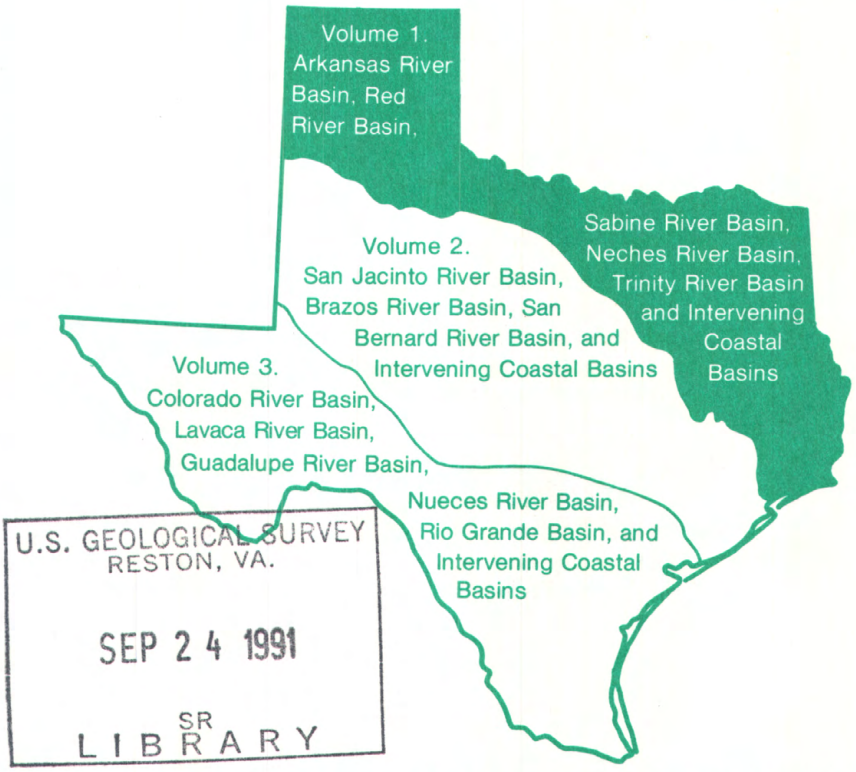
Water Resources Data Texas

Water Year 1990

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-90-1
Prepared in cooperation with the State of Texas
and with other agencies

CALENDAR FOR WATER YEAR 1990

1989

OCTOBER

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1990

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SEPTEMBER

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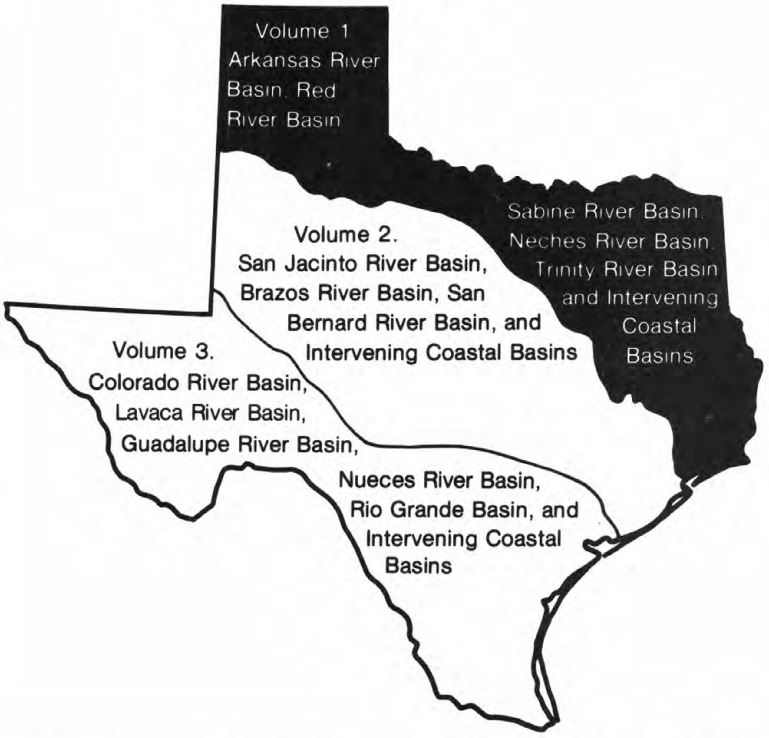
Water Resources Data
Texas
Water Year 1990

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

by H.D. Buckner, and W.J. Shelby



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-90-1
Prepared in cooperation with the State of Texas
and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

MANUEL LUJAN, JR., Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For additional information write to:
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Austin, Texas 78753

1990

PREFACE

This volume of the annual hydrologic data report of Texas is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface-water collection networks in each State, Puerto Rico, and the Trust Territories. These records of streamflow and quality of water, providing the hydrologic information needed by State, local, and Federal agencies, and the private sector for developing and managing land and water resources in Texas are contained in 3 volumes:

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

[District Office, Fort Worth, Houston, and Wichita Falls Subdistricts]

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

[District Office, Austin, Fort Worth, Houston, San Angelo, and Wichita Falls Subdistricts]

Volume 3. Colorado River Basin, Lavaca River Basin, Guadalupe River Basin, Nueces River Basin, Rio Grande Basin, and intervening Coastal Basins

[District Office, Austin, Houston, San Angelo, and San Antonio Subdistricts]

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

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This report was prepared in cooperation with the State of Texas and other agencies under the supervision of C.R. Burchett, District Chief.

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

16. Abstract (Limit: 200 words)
Surface-water data for the 1990 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.

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*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

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FOR WHICH RECORDS ARE PUBLISHED

GAGING STATIONS IN DOWNSTREAM ORDER,
FOR WHICH RECORDS ARE PUBLISHED

GAGING STATIONS IN DOWNSTREAM ORDER,
FOR WHICH RECORDS ARE PUBLISHED

WATER RESOURCES DATA - TEXAS, 1990

VOLUME 1

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

INTRODUCTION

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

This report series includes records of stage, discharge, and water quality of streams and canals; stage, contents, and water quality of lakes and reservoirs. Volume 1 contains records for water discharge at 109 gaging stations; stage only at 6 gaging stations; stage and contents at 36 lakes and reservoirs; and water quality at 62 gaging stations. Also included are data for 11 partial-record stations. Additional water data were collected at 3 miscellaneous sites not involved in the systematic data-collection program. The data in this report represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating City, State, and Federal agencies in Texas.

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

Prior to introduction of this series and for several water years concurrent with it, water resources data for Texas were published in U.S. Geological Survey Water-Supply Papers. Data on stream discharge and stage and on lake or reservoir contents and stage, through September 1960, were published annually under the title "Surface-Water Supply of the United States, Parts 7 and 8." For the 1961 through 1970 water years, the data were published in two 5-year reports. Data on chemical quality, temperature, and suspended sediment for the 1941 through 1970 water years were published annually under the title "Quality of Surface Waters of the United States," and water levels for the 1935 through 1974 water years were published under the title "Ground-Water Levels in the United States." The above mentioned Water-Supply Papers may be consulted in the libraries of the principal cities of the United States and may be purchased from U.S. Geological Survey, Books and Open-File Reports, Federal Center, Bldg. 41, Box 25425, Denver, CO 80225.

Publications similar to this report are published annually by the Geological Survey for all States. These official Geological Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water Data Report TX-90-1." For archiving and general distribution, the reports for the 1971-74 water years also are identified as water-data reports. These water-data reports are for sale in paper copy or may be purchased on microfiche from the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information, including the current prices, for ordering specific reports may be obtained from the District Chief at the address given on the back of the title page or by telephone (512) 832-5791.

COOPERATION

Federal agencies that assisted the Geological Survey in the collection of data in this report in the form of funds or services in 1990 are:

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

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

Texas Water Development Board, M.R. Arnold II, Executive Administrator; the cities of Abilene, Arlington, Austin, Carrollton, Corpus Christi, Dallas, Fort Worth, Gainesville, Garland, Graham, Houston, Lubbock, Nacogdoches, Runaway Bay, San Angelo, San Antonio, and Wichita Falls; Bexar, Medina, and Atascosa Counties Water Control and Improvement District No. 1; Brazos River Authority; Coastal Industrial Water Authority; Colorado River Municipal Water District; 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; Lavaca-Navidad River Authority; Lower Colorado River Authority; Lower Neches Valley Authority; North Central Texas Municipal Water Authority; Northeast Texas Municipal Water District; North Texas Municipal Water District; Pecos River Commission; Red Bluff Water Power Control District; Red River Authority; Sabine River Authority of Texas; Sabine River Compact Administration; San Antonio City Public Service Board; San Antonio City Water Board; San Antonio River Authority; San Jacinto River Authority; Tarrant County Water Control and Improvement District No. 1; Texas Water Commission; Texas Water Development Board; Titus County Fresh Water Supply District No. 1; Trinity River Authority; Upper Guadalupe River Authority; Upper Neches River Municipal Water Authority; West Central Texas Municipal Water District; and Wichita County Water Improvement District No. 2.

HYDROLOGIC CONDITIONS

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

Precipitation distribution for water year 1990 did not follow the long-term precipitation pattern. Above-normal precipitation occurred from El Paso in far west Texas, eastward through the Edwards Plateau into the North Central climatic division and the northern half of the East Texas climatic division (fig. 1). All other areas received from slightly above to below-normal precipitation, except the lower Rio Grande Valley, which continued to receive much below-normal precipitation during the year.

The above-normal precipitation in North-Central and the northern half of East Texas was the result of heavy rains that began in April and continued through May. From January 1 to May 24, 1990, the Dallas/Fort Worth metropolitan area of North-Central Texas received 27.17 inches of precipitation (17.50 inches above normal). During April, 15 percent of reporting stations in North-Central and the northern half of East Texas received more than 10 inches, with an additional 55 percent receiving from 5 to 10 inches. The maximum monthly precipitation of 14.66 inches for Brownwood during April resulted in extensive flooding in that general area. During May, 10 percent of reporting stations in North-Central Texas received more than 10 inches, with an additional 40 percent receiving from 5 to 10 inches. In the northen half of East Texas, 23 percent of stations received more than 10 inches and an additional 55 percent of reporting stations received from 5 to 10 inches of precipitation.

Streamflow during the current water year generally followed the precipitation patterns. Streamflow was above normal for much of the year in North-Central, the northern half of East Texas, and the upper part of South-Central Texas. Record flooding occurred along the Red, Trinity, and the middle Brazos River basins during the year. All other river basins were near normal for the year.

Conservation storage in 74 selected reservoirs throughout the State, with a combined conservation capacity of 34,049,000 acre-feet, showed no change during the year and remained at 85 percent of conser-

vation capacity. Records from the individual reservoirs indicate that storage increased in 27, decreased in 41, and remained the same in 6.

The area for which water-resources data are presented in volume 1 includes the Texas Panhandle and extends across northern and eastern Texas to southeastern Texas. Normal annual precipitation in this area ranges from about 17 inches in the western part of the Texas Panhandle to more than 56 inches in the extreme southeastern part of the State. Annual runoff ranges from less than 1.0 inch in parts of the Panhandle to as much as 15 inches in southeastern Texas. The area described in volume 1 and the location of selected streamflow and water-quality stations in the area are shown in figure 2.

Streamflow

Streamflow was above normal at most of the area described in volume 1 for water year 1990. Five of six selected streamflow stations in the area had streamflow in the above-normal range, and only the Panhandle station (Canadian River near Amarillo) had slightly below-normal streamflow, although streamflows were normal for several months at individual stations. This streamflow pattern was the result of above-normal precipitation over the area during the water year 1990. Precipitation amounts during April and May in North-Central and the northern half of East Texas were more than 25 percent of the yearly total precipitation for these areas. The High Plains (Panhandle), Low Rolling Plains, and East Texas areas (fig. 1) had near-normal precipitation for the year, whereas the north and the northern half of East Texas areas had above-normal precipitation.

Streamflow at the hydrologic index station Neches River near Rockland was within the highest 25 percent of record during February, March, April, and June, and normal for the remainder of the year. A comparison of streamflow for water year 1990 with streamflow for the period of record at six selected stations (fig. 2) for which data are included in volume 1 is presented in table 1.

Table 1.—Streamflow at five selected stations for water year 1990

Station no. and name	Discharge during 1990 water year (cubic feet per second)			Discharge during period of record (cubic feet per second)		
	Max.	Min.	Avg.	Max.	Min.	Avg.
Arkansas River basin						
07227500 Canadian River near Amarillo, Tex.	13,700	0.0	89	135,000	0.0 (1925, 1939-90)	305
Red River basin						
07308500 Red River near Burkburnett, Tex. 1/	29,900	122	1,167	166,000	0.0	1,029 (1961-90)
Sabine River basin						
08022040 Sabine River near Beckville, Tex.	33,200	91	3,778	123,000	2.4	2,321 (1961-90)
Neches River basin						
08033500 Neches River near Rockland, Tex. 2/	25,900	111	2,989	49,800	1.6	2,060 (1962-90)
Trinity River basin						
08057000 Trinity River at Dallas, Tex.	82,300	311	5,337	184,000	1.2	1,596 (1904-90)

1/ National Stream Quality Accounting Network (NASQAN) site.
2/ Hydrologic index station.

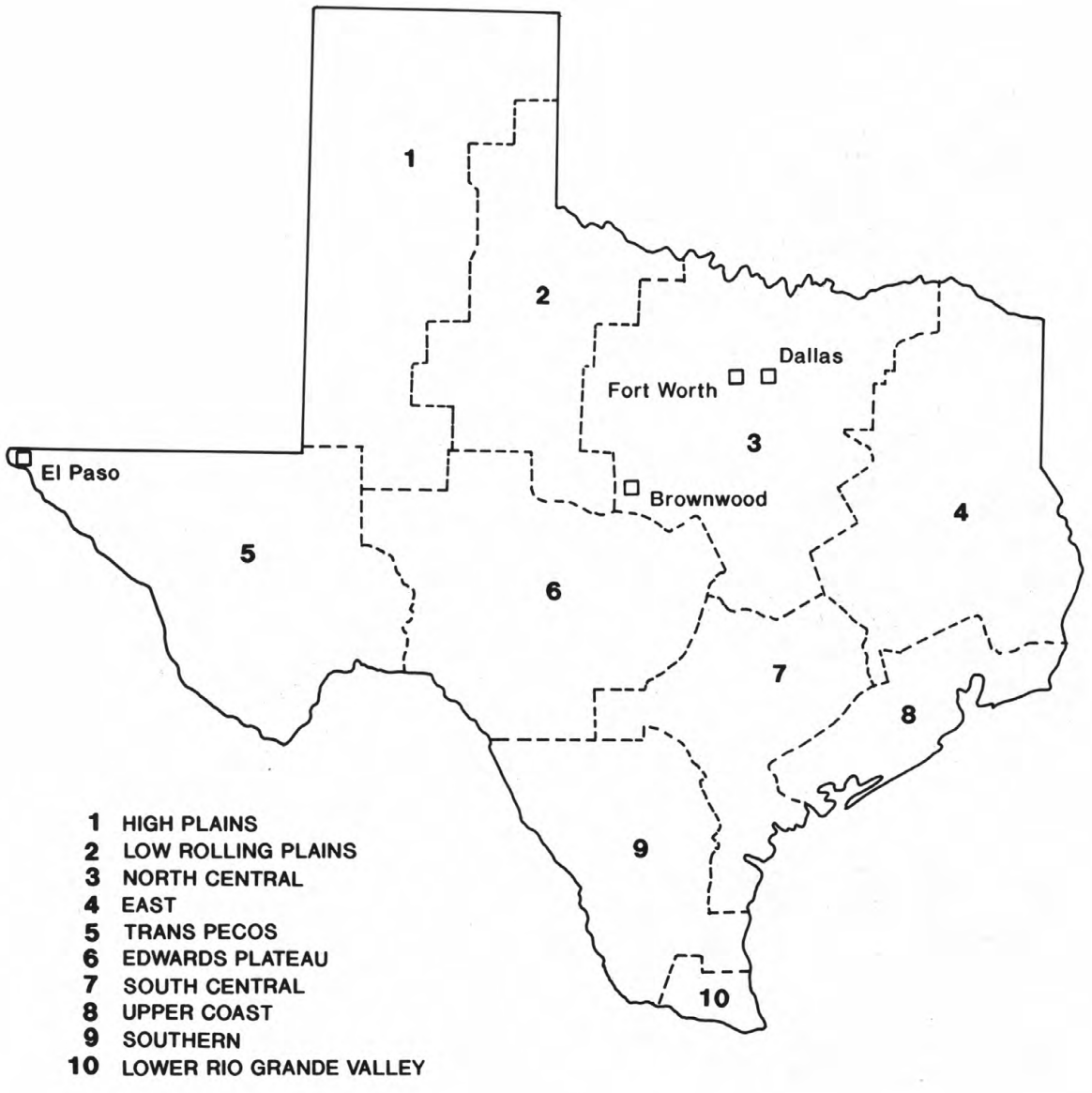

Figure 1.--Ten climatic divisions of the State (Modified from U.S. Department of Commerce, National Oceanic and Atmospheric Administration, 1990, Climatological data, Texas, 1990: National Climatic Data Center, v. 95, no. 9).

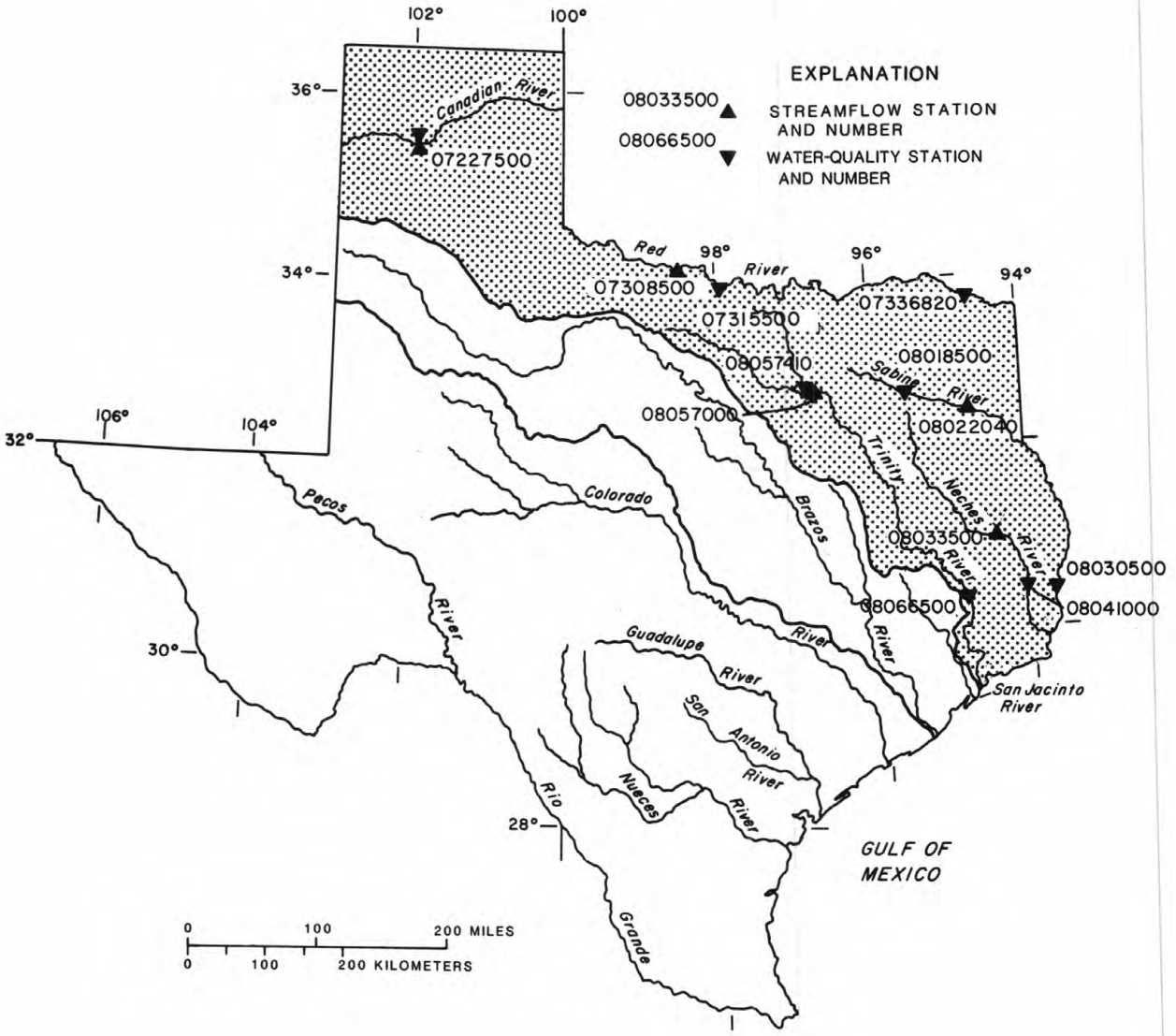

Figure 2.--Area of Texas covered by volume 1 (shaded) and location of selected streamflow and water-quality stations in volume 1.

At the other three index stations in the State, streamflow during water year 1990 was below normal to above normal. Streamflow at the North Bosque River near Clifton was above normal during March, April, May, and August (within the highest 25 percent of record), and normal for the remainder of the year. The North Concho River near Carlsbad had above-normal streamflow from December through March and during June, and normal streamflow for the remainder of the year. The Guadalupe River near Spring Branch had above-normal streamflow during May, July, and August, with normal streamflow for the remainder of the year, with the exception of October, which had below-normal streamflow (within the lowest 25 percent of record).

Monthly mean discharges and the median of the monthly mean discharges for water years 1951-80 for the four long-term hydrologic index stations in the State are shown in figure 3.

Conservation storage in 34 selected reservoirs in this area of the State, with a total combined conservation capacity of 21,595,000 acre-feet, decreased from 91 percent of capacity at the end of September 1989 to 88 percent of capacity at the end of September 1990. Records from these reservoirs indicate that storage increased in 7, decreased in 24, and remained the same in 3 during water year 1990.

Water Quality

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

Records of discharge-weighted-average concentrations of dissolved solids for water year 1990 are compared with those for water years 1986-90 for selected long-term daily or continuous-record water-quality stations (fig. 2) in the Arkansas, Red, Sabine, Neches, and Trinity River basins. Results are shown in table 2.

Table 2.—Comparison of records of discharge-weighted-average concentrations of dissolved solids for the 1990 water year

Station no. and name	Mean discharge (cubic feet per second)		Discharge-weighted-average concentration of dissolved solids (milligrams per liter)	
	1990	1986-90	1990	1986-90
Arkansas River basin				
07227500 Canadian River near Amarillo, Tex.	89	165	1,160	910
Red River basin				
07315500 Red River near Terral, Okla.	5,262	4,390	1,050	1,290
07336820 Red River near DeKalb, Tex.	30,100	19,040	319	470
Sabine River basin				
08018500 Sabine River near Mineola, Tex.	1,550	931	92	112
08030500 Sabine River near Ruliff, Tex.	9,928	9,493	67	74
Neches River basin				
08041000 Neches River at Evadale, Tex.	7,218	6,743	81	85
Trinity River basin				
08057410 Trinity River below Dallas, Tex.	5,891	3,268	209	241
08066500 Trinity River at Romayor, Tex.	14,680	9,441	186	193

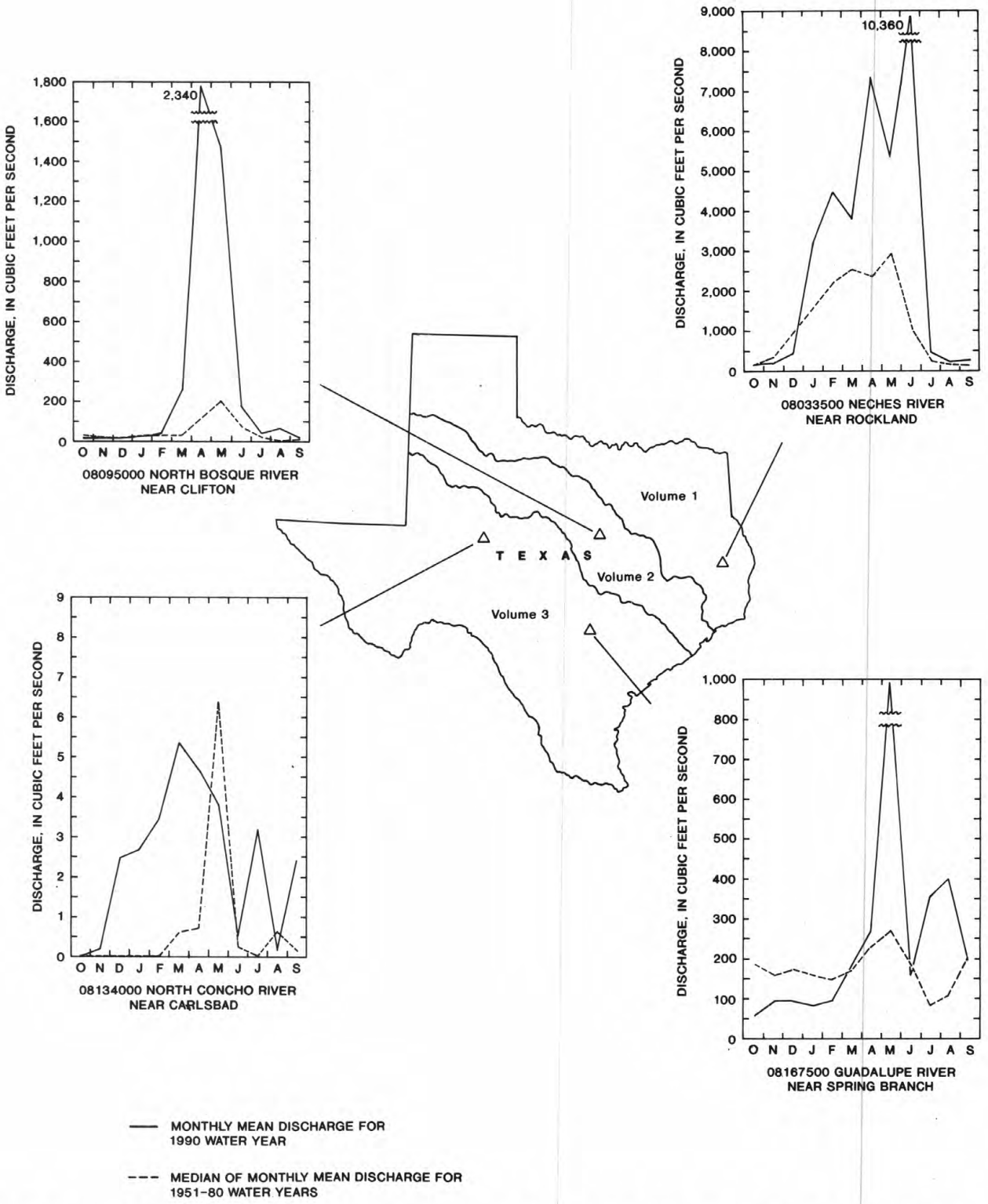

Figure 3.--Comparison of monthly mean discharges at four long-term hydrologic index gaging stations during the 1990 water year with median of the monthly mean discharges for 1951-80 water years.

SPECIAL NETWORKS AND PROGRAMS

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

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

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

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

EXPLANATION OF THE RECORDS

The surface-water records published in this report are for the 1990 water year that began October 1, 1989, and ended September 30, 1990. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, and water-quality data for surface water. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

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

Downstream Order Numbering

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

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

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

Records of Stage and Water Discharge

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

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

Data Collection and Computation

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

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

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

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

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

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

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

Data Presentation

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

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

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

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

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

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

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

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

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

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

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

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

EXTREMES FOR CURRENT YEAR.—Extremes given here are similar to those for the period of record, except the peak discharge listing may include secondary peaks. For stations meeting certain criteria, all peak discharges and stages occurring during the water year and greater than a selected base discharge are presented under this heading. The peaks greater than the base discharge, excluding the highest one, are referred to as secondary peaks. Peak discharges are not published for canals, ditches, drains, or streams for which the peaks are subject to substantial control by man. The time of occurrence for peaks is expressed in 24-hour local standard time. For example, 12:30 a.m. is 0030, and 1:30 p.m. is 1330. The minimum for the current water year appears below the table of peak data.

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

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

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

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

Identifying Estimated Daily Discharge

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

Accuracy of the Records

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

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

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

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

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

Other Records Available

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

Records of Surface-Water Quality

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

Classification of Records

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

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

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

Arrangement of Records

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

On site Measurements and Sample Collection

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

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

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

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

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

Water Temperature

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

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

Sediment

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

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

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

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

Laboratory Measurements

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

Data Presentation

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

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

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

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

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

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

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

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

EXTREMES.—Maximums and minimums are given only for parameters measured daily or more frequently. None are given for parameters measured weekly or

less frequently, because the true maximums or minimums may not have been sampled. Extremes, when given, are provided for both the period of record and for the current water year.

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

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

Remark Codes

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

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

ACCESS TO WATSTORE DATA

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

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

General inquiries about WATSTORE may be directed to:

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

DEFINITION OF TERMS

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

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

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

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

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

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

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 24 hours at 35 °C. In the laboratory these bacteria are defined as all the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35 °C plus or minus I.0 °C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

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

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

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

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

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

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

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

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

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

Bottom material: See Bed material.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\bar{d} = -\sum_{i=1}^{s} \frac{n_i}{n} \log_2 \frac{n_1}{n}$$

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

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

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

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

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is computed as the sum of equivalents of polyvalent cations and is expressed as the equivalent concentration of calcium carbonate ($CaCO_3$).

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

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

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

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

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

Micrograms per liter (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 represents the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L and is based on the mass of dry sediment per liter of water-sediment mixture.

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

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

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

Organism is any living entity.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Milligrams of oxygen per area or volume per unit time [mg 0/(m^2.time)] for periphyton and macrophytes and [mg 0/(m^3.time)] or phytoplankton are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Solute is any substance that is dissolved in water.

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

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

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

Substrate is the physical surface upon which an organism lives.

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

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

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

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

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

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

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

Suspended, total is the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45 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.

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

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

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

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

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

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

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

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

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

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

Water year in Geological Survey reports dealing with surface-water supply is the 12-month period October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1990, is called the "water year 1990."

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

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted aver-

age approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

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

PUBLICATIONS OF TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

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

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

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

1-D2. ***Guidelines for collection and field analysis of ground-water samples for selected unstable constituents,*** by W.W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 p.

2-D1. ***Application of surface geophysics to ground-water investigations,*** by A.A.R. Zohdy, G.P. Eaton, and D.R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 p.

2-D2. ***Application of seismic-refraction techniques to hydrologic studies,*** by F.P. Haeni: USGS--TWRI Book 2, Chapter D2. 1988. 86 p.

2-E1. ***Application of borehole geophysics to water-resources investigations,*** by W.S. Keys and L.M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 p.

2-F1. ***Application of drilling, coring, and sampling techniques to test holes and wells,*** by Eugene Shuter and Warren E. Teasdale: USGS--TWRI Book 2, Chapter F1. 1989. 97 p.

3-A1. ***General field and office procedures for indirect discharge measurements,*** by M.A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 p.

3-A2. ***Measurement of peak discharge by the slope-area method,*** by Tate Dalrymple and M.A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 p.

3-A3. ***Measurement of peak discharge at culverts by indirect methods,*** by G.L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 p.

3-A4. ***Measurement of peak discharge at width contractions by indirect methods,*** by H.F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 p.

3-A5. ***Measurement of peak discharge at dams by indirect methods,*** by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 p.

3-A6. ***General procedure for gaging streams,*** by R.W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 p.

3-A7. ***Stage measurements at gaging stations,*** by T.J. Buchanan and W.P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 p.

3-A8. ***Discharge measurements at gaging stations,*** by T.J. Buchanan and W.P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 p.

3-A9. ***Measurement of time of travel in streams by dye tracing,*** by F.A. Kilpatrick, and J.F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1989. 27 p.

3-A10. ***Discharge ratings at gaging stations,*** by E.J. Kennedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 p.

3-A11. ***Measurement of discharge by moving-boat method,*** by G.F. Smoot and C.E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 p.

3-A12. ***Fluorometric procedures for dye tracing,*** by J.F. Wilson, Jr., E.D. Cobb, and F.A. Kilpatrick: USGS--TWRI Book 3, Chapter A12, 1986. 41 p.

3-A13. ***Computations of continuous records of streamflow,*** by E.J. Kennedy: USGS--TWRI Book 3, Chapter A13, 1983. 53 p.

3-A14. ***Use of flumes in measuring discharge,*** by F.A. Kilpatrick and V.R. Schneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 p.

3-A15. ***Computation of water-surface profiles in open channels,*** by Jacob Davidian: USGS--TWRI Book 3, Chapter A15. 1984. 48 p.

3-A16. ***Measurement of discharge using tracers,*** by F.A. Kilpatrick and E.D. Cobb: USGS--TWRI Book 3, Chapter A16. 1985. 52 p.

3-A17. ***Acoustic velocity meter systems,*** by Antonius Laenen: USGS--TWRI Book 3, Chapter A17. 1985. 38 p.

3-A18. ***Determination of stream reaeration coefficients by use of tracers,*** by F.A. Kilpatrick, R.E. Rathbun, N.Yotsukura, G.W. Parker, and L.L. DeLong: USGS--TWRI Book 3, Chapter A18. 1989. 52 p.

3-A19. ***Levels of streamflow gaging stations,*** by E.J. Kennedy: USGS--TWRI Book 3, Chapter A19. 1990. 27 p.

3-B1. ***Aquifer-test design, observation, and data analysis,*** by R.W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 p.

3-B2. ***Introduction to ground-water hydraulics, a programmed text for self instruction,*** by G.D. Bennett: USGS--TWRI Book3, Chapter B2. 1976. 172 p.

3-B3. ***Type curves for selected problems of flow to wells in confined aquifers,*** by J.E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 p.

3-B4. ***Regression modeling of ground-water flow,*** by Richard L. Cooley and Richard L. Naff: USGS--TWRI Book 3, Chapter B4. 1990. 232 p.

3-B5. ***Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems--An introduction,*** by O.L. Franke, T.E. Reilly, and G.D. Bennett: USGS--TWRI Book 3, Chapter B5. 1987. 15 p.

3-B6. ***The principle of superposition and its application in ground-water hydraulics,*** by T.E. Reilly, O.L. Franke, and G.D. Bennett: USGS--TWRI Book 3, Chapter B6. 1987. 28 p.

3-C1. ***Fluvial sediment concepts,*** by H.P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 p.

3-C2. ***Field methods for measurement of fluvial sediment,*** by H.P. Guy and V.W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 p.

3-C3. ***Computation of fluvial-sediment discharge,*** by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 p.

