardwell Lake (station 08063700). In addition, flow from 294 $mi^2$ (761 $km^2$) is affected at times by discharge from the flood-detention pools of 102 floodwater-retarding structures with a combined detention capacity of 84,540 acre-ft (104 $hm^3$). During the year, records furnished by the Corps of Engineers show that 5,640 acre-ft (6.95 $hm^3$) was diverted from Navarro Mills Lake by the city of Corsicana for their municipal water supply. Records furnished by the city of Corsicana show that 1,220 acre-ft (1.50 $hm^3$) was diverted for municipal supply from Lake Halbert, located on a tributary that enters Chambers Creek below the gage. Daily discharge given in the following table does not include water that may be diverted from Chambers Creek by the city of Corsicana. During the current year, records furnished by the city of Corsicana show that no water was diverted from Chambers Creek and that 3,630 acre-ft (4.48 $hm^3$) of sewage effluent was returned to a tributary that enters Chambers Creek below the gage. During the current year, the city of Ennis reported that 1,470 acre-ft (1.81 $hm^3$) of sewage effluent was discharged in to a tributary that enters Chambers Creek above the gage. On Jan. 24, 1981, a telemeter was installed at this station.

AVERAGE DISCHARGE.--42 years (water years 1940-81), 443 $ft^3/s$ (12.55 $m^3/s$), 321,000 acre-ft/yr (396 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,000 $ft^3/s$ (1,360 $m^3/s$), May 3, 1944; maximum gage height, 28.10 ft (8.565 m) May 3, 1958; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, 30 ft (9.1 m) Aug. 27, 1887, from information by local residents. Flood in December 1913 reached a stage of 27.5 ft (8.38 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,800 $ft^3/s$ (391 $m^3/s$) June 17 at 1145 hours, gage height, 25.36 ft (7.730 m), no other peak above base of 13,000 $ft^3/s$ (368 $m^3/s$); minimum, 0.05 $ft^3/s$ (0.001 $m^3/s$) Oct. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.1 | .57 | 3.4 | 2.8 | 4.8 | 11 | 266 | 9.9 | 47 | 1030 | 7.9 | 5.3 |
| 2 | 2.8 | .15 | 3.4 | 2.9 | 4.6 | 10 | 143 | 8.0 | 132 | 1010 | 7.0 | 8.3 |
| 3 | .87 | .12 | 3.5 | 3.8 | 4.6 | 33 | 87 | 7.1 | 1360 | 1030 | 6.4 | 26 |
| 4 | .35 | .13 | 4.3 | 2.5 | 4.8 | 604 | 65 | 6.3 | 6590 | 1020 | 5.4 | 49 |
| 5 | .42 | .11 | 4.8 | 2.6 | 4.9 | 169 | 53 | 6.1 | 6650 | 1190 | 4.8 | 14 |
| 6 | .29 | .11 | 5.1 | 2.7 | 4.5 | 44 | 49 | 6.5 | 5080 | 1220 | 4.6 | 9.9 |
| 7 | .16 | .09 | 6.1 | 2.9 | 4.0 | 20 | 48 | 5.9 | 3980 | 1060 | 5.0 | 7.1 |
| 8 | .14 | .10 | 37 | 3.1 | 4.5 | 13 | 33 | 6.6 | 2860 | 993 | 4.6 | 6.1 |
| 9 | .06 | .09 | 91 | 4.1 | 4.9 | 8.7 | 26 | 288 | 1400 | 753 | 4.4 | 4.9 |
| 10 | .12 | .12 | 44 | 4.2 | 5.0 | 7.5 | 21 | 1070 | 750 | 650 | 4.3 | 4.0 |
| 11 | .14 | .15 | 15 | 5.1 | 4.5 | 5.8 | 18 | 646 | 590 | 632 | 4.5 | 4.0 |
| 12 | .09 | .15 | 11 | 6.4 | 5.4 | 5.8 | 17 | 221 | 902 | 618 | 4.3 | 3.5 |
| 13 | .07 | .16 | 8.5 | 5.7 | 6.2 | 5.1 | 14 | 164 | 1210 | 582 | 3.8 | 3.1 |
| 14 | .07 | .29 | 6.8 | 5.6 | 4.6 | 4.0 | 12 | 179 | 1290 | 113 | 4.4 | 3.1 |
| 15 | .09 | .29 | 4.8 | 5.7 | 3.3 | 3.4 | 11 | 87 | 469 | 42 | 3.9 | 3.4 |
| 16 | .09 | .69 | 3.1 | 5.7 | 2.8 | 3.1 | 9.4 | 806 | 2680 | 34 | 4.9 | 3.1 |
| 17 | .14 | 1.7 | 2.6 | 5.4 | 2.8 | 3.3 | 8.9 | 1800 | 12000 | 29 | 5.7 | 2.1 |
| 18 | .24 | 2.4 | 2.7 | 4.8 | 2.7 | 2.6 | 8.3 | 1420 | 8920 | 25 | 8.6 | 1.6 |
| 19 | .33 | 3.4 | 2.3 | 5.1 | 2.6 | 1.7 | 31 | 346 | 5210 | 22 | 8.3 | 1.4 |
| 20 | .65 | 4.0 | 2.0 | 6.5 | 2.7 | 1.9 | 373 | 185 | 4080 | 20 | 6.9 | 1.2 |
| 21 | .96 | 2.5 | 1.8 | 6.6 | 3.5 | 2.0 | 101 | 98 | 3250 | 18 | 6.1 | 1.4 |
| 22 | .82 | 2.5 | 2.0 | 9.0 | 4.1 | 1.7 | 55 | 69 | 2200 | 16 | 5.9 | 1.4 |
| 23 | .52 | 2.8 | 2.1 | 7.7 | 4.0 | 2.0 | 35 | 55 | 1480 | 14 | 5.3 | 1.4 |
| 24 | .53 | 3.1 | 2.0 | 6.6 | 5.2 | 3.7 | 27 | 540 | 1660 | 13 | 4.9 | 1.4 |
| 25 | .65 | 3.7 | 2.0 | 6.2 | 5.3 | 4.5 | 23 | 947 | 2030 | 12 | 4.8 | .98 |
| 26 | .46 | 4.7 | 2.3 | 5.8 | 4.6 | 4.8 | 25 | 470 | 2140 | 11 | 4.4 | .81 |
| 27 | .47 | 3.8 | 2.5 | 5.7 | 4.9 | 4.7 | 22 | 190 | 1580 | 11 | 3.8 | .56 |
| 28 | .67 | 3.0 | 2.9 | 5.3 | 5.7 | 4.4 | 18 | 126 | 1180 | 9.7 | 3.4 | .43 |
| 29 | .92 | 2.7 | 3.0 | 4.9 | --- | 7.3 | 14 | 87 | 1110 | 9.1 | 3.5 | .44 |
| 30 | 1.0 | 2.7 | 2.3 | 4.1 | --- | 839 | 13 | 67 | 1060 | 8.2 | 4.1 | 1.3 |
| 31 | .83 | --- | 2.7 | 4.1 | --- | 1190 | --- | 55 | --- | 8.0 | 4.2 | --- |
| TOTAL | 20.05 | 46.32 | 287.0 | 153.6 | 121.5 | 3021.0 | 1626.6 | 9972.4 | 83890 | 12203.0 | 160.1 | 171.22 |
| MEAN | .65 | 1.54 | 9.26 | 4.95 | 4.34 | 97.5 | 54.2 | 322 | 2796 | 394 | 5.16 | 5.71 |
| MAX | 5.1 | 4.7 | 91 | 9.0 | 6.2 | 1190 | 373 | 1800 | 12000 | 1220 | 8.6 | 49 |
| MIN | .06 | .09 | 1.8 | 2.5 | 2.6 | 1.7 | 8.3 | 5.9 | 47 | 8.0 | 3.4 | .43 |
| AC-FT | 40 | 92 | 569 | 305 | 241 | 5990 | 3230 | 19780 | 166400 | 24200 | 318 | 340 |

CAL YR 1980 TOTAL 114579.11 MEAN 313 MAX 10600 MIN .00 AC-FT 227300
WTR YR 1981 TOTAL 111672.79 MEAN 306 MAX 12000 MIN .06 AC-FT 221500

08064500 CHAMBERS CREEK NEAR CORSICANA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: September 1961 to September 1981 (discontinued). Water temperatures: September 1961 to September 1970.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | TEMPER-ATURE, WATER (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 05... | 1640 | 2.5 | 592 | 7.5 | 190 | 11 | 69 | 4.6 | 46 |
| FEB | | | | | | | | | |
| 18... | 1600 | 3.0 | 772 | 10.0 | 200 | 30 | 71 | 5.4 | 83 |
| JUN | | | | | | | | | |
| 08... | 1830 | 2360 | 297 | 27.0 | 120 | 11 | 45 | 2.2 | 10 |
| JUL | | | | | | | | | |
| 22... | 1700 | 16 | 564 | 29.5 | 180 | 35 | 67 | 4.2 | 41 |
| SEP | | | | | | | | | |
| 04... | 1155 | 34 | 528 | 26.0 | 150 | 23 | 55 | 3.9 | 45 |

| DATE | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY (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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| 05... | 1.4 | 5.3 | 180 | 64 | 47 | .4 | 6.0 | 351 |
| FEB | | | | | | | | |
| 18... | 2.6 | 6.0 | 170 | 120 | 75 | .4 | 1.0 | 464 |
| JUN | | | | | | | | |
| 08... | .4 | 5.5 | 110 | 30 | 6.2 | .2 | 15 | 161 |
| JUL | | | | | | | | |
| 22... | 1.3 | 4.8 | 150 | 72 | 34 | .4 | 9.2 | 323 |
| SEP | | | | | | | | |
| 04... | 1.6 | 4.5 | 130 | 66 | 43 | .4 | 6.3 | 302 |

## 08064600 RICHLAND CREEK NEAR FAIRFIELD, TX

LOCATION.--Lat 31°57'08", long 96°05'50", Freestone County, Hydrologic Unit 12030108, on downstream side of highway embankment near left end of bridge on Farm Road 488, 2.1 mi (3.4 km) upstream from Alligator Creek, 5.4 mi (8.7 km) upstream from mouth, 9.0 mi (14.5 km) downstream from Chambers Creek, and 16 mi (26 km) north of Fairfield.

DRAINAGE AREA.--1,957 $mi^2$ (5,069 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1972 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 230.83 ft (70.357 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair above 500 $ft^3/s$ (14.2 $m^3/s$) and good below. Flow is partly regulated by Navarro Mills Lake (station 08063050) on Richland Creek and Bardwell Lake (station 08063700) on Waxahachie Creek. Flow is affected at times by discharge from the flood-detention pools of 178 floodwater-retarding structures with a combined detention capacity of 128,200 acre-ft (158 $hm^3$). These structures control runoff from 441 $mi^2$ (1,142 $km^2$) in the Richland and Chambers Creeks drainage basins. Records furnished by the city of Corsicana show that during the year 6,860 acre-ft (8.46 $hm^3$) of sewage effluent was returned to a tributary upstream.

AVERAGE DISCHARGE.--9 years (water years 1973-81), 957 $ft^3/s$ (27.10 $m^3/s$), 693,300 acre-ft/yr (855 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 29,500 $ft^3/s$ (835 $m^3/s$) Apr. 26, 1973, gage height, 28.76 ft (8.766 m); minimum daily, 0.02 $ft^3/s$ (0.01 $m^3/s$) July 26, Aug. 26 to Sept. 2, 1972.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in December 1971 reached a stage of 31.5 ft (9.60 m), from floodmark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,400 $ft^3/s$ (436 $m^3/s$) June 19 at 0600 hours, gage height, 27.60 ft (8.412 m), from graph based on nearby stations; minimum daily, 3.8 $ft^3/s$ (0.11 $m^3/s$) Nov. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 12 | 6.1 | 15 | 17 | 20 | 25 | 995 | 16 | 77 | 2490 | 15 | 9.9 |
| 2 | 26 | 5.8 | 14 | 17 | 20 | 58 | 291 | 13 | 70 | 2470 | 16 | 12 |
| 3 | 20 | 5.6 | 13 | 18 | 34 | 79 | 175 | 11 | 736 | 2390 | 14 | 16 |
| 4 | 14 | 5.3 | 13 | 17 | 25 | 660 | 220 | 10 | 5600 | 2370 | 13 | 26 |
| 5 | 10 | 4.8 | 13 | 16 | 23 | 1330 | 322 | 9.3 | 8580 | 2200 | 11 | 68 |
| 6 | 7.1 | 3.9 | 13 | 17 | 24 | 435 | 161 | 9.7 | 7000 | 3570 | 11 | 42 |
| 7 | 6.0 | 4.2 | 14 | 18 | 27 | 185 | 91 | 8.6 | 5600 | 3840 | 10 | 26 |
| 8 | 5.6 | 4.3 | 19 | 18 | 30 | 102 | 72 | 8.3 | 4500 | 3700 | 9.8 | 20 |
| 9 | 5.6 | 3.8 | 208 | 19 | 24 | 85 | 54 | 17 | 4000 | 3500 | 9.5 | 18 |
| 10 | 5.9 | 4.1 | 487 | 18 | 23 | 55 | 40 | 333 | 3300 | 3400 | 9.4 | 15 |
| 11 | 5.8 | 4.9 | 326 | 22 | 21 | 47 | 33 | 1390 | 1500 | 2280 | 8.5 | 14 |
| 12 | 5.8 | 4.8 | 140 | 20 | 26 | 31 | 28 | 1500 | 900 | 1070 | 7.9 | 13 |
| 13 | 5.4 | 4.5 | 71 | 18 | 24 | 24 | 24 | 700 | 2600 | 731 | 8.3 | 11 |
| 14 | 5.3 | 4.8 | 47 | 20 | 21 | 18 | 21 | 300 | 3500 | 539 | 8.4 | 11 |
| 15 | 5.1 | 5.5 | 35 | 21 | 21 | 15 | 19 | 200 | 5000 | 179 | 8.4 | 9.4 |
| 16 | 5.0 | 6.4 | 27 | 20 | 20 | 12 | 16 | 490 | 2400 | 88 | 10 | 8.9 |
| 17 | 5.7 | 7.5 | 23 | 20 | 20 | 10 | 14 | 1760 | 8170 | 69 | 16 | 9.2 |
| 18 | 6.0 | 18 | 20 | 19 | 19 | 8.9 | 13 | 2120 | 11100 | 56 | 26 | 8.5 |
| 19 | 6.1 | 22 | 17 | 25 | 18 | 8.5 | 13 | 1140 | 14000 | 48 | 18 | 7.8 |
| 20 | 6.1 | 11 | 16 | 27 | 18 | 7.7 | 66 | 412 | 8000 | 42 | 17 | 7.4 |
| 21 | 5.8 | 8.5 | 15 | 36 | 21 | 7.6 | 317 | 249 | 5000 | 37 | 16 | 6.9 |
| 22 | 5.6 | 8.6 | 13 | 42 | 22 | 7.1 | 139 | 160 | 3500 | 33 | 13 | 6.4 |
| 23 | 5.6 | 9.1 | 14 | 27 | 22 | 7.1 | 82 | 114 | 2400 | 30 | 10 | 5.9 |
| 24 | 6.3 | 8.3 | 15 | 24 | 28 | 7.2 | 62 | 441 | 3000 | 27 | 10 | 6.1 |
| 25 | 5.8 | 13 | 15 | 24 | 23 | 6.9 | 56 | 1160 | 3900 | 23 | 9.1 | 6.2 |
| 26 | 5.3 | 15 | 16 | 22 | 21 | 8.1 | 32 | 1130 | 4300 | 21 | 8.6 | 6.0 |
| 27 | 5.5 | 19 | 16 | 20 | 23 | 9.5 | 29 | 445 | 3600 | 20 | 9.1 | 5.7 |
| 28 | 5.1 | 18 | 15 | 19 | 23 | 9.7 | 28 | 242 | 3240 | 19 | 8.8 | 5.4 |
| 29 | 5.1 | 18 | 16 | 20 | --- | 14 | 22 | 175 | 2710 | 18 | 8.4 | 5.0 |
| 30 | 8.7 | 17 | 16 | 20 | --- | 44 | 20 | 127 | 2580 | 18 | 10 | 4.5 |
| 31 | 7.5 | --- | 16 | 19 | --- | 1140 | --- | 97 | --- | 17 | 10 | --- |
| TOTAL | 234.8 | 271.8 | 1698 | 660 | 641 | 4457.3 | 3455 | 14787.9 | 130863 | 35295 | 360.2 | 411.2 |
| MEAN | 7.57 | 9.06 | 54.8 | 21.3 | 22.9 | 144 | 115 | 477 | 4362 | 1139 | 11.6 | 13.7 |
| MAX | 26 | 22 | 487 | 42 | 34 | 1330 | 995 | 2120 | 14000 | 3840 | 26 | 68 |
| MIN | 5.0 | 3.8 | 13 | 16 | 18 | 6.9 | 13 | 8.3 | 70 | 17 | 7.9 | 4.5 |
| AC-FT | 466 | 539 | 3370 | 1310 | 1270 | 8840 | 6850 | 29330 | 259600 | 70010 | 714 | 816 |

CAL YR 1980 TOTAL 269739.3 MEAN 737 MAX 16700 MIN 3.8 AC-FT 535000
WTR YR 1981 TOTAL 193135.2 MEAN 529 MAX 14000 MIN 3.8 AC-FT 383100

08064600 RICHLAND CREEK NEAR FAIRFIELD, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: April 1956 to September 1966, March 1972 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1956 to September 1966, March 1972 to current year.
WATER TEMPERATURES: April 1956 to September 1966, March 1972 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, 22,000 micromhos Aug. 22, 1956; minimum daily, 154 micromhos June 17, 1977.
WATER TEMPERATURES: Maximum daily, 37.0°C Aug. 14, 1961; minimum daily, 0.0°C Jan. 3, 4, 1959.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,240 micromhos Oct. 31; minimum daily, 207 micromhos June 17.
WATER TEMPERATURES: Maximum daily, 34.0°C July 24, 30, Aug. 3; minimum daily, 7.0°C Feb. 11.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | TEMPER-ATURE (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | |
| 08... | 1015 | 5.8 | 1180 | 23.0 | 200 | 49 | 68 | 7.0 | 150 |
| NOV | | | | | | | | | |
| 19... | 0945 | 22 | 953 | 9.0 | 200 | 11 | 69 | 7.0 | 120 |
| JAN | | | | | | | | | |
| 07... | 1052 | 18 | 688 | 7.0 | 200 | 28 | 69 | 6.3 | 62 |
| MAY | | | | | | | | | |
| 31... | 1700 | 137 | 448 | 30.0 | 150 | 32 | 55 | 3.5 | 28 |
| JUN | | | | | | | | | |
| 10... | 1220 | 3460 | 293 | 28.0 | 120 | 8 | 43 | 2.5 | 11 |
| AUG | | | | | | | | | |
| 20... | 1800 | 93 | 768 | 30.0 | 200 | 21 | 70 | 6.4 | 84 |

| DATE | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY 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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | |
| 08... | 4.6 | 11 | 150 | 110 | 210 | .6 | 4.7 | 651 |
| NOV | | | | | | | | |
| 19... | 3.7 | 12 | 190 | 110 | 120 | .6 | 8.2 | 561 |
| JAN | | | | | | | | |
| 07... | 1.9 | 6.1 | 170 | 74 | 67 | .4 | 4.8 | 392 |
| MAY | | | | | | | | |
| 31... | 1.0 | 5.2 | 120 | 71 | 23 | .5 | 8.3 | 267 |
| JUN | | | | | | | | |
| 10... | .4 | 6.2 | 110 | 2.8 | 18 | .2 | 16 | 166 |
| AUG | | | | | | | | |
| 20... | 2.6 | 7.4 | 180 | 93 | 72 | .5 | 7.9 | 449 |

08064600 RICHLAND CREEK NEAR FAIRFIELD, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 234.8 | 1100 | 641 | 406 | 150 | 98 | 140 | 86 | 280 |
| NOV. | 1980 | 271.8 | 911 | 531 | 390 | 110 | 79 | 110 | 84 | 260 |
| DEC. | 1980 | 1698 | 518 | 299 | 1370 | 37 | 168 | 67 | 308 | 170 |
| JAN. | 1981 | 660 | 704 | 409 | 728 | 64 | 114 | 90 | 161 | 220 |
| FEB. | 1981 | 641 | 714 | 414 | 717 | 65 | 113 | 92 | 159 | 220 |
| MAR. | 1981 | 4457.3 | 381 | 220 | 2650 | 20 | 246 | 50 | 603 | 130 |
| APR. | 1981 | 3455 | 479 | 277 | 2580 | 30 | 284 | 63 | 584 | 160 |
| MAY | 1981 | 14787.9 | 355 | 205 | 8170 | 17 | 668 | 47 | 1870 | 130 |
| JUNE | 1981 | 130863 | 262 | 151 | 53300 | 9.0 | 3180 | 35 | 12300 | 99 |
| JULY | 1981 | 35295 | 297 | 171 | 16300 | 11 | 1090 | 39 | 3760 | 110 |
| AUG. | 1981 | 360.2 | 735 | 427 | 415 | 69 | 67 | 94 | 92 | 230 |
| SEPT | 1981 | 411.2 | 746 | 434 | 481 | 72 | 79 | 95 | 106 | 230 |
| TOTAL | | 193135.2 | ** | ** | 87500 | ** | 6190 | ** | 20100 | ** |
| WTD. AVG. | | 529 | 292 | 168 | ** | 12 | ** | 39 | ** | 110 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1010 | 1200 | 829 | 730 | 737 | 771 | 400 | 585 | 536 | 289 | 660 | 727 |
| 2 | 974 | 1120 | 795 | 735 | 747 | 793 | 450 | 633 | 482 | 282 | 675 | 798 |
| 3 | 1110 | 1070 | 840 | 730 | 735 | 760 | 478 | 653 | 437 | 288 | 685 | 791 |
| 4 | 1050 | 1020 | 951 | 724 | 756 | 386 | 476 | 667 | 232 | 292 | 756 | 819 |
| 5 | 1120 | 994 | 912 | 684 | 709 | 286 | 411 | 676 | 209 | 296 | 779 | 784 |
| 6 | 1160 | 997 | 884 | 686 | 694 | 338 | 462 | 685 | 230 | 280 | 739 | 747 |
| 7 | 1170 | 975 | 824 | 659 | 701 | 356 | 530 | 708 | 254 | 286 | 732 | 706 |
| 8 | 1140 | 959 | 734 | 636 | 715 | 374 | 541 | 724 | 276 | 293 | 729 | 654 |
| 9 | 1060 | 952 | 650 | 627 | 692 | 481 | 562 | 686 | 294 | 298 | 743 | 626 |
| 10 | 1070 | 961 | 431 | 649 | 699 | 500 | 578 | 390 | 286 | 304 | 755 | 645 |
| 11 | 1080 | 974 | 460 | 658 | 653 | 484 | 600 | 350 | 287 | 311 | 768 | 697 |
| 12 | 1060 | 969 | 353 | 666 | 662 | 485 | 623 | 373 | 302 | 314 | 765 | 698 |
| 13 | 1040 | 964 | 384 | 672 | 672 | 499 | 638 | 397 | 327 | 317 | 760 | 707 |
| 14 | 1020 | 968 | 416 | 642 | 692 | 534 | 643 | 491 | 284 | 321 | 750 | 726 |
| 15 | 1030 | 969 | 469 | 648 | 666 | 560 | 658 | 446 | 234 | 345 | 741 | 756 |
| 16 | 1040 | 958 | 504 | 658 | 651 | 594 | 672 | 440 | 263 | 375 | 719 | 794 |
| 17 | 1050 | 937 | 554 | 665 | 686 | 630 | 690 | 285 | 207 | 398 | 731 | 837 |
| 18 | 1060 | 900 | 598 | 672 | 690 | 667 | 699 | 250 | 221 | 422 | 769 | 826 |
| 19 | 1080 | 894 | 630 | 638 | 680 | 708 | 706 | 365 | 288 | 455 | 766 | 787 |
| 20 | 1090 | 1030 | 660 | 747 | 740 | 718 | 807 | 388 | 269 | 459 | 768 | 771 |
| 21 | 1120 | 1010 | 702 | 751 | 750 | 743 | 550 | 406 | 274 | 525 | 755 | 752 |
| 22 | 1140 | 920 | 726 | 800 | 761 | 768 | 410 | 432 | 280 | 542 | 744 | 748 |
| 23 | 1150 | 876 | 771 | 868 | 735 | 819 | 545 | 449 | 289 | 575 | 655 | 746 |
| 24 | 1160 | 836 | 783 | 809 | 745 | 813 | 581 | 400 | 282 | 603 | 673 | 762 |
| 25 | 1160 | 830 | 750 | 710 | 784 | 785 | 569 | 357 | 283 | 613 | 734 | 749 |
| 26 | 1170 | 817 | 678 | 687 | 749 | 810 | 615 | 386 | 287 | 620 | 684 | 745 |
| 27 | 1180 | 679 | 654 | 665 | 726 | 779 | 650 | 365 | 297 | 614 | 746 | 781 |
| 28 | 1200 | 900 | 657 | 684 | 747 | 780 | 545 | 379 | 288 | 597 | 778 | 730 |
| 29 | 1210 | 875 | 632 | 700 | --- | 759 | 560 | 413 | 290 | 595 | 758 | 736 |
| 30 | 1230 | 852 | 642 | 709 | --- | 776 | 571 | 440 | 288 | 612 | 736 | 804 |
| 31 | 1240 | --- | 655 | 688 | --- | 374 | --- | 448 | --- | 627 | 714 | --- |
| MEAN | 1110 | 947 | 662 | 697 | 713 | 617 | 574 | 473 | 293 | 424 | 734 | 748 |

WTR YR 1981 MEAN 666 MAX 1240 MIN 207

08064600 RICHLAND CREEK NEAR FAIRFIELD, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 25.0 | 17.0 | 15.0 | 12.0 | 11.0 | 17.0 | 20.0 | 28.0 | 29.0 | 28.5 | 31.5 | 26.0 |
| 2 | 24.0 | 17.5 | 14.0 | 10.0 | --- | 17.0 | 20.0 | 26.0 | 26.0 | 28.0 | 32.5 | 27.0 |
| 3 | 24.0 | 19.0 | 13.0 | --- | 11.0 | 17.0 | 23.0 | 23.0 | 24.0 | 28.0 | 34.0 | 29.0 |
| 4 | 24.0 | 19.5 | 15.0 | 9.0 | 9.0 | 17.5 | 22.0 | 23.5 | 22.0 | --- | 32.0 | 28.5 |
| 5 | 23.0 | 19.0 | 16.0 | 10.0 | 10.0 | 16.5 | 20.0 | 23.5 | 23.0 | 27.0 | 33.0 | 27.0 |
| 6 | 23.5 | 19.0 | 17.0 | 10.0 | 10.0 | 16.0 | 21.0 | 26.0 | 25.5 | 27.0 | 32.5 | 28.5 |
| 7 | 25.0 | 20.0 | 17.0 | 11.0 | 11.0 | 16.0 | 21.5 | 26.5 | 27.0 | 27.5 | 32.0 | 31.0 |
| 8 | 24.0 | 20.0 | 16.0 | 11.0 | 10.0 | 15.0 | 22.0 | 25.0 | 27.5 | 28.0 | 31.5 | 30.0 |
| 9 | 25.0 | 21.0 | 15.0 | 10.0 | 12.0 | 14.5 | 23.0 | 21.0 | 28.5 | 29.0 | 28.5 | 29.0 |
| 10 | 22.0 | 23.0 | 13.5 | 12.0 | 11.0 | 15.0 | 24.0 | 20.0 | 28.0 | 30.0 | 31.5 | 27.5 |
| 11 | 21.0 | 22.0 | 11.0 | 11.0 | 7.0 | 14.5 | 24.0 | 20.0 | 27.0 | 29.0 | 32.0 | 29.5 |
| 12 | 22.5 | 20.0 | 12.5 | 11.0 | 7.5 | 15.0 | 23.0 | 22.0 | 27.0 | 30.0 | 31.0 | 28.0 |
| 13 | 23.0 | 19.0 | 15.0 | 10.0 | 10.0 | 17.0 | 24.5 | 22.5 | 26.5 | 30.5 | 31.5 | 30.0 |
| 14 | 23.5 | 18.0 | 13.5 | 11.0 | 10.0 | 18.0 | 24.0 | 22.0 | 26.0 | 31.0 | 31.5 | 27.5 |
| 15 | 24.0 | 15.0 | 15.0 | 10.0 | 11.5 | 18.0 | 24.5 | 20.5 | 27.0 | 32.0 | 31.0 | 28.0 |
| 16 | 25.0 | 13.0 | 15.0 | 9.0 | 12.0 | 19.0 | 24.5 | --- | 24.5 | 33.0 | 30.0 | 26.5 |
| 17 | 22.5 | 11.5 | 15.0 | --- | 15.0 | 19.0 | 26.0 | 19.0 | 24.5 | 33.0 | 30.5 | 24.5 |
| 18 | 21.0 | 12.0 | 16.0 | 8.0 | 15.5 | 16.0 | 24.0 | 21.0 | 27.0 | 33.0 | 28.0 | 23.0 |
| 19 | 21.0 | 12.0 | --- | 8.0 | 18.0 | 16.0 | 25.0 | 20.5 | 28.5 | 31.5 | 29.0 | 23.0 |
| 20 | 21.0 | 13.0 | 10.0 | 9.0 | 19.0 | 17.0 | 26.0 | 22.5 | 28.0 | 33.0 | 30.0 | 23.5 |
| 21 | 21.0 | 12.0 | 8.0 | 8.0 | --- | --- | 24.0 | 24.0 | 28.0 | 32.5 | 30.0 | 26.0 |
| 22 | 21.5 | 11.0 | 10.0 | 10.0 | 18.0 | 16.0 | 23.5 | 24.0 | 28.5 | 33.0 | 28.0 | 26.5 |
| 23 | 21.5 | 11.0 | 14.0 | 11.0 | 18.0 | 18.0 | 24.0 | 25.5 | 28.5 | 32.0 | 28.5 | 27.5 |
| 24 | 19.0 | 15.0 | 11.0 | 12.0 | 18.0 | 19.5 | 25.5 | --- | 28.0 | 34.0 | 30.0 | 26.0 |
| 25 | 17.0 | 10.0 | --- | 12.0 | 17.0 | 18.0 | 23.0 | 22.5 | 27.5 | 31.5 | 31.5 | 27.5 |
| 26 | 17.0 | 9.5 | 10.0 | 14.0 | 18.0 | 20.0 | 25.0 | 24.0 | 28.0 | 30.5 | 30.5 | 28.0 |
| 27 | 20.0 | 9.0 | 10.0 | 14.0 | 18.0 | 21.0 | 26.0 | 26.0 | 27.5 | 32.0 | 30.5 | 27.0 |
| 28 | 16.0 | 11.0 | 9.0 | 14.0 | 18.0 | 20.0 | 27.0 | 28.0 | 27.5 | 33.0 | 31.5 | 28.0 |
| 29 | 15.0 | --- | 11.0 | 16.0 | --- | 18.5 | 28.0 | 27.0 | 28.5 | 33.5 | 29.5 | 27.5 |
| 30 | 15.0 | 12.0 | 11.0 | 13.0 | --- | 22.0 | 28.5 | 28.5 | 28.5 | 34.0 | 30.0 | 28.0 |
| 31 | 14.0 | --- | 11.0 | 12.0 | --- | 19.0 | --- | 30.0 | --- | 32.5 | 28.0 | --- |
| MEAN | 21.5 | 15.5 | 13.0 | 11.0 | 13.5 | 17.5 | 24.0 | 24.0 | 27.0 | 31.0 | 30.5 | 27.5 |

WTR YR 1981 MEAN 21.5 MAX 34.0 MIN 7.0

## 08064700 TEHUACANA CREEK NEAR STREETMAN, TX

LOCATION.--Lat 31°50'54", long 96°17'23", Freestone County, Hydrologic Unit 12030201, on downstream side of bridge on U.S. Highway 75, 2.8 mi (4.5 km) southeast of Streetman, 3.1 mi (5.0 km) downstream from Chicago, Rock Island, and Pacific Railroad Co. bridge, 3.8 mi (6.1 km) upstream from Caney Creek, and 25 mi (40 km) upstream from mouth.

DRAINAGE AREA.--142 $mi^2$ (368 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1968 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 287.58 ft (87.654 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair except those for June 4-9, which are poor.

AVERAGE DISCHARGE.--13 years, 72.8 $ft^3/s$ (2.062 $m^3/s$), 6.96 in/yr (177 mm/yr), 52,740 acre-ft/yr (65.0 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,100 $ft^3/s$ (654 $m^3/s$) May 10, 1968, gage height, 25.00 ft (7.620 m); no flow at times most years.
Maximum stage since at least 1932, that of May 10, 1968.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in September 1932 reached a stage of about 24 ft (7.3 m), from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 $ft^3/s$ (70.8 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| June 5 | 0930 | 2,850 | 80.7 | 21.65 | 6.599 |
| June 14 | 1300 | *8,840 | 250 | 24.50 | 7.468 |
| June 16 | 1700 | 3,440 | 97.4 | 22.57 | 6.879 |

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | .00 | .01 | .45 | .42 | 1.9 | .01 | .02 | 3.3 | .05 | .07 |
| 2 | .00 | .00 | .00 | .01 | .43 | .50 | .57 | .00 | .03 | 5.1 | .04 | .08 |
| 3 | .00 | .00 | .00 | .01 | .36 | 1.9 | .27 | .01 | 6.0 | 22 | .03 | .08 |
| 4 | .00 | .00 | .00 | .01 | .33 | 3.4 | .42 | .02 | 9.8 | 34 | .02 | .07 |
| 5 | .00 | .00 | .00 | .01 | .50 | 14 | 5.4 | .02 | 1580 | 184 | .01 | .06 |
| 6 | .00 | .00 | .00 | .01 | .71 | 5.6 | 4.4 | .02 | 295 | 180 | .00 | .05 |
| 7 | .00 | .00 | .00 | .01 | .72 | 2.0 | 1.4 | .02 | 78 | 36 | .00 | .04 |
| 8 | .00 | .00 | .00 | .01 | .80 | 3.9 | .53 | .01 | 39 | 12 | .00 | .15 |
| 9 | .00 | .00 | .00 | .01 | 2.4 | 11 | .26 | .09 | 22 | 5.9 | .00 | .11 |
| 10 | .00 | .00 | .15 | .01 | 2.4 | 3.6 | .17 | 5.4 | 12 | 3.4 | .00 | .07 |
| 11 | .00 | .00 | 2.0 | .01 | 7.5 | 1.4 | .12 | 3.8 | 34 | 2.0 | .00 | .06 |
| 12 | .00 | .00 | .81 | .01 | 5.8 | .74 | .08 | 1.0 | 115 | 1.3 | .00 | .05 |
| 13 | .00 | .00 | .32 | .01 | 2.0 | .41 | .04 | .50 | 142 | .86 | .00 | .04 |
| 14 | .00 | .00 | .15 | .01 | .89 | .23 | .04 | .28 | 4920 | .59 | .00 | .03 |
| 15 | .00 | .00 | .10 | .01 | .54 | .14 | .03 | .16 | 1480 | .45 | .00 | .02 |
| 16 | .00 | .00 | .10 | .01 | .36 | .10 | .02 | 15 | 1620 | .36 | .47 | .01 |
| 17 | .00 | .00 | .08 | .01 | .28 | .07 | .02 | 19 | 1010 | .28 | 1.2 | .00 |
| 18 | .00 | .00 | .07 | .01 | .27 | .05 | .02 | 12 | 148 | .22 | .34 | .00 |
| 19 | .00 | .00 | .05 | .02 | .31 | .05 | .01 | 3.4 | 46 | .20 | .17 | .00 |
| 20 | .00 | .00 | .03 | .06 | .30 | .04 | .01 | .86 | 24 | .17 | .15 | .00 |
| 21 | .00 | .00 | .02 | .14 | .27 | .04 | .01 | .22 | 15 | .16 | .10 | .00 |
| 22 | .00 | .00 | .02 | 1.0 | .35 | .04 | .01 | .07 | 11 | .13 | .08 | .00 |
| 23 | .00 | .00 | .02 | 1.5 | .36 | .03 | .11 | .07 | 7.9 | .13 | .07 | .00 |
| 24 | .00 | .00 | .02 | 2.0 | .39 | .03 | .12 | 6.0 | 6.8 | .12 | .05 | .00 |
| 25 | .00 | .00 | .01 | 1.6 | .39 | .03 | .03 | 4.5 | 5.3 | .10 | .04 | .00 |
| 26 | .00 | .00 | .00 | 1.2 | .36 | .03 | .02 | 8.2 | 4.4 | .09 | .03 | .00 |
| 27 | .00 | .00 | .01 | .89 | .33 | .03 | .02 | 2.3 | 3.7 | .09 | .02 | .00 |
| 28 | .00 | .00 | .03 | .66 | .32 | .03 | .01 | .67 | 3.2 | .09 | .01 | .00 |
| 29 | .00 | .00 | .03 | .54 | --- | .54 | .01 | .28 | 2.8 | .09 | .00 | .00 |
| 30 | .00 | .00 | .02 | .45 | --- | 20 | .01 | .10 | 3.0 | .08 | .00 | .00 |
| 31 | .00 | --- | .02 | .39 | --- | 7.4 | --- | .04 | --- | .07 | .00 | --- |
| TOTAL | .00 | .00 | 4.06 | 10.63 | 30.12 | 77.75 | 16.06 | 84.05 | 11643.95 | 493.28 | 2.88 | .99 |
| MEAN | .000 | .000 | .13 | .34 | 1.08 | 2.51 | .54 | 2.71 | 388 | 15.9 | .093 | .033 |
| MAX | .00 | .00 | 2.0 | 2.0 | 7.5 | 20 | 5.4 | 19 | 4920 | 184 | 1.2 | .15 |
| MIN | .00 | .00 | .00 | .01 | .27 | .03 | .01 | .00 | .02 | .07 | .00 | .00 |
| CFSM | .000 | .000 | .001 | .002 | .008 | .02 | .004 | .02 | 2.73 | .11 | .001 | .000 |
| IN. | .00 | .00 | .00 | .00 | .01 | .02 | .00 | .02 | 3.05 | .13 | .00 | .00 |
| AC-FT | .00 | .00 | 8.1 | 21 | 60 | 154 | 32 | 167 | 23100 | 978 | 5.7 | 2.0 |

CAL YR 1980 TOTAL 19282.74 MEAN 52.7 MAX 3470 MIN .00 CFSM .37 IN 5.05 AC-FT 38250
WTR YR 1981 TOTAL 12363.77 MEAN 33.9 MAX 4920 MIN .00 CFSM .24 IN 3.24 AC-FT 24520

08064700 TEHUACANA CREEK NEAR STREETMAN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: February 1968 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | TEMPER-ATURE, WATER (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 07... | 1400 | .01 | 3980 | 8.0 | 770 | 540 | 170 | 83 | 590 |
| FEB | | | | | | | | | |
| 19... | 1400 | .31 | 1530 | 17.0 | 340 | 200 | 85 | 32 | 180 |
| JUN | | | | | | | | | |
| 05... | 1215 | 2640 | 98 | -- | 30 | 0 | 7.6 | 2.6 | 6.1 |
| 11... | 0830 | 24 | 460 | 28.5 | 120 | 19 | 31 | 10 | 40 |
| JUL | | | | | | | | | |
| 22... | 1240 | .13 | 1470 | 31.5 | 360 | 120 | 88 | 35 | 170 |
| SEP | | | | | | | | | |
| 02... | 1620 | .08 | 2010 | 26.0 | 490 | 220 | 110 | 53 | 230 |

| DATE | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY (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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| 07... | 9.3 | 7.3 | 230 | 500 | 930 | .5 | 7.1 | 2430 |
| FEB | | | | | | | | |
| 19... | 4.2 | 6.1 | 140 | 250 | 250 | .3 | 2.1 | 890 |
| JUN | | | | | | | | |
| 05... | .5 | 4.1 | 30 | 4.8 | 6.2 | .1 | 11 | 61 |
| 11... | 1.6 | 7.1 | 100 | 38 | 55 | .2 | 16 | 257 |
| JUL | | | | | | | | |
| 22... | 4.2 | 5.7 | 240 | 200 | 210 | .4 | 15 | 868 |
| SEP | | | | | | | | |
| 02... | 4.5 | 5.2 | 270 | 270 | 340 | .5 | 8.6 | 1180 |

## 08064800 CATFISH CREEK NEAR TENNESSEE COLONY, TX

LOCATION.--Lat 31°52'51", long 95°52'07", Anderson County, Hydrologic Unit 12030201, on left bank 35 ft (11 m) downstream from bridge on U.S. Highway 287, 2 mi (3 km) upstream from Beaver Creek, 3.5 mi (5.6 km) northwest of Tennessee Colony, 12 mi (19 km) downstream from Coon Creek Lake, and 12 mi (19 km) upstream from mouth.

DRAINAGE AREA.--207 $mi^2$ (536 $km^2$).

PERIOD OF RECORD.--April 1962 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 234.93 ft (71.607 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Some regulation upstream by Coon Creek Lake. No known diversion above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--19 years, 101 $ft^3/s$ (2.860 $m^3/s$), 73,170 acre-ft/yr (90.2 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,550 $ft^3/s$ (214 $m^3/s$) May 11, 1968, gage height, 15.90 ft (4.846 m); minimum daily, 0.8 $ft^3/s$ (0.023 $m^3/s$) Aug. 19-21, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1927, 22 ft (6.7 m) in June 1944 as a result of dam failure at Coon Creek Lake, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,360 $ft^3/s$ (38.5 $m^3/s$) June 6 at 2000 hours, gage height, 11.14 ft (3.395 m), no peak above base of 1,400 $ft^3/s$ (39.6 $m^3/s$); minimum daily, 3.3 $ft^3/s$ (0.093 $m^3/s$) Aug. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 10 | 9.3 | 32 | 29 | 49 | 56 | 70 | 26 | 82 | 33 | 6.3 | 5.0 |
| 2 | 11 | 9.0 | 30 | 29 | 58 | 73 | 67 | 23 | 78 | 29 | 6.1 | 6.1 |
| 3 | 10 | 8.8 | 28 | 28 | 68 | 91 | 64 | 22 | 99 | 26 | 5.8 | 6.5 |
| 4 | 8.0 | 9.4 | 30 | 28 | 67 | 103 | 63 | 22 | 211 | 26 | 5.6 | 7.0 |
| 5 | 6.5 | 9.5 | 33 | 28 | 66 | 98 | 62 | 26 | 730 | 31 | 5.3 | 7.8 |
| 6 | 5.5 | 9.8 | 32 | 31 | 70 | 102 | 62 | 31 | 1270 | 42 | 5.1 | 14 |
| 7 | 4.9 | 9.9 | 50 | 36 | 75 | 114 | 62 | 32 | 1220 | 65 | 4.9 | 22 |
| 8 | 4.8 | 10 | 100 | 42 | 77 | 116 | 62 | 29 | 804 | 70 | 4.8 | 25 |
| 9 | 5.6 | 14 | 90 | 48 | 72 | 109 | 62 | 37 | 508 | 62 | 4.2 | 23 |
| 10 | 5.6 | 12 | 80 | 50 | 87 | 102 | 61 | 66 | 355 | 49 | 3.7 | 17 |
| 11 | 5.3 | 11 | 69 | 50 | 90 | 90 | 58 | 95 | 266 | 40 | 3.4 | 13 |
| 12 | 5.0 | 11 | 64 | 47 | 98 | 78 | 52 | 170 | 268 | 33 | 3.4 | 10 |
| 13 | 5.7 | 10 | 58 | 43 | 95 | 71 | 42 | 295 | 356 | 27 | 3.3 | 8.9 |
| 14 | 5.6 | 15 | 53 | 38 | 74 | 65 | 38 | 248 | 350 | 23 | 3.4 | 7.7 |
| 15 | 5.5 | 30 | 48 | 37 | 63 | 61 | 35 | 164 | 286 | 19 | 3.5 | 7.3 |
| 16 | 5.8 | 70 | 44 | 37 | 59 | 57 | 33 | 141 | 284 | 16 | 3.6 | 8.4 |
| 17 | 8.2 | 100 | 42 | 37 | 56 | 54 | 31 | 130 | 279 | 13 | 4.4 | 9.2 |
| 18 | 7.7 | 65 | 40 | 35 | 54 | 50 | 27 | 133 | 331 | 12 | 5.3 | 11 |
| 19 | 7.6 | 45 | 38 | 36 | 53 | 45 | 26 | 151 | 352 | 11 | 6.0 | 12 |
| 20 | 7.4 | 35 | 36 | 49 | 53 | 46 | 25 | 148 | 276 | 9.9 | 5.7 | 10 |
| 21 | 6.7 | 25 | 35 | 62 | 54 | 42 | 25 | 123 | 216 | 9.1 | 5.2 | 8.6 |
| 22 | 9.1 | 20 | 33 | 69 | 58 | 37 | 24 | 95 | 170 | 8.4 | 5.1 | 7.7 |
| 23 | 11 | 20 | 32 | 74 | 59 | 35 | 27 | 76 | 133 | 7.8 | 4.9 | 7.2 |
| 24 | 10 | 25 | 30 | 75 | 62 | 38 | 37 | 75 | 103 | 7.3 | 4.8 | 6.8 |
| 25 | 9.9 | 30 | 28 | 65 | 58 | 35 | 47 | 79 | 82 | 6.8 | 4.5 | 6.5 |
| 26 | 9.8 | 40 | 32 | 56 | 53 | 32 | 46 | 94 | 70 | 6.8 | 4.3 | 6.1 |
| 27 | 10 | 45 | 31 | 51 | 50 | 32 | 39 | 109 | 62 | 7.0 | 3.9 | 6.0 |
| 28 | 11 | 42 | 28 | 48 | 48 | 31 | 33 | 110 | 54 | 6.9 | 3.7 | 5.8 |
| 29 | 11 | 40 | 27 | 49 | --- | 43 | 28 | 96 | 46 | 6.9 | 3.7 | 5.6 |
| 30 | 10 | 35 | 28 | 46 | --- | 81 | 27 | 84 | 39 | 6.9 | 3.8 | 5.4 |
| 31 | 9.7 | --- | 29 | 42 | --- | 76 | --- | 81 | --- | 6.8 | 4.3 | --- |
| TOTAL | 243.9 | 815.7 | 1330 | 1395 | 1826 | 2063 | 1335 | 3011 | 9380 | 717.6 | 142.0 | 296.6 |
| MEAN | 7.87 | 27.2 | 42.9 | 45.0 | 65.2 | 66.5 | 44.5 | 97.1 | 313 | 23.1 | 4.58 | 9.89 |
| MAX | 11 | 100 | 100 | 75 | 98 | 116 | 70 | 295 | 1270 | 70 | 6.3 | 25 |
| MIN | 4.8 | 8.8 | 27 | 28 | 48 | 31 | 24 | 22 | 39 | 6.8 | 3.3 | 5.0 |
| AC-FT | 484 | 1620 | 2640 | 2770 | 3620 | 4090 | 2650 | 5970 | 18610 | 1420 | 282 | 588 |

CAL YR 1980 TOTAL 27407.8 MEAN 74.9 MAX 600 MIN 3.3 AC-FT 54360
WTR YR 1981 TOTAL 22555.8 MEAN 61.8 MAX 1270 MIN 3.3 AC-FT 44740

## 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 (2.4 km) upstream from Missouri Pacific Railroad Co. bridge, 6 mi (10 km) northeast of Oakwood, and at mile 313.4 (504.3 km).

DRAINAGE AREA.--12,833 $mi^2$ (33,237 $km^2$).

### WATER-DISCHARGE RECORDS

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.

GAGE.--Water-stage recorder. Datum of gage is 175.06 ft (53.358 m) National Geodetic Vertical Datum of 1929. Prior to July 15, 1932, nonrecording gage at site 1.5 mi (2.4 km) downstream at datum 1.06 ft (0.323 m) lower. July 15, 1932, to Oct. 7, 1934, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good. Twenty-one major reservoirs with a capacity of 4,200,000 acre-ft (5.18 $km^3$), of which 1,362,000 acre-ft (1.68 $km^3$) is for flood control, partly regulate the flow. Flow is affected at times by discharge from the flood-detention pools of 247 floodwater-retarding structures with a combined detention capacity of 182,800 acre-ft (225 $hm^3$). These structures control runoff from 611 $mi^2$ (1,582 $km^2$) in the Richland, Chambers, and Tehuacana Creeks drainage basins. The Industrial Generating Co., Fairfield, makes a minor diversion from the river at a site about 34 mi (55 km) 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.--30 years (water years 1924-53) unregulated, 5,045 $ft^3/s$ (142.9 $m^3/s$), 3,655,000 acre-ft/yr (4.51 $km^3/yr$); 28 years (water years 1954-81) regulated, 4,353 $ft^3/s$ (123.3 $m^3/s$), 3,154,000 acre-ft/yr (3.89 $km^3/yr$).

The figures published in the 1980 report were in error; the correct figures are 27 years (water years 1954-80) regulated, 4,397 $ft^3/s$ (124.5$^3/s$), 3,186,000 acre-ft/yr (3.93 $km^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 153,000 $ft^3/s$ (4,330 $m^3/s$), Apr. 29, 1942, gage height, 51.64 ft (15.740 m); minimum observed, 28 $ft^3/s$ (0.79 $m^3/s$) Aug. 24, 1925.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1890 reached a stage of 53 ft (16.2 m), discharge about 180,000 $ft^3/s$ (5,100 $m^3/s$) and was the highest since that date, from information in local newspapers. Flood of June 4, 1908, reached a stage of 52.2 ft (15.91 m), present site and datum, from information by the National Weather Service, discharge about 164,000 $ft^3/s$ (4,640 $m^3/s$).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 31,300 $ft^3/s$ (886 $m^3/s$) June 23 at 1700 hours, gage height, 41.94 ft (12.783 m); minimum daily, 473 $ft^3/s$ (13.4 $m^3/s$) Nov. 13.

REVISIONS.--The maximum and minimum daily discharges for water years 1980 have been revised to 17,700 $ft^3/s$ (501 $m^3/s$) Jan. 29, 1980, gage height, 36.04 ft (10.985 m) and 386 $ft^3/s$ (10.9 $m^3/s$) Sept. 25, 26, 1980. They supersede figures published in the report for 1980.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1340 | 544 | 678 | 659 | 701 | 779 | 5740 | 859 | 5790 | 6010 | 1000 | 657 |
| 2 | 3210 | 528 | 641 | 659 | 726 | 844 | 6850 | 969 | 3950 | 4880 | 1140 | 673 |
| 3 | 5270 | 510 | 616 | 681 | 740 | 896 | 4920 | 1160 | 2880 | 4550 | 994 | 699 |
| 4 | 6000 | 490 | 610 | 683 | 741 | 1840 | 2720 | 2380 | 7620 | 4420 | 845 | 1180 |
| 5 | 4240 | 487 | 621 | 672 | 856 | 3330 | 1650 | 2910 | 12800 | 4610 | 769 | 2780 |
| 6 | 2030 | 480 | 641 | 670 | 943 | 4290 | 1480 | 1920 | 14400 | 6270 | 705 | 3170 |
| 7 | 1060 | 492 | 650 | 672 | 896 | 4890 | 1660 | 1230 | 15900 | 9580 | 696 | 2330 |
| 8 | 725 | 502 | 658 | 683 | 845 | 4710 | 1630 | 1140 | 17300 | 11200 | 685 | 1600 |
| 9 | 638 | 494 | 721 | 719 | 855 | 3030 | 1290 | 1130 | 19700 | 12000 | 678 | 1190 |
| 10 | 628 | 493 | 852 | 767 | 1180 | 2000 | 1050 | 1920 | 24000 | 12500 | 663 | 922 |
| 11 | 599 | 495 | 2800 | 760 | 1200 | 2690 | 952 | 6790 | 28100 | 12800 | 670 | 788 |
| 12 | 574 | 482 | 4790 | 742 | 1100 | 2560 | 892 | 8850 | 29900 | 11200 | 644 | 804 |
| 13 | 554 | 473 | 4020 | 740 | 1120 | 1780 | 859 | 9660 | 28900 | 6700 | 610 | 833 |
| 14 | 532 | 480 | 2300 | 726 | 1250 | 1320 | 831 | 10000 | 27200 | 3530 | 607 | 765 |
| 15 | 510 | 535 | 1380 | 715 | 1130 | 1120 | 794 | 10200 | 25100 | 2450 | 620 | 712 |
| 16 | 488 | 587 | 1040 | 707 | 947 | 985 | 755 | 9100 | 23100 | 1850 | 622 | 699 |
| 17 | 491 | 667 | 928 | 710 | 856 | 946 | 743 | 6110 | 21200 | 1520 | 661 | 1030 |
| 18 | 525 | 642 | 876 | 706 | 808 | 879 | 733 | 6380 | 19500 | 1420 | 688 | 1890 |
| 19 | 550 | 634 | 825 | 708 | 780 | 832 | 718 | 6810 | 18400 | 1320 | 657 | 1600 |
| 20 | 871 | 972 | 797 | 778 | 746 | 803 | 706 | 5420 | 18100 | 1220 | 760 | 1090 |
| 21 | 1970 | 1290 | 778 | 812 | 743 | 786 | 752 | 3430 | 19800 | 1140 | 1210 | 852 |
| 22 | 1700 | 1080 | 755 | 802 | 777 | 768 | 1790 | 2240 | 26000 | 1110 | 1340 | 757 |
| 23 | 1030 | 834 | 743 | 853 | 789 | 740 | 2280 | 1740 | 30400 | 1060 | 1040 | 703 |
| 24 | 736 | 729 | 732 | 932 | 779 | 719 | 1610 | 1580 | 30100 | 1010 | 810 | 664 |
| 25 | 680 | 691 | 721 | 908 | 1020 | 699 | 1130 | 2230 | 28100 | 972 | 738 | 657 |
| 26 | 640 | 800 | 710 | 866 | 1070 | 674 | 1620 | 4450 | 26100 | 943 | 666 | 664 |
| 27 | 627 | 927 | 698 | 824 | 910 | 673 | 2440 | 5500 | 23500 | 911 | 640 | 662 |
| 28 | 612 | 868 | 687 | 763 | 788 | 678 | 1940 | 4450 | 20100 | 898 | 634 | 669 |
| 29 | 595 | 780 | 676 | 747 | --- | 716 | 1240 | 3490 | 14900 | 888 | 634 | 689 |
| 30 | 579 | 728 | 665 | 705 | --- | 773 | 945 | 5140 | 9460 | 858 | 631 | 657 |
| 31 | 560 | --- | 661 | 685 | --- | 1780 | --- | 6560 | --- | 856 | 647 | --- |
| TOTAL | 40564 | 19714 | 34270 | 23054 | 25296 | 49530 | 52720 | 135748 | 592300 | 130676 | 23704 | 32386 |
| MEAN | 1309 | 657 | 1105 | 744 | 903 | 1598 | 1757 | 4379 | 19740 | 4215 | 765 | 1080 |
| MAX | 6000 | 1290 | 4790 | 932 | 1250 | 4890 | 6850 | 10200 | 30400 | 12800 | 1340 | 3170 |
| MIN | 488 | 473 | 610 | 659 | 701 | 673 | 706 | 859 | 2880 | 856 | 607 | 657 |
| AC-FT | 80460 | 39100 | 67970 | 45730 | 50170 | 98240 | 104600 | 269300 | 1175000 | 259200 | 47020 | 64240 |

CAL YR 1980 TOTAL 862148 MEAN 2356 MAX 17600 MIN 386 AC-FT 1710000
WTR YR 1981 TOTAL 1159962 MEAN 3178 MAX 30400 MIN 473 AC-FT 2301000

08065000 TRINITY RIVER NEAR OAKWOOD, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Sediment analyses: December 1976 to September 1981 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1976 to September 1981 (discontinued).
WATER TEMPERATURES: December 1976 to September 1981 (discontinued).
SUSPENDED-SEDIMENT DISCHARGE: December 1976 to September 1981 (discontinued).

EXTREMES FOR PERIOD OF RECORD.--
SPECIFIC CONDUCTANCE (1976-80): Maximum daily, 991 micromhos Sept. 14, 1977; minimum daily, 204 micromhos June 20, 1977.
WATER TEMPERATURES (1976-80): Maximum daily, 32.0°C June 11, 1977; minimum daily, 2.0°C Jan. 9, 1977.
SEDIMENT CONCENTRATIONS (1976-80): Maximum daily mean, 1,920 mg/L Jan. 22, 1979; minimum daily mean, 20 mg/L Aug. 6, 1977, Oct. 14, 1977, Jan. 4, 1978.
SEDIMENT LOADS (1976-80): Maximum daily, 43,800 tons Jan. 24, 1980; minimum daily, 34 tons Jan. 4, 1978.
EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Minimum daily, 7.0°C Jan. 24.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | TEMPER-ATURE (DEG C) | SEDI-MENT, SUS-PENDED (MG/L) | SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) | SED. SUSP. FALL DIAM. % FINER THAN .002 MM | SED. SUSP. FALL DIAM. % FINER THAN .004 MM |
|---|---|---|---|---|---|---|---|
| DEC | | | | | | | |
| 13... | 0750 | 4300 | 12.0 | 642 | 7450 | 77 | 82 |
| MAR | | | | | | | |
| 07... | 0630 | 4720 | 15.0 | 747 | 9520 | 82 | 82 |
| APR | | | | | | | |
| 01... | 1630 | 6450 | 20.0 | 2140 | 37300 | 71 | 78 |
| MAY | | | | | | | |
| 18... | 0617 | 6100 | 22.0 | 1750 | 28800 | 83 | 85 |

| DATE | SED. SUSP. FALL DIAM. % FINER THAN .008 MM | SED. SUSP. FALL DIAM. % FINER THAN .016 MM | SED. SUSP. FALL DIAM. % FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM |
|---|---|---|---|---|---|---|
| DEC | | | | | | |
| 13... | 89 | 86 | 95 | 98 | 99 | 100 |
| MAR | | | | | | |
| 07... | 88 | 92 | 98 | 98 | 99 | 100 |
| APR | | | | | | |
| 01... | 84 | 90 | 96 | 99 | 100 | -- |
| MAY | | | | | | |
| 18... | 90 | 96 | 99 | 99 | 100 | -- |

08065000 TRINITY RIVER NEAR OAKWOOD, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | --- | 724 | 800 | 735 | 730 | 441 | 526 | 375 | 373 | | |
| 2 | | --- | 727 | 800 | 727 | 717 | 395 | 507 | --- | --- | | |
| 3 | | --- | 665 | 788 | 734 | --- | 488 | 523 | --- | 380 | | |
| 4 | | 792 | 696 | 791 | --- | 656 | 541 | 667 | --- | --- | | |
| 5 | | 810 | 684 | 781 | --- | 766 | 519 | 605 | 212 | --- | | |
| 6 | | 826 | 710 | 755 | 708 | 379 | 529 | 440 | 214 | 418 | | |
| 7 | | 797 | 707 | 742 | 709 | 347 | 548 | 492 | 205 | 347 | | |
| 8 | | 802 | --- | 740 | 724 | 500 | 565 | 474 | 210 | 301 | | |
| 9 | | 828 | 725 | 736 | 730 | 436 | 621 | --- | 228 | 285 | | |
| 10 | | 832 | 723 | 723 | 620 | 436 | 685 | 523 | --- | 321 | | |
| 11 | | 850 | 756 | 733 | --- | 489 | 671 | 322 | 262 | 338 | | |
| 12 | | 845 | 478 | 741 | 643 | --- | 614 | 279 | 261 | 345 | | |
| 13 | | 849 | 472 | 734 | 652 | 568 | 620 | 343 | 286 | 382 | | |
| 14 | | 850 | 421 | 739 | 717 | 471 | 615 | 345 | 309 | --- | | |
| 15 | | 808 | 443 | 732 | 706 | 464 | 654 | --- | 321 | 470 | | |
| 16 | | 822 | 464 | 719 | 714 | 490 | 661 | 361 | 313 | --- | | |
| 17 | | 801 | 486 | 742 | 724 | 533 | 688 | 391 | 283 | --- | | |
| 18 | | 785 | 513 | 736 | 716 | 583 | 718 | 401 | 279 | --- | | |
| 19 | | 791 | 566 | --- | 691 | 627 | 728 | 377 | 255 | --- | | |
| 20 | | 786 | 595 | 754 | 650 | 659 | 743 | 393 | 253 | --- | | |
| 21 | | 767 | 636 | 743 | 656 | 700 | 773 | 445 | 253 | --- | | |
| 22 | | 795 | 688 | 723 | 653 | 714 | 781 | 461 | 263 | --- | | |
| 23 | | 805 | 721 | 701 | 690 | --- | 721 | 454 | 277 | --- | | |
| 24 | | 760 | 742 | 723 | 706 | 749 | 710 | 457 | 299 | --- | | |
| 25 | | --- | 742 | 738 | --- | 756 | 586 | 486 | 324 | --- | | |
| 26 | | --- | 760 | 737 | 723 | 743 | 611 | 374 | 335 | --- | | |
| 27 | | 617 | 778 | 756 | 726 | 744 | 580 | 406 | 344 | --- | | |
| 28 | | 651 | 780 | 734 | 741 | 759 | 576 | 460 | 345 | --- | | |
| 29 | | 668 | 809 | 724 | --- | 754 | 526 | --- | 343 | --- | | |
| 30 | | 696 | 811 | 724 | --- | 748 | 571 | 488 | 354 | --- | | |
| 31 | | --- | 798 | 700 | --- | 759 | --- | 350 | --- | --- | | |
| MEAN | | 785 | 661 | 743 | 700 | 617 | 616 | 441 | 285 | 360 | | |

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | --- | 14.0 | 10.5 | 12.0 | 16.5 | 20.0 | 27.0 | 28.0 | 30.5 | | |
| 2 | | --- | 12.0 | 11.5 | 10.0 | 17.5 | 19.5 | 25.0 | --- | --- | | |
| 3 | | --- | 13.0 | 9.0 | 11.0 | --- | 19.5 | 25.0 | --- | 30.0 | | |
| 4 | | 19.0 | 13.5 | 9.0 | --- | 18.0 | 20.0 | 25.0 | --- | --- | | |
| 5 | | 17.0 | 16.0 | 9.5 | --- | 16.5 | 19.0 | 24.5 | 24.0 | --- | | |
| 6 | | 16.0 | 16.0 | 9.5 | 9.5 | 16.0 | 22.0 | 24.5 | 23.5 | 29.5 | | |
| 7 | | 16.5 | 16.5 | 10.0 | 10.0 | 15.0 | 19.5 | 26.0 | 25.5 | 27.5 | | |
| 8 | | 19.0 | --- | 11.5 | 9.5 | 15.5 | 20.0 | 25.0 | 28.0 | 29.0 | | |
| 9 | | 23.0 | 13.0 | 11.0 | 11.0 | 16.5 | 21.0 | --- | 29.0 | 29.5 | | |
| 10 | | 19.5 | 13.0 | 10.5 | 9.5 | 16.0 | 24.5 | 22.0 | --- | 30.5 | | |
| 11 | | 21.0 | 13.5 | 11.0 | --- | 15.5 | 22.5 | 21.0 | 27.5 | 29.5 | | |
| 12 | | 21.0 | 14.5 | 10.5 | 7.5 | --- | 22.5 | 20.5 | 28.0 | 29.5 | | |
| 13 | | 17.0 | 12.0 | 10.5 | 9.0 | 15.5 | 25.0 | 22.0 | 27.0 | 32.0 | | |
| 14 | | 19.5 | 13.5 | 11.0 | 9.5 | 16.5 | 23.0 | 21.0 | 28.0 | --- | | |
| 15 | | 16.0 | 14.0 | 11.0 | 12.0 | 18.0 | 22.0 | --- | 28.0 | 33.0 | | |
| 16 | | 14.0 | 14.5 | 9.5 | 8.0 | 17.5 | 23.0 | 20.5 | 27.0 | --- | | |
| 17 | | 12.0 | 15.0 | 8.5 | 14.5 | 18.0 | 23.0 | 21.5 | 27.0 | --- | | |
| 18 | | 12.0 | 15.5 | 8.0 | 14.5 | 14.5 | 23.0 | 22.0 | 27.0 | --- | | |
| 19 | | 14.0 | 11.0 | --- | 16.5 | 16.0 | 24.0 | 20.5 | 28.5 | --- | | |
| 20 | | 15.0 | 10.0 | 8.0 | 17.0 | 17.0 | 23.5 | 22.5 | 29.0 | --- | | |
| 21 | | 14.5 | 9.0 | 8.0 | 17.0 | 18.0 | 24.0 | 24.5 | 28.5 | --- | | |
| 22 | | 13.0 | 9.5 | 9.5 | 16.5 | 15.5 | 24.5 | 24.5 | 30.0 | --- | | |
| 23 | | 12.0 | 11.0 | 11.0 | 17.0 | --- | 24.0 | 23.0 | 30.5 | --- | | |
| 24 | | 12.0 | 9.5 | 7.0 | 17.0 | 19.5 | 21.5 | 23.0 | 30.5 | --- | | |
| 25 | | --- | 7.5 | 11.5 | --- | 17.5 | 22.5 | 23.0 | 30.0 | --- | | |
| 26 | | --- | 10.0 | 13.5 | 17.0 | 18.5 | 23.0 | 26.0 | 30.0 | --- | | |
| 27 | | 9.0 | 9.5 | --- | 17.5 | 19.5 | 26.0 | 26.0 | 29.0 | --- | | |
| 28 | | 19.0 | 9.0 | 13.5 | 17.0 | 19.0 | 26.0 | 27.0 | 29.0 | --- | | |
| 29 | | 12.0 | 10.5 | 15.0 | --- | 17.5 | 27.0 | --- | 30.5 | --- | | |
| 30 | | 12.0 | 11.5 | 13.0 | --- | 22.0 | 27.5 | 27.0 | 30.5 | --- | | |
| 31 | | --- | 11.5 | 12.0 | --- | 20.5 | --- | 25.5 | --- | --- | | |
| MEAN | | 16.0 | 12.5 | 10.5 | 13.0 | 17.5 | 23.0 | 24.0 | 28.0 | 30.0 | | |

08065000 TRINITY RIVER NEAR OAKWOOD, TX--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | |
| 1 | 1340 | | | 544 | --- | --- | 678 | 29 | 53 |
| 2 | 3210 | | | 528 | --- | --- | 641 | 26 | 45 |
| 3 | 5270 | | | 510 | --- | --- | 616 | 24 | 40 |
| 4 | 6000 | | | 490 | 22 | 29 | 610 | 21 | 35 |
| 5 | 4240 | | | 487 | 34 | 45 | 621 | 24 | 40 |
| 6 | 2030 | | | 480 | 32 | 41 | 641 | 34 | 59 |
| 7 | 1060 | | | 492 | 24 | 32 | 650 | 38 | 67 |
| 8 | 725 | | | 502 | 28 | 38 | 658 | 40 | 71 |
| 9 | 638 | | | 494 | 25 | 33 | 721 | 40 | 78 |
| 10 | 628 | | | 493 | 20 | 27 | 852 | 62 | 155 |
| 11 | 599 | | | 495 | 27 | 36 | 2800 | 376 | 3340 |
| 12 | 574 | | | 482 | 19 | 25 | 4790 | 747 | 9740 |
| 13 | 554 | | | 473 | 26 | 33 | 4020 | 576 | 6230 |
| 14 | 532 | | | 480 | 23 | 30 | 2300 | 400 | 2480 |
| 15 | 510 | | | 535 | 28 | 40 | 1380 | 275 | 1020 |
| 16 | 488 | | | 587 | 52 | 82 | 1040 | 181 | 508 |
| 17 | 491 | | | 667 | 55 | 99 | 928 | 115 | 288 |
| 18 | 525 | | | 642 | 34 | 59 | 876 | 100 | 237 |
| 19 | 550 | | | 634 | 24 | 41 | 825 | 72 | 160 |
| 20 | 871 | | | 972 | 47 | 123 | 797 | 57 | 123 |
| 21 | 1970 | | | 1290 | 70 | 244 | 778 | 32 | 67 |
| 22 | 1700 | | | 1080 | 62 | 181 | 755 | 40 | 82 |
| 23 | 1030 | | | 834 | 48 | 108 | 743 | 42 | 84 |
| 24 | 736 | | | 729 | 32 | 63 | 732 | 42 | 83 |
| 25 | 680 | | | 691 | 31 | 58 | 721 | 40 | 78 |
| 26 | 640 | | | 800 | 32 | 69 | 710 | 45 | 86 |
| 27 | 627 | | | 927 | 38 | 95 | 698 | 45 | 85 |
| 28 | 612 | | | 868 | 38 | 89 | 687 | 35 | 65 |
| 29 | 595 | | | 780 | 28 | 59 | 676 | 32 | 58 |
| 30 | 579 | | | 728 | 37 | 73 | 665 | 30 | 54 |
| 31 | 560 | | | --- | --- | --- | 661 | 35 | 62 |
| TOTAL | 40564 | | | 19714 | --- | 1852 | 34270 | --- | 25573 |

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---|---|---|---|---|---|---|---|---|---|
| | | JANUARY | | | FEBRUARY | | | MARCH | |
| 1 | 659 | 32 | 57 | 701 | 22 | 42 | 779 | 47 | 99 |
| 2 | 659 | 30 | 53 | 726 | 22 | 43 | 844 | 65 | 148 |
| 3 | 681 | 25 | 46 | 740 | 22 | 44 | 896 | 115 | 278 |
| 4 | 683 | 25 | 46 | 741 | 23 | 46 | 1840 | 188 | 949 |
| 5 | 672 | 25 | 45 | 856 | 26 | 60 | 3330 | 299 | 2800 |
| 6 | 670 | 22 | 40 | 943 | 31 | 79 | 4290 | 814 | 9410 |
| 7 | 672 | 22 | 40 | 896 | 32 | 77 | 4890 | 700 | 9240 |
| 8 | 683 | 21 | 39 | 845 | 30 | 68 | 4710 | 575 | 7310 |
| 9 | 719 | 20 | 39 | 855 | 34 | 78 | 3030 | 550 | 4500 |
| 10 | 767 | 29 | 60 | 1180 | 60 | 191 | 2000 | 400 | 2160 |
| 11 | 760 | 26 | 53 | 1200 | 90 | 292 | 2690 | 375 | 2720 |
| 12 | 742 | 22 | 44 | 1100 | 85 | 252 | 2560 | 400 | 2760 |
| 13 | 740 | 18 | 36 | 1120 | 85 | 257 | 1780 | 375 | 1800 |
| 14 | 726 | 16 | 31 | 1250 | 65 | 219 | 1320 | 300 | 1070 |
| 15 | 715 | 20 | 39 | 1130 | 55 | 168 | 1120 | 200 | 605 |
| 16 | 707 | 16 | 31 | 947 | 45 | 115 | 985 | 160 | 426 |
| 17 | 710 | 15 | 29 | 856 | 50 | 116 | 946 | 105 | 268 |
| 18 | 706 | 18 | 34 | 808 | 38 | 83 | 879 | 86 | 204 |
| 19 | 708 | 19 | 36 | 780 | 38 | 80 | 832 | 77 | 173 |
| 20 | 778 | 20 | 42 | 746 | 35 | 70 | 803 | 63 | 137 |
| 21 | 812 | 20 | 44 | 743 | 37 | 74 | 786 | 89 | 189 |
| 22 | 802 | 20 | 43 | 777 | 46 | 97 | 768 | 76 | 158 |
| 23 | 853 | 22 | 51 | 789 | 39 | 83 | 740 | 62 | 124 |
| 24 | 932 | 30 | 75 | 779 | 34 | 72 | 719 | 55 | 107 |
| 25 | 908 | 27 | 66 | 1020 | 54 | 149 | 699 | 51 | 96 |
| 26 | 866 | 26 | 61 | 1070 | 62 | 179 | 674 | 48 | 87 |
| 27 | 824 | 23 | 51 | 910 | 50 | 123 | 673 | 55 | 100 |
| 28 | 763 | 24 | 49 | 788 | 42 | 89 | 678 | 73 | 134 |
| 29 | 747 | 22 | 44 | --- | --- | --- | 716 | 76 | 147 |
| 30 | 705 | 21 | 40 | --- | --- | --- | 773 | 63 | 131 |
| 31 | 685 | 22 | 41 | --- | --- | --- | 1780 | 231 | 1550 |
| TOTAL | 23054 | --- | 1405 | 25296 | --- | 3246 | 49530 | --- | 49880 |

08065000 TRINITY RIVER NEAR OAKWOOD, TX--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---|---|---|---|---|---|---|---|---|---|
| | | APRIL | | | MAY | | | JUNE | |
| 1 | 5740 | 1540 | 25200 | 859 | 110 | 255 | 5790 | 519 | 8260 |
| 2 | 6850 | 1280 | 23700 | 969 | 91 | 238 | 3950 | 313 | 3360 |
| 3 | 4920 | 622 | 8290 | 1160 | 106 | 332 | 2880 | 318 | 2510 |
| 4 | 2720 | 630 | 4630 | 2380 | 200 | 1290 | 7620 | 829 | 18100 |
| 5 | 1650 | 475 | 2120 | 2910 | 380 | 2990 | 12800 | 802 | 26700 |
| 6 | 1480 | 400 | 1600 | 1920 | 380 | 1970 | 14400 | 375 | 14600 |
| 7 | 1660 | 475 | 2130 | 1230 | 270 | 897 | 15900 | 200 | 8590 |
| 8 | 1630 | 280 | 1230 | 1140 | 175 | 539 | 17300 | 130 | 6070 |
| 9 | 1290 | 160 | 557 | 1130 | 175 | 534 | 19700 | 80 | 4260 |
| 10 | 1050 | 120 | 340 | 1920 | 259 | 1630 | 24000 | 45 | 2920 |
| 11 | 952 | 79 | 203 | 6790 | 1240 | 23800 | 28100 | 20 | 1520 |
| 12 | 892 | 80 | 193 | 8850 | 1610 | 38600 | 29900 | 16 | 1290 |
| 13 | 859 | 92 | 213 | 9660 | 900 | 23500 | 28900 | 15 | 1170 |
| 14 | 831 | 87 | 195 | 10000 | 425 | 11500 | 27200 | 16 | 1180 |
| 15 | 794 | 96 | 206 | 10200 | 325 | 8950 | 25100 | 22 | 1490 |
| 16 | 755 | 90 | 183 | 9100 | 189 | 4720 | 23100 | 38 | 2370 |
| 17 | 743 | 74 | 148 | 6110 | 609 | 9600 | 21200 | 52 | 2980 |
| 18 | 733 | 66 | 131 | 6380 | 1640 | 28200 | 19500 | 90 | 4740 |
| 19 | 718 | 56 | 109 | 6810 | 1150 | 21100 | 18400 | 100 | 4970 |
| 20 | 706 | 58 | 111 | 5420 | 956 | 14000 | 18100 | 90 | 4400 |
| 21 | 752 | 75 | 152 | 3430 | 700 | 6480 | 19800 | 85 | 4540 |
| 22 | 1790 | 234 | 1210 | 2240 | 242 | 1460 | 26000 | 48 | 3370 |
| 23 | 2280 | 516 | 3160 | 1740 | 380 | 1790 | 30400 | 25 | 2050 |
| 24 | 1610 | 386 | 1730 | 1580 | 340 | 1450 | 30100 | 20 | 1630 |
| 25 | 1130 | 200 | 610 | 2230 | 409 | 2610 | 28100 | 18 | 1370 |
| 26 | 1620 | 175 | 765 | 4450 | 883 | 10800 | 26100 | 28 | 1970 |
| 27 | 2440 | 248 | 1630 | 5500 | 1000 | 14900 | 23500 | 35 | 2220 |
| 28 | 1940 | 215 | 1130 | 4450 | 830 | 9970 | 20100 | 55 | 2980 |
| 29 | 1240 | 170 | 569 | 3490 | 700 | 6600 | 14900 | 80 | 3220 |
| 30 | 945 | 125 | 319 | 5140 | 668 | 9350 | 9460 | 188 | 4660 |
| 31 | --- | --- | --- | 6560 | 861 | 15200 | --- | --- | --- |
| TOTAL | 52720 | --- | 82764 | 135748 | --- | 275255 | 592300 | --- | 149490 |

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN-TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---|---|---|---|---|---|---|---|---|---|
| | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 6010 | 337 | 5390 | 1000 | | | 657 | | |
| 2 | 4880 | 360 | 4740 | 1140 | | | 673 | | |
| 3 | 4550 | 375 | 4610 | 994 | | | 699 | | |
| 4 | 4420 | 460 | 5490 | 845 | | | 1180 | | |
| 5 | 4610 | 530 | 6600 | 769 | | | 2780 | | |
| 6 | 6270 | 510 | 8400 | 705 | | | 3170 | | |
| 7 | 9580 | 847 | 21900 | 696 | | | 2330 | | |
| 8 | 11200 | --- | --- | 685 | | | 1600 | | |
| 9 | 12000 | 360 | 11700 | 678 | | | 1190 | | |
| 10 | 12500 | 250 | 8440 | 663 | | | 922 | | |
| 11 | 12800 | 217 | 7500 | 670 | | | 788 | | |
| 12 | 11200 | 134 | 4050 | 644 | | | 804 | | |
| 13 | 6700 | 208 | 3760 | 610 | | | 833 | | |
| 14 | 3530 | --- | --- | 607 | | | 765 | | |
| 15 | 2450 | --- | --- | 620 | | | 712 | | |
| 16 | 1850 | --- | --- | 622 | | | 699 | | |
| 17 | 1520 | --- | --- | 661 | | | 1030 | | |
| 18 | 1420 | --- | --- | 688 | | | 1890 | | |
| 19 | 1320 | --- | --- | 657 | | | 1600 | | |
| 20 | 1220 | --- | --- | 760 | | | 1090 | | |
| 21 | 1140 | --- | --- | 1210 | | | 852 | | |
| 22 | 1110 | --- | --- | 1340 | | | 757 | | |
| 23 | 1060 | --- | --- | 1040 | | | 703 | | |
| 24 | 1010 | --- | --- | 810 | | | 664 | | |
| 25 | 972 | --- | --- | 738 | | | 657 | | |
| 26 | 943 | --- | --- | 666 | | | 664 | | |
| 27 | 911 | --- | --- | 640 | | | 662 | | |
| 28 | 898 | --- | --- | 634 | | | 669 | | |
| 29 | 888 | --- | --- | 634 | | | 689 | | |
| 30 | 858 | --- | --- | 631 | | | 657 | | |
| 31 | 856 | --- | --- | 647 | | | --- | | |
| TOTAL | 130676 | --- | 92580 | 23704 | | | 32386 | | |
| YEAR | 1159962 | | 682045 | | | | | | |

## 08065200 UPPER KEECHI CREEK NEAR OAKWOOD, TX

LOCATION.--Lat 31°34'11", long 95°53'17", Leon County, Hydrologic Unit 12030201, at right bank 20 ft (6 m) downstream from bridge on U.S. Highway 79, 1.9 mi (3.1 km) upstream from Missouri Pacific Railroad Co. bridge, 2 mi (3 km) southwest of Oakwood, 11 mi (18 km) upstream from Buffalo Creek, and 21 mi (34 km) upstream from mouth.

DRAINAGE AREA.--150 $mi^2$ (388 $km^2$).

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 (73.186 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No known diversions or regulation above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--19 years (water years 1963-81), 77.6 $ft^3/s$ (2.198 $m^3/s$), 7.02 in/yr (178 mm/yr), 56,220 acre-ft/yr (69.3 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,000 $ft^3/s$ (680 $m^3/s$) May 16, 1965, gage height, 14.91 ft (4.545 m), and Apr. 25, 1966, from rating curve extended above 5,800 $ft^3/s$ (164 $m^3/s$); maximum gage height, 15.46 ft (4.712 m) Oct. 31, 1974; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1900, about 21 ft (6.4 m) in 1932, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,040 $ft^3/s$ (57.8 $m^3/s$) July 7 at 0700 hours, gage height, 12.94 ft (3.944 m), no other peak above base of 2,000 $ft^3/s$ (56.5 $m^3/s$); minimum, 0.02 $ft^3/s$ (0.001 $m^3/s$) Nov. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .63 | .18 | 2.6 | 6.3 | 9.5 | 17 | 23 | 2.1 | 5.8 | 6.1 | 2.0 | .77 |
| 2 | .44 | .13 | 2.5 | 5.1 | 15 | 31 | 14 | 1.6 | 4.6 | 9.7 | 1.7 | 3.7 |
| 3 | .19 | .08 | 1.5 | 5.2 | 14 | 28 | 12 | 2.7 | 12 | 34 | 1.5 | 4.6 |
| 4 | .17 | .07 | 1.1 | 5.3 | 11 | 30 | 17 | 7.7 | 64 | 24 | 1.3 | 7.4 |
| 5 | .21 | .06 | 1.2 | 5.3 | 13 | 32 | 29 | 13 | 265 | 124 | 1.1 | 5.3 |
| 6 | .12 | .03 | 1.6 | 7.8 | 18 | 35 | 36 | 10 | 762 | 338 | .91 | 57 |
| 7 | .06 | .03 | 2.1 | 10 | 20 | 29 | 24 | 6.9 | 594 | 1730 | .77 | 69 |
| 8 | .06 | .04 | 4.3 | 12 | 18 | 32 | 16 | 4.0 | 543 | 1090 | .63 | 23 |
| 9 | .06 | .05 | 14 | 12 | 17 | 30 | 12 | 14 | 339 | 350 | .50 | 10 |
| 10 | .06 | .05 | 17 | 12 | 69 | 27 | 9.0 | 49 | 71 | 51 | .42 | 6.4 |
| 11 | .06 | .04 | 12 | 16 | 70 | 22 | 6.9 | 34 | 78 | 36 | .33 | 4.2 |
| 12 | .06 | .04 | 7.3 | 12 | 51 | 18 | 5.0 | 20 | 132 | 27 | .25 | 2.5 |
| 13 | .06 | .04 | 5.5 | 6.8 | 28 | 17 | 4.6 | 11 | 141 | 21 | .19 | 1.9 |
| 14 | .06 | .07 | 4.4 | 5.7 | 18 | 18 | 3.3 | 7.3 | 94 | 17 | .15 | 1.8 |
| 15 | .07 | .13 | 3.8 | 5.5 | 14 | 17 | 2.1 | 5.1 | 57 | 15 | .13 | 2.0 |
| 16 | 5.6 | 5.4 | 3.9 | 5.6 | 13 | 14 | 1.4 | 55 | 56 | 13 | .09 | 5.8 |
| 17 | 1.8 | 19 | 3.5 | 5.2 | 11 | 13 | 1.2 | 85 | 142 | 11 | .13 | 16 |
| 18 | .21 | 18 | 3.4 | 5.4 | 10 | 12 | 1.1 | 66 | 346 | 11 | .20 | 8.0 |
| 19 | .16 | 7.5 | 3.0 | 6.9 | 9.8 | 9.1 | 1.1 | 33 | 469 | 9.7 | .29 | 4.1 |
| 20 | .12 | 3.2 | 2.5 | 20 | 9.4 | 7.3 | 1.3 | 18 | 142 | 9.1 | .34 | 2.6 |
| 21 | .04 | 2.0 | 2.2 | 28 | 9.6 | 6.5 | 1.2 | 12 | 44 | 8.3 | .32 | 2.0 |
| 22 | .05 | 2.0 | 2.3 | 18 | 12 | 6.6 | .77 | 8.1 | 30 | 6.6 | .24 | 1.8 |
| 23 | .05 | 2.5 | 2.7 | 14 | 15 | 6.1 | 35 | 6.0 | 22 | 6.1 | .26 | 1.2 |
| 24 | .16 | 4.7 | 3.3 | 12 | 12 | 5.4 | 82 | 55 | 19 | 5.4 | .40 | .81 |
| 25 | .18 | 3.8 | 3.2 | 10 | 11 | 5.1 | 34 | 64 | 16 | 4.7 | .46 | .67 |
| 26 | .16 | 5.3 | 3.7 | 9.0 | 11 | 4.8 | 21 | 51 | 13 | 4.1 | .34 | .66 |
| 27 | .61 | 12 | 3.8 | 9.3 | 14 | 5.8 | 14 | 50 | 11 | 3.8 | .15 | .59 |
| 28 | .77 | 9.7 | 4.7 | 9.4 | 18 | 7.2 | 8.6 | 29 | 9.0 | 3.5 | 1.1 | .49 |
| 29 | .24 | 5.6 | 5.8 | 7.1 | --- | 18 | 5.3 | 16 | 8.0 | 3.1 | .73 | .44 |
| 30 | .46 | 3.4 | 5.0 | 6.5 | --- | 35 | 3.3 | 11 | 6.9 | 2.7 | .21 | .37 |
| 31 | .30 | --- | 5.7 | 6.4 | --- | 31 | --- | 7.2 | --- | 2.2 | .18 | --- |
| TOTAL | 13.22 | 105.14 | 139.6 | 299.8 | 541.3 | 569.9 | 425.17 | 754.7 | 4496.3 | 3977.1 | 17.32 | 245.10 |
| MEAN | .43 | 3.50 | 4.50 | 9.67 | 19.3 | 18.4 | 14.2 | 24.3 | 150 | 128 | .56 | 8.17 |
| MAX | 5.6 | 19 | 17 | 28 | 70 | 35 | 82 | 85 | 762 | 1730 | 2.0 | 69 |
| MIN | .04 | .03 | 1.1 | 5.1 | 9.4 | 4.8 | .77 | 1.6 | 4.6 | 2.2 | .09 | .37 |
| CFSM | .003 | .02 | .03 | .06 | .13 | .12 | .10 | .16 | 1.00 | .85 | .004 | .05 |
| IN. | .00 | .03 | .03 | .07 | .13 | .14 | .11 | .19 | 1.12 | .99 | .00 | .06 |
| AC-FT | 26 | 209 | 277 | 595 | 1070 | 1130 | 843 | 1500 | 8920 | 7890 | 34 | 486 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR | 1980 | TOTAL | 14980.87 | MEAN | 40.9 | MAX | 889 | MIN | .00 | CFSM | .27 | IN | 3.72 | AC-FT | 29710 |
| WTR YR | 1981 | TOTAL | 11584.65 | MEAN | 31.7 | MAX | 1730 | MIN | .03 | CFSM | .21 | IN | 2.87 | AC-FT | 22980 |

## 08065350 TRINITY RIVER NEAR CROCKETT, TX
(National stream-quality accounting network)

LOCATION.--Lat 31°20'08", long 95°39'27", Leon County, Hydrologic Unit 12030201, on right bank 30 ft (9 m) downstream from bridge on State Highway 7, 7.1 mi (11.4 km) downstream from Upper Keechi Creek, 11.9 mi (19.1 km) west of Crockett, and at mile 265.2 (426.7 km).

DRAINAGE AREA.--13,911 mi² (36,029 km²).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is 136.59 ft (41.633 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair. For statement regarding regulation by upstream reservoirs, see station 08065000. Flow from 44 mi² (114 km²) of Elkhart Creek basin affected by storage in Houston County Lake near Crockett, capacity 19,500 acre-ft (24.0 hm³). Diversions above station for irrigation, municipal, and industrial uses.

AVERAGE DISCHARGE.--17 years (water years 1965-81), 5,562 ft³/s (157.5 m³/s), 4,030,000 acre-ft/yr (4.97 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78,000 ft³/s (2,210 m³/s) May 15, 1969, gage height, 52.24 ft (15,923 m); minimum, 275 ft³/s (7.79 m³/s) Aug. 13, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1900, 56.1 ft (17.10 m) Apr. 30 or May 1, 1942, from information by Texas Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 31,400 ft³/s (889 m³/s) June 14 at 1900 hours, gage height, 41.93 ft (12.780 m); minimum daily estimated, 600 ft³/s (17.0 m³/s) Nov. 6, 7, 14, 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 923 | 650 | 964 | 802 | 904 | 1060 | 2850 | 1100 | 7260 | 12700 | 1160 | 5320 |
| 2 | 1640 | 640 | 918 | 801 | 915 | 1160 | 6410 | 993 | 5840 | 7160 | 1260 | 3240 |
| 3 | 3770 | 630 | 872 | 812 | 919 | 1220 | 6780 | 1150 | 4340 | 5980 | 1380 | 1650 |
| 4 | 5610 | 620 | 838 | 837 | 930 | 2500 | 4810 | 1480 | 5230 | 5670 | 1270 | 1690 |
| 5 | 5810 | 610 | 825 | 830 | 962 | 3180 | 2890 | 2870 | 11400 | 6790 | 1130 | 2580 |
| 6 | 4160 | 600 | 820 | 837 | 1110 | 4290 | 1900 | 3050 | 16900 | 8270 | 1050 | 3640 |
| 7 | 2120 | 600 | 850 | 848 | 1250 | 5000 | 1750 | 2080 | 17400 | 9480 | 1000 | 3650 |
| 8 | 1240 | 620 | 870 | 856 | 1210 | 5570 | 1930 | 1440 | 17600 | 12100 | 984 | 2820 |
| 9 | 917 | 640 | 885 | 891 | 1150 | 5000 | 1810 | 1350 | 18700 | 13500 | 974 | 2100 |
| 10 | 805 | 640 | 981 | 924 | 1720 | 3430 | 1490 | 1560 | 20300 | 14100 | 969 | 1600 |
| 11 | 786 | 630 | 1200 | 965 | 2190 | 2620 | 1260 | 3190 | 22500 | 14900 | 963 | 1310 |
| 12 | 762 | 620 | 3250 | 981 | 1840 | 3120 | 1140 | 7270 | 26300 | 14700 | 962 | 1140 |
| 13 | 747 | 610 | 4660 | 961 | 1650 | 2880 | 1070 | 9080 | 30100 | 12300 | 956 | 1120 |
| 14 | 723 | 600 | 3580 | 950 | 1680 | 2160 | 1020 | 9810 | 31300 | 7510 | 921 | 1560 |
| 15 | 678 | 600 | 2120 | 942 | 1680 | 1690 | 986 | 10300 | 31100 | 4330 | 906 | 1350 |
| 16 | 643 | 650 | 1420 | 930 | 1470 | 1450 | 942 | 10800 | 30400 | 3170 | 908 | 1180 |
| 17 | 656 | 750 | 1180 | 920 | 1250 | 1320 | 898 | 9270 | 29200 | 2540 | 918 | 1130 |
| 18 | 680 | 850 | 1070 | 912 | 1130 | 1230 | 897 | 6890 | 27300 | 2200 | 990 | 1460 |
| 19 | 714 | 900 | 1020 | 916 | 1060 | 1140 | 884 | 7220 | 25000 | 2050 | 1010 | 2210 |
| 20 | 723 | 912 | 982 | 1040 | 1020 | 1080 | 869 | 7180 | 22900 | 1900 | 947 | 1930 |
| 21 | 1090 | 1200 | 943 | 1180 | 985 | 1050 | 854 | 5480 | 21500 | 1760 | 1000 | 1450 |
| 22 | 1940 | 1440 | 926 | 1160 | 995 | 1020 | 946 | 3580 | 21700 | 1660 | 1460 | 1180 |
| 23 | 1710 | 1280 | 904 | 1140 | 1030 | 993 | 2050 | 2490 | 23900 | 1580 | 1590 | 1050 |
| 24 | 1190 | 1100 | 895 | 1150 | 1040 | 957 | 2610 | 2470 | 26500 | 1510 | 1310 | 976 |
| 25 | 916 | 1010 | 880 | 1190 | 1030 | 926 | 1970 | 2380 | 28400 | 1440 | 1120 | 919 |
| 26 | 799 | 1050 | 871 | 1160 | 1230 | 906 | 1610 | 3280 | 29400 | 1380 | 1030 | 871 |
| 27 | 759 | 1100 | 862 | 1100 | 1280 | 881 | 2280 | 5370 | 29400 | 1330 | 915 | 866 |
| 28 | 720 | 1150 | 839 | 1050 | 1140 | 878 | 2760 | 5750 | 28300 | 1290 | 857 | 868 |
| 29 | 700 | 1100 | 842 | 988 | --- | 915 | 2080 | 4590 | 26000 | 1260 | 843 | 878 |
| 30 | 680 | 1000 | 831 | 954 | --- | 1000 | 1400 | 4180 | 21200 | 1220 | 832 | 896 |
| 31 | 660 | --- | 807 | 923 | --- | 1080 | --- | 6160 | --- | 1180 | 850 | --- |
| TOTAL | 45271 | 24802 | 38905 | 29950 | 34770 | 61706 | 61146 | 143813 | 657370 | 176960 | 32465 | 52634 |
| MEAN | 1460 | 827 | 1255 | 966 | 1242 | 1991 | 2038 | 4639 | 21910 | 5708 | 1047 | 1754 |
| MAX | 5810 | 1440 | 4660 | 1190 | 2190 | 5570 | 6780 | 10800 | 31300 | 14900 | 1590 | 5320 |
| MIN | 643 | 600 | 807 | 801 | 904 | 878 | 854 | 993 | 4340 | 1180 | 832 | 866 |
| AC-FT | 89800 | 49190 | 77170 | 59410 | 68970 | 122400 | 121300 | 285300 | 1304000 | 351000 | 64390 | 104400 |

CAL YR 1980 TOTAL 1089310 MEAN 2976 MAX 18700 MIN 542 AC-FT 2161000
WTR YR 1981 TOTAL 1359792 MEAN 3725 MAX 31300 MIN 600 AC-FT 2697000

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: February 1964 to current year. Chemical and biochemical analyses: October 1967 to current year. Pesticide analyses: October 1971 to September 1981 (discontinued). Sediment records: October 1967 to September 1968.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: February 1964 to current year.
pH: March 1975 to current year.
WATER TEMPERATURES: February 1964 to September 1971, March 1975 to current year.
DISSOLVED OXYGEN: March 1975 to current year.