4-A1. ***Some statistical tools in hydrology,*** by H.C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 p.

4-A2. ***Frequency curves,*** by H.C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 p.

4-B1. ***Low-flow investigations,*** by H.C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 p.

4-B2. ***Storage analyses for water supply,*** by H.C. Riggs and C.H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 p.

4-B3. ***Regional analyses of streamflow characteristics,*** by H.C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 p.

4-D1. ***Computation of rate and volume of stream depletion by wells,*** by C.T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 p.

5-A1. ***Methods for determination of inorganic substances in water and fluvial sediments,*** by M.J. Fishman and L.C. Friedman: USGS--TWRI Book 5, Chapter A1. 1989. 545 p.

5-A2. ***Determination of minor elements in water by emission spectroscopy,*** by P.R. Barnett and E.C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 p.

5-A3. ***Methods for the determination of organic substances in water and fluvial sediments,*** edited by R.L. Wershaw, M.J. Fishman, R.R. Grabbe, and L.E. Lowe: USGS--TWRI Book 5, Chapter A3. 1987. 80 p.

5-A4. ***Methods for collection and analysis of aquatic biological and microbiological samples,*** by L.J. Britton and P.E. Greeson, editors: USGS--TWRI Book 5, Chapter A4. 1989. 363 p.

5-A5. ***Methods for determination of radioactive substances in water and fluvial sediments,*** by L.L. Thatcher, V.J. Janzer, and K.W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 p.

5-A6. ***Quality assurance practices for the chemical and biological analyses of water and fluvial sediments,*** by L.C. Friedman and D.E. Erdmann: USGS--TWRI Book 5, Chapter A6. 1982. 181 p.

5-C1. ***Laboratory theory and methods for sediment analysis,*** by H.P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 p.

6-A1. ***A modular three-dimensional finite-difference ground-water flow model,*** by M.G. McDonald and A.W. Harbaugh: USGS--TWRI Book6, Chapter A1. 1988. 586 p.

7-C1. ***Finite difference model for aquifer simulation in two dimensions with results of numerical experiments,*** by P.C. Trescott, G.F. Pinder, and S.P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 p.

7-C2. ***Computer model of two-dimensional solute transport and dispersion in ground water,*** by L.F. Konikow and J.D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 p.

7-C3. ***A model for simulation of flow in singular and interconnected channels,*** by R.W. Schaffrannek, R.A. Baltzer, and D.E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1983. 110 p.

8-A1. ***Methods of measuring water levels in deep wells,*** by M.S. Garber and F.C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 p.

8-A2. ***Installation and service manual for U.S. Geological Survey manometers,*** by J.D. Craig: USGS--TWRI Book 8, Chapter A2. 1983. 57 p.

8-B2. ***Calibration and maintenance of vertical-axis type current meters,*** by G.F. Smoot and C.E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 p.

LOWER MISSISSIPPI RIVER BASIN

ARKANSAS RIVER BASIN

07227000 CANADIAN RIVER AT LOGAN, NM

LOCATION.--Lat 35°21'25", long 103°25'03", in NE1/4ne1/4 sec.15, T.13 N., R.33 E., Quay County, Hydrologic Unit 11080006, on left bank 1,100 ft upstream from bridge on U.S. Highway 54, 0.7 mi south of Logan, 1.4 mi upstream from Chicago, Rock Island & Pacific Railroad Co. bridge, 2.0 mi downstream from Ute Dam, 4.3 upstream from Revuelto Creek, and at mile 672.0.

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

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

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

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

REMARKS.--Records poor. Flow regulated by Conchas Lake, 45 mi upstream (station 07223500) and Ute Reservoir, 2 mi upstream (station 07226800). Diversions for irrigation of about 90,000 acres upstream from 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 (284,000 acre-ft/yr); 24 years (water years 1939-62) prior to completion of Ute dam, 257 ft³/s (186,200 acre-ft/yr); 28 years (water years 1963-90), 36.4 ft³/s (26,370 acre-ft/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 357 ft³/s Nov. 1 (gage height, 3.72 ft); minimum daily, 3.2 ft³/s Nov. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	171	3.7	4.2	4.6	5.2	4.9	4.3	3.5	3.5	3.4	3.9
2	3.7	347	3.7	4.1	4.6	5.2	4.9	4.3	3.5	3.5	3.5	3.9
3	3.7	341	3.7	5.3	4.6	5.2	4.8	4.6	3.6	3.5	3.5	4.0
4	3.8	341	3.7	4.2	4.5	5.4	4.6	4.5	3.6	3.5	3.6	3.9
5	4.1	336	3.7	4.3	4.6	5.5	4.6	4.1	3.6	3.5	3.4	3.9
6	4.5	332	3.7	4.3	4.5	5.8	4.6	4.0	3.6	3.5	3.4	3.9
7	4.2	328	3.7	4.3	4.5	6.1	4.5	3.9	3.6	3.5	3.5	4.0
8	4.3	309	3.7	4.3	4.6	5.8	4.4	3.9	3.7	3.6	3.5	4.0
9	4.4	323	3.7	4.3	4.6	5.8	4.4	3.9	3.6	3.5	3.4	3.8
10	4.6	320	3.7	4.4	4.7	5.8	4.3	3.8	3.5	3.5	3.5	3.9
11	4.6	317	3.7	4.4	4.7	6.7	4.1	3.8	3.5	3.6	3.6	4.1
12	4.0	314	3.7	4.4	5.1	6.5	4.1	3.9	3.5	3.5	3.6	4.1
13	4.0	311	3.7	4.4	4.8	6.5	4.1	3.8	3.5	3.5	3.9	4.2
14	4.0	326	3.7	4.4	4.6	6.2	4.1	3.8	3.5	3.5	4.5	4.3
15	4.2	342	3.7	4.5	4.7	5.8	4.1	3.8	3.5	3.5	5.7	4.7
16	4.0	341	3.7	4.5	4.7	5.8	4.0	3.8	3.5	3.5	3.9	7.4
17	4.0	340	3.7	4.5	4.6	5.7	4.0	3.8	3.6	3.4	3.6	4.9
18	4.1	209	3.7	4.6	4.7	5.6	4.0	3.8	3.5	4.2	3.8	3.7
19	4.2	4.5	3.7	4.6	4.7	5.6	4.2	3.8	3.5	3.6	4.0	3.7
20	4.1	3.3	3.7	4.7	5.6	5.6	4.3	3.8	3.5	3.4	4.0	3.6
21	4.3	3.2	3.8	4.7	4.9	5.5	4.1	3.8	3.6	3.5	4.0	3.6
22	4.3	3.3	3.9	4.7	4.9	5.3	4.1	3.7	3.5	3.5	3.8	3.6
23	4.3	3.4	4.0	4.7	4.9	5.3	4.2	3.5	3.5	3.4	3.9	3.7
24	4.6	3.5	4.0	4.7	4.9	5.3	4.3	3.5	3.5	3.6	3.9	4.0
25	4.7	3.6	3.8	4.6	5.1	5.3	4.2	3.5	3.5	3.5	3.8	4.0
26	9.0	3.7	4.0	4.6	5.2	5.3	4.2	3.5	3.5	3.4	3.9	3.9
27	5.4	3.7	4.0	4.5	5.2	5.3	4.2	3.5	3.5	3.5	3.9	3.7
28	6.0	3.7	4.0	4.5	5.1	5.0	4.0	3.5	3.5	3.5	3.9	3.6
29	4.8	3.7	4.0	4.7	---	5.2	4.1	4.5	3.5	4.0	3.9	3.7
30	4.1	3.7	4.0	4.7	---	5.0	4.6	3.9	3.5	3.5	4.0	3.6
31	4.4	---	4.1	4.7	---	5.0	---	3.9	---	3.4	3.9	---
TOTAL	138.0	5691.3	117.6	139.8	134.2	173.3	129.0	120.2	106.0	109.6	118.2	121.3
MEAN	4.45	190	3.79	4.51	4.79	5.59	4.30	3.88	3.53	3.54	3.81	4.04
MAX	9.0	347	4.1	5.3	5.6	6.7	4.9	4.6	3.7	4.2	5.7	7.4
MIN	3.6	3.2	3.7	4.1	4.5	5.0	4.0	3.5	3.5	3.4	3.4	3.6
AC-FT	274	11290	233	277	266	344	256	238	210	217	234	241

CAL YR 1989 TOTAL 7190.3 MEAN 19.7 MAX 347 MIN 2.2 AC-FT 14260
WTR YR 1990 TOTAL 7098.5 MEAN 19.4 MAX 347 MIN 3.2 AC-FT 14080

07227100 REVUELTO CREEK NEAR LOGAN, NM

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

DRAINAGE AREA.--786 mi².

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

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

REMARKS.--Records poor, including those of estimated daily discharges. Low flows supplemented by surface- and ground-water return from irrigation in the vicinity of Tucumcari. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--31 years, 44.2 ft³/s (32,020 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,700 ft³/s July 9, 1960 (gage height, 14.3 ft, 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 ft³/s Sept. 18, 1946, (gage height, 9.04 ft), at site 180 ft downstream at different datum from unpublished records collected by U.S. Bureau of Reclamation.

A peak discharge of 26,100 ft³/s, date unknown (gage height, 12.9 ft), at former site and datum, was measured by slope-area method in May 1957.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Sept. 24	0830	*4,970	*6.96	No other peak greater than base discharge.			

No flow June 29 to July 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	e2.0	1.6	1.9	39	4.1	1.9	3.0	3.2	.00	e20	e16
2	2.6	e2.0	1.7	2.4	22	4.1	1.6	4.1	1.9	.56	e13	e16
3	4.4	e2.0	1.3	2.3	28	3.1	1.3	27	1.1	.80	e20	e16
4	4.8	e2.0	1.4	1.8	11	2.7	1.0	130	.79	2.6	e11	e16
5	8.5	e2.0	1.5	1.8	8.4	2.6	.76	47	.64	3.1	e8.0	e16
6	15	e2.0	1.4	1.7	8.5	2.3	.66	31	.44	2.2	35	e16
7	14	e2.0	1.6	3.0	11	1.5	.71	22	.25	.70	219	11
8	15	e2.0	1.8	1.9	10	1.4	.58	15	.24	1.3	e112	e45
9	13	e2.0	1.7	2.4	8.2	1.4	.49	14	.38	4.0	e90	e80
10	12	e2.0	1.5	1.9	6.5	1.6	.40	10	.26	4.7	e80	e50
11	12	e2.0	1.5	1.6	6.4	3.2	.32	9.0	.17	5.1	e70	e20
12	7.0	e2.0	1.8	1.3	3.6	14	.37	10	.07	5.6	e60	e15
13	3.4	e4.0	2.4	1.5	.93	3.7	.47	10	1.2	3.9	e300	8.5
14	3.3	5.0	3.1	1.5	.75	1.8	.45	13	2.5	4.3	e400	4.6
15	7.6	5.8	3.0	1.5	1.1	1.6	.48	9.2	1.8	3.8	e100	4.3
16	8.7	4.0	1.9	1.3	1.8	1.6	.39	7.4	1.6	2.3	e90	96
17	9.5	2.7	2.8	1.4	1.7	1.4	.32	3.8	1.1	1.5	e70	1070
18	15	2.5	4.8	3.3	1.4	1.2	.28	4.6	.60	30	e60	754
19	e10	2.0	3.7	8.2	1.2	.95	.87	4.6	.18	13	e50	146
20	e5.0	1.9	4.2	11	264	.88	24	3.3	.55	7.6	e40	17
21	e3.5	1.8	4.7	18	149	.81	9.2	3.7	1.7	58	e30	146
22	e2.5	1.5	4.8	21	111	.79	3.0	3.8	1.1	169	e28	238
23	e2.5	1.4	13	111	58	.71	6.2	5.0	1.1	77	e25	121
24	e2.5	1.4	12	230	12	.98	1.6	2.8	2.4	28	e22	16
25	e2.5	1.2	11	110	7.7	1.2	4.5	2.4	.83	13	e20	5.3
26	e2.5	1.2	12	79	5.6	1.4	2.0	1.7	.32	7.8	e20	2.4
27	e2.5	1.2	9.1	98	4.7	1.4	1.9	1.4	.19	5.1	e19	1.3
28	e2.5	1.1	4.2	60	4.9	1.2	2.6	1.8	.16	78	e18	.82
29	e2.5	1.1	2.5	29	---	2.9	2.4	3.7	.02	59	e17	1200
30	e2.5	1.4	2.1	32	---	5.0	2.4	2.6	.00	e45	e17	286
31	e2.5	---	2.2	23	---	3.2	---	3.3	---	e30	e16	---
TOTAL	203.8	65.2	122.3	864.7	788.38	74.72	73.15	410.2	26.79	666.96	2080.0	4434.22
MEAN	6.57	2.17	3.95	27.9	28.2	2.41	2.44	13.2	.89	21.5	67.1	148
MAX	15	5.8	13	230	264	14	24	130	3.2	169	400	1200
MIN	2.5	1.1	1.3	1.3	.75	.71	.28	1.4	.00	.00	8.0	.82
AC-FT	404	129	243	1720	1560	148	145	814	53	1320	4130	8800

CAL YR 1989 TOTAL 14419.52 MEAN 39.5 MAX 1310 MIN .05 AC-FT 28600
WTR YR 1990 TOTAL 9810.42 MEAN 26.9 MAX 1200 MIN .00 AC-FT 19460

e Estimated

07227500 CANADIAN RIVER NEAR AMARILLO, TX

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

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

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1341: Drainage area.

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

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

AVERAGE DISCHARGE.--53 years (water years 1925, 1939-90), 305 ft³/s (221,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 135,000 ft³/s July 25, 1941 (gage height, 15.7 ft), from rating curve extended above 100,000 ft³/s; no flow at times.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 14,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Sept. 29	0630	*13,700	*6.98				

Minimum discharge, no flow June 24 to July 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	16	60	31	110	173	63	26	14	.00	.18	1.7
2	34	19	56	28	94	135	54	40	4.6	.00	.16	1.6
3	30	21	44	29	92	132	49	174	2.2	.00	.17	1.3
4	26	20	46	30	89	107	46	106	1.6	.00	.18	1.1
5	32	101	39	27	75	92	42	70	1.2	.00	.12	.83
6	97	287	33	27	60	80	38	52	1.1	.00	.11	1.7
7	69	356	50	e26	61	64	36	36	.80	.00	.10	8.6
8	55	431	40	27	49	53	25	37	.52	.00	.09	2.0
9	49	480	36	30	43	49	27	37	.35	.00	.13	1.6
10	35	493	31	27	39	60	20	32	.29	.00	.12	1.4
11	26	479	22	26	34	80	19	26	.26	.00	.12	1.4
12	24	515	15	23	30	85	19	20	.24	.00	.15	1.1
13	22	526	e13	22	25	68	20	16	.24	.00	113	.81
14	20	548	17	21	21	57	22	14	.21	.00	23	.54
15	18	541	e16	21	e20	48	19	12	.19	.00	91	.31
16	16	511	e15	21	e20	46	17	9.3	.17	.00	100	.42
17	17	497	e15	21	23	45	15	6.8	.13	.00	202	.41
18	19	530	e15	28	21	47	17	6.0	.10	.00	205	.32
19	20	461	e15	e27	20	46	20	4.9	.05	.00	91	487
20	23	468	e16	e26	44	37	24	4.2	.06	179	162	449
21	20	405	e14	e30	141	32	28	3.7	.04	105	98	1750
22	19	251	e13	e35	149	26	25	3.3	.02	40	40	465
23	19	174	28	57	227	22	29	2.7	.01	6.9	22	200
24	19	119	41	106	281	24	30	2.5	.00	1.4	14	94
25	21	104	39	127	281	24	366	2.4	.00	.75	8.9	84
26	25	83	34	91	244	28	193	2.3	.00	1.6	4.7	127
27	21	72	35	100	218	35	97	2.3	.00	492	3.6	90
28	19	62	41	164	185	25	61	2.1	.00	9.9	2.8	64
29	17	56	46	125	---	46	36	2.0	.00	2.0	2.3	6800
30	16	57	50	120	---	102	31	69	.00	1.1	2.0	683
31	15	---	40	112	---	65	---	58	---	.24	1.7	---
TOTAL	880	8683	975	1585	2696	1933	1488	879.5	28.38	839.89	1188.63	11320.14
MEAN	28.4	289	31.5	51.1	96.3	62.4	49.6	28.4	.95	27.1	38.3	377
MAX	97	548	60	164	281	173	366	174	14	492	205	6800
MIN	15	16	13	21	20	22	15	2.0	.00	.00	.09	.31
AC-FT	1750	17220	1930	3140	5350	3830	2950	1740	56	1670	2360	22450

CAL YR 1989	TOTAL 55256.5	MEAN 151	MAX 3940	MIN 5.3	AC-FT 109600				
WTR YR 1990	TOTAL 32496.54	MEAN 89.0	MAX 6800	MIN .00	AC-FT 64460				

e Estimated

07227500 CANADIAN RIVER NEAR AMARILLO, TX--Continued

WATER-QUALITY RECORDS

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

PERIOD OF RECORD.--
SPECIFIC CONDUCTANCE: October 1950 to current year.
WATER TEMPERATURE: August 1949 to current year.
SUSPENDED SEDIMENT DISCHARGE: August 1949 to September 1952.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 9,180 microsiemens June 8, 1990; minimum daily, 346 microsiemens Oct. 29, 1964.
WATER TEMPERATURE (1949-76, 1988 to current year): Maximum daily, 39.0°C July 7, 1973; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 9,180 microsiemens June 8; minimum daily, 360 microsiemens July 21.
WATER TEMPERATURE; Maximum daily, 34.0°C June 7, Aug. 29; minimum daily, 0.0°C Dec. 21-23.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB DISSOLVED AS CACO3 (MG/L)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)
NOV 14...	0915	546	1510	8.2	6.5	14.8	137	1.7	260	130	56	29
JAN 23...	0910	65	3260	8.3	1.5	14.9	121	0.4	490	290	120	46
MAR 13...	0930	68	3320	8.3	16.5	9.4	110	2.5	400	180	91	43
MAY 15...	0930	14	4900	8.1	20.0	11.0	139	1.5	570	410	120	66
AUG 21...	0920	192	1400	8.1	23.5	9.3	123	5.7	100	0	23	11

DATE	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT DIS FIX END FIELD CACO3 (MG/L)	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)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)
NOV 14...	210	6	4.4	130	310	190	0.60	5.7	888	0.00	0.150	0.100
JAN 23...	520	10	5.0	200	410	720	0.60	12	1960	0.240	0.060	0.300
MAR 13...	510	11	13	220	370	780	0.20	12	1950	0.00	0.300	0.200
MAY 15...	750	14	6.4	170	630	1100	0.80	15	2790	--	0.040	<0.100
AUG 21...	240	10	4.4	140	170	240	0.90	8.9	785	0.690	0.010	0.700

DATE	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)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)
NOV 14...	0.380	0.62	1.0	0.650	5	91	<0.5	<1.0	<5	<3	<10	41
JAN 23...	0.110	0.29	0.40	0.190	--	--	--	--	--	--	--	--
MAR 13...	0.150	0.35	0.50	0.170	--	--	--	--	--	--	--	--
MAY 15...	0.070	0.63	0.70	0.080	--	--	--	--	--	--	--	--
AUG 21...	0.060	0.74	0.80	0.070	--	--	--	--	--	--	--	--

DATE	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)
NOV 14...	<10	55	4	3.6	<10	<10	<1	<1.0	1400	7	4
JAN 23...	--	--	--	--	--	--	--	--	--	--	--
MAR 13...	--	--	--	--	--	--	--	--	--	--	--
MAY 15...	--	--	--	--	--	--	--	--	--	--	--
AUG 21...	--	--	--	--	--	--	--	--	--	--	--

07227500 CANADIAN RIVER NEAR AMARILLO, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1989	880	3240	1930	4590	700	1670	420	986	460
NOV.	1989	8683	1830	1080	25400	350	8290	230	5510	270
DEC.	1989	975	3720	2220	5850	830	2190	480	1250	520
JAN.	1990	1585	3620	2160	9250	810	3460	460	1980	510
FEB.	1990	2696	3320	1980	14400	720	5250	430	3100	470
MAR.	1990	1933	3440	2050	10700	760	3960	440	2300	480
APR.	1990	1488	2870	1710	6850	620	2480	370	1470	410
MAY	1990	879.5	3150	1880	4450	690	1630	400	956	440
JUNE	1990	28.38	4090	2450	187	990	76	520	40	550
JULY	1990	839.89	655	386	876	110	252	84	191	100
AUG.	1990	1188.63	1720	1020	3270	330	1050	220	710	250
SEPT	1990	11320.14	879	520	15900	160	5020	110	3450	130
TOTAL		32496.54	**	**	102000	**	35300	**	21900	**
WTD.AVG.		89	1950	1160	**	400	**	250	**	280

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3280	4730	3520	3340	2950	2420	3370	3380	3000	---	1050	2090
2	3010	4130	3590	4060	3350	2520	3480	3390	3500	---	1150	2070
3	3060	4560	3800	4050	3580	2580	3480	2000	4000	---	1020	2270
4	3350	4460	3590	4250	3580	2620	3490	2690	4310	---	870	2130
5	3350	4670	3690	4370	3390	2800	3300	2900	5000	---	1510	1990
6	3350	3990	3870	4380	3580	3380	3110	3260	6350	---	1870	1270
7	2000	2110	3530	4380	3810	3900	3400	3500	8000	---	2130	e900
8	2650	1770	3710	4400	3810	4000	3670	3990	9180	---	2470	e1200
9	2510	1770	3700	4200	3820	4110	3750	4010	8600	---	3140	e1500
10	2640	1770	3870	4170	3840	3800	4300	3750	8560	---	2990	e1800
11	2770	1770	3970	4160	4140	3700	4300	3900	8570	---	3200	e1800
12	2910	1770	4250	4500	4130	3600	4370	4050	7900	---	e3200	e2500
13	3360	1550	4260	4490	4130	3700	4370	4260	7650	---	2210	2920
14	3650	1510	4230	4480	4250	3740	4350	4600	7300	---	720	5440
15	3840	1520	4200	4480	4250	3900	4310	4970	6830	---	700	5610
16	3800	1520	4240	4480	4250	3950	4400	5000	6570	---	1030	4590
17	3530	1510	4220	4180	4250	4040	4600	5110	6880	---	2500	e4400
18	3420	1470	4240	4170	4260	4100	4880	5280	6770	---	1810	e4450
19	3580	1470	4210	4180	4250	4150	4810	5640	6760	---	1880	4230
20	3040	1480	4210	4210	4100	4200	4820	5650	5130	370	1540	1640
21	3370	1490	3840	4180	3900	4230	3570	5580	5170	360	1500	1480
22	3450	1600	3840	4190	3700	4480	3400	6000	5170	700	1570	830
23	3510	1910	3830	3240	3430	4470	4120	6390	5170	e1200	1210	800
24	3580	1910	3830	3000	3300	4590	4720	6400	---	1500	1640	860
25	3650	2150	3840	2970	3100	4600	2000	6840	---	1500	1930	1310
26	3770	2440	4090	2560	2800	4700	1260	6850	---	1500	2110	1840
27	4460	2810	4070	3550	2600	4700	1800	6860	---	800	2100	1900
28	4460	3190	3150	3600	2500	4800	2800	6830	---	740	1960	1830
29	4530	3460	3120	4410	---	4000	3570	6830	---	800	2490	410
30	4560	3590	3330	3000	---	3000	3560	2420	---	1000	2710	680
31	4510	---	3300	2800	---	3420	---	2440	---	1430	2030	---
MEAN	3450	2470	3840	3950	3680	3810	3710	4670	6360	992	1880	2220

e Estimated

07227500 CANADIAN RIVER NEAR AMARILLO, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.0	5.0	8.0	3.0	8.0	13.0	20.0	16.0	24.0	---	24.0	32.0
2	14.0	12.0	6.0	9.0	5.0	8.0	14.0	12.0	25.0	---	27.0	30.0
3	14.0	6.0	4.0	6.0	9.0	10.0	20.0	8.0	27.0	---	29.0	28.0
4	15.0	5.0	4.0	6.0	8.0	12.0	16.0	20.0	24.0	---	27.0	28.0
5	15.0	7.0	5.0	5.0	12.0	16.0	14.0	16.0	27.0	---	26.0	25.0
6	14.0	8.0	6.0	5.0	12.0	12.0	8.0	26.0	25.0	---	28.0	20.0
7	14.0	8.0	6.0	5.0	13.0	14.0	15.0	22.0	34.0	---	28.0	e21.0
8	14.0	8.0	5.0	4.0	12.0	20.0	7.0	26.0	30.0	---	29.0	e21.0
9	14.0	10.0	5.0	12.0	10.0	16.0	18.0	20.0	24.0	---	26.0	e22.0
10	13.0	11.0	5.0	8.0	8.0	14.0	26.0	25.0	27.0	---	33.0	e23.0
11	13.0	12.0	3.0	8.0	16.0	14.0	23.0	27.0	27.0	---	28.0	e24.0
12	13.0	13.0	3.0	10.0	12.0	10.0	20.0	22.0	24.0	---	e25.0	e25.0
13	12.0	13.0	3.0	10.0	14.0	10.0	12.0	26.0	29.0	---	23.0	26.0
14	14.0	7.0	1.0	12.0	10.0	8.0	14.0	22.0	28.0	---	22.0	28.0
15	14.0	7.0	1.0	10.0	12.0	5.0	16.0	27.0	28.0	---	27.0	27.0
16	10.0	4.0	1.0	8.0	12.0	15.0	18.0	24.0	28.0	---	27.0	27.0
17	8.0	5.0	1.0	8.0	14.0	10.0	12.0	22.0	26.0	---	26.0	e26.0
18	8.0	7.0	1.0	4.0	15.0	10.0	10.0	20.0	28.0	---	22.0	e25.0
19	6.0	7.0	1.0	2.0	12.0	16.0	24.0	25.0	27.0	---	22.0	22.0
20	5.0	7.0	2.0	6.0	14.0	20.0	16.0	23.0	28.0	25.0	30.0	20.0
21	8.0	10.0	.0	5.0	9.0	12.0	30.0	27.0	28.0	25.0	28.0	20.0
22	10.0	7.0	.0	6.0	10.0	22.0	29.0	24.0	31.0	25.0	29.0	22.0
23	10.0	7.0	.0	9.0	8.0	18.0	27.0	28.0	28.0	27.0	28.0	19.0
24	12.0	5.0	3.0	4.0	8.0	18.0	24.0	26.0	---	27.0	27.0	20.0
25	14.0	7.0	4.0	3.0	10.0	9.0	20.0	28.0	---	28.0	26.0	19.0
26	14.0	6.0	4.0	3.0	7.0	9.0	24.0	28.0	---	26.0	30.0	18.0
27	16.0	7.0	4.0	2.0	8.0	10.0	20.0	24.0	---	26.0	30.0	24.0
28	18.0	7.0	5.0	1.0	4.0	11.0	18.0	25.0	---	30.0	32.0	21.0
29	10.0	8.0	3.0	3.0	---	12.0	16.0	24.0	---	28.0	34.0	18.0
30	6.0	5.0	2.0	9.0	---	14.0	14.0	23.0	---	28.0	30.0	18.0
31	5.0	---	2.0	4.0	---	20.0	---	22.0	---	30.0	20.0	---
MEAN	11.9	7.7	3.2	6.1	10.4	13.2	18.2	22.8	27.3	27.1	27.2	23.3

e Estimated

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

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

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

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1341: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,301.50 ft above National Geodetic Vertical Datum of 1929. July 1, 1924, to Aug. 31, 1925, and Apr. 21 to Dec. 15, 1938, nonrecording gage; Dec. 16, 1938, to Sept. 30, 1953, water-stage recorder and nonrecording gages; all at site 300 ft upstream at same datum.

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

AVERAGE DISCHARGE.--26 years (water years 1939-64) prior to completion of Lake Meredith, 549 ft³/s (397,800 acre-ft/yr); 26 years (water years 1965-90) regulated, 88.2 ft³/s (63,900 acre-ft/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 402 ft³/s May 3 at 0730 hours (gage height, 4.08 ft); minimum, 0.02 ft³/s Sept. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	33	46	75	114	240	179	131	60	6.6	3.9	.14
2	26	34	47	74	114	210	155	156	43	5.6	2.5	.10
3	26	36	45	72	111	182	132	362	43	4.2	9.4	.10
4	26	37	45	73	105	161	112	306	33	2.8	14	.08
5	27	38	47	72	109	149	104	273	27	2.0	9.2	.09
6	36	38	45	70	108	172	101	210	23	1.5	6.9	.10
7	33	38	49	68	105	169	95	165	22	.99	5.8	.13
8	31	38	54	68	103	145	86	130	19	.64	4.4	.13
9	30	39	60	73	100	129	82	103	21	.51	3.0	.14
10	30	40	60	73	98	167	74	87	23	.40	2.0	.14
11	29	41	57	72	100	196	68	82	15	.58	.98	.16
12	29	42	e56	73	97	197	68	78	12	1.3	.79	.18
13	28	42	e56	76	89	264	74	72	11	1.9	6.0	.17
14	27	42	58	76	87	223	82	65	18	1.1	11	.18
15	25	41	47	76	103	152	79	63	48	.68	9.8	.20
16	25	40	e40	80	115	121	71	56	144	.51	11	.22
17	24	41	e38	81	119	109	83	55	122	.54	11	.27
18	24	43	e37	83	113	108	105	53	52	.34	11	.25
19	26	44	e36	112	101	107	125	49	36	.29	13	.38
20	27	45	e35	140	115	98	121	43	28	.26	12	.47
21	29	46	e30	143	213	88	104	40	31	.39	13	1.7
22	30	46	e28	150	300	81	92	37	28	.22	12	5.4
23	29	45	e26	158	231	77	87	36	26	.26	8.7	5.8
24	30	44	e34	159	185	79	112	36	22	.33	8.0	5.3
25	31	45	57	150	176	83	163	33	19	.19	6.6	5.1
26	32	46	66	137	158	83	161	32	17	.17	4.4	5.2
27	40	45	72	127	139	80	231	31	15	.12	2.7	4.7
28	42	43	88	119	213	84	229	30	12	.12	1.1	4.3
29	39	43	94	120	---	96	192	36	8.6	.20	.55	14
30	37	43	83	114	---	139	157	56	7.4	2.6	.24	23
31	34	---	79	111	---	184	---	42	---	5.6	.16	---
TOTAL	928	1238	1615	3075	3721	4373	3524	2948	986.0	42.94	205.12	78.13
MEAN	29.9	41.3	52.1	99.2	133	141	117	95.1	32.9	1.39	6.62	2.60
MAX	42	46	94	159	300	264	231	362	144	6.6	14	23
MIN	24	33	26	68	87	77	68	30	7.4	.12	.16	.08
AC-FT	1840	2460	3200	6100	7380	8670	6990	5850	1960	85	407	155

CAL YR 1989 TOTAL 33263 MEAN 91.1 MAX 2190 MIN 15 AC-FT 65980
WTR YR 1990 TOTAL 22734.19 MEAN 62.3 MAX 362 MIN .08 AC-FT 45090

e Estimated

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

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to September 1981.
WATER TEMPERATURE: October 1974 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,480 microsiemens Aug. 12, 1979; minimum daily, 461 microsiemens Sept. 8, 1980.
WATER TEMPERATURE: Maximum daily, 39.0°C June 28, 1979; minimum daily, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CACO3)
NOV 14...	1550	42	2810	8.0	17.0	2.4	12.0	139	0.9	48	48	450
JAN 23...	1510	150	2410	8.3	10.0	14	14.5	143	1.3	K29	42	460
MAR 13...	1630	369	2070	8.4	19.0	20	9.6	116	3.0	550	510	380
MAY 15...	1600	64	3160	8.3	29.5	3.0	9.8	144	2.8	84	110	510
JUL 10...	1100	0.78	1500	8.2	30.0	13	10.9	159	1.8	260	630	270
AUG 21...	1520	15	2230	8.3	30.5	2.2	10.2	150	4.9	370	250	370

DATE	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
NOV 14...	240	100	49	390	8	6.3	211	220	640	2.6	15	1560
JAN 23...	210	110	46	330	7	7.5	252	190	550	2.4	23	1450
MAR 13...	86	90	38	280	6	6.2	296	130	420	1.4	22	1210
MAY 15...	310	110	57	430	8	6.6	202	260	760	2.5	14	1800
JUL 10...	35	61	28	200	5	4.8	233	64	310	1.5	29	814
AUG 21...	210	83	38	320	7	8.3	152	190	450	3.3	15	1280

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 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,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
NOV 14...	1550	--	0.010	<0.100	0.030	0.030	0.27	0.30	0.050	0.020	<0.010	--
JAN 23...	1410	0.640	0.050	0.690	0.120	0.100	0.58	0.70	0.070	0.020	0.020	0.06
MAR 13...	1170	--	<0.010	0.200	0.020	0.010	0.88	0.90	0.080	0.020	0.020	0.06
MAY 15...	1760	--	<0.010	<0.100	<0.010	0.020	--	0.50	0.050	0.020	0.010	0.03
JUL 10...	848	--	<0.010	<0.100	0.130	<0.010	0.27	0.40	0.030	0.130	0.050	0.15
AUG 21...	1200	--	<0.010	<0.100	<0.010	<0.010	--	0.60	0.040	0.010	<0.010	--

DATE	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
NOV 14...	8	0.91	88	<10	2	200	10	<1.0	1	<1	<1	40
JAN 23...	66	27	92	--	--	--	--	--	--	--	--	--
MAR 13...	45	45	93	10	2	200	<10	<1.0	2	<1	1	40
MAY 15...	45	7.8	51	10	2	100	<10	<1.0	<1	<1	2	20
JUL 10...	38	0.08	62	--	--	--	--	--	--	--	--	--
AUG 21...	6	0.24	75	20	3	300	<10	2.0	2	<1	1	20

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV											
14...	<1	130	20	0.2	4	1	<1	<1.0	2000	10	<10
JAN											
23...	--	--	--	--	--	--	--	--	--	--	--
MAR											
13...	1	80	40	0.2	4	1	<1	<1.0	1500	9	<10
MAY											
15...	4	90	10	0.1	4	1	<1	<1.0	2400	24	<10
JUL											
10...	--	--	--	--	--	--	--	--	--	--	--
AUG											
21...	<1	80	20	<0.1	7	2	<1	<1.0	1600	11	<10

07235000 WOLF CREEK AT LIPSCOMB, TX

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

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

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

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

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 2,371.29 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 25, 1938, nonrecording gage, Feb. 25, 1938, to Sept. 30, 1942, water-stage recorder at present site at datum 5.77 ft higher.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. There are small diversions upstream from station for irrigation and recreation.