INSTRUMENTATION.--Water-quality monitor since Mar. 11, 1975.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. Where maximum or minimum 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 micromhos Sept. 22, 1964; minimum, 105 micromhos July 28, 1979.
pH: Maximum, 9.6 units Aug. 11, 12, 1981; minimum, 5.9 units Aug. 12, 1977.
WATER TEMPERATURES: Maximum, 37.0°C July 4, 1970, Sept. 4, 1978; minimum, 1.0°C Jan. 17, 1978.
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, 941 micromhos Aug. 26; minimum, 167 micromhos Sept. 2.
pH: Maximum, 9.6 units Aug. 11, 12; minimum, 6.8 units Mar. 4, 5, 7, 9, Sept. 4, 5.
WATER TEMPERATURES: Minimum, 8.0°C Jan. 20-23.
DISSOLVED OXYGEN: Maximum 19.3 mg/L Feb. 10; minimum, 0.2 mg/L Oct. 4, Apr. 2.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH FIELD (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, BIOCHEM UNINHIB 5 DAY (MG/L) | HARD-NESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | | |
| 09... | 1325 | 896 | 754 | 6.9 | 10.0 | 15 | .70 | 10.3 | -- | 3.4 | 150 |
| FEB | | | | | | | | | | | |
| 18... | 1205 | 1110 | 679 | 7.3 | 10.5 | 20 | 20 | 10.0 | 89 | 10 | 140 |
| APR | | | | | | | | | | | |
| 08... | 1540 | 2960 | 540 | 7.3 | 20.5 | 15 | 180 | 8.3 | 92 | 1.8 | 160 |
| JUN | | | | | | | | | | | |
| 04... | 1100 | 4840 | 322 | 7.1 | 25.5 | 70 | 270 | 6.9 | 83 | 2.6 | 120 |
| JUL | | | | | | | | | | | |
| 08... | 1115 | 12100 | 342 | 7.9 | 29.0 | 80 | 440 | -- | -- | 3.5 | 110 |
| AUG | | | | | | | | | | | |
| 18... | 1135 | 981 | 768 | 7.8 | 31.7 | 10 | 14 | 7.4 | 100 | 2.6 | 160 |

| DATE | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 (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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | | |
| 09... | 24 | 52 | 5.9 | 88 | 3.1 | 9.4 | 130 | 97 | 77 | .8 | 11 |
| FEB | | | | | | | | | | | |
| 18... | 29 | 45 | 6.5 | 76 | 2.8 | 8.5 | 110 | 98 | 71 | .7 | 9.8 |
| APR | | | | | | | | | | | |
| 08... | 49 | 55 | 5.3 | 44 | 1.5 | 6.0 | 110 | 85 | 38 | .5 | 8.6 |
| JUN | | | | | | | | | | | |
| 04... | 28 | 42 | 3.6 | 23 | .9 | 5.3 | 92 | 56 | 21 | .3 | 9.9 |
| JUL | | | | | | | | | | | |
| 08... | 17 | 40 | 3.2 | 26 | 1.1 | 5.2 | 96 | 48 | 23 | .4 | 9.5 |
| AUG | | | | | | | | | | | |
| 18... | 13 | 56 | 5.7 | 90 | 3.2 | 9.4 | 150 | 96 | 85 | .9 | 8.9 |

| DATE | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (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) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | | |
| 09... | 419 | 17 | 10 | 5.4 | .220 | 5.6 | 1.900 | .70 | 2.6 | 2.200 | 25 |
| FEB | | | | | | | | | | | |
| 18... | 382 | 31 | 7 | 5.6 | .090 | 5.7 | 1.400 | 2.0 | 3.4 | 2.700 | 7.1 |
| APR | | | | | | | | | | | |
| 08... | 309 | 196 | 25 | 2.3 | .040 | 2.3 | .070 | 1.6 | 1.7 | .660 | 8.9 |
| JUN | | | | | | | | | | | |
| 04... | 216 | 46 | 16 | -- | -- | -- | -- | -- | -- | -- | 10 |
| JUL | | | | | | | | | | | |
| 08... | 214 | 864 | 116 | -- | -- | -- | -- | -- | -- | .700 | 13 |
| AUG | | | | | | | | | | | |
| 18... | 442 | 74 | 10 | 5.2 | .060 | 5.3 | .080 | 1.8 | 1.9 | 2.700 | 7.4 |

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | ARSENIC DIS-SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 09... | 1325 | 4 | 40 | 2 | 0 | <10 | 30 |
| APR | | | | | | | |
| 08... | 1540 | 3 | 100 | <1 | 10 | <10 | 40 |
| JUL | | | | | | | |
| 08... | 1115 | 5 | 100 | 0 | 10 | 0 | 330 |
| AUG | | | | | | | |
| 18... | 1135 | 9 | 60 | <1 | 0 | <10 | <10 |

| DATE | 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) |
|---|---|---|---|---|---|---|
| JAN | | | | | | |
| 09... | 62 | 30 | .3 | 0 | 1 | 20 |
| APR | | | | | | |
| 08... | <10 | 10 | .1 | 0 | 0 | 4 |
| JUL | | | | | | |
| 08... | 100 | 10 | .1 | 0 | 1 | 10 |
| AUG | | | | | | |
| 18... | <10 | <1 | .1 | 0 | 0 | 7 |

| DATE | TIME | PCB TOTAL (UG/L) | NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | CHLOR-DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DI-AZINON, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 09... | 1325 | .00 | .0 | .00 | .0 | .00 | .00 | .00 | .00 |
| JUL | | | | | | | | | |
| 08... | 1115 | .00 | .0 | .00 | .0 | .00 | .00 | .00 | .18 |

| DATE | DI-ELDRIN TOTAL (UG/L) | ENDO-SULFAN, TOTAL (UG/L) | ENDRIN, TOTAL (UG/L) | ETHION, TOTAL (UG/L) | HEPTA-CHLOR, TOTAL (UG/L) | HEPTA-CHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALA-THION, TOTAL (UG/L) | METH-OXY-CHLOR, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 09... | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| JUL | | | | | | | | | |
| 08... | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |

| DATE | METHYL PARA-THION, TOTAL (UG/L) | METHYL TRI-THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) | PARA-THION, TOTAL (UG/L) | TOX-APHENE, TOTAL (UG/L) | TOTAL TRI-THION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 09... | .00 | .00 | .00 | .00 | 0 | .00 | .02 | .00 | .00 |
| JUL | | | | | | | | | |
| 08... | .00 | .00 | .00 | .00 | 0 | .00 | .02 | .01 | .00 |

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 45271 | 557 | 311 | 38000 | 51 | 6180 | 67 | 8160 | 140 |
| NOV. | 1980 | 24802 | 734 | 409 | 27400 | 74 | 4980 | 91 | 6070 | 160 |
| DEC. | 1980 | 38905 | 607 | 339 | 35600 | 56 | 5870 | 73 | 7670 | 150 |
| JAN. | 1981 | 29950 | 713 | 397 | 32100 | 71 | 5710 | 87 | 7070 | 160 |
| FEB. | 1981 | 34770 | 643 | 358 | 33700 | 60 | 5650 | 78 | 7290 | 160 |
| MAR. | 1981 | 61706 | 546 | 305 | 50800 | 47 | 7880 | 65 | 10800 | 150 |
| APR. | 1981 | 61146 | 594 | 331 | 54700 | 54 | 8900 | 71 | 11700 | 150 |
| MAY | 1981 | 143813 | 414 | 231 | 89700 | 31 | 12100 | 47 | 18400 | 130 |
| JUNE | 1981 | 657370 | 266 | 148 | 264000 | 17 | 29500 | 29 | 51800 | 96 |
| JULY | 1981 | 176960 | 360 | 201 | 96000 | 26 | 12300 | 41 | 19400 | 120 |
| AUG. | 1981 | 32465 | 737 | 411 | 36000 | 75 | 6530 | 91 | 7970 | 160 |
| SEPT | 1981 | 52634 | 523 | 292 | 41400 | 45 | 6370 | 62 | 8770 | 140 |
| TOTAL | | 1359792 | ** | ** | 799000 | ** | 112000 | ** | 165000 | ** |
| WTD. AVG. | | 3725 | 390 | 218 | ** | 30 | ** | 45 | ** | 120 |

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | | |
| 1 | 788 | 769 | 780 | 577 | 571 | 573 | 636 | 611 | 627 | 768 | 747 | 756 |
| 2 | 804 | 774 | 794 | 578 | 569 | 572 | 660 | 639 | 649 | 775 | 769 | 773 |
| 3 | 812 | 736 | 792 | 621 | 576 | 597 | 679 | 660 | 671 | 779 | 770 | 775 |
| 4 | 707 | 334 | 461 | 677 | 621 | 645 | 706 | 680 | 693 | 771 | 767 | 768 |
| 5 | 361 | 338 | 347 | 713 | 668 | 692 | 714 | 706 | 709 | 776 | 770 | 773 |
| 6 | 358 | 342 | 350 | 784 | 714 | 742 | 718 | 681 | 707 | 774 | 762 | 768 |
| 7 | 376 | 355 | 365 | 803 | 764 | 774 | 683 | 661 | 670 | 758 | 755 | 757 |
| 8 | 409 | 377 | 392 | 784 | 767 | 773 | 685 | 666 | 678 | 755 | 742 | 749 |
| 9 | 441 | 410 | 427 | 802 | 775 | 789 | 686 | 665 | 674 | 742 | 737 | 741 |
| 10 | 464 | 444 | 454 | 813 | 789 | 799 | 691 | 675 | 684 | 735 | 718 | 723 |
| 11 | 481 | 463 | 474 | 788 | 777 | 781 | 745 | 678 | 713 | 721 | 711 | 716 |
| 12 | 498 | 481 | 490 | 793 | 775 | 783 | 750 | 713 | 727 | 725 | 716 | 721 |
| 13 | 531 | 500 | 514 | 829 | 796 | 811 | 761 | 465 | 650 | 715 | 700 | 706 |
| 14 | 576 | 531 | 549 | 837 | 821 | 828 | 464 | 421 | 443 | 710 | 701 | 707 |
| 15 | 616 | 568 | 585 | 853 | 835 | 842 | 451 | 414 | 427 | 717 | 707 | 713 |
| 16 | 655 | 605 | 626 | 853 | 810 | 827 | 435 | 416 | 422 | 717 | 706 | 712 |
| 17 | 683 | 641 | 656 | 811 | 778 | 799 | 451 | 434 | 445 | 710 | 705 | 708 |
| 18 | 732 | 669 | 691 | 775 | 729 | 749 | 476 | 452 | 463 | 713 | 701 | 709 |
| 19 | 772 | 717 | 729 | 765 | 747 | 757 | 486 | 476 | 480 | 706 | 680 | 696 |
| 20 | 763 | 732 | 743 | 760 | 752 | 755 | 507 | 487 | 496 | 677 | 652 | 668 |
| 21 | 785 | 738 | 748 | 751 | 745 | 748 | 531 | 508 | 517 | 660 | 645 | 652 |
| 22 | 840 | 782 | 808 | 790 | 749 | 764 | 574 | 533 | 552 | 745 | 662 | 702 |
| 23 | 816 | 758 | 784 | 760 | 726 | 746 | 600 | 574 | 587 | 735 | 699 | 709 |
| 24 | 807 | 759 | 778 | 755 | 726 | 737 | 644 | 601 | 619 | 698 | 680 | 688 |
| 25 | 798 | 731 | 779 | 765 | 757 | 761 | 715 | 648 | 692 | 682 | 674 | 678 |
| 26 | 722 | 526 | 612 | 768 | 759 | 763 | 700 | 690 | 697 | 674 | 659 | 664 |
| 27 | 605 | 526 | 566 | 774 | 726 | 757 | 719 | 700 | 709 | 687 | 635 | 665 |
| 28 | 607 | 529 | 573 | 723 | 646 | 677 | 720 | 716 | 718 | 690 | 677 | 684 |
| 29 | 579 | 520 | 538 | 652 | 619 | 640 | 732 | 718 | 726 | 697 | 695 | 696 |
| 30 | 609 | 581 | 599 | 615 | 600 | 607 | 750 | 731 | 741 | 730 | 667 | 707 |
| 31 | 586 | 565 | 572 | --- | --- | --- | 751 | 743 | 746 | 734 | 719 | 729 |
| MONTH | 840 | 334 | 599 | 853 | 569 | 736 | 761 | 414 | 624 | 779 | 635 | 717 |

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 718 | 687 | 706 | 715 | 694 | 703 | 771 | 715 | 738 | --- | --- | 630 |
| 2 | 706 | 642 | 693 | 698 | 660 | 681 | 799 | 413 | 629 | --- | --- | 649 |
| 3 | 697 | 675 | 689 | 717 | 665 | 686 | 419 | 355 | 378 | --- | --- | 622 |
| 4 | 707 | 676 | 690 | 606 | 374 | 468 | 537 | 414 | 484 | --- | --- | 579 |
| 5 | 710 | --- | 691 | 544 | 413 | 501 | 564 | 535 | 548 | --- | --- | 479 |
| 6 | 692 | --- | 685 | 744 | 535 | 665 | 560 | 542 | 549 | --- | --- | 470 |
| 7 | 695 | --- | 685 | 750 | 377 | 532 | 548 | 529 | 537 | --- | --- | 525 |
| 8 | 688 | --- | 680 | 527 | 337 | 403 | 549 | 530 | 537 | --- | --- | 583 |
| 9 | 675 | --- | 670 | 555 | 478 | 512 | 586 | 549 | 568 | 493 | 460 | 471 |
| 10 | --- | --- | 655 | 478 | 442 | 455 | 599 | 568 | 579 | 494 | 427 | 459 |
| 11 | --- | --- | 550 | 440 | 436 | 438 | 630 | 574 | 602 | 565 | 451 | 492 |
| 12 | --- | --- | 550 | 468 | 440 | 450 | 673 | 630 | 653 | 622 | 264 | 442 |
| 13 | --- | --- | 540 | 564 | 470 | 517 | 686 | --- | 676 | 400 | 271 | 330 |
| 14 | --- | --- | 550 | 616 | 569 | 601 | --- | --- | 643 | 352 | 306 | 341 |
| 15 | --- | --- | 580 | 589 | 565 | 578 | --- | --- | 650 | 359 | 349 | 354 |
| 16 | --- | --- | 620 | 568 | 494 | 533 | --- | --- | 659 | 374 | 359 | 365 |
| 17 | 684 | --- | 660 | 493 | 485 | 488 | 637 | 629 | 631 | 374 | 364 | 369 |
| 18 | 683 | 675 | 679 | 494 | 484 | 488 | 667 | 637 | 655 | 419 | 369 | 397 |
| 19 | 699 | 679 | 688 | 521 | 495 | 507 | 671 | 663 | 666 | 442 | 358 | 394 |
| 20 | 705 | 694 | 700 | 554 | 521 | 537 | 693 | 667 | 679 | 446 | 363 | 390 |
| 21 | 704 | 687 | 697 | 591 | 560 | 576 | 720 | 693 | 707 | 454 | 397 | 434 |
| 22 | 686 | 664 | 677 | 632 | 592 | 610 | 737 | 719 | 725 | 437 | 391 | 411 |
| 23 | 664 | 618 | 638 | 658 | 636 | 649 | 778 | 739 | 758 | 484 | 437 | 459 |
| 24 | 647 | 626 | 638 | 692 | 658 | 675 | 793 | 734 | 773 | 486 | 355 | 435 |
| 25 | 645 | 630 | 636 | 707 | 693 | 700 | 726 | 675 | 699 | 446 | 370 | 399 |
| 26 | 685 | 640 | 664 | 720 | 706 | 713 | 670 | 631 | 647 | 490 | 432 | 455 |
| 27 | 699 | 688 | 693 | 727 | 717 | 722 | 657 | 567 | 624 | 539 | 358 | 439 |
| 28 | 717 | 694 | 708 | 739 | 727 | 734 | 645 | 597 | 618 | 454 | 399 | 425 |
| 29 | --- | --- | --- | 734 | 716 | 727 | --- | --- | 524 | 485 | 402 | 446 |
| 30 | --- | --- | --- | 714 | 679 | 688 | --- | --- | 588 | 472 | 411 | 442 |
| 31 | --- | --- | --- | 711 | 682 | 695 | --- | --- | --- | 502 | 401 | 449 |
| MONTH | 718 | 618 | 654 | 750 | 337 | 588 | 799 | 355 | 624 | 622 | 264 | 456 |

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 394 | 299 | 346 | --- | --- | 340 | --- | --- | 620 | 666 | --- | 401 |
| 2 | 377 | 366 | 371 | --- | --- | 368 | --- | --- | 640 | 384 | 167 | 255 |
| 3 | 400 | 344 | 370 | 385 | 344 | 348 | --- | --- | 680 | 460 | 383 | 420 |
| 4 | 377 | 315 | 338 | 386 | 350 | 370 | --- | --- | 700 | 519 | 311 | 465 |
| 5 | 362 | 216 | 322 | 386 | 264 | 322 | --- | --- | 740 | 579 | 307 | 437 |
| 6 | 205 | 183 | 190 | 347 | 275 | 314 | 762 | 743 | 751 | 723 | 654 | 703 |
| 7 | 208 | 199 | 203 | 362 | 307 | 326 | 770 | 750 | 759 | 725 | 633 | 685 |
| 8 | 212 | 202 | 206 | --- | --- | 317 | 757 | 741 | 748 | 616 | 516 | 538 |
| 9 | 225 | 208 | 217 | --- | --- | 307 | 749 | 702 | 717 | 526 | 445 | 493 |
| 10 | 247 | 224 | 239 | --- | --- | 303 | 738 | 691 | 713 | 442 | 425 | 433 |
| 11 | 255 | 247 | 250 | --- | --- | 298 | 728 | 696 | 712 | 440 | 425 | 432 |
| 12 | 261 | --- | 253 | --- | --- | 300 | 740 | 717 | 727 | 443 | 435 | 438 |
| 13 | --- | --- | 244 | --- | --- | 315 | 795 | 741 | 760 | 482 | 438 | 457 |
| 14 | --- | --- | 241 | --- | --- | 363 | 798 | 748 | 771 | 490 | 370 | 423 |
| 15 | --- | --- | 242 | --- | --- | 425 | 769 | 725 | 735 | 483 | 372 | 444 |
| 16 | --- | --- | 243 | --- | --- | 465 | 760 | 732 | 740 | 494 | 481 | 487 |
| 17 | --- | --- | 246 | --- | --- | 496 | 776 | 756 | 766 | 523 | 495 | 515 |
| 18 | --- | --- | 251 | --- | --- | 517 | 780 | 759 | 768 | 554 | 509 | 521 |
| 19 | --- | --- | 257 | --- | --- | 527 | 788 | 766 | 775 | 659 | 555 | 611 |
| 20 | --- | --- | 264 | --- | --- | 539 | 787 | 781 | 783 | 697 | 658 | 683 |
| 21 | --- | --- | 269 | --- | --- | 551 | 790 | 759 | 772 | 699 | 682 | 691 |
| 22 | --- | --- | 268 | --- | --- | 560 | 780 | 749 | 759 | 719 | 693 | 706 |
| 23 | --- | --- | 261 | --- | --- | 568 | 803 | 766 | 783 | 728 | 718 | 723 |
| 24 | --- | --- | 270 | --- | --- | 575 | 819 | 765 | 798 | 716 | 595 | 659 |
| 25 | --- | --- | 280 | --- | --- | 583 | 806 | 783 | 790 | 587 | 556 | 567 |
| 26 | --- | --- | 300 | --- | --- | 590 | 941 | 769 | 789 | 581 | 555 | 567 |
| 27 | --- | --- | 300 | --- | --- | 597 | 886 | 731 | 759 | 557 | 544 | 550 |
| 28 | --- | --- | 320 | --- | --- | 602 | 785 | 732 | 756 | 562 | 554 | 557 |
| 29 | --- | --- | 320 | --- | --- | 606 | 726 | 691 | 705 | 563 | 555 | 559 |
| 30 | --- | --- | 330 | --- | --- | 612 | 718 | 641 | 684 | 604 | 557 | 567 |
| 31 | --- | --- | --- | --- | --- | 618 | 650 | 613 | 625 | --- | --- | --- |
| MONTH | 400 | 183 | 274 | 386 | 264 | 452 | 941 | 613 | 736 | 728 | 167 | 533 |

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | 7.5 | 7.4 | 7.4 | 7.7 | 7.5 | 7.6 | 7.6 | 7.4 | 7.5 | 7.4 | 7.1 | 7.2 |
| 2 | 7.5 | 7.3 | 7.4 | 7.8 | 7.5 | 7.6 | 7.5 | 7.4 | 7.5 | 7.4 | 7.1 | 7.2 |
| 3 | 7.3 | 6.9 | 7.1 | 7.8 | 7.5 | 7.6 | 7.5 | 7.4 | 7.4 | 7.3 | 7.1 | 7.2 |
| 4 | 7.3 | 6.9 | 7.1 | 7.9 | 7.5 | 7.7 | 7.4 | 7.4 | 7.4 | 7.3 | 7.1 | 7.2 |
| 5 | 7.2 | 7.1 | 7.2 | 7.8 | 7.5 | 7.7 | 7.5 | 7.4 | 7.4 | 7.3 | 7.1 | 7.2 |
| 6 | 7.2 | 7.1 | 7.2 | 7.9 | 7.5 | 7.7 | 7.5 | 7.4 | 7.4 | 7.2 | 7.1 | 7.2 |
| 7 | 7.2 | 7.1 | 7.2 | 7.9 | 7.6 | 7.7 | 7.5 | 7.4 | 7.4 | 7.3 | 7.1 | 7.2 |
| 8 | 7.2 | 7.1 | 7.2 | 7.8 | 7.5 | 7.6 | 7.5 | 7.4 | 7.4 | 7.4 | 7.1 | 7.2 |
| 9 | 7.3 | 7.2 | 7.2 | 7.7 | 7.5 | 7.6 | 7.4 | 7.3 | 7.4 | 7.3 | 7.2 | 7.2 |
| 10 | 7.4 | 7.2 | 7.3 | 7.7 | 7.5 | 7.6 | 7.4 | 7.2 | 7.3 | 7.4 | 7.2 | 7.2 |
| 11 | 7.4 | 7.2 | 7.3 | 7.7 | 7.5 | 7.6 | 7.3 | 7.2 | 7.2 | 7.3 | 7.2 | 7.2 |
| 12 | 7.5 | 7.3 | 7.4 | 7.7 | 7.4 | 7.6 | 7.2 | 7.1 | 7.2 | 7.4 | 7.1 | 7.2 |
| 13 | 7.5 | 7.3 | 7.4 | 7.7 | 7.4 | 7.6 | 7.1 | 7.0 | 7.0 | 7.4 | 7.1 | 7.2 |
| 14 | 7.6 | 7.4 | 7.4 | 7.6 | 7.5 | 7.5 | 7.1 | 7.0 | 7.1 | 7.4 | 7.1 | 7.3 |
| 15 | 7.6 | 7.3 | 7.5 | 7.6 | 7.5 | 7.5 | 7.1 | 7.0 | 7.1 | 7.4 | 7.1 | 7.2 |
| 16 | 7.7 | 7.4 | 7.5 | 7.5 | 7.4 | 7.5 | 7.2 | 7.1 | 7.1 | 7.3 | 7.1 | 7.2 |
| 17 | 7.7 | 7.4 | 7.5 | 7.4 | 7.3 | 7.4 | 7.2 | 7.1 | 7.2 | 7.3 | 7.1 | 7.2 |
| 18 | 7.6 | 7.4 | 7.5 | 7.4 | 7.3 | 7.3 | 7.3 | 7.1 | 7.2 | 7.3 | 7.1 | 7.2 |
| 19 | 7.5 | 7.4 | 7.4 | 7.4 | 7.3 | 7.3 | 7.2 | 7.1 | 7.1 | 7.2 | 7.1 | 7.2 |
| 20 | 7.6 | 7.3 | 7.5 | 7.5 | 7.3 | 7.4 | 7.1 | 7.0 | 7.1 | 7.4 | 7.1 | 7.2 |
| 21 | 7.6 | 7.4 | 7.5 | 7.5 | 7.4 | 7.5 | 7.1 | 7.0 | 7.1 | 7.4 | 7.3 | 7.3 |
| 22 | 7.4 | 7.2 | 7.3 | 7.6 | 7.4 | 7.5 | 7.2 | 7.1 | 7.2 | 7.5 | 7.3 | 7.4 |
| 23 | 7.2 | 7.1 | 7.1 | 7.6 | 7.4 | 7.5 | 7.3 | 7.2 | 7.2 | 7.6 | 7.3 | 7.4 |
| 24 | 7.1 | 7.1 | 7.1 | 7.5 | 7.5 | 7.5 | 7.3 | 7.2 | 7.3 | 7.6 | 7.3 | 7.4 |
| 25 | 7.1 | 7.0 | 7.1 | 7.5 | 7.4 | 7.4 | 7.3 | 7.2 | 7.2 | 7.7 | 7.4 | 7.5 |
| 26 | 7.2 | 7.0 | 7.0 | 7.4 | 7.3 | 7.4 | 7.3 | 7.2 | 7.2 | 7.7 | 7.4 | 7.5 |
| 27 | 7.4 | 7.1 | 7.2 | 7.5 | 7.3 | 7.4 | 7.3 | 7.1 | 7.2 | 7.8 | 7.4 | 7.6 |
| 28 | 7.3 | 7.2 | 7.3 | 7.4 | 7.3 | 7.3 | 7.3 | 7.1 | 7.2 | 7.9 | 7.4 | 7.6 |
| 29 | 7.3 | 7.2 | 7.3 | 7.5 | 7.3 | 7.4 | 7.3 | 7.1 | 7.2 | 7.8 | 7.6 | 7.6 |
| 30 | 7.4 | 7.3 | 7.3 | 7.5 | 7.3 | 7.4 | 7.3 | 7.1 | 7.2 | 7.9 | 7.4 | 7.5 |
| 31 | 7.6 | 7.2 | 7.4 | --- | --- | --- | 7.4 | 7.1 | 7.2 | 7.4 | 7.3 | 7.4 |
| MONTH | 7.7 | 6.9 | 7.3 | 7.9 | 7.3 | 7.5 | 7.6 | 7.0 | 7.3 | 7.9 | 7.1 | 7.3 |

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 7.5 | 7.3 | 7.3 | 7.1 | 7.0 | 7.1 | 7.4 | 7.0 | 7.3 | 7.3 | --- | --- |
| 2 | 7.5 | 7.3 | 7.4 | 7.1 | 7.0 | 7.0 | 7.2 | 6.9 | 7.0 | 7.2 | --- | --- |
| 3 | 7.6 | 7.3 | 7.4 | 7.0 | 7.0 | 7.0 | 7.2 | 7.1 | 7.2 | --- | --- | --- |
| 4 | 7.6 | 7.4 | 7.5 | 7.0 | 6.8 | 6.9 | 7.1 | 7.1 | 7.1 | --- | --- | --- |
| 5 | 7.4 | 7.3 | 7.4 | 6.9 | 6.8 | 6.9 | 7.2 | 7.1 | 7.2 | --- | --- | --- |
| 6 | 7.5 | --- | --- | 7.0 | 6.9 | 6.9 | 7.2 | 7.1 | 7.2 | --- | --- | --- |
| 7 | 7.5 | 7.3 | 7.4 | 7.0 | 6.8 | 6.9 | 7.3 | 7.2 | 7.3 | --- | --- | --- |
| 8 | 7.6 | --- | --- | 7.0 | 6.9 | 7.0 | 7.3 | 7.2 | 7.3 | 7.1 | --- | --- |
| 9 | 7.4 | --- | --- | 6.9 | 6.8 | 6.9 | 7.3 | 7.2 | 7.3 | 7.2 | 7.1 | 7.1 |
| 10 | 7.4 | --- | --- | 7.0 | 6.9 | 6.9 | 7.4 | 7.3 | 7.3 | 7.2 | 7.1 | 7.2 |
| 11 | 7.3 | --- | --- | 7.1 | 7.0 | 7.0 | 7.4 | 7.3 | 7.3 | 7.3 | 7.2 | 7.2 |
| 12 | 7.1 | --- | --- | 7.1 | 7.0 | 7.0 | 7.3 | 7.2 | 7.3 | 7.3 | 7.0 | 7.2 |
| 13 | --- | --- | --- | 7.0 | 7.0 | 7.0 | 7.3 | --- | --- | 7.4 | 7.1 | 7.3 |
| 14 | 7.2 | --- | --- | 7.0 | 7.0 | 7.0 | --- | --- | --- | 7.3 | 7.2 | 7.2 |
| 15 | 7.4 | --- | --- | 7.0 | 6.9 | 7.0 | --- | --- | --- | 7.2 | 7.1 | 7.1 |
| 16 | 7.5 | --- | --- | 7.0 | 6.9 | 7.0 | --- | --- | --- | 7.1 | 7.1 | 7.1 |
| 17 | 7.7 | --- | --- | 7.1 | 7.0 | 7.0 | 7.4 | 7.3 | 7.4 | 7.3 | 7.1 | 7.2 |
| 18 | 7.5 | 7.3 | 7.4 | 7.1 | 7.1 | 7.1 | 7.4 | 7.3 | 7.4 | 7.3 | 7.2 | 7.3 |
| 19 | 7.6 | 7.3 | 7.4 | 7.2 | 7.1 | 7.2 | 7.5 | 7.3 | 7.4 | 7.3 | 7.2 | 7.3 |
| 20 | 7.6 | --- | --- | 7.3 | 7.1 | 7.2 | 7.5 | 7.4 | 7.4 | 7.3 | 7.2 | 7.2 |
| 21 | 7.4 | 7.3 | 7.4 | 7.3 | 7.2 | 7.2 | 7.6 | 7.4 | 7.4 | 7.3 | 7.2 | 7.2 |
| 22 | 7.5 | 7.2 | 7.3 | 7.3 | 7.2 | 7.2 | 7.4 | 7.3 | 7.3 | 7.3 | 7.2 | 7.2 |
| 23 | 7.5 | 7.2 | 7.3 | 7.3 | 7.2 | 7.2 | 7.3 | 7.2 | 7.3 | 7.3 | 7.2 | 7.2 |
| 24 | 7.4 | 7.1 | 7.3 | 7.3 | 7.2 | 7.2 | 7.1 | 7.0 | 7.1 | 7.3 | 7.2 | 7.3 |
| 25 | 7.3 | 7.1 | 7.2 | 7.3 | 7.2 | 7.2 | 7.0 | 6.9 | 7.0 | 7.3 | 7.2 | 7.2 |
| 26 | 7.2 | 7.1 | 7.2 | 7.3 | 7.2 | 7.2 | 7.1 | 6.9 | 7.0 | 7.4 | 7.2 | 7.3 |
| 27 | 7.2 | 7.1 | 7.1 | 7.4 | 7.2 | 7.3 | 7.1 | 7.0 | 7.0 | 7.4 | 7.2 | 7.3 |
| 28 | 7.2 | 7.1 | 7.1 | 7.3 | 7.3 | 7.3 | 7.2 | 7.0 | 7.2 | 7.3 | 7.2 | 7.3 |
| 29 | --- | --- | --- | 7.3 | 7.2 | 7.3 | 7.6 | --- | --- | 7.3 | 7.3 | 7.3 |
| 30 | --- | --- | --- | 7.5 | 7.2 | 7.3 | --- | --- | --- | 7.4 | 7.2 | 7.3 |
| 31 | --- | --- | --- | 7.6 | 7.4 | 7.5 | --- | --- | --- | 7.3 | 7.2 | 7.3 |
| MONTH | 7.7 | 7.1 | 7.3 | 7.6 | 6.8 | 7.1 | 7.6 | 6.9 | 7.2 | 7.4 | 7.0 | 7.2 |

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 7.3 | 7.1 | 7.2 | --- | --- | --- | --- | --- | --- | 7.1 | --- | --- |
| 2 | 7.3 | 7.2 | 7.3 | --- | --- | --- | --- | --- | --- | 6.9 | --- | --- |
| 3 | 7.3 | 7.2 | 7.2 | 7.4 | 7.3 | 7.3 | --- | --- | --- | 7.2 | 6.9 | 7.1 |
| 4 | 7.2 | 7.1 | 7.1 | 7.5 | 7.4 | 7.5 | --- | --- | --- | 7.3 | 6.8 | 7.1 |
| 5 | 7.3 | 7.1 | 7.1 | 7.5 | 7.3 | 7.4 | --- | --- | --- | 7.4 | 6.8 | 7.0 |
| 6 | 7.4 | 7.2 | 7.3 | 7.4 | 7.3 | 7.4 | 9.1 | 8.9 | 9.0 | 7.7 | 7.1 | 7.4 |
| 7 | 7.4 | 7.3 | 7.3 | 7.5 | 7.4 | 7.4 | 9.0 | 8.7 | 8.8 | 7.6 | 7.0 | 7.2 |
| 8 | 7.3 | 7.2 | 7.3 | --- | --- | --- | 9.0 | 8.6 | 8.8 | 7.6 | 7.0 | 7.3 |
| 9 | 7.2 | 7.2 | 7.2 | --- | --- | --- | 9.2 | 8.7 | 8.9 | 7.7 | 7.1 | 7.3 |
| 10 | 7.2 | 7.1 | 7.1 | --- | --- | --- | 9.5 | 8.7 | 9.1 | 7.4 | 7.1 | 7.2 |
| 11 | 7.1 | 7.0 | 7.0 | --- | --- | --- | 9.6 | 9.3 | 9.4 | 7.6 | 7.2 | 7.3 |
| 12 | 7.1 | --- | --- | --- | --- | --- | 9.6 | 9.2 | 9.4 | 7.7 | 7.2 | 7.3 |
| 13 | --- | --- | --- | --- | --- | --- | 9.4 | 9.0 | 9.2 | 7.7 | 7.2 | 7.3 |
| 14 | --- | --- | --- | --- | --- | --- | 9.3 | 8.9 | 9.1 | 7.5 | 7.0 | 7.2 |
| 15 | --- | --- | --- | --- | --- | --- | 9.0 | 8.7 | 8.9 | 7.7 | 7.0 | 7.3 |
| 16 | --- | --- | --- | --- | --- | --- | 8.9 | 8.4 | 8.7 | 7.4 | 7.3 | 7.4 |
| 17 | --- | --- | --- | --- | --- | --- | 8.6 | 8.1 | 8.3 | 7.6 | 7.3 | 7.4 |
| 18 | --- | --- | --- | --- | --- | --- | 8.1 | 7.3 | 7.7 | 7.6 | 7.4 | 7.5 |
| 19 | --- | --- | --- | --- | --- | --- | 7.4 | 7.1 | 7.2 | 7.5 | 7.3 | 7.4 |
| 20 | --- | --- | --- | --- | --- | --- | 7.5 | 7.1 | 7.2 | 7.5 | 7.4 | 7.4 |
| 21 | --- | --- | --- | --- | --- | --- | 7.4 | 7.1 | 7.2 | 7.6 | 7.3 | 7.4 |
| 22 | --- | --- | --- | --- | --- | --- | 7.4 | 7.0 | 7.2 | 7.5 | 7.1 | 7.3 |
| 23 | --- | --- | --- | --- | --- | --- | 7.5 | 6.9 | 7.2 | 7.6 | 7.2 | 7.3 |
| 24 | --- | --- | --- | --- | --- | --- | 7.6 | 7.1 | 7.3 | 7.5 | 7.1 | 7.3 |
| 25 | --- | --- | --- | --- | --- | --- | 7.9 | 7.1 | 7.3 | 7.6 | 7.2 | 7.3 |
| 26 | --- | --- | --- | --- | --- | --- | 7.4 | 7.0 | 7.2 | 7.8 | 7.3 | 7.5 |
| 27 | --- | --- | --- | --- | --- | --- | 7.4 | 7.0 | 7.2 | 7.8 | 7.4 | 7.6 |
| 28 | --- | --- | --- | --- | --- | --- | 7.4 | 7.0 | 7.2 | 7.9 | 7.5 | 7.7 |
| 29 | --- | --- | --- | --- | --- | --- | 7.4 | 7.1 | 7.2 | 7.8 | 7.4 | 7.6 |
| 30 | --- | --- | --- | --- | --- | --- | 7.5 | 7.1 | 7.3 | 8.3 | 7.6 | 7.9 |
| 31 | --- | --- | --- | --- | --- | --- | 7.2 | 7.1 | 7.1 | --- | --- | --- |
| MONTH | 7.4 | 7.0 | 7.2 | 7.5 | 7.3 | 7.4 | 9.6 | 6.9 | 8.0 | 8.3 | 6.8 | 7.4 |

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | 26.5 | 25.0 | 25.5 | 16.5 | 15.0 | 15.5 | 12.0 | 11.0 | 11.5 | 10.5 | 9.0 | 9.5 |
| 2 | 26.0 | 24.5 | 25.0 | 17.0 | 15.5 | 16.0 | 12.5 | 12.0 | 12.0 | 10.5 | 9.0 | 9.5 |
| 3 | 24.5 | 23.5 | 24.0 | 17.5 | 16.0 | 16.5 | 13.0 | 12.0 | 12.5 | 10.0 | 9.0 | 9.5 |
| 4 | 23.5 | 21.0 | 22.0 | 18.0 | 16.5 | 17.0 | 13.0 | 12.0 | 12.5 | 10.0 | 9.0 | 9.5 |
| 5 | 21.5 | 20.5 | 21.0 | 18.0 | 16.5 | 17.0 | 14.5 | 13.0 | 13.5 | 9.5 | 9.0 | 9.0 |
| 6 | 22.0 | 20.5 | 21.0 | 18.5 | 16.5 | 17.0 | 15.5 | 14.0 | 15.0 | 9.5 | 9.0 | 9.5 |
| 7 | 22.0 | 21.0 | 21.5 | 18.5 | 16.5 | 17.5 | 16.5 | 15.5 | 16.0 | 10.0 | 9.0 | 9.5 |
| 8 | 23.0 | 21.0 | 22.0 | 19.5 | 17.5 | 18.5 | 17.0 | 16.0 | 16.5 | 10.0 | 9.0 | 9.5 |
| 9 | 23.5 | 21.5 | 22.5 | 20.5 | 18.5 | 19.5 | 16.0 | 14.5 | 15.5 | 10.0 | 9.5 | 10.0 |
| 10 | 23.5 | 22.0 | 22.5 | 21.0 | 19.0 | 20.0 | 14.5 | 13.5 | 14.0 | 11.0 | 10.0 | 10.0 |
| 11 | 23.5 | 22.5 | 23.0 | 21.0 | 19.5 | 20.0 | 13.5 | 12.0 | 13.0 | 11.0 | 10.0 | 10.5 |
| 12 | 23.5 | 22.0 | 22.5 | 21.0 | 19.0 | 20.0 | 13.0 | 12.0 | 12.5 | 11.0 | 9.5 | 10.0 |
| 13 | 23.0 | 21.5 | 22.5 | 20.0 | 18.5 | 19.5 | 14.5 | 12.5 | 13.5 | 10.5 | 9.5 | 10.0 |
| 14 | 23.0 | 21.5 | 22.0 | 19.5 | 18.5 | 19.0 | 14.0 | 13.0 | 13.5 | 10.5 | 9.5 | 10.0 |
| 15 | 23.0 | 21.5 | 22.5 | 18.5 | 17.5 | 18.0 | 13.5 | 12.5 | 13.0 | 10.5 | 9.5 | 10.0 |
| 16 | 23.5 | 22.0 | 23.0 | 17.5 | 16.0 | 16.5 | 13.5 | 12.5 | 13.0 | 10.5 | 9.5 | 9.5 |
| 17 | 24.0 | 23.0 | 23.5 | 15.5 | 14.0 | 15.0 | 13.5 | 12.0 | 12.5 | 9.5 | 9.0 | 9.5 |
| 18 | 24.0 | 23.0 | 23.5 | 14.5 | 13.5 | 14.0 | 14.0 | 12.5 | 13.0 | 9.5 | 9.0 | 9.0 |
| 19 | 23.0 | 22.0 | 22.5 | 13.5 | 12.5 | 13.0 | 13.5 | 12.5 | 13.0 | 9.0 | 8.5 | 9.0 |
| 20 | 22.5 | 21.0 | 22.0 | 13.0 | 12.0 | 12.5 | 12.5 | 11.0 | 12.0 | 8.5 | 8.0 | 8.5 |
| 21 | 21.5 | 20.5 | 21.0 | 13.0 | 12.0 | 12.5 | 11.0 | 10.0 | 10.5 | 8.5 | 8.0 | 8.0 |
| 22 | 21.5 | 20.5 | 21.0 | 12.5 | 12.0 | 12.0 | 10.0 | 10.0 | 10.0 | 9.0 | 8.0 | 8.5 |
| 23 | 22.0 | 20.0 | 21.0 | 12.5 | 12.0 | 12.0 | 10.5 | 10.0 | 10.0 | 9.5 | 8.0 | 8.5 |
| 24 | 21.0 | 20.0 | 20.5 | 12.5 | 12.0 | 12.5 | 11.0 | 10.0 | 10.5 | 10.0 | 8.5 | 9.0 |
| 25 | 20.5 | 19.0 | 19.5 | 12.5 | 11.5 | 12.0 | 10.0 | 9.0 | 9.5 | 10.5 | 9.0 | 10.0 |
| 26 | 19.5 | 18.5 | 19.0 | 11.5 | 10.5 | 11.0 | 10.0 | 9.0 | 9.0 | 11.0 | 10.0 | 10.5 |
| 27 | 20.0 | 19.0 | 19.5 | 10.5 | 9.5 | 10.0 | 10.0 | 8.5 | 9.0 | 12.5 | 11.0 | 11.5 |
| 28 | 19.0 | 17.5 | 18.5 | 10.5 | 9.0 | 9.5 | 10.0 | 9.0 | 9.5 | 13.0 | 11.5 | 12.0 |
| 29 | 17.5 | 16.0 | 17.0 | 11.0 | 9.5 | 10.0 | 9.5 | 9.0 | 9.5 | 18.0 | 12.5 | 13.5 |
| 30 | 17.0 | 15.5 | 16.0 | 11.0 | 9.5 | 10.5 | 10.0 | 9.0 | 9.5 | 13.0 | 12.5 | 13.0 |
| 31 | 16.5 | 15.0 | 15.5 | --- | --- | --- | 10.5 | 9.0 | 9.5 | 12.5 | 12.0 | 12.0 |
| MONTH | 26.5 | 15.0 | 21.5 | 21.0 | 9.0 | 15.0 | 17.0 | 8.5 | 12.0 | 18.0 | 8.0 | 10.0 |