AVERAGE DISCHARGE.--34 years (water years 1938-42, 1962-90), 13.6 ft³/s (0.39 in/yr), 9,850 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,000 ft³/s Oct. 21, 1941 (gage height, 11.57 ft, present datum), from rating curve extended above 14,000 ft³/s on basis of velocity-area studies; no flow at times.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 18	1130	*17.0	*2.60				

Minimum discharge, 0.53 ft³/s Aug. 27, 31, Sept. 1-3, 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e2.2	2.5	2.8	3.1	4.0	6.3	7.4	7.4	6.5	1.4	3.8	.77
2	e2.2	2.6	2.9	3.0	3.9	6.3	7.1	7.9	6.2	1.4	2.2	.75
3	e2.2	2.6	2.9	3.3	3.9	6.2	7.2	13	5.8	1.3	2.5	.75
4	2.2	2.6	2.9	3.2	3.9	6.0	6.9	11	5.5	1.2	2.3	.75
5	2.4	2.6	2.9	3.1	3.9	5.9	6.7	10	5.1	1.1	1.9	.79
6	2.5	2.4	2.9	3.2	3.9	6.3	6.5	9.9	4.8	1.1	1.5	.77
7	2.5	2.4	2.9	3.1	3.8	6.3	6.4	9.5	4.5	1.1	1.4	.86
8	2.4	2.3	2.9	3.3	3.8	5.9	6.2	9.1	4.1	1.1	1.2	.86
9	2.4	2.3	3.0	3.0	3.9	6.0	6.1	8.6	4.2	1.1	1.1	.79
10	2.3	2.3	3.0	3.1	3.9	7.3	5.9	8.5	4.2	1.1	1.0	1.2
11	2.2	2.3	2.9	3.1	4.0	7.3	5.7	8.5	3.7	1.2	1.0	1.1
12	2.1	2.4	2.7	3.2	4.2	7.0	5.7	8.4	3.2	1.2	1.1	.93
13	2.2	2.2	2.7	3.2	4.0	8.0	5.7	8.2	3.0	1.1	1.3	.86
14	2.0	2.2	2.8	3.3	4.0	8.3	5.5	8.2	2.9	1.0	1.3	.84
15	2.1	2.1	e2.6	3.3	4.2	7.6	5.3	8.3	2.5	1.2	1.4	.78
16	2.0	2.0	e2.9	3.5	4.2	7.0	5.3	8.1	4.5	1.1	1.3	.75
17	2.0	2.1	2.7	3.6	4.4	6.8	5.5	7.9	4.8	1.0	1.2	1.0
18	2.0	2.2	2.9	3.6	4.3	6.5	5.5	7.8	3.0	1.0	1.1	.88
19	2.0	2.4	2.9	4.2	4.3	6.3	5.5	7.6	2.4	1.0	1.1	.83
20	2.2	2.6	2.9	4.4	4.4	6.3	5.5	7.3	2.1	.93	1.1	.84
21	2.3	2.5	e2.3	4.2	5.1	6.2	5.5	7.2	2.5	1.0	1.1	1.0
22	2.4	2.5	e2.2	4.2	6.3	6.2	5.4	7.2	3.5	.95	1.1	.81
23	2.4	2.6	e2.0	4.2	6.7	6.1	5.5	e7.0	3.2	.90	.97	.75
24	2.3	2.6	3.2	4.1	6.7	6.5	6.5	e7.0	2.6	.96	.94	.72
25	2.4	2.7	2.3	4.0	6.2	6.6	7.6	e6.8	2.1	.88	.91	.65
26	2.5	2.7	2.7	4.1	6.0	6.6	8.1	e6.8	1.9	.84	.84	.62
27	2.6	2.8	2.9	4.0	5.8	6.5	9.2	e6.7	1.9	.84	.83	.61
28	2.5	2.8	3.2	3.8	6.6	6.4	9.3	e6.6	1.7	.89	.83	.63
29	2.5	2.8	3.2	3.9	---	6.8	8.3	e6.6	1.5	1.1	.83	.68
30	2.4	2.8	3.3	4.0	---	7.4	7.7	e6.6	1.4	1.7	.83	.63
31	2.5	---	3.2	4.0	---	7.4	---	e6.3	---	8.0	.81	---
TOTAL	70.9	73.9	87.6	111.3	130.3	206.3	194.7	250.0	105.3	40.69	40.79	24.20
MEAN	2.29	2.46	2.83	3.59	4.65	6.65	6.49	8.06	3.51	1.31	1.32	.81
MAX	2.6	2.8	3.3	4.4	6.7	8.3	9.3	13	6.5	8.0	3.8	1.2
MIN	2.0	2.0	2.0	3.0	3.8	5.9	5.3	6.3	1.4	.84	.81	.61
AC-FT	141	147	174	221	258	409	386	496	209	81	81	48
CFSM	.00	.01	.01	.01	.01	.01	.01	.02	.01	.00	.00	.00
IN.	.01	.01	.01	.01	.01	.02	.02	.02	.01	.00	.00	.00

CAL YR 1989	TOTAL	3413.8	MEAN	9.35	MAX	600	MIN	2.0	AC-FT	6770	CFSM	.02	IN.	.27
WTR YR 1990	TOTAL	1335.98	MEAN	3.66	MAX	13	MIN	.61	AC-FT	2650	CFSM	.01	IN.	.10

e Estimated

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

LOCATION.--Lat 34°50'15", long 101°24'49", Armstrong County, Hydrologic Unit 11120103, on left bank at downstream side of bridge on Farm Road 284, 13 mi northeast of Wayside, 26 mi south of Claude, and at mile 1,145.

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

WATER-DISCHARGE RECORDS

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

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

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

AVERAGE DISCHARGE.--23 years, 27.7 ft³/s (20,070 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58,000 ft³/s Aug. 28, 1968 (gage height, 13.0 ft, from floodmark); no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Sept. 29	1025	*4,000	*9.50				

Minimum discharge, no flow on many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.6	6.6	13	6.9	14	20	13	13	16	e.00	2.4	.00
2	6.7	7.2	12	8.3	13	14	11	44	16	.00	.79	.00
3	6.7	7.1	12	12	13	12	12	41	15	e.00	108	.00
4	7.0	7.3	13	9.4	15	13	12	17	14	.00	2.0	.00
5	7.3	7.0	15	7.3	15	15	12	14	14	e.00	.89	.00
6	7.0	7.0	15	7.3	15	11	12	11	12	.00	.54	.00
7	7.9	6.3	13	8.3	15	8.3	12	8.9	11	e.00	.38	.00
8	8.6	5.8	12	11	15	7.9	11	7.5	9.9	e.00	.04	.00
9	8.7	6.3	13	11	15	8.8	10	6.6	9.7	.00	.00	.00
10	7.1	5.8	13	8.3	16	13	8.5	7.8	8.5	e.00	.00	.09
11	6.3	5.9	13	7.8	16	18	8.0	8.5	6.3	.00	.00	22
12	6.3	5.7	e13	7.3	15	15	11	7.9	5.6	e.00	.00	5.0
13	6.1	5.9	e13	7.8	15	28	12	7.7	4.9	.00	.00	.23
14	5.5	5.6	e15	8.3	17	29	11	7.6	4.2	e.00	19	.07
15	5.5	4.5	e20	8.3	e16	29	11	7.1	3.1	e.00	24	.02
16	4.3	5.4	e17	9.4	e17	27	12	5.9	e2.9	.00	23	.01
17	4.4	5.9	e17	11	19	21	11	6.2	e2.8	.00	3.2	.01
18	5.5	7.0	e16	12	18	20	18	6.6	2.7	.00	2.6	.01
19	5.9	9.0	e16	21	17	20	22	6.5	e1.0	.00	31	.00
20	7.0	11	e15	24	33	16	23	6.9	e.50	.00	23	.00
21	7.5	11	e14	20	31	14	17	7.7	e.00	.00	11	3.6
22	7.9	8.9	e13	17	18	12	15	7.9	.00	9.6	6.1	1.1
23	8.2	9.1	e13	14	10	11	46	8.0	e.00	.79	4.7	.09
24	8.0	9.6	e24	12	14	12	119	8.4	e.00	.00	3.0	.02
25	8.1	9.8	e35	12	13	13	36	7.8	.00	.00	2.1	.01
26	8.0	10	e44	9.8	15	13	17	7.9	e.00	.00	1.1	.00
27	6.7	9.4	49	7.4	20	15	14	8.0	e.00	.00	.22	.00
28	7.7	9.4	30	7.3	36	15	13	8.0	e.00	.00	.06	.00
29	7.7	10	9.4	9.6	---	22	12	141	.00	.42	.00	897
30	6.5	12	7.3	12	---	22	12	49	e.00	36	.00	55
31	7.1	---	6.9	13	---	15	---	19	---	25	.00	---
TOTAL	214.8	231.5	531.6	340.8	486	510.0	553.5	514.4	160.10	71.81	269.12	984.26
MEAN	6.93	7.72	17.1	11.0	17.4	16.5	18.4	16.6	5.34	2.32	8.68	32.8
MAX	8.7	12	49	24	36	29	119	141	16	36	108	897
MIN	4.3	4.5	6.9	6.9	10	7.9	8.0	5.9	.00	.00	.00	.00
AC-FT	426	459	1050	676	964	1010	1100	1020	318	142	534	1950

CAL YR 1989 TOTAL 15597.83 MEAN 42.7 MAX 3120 MIN .45 AC-FT 30940
WTR YR 1990 TOTAL 4867.89 MEAN 13.3 MAX 897 MIN .00 AC-FT 9660

e Estimated

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

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1968 to September 1981.
WATER TEMPERATURE: October 1968 to September 1981.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 51,100 microsiemens July 30, 1978; minimum daily, 417 microsiemens July 10, 1975.
WATER TEMPERATURE: Maximum daily, 38.0°C Oct. 14, 1968, June 13, 1975; minimum daily, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CACO3)
NOV 13...	1340	6.9	7900	8.0	21.5	1.1	10.8	140	1.8	88	80	1400
JAN 22...	1410	17	3950	8.2	11.0	150	13.9	141	1.4	160	130	1100
MAR 12...	1700	13	3130	8.5	19.5	450	9.3	113	2.9	100	56	930
MAY 14...	1650	8.0	4120	8.6	33.0	26	9.2	144	1.7	1000	100	1100
AUG 20...	1700	15	2520	8.2	31.5	100	8.3	125	3.6	780	560	480

DATE	HARD-NESS NONCARB DISSOLVED FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
NOV 13...	1300	410	96	1200	14	22	144	1700	1800	1.5	19	5400
JAN 22...	950	340	72	490	6	12	191	1200	580	1.8	23	2990
MAR 12...	690	270	60	370	5	9.6	235	970	380	1.5	19	2430
MAY 14...	920	300	76	530	7	14	151	1200	730	2.1	15	3000
AUG 20...	340	140	31	330	7	12	137	440	410	1.2	18	1540

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 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,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
NOV 13...	5340	--	0.010	<0.100	--	0.100	--	--	--	0.080	0.060	0.18
JAN 22...	2840	1.32	0.080	1.40	0.300	0.250	0.60	0.90	0.970	0.720	0.750	2.3
MAR 12...	2230	0.480	0.020	0.500	0.160	0.020	1.0	1.2	0.510	0.270	0.290	0.89
MAY 14...	2970	1.07	0.030	1.10	0.020	0.070	0.88	0.90	0.320	0.310	0.090	0.28
AUG 20...	1480	2.13	0.270	2.40	0.110	0.110	1.1	1.2	0.940	0.840	0.890	2.7

DATE	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
NOV 13...	10	0.19	42	<10	2	<100	10	<1.0	2	<1	<1	50
JAN 22...	242	11	99	--	--	--	--	--	--	--	--	--
MAR 12...	1170	41	100	30	7	<100	<10	<1.0	2	1	2	40
MAY 14...	101	2.2	95	10	6	100	<10	<1.0	<1	<1	3	30
AUG 20...	218	8.8	99	10	12	100	<10	<1.0	2	1	2	20

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 13...	<1	30	40	0.5	6	<1	<1	<1.0	8000	33	<10
JAN 22...	--	--	--	--	--	--	--	--	--	--	--
MAR 12...	<1	120	20	0.2	8	1	2	<1.0	6100	17	<10
MAY 14...	<1	140	10	0.1	17	2	1	<1.0	6600	37	<10
AUG 20...	<1	80	10	<0.1	17	1	<1	<1.0	3100	30	<10

07299540 PRAIRIE DOG TOWN FORK RED RIVER NEAR CHILDRESS, TX

LOCATION.--Lat 34°34'09", long 100°11'37", Childress County, Hydrologic Unit 11120105, on left bank at downstream side of bridge on U.S. Highways 62 and 83, 3.1 mi downstream from Salt Creek, 10.0 mi north of Childress, and at mile 1,061.

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

PERIOD OF RECORD.--December 1964 to March 1965 (gage heights only), April 1965 to current year.
Water-quality records: September 1948 to April 1963, January 1969 to September 1986. Chemical and biochemical analyses: January 1978 to September 1986.

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

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

AVERAGE DISCHARGE.--25 years (water years 1966-90), 113 ft³/s (81,870 acre-ft/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 7,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 30	0500	*24,600	*10.74	July 22	1900	8,150	10.11

Minimum discharge, 0.10 ft³/s Aug. 12-14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.7	6.8	12	e18	16	e35	142	17	223	.90	101	.80
2	6.4	6.5	17	e17	18	e34	106	257	86	.94	17	.80
3	5.9	6.8	12	16	17	e33	39	157	28	.84	5.2	.80
4	6.0	7.5	11	16	15	e28	84	189	14	.85	84	.86
5	6.3	8.4	12	14	14	e27	36	126	11	.94	29	.92
6	6.6	8.8	12	14	15	e39	50	60	8.0	.94	6.2	.92
7	5.9	9.3	14	14	16	e43	26	31	7.1	.94	1.8	1.3
8	5.9	9.7	19	13	15	e26	14	20	6.0	.91	.65	4.1
9	6.1	9.7	15	13	56	e25	12	13	5.4	.96	.68	1.8
10	6.0	9.9	15	13	61	e30	9.9	7.5	4.8	1.2	.36	1.3
11	5.7	9.8	12	13	37	e280	7.3	7.5	4.5	3.5	.27	1.4
12	5.4	10	7.1	13	23	e58	6.0	7.5	5.4	3.0	.14	1.5
13	5.8	11	9.2	12	15	e56	7.2	7.5	32	1.1	.26	1.4
14	5.5	12	11	12	e14	e49	12	7.5	72	1.4	.58	1.4
15	5.5	10	e9.0	12	e17	e41	9.6	12	10	1.5	21	1.3
16	4.8	8.8	6.7	12	e16	e36	8.9	16	5.8	2.1	65	1.3
17	4.3	8.7	7.7	23	e14	e29	8.6	6.7	3.4	2.9	15	1.5
18	4.2	9.2	8.2	30	e12	e26	130	5.4	2.6	2.8	3.8	1.4
19	4.5	10	e8.0	316	e13	e23	124	5.1	2.0	3.1	154	1.4
20	5.0	12	e7.5	65	e77	e23	245	5.1	1.8	3.1	164	1.7
21	5.8	12	7.0	67	e63	e21	88	4.5	12	4.3	13	1.8
22	6.5	11	e6.0	70	e54	e20	82	4.8	60	2080	4.3	1.8
23	6.9	9.7	e5.0	58	e26	e20	75	4.5	12	730	2.6	1.7
24	7.0	8.8	e6.0	46	e19	e22	620	4.5	4.0	41	1.7	1.8
25	7.3	9.3	e9.5	29	e17	e23	866	5.1	1.7	11	.69	1.8
26	7.3	9.4	16	22	e16	e22	601	4.3	1.1	6.2	.53	1.8
27	7.9	9.8	27	18	e61	e22	178	4.5	.71	2.4	.53	1.8
28	8.2	8.9	30	17	e64	e31	63	4.5	.60	.89	.57	1.8
29	8.4	8.4	e30	18	---	260	38	126	.53	15	.55	722
30	8.5	9.3	e26	15	---	89	16	5470	.71	3.2	.61	2170
31	7.7	---	e20	15	---	85	---	521	---	48	.68	---
TOTAL	194.0	281.5	407.9	1031	801	1556	3704.5	7111.5	626.15	2975.91	695.70	2934.20
MEAN	6.26	9.38	13.2	33.3	28.6	50.2	123	229	20.9	96.0	22.4	97.8
MAX	8.5	12	30	316	77	280	866	5470	223	2080	164	2170
MIN	4.2	6.5	5.0	12	12	20	6.0	4.3	.53	.84	.14	.80
AC-FT	385	558	809	2040	1590	3090	7350	14110	1240	5900	1380	5820

CAL YR 1989 TOTAL 50096.75 MEAN 137 MAX 10600 MIN .23 AC-FT 99370
WTR YR 1990 TOTAL 22319.36 MEAN 61.1 MAX 5470 MIN .14 AC-FT 44270

e Estimated

07299670 GROESBECK CREEK AT STATE HIGHWAY 6 NEAR QUANAH, TX

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

DRAINAGE AREA.--303 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 1,425.69 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. There are several diversions upstream from station for farm and ranch use and for a gypsum plant. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--28 years (water years 1963-90), 16.0 ft³/s (0.72 in/yr), 11,590 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,000 ft³/s Oct. 20, 1983 (gage height, 24.78 ft), from rating curve extended above 7,970 ft³/s; no flow at times.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 1	1815	*934	*13.61				

Minimum discharge, 6.8 ft³/s Aug. 7-9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.2	9.6	11	11	9.9	15	16	11	569	13	152	8.0
2	8.8	9.8	11	10	9.9	13	14	23	532	13	28	7.7
3	9.2	9.9	11	11	9.9	12	13	73	83	13	11	7.8
4	9.3	10	11	11	9.8	13	12	70	30	13	9.2	8.0
5	9.6	10	11	10	9.9	13	12	23	23	12	8.2	8.0
6	9.5	10	11	10	10	13	12	16	21	13	7.1	7.9
7	9.7	11	11	9.8	11	13	12	13	20	12	6.8	7.6
8	9.4	10	11	10	11	13	12	13	18	12	7.0	7.4
9	9.3	11	11	10	10	14	12	13	18	13	7.6	8.5
10	9.0	10	11	10	10	83	12	12	18	14	15	11
11	8.8	10	11	10	10	461	12	12	16	12	10	11
12	8.5	10	11	9.7	10	142	12	13	17	12	8.7	11
13	8.8	11	10	9.7	10	43	12	13	15	12	7.5	10
14	9.2	11	11	9.7	9.7	26	12	12	14	12	7.6	10
15	9.1	11	10	9.9	10	21	12	13	14	12	8.1	10
16	8.9	11	10	10	10	19	12	12	14	12	8.4	9.8
17	8.6	11	10	11	9.9	18	12	12	14	12	8.4	10
18	8.4	11	11	10	9.7	18	13	13	14	13	8.5	10
19	8.6	11	11	12	9.7	16	16	12	13	14	11	10
20	9.2	11	11	16	10	16	64	13	13	12	12	10
21	10	11	11	12	11	15	33	12	13	11	11	10
22	11	11	e10	11	12	14	15	11	14	12	10	10
23	9.8	11	e9.0	11	11	14	13	10	14	14	9.5	10
24	9.7	11	e9.0	10	11	13	15	9.4	14	12	9.3	10
25	9.9	11	e10	9.9	11	13	16	9.7	14	12	8.9	10
26	10	11	11	9.9	11	13	14	9.8	14	12	8.5	10
27	10	11	12	9.8	12	14	12	9.6	13	12	8.7	10
28	10	11	13	9.7	14	14	12	9.3	14	11	8.4	10
29	10	11	13	9.8	---	15	11	9.1	13	11	8.3	10
30	10	11	13	9.7	---	20	11	9.2	13	11	8.3	12
31	10	---	12	9.7	---	23	---	11	---	120	8.2	---
TOTAL	291.5	319.3	339.0	323.3	293.4	1150	456	502.1	1612	489	441.2	285.7
MEAN	9.40	10.6	10.9	10.4	10.5	37.1	15.2	16.2	53.7	15.8	14.2	9.52
MAX	11	11	13	16	14	461	64	73	569	120	152	12
MIN	8.4	9.6	9.0	9.7	9.7	12	11	9.1	13	11	6.8	7.4
AC-FT	578	633	672	641	582	2280	904	996	3200	970	875	567
CFSM	.03	.04	.04	.03	.03	.12	.05	.05	.18	.05	.05	.03
IN.	.04	.04	.04	.04	.04	.14	.06	.06	.20	.06	.05	.04

CAL YR 1989	TOTAL	9119.2	MEAN	25.0	MAX	1700	MIN	6.9	AC-FT	18090	CFSM	.08	IN.	1.12
WTR YR 1990	TOTAL	6502.5	MEAN	17.8	MAX	569	MIN	6.8	AC-FT	12900	CFSM	.06	IN.	.80

e Estimated

07299840 GREENBELT LAKE NEAR CLARENDON, TX

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

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

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

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

REMARKS.--The lake is formed by a rolled earthfill dam 5,800 ft long. Deliberate impoundment began Dec. 5, 1966, and the dam was completed in August 1967. The dam is the property of Greenbelt Municipal and Industrial Water Authority and was built to impound water for municipal and industrial uses by the cities of Childress, Clarendon, Crowell, Hedley, and Quanah. The spillway is an uncontrolled open cut through natural ground, 1,450 ft wide and located at the left end of dam, designed to discharge 184,000 ft³/s at an elevation of 2,684.0 ft. A morning-glory-type drop inlet with a 26-foot 8.5-inch-diameter opening at crest discharges into a 7- by 7-foot concrete conduit. The outlet works consists of a 36-inch pipe that is controlled by two 20-inch valves that control the discharge into a stilling basin and to a water treatment plant. The capacity table, dated April 1964, is based on Geological Survey topographic maps dated 1962. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

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

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

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

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 35,920 acre-ft June 7 at 1400 hours (elevation, 2,650.10 ft); minimum, 31,950 acre-ft Sept. 29 (elevation, 2,647.22 ft).

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

2,647.0	31,660	2,650.0	35,770
2,648.0	32,990	2,651.0	37,230
2,649.0	34,360		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33920	33320	32900	32800	32990	33410	33590	35160	35780	34710	33310	32700
2	33910	33300	32900	32820	32980	33410	33590	35320	35800	34640	33280	32670
3	33890	33300	32900	32780	32950	33410	33630	35320	35780	34570	33350	32620
4	33850	33290	32900	32800	32980	33440	33650	35380	35770	34520	33370	32550
5	33850	33240	32910	32780	32980	33470	33570	35390	35800	34460	33290	32510
6	33830	33250	32900	32800	32980	33500	33610	35350	35890	34400	33260	32470
7	33810	33250	32870	32800	32980	33500	33590	35360	35730	34330	33220	32390
8	33810	33240	32880	32780	32990	33510	33580	35390	35660	34260	33110	32400
9	33780	33180	32880	32800	32980	33520	33590	35360	35610	34200	33070	32340
10	33760	33130	32860	32790	32950	33540	33610	35320	35600	34130	33030	32310
11	33720	33070	32840	32790	32990	33550	33580	35330	35560	34090	32990	32300
12	33690	33070	32830	32790	32960	33570	33570	35320	35500	34020	32940	32250
13	33660	33070	32840	32760	32960	33540	33570	35320	35430	33960	32900	32230
14	33650	33040	32860	32820	32980	33550	33570	35290	35390	33910	32910	32190
15	33570	33040	32830	32800	32980	33550	33570	35280	35390	33830	32910	32150
16	33520	33030	32830	32800	32980	33550	33590	35220	35420	33800	32960	32110
17	33470	33030	32830	32800	32980	33550	33590	35190	35430	33740	33000	32090
18	33470	33000	32790	32870	32990	33540	33620	35160	35330	33670	33030	32060
19	33440	33000	32830	32940	32980	33540	33630	35160	35260	33650	33090	32210
20	33410	33000	32820	32940	33140	33550	33690	35120	35210	33590	33090	32220
21	33410	32990	32750	32980	33150	33540	33670	35110	35220	33580	33070	32190
22	33410	32980	32750	32940	33240	33540	33700	35060	35160	33550	33060	32170
23	33410	32950	32760	32990	33260	33510	33770	35090	35110	33480	33000	32110
24	33410	32940	32780	32940	33290	33500	34640	35090	35060	33440	32990	32070
25	33430	32950	32780	32990	33310	33480	35050	35080	35050	33400	32960	32070
26	33410	32920	32780	32920	33310	33520	35090	35050	35010	33350	32920	32030
27	33400	32910	32790	32950	33350	33510	35190	34980	34910	33320	32900	e32010
28	33390	32880	32820	32960	33370	33520	35180	34980	34830	33280	32840	e31980
29	33350	32900	32800	32940	---	33520	35190	35740	34840	33290	32820	e31950
30	33330	32910	32790	32980	---	33560	35180	35830	34770	33390	32780	e32260
31	33330	---	32790	32990	---	33580	---	35840	---	33330	32720	---
MAX	33920	33320	32910	32990	33370	33580	35190	35840	35890	34710	33370	32700
MIN	33330	32880	32750	32760	32950	33410	33570	34980	34770	33280	32720	31950
(†)	2648.25	2647.94	2647.85	2648.00	2648.28	2648.43	2649.58	2650.05	2649.29	2648.25	2647.80	2647.45
(Φ)	-620	-420	-120	+200	+380	+210	+1600	+660	-1070	-1440	-610	-460
(††)	274	245	276	247	210	229	234	309	417	438	349	348

CAL YR 1989 MAX 35630 MIN 32550 (Φ) +190 (††) 3690
WTR YR 1990 MAX 35890 MIN 31950 (Φ) -1690 (††) 3576

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

e Estimated

07300000 SALT FORK RED RIVER NEAR WELLINGTON, TX

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

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

WATER-DISCHARGE RECORDS

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

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

REMARKS.--Records fair except those for estimated daily discharges, which are poor. There are several small diversions upstream from gage for irrigation. There is some regulation for municipal use by Greenbelt Lake (station 07299840), capacity 59,100 acre-ft, 42 mi upstream.

AVERAGE DISCHARGE.--14 years (water years 1953-66) prior to completion of Greenbelt Lake, 72.6 ft³/s (52,600 acre-ft/yr); 24 years (water years 1967-90) regulated, 48.9 ft³/s (35,430 acre-ft/yr).

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 19,400 ft³/s May 29 time unknown (gage height, 9.56 ft from HWM); minimum, 2.0 ft³/s July 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	19	21	e25	25	98	49	39	328	7.4	7.9	7.2
2	15	19	23	e24	23	64	40	73	162	7.2	6.9	6.9
3	13	20	23	e24	24	50	35	239	80	7.1	238	6.6
4	13	21	23	e24	24	45	37	119	52	7.0	16	6.4
5	16	22	25	e24	21	47	34	70	42	7.1	10	6.2
6	17	22	25	e23	22	79	31	53	33	7.0	8.8	6.0
7	17	21	25	e23	22	68	30	41	27	6.5	8.3	5.9
8	15	18	23	e23	22	47	31	37	22	6.2	8.3	5.9
9	12	22	23	e23	21	39	32	30	41	6.1	8.5	6.0
10	11	24	23	e23	22	40	30	27	39	5.1	21	5.5
11	9.5	24	20	e23	26	53	27	27	20	261	11	6.2
12	10	25	11	e23	31	48	27	26	14	206	9.4	5.7
13	9.3	26	e12	e23	33	e45	30	26	13	7.9	7.1	5.7
14	9.7	25	e13	e24	33	43	30	44	12	6.2	5.1	5.3
15	8.9	21	e11	e25	51	39	27	60	11	4.7	5.1	5.0
16	10	21	e11	38	63	40	25	29	36	16	5.0	4.7
17	10	21	e11	43	55	38	37	17	33	7.7	4.9	5.3
18	11	23	e12	65	45	35	46	15	20	7.0	4.1	6.9
19	13	25	e12	92	33	31	46	13	14	6.9	15	13
20	15	25	e12	73	46	32	59	11	12	6.7	13	12
21	18	26	e12	69	182	30	53	9.2	11	7.6	12	11
22	18	24	e12	59	140	29	38	8.4	16	156	12	11
23	15	22	e13	46	92	27	29	7.9	12	4.9	11	10
24	13	23	e15	33	62	30	158	7.0	11	3.1	11	9.3
25	12	24	17	26	49	32	582	22	10	3.3	9.7	9.3
26	14	24	18	23	42	35	170	13	10	3.0	8.2	8.5
27	18	25	25	22	42	37	81	9.4	10	3.0	7.7	7.7
28	22	21	29	19	112	37	88	7.8	8.9	3.0	7.4	7.1
29	20	20	25	21	---	47	53	4900	8.0	3.7	7.3	21
30	20	21	25	23	---	72	42	3680	7.6	6.6	7.1	15
31	20	---	e25	21	---	58	---	306	---	43	7.1	---
TOTAL	442.4	674	575	1027	1363	1415	1997	9966.7	1115.5	834.0	513.9	242.3
MEAN	14.3	22.5	18.5	33.1	48.7	45.6	66.6	322	37.2	26.9	16.6	8.08
MAX	22	26	29	92	182	98	582	4900	328	261	238	21
MIN	8.9	18	11	19	21	27	25	7.0	7.6	3.0	4.1	4.7
AC-FT	878	1340	1140	2040	2700	2810	3960	19770	2210	1650	1020	481

CAL YR 1989	TOTAL	41932.5	MEAN	115	MAX	14200	MIN	2.2	AC-FT 83170
WTR YR 1990	TOTAL	20165.8	MEAN	55.2	MAX	4900	MIN	3.0	AC-FT 40000

e Estimated

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

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: June 1952 to September 1954, October 1967 to current year.
WATER TEMPERATURE: June 1952 to September 1954, October 1967 to current year.

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,340 microsiemens July 15, 1984; minimum daily, 330 microsiemens July 30, 1982.
WATER TEMPERATURE: Maximum daily, 40.0°C July 20, 1981; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,720 microsiemens Aug. 7; minimum daily, 790 microsiemens May 29.
WATER TEMPERATURE: Maximum daily, 34.0°C Aug. 28; minimum daily, 0.0°C Dec. 14.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV 15...	0910	21	3330	7.8	6.5	15.2	136	0.8	240	210
JAN 24...	0920	33	2710	8.1	3.5	16.0	133	0.5	48	120
MAR 14...	0830	45	2820	8.1	8.0	13.5	126	1.8	420	370
MAY 16...	0945	33	2910	8.0	20.5	10.7	131	1.0	1200	570
JUL 10...	1600	6.2	3270	7.8	35.5	8.4	134	1.3	200	200
AUG 22...	0920	12	3270	8.0	25.0	10.8	143	1.7	210	190

DATE	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB DISSOLVED FLD. AS CACO3 (MG/L)	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 WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
NOV 15...	1400	1300	440	79	230	3	3.7	160	1400	300
JAN 24...	1100	880	320	74	220	3	5.0	220	970	280
MAR 14...	1200	1000	340	79	210	3	4.7	170	980	310
MAY 16...	1300	1100	370	80	220	3	5.1	160	1100	280
JUL 10...	1700	1600	540	84	160	2	4.5	120	1600	230
AUG 22...	1600	1500	510	78	180	2	4.2	140	1400	250

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	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 15...	0.60	19	2570	1.28	0.020	1.30	0.090	0.41	0.50	0.020
JAN 24...	0.60	22	2030	0.980	0.020	1.00	0.030	0.27	0.30	0.030
MAR 14...	0.20	22	2050	0.690	0.010	0.700	0.030	0.57	0.60	<0.010
MAY 16...	<0.10	20	2170	0.960	0.040	1.00	<0.010	--	0.50	0.020
JUL 10...	0.60	22	2710	2.07	0.030	2.10	0.170	0.23	0.40	<0.010
AUG 22...	1.6	17	2530	1.48	0.020	1.50	0.040	0.56	0.60	<0.010

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

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1989	442.4	3340	2710	3230	300	359	1500	1780	1600
NOV.	1989	674	3280	2650	4830	300	542	1500	2650	1600
DEC.	1989	575	2900	2280	3530	270	426	1200	1860	1300
JAN.	1990	1027	2810	2190	6070	270	747	1100	3160	1300
FEB.	1990	1363	2700	2090	7680	260	965	1100	3950	1200
MAR.	1990	1415	2830	2200	8410	270	1030	1100	4390	1300
APR.	1990	1997	2110	1590	8570	210	1140	790	4240	910
MAY	1990	9966.7	1140	781	21000	130	3410	330	8880	420
JUNE	1990	1115.5	2510	1920	5770	250	743	970	2920	1100
JULY	1990	834.0	1560	1130	2550	160	367	530	1190	630
AUG.	1990	513.9	2280	1790	2490	220	299	950	1310	1000
SEPT	1990	242.3	3290	2660	1740	300	195	1500	957	1600
TOTAL		20165.8	**	**	75900	**	10200	**	37300	**
WTD.AVG.		55	1860	1390	**	190	**	680	**	790

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3290	3390	2990	2710	e2900	2650	2770	2690	2120	3240	e2000	3340
2	3320	3390	3050	2890	2830	2660	2910	2360	1950	e3230	3650	3360
3	3240	3340	e3100	2820	3220	2740	2840	1980	e2240	e3210	1000	3320
4	e3290	3350	3130	2870	3200	e2700	2850	2230	2540	e3200	2720	3330
5	e3350	3310	2980	3090	2850	2660	e2780	2450	2700	e3180	3620	3370
6	3410	3300	3060	e3040	2890	2780	2710	2530	2770	e3170	3520	e3340
7	3300	e3320	e2970	3000	3250	2630	2940	2700	3070	3160	3720	3300
8	3310	3350	2880	2960	2960	2840	2840	2830	2950	3350	3510	3350
9	3290	3400	3030	2890	2860	2860	3060	2930	3090	3150	3620	3320
10	3330	3410	3010	2900	3040	2890	3170	2870	e3020	3310	3510	3300
11	3340	3340	2890	e2900	2960	2650	3200	2940	2950	1000	2030	3380
12	3360	3420	2840	e2950	2670	2910	e3100	2900	e3090	e1500	3490	3340
13	3430	3410	3190	3020	e2800	e2950	3030	e2970	3230	2960	3460	e3350
14	3350	3270	2970	3010	2950	3000	e2870	3040	3280	3420	3520	3370
15	3360	3290	e3160	2960	e2750	e3020	2710	1950	e2830	3410	3480	3390
16	e3340	e3280	3360	2820	2540	3040	3100	2900	2380	2590	3480	e3350
17	3320	3270	3100	2690	2720	2870	2480	3030	e2710	3150	e3460	3320
18	3340	3320	3220	2800	2800	e2890	2800	3210	3040	3140	3450	3390
19	3410	3240	3110	2360	2770	2910	e2850	3220	3270	3320	e3560	e3460
20	e3400	3170	3030	e2550	e2710	3130	2900	3310	3240	3240	3660	3590
21	3400	3210	e2800	2740	2650	3150	2470	3100	e3250	3310	3530	e3500
22	3290	3230	e2400	2750	e2600	3000	e2600	3260	3260	870	3480	e3500
23	e3290	e3200	e2300	2650	2550	e3150	2740	3130	3300	2710	3500	3440
24	3280	e3180	e3200	2800	2670	3150	2940	3230	3260	3290	3500	3450
25	3390	3160	3200	3400	2690	2920	1200	e2900	3380	3270	3520	3420
26	3430	3220	3080	3040	2720	3030	1120	3060	3360	e3390	e3550	3430
27	3230	3210	2750	e3000	2620	3010	1790	e3190	3190	3500	3580	3620
28	3340	3070	2320	2950	2350	2800	e1900	3310	3280	e3400	3560	3400
29	e3340	3290	2230	2920	---	2720	2160	790	3250	e3310	3510	e2500
30	e3350	3260	2570	3020	---	2640	2590	1130	3280	3220	e3490	e2700
31	3350	---	2830	3020	---	2620	---	1890	---	1400	3470	---
MEAN	3340	3290	2930	2890	2800	2870	2650	2710	2980	2950	3330	3340

e Estimated

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

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.0	5.0	12.0	3.0	e6.0	4.0	20.0	11.0	20.0	21.0	e21.0	20.0
2	23.0	5.0	6.0	9.0	6.0	5.0	21.0	12.0	19.0	e21.0	20.0	22.0
3	15.0	15.0	e8.0	8.0	7.0	6.0	24.0	12.0	e21.0	e21.0	20.0	20.0
4	e16.0	18.0	11.0	e9.0	6.0	e9.0	14.0	21.0	22.0	e21.0	24.0	19.0
5	e21.0	14.0	17.0	9.0	11.0	13.0	e17.0	12.0	21.0	e22.0	25.0	22.0
6	26.0	17.0	10.0	e9.0	15.0	13.0	20.0	16.0	22.0	e22.0	20.0	e21.0
7	14.0	e16.0	e9.0	10.0	14.0	17.0	10.0	21.0	27.0	22.0	26.0	20.0
8	22.0	16.0	8.0	10.0	5.0	8.0	16.0	21.0	26.0	21.0	19.0	21.0
9	14.0	7.0	13.0	6.0	14.0	20.0	14.0	19.0	24.0	22.0	20.0	22.0
10	15.0	18.0	6.0	4.0	5.0	15.0	15.0	12.0	e25.0	21.0	20.0	19.0
11	25.0	18.0	1.0	e5.0	16.0	18.0	24.0	13.0	26.0	25.0	23.0	e18.0
12	13.0	19.0	5.0	e5.0	7.0	22.0	e20.0	19.0	e24.0	e23.0	25.0	18.0
13	25.0	19.0	8.0	6.0	e10.0	e18.0	17.0	e24.0	22.0	22.0	22.0	e18.0
14	17.0	18.0	.0	8.0	10.0	14.0	e20.0	28.0	25.0	26.0	26.0	19.0
15	20.0	12.0	e1.0	14.0	e10.0	e12.0	23.0	20.0	e25.0	27.0	23.0	18.0
16	e23.0	e10.0	2.0	15.0	e10.0	10.0	23.0	20.0	25.0	24.0	19.0	e17.0
17	27.0	8.0	1.0	16.0	10.0	12.0	20.0	12.0	e28.0	22.0	e22.0	17.0
18	16.0	7.0	3.0	10.0	12.0	e16.0	19.0	11.0	31.0	22.0	25.0	19.0
19	5.0	12.0	2.0	e10.0	12.0	19.0	e15.0	21.0	28.0	21.0	e28.0	e18.0
20	e8.0	14.0	3.0	e10.0	e12.0	18.0	8.0	20.0	20.0	24.0	31.0	18.0
21	14.0	10.0	e3.0	e10.0	12.0	13.0	20.0	19.0	e21.0	24.0	e26.0	e19.0
22	17.0	8.0	e4.0	e10.0	e14.0	14.0	e21.0	18.0	22.0	22.0	22.0	e20.0
23	e20.0	e10.0	e4.0	9.0	15.0	e7.0	21.0	20.0	20.0	22.0	25.0	21.0
24	25.0	e12.0	e5.0	6.0	7.0	4.0	16.0	20.0	21.0	20.0	24.0	20.0
25	15.0	14.0	5.0	4.0	17.0	5.0	23.0	e23.0	29.0	23.0	24.0	31.0
26	15.0	13.0	4.0	8.0	7.0	10.0	17.0	26.0	33.0	e24.0	e27.0	27.0
27	18.0	12.0	10.0	e7.0	10.0	9.0	23.0	e21.0	28.0	e25.0	31.0	18.0
28	16.0	10.0	1.0	6.0	6.0	21.0	e20.0	17.0	27.0	e24.0	34.0	17.0
29	e16.0	11.0	8.0	3.0	---	e17.0	17.0	17.0	23.0	e24.0	22.0	e17.0
30	e15.0	8.0	3.0	14.0	---	14.0	15.0	23.0	20.0	23.0	e23.0	e17.0
31	15.0	---	4.0	5.0	---	9.0	---	20.0	---	23.0	24.0	---
MEAN	17.7	12.5	5.7	8.3	10.2	12.6	18.4	18.4	24.2	22.7	23.9	19.8

e Estimated

07300500 SALT FORK RED RIVER AT MANGUM, OK

LOCATION.--Lat 34°51'30", long 99°30'30", in SW1/4SE 1/4 sec.34. T.5 N, R.22 W., Greer County, Hydrologic Unit 11120202, near left bank on downstream side of pier of bridge on State Highway 34, 0.5 mi south of Mangum, 13.0 mi downstream from Fish Creek, and at mile 35.5.

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

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

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

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

REMARKS.--Records fair, including those days of estimated daily discharges. Several unpublished observations of water temperature, specific conductance, and pH were made during the year.

AVERAGE DISCHARGE.--53 years (water years 1938-90), 85.5 ft³/s (61,940 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 72,000 ft³/s May 16, 1957 (gage height, 14.55 ft); maximum gage height, 14.7 ft June 16, 1938; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 30	1130	10,600	10.35	June 1	0145	*13,400	*11.04

No flow, Sept. 11, 12, 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e23	18	27	71	42	96	e93	84	3700	18	127	e1.2
2	e23	17	27	56	41	119	88	245	e175	18	67	e.93
3	e23	18	27	51	42	91	78	194	e120	16	36	e.64
4	e24	e19	28	46	42	74	69	220	e100	14	63	.45
5	24	e19	28	43	41	66	e62	179	e92	13	94	.31
6	28	e20	30	39	40	74	e59	122	e87	12	43	.13
7	25	e21	30	37	38	71	e66	94	e81	11	31	.49
8	24	e22	31	37	37	76	e63	79	e76	9.3	26	1.2
9	22	e22	31	36	40	73	e59	70	e70	8.4	22	.47
10	23	e23	33	36	43	77	e56	52	e65	7.3	19	.12
11	21	e24	e31	35	41	195	e54	e48	e59	6.9	18	.00
12	20	e25	e29	34	39	72	53	e45	e54	214	16	.00
13	19	e26	e27	34	36	71	55	e43	e48	150	15	.10
14	18	e27	e25	32	35	67	62	e41	e43	62	13	.08
15	18	26	e27	32	37	62	57	e37	e37	34	11	.00
16	16	27	e30	37	40	56	58	53	e35	26	9.5	.17
17	16	27	e26	59	41	53	61	57	e33	21	8.6	2.5
18	15	27	e27	46	49	50	77	51	e32	25	7.6	.82
19	15	27	e28	128	51	48	102	50	e30	21	25	7.8
20	16	28	e24	120	46	47	140	48	28	17	34	3.8
21	17	28	e20	124	50	48	124	44	27	14	32	3.2
22	17	29	e17	97	158	46	120	42	37	30	24	2.3
23	18	28	e15	78	176	46	105	40	32	61	19	2.9
24	18	27	e18	68	118	46	107	38	31	63	17	2.5
25	19	27	e20	65	87	48	163	37	28	31	16	1.7
26	19	27	e23	59	73	50	482	36	26	25	11	1.6
27	19	27	e25	54	65	52	376	36	24	18	e9.1	1.0
28	20	27	e28	49	84	e64	149	36	24	14	e7.2	.55
29	21	26	37	46	---	74	117	53	22	13	e5.3	3.9
30	21	26	67	44	---	110	97	5630	20	17	e3.4	11
31	19	---	86	42	---	101	---	408	---	102	e1.5	---
TOTAL	621	735	922	1735	1632	2223	3252	8212	5236	1091.9	831.2	51.86
MEAN	20.0	24.5	29.7	56.0	58.3	71.7	108	265	175	35.2	26.8	1.73
MAX	28	29	86	128	176	195	482	5630	3700	214	127	11
MIN	15	17	15	32	35	46	53	36	20	6.9	1.5	.00
AC-FT	1230	1460	1830	3440	3240	4410	6450	16290	10390	2170	1650	103

CAL YR 1989 TOTAL 29389.2 MEAN 80.5 MAX 5490 MIN 2.1 AC-FT 58290
WTR YR 1990 TOTAL 26542.96 MEAN 72.7 MAX 5630 MIN .00 AC-FT 52650

e Estimated

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 north of Shamrock, 16 mi upstream from Texas-Oklahoma State line, and 23 mi downstream from McClellan Creek.

DRAINAGE AREA.--1,082 mi², of which 379 mi² probably is noncontributing.

PERIOD OF RECORD.--1951-63 (occasional low-flow measurements), February 1964 to current year.
Water-quality records.--Chemical analyses: October 1964 to September 1981.

Gage.--Water-stage recorder. Datum of gage is 2,165.55 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. There is some regulation by Lake McClellan (capacity, 5,000 acre-ft) 41 miles upstream. Flow affected at times by discharge from the flood-detention pools of 11 floodwater-retarding structures with a combined detention capacity of 18,290 acre-ft. These structures control runoff from 165 mi². Gage-height telemeter at station.

AVERAGE DISCHARGE.--26 years, 33.1 ft³/s (23,980 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,400 ft³/s May 29, 1975 (gage height, 7.47 ft), from rating curve extended above 3,800 ft³/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 in May 1957, from information by State Department of Highways and Public Transportation and by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,390 ft³/s May 29 at 1900 hours (gage height, 3.31 ft); no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.17	1.2	17	45	21	89	22	48	120	.00	.00	.00
2	.04	1.6	18	49	17	75	12	213	81	.00	.00	.00
3	.01	2.8	17	50	19	58	11	220	39	.00	5.2	.00
4	.01	3.9	16	50	18	51	11	132	20	.00	26	.00
5	1.3	3.2	19	46	17	57	8.7	96	13	.00	1.4	.00
6	85	3.7	19	44	20	158	4.0	57	5.6	.00	.01	.00
7	25	4.1	22	46	21	104	2.7	51	3.7	.00	.00	.00
8	6.1	4.5	28	46	20	36	2.0	42	.40	.00	.00	.00
9	4.2	4.3	31	45	18	21	2.6	29	.09	.00	.00	.00
10	3.5	4.7	28	44	15	68	1.7	20	.00	.00	.00	3.0
11	2.4	5.4	16	42	16	196	1.3	30	.00	.00	.00	.01
12	1.6	5.2	e15	40	19	137	2.1	27	.00	.00	.00	.00
13	1.1	5.8	18	39	14	69	3.5	20	.00	.00	.00	.00
14	.91	6.5	20	39	11	122	3.3	30	.00	.00	.00	.00
15	.47	5.8	e16	42	22	68	2.3	17	.00	.03	.00	.00
16	.13	3.7	e14	60	83	63	1.7	4.5	24	.00	.00	.00
17	.01	5.5	e15	53	124	60	7.3	1.1	35	.00	.00	.00
18	.01	8.5	e16	49	72	58	17	.83	7.8	.00	.05	.29
19	.01	9.8	e16	168	53	43	68	1.7	.32	.00	.07	.03
20	.01	8.6	e14	117	123	42	106	2.5	.00	.00	.00	.00
21	.10	9.2	e15	93	249	28	54	.94	.00	.00	.00	.00
22	1.0	10	e12	59	248	18	33	.39	.00	.00	.00	.00
23	1.9	10	e10	70	168	19	37	.18	.00	.00	.00	.00
24	2.0	13	e18	52	104	27	234	.06	.00	.00	.00	.00
25	2.4	15	44	34	96	42	385	1.4	.00	.00	.00	.00
26	2.1	13	48	39	78	52	187	1.5	.00	.00	.00	.00
27	2.3	13	97	44	93	46	218	1.5	.00	.00	.00	.00
28	3.0	9.7	109	24	198	52	144	.40	.00	.00	.00	.00
29	3.9	8.8	69	26	---	89	96	326	.00	.00	.00	13
30	2.1	14	40	19	---	156	40	211	.00	1.6	.00	5.4
31	1.1	---	43	18	---	71	---	131	---	.01	.00	---
TOTAL	153.88	214.5	880	1592	1957	2175	1718.2	1717.00	349.91	1.64	32.73	21.73
MEAN	4.96	7.15	28.4	51.4	69.9	70.2	57.3	55.4	11.7	.053	1.06	.72
MAX	85	15	109	168	249	196	385	326	120	1.6	26	13
MIN	.01	1.2	10	18	11	18	1.3	.06	.00	.00	.00	.00
AC-FT	305	425	1750	3160	3880	4310	3410	3410	694	3.3	65	43

CAL YR 1989 TOTAL 21375.30 MEAN 58.6 MAX 1640 MIN .00 AC-FT 42400
WTR YR 1990 TOTAL 10813.59 MEAN 29.6 MAX 385 MIN .00 AC-FT 21450

e Estimated

07301410 SWEETWATER CREEK NEAR KELTON, TX

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

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

PERIOD OF RECORD.--November 1961 to current year.
Water-quality records.--Chemical analyses: October 1969 to June 1985.

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

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

AVERAGE DISCHARGE.--28 years (water years 1963-90), 13.7 ft³/s (0.70 in/yr), 9,930 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,890 ft³/s May 20, 1977 (gage height, 15.73 ft); no flow at times.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 25	2100	*143	*9.32				

Minimum discharge, 0.70 ft³/s Sept. 6, 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	9.2	11	17	19	34	23	28	23	3.2	2.6	.80
2	6.6	9.4	11	17	18	28	21	36	20	2.9	1.9	.79
3	6.7	9.6	11	17	18	26	20	68	16	2.6	9.6	.77
4	6.8	9.7	12	17	19	24	20	44	14	2.4	8.4	.76
5	7.2	9.8	12	16	19	24	20	33	13	2.2	4.9	.75
6	12	9.3	12	16	19	27	19	30	12	2.1	3.2	.73
7	9.8	9.0	12	17	18	28	19	28	10	1.9	2.6	.76
8	8.8	8.9	13	17	18	26	19	26	9.9	1.8	2.3	.84
9	8.4	9.1	13	17	18	24	18	24	9.3	1.7	2.0	.81
10	8.0	9.2	13	17	18	23	18	23	9.1	1.6	1.8	.80
11	7.8	9.3	12	16	18	25	18	23	8.4	1.6	1.7	.96
12	7.7	9.4	e10	16	19	25	18	23	7.9	1.9	1.6	.94
13	7.7	9.5	13	16	18	23	18	23	7.5	1.8	1.5	.97
14	7.7	9.5	12	16	18	22	18	22	7.3	1.8	1.5	.95
15	7.6	9.5	12	17	20	21	18	22	7.0	1.8	1.5	.93
16	7.6	9.4	e10	21	22	20	18	19	19	1.9	1.5	.93
17	7.8	9.7	e9.0	24	23	20	18	17	12	2.0	1.4	1.0
18	8.0	9.9	e8.0	21	22	20	19	17	8.9	1.9	1.4	1.2
19	8.2	10	e10	27	21	19	21	17	7.6	1.7	2.4	1.5
20	8.4	11	e9.0	31	22	20	22	16	7.1	1.5	2.0	1.8
21	8.7	11	e10	29	39	19	22	15	6.9	1.4	1.8	1.6
22	8.7	11	e9.0	26	39	19	20	15	6.9	1.3	1.6	1.6
23	8.7	10	e8.0	24	36	19	19	14	6.9	1.3	1.5	1.4
24	8.6	11	e10	22	29	19	33	13	6.5	1.3	1.3	1.5
25	8.7	11	12	21	25	20	83	16	5.9	1.2	1.2	1.4
26	8.7	11	12	20	23	20	64	14	5.5	1.1	1.1	1.2
27	8.3	11	12	19	22	20	48	13	5.1	.99	.97	1.1
28	8.3	11	13	18	35	21	63	12	4.6	.94	.93	1.1
29	8.5	10	18	18	---	22	36	19	4.0	1.1	.92	1.7
30	9.2	10	18	18	---	26	30	65	3.5	1.6	.89	3.2
31	9.2	---	17	18	---	24	---	32	---	4.3	.87	---
TOTAL	255.2	297.4	364.0	606	635	708	803	767	284.8	56.83	68.88	34.79
MEAN	8.23	9.91	11.7	19.5	22.7	22.8	26.8	24.7	9.49	1.83	2.22	1.16
MAX	12	11	18	31	39	34	83	68	23	4.3	9.6	3.2
MIN	6.6	8.9	8.0	16	18	19	18	12	3.5	.94	.87	.73
AC-FT	506	590	722	1200	1260	1400	1590	1520	565	113	137	69
CFSM	.03	.03	.04	.07	.08	.08	.09	.09	.03	.01	.01	.00
IN.	.03	.04	.05	.08	.08	.09	.10	.10	.04	.01	.01	.00

CAL YR 1989 TOTAL 6728.5 MEAN 18.4 MAX 490 MIN 6.3 AC-FT 13350 CFSM .06 IN. .87
WTR YR 1990 TOTAL 4880.90 MEAN 13.4 MAX 83 MIN .73 AC-FT 9680 CFSM .05 IN. .63

e Estimated

07307800 PEASE RIVER NEAR CHILDRESS, TX

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

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

PERIOD OF RECORD.--December 1959 to September 1962, and October 1967 to current year.
Water-quality records.--Chemical analyses: July 1968 to September 1982.

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

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

AVERAGE DISCHARGE.--25 years (water years 1961-62, 1967-90), 61.2 ft³/s (0.38 in/yr), 44,340 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,000 ft³/s June 9, 1960 (gage height, 13.59 ft), from rating curve extended above 4,000 ft³/s on basis of runoff comparisons with nearby stations; maximum gage height, 14.83 ft Oct. 20, 1983; no flow Aug. 10-22, 1969, May 25, 26, 1971.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 1	0500	*4,980	*10.80	No other peak greater than base discharge.			

Minimum discharge, 1.2 ft³/s July 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	9.3	e12	e14	11	32	47	50	1050	2.6	37	3.2
2	12	9.5	e14	e12	11	33	51	213	221	2.5	17	3.2
3	11	9.6	e13	11	11	31	28	236	104	2.3	44	3.2
4	11	9.6	e11	10	10	27	28	179	77	2.1	123	3.6
5	11	9.5	e10	10	10	26	22	139	43	1.8	32	3.5
6	19	9.2	e9.8	10	9.8	50	27	108	28	1.8	16	3.3
7	17	9.3	e13	10	9.9	42	26	89	23	1.9	11	3.2
8	14	9.1	e18	10	9.8	26	41	73	20	1.7	9.1	4.1
9	13	9.2	e17	11	11	23	33	58	17	1.7	7.8	4.1
10	12	9.4	e14	11	13	31	28	42	15	1.7	7.7	3.5
11	11	9.8	e12	10	13	275	22	40	12	2.0	5.9	3.5
12	11	10	e11	10	13	57	20	38	9.8	2.9	5.5	3.5
13	10	10	e11	10	12	63	18	36	8.8	2.4	5.3	3.1
14	9.7	10	e10	11	13	50	46	34	16	2.0	8.8	3.1
15	9.5	9.4	e9.0	11	18	39	57	115	16	2.3	16	3.3
16	9.1	9.1	e7.0	11	18	34	34	113	10	3.0	10	3.5
17	8.4	9.6	e6.6	11	18	28	589	63	9.1	4.1	8.7	4.8
18	8.4	10	e8.0	13	17	25	168	56	8.2	4.1	6.6	5.0
19	8.7	10	e7.0	28	17	22	176	50	6.8	3.8	21	4.5
20	9.2	11	e7.4	27	20	22	317	37	5.9	3.3	14	4.5
21	9.7	11	e6.8	27	34	20	222	32	5.6	3.0	11	26
22	9.9	e11	e6.2	25	77	19	157	30	5.9	285	8.1	23
23	10	e10	e5.8	20	44	19	118	29	5.5	41	8.0	5.4
24	10	e9.6	e11	17	31	21	95	29	4.8	10	7.7	3.4
25	10	e9.8	e15	13	24	22	121	28	4.2	6.9	5.6	3.4
26	10	e9.6	e17	13	21	21	114	25	3.8	4.9	5.0	3.6
27	10	e9.6	e15	11	23	21	90	25	3.4	4.6	4.8	4.3
28	10	e9.2	e13	11	49	22	76	25	3.4	3.8	4.4	4.7
29	12	e9.0	e14	10	---	44	67	25	3.0	6.7	4.2	8.7
30	14	e10	e18	9.9	---	53	54	26	2.7	39	4.0	13
31	9.9	---	e17	10	---	61	---	30	---	101	3.8	---
TOTAL	344.5	291.4	359.6	417.9	568.5	1259	2892	2073	1742.9	555.9	473.0	169.2
MEAN	11.1	9.71	11.6	13.5	20.3	40.6	96.4	66.9	58.1	17.9	15.3	5.64
MAX	19	11	18	28	77	275	589	236	1050	285	123	26
MIN	8.4	9.0	5.8	9.9	9.8	19	18	25	2.7	1.7	3.8	3.1
AC-FT	683	578	713	829	1130	2500	5740	4110	3460	1100	938	336
CFSM	.01	.00	.01	.01	.01	.02	.04	.03	.03	.01	.01	.00
IN.	.01	.00	.01	.01	.01	.02	.05	.04	.03	.01	.01	.00

CAL YR 1989 TOTAL 32854.4 MEAN 90.0 MAX 6100 MIN 1.8 AC-FT 65170 CFSM .04 IN. .56
WTR YR 1990 TOTAL 11146.9 MEAN 30.5 MAX 1050 MIN 1.7 AC-FT 22110 CFSM .01 IN. .19

e Estimated

07308500 RED RIVER NEAR BURKBURNETT, TX

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

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

WATER-DISCHARGE RECORDS

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

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

REMARKS.--Records fair except for estimated daily discharges, which are poor. There are many small diversions upstream from station for irrigation, but total amounts are unknown.

AVERAGE DISCHARGE.--30 years (water years 1961-90), 1,029 ft³/s (745,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 166,000 ft³/s Oct. 21, 1983 (gage height, 16.90 ft); no flow at times.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 9,000 ft³s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 11	2400	19,500	9.80	June 2	0600	*29,900	*10.26
Apr. 20	2330	21,200	9.95	Aug. 20	1500	10,300	8.69
May 3	1900	25,600	10.21				

Minimum discharge, 122 ft³/s July 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	545	2520	257	376	326	3800	905	1200	15000	217	1040	377
2	507	1430	257	363	315	1170	1230	3060	25800	216	1590	360
3	472	754	268	350	317	1450	1430	20200	21700	214	1390	322
4	436	488	273	338	293	785	1380	15700	15000	215	1340	301
5	403	347	273	331	291	708	1190	5320	7610	221	916	298
6	388	302	268	325	274	690	1140	2820	4930	217	881	287
7	370	270	e262	325	264	675	915	1720	3780	213	675	279
8	358	251	257	331	248	646	718	1060	1850	204	550	258
9	365	273	262	313	235	611	683	903	1240	199	433	240
10	368	273	262	284	234	614	1430	774	1040	199	476	219
11	426	266	262	284	225	7250	1670	735	888	190	353	206
12	445	267	257	252	221	15700	781	718	795	206	290	221
13	395	264	247	273	213	7950	608	663	790	199	283	214
14	349	258	242	273	223	3430	570	573	761	211	216	207
15	338	238	237	270	269	2690	608	520	635	241	198	192
16	325	237	e232	273	305	1700	651	468	519	261	166	183
17	321	227	e232	369	313	1590	630	432	359	241	152	227
18	344	237	227	358	299	1100	857	412	292	181	145	241
19	331	257	222	402	289	820	9740	417	276	142	143	229
20	344	262	e210	866	285	813	17000	427	218	135	3930	262
21	393	268	e210	961	420	711	13500	419	197	156	e4360	246
22	405	257	e210	1620	548	751	5930	319	195	220	3360	238
23	405	257	e200	1060	448	716	2440	279	197	291	e2720	271
24	396	262	e270	818	451	600	1200	268	199	3430	2110	753
25	387	257	426	624	710	626	953	227	208	3230	1330	1010
26	384	252	e488	510	630	673	978	182	213	1170	819	614
27	395	257	699	431	551	765	1300	162	213	814	565	397
28	443	252	e565	388	2880	858	1560	154	215	609	472	323
29	403	252	411	367	---	884	1540	150	213	429	357	284
30	2250	257	e404	342	---	894	1890	222	215	316	344	255
31	3400	---	397	317	---	908	---	509	---	306	362	---
TOTAL	17091	11992	9287	14394	12077	62578	75427	61013	105548	15093	31966	9514
MEAN	551	400	300	464	431	2019	2514	1968	3518	487	1031	317
MAX	3400	2520	699	1620	2880	15700	17000	20200	25800	3430	4360	1010
MIN	321	227	200	252	213	600	570	150	195	135	143	183
AC-FT	33900	23790	18420	28550	23950	124100	149600	121000	209400	29940	63400	18870

CAL YR 1989 TOTAL 478595 MEAN 1311 MAX 35000 MIN 158 AC-FT 949300
WTR YR 1990 TOTAL 425980 MEAN 1167 MAX 25800 MIN 135 AC-FT 844900

e Estimated

07308500 RED RIVER NEAR BURKBURNETT, TX--Continued

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1968 to September 1981.
WATER TEMPERATURE: July 1968 to September 1981.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 17,400 microsiemens July 30, 1972; minimum daily, 889 microsiemens Sept. 24, 1970.
WATER TEMPERATURE: Maximum daily, 35.5°C June 29, 1980; minimum daily, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CACO3)
NOV 16...	1620	242	7400	7.8	10.5	14	16.2	156	5.1	90	120	1300
JAN 26...	1120	521	7680	7.7	6.0	150	13.9	121	1.5	260	790	1200
MAR 16...	0840	1630	2750	8.1	11.0	390	10.0	96	3.2	84	>1600	500
MAY 17...	1610	449	4650	8.0	26.0	70	11.1	146	4.7	K33	84	900
JUL 12...	0900	169	5690	8.0	26.5	10	9.9	132	6.6	120	130	1200
AUG 24...	0840	2040	2770	7.9	26.5	520	9.5	126	2.4	570	370	470

DATE	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
NOV 16...	1200	340	110	1100	13	8.0	144	1200	1800	0.40	6.0	4760
JAN 26...	1000	330	88	1300	16	10	190	1000	1900	0.40	8.8	4930
MAR 16...	360	130	41	360	7	7.0	136	340	560	0.20	9.6	1650
MAY 17...	790	220	85	680	10	7.1	109	830	1200	0.50	7.1	3060
JUL 12...	1000	280	110	750	10	9.3	115	890	1100	0.40	29	3720
AUG 24...	380	140	28	410	8	9.4	86	350	620	1.2	9.5	1650

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 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,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
NOV 16...	4660	0.080	0.020	0.100	0.070	0.080	0.23	0.30	0.010	0.010	0.010	0.03
JAN 26...	4750	0.430	0.020	0.450	0.170	0.010	1.0	1.2	0.260	<0.010	<0.010	--
MAR 16...	1530	0.680	0.020	0.700	0.280	0.070	1.3	1.6	0.910	0.160	0.060	0.18
MAY 17...	3100	--	<0.010	<0.100	0.020	0.010	1.3	1.3	0.140	0.210	0.020	0.06
JUL 12...	3240	--	<0.010	<0.100	0.180	0.010	0.82	1.0	0.050	<0.010	<0.010	--
AUG 24...	1620	--	<0.010	0.500	0.030	0.040	1.5	1.5	0.520	0.070	0.050	0.15

DATE	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
NOV 16...	24	16	96	<10	2	200	10	<1.0	2	<1	<1	50
JAN 26...	180	253	100	--	--	--	--	--	--	--	--	--
MAR 16...	585	2570	99	110	3	200	<10	1.0	1	1	3	70
MAY 17...	141	171	95	10	2	100	<10	<1.0	<1	1	4	20
JUL 12...	18	8.2	84	--	--	--	--	--	--	--	--	--
AUG 24...	991	5460	100	450	5	100	<10	<1.0	2	<1	4	280

07308500 RED RIVER NEAR BURKBURNETT, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV											
16...	<1	70	20	1.3	4	1	3	<1.0	5000	11	<10
JAN											
26...	--	--	--	--	--	--	--	--	--	--	--
MAR											
16...	<1	30	20	0.3	3	2	1	<1.0	1600	13	<10
MAY											
17...	<1	50	<10	0.1	3	1	2	<1.0	3200	39	<10
JUL											
12...	--	--	--	--	--	--	--	--	--	--	--
AUG											
24...	1	30	20	<0.1	2	2	2	<1.0	1500	23	<10

07311669 TRUSCOTT BRINE LAKE NEAR TRUSCOTT, TX

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

DRAINAGE AREA.--26.2 mi².

WATER-DISCHARGE RECORDS

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

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

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

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

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 21,020 acre-ft June 5, 1990 (elevation, 1,458.54 ft); minimum, 1,190 acre-ft Oct. 18, 19, 1984 (elevation, 1,429.47 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 21,020 acre-ft June 5 at 1520 hours (elevation, 1,458.54 ft); minimum, 13,510 acre-ft Nov. 24 (elevation, 1,451.93 ft).

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

1,451.0	12,630	1,455.0	16,780	1,458.0	20,330
1,453.0	14,620	1,457.0	19,110	1,459.0	21,610

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13770	13680	13600	13680	13740	14100	14640	16830	20880	20430	20510	20330
2	13760	13680	13590	13690	13740	14100	14640	17430	20970	20410	20510	20290
3	13750	13660	13570	13670	13740	14110	14650	17520	21000	20370	20570	20280
4	13770	13650	13590	13670	13730	14150	14660	17520	21000	20340	20560	20270
5	13770	13660	13620	13660	13720	14150	14680	17540	21020	20320	20570	20260
6	13780	13660	13630	13650	13710	14260	14680	17540	20980	20290	20550	20230
7	13760	13670	13600	13640	13720	14280	14690	17560	20990	20260	20550	20220
8	13770	13650	13630	13640	13730	14280	14690	17540	20970	20220	20560	20220
9	13780	13660	13610	13640	13720	14320	14720	17530	20950	20200	20530	20210
10	13740	13650	13640	13630	13720	14490	14720	17520	20920	20170	20530	20200
11	13730	13650	13610	13630	13720	14500	14720	17530	20890	20150	20530	20180
12	13740	13660	13580	13610	13720	14500	14700	17530	20860	20130	20510	20160
13	13710	13670	13580	13610	13670	14500	14700	17540	20830	20090	20480	20160
14	13700	13670	13580	13650	13640	14500	14830	17530	20800	20070	20510	20150
15	13700	13680	13610	13640	13650	14500	14840	17530	20780	20020	20520	20150
16	13650	13650	13620	13630	13650	14500	14850	17530	20750	20000	20510	20130
17	13630	13660	13620	13640	13660	14510	14880	17520	20750	20020	20500	20210
18	13590	13640	13590	13630	13680	14510	15700	17510	20730	20010	20510	20240
19	13580	13620	13570	13750	13680	14510	16320	17520	20700	20010	20500	20230
20	13600	13600	13620	13750	13750	14510	16590	17510	20700	20010	20480	20260
21	13590	13600	13600	13760	13760	14510	16640	17500	20640	20000	20480	20260
22	13600	13630	13600	13760	13790	14510	16650	17490	20640	20370	20470	20260
23	13600	13620	13600	13780	13800	14520	16670	17480	20640	20380	20450	20230
24	13600	13540	13620	13770	13820	14520	16690	17460	20610	20390	20450	20210
25	13610	13620	13640	13770	13830	14520	16710	17460	20600	20380	20430	20220
26	13610	13620	13650	13740	13840	14520	16710	17440	20570	20450	20420	20170
27	13600	13630	13650	13770	13990	14530	16710	17440	20530	20460	20410	20170
28	13610	13620	13660	13760	14100	14590	16740	17440	20500	20450	20410	20200
29	13720	13600	13660	13740	---	14600	16740	17430	20470	20520	20380	20180
30	13700	13610	13660	13750	---	14620	16710	17450	20450	20510	20370	20170
31	13700	---	13670	13740	---	14620	---	17570	---	20500	20360	---
MAX	13780	13680	13670	13780	14100	14620	16740	17570	21020	20520	20570	20330
MIN	13580	13540	13570	13610	13640	14100	14640	16830	20450	20000	20360	20130
(†)	1452.09	1452.00	1452.06	1452.13	1452.49	1453.00	1454.94	1455.69	1458.09	1458.13	1458.02	1457.87
(ϕ)	-90	-90	+60	+70	+360	+520	+2090	+860	+2880	+50	-140	-190

CAL YR 1989 MAX 13950 MIN 10240 (ϕ) +3440
WTR YR 1990 MAX 21020 MIN 13540 (ϕ) +6380

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

07311669 TRUSCOTT BRINE LAKE NEAR TRUSCOTT, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1984 to December 1989 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1984 to December 1989.
WATER TEMPERATURE: October 1984 to December 1989.

INSTRUMENTATION.--From October 1, 1984 to December 1989 specific conductance and water temperature were recorded continuously at this station.

REMARKS.--Where maximum and minimum specific conductance values are not shown, mean values are estimated. The temperature and conductance probes are located 15 feet from shore and approximately 2.0 feet below surface which causes conductance to be affected by precipitation events which dilute lake surface.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 23,200 microsiemens May 11, 12, 15, 16, 1989; minimum, 1,340 microsiemens Oct. 23, 1985.
WATER TEMPERATURE: Maximum, 34.0°C Aug. 11, 1987; minimum, 0.0°C Jan. 11, 15, 1988 and Dec. 23, 24, 1989.