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | 12.5 | 11.5 | 12.0 | 17.0 | 17.0 | 17.0 | 20.5 | 18.5 | 19.5 | --- | --- | --- |
| 2 | 12.0 | 11.0 | 11.5 | 17.5 | 16.5 | 17.0 | 20.0 | 19.0 | 19.5 | --- | --- | --- |
| 3 | 12.0 | 10.5 | 11.0 | 17.0 | 16.5 | 17.0 | 20.0 | 19.0 | 19.5 | --- | --- | --- |
| 4 | 11.0 | 10.5 | 11.0 | 18.0 | 16.5 | 17.0 | 21.5 | 20.0 | 20.5 | --- | --- | --- |
| 5 | 12.5 | 10.5 | 11.0 | 17.0 | 16.0 | 16.5 | 21.5 | 20.5 | 21.0 | --- | --- | --- |
| 6 | 13.0 | 10.0 | 11.0 | 16.5 | 16.0 | 16.0 | 21.5 | 20.0 | 20.5 | --- | --- | --- |
| 7 | 13.5 | 11.0 | 11.5 | 16.5 | 15.0 | 16.0 | 21.0 | 20.0 | 20.5 | --- | 19.5 | 23.5 |
| 8 | 16.5 | 11.5 | 13.5 | 16.0 | 15.0 | 15.5 | 21.0 | 20.0 | 20.5 | 24.5 | 19.5 | 21.0 |
| 9 | 17.5 | 11.5 | 14.0 | 16.0 | 15.0 | 15.5 | 22.0 | 20.5 | 21.5 | 24.5 | 23.5 | 24.0 |
| 10 | --- | 9.5 | --- | 16.0 | 15.0 | 15.5 | 23.0 | 21.5 | 22.0 | 23.5 | 22.5 | 23.0 |
| 11 | 13.0 | --- | 12.0 | 15.5 | 15.0 | 15.5 | 23.5 | 22.0 | 22.5 | 23.5 | 22.0 | 22.5 |
| 12 | 13.0 | 9.0 | 11.0 | 15.5 | 15.0 | 15.0 | 23.5 | 22.5 | 23.0 | 23.0 | 20.5 | 21.5 |
| 13 | --- | --- | 11.0 | 15.5 | 15.0 | 15.0 | --- | --- | --- | 21.0 | 20.5 | 21.0 |
| 14 | --- | --- | 11.0 | 16.5 | 15.0 | 15.5 | --- | --- | --- | 22.0 | 20.5 | 21.0 |
| 15 | --- | --- | 11.0 | 17.0 | 15.5 | 16.0 | --- | --- | --- | 21.5 | 21.0 | 21.0 |
| 16 | --- | --- | 11.5 | 17.0 | 16.0 | 16.5 | --- | --- | --- | 21.5 | 21.0 | 21.5 |
| 17 | --- | --- | 11.5 | 17.0 | 15.5 | 16.0 | --- | --- | --- | 22.5 | 21.5 | 22.0 |
| 18 | --- | --- | 11.5 | 16.5 | 15.0 | 16.0 | 24.5 | 24.0 | 24.0 | 23.0 | 22.0 | 22.5 |
| 19 | --- | --- | 12.5 | 16.0 | 14.5 | 15.0 | 25.0 | 23.5 | 24.0 | 23.0 | 21.5 | 22.0 |
| 20 | --- | --- | --- | 16.0 | 14.5 | 15.0 | 25.0 | 24.0 | 24.5 | 22.0 | 21.0 | 21.5 |
| 21 | 15.5 | 14.5 | 15.0 | 16.5 | 15.5 | 16.0 | 26.0 | 24.5 | 25.0 | 23.0 | 21.5 | 22.0 |
| 22 | 16.0 | 14.5 | 15.0 | 16.5 | 15.5 | 16.0 | 25.5 | 25.0 | 25.0 | 23.0 | 22.5 | 23.0 |
| 23 | 16.0 | 14.5 | 15.0 | 17.0 | 15.0 | 16.0 | 25.0 | 24.0 | 24.5 | 24.5 | 23.0 | 23.5 |
| 24 | 16.5 | 14.5 | 15.5 | 17.5 | 15.5 | 16.5 | 24.5 | 23.5 | 24.0 | 24.5 | 23.5 | 24.0 |
| 25 | 16.0 | 15.5 | 15.5 | 17.5 | 16.0 | 16.5 | 24.0 | 23.0 | 23.5 | 25.0 | 23.5 | 24.0 |
| 26 | 16.0 | 15.5 | 16.0 | 17.5 | 16.5 | 17.0 | 24.0 | 22.5 | 23.5 | 26.0 | 24.5 | 25.5 |
| 27 | 17.0 | 16.0 | 16.5 | 18.5 | 17.0 | 17.5 | 25.0 | 23.5 | 24.0 | 26.0 | 24.5 | 25.5 |
| 28 | 17.5 | 16.5 | 17.0 | 18.5 | 18.0 | 18.5 | 25.5 | 24.0 | 25.0 | 26.0 | 24.5 | 25.0 |
| 29 | --- | --- | --- | 19.5 | 18.0 | 18.5 | --- | --- | --- | 26.0 | 25.0 | 25.5 |
| 30 | --- | --- | --- | 20.0 | 18.0 | 19.0 | --- | --- | --- | 27.0 | 26.0 | 26.5 |
| 31 | --- | --- | --- | 19.5 | 19.0 | 19.0 | --- | --- | --- | 27.5 | 26.5 | 27.0 |
| MONTH | 17.5 | 9.0 | 13.0 | 20.0 | 14.5 | 16.5 | 26.0 | 18.5 | 22.5 | 27.5 | 19.5 | 23.0 |

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 27.0 | 25.5 | 26.5 | --- | --- | --- | --- | --- | --- | 29.0 | 24.5 | 26.0 |
| 2 | 27.5 | 26.5 | 27.0 | --- | --- | --- | --- | --- | --- | 27.0 | 25.0 | 25.5 |
| 3 | 27.5 | 26.0 | 26.5 | 29.0 | 24.5 | 27.0 | --- | --- | --- | 28.0 | 27.0 | 27.5 |
| 4 | 26.0 | 25.5 | 26.0 | 29.5 | 29.0 | 29.5 | --- | --- | --- | 28.0 | 26.0 | 27.5 |
| 5 | 26.0 | 25.0 | 25.5 | 29.0 | 27.0 | 28.0 | --- | --- | --- | 28.0 | 26.0 | 27.0 |
| 6 | 25.0 | 24.5 | 24.5 | 28.0 | 27.0 | 27.5 | 33.5 | 33.0 | 33.5 | 29.0 | 28.0 | 28.5 |
| 7 | 25.5 | 24.5 | 25.0 | 28.0 | 27.5 | 27.5 | 33.0 | 32.0 | 33.0 | 29.0 | 28.0 | 28.5 |
| 8 | 27.0 | 25.5 | 26.0 | --- | --- | --- | 33.0 | 31.5 | 32.5 | 29.0 | 28.5 | 28.5 |
| 9 | 28.5 | 27.0 | 28.0 | --- | --- | --- | 32.5 | 31.0 | 31.5 | 29.0 | 27.5 | 28.0 |
| 10 | 29.0 | 28.5 | 29.0 | --- | --- | --- | 32.0 | 31.0 | 31.5 | 29.0 | 27.5 | 28.0 |
| 11 | 29.0 | 28.5 | 28.5 | --- | --- | --- | 32.5 | 30.5 | 31.5 | 29.0 | 27.0 | 28.0 |
| 12 | --- | --- | --- | --- | --- | --- | 32.0 | 31.0 | 31.0 | 29.0 | 27.5 | 28.0 |
| 13 | --- | --- | --- | --- | --- | --- | 32.5 | 31.0 | 31.5 | 29.0 | 28.0 | 28.5 |
| 14 | --- | --- | --- | --- | --- | --- | 33.0 | 31.0 | 32.0 | 29.0 | 26.5 | 27.5 |
| 15 | --- | --- | --- | --- | --- | --- | 33.0 | 31.5 | 32.0 | 28.5 | 26.5 | 27.0 |
| 16 | --- | --- | --- | --- | --- | --- | 33.0 | 31.5 | 32.0 | 27.5 | --- | --- |
| 17 | --- | --- | --- | --- | --- | --- | 33.0 | 31.5 | 32.0 | 27.0 | 25.5 | 26.5 |
| 18 | --- | --- | --- | --- | --- | --- | 32.0 | 31.0 | 31.5 | 25.5 | 25.0 | 25.5 |
| 19 | --- | --- | --- | --- | --- | --- | 31.0 | 30.0 | 30.5 | 25.0 | 24.0 | 24.5 |
| 20 | --- | --- | --- | --- | --- | --- | 30.5 | 29.5 | 30.0 | 25.0 | 23.5 | 24.5 |
| 21 | --- | --- | --- | --- | --- | --- | 30.5 | 29.5 | 29.5 | 25.5 | 24.0 | 24.5 |
| 22 | --- | --- | --- | --- | --- | --- | 30.5 | 29.0 | 29.5 | 26.0 | 24.5 | 25.0 |
| 23 | --- | --- | --- | --- | --- | --- | 30.5 | 29.0 | 29.5 | 26.5 | 25.0 | 25.5 |
| 24 | --- | --- | --- | --- | --- | --- | 31.0 | 29.0 | 30.0 | 27.0 | 25.5 | 26.0 |
| 25 | --- | --- | --- | --- | --- | --- | 31.0 | 29.0 | 30.0 | 27.0 | 26.0 | 26.5 |
| 26 | --- | --- | --- | --- | --- | --- | 31.5 | 30.0 | 30.5 | 27.5 | 26.0 | 26.5 |
| 27 | --- | --- | --- | --- | --- | --- | 31.0 | 30.0 | 30.5 | 28.0 | 26.5 | 27.0 |
| 28 | --- | --- | --- | --- | --- | --- | 31.0 | --- | --- | 28.0 | 26.5 | 27.0 |
| 29 | --- | --- | --- | --- | --- | --- | 31.0 | 30.0 | 30.5 | 28.5 | 27.0 | 27.5 |
| 30 | --- | --- | --- | --- | --- | --- | 30.5 | 30.0 | 30.0 | 28.5 | 27.0 | 27.5 |
| 31 | --- | --- | --- | --- | --- | --- | 30.0 | 29.0 | 29.5 | --- | --- | --- |
| MONTH | 29.0 | 24.5 | 26.5 | 29.5 | 24.5 | 28.0 | 33.5 | 29.0 | 31.0 | 29.0 | 23.5 | 27.0 |

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | |
| 1 | 7.9 | 6.6 | 7.0 | 10.2 | 9.4 | 9.7 | 10.6 | 9.9 | 10.2 | 10.4 | 9.6 | 9.9 |
| 2 | 7.2 | 6.5 | 6.9 | 10.2 | 9.4 | 9.7 | 10.3 | 9.6 | 9.9 | 10.5 | 9.5 | 9.9 |
| 3 | 6.4 | .3 | 3.3 | 10.3 | 9.4 | 9.7 | 10.0 | 9.1 | 9.5 | 10.3 | 9.4 | 9.7 |
| 4 | 2.1 | .2 | 1.1 | 10.3 | 9.3 | 9.7 | 9.4 | 8.7 | 9.0 | 10.4 | 9.4 | 9.8 |
| 5 | 3.6 | 2.0 | 2.7 | 10.3 | 9.0 | 9.5 | 9.4 | 8.4 | 8.8 | 10.5 | 9.5 | 9.8 |
| 6 | 4.7 | 3.6 | 4.3 | 10.0 | 8.9 | 9.3 | 8.8 | 7.7 | 8.3 | 9.9 | 9.4 | 9.6 |
| 7 | 5.2 | 4.7 | 5.0 | 9.9 | 8.5 | 9.1 | 8.4 | 7.6 | 7.9 | 10.5 | 9.4 | 9.9 |
| 8 | 5.8 | 5.2 | 5.6 | 9.4 | 8.0 | 8.7 | 8.0 | 7.6 | 7.8 | 10.6 | 9.3 | 9.8 |
| 9 | 6.5 | 5.8 | 6.2 | 9.4 | 7.7 | 8.4 | 8.4 | 7.8 | 8.0 | 10.4 | 9.6 | 9.9 |
| 10 | 7.2 | 6.3 | 6.7 | 9.0 | 7.5 | 8.1 | 8.6 | 7.8 | 8.1 | 11.0 | 9.7 | 10.2 |
| 11 | 7.7 | 6.7 | 7.1 | 9.3 | 7.3 | 8.1 | 8.7 | 7.9 | 8.2 | 10.9 | 9.8 | 10.1 |
| 12 | 8.2 | 7.0 | 7.5 | 9.3 | 7.4 | 8.2 | 7.9 | 5.5 | 7.3 | 11.1 | 9.7 | 10.2 |
| 13 | 8.7 | 7.3 | 7.8 | 9.5 | 7.5 | 8.4 | 5.1 | 1.5 | 2.6 | 11.1 | 9.8 | 10.3 |
| 14 | 8.9 | 7.6 | 8.0 | 8.8 | 7.8 | 8.2 | 4.4 | 2.0 | 3.4 | 11.1 | 9.8 | 10.2 |
| 15 | 9.0 | 7.6 | 8.1 | 8.7 | 7.8 | 8.2 | 5.9 | 4.4 | 5.1 | 11.2 | 9.6 | 10.2 |
| 16 | 9.1 | 7.6 | 8.1 | 8.5 | 7.7 | 8.2 | 7.0 | 5.9 | 6.4 | 11.0 | 9.5 | 10.1 |
| 17 | 8.7 | 7.5 | 7.9 | 8.6 | 8.2 | 8.3 | 7.5 | 7.0 | 7.3 | 11.1 | 9.9 | 10.3 |
| 18 | 8.3 | 7.3 | 7.7 | 8.8 | 8.2 | 8.5 | 8.2 | 7.5 | 7.9 | 11.2 | 9.9 | 10.3 |
| 19 | 8.5 | 7.2 | 7.7 | 9.6 | 8.8 | 9.2 | 8.7 | 8.3 | 8.5 | 11.0 | 10.3 | 10.7 |
| 20 | 8.8 | 7.4 | 8.0 | 9.6 | 9.1 | 9.3 | 9.2 | 8.7 | 8.9 | 11.4 | 10.6 | 10.8 |
| 21 | 8.8 | 7.8 | 8.2 | 9.8 | 9.2 | 9.5 | 9.8 | 9.2 | 9.6 | 10.8 | 10.4 | 10.6 |
| 22 | 8.2 | 5.8 | 7.3 | 9.9 | 9.7 | 9.8 | 9.9 | 9.5 | 9.7 | 11.0 | 10.3 | 10.6 |
| 23 | 5.7 | 4.7 | 5.0 | 9.7 | 9.3 | 9.6 | 9.9 | 9.7 | 9.8 | 11.5 | 10.3 | 10.8 |
| 24 | 5.6 | 4.7 | 5.0 | 9.5 | 9.0 | 9.3 | 10.3 | 9.7 | 10.0 | 11.5 | 10.3 | 10.8 |
| 25 | 6.0 | 4.9 | 5.3 | 9.4 | 9.0 | 9.2 | 10.4 | 10.0 | 10.1 | 11.6 | 10.4 | 10.8 |
| 26 | 6.4 | 5.0 | 5.6 | 9.6 | 9.2 | 9.3 | 10.2 | 10.0 | 10.0 | 11.5 | 10.3 | 10.8 |
| 27 | 8.1 | 6.4 | 7.4 | 9.7 | 9.2 | 9.4 | 10.5 | 10.0 | 10.2 | --- | --- | --- |
| 28 | 8.8 | 7.6 | 8.2 | 9.5 | 9.0 | 9.3 | 10.5 | 9.9 | 10.2 | --- | --- | --- |
| 29 | 9.1 | 8.4 | 8.7 | 9.9 | 9.2 | 9.6 | 10.3 | 10.0 | 10.1 | --- | --- | --- |
| 30 | 9.6 | 8.6 | 9.1 | 10.4 | 9.8 | 10.0 | 10.6 | 9.9 | 10.2 | 11.0 | --- | 10.3 |
| 31 | 10.0 | 9.1 | 9.5 | --- | --- | --- | 10.5 | 9.8 | 10.1 | 9.9 | 8.9 | 9.3 |
| MONTH | 10.0 | .2 | 6.7 | 10.4 | 7.3 | 9.1 | 10.6 | 1.5 | 8.5 | 11.6 | 8.9 | 10.2 |

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FEBRUARY | | | MARCH | | | APRIL | | | MAY | |
| 1 | --- | --- | --- | 5.9 | 5.2 | 5.6 | 8.0 | 3.4 | 6.9 | --- | --- | --- |
| 2 | --- | --- | --- | 6.3 | 5.2 | 5.7 | 2.7 | .2 | .6 | --- | --- | --- |
| 3 | --- | --- | --- | 5.9 | 5.4 | 5.6 | 2.2 | .7 | 1.7 | --- | --- | --- |
| 4 | --- | --- | --- | 6.6 | 6.1 | 6.3 | 2.8 | 1.6 | 2.0 | --- | --- | --- |
| 5 | --- | --- | --- | 6.3 | 5.5 | 6.0 | 5.0 | 3.0 | 4.3 | --- | --- | --- |
| 6 | --- | --- | --- | 5.4 | 2.6 | 4.1 | 5.9 | 5.1 | 5.5 | --- | --- | --- |
| 7 | --- | --- | --- | 3.6 | 1.3 | 2.0 | 6.5 | 5.9 | 6.2 | --- | --- | --- |
| 8 | --- | --- | --- | 4.7 | 2.3 | 3.8 | 8.5 | 6.5 | 7.5 | --- | 2.6 | --- |
| 9 | --- | --- | --- | 2.7 | 1.9 | 2.2 | 8.5 | 7.9 | 8.2 | 6.6 | 6.0 | 6.3 |
| 10 | 19.3 | 5.5 | 10.6 | 4.1 | 2.7 | 3.3 | 8.5 | 8.1 | 8.3 | 8.0 | 6.7 | 7.4 |
| 11 | 10.8 | 5.0 | 9.0 | 5.2 | 4.2 | 4.8 | 8.4 | 7.6 | 8.0 | 8.1 | 7.0 | 7.8 |
| 12 | 18.6 | 6.9 | 10.0 | 6.2 | 5.3 | 5.8 | 7.5 | 7.0 | 7.2 | 6.7 | 1.8 | 3.8 |
| 13 | 10.4 | 7.2 | 8.8 | 6.1 | 5.5 | 5.7 | 9.3 | 5.4 | 7.5 | 4.1 | 1.6 | 3.0 |
| 14 | 18.1 | 4.7 | 9.3 | 5.4 | 4.9 | 5.1 | --- | --- | --- | 4.3 | 3.9 | 4.1 |
| 15 | --- | --- | --- | 5.1 | 4.9 | 5.0 | --- | --- | --- | 5.3 | 4.3 | 4.7 |
| 16 | 11.6 | 7.6 | 9.2 | 5.9 | 4.7 | 5.2 | --- | --- | 9.0 | 5.7 | 5.2 | 5.5 |
| 17 | --- | --- | --- | 6.6 | 5.9 | 6.3 | --- | 7.8 | 8.3 | 6.0 | 5.7 | 5.9 |
| 18 | 10.6 | 9.5 | 9.9 | 7.4 | 6.7 | 7.1 | 8.6 | 7.8 | 8.1 | 6.1 | 5.8 | 6.0 |
| 19 | 10.5 | 9.1 | 9.7 | 7.9 | 7.4 | 7.6 | 9.4 | 8.1 | 8.6 | 6.3 | 5.6 | 6.0 |
| 20 | 10.1 | 8.4 | 9.2 | 8.1 | 7.7 | 7.8 | 9.6 | 8.3 | 8.8 | 6.3 | 5.8 | 6.2 |
| 21 | 9.0 | 7.8 | 8.4 | 7.8 | 7.5 | 7.7 | 9.9 | 7.8 | 8.7 | 6.5 | 5.4 | 5.8 |
| 22 | 9.2 | 7.3 | 8.2 | 7.8 | 7.4 | 7.6 | 8.8 | 7.7 | 8.1 | 6.6 | 6.0 | 6.4 |
| 23 | 9.4 | 7.4 | 8.4 | 7.7 | 7.3 | 7.4 | 7.7 | 4.9 | 6.8 | 6.0 | 5.8 | 5.9 |
| 24 | 9.2 | 7.7 | 8.3 | 7.8 | 7.1 | 7.4 | 4.7 | 2.5 | 3.4 | 6.6 | 5.9 | 6.4 |
| 25 | 9.1 | 7.6 | 8.4 | 7.5 | 6.7 | 7.1 | 3.6 | 2.8 | 3.1 | 6.8 | 6.5 | 6.7 |
| 26 | 8.8 | 6.9 | 7.9 | 7.2 | 6.6 | 6.8 | 4.8 | 2.9 | 4.0 | 7.0 | 6.7 | 6.8 |
| 27 | 7.1 | 6.2 | 6.6 | 9.1 | 6.9 | 7.9 | 5.3 | 3.7 | 4.4 | 7.1 | 4.7 | 5.6 |
| 28 | 6.4 | 5.6 | 6.0 | 7.8 | 7.2 | 7.5 | 5.9 | 3.7 | 5.3 | 4.9 | 4.7 | 4.8 |
| 29 | --- | --- | --- | 7.6 | 7.0 | 7.2 | --- | --- | --- | 5.3 | 4.9 | 5.1 |
| 30 | --- | --- | --- | 9.0 | 7.1 | 8.1 | --- | --- | --- | 6.1 | 5.2 | 5.4 |
| 31 | --- | --- | --- | 9.2 | 7.9 | 8.6 | --- | --- | --- | 6.1 | 4.7 | 5.4 |
| MONTH | 19.3 | 4.7 | 8.7 | 9.2 | 1.3 | 6.1 | 9.9 | .2 | 6.2 | 8.1 | 1.6 | 5.7 |

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 4.8 | 4.3 | 4.7 | --- | --- | --- | --- | --- | --- | 7.6 | 5.8 | 6.3 |
| 2 | 5.9 | 4.9 | 5.4 | --- | --- | --- | --- | --- | --- | 6.3 | 6.1 | 6.3 |
| 3 | 6.6 | 5.8 | 6.2 | --- | --- | --- | --- | --- | --- | 6.5 | 5.9 | 6.1 |
| 4 | 6.9 | 6.2 | 6.5 | 6.7 | 6.1 | 6.5 | --- | --- | --- | 6.5 | 5.9 | 6.2 |
| 5 | 6.1 | 4.8 | 5.4 | 7.0 | 5.9 | 6.4 | --- | --- | --- | 6.5 | 6.0 | 6.3 |
| 6 | 5.1 | 4.9 | 5.0 | 6.6 | 6.1 | 6.4 | 13.1 | 10.6 | 12.1 | 6.0 | 5.0 | 5.6 |
| 7 | 5.1 | 4.8 | 5.0 | 6.9 | 6.6 | 6.7 | 12.2 | 9.4 | 10.6 | 4.9 | 3.7 | 4.1 |
| 8 | 4.8 | 4.0 | 4.4 | --- | --- | --- | 12.1 | 9.1 | 10.4 | 5.1 | 3.7 | 4.3 |
| 9 | 4.0 | 3.3 | 3.6 | --- | --- | --- | 14.2 | 9.9 | 11.6 | 6.0 | 5.0 | 5.3 |
| 10 | 3.3 | 3.0 | 3.2 | --- | --- | --- | 16.6 | 9.7 | 13.3 | 6.5 | 5.4 | 5.7 |
| 11 | 3.2 | 3.0 | 3.1 | --- | --- | --- | 15.8 | 12.3 | 14.1 | 7.1 | 5.7 | 6.2 |
| 12 | 4.6 | 3.0 | 3.5 | --- | --- | --- | 16.5 | 13.1 | 14.6 | 7.5 | 6.0 | 6.4 |
| 13 | 4.6 | 3.4 | 4.0 | --- | --- | --- | 16.0 | 12.0 | 14.0 | 7.6 | 6.1 | 6.5 |
| 14 | --- | --- | --- | --- | --- | --- | 16.2 | 11.3 | 13.3 | 6.9 | 6.3 | 6.6 |
| 15 | --- | --- | --- | --- | --- | --- | 13.6 | 10.0 | 11.6 | 7.7 | 6.6 | 7.0 |
| 16 | --- | --- | --- | --- | --- | --- | 11.8 | 8.2 | 10.1 | 7.7 | 6.7 | 7.1 |
| 17 | --- | --- | --- | --- | --- | --- | 9.4 | 6.4 | 8.0 | 8.7 | 7.0 | 7.7 |
| 18 | --- | --- | --- | --- | --- | --- | 8.3 | 6.1 | 7.0 | 9.2 | 7.8 | 8.3 |
| 19 | --- | --- | --- | --- | --- | --- | 6.7 | 5.3 | 5.9 | 7.8 | 7.4 | 7.6 |
| 20 | --- | --- | --- | --- | --- | --- | 7.2 | 5.2 | 5.9 | 7.4 | 6.7 | 7.1 |
| 21 | --- | --- | --- | --- | --- | --- | 7.2 | 5.4 | 6.0 | 8.3 | 6.7 | 7.3 |
| 22 | --- | --- | --- | --- | --- | --- | 6.6 | 5.5 | 5.8 | 7.6 | 6.3 | 6.9 |
| 23 | --- | --- | --- | --- | --- | --- | 6.7 | 5.4 | 5.9 | 7.4 | 5.8 | 6.5 |
| 24 | --- | --- | --- | --- | --- | --- | 7.0 | 5.6 | 6.1 | 7.7 | 5.9 | 6.6 |
| 25 | --- | --- | --- | --- | --- | --- | 6.8 | 5.6 | 6.1 | 8.2 | 6.1 | 6.9 |
| 26 | --- | --- | --- | --- | --- | --- | 6.9 | 5.3 | 6.0 | 8.9 | 6.6 | 7.5 |
| 27 | --- | --- | --- | --- | --- | --- | 7.2 | 5.0 | 5.9 | 9.3 | 7.1 | 7.9 |
| 28 | --- | --- | --- | --- | --- | --- | 7.2 | 5.0 | 6.0 | 9.4 | 7.1 | 8.0 |
| 29 | --- | --- | --- | --- | --- | --- | 8.1 | 5.8 | 6.7 | 9.6 | 7.1 | 8.2 |
| 30 | --- | --- | --- | --- | --- | --- | 7.3 | 5.8 | 6.4 | 11.8 | 8.0 | 9.8 |
| 31 | --- | --- | --- | --- | --- | --- | 6.7 | 5.8 | 6.1 | --- | --- | --- |
| MONTH | 6.9 | 3.0 | 4.6 | 7.0 | 5.9 | 6.5 | 16.6 | 5.0 | 8.8 | 11.8 | 3.7 | 6.7 |

## 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 (0.8 km) upstream from Interstate Highway 45, 1.5 mi (2.4 km) downstream from Caney Creek, and 9.5 mi (15.3 km) southeast of Madisonville.

DRAINAGE AREA.--321 $mi^2$ (831 $km^2$).

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

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 150.00 ft (45.720 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No diversion above station. Flow is affected at times by discharge from the flood-detention pools of three floodwater-retarding structures with combined detention capacity of 1,290 acre-ft (1.59 $hm^3$). These structures control runoff from 2.71 $mi^2$ (7.02 $km^2$) in the Upper Caney Creek and Town Branch drainage basins. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--14 years, 219 $ft^3/s$ (6.202 $m^3/s$), 9.26 in/yr (235 mm/yr), 158,700 acre-ft/yr (196 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,800 $ft^3/s$ (957 $m^3/s$) Sept. 14, 1974, gage height, 25.07 ft (7.641 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1910, 34 ft (10.4 m) in May 1922 (discharge unknown), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,400 $ft^3/s$ (96.3 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| June 6 | 0600 | 3,730 | 106 | 17.85 | 5.441 |
| June 13 | 0700 | *13,900 | 394 | 21.34 | 6.504 |

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .30 | .06 | 1.4 | .00 | 1.4 | 3.3 | 2.7 | 1.3 | 7.9 | 11 | 5.2 | 19 |
| 2 | .35 | .04 | .93 | .00 | 1.3 | 3.3 | 2.7 | 1.7 | 55 | 8.3 | 3.6 | 186 |
| 3 | .40 | .00 | .67 | .00 | 1.0 | 6.1 | 2.7 | 2.5 | 399 | 6.4 | 3.0 | 269 |
| 4 | .41 | .00 | .46 | .04 | .95 | 390 | 2.7 | 98 | 959 | 6.2 | 2.5 | 98 |
| 5 | .34 | .00 | .26 | .31 | 1.1 | 954 | 2.7 | 414 | 1880 | 46 | 2.2 | 106 |
| 6 | .28 | .00 | .19 | .44 | 1.4 | 1760 | 2.6 | 281 | 3430 | 446 | 2.0 | 142 |
| 7 | .27 | .00 | .13 | .48 | 2.4 | 963 | 2.6 | 131 | 2180 | 656 | 2.0 | 89 |
| 8 | .24 | .00 | .16 | .36 | 2.7 | 131 | 2.6 | 46 | 824 | 703 | 2.1 | 31 |
| 9 | .17 | .00 | .26 | .33 | 3.1 | 55 | 2.5 | 27 | 157 | 231 | 2.2 | 16 |
| 10 | .13 | .00 | .17 | .30 | 17 | 37 | 2.4 | 56 | 66 | 68 | 2.0 | 9.4 |
| 11 | .09 | .00 | .09 | .27 | 138 | 31 | 2.1 | 146 | 210 | 38 | 1.8 | 6.1 |
| 12 | .05 | .00 | .49 | .19 | 396 | 22 | 2.1 | 246 | 3580 | 29 | 1.8 | 6.9 |
| 13 | .03 | .00 | 1.1 | .24 | 155 | 17 | 2.1 | 59 | 10500 | 29 | 1.8 | 5.5 |
| 14 | .02 | .00 | 1.1 | .27 | 40 | 12 | 2.1 | 28 | 4460 | 50 | 1.8 | 21 |
| 15 | .00 | .00 | .89 | .27 | 20 | 9.9 | 2.5 | 25 | 2560 | 45 | 1.8 | 176 |
| 16 | .00 | .21 | .69 | .27 | 12 | 8.2 | 1.6 | 183 | 1040 | 30 | 1.8 | 1450 |
| 17 | .00 | .32 | .66 | .27 | 7.7 | 6.6 | 1.4 | 534 | 207 | 24 | 1.8 | 1560 |
| 18 | .05 | .23 | .52 | .27 | 5.5 | 5.6 | 1.6 | 659 | 114 | 16 | 1.7 | 418 |
| 19 | .17 | .20 | .43 | .72 | 4.3 | 4.7 | 2.2 | 411 | 85 | 11 | 1.7 | 64 |
| 20 | .12 | .20 | .28 | 25 | 3.7 | 4.3 | 2.4 | 92 | 51 | 8.8 | 1.5 | 35 |
| 21 | .07 | .20 | .16 | 33 | 3.3 | 3.8 | 2.4 | 45 | 35 | 7.4 | 1.5 | 23 |
| 22 | .03 | .67 | .12 | 12 | 16 | 3.4 | 2.4 | 25 | 26 | 5.8 | 1.5 | 16 |
| 23 | .03 | .92 | .07 | 5.6 | 57 | 3.1 | 2.6 | 16 | 19 | 5.5 | 1.4 | 12 |
| 24 | .06 | .77 | .00 | 5.9 | 49 | 2.9 | 2.9 | 26 | 15 | 5.3 | 1.4 | 9.6 |
| 25 | .05 | .87 | .00 | 4.6 | 27 | 2.7 | 2.4 | 230 | 16 | 5.1 | 1.4 | 7.8 |
| 26 | .02 | 2.6 | .00 | 3.9 | 12 | 2.5 | 2.7 | 316 | 21 | 5.0 | 1.3 | 6.5 |
| 27 | .22 | 2.5 | .00 | 3.1 | 6.6 | 2.4 | 2.3 | 122 | 32 | 8.0 | 1.2 | 5.7 |
| 28 | .26 | 2.5 | .00 | 2.4 | 3.9 | 2.4 | 1.9 | 46 | 39 | 24 | 1.1 | 5.1 |
| 29 | .22 | 2.6 | .00 | 2.0 | --- | 2.5 | 1.7 | 26 | 21 | 26 | 1.2 | 4.4 |
| 30 | .18 | 1.8 | .00 | 1.8 | --- | 2.6 | 1.5 | 16 | 13 | 15 | 1.2 | 4.2 |
| 31 | .12 | --- | .00 | 1.6 | --- | 2.4 | --- | 11 | --- | 10 | 3.7 | --- |
| TOTAL | 4.68 | 16.69 | 11.23 | 105.93 | 989.35 | 4454.7 | 69.1 | 4320.5 | 33001.9 | 2579.8 | 61.2 | 4802.2 |
| MEAN | .15 | .56 | .36 | 3.42 | 35.3 | 144 | 2.30 | 139 | 1100 | 83.2 | 1.97 | 160 |
| MAX | .41 | 2.6 | 1.4 | 33 | 396 | 1760 | 2.9 | 659 | 10500 | 703 | 5.2 | 1560 |
| MIN | .00 | .00 | .00 | .00 | .95 | 2.4 | 1.4 | 1.3 | 7.9 | 5.0 | 1.1 | 4.2 |
| CFSM | .000 | .002 | .001 | .01 | .11 | .45 | .007 | .43 | 3.43 | .26 | .006 | .50 |
| IN. | .00 | .00 | .00 | .01 | .11 | .52 | .01 | .50 | 3.82 | .30 | .01 | .56 |
| AC-FT | 9.3 | 33 | 22 | 210 | 1960 | 8840 | 137 | 8570 | 65460 | 5120 | 121 | 9530 |

CAL YR 1980 TOTAL 67193.65 MEAN 184 MAX 5350 MIN .00 CFSM .57 IN 7.79 AC-FT 133300
WTR YR 1981 TOTAL 50417.28 MEAN 138 MAX 10500 MIN .00 CFSM .43 IN 5.84 AC-FT 100000

## 08066100 WHITE ROCK CREEK NEAR TRINITY, TX

LOCATION.--Lat 31°03'06", long 95°22'40", Trinity County, Hydrologic Unit 12030202, on right bank 3.9 mi (6.3 km) upstream from Little White Rock Creek, 4.1 mi (6.6 km) upstream from Tantaboque Creek, 7.3 mi (11.7 km) north of Trinity, and 16.1 mi (25.9 km) upstream from mouth.

DRAINAGE AREA.--222 $mi^2$ (575 $km^2$). Prior to June 1974, 228 $mi^2$ (591 $km^2$).

PERIOD OF RECORD.--December 1965 to current year. Peak discharge, supplemental peak discharges, and discharge measurements only October 1971 to May 1974 (low stages affected by storage in Livingston Reservoir).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 124.30 ft (37.887 m) National Geodetic Vertical Datum of 1929. Prior to June 19, 1974, at site 1.9 mi (3.1 km) downstream at same datum.

REMARKS.--Records fair except those for period of no gage-height record, which are poor. No known diversions. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--12 years (water years 1967-71, 1975-81), 112 $ft^3/s$ (3.172 $m^3/s$), 6.85 in/yr (174 mm/yr), 81,140 acre-ft/yr (100 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,800 $ft^3/s$ (589 $m^3/s$) Apr. 21, 1979, gage height, 33.87 ft (10.324 m), from rating curve extended above 6,000 $ft^3/s$ (170 $m^3/s$) on basis of slope-area measurement of peak flow on that date; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,900 $ft^3/s$ (53.8 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| June 5 | 1100 | *5,160 | 146 | 21.05 | 6.416 |
| June 14 | 0100 | 2,070 | 58.6 | 16.65 | 5.075 |
| July 8 | 1000 | 2,700 | 76.5 | 17.70 | 5.395 |

Minimum discharge, no flow Oct. 1 to Nov. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .00 | .00 | 1.7 | .16 | .44 | 4.1 | 18 | .85 | 650 | 25 | .69 | 10 |
| 2 | .00 | .00 | 1.0 | .16 | .37 | 5.3 | 9.5 | .75 | 395 | 22 | .63 | 224 |
| 3 | .00 | .00 | .88 | .16 | .27 | 9.5 | 6.5 | 1.3 | 1440 | 20 | .57 | 63 |
| 4 | .00 | .00 | .75 | .16 | .23 | 136 | 4.8 | 5.9 | 2300 | 50 | .48 | 40 |
| 5 | .00 | .00 | .69 | .14 | .41 | 339 | 3.3 | 21 | 3990 | 500 | .48 | 280 |
| 6 | .00 | .00 | .52 | .16 | .58 | 126 | 2.4 | 27 | 4300 | 1200 | .44 | 72 |
| 7 | .00 | .00 | .48 | .14 | .58 | 39 | 2.0 | 15 | 1560 | 1500 | .40 | 16 |
| 8 | .00 | .00 | .57 | .15 | .81 | 22 | 2.0 | 8.1 | 231 | 2480 | .37 | 7.8 |
| 9 | .00 | .00 | .75 | .26 | 2.8 | 16 | 1.8 | 10 | 94 | 936 | .37 | 3.3 |
| 10 | .00 | .00 | .60 | .25 | 20 | 14 | 1.7 | 131 | 58 | 119 | .33 | 1.9 |
| 11 | .00 | .00 | .48 | .17 | 256 | 11 | 1.5 | 94 | 42 | 515 | .33 | 1.3 |
| 12 | .00 | .00 | .37 | .14 | 93 | 9.4 | 1.4 | 28 | 364 | 171 | .33 | .95 |
| 13 | .00 | .00 | .38 | .14 | 28 | 8.4 | 1.3 | 12 | 1370 | 127 | .30 | .75 |
| 14 | .00 | .00 | .36 | .16 | 15 | 7.7 | 1.3 | 7.1 | 1400 | 37 | .30 | .69 |
| 15 | .00 | .00 | .35 | .16 | 10 | 6.9 | 1.2 | 5.5 | 380 | 19 | .30 | .69 |
| 16 | .00 | .00 | .30 | .16 | 8.0 | 6.5 | 1.1 | 587 | 160 | 13 | .30 | .63 |
| 17 | .00 | .00 | .30 | .45 | 6.5 | 5.6 | .94 | 587 | 80 | 8.9 | .30 | .57 |
| 18 | .00 | .00 | .27 | .45 | 5.5 | 4.7 | .96 | 123 | 50 | 7.1 | .30 | .52 |
| 19 | .00 | .00 | .26 | .96 | 5.0 | 4.0 | 1.2 | 748 | 40 | 6.0 | .30 | .52 |
| 20 | .00 | .00 | .24 | 5.1 | 4.5 | 3.5 | 1.1 | 370 | 32 | 5.3 | .30 | .48 |
| 21 | .00 | .00 | .24 | 5.3 | 5.0 | 3.2 | .91 | 140 | 27 | 4.0 | .30 | .48 |
| 22 | .00 | .00 | .24 | 16 | 6.0 | 2.7 | .79 | 75 | 25 | 3.3 | .30 | .44 |
| 23 | .00 | .40 | .24 | 8.6 | 5.0 | 2.7 | 1.6 | 50 | 200 | 2.6 | .30 | .44 |
| 24 | .00 | .57 | .21 | 4.7 | 4.5 | 2.4 | 2.2 | 75 | 500 | 1.8 | .27 | .40 |
| 25 | .00 | .52 | .21 | 3.1 | 4.9 | 2.3 | 2.1 | 160 | 250 | 1.3 | .27 | .40 |
| 26 | .00 | 2.0 | .21 | 1.3 | 5.4 | 2.2 | 2.2 | 120 | 120 | 1.2 | .27 | .40 |
| 27 | .00 | 1.1 | .19 | .94 | 3.8 | 2.2 | 3.4 | 119 | 70 | 1.1 | .27 | .37 |
| 28 | .00 | .75 | .19 | .70 | 3.1 | 2.1 | 2.9 | 41 | 50 | .95 | .27 | .37 |
| 29 | .00 | 1.6 | .19 | .57 | --- | 3.5 | 2.0 | 21 | 40 | .88 | .27 | .33 |
| 30 | .00 | 2.7 | .16 | .46 | --- | 4.1 | 1.4 | 90 | 30 | .81 | .27 | .30 |
| 31 | .00 | --- | .16 | .42 | --- | 7.7 | --- | 683 | --- | .75 | .40 | --- |
| TOTAL | .00 | 9.64 | 13.49 | 51.72 | 495.69 | 813.7 | 83.50 | 4356.50 | 20248 | 7779.99 | 11.01 | 729.03 |
| MEAN | .000 | .32 | .44 | 1.67 | 17.7 | 26.2 | 2.78 | 141 | 675 | 251 | .36 | 24.3 |
| MAX | .00 | 2.7 | 1.7 | 16 | 256 | 339 | 18 | 748 | 4300 | 2480 | .69 | 280 |
| MIN | .00 | .00 | .16 | .14 | .23 | 2.1 | .79 | .75 | 25 | .75 | .27 | .30 |
| CFSM | .000 | .001 | .002 | .008 | .08 | .12 | .01 | .64 | 3.04 | 1.13 | .002 | .11 |
| IN. | .00 | .00 | .00 | .01 | .08 | .14 | .01 | .73 | 3.39 | 1.30 | .00 | .12 |
| AC-FT | .00 | 19 | 27 | 103 | 983 | 1610 | 166 | 8640 | 40160 | 15430 | 22 | 1450 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 56419.65 | MEAN | 154 | MAX | 9490 | MIN | .00 | CFSM .69 | IN 9.45 | AC-FT | 111900 |
| WTR YR 1981 | TOTAL | 34592.27 | MEAN | 94.8 | MAX | 4300 | MIN | .00 | CFSM .43 | IN 5.80 | AC-FT | 68610 |

NOTE.--No gage-height record Oct. 1 to Nov. 22 and July 25 to Aug. 31.

## 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 (35 m) downstream from old bridge site, 1.2 mi (1.9 km) downstream from Magnolia Creek, 6.2 mi (10.0 km) upstream from Rocky Creek, 7.3 mi (11.7 km) northeast of Onalaska, and 15.9 mi (25.6 km) upstream from mouth.

DRAINAGE AREA.--57.0 $mi^2$ (147.6 $km^2$).

PERIOD OF RECORD.--December 1965 to current year.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 139.85 ft (42.626 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for period of no gage-height record, which are poor. No diversion above station. Low flow is sustained by sewage effluent. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--15 years (water years 1967-81), 42.9 $ft^3/s$ (1.215 $m^3/s$), 10.22 in/yr (260 mm/yr), 31,080 acre-ft/yr (38.3 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,500 $ft^3/s$ (694 $m^3/s$) June 7, 1981, from rating curve extended above 6,800 $ft^3/s$ (193 $m^3/s$) on basis of slope-area measurement of peak flow, gage height, 30.37 ft (7.92 m); minimum, 0.01 $ft^3/s$ (0.0003 $m^3/s$) July 19, 20, 1971.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 24,500 $ft^3/s$ (694 $m^3/s$), from rating curve extended above 6,800 $ft^3/s$ (193 $m^3/s$) on basis of slope-area measurement of peak flow, gage height, 30.37 (9.257 m) June 7 at 0530 hours, no other peak above base of 2,500 $ft^3/s$ (70.8 $m^3/s$); minimum, 0.42 $ft^3/s$ (0.012 m) Sept. 11-14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.7 | .71 | 1.6 | 1.6 | 4.8 | 3.1 | 2.2 | 1.8 | 26 | 3.0 | 2.2 | 24 |
| 2 | 1.4 | .71 | 1.4 | 1.6 | 4.5 | 5.0 | 2.0 | 1.7 | 5.0 | 2.5 | 1.7 | 34 |
| 3 | 1.1 | .71 | 1.2 | 1.6 | 2.9 | 3.6 | 1.9 | 2.1 | 20 | 2.2 | 1.4 | 13 |
| 4 | 1.1 | .76 | 1.2 | 1.6 | 2.7 | 21 | 1.9 | 70 | 47 | 25 | 1.2 | 4.7 |
| 5 | 1.0 | .79 | 1.2 | 1.6 | 3.0 | 9.7 | 1.8 | 42 | 384 | 15 | 1.1 | 2.3 |
| 6 | .89 | .86 | 1.2 | 2.3 | 5.5 | 5.5 | 1.5 | 9.3 | 64 | 500 | 1.0 | 1.7 |
| 7 | .79 | 1.0 | 1.2 | 3.9 | 4.3 | 4.1 | 1.6 | 3.4 | 5730 | 400 | 1.0 | 1.2 |
| 8 | .79 | 1.2 | 1.8 | 2.9 | 3.6 | 3.5 | 1.8 | 1.7 | 202 | 200 | .90 | .93 |
| 9 | .79 | 1.3 | 5.5 | 2.5 | 3.2 | 2.9 | 1.8 | 22 | 67 | 100 | .90 | .59 |
| 10 | .72 | 1.3 | 3.1 | 2.4 | 6.1 | 2.5 | 1.8 | 91 | 32 | 50 | .80 | .52 |
| 11 | .71 | 1.4 | 2.5 | 2.2 | 4.9 | 2.3 | 1.8 | 16 | 24 | 300 | .80 | .49 |
| 12 | .71 | 1.4 | 2.2 | 2.1 | 3.5 | 2.1 | 1.8 | 6.0 | 441 | 200 | .70 | .42 |
| 13 | .71 | 1.4 | 2.0 | 2.0 | 3.2 | 2.2 | 1.7 | 3.3 | 583 | 80 | .70 | .42 |
| 14 | .71 | 1.4 | 1.9 | 2.0 | 2.9 | 2.4 | 1.6 | 4.1 | 94 | 40 | .70 | 6.7 |
| 15 | .77 | 1.5 | 1.7 | 2.0 | 2.5 | 2.2 | 1.6 | 3.0 | 42 | 20 | .65 | 8.2 |
| 16 | .85 | 2.5 | 1.6 | 2.0 | 2.3 | 2.0 | 1.6 | 138 | 28 | 13 | .65 | 6.2 |
| 17 | 1.0 | 4.1 | 1.5 | 1.9 | 2.2 | 1.8 | 1.6 | 40 | 22 | 10 | .65 | 2.8 |
| 18 | 1.2 | 3.1 | 1.4 | 1.9 | 2.1 | 1.6 | 2.0 | 16 | 14 | 8.0 | .60 | 1.6 |
| 19 | 1.2 | 2.4 | 1.4 | 3.9 | 2.0 | 1.6 | 2.9 | 18 | 9.0 | 6.5 | .60 | 1.5 |
| 20 | 1.1 | 2.1 | 1.4 | 20 | 2.0 | 1.6 | 2.9 | 6.6 | 6.0 | 5.5 | .60 | 1.3 |
| 21 | .76 | 2.0 | 1.4 | 9.1 | 2.3 | 1.5 | 2.6 | 3.0 | 4.5 | 4.5 | .55 | 1.1 |
| 22 | .68 | 2.3 | 1.4 | 4.5 | 12 | 1.6 | 2.4 | 1.9 | 3.7 | 4.0 | .55 | 1.0 |
| 23 | .64 | 4.1 | 1.4 | 3.2 | 4.9 | 1.5 | 3.1 | 1.4 | 3.3 | 3.5 | .55 | .92 |
| 24 | .64 | 3.3 | 1.5 | 2.3 | 3.7 | 1.4 | 4.5 | 1.3 | 40 | 3.0 | .50 | .87 |
| 25 | .64 | 2.8 | 1.5 | 2.0 | 3.0 | 1.4 | 3.4 | 1.1 | 20 | 2.5 | 3.0 | .73 |
| 26 | .64 | 9.9 | 1.5 | 1.9 | 2.6 | 1.5 | 2.7 | 2.4 | 10 | 10 | 1.0 | .64 |
| 27 | .69 | 4.7 | 1.5 | 1.7 | 2.5 | 1.6 | 2.3 | 2.7 | 6.0 | 50 | .70 | .60 |
| 28 | .91 | 3.2 | 1.5 | 1.5 | 2.2 | 1.5 | 2.2 | 1.6 | 4.0 | 20 | .60 | .60 |
| 29 | .92 | 2.3 | 1.5 | 1.4 | --- | 2.0 | 2.2 | 1.1 | 6.0 | 10 | .55 | .55 |
| 30 | .82 | 1.9 | 1.5 | 1.4 | --- | 2.5 | 2.0 | 1.1 | 4.0 | 5.0 | .50 | .55 |
| 31 | .71 | --- | 1.7 | 1.5 | --- | 2.5 | --- | 1.9 | --- | 3.0 | 4.3 | --- |
| TOTAL | 27.29 | 67.14 | 53.4 | 92.5 | 101.4 | 99.7 | 65.2 | 515.5 | 7941.5 | 2096.2 | 31.65 | 120.13 |
| MEAN | .88 | 2.24 | 1.72 | 2.98 | 3.62 | 3.22 | 2.17 | 16.6 | 265 | 67.6 | 1.02 | 4.00 |
| MAX | 1.7 | 9.9 | 5.5 | 20 | 12 | 21 | 4.5 | 138 | 5730 | 500 | 4.3 | 34 |
| MIN | .64 | .71 | 1.2 | 1.4 | 2.0 | 1.4 | 1.5 | 1.1 | 3.3 | 2.2 | .50 | .42 |
| CFSM | .02 | .04 | .03 | .05 | .06 | .06 | .04 | .29 | 4.65 | 1.19 | .02 | .07 |
| IN. | .02 | .04 | .03 | .06 | .07 | .07 | .04 | .34 | 5.18 | 1.37 | .02 | .08 |
| AC-FT | 54 | 133 | 106 | 183 | 201 | 198 | 129 | 1020 | 15750 | 4160 | 63 | 238 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 14582.99 | MEAN 39.8 | MAX 2380 | MIN .42 | CFSM .70 | IN 9.52 | AC-FT 28930 |
| WTR YR 1981 | TOTAL | 11211.61 | MEAN 30.7 | MAX 5730 | MIN .42 | CFSM .54 | IN 7.32 | AC-FT 22240 |

NOTE.--No gage-height record June 19 to Aug. 30.