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	20600	20300	20400	22200	21800	21900	21800	21200	21500	---	---	---
2	20500	20100	20300	22100	21900	22000	21800	21600	21700	---	---	---
3	20500	20100	20300	22400	21700	22100	21700	21400	21600	---	---	---
4	20400	20200	20400	22600	21500	22100	---	---	e21600	---	---	---
5	20800	20300	20500	21900	21500	21800	---	---	e21700	---	---	---
6	20700	20500	20600	22100	21100	21800	---	---	e21700	---	---	---
7	20600	20500	20600	22100	21800	22000	---	---	e21700	---	---	---
8	20800	20500	20600	22300	22000	22100	---	---	e21800	---	---	---
9	20900	20600	20700	22300	21300	21700	---	---	e21800	---	---	---
10	20900	20600	20800	21900	21300	21600	---	---	e21900	---	---	---
11	21000	20800	20900	22300	21000	22000	---	---	e21900	---	---	---
12	21100	20900	21000	22500	21700	22100	---	---	e21900	---	---	---
13	21100	20900	21000	22800	21500	22200	---	---	e22000	---	---	---
14	21200	20900	21000	22900	21200	22400	---	---	e22000	---	---	---
15	21100	20900	21100	21900	21700	21800	---	---	e22000	---	---	---
16	21200	20900	21100	22000	21100	21800	---	---	e22100	---	---	---
17	21300	20900	21100	22000	21800	21900	---	---	e22100	---	---	---
18	21300	21200	21200	22000	21300	21800	---	---	e22100	---	---	---
19	21300	21200	21300	22000	21700	21900	---	---	e22200	---	---	---
20	21500	21200	21400	22000	21300	21700	---	---	e22200	---	---	---
21	21600	21400	21500	21600	21200	21400	---	---	e22200	---	---	---
22	21600	21200	21500	21600	21100	21500	---	---	e22300	---	---	---
23	21500	21200	21400	21600	20100	21200	---	---	e22300	---	---	---
24	21600	21400	21500	21500	20300	21100	---	---	e22400	---	---	---
25	21600	21300	21400	21500	21100	21300	---	---	e22400	---	---	---
26	21600	21200	21500	21700	21200	21500	---	---	e22400	---	---	---
27	21600	21200	21500	21700	21300	21500	---	---	e22500	---	---	---
28	21800	21500	21600	21600	21300	21500	---	---	e22500	---	---	---
29	21700	20300	21400	21500	21100	21300	---	---	e22400	---	---	---
30	22000	21100	21600	21400	21100	21300	---	---	e22400	---	---	---
31	22100	21400	21900	---	---	---	---	---	e22300	---	---	---
MONTH	22100	20100	21100	22900	20100	21700	---	---	22100	---	---	---

e Estimated

07311669 TRUSCOTT BRINE LAKE NEAR TRUSCOTT, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	24.5	21.0	22.5	16.5	15.5	16.0	11.0	10.0	10.5	---	---	---
2	22.5	21.0	21.5	17.5	14.5	15.5	11.0	9.5	10.0	---	---	---
3	22.5	20.5	21.5	16.0	14.0	15.0	12.5	9.0	10.0	---	---	---
4	23.5	21.0	22.0	16.5	14.0	15.0	11.5	8.5	10.0	---	---	---
5	23.5	21.5	22.5	16.0	13.5	14.5	12.5	8.5	10.5	---	---	---
6	22.5	21.0	21.5	16.5	13.5	15.0	11.5	9.0	10.0	---	---	---
7	22.0	20.5	21.0	17.5	14.0	15.5	9.5	8.5	9.0	---	---	---
8	23.0	20.0	21.5	15.5	13.5	14.5	10.0	8.0	8.5	---	---	---
9	23.0	21.0	21.5	15.5	13.0	14.0	10.0	7.0	8.5	---	---	---
10	23.5	20.5	21.5	17.5	13.5	15.0	10.5	7.5	8.5	---	---	---
11	22.5	20.5	21.0	17.5	14.0	15.0	8.0	6.5	7.5	---	---	---
12	23.0	19.5	21.0	17.5	14.0	15.5	8.5	5.0	6.5	---	---	---
13	23.0	20.0	21.0	16.5	14.5	15.5	9.0	5.5	7.0	---	---	---
14	23.5	20.0	21.0	17.5	14.0	15.0	7.5	5.5	6.5	---	---	---
15	22.5	20.0	21.0	15.0	13.5	14.0	6.0	4.5	5.5	---	---	---
16	20.5	19.0	20.0	14.0	12.5	13.5	5.5	3.5	4.5	---	---	---
17	19.5	18.0	19.0	14.0	12.0	13.0	6.0	3.0	4.5	---	---	---
18	18.0	17.0	18.0	15.0	12.5	13.0	6.0	3.0	4.5	---	---	---
19	18.0	16.5	17.0	15.0	12.5	13.5	5.5	3.0	4.0	---	---	---
20	20.0	16.0	17.5	14.5	12.5	13.5	5.5	3.0	4.0	---	---	---
21	18.5	16.0	17.0	17.0	13.0	14.5	3.5	1.5	3.0	---	---	---
22	21.5	16.5	18.0	14.0	12.0	13.0	2.5	1.0	2.0	---	---	---
23	21.5	17.0	18.5	13.5	11.5	12.0	2.0	.0	1.0	---	---	---
24	22.0	16.5	18.5	12.5	11.0	12.0	3.5	.0	1.5	---	---	---
25	21.5	17.5	19.0	13.5	11.0	12.0	5.5	.5	2.0	---	---	---
26	19.0	17.5	18.0	15.0	11.0	12.5	5.5	1.0	3.0	---	---	---
27	18.5	17.5	18.0	12.5	11.0	12.0	5.0	1.5	3.0	---	---	---
28	20.0	17.5	18.5	11.5	10.5	11.0	4.0	2.0	2.5	---	---	---
29	20.0	17.5	18.5	12.0	10.0	10.5	4.5	2.0	3.0	---	---	---
30	18.0	16.5	17.5	11.5	10.0	10.5	4.5	2.0	3.0	---	---	---
31	17.0	16.0	16.5	---	---	---	6.5	2.0	3.5	---	---	---
MONTH	24.5	16.0	19.5	17.5	10.0	13.5	12.5	.0	5.5	---	---	---

07311700 NORTH WICHITA RIVER NEAR TRUSCOTT, TX

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

DRAINAGE AREA.--937 mi².

WATER-DISCHARGE RECORDS

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

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

REMARKS.--Records good except those for estimated daily discharges, which are fair. There is one small diversion for irrigation upstream from station. Gage-height telemeter at station via Sutron data collection platform.

AVERAGE DISCHARGE.--30 years (water years 1961-90), 63.2 ft³/s (0.92 in/yr), 45,790 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,900 ft³/s Sept. 19, 1965 (gage height, 21.96 ft); minimum, 0.01 ft³/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 greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 11	2130	1,680	13.03	June 1	unknown	*6,910	a*18.08
Apr. 20	1035	3,140	15.73	July 23	0755	1,230	11.88
May 3	0025	2,540	14.86				

a From Highwater mark.

Minimum daily discharge, 8.3 ft³/s July 4.

FROM ADR
DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	29	24	27	21	75	39	102	e4110	10	28	e10
2	19	25	25	23	21	45	37	1040	e1640	9.6	26	e10
3	19	24	26	23	20	34	33	1200	213	9.0	28	e10
4	19	23	27	22	20	29	38	242	99	8.3	43	e10
5	20	22	27	22	19	27	34	118	69	9.5	85	e10
6	20	22	26	23	20	168	34	84	55	9.0	45	e10
7	19	21	26	23	20	59	38	71	47	10	29	e30
8	19	20	27	24	20	38	31	64	43	9.5	27	e32
9	18	20	28	24	21	35	28	57	40	9.8	22	e24
10	18	20	27	24	22	197	28	52	37	9.1	19	e15
11	18	18	27	24	21	1050	29	51	35	10	21	15
12	18	18	26	24	20	506	27	53	33	11	25	14
13	17	18	e22	24	20	129	26	51	30	13	20	14
14	17	17	e20	26	21	111	85	48	30	11	28	15
15	18	17	e18	25	24	73	57	47	29	9.8	72	15
16	18	17	e16	26	23	55	55	46	28	9.8	51	15
17	18	17	e16	27	23	48	69	44	28	12	46	27
18	19	18	e18	28	22	42	803	43	27	13	28	23
19	20	19	e18	206	22	38	2580	43	26	46	33	17
20	21	19	e20	140	23	36	2640	42	25	16	23	18
21	20	19	e20	61	30	35	632	40	24	11	20	29
22	19	19	e20	38	29	31	242	45	22	150	e25	23
23	20	20	e25	31	26	31	127	47	22	689	e20	19
24	21	20	e30	29	22	31	123	46	21	91	e14	15
25	21	20	e35	27	21	31	95	45	19	52	e13	16
26	21	21	40	25	19	31	79	47	18	52	e13	16
27	22	21	35	23	32	32	79	45	15	50	e12	16
28	24	21	29	23	267	33	67	45	14	43	e12	15
29	59	22	28	23	---	35	58	44	12	38	e11	15
30	186	24	30	22	---	37	52	47	9.9	94	e11	21
31	45	---	29	20	---	38	---	e51	---	44	e10	---
TOTAL	833	611	785	1107	869	3160	8265	4000	6820.9	1559.4	860	519
MEAN	26.9	20.4	25.3	35.7	31.0	102	275	129	227	50.3	27.7	17.3
MAX	186	29	40	206	267	1050	2640	1200	4110	689	85	32
MIN	17	17	16	20	19	27	26	40	9.9	8.3	10	10
AC-FT	1650	1210	1560	2200	1720	6270	16390	7930	13530	3090	1710	1030
CFSM	.03	.02	.03	.04	.03	.11	.29	.14	.24	.05	.03	.02
IN.	.03	.02	.03	.04	.03	.13	.33	.16	.27	.06	.03	.02

CAL YR 1989 TOTAL 27562 MEAN 75.5 MAX 2920 MIN 10 AC-FT 54670 CFSM .08 IN. 1.09
WTR YR 1990 TOTAL 29389.3 MEAN 80.5 MAX 4110 MIN 8.3 AC-FT 58290 CFSM .09 IN. 1.17

e Estimated

07311700 NORTH WICHITA RIVER NEAR TRUSCOTT, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses : February 1954 to March 1959, July 1966 to December 1989 (discontinued).
Sediment analyses: April 1978 to December 1989 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1968 to December 1989.
WATER TEMPERATURE: July 1968 to December 1989.

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 35,800 microsiemens Oct. 9, 1982; minimum, 400 microsiemens June 7, 8, 1985.
WATER TEMPERATURE: Maximum, 39.0°C Aug. 21, 23, 1969, Aug. 22, 1973; minimum, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT										
10...	1120	--	17300	--	20.0	--	--	--	--	--
31...	1340	39	7610	7.6	13.5	1200	1100	350	70	1200

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT										
10...	--	--	--	--	--	--	--	--	38	93
31...	15	22	69	1200	1900	0.30	3.8	4790	--	--

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	15500	14900	15200	8350	7450	7720	18000	17800	17900	---	---	---
2	15900	15300	15600	9420	8340	8920	17900	17700	17800	---	---	---
3	16100	15600	15900	11500	9420	10100	17900	17800	17800	---	---	---
4	16300	15900	16100	14800	11600	13600	17800	17700	17800	---	---	---
5	16500	16000	16300	15300	14700	15000	17800	17600	17700	---	---	---
6	16700	16100	16400	16700	15300	16000	17700	17600	17700	---	---	---
7	16900	16300	16600	17300	16800	17100	17700	17500	17600	---	---	---
8	17100	16600	16700	17500	17200	17300	17700	17500	17700	---	---	---
9	17200	16700	16900	17600	17400	17500	17700	17500	17600	---	---	---
10	17600	17000	17200	17700	17400	17600	17600	17500	17600	---	---	---
11	17700	17200	17500	17600	17500	17500	17700	17500	17600	---	---	---
12	17800	17400	17600	17700	17500	17600	18000	17600	17900	---	---	---
13	17900	17500	17700	17700	17500	17600	18100	17800	18000	---	---	---
14	18100	17700	17900	17600	17500	17600	18000	17600	17800	---	---	---
15	18200	17800	18000	17800	17500	17600	18000	17600	17900	---	---	---
16	18200	17900	18100	17800	17600	17700	18600	18100	18300	---	---	---
17	18300	18000	18200	17800	17600	17700	18900	18100	18500	---	---	---
18	18400	18200	18300	17800	17600	17700	18600	18000	18400	---	---	---
19	18400	18200	18400	17700	17600	17700	18600	17900	18200	---	---	---
20	18400	18200	18300	17600	17500	17600	18800	17400	18200	---	---	---
21	18500	18200	18400	17600	17500	17600	18800	17700	18100	---	---	---
22	18500	18200	18300	17700	17500	17600	---	---	e18200	---	---	---
23	18400	18200	18300	17800	17600	17700	---	---	e18300	---	---	---
24	18500	18200	18400	17900	17700	17800	---	---	e18400	---	---	---
25	18600	18200	18500	17900	17700	17900	---	---	e18400	---	---	---
26	18600	18300	18500	18000	17700	17900	19500	17400	18500	---	---	---
27	18500	18200	18400	18000	17800	18000	17300	16500	16900	---	---	---
28	18500	18200	18400	18000	17800	17900	16500	16000	16300	---	---	---
29	---	---	e16800	18000	17900	17900	16500	16100	16300	---	---	---
30	---	---	e6600	18000	17900	17900	16200	15900	16100	---	---	---
31	---	---	e7900	---	---	---	16000	15800	15900	---	---	---
MONTH	18600	14900	16800	18000	7450	16500	19500	15800	17700	---	---	---

e Estimated

07311700 NORTH WICHITA RIVER NEAR TRUSCOTT, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	25.5	19.0	22.0	13.0	9.5	11.5	9.0	6.5	8.0	---	---	---
2	24.0	18.5	21.5	12.0	7.5	9.5	10.0	7.0	8.0	---	---	---
3	25.0	18.5	21.5	12.5	7.5	10.0	8.0	4.5	6.5	---	---	---
4	24.5	19.5	22.5	14.0	8.5	11.5	10.0	5.0	7.5	---	---	---
5	25.5	20.5	23.0	16.0	11.0	13.5	10.5	6.0	8.5	---	---	---
6	24.0	20.0	22.0	16.0	11.0	13.5	11.5	7.0	9.0	---	---	---
7	22.5	17.5	20.0	16.5	12.0	14.5	8.5	4.5	7.0	---	---	---
8	22.5	16.0	19.5	15.5	12.0	13.5	6.5	3.0	4.5	---	---	---
9	23.5	17.5	20.5	14.5	10.0	12.0	7.5	3.5	5.5	---	---	---
10	24.0	18.0	21.0	15.0	10.0	12.5	9.0	4.5	6.5	---	---	---
11	23.0	18.0	20.5	16.0	11.0	13.5	6.0	.5	3.0	---	---	---
12	23.5	17.5	20.5	17.5	12.5	15.0	2.5	.0	1.0	---	---	---
13	23.0	17.5	20.5	18.0	15.0	16.5	3.0	.0	1.5	---	---	---
14	23.0	17.5	20.5	16.5	12.5	15.0	4.0	.5	2.0	---	---	---
15	23.5	18.0	21.0	14.0	10.0	12.0	2.0	.0	.5	---	---	---
16	20.5	15.5	18.5	10.0	7.5	9.0	.5	.0	.0	---	---	---
17	16.5	12.5	14.5	10.5	6.5	8.5	1.0	.0	.0	---	---	---
18	14.5	11.0	13.0	11.0	7.0	9.0	2.0	.0	.5	---	---	---
19	14.0	8.5	11.5	13.5	8.5	11.0	.5	.0	.0	---	---	---
20	15.5	9.0	12.5	14.5	10.5	13.0	2.0	.0	.5	---	---	---
21	18.5	12.0	15.0	17.0	13.0	15.0	.0	.0	.0	---	---	---
22	21.0	15.0	18.0	15.0	10.0	13.0	.0	.0	.0	---	---	---
23	21.0	15.5	18.5	10.5	7.0	9.0	.0	.0	.0	---	---	---
24	21.5	15.5	18.5	11.5	7.0	9.5	.0	.0	.0	---	---	---
25	22.5	17.5	20.0	13.5	9.0	11.5	.5	.0	.0	---	---	---
26	21.5	17.0	19.0	13.0	9.0	11.0	2.0	.0	.5	---	---	---
27	20.5	18.0	19.0	12.5	9.5	11.0	2.0	.0	1.0	---	---	---
28	21.0	17.5	19.0	9.0	6.0	7.5	3.0	.5	1.5	---	---	---
29	---	---	e18.0	7.0	4.0	6.0	5.5	2.0	4.0	---	---	---
30	---	---	e15.0	9.0	6.0	7.5	5.0	3.0	4.0	---	---	---
31	---	---	e12.0	---	---	---	6.0	3.0	4.5	---	---	---
MONTH	25.5	8.5	18.5	18.0	4.0	11.5	11.5	.0	3.0	---	---	---

e Estimated

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

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

DRAINAGE AREA.--223 mi².

WATER-DISCHARGE RECORDS

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

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

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

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

EXTREMES FOR CURRENT YEAR.--Not determined.

FLOW THRU PIPELINE
DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	3.5	6.9	.00	.00	.00	7.2	7.2	3.0	4.9	6.8	4.2
2	6.8	7.1	.00	.00	.00	.00	7.1	7.0	.00	4.1	7.0	6.7
3	6.8	7.1	.00	.00	.00	.00	7.0	.00	.00	6.5	7.0	4.8
4	7.1	3.7	3.3	.00	.00	.00	7.0	.00	.00	4.5	3.8	5.7
5	7.3	6.6	7.2	.00	.00	.00	7.0	.00	6.7	6.2	7.2	6.6
6	7.2	6.3	7.1	.00	.00	.00	7.0	.00	6.7	3.8	7.2	4.3
7	7.2	7.0	4.7	.00	.00	3.1	7.0	.00	6.7	6.5	7.1	6.8
8	7.0	3.9	7.1	.00	.00	5.4	6.7	1.4	5.9	4.6	7.1	4.6
9	7.1	7.1	7.1	.00	.00	7.2	4.2	3.6	.00	4.6	6.9	4.6
10	7.1	6.9	7.1	.00	.00	7.2	2.6	3.4	.00	6.1	4.7	7.0
11	6.3	4.0	6.9	.00	.00	3.6	6.7	6.8	.00	4.1	7.2	4.6
12	5.6	6.5	6.7	.00	.00	.00	6.7	7.1	.00	5.6	2.6	5.6
13	3.5	6.7	6.7	.00	.00	3.1	6.7	2.1	.00	5.5	4.7	5.2
14	5.2	6.6	6.7	.00	2.6	6.6	.00	1.3	.00	3.8	5.1	2.6
15	7.1	3.6	6.7	.00	4.7	6.6	.00	3.2	4.1	7.2	3.9	7.2
16	3.4	7.0	6.7	.00	7.0	6.6	3.6	7.1	7.4	4.3	7.0	7.1
17	5.5	3.1	3.8	.00	7.0	6.6	7.2	7.1	6.0	5.3	7.0	4.9
18	4.9	.00	.64	.00	7.0	6.6	4.6	7.1	3.9	6.0	7.1	6.7
19	3.8	.00	3.5	.00	7.0	6.5	.00	7.1	6.9	6.1	4.3	4.6
20	6.5	2.7	6.7	.00	7.0	6.5	.00	7.1	6.9	5.2	4.5	6.9
21	6.6	7.0	5.9	.00	7.0	6.6	.00	7.0	6.9	4.2	7.1	6.7
22	6.5	7.0	7.2	.00	7.0	6.6	.00	.00	7.2	2.3	7.1	6.7
23	6.5	7.0	7.3	.00	6.8	6.8	3.1	6.3	7.4	3.8	7.1	5.0
24	6.5	6.6	7.2	.00	6.6	7.2	7.2	5.8	7.4	7.2	7.0	4.5
25	6.7	7.0	7.2	.00	6.6	7.2	7.2	.00	7.4	7.2	7.1	3.6
26	5.0	7.0	4.8	.00	6.6	7.2	7.2	6.2	4.4	7.3	7.1	3.4
27	4.3	7.0	.00	.00	4.4	7.2	7.2	7.1	6.4	7.3	6.4	6.7
28	7.1	7.0	.00	.00	.00	7.2	7.2	7.0	6.8	5.0	7.0	6.3
29	7.0	4.5	.00	.00	---	7.2	4.4	7.0	3.9	.00	7.0	6.7
30	6.5	7.1	.00	.00	---	7.2	3.6	7.0	7.2	2.1	5.3	6.7
31	6.9	---	.00	.00	---	7.2	---	6.8	---	.42	6.3	---
TOTAL	191.8	166.60	145.14	0.00	87.30	153.20	145.40	138.80	129.20	151.72	192.7	167.0
MEAN	6.19	5.55	4.68	.000	3.12	4.94	4.85	4.48	4.31	4.89	6.22	5.57
MAX	7.3	7.1	7.3	.00	7.0	7.2	7.2	7.2	7.4	7.3	7.2	7.2
MIN	3.4	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.6	2.6
AC-FT	380	330	288	.00	173	304	288	275	256	301	382	331

CAL YR 1989 TOTAL 1815.14 MEAN 4.97 MAX 7.6 MIN .00 AC-FT 3600
WTR YR 1990 TOTAL 1668.86 MEAN 4.57 MAX 7.4 MIN .00 AC-FT 3310

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

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1984 to current year. October 1986 to April 1987 published under station 07311783.
WATER TEMPERATURE: October 1984 to current year. October 1986 to April 1987 published under station 07311783.

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 41,500 microsiemens Aug. 4, 1989; minimum, 200 microsiemens July 3, 1986.
WATER TEMPERATURE: Maximum, 33.0°C Aug. 2, 7, 8, 1985; minimum, 0.0°C Dec. 23, 1989.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 39,800 microsiemens Nov. 23; minimum, 9,780 microsiemens Aug. 4.
WATER TEMPERATURE: Maximum, 32.0°C June 20, Aug. 21; minimum 0.0°C Dec. 23.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
NOV 15...	0950	38000	7.6	12.0	3200	3100	920	230	6900
JAN 22...	1050	22000	8.1	10.5	2200	2100	650	150	4000
MAR 12...	1050	11300	8.1	17.5	1800	1700	510	130	2000
APR 19...	1025	4710	8.1	11.0	620	560	170	48	670
JUN 07...	1350	26500	7.9	28.0	2500	2400	720	180	5100

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT DIS FIX END FIELD CACO3 (MG/L)	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 15...	53	30	110	3200	12000	0.50	8.0	23400
JAN 22...	37	21	120	2100	6800	0.40	9.3	13800
MAR 12...	20	10	120	1500	3200	<0.10	8.0	7430
APR 19...	12	9.9	59	530	1100	<0.10	7.4	2570
JUN 07...	44	20	100	2200	8300	<0.10	3.4	16600

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICROSIEMENS)	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.	1989	191.8	37500	25500	13200	12700	6570	3300	1700	*
NOV.	1989	166.60	38200	26000	11700	13000	5830	3300	1490	*
DEC.	1989	145.14	37700	25600	10000	12800	5010	3300	1290	*
JAN.	1990	0.00	*	*	0.00	*	0.00	*	0.00	*
FEB.	1990	87.30	36200	24500	5770	12200	2870	3200	755	*
MAR.	1990	153.20	30500	20400	8440	10000	4150	2800	1170	*
APR.	1990	145.40	31300	21000	8240	10300	4060	2900	1130	*
MAY	1990	138.80	31200	20900	7830	10300	3850	2900	1080	*
JUNE	1990	129.20	33800	22800	7960	11300	3940	3000	1060	*
JULY	1990	151.72	37800	25700	10500	12800	5240	3300	1350	*
AUG.	1990	192.7	30100	20200	10500	9900	5160	2800	1450	*
SEPT	1990	167.0	36400	24600	11100	12200	5520	3200	1450	*
TOTAL		1668.86	**	**	105000	**	52200	**	13900	**
WTD.AVG.		4.6	34600	23400	**	12000	**	3100	**	**

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

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	36400	35800	36100	38300	37200	38000	38200	37500	37800	---	---	---
2	36600	35800	36100	38100	37400	37600	---	---	---	---	---	---
3	36600	36100	36300	37900	37400	37700	---	---	---	---	---	---
4	36600	36100	36400	38200	37800	37900	37900	37600	37700	---	---	---
5	36800	36400	36600	38400	37800	38000	38200	37400	37800	---	---	---
6	36900	36400	36600	38100	37800	37900	38300	37700	38100	---	---	---
7	36700	36300	36500	38100	37800	37900	38300	38000	38200	---	---	---
8	36900	36200	36500	38100	37700	37900	38100	37800	38000	---	---	---
9	36900	36300	36600	38200	37600	37900	37700	36400	37300	---	---	---
10	36700	36500	36600	38100	38000	38000	37900	36100	37300	---	---	---
11	37000	36500	36700	38100	38000	38000	38300	37800	38100	---	---	---
12	38600	36700	37100	38300	37900	38100	38000	37200	37700	---	---	---
13	37600	37100	37400	38200	37900	38000	37600	36900	37200	---	---	---
14	37900	37200	37500	38100	37800	37900	37400	36700	37100	---	---	---
15	38300	37700	37900	38200	37600	37900	37700	37300	37500	---	---	---
16	38100	37700	37800	38200	37800	38000	37700	37300	37500	---	---	---
17	38200	37700	38000	38100	37900	37900	37300	36900	37100	---	---	---
18	38700	38200	38400	---	---	---	37100	37000	37100	---	---	---
19	39100	38500	38700	---	---	---	37100	37000	37100	---	---	---
20	39400	39000	39100	38500	38200	38400	37800	37100	37500	---	---	---
21	39300	38600	38900	39700	38300	38800	38200	37600	38100	---	---	---
22	38900	38500	38700	39700	37800	39200	38500	38300	38400	---	---	---
23	38700	38300	38400	39800	39100	39500	38600	38300	38400	---	---	---
24	38400	38200	38300	39100	38600	38900	38500	37800	38300	---	---	---
25	38500	38100	38300	38800	38500	38600	38000	36100	37300	---	---	---
26	38200	38000	38100	38500	38200	38400	38100	37100	37700	---	---	---
27	38100	37700	38000	38600	38200	38400	---	---	---	---	---	---
28	38500	37900	38200	38500	38300	38400	---	---	---	---	---	---
29	38500	38200	38400	38400	38000	38300	---	---	---	---	---	---
30	38300	38000	38200	38200	37800	38000	---	---	---	---	---	---
31	38300	38000	38100	---	---	---	---	---	---	---	---	---
MONTH	39400	35800	37600	39800	37200	38200	38600	36100	37700	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	34200	33100	33700	27400	25600	26800
2	---	---	---	---	---	---	33900	33100	33700	27700	22500	25900
3	---	---	---	---	---	---	34300	33200	33700	---	---	---
4	---	---	---	---	---	---	35000	33800	34200	---	---	---
5	---	---	---	---	---	---	34900	33900	34400	---	---	---
6	---	---	---	---	---	---	34900	33900	34500	---	---	---
7	---	---	---	36200	30200	33800	35100	34600	34900	---	---	---
8	---	---	---	34800	32600	34000	35600	34400	35200	22500	18500	21000
9	---	---	---	35400	34100	34800	35700	34800	35500	24000	22500	23400
10	---	---	---	35500	32700	34400	35400	35000	35200	26300	23800	24900
11	---	---	---	34900	32800	34100	35500	35200	35400	27900	26300	27100
12	---	---	---	---	---	---	36200	35500	35800	28700	27000	28100
13	---	---	---	34100	14400	24100	36200	35900	36100	29000	28600	28800
14	37400	36400	36900	18300	15100	16600	---	---	---	29700	28900	29100
15	37500	36100	37200	22500	18600	20500	---	---	---	29900	28900	29200
16	37400	36100	36800	23700	21300	22500	36400	34600	35300	30800	29600	30100
17	37400	35100	36900	25200	23200	24300	35400	34600	34800	31400	30700	31000
18	37100	35800	36600	27300	24600	25800	35000	33400	34600	31700	31200	31400
19	37300	34900	36100	30500	26700	28700	---	---	---	32300	31700	31900
20	37400	33900	36600	32100	28400	30500	---	---	---	32600	31900	32200
21	36300	30700	33700	33100	30600	32200	---	---	---	32900	32000	32400
22	36500	35900	36300	33300	30600	32100	---	---	---	---	---	---
23	36300	35300	35600	32500	31900	32200	33300	17100	25800	34200	32400	33300
24	36200	35600	35800	33200	32000	32800	21300	18200	19600	34200	34000	34100
25	36600	34600	35800	34100	33100	33700	23100	21300	22300	---	---	---
26	36700	36000	36500	35200	32500	33900	24700	23100	23900	34900	33200	34200
27	36800	36500	36600	34400	33500	34100	25400	24500	24900	35300	34600	35000
28	---	---	---	34000	32800	33500	26600	25400	25900	35400	34900	35100
29	---	---	---	33800	32500	33300	27000	26400	26700	35700	34000	35300
30	---	---	---	33900	33500	33700	27500	26700	27000	35500	33800	34800
31	---	---	---	33900	33000	33600	---	---	---	35400	34400	35100
MONTH	37500	30700	36200	36200	14400	30400	36400	17100	31400	35700	18500	30400

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

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	33800	30400	32400	38200	37600	37900	27400	25400	26200	36000	35600	35800
2	---	---	---	39000	37800	38300	28200	25400	26500	36400	35600	36000
3	---	---	---	38800	38000	38400	31100	28200	29600	36300	35800	36100
4	---	---	---	39100	38200	38600	25100	9780	15700	36300	35700	36000
5	21500	19100	20200	38900	37900	38500	14600	14500	14600	36700	36000	36300
6	24300	21600	22800	39000	38300	38400	15400	13800	14400	36400	35900	36200
7	28200	24500	26200	38900	38100	38500	19600	15600	17700	36700	36000	36300
8	30200	27800	29000	38900	38100	38600	24500	19800	22000	36400	36300	36300
9	---	---	---	39200	38300	38700	28500	24600	26600	37100	36200	36600
10	---	---	---	39000	38200	38600	30500	28400	29200	36900	36300	36600
11	---	---	---	39100	38400	38600	31800	30500	30900	36700	36200	36500
12	---	---	---	39000	38300	38600	32500	31800	32100	36900	36200	36500
13	---	---	---	38900	38400	38700	33300	32700	33000	---	---	e36400
14	---	---	---	38900	38300	38600	33600	32900	33300	---	---	e36300
15	35300	34200	34900	38800	38200	38400	33900	33400	33700	---	---	e36200
16	35700	34200	35100	38400	38100	38300	33800	33400	33600	---	---	e36100
17	36000	34800	35400	38300	37700	38000	33800	33500	33700	---	---	e36100
18	35700	34700	35400	38200	37900	38100	33700	32500	33200	36900	36100	36500
19	35800	35200	35500	38400	37800	38100	32600	32100	32300	37100	36500	36700
20	37200	35200	36200	38200	37700	38000	33400	32600	32800	36900	35400	36200
21	37100	36600	36900	38300	37700	37900	33800	33400	33600	36200	35500	35800
22	37000	36100	36500	37900	36500	36900	34500	33800	34300	36600	36000	36300
23	36700	36300	36500	36900	36300	36600	35300	34800	34900	36600	36200	36400
24	36800	35900	36400	37000	36400	36700	35300	34900	35000	36200	35800	35900
25	36600	35900	36300	37100	36700	37000	35300	35000	35100	36000	35800	35900
26	36500	35600	35900	37100	36700	37000	35400	35000	35100	36100	35900	36000
27	37400	35800	36500	36800	35900	36400	35300	35000	35100	37400	36500	36800
28	38200	37100	37500	36000	33100	34300	35300	34900	35100	37800	37200	37500
29	38100	37300	37500	---	---	---	35600	35100	35300	37700	36800	37400
30	38400	37600	37800	34300	31100	33500	35800	35200	35500	37100	36600	36800
31	---	---	---	32700	27000	28300	36100	35400	35700	---	---	---
MONTH	38400	19100	33900	39200	27000	37400	36100	9780	30200	37800	35400	36300

e Estimated

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	22.5	20.5	21.5	14.5	12.0	13.5	11.0	9.0	10.0	---	---	---
2	22.5	20.5	22.0	15.0	10.5	12.5	---	---	---	---	---	---
3	22.0	20.0	21.0	14.5	10.0	12.0	---	---	---	---	---	---
4	23.0	20.5	22.0	14.5	10.5	12.0	11.5	8.0	9.5	---	---	---
5	23.5	21.0	22.5	16.5	12.0	14.0	12.0	9.0	10.5	---	---	---
6	24.0	21.0	22.5	16.5	13.0	14.5	12.0	10.0	11.0	---	---	---
7	22.5	19.0	21.0	17.5	13.5	15.0	11.5	8.5	10.0	---	---	---
8	21.5	18.0	20.0	16.0	13.5	14.5	10.0	7.5	8.5	---	---	---
9	22.5	18.5	20.5	16.5	12.5	14.0	10.5	7.5	9.0	---	---	---
10	23.0	18.5	20.5	16.0	12.0	14.0	12.0	7.0	10.0	---	---	---
11	23.0	19.5	21.0	16.0	12.0	14.0	9.5	6.0	7.5	---	---	---
12	23.5	19.0	20.5	18.0	13.5	15.5	7.5	4.5	6.0	---	---	---
13	23.0	19.0	20.5	18.0	14.0	16.0	7.5	4.0	6.0	---	---	---
14	22.5	18.5	20.5	18.0	13.0	15.5	8.0	5.0	6.5	---	---	---
15	23.0	19.0	20.5	15.5	11.5	13.5	7.0	4.5	5.5	---	---	---
16	20.5	17.5	19.0	13.5	11.0	12.0	5.0	3.5	4.5	---	---	---
17	18.0	15.5	17.0	12.5	10.0	11.0	4.5	2.5	3.5	---	---	---
18	16.5	14.0	15.5	---	---	---	4.5	3.0	4.0	---	---	---
19	15.5	13.5	14.5	---	---	---	4.0	2.0	3.5	---	---	---
20	15.5	12.0	14.0	13.5	11.5	12.5	5.5	3.5	4.0	---	---	---
21	17.5	13.0	15.0	16.0	13.0	14.5	5.0	2.5	4.0	---	---	---
22	20.0	15.5	17.5	16.0	13.5	14.5	2.5	1.5	2.0	---	---	---
23	21.0	16.0	18.5	13.5	11.5	12.5	2.0	.0	1.0	---	---	---
24	21.0	16.5	18.5	13.0	10.5	12.0	5.0	1.0	3.0	---	---	---
25	21.5	18.0	19.5	14.5	11.5	13.0	7.5	4.5	6.0	---	---	---
26	21.0	18.0	19.5	14.0	11.0	12.5	9.0	6.0	7.5	---	---	---
27	20.0	19.0	19.5	13.5	12.0	13.0	---	---	---	---	---	---
28	20.0	18.0	19.0	12.0	10.0	11.0	---	---	---	---	---	---
29	21.5	18.0	19.5	10.5	9.5	10.0	---	---	---	---	---	---
30	18.5	15.5	17.0	10.5	9.0	10.0	---	---	---	---	---	---
31	17.0	13.0	15.0	---	---	---	---	---	---	---	---	---
MONTH	24.0	12.0	19.0	18.0	9.0	13.0	12.0	.0	6.5	---	---	---