## 08066190 LIVINGSTON RESERVOIR NEAR GOODRICH, TX

LOCATION.--Lat 30°38'00", long 95°00'36", Polk-San Jacinto County line, Hydrologic Unit 12030202, on upstream wingwall at left end of gated spillway at Livingston Dam on Trinity River, 4.4 mi (7.1 km) northwest of Goodrich, 7 mi (11 km) southwest of Livingston, 11.7 mi (18.8 km) upstream from Long King Creek, and at mile 129.2 (207.19 km).

DRAINAGE AREA.--16,583 mi² (42,950 km²).

### 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 (61 m) upstream and at same datum.

REMARKS.--The reservoir is formed by an earthfill dam 14,400 ft (4,390 m) 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- by 35-foot (12 by 11 m) 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 (3 m) concrete conduit through the dam. Flow is affected at times by discharge from the flood-detention pools of 250 floodwater-retarding structures with a combined detention capacity of 184,100 acre-ft (227 hm³). These structures control runoff from 614 mi² (1,590 km²) in the Richland, Chambers, Tehuacana, and Bedias Creeks drainage basins. 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, 1,928,000 acre-ft (2.38 km³) June 7, 1981, elevation, 132.67 ft (40.438 m); minimum since conservation pool capacity was reached on Nov. 2, 1971, 1,415,000 acre-ft (1.80 km³) Nov. 19, 1978, elevation, 126.19 ft (38.463 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,928,000 acre-ft (2.38 km³) June 7 at 1300 hours elevation, 132.67 ft (40.438 m); minimum, 1,494,000 acre-ft (1.84 km³) Oct. 3, 4, elevation, 127.26 ft (38.789 m).

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

| | | | |
|---|---|---|---|
| 127.0 | 1,474,000 | 131.5 | 1,830,000 |
| 128.5 | 1,588,000 | 132.7 | 1,932,000 |
| 130.0 | 1,707,000 | | |

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
INSTANTANEOUS OBSERVATIONS AT 2400

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1501000 | 1507000 | 1525000 | 1558000 | 1593000 | 1637000 | 1724000 | 1761000 | 1819000 | 1884000 | 1781000 | 1739000 |
| 2 | 1498000 | 1506000 | 1527000 | 1557000 | 1587000 | 1637000 | 1727000 | 1758000 | 1825000 | 1861000 | 1778000 | 1757000 |
| 3 | 1494000 | 1507000 | 1525000 | 1560000 | 1584000 | 1637000 | 1741000 | 1764000 | 1822000 | 1837000 | 1775000 | 1762000 |
| 4 | 1500000 | 1507000 | 1525000 | 1558000 | 1588000 | 1653000 | 1753000 | 1783000 | 1842000 | 1823000 | 1775000 | 1766000 |
| 5 | 1506000 | 1505000 | 1526000 | 1556000 | 1595000 | 1663000 | 1757000 | 1788000 | 1862000 | 1828000 | 1774000 | 1769000 |
| 6 | 1515000 | 1504000 | 1523000 | 1563000 | 1594000 | 1672000 | 1752000 | 1791000 | 1872000 | 1835000 | 1772000 | 1772000 |
| 7 | 1518000 | 1503000 | 1523000 | 1563000 | 1598000 | 1683000 | 1750000 | 1789000 | 1921000 | 1864000 | 1770000 | 1776000 |
| 8 | 1519000 | 1504000 | 1538000 | 1563000 | 1596000 | 1694000 | 1755000 | 1787000 | 1892000 | 1867000 | 1767000 | 1781000 |
| 9 | 1518000 | 1504000 | 1538000 | 1565000 | 1593000 | 1704000 | 1755000 | 1793000 | 1865000 | 1860000 | 1764000 | 1780000 |
| 10 | 1521000 | 1504000 | 1537000 | 1563000 | 1608000 | 1708000 | 1756000 | 1797000 | 1843000 | 1853000 | 1759000 | 1779000 |
| 11 | 1522000 | 1504000 | 1535000 | 1565000 | 1604000 | 1714000 | 1757000 | 1793000 | 1838000 | 1843000 | 1757000 | 1779000 |
| 12 | 1518000 | 1504000 | 1535000 | 1561000 | 1606000 | 1719000 | 1757000 | 1798000 | 1852000 | 1836000 | 1755000 | 1779000 |
| 13 | 1514000 | 1503000 | 1542000 | 1563000 | 1611000 | 1723000 | 1756000 | 1813000 | 1878000 | 1830000 | 1751000 | 1777000 |
| 14 | 1510000 | 1502000 | 1549000 | 1565000 | 1613000 | 1722000 | 1758000 | 1825000 | 1898000 | 1815000 | 1750000 | 1788000 |
| 15 | 1509000 | 1502000 | 1558000 | 1566000 | 1614000 | 1730000 | 1756000 | 1822000 | 1910000 | 1802000 | 1748000 | 1794000 |
| 16 | 1511000 | 1508000 | 1558000 | 1564000 | 1617000 | 1730000 | 1752000 | 1838000 | 1921000 | 1794000 | 1744000 | 1798000 |
| 17 | 1514000 | 1510000 | 1559000 | 1562000 | 1618000 | 1726000 | 1749000 | 1842000 | 1909000 | 1792000 | 1744000 | 1794000 |
| 18 | 1517000 | 1507000 | 1558000 | 1562000 | 1618000 | 1733000 | 1753000 | 1840000 | 1895000 | 1788000 | 1741000 | 1791000 |
| 19 | 1514000 | 1504000 | 1563000 | 1575000 | 1620000 | 1729000 | 1754000 | 1831000 | 1875000 | 1788000 | 1739000 | 1787000 |
| 20 | 1512000 | 1505000 | 1560000 | 1578000 | 1620000 | 1724000 | 1753000 | 1818000 | 1849000 | 1789000 | 1735000 | 1785000 |
| 21 | 1510000 | 1504000 | 1557000 | 1579000 | 1627000 | 1728000 | 1750000 | 1808000 | 1831000 | 1788000 | 1730000 | 1785000 |
| 22 | 1512000 | 1512000 | 1555000 | 1579000 | 1626000 | 1733000 | 1750000 | 1798000 | 1817000 | 1788000 | 1728000 | 1786000 |
| 23 | 1513000 | 1517000 | 1558000 | 1580000 | 1627000 | 1726000 | 1757000 | 1795000 | 1816000 | 1784000 | 1726000 | 1786000 |
| 24 | 1517000 | 1515000 | 1562000 | 1581000 | 1626000 | 1723000 | 1757000 | 1794000 | 1824000 | 1783000 | 1723000 | 1786000 |
| 25 | 1510000 | 1522000 | 1555000 | 1581000 | 1627000 | 1721000 | 1757000 | 1798000 | 1838000 | 1782000 | 1721000 | 1784000 |
| 26 | 1507000 | 1523000 | 1558000 | 1583000 | 1627000 | 1718000 | 1756000 | 1796000 | 1844000 | 1782000 | 1719000 | 1784000 |
| 27 | 1517000 | 1524000 | 1558000 | 1586000 | 1627000 | 1717000 | 1755000 | 1797000 | 1856000 | 1783000 | 1718000 | 1786000 |
| 28 | 1517000 | 1522000 | 1558000 | 1582000 | 1631000 | 1715000 | 1761000 | 1799000 | 1865000 | 1786000 | 1715000 | 1786000 |
| 29 | 1511000 | 1523000 | 1560000 | 1585000 | --- | 1724000 | 1762000 | 1803000 | 1879000 | 1787000 | 1713000 | 1784000 |
| 30 | 1509000 | 1523000 | 1558000 | 1585000 | --- | 1721000 | 1762000 | 1809000 | 1885000 | 1785000 | 1716000 | 1783000 |
| 31 | 1508000 | --- | 1558000 | 1584000 | --- | 1726000 | --- | 1818000 | --- | 1784000 | 1726000 | --- |
| MAX | 1522000 | 1524000 | 1563000 | 1586000 | 1631000 | 1733000 | 1762000 | 1842000 | 1921000 | 1884000 | 1781000 | 1798000 |
| MIN | 1494000 | 1502000 | 1523000 | 1556000 | 1584000 | 1637000 | 1724000 | 1758000 | 1816000 | 1782000 | 1713000 | 1739000 |
| (†) | 127.45 | 127.64 | 128.11 | 128.44 | 129.05 | 130.23 | 130.68 | 131.36 | 132.15 | 130.95 | 130.24 | 130.93 |
| (‡) | +6000 | +15000 | +35000 | +26000 | +47000 | +95000 | +36000 | +56000 | +67000 | -101000 | -58000 | +57000 |

CAL YR 1980 MAX 1925000 MIN 1491000 ‡ -253000
WTR YR 1981 MAX 1921000 MIN 1494000 ‡ +281000

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.

08066190 LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

WATER-QUALITY RECORDS

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

303807095011101 LIVINGSTON RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | HARDNESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 14... | 1157 | 1.00 | 391 | 7.7 | 11.0 | 1.10 | 9.2 | 83 | 110 |
| 14... | 1158 | 1.00 | -- | -- | 11.0 | -- | -- | -- | -- |
| 14... | 1159 | 10.0 | 391 | 7.6 | 10.5 | -- | 8.8 | 78 | -- |
| 14... | 1201 | 20.0 | 391 | 7.6 | 10.5 | -- | 8.6 | 77 | -- |
| 14... | 1203 | 30.0 | 391 | 7.6 | 10.5 | -- | 8.7 | 78 | -- |
| 14... | 1205 | 40.0 | 391 | 7.6 | 10.5 | -- | 8.6 | 76 | -- |
| 14... | 1207 | 50.0 | 391 | 7.6 | 10.5 | -- | 8.6 | 77 | -- |
| 14... | 1209 | 60.0 | 391 | 7.6 | 10.5 | -- | 8.6 | 77 | -- |
| 14... | 1211 | 72.0 | 391 | 7.5 | 10.5 | -- | 8.6 | 76 | 110 |
| AUG | | | | | | | | | |
| 19... | 1216 | 1.00 | 295 | 8.6 | 30.5 | 1.00 | 7.2 | 95 | 110 |
| 19... | 1218 | 10.0 | 295 | 8.6 | 30.5 | -- | 7.0 | 93 | -- |
| 19... | 1220 | 20.0 | 295 | 8.6 | 30.5 | -- | 6.9 | 91 | -- |
| 19... | 1222 | 30.0 | 300 | 8.0 | 30.0 | -- | 3.3 | 43 | -- |
| 19... | 1224 | 40.0 | 303 | 7.2 | 29.0 | -- | .0 | 0 | -- |
| 19... | 1226 | 50.0 | 310 | 7.0 | 28.5 | -- | .0 | 0 | -- |
| 19... | 1228 | 60.0 | 340 | 6.9 | 27.0 | -- | .0 | 0 | -- |
| 19... | 1230 | 75.0 | 469 | 6.9 | 23.0 | -- | .0 | 0 | 140 |

| DATE | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 14... | 15 | 39 | 4.1 | 32 | 1.3 | 5.1 | 99 | 46 | 27 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | 14 | 38 | 4.2 | 31 | 1.3 | 5.1 | 98 | 46 | 26 |
| AUG | | | | | | | | | |
| 19... | 9 | 38 | 3.4 | 19 | .8 | 5.6 | 100 | 27 | 15 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | 0 | 47 | 5.1 | 39 | 1.5 | 6.1 | 150 | 37 | 36 |

| DATE | FLUORIDE, DISSOLVED (MG/L AS F) | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 14... | .4 | 8.3 | 221 | .14 | 1.10 | 1.2 | .100 | <10 | <1 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | .22 | .91 | 1.1 | .070 | 10 | 0 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | 8.5 | 218 | .14 | 1.30 | 1.4 | .100 | 90 | 580 |
| AUG | | | | | | | | | |
| 19... | -- | 10 | 178 | .16 | 1.10 | 1.3 | .280 | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | .13 | 1.10 | 1.2 | .300 | 0 | 10 |
| 19... | -- | -- | -- | <.10 | 1.10 | -- | .450 | 30 | 410 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | .4 | 16 | 280 | .12 | 3.20 | 3.3 | 2.20 | 370 | 3000 |

LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

303821095005001 LIVINGSTON RESERVOIR SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMP-LING DEPTH (FT) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TRANS-PAR-ENCY (SECCHI DISK) (M) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| 14... | 1238 | 1.00 | 391 | 7.7 | 11.5 | -- | 9.3 | 85 |
| 14... | 1240 | 10.0 | 391 | 7.7 | 11.0 | -- | 8.9 | 80 |
| 14... | 1242 | 20.0 | 391 | 7.5 | 10.5 | -- | 8.6 | 77 |
| 14... | 1244 | 34.0 | 391 | 7.5 | 10.5 | -- | 8.6 | 77 |
| AUG | | | | | | | | |
| 19... | 1310 | 1.00 | 295 | 8.6 | 31.0 | 1.00 | 7.6 | 101 |
| 19... | 1312 | 10.0 | 295 | 8.6 | 31.0 | -- | 7.4 | 99 |
| 19... | 1314 | 20.0 | 295 | 8.5 | 30.5 | -- | 6.8 | 90 |
| 19... | 1316 | 30.0 | 300 | 7.9 | 30.0 | -- | 2.9 | 38 |
| 19... | 1318 | 40.0 | 303 | 7.3 | 29.0 | -- | .0 | 0 |
| 19... | 1320 | 51.0 | 310 | 7.0 | 28.0 | -- | .0 | 0 |

303935095055401 LIVINGSTON RESERVOIR SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMP-LING DEPTH (FT) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TRANS-PAR-ENCY (SECCHI DISK) (M) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| 14... | 1121 | 1.00 | 392 | 7.7 | 10.5 | -- | 9.5 | 85 |
| 14... | 1123 | 10.0 | 392 | 7.7 | 10.5 | -- | 9.3 | 83 |
| 14... | 1125 | 20.0 | 392 | 7.6 | 10.5 | -- | 9.2 | 82 |
| 14... | 1127 | 30.0 | 392 | 7.6 | 10.0 | -- | 8.9 | 78 |
| 14... | 1129 | 40.0 | 392 | 7.6 | 10.0 | -- | 8.8 | 78 |
| 14... | 1131 | 50.0 | 392 | 7.5 | 10.0 | -- | 8.6 | 76 |
| 14... | 1133 | 59.0 | 392 | 7.3 | 10.0 | -- | 7.9 | 70 |
| AUG | | | | | | | | |
| 19... | 1133 | 1.00 | 298 | 8.3 | 30.5 | 1.10 | 5.5 | 73 |
| 19... | 1135 | 10.0 | 298 | 8.3 | 30.5 | -- | 5.2 | 69 |
| 19... | 1137 | 20.0 | 298 | 8.2 | 30.0 | -- | 4.7 | 62 |
| 19... | 1139 | 30.0 | 298 | 8.2 | 30.0 | -- | 4.5 | 59 |
| 19... | 1141 | 40.0 | 303 | 7.1 | 29.0 | -- | .0 | 0 |
| 19... | 1143 | 50.0 | 320 | 7.0 | 28.0 | -- | .0 | 0 |
| 19... | 1145 | 60.0 | 330 | 6.9 | 27.5 | -- | .0 | 0 |

304144095073001 LIVINGSTON RESERVOIR SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMP-LING DEPTH (FT) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TRANS-PAR-ENCY (SECCHI DISK) (M) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| 14... | 1058 | 1.00 | 396 | 7.8 | 10.0 | -- | 9.6 | 85 |
| 14... | 1100 | 10.0 | 396 | 7.7 | 10.0 | -- | 9.5 | 84 |
| 14... | 1102 | 20.0 | 396 | 7.7 | 10.0 | -- | 9.3 | 82 |
| 14... | 1104 | 30.0 | 396 | 7.7 | 10.0 | -- | 9.1 | 80 |
| 14... | 1106 | 40.0 | 404 | 7.6 | 10.0 | -- | 8.2 | 72 |
| 14... | 1108 | 52.0 | 435 | 7.2 | 10.0 | -- | 7.4 | 65 |
| AUG | | | | | | | | |
| 19... | 1059 | 1.00 | 300 | 8.0 | 30.0 | 1.00 | 3.8 | 50 |
| 19... | 1101 | 10.0 | 300 | 8.0 | 30.0 | -- | 3.6 | 48 |
| 19... | 1103 | 20.0 | 300 | 7.9 | 30.0 | -- | 3.5 | 46 |
| 19... | 1105 | 30.0 | 300 | 7.6 | 30.0 | -- | 1.4 | 18 |
| 19... | 1106 | 40.0 | 314 | 7.2 | 29.0 | -- | .0 | 0 |
| 19... | 1108 | 50.0 | 330 | 7.0 | 28.0 | -- | .0 | 0 |
| 19... | 1110 | 61.0 | 396 | 6.9 | 26.0 | -- | .0 | 0 |

LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

304521095075501 LIVINGSTON RESERVOIR SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | HARDNESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 14... | 0944 | 1.00 | 414 | 8.0 | 10.0 | .80 | 10.3 | 90 | 120 |
| 14... | 0946 | 10.0 | 417 | 7.9 | 10.0 | -- | 9.9 | 87 | -- |
| 14... | 0948 | 20.0 | 420 | 7.8 | 10.0 | -- | 9.7 | 86 | -- |
| 14... | 0950 | 30.0 | 462 | 7.7 | 10.0 | -- | 8.8 | 77 | -- |
| 14... | 0952 | 40.0 | 527 | 7.6 | 10.0 | -- | 7.9 | 70 | -- |
| 14... | 0954 | 50.0 | 568 | 7.5 | 10.0 | -- | 7.4 | 65 | -- |
| 14... | 0956 | 58.0 | 570 | 7.4 | 10.0 | -- | 7.2 | 63 | 130 |
| AUG | | | | | | | | | |
| 19... | 1010 | 1.00 | 300 | 8.1 | 30.5 | .77 | 4.2 | 56 | 110 |
| 19... | 1012 | 10.0 | 300 | 8.1 | 30.5 | -- | 4.2 | 56 | -- |
| 19... | 1014 | 20.0 | 300 | 8.1 | 30.5 | -- | 4.1 | 54 | -- |
| 19... | 1016 | 30.0 | 300 | 8.1 | 30.0 | -- | 3.9 | 52 | -- |
| 19... | 1018 | 40.0 | 314 | 7.5 | 29.5 | -- | .8 | 10 | -- |
| 19... | 1020 | 55.0 | 358 | 6.9 | 27.5 | -- | .0 | 0 | 120 |

| DATE | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 14... | 18 | 40 | 4.3 | 35 | 1.4 | 5.2 | 100 | 51 | 31 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | 17 | 43 | 4.8 | 59 | 2.3 | 7.0 | 110 | 77 | 52 |
| AUG | | | | | | | | | |
| 19... | 9 | 38 | 3.4 | 18 | .8 | 5.6 | 100 | 27 | 15 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | 0 | 40 | 3.8 | 26 | 1.1 | 6.1 | 130 | 11 | 22 |

| DATE | SILICA, DISSOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| 14... | 6.7 | 233 | .23 | 1.50 | 1.7 | .110 | <10 | 20 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | .52 | 1.40 | 1.9 | .210 | 20 | 70 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | 8.3 | 319 | 1.8 | 1.40 | 3.2 | .610 | 150 | 1600 |
| AUG | | | | | | | | |
| 19... | 9.9 | 177 | .12 | 1.10 | 1.2 | .320 | <10 | 26 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | .12 | 1.30 | 1.4 | .320 | 20 | 70 |
| 19... | -- | -- | <.10 | 1.30 | -- | .490 | 0 | 730 |
| 19... | 14 | 226 | <.10 | 2.50 | -- | 1.90 | 240 | 2400 |

LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

304520095075101 LIVINGSTON RESERVOIR SITE DL

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 14... | 1034 | 1.00 | 407 | 7.9 | 10.0 | 10.1 | 89 |
| 14... | 1036 | 10.0 | 407 | 7.9 | 10.0 | 10.0 | 88 |
| 14... | 1038 | 20.0 | 407 | 7.8 | 10.0 | 9.9 | 87 |
| AUG | | | | | | | |
| 19... | 0956 | 1.00 | 300 | 8.1 | 30.0 | 3.9 | 52 |
| 19... | 0958 | 10.0 | 300 | 8.0 | 30.0 | 3.8 | 50 |
| 19... | 1000 | 18.0 | 300 | 8.0 | 30.0 | 3.9 | 52 |

304659095052001 LIVINGSTON RESERVOIR SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| 14... | 0920 | 1.00 | 422 | 7.9 | 10.0 | .80 | 10.3 | 90 |
| 14... | 0922 | 10.0 | 422 | 7.9 | 10.0 | -- | 9.9 | 87 |
| 14... | 0924 | 20.0 | 422 | 7.8 | 10.0 | -- | 9.5 | 84 |
| 14... | 0926 | 28.0 | 422 | 7.5 | 10.0 | -- | 9.5 | 83 |
| AUG | | | | | | | | |
| 19... | 0934 | 1.00 | 305 | 8.3 | 30.5 | .85 | 4.1 | 54 |
| 19... | 0936 | 10.0 | 295 | 8.3 | 30.5 | -- | 3.9 | 52 |
| 19... | 0938 | 20.0 | 295 | 8.2 | 30.5 | -- | 3.8 | 50 |
| 19... | 0940 | 28.0 | 295 | 8.0 | 30.0 | -- | 3.6 | 48 |

| DATE | MAGNESIUM, DISSOLVED (MG/L AS MG) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) | NITROGEN, TOTAL (MG/L AS N) | PHOSPHORUS, TOTAL (MG/L AS P) | IRON, DISSOLVED (UG/L AS FE) | MANGANESE, DISSOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 14... | .9 | .29 | .13 | .42 | .120 | 20 | 0 |
| 14... | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | .17 | 1.40 | 1.6 | .110 | 10 | 20 |
| AUG | | | | | | | |
| 19... | -- | .11 | 1.10 | 1.2 | .280 | 10 | 0 |
| 19... | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | .16 | 1.00 | 1.2 | .290 | 20 | 10 |

LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

304843095104001 LIVINGSTON RESERVOIR SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| 14... | 1327 | 1.00 | 545 | 8.3 | 10.5 | -- | 11.2 | 100 |
| 14... | 1329 | 10.0 | 545 | 8.2 | 10.5 | -- | 10.7 | 95 |
| 14... | 1331 | 20.0 | 545 | 8.0 | 10.0 | -- | 10.1 | 89 |
| 14... | 1333 | 30.0 | 553 | 7.9 | 10.0 | -- | 9.6 | 85 |
| 14... | 1335 | 40.0 | 564 | 7.8 | 10.0 | -- | 9.3 | 82 |
| 14... | 1337 | 50.0 | 573 | 7.7 | 10.0 | -- | 9.0 | 79 |
| 14... | 1339 | 59.0 | 573 | 7.6 | 10.0 | -- | 9.0 | 79 |
| AUG | | | | | | | | |
| 19... | 1420 | 1.00 | 304 | 8.2 | 31.0 | .91 | 5.2 | 69 |
| 19... | 1422 | 10.0 | 304 | 8.1 | 31.0 | -- | 4.6 | 61 |
| 19... | 1424 | 20.0 | 304 | 8.1 | 31.0 | -- | 4.0 | 53 |
| 19... | 1426 | 30.0 | 307 | 7.9 | 30.5 | -- | 3.2 | 42 |
| 19... | 1428 | 40.0 | 340 | 7.1 | 28.5 | -- | .0 | 0 |
| 19... | 1430 | 57.0 | 345 | 7.1 | 28.5 | -- | .0 | 0 |

305411095144901 LIVINGSTON RESERVOIR SITE GC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | HARDNESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 14... | 1410 | 1.00 | 610 | 7.8 | 11.0 | .70 | 8.9 | 80 | 140 |
| 14... | 1412 | 10.0 | 610 | 7.6 | 10.5 | -- | 7.8 | 70 | -- |
| 14... | 1414 | 20.0 | 620 | 7.5 | 10.5 | -- | 7.4 | 66 | -- |
| 14... | 1416 | 30.0 | 632 | 7.5 | 10.0 | -- | 7.0 | 62 | -- |
| 14... | 1418 | 40.0 | 641 | 7.4 | 10.0 | -- | 6.9 | 61 | -- |
| 14... | 1420 | 50.0 | 644 | 7.3 | 10.0 | -- | 6.3 | 55 | 140 |
| AUG | | | | | | | | | |
| 19... | 1517 | 1.00 | 323 | 7.6 | 31.0 | .72 | 3.9 | 52 | 120 |
| 19... | 1518 | 5.00 | 323 | 7.4 | 30.5 | -- | 2.4 | 32 | -- |
| 19... | 1519 | 10.0 | 340 | 7.1 | 30.5 | -- | .0 | 0 | -- |
| 19... | 1521 | 20.0 | 390 | 7.2 | 30.5 | -- | .0 | 0 | -- |
| 19... | 1523 | 30.0 | 417 | 7.3 | 30.5 | -- | .0 | 0 | -- |
| 19... | 1525 | 45.0 | 419 | 7.2 | 30.5 | -- | .0 | 0 | 150 |

| DATE | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 14... | 18 | 46 | 5.0 | 68 | 2.5 | 8.1 | 120 | 84 | 53 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | 21 | 48 | 5.1 | 73 | 2.7 | 8.7 | 120 | 89 | 62 |
| AUG | | | | | | | | | |
| 19... | 7 | 41 | 3.6 | 20 | .8 | 5.5 | 110 | 24 | 17 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | 8 | 52 | 4.4 | 28 | 1.0 | 6.2 | 140 | 40 | 24 |

LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

305411095144901 LIVINGSTON RESERVOIR SITE GC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | IRON, DIS-SOLVED (UG/L AS FE) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| 14... | 8.6 | 347 | 3.7 | 1.70 | 5.4 | 1.20 | <10 | 3 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | 4.1 | 1.70 | 5.8 | 1.20 | 20 | 10 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | 9.5 | 368 | 3.9 | 2.10 | 6.0 | 1.40 | 30 | 40 |
| AUG | | | | | | | | |
| 19... | 8.7 | 186 | .13 | .95 | 1.1 | .360 | <10 | 7 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | <.10 | .94 | -- | .340 | 10 | 190 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | .14 | 1.00 | 1.1 | .340 | 20 | 160 |
| 19... | 10 | 249 | .12 | 1.00 | 1.1 | .360 | 66 | 270 |

305447095161401 LIVINGSTON RESERVOIR SITE HC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMP-LING DEPTH (FT) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (DEG C) | TRANS-PAR-ENCY (SECCHI DISK) (M) | OXYGEN, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 14... | 1430 | 1.00 | 598 | 7.7 | 10.5 | .80 | 9.2 |
| 14... | 1432 | 10.0 | 598 | 7.7 | 10.5 | -- | 9.1 |
| 14... | 1434 | 20.0 | 598 | 7.7 | 10.5 | -- | 9.1 |
| 14... | 1436 | 30.0 | 598 | 7.7 | 10.5 | -- | 9.0 |
| 14... | 1438 | 40.0 | 598 | 7.6 | 10.5 | -- | 9.0 |
| AUG | | | | | | | |
| 19... | 1557 | 1.00 | 286 | 8.2 | 31.5 | .72 | 7.0 |
| 19... | 1559 | 10.0 | 292 | 7.9 | 31.0 | -- | 5.4 |
| 19... | 1601 | 20.0 | 331 | 7.5 | 30.5 | -- | 3.3 |
| 19... | 1603 | 30.0 | 326 | 7.5 | 30.5 | -- | 3.7 |
| 19... | 1605 | 45.0 | 328 | 7.5 | 30.5 | -- | 3.7 |

| DATE | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | IRON, DIS-SOLVED (UG/L AS FE) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 14... | 82 | 2.1 | 1.40 | 3.5 | .610 | 10 | 0 |
| 14... | 81 | -- | -- | -- | -- | -- | -- |
| 14... | 81 | -- | -- | -- | -- | -- | -- |
| 14... | 80 | -- | -- | -- | -- | -- | -- |
| 14... | 80 | 2.0 | .12 | 2.1 | .550 | 20 | 10 |
| AUG | | | | | | | |
| 19... | 94 | .12 | 1.30 | 1.4 | .250 | 0 | 0 |
| 19... | 72 | -- | -- | -- | -- | -- | -- |
| 19... | 44 | -- | -- | -- | -- | -- | -- |
| 19... | 49 | -- | -- | -- | -- | -- | -- |
| 19... | 49 | <.10 | 1.10 | -- | .350 | 0 | 20 |

LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

305135095193601 LIVINGSTON RESERVOIR SITE IC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| 14... | 1515 | 1.00 | 516 | 7.5 | 11.0 | -- | 8.0 | 72 |
| 14... | 1517 | 10.0 | 516 | 7.5 | 10.5 | -- | 7.7 | 69 |
| 14... | 1519 | 20.0 | 516 | 7.4 | 10.5 | -- | 7.4 | 66 |
| 14... | 1521 | 30.0 | 516 | 7.4 | 10.5 | -- | 7.5 | 67 |
| 14... | 1523 | 39.0 | 526 | 7.4 | 10.5 | -- | 7.1 | 63 |
| AUG | | | | | | | | |
| 19... | 1642 | 1.00 | 479 | 8.2 | 31.0 | .66 | 7.2 | 96 |
| 19... | 1644 | 10.0 | 490 | 7.9 | 31.0 | -- | 4.8 | 64 |
| 19... | 1646 | 20.0 | 517 | 7.6 | 30.5 | -- | 2.2 | 29 |
| 19... | 1648 | 30.0 | 493 | 7.7 | 30.5 | -- | 3.3 | 44 |
| 19... | 1650 | 42.0 | 476 | 7.4 | 30.0 | -- | 1.3 | 17 |

305135095235401 LIVINGSTON RESERVOIR SITE JC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMPLING DEPTH (FT) | SPECIFIC CONDUCTANCE (UMHOS) | PH (UNITS) | TEMPERATURE (DEG C) | TRANSPARENCY (SECCHI DISK) (M) | OXYGEN, DISSOLVED (MG/L) | OXYGEN, DISSOLVED (PERCENT SATURATION) | HARDNESS (MG/L AS CACO3) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 14... | 1540 | 1.00 | 590 | 7.6 | 10.5 | .70 | 8.7 | 78 | -- |
| 14... | 1541 | 1.00 | -- | -- | 10.5 | -- | -- | -- | -- |
| 14... | 1542 | 10.0 | 607 | 7.5 | 10.0 | -- | 8.5 | 75 | -- |
| 14... | 1544 | 20.0 | 621 | 7.5 | 10.0 | -- | 8.4 | 74 | -- |
| 14... | 1546 | 30.0 | 621 | 7.5 | 10.0 | -- | 8.4 | 74 | -- |
| 14... | 1548 | 40.0 | 624 | 7.5 | 10.0 | -- | 8.4 | 74 | -- |
| 14... | 1550 | 47.0 | 624 | 7.5 | 10.0 | -- | 8.5 | 74 | 160 |
| AUG | | | | | | | | | |
| 19... | 1712 | 1.00 | 609 | 8.4 | 32.0 | .69 | 7.7 | 104 | 170 |
| 19... | 1714 | 10.0 | 600 | 8.3 | 31.5 | -- | 6.8 | 92 | -- |
| 19... | 1716 | 20.0 | 585 | 7.9 | 31.0 | -- | 4.3 | 57 | -- |
| 19... | 1718 | 30.0 | 565 | 7.6 | 31.0 | -- | 2.6 | 35 | -- |
| 19... | 1720 | 43.0 | 508 | 7.3 | 30.5 | -- | .5 | 7 | 170 |

| DATE | HARDNESS, NONCARBONATE (MG/L CACO3) | CALCIUM DISSOLVED (MG/L AS CA) | MAGNESIUM, DISSOLVED (MG/L AS MG) | SODIUM, DISSOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DISSOLVED (MG/L AS K) | ALKALINITY FIELD (MG/L AS CACO3) | SULFATE DISSOLVED (MG/L AS SO4) | CHLORIDE, DISSOLVED (MG/L AS CL) |
|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | 43 | 56 | 5.5 | 59 | 2.0 | 8.0 | 120 | 84 | 56 |
| AUG | | | | | | | | | |
| 19... | 22 | 60 | 5.4 | 59 | 2.0 | 7.2 | 150 | 74 | 58 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | 18 | 59 | 5.0 | 39 | 1.3 | 6.4 | 150 | 55 | 41 |

LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

305135095235401 LIVINGSTON RESERVOIR SITE JC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO-GEN, TOTAL (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | IRON, DIS-SOLVED (UG/L AS FE) | MANGA-NESE, DIS-SOLVED (UG/L AS MN) |
|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | |
| 14... | -- | -- | 3.4 | 1.60 | 5.0 | .840 | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | 3.7 | 1.50 | 5.2 | .920 | 20 | 10 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | 11 | 352 | 3.8 | 1.30 | 5.1 | .930 | 30 | 20 |
| AUG | | | | | | | | |
| 19... | 8.6 | 362 | 1.4 | 1.30 | 2.7 | .590 | <10 | 3 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- |
| 19... | -- | -- | 1.1 | 1.10 | 2.2 | .540 | 30 | 10 |
| 19... | -- | -- | 1.3 | 1.20 | 2.5 | .470 | 0 | 90 |
| 19... | 11 | 307 | .58 | 1.60 | 2.2 | .630 | 42 | 670 |

303807095011101 LIVINGSTON RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | SAMP-LING DEPTH (FT) | ARSENIC DIS-SOLVED (UG/L AS AS) | 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) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 14... | 1157 | 1.00 | 2 | 50 | <1 | 0 | <10 |
| 14... | 1205 | 40.0 | -- | -- | -- | -- | -- |
| 14... | 1211 | 72.0 | 2 | 70 | <1 | 0 | <10 |
| AUG | | | | | | | |
| 19... | 1222 | 30.0 | -- | -- | -- | -- | -- |
| 19... | 1224 | 40.0 | -- | -- | -- | -- | -- |
| 19... | 1230 | 75.0 | 11 | 120 | <1 | 10 | <10 |

| DATE | 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) |
|---|---|---|---|---|---|---|---|
| JAN | | | | | | | |
| 14... | <10 | <10 | <1 | .2 | 0 | 0 | <3 |
| 14... | 10 | -- | 0 | -- | -- | -- | -- |
| 14... | 90 | <10 | 580 | .5 | 0 | 1 | 10 |
| AUG | | | | | | | |
| 19... | 0 | -- | 10 | -- | -- | -- | -- |
| 19... | 30 | -- | 410 | -- | -- | -- | -- |
| 19... | 370 | <10 | 3000 | .2 | 0 | 0 | 7 |

LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

303807095011101 LIVINGSTON RESERVOIR SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

| | | |
|---|---|---|
| DATE | JAN 14,81 | SEP 19,81 |
| TIME | 1158 | 1217 |
| TOTAL CELLS/ML | 19000 | 20000 |
| DIVERSITY: DIVISION | 1.4 | 0.6 |
| .CLASS | 1.4 | 0.6 |
| ..ORDER | 1.5 | 1.4 |
| ...FAMILY | 2.0 | 1.5 |
| ....GENUS | 3.1 | 1.7 |

| ORGANISM | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT |
|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | |
| .CHLOROPHYCEAE | | | | |
| ..CHLOROCOCCALES | | | | |
| ...MICRACTINIACEAE | | | | |
| ....MICRACTINIUM | 240 | 1 | -- | - |
| ...OOCYSTACEAE | | | | |
| ....ANKISTRODESMUS | 300 | 2 | 1400 | 7 |
| ....CHODATELLA | 120 | 1 | -- | - |
| ....DICTYOSPHAERIUM | 2200 | 12 | -- | - |
| ....GLOEOACTINIUM | -- | - | 560 | 3 |
| ....KIRCHNERIELLA | -- | - | * | 0 |
| ....OOCYSTIS | 1200 | 7 | * | 0 |
| ....SELENASTRUM | 470 | 3 | -- | - |
| ....TETRAEDRON | 120 | 1 | -- | - |
| ....TREUBARIA | -- | - | * | 0 |
| ...SCENEDESMACEAE | | | | |
| ....ACTINASTRUM | 470 | 3 | -- | - |
| ....SCENEDESMUS | 470 | 3 | -- | - |
| ....TETRASTRUM | 950 | 5 | -- | - |
| ..VOLVOCALES | | | | |
| ...CHLAMYDOMONADACEAE | | | | |
| ....CHLAMYDOMONAS | 180 | 1 | -- | - |
| ....CHLOROGONIUM | -- | - | * | 0 |
| CHRYSOPHYTA | | | | |
| .BACILLARIOPHYCEAE | | | | |
| ..CENTRALES | | | | |
| ...COSCINODISCACEAE | | | | |
| ....CYCLOTELLA | 770 | 4 | * | 0 |
| ..PENNALES | | | | |
| ...FRAGILARIACEAE | | | | |
| ....FRAGILARIA | -- | - | 160 | 1 |
| ....SYNEDRA | 420 | 2 | -- | - |
| ...NAVICULACEAE | | | | |
| ....NAVICULA | -- | - | * | 0 |
| ...NITZSCHIACEAE | | | | |
| ....NITZSCHIA | 950 | 5 | * | 0 |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | |
| .CYANOPHYCEAE | | | | |
| ..CHROOCOCCALES | | | | |
| ...CHROOCOCCACEAE | | | | |
| ....AGMENELLUM | 7600# | 41 | -- | - |
| ....ANACYSTIS | 1600 | 9 | 4000# | 20 |
| ....COCCOCHLORIS | 590 | 3 | -- | - |
| ..HORMOGONALES | | | | |
| ...NOSTOCACEAE | | | | |
| ....ANABAENOPSIS | -- | - | 400 | 2 |
| ...OSCILLATORIACEAE | | | | |
| ....LYNGBYA | -- | - | 13000# | 65 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

305135095235401 LIVINGSTON RESERVOIR SITE JC

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO AUGUST 1981

| DATE | JAN 14,81 | AUG 19,81 |
|---|---|---|
| TIME | 1541 | 1713 |
| TOTAL CELLS/ML | 2500 | 100000 |
| DIVERSITY: DIVISION | 2.0 | 0.5 |
| .CLASS | 2.0 | 0.5 |
| ..ORDER | 2.4 | 1.0 |
| ...FAMILY | 2.6 | 1.0 |
| ....GENUS | 3.2 | 1.3 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|
| CHLOROPHYTA (GREEN ALGAE) | | | | |
| .CHLOROPHYCEAE | | | | |
| ..CHLOROCOCCALES | | | | |
| ...OOCYSTACEAE | | | | |
| ....ANKISTRODESMUS | 100 | 4 | 670 | 1 |
| ....CHODATELLA | 33 | 1 | -- | - |
| ....DICTYOSPHAERIUM | 67 | 3 | * | 0 |
| ....OOCYSTIS | -- | - | * | 0 |
| ....SELENASTRUM | 67 | 3 | * | 0 |
| ....TETRAEDRON | -- | - | * | 0 |
| ....TREUBARIA | 17 | 1 | -- | - |
| ...SCENEDESMACEAE | | | | |
| ....SCENEDESMUS | 67 | 3 | 2100 | 2 |
| ....TETRASTRUM | 130 | 5 | -- | - |
| ..VOLVOCALES | | | | |
| ...CHLAMYDOMONADACEAE | | | | |
| ....CHLAMYDOMONAS | 330 | 14 | 4100 | 4 |
| ...PHACOTACEAE | | | | |
| ....PTEROMONAS | -- | - | * | 0 |
| CHRYSOPHYTA | | | | |
| .BACILLARIOPHYCEAE | | | | |
| ..CENTRALES | | | | |
| ...COSCINODISCACEAE | | | | |
| ....CYCLOTELLA | 500# | 20 | 890 | 1 |
| ....MELOSIRA | 220 | 9 | -- | - |
| ..PENNALES | | | | |
| ...ACHNANTHACEAE | | | | |
| ....ACHNANTHES | 17 | 1 | -- | - |
| ...FRAGILARIACEAE | | | | |
| ....SYNEDRA | 17 | 1 | -- | - |
| ...NITZSCHIACEAE | | | | |
| ....NITZSCHIA | -- | - | 550 | 1 |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | |
| .CRYPTOPHYCEAE | | | | |
| ..CRYPTOMONADALES | | | | |
| ...CRYPTOCHRYSIDACEAE | | | | |
| ....CHROOMONAS | 50 | 2 | -- | - |
| ...CRYPTOMONADACEAE | | | | |
| ....CRYPTOMONAS | 50 | 2 | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | |
| .CYANOPHYCEAE | | | | |
| ..CHROOCOCCALES | | | | |
| ...CHROOCOCCACEAE | | | | |
| ....AGMENELLUM | -- | - | 80000# | 80 |
| ....ANACYSTIS | 700# | 29 | 2900 | 3 |
| ..HORMOGONALES | | | | |
| ...OSCILLATORIACEAE | | | | |
| ....LYNGBYA | -- | - | 7100 | 7 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | |
| .EUGLENOPHYCEAE | | | | |
| ..EUGLENALES | | | | |
| ...EUGLENACEAE | | | | |
| ....EUGLENA | 17 | 1 | -- | - |
| ....TRACHELOMONAS | 33 | 1 | -- | - |
| PYRRHOPHYTA (FIRE ALGAE) | | | | |
| .DINOPHYCEAE | | | | |
| ..PERIDINIALES | | | | |
| ...GLENODINIACEAE | | | | |
| ....GLENODINIUM | 33 | 1 | * | 0 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 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 stillings basin, 1,700 ft (518 m) to right of right spillway abutment, 4.8 mi (7.7 km) northwest of Goodrich, 11.7 mi (18.8 km) upstream from Long King Creek, and at mile 129.2 (207.9 km).

DRAINAGE AREA.--16,583 mi² (42,950 km²).

PERIOD OF RECORD.--August 1969 to current year.

GAGE.--Water-stage recorder, concrete control, and crest-stage gage. Datum of gage is 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 good. For details concerning outlet works, see Livingston Reservoir (station 08066190). The purpose of this station is to record selective withdrawal releases at outflow weir, crest 61.90 ft (18.867 m). These releases do not constitute the total flow from Livingston Reservoir since flow through tainter gates is not included in these totals.