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

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	20.0	15.5	17.5	16.0	13.5	14.5
2	---	---	---	---	---	---	20.0	16.5	18.5	15.5	12.0	14.0
3	---	---	---	---	---	---	19.5	16.5	18.0	---	---	---
4	---	---	---	---	---	---	23.5	17.0	20.0	---	---	---
5	---	---	---	---	---	---	21.5	16.5	19.5	---	---	---
6	---	---	---	---	---	---	19.0	14.5	16.5	---	---	---
7	---	---	---	18.0	13.5	15.5	17.5	14.5	16.0	---	---	---
8	---	---	---	18.5	15.5	17.5	18.0	14.5	16.5	24.5	17.5	21.5
9	---	---	---	19.0	17.5	18.0	20.5	16.0	18.0	23.5	21.0	21.5
10	---	---	---	18.5	18.0	18.5	20.0	16.5	18.5	21.0	16.0	19.5
11	---	---	---	18.0	17.5	18.0	19.0	14.5	17.5	21.5	14.5	17.0
12	---	---	---	---	---	---	19.5	16.0	18.0	24.5	18.0	20.5
13	---	---	---	20.5	17.0	18.5	19.0	17.5	18.0	22.5	20.5	21.0
14	13.5	9.5	11.0	17.5	13.5	16.0	---	---	---	27.0	20.5	22.5
15	10.0	8.0	9.5	---	---	e15.5	---	---	---	27.0	22.5	24.0
16	11.0	6.5	8.5	16.5	11.5	15.0	23.5	17.5	20.0	27.5	24.0	25.5
17	11.0	7.5	9.5	---	---	e15.0	22.5	15.0	17.0	26.0	22.5	24.5
18	12.5	9.0	11.0	---	---	e15.5	17.0	14.0	14.5	25.5	22.0	23.5
19	12.5	11.0	12.0	18.0	13.5	16.5	---	---	---	28.0	22.5	25.0
20	13.0	11.0	11.5	17.0	15.0	16.0	---	---	---	26.5	22.5	25.0
21	13.0	11.0	12.0	19.5	12.5	16.0	---	---	---	27.5	21.0	24.0
22	12.0	10.0	11.0	19.5	16.5	18.0	---	---	---	---	---	---
23	14.5	9.5	12.0	19.0	14.0	15.5	21.5	16.5	18.0	27.0	23.0	25.0
24	15.0	11.0	13.0	14.0	11.0	12.5	21.5	17.0	19.0	28.5	22.5	25.5
25	16.5	12.0	15.0	11.0	9.5	10.5	23.0	18.5	20.5	---	---	---
26	17.5	13.5	15.5	10.5	8.0	9.0	23.5	20.5	22.0	31.0	25.0	27.5
27	16.0	15.0	15.5	7.0	5.0	6.0	22.5	20.0	21.0	28.5	25.5	27.0
28	---	---	---	15.5	5.5	11.0	22.0	18.5	20.0	26.5	23.0	24.5
29	---	---	---	15.0	13.0	14.0	22.0	19.5	21.0	23.5	21.5	22.5
30	---	---	---	15.0	12.5	13.5	21.0	16.0	17.5	26.5	19.5	23.0
31	---	---	---	16.5	12.5	14.5	---	---	---	28.5	22.0	25.0
MONTH	17.5	6.5	12.0	20.5	5.0	15.0	23.5	14.0	18.5	31.0	12.0	22.5

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	26.0	20.0	23.0	30.5	25.0	27.5	28.5	23.5	26.0	29.5	25.5	26.5
2	---	---	---	29.0	25.5	27.5	28.0	25.0	26.5	29.0	25.0	27.0
3	---	---	---	30.5	25.0	27.5	30.5	24.5	27.0	28.5	24.5	26.5
4	---	---	---	29.5	25.0	27.5	27.0	25.5	26.5	29.5	24.5	27.0
5	28.5	24.0	26.0	31.0	25.0	28.0	27.0	25.0	26.0	29.0	25.0	26.5
6	28.5	24.0	26.0	29.5	26.0	27.0	27.0	25.0	26.5	29.0	24.5	25.5
7	28.5	24.5	26.5	29.5	25.5	27.5	27.0	25.5	26.0	29.0	24.5	26.5
8	29.5	24.5	27.0	29.0	23.5	26.0	27.0	25.5	26.0	27.5	25.0	26.0
9	---	---	---	29.0	24.5	27.0	27.5	26.0	27.0	29.0	24.0	26.5
10	---	---	---	30.5	24.5	27.5	29.0	27.0	28.0	29.0	25.0	27.0
11	---	---	---	31.5	25.0	27.0	29.5	27.5	28.5	29.5	24.5	26.5
12	---	---	---	30.0	26.0	27.5	30.0	28.0	28.5	29.0	24.0	25.5
13	---	---	---	27.5	24.5	26.0	30.5	29.5	30.0	---	---	e25.0
14	---	---	---	26.5	22.5	24.5	29.5	28.5	29.0	---	---	e25.0
15	30.0	26.5	28.5	25.5	22.0	24.0	29.0	28.5	28.5	---	---	e25.0
16	29.0	26.5	27.5	22.5	21.5	22.0	30.0	26.0	28.0	---	---	e24.5
17	31.0	26.5	28.5	25.5	22.0	23.5	29.5	27.5	28.5	26.0	23.5	24.0
18	31.0	28.0	29.5	27.0	22.5	24.5	30.0	26.5	28.0	26.5	22.5	24.5
19	30.5	27.0	29.0	28.0	23.5	25.5	29.0	27.0	28.0	27.0	23.5	24.5
20	32.0	26.5	29.0	29.5	23.5	26.5	31.0	27.5	29.5	26.0	23.5	24.5
21	31.0	27.5	29.5	28.5	25.0	26.5	32.0	28.0	29.5	---	---	e24.0
22	30.5	25.5	28.0	27.0	23.5	25.5	31.5	28.0	29.5	---	---	e23.0
23	29.5	25.5	27.0	26.5	25.0	26.0	30.5	28.0	29.0	---	---	e22.0
24	29.5	25.0	27.0	27.5	25.5	26.5	30.5	26.5	28.5	---	---	e20.0
25	31.0	25.5	27.5	28.5	26.0	27.0	30.5	26.5	28.5	---	---	e21.0
26	30.0	26.0	28.0	27.0	25.5	26.5	31.0	26.5	28.5	26.0	22.5	24.0
27	29.5	26.0	28.0	28.5	24.0	26.5	31.5	26.0	28.5	26.0	21.0	23.5
28	30.0	24.5	27.0	28.5	26.0	27.5	31.0	26.0	28.5	25.0	22.0	23.5
29	30.0	24.5	26.5	---	---	---	30.5	26.0	28.0	23.5	22.0	22.5
30	30.0	25.0	27.0	28.0	27.5	28.0	30.5	25.5	28.0	23.5	21.0	22.0
31	---	---	---	27.5	26.0	27.0	31.0	25.5	29.0	---	---	---
MONTH	32.0	20.0	27.5	31.5	21.5	26.5	32.0	23.5	28.0	29.5	21.0	24.5

e Estimated

07311783 SOUTH WICHITA RIVER BELOW DAM NEAR GUTHRIE, TX

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

DRAINAGE AREA.--223 mi².

WATER-DISCHARGE RECORDS

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

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

REMARKS.--Estimated daily discharges: Dec. 22-23. Records good. Diversions from station 07311782 via pipeline to station 07311669, began in May 1987. Specific conductance and water temperature from October 1986 to April 1987, were collected at station 07311782, but are published at this station and used for computation of water quality loads at this station. A mini-monitor was installed at this station in May 1987, and specific conductivity values for this probe were used to compute water quality loads since that time. Continuous temperature and specific conductance records were discontinued September 30, 1989. Gage-height telemeter at station.

AVERAGE DISCHARGE.--5 years (water years 1985-90), 7.41 ft³/s (5,370 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,100 ft³/s July 3, 1986 (gage height, 19.01 ft); no flow for several periods during 1986 water year.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 466 ft³/s Apr. 18, 1990 at 1700 hours (gage height 6.54 ft); minimum, 0.01 ft³/s for a few days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	.03	.06	5.7	6.2	9.0	.09	1.1	9.2	.05	.03	.03
2	.03	.03	.05	5.5	5.8	6.8	.12	16	25	.05	.03	.02
3	.03	.03	1.4	5.0	5.6	6.2	.16	27	11	.06	7.7	.02
4	.03	.03	3.6	4.7	5.8	6.2	.13	3.5	3.9	.06	44	.02
5	.03	.03	.11	4.9	5.9	6.0	.09	8.3	.02	.06	1.9	.02
6	.03	.04	.13	5.1	5.9	5.2	.05	8.0	.03	.06	.59	.02
7	.03	.04	.11	5.2	6.1	3.2	.05	7.7	.02	.06	.04	.02
8	.03	.04	.09	18	6.0	.62	.06	14	.01	.05	.04	.02
9	.03	.04	.13	5.6	2.2	.06	.05	6.6	.02	.05	.04	.01
10	.03	.04	.13	4.9	.04	.69	.05	3.7	.73	.06	.14	.01
11	.03	.04	.06	4.8	.06	43	.06	.19	4.4	.06	.06	.01
12	.03	.04	.08	4.8	3.6	29	.05	.05	5.1	.05	.93	.02
13	.03	.05	.18	4.8	5.5	5.3	.05	8.3	5.6	.05	2.0	.02
14	.03	.04	.25	4.8	2.8	.05	2.0	3.6	4.4	.06	.41	.02
15	.04	.03	.15	4.9	1.3	.04	5.2	.05	2.3	.06	3.9	.01
16	.04	.03	.13	4.8	.13	.05	3.2	.06	.02	.07	.12	.01
17	.04	.03	.13	4.8	.13	.05	.54	.06	.02	.12	.05	.01
18	.04	.03	.13	5.2	.16	.04	46	.07	.02	.08	.05	.01
19	.04	.38	.79	99	.20	.04	93	.09	.02	.05	.05	.01
20	.04	4.4	.13	12	.22	.04	69	.10	.03	.08	.71	.01
21	.05	.08	.13	7.7	.19	.04	33	.05	.04	.13	.06	.01
22	.06	.06	e.10	6.7	.10	.05	16	6.1	.02	3.6	.05	.01
23	.06	.06	e.08	6.2	.09	.04	5.1	.04	.02	7.8	.05	.01
24	.06	.07	.05	6.1	.13	.03	.04	3.4	.03	.12	.05	.01
25	.06	.13	.06	6.1	.16	.04	.05	3.4	.04	.05	.05	.01
26	.06	.13	.09	6.1	.18	.04	.04	.04	.04	.06	.05	.02
27	.06	.10	.91	6.1	.19	.05	.05	.03	.04	.11	.05	.02
28	.06	.07	5.7	6.1	9.2	.07	.06	.02	.05	.15	.05	.02
29	.07	.06	5.9	6.1	---	.06	.05	.02	.05	4.9	.05	.02
30	.04	.06	6.3	6.1	---	.05	.46	.02	.05	20	.05	.03
31	.03	---	6.2	6.1	---	.06	---	.03	---	5.4	.03	---
TOTAL	1.27	6.24	33.36	283.9	73.88	122.11	274.80	121.62	72.22	43.56	63.33	0.48
MEAN	.041	.21	1.08	9.16	2.64	3.94	9.16	3.92	2.41	1.41	2.04	.016
MAX	.07	4.4	6.3	99	9.2	43	93	27	25	20	44	.03
MIN	.03	.03	.05	4.7	.04	.03	.04	.02	.01	.05	.03	.01
AC-FT	2.5	12	66	563	147	242	545	241	143	86	126	1.0

CAL YR 1989 TOTAL 612.56 MEAN 1.68 MAX 81 MIN .01 AC-FT 1220
WTR YR 1990 TOTAL 1096.77 MEAN 3.00 MAX 99 MIN .01 AC-FT 2180

e Estimated

07311790 SOUTH WICHITA RIVER AT ROSS RANCH NEAR BENJAMIN, TX

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

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1970 to September 1979.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 51,000 microsiemens July 28, 1978; minimum, 1,500 microsiemens May 28, 1975.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)
OCT 10...	1400	0.67	19600	8.0	23.5	2900	2900	830	210
JAN 03...	1810	6.6	18500	7.8	10.0	2800	2700	810	200
FEB 14...	1540	4.3	25200	7.8	8.5	3100	3100	880	230
JUN 20...	1145	7.8	12200	8.1	28.0	2900	2800	780	240

DATE	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT DIS FIX END FIELD CACO3 (MG/L)	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)
OCT 10...	3700	30	21	48	2800	5900	0.30	0.90	13500
JAN 03...	3200	26	19	120	2800	5200	0.30	5.6	12300
FEB 14...	5000	39	30	51	2800	8700	<0.10	0.90	17700
JUN 20...	1800	14	19	120	2500	2900	0.30	4.7	8310

07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX

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

DRAINAGE AREA.--584 mi².

WATER-DISCHARGE RECORDS

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

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

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

AVERAGE DISCHARGE.--30 years (water years 1961-90), 40.8 ft³/s (0.95 in/yr), 29,560 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,900 ft³/s June 1, 1990 (gage height, 17.07 ft); maximum gage height, 17.07 ft June 1, 1990; 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 greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 10	2100	1,630	13.00	May 30	0545	1,080	10.85
Apr. 18	2130	2,510	14.96	June 1	1345	*14,900	*17.07
May 3	0030	1,690	13.28				

Minimum discharge, 0.02 ft³/s Sept. 15.

FROM ADR
DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.5	5.8	1.7	3.7	9.1	25	16	88	6920	8.5	43	.63
2	5.8	4.5	1.9	4.5	8.8	17	34	837	4530	7.9	52	.56
3	5.3	4.8	1.7	6.9	8.8	15	16	671	624	6.9	36	.47
4	4.9	4.5	1.9	6.9	8.1	15	13	186	307	6.2	41	.46
5	4.5	4.3	2.1	6.9	8.3	15	17	126	221	5.6	86	.47
6	4.7	4.0	2.1	6.1	8.7	25	17	101	167	5.1	50	.49
7	4.4	3.0	1.9	5.1	7.8	32	12	80	128	4.7	21	.46
8	4.3	2.8	1.9	5.8	7.9	18	11	67	106	4.3	14	.46
9	4.5	2.3	2.1	6.4	7.3	13	12	58	91	4.2	9.6	.46
10	4.3	2.5	2.8	5.8	7.5	527	14	54	75	4.0	7.3	.45
11	4.0	2.5	2.3	14	8.3	273	9.9	43	64	3.6	5.9	.29
12	3.7	2.5	e2.2	12	7.5	61	8.9	40	57	3.4	4.7	.13
13	3.3	2.5	e2.2	9.9	6.8	64	8.4	31	50	3.0	35	.10
14	3.3	2.3	2.5	9.7	6.4	93	78	28	45	2.8	5.0	.08
15	3.0	1.9	e1.9	9.2	6.5	45	26	32	42	3.0	3.8	.05
16	3.0	1.7	e1.0	9.3	6.4	29	14	46	39	2.6	5.1	.07
17	2.5	1.9	e.80	8.9	6.9	20	149	29	36	2.9	8.4	32
18	2.5	1.9	e.80	13	6.9	15	964	24	33	2.8	7.4	14
19	2.3	1.9	e2.0	46	6.2	13	1850	22	29	11	5.1	2.8
20	2.3	1.9	e1.4	100	6.3	12	992	19	25	5.4	3.6	2.2
21	2.5	1.9	e.80	45	6.6	11	416	18	23	3.3	2.7	5.4
22	2.5	1.9	e.40	26	6.6	10	221	19	22	258	2.5	3.6
23	2.1	1.6	e.20	19	6.3	9.9	149	18	20	41	2.1	3.5
24	2.1	1.4	e.20	15	5.8	10	148	17	18	35	1.7	2.8
25	2.1	1.4	e2.0	13	5.8	11	108	17	17	19	1.5	2.5
26	1.9	1.4	2.8	12	5.4	11	82	16	15	18	1.4	2.0
27	1.9	1.9	3.0	10	39	11	69	14	12	14	1.3	2.0
28	2.3	1.7	3.3	8.4	376	22	60	14	11	9.9	1.0	1.9
29	2.3	1.7	3.3	8.9	---	66	56	80	9.6	9.3	.94	1.7
30	45	1.7	3.3	8.8	---	26	50	534	8.8	94	.81	1.7
31	10	---	3.7	8.5	---	20	---	146	---	49	.71	---
TOTAL	153.8	76.1	60.20	464.7	602.0	1534.9	5621.2	3475	13745.4	648.4	460.56	83.73
MEAN	4.96	2.54	1.94	15.0	21.5	49.5	187	112	458	20.9	14.9	2.79
MAX	45	5.8	3.7	100	376	527	1850	837	6920	258	86	32
MIN	1.9	1.4	.20	3.7	5.4	9.9	8.4	14	8.8	2.6	.71	.05
AC-FT	305	151	119	922	1190	3040	11150	6890	27260	1290	914	166
CFSM	.01	.00	.00	.03	.04	.08	.32	.19	.78	.04	.03	.00
IN.	.01	.00	.00	.03	.04	.10	.36	.22	.88	.04	.03	.01

CAL YR 1989 TOTAL 17720.64 MEAN 48.5 MAX 4260 MIN .00 AC-FT 35150 CFSM .08 IN. 1.13
WTR YR 1990 TOTAL 26925.99 MEAN 73.8 MAX 6920 MIN .05 AC-FT 53410 CFSM .13 IN. 1.72

e Estimated

07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX--Continued

WATER-QUALITY RECORDS

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

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

INSTRUMENTATION.--Since August 1968, specific conductance is recorded continuously at this station. Since April 1983, water temperature is recorded continuously at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 48,900 microsiemens May 13, 1971; minimum, 427 microsiemens Sept. 11, 1989.
WATER TEMPERATURE: Maximum, 39.0°C July 31, 1989; minimum, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 25,700 microsiemens Jan. 18; minimum, 800 microsiemens, June 1.
WATER TEMPERATURE: Maximum, 36.0°C Aug. 28-30, Sept. 1; minimum, 0.0°C on several days during December.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT 04...	1130	5.1	14000	7.8	22.5	2800	2600	750	220
JAN 17...	1200	8.8	24800	7.9	13.0	3300	3100	900	250
MAR 12...	1410	48	9430	7.7	20.5	2100	2000	600	140
APR 17...	1135	365	3290	8.2	14.5	660	570	180	51
MAY 30...	1020	390	2030	7.5	20.0	710	640	200	51
JUN 07...	1210	125	8890	8.1	26.0	2400	2200	620	210

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 04...	2200	18	17	170	2300	3900	0.20	8.4	9500
JAN 17...	4400	33	11	150	3100	7400	0.30	4.1	16200
MAR 12...	1400	13	14	98	1700	2400	--	7.3	6320
APR 17...	410	7	6.6	93	710	630	0.20	9.0	2050
MAY 30...	150	2	7.9	69	730	220	0.20	9.0	1410
JUN 07...	1100	10	16	190	2100	1900	0.30	8.3	6070

07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1989	153.8	12100	8130	3380	3300	1360	2000	823	*
NOV.	1989	76.1	14300	9680	1990	3900	810	2300	472	*
DEC.	1989	60.20	18400	12600	2050	5400	876	2700	441	*
JAN.	1990	464.7	13000	8810	11100	3600	4560	2000	2550	*
FEB.	1990	602.0	9210	6300	10200	2700	4330	1400	2230	1600
MAR.	1990	1534.9	7270	4820	20000	1800	7520	1300	5470	1500
APR.	1990	5621.2	2920	1910	29000	680	10300	570	8700	640
MAY	1990	3475	4110	2710	25500	990	9330	770	7250	870
JUNE	1990	13745.4	2380	1560	58100	560	20900	460	17000	510
JULY	1990	648.4	7750	5160	9030	2000	3430	1400	2430	1600
AUG.	1990	460.56	8650	5760	7160	2200	2720	1500	1930	1800
SEPT	1990	83.73	9970	6660	1510	2600	581	1700	394	2000
TOTAL		26925.99	**	**	179000	**	66700	**	49700	**
WTD.AVG.		74	3710	2460	**	920	**	680	**	770

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	14100	13500	13700	12900	7030	10000	17600	17300	17400	18200	17500	17800
2	14200	13900	14000	13000	11700	12300	17900	17400	17600	17600	17100	17400
3	14300	13900	14200	12300	11500	11900	18000	17700	17900	17800	17100	17400
4	14400	14100	14300	11500	10900	11200	18100	17800	18000	18300	17900	18100
5	14600	14300	14500	12700	11400	12000	18200	17800	18000	18300	17900	18200
6	14900	14500	14700	13300	12500	12900	18200	18000	18100	18300	18100	18300
7	15000	14700	14900	14100	13300	13800	18300	18200	18300	18500	18000	18300
8	15000	14600	14900	15400	14000	14500	18400	18000	18300	18400	18100	18300
9	15000	14800	14900	15400	13900	14900	18300	17800	18100	18500	18000	18300
10	15200	14900	15100	15600	13900	15000	18500	17900	18200	18700	17900	18300
11	15300	14900	15100	15400	14100	14800	19000	18500	18800	20700	18200	19300
12	15500	15100	15300	15500	14500	15000	---	---	e19000	21900	20800	21300
13	15700	15300	15500	15600	14800	15100	---	---	e19000	22900	21900	22300
14	15700	15400	15600	16100	14700	15400	---	---	e19000	23700	23000	23200
15	16000	15400	15700	16400	15600	16000	---	---	e19000	24500	23700	24000
16	16100	15800	15900	16600	16200	16500	---	---	e19000	24800	24400	24600
17	16300	16000	16200	16600	15800	16300	---	---	e19000	25600	24800	25100
18	16900	16000	16300	16800	15600	16300	---	---	e19000	25700	17600	22300
19	17100	15900	16500	16600	16100	16300	---	---	e19000	16500	6420	8250
20	16900	15600	16200	16600	16100	16300	---	---	e19000	---	---	e6000
21	16100	15700	16000	16500	16200	16300	---	---	e19000	---	---	e8500
22	16400	15700	16100	16600	16300	16400	---	---	e19000	---	---	e10200
23	16800	16000	16500	16800	16500	16700	---	---	e19000	---	---	e11500
24	16700	15800	16300	16800	16500	16700	---	---	e19000	---	---	e12000
25	16700	15900	16200	16700	16500	16600	---	---	e19000	---	---	e12500
26	16500	15900	16200	16900	16700	16800	---	---	e18000	---	---	e13600
27	16600	16200	16300	17200	16800	17000	18400	17800	18000	14700	14100	14400
28	16800	16400	16500	17500	17200	17500	18900	18300	18600	15300	14700	14900
29	17500	16500	16900	17700	17300	17500	18800	18400	18700	15900	15300	15500
30	18300	2250	6620	17600	17300	17500	18700	18300	18500	16700	15900	16200
31	6820	3500	5170	---	---	---	18400	17800	18100	17300	16700	16800
MONTH	18300	2250	14900	17700	7030	15200	19000	17300	18500	25700	6420	16900

e Estimated

07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	17900	17000	17300	---	---	e4000	12100	9890	11200	8370	2860	7200
2	18300	17800	18100	---	---	e6000	14400	3840	8770	---	---	e1500
3	19400	18300	18700	---	---	e9000	---	---	e9000	---	---	e2000
4	19800	19000	19400	---	---	e12000	---	---	e10000	---	---	e2500
5	20400	19600	20000	---	---	e14000	---	---	e11000	---	---	e3000
6	21100	20100	20400	---	---	e11200	---	---	e12000	---	---	e4500
7	21200	20400	20900	10700	4050	6590	---	---	e13000	---	---	e7200
8	22000	21000	21400	12900	11000	11900	---	---	e14000	---	---	e7700
9	22400	22100	22200	13300	12800	13100	15700	2250	14900	---	---	e8200
10	22800	22100	22400	14300	960	6590	15500	6530	13300	---	---	e8700
11	23000	21900	22600	3740	1490	2530	15400	14800	15100	---	---	e9200
12	23100	22100	22700	11800	2460	7310	15100	14400	14900	9900	9400	9610
13	23400	22700	23100	13600	7390	11700	15700	15200	15400	10700	9900	10200
14	23300	22700	23100	9980	3540	6700	14500	2320	6260	11200	10300	10800
15	22800	21500	22000	12300	9550	11600	---	---	e7000	11500	10900	11100
16	22600	21500	22100	11800	10700	11100	---	---	e9000	11700	9700	10900
17	22700	21800	22300	---	---	e11200	11300	1400	4320	11900	11400	11600
18	23300	22500	22900	---	---	e11600	2400	954	1470	12000	11100	11600
19	23200	22000	22600	12500	11800	12100	1900	1120	1490	11900	11300	11600
20	22800	19700	21900	13000	12400	12700	4380	1540	3110	12200	11500	11600
21	21400	19000	20400	13700	12900	13300	3750	1580	2770	12300	11700	12000
22	21400	20400	21000	14300	13400	13800	3540	1670	2350	12500	11800	12200
23	21300	20200	20700	14100	13900	14000	4590	1970	3140	12900	12200	12500
24	21800	20600	21300	14100	13900	14000	4710	2470	4130	13500	12700	13000
25	22200	21500	21900	14300	14000	14100	5690	4260	5140	---	---	e13000
26	22200	21600	21900	14400	14000	14200	6200	5600	5930	---	---	e13000
27	22000	1230	18100	14400	13600	14100	6800	6290	6440	---	---	e13000
28	4210	1640	2350	14000	1020	12000	7220	6800	6980	---	---	e13000
29	---	---	---	9950	1950	6180	7740	7220	7400	---	---	e10000
30	---	---	---	6900	4280	5050	8360	7840	8060	4200	1700	2300
31	---	---	---	11400	7210	9240	---	---	---	7300	2000	4500
MONTH	23400	1230	20500	14400	960	10400	15700	954	8250	13500	1700	9010

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	1500	800	973	15200	14800	15000	9800	7500	9110	16100	15300	15600
2	2500	1100	1800	15300	14900	15100	9900	5700	7830	16100	15100	15400
3	4000	2600	3200	15400	15000	15100	6300	2000	5560	15700	14900	15300
4	7400	4100	5700	15400	15100	15200	6000	4000	5170	15500	14900	15100
5	7900	7500	7700	15500	15100	15200	12700	4700	7560	15600	14800	15100
6	8700	8100	8400	15500	15200	15300	---	---	e7000	15600	14900	15100
7	9500	8700	9000	15700	15200	15500	---	---	e7000	15800	14800	15100
8	9800	9300	9500	15900	15300	15600	11400	8300	9850	15500	14800	15000
9	10200	9700	9900	15800	15300	15600	12900	11400	12100	15600	14500	14900
10	10600	10100	10300	15900	15400	15700	13500	12600	13000	15400	14300	14700
11	11100	10400	10700	16000	15400	15600	13700	13100	13400	16200	14300	15200
12	11500	10800	11000	15700	14900	15400	13600	13200	13500	16500	15000	15600
13	11900	11100	11400	15700	15000	15300	13700	1400	9700	16000	15200	15500
14	11800	11500	11700	15900	15100	15500	---	---	e12000	16300	15100	15600
15	12300	11600	11800	15900	15200	15400	14700	13000	14000	16200	15100	15600
16	12400	11800	12000	15500	15000	15300	15000	14500	14700	15700	13500	15200
17	12800	12100	12400	15400	14800	15000	15200	14400	14900	14800	1510	8260
18	13100	12400	12700	15200	14900	15000	---	---	e14600	---	---	e8300
19	13500	12700	13000	15600	14700	15200	---	---	e14300	---	---	e8400
20	13900	13100	13400	15200	11100	13700	14300	13900	14000	---	---	e8500
21	14100	13400	13700	12500	11600	12100	14600	14200	14400	---	---	e8000
22	14000	13300	13700	11600	1830	6200	14800	14400	14600	---	---	e10000
23	13800	13300	13600	5080	3660	4160	15200	14600	14800	---	---	e12000
24	---	---	e13800	12000	4570	7610	15400	14600	15000	---	---	e12500
25	---	---	e13900	13000	11400	11900	15800	14800	15200	---	---	e13000
26	---	---	e14300	12300	7360	11600	16200	15000	15500	14800	13700	14200
27	14900	14300	14600	12600	9960	11400	16200	15100	15600	15100	14500	14700
28	15000	14400	14700	12200	11500	11800	16200	15300	15700	15800	14800	15100
29	15100	14600	14900	11600	10500	11300	16200	15300	15700	15400	14500	15100
30	15100	14800	15000	10800	3210	4440	16300	15500	15800	15400	14700	15000
31	---	---	---	7300	3300	4600	16200	15500	15800	---	---	---
MONTH	15100	800	11000	16000	1830	13000	16300	1400	12500	16500	1510	13600

e Estimated

07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	24.0	18.5	22.0	14.5	9.5	11.5	10.5	6.0	8.5	7.0	3.0	5.0
2	23.5	18.5	21.5	13.5	7.5	9.5	11.5	7.0	8.5	10.5	4.5	7.0
3	25.0	18.5	21.5	13.0	7.0	9.5	10.5	4.5	7.0	11.0	8.0	9.0
4	25.0	20.0	22.5	15.5	8.5	11.0	12.5	5.0	7.5	8.0	4.5	6.0
5	25.0	20.5	22.5	18.0	11.0	13.5	14.0	5.5	8.5	6.0	2.5	4.5
6	24.5	20.0	22.0	18.0	11.0	13.5	12.5	6.5	9.0	8.0	2.5	4.5
7	22.5	16.5	19.0	19.5	11.5	14.5	8.5	6.0	7.5	7.5	2.5	4.5
8	23.0	15.5	18.5	16.5	10.0	13.0	8.5	3.5	5.5	8.5	3.0	5.5
9	23.5	17.5	20.0	17.0	8.5	12.0	10.0	3.5	5.5	11.5	6.0	8.0
10	25.5	17.5	20.5	18.0	8.5	12.0	11.0	4.5	6.5	11.5	6.0	8.5
11	24.5	17.5	20.0	19.0	10.0	13.5	7.0	1.5	4.0	10.0	6.0	8.5
12	24.5	17.0	20.0	21.0	11.5	15.0	4.5	.5	1.5	7.5	4.0	6.0
13	24.5	17.0	19.5	20.0	14.0	16.0	6.5	.5	2.0	6.5	2.0	5.0
14	25.0	17.0	19.5	19.5	12.0	14.5	6.5	1.0	3.0	9.5	4.0	7.0
15	25.0	17.5	20.0	15.5	7.5	11.0	3.0	.0	1.5	12.5	6.5	9.5
16	21.5	13.5	17.5	12.0	6.0	7.5	.5	.0	.0	15.0	12.0	13.5
17	18.0	11.5	13.5	12.0	4.5	7.5	2.5	.0	.5	14.5	11.0	12.5
18	16.0	9.5	11.5	14.5	4.5	8.0	4.0	.0	1.0	11.0	5.0	7.0
19	17.0	7.5	11.0	17.0	7.0	11.0	3.0	.0	1.0	6.0	3.5	5.5
20	18.5	7.0	11.5	17.0	10.0	13.0	3.5	.0	1.0	5.5	2.0	4.0
21	21.0	10.5	14.5	20.5	12.5	15.5	2.0	.0	.5	6.0	3.0	4.5
22	23.5	13.5	17.0	15.0	10.0	13.0	.5	.0	.5	10.0	3.5	6.5
23	24.5	13.5	17.5	12.5	7.5	9.5	.5	.0	.0	11.0	8.5	10.0
24	24.5	13.5	18.0	14.0	7.0	9.5	.0	.0	.0	10.0	7.0	8.5
25	24.5	16.0	19.0	16.5	8.5	11.5	.5	.0	.0	8.0	4.0	6.0
26	22.5	16.0	18.5	16.5	8.0	11.0	3.5	.0	1.0	11.0	3.0	6.5
27	21.5	16.5	18.0	13.5	9.5	11.5	5.0	.5	2.0	8.0	5.0	6.5
28	20.5	16.0	18.0	9.0	6.5	7.5	5.0	2.0	3.5	7.0	3.5	5.5
29	23.0	16.0	18.5	9.0	4.5	6.5	6.5	3.5	4.5	7.0	.5	4.5
30	16.0	12.5	14.5	9.5	6.0	7.5	6.0	4.0	5.0	9.0	3.0	6.5
31	14.0	8.5	11.5	---	---	---	7.5	4.0	5.5	10.0	4.5	7.5
MONTH	25.5	7.0	18.0	21.0	4.5	11.5	14.0	.0	3.5	15.0	.5	7.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	13.5	9.0	11.5	8.0	4.0	6.0	20.5	14.0	17.0	15.5	11.0	13.5
2	12.0	7.5	9.0	11.5	5.0	8.0	20.5	14.5	18.0	11.5	11.0	11.0
3	9.0	4.5	7.0	14.0	8.5	11.0	21.0	12.0	17.0	16.5	12.0	14.0
4	8.5	2.5	6.0	16.0	10.0	13.5	23.5	14.0	19.0	18.5	14.0	16.0
5	9.0	3.0	6.5	15.5	12.5	13.5	22.0	11.0	17.5	22.0	15.0	18.0
6	10.5	4.5	8.0	17.0	13.0	14.5	16.5	8.5	12.5	23.0	17.0	20.0
7	10.5	4.5	8.5	17.5	11.0	14.0	18.0	9.5	14.0	23.5	18.0	20.5
8	14.0	7.0	11.0	18.0	9.5	14.0	18.5	13.0	15.5	24.0	17.5	20.5
9	13.5	9.5	11.0	18.5	14.0	16.5	22.5	15.0	18.0	22.0	18.5	20.5
10	11.0	5.0	8.5	16.5	13.0	15.0	20.0	13.0	17.0	19.5	15.0	18.0
11	12.5	6.0	10.0	18.0	13.5	15.0	21.0	12.5	16.5	22.5	15.5	18.5
12	13.0	7.5	11.0	21.5	12.0	16.0	21.5	13.0	17.0	27.0	17.5	22.0
13	14.0	10.5	12.0	20.5	17.0	18.5	19.5	15.5	17.5	28.0	19.0	23.5
14	11.0	4.5	7.0	17.0	10.5	13.0	21.5	14.0	17.5	28.0	19.5	23.5
15	6.0	3.5	4.5	16.0	7.5	11.5	23.5	17.0	20.0	30.0	21.5	25.5
16	8.5	2.5	5.5	17.5	9.0	13.0	24.0	19.0	21.5	30.0	23.0	26.0
17	9.0	3.5	7.0	14.0	11.0	13.0	22.0	13.0	15.5	26.5	19.0	23.0
18	12.0	6.0	9.5	14.0	12.5	13.0	13.0	9.0	10.5	27.0	19.5	23.0
19	11.5	9.5	10.0	18.0	11.0	14.5	12.5	9.5	10.5	30.0	21.5	25.0
20	10.5	9.0	9.5	18.5	9.5	14.5	18.5	12.5	14.5	28.0	16.0	23.5
21	14.0	9.5	11.0	20.5	12.0	16.5	21.0	17.5	19.0	28.5	15.0	23.0
22	10.5	7.0	8.5	22.5	15.0	19.0	23.0	20.0	21.0	28.5	15.5	23.0
23	13.5	5.5	9.0	19.5	9.5	14.5	23.0	19.5	21.5	29.0	20.0	24.5
24	15.0	8.0	11.5	9.0	4.5	6.0	23.5	18.5	21.0	30.5	20.5	25.0
25	16.0	9.0	12.0	5.5	4.0	5.0	24.0	19.5	21.5	26.5	20.0	24.5
26	18.5	9.5	13.5	11.5	5.5	8.5	23.0	19.0	20.5	30.5	20.5	25.0
27	15.5	9.5	13.5	10.0	8.5	9.0	21.5	17.5	19.5	28.0	20.0	24.0
28	9.0	5.5	6.5	18.5	9.5	13.5	24.0	15.5	19.5	25.5	20.0	23.0
29	---	---	---	15.0	11.0	12.0	25.0	17.5	21.0	24.0	15.5	21.0
30	---	---	---	14.0	9.5	11.5	19.0	14.0	16.0	26.0	15.0	20.0
31	---	---	---	18.0	8.5	13.5	---	---	---	31.0	20.0	24.5
MONTH	18.5	2.5	9.0	22.5	4.0	13.0	25.0	8.5	17.5	31.0	11.0	21.5