AVERAGE DISCHARGE.--12 years, 216 ft³/s (6.117 m³/s), 156,500 acre-ft/yr (193 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 3,400 ft³/s (96.3 m³/s) May 2, 1974; maximum elevation, about 93.0 ft (29.35 m) June 14, 1973 (backwater from Trinity River); no flow for many days.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 832 ft³/s (23.6 m³/s) Apr. 15; maximum elevation, 81.36 ft (24.799 m) June 8 at 0800 hours (backwater from Trinity River); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 102 | 99 | 99 | 99 | 99 | .00 | .00 | .00 | 211 | .00 | .00 | .00 |
| 2 | 102 | 99 | 99 | 99 | .00 | .00 | .00 | .00 | 211 | .00 | .00 | .00 |
| 3 | 96 | 46 | 99 | 99 | .00 | .00 | .00 | .00 | 215 | .00 | .00 | .00 |
| 4 | 96 | .00 | 99 | 99 | .00 | .00 | .00 | .00 | 94 | .00 | .00 | .00 |
| 5 | 96 | 24 | 111 | 99 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 6 | 93 | 80 | 127 | 99 | .00 | .00 | 108 | .00 | .00 | .00 | .00 | .00 |
| 7 | 93 | 90 | 111 | 99 | .00 | .00 | 326 | .00 | .00 | .00 | .00 | .00 |
| 8 | 93 | 93 | 102 | 99 | .00 | .00 | 144 | .00 | .00 | .00 | .00 | .00 |
| 9 | 93 | 93 | 102 | 99 | .00 | .00 | 144 | .00 | .00 | .00 | .00 | .00 |
| 10 | 99 | 93 | 102 | 99 | .00 | .00 | 144 | .00 | .00 | .00 | .00 | .00 |
| 11 | 99 | 93 | 102 | 99 | .00 | .00 | 144 | .00 | .00 | .00 | .00 | .00 |
| 12 | 99 | 93 | 105 | 99 | .00 | .00 | 144 | .00 | .00 | .00 | .00 | .00 |
| 13 | 99 | 93 | 105 | 99 | .00 | .00 | 144 | .00 | .00 | .00 | .00 | .00 |
| 14 | 99 | 99 | 105 | 99 | .00 | .00 | 240 | .00 | .00 | .00 | .00 | .00 |
| 15 | 99 | 99 | 105 | 99 | .00 | .00 | 832 | .00 | .00 | .00 | .00 | 63 |
| 16 | 102 | 99 | 99 | 99 | .00 | .00 | 241 | .00 | .00 | .00 | .00 | 190 |
| 17 | 102 | 99 | 90 | 99 | .00 | .00 | 148 | .00 | .00 | 69 | .00 | 190 |
| 18 | 99 | 99 | 90 | 99 | .00 | .00 | 105 | .00 | .00 | 211 | .00 | 190 |
| 19 | 99 | 99 | 90 | 99 | .00 | .00 | 105 | .00 | .00 | 211 | .00 | 190 |
| 20 | 99 | 99 | 93 | 99 | .00 | .00 | 144 | .00 | .00 | 211 | .00 | 190 |
| 21 | 102 | 99 | 96 | 99 | .00 | .00 | 172 | .00 | .00 | 204 | .00 | 190 |
| 22 | 102 | 99 | 93 | 99 | .00 | .00 | 344 | .00 | .00 | 201 | .00 | 176 |
| 23 | 102 | 99 | 90 | 99 | .00 | .00 | 172 | .00 | .00 | 211 | .00 | 155 |
| 24 | 105 | 99 | 90 | 99 | .00 | .00 | 79 | .00 | .00 | 385 | .00 | 155 |
| 25 | 105 | 99 | 90 | 99 | .00 | .00 | .00 | .00 | .00 | 589 | .00 | 155 |
| 26 | 102 | 99 | 90 | 99 | .00 | .00 | .00 | .00 | .00 | 594 | .00 | 155 |
| 27 | 99 | 99 | 96 | 99 | .00 | .00 | .00 | .00 | .00 | 589 | .00 | 155 |
| 28 | 99 | 99 | 96 | 99 | .00 | .00 | .00 | 84 | .00 | 589 | .00 | 155 |
| 29 | 99 | 99 | 99 | 99 | --- | .00 | .00 | 204 | .00 | 219 | .00 | 155 |
| 30 | 99 | 99 | 99 | 99 | --- | .00 | .00 | 201 | .00 | .00 | .00 | 155 |
| 31 | 99 | --- | 99 | 99 | --- | .00 | --- | 204 | --- | .00 | .00 | --- |
| TOTAL | 3072 | 2679.00 | 3073 | 3069 | 99.00 | .00 | 3880.00 | 693.00 | 731.00 | 4283.00 | .00 | 2619.00 |
| MEAN | 99.1 | 89.3 | 99.1 | 99.0 | 3.54 | .000 | 129 | 22.4 | 24.4 | 138 | .000 | 87.3 |
| MAX | 105 | 99 | 127 | 99 | 99 | .00 | 832 | 204 | 215 | 594 | .00 | 190 |
| MIN | 93 | .00 | 90 | 99 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 6090 | 5310 | 6100 | 6090 | 196 | .00 | 7700 | 1370 | 1450 | 8500 | .00 | 5190 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 136467.00 | MEAN | 373 | MAX | 1320 | MIN | .00 | AC-FT | 270700 |
| WTR YR 1981 | TOTAL | 24198.00 | MEAN | 66.3 | MAX | 832 | MIN | .00 | AC-FT | 48000 |

## 08066200 LONG KING CREEK AT LIVINGSTON, TX

LOCATION.--Lat 30°42'58", long 94°57'31", Polk County, Hydrologic Unit 12030202, on right bank 64 ft (20 m) downstream from centerline of bridge on U.S. Highway 190, 2 mi (3 km) west of Livingston, 2 mi (3 km) upstream from Choates Creek, and 14.8 mi (23.8 km) upstream from mouth.

DRAINAGE AREA.--141 $mi^2$ (365 $km^2$).

PERIOD OF RECORD.--January 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is 100.12 ft (30.517 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for July, which are poor. No diversion above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--18 years, 91.9 $ft^3/s$ (2.603 $m^3/s$), 8.85 in/yr (225 mm/yr), 66,580 acre-ft/yr (82.1 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,500 $ft^3/s$ (750 $m^3/s$) Nov. 5, 1973, gage height, 27.06 ft (8.248 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, about 41 ft (12.5 m) in May 1929.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,600 $ft^3/s$ (73.6 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|
| June 7 | 1500 | *23,800 | 674 | 26.55 | 8.092 |
| June 12 | 2400 | 2,790 | 79.0 | 11.78 | 3.591 |

Minimum discharge, 0.40 $ft^3/s$ (0.011 $m^3/s$) Oct. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.6 | 1.5 | 3.3 | 3.1 | 17 | 7.3 | 10 | 2.0 | 4.3 | 38 | 14 | 70 |
| 2 | 2.1 | 1.5 | 3.1 | 3.1 | 56 | 9.6 | 7.6 | 1.7 | 3.9 | 32 | 12 | 190 |
| 3 | 1.4 | 1.3 | 3.1 | 3.1 | 17 | 11 | 6.5 | 5.5 | 6.5 | 28 | 12 | 112 |
| 4 | 1.2 | 1.2 | 3.1 | 3.1 | 15 | 114 | 5.7 | 270 | 8.1 | 50 | 11 | 39 |
| 5 | .73 | 1.0 | 3.1 | 3.1 | 13 | 101 | 5.1 | 600 | 113 | 500 | 11 | 47 |
| 6 | .59 | .94 | 3.7 | 4.3 | 20 | 33 | 4.0 | 109 | 144 | 400 | 11 | 25 |
| 7 | .50 | .86 | 3.2 | 9.1 | 20 | 19 | 3.6 | 42 | 12400 | 900 | 10 | 16 |
| 8 | .47 | .86 | 3.8 | 7.8 | 15 | 16 | 3.4 | 24 | 2250 | 400 | 9.1 | 12 |
| 9 | .45 | .86 | 13 | 6.4 | 12 | 13 | 3.4 | 17 | 186 | 200 | 9.0 | 9.7 |
| 10 | .42 | 1.1 | 12 | 6.0 | 11 | 11 | 3.3 | 51 | 97 | 100 | 8.2 | 8.5 |
| 11 | .42 | 1.2 | 6.0 | 4.8 | 15 | 9.5 | 2.9 | 36 | 89 | 300 | 7.6 | 7.7 |
| 12 | .45 | 1.2 | 4.7 | 4.0 | 13 | 8.6 | 2.8 | 17 | 627 | 400 | 7.2 | 7.0 |
| 13 | .50 | 1.2 | 4.1 | 3.5 | 10 | 10 | 2.5 | 11 | 1750 | 200 | 6.8 | 6.5 |
| 14 | .47 | 1.2 | 2.8 | 4.0 | 8.9 | 9.6 | 2.4 | 11 | 260 | 100 | 6.8 | 9.1 |
| 15 | .40 | 1.3 | 3.1 | 4.0 | 8.0 | 8.5 | 2.3 | 9.6 | 90 | 60 | 6.3 | 56 |
| 16 | .49 | 3.2 | 2.8 | 3.8 | 7.6 | 8.0 | 2.1 | 156 | 55 | 45 | 5.7 | 49 |
| 17 | 1.3 | 7.9 | 2.8 | 3.7 | 7.6 | 6.8 | 1.9 | 149 | 55 | 35 | 5.3 | 38 |
| 18 | 1.6 | 5.7 | 3.1 | 3.2 | 7.2 | 5.7 | 5.2 | 38 | 45 | 28 | 5.2 | 17 |
| 19 | 3.0 | 3.6 | 3.1 | 6.4 | 6.8 | 5.3 | 20 | 180 | 37 | 25 | 5.0 | 11 |
| 20 | 2.4 | 2.9 | 3.1 | 32 | 6.4 | 4.7 | 17 | 73 | 29 | 19 | 5.0 | 9.2 |
| 21 | 1.4 | 2.4 | 3.1 | 30 | 6.5 | 4.3 | 6.7 | 25 | 21 | 19 | 4.9 | 8.2 |
| 22 | 1.3 | 4.2 | 3.1 | 14 | 9.2 | 4.3 | 5.0 | 14 | 19 | 18 | 4.5 | 7.3 |
| 23 | .86 | 8.4 | 3.1 | 9.1 | 10 | 4.2 | 11 | 10 | 17 | 17 | 4.4 | 6.5 |
| 24 | .75 | 5.0 | 2.9 | 7.0 | 9.8 | 4.0 | 14 | 8.1 | 300 | 16 | 4.4 | 6.1 |
| 25 | .60 | 3.9 | 2.8 | 6.0 | 8.9 | 3.8 | 11 | 7.0 | 400 | 15 | 4.1 | 5.5 |
| 26 | .50 | 11 | 2.8 | 5.4 | 7.8 | 3.7 | 7.5 | 5.9 | 95 | 15 | 4.1 | 5.3 |
| 27 | .90 | 9.5 | 2.8 | 4.8 | 7.4 | 3.7 | 4.8 | 3.9 | 51 | 50 | 3.8 | 5.0 |
| 28 | 2.8 | 7.1 | 2.8 | 4.7 | 6.9 | 3.7 | 3.7 | 3.2 | 47 | 35 | 3.8 | 4.7 |
| 29 | 2.4 | 4.8 | 2.9 | 4.7 | --- | 16 | 3.2 | 2.8 | 46 | 25 | 3.8 | 4.7 |
| 30 | 1.7 | 3.9 | 3.1 | 4.7 | --- | 20 | 2.6 | 2.6 | 41 | 17 | 4.4 | 4.4 |
| 31 | 1.7 | --- | 3.1 | 4.7 | --- | 22 | --- | 3.5 | --- | 15 | 20 | --- |
| TOTAL | 38.40 | 100.72 | 119.5 | 213.6 | 353.0 | 501.3 | 181.2 | 1888.8 | 19286.8 | 4102 | 230.4 | 797.4 |
| MEAN | 1.24 | 3.36 | 3.85 | 6.89 | 12.6 | 16.2 | 6.04 | 60.9 | 643 | 132 | 7.43 | 26.6 |
| MAX | 4.6 | 11 | 13 | 32 | 56 | 114 | 20 | 600 | 12400 | 900 | 20 | 190 |
| MIN | .40 | .86 | 2.8 | 3.1 | 6.4 | 3.7 | 1.9 | 1.7 | 3.9 | 15 | 3.8 | 4.4 |
| CFSM | .009 | .02 | .03 | .05 | .09 | .12 | .04 | .43 | 4.56 | .94 | .05 | .19 |
| IN. | .01 | .03 | .03 | .06 | .09 | .13 | .05 | .50 | 5.09 | 1.08 | .06 | .21 |
| AC-FT | 76 | 200 | 237 | 424 | 700 | 994 | 359 | 3750 | 38260 | 8140 | 457 | 1580 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 15410.04 | MEAN 42.1 | MAX 1930 | MIN .40 | CFSM .30 | IN 4.07 | AC-FT 30570 |
| WTR YR 1981 | TOTAL | 27813.12 | MEAN 76.2 | MAX 12400 | MIN .40 | CFSM .54 | IN 7.34 | AC-FT 55170 |

## 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 40 ft (12 m) downstream from downstream bridge on U.S. Highway 59, 0.2 mi (0.3 km) downstream from Long King Creek, 3.0 mi (4.8 km) southeast of Goodrich, and at mile 117.3 (188.7 km).

DRAINAGE AREA.--16,844 $mi^2$ (43,626 $km^2$)

PERIOD OF RECORD.--December 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is 40.00 ft (12.192 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Regulated since Sept. 29, 1968, by Livingston Reservoir (station 08066190), capacity 2,046,000 acre-ft (2.52 $km^3$), 11.9 mi (19.1 km) upstream No diversions between Livingston Reservoir and gaging station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--15 years (water years 1967-81), 6,870 $ft^3/s$ (194.6 $m^3/s$), 4,977,000 acre-ft (6.14 $km^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 96,200 $ft^3/s$ (2,720 $m^3/s$) June 14, 1973, gage height, 46.36 ft (14.131 m); minimum daily, 191 $ft^3/s$ (5.41 $m^3/s$) Aug. 6, 1971 (regulation by Livingston Reservoir).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1929, 52.0 ft (15.85 m) in May 1942, from information by State Department of Highways and Public Transportation and by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 50,800 $ft^3/s$ (1,440 $m^3/s$) June 8 at 0600 hours, gage height, 36.95 ft (11.262 m); minimum daily, 410 $ft^3/s$ (11.6 $m^3/s$) Mar. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 635 | 600 | 486 | 563 | 829 | 568 | 1080 | 1430 | 5110 | 24700 | 1430 | 1180 |
| 2 | 619 | 596 | 703 | 563 | 848 | 572 | 1070 | 1450 | 6820 | 24700 | 1410 | 1040 |
| 3 | 607 | 601 | 678 | 560 | 818 | 576 | 1070 | 1490 | 8060 | 21600 | 1410 | 867 |
| 4 | 600 | 633 | 656 | 550 | 684 | 827 | 1070 | 2540 | 10200 | 16000 | 1390 | 785 |
| 5 | 601 | 636 | 586 | 559 | 684 | 704 | 1050 | 3960 | 17000 | 10900 | 1380 | 715 |
| 6 | 609 | 587 | 572 | 572 | 761 | 530 | 1100 | 2000 | 21700 | 10800 | 1380 | 697 |
| 7 | 611 | 584 | 572 | 581 | 710 | 432 | 1270 | 1510 | 34000 | 14100 | 1380 | 670 |
| 8 | 614 | 592 | 585 | 577 | 684 | 413 | 1160 | 1400 | 45800 | 21500 | 1380 | 651 |
| 9 | 611 | 590 | 650 | 573 | 672 | 410 | 1140 | 1350 | 35200 | 21600 | 1360 | 645 |
| 10 | 611 | 595 | 616 | 568 | 658 | 472 | 1130 | 1350 | 30600 | 21100 | 1360 | 640 |
| 11 | 610 | 599 | 598 | 571 | 647 | 572 | 1130 | 1360 | 27100 | 21500 | 1370 | 630 |
| 12 | 609 | 596 | 588 | 569 | 640 | 584 | 1120 | 1320 | 26500 | 21600 | 1360 | 630 |
| 13 | 611 | 596 | 571 | 561 | 635 | 596 | 1120 | 1570 | 30800 | 21100 | 1360 | 630 |
| 14 | 611 | 596 | 563 | 556 | 618 | 594 | 1130 | 3340 | 34000 | 19000 | 1350 | 633 |
| 15 | 611 | 587 | 563 | 503 | 617 | 583 | 1460 | 6190 | 37800 | 14600 | 1340 | 792 |
| 16 | 618 | 590 | 560 | 544 | 605 | 573 | 1580 | 9030 | 39300 | 8980 | 1330 | 1300 |
| 17 | 620 | 597 | 557 | 784 | 603 | 568 | 1580 | 13300 | 39800 | 3860 | 1330 | 1330 |
| 18 | 635 | 477 | 561 | 838 | 596 | 562 | 1450 | 13500 | 39700 | 1980 | 1350 | 1320 |
| 19 | 648 | 440 | 563 | 876 | 592 | 579 | 1470 | 13500 | 39500 | 1750 | 1400 | 1310 |
| 20 | 620 | 433 | 563 | 954 | 595 | 763 | 1450 | 12900 | 39400 | 1320 | 1400 | 1250 |
| 21 | 608 | 427 | 563 | 898 | 602 | 799 | 1480 | 10600 | 36600 | 1110 | 1400 | 987 |
| 22 | 599 | 430 | 563 | 851 | 604 | 774 | 1480 | 8370 | 32500 | 1080 | 1390 | 833 |
| 23 | 592 | 444 | 563 | 834 | 598 | 818 | 1500 | 5590 | 27800 | 1050 | 1390 | 478 |
| 24 | 593 | 440 | 558 | 824 | 589 | 1020 | 1470 | 3990 | 22400 | 1070 | 1350 | 449 |
| 25 | 593 | 432 | 552 | 816 | 582 | 1040 | 1280 | 3140 | 21800 | 1280 | 1130 | 489 |
| 26 | 599 | 466 | 557 | 811 | 582 | 1040 | 1250 | 2910 | 21700 | 1300 | 1070 | 498 |
| 27 | 623 | 456 | 559 | 811 | 582 | 1050 | 1250 | 2890 | 21600 | 1310 | 1020 | 495 |
| 28 | 635 | 436 | 559 | 811 | 577 | 1060 | 1240 | 2920 | 21600 | 1320 | 1020 | 489 |
| 29 | 613 | 427 | 559 | 804 | --- | 1120 | 1230 | 3200 | 22100 | 1380 | 1010 | 487 |
| 30 | 605 | 411 | 559 | 804 | --- | 1130 | 1280 | 3220 | 23200 | 1460 | 1030 | 486 |
| 31 | 601 | --- | 561 | 805 | --- | 1100 | --- | 3400 | --- | 1440 | 1200 | --- |
| TOTAL | 18972 | 15894 | 17944 | 21491 | 18212 | 22429 | 38090 | 144720 | 819690 | 316490 | 40480 | 23406 |
| MEAN | 612 | 530 | 579 | 693 | 650 | 724 | 1270 | 4668 | 27320 | 10210 | 1306 | 780 |
| MAX | 648 | 636 | 703 | 954 | 848 | 1130 | 1580 | 13500 | 45800 | 24700 | 1430 | 1330 |
| MIN | 592 | 411 | 486 | 503 | 577 | 410 | 1050 | 1320 | 5110 | 1050 | 1010 | 449 |
| AC-FT | 37630 | 31530 | 35590 | 42630 | 36120 | 44490 | 75550 | 287100 | 1626000 | 627800 | 80290 | 46430 |

CAL YR 1980 TOTAL 1656862 MEAN 4527 MAX 41000 MIN 411 AC-FT 3286000
WTR YR 1981 TOTAL 1497818 MEAN 4104 MAX 45800 MIN 410 AC-FT 2971000

## 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 (6 m) downstream from bridge on State Highway 146, 2.3 mi (3.7 km) northwest of Rye, and about 6 mi (10 km) upstream from mouth.

DRAINAGE AREA.--152 $mi^2$ (394 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1965 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 62.32 ft (18.995 m) National Geodetic Vertical Datum of 1929. September 1974 to August 1976, wire-weight gage read twice daily.

REMARKS.--Water-discharge records good. No known diversions above station. Regulation by Bear Foot Lake on Mill Creek located 0.5 mi (0.8 km) upstream.

AVERAGE DISCHARGE.--15 years (water years 1967-81), 112 $ft^3/s$ (3.172 $m^3/s$), 81,140 acre-ft/yr (100 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,660 $ft^3/s$ (274 $m^3/s$) May 8, 1969, gage height, 30.33 ft (9.245 m), from rating curve extended above 5,600 $ft^3/s$ (159 $m^3/s$); minimum daily, 2.6 $ft^3/s$ (0.074 $m^3/s$) Nov. 1, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1929 reached a stage of about 39.4 ft (12.01 m), from information by the State Department of Highways and Public Transportation. Flood in September 1961 reached a stage of about 34.0 ft (10.36 m), from information by local resident. Flood of May 1929 may have been equaled or exceeded by other floods during the period 1929-65.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,730 $ft^3/s$ (77.3 $m^3/s$) June 9 at 0600 hours, gage height, 22.38 ft (6.821 m); minimum daily, 16 $ft^3/s$ (0.45 $m^3/s$) Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 20 | 32 | 31 | 28 | 55 | 36 | 51 | 35 | 22 | 125 | 47 | 59 |
| 2 | 26 | 32 | 31 | 28 | 36 | 35 | 39 | 21 | 27 | 115 | 43 | 82 |
| 3 | 25 | 31 | 31 | 27 | 39 | 35 | 35 | 52 | 57 | 174 | 39 | 94 |
| 4 | 23 | 31 | 31 | 28 | 39 | 128 | 35 | 133 | 32 | 122 | 38 | 97 |
| 5 | 21 | 29 | 30 | 30 | 51 | 177 | 33 | 238 | 104 | 319 | 38 | 81 |
| 6 | 21 | 24 | 30 | 33 | 70 | 122 | 32 | 251 | 158 | 420 | 35 | 69 |
| 7 | 22 | 21 | 31 | 45 | 89 | 85 | 30 | 254 | 282 | 393 | 58 | 55 |
| 8 | 23 | 21 | 38 | 38 | 70 | 64 | 28 | 153 | 449 | 383 | 68 | 40 |
| 9 | 22 | 20 | 69 | 35 | 59 | 63 | 27 | 103 | 2340 | 393 | 46 | 29 |
| 10 | 22 | 20 | 60 | 32 | 58 | 54 | 26 | 72 | 1350 | 424 | 37 | 26 |
| 11 | 22 | 21 | 50 | 30 | 47 | 55 | 24 | 78 | 1850 | 306 | 33 | 24 |
| 12 | 22 | 24 | 50 | 30 | 46 | 58 | 24 | 67 | 1450 | 240 | 31 | 22 |
| 13 | 21 | 25 | 41 | 29 | 42 | 54 | 23 | 56 | 1990 | 307 | 30 | 21 |
| 14 | 21 | 25 | 36 | 29 | 39 | 48 | 23 | 54 | 2390 | 346 | 28 | 26 |
| 15 | 21 | 25 | 34 | 29 | 38 | 39 | 23 | 38 | 1760 | 430 | 26 | 27 |
| 16 | 23 | 36 | 33 | 29 | 37 | 36 | 22 | 61 | 953 | 305 | 25 | 24 |
| 17 | 26 | 51 | 32 | 28 | 41 | 33 | 21 | 57 | 390 | 169 | 24 | 25 |
| 18 | 65 | 40 | 31 | 28 | 40 | 35 | 20 | 68 | 218 | 101 | 24 | 25 |
| 19 | 70 | 32 | 31 | 49 | 33 | 43 | 20 | 71 | 149 | 81 | 23 | 24 |
| 20 | 40 | 26 | 30 | 69 | 34 | 37 | 21 | 49 | 99 | 69 | 22 | 24 |
| 21 | 30 | 25 | 29 | 76 | 37 | 29 | 26 | 39 | 82 | 60 | 21 | 31 |
| 22 | 27 | 27 | 30 | 76 | 38 | 28 | 40 | 35 | 71 | 54 | 21 | 30 |
| 23 | 25 | 36 | 31 | 62 | 39 | 28 | 92 | 32 | 67 | 50 | 20 | 26 |
| 24 | 24 | 37 | 30 | 47 | 41 | 29 | 81 | 31 | 120 | 47 | 19 | 18 |
| 25 | 23 | 41 | 29 | 41 | 39 | 36 | 75 | 29 | 147 | 44 | 19 | 17 |
| 26 | 23 | 54 | 29 | 38 | 39 | 38 | 41 | 28 | 139 | 45 | 18 | 22 |
| 27 | 28 | 45 | 28 | 36 | 38 | 27 | 34 | 27 | 169 | 47 | 18 | 29 |
| 28 | 50 | 44 | 28 | 35 | 37 | 27 | 30 | 26 | 108 | 94 | 18 | 23 |
| 29 | 38 | 36 | 28 | 33 | --- | 47 | 27 | 32 | 84 | 92 | 18 | 16 |
| 30 | 34 | 34 | 29 | 33 | --- | 33 | 35 | 24 | 94 | 55 | 18 | 16 |
| 31 | 33 | --- | 29 | 32 | --- | 45 | --- | 23 | --- | 46 | 34 | --- |
| TOTAL | 891 | 945 | 1070 | 1183 | 1271 | 1604 | 1038 | 2237 | 17151 | 5856 | 939 | 1102 |
| MEAN | 28.7 | 31.5 | 34.5 | 38.2 | 45.4 | 51.7 | 34.6 | 72.2 | 572 | 189 | 30.3 | 36.7 |
| MAX | 70 | 54 | 69 | 76 | 89 | 177 | 92 | 254 | 2390 | 430 | 68 | 97 |
| MIN | 20 | 20 | 28 | 27 | 33 | 27 | 20 | 21 | 22 | 44 | 18 | 16 |
| AC-FT | 1770 | 1870 | 2120 | 2350 | 2520 | 3180 | 2060 | 4440 | 34020 | 11620 | 1860 | 2190 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 39953 | MEAN | 109 | MAX | 1610 | MIN 12 | AC-FT | 79250 |
| WTR YR 1981 | TOTAL | 35287 | MEAN | 96.7 | MAX | 2390 | MIN 16 | AC-FT | 69990 |

08066300 MENARD CREEK NEAR RYE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: April 1965 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | TEMPER-ATURE, WATER (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | |
| 04... | 1720 | 30 | 184 | 15.5 | 24 | 13 | 7.0 | 1.7 | 22 |
| DEC | | | | | | | | | |
| 17... | 1530 | 32 | 143 | 12.0 | 22 | 11 | 6.0 | 1.7 | 19 |
| FEB | | | | | | | | | |
| 05... | 1600 | 62 | 204 | 9.5 | 27 | 20 | 7.8 | 1.8 | 27 |
| MAR | | | | | | | | | |
| 12... | 1405 | 57 | 185 | 15.5 | 26 | 16 | 7.3 | 1.8 | 24 |
| APR | | | | | | | | | |
| 24... | 1335 | 95 | 143 | 21.0 | 22 | 10 | 6.5 | 1.5 | 18 |
| JUN | | | | | | | | | |
| 11... | 1140 | 2000 | 88 | 25.5 | 16 | 11 | 4.6 | 1.1 | 10 |
| JUL | | | | | | | | | |
| 22... | 1530 | 53 | 94 | 28.5 | 21 | 8 | 6.1 | 1.4 | 9.9 |

| DATE | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY (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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | |
| 04... | 1.9 | 1.5 | 11 | 1.9 | 43 | .0 | 12 | 96 |
| DEC | | | | | | | | |
| 17... | 1.8 | 1.1 | 11 | 1.6 | 34 | .0 | 14 | 84 |
| FEB | | | | | | | | |
| 05... | 2.3 | 1.1 | 7 | 2.2 | 54 | .1 | 11 | 109 |
| MAR | | | | | | | | |
| 12... | 2.1 | 1.1 | 10 | 1.7 | 44 | .1 | 11 | 97 |
| APR | | | | | | | | |
| 24... | 1.7 | 1.2 | 12 | 2.1 | 30 | .0 | 11 | 77 |
| JUN | | | | | | | | |
| 11... | 1.1 | 1.6 | 5 | 4.8 | 21 | .0 | 5.1 | 51 |
| JUL | | | | | | | | |
| 22... | 1.0 | 1.1 | 13 | 5.0 | 17 | .0 | 15 | 64 |

## 08066400 BIG CREEK NEAR SHEPHERD, TX

LOCATION.--Lat 30°30'59", long 94°59'06", San Jacinto County, Hydrologic Unit 12030202, on left bank at downstream side of downstream bridge on U.S. Highway 59, 1.5 mi (2.4 km) northeast of Shepherd, and 11.6 mi (18.7 km) upstream from mouth.

DRAINAGE AREA.--38.8 $mi^2$ (100.5 $km^2$).

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 94.90 ft (28.926 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good except those for period of no gage-height record, which are poor. No known regulation above station.

AVERAGE DISCHARGE.--15 years, 26.3 $ft^3/s$ (0.745 $m^3/s$), 9.20 in/yr (234 mm/yr), 19,050 acre-ft/yr (23.5 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,000 $ft^3/s$ (623 $m^3/s$) June 13, 1973, gage height, 25.69 ft (7.830 m); minimum daily, 1.0 $ft^3/s$ (0.028 $m^3/s$) Aug. 7, 1967.
Maximum stage since at least 1949, that of June 13, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1957 reached a stage of 20.3 ft (6.19 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 207 $ft^3/s$ (5.86 $m^3/s$) at 2000 hours July 7, gage height, 9.10 ft (2.774 m), no peak above base of 350 $ft^3/s$ (9.91 $m^3/s$); minimum, 4.7 $ft^3/s$ (0.13 $m^3/s$) Apr. 16, 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 17 | 8.6 | 12 | 9.0 | 16 | 11 | 10 | 7.1 | 19 | 8.7 | 8.0 | 54 |
| 2 | 11 | 8.5 | 11 | 8.7 | 21 | 11 | 8.5 | 6.6 | 9.9 | 8.0 | 7.5 | 20 |
| 3 | 9.4 | 8.4 | 11 | 8.5 | 13 | 15 | 7.5 | 22 | 38 | 11 | 7.2 | 19 |
| 4 | 8.5 | 8.3 | 11 | 8.6 | 11 | 80 | 6.8 | 136 | 26 | 14 | 7.0 | 21 |
| 5 | 8.0 | 8.2 | 11 | 8.5 | 15 | 55 | 6.4 | 81 | 79 | 16 | 7.0 | 16 |
| 6 | 7.6 | 8.0 | 11 | 9.4 | 35 | 30 | 6.0 | 36 | 39 | 25 | 6.8 | 12 |
| 7 | 7.4 | 8.0 | 11 | 15 | 25 | 20 | 5.8 | 24 | 77 | 107 | 6.8 | 9.9 |
| 8 | 7.5 | 8.4 | 13 | 12 | 20 | 18 | 5.6 | 19 | 35 | 85 | 21 | 9.2 |
| 9 | 7.3 | 8.8 | 39 | 10 | 18 | 16 | 5.4 | 17 | 19 | 56 | 9.3 | 8.7 |
| 10 | 7.2 | 8.9 | 21 | 9.7 | 20 | 15 | 5.2 | 18 | 16 | 32 | 7.5 | 8.0 |
| 11 | 7.0 | 9.3 | 15 | 9.3 | 18 | 14 | 5.0 | 14 | 95 | 35 | 7.0 | 7.3 |
| 12 | 6.9 | 8.7 | 13 | 9.1 | 16 | 13 | 4.9 | 12 | 57 | 44 | 6.8 | 7.1 |
| 13 | 6.7 | 8.7 | 12 | 9.3 | 14 | 15 | 4.9 | 11 | 155 | 32 | 6.6 | 6.9 |
| 14 | 6.9 | 8.5 | 12 | 9.5 | 13 | 20 | 4.8 | 14 | 59 | 22 | 6.8 | 8.0 |
| 15 | 7.4 | 9.0 | 12 | 9.3 | 12 | 15 | 4.8 | 14 | 35 | 19 | 6.6 | 8.9 |
| 16 | 8.8 | 10 | 12 | 8.9 | 11 | 13 | 4.7 | 26 | 26 | 16 | 6.2 | 8.0 |
| 17 | 9.9 | 15 | 11 | 8.5 | 11 | 12 | 4.7 | 23 | 23 | 14 | 6.2 | 6.7 |
| 18 | 15 | 15 | 11 | 8.4 | 11 | 11 | 5.0 | 13 | 20 | 13 | 6.3 | 5.9 |
| 19 | 37 | 10 | 11 | 14 | 10 | 10 | 50 | 10 | 17 | 12 | 7.7 | 5.8 |
| 20 | 15 | 9.0 | 10 | 53 | 10 | 9.0 | 25 | 8.2 | 15 | 11 | 7.5 | 5.8 |
| 21 | 9.3 | 8.9 | 9.7 | 25 | 10 | 8.5 | 15 | 7.5 | 13 | 10 | 6.6 | 5.8 |
| 22 | 8.4 | 11 | 9.9 | 17 | 12 | 8.0 | 10 | 7.1 | 11 | 9.0 | 6.2 | 5.8 |
| 23 | 7.8 | 23 | 10 | 15 | 15 | 7.5 | 20 | 7.0 | 10 | 8.6 | 5.9 | 5.4 |
| 24 | 7.4 | 15 | 11 | 14 | 13 | 7.2 | 36 | 6.7 | 9.9 | 8.5 | 5.8 | 5.2 |
| 25 | 7.1 | 12 | 9.6 | 13 | 12 | 7.0 | 15 | 6.5 | 10 | 8.1 | 5.7 | 5.2 |
| 26 | 7.2 | 32 | 9.4 | 12 | 11 | 6.8 | 12 | 6.3 | 12 | 8.3 | 5.6 | 5.2 |
| 27 | 9.1 | 23 | 9.7 | 12 | 12 | 6.7 | 10 | 5.8 | 15 | 9.1 | 5.6 | 5.0 |
| 28 | 20 | 16 | 9.6 | 11 | 12 | 6.6 | 8.9 | 5.5 | 11 | 14 | 5.5 | 5.0 |
| 29 | 12 | 13 | 9.6 | 11 | --- | 6.5 | 8.4 | 5.4 | 9.8 | 16 | 6.0 | 4.8 |
| 30 | 9.8 | 12 | 9.5 | 10 | --- | 10 | 7.9 | 7.6 | 10 | 11 | 8.0 | 4.8 |
| 31 | 9.0 | --- | 9.3 | 10 | --- | 15 | --- | 6.7 | --- | 8.8 | 78 | --- |
| TOTAL | 318.6 | 353.2 | 377.3 | 388.7 | 417 | 492.8 | 324.2 | 584.0 | 971.6 | 692.1 | 294.7 | 300.4 |
| MEAN | 10.3 | 11.8 | 12.2 | 12.5 | 14.9 | 15.9 | 10.8 | 18.8 | 32.4 | 22.3 | 9.51 | 10.0 |
| MAX | 37 | 32 | 39 | 53 | 35 | 80 | 50 | 136 | 155 | 107 | 78 | 54 |
| MIN | 6.7 | 8.0 | 9.3 | 8.4 | 10 | 6.5 | 4.7 | 5.4 | 9.8 | 8.0 | 5.5 | 4.8 |
| CFSM | .27 | .30 | .31 | .32 | .38 | .41 | .28 | .49 | .84 | .58 | .25 | .26 |
| IN. | .31 | .34 | .36 | .37 | .40 | .47 | .31 | .56 | .93 | .66 | .28 | .29 |
| AC-FT | 632 | 701 | 748 | 771 | 827 | 977 | 643 | 1160 | 1930 | 1370 | 585 | 596 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CAL YR 1980 | TOTAL | 8988.8 | MEAN 24.6 | MAX 439 | MIN 5.6 | CFSM .63 | IN 8.62 | AC-FT | 17830 |
| WTR YR 1981 | TOTAL | 5514.6 | MEAN 15.1 | MAX 155 | MIN 4.7 | CFSM .39 | IN 5.29 | AC-FT | 10940 |

NOTE.--No gage-height record Feb. 3 to Apr. 23.

08066400 BIG CREEK NEAR SHEPHERD, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: December 1963 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | TEMPER-ATURE, WATER (DEG C) | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) |
|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | |
| 03... | 1125 | 8.4 | 67 | 13.0 | 15 | 5 | 3.3 | 1.6 | 7.6 |
| DEC | | | | | | | | | |
| 16... | 1030 | 12 | 71 | 11.5 | 17 | 6 | 3.8 | 1.8 | 8.4 |
| FEB | | | | | | | | | |
| 03... | 1130 | 13 | 71 | 7.5 | 15 | 5 | 3.6 | 1.4 | 7.1 |
| MAR | | | | | | | | | |
| 11... | 0945 | 14 | 76 | 13.5 | 16 | 6 | 4.1 | 1.5 | 7.9 |
| APR | | | | | | | | | |
| 23... | 1500 | 18 | 71 | 20.0 | 17 | 4 | 4.3 | 1.4 | 7.3 |
| JUN | | | | | | | | | |
| 11... | 1240 | 125 | 44 | 25.0 | 14 | 7 | 3.5 | 1.2 | 6.0 |
| JUL | | | | | | | | | |
| 22... | 1730 | 9.2 | 75 | 27.5 | 17 | 1 | 4.4 | 1.5 | 7.7 |
| SEP | | | | | | | | | |
| 03... | 1350 | 18 | 70 | 25.0 | 17 | 6 | 4.0 | 1.6 | 7.6 |

| DATE | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY (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, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) |
|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | |
| 03... | .9 | 1.5 | 10 | 6.9 | 10 | .1 | 16 | 53 |
| DEC | | | | | | | | |
| 16... | .9 | 1.0 | 11 | 4.1 | 14 | .0 | 17 | 57 |
| FEB | | | | | | | | |
| 03... | .8 | 1.1 | 10 | 4.2 | 13 | .1 | 14 | 51 |
| MAR | | | | | | | | |
| 11... | .8 | 1.0 | 10 | 5.8 | 15 | .1 | 15 | 56 |
| APR | | | | | | | | |
| 23... | .8 | 1.3 | 13 | 2.2 | 11 | .1 | 15 | 50 |
| JUN | | | | | | | | |
| 11... | .7 | 1.6 | 7 | 6.5 | 6.5 | .0 | 8.7 | 38 |
| JUL | | | | | | | | |
| 22... | .9 | 1.1 | 16 | 1.0 | 12 | .0 | 18 | 55 |
| SEP | | | | | | | | |
| 03... | .9 | 1.7 | 11 | 5.0 | 16 | .1 | 16 | 59 |

## 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 on downstream side of pier of bridge on State Highway 105, 1.9 mi (3.1 km) south of Romayor, 1.9 mi (3.1 km) downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 3.7 mi (6.0 km) downstream from Big Creek, and at mile 94.3 (151.7 km).

DRAINAGE AREA.--17,186 $mi^2$ (44,512 $km^2$).

### 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.

GAGE.--Water-stage recorder. Datum of gage is 35.92 ft (10.948 m) National Geodetic Vertical Datum of 1929. Prior to September 1943, nonrecording gage at datum 53.57 ft (16.328 m) higher at railroad bridge 1.9 mi (3.1 km) upstream. Sept. 15, 1975, to June 16, 1977, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records poor. Since Sept. 28, 1968, flow regulated by Livingston Reservoir (station 08066190), capacity 1,788,000 acre-ft (2.20 $km^3$), 35 mi (56 km) upstream. No large diversions between Livingston Reservoir and this station.

AVERAGE DISCHARGE.--44 years (water years 1925-68) unregulated, 7,155 $ft^3/s$ (202.6 $m^3/s$), 5,184,000 acre-ft/yr (6.39 $km^3/yr$); 13 years (water years 1969-81) flow regulated by Livingston Reservoir, 7,139 $ft^3/s$ (202.2 $m^3/s$), 5,172,000 acre-ft/yr (6.38 $km^3/yr$).
The figures published in the 1980 report were in error; the correct figures are 12 years (water years 1969-80) regulated, 7,368 $ft^3/s$ (208.7 $m^3/s$), 5,338,000 acre-ft/yr (6.58 $km^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 111,000 $ft^3/s$ (3,140 $m^3/s$) May 9, 1942, gage height, 35.8 ft (10.91 m), from floodmarks, present site and datum; minimum, 102 $ft^3/s$ (2.89 $m^3/s$) Aug. 24, 25, 1956.
Maximum stage since at least 1908, that of May 9, 1942.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 52,100 $ft^3/s$ (1,480 $m^3/s$) June 8 at 0900 hours, gage height, 25.20 ft (7.681 m); minimum daily, 515 $ft^3/s$ (14.6 $m^3/s$) Nov. 21.

REVISIONS.--The maximum and minimum discharges for water year 1980 have been revised to 44,900 $ft^3/s$ (1,270 $m^3/s$) May 20, 1980, gage height, 23.72 ft (7.230 m) and 816 $ft^3/s$ (23.1 $m^3/s$) Oct. 27, 1979, minimum gage height, 2.00 ft (0.610 m) Sept. 11-18, 1980. They supersede figures published in the report for 1980.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1090 | 692 | 528 | 711 | 963 | 667 | 1290 | 1310 | 3950 | 23900 | 1460 | 1550 |
| 2 | 1050 | 692 | 772 | 700 | 993 | 667 | 1270 | 1350 | 6070 | 24100 | 1450 | 1440 |
| 3 | 1030 | 692 | 895 | 701 | 993 | 667 | 1240 | 1390 | 7750 | 22400 | 1440 | 1320 |
| 4 | 1020 | 706 | 870 | 705 | 885 | 1070 | 1240 | 2520 | 9060 | 17100 | 1450 | 1280 |
| 5 | 1020 | 717 | 804 | 705 | 830 | 1230 | 1230 | 5720 | 15900 | 11800 | 1460 | 1080 |
| 6 | 1020 | 700 | 762 | 717 | 949 | 963 | 1200 | 3450 | 22700 | 10300 | 1440 | 1010 |
| 7 | 1010 | 656 | 756 | 763 | 971 | 730 | 1340 | 2250 | 31200 | 12100 | 1450 | 944 |
| 8 | 1020 | 657 | 766 | 739 | 899 | 642 | 1380 | 1830 | 50000 | 19800 | 1510 | 895 |
| 9 | 1020 | 661 | 857 | 737 | 850 | 594 | 1250 | 1580 | 42800 | 21400 | 1470 | 862 |
| 10 | 1030 | 661 | 874 | 726 | 836 | 581 | 1240 | 1570 | 37000 | 20700 | 1460 | 846 |
| 11 | 1030 | 656 | 822 | 719 | 843 | 705 | 1230 | 1460 | 32500 | 21000 | 1450 | 846 |
| 12 | 1030 | 652 | 798 | 716 | 789 | 816 | 1220 | 1360 | 29600 | 20900 | 1460 | 845 |
| 13 | 1020 | 648 | 782 | 706 | 783 | 857 | 1210 | 1290 | 33900 | 20900 | 1430 | 845 |
| 14 | 1020 | 651 | 761 | 705 | 763 | 857 | 1210 | 2120 | 36700 | 19300 | 1410 | 857 |
| 15 | 1020 | 654 | 750 | 682 | 743 | 816 | 1370 | 5040 | 40600 | 16000 | 1410 | 863 |
| 16 | 1020 | 654 | 745 | 639 | 743 | 783 | 1640 | 7800 | 41900 | 10400 | 1410 | 1310 |
| 17 | 1030 | 698 | 731 | 716 | 730 | 743 | 1710 | 12700 | 42200 | 5130 | 1400 | 1500 |
| 18 | 1110 | 666 | 730 | 878 | 724 | 717 | 1530 | 14400 | 42400 | 2390 | 1410 | 1490 |
| 19 | 1190 | 552 | 730 | 963 | 705 | 717 | 1390 | 14300 | 42100 | 1910 | 1470 | 1470 |
| 20 | 983 | 524 | 719 | 1170 | 692 | 783 | 1380 | 14100 | 41900 | 1520 | 1490 | 1470 |
| 21 | 908 | 515 | 717 | 1170 | 692 | 920 | 1380 | 11200 | 40800 | 1210 | 1480 | 1290 |
| 22 | 845 | 516 | 717 | 1100 | 717 | 935 | 1410 | 9340 | 36300 | 1120 | 1490 | 1180 |
| 23 | 778 | 542 | 723 | 1040 | 711 | 913 | 1560 | 6680 | 34200 | 1100 | 1480 | 867 |
| 24 | 774 | 549 | 729 | 993 | 698 | 1070 | 1680 | 4190 | 24600 | 1080 | 1470 | 699 |
| 25 | 732 | 538 | 717 | 956 | 686 | 1180 | 1440 | 3150 | 22100 | 1230 | 1310 | 680 |
| 26 | 730 | 587 | 717 | 956 | 686 | 1210 | 1270 | 2580 | 21600 | 1320 | 1210 | 700 |
| 27 | 755 | 602 | 717 | 935 | 679 | 1210 | 1210 | 2500 | 21400 | 1340 | 1150 | 714 |
| 28 | 808 | 575 | 717 | 920 | 667 | 1210 | 1180 | 2480 | 21300 | 1350 | 1130 | 710 |
| 29 | 743 | 546 | 715 | 920 | --- | 1260 | 1160 | 2660 | 21500 | 1440 | 1140 | 692 |
| 30 | 701 | 532 | 718 | 920 | --- | 1370 | 1150 | 2810 | 22400 | 1480 | 1140 | 689 |
| 31 | 694 | --- | 711 | 906 | --- | 1310 | --- | 2830 | --- | 1470 | 1350 | --- |
| TOTAL | 29231 | 18691 | 23350 | 25914 | 22220 | 28193 | 40010 | 147960 | 876430 | 317190 | 43280 | 30944 |
| MEAN | 943 | 623 | 753 | 836 | 794 | 909 | 1334 | 4773 | 29210 | 10230 | 1396 | 1031 |
| MAX | 1190 | 717 | 895 | 1170 | 993 | 1370 | 1710 | 14400 | 50000 | 24100 | 1510 | 1550 |
| MIN | 694 | 515 | 528 | 639 | 667 | 581 | 1150 | 1290 | 3950 | 1080 | 1130 | 680 |
| AC-FT | 57980 | 37070 | 46310 | 51400 | 44070 | 55920 | 79360 | 293500 | 1738000 | 629100 | 85850 | 61380 |

CAL YR 1980 TOTAL 1825386 MEAN 4987 MAX 44800 MIN 515 AC-FT 3621000
WTR YR 1981 TOTAL 1603413 MEAN 4393 MAX 50000 MIN 515 AC-FT 3180000

08066500 TRINITY RIVER AT ROMAYOR, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1945 to November 1949, February 1950 to September 1951, April 1953 to current year. Chemical and biochemical analyses: February 1968 to current year. Pesticide analyses: February 1968 to September 1981. Sediment records: October 1974 to September 1975.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1945 to November 1949, February 1950 to current year.
WATER TEMPERATURES: February 1950 to September 1951, October 1953 to current year.
SUSPENDED SEDIMENT DISCHARGE: April 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, 1953-81): Maximum daily, 3,800 micromhos Oct. 30, 1956; minimum daily, 103 micromhos Nov. 9, 1946.
WATER TEMPERATURES (1953-58, 1961-74, 1976-81): 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, 448 micromhos June 3; minimum daily, 242 micromhos May 5.
WATER TEMPERATURES: Maximum, 32.0°C July 21, 26; minimum, 8.0°C on several days during January.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | TIME | STREAM-FLOW, INSTAN-TANEOUS (CFS) | SPE-CIFIC CON-DUCT-ANCE (UMHOS) | PH (UNITS) | TEMPER-ATURE (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) | COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 15... | 1415 | 1020 | 366 | 8.5 | 24.0 | -- | 8.0 | 9.2 | 108 | 1.5 | K12 | K8 |
| NOV | | | | | | | | | | | | |
| 06... | 0900 | 705 | 360 | 8.3 | 17.0 | -- | 4.8 | 10.3 | 105 | 1.8 | 20 | 2400 |
| DEC | | | | | | | | | | | | |
| 10... | 1545 | 871 | 360 | 7.9 | 13.0 | 10 | 8.0 | 10.4 | 97 | 1.0 | 310 | 170 |
| JAN | | | | | | | | | | | | |
| 06... | 1145 | 705 | 360 | 8.1 | 11.0 | 7 | 10 | 11.2 | 101 | 1.2 | K12 | K1 |
| FEB | | | | | | | | | | | | |
| 19... | 1220 | 705 | 385 | 8.0 | 15.0 | 5 | 5.1 | 11.2 | 109 | 2.4 | 20 | K12 |
| MAR | | | | | | | | | | | | |
| 10... | 1225 | 581 | 370 | 8.1 | 16.5 | -- | 17 | 12.2 | 122 | 2.7 | 170 | 30 |
| APR | | | | | | | | | | | | |
| 24... | 1245 | 1680 | 400 | 8.4 | 21.0 | 20 | 18 | 8.6 | 96 | 2.0 | 750 | 56 |
| MAY | | | | | | | | | | | | |
| 22... | 1100 | 9350 | 442 | 8.5 | 22.0 | 5 | 7.0 | 9.6 | 108 | 2.2 | 44 | 48 |
| JUN | | | | | | | | | | | | |
| 08... | 1430 | 50500 | 319 | 7.6 | 25.5 | 70 | 82 | 8.0 | 98 | 3.0 | 650 | 2600 |
| JUL | | | | | | | | | | | | |
| 31... | 1210 | 1480 | 300 | 8.2 | 26.5 | 25 | 10 | 8.8 | 107 | 3.3 | 46 | 3100 |
| AUG | | | | | | | | | | | | |
| 10... | 1425 | 1470 | 300 | 8.7 | 31.0 | -- | 4.9 | 12.2 | 161 | 3.7 | 40 | 64 |
| SEP | | | | | | | | | | | | |
| 03... | 1250 | 1280 | 280 | 7.9 | 27.5 | -- | 14 | 8.4 | 106 | 4.1 | 2600 | 290 |

| DATE | HARD-NESS (MG/L AS CACO3) | HARD-NESS, NONCAR-BONATE (MG/L CACO3) | 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 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | | |
| 15... | 110 | 13 | 37 | 4.1 | 28 | 1.2 | 4.9 | 96 | 31 | 33 | .2 | 8.0 |
| NOV | | | | | | | | | | | | |
| 06... | 110 | 15 | 37 | 4.0 | 29 | 1.2 | 5.1 | 94 | 34 | 35 | .3 | 8.9 |
| DEC | | | | | | | | | | | | |
| 10... | 100 | 19 | 35 | 3.7 | 31 | 1.3 | 5.1 | 84 | 33 | 41 | .3 | 9.7 |
| JAN | | | | | | | | | | | | |
| 06... | 110 | 16 | 37 | 3.8 | 32 | 1.3 | 4.7 | 97 | 40 | 36 | .4 | 8.7 |
| FEB | | | | | | | | | | | | |
| 19... | 110 | 17 | 38 | 4.1 | 32 | 1.3 | 4.4 | 95 | 41 | 39 | .2 | 8.3 |
| MAR | | | | | | | | | | | | |
| 10... | 110 | 19 | 36 | 3.8 | 32 | 1.4 | 3.9 | 87 | 35 | 41 | .3 | 8.5 |
| APR | | | | | | | | | | | | |
| 24... | 110 | 21 | 37 | 4.0 | 33 | 1.4 | 4.8 | 88 | 45 | 40 | .3 | 7.5 |
| MAY | | | | | | | | | | | | |
| 22... | 130 | 28 | 44 | 4.4 | 39 | 1.5 | 5.6 | 100 | 56 | 39 | .2 | 7.1 |
| JUN | | | | | | | | | | | | |
| 08... | 91 | 20 | 31 | 3.2 | 27 | 1.2 | 4.5 | 68 | 61 | 17 | .3 | 6.8 |
| JUL | | | | | | | | | | | | |
| 31... | 110 | 7 | 37 | 3.1 | 18 | .8 | 5.0 | 98 | 20 | 21 | .5 | 11 |
| AUG | | | | | | | | | | | | |
| 10... | 110 | 7 | 37 | 3.2 | 19 | .8 | 5.3 | 99 | 11 | 22 | .2 | 11 |
| SEP | | | | | | | | | | | | |
| 03... | 92 | 3 | 32 | 3.0 | 18 | .8 | 4.7 | 89 | 10 | 23 | .2 | 11 |

08066500 TRINITY RIVER AT ROMAYOR, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | SOLIDS, VOLA-TILE, SUS-PENDED (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, 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 15... | 208 | 204 | -- | -- | -- | -- | .00 | .00 | .000 | .000 | .97 |
| NOV | | | | | | | | | | | |
| 06... | 224 | 209 | -- | -- | -- | -- | .00 | .01 | .070 | .000 | .74 |
| DEC | | | | | | | | | | | |
| 10... | 208 | 209 | 19 | 10 | -- | -- | .19 | .19 | .020 | .050 | .76 |
| JAN | | | | | | | | | | | |
| 06... | 230 | 218 | 13 | 5 | -- | -- | .09 | .09 | .030 | .020 | 1.2 |
| FEB | | | | | | | | | | | |
| 19... | 226 | 224 | 11 | 2 | -- | -- | .00 | .00 | .000 | .050 | .90 |
| MAR | | | | | | | | | | | |
| 10... | 214 | 212 | -- | -- | -- | -- | .00 | .00 | .020 | .030 | .90 |
| APR | | | | | | | | | | | |
| 24... | 243 | 225 | 37 | 9 | .05 | .000 | .05 | .05 | .070 | .090 | .81 |
| MAY | | | | | | | | | | | |
| 22... | 268 | 255 | -- | -- | -- | -- | .03 | .03 | .100 | .080 | 1.6 |
| JUN | | | | | | | | | | | |
| 08... | 199 | 192 | -- | -- | -- | -- | .06 | .07 | .090 | .030 | 1.5 |
| JUL | | | | | | | | | | | |
| 31... | 185 | 175 | 27 | 22 | -- | -- | .11 | <.10 | .200 | .200 | 1.2 |
| AUG | | | | | | | | | | | |
| 10... | 205 | 175 | -- | -- | -- | -- | .11 | .11 | .110 | .160 | .88 |
| SEP | | | | | | | | | | | |
| 03... | 176 | 155 | -- | -- | -- | -- | .13 | .14 | .110 | .090 | 1.1 |

| DATE | NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) | PHOS-PHORUS, TOTAL (MG/L AS P) | PHOS-PHORUS, DIS-SOLVED (MG/L AS P) | CARBON, ORGANIC TOTAL (MG/L AS C) | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT | | | | | | | | | | | |
| 15... | .92 | .97 | .92 | .270 | .200 | 11 | -- | -- | 15 | 41 | 98 |
| NOV | | | | | | | | | | | |
| 06... | 1.3 | .81 | 1.3 | .270 | .160 | -- | 13 | 1.7 | 14 | 27 | 92 |
| DEC | | | | | | | | | | | |
| 10... | .44 | .78 | .49 | .080 | .090 | 11 | -- | -- | 19 | 45 | 99 |
| JAN | | | | | | | | | | | |
| 06... | .74 | 1.20 | .76 | .090 | .060 | -- | 5.9 | .3 | 8 | 15 | 97 |
| FEB | | | | | | | | | | | |
| 19... | .53 | .90 | 1.3 | .120 | .060 | 8.1 | -- | -- | 11 | 21 | 96 |
| MAR | | | | | | | | | | | |
| 10... | .72 | .92 | .75 | .120 | .050 | 9.6 | -- | -- | 23 | 36 | 99 |
| APR | | | | | | | | | | | |
| 24... | .66 | .88 | .75 | .130 | .070 | 6.9 | -- | -- | 51 | 231 | 97 |
| MAY | | | | | | | | | | | |
| 22... | .76 | 1.70 | .84 | .170 | .000 | -- | 6.8 | 1.2 | 39 | 985 | 78 |
| JUN | | | | | | | | | | | |
| 08... | .97 | 1.60 | 1.0 | .170 | .070 | 9.5 | -- | -- | 533 | 72700 | 48 |
| JUL | | | | | | | | | | | |
| 31... | .80 | 1.40 | 1.0 | .300 | .250 | -- | 6.5 | .7 | 22 | 88 | 88 |
| AUG | | | | | | | | | | | |
| 10... | .49 | .99 | .65 | .290 | .240 | 7.3 | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 03... | 1.0 | 1.20 | 1.1 | .240 | .170 | 8.0 | -- | -- | 19 | 66 | 90 |

| DATE | TIME | ARSENIC TOTAL (UG/L AS AS) | ARSENIC SUS-PENDED TOTAL (UG/L AS AS) | ARSENIC DIS-SOLVED (UG/L AS AS) | BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) | BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA) | BARIUM, DIS-SOLVED (UG/L AS BA) | CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) | CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD) | CADMIUM DIS-SOLVED (UG/L AS CD) | CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 06... | 0900 | 5 | 1 | 4 | 100 | 20 | 80 | 1 | -- | <1 | 0 |
| JAN | | | | | | | | | | | |
| 06... | 1145 | 3 | 1 | 2 | 100 | 30 | 70 | 0 | 0 | 1 | 10 |
| MAY | | | | | | | | | | | |
| 22... | 1100 | 3 | 0 | 4 | 100 | 50 | 50 | 1 | -- | <1 | 10 |
| JUL | | | | | | | | | | | |
| 31... | 1210 | 8 | 1 | 7 | 0 | 0 | 50 | 1 | -- | <1 | 10 |

08066500 TRINITY RIVER AT ROMAYOR, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | CHROMIUM, SUSPENDED RECOV. (UG/L AS CR) | CHROMIUM, DISSOLVED (UG/L AS CR) | COBALT, TOTAL RECOVERABLE (UG/L AS CO) | COBALT, DISSOLVED (UG/L AS CO) | COPPER, TOTAL RECOVERABLE (UG/L AS CU) | COPPER, SUSPENDED RECOVERABLE (UG/L AS CU) | COPPER, DISSOLVED (UG/L AS CU) | IRON, TOTAL RECOVERABLE (UG/L AS FE) | IRON, SUSPENDED RECOVERABLE (UG/L AS FE) | IRON, DISSOLVED (UG/L AS FE) | LEAD, TOTAL RECOVERABLE (UG/L AS PB) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | | |
| 06... | 0 | 0 | 1 | <3 | 5 | 2 | 3 | 490 | 470 | 20 | 7 |
| JAN | | | | | | | | | | | |
| 06... | 10 | 0 | 0 | <3 | 3 | 1 | 2 | 390 | 370 | 20 | 1 |
| MAY | | | | | | | | | | | |
| 22... | 10 | 0 | 1 | <3 | 6 | 2 | 4 | 390 | 380 | 10 | 2 |
| JUL | | | | | | | | | | | |
| 31... | 0 | 10 | 0 | <3 | 5 | 1 | 4 | 560 | 550 | 12 | 4 |

| DATE | LEAD, SUSPENDED RECOVERABLE (UG/L AS PB) | LEAD, DISSOLVED (UG/L AS PB) | MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) | MANGANESE, SUSPENDED RECOV. (UG/L AS MN) | MANGANESE, DISSOLVED (UG/L AS MN) | MERCURY TOTAL RECOVERABLE (UG/L AS HG) | MERCURY SUSPENDED RECOVERABLE (UG/L AS HG) | MERCURY DISSOLVED (UG/L AS HG) | NICKEL, TOTAL RECOVERABLE (UG/L AS NI) | NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | |
| 06... | 4 | 3 | 110 | 110 | 3 | .1 | .0 | 2.1 | 5 | 3 |
| JAN | | | | | | | | | | |
| 06... | 0 | 2 | 110 | 100 | 10 | .1 | .0 | .1 | 2 | 0 |
| MAY | | | | | | | | | | |
| 22... | 0 | 2 | 70 | -- | <1 | .2 | .1 | .1 | 1 | 0 |
| JUL | | | | | | | | | | |
| 31... | 0 | 4 | 70 | 70 | 1 | .5 | .2 | .3 | 4 | 1 |

| DATE | NICKEL, DISSOLVED (UG/L AS NI) | SELENIUM, TOTAL (UG/L AS SE) | SELENIUM, SUSPENDED TOTAL (UG/L AS SE) | SELENIUM, DISSOLVED (UG/L AS SE) | SILVER, TOTAL RECOVERABLE (UG/L AS AG) | SILVER, SUSPENDED RECOVERABLE (UG/L AS AG) | SILVER, DISSOLVED (UG/L AS AG) | ZINC, TOTAL RECOVERABLE (UG/L AS ZN) | ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN) | ZINC, DISSOLVED (UG/L AS ZN) |
|---|---|---|---|---|---|---|---|---|---|---|
| NOV | | | | | | | | | | |
| 06... | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 40 | 6 |
| JAN | | | | | | | | | | |
| 06... | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 10 |
| MAY | | | | | | | | | | |
| 22... | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | -- | <3 |
| JUL | | | | | | | | | | |
| 31... | 3 | 0 | 0 | 0 | 1 | 1 | 0 | 100 | 90 | 8 |

| DATE | TIME | PCB, TOTAL (UG/L) | PCB, TOTAL IN BOTTOM MATERIAL (UG/KG) | NAPHTHALENES, POLYCHLOR. TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | CHLORDANE, TOTAL (UG/L) | CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG) | DDD, TOTAL (UG/L) | DDD, TOTAL IN BOTTOM MATERIAL (UG/KG) | DDE, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | | |
| 06... | 1145 | .00 | 0 | .00 | .00 | .0 | .00 | .0 | .00 | .0 | .00 |
| JUL | | | | | | | | | | | |
| 31... | 1210 | .00 | 0 | .00 | .00 | .0 | .00 | .0 | .00 | .0 | .00 |

| DATE | DDE, TOTAL IN BOTTOM MATERIAL (UG/KG) | DDT, TOTAL (UG/L) | DDT, TOTAL IN BOTTOM MATERIAL (UG/KG) | DIAZINON, TOTAL (UG/L) | DIELDRIN TOTAL (UG/L) | DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | ENDOSULFAN, TOTAL (UG/L) | ENDRIN, TOTAL (UG/L) | ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) | ETHION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 06... | .2 | .00 | .0 | .00 | .00 | .0 | .00 | .00 | .0 | .00 |
| JUL | | | | | | | | | | |
| 31... | .0 | .00 | .0 | .01 | .00 | .0 | .00 | .00 | .0 | .00 |

08066500 TRINITY RIVER AT ROMAYOR, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| DATE | HEPTA-CHLOR, TOTAL (UG/L) | HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | HEPTA-CHLOR EPOXIDE TOTAL (UG/L) | HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) | LINDANE TOTAL (UG/L) | LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | MALA-THION, TOTAL (UG/L) | METH-OXY-CHLOR, TOTAL (UG/L) | METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (UG/KG) | METHYL PARA-THION, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 06... | .00 | .0 | .00 | .0 | .00 | .0 | .00 | .00 | .0 | .00 |
| JUL | | | | | | | | | | |
| 31... | .00 | .0 | .00 | .0 | .00 | .0 | .00 | .00 | .0 | .00 |

| DATE | METHYL TRI-THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) | MIREX, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | PARA-THION, TOTAL (UG/L) | TOX-APHENE, TOTAL (UG/L) | TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) | TOTAL TRI-THION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| JAN | | | | | | | | | | |
| 06... | .00 | .00 | .0 | .00 | 0 | .0 | .00 | .02 | .00 | .00 |
| JUL | | | | | | | | | | |
| 31... | .00 | .00 | .0 | .00 | 0 | .0 | .00 | .04 | .02 | .00 |

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

| DATE | NOV 6,80 | MAR 10,81 | MAY 22,81 | JUN 8,81 |
|---|---|---|---|---|
| TIME | 0900 | 1225 | 1100 | 1430 |
| TOTAL CELLS/ML | 120000 | 10000 | 61000 | 36000 |
| DIVERSITY: DIVISION | 1.1 | 1.1 | 1.2 | 1.0 |
| .CLASS | 1.1 | 1.1 | 1.2 | 1.0 |
| ..ORDER | 2.0 | 1.4 | 2.3 | 2.1 |
| ...FAMILY | 2.3 | 1.8 | 2.5 | 2.4 |
| ....GENUS | 2.6 | 1.9 | 2.9 | 2.8 |

| ORGANISM | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT | CELLS /ML | PER-CENT |
|---|---|---|---|---|---|---|---|---|
| BACILLARIOPHYTA (DIATOMS) | | | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | | | |
| ..ACHNANTHALES | | | | | | | | |
| ...ACHNANTHACEAE | | | | | | | | |
| ....ACHNANTHES | -- | - | -- | - | * | 0 | -- | - |
| ....COCCONEIS | 1900 | 2 | -- | - | -- | - | -- | - |
| ..BACILLARIALES | | | | | | | | |
| ...NITZSCHIACEAE | | | | | | | | |
| ....NITZSCHIA | 700 | 1 | 240 | 2 | 400 | 1 | 400 | 1 |
| ..EUPODISCALES | | | | | | | | |
| ...COSCINODISCACEAE | | | | | | | | |
| ....CYCLOTELLA | 7200 | 6 | -- | - | 1900 | 3 | 660 | 2 |
| ....MELOSIRA | 700 | 1 | -- | - | -- | - | -- | - |
| ....STEPHANODISCUS | -- | - | 7200# | 71 | -- | - | -- | - |
| ..FRAGILARIALES | | | | | | | | |
| ...FRAGILARIACEAE | | | | | | | | |
| ....SYNEDRA | -- | - | 80 | 1 | -- | - | -- | - |
| ..NAVICULALES | | | | | | | | |
| ...NAVICULACEAE | | | | | | | | |
| ....DIPLONEIS | -- | - | -- | - | 6700 | 11 | -- | - |
| ....NAVICULA | -- | - | -- | - | * | 0 | * | 0 |
| ..SURIRELLALES | | | | | | | | |
| ...SURIRELLACEAE | | | | | | | | |
| ....SURIRELLA | -- | - | -- | - | -- | - | 200 | 1 |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

08066500 TRINITY RIVER AT ROMAYOR, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

| DATE | NOV 6,80 | | MAR 10,81 | | MAY 22,81 | | JUN 8,81 | |
|---|---|---|---|---|---|---|---|---|
| TIME | 0900 | | 1225 | | 1100 | | 1430 | |
| ORGANISM | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | | | |
| .CHLOROPHYCEAE | | | | | | | | |
| ..CHLOROCOCCALES | | | | | | | | |
| ...CHLOROCOCCACEAE | | | | | | | | |
| ....POLYEDRIOPSIS | -- | - | -- | - | * | 0 | -- | - |
| ....SCHROEDERIA | -- | - | -- | - | -- | - | -- | - |
| ....TETRAEDRON | * | 0 | -- | - | * | 0 | -- | - |
| ...DICTYOSPHAERIACEAE | | | | | | | | |
| ....DICTYOSPHAERIUM | 10000 | 9 | 320 | 3 | -- | - | 930 | 3 |
| ...HYDRODICTYACEAE | | | | | | | | |
| ....PEDIASTRUM | 700 | 1 | -- | - | -- | - | 270 | 1 |
| ...MICRACTINIACEAE | | | | | | | | |
| ....GOLENKINIA | * | 0 | -- | - | * | 0 | -- | - |
| ....MICRACTINIUM | 1100 | 1 | 400 | 4 | * | 0 | -- | - |
| ...OOCYSTACEAE | | | | | | | | |
| ....ANKISTRODESMUS | 1600 | 1 | 80 | 1 | 2600 | 4 | 1400 | 4 |
| ....CHODATELLA | -- | - | 80 | 1 | -- | - | -- | - |
| ....KIRCHNERIELLA | -- | - | -- | - | -- | - | 330 | 1 |
| ....OOCYSTIS | * | 0 | 240 | 2 | -- | - | 330 | 1 |
| ....SELENASTRUM | 700 | 1 | 160 | 2 | -- | - | -- | - |
| ....TREUBARIA | -- | - | -- | - | -- | - | -- | - |
| ...SCENEDESMACEAE | | | | | | | | |
| ....ACTINASTRUM | -- | - | -- | - | -- | - | -- | - |
| ....COELASTRUM | 1400 | 1 | -- | - | 1600 | 3 | 1100 | 3 |
| ....CRUCIGENIA | -- | - | -- | - | -- | - | -- | - |
| ....GLOEOACTINIUM | -- | - | -- | - | 540 | 1 | -- | - |
| ....SCENEDESMUS | 4200 | 4 | 320 | 3 | 1900 | 3 | 2900 | 8 |
| ....TETRASTRUM | -- | - | -- | - | 1100 | 2 | -- | - |
| ..VOLVOCALES | | | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | | | |
| ....CHLAMYDOMONAS | 700 | 1 | 480 | 5 | 940 | 2 | * | 0 |
| ....CHLOROGONIUM | * | 0 | -- | - | -- | - | -- | - |
| ..ZYGNEMATALES | | | | | | | | |
| ...DESMIDIACEAE | | | | | | | | |
| ....COSMARIUM | -- | - | -- | - | -- | - | -- | - |
| ....EUASTRUM | -- | - | -- | - | * | 0 | * | 0 |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | | | |
| .CRYPTOPHYCEAE | | | | | | | | |
| ..CRYPTOMONADALES | | | | | | | | |
| ...CRYPTOMONADACEAE | | | | | | | | |
| ....CRYPTOMONAS | * | 0 | 80 | 1 | -- | - | -- | - |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | | | |
| .CYANOPHYCEAE | | | | | | | | |
| ..CHROOCOCCALES | | | | | | | | |
| ...CHROOCOCCACEAE | | | | | | | | |
| ....AGMENELLUM | 18000# | 15 | -- | - | 1600 | 3 | 990 | 3 |
| ....ANACYSTIS | 7200 | 6 | 320 | 3 | 27000# | 44 | 8000# | 22 |
| ..NOSTOCALES | | | | | | | | |
| ...HAMMATOIDEACEAE | | | | | | | | |
| ....RAPHIDIOPSIS | -- | - | -- | - | -- | - | -- | - |
| ...NOSTOCACEAE | | | | | | | | |
| ....ANABAENA | -- | - | -- | - | 540 | 1 | 2600 | 7 |
| ....ANABAENOPSIS | 1900 | 2 | -- | - | 2700 | 4 | 1100 | 3 |
| ....APHANIZOMENON | -- | - | -- | - | -- | - | -- | - |
| ....CYLINDROSPERMUM | -- | - | -- | - | -- | - | -- | - |
| ..OSCILLATORIALES | | | | | | | | |
| ...OSCILLATORIACEAE | | | | | | | | |
| ....LYNGBYA | -- | - | -- | - | -- | - | -- | - |
| ....OSCILLATORIA | 59000# | 50 | -- | - | 10000# | 17 | 14000# | 40 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | | | |
| .EUGLENOPHYCEAE | | | | | | | | |
| ..EUGLENALES | | | | | | | | |
| ...EUGLENACEAE | | | | | | | | |
| ....EUGLENA | * | 0 | -- | - | -- | - | * | 0 |
| ....TRACHELOMONAS | -- | - | -- | - | -- | - | -- | - |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | | | |
| .DINOPHYCEAE | | | | | | | | |
| ..DINOKONTAE | | | | | | | | |
| ...GLENODINIACEAE | | | | | | | | |
| ....GLENODINIUM | -- | - | 80 | 1 | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

08066500 TRINITY RIVER AT ROMAYOR, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

| DATE | JUL 31,81 | AUG 10,81 | SEP 3,81 |
|---|---|---|---|
| TIME | 1210 | 1425 | 1250 |
| TOTAL CELLS/ML | 270000 | 120000 | 170000 |
| DIVERSITY: DIVISION | 0.5 | 0.3 | 0.7 |
| .CLASS | 0.5 | 0.3 | 0.7 |
| ..ORDER | 1.5 | 1.4 | 2.0 |
| ...FAMILY | 1.7 | 2.0 | 2.5 |
| ....GENUS | 2.0 | 2.7 | 3.3 |

| ORGANISM | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT |
|---|---|---|---|---|---|---|
| BACILLARIOPHYTA (DIATOMS) | | | | | | |
| .BACILLARIOPHYCEAE | | | | | | |
| ..ACHNANTHALES | | | | | | |
| ...ACHNANTHACEAE | | | | | | |
| ....ACHNANTHES | -- | - | -- | - | -- | - |
| ....COCCONEIS | -- | - | -- | - | -- | - |
| ..BACILLARIALES | | | | | | |
| ...NITZSCHIACEAE | | | | | | |
| ....NITZSCHIA | 2400 | 1 | -- | - | 2600 | 1 |
| ..EUPODISCALES | | | | | | |
| ...COSCINODISCACEAE | | | | | | |
| ....CYCLOTELLA | 2400 | 1 | -- | - | * | 0 |
| ....MELOSIRA | -- | - | -- | - | 1100 | 1 |
| ....STEPHANODISCUS | -- | - | -- | - | -- | - |
| ..FRAGILARIALES | | | | | | |
| ...FRAGILARIACEAE | | | | | | |
| ....SYNEDRA | -- | - | * | 0 | -- | - |
| ..NAVICULALES | | | | | | |
| ...NAVICULACEAE | | | | | | |
| ....DIPLONEIS | -- | - | -- | - | -- | - |
| ....NAVICULA | -- | - | -- | - | -- | - |
| ..SURIRELLALES | | | | | | |
| ...SURIRELLACEAE | | | | | | |
| ....SURIRELLA | -- | - | -- | - | -- | - |
| CHLOROPHYTA (GREEN ALGAE) | | | | | | |
| .CHLOROPHYCEAE | | | | | | |
| ..CHLOROCOCCALES | | | | | | |
| ...CHLOROCOCCACEAE | | | | | | |
| ....POLYEDRIOPSIS | -- | - | -- | - | -- | - |
| ....SCHROEDERIA | -- | - | 900 | 1 | -- | - |
| ....TETRAEDRON | -- | - | -- | - | * | 0 |
| ...DICTYOSPHAERIACEAE | | | | | | |
| ....DICTYOSPHAERIUM | 7600 | 3 | -- | - | * | 0 |
| ...HYDRODICTYACEAE | | | | | | |
| ....PEDIASTRUM | -- | - | -- | - | -- | - |
| ...MICRACTINIACEAE | | | | | | |
| ....GOLENKINIA | -- | - | -- | - | -- | - |
| ....MICRACTINIUM | -- | - | -- | - | 6900 | 4 |
| ...OOCYSTACEAE | | | | | | |
| ....ANKISTRODESMUS | 1900 | 1 | * | 0 | 3200 | 2 |
| ....CHODATELLA | -- | - | -- | - | -- | - |
| ....KIRCHNERIELLA | -- | - | * | 0 | 1500 | 1 |
| ....OOCYSTIS | -- | - | -- | - | 1700 | 1 |
| ....SELENASTRUM | 1400 | 1 | -- | - | -- | - |
| ....TREUBARIA | -- | - | -- | - | * | 0 |
| ...SCENEDESMACEAE | | | | | | |
| ....ACTINASTRUM | -- | - | -- | - | 1700 | 1 |
| ....COELASTRUM | 1900 | 1 | 600 | 1 | 2100 | 1 |
| ....CRUCIGENIA | -- | - | -- | - | * | 0 |
| ....GLOEOACTINIUM | -- | - | -- | - | -- | - |
| ....SCENEDESMUS | 1900 | 1 | 1200 | 1 | * | 0 |
| ....TETRASTRUM | -- | - | -- | - | -- | - |
| ..VOLVOCALES | | | | | | |
| ...CHLAMYDOMONADACEAE | | | | | | |
| ....CHLAMYDOMONAS | * | 0 | 1300 | 1 | -- | - |
| ....CHLOROGONIUM | -- | - | -- | - | -- | - |
| ..ZYGNEMATALES | | | | | | |
| ...DESMIDIACEAE | | | | | | |
| ....COSMARIUM | -- | - | * | 0 | -- | - |
| ....EUASTRUM | -- | - | -- | - | -- | - |
| CRYPTOPHYTA (CRYPTOMONADS) | | | | | | |
| .CRYPTOPHYCEAE | | | | | | |
| ..CRYPTOMONADALES | | | | | | |
| ...CRYPTOMONADACEAE | | | | | | |
| ....CRYPTOMONAS | -- | - | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

08066500 TRINITY RIVER AT ROMAYOR, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1980 TO SEPTEMBER 1981

| DATE | JUL 31,81 | | AUG 10,81 | | SEP 3,81 | |
|---|---|---|---|---|---|---|
| TIME | 1210 | | 1425 | | 1250 | |
| ORGANISM | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT | CELLS /ML | PER- CENT |
| CYANOPHYTA (BLUE-GREEN ALGAE) | | | | | | |
| .CYANOPHYCEAE | | | | | | |
| ..CHROOCOCCALES | | | | | | |
| ...CHROOCOCCACEAE | | | | | | |
| ....AGMENELLUM | 3800 | 1 | 4300 | 4 | 34000# | 20 |
| ....ANACYSTIS | 17000 | 6 | 3100 | 3 | 25000 | 14 |
| ..NOSTOCALES | | | | | | |
| ...HAMMATOIDEACEAE | | | | | | |
| ....RAPHIDIOPSIS | 28000 | 10 | 30000# | 25 | 14000 | 8 |
| ...NOSTOCACEAE | | | | | | |
| ....ANABAENA | 3800 | 1 | -- | - | 8200 | 5 |
| ....ANABAENOPSIS | 2800 | 1 | 22000# | 18 | 2100 | 1 |
| ....APHANIZOMENON | 6600 | 2 | -- | - | -- | - |
| ....CYLINDROSPERMUM | 3300 | 1 | 28000# | 24 | 14000 | 8 |
| ..OSCILLATORIALES | | | | | | |
| ...OSCILLATORIACEAE | | | | | | |
| ....LYNGBYA | 3300 | 1 | 22000# | 18 | 6900 | 4 |
| ....OSCILLATORIA | 180000# | 67 | 5400 | 5 | 45000# | 26 |
| EUGLENOPHYTA (EUGLENOIDS) | | | | | | |
| .EUGLENOPHYCEAE | | | | | | |
| ..EUGLENALES | | | | | | |
| ...EUGLENACEAE | | | | | | |
| ....EUGLENA | -- | - | -- | - | -- | - |
| ....TRACHELOMONAS | * | 0 | -- | - | * | 0 |
| PYRRHOPHYTA (FIRE ALGAE) | | | | | | |
| .DINOPHYCEAE | | | | | | |
| ..DINOKONTAE | | | | | | |
| ...GLENODINIACEAE | | | | | | |
| ....GLENODINIUM | -- | - | -- | - | -- | - |

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | YEAR | DISCHARGE (CFS-DAYS) | SPECIFIC CONDUCT-ANCE (MICRO-MHOS) | DIS-SOLVED SOLIDS (MG/L) | DIS-SOLVED SOLIDS (TONS) | DIS-SOLVED CHLORIDE (MG/L) | DIS-SOLVED CHLORIDE (TONS) | DIS-SOLVED SULFATE (MG/L) | DIS-SOLVED SULFATE (TONS) | HARDNESS (CA,MG) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| OCT. | 1980 | 29231 | 359 | 196 | 15500 | 28 | 2230 | 33 | 2610 | 110 |
| NOV. | 1980 | 18691 | 371 | 202 | 10200 | 30 | 1500 | 34 | 1730 | 110 |
| DEC. | 1980 | 23350 | 380 | 207 | 13000 | 31 | 1930 | 35 | 2210 | 110 |
| JAN. | 1981 | 25914 | 380 | 207 | 14500 | 31 | 2140 | 35 | 2450 | 110 |
| FEB. | 1981 | 22220 | 383 | 209 | 12500 | 31 | 1860 | 35 | 2120 | 110 |
| MAR. | 1981 | 28193 | 386 | 210 | 16000 | 31 | 2390 | 36 | 2700 | 120 |
| APR. | 1981 | 40010 | 409 | 222 | 24000 | 34 | 3690 | 38 | 4070 | 120 |
| MAY | 1981 | 147960 | 414 | 224 | 89700 | 35 | 13900 | 38 | 15200 | 120 |
| JUNE | 1981 | 876430 | 393 | 214 | 506000 | 32 | 76600 | 36 | 85700 | 120 |
| JULY | 1981 | 317190 | 301 | 166 | 142000 | 22 | 19000 | 28 | 23900 | 99 |
| AUG. | 1981 | 43280 | 310 | 170 | 19900 | 23 | 2690 | 29 | 3350 | 100 |
| SEPT | 1981 | 30944 | 309 | 170 | 14200 | 23 | 1920 | 29 | 2390 | 100 |
| TOTAL | | 1603413 | ** | ** | 877000 | ** | 130000 | ** | 148000 | ** |
| WTD. AVG. | | 4393 | 372 | 203 | ** | 30 | ** | 34 | ** | 110 |

08066500 TRINITY RIVER AT ROMAYOR, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
EQUIVALENT MEAN

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 344 | 366 | 372 | 388 | 382 | 389 | 393 | 423 | 436 | 321 | 306 | 280 |
| 2 | 353 | 370 | 375 | 387 | 378 | 389 | 398 | 436 | 447 | 320 | 308 | 274 |
| 3 | 349 | 371 | 380 | 388 | 383 | 388 | 403 | 432 | 448 | 316 | 309 | 285 |
| 4 | 353 | 370 | 379 | 387 | 375 | 364 | 404 | 380 | 446 | 313 | 310 | 260 |
| 5 | 358 | 371 | 379 | 388 | 377 | 344 | 404 | 242 | 444 | 316 | 306 | 266 |
| 6 | 359 | 371 | 379 | 386 | 372 | 304 | 408 | 279 | 400 | 295 | 310 | 289 |
| 7 | 361 | 373 | 380 | 381 | 372 | 300 | 412 | 295 | 350 | 288 | 311 | 305 |
| 8 | 363 | 373 | 380 | 380 | 358 | 330 | 416 | 326 | 300 | 274 | 300 | 313 |
| 9 | 364 | 373 | 371 | 382 | 376 | 355 | 414 | 369 | 413 | 296 | 307 | 320 |
| 10 | 365 | 373 | 368 | 382 | 378 | 370 | 414 | 376 | 411 | 302 | 310 | 323 |
| 11 | 363 | 372 | 366 | 384 | 368 | 379 | 412 | 385 | 410 | 299 | 310 | 325 |
| 12 | 362 | 372 | 364 | 386 | 387 | 387 | 414 | 395 | 410 | 298 | 311 | 325 |
| 13 | 363 | 373 | 369 | 385 | 386 | 387 | 414 | 405 | 376 | 288 | 310 | 325 |
| 14 | 363 | 373 | 376 | 386 | 388 | 392 | 415 | 418 | 404 | 290 | 310 | 324 |
| 15 | 363 | 373 | 378 | 386 | 391 | 392 | 415 | 430 | 415 | 293 | 311 | 320 |
| 16 | 361 | 373 | 380 | 386 | 394 | 395 | 419 | 429 | 427 | 291 | 310 | 319 |
| 17 | 362 | 371 | 384 | 387 | 393 | 397 | 418 | 426 | 432 | 294 | 310 | 318 |
| 18 | 356 | 370 | 385 | 389 | 391 | 396 | 417 | 428 | 424 | 295 | 311 | 310 |
| 19 | 346 | 374 | 384 | 362 | 394 | 403 | 410 | 430 | 423 | 300 | 312 | 313 |
| 20 | 358 | 380 | 385 | 387 | 393 | 405 | 406 | 430 | 418 | 307 | 309 | 314 |
| 21 | 350 | 384 | 385 | 372 | 392 | 405 | 414 | 430 | 417 | 310 | 311 | 316 |
| 22 | 355 | 382 | 386 | 344 | 389 | 405 | 410 | 434 | 405 | 314 | 310 | 317 |
| 23 | 360 | 372 | 385 | 359 | 390 | 407 | 407 | 436 | 400 | 319 | 311 | 320 |
| 24 | 364 | 369 | 384 | 369 | 392 | 401 | 380 | 435 | 390 | 323 | 312 | 323 |
| 25 | 363 | 372 | 385 | 377 | 389 | 407 | 392 | 435 | 382 | 316 | 312 | 331 |
| 26 | 363 | 364 | 386 | 379 | 390 | 407 | 399 | 434 | 348 | 314 | 311 | 333 |
| 27 | 364 | 362 | 385 | 382 | 389 | 410 | 411 | 436 | 326 | 311 | 315 | 330 |
| 28 | 358 | 367 | 385 | 382 | 392 | 408 | 418 | 439 | 310 | 310 | 316 | 327 |
| 29 | 363 | 358 | 387 | 383 | --- | 406 | 420 | 440 | 312 | 300 | 315 | 330 |
| 30 | 363 | 365 | 387 | 385 | --- | 392 | 421 | 439 | 318 | 308 | 314 | 332 |
| 31 | 365 | --- | 388 | 385 | --- | 383 | --- | 439 | --- | 302 | 307 | --- |
| MEAN | 359 | 371 | 380 | 381 | 384 | 384 | 409 | 404 | 395 | 304 | 310 | 312 |

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 24.0 | 17.0 | 11.0 | --- | --- | 16.0 | 16.0 | 22.0 | 25.0 | 30.0 | 30.0 | 28.0 |
| 2 | 24.0 | 17.0 | --- | 8.0 | 12.0 | 16.0 | 16.0 | 22.0 | 25.0 | 29.0 | 31.0 | 28.0 |
| 3 | 24.0 | 17.0 | 11.0 | 8.0 | 10.0 | 16.0 | 18.0 | 20.0 | --- | 28.0 | 30.0 | 27.0 |
| 4 | 24.0 | 17.0 | 14.0 | 8.0 | 10.0 | 16.0 | 18.0 | 20.0 | --- | 30.0 | --- | 28.0 |
| 5 | 24.0 | 17.0 | 14.0 | 8.0 | 10.0 | 16.0 | 18.0 | 20.0 | --- | 30.0 | 31.0 | 28.0 |
| 6 | 24.0 | 18.0 | 14.0 | --- | 10.0 | 14.0 | 17.0 | 20.0 | --- | 27.0 | 30.0 | 27.0 |
| 7 | 24.0 | 18.0 | 14.0 | 8.0 | 10.0 | 14.0 | 18.0 | 20.0 | --- | 23.0 | 31.0 | 28.0 |
| 8 | 24.0 | 18.0 | 16.0 | 10.0 | 10.0 | 14.0 | 18.0 | 20.0 | --- | 27.0 | 30.0 | 28.0 |
| 9 | 24.0 | 18.0 | 16.0 | 10.0 | 10.0 | 14.0 | 18.0 | 20.0 | 30.0 | 30.0 | 30.0 | 28.0 |
| 10 | 24.0 | 18.0 | 16.0 | 11.0 | 10.0 | 14.0 | 18.0 | --- | --- | 31.0 | 31.0 | 27.0 |
| 11 | 24.0 | 19.0 | --- | 12.0 | 9.0 | 15.0 | 18.0 | 22.0 | 25.0 | 28.0 | 31.0 | 27.0 |
| 12 | 24.0 | 18.0 | 16.0 | 10.0 | 9.0 | 15.0 | 20.0 | 20.0 | --- | 30.0 | 30.0 | 29.0 |
| 13 | 24.0 | 18.0 | 16.0 | 8.0 | 9.0 | 15.0 | 20.0 | 20.0 | 30.0 | 29.0 | 31.0 | --- |
| 14 | --- | 18.0 | 16.0 | 10.0 | 9.0 | 14.0 | 20.0 | 20.0 | 26.0 | 30.0 | 30.0 | 29.0 |
| 15 | 24.0 | --- | --- | 10.0 | --- | 16.0 | 20.0 | 22.0 | --- | 29.0 | 31.0 | 27.0 |
| 16 | 24.0 | 18.0 | 13.0 | 10.0 | 9.0 | 16.0 | 20.0 | 20.0 | 28.0 | 28.0 | 31.0 | 27.0 |
| 17 | 24.0 | --- | 13.0 | 8.0 | 9.0 | 16.0 | 20.0 | 22.0 | 26.0 | 30.0 | --- | 24.0 |
| 18 | 24.0 | 12.0 | 13.0 | 9.0 | 11.0 | 16.0 | 20.0 | 23.0 | 23.0 | 29.0 | 30.0 | 24.0 |
| 19 | 24.0 | 12.0 | 10.0 | 9.0 | 11.0 | 12.0 | --- | 23.0 | 26.0 | --- | 30.0 | 22.0 |
| 20 | 22.0 | 12.0 | 10.0 | 9.0 | 11.0 | 12.0 | 20.0 | 23.0 | 26.0 | 30.0 | 29.0 | 23.0 |
| 21 | 22.0 | 12.0 | 10.0 | 9.0 | 12.0 | 14.0 | 20.0 | 22.0 | 26.0 | 32.0 | 28.0 | 24.0 |
| 22 | --- | 12.0 | 10.0 | 9.0 | 12.0 | 14.0 | --- | 22.0 | 25.0 | 31.0 | --- | 25.0 |
| 23 | 22.0 | 13.0 | 10.0 | 9.0 | 12.0 | 14.0 | 20.0 | 22.0 | 26.0 | 31.0 | 28.0 | 26.0 |
| 24 | 22.0 | 13.0 | 10.0 | 9.0 | 12.0 | 14.0 | 18.0 | 22.0 | --- | --- | 30.0 | 27.0 |
| 25 | 22.0 | 13.0 | --- | 10.0 | 14.0 | 14.0 | 18.0 | 23.0 | 27.0 | 31.0 | 29.0 | 27.0 |
| 26 | 20.0 | 13.0 | 10.0 | 10.0 | 14.0 | 14.0 | 20.0 | 23.0 | 27.0 | 32.0 | 31.0 | 27.0 |
| 27 | 21.0 | --- | 10.0 | 10.0 | 14.0 | 14.0 | 20.0 | --- | 29.0 | 31.0 | 29.0 | --- |
| 28 | 17.0 | 10.0 | 10.0 | 10.0 | 16.0 | 14.0 | 20.0 | 23.0 | 28.0 | 30.0 | 30.0 | 26.0 |
| 29 | 17.0 | 10.0 | 10.0 | 12.0 | --- | 14.0 | 20.0 | 23.0 | 28.0 | 31.0 | 29.0 | 27.0 |
| 30 | 17.0 | 11.0 | 10.0 | 12.0 | --- | 14.0 | 20.0 | 23.0 | 28.0 | 30.0 | 30.0 | 26.0 |
| 31 | 15.0 | --- | 10.0 | 12.0 | --- | 16.0 | --- | 25.0 | --- | 31.0 | 27.0 | --- |
| MEAN | 22.5 | 15.0 | 12.5 | 9.5 | 11.0 | 14.5 | 19.0 | 21.5 | 26.5 | 29.5 | 30.0 | 26.5 |

## 08067000 TRINITY RIVER AT LIBERTY, TX

LOCATION.--Lat 30°03'27", long 94°49'05", Liberty County, Hydrologic Unit 12030203, near center of channel at upstream side of upstream bridge on U.S. Highway 90 in Liberty, 345 ft (105 m) downstream from Texas and New Orleans Railroad Co. bridge, and at mile 40.3 (64.8 km).

DRAINAGE AREA.--17,468 mi² (45,242 km²).

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.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2.22 ft (0.677 m) below National Geodetic Vertical Datum of 1929; unadjusted for land-surface subsidence. Prior to Mar. 13, 1973, nonrecording gage at site 105 ft (32 m) downstream at same datum.

REMARKS.--Records poor. Discharge below 10,000 ft³/s (283 m³/s) not published. Published discharges are estimated using records for Trinity River near Romayor (station 08066500), intervening area computation, and discharge measurements. Flow is regulated by Livingston Reservoir (station 08066190) 88.9 mi (143.0 km) upstream. Many diversions above station for municipal supplies, industrial uses, and irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 114,000 ft³/s (3,230 m³/s) May 12, 1942, gage height, 29.38 ft (8.955 m); minimum not determined (affected by tides); minimum gage height observed, 2.32 ft (0.707 m) Nov. 24, 1970.

Maximum stage since at least 1903, that of May 12, 1942.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 8-11, 1922, reached a stage of 28.6 ft (8.72 m), present datum, from observation by the National Weather Service at nonrecording gage on railroad bridge upstream.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 44,500 ft³/s (1,260 m³/s) June 20, 21; maximum gage height, 27.74 ft (8.455 m) June 20; minimum discharge not determined (affected by tides); minimum gage height, 3.61 ft (1.100 m) Jan. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | --- | --- | 24000 | | |
| 2 | | | | | | | | --- | --- | 25500 | | |
| 3 | | | | | | | | --- | --- | 25500 | | |
| 4 | | | | | | | | --- | 10000 | 24000 | | |
| 5 | | | | | | | | --- | 13500 | 20000 | | |
| 6 | | | | | | | | --- | 21500 | 16000 | | |
| 7 | | | | | | | | --- | 24800 | 14000 | | |
| 8 | | | | | | | | --- | 31000 | 17000 | | |
| 9 | | | | | | | | --- | 36000 | 20500 | | |
| 10 | | | | | | | | --- | 37500 | 20500 | | |
| 11 | | | | | | | | --- | 38000 | 23000 | | |
| 12 | | | | | | | | --- | 38000 | 24000 | | |
| 13 | | | | | | | | --- | 38000 | 24000 | | |
| 14 | | | | | | | | --- | 38000 | 23800 | | |
| 15 | | | | | | | | --- | 39000 | 22400 | | |
| 16 | | | | | | | | --- | 40500 | 18800 | | |
| 17 | | | | | | | | --- | 42000 | 13600 | | |
| 18 | | | | | | | | 11000 | 43500 | --- | | |
| 19 | | | | | | | | 13500 | 44000 | --- | | |
| 20 | | | | | | | | 14500 | 44500 | --- | | |
| 21 | | | | | | | | 14000 | 44500 | --- | | |
| 22 | | | | | | | | 13000 | 43000 | --- | | |
| 23 | | | | | | | | 10000 | 40000 | --- | | |
| 24 | | | | | | | | --- | 37000 | --- | | |
| 25 | | | | | | | | --- | 31000 | --- | | |
| 26 | | | | | | | | --- | 27000 | --- | | |
| 27 | | | | | | | | --- | 25000 | --- | | |
| 28 | | | | | | | | --- | 24000 | --- | | |
| 29 | | | | | | | | --- | 23000 | --- | | |
| 30 | | | | | | | | --- | 23000 | --- | | |
| 31 | | | | | | | | --- | --- | --- | | |
| TOTAL | | | | | | | | --- | --- | --- | | |
| MEAN | | | | | | | | --- | --- | --- | | |
| MAX | | | | | | | | --- | --- | --- | | |
| MIN | | | | | | | | --- | --- | --- | | |
| AC-FT | | | | | | | | --- | --- | --- | | |

## 08067080 DEVERS CANAL NEAR LIBERTY, TX

LOCATION.--Lat 29°57'58", long 94°43'17", Liberty County, Hydrologic Unit 12030203, in flume over Farm Road 563, 250 ft (76 m) downstream from pump plant No. 2, and 8 mi (13 km) southeast of Liberty.