07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	21.0	15.0	18.0	29.5	22.5	26.5	30.0	23.0	26.0	36.0	23.0	28.0
2	22.5	17.0	19.5	30.0	23.0	26.5	30.0	25.0	27.0	34.5	22.5	27.0
3	25.5	20.0	22.0	29.5	22.5	26.0	31.0	23.0	26.5	32.5	22.0	26.5
4	27.0	20.0	23.5	29.0	22.5	26.0	27.5	23.5	25.5	34.0	22.0	26.5
5	28.0	20.0	24.5	30.0	23.0	26.5	28.0	23.5	26.0	33.5	22.0	26.5
6	29.0	20.0	25.0	31.0	24.0	27.0	26.5	24.5	25.5	33.0	21.5	26.0
7	28.5	20.0	25.0	29.5	23.0	26.0	28.0	23.5	25.5	33.0	22.5	26.5
8	28.5	20.0	25.0	27.0	21.0	24.0	30.0	20.5	25.0	33.0	23.5	26.5
9	30.5	20.0	26.0	29.5	21.5	25.0	30.0	22.5	26.0	35.5	22.0	27.0
10	30.5	20.0	26.0	30.5	23.0	26.0	30.5	21.0	26.0	34.0	21.5	26.5
11	30.5	20.0	25.5	30.5	23.0	26.5	30.0	23.0	27.0	32.0	20.0	25.0
12	31.0	20.0	25.5	30.5	23.5	26.0	31.0	23.0	27.0	31.5	19.5	25.0
13	31.5	20.0	26.0	26.0	21.0	23.0	28.0	24.0	25.5	30.5	20.5	25.5
14	30.0	20.0	25.5	27.5	19.0	22.5	29.5	21.5	25.0	31.0	20.5	25.5
15	32.0	20.0	26.5	26.5	20.5	22.5	30.5	22.0	26.0	30.5	21.0	25.5
16	28.5	20.5	25.0	22.0	20.0	20.5	30.5	23.5	27.0	27.5	21.5	24.5
17	33.5	20.5	27.5	27.0	20.0	22.5	28.0	23.0	26.0	26.0	20.5	22.5
18	33.5	25.0	28.5	26.0	22.0	23.0	29.5	23.5	26.5	25.5	21.5	23.5
19	32.0	20.5	27.5	29.0	20.5	24.0	31.5	23.0	27.5	26.5	24.0	25.0
20	33.5	20.5	27.5	30.0	22.5	25.5	33.0	25.5	29.5	25.5	23.0	24.0
21	32.5	25.0	28.5	28.5	23.0	25.5	33.0	25.5	29.5	24.0	22.0	23.5
22	29.0	20.0	25.0	24.5	19.5	21.5	34.0	26.0	29.5	24.5	21.0	22.5
23	30.0	20.0	24.5	26.5	18.5	22.0	32.5	26.0	28.5	23.0	19.5	21.0
24	30.0	20.0	25.5	28.0	22.0	25.0	33.5	25.0	28.0	20.0	18.5	19.5
25	30.5	20.0	25.5	27.5	22.5	25.0	34.0	25.0	28.0	27.5	17.0	21.0
26	31.5	20.5	26.5	25.5	22.5	24.0	34.0	25.0	28.5	30.0	19.0	23.0
27	28.5	20.5	25.5	29.5	22.0	25.5	35.0	24.5	28.5	30.5	19.5	24.0
28	29.5	21.5	25.5	29.5	22.5	26.0	36.0	24.5	29.0	30.0	21.5	26.0
29	30.0	21.5	26.0	30.5	22.5	26.5	36.0	24.5	29.0	25.5	22.0	23.5
30	29.5	22.0	26.0	25.5	21.5	23.5	36.0	24.0	28.5	30.0	20.0	22.0
31	---	---	---	27.5	21.5	24.0	35.5	23.5	28.5	---	---	---
MONTH	33.5	15.0	25.0	31.0	18.5	24.5	36.0	20.5	27.0	36.0	17.0	24.5

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 north of Mabelle, 13 mi northeast of Seymour, and 126.7 mi upstream from mouth.

DRAINAGE AREA.--2,086 mi².

WATER-DISCHARGE RECORDS

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

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

REMARKS.--The lake is formed by a rolled earthfill dam 8,890 ft long. The original dam was completed Aug. 25, 1923, but deliberate impoundment had begun Oct. 1, 1922. Enlargement of the dam was completed in November 1973. The 3,000-foot-wide uncontrolled spillway is located approximately 600 ft to right and slightly upstream from right end of dam. The controlled outlet works near center of dam consist of two hydraulically operated slide gates 5 ft 8-in by 13 ft with a 13-foot-diameter conduit and spillway basin. The dam and lake are owned by the city of Wichita Falls and the Wichita County Water Improvement District No. 2. Water is used for irrigation in the Wichita River Valley, oil field operation, municipal, and industrial uses. The capacity table is based on a resurvey made in 1973. Data collection platform at station. Figures given herein represents total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	1,183.0	-
Crest of spillway	1,160.0	603,000
Top of flood-control pool	1,156.0	502,900
Top of conservation pool	1,144.0	268,000
Lowest gated outlet (invert)	1,090.0	1,400

COOPERATION.--Capacity table No. 4-C was provided by the U.S. Army Corps of Engineers.

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

EXTREMES FOR CURRENT YEAR.--Maximum contents, 333,600 acre-ft June 5 at 1500 hours (elevation, 1,147.89 ft); minimum, 249,700 acre-ft Sept. 17-20 (elevation, 1,142.79 ft).

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

1,142.0	238,200	1,146.0	300,500
1,144.0	268,000	1,148.0	335,600

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	271200	260700	257500	250900	256900	268600	270900	308800	282600	272200	272200	261300
2	270600	260900	257200	251200	257200	269100	269400	313100	297200	271800	272500	260200
3	270400	260700	257500	251600	256900	269600	268800	319300	319800	270600	272800	259200
4	270100	260700	257100	251000	256900	269800	268300	323800	330100	270400	273800	258600
5	270200	260600	257700	251000	256800	270100	269300	326600	332000	269400	274200	257800
6	269600	259900	256900	250900	256900	270600	269300	327700	328400	268800	274600	257100
7	269100	260600	257100	251000	257100	270400	269100	326300	324100	267800	274600	256000
8	268800	260600	256600	251600	257200	269600	269300	321800	319500	266500	274200	255700
9	268500	260200	256600	251500	257500	269300	270100	315300	314800	266200	274400	254800
10	268300	260600	256100	251600	257500	273000	270100	309800	310100	265300	275000	254500
11	267700	260400	256000	251300	257400	278400	268600	305000	305100	264200	274900	253600
12	267400	260400	256000	251200	257800	282700	268300	298700	300000	265600	275000	252700
13	266900	261000	256000	250800	257700	284300	268500	292900	295400	265100	274600	251800
14	266500	260900	256000	251200	257200	287800	268800	288000	290600	264000	274100	251300
15	266200	259900	254900	251300	257800	286800	269400	282600	287100	263600	273400	250900
16	265300	259200	254500	251900	257100	285500	269100	278900	285200	262700	272600	250000
17	264200	259200	254200	252500	257400	283500	269000	275800	283400	261900	272000	249900
18	263300	258900	253900	252200	257400	280800	278600	272800	281400	262100	270600	249700
19	262700	259200	253400	255400	257200	279400	290300	271200	278900	261300	270700	250000
20	262500	259200	253100	255700	257800	277400	305700	269000	277900	261000	269900	250500
21	262200	259300	251900	256100	258900	275800	318400	267700	276300	260400	269300	254200
22	262200	258700	251600	257200	258700	273800	325600	267500	276800	262500	268500	256300
23	261900	258400	251300	257100	258700	271400	328300	267500	276300	264200	267800	256100
24	261300	259300	251300	257200	258700	269300	330100	267500	275000	265300	266900	256100
25	261200	258700	251300	256800	259200	268300	332000	267400	275000	265600	266300	255800
26	261000	258900	251500	257500	258900	268300	331700	267500	274700	265300	265600	256000
27	261000	257800	251500	256600	260600	269000	329200	267200	274200	265000	265000	256000
28	260600	257700	251500	256400	266500	268600	325200	266900	273400	264800	264000	256100
29	261300	257700	251300	257100	---	272200	319300	267100	272800	264800	263300	256000
30	261200	257500	251300	256300	---	272000	313600	269100	272500	265300	262800	255500
31	261200	---	251000	256300	---	271200	---	269900	---	271400	262100	---
MAX	271200	261000	257700	257500	266500	287800	332000	327700	332000	272200	275000	261300
MIN	260600	257500	251000	250800	256800	268300	268300	266900	272500	260400	262100	249700
(†)	1143.55	1143.31	1142.88	1143.23	1143.90	1144.20	1146.76	1144.12	1144.28	1144.21	1143.61	1143.18
(Φ)	-10200	-3700	-6500	+5300	+10200	+4700	+42400	-43700	+2600	-1100	-9300	-6600

CAL YR 1989 MAX 298700 MIN 157200 (Φ) +80800
WTR YR 1990 MAX 332000 MIN 249700 (Φ) -15900

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

07312000 LAKE KEMP NEAR MABELLE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: August 1989 to current year.

334520099092101 - LAKE KEMP SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB DISSOLVED FLD. AS CACO3 (MG/L)	CALCIUM DISSOLVED (MG/L AS CA)
JAN											
25...	1315	1.00	4750	8.3	7.5	1.68	10.5	92	830	740	230
25...	1317	10.0	4750	8.3	7.5	--	10.5	92	--	--	--
25...	1319	20.0	4760	8.3	7.0	--	10.5	91	--	--	--
25...	1321	30.0	4770	8.3	7.0	--	10.5	91	--	--	--
25...	1323	40.0	4760	8.3	7.0	--	10.5	91	--	--	--
25...	1325	53.0	4760	8.3	7.0	--	10.5	91	830	730	230
MAY											
22...	0958	1.00	4000	8.3	23.0	2.30	6.7	82	690	600	190
22...	1000	10.0	4000	8.3	22.5	--	6.7	82	--	--	--
22...	1002	20.0	4000	8.2	22.5	--	6.6	80	--	--	--
22...	1004	30.0	4040	8.2	22.0	--	6.5	78	--	--	--
22...	1006	40.0	4130	8.0	20.5	--	6.1	71	--	--	--
22...	1008	50.0	4160	7.9	19.5	--	5.5	63	--	--	--
22...	1010	57.0	4190	7.6	19.0	--	3.3	38	720	620	200
AUG											
21...	1115	1.00	3830	8.4	27.5	1.40	6.7	90	720	630	200
21...	1117	10.0	3830	8.4	27.0	--	6.4	85	--	--	--
21...	1119	20.0	3820	8.3	27.0	--	6.0	80	--	--	--
21...	1121	30.0	3820	8.2	26.5	--	5.2	68	--	--	--
21...	1123	40.0	3820	8.0	26.5	--	4.4	58	--	--	--
21...	1125	50.0	3850	7.4	24.5	--	0	0	--	--	--
21...	1127	57.0	3930	7.2	23.0	--	0	0	710	580	200

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT DIS FIX END FIELD CACO3 (MG/L)	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)	ARSENIC DISSOLVED (UG/L AS AS)
JAN											
25...	63	730	11	--	98	730	1200	0.30	6.8	3060	2
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	62	670	10	7.0	95	720	1000	0.30	6.9	2750	--
MAY											
22...	53	550	9	6.2	95	630	870	<0.10	6.1	2360	2
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	54	610	10	6.5	97	640	950	<0.10	6.6	2530	--
AUG											
21...	54	490	8	7.0	95	680	710	<0.10	7.4	2210	3
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	52	550	9	7.0	140	610	790	0.50	11	2300	--

07312000 LAKE KEMP NEAR MABELLE, TX--Continued

334520099092101 - LAKE KEMP SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN											
25...	<100	<1.0	<1	2	30	1	20	0.2	<1	<1.0	10
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
MAY											
22...	100	<1.0	<1	2	30	<1	<10	0.2	<1	<1.0	<10
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
AUG											
21...	100	1.0	1	2	20	<1	<10	<0.1	<1	<1.0	<10
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--

334533099112801 - LAKE KEMP SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAM-PLING DEPTH (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TRANS-PAR-ENCY (SECCHI DISK) (M)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)
JAN											
25...	1420	1.00	4770	8.3	7.0	--	10.5	92	--	--	--
25...	1422	10.0	4770	8.3	7.0	--	10.4	91	--	--	--
25...	1424	20.0	4760	8.3	7.0	--	10.4	91	--	--	--
25...	1426	30.0	4770	8.3	7.0	--	10.4	91	--	--	--
25...	1428	40.0	4770	8.3	7.0	--	10.4	91	--	--	--
MAY											
22...	1230	1.00	3980	8.2	24.0	1.60	6.4	80	700	600	190
22...	1232	10.0	3980	8.3	23.0	--	6.5	80	--	--	--
22...	1234	20.0	4000	8.2	22.5	--	6.4	78	--	--	--
22...	1236	30.0	4100	8.1	22.0	--	5.7	69	--	--	--
22...	1238	40.0	4100	7.9	21.0	--	5.1	60	--	--	--
22...	1240	42.0	4080	7.8	21.0	--	4.9	58	720	630	200
AUG											
21...	1210	1.00	3830	8.4	28.5	1.10	6.7	91	690	590	190
21...	1212	10.0	3820	8.4	27.5	--	6.4	86	--	--	--
21...	1214	20.0	3830	8.3	27.5	--	5.7	76	--	--	--
21...	1216	30.0	3830	8.0	26.5	--	3.9	51	--	--	--
21...	1218	40.0	3830	7.6	26.5	--	2.1	28	--	--	--
21...	1220	45.0	3830	7.4	26.0	--	0.5	7	690	590	190

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
JAN										
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
MAY										
22...	54	540	9	6.2	96	620	890	<0.10	6.1	2360
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	54	570	9	6.2	95	620	910	<0.10	6.5	2420
AUG										
21...	52	530	9	7.0	96	630	760	0.50	7.4	2230
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	52	520	9	7.0	100	600	720	0.40	8.1	2160

07312000 LAKE KEMP NEAR MABELLE, TX--Continued

334702099100201 - LAKE KEMP SITE P1

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
AUG							
21...	1140	1.00	3820	8.4	29.0	6.5	89
21...	1142	10.0	3830	8.3	27.5	6.1	82
21...	1144	20.0	3830	8.1	27.0	4.7	62
21...	1146	30.0	3820	8.0	27.0	4.1	54
21...	1148	35.0	3820	7.8	27.0	2.8	37

334655099121701 - LAKE KEMP SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JAN							
25...	1505	1.00	4760	8.3	7.0	10.3	90
25...	1507	10.0	4760	8.3	7.0	10.3	90
25...	1509	20.0	4770	8.3	7.0	10.4	91
25...	1511	30.0	4770	8.3	7.0	10.3	90
25...	1513	36.0	4780	8.3	7.0	10.3	90
MAY							
22...	1410	1.00	3990	8.2	24.5	6.6	84
22...	1412	10.0	3990	8.2	23.0	6.5	80
22...	1414	20.0	4000	8.2	23.0	6.5	80
22...	1416	31.0	4030	8.0	22.5	5.8	71
AUG							
21...	1255	1.00	3810	8.3	29.5	6.9	96
21...	1257	10.0	3810	8.3	28.5	6.6	90
21...	1259	20.0	3830	8.2	28.0	5.8	78
21...	1301	30.0	3810	8.1	27.5	5.1	68
21...	1303	37.0	3810	8.0	27.5	4.4	59

334505099131601 - LAKE KEMP SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DISSOLVED (MG/L AS CA)
JAN											
25...	1610	1.00	5040	8.3	7.5	0.53	10.0	88	870	770	240
25...	1612	10.0	5040	8.3	8.0	--	10.0	90	--	--	--
25...	1614	26.0	5070	8.3	8.0	--	9.9	89	870	770	240
MAY											
22...	1524	1.00	3990	8.3	25.0	--	6.6	85	--	--	--
22...	1526	10.0	3920	8.2	23.0	--	6.6	81	--	--	--
22...	1528	20.0	3930	8.2	22.5	--	6.2	76	--	--	--
22...	1530	26.0	4030	8.1	22.0	--	5.8	70	--	--	--
AUG											
21...	1330	1.00	3860	8.3	30.0	--	6.7	94	--	--	--
21...	1332	10.0	3860	8.3	28.0	--	6.7	90	--	--	--
21...	1334	20.0	3940	8.2	27.5	--	5.5	74	--	--	--
21...	1336	25.0	4010	8.1	27.0	--	4.5	60	--	--	--

07312000 LAKE KEMP NEAR MABELLE, TX--Continued

334505099131601 - LAKE KEMP SITE DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT DIS FIX END FIELD CACO3 (MG/L)	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										
25...	65	750	11	8.0	100	780	1200	0.30	6.2	3110
25...	--	--	--	--	--	--	--	--	--	--
25...	65	770	11	8.0	100	790	1100	0.30	6.1	3040
MAY										
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
AUG										
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--

334417099140701 - LAKE KEMP SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DISSOLVED (MG/L AS CA)
JAN											
25...	1643	1.00	5360	8.4	7.5	0.30	10.2	90	900	800	250
25...	1645	8.00	5340	8.3	7.5	--	10.1	89	900	800	250
MAY											
22...	1607	1.00	4130	8.3	25.5	0.53	6.5	84	770	670	210
22...	1609	7.00	4220	8.3	24.0	--	6.5	82	740	640	200
AUG											
21...	1345	1.00	3940	8.3	30.5	0.60	6.8	96	730	630	200
21...	1347	7.00	4130	8.3	28.0	--	6.8	92	730	640	200

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT DIS FIX END FIELD CACO3 (MG/L)	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)	ARSENIC DISSOLVED (UG/L AS AS)
JAN											
25...	67	810	12	8.0	100	820	1200	0.30	5.1	3220	2
25...	67	820	12	8.0	99	780	1200	0.30	5.3	3190	--
MAY											
22...	60	550	9	6.6	100	680	890	<0.10	6.7	2470	2
22...	58	570	9	6.5	99	670	910	<0.10	6.6	2480	--
AUG											
21...	55	500	8	7.5	96	580	800	0.30	7.5	2210	3
21...	57	580	9	7.0	95	700	900	0.50	7.6	2510	--

DATE	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)	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											
25...	<100	<1.0	<1	2	270	<1	20	0.1	<1	<1.0	10
25...	--	--	--	--	--	--	--	--	--	--	--
MAY											
22...	<100	<1.0	<1	2	30	<1	<10	0.2	<1	<1.0	<10
22...	--	--	--	--	--	--	--	--	--	--	--
AUG											
21...	100	1.0	<1	2	20	<1	<10	<0.1	<1	<1.0	10
21...	--	--	--	--	--	--	--	--	--	--	--

07312000 LAKE KEMP NEAR MABELLE, TX--Continued

334244099130901 - LAKE KEMP SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JAN							
25...	1653	1.00	5020	8.3	8.5	9.9	90
25...	1655	10.0	5090	8.3	8.5	9.8	89
25...	1657	15.0	5140	8.3	8.0	9.8	88
MAY							
22...	1653	1.00	4010	8.3	27.0	6.6	88
22...	1655	10.0	4000	8.2	23.5	6.4	80
22...	1657	16.0	4000	8.1	23.0	6.0	74
AUG							
21...	1400	1.00	3890	8.4	30.0	7.1	99
21...	1402	10.0	3890	8.3	28.0	6.5	88
21...	1404	15.0	3920	7.6	27.0	2.6	34

07312100 WICHITA RIVER NEAR MABELLE, TX

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

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

WATER-DISCHARGE RECORDS

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

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

REMARKS.--Records good. Flow regulated by Lake Kemp (station 07312000) 0.3 mi upstream. Water is released from Lake Kemp to supply Lake Diversion, 12.5 mi downstream. Water from Lake Diversion is released for mining, recreation, and irrigation in the vicinity of Wichita Falls.

AVERAGE DISCHARGE.--31 years, 154 ft³/s (111,600 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,290 ft³/s Mar. 24, 1976 (gage height, 10.47 ft); minimum daily, 0.09 ft³/s May 8, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,160 ft³/s May 9 (gage height, 9.33 ft); minimum daily, 0.73 ft³/s Feb. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	126	1.6	1.2	122	.90	1.1	556	2980	155	134	64	275
2	128	1.5	1.2	47	.91	.89	559	1860	6.2	133	1.2	274
3	128	1.4	1.1	1.0	.89	.84	557	15	2.7	133	1.0	275
4	64	1.3	.99	.99	.83	.83	208	7.4	2.3	132	1.1	273
5	2.1	1.3	1.0	1.0	.81	.84	2.2	5.1	947	216	1.1	272
6	67	1.4	1.1	1.0	.80	163	2.1	4.3	2690	280	1.0	270
7	129	1.4	1.1	1.0	.80	416	1.3	1070	2690	279	1.0	194
8	129	1.4	1.0	.96	.80	520	1.2	2730	2680	277	1.0	273
9	128	1.4	.99	.94	.86	363	1.3	3120	2680	277	1.0	274
10	120	1.4	1.1	.93	.81	268	169	3130	2670	184	1.1	274
11	127	1.3	1.2	1.0	.84	179	547	3120	2670	293	1.1	274
12	105	1.3	1.0	.97	.73	1.6	434	3100	2660	292	1.1	273
13	127	1.3	1.0	.90	.79	531	2.4	3090	2660	225	61	272
14	127	1.3	69	.86	.86	11	1.6	3080	2650	289	204	271
15	127	1.4	127	.91	.86	570	1.4	3050	2060	287	280	271
16	128	1.4	124	.92	.82	1150	161	2370	1220	287	279	271
17	128	1.4	124	.94	.81	1150	291	1650	1220	287	278	180
18	128	1.4	124	1.4	.80	1150	187	1380	1220	287	278	127
19	126	1.3	125	2.7	.83	1150	14	1150	1220	289	278	50
20	126	1.3	124	.90	.98	1150	13	1170	593	243	277	1.3
21	125	1.4	127	.87	1.4	1150	2.1	449	140	141	274	10
22	125	1.4	126	.84	.89	1140	1.5	6.5	141	143	275	1.5
23	126	1.2	124	.83	.82	1140	1.4	4.7	140	142	276	1.2
24	126	1.2	124	.88	.83	972	1.3	3.6	136	142	276	.97
25	126	1.2	123	.84	.78	406	1.4	3.3	136	140	276	.97
26	95	1.2	122	.74	.79	3.1	366	3.1	136	141	276	1.0
27	129	1.2	122	.88	3.0	2.2	1590	3.5	136	141	276	1.0
28	129	1.3	122	.88	20	1.8	2370	3.3	136	141	276	1.1
29	131	1.2	123	.79	---	96	2800	3.2	134	142	274	1.1
30	57	1.2	122	.84	---	398	2990	3.3	134	144	273	1.1
31	1.6	---	122	.83	---	555	---	63	---	147	275	---
TOTAL	3440.7	40.0	2187.98	197.54	45.24	14641.20	13833.2	38628.3	34065.2	6388	5037.7	4664.24
MEAN	111	1.33	70.6	6.37	1.62	472	461	1246	1136	206	163	155
MAX	131	1.6	127	122	20	1150	2990	3130	2690	293	280	275
MIN	1.6	1.2	.99	.74	.73	.83	1.2	3.1	2.3	132	1.0	.97
AC-FT	6820	79	4340	392	90	29040	27440	76620	67570	12670	9990	9250

CAL YR 1989	TOTAL	42579.45	MEAN	117	MAX	2060	MIN	.09	AC-FT 84460
WTR YR 1990	TOTAL	123169.30	MEAN	337	MAX	3130	MIN	.73	AC-FT 244300

07312100 WICHITA RIVER NEAR MABELLE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: December 1965 to current year.

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

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 7,110 microsiemens May 13, 14, 1980; minimum daily, 561 microsiemens May 28, 1975.
WATER TEMPERATURE: Maximum daily, 32.0°C Sept. 4, 1972, June 26, July 5, 1975; minimum daily, 0.0°C Dec. 20, 1973, and Feb. 9, 17, 1980.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 5,740 microsiemens Mar. 13; minimum daily, 970 microsiemens Feb. 28.
WATER TEMPERATURE: Maximum daily, 28.0°C on several days during August and September; minimum daily, 3.0°C Dec. 23.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)
OCT									
04...	1745	3.2	5000	8.0	25.0	870	740	240	66
NOV									
22...	1110	1.5	5290	7.8	14.0	850	700	230	68
MAR									
23...	1200	1120	4670	7.8	13.5	840	750	240	58
MAY									
01...	1250	2980	4210	8.1	17.5	800	730	220	60
JUN									
19...	1100	1220	3630	7.8	27.0	680	590	190	50
JUL									
30...	1020	143	3910	8.1	26.0	710	620	200	52

DATE	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT DIS FIX END FIELD CACO3 (MG/L)	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)
OCT									
04...	790	12	7.0	130	780	1200	0.30	9.0	3170
NOV									
22...	800	12	6.0	160	780	1200	0.40	10	3190
MAR									
23...	690	10	7.4	89	630	980	0.40	6.6	2670
MAY									
01...	620	10	6.8	69	690	1000	0.50	2.7	2640
JUN									
19...	500	8	7.0	89	560	770	0.20	6.2	2140
JUL									
30...	560	9	7.3	92	--	--	0.30	7.5	--

07312100 WICHITA RIVER NEAR MABELLE, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1989	3440.7	4780	2910	27000	1100	10600	680	6300	840
NOV.	1989	40.0	5190	3180	343	1300	136	730	79	910
DEC.	1989	2187.98	4500	2730	16100	1100	6260	640	3790	800
JAN.	1990	197.54	4840	2940	1570	1200	616	680	365	850
FEB.	1990	45.24	3520	2140	262	840	103	500	61	620
MAR.	1990	14641.20	5140	3140	124000	1200	49100	720	28600	900
APR.	1990	13833.2	4380	2640	98700	1000	38100	620	23300	780
MAY	1990	38628.3	4170	2510	262000	960	100600	600	62400	740
JUNE	1990	34065.2	3800	2270	209000	860	79300	550	50400	680
JULY	1990	6388	3750	2240	38700	850	14700	540	9350	670
AUG.	1990	5037.7	3960	2380	32300	910	12300	570	7760	710
SEPT	1990	4664.24	3890	2330	29300	890	11200	560	7050	700
TOTAL		123169.30	**	**	839000	**	323000	**	200000	**
WTD.AVG.		337	4190	2520	**	970	**	600	**	750

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4860	5320	5260	4780	5320	4560	4680	4300	4000	3710	3950	3850
2	4820	5290	5470	4780	5560	4970	4570	4200	2620	3710	5230	3850
3	4720	5310	4750	5310	5490	5450	4560	4360	3930	3710	5280	3840
4	4720	5290	5550	5540	5590	5540	4550	5110	4430	3710	4900	3860
5	4990	5500	5560	5460	5600	5530	4970	5200	3190	3710	5370	3860
6	5090	5000	5530	5520	5610	5460	4180	5290	4020	3710	5250	3880
7	4800	5040	5500	5490	5640	4890	5150	5420	4000	3710	5070	3880
8	4760	4930	5360	5590	5640	5290	5230	4190	3860	3710	5430	3880
9	4730	5370	5420	5510	5650	5220	5300	4160	3780	3710	5460	3880
10	4770	4960	5530	5520	5640	5220	3730	4140	3770	3720	5400	3880
11	4740	5360	5440	5570	5640	5150	4530	4140	3780	3720	5390	3880
12	4800	5230	5430	5300	5650	5560	4540	4130	3810	3740	5440	3890
13	4800	5370	5460	5520	5680	5740	4810	4120	3820	3750	5170	3900
14	4800	5200	5010	5560	5570	1480	4840	4100	3750	3740	3960	3890
15	4760	5070	4750	5550	5570	5380	5210	4130	3720	3750	3950	3900
16	4820	4830	4700	5530	5650	5150	5190	4090	3720	3760	3950	3910
17	4800	5320	4700	5350	5650	5110	4530	4030	3730	3750	3960	3980
18	4840	4920	4720	5490	5650	5060	4540	4030	3730	3770	3960	3920
19	4810	5140	4270	2160	5650	5080	1900	4050	3720	3780	3960	3910
20	4760	5090	3140	5010	5650	5070	1370	3970	3740	3780	3960	5010
21	4800	5040	3300	5220	4550	5080	3560	3980	3850	3800	3960	4880
22	4800	5360	3750	5410	5400	5080	4820	4760	3800	3800	3960	3880
23	4780	5000	4750	5570	5520	5090	4710	5300	3820	3800	3960	4920
24	4780	5260	4770	5570	5570	5080	5090	5390	3790	3800	3960	5030
25	4790	5480	4770	5530	5590	5080	5110	5430	3810	3800	3970	4920
26	4720	5370	4770	5590	5620	5540	5130	5250	3850	3800	3970	5030
27	4710	5480	4770	5600	5600	5610	4400	4860	3820	3820	3960	5230
28	4690	5020	4770	5570	970	5440	4270	5330	3850	3820	3960	5280
29	4760	4980	4770	5550	---	4920	4280	5420	3850	3830	3960	5270
30	4760	5410	4770	5580	---	5090	4240	4860	3850	3820	3830	5240
31	5570	---	4780	5570	---	5270	---	5220	---	3770	3840	---
MEAN	4820	5200	4890	5330	5390	5100	4470	4610	3780	3760	4460	4280

07312100 WICHITA RIVER NEAR MABELLE, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.0	13.0	10.0	5.0	14.0	10.0	14.0	18.0	23.0	27.0	26.0	28.0
2	21.0	9.0	11.0	5.0	12.0	9.0	12.0	15.0	20.0	27.0	23.0	28.0
3	21.0	10.0	10.0	11.0	10.0	12.0	12.0	15.0	20.0	27.0	22.0	28.0
4	21.0	12.0	19.0	9.0	10.0	14.0	13.0	14.0	23.0	27.0	22.0	27.0
5	20.0	14.0	10.0	8.0	10.0	14.0	15.0	14.0	21.0	27.0	21.0	27.0
6	21.0	12.0	11.0	10.0	10.0	15.0	11.0	17.0	24.0	27.0	19.0	28.0
7	20.0	13.0	11.0	8.0	9.0	11.0	12.0	15.0	25.0	27.0	20.0	28.0
8	21.0	13.0	7.0	9.0	12.0	11.0	14.0	18.0	25.0	27.0	20.0	28.0
9	22.0	12.0	9.0	8.0	13.0	12.0	15.0	15.0	26.0	27.0	21.0	28.0
10	21.0	11.0	11.0	11.0	10.0	14.0	14.0	18.0	26.0	27.0	20.0	27.0
11	20.0	14.0	7.0	11.0	12.0	13.0	14.0	18.0	26.0	27.0	24.0	27.0
12	20.0	15.0	4.0	8.0	11.0	15.0	14.0	18.0	26.0	27.0	24.0	26.0
13	20.0	16.0	5.0	9.0	13.0	17.0	14.0	18.0	26.0	27.0	24.0	26.0
14	20.0	14.0	7.0	10.0	11.0	11.0	15.0	19.0	26.0	27.0	26.0	26.0
15	20.0	12.0	7.0	12.0	10.0	11.0	20.0	20.0	26.0	27.0	27.0	26.0
16	20.0	7.0	6.0	14.0	8.0	14.0	15.0	21.0	27.0	27.0	27.0	27.0
17	19.0	10.0	8.0	14.0	10.0	14.0	15.0	21.0	27.0	26.0	27.0	26.0
18	18.0	9.0	7.0	12.0	12.0	15.0	15.0	21.0	27.0	26.0	27.0	27.0
19	17.0	12.0	7.0	8.0	12.0	14.0	12.0	22.0	27.0	26.0	27.0	27.0
20	17.0	12.0	5.0	8.0	12.0	14.0	15.0	22.0	27.0	26.0	27.0	23.0
21	17.0	15.0	5.0	12.0	12.0	14.0	17.0	22.0	27.0	27.0	27.0	23.0
22	18.0	15.0	4.0	10.0	9.0	15.0	19.0	18.0	26.0	22.0	27.0	20.0
23	17.0	10.0	3.0	13.0	9.0	15.0	19.0	18.0	26.0	25.0	27.0	18.0
24	18.0	12.0	4.0	11.0	12.0	13.0	17.0	19.0	27.0	26.0	27.0	18.0
25	18.0	14.0	4.0	9.0	13.0	12.0	19.0	20.0	26.0	26.0	28.0	17.0
26	18.0	14.0	5.0	7.0	11.0	12.0	17.0	22.0	27.0	26.0	28.0	19.0
27	18.0	13.0	5.0	11.0	14.0	13.0	17.0	24.0	27.0	25.0	28.0	20.0
28	18.0	7.0	4.0	10.0	10.0	13.0	18.0	22.0	27.0	27.0	28.0	20.0
29	18.0	7.0	5.0	8.0	---	14.0	20.0	18.0	27.0	27.0	28.0	20.0
30	17.0	11.0	5.0	9.0	---	13.0	18.0	20.0	27.0	25.0	28.0	19.0
31	12.0	---	5.0	10.0	---	13.0	---	20.0	---	26.0	28.0	---
MEAN	19.0	11.9	7.1	9.7	11.1	13.1	15.4	18.8	25.5	26.4	25.1	24.4