PERIOD OF RECORD.--March to December 1971 (elevation and discharge measurements only), January 1972 to current year (monthly discharge only).

GAGE (revised).-Nonrecording gage. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to October 1980, water-stage recorder.

REMARKS.--Discharge computed from pumping records furnished by Trinity River Authority. Occasional discharge measurements were made to check pump ratings. Flow is diverted from Trinity River at pump plant No. 1 through a canal 4.7 mi (7.6 km) to pump plant No. 2, located 250 ft (76 m) upstream from station. Water is furnished by the Trinity River Authority for irrigation.

MONTHLY DISCHARGE, IN ACRE-FEET, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

| MONTH | PUMPAGE IN ACRE-FEET |
|---|---|
| OCTOBER | 0 |
| NOVEMBER | 1,810 |
| DECEMBER | 0 |
| CAL YR 1980 | 99,750 |
| JANUARY | 0 |
| FEBRUARY | 0 |
| MARCH | 7,600 |
| APRIL | 19,880 |
| MAY | 20,950 |
| JUNE | 13,740 |
| JULY | 9,930 |
| AUGUST | 13,450 |
| SEPTEMBER | 3,340 |
| WTR YR 1981 | 90,700 |

## 08067500 CEDAR BAYOU NEAR CROSBY, TX

LOCATION.--Lat 29°58'21", long 94°59'08", Liberty County, Hydrologic Unit 12040203, on left bank at downstream side of bridge on U.S. Highway 90 and 6.6 mi (10.6 km) northeast of Crosby.

DRAINAGE AREA.--64.9 $mi^2$ (168.1 $km^2$).

PERIOD OF RECORD.--March to August 1946, March 1963 to February 1964, May to August 1971 (discharge measurements only), October 1971 to current year.
Water-quality records: Chemical, biochemical, and pesticide analyses: May 1971 to September 1979.

GAGE.--Water-stage recorder. Datum of gage is 31.31 ft (9.543 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Low flow is sustained by industrial effluent and drainage from irrigated lands. Diversion for irrigation upstream from station. A recording rain gage is operated at this station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--10 years (water years 1972-81), 82.9 $ft^3/s$ (2.348 $m^3/s$), 60,060 acre-ft/yr (74.1 $hm^3/yr$).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,760 $ft^3/s$ (135 $m^3/s$) June 5, 1981, gage height, 23.92 ft (7.291 m); maximum gage height, 24.91 ft (7.593 m) June 13, 1973; no flow Mar. 8, 15-18, 1979.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,200 $ft^3/s$ (34.0 $m^3/s$) and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) | Date | Time | Discharge ($ft^3/s$) | Discharge ($m^3/s$) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| May 4 | 0200 | 1,740 | 49.3 | 18.44 | 5.621 | June 5 | 1400 | *4,760 | 135 | 23.92 | 7.291 |
| May 10 | 0900 | 1,440 | 40.8 | 17.30 | 5.273 | Aug. 31 | 2200 | 1,640 | 464 | 19.11 | 5.825 |
| June 3 | 1100 | 3,330 | 94.3 | 21.95 | 6.690 | | | | | | |

Minimum daily discharge, 0.06 $ft^3/s$ (0.002 $m^3/s$) Mar. 19, 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 390 | 13 | 14 | 2.3 | 5.1 | 4.7 | 3.7 | 5.3 | 3.2 | 79 | 22 | 1070 |
| 2 | 103 | 12 | 12 | 2.1 | 6.5 | 4.4 | 5.4 | 8.4 | 3.4 | 43 | 37 | 326 |
| 3 | 41 | 10 | 10 | 2.1 | 5.8 | 3.5 | 8.9 | 309 | 2730 | 39 | 32 | 180 |
| 4 | 20 | 9.6 | 8.6 | 2.2 | 4.7 | 158 | 24 | 1370 | 2570 | 102 | 13 | 90 |
| 5 | 8.2 | 14 | 4.7 | 2.1 | 15 | 64 | 20 | 772 | 3910 | 261 | 21 | 60 |
| 6 | 4.8 | 13 | 4.4 | 2.1 | 115 | 22 | 23 | 242 | 3740 | 543 | 7.1 | 37 |
| 7 | 2.6 | 10 | 4.0 | 2.5 | 61 | 7.9 | .23 | 70 | 2570 | 453 | 2.2 | 16 |
| 8 | 1.6 | 8.4 | 4.6 | 2.1 | 34 | 5.2 | .25 | 28 | 1250 | 658 | 18 | 9.5 |
| 9 | 1.1 | 7.3 | 353 | 2.2 | 18 | 23 | 21 | 144 | 483 | 266 | 11 | 7.6 |
| 10 | .77 | 6.6 | 198 | 2.1 | 26 | 8.3 | 32 | 1130 | 180 | 120 | 7.5 | 7.6 |
| 11 | 2.5 | 6.3 | 58 | 2.1 | 29 | 2.8 | 39 | 280 | 710 | 99 | 4.9 | 6.9 |
| 12 | 2.2 | 6.3 | 30 | 1.9 | 13 | 3.4 | 25 | 69 | 646 | 260 | 4.3 | 5.2 |
| 13 | 3.4 | 6.5 | 20 | 1.8 | 9.7 | 12 | 17 | 19 | 788 | 125 | 3.4 | 4.1 |
| 14 | 2.7 | 6.9 | 15 | 2.1 | 8.6 | 11 | 21 | 16 | 336 | 91 | 3.0 | 5.4 |
| 15 | 3.7 | 6.8 | 12 | 2.3 | 6.7 | 7.9 | 27 | 12 | 155 | 59 | 2.6 | 7.5 |
| 16 | 14 | 6.8 | 11 | 2.3 | 6.7 | 4.4 | 16 | 12 | 76 | 53 | 2.4 | 6.5 |
| 17 | 11 | 8.4 | 9.5 | 1.9 | 6.0 | .38 | 7.0 | 20 | 62 | 15 | 2.8 | 3.9 |
| 18 | 137 | 8.9 | 7.9 | 1.9 | 5.2 | .09 | 9.9 | 11 | 42 | 7.0 | 5.8 | 2.1 |
| 19 | 860 | 7.8 | 6.7 | 5.8 | 4.7 | .06 | 17 | 4.1 | 32 | 6.5 | 7.5 | 1.9 |
| 20 | 324 | 7.4 | 5.9 | 46 | 4.0 | .06 | 22 | 4.8 | 32 | 7.5 | 11 | 3.7 |
| 21 | 81 | 7.2 | 5.4 | 30 | 4.0 | .07 | 9.5 | 2.6 | 21 | 30 | 9.7 | 6.6 |
| 22 | 41 | 8.6 | 4.5 | 18 | 6.2 | .08 | 7.7 | 2.5 | 20 | 34 | 14 | 7.5 |
| 23 | 27 | 12 | 4.6 | 11 | 6.5 | .07 | 197 | 2.1 | 21 | 12 | 12 | 7.9 |
| 24 | 19 | 11 | 5.0 | 7.8 | 5.2 | .07 | 369 | 1.4 | 34 | 8.6 | 10 | 7.2 |
| 25 | 14 | 11 | 3.8 | 7.1 | 4.9 | .07 | 87 | 2.9 | 85 | 9.7 | 5.7 | 7.2 |
| 26 | 14 | 48 | 3.4 | 4.5 | 5.4 | .07 | 30 | 6.8 | 74 | 23 | 5.4 | 6.7 |
| 27 | 16 | 47 | 3.5 | 4.2 | 5.8 | .09 | 14 | 2.8 | 44 | 11 | 6.2 | 5.0 |
| 28 | 64 | 27 | 3.3 | 4.8 | 4.2 | .11 | 10 | 2.8 | 28 | 10 | 8.2 | 4.4 |
| 29 | 32 | 19 | 3.2 | 4.3 | --- | .16 | 8.8 | 3.1 | 23 | 15 | 9.1 | 4.4 |
| 30 | 21 | 15 | 2.8 | 3.4 | --- | .24 | 8.1 | 3.0 | 24 | 16 | 9.2 | 4.4 |
| 31 | 16 | --- | 2.4 | 3.9 | --- | .32 | --- | 3.0 | --- | 19 | 680 | --- |
| TOTAL | 2278.57 | 381.8 | 831.2 | 188.9 | 426.9 | 344.44 | 1080.48 | 4559.6 | 20692.6 | 3475.3 | 988.0 | 1912.2 |
| MEAN | 73.5 | 12.7 | 26.8 | 6.09 | 15.2 | 11.1 | 36.0 | 147 | 690 | 112 | 31.9 | 63.7 |
| MAX | 860 | 48 | 353 | 46 | 115 | 158 | 369 | 1370 | 3910 | 658 | 680 | 1070 |
| MIN | .77 | 6.3 | 2.4 | 1.8 | 4.0 | .06 | .23 | 1.4 | 3.2 | 6.5 | 2.2 | 1.9 |
| AC-FT | 4520 | 757 | 1650 | 375 | 847 | 683 | 2140 | 9040 | 41040 | 6890 | 1960 | 3790 |
| (††) | 4.20 | .90 | 2.06 | 2.00 | 2.07 | 2.62 | 2.65 | 4.50 | 17.66 | 4.55 | 6.06 | 1.71 |

CAL YR 1980 TOTAL 18918.53 MEAN 51.7 MAX 1260 MIN .06 AC-FT 37520 †† 39.81
WTR YR 1981 TOTAL 37159.99 MEAN 102 MAX 3910 MIN .06 AC-FT 73710 †† 51.09

†† Rainfall, in inches, at gaging station.

## SABINE RIVER BASIN

### Sabine River Low-flow Investigation

PURPOSE.--To determine the low-flow transmission losses for water releases from Lake Tawakoni and Lake Fork Reservoir into the Sabine River.

REACH.--The investigation on the main stem of the Sabine River began at the stream-gaging station 08017410 Sabine River near Wills Point, 750 ft downstream from the dam at Lake Tawakoni, and on Lake Fork Creek at State Highway 182, 0.2 mile downstream from the dam at Lake Fork Reservoir. The investigation covered a distance of 218.1 river miles downstream on the Sabine River to Farm Road 2517 near the upstream end of Toledo Bend Reservoir.

PREVIOUS INVESTIGATIONS.--None made previously in this reach.

SUMMARY.--Continuous releases of about 20 $ft^3/s$ from Lake Tawakoni and 30 $ft^3/s$ from Lake Fork Reservoir were maintained during the study period of Aug. 31 to Sept. 24. Measurements of discharge, specific conductance, and temperature were made at various downstream locations to find out if the reach was gaining or losing flow. The results of the study indicate that the Sabine River and Lake Fork Creek should be efficient systems for transporting water from Lake Tawakoni or Lake Fork Reservoir to any downstream location in the study reach.

Location and description of data-collection sites, Sabine River and tributaries, water year 1981

| Stream | Tributary to | Location | Drainage area (sq mi) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge ($ft^3/s$) |
| Sabine River | Gulf of Mexico | Lat 32°46'23", long 95°47'56", Rains-Van Zandt County line, 20 ft downstream from State Highway 19 bridge (site of discontinued station 08017500), 3.7 mi upstream from Sandy Creek, 7.2 mi south of Emery, 13.8 mi downStream from Lake Tawakoni, and at mile 500.7. | 888 | 1953-73 | 8-31-81 | 17.5 |
| Do..... | ..do..... | Lat 32°43'13", long 95°38'06", Van Zandt County, 1,000 ft upstream from Farm Road 17 bridge (site of discontinued station 0801800), 0.3 mi downstream from Simpkins Creek, 2.5 mi upstream from Cottonwood Creek, 4.3 mi southwest of Golden, and at mile 481.2. | 1,123 | 1924-26, 1972 | 9- 1-81 | 16.4 |
| Grand Saline Creek | Sabine River | Lat 32°40'20", long 95°36'35", Van Zandt County, 5 ft downstream from U.S. Highway 80 bridge (site of discontinued station 08018200), 0.4 mi downstream from Texas and Pacific Railway Co. bridge, 1.7 mi upstream from mouth, and 5.5 mi east of Grand Saline. | 91.4 | 1968-73 | 9- 1-81 | .28 |
| Sabine River | Gulf of Mexico | Lat 32°40'23", long 95°34'198, Smith-Wood County line, at U.S. Highway 80 bridge (site of discontinued station 08018300) 0.6 mi upstream Texas and Pacific Railway Co. bridge, 1.3 mi upstream from Dry Creek, 2.8 mi downstream from Grand Saline Creek, 3.4 mi west of Mineola, and at mile 471.9. | 1,147 | 1972 | 9- 1-81 | 19.5 |
| Do..... | ..do..... | Lat 32°36'05", long 95°23'28", Smith-Wood County line, at Farm Road 1804 bridge (site discontinued station 08018600), 4.2 mi upstream from Lake Fork Creek, 6.0 mi northeast of Lindale, and at mile 448.8. | - | 1972 | 9- 2-81<br>9-22-81 | 56.8<br>37.0 |
| Lake Fork Creek | Sabine River | Lat 32°48'17", long 95°31'31", Wood County, 1,200 ft downstream from State Highway 182 bridge, 0.5 mi downstream from Lake Fork Dam, 1.6 mi upstream from Alum Branch, and 4.4 mi west-northwest of Quitman. | - | 1964-65, 1972 | 8-11-81<br>8-11-81<br>8-12-81<br>8-31-81 | 3.33<br>10.6<br>26.8<br>29.4 |
| Do..... | ..do..... | Lat 32°42'07", long 95°24'27", Wood County, at Farm Road 49 bridge, 0.4 mi downstream from Lewellyn Creek, 0.9 mi downstream from Edmoore Creek, and 5.4 mi northeast of Mineola. | - | - | 8-31-81 | 30.9 |
| Do..... | ..do..... | Lat 32°37'57", long 95°21'12", Wood County, at U.S. Highway 80 bridge, 400 ft downstream from Lacey Branch, 600 ft upstream from Black Creek, 0.4 mi upstream from Texas and Pacific Railway Co. bridge, and 8.0 mi east of Mineola. | - | 1972 | 9- 1-81<br>9-22-81 | 26.8<br>32.2 |
| Sabine River | Gulf of Mexico | Lat 32°33'35", long 95°12'23" Smith-Wood County line, 1,000 ft downstream from State Highway 14 bridge (site of station 08019200), 1.9 mi (3.1 km) south of Hawkins, 2.1 mi upstream from East Mill Creek, 3.4 mi downstream from Lynn Creek, and at mile 427.4. | - | 1972 | 9- 1-81<br>9-22-81 | 60.3<br>97.4 |

Location and description of data-collection sites, Sabine River, water year 1981--Continued

| Stream | Tributary to | Location | Drainage area (sq mi) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge ($ft^3/s$) |
| Sabine River | Gulf of Mexico | Lat 32°32'54", long 95°07'59", Smith-Upshur County line, at county road bridge, 0.4 mi downstream from Harris Creek, 1.3 mi downstream from State Highway 155 bridge, and 2.8 mi southwest of Big Sandy. | - | - | 9- 2-81 | 472 |
| Do..... | ..do..... | Lat 32°28'34", long 94°50'58", Gregg County, 500 ft upstream from State Highway 42 bridge and 3.0 mi south of White Oak. | - | 1972 | 9-23-81 | 141 |
| Do..... | ..do..... | Lat 32°28'51", long 94°48'09", Gregg County, 600 ft downstream from channel dam at city of Longview water treatment plant, 1,000 ft downstream from Hawkins Creek, and 3.8 mi southwest of Longview (intersection of U.S. Highway 80 and State Highway 502). | - | - | 9-24-81 | 154 |
| Do..... | ..do..... | Lat 32°28'05", long 94°46'50", Gregg County, at U.S. Highway 259 bridge (site of station 08020500), 0.5 mi upstream from Missouri Pacific Railroad bridge, 2.6 mi upstream from Rabbit Creek, 3.2 mi southwest of Longview, 5.2 mi downstream from Hawkins Creek, and at mile 372.8. | 2,947 | 1904-32 | 9-23-81 | 173 |
| Do..... | ..do..... | Lat 32°26'16", long 94°46'50", Gregg County, 400 ft downstream from Farm Road 2087, 1,200 ft downstream from Rabbit Creek, 0.6 mi upstream from Grable Creek, and 5.0 mi southwest of Longview (intersection of U.S. Highway 80 and State Highway 502). | - | - | 9-23-81 | 141 |
| Do..... | ..do..... | Lat 23°25'00", long 94°42'34", Gregg County, at State highway 149 bridge and 6.6 mi southeast of Longview. | - | 1972-80 | 9-23-81 | 153 |
| Do..... | ..do..... | Lat 32°22'11", long 94°27'28", Harrison-Panola County line, at State Highway 43 bridge (site of station 08022000), 5.1 mi northeast of Tatum, 5.2 mi upstream from Potters Creek, 5.6 mi downstream from Cherokee Bayou, and at mile 339.4. | 3,493 | 1938-78 | 9-23-81 | 173 |
| Do..... | ..do..... | Lat 32°13'28", long 94°13, 33", Panola County line, at U.S. Highway 79 bridge, 0.4 mi downstream from Jackson Creek, and 8.0 mi northeast of Carthage. | - | 1972 | 9-24-81 | 195 |
| Do..... | ..do..... | Lat 32°07'31", long 94°12'06", Panola County, at Farm Road 2517 bridge and 3.7 mi west of Deadwood. | - | 1972 | 9-24-81 | 197 |

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-stationsrecords."

## 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 1981

| Station No. | Station name | Location | Drainage area (sq mi) | Period of record | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge ($ft^3/s$) |
| | | **Arkansas River basin** | | | | |
| 07227700 | Chicken Creek near Amarillo, Tex. | Lat 35°28'29", long 101°45'35", Potter County, about 1.5 mi northeast of LX Ranch headquarters and about 18 mi northeast of Amarillo. | (a) | 1953-81 | 2-13-81<br>8- 6-81 | 0.95<br>.58 |
| | | **Red River basin** | | | | |
| 07299750 | Wanderers Creek at Odell, Tex. | Lat 34°20'50", long 99°25'15", Wilbarger County, at county road bridge and 0.25 mi northwest of Odell Post Office. | 199 | 1949-50, 1952-81 | 2-19-81<br>7-15-81 | 2.04<br>.46 |
| 07299890 | Lelia Lake Creek below Bell Creek near Hedley, Tex. | Lat 34°56'08", long 100°41'46", Donley County, 150 ft downstream from county road crossing, 1.0 mi downstream from mouth of Bell Creek, and about 5 mi north of Hedley. | 74 | 1964-81 | 3-24-81<br>8- 5-81 | 3.07<br>.51 |
| 07303300 | Elm Creek near Shamrock, Tex. | Lat 35°07'21", long 100°17'07", Collingsworth County, at county road bridge, 1,500 ft downstream from Fort Worth and Denver (Burlington) Railway Company bridge, and about 6 mi southwest of Shamrock. | (a) | 1947-81 | 3-26-81<br>8- 6-81 | 2.72<br>1.51 |
| 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, 1943-81 | 2-18-81 | 1.21 |
| | | **Neches River basin** | | | | |
| 08041550 | Village Creek at State Highway 327 near Silsbee, Tex. | Lat 30°20'48", long 94°14'20", Hardin County, at bridge on State Highway 327, about 1.6 mi upstream from mouth of Mill Creek, and 2.7 mi west of Silsbee. | - | 1979-81 | 10-15-80<br>8- 6-81<br>9-22-81 | 85<br>177<br>124 |
| 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. | - | 1979-81 | 11-10-80<br>8- 5-81<br>9-22-81 | 11<br>23<br>10 |
| | | **Trinity River basin** | | | | |
| 08065975 | Harmon Creek near Huntsville, Tex. | Lat 30°49'12", long 95°29'09", Walker County, at end of county road, 2.2 mi east of Farm Road 980, 7.5 mi northeast of Huntsville, and about 9 mi southwest of Riverside (discontinued). | 89.2 | 1973-81 | 10-14-80<br>12- 9-80<br>1-13-81<br>4- 7-81<br>7-31-81<br>9-14-81 | 5.2<br>29<br>7.9<br>5.3<br>4.7<br>12 |
| 08066210 | Long King Creek near Goodrich, Tex. | Lat 30°36'16", long 94°57'26", Polk County, at bridge on Farm Road 1988, 0.7 mi west of Goodrich, and 4.5 mi upstream from mouth (discontinued). | 220 | 1973-81 | 11- 3-80<br>3-10-81<br>5-19-81 | 10<br>26<br>166 |

a Not applicable.

## 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 1981

| Station No. | Station name | Location | Drainage area (sq mi) | Period of record | Annual maximum | | |
|---|---|---|---|---|---|---|---|
| | | | | | Date | Elevation (feet) | Discharge (ft³/s) |
| | | **Sabine River basin** | | | | | |
| 08019200 | Sabine River near Hawkins, Tex. | Lat 32°33'35", long 95°12'23", Wood County, on left bank at upstream side of bridge on State Highway 14, 1.9 mi south of Hawkins, 2.1 mi upstream from East Mill Creek, 3.4 mi downstream from Lynn Creek, and at mile 427.4 | - | 1976-81 | 6-27-81 | 291.60 | - |
| 08019430 | Big Sandy Creek near Hawkins, Tex. | Lat 32°39'04", long 95°09'59", Wood County, near left end at downstream side of bridge on Farm Road 1795, 0.3 mi downstream from Mill Creek, 0.6 mi downstream from Peron Branch, 2.3 mi upstream from Gin Creek, and 4.9 mi northeast of Hawkins. | 196 | 1980-81 | 6- 8-81 | 13.27 | 1,580 |
| 08020500 | Sabine River near Longview, Tex. | Lat 32°28'05", long 94°46'50", Gregg County, on left bank at downstream side of upstream bridge on U.S. Highway 259, 0.5 mi upstream from Missouri Pacific Railroad bridge, 2.6 mi upstream from Rabbit Creek, 3.2 mi southwest of Longview, 5.2 mi downstream from Hawkins Creek, and at mile 372.8. | - | 1904-6‡, 1923-32‡, 1976-81 | 6-30-81 | 251.65 | - |
| 08022000 | Sabine River near Tatum, Tex. | Lat 32°22'11", long 94°27'28", Panola County, near right bank at downstream side of bridge on State Highway 43, 5.1 mi northeast of Tatum, 5.2 mi upstream from Potters Creek, 5.6 mi downstream from Cherokee Bayou, and at mile 339.4. | 3,493 | 1938-78‡, 1979-81 | 6- 5-81 | 221.47 | - |
| | | **Trinity River basin** | | | | | |
| 08051130 | Elm Fork Trinity River near Pilot Point, Tex. | Lat 33°20'56", long 97°01'59", Denton County, attached to trees on right bank, 0.8 mi downstream from Isle du Bois Creek, 1.2 mi upstream from abandoned county road bridge, 2.5 mi upstream from Bray Branch, and 5.3 mi southwest of Pilot Point. | - | 1981 | 5-27-81<br>9-23-81 | 555.71<br>- | -<br>36.2 |
| 08051160 | Elm Fork Trinity River at abandoned county bridge above Aubrey, Tex. | Lat 33°19'58", long 97°01'49", Denton County, on downstream side of right concrete pier of abandoned county bridge, 1.3 mi upstream from Bray Branch, 2.0 mi downstream from Isle du Boise Creek, and 3.2 mi northwest of Aubrey. | - | 1981 | 5-27-81 | 549.75 | - |
| 08051190 | Elm Fork Trinity River above Aubrey, Tex. | Lat 33°19'12", long 97°01'34", Denton County, attached to trees on left bank, 0.1 mi downstream from Bray Branch, 1.4 mi downstream from abandoned county road bridge, 1.6 mi upstream from bridge on Farm Road 428, and 2.6 mi northwest of Aubrey. | - | 1981 | 9-23-81 | 530.90 | 36.2 |

‡ Operated as a continuous-record station.
a Revised.

Measurements of streamflow at points other than gaging stations of partial-record stations are given in the following table:

Discharge measurements made at miscellaneous sites during water year 1981

| Stream | Tributary to | Location | Drainage area (sq mi) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge ($ft^3/s$) |
| Sabine River basin | | | | | | |
| Sabine River Authority's Main Canal | Indian Bayou (Diversion) | Lat 30°13'36", long 93°44'53", Orange County, at bridge on county road, 0.6 mi west of pumping station on Indian Bayou, and about 3 mi south-southeast of Ruliff, Tex. | - | - | 7-29-81 | 145 |

INDEX


Page

Accuracy of field data and computed results..... 21
Acre-foot, definition of..... 4
Agencies other than Geological Survey, records collected by..... 22
Algae, definition of..... 4
Angelina River near Alto..... 321
Arkansas River basin, gaging station records in..... 29-51
low-flow partial-record station in..... 592
Artificial substrate, definition of..... 13
Ash mass, definition of..... 5
Attoyac Bayou near Chireno..... 324
Ayish Bayou near San Augustine..... 325

B. A. Steinhagen Lake at Town Bluff.....328-333
Bacteria, definition of..... 4
Bardwell Lake near Ennis.....523-529
Bayou LaNana at Nacogdoches..... 323
Beaver Creek near Electra..... 125
Bed material, definition of..... 5
Bedias Creek near Madisonville..... 557
Benbrook Lake near Benbrook.....361-368
Big Cow Creek near Newton..... 289
Big Creek near Shepherd.....576-577
Big Cypress Creek, near Jefferson..... 228
near Pittsburg.....213-216
near Karnack..... 239
near Winnsboro..... 208
Big Sandy Creek (Sabine River basin) near Big Sandy...258-259
Big Sandy Creek (Trinity River basin) near Bridgeport. 354
Big Sandy Creek (Sabine River basin) near Hawkins..... 593
Biochemical oxygen demand (BOD), definition of..... 5
Biomass, definition of..... 5
Biomass pigment ratio, definition of..... 6
Black Cypress Bayou at Jefferson.....229-230
Blue-green algae, definition of..... 11
Bois d'Arc Creek near Randolph..... 162
Bottom material..... 6
Bowles Creek near Selman City..... 316
Bridgeport Reservoir above Bridgeport.....352-353
Brushy Creek at Scroggins..... 211
Burke Creek near Yantis..... 250

Canadian River, above New Mexico-Texas State line..... 32-34
at Logan, NM..... 29
near Amarillo..... 35-39
near Canadian..... 43-50
Catfish Creek near Tennessee Colony..... 540
Cedar Bayou near Crosby..... 589
Cedar Creek near Kemp..... 498
Cedar Creek Reservoir, near Trinidad.....501-511
spillway outflow near Trinidad..... 488
Cells/volume, definition of..... 6
Cfs-days, definition of..... 6
Chambers Creek near Corsicana.....532-533
Chemical oxygen demand (COD), definition of..... 6
Chicken Creek near Amarillo..... 592
Chlorophyll, definition of..... 6
Clear Creek near Sanger..... 415
Clear Fork Trinity River, at Fort Worth..... 371
near Benbrook.....369-370
near Weatherford.....358-360
Collection, and computation of data..... 17
and examination of data..... 22
Color unit, definition of..... 6
Computed results, accuracy of field data and..... 21
Computation of data, collection of..... 17
Contents, definition of..... 6
Control, definition of..... 6
Cooperation..... 2
Cow Bayou near Mauriceville..... 299
Cowleech Fork Sabine River at Greenville..... 241
Crest-stage partial-record measurements..... 593
Crest-stage partial-record station, definition of..... 21
Cubic foot per second ($Ft^3/s$, $ft^3/s$), definition of... 6
Cubic foot per second per square mile, definition of.. 6
Cypress Creek near Buna..... 290

Data, accuracy of field, and computed results..... 21
collection and computation of..... 17
collection and examination of..... 22
other available..... 22
Definition of terms..... 4-15

Page

Denton Creek, near Grapevine.....439-440
near Justin.....428-430
Devers Canal near Liberty..... 588
Diatoms, definition of..... 11
Discharge, at partial-record stations and miscellaneous sites.....592-594
definition of..... 7
measurements at miscellaneous sites..... 594
Dissolved, definition of..... 7
Diversity index, definition of..... 7
Dixon Creek near Borger..... 42
Downstream order and station number..... 16
Drainage area, definition of..... 7
Drainage basin, definition of..... 8
Dry mass, definition of..... 5
Duck Creek near Garland.....469-470

Eagle Mountain Reservoir above Fort Worth..... 356
East Fork Angelina River near Cushing..... 318
East Fork Little Wichita River near Henrietta.....138-139
East Fork Trinity River, at McKinney.....453-455
near Crandall.....472-476
near Forney..... 471
near Lavon.....464-465
Ellison Creek Reservoir near Lone Star.....217-218
Elm Creek near Shamrock..... 592
Elm Fork Trinity River, above Aubrey..... 593
at abandoned county bridge above Aubrey..... 593
near Carrollton..... 441
near Lewisville.....426-427
near Pilot Point..... 593
near Sanger.....411-413
Examination of data, collection and..... 22
Explanation, of stage and water-discharge records..... 17
of surface-water quality records..... 22

Fecal coliform bacteria, definition of..... 5
Fecal streptococcal bacteria, definition of..... 5
Frazier Creek near Linden..... 240

Gage height, definition of..... 8
Gaging station, definition of..... 8
Gaging-station records..... 29-589
Grapevine Lake near Grapevine.....431-438
Green algae, definition of..... 11
Greenbelt Lake near Clarendon..... 79-80
Groesbeck Creek at State Highway 6 near Quanah..... 78

Hardness, definition of..... 8
Harmon Creek near Huntsville..... 592
Hillebrandt Bayou near Lovell Lake..... 350
Hydrologic bench-mark station..... 16
Hydrologic conditions..... 3
Hydrologic unit..... 8

Illustration..... 28
Index.....595-597
Instantaneous discharge, definition of..... 7
Introduction..... 1
Isle du Bois Creek near Pilot Point..... 414

Jonah Creek at weir near Estelline..... 66-69

Kickapoo Creek (Neches River basin) near Brownsboro... 300
Kickapoo Creek (Trinity River basin) near Onalaska.... 559
Kings Creek near Kaufman.....499-500

Lake Arlington at Arlington.....382-391
Lake Arrowhead near Henrietta.....134-135
Lake Athens near Athens.....301-302
Lake Bob Sandlin near Mount Pleasant..... 212
Lake Cherokee near Longview.....265-266
Lake Cypress Springs near Mount Vernon.....209-210
Lake Fork Creek near Quitman.....253-256
Lake Fork Reservoir near Quitman.....251-252
Lake Kemp near Mabelle..... 119
Lake Kickapoo near Archer City.....131-132
Lake Meredith near Sanford..... 40-41
Lake Nacogdoches near Nacogdoches..... 322
Lake O' the Pines near Jefferson.....219-227
Lake Palestine near Frankston.....303-304

Page

Lake Ray Hubbard near Forney....467-468
Lake Sulphur Springs near Sulphur Springs.... 192
Lake Tawakoni near Wills Point....243-244
Lake Texoma near Denison.... 153
Lake Tyler near Whitehouse....319-320
Lake Winnsboro near Winnsboro.... 257
Lake Worth above Fort Worth.... 357
Lake Surveys (Water Quality):
  Arlington, Lake at Arlington....383-391
  B. A. Steinhagen Lake at Town Bluff....329-333
  Bardwell Lake near Ennis....524-529
  Benbrook Lake near Benbrook....362-368
  Cedar Creek Reservoir near Trinidad....502-511
  Grapevine Lake near Grapevine....432-438
  Lavon Lake near Lavon....458-463
  Lewisville Lake near Lewisville....418-425
  Livingston Reservoir near Goodrich....561-570
  O' the Pines, Lake, near Jefferson....220-227
  Wright Patman Lake near Texarkana....198-206
Lakes and reservoirs:
  Arlington, Lake, at Arlington....382-391
  Arrowhead, Lake, near Henrietta....134-135
  Athens, Lake, near Athens....301-302
  B. A. Steinhagen Lake at Town Bluff....328-333
  Bardwell Lake near Ennis....523-529
  Benbrook Lake near Benbrook....361-368
  Bob Sandlin, near Mount Pleasant.... 212
  Bridgeport Reservoir above Bridgeport....352-353
  Cedar Creek Reservoir near Trinidad....501-511
  Cherokee, Lake, near Longview....265-266
  Cypress Springs, Lake, near Mount Vernon....209-210
  Eagle Mountain Reservoir above Fort Worth.... 356
  Ellison Creek Reservoir near Lone Star....217-218
  Fork Creek, Lake, near Quitman....253-256
  Fork Reservoir, Lake, near Quitman....251-252
  Grapevine Lake near Grapevine....431-438
  Greenbelt Lake near Clarendon.... 79-80
  Kemp, Lake, near Mabelle.... 119
  Kickapoo, Lake, near Archer City....131-132
  Lavon Lake near Lavon....457-463
  Lewisville Lake near Lewisville....417-425
  Livingston Reservoir near Goodrich....560-570
  MacKenzie Reservoir near Silverton.... 58-59
  Martin Lake near Tatum....272-273
  Meredith, Lake, near Sanford.... 40-41
  Moss Lake near Gainesville....144-145
  Mountain Creek Lake near Grand Prairie....408-409
  Nacogdoches, Lake, near Nacogdoches.... 322
  Navarro Mills Lake near Dawson....513-518
  O' the Pines, Lake, near Jefferson....219-227
  Palestine, Lake, near Frankston....303-304
  Pat Mayse Lake near Chicota....163-164
  Ray Hubbard, Lake, near Forney....467-468
  Sam Rayburn Reservoir near Jasper....326-327
  Striker Creek Reservoir near New Salem.... 317
  Sulphur Springs, Lake, near Sulphur Springs.... 192
  Tawakoni, Lake, near Wills Point....243-244
  Texoma, Lake, near Denison.... 153
  Toledo Bend Reservoir near Burkeville.... 278
  Tyler, Lake, near Whitehouse....319-320
  Winnsboro, Lake, near Winnsboro.... 257
  Wright Patman Lake near Texarkana....197-206
  Worth, Lake, above Fort Worth.... 357
Lavon Lake near Lavon....457-463
Lelia Lake Creek below Bell Creek near Hedley.... 592
Lewisville Lake near Lewisville....417-425
Little Cypress Creek, near Jefferson....232-238
  near Ore City.... 231
Little Elm Creek near Aubrey.... 416
Little Pine Creek near Kanawha.... 167
Little Red River near Turkey.... 61-65
Little Wichita River, above Henrietta....136-137
  near Archer City.... 133
Livingston Reservoir, at outflow weir near Goodrich... 571
  near Goodrich....560-570
Long King Creek, at Livingston.... 572
  near Goodrich.... 592
Low-flow investigations....590-591
Low-flow partial-record measurements.... 592
Low-flow partial-record stations, definition of.... 21

MacKenzie Reservoir near Silverton.... 58-59
Martin Creek near Tatum.... 274
Martin Lake near Tatum....272-273
Mean concentration, definition of.... 12
Mean discharge, definition of.... 7
Menard Creek near Rye....574-575
Methylene blue active substance, definition of.... 8
Micrograms per gram, definition of.... 8
Micrograms per liter, definition of.... 8
Middle Pease River near Paducah.... 90-93
Mill Creek near Henderson.... 262

Page

Mill Creek near Longview.... 263
Milligrams per liter, definition of.... 8
Miscellaneous measurement.... 594
Moss Lake near Gainesville....144-145
Mountain Creek, at Grand Prairie.... 410
  near Cedar Hill....401-403
  near Duncanville....405-407
Mountain Creek Lake near Grand Prairie....408-409
Murvaul Bayou near Gary.... 275

National Geodetic Vertical Datum (NGVD).... 9
National stream-quality accounting network (NASQAN),
  definition of.... 17
Natural substrates, definition of.... 13
Navarro Mills Lake near Dawson....513-518
ND, definition of.... 9
Neches River, at Evadale....336-344
  at Town Bluff....334-335
  near Diboll....308-311
  near Neches....305-307
  near Rockland....313-315
Neches River basin, gaging-station records in....300-348
  low-flow partial-record stations in.... 592
North Fork Red River near Shamrock.... 86-87
North Sulphur River near Cooper....183-186
North Wichita River, near Paducah....108-109
  near Truscott....110-114

Organic mass, definition of.... 5
Organism, definition of.... 9
Organism count/area, definition of.... 9
Organisms count/volume, definition of.... 9
Other data available.... 22

Partial-record station, definition of.... 9
Partial-record stations....592-593
Particle size, definition of.... 9
Particle-size classification, definition of.... 10
Pat Mayse Lake near Chicota....163-164
Pease River, near Childress.... 94-97
  near Vernon.... 98-99
Percent composition, definition of.... 10
Periphyton, definition of.... 10
Pesticide program, definition of.... 17
Pesticides, definition of.... 10
Phytoplankton, definition of.... 10
Picocurie, definition of.... 10
Pine Island Bayou, at State Highway 105 near
  Sour Lake.... 592
  near Sour Lake....347-348
Piney Creek near Groveton.... 312
Plankton, definition of.... 10
Polychlorinated biphenyls, definition of.... 11
Prairie Dog Town Fork Red River, near Childress.... 70-75
  near Wayside.... 52-57
Programs, special networks and.... 16
Publications of techniques of water-resources
  investigations.... 26-27

Radiochemical program.... 17
Records of discharge collected by agencies other
  than the Geological Survey.... 22
Recoverable from bottom material.... 11
Red River, at Arthur City.... 166
  at Denison Dam near Denison....154-161
  at Index, AR....173-178
  near Burkburnett....100-107
  near De Kalb....168-172
  near Gainesville....146-152
  near Quanah.... 76-77
  near Terral, OK....140-143
Red River basin, gaging-station records in.... 53-240
  low-flow partial-station records in.... 592
Reservoirs. See lakes and reservoirs.
Revuelto Creek near Logan, NM.... 30-31
Richland Creek, near Dawson.... 519
  near Fairfield....534-537
  near Irene.... 512
  near Richland.... 521
Roaring Springs near Roaring Springs.... 592
Rowlett Creek near Sachse.... 466
Runoff in inches, definition of.... 11

Sabine River, at Logansport, LA.... 276
  at Toledo Bend Reservoir near Burkeville....279-280
  near Beckville....267-271
  near Bon Wier....285-288
  near Burkeville....281-284
  near Gladewater....260-261
Sabine River, near Hawkins.... 593
  near Longview.... 593
  near Mineola....246-249

Page

Sabine River, near Ruliff....291-298
near Tatum.... 593
near Wills Point.... 245
Sabine River basin, crest-stage partial-record stations in.... 593
discharge measurement at miscellaneous site.... 594
gaging-station records in....241-299
Low-flow investigations....590-591
Salt Fork Red River, at Mangum, OK.... 85
near Wellington.... 81-84
Sam Rayburn Resevoir near Jasper....326-327
Sanders Creek near Chicota.... 165
Sediment, collection and examination.... 24
definition of.... 12
Sister Grove Creek near Blue Ridge.... 453
Sodium adsorption ration (SAR), definition of.... 12
Solute, definition of.... 12
South Fork Sabine River near Quinlan.... 242
South Side Canal near Dundee.... 124
South Sulphur River, near Commerce....177-178
near Cooper....179-182
South Wichita River near Benjamin....115-118
Special networks and programs.... 16
Specific conductance, definition of.... 12
Stage-discharge relation, definition of.... 13
Station number and downstream order.... 16
Streamflow, definition of.... 13
Striker Creek Reservoir near New Salem.... 317
Substrate, definition of.... 13
Sulphur River, near Talco....187-191
near Texarkana.... 207
Suspended, recoverable, definition of.... 13
Suspended, total, definition of.... 14
Suspended sediment, definition of.... 12
Suspended-sediment concentration, definition of.... 12
Suspended-sediment discharge, definition of.... 12
Suspended-sediment load, definition of.... 12
Sweetwater Creek near Kelton.... 88-89

Taxonomy, definition of.... 15
Taylor Bayou near LaBelle.... 349
Taylor Bayou basin, gaging-station records in....349-350
Tehuacana Creek near Streetman....538-539
Temperature, collection and examination.... 24
Tenaha Creek near Shelbyville.... 277
Terms, definition of.... 4
Tiawichi Creek near Longview.... 264
Time-weighted average, definition of.... 14
Toledo Bend Reservoir near Burkeville.... 278
Tons per acre-foot, definition of.... 14
Tons per day, definition of.... 14
Total coliform bacteria, definition of.... 4
Total (in tables of chemical analyses), definition of. 14
Total in bottom material.... 14
Total load (tons), definition of.... 14
Total organism count, definition of.... 9
Total, recoverable, definition of.... 15
Total sediment discharge, definition of.... 12
Trinity River, at Dallas.... 442
at Liberty.... 587
at Romayor....578-586
at Trinidad....489-497
below Dallas....452-453
near Crockett....547-556
near Goodrich.... 573
near Oakwood....541-545
near Rosser....477-487
Trinity River basin, crest-stage partial-record stations in.... 593
gaging-station records in....351-588
low-flow partial-record stations in.... 592
Tule Creek near Silverton.... 60

Upper Keechi Creek near Oakwood.... 546

Village Creek, at State Highway 327 near Silsbee.... 592
near Kountze....345-346

Walnut Creek near Mansfield.... 404
Wanderers Creek at Odell.... 592
Water analysis.... 23
Water-discharge records, explanation of stage and.... 17
Water temperature.... 24
Waxahachie Creek, near Bardwell.... 530
near Waxahachie.... 522
WDR, definition of.... 15
Weighted average, definition of.... 15
West Fork Trinity River, at Beach Street, Fort Worth..373-381
at Fort Worth.... 372
at Grand Prairie....392-400
near Boyd.... 355
near Jacksboro.... 351
Wet mass, definition of.... 6
White Oak Creek near Talco....193-196
near Trinity.... 558
Wichita River, at Wichita Falls.... 126
near Charlie....127-130
near Mabelle.... 120
Wolf Creek at Lipscomb.... 51
Wright Patman Lake near Texarkana....197-206
WRD, definition of.... 15
WSP, definition of.... 15

Zooplankton, definition of.... 11

☆ U.S. GOVERNMENT PRINTING OFFICE: 1982—574-067

October 1, 1978

# FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). This report contains both the inch-pound and SI unit equivalents in the station manuscript descriptions.

| Multiply inch-pound units | By | To obtain SI units |
|---|---|---|
| | *Length* | |
| inches (in) | $2.54 \times 10^{1}$ | millimeters (mm) |
| | $2.54 \times 10^{-2}$ | meters (m) |
| feet (ft) | $3.048 \times 10^{-1}$ | meters (m) |
| miles (mi) | $1.609 \times 10^{0}$ | kilometers (km) |
| | *Area* | |
| acres | $4.047 \times 10^{3}$ | square meters ($m^2$) |
| | $4.047 \times 10^{-1}$ | square hectometers ($hm^2$) |
| | $4.047 \times 10^{-3}$ | square kilometers ($km^2$) |
| square miles ($mi^2$) | $2.590 \times 10^{0}$ | square kilometers ($km^2$) |
| | *Volume* | |
| gallons (gal) | $3.785 \times 10^{0}$ | liters (L) |
| | $3.785 \times 10^{0}$ | cubic decimeters ($dm^3$) |
| | $3.785 \times 10^{-3}$ | cubic meters ($m^3$) |
| million gallons | $3.785 \times 10^{3}$ | cubic meters ($m^3$) |
| | $3.785 \times 10^{-3}$ | cubic hectometers ($hm^3$) |
| cubic feet ($ft^3$) | $2.832 \times 10^{1}$ | cubic decimeters ($dm^3$) |
| | $2.832 \times 10^{-2}$ | cubic meters ($m^3$) |
| cfs-days | $2.447 \times 10^{3}$ | cubic meters ($m^3$) |
| | $2.447 \times 10^{-3}$ | cubic hectometers ($hm^3$) |
| acre-feet (acre-ft) | $1.233 \times 10^{3}$ | cubic meters ($m^3$) |
| | $1.233 \times 10^{-3}$ | cubic hectometers ($hm^3$) |
| | $1.233 \times 10^{-6}$ | cubic kilometers ($km^3$) |
| | *Flow* | |
| cubic feet per second ($ft^3/s$) | $2.832 \times 10^{1}$ | liters per second (L/s) |
| | $2.832 \times 10^{1}$ | cubic decimeters per second ($dm^3/s$) |
| | $2.832 \times 10^{-2}$ | cubic meters per second ($m^3/s$) |
| gallons per minute (gal/min) | $6.309 \times 10^{-2}$ | liters per second (L/s) |
| | $6.309 \times 10^{-2}$ | cubic decimeters per second ($dm^3/s$) |
| | $6.309 \times 10^{-5}$ | cubic meters per second ($m^3/s$) |
| million gallons per day | $4.381 \times 10^{1}$ | cubic decimeters per second ($dm^3/s$) |
| | $4.381 \times 10^{-2}$ | cubic meters per second ($m^3/s$) |
| | *Mass* | |
| tons (short) | $9.072 \times 10^{-1}$ | megagrams (Mg) or metric tons |

USGS LIBRARY - RESTON
3 1818 00455292 1

U.S. DEPARTMENT OF THE INTERIOR
Geological Survey
649 Federal Building, 300 East 8th Avenue
Austin, TX 78701

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE $300

SPECIAL 4TH CLASS BOOK RATE

U.S. GEOLOGICAL SURVEY LIBRARY
NATIONAL CENTER, MAIL STOP 950
12201 SUNRISE VALLEY DRIVE
RESTON, VA 22092