07312110 SOUTH SIDE CANAL NEAR DUNDEE, TX

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

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

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

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

AVERAGE DISCHARGE.--19 years, 78.2 ft³/s (56,660 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 374 ft³/s July 22, 1974; maximum gage height, 8.66 ft July 23, 1978; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 217 ft³/s Sept. 11, 12; maximum gage height, 6.15 ft; minimum daily discharge, 0.06 ft³/s Jan. 4, 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	119	83	1.6	46	.25	.71	1.0	1.4	117	163	62	e212
2	118	2.7	1.5	.28	.25	.72	.91	1.4	4.7	174	60	e212
3	118	2.0	1.5	.10	.30	.81	.91	1.4	2.5	173	60	e214
4	118	2.0	1.5	.06	.30	.81	1.0	1.4	2.5	184	59	e214
5	118	1.9	1.5	.06	.30	.86	1.1	1.3	2.4	196	59	e214
6	117	1.9	1.0	.07	.35	.91	1.1	1.2	31	199	59	e214
7	116	1.9	.39	.07	.38	1.0	1.1	1.2	104	199	59	e215
8	115	1.9	.32	.07	.41	1.3	1.0	1.2	111	198	60	e215
9	114	1.9	.29	.07	.41	1.5	1.0	1.2	112	199	e76	e216
10	122	1.9	.27	.07	.41	1.5	1.0	1.2	113	200	e83	e216
11	129	1.9	.22	.07	.41	1.6	.95	1.4	115	200	e107	e217
12	130	1.9	.17	.08	.43	1.4	.91	1.4	116	202	e118	e217
13	130	1.9	30	.09	.43	1.2	.91	1.4	116	202	e138	212
14	130	1.9	102	.09	.39	1.3	1.0	1.5	116	202	e168	203
15	131	1.9	103	.09	.41	1.2	1.0	44	131	203	e177	194
16	130	1.8	77	19	.41	1.1	1.0	40	142	203	e177	190
17	131	1.7	77	37	.40	1.2	.96	1.5	138	203	e177	191
18	131	1.7	79	36	.40	1.2	.96	1.4	137	198	e177	182
19	130	1.7	78	5.1	.41	1.2	1.0	1.4	136	186	e177	137
20	113	1.7	90	.13	32	1.2	1.0	71	134	186	e177	108
21	97	1.7	118	.11	84	1.1	1.0	119	142	184	e178	107
22	96	1.7	160	.10	46	.95	1.0	121	151	186	e178	107
23	96	1.7	121	.08	1.9	.91	.99	121	151	186	e178	107
24	102	1.7	111	.09	1.7	.91	26	121	154	160	e178	104
25	106	1.7	110	.07	1.6	1.0	52	122	151	122	e178	102
26	106	1.7	114	.13	1.6	1.0	26	119	150	122	e178	101
27	107	1.7	115	.13	1.1	22	1.1	119	168	122	e178	100
28	107	1.6	115	.14	.65	31	1.2	119	182	122	e178	99
29	106	1.5	115	.14	---	1.2	1.3	136	182	122	e201	97
30	105	1.5	99	.25	---	1.1	1.4	150	169	122	e211	96
31	105	---	62	.25	---	1.1	---	150	---	97	e211	---
TOTAL	3593	135.7	1886.26	145.99	177.60	84.99	131.80	1574.9	3481.1	5415	4277	5013
MEAN	116	4.52	60.8	4.71	6.34	2.74	4.39	50.8	116	175	138	167
MAX	131	83	160	46	84	31	52	150	182	203	211	217
MIN	96	1.5	.17	.06	.25	.71	.91	1.2	2.4	97	59	96
AC-FT	7130	269	3740	290	352	169	261	3120	6900	10740	8480	9940

CAL YR 1989 TOTAL 20392.27 MEAN 55.9 MAX 191 MIN .07 AC-FT 40450
WTR YR 1990 TOTAL 25916.34 MEAN 71.0 MAX 217 MIN .06 AC-FT 51410

e Estimated

07312200 BEAVER CREEK NEAR ELECTRA, TX

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

DRAINAGE AREA.--652 mi².

PERIOD OF RECORD.--February 1960 to current year.
Water-quality records.--Chemical analyses: October 1968 to June 1970. Water temperatures: October 1968 to June 1970. Sediment records: April 1966 to September 1975.

GAGE.--Water-stage recorder. Datum of gage is 991.3 ft above National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation reference point).

REMARKS.--Records good. Some regulation by Santa Rosa Lake (capacity, 11,570 acre-ft) about 30 mi upstream. There are several diversions above station.

AVERAGE DISCHARGE.--30 years, 70.2 ft³/s (1.46 in/yr), 50,860 acre-ft.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,700 ft³/s Mar. 17, 1961 (gage height, 33.57 ft); maximum gage height, May 29, 1987, 34.94 ft; no flow at times.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 28	2400	2,380	24.97	May 3	1500	3,600	27.33
Mar. 12	0710	2,300	24.78	June 2	0800	1,560	22.28
Apr. 20	2000	*4,560	*28.96				

Minimum discharge, 4.1 ft³/s Dec. 21 (due to freeze-up).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	9.6	6.6	7.2	7.4	1560	38	90	357	12	200	11
2	16	7.1	6.7	7.0	7.7	215	103	1100	1410	13	49	11
3	14	6.3	6.7	7.0	7.6	59	93	3390	757	14	17	11
4	13	6.3	6.6	6.9	7.2	52	40	2740	263	13	272	12
5	12	6.4	6.7	6.8	7.1	29	27	813	257	12	125	12
6	11	6.4	6.8	6.7	7.1	24	66	563	262	12	35	11
7	11	6.4	6.9	6.7	7.1	38	57	561	249	12	18	10
8	9.9	6.4	6.9	6.8	7.0	23	31	568	196	12	15	13
9	9.5	6.3	7.0	6.8	7.2	16	26	423	136	13	15	11
10	9.3	6.3	7.0	6.9	7.5	31	47	285	99	13	106	12
11	8.7	6.4	6.9	6.9	7.2	1280	61	214	77	12	92	11
12	8.5	6.5	6.6	6.8	7.0	1980	29	158	61	11	20	11
13	8.2	6.6	7.2	6.7	7.1	556	22	114	47	11	16	11
14	8.3	6.6	7.0	6.8	7.1	683	30	93	39	12	14	11
15	8.2	6.5	7.3	7.0	8.4	695	23	85	31	11	14	11
16	8.0	6.4	7.0	7.2	17	470	19	76	25	12	13	11
17	7.8	6.6	7.2	20	8.4	368	17	64	22	13	14	12
18	7.7	7.0	7.6	40	7.1	244	311	52	20	13	13	14
19	7.9	7.0	7.7	102	7.0	157	2990	47	18	23	15	24
20	8.0	7.1	7.4	115	7.1	112	4270	42	15	14	15	16
21	8.1	7.1	6.8	29	97	90	3960	36	14	13	16	13
22	8.1	6.9	6.3	14	57	74	2610	34	14	15	13	12
23	8.1	6.5	8.7	9.9	20	58	2170	29	14	39	13	11
24	8.1	6.2	9.1	8.1	10	45	2500	26	13	19	13	11
25	8.0	6.3	9.3	7.4	7.8	36	1570	23	14	14	12	11
26	8.0	6.5	9.2	7.0	7.2	34	736	22	15	13	12	11
27	7.8	6.4	8.6	6.9	7.5	34	407	20	15	13	12	11
28	8.4	6.4	8.3	6.8	1370	40	194	19	14	13	12	11
29	8.5	6.1	7.8	6.8	---	332	191	19	13	11	12	10
30	213	6.4	7.9	6.9	---	124	161	28	13	17	11	10
31	25	---	7.7	6.9	---	48	---	24	---	122	11	---
TOTAL	516.1	199.0	229.5	496.9	1732.8	9507	22799	11758	4480	547	1215	357
MEAN	16.6	6.63	7.40	16.0	61.9	307	760	379	149	17.6	39.2	11.9
MAX	213	9.6	9.3	115	1370	1980	4270	3390	1410	122	272	24
MIN	7.7	6.1	6.3	6.7	7.0	16	17	19	13	11	11	10
AC-FT	1020	395	455	986	3440	18860	45220	23320	8890	1080	2410	708
CFSM	.03	.01	.01	.02	.09	.47	1.17	.58	.23	.03	.06	.02
IN.	.03	.01	.01	.03	.10	.54	1.30	.67	.26	.03	.07	.02

CAL YR 1989 TOTAL 26133.7 MEAN 71.6 MAX 2550 MIN 1.9 AC-FT 51840 CFSM .11 IN. 1.49
WTR YR 1990 TOTAL 53837.3 MEAN 147 MAX 4270 MIN 6.1 AC-FT 106800 CFSM .23 IN. 3.07

07312500 WICHITA RIVER AT WICHITA FALLS, TX

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

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

PERIOD OF RECORD.--February 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.--Chemical analyses: April 1966 to July 1975. Chemical and biochemical analyses: November 1981 to August 1989. Sediment analyses: April 1966 to July 1975. Specific Conductance: October 1981 to September 1989. Water temperature: October 1981 to September 1989.

REVISED RECORDS.--WSP 1211: Drainage area.

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

REMARKS.--Records good. Flow from 2,086 mi² above station is regulated by Lake Kemp (capacity 603,000 acre-ft) 71 mi upstream. Since completion of Lake Kemp in 1923, no outflow has been permitted to pass over spillway. Water is diverted from Lake Diversion (capacity 40,000 acre-ft) 41 mi upstream for the irrigation of 42,000 acres under permit in the vicinity of Wichita Falls. During the water year, Wichita County Water Improvement District No. 2 diverted 51,410 acre-ft from Lake Diversion for mining, industrial use, recreation, and irrigation. Gage-height telemeter at station via Sutron data collection platform..

AVERAGE DISCHARGE.--53 years (water years 1901, 1939-90), 275 ft³/s (199,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,800 ft³/s Oct. 3, 1941 (gage height, 24.0 ft); no flow Oct. 11, 1960 (construction of cofferdam upstream).

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,140 ft³/s May 5 at 1550 hours (gage height, 20.45 ft); minimum, 34 ft³/s Feb. 12-14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	778	170	50	68	47	2260	152	1780	593	186	201	111
2	533	106	51	64	43	2150	184	2970	1370	181	245	109
3	381	104	50	58	42	578	301	6430	1670	179	181	109
4	291	77	51	51	43	194	365	6470	855	178	222	112
5	228	68	51	49	40	141	362	6940	483	174	278	112
6	193	63	52	45	39	123	442	6410	454	177	227	109
7	157	61	53	42	39	185	308	4320	828	167	168	102
8	127	56	53	42	38	147	199	2190	1330	184	141	106
9	115	55	53	42	40	121	135	1640	1730	183	112	109
10	110	53	53	42	38	107	283	1560	1950	162	109	111
11	106	51	54	41	36	1550	197	1740	2070	162	140	111
12	102	51	55	41	35	2530	141	2100	2140	182	177	107
13	104	51	56	41	34	2370	131	2340	2180	181	119	108
14	102	51	57	41	35	2850	189	2510	2190	156	109	107
15	97	50	57	41	37	2520	218	2610	2200	174	105	111
16	92	50	55	42	37	1920	151	2650	2190	154	105	102
17	88	52	55	55	40	1230	105	2680	2160	159	109	123
18	88	50	71	68	45	1030	581	2680	1780	165	110	124
19	88	50	70	130	38	1050	3190	2520	1390	168	112	174
20	90	50	68	145	37	1030	4140	2020	1170	163	116	133
21	90	50	64	167	146	1020	4740	1550	1000	151	122	115
22	85	51	48	111	219	1070	5320	1340	533	153	123	106
23	81	50	59	78	189	1400	5350	809	350	158	114	97
24	78	49	82	59	111	1320	4530	471	278	203	131	87
25	75	49	82	49	75	1120	3180	321	242	192	128	82
26	73	48	80	43	58	999	2670	273	221	173	115	79
27	75	48	77	42	55	838	1960	249	203	136	115	78
28	87	48	63	39	1490	343	1310	236	200	127	113	76
29	89	48	63	38	---	520	1300	227	198	124	111	73
30	206	49	66	38	---	724	1380	247	192	146	108	73
31	386	---	69	38	---	250	---	224	---	177	113	---
TOTAL	5195	1809	1868	1850	3126	33690	43514	70507	34150	5175	4379	3156
MEAN	168	60.3	60.3	59.7	112	1087	1450	2274	1138	167	141	105
MAX	778	170	82	167	1490	2850	5350	6940	2200	203	278	174
MIN	73	48	48	38	34	107	105	224	192	124	105	73
AC-FT	10300	3590	3710	3670	6200	66820	86310	139900	67740	10260	8690	6260

CAL YR 1989 TOTAL 87397 MEAN 239 MAX 3040 MIN 20 AC-FT 173400
WTR YR 1990 TOTAL 208419 MEAN 571 MAX 6940 MIN 34 AC-FT 413400

07312700 WICHITA RIVER NEAR CHARLIE, TX

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

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

WATER QUALITY DATA

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

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

REMARKS.--Records good. For statement regarding regulation and diversions, see station 07312500. Records furnished by the city of Wichita Falls show that 13,920 acre-ft was returned to river above this station as sewage effluent and filter plant washwater. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--23 years, 339 ft³/s (245,600 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,760 ft³/s May 7, 1990 (gage height, 25.80 ft); minimum, 24 ft³/s Feb. 18, 1978, Feb. 4, 1989 result of freeze-up.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,760 ft³/s May 7 at 1200 hours (gage height, 25.80 ft); minimum, 46 ft³/s Dec. 22, result of freeze-up.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1310	441	79	154	67	2760	721	1860	1090	239	340	153
2	999	247	77	136	99	2390	626	3550	2180	235	322	147
3	744	199	74	126	84	2170	636	6800	2090	222	361	141
4	583	164	76	106	90	904	771	6980	2140	225	503	146
5	467	129	76	85	77	508	800	7300	1460	220	597	160
6	379	113	75	79	66	418	1020	7620	1020	224	435	157
7	339	106	74	71	62	533	992	7740	891	240	331	151
8	298	104	72	69	61	509	707	7530	1310	243	237	146
9	273	97	74	68	61	350	540	6390	1690	259	195	152
10	251	94	72	66	66	244	879	3530	2000	243	205	157
11	207	93	69	63	73	1250	798	2110	2190	229	178	173
12	189	92	69	62	66	3370	524	2200	2300	355	223	175
13	188	92	69	62	64	3440	421	2420	2360	370	264	185
14	195	90	69	59	60	3720	455	2610	2390	277	185	185
15	189	87	68	60	63	4020	567	2770	2400	288	161	183
16	185	84	65	62	84	3860	509	2890	2380	297	153	187
17	181	84	104	72	72	2940	406	2960	2360	311	153	219
18	178	89	152	133	64	1930	471	3010	2310	329	156	323
19	178	84	136	322	72	1640	3370	3000	1940	303	152	290
20	173	81	114	554	63	1560	5590	2820	1610	282	165	348
21	182	87	93	257	184	1480	6330	2270	1420	277	194	265
22	174	84	84	240	480	1440	6350	1820	1190	262	202	231
23	160	80	76	158	352	1500	6390	1590	648	319	205	203
24	154	77	102	117	254	1700	6160	987	457	295	185	170
25	155	76	162	94	173	1620	6250	605	382	390	205	160
26	158	77	170	79	121	1490	6160	486	333	298	198	161
27	160	77	193	72	84	1410	5520	416	295	248	177	158
28	164	76	169	68	1300	1360	3670	368	274	199	173	155
29	200	73	145	65	---	965	1920	310	257	193	164	148
30	414	79	139	63	---	1260	1770	577	252	185	150	142
31	442	---	161	61	---	1160	---	388	---	334	144	---
TOTAL	9869	3356	3158	3683	4362	53901	71323	95907	43619	8391	7313	5571
MEAN	318	112	102	119	156	1739	2377	3094	1454	271	236	186
MAX	1310	441	193	554	1300	4020	6390	7740	2400	390	597	348
MIN	154	73	65	59	60	244	406	310	252	185	144	141
AC-FT	19580	6660	6260	7310	8650	106900	141500	190200	86520	16640	14510	11050

CAL YR 1989	TOTAL	143357	MEAN	393	MAX	4140	MIN	24	AC-FT	284300
WTR YR 1990	TOTAL	310453	MEAN	851	MAX	7740	MIN	59	AC-FT	615800

07312700 WICHITA RIVER NEAR CHARLIE, TX--Continued

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1967 to September 1981.
WATER TEMPERATURE: October 1967 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD
SPECIFIC CONDUCTANCE: Maximum daily, 10,000 microsiemens Apr. 25, 1972; minimum daily, 384 microsiemens Aug. 16, 1971.
WATER TEMPERATURE: Maximum daily, 34.5°C July 25, 1981; minimum daily, 0.0°C on many days in winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
NOV 15...	1600	87	4770	7.9	15.0	11.6	123	2.1	910	670
JAN 26...	0910	80	2890	7.9	6.5	11.5	100	2.7	550	370
MAR 14...	1420	4040	740	8.1	18.0	7.1	80	2.5	150	55
MAY 18...	0845	3010	3800	7.8	22.0	7.7	94	1.6	660	560
JUL 12...	1320	299	4650	8.1	28.0	6.3	86	4.8	1000	790
AUG 24...	1250	179	4440	8.0	29.5	11.7	164	2.9	860	690

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 WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
NOV 15...	220	87	660	10	7.6	240	510	1200	0.50
JAN 26...	130	54	380	7	6.0	180	270	670	0.50
MAR 14...	39	12	83	3	5.9	92	67	140	<0.10
MAY 18...	180	52	520	9	6.8	100	570	870	<0.10
JUL 12...	250	90	590	8	7.1	200	550	1200	0.30
AUG 24...	220	76	590	9	8.0	170	500	970	1.2

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 15...	7.6	2840	1.41	0.290	1.70	0.480	0.52	1.0	1.10
JAN 26...	8.3	1630	1.44	0.160	1.60	0.450	0.55	1.0	1.30
MAR 14...	8.4	410	0.280	0.020	0.300	0.050	0.45	0.50	0.130
MAY 18...	7.3	2270	0.140	0.060	0.200	0.070	0.33	0.40	0.090
JUL 12...	9.5	2820	0.460	0.040	0.500	0.050	1.0	1.1	0.430
AUG 24...	7.9	2480	0.640	0.060	0.700	0.020	0.78	0.80	0.540

07314000 LAKE KICKAPOO NEAR ARCHER CITY, TX

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

DRAINAGE AREA.--275 mi².

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

REVISED RECORDS.--WSP 1211: Drainage area.

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

REMARKS.--The lake is formed by a rolled earthfill dam 8,200 ft long, including a 483-foot-wide reinforced concrete ogee-type uncontrolled spillway near right end of dam. The dam was completed Dec. 15, 1945, and storage began Feb. 1, 1946. The service outlet consists of two gate-controlled 4- by 5-foot conduits. The dam and lake are owned by the city of Wichita Falls, which uses the water for their municipal supply. The capacity table is based on Geological Survey topographic maps, dated 1929. The capacity curve, dated November 1946, was entitled "Lake Kickapoo Area & Capacity Curve". Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	1,062.0	-
Design flood (2-foot freeboard)	1,060.0	221,000
Crest of spillway	1,045.0	106,000
Lowest gated outlet (invert)	1,000.92	0

COOPERATION.--Capacity curve, record of lake elevations, and diversions for municipal use are provided by the city of Wichita Falls.

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

EXTREMES (at 0800) FOR CURRENT YEAR.--Maximum contents, 119,200 acre-ft May 3 (elevation, 1,047.0 ft); minimum, 77,050 acre-ft Sept. 27, 29, 30 (elevation, 1,040.1 ft).

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

1,040.0	76,500	1,044.0	99,700	1,047.0	119,200
1,042.0	87,700	1,046.0	112,500		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 08:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	106600	106000	103500	93600	85990	83140	93010	106000	101000	99090	85990	81450
2	106600	106000	103500	93010	85990	83710	92420	107300	106000	99090	86560	81450
3	106600	106000	102800	93010	85990	83140	92420	119200	112500	98480	85990	80900
4	106600	106000	101600	93600	85990	83140	92420	118500	111200	98480	85990	80900
5	106600	106000	102200	93600	85990	82570	92420	114500	110600	97260	85420	80900
6	106000	105400	101600	93600	85990	82000	91240	117900	109900	96040	86560	80350
7	106000	105400	101600	93010	84850	84280	91240	110600	108000	96040	86560	80350
8	106000	105400	101000	92420	84850	85420	91240	109900	109200	96040	87130	80350
9	106000	105400	101000	92420	84850	85420	90060	109200	108000	94820	87130	79800
10	106000	104700	101000	92420	84850	84850	89470	107300	107300	93600	86560	79800
11	106000	104700	99700	91830	84850	85420	88880	106000	106600	93600	86560	79250
12	106000	104700	99700	91240	84280	91240	88880	107300	106000	92420	86560	78700
13	106000	104700	99700	91240	84280	91240	88880	106600	105400	91240	85990	78700
14	105400	104700	99700	91240	84280	90650	88290	106000	104700	91240	85990	78700
15	105400	104700	99090	90060	84280	90650	87700	106600	104100	91240	85420	78150
16	104700	104700	98480	90060	82000	96650	87700	106000	103500	90060	85420	78150
17	104100	104700	98480	90060	82000	96040	87130	104700	103500	90060	85420	78150
18	104100	103500	98480	90060	82000	97260	87700	104700	103500	89470	85420	78700
19	104100	103500	97260	90650	81450	95430	88880	104100	102800	89470	84850	77600
20	104100	103500	97260	90060	82000	95430	103500	103500	102800	88880	84850	78150
21	104100	103500	97260	90060	82000	95430	107300	102800	102800	88880	84280	78700
22	103500	103500	96040	90060	82570	94820	107300	102800	102200	88290	84280	78700
23	103500	103500	96040	90060	82570	93600	109200	102200	101600	88290	84280	78150
24	103500	103500	96040	90060	82570	93600	108600	102200	101000	88290	84280	78700
25	103500	103500	96040	88880	82570	93600	107300	101600	101000	87700	84280	78150
26	103500	103500	95430	88880	82570	93010	108000	101000	99700	88290	84280	77600
27	103500	103500	95430	87700	82000	92420	108000	101000	99090	87700	84280	77050
28	103500	102800	94820	87700	82000	93600	108600	102200	99090	87700	82570	77600
29	103500	102800	94210	87130	---	93600	108000	102200	99090	87700	82000	77050
30	108000	102800	94210	86560	---	93600	107300	102200	99090	87700	82000	77050
31	106000	---	93600	85990	---	93010	---	101600	---	85990	82000	---
MAX	108000	106000	103500	93600	85990	97260	109200	119200	112500	99090	87130	81450
MIN	103500	102800	93600	85990	81450	82000	87130	101000	99090	85990	82000	77050
(†)	1045.0	1044.5	1043.0	1041.7	1041.0	1042.9	1045.2	1044.3	1043.9	1041.7	1041.0	1040.1
(ϕ)	-600	-3200	-9200	-7610	-3990	+11010	+14290	-5700	-2510	-13100	-3990	-4950
(††)	867	2044	607	1090	1150	1074	913	616	545	1487	1254	1096

CAL YR 1989 MAX 120600 MIN 61140 (ϕ) +28450 (††) 12669
WTR YR 1990 MAX 119200 MIN 77050 (ϕ) -29550 (††) 12748

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

07314500 LITTLE WICHITA RIVER NEAR ARCHER CITY, TX

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

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

PERIOD OF RECORD.--May 1932 to January 1956, August 1966 to current year.
Water-quality records.--Chemical analyses: January 1953 to January 1956. Water temperatures: January 1953 to January 1956. Sediment records: May 1968 to September 1975.

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

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

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Some regulation by Lake Kickapoo (station 07314000) on North Fork Little Wichita River. Records furnished by the city of Wichita Falls show that 12,560 acre-ft was diverted from Lake Kickapoo for municipal use during the current 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 (79,700 acre-ft/yr); 34 years (water years 1946-55, 1967-90) regulated, 54.4 ft³/s (39,410 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,100 ft³/s May 16, 1989 (gage height, 27.03 ft); no flow at times.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,800 ft³/s May 3 at 1750 hours (gage height, 25.78 ft); 0.13 ft³/s Nov. 30, Dec. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.86	3.1	13	e134	121	792	154	223	348	177	338	46
2	.73	1.3	84	e135	128	368	142	619	940	180	101	45
3	.46	4.6	82	e136	135	148	138	6570	1230	181	87	44
4	.40	1.2	82	e137	123	129	142	7020	1240	182	79	43
5	.41	.58	82	e137	121	123	150	5860	992	182	66	42
6	.40	e.44	87	e137	121	136	238	3400	740	182	71	40
7	.38	e.41	112	e138	119	344	249	1770	429	182	62	39
8	.37	e.41	136	138	120	326	229	950	297	183	61	38
9	.37	e.41	135	139	124	165	229	500	263	183	60	37
10	.35	e.39	134	140	125	137	235	355	255	184	62	35
11	.34	e.39	e134	139	125	497	241	276	252	185	61	34
12	.33	e.39	e135	139	125	1170	238	267	251	195	60	33
13	.33	e.39	e137	139	126	1110	236	269	250	187	62	33
14	.34	e.39	e137	139	125	694	269	263	245	187	61	32
15	.34	e.37	e138	140	127	679	307	267	103	187	59	32
16	.34	e.37	e138	139	127	309	249	263	73	187	58	32
17	.35	e.37	e138	143	127	170	251	261	72	188	57	36
18	.35	e.35	e138	143	128	147	331	259	71	188	56	40
19	.35	e.35	e137	314	128	136	1250	258	71	189	56	34
20	.79	.35	e137	574	129	133	3160	257	71	187	56	32
21	.57	.39	e136	203	364	130	3810	256	71	187	55	33
22	.46	.45	e136	133	695	130	2090	257	71	189	54	42
23	.41	.67	e136	124	280	131	983	257	71	189	53	51
24	.38	.46	e136	119	149	130	339	256	70	89	53	34
25	.38	.34	e136	114	134	130	257	256	70	67	52	32
26	.36	.30	135	114	128	131	462	255	70	66	51	32
27	.35	.27	e135	114	123	134	893	255	69	65	51	31
28	.40	.25	e135	116	361	166	1030	255	69	65	50	31
29	6.7	.23	e132	117	---	317	554	256	68	65	49	30
30	49	.16	133	116	---	298	259	328	117	66	48	31
31	57	---	134	116	---	172	---	391	---	88	47	---
TOTAL	124.60	20.08	3800	4766	4738	9582	19115	32929	8939	4832	2136	1094
MEAN	4.02	.67	123	154	169	309	637	1062	298	156	68.9	36.5
MAX	57	4.6	138	574	695	1170	3810	7020	1240	195	338	51
MIN	.33	.16	13	114	119	123	138	223	68	65	47	30
AC-FT	247	40	7540	9450	9400	19010	37910	65310	17730	9580	4240	2170

CAL YR 1989 TOTAL 55964.39 MEAN 153 MAX 7110 MIN .00 AC-FT 111000
WTR YR 1990 TOTAL 92075.68 MEAN 252 MAX 7020 MIN .16 AC-FT 182600

e Estimated

07314800 LAKE ARROWHEAD NEAR HENRIETTA, TX

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

DRAINAGE AREA.--822 mi².

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

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

REMARKS.--The lake is formed by a rolled earthfill dam 15,900 ft long, including an uncontrolled reinforced concrete ogee spillway 1,581 ft wide located near the left end of dam. The dam was completed in December 1966 and storage began in June 1967. The service outlet works, located in a cylindrical service tower at upstream side of dam, consist of two gated 5-foot-diameter inlets that can be used for controlled releases. The dam was built by the city of Wichita Falls to impound water for municipal, industrial, and recreational uses. The area-capacity curves are based on Geological Survey topographic maps. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Gage height (feet)	Capacity (acre-feet)
Top of dam	944.4	-
Design flood	939.95	551,400
Crest of spillway (top of conservation pool)	926.4	262,100
Lowest gated outlet (invert)	874.1	-

COOPERATION.--Capacity table provided by Homer Hunter and Associates and Biggs and Mathews, Consulting Engineers, for the city of Wichita Falls. Area-capacity curves provided by Homer Hunter and Associates. Record of diversions provided by the city of Wichita Falls.

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

EXTREMES FOR CURRENT YEAR.--Maximum contents, 287,500 acre-ft May 4 at 1800 hours (gage height, 927.92 ft); minimum, 245,100 acre-ft Sept. 17 (gage height, 925.32 ft).

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

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

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	262300	254100	248500	250800	261900	269200	265100	266900	267000	253600	255400	249300
2	261500	254900	248200	251100	261300	269000	264400	278200	269500	253800	255400	249100
3	261600	254900	248500	251300	262300	267400	264600	284800	270200	253800	255500	248800
4	261800	254900	248300	251300	262800	265900	264200	287500	270300	253800	255400	247500
5	261500	254300	248500	251400	262400	264700	263700	285300	269700	253600	255400	247400
6	260700	254100	247900	251600	262100	264200	264200	282000	268200	253500	254900	247100
7	260200	254100	247700	251900	262400	264600	264200	278800	266600	253500	255100	246600
8	260200	253500	248300	252200	262400	265100	263600	274500	265200	253000	255100	246000
9	259700	253500	248500	252200	262100	264700	263900	271000	264400	252700	254400	246500
10	259900	253500	246800	252500	262300	264100	262900	268700	263600	252900	254700	246000
11	259700	253200	247700	252100	262400	267900	263100	266700	263100	252900	254400	245700
12	259100	253200	247700	252200	262800	271000	263300	265200	262300	253300	254300	245100
13	258900	253300	247400	252500	261600	271200	262600	264700	261600	253000	253800	245200
14	258600	253000	246800	252900	261100	271700	263600	263900	261500	253200	253600	245400
15	258300	251800	248000	253000	261900	269900	263900	263300	260800	253200	253300	245500
16	256300	251300	248200	253600	261900	268900	264900	261800	260000	253000	253000	244300
17	256500	251100	248300	254300	262100	266700	263100	262300	259700	253300	252900	248000
18	255700	250800	248300	254600	262300	264400	267400	262300	259500	253200	253800	248200
19	255400	251000	248600	259200	261900	264700	272000	262100	259100	253300	252700	247500
20	255700	250700	248600	260500	261800	264100	276700	261900	258600	253300	252700	246800
21	255400	250800	248500	261800	264600	263700	278200	261500	257500	253300	251900	248300
22	255200	249900	249300	261900	265700	262600	277700	261600	257000	254300	252100	247500
23	255100	250200	249400	262100	266100	261600	276300	261600	257000	254700	251900	247400
24	254600	250800	249600	261300	265400	261600	270800	261100	256200	254600	251600	247500
25	254600	249400	248600	261800	264700	261800	273300	261100	255400	254600	251400	248000
26	254100	249700	248800	261900	264100	262100	285800	260700	255100	254300	251000	247700
27	254700	248300	249600	261000	263900	262900	281500	260200	254900	253800	251000	247700
28	254100	248300	249900	261100	266900	262800	277000	260700	254300	253500	250800	247400
29	254100	248800	249700	261500	---	265900	272200	261100	253900	253500	250400	247100
30	255200	248500	250400	261500	---	266700	269400	261800	253600	254700	249900	246800
31	256000	---	250500	261300	---	266200	---	261500	---	254700	249300	---
MAX	262300	254900	250500	262100	266900	271700	285800	287500	270300	254700	255500	249300
MIN	254100	248300	246800	250800	261100	261600	262600	260200	253600	252700	249300	244300
(†)	926.02	925.54	925.67	926.35	926.69	926.65	926.84	926.36	925.87	925.94	925.59	925.43
(⊕)	-6300	-7500	+2000	+10800	+5600	-700	+3200	-7900	-7900	+1100	-5400	-2500
(††)	924	1786	927	599	202	222	215	1054	2455	2101	1716	1588

CAL YR 1989 MAX 275000 MIN 185500 (⊕) +58800 (††) 10772
WTR YR 1990 MAX 287500 MIN 244300 (⊕) -15500 (††) 13790

(†) 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.

07314900 LITTLE WICHITA RIVER ABOVE HENRIETTA, TX

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

DRAINAGE AREA.--1,037 mi².

PERIOD OF RECORD.--January 1953 to current year. Prior to October 1974, published as "near Henrietta".
Water-quality records.--Chemical analyses: December 1952 to January 1956, November 1959 to September 1966. January 1968 to September 1985.

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

REMARKS.--Records good. Flow largely regulated by Lake Arrowhead, 39 mi upstream (capacity 262,100 acre-ft). The City of Wichita Falls diverted 12,750 acre-ft from Lake Kickapoo and 13,790 acre-ft from Lake Arrowhead for municipal uses, and returned 13,920 acre-ft as sewage effluent and filter plant wash water to the Wichita River below station 07312500 at Wichita Falls and above station 07312700 near Charlie. The city of Henrietta diverted 436 acre-ft from pool at gage for municipal use. Records of diversions are 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 (89,840 acre-ft/yr); 24 years (water years 1967-90) regulated, 69.1 ft³/s (50,060 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,200 ft³/s May 3, 1990 (gage height, 24.96); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1908 reached a stage of 21 ft at former site, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14,200 ft³/s May 3 at 1630 hours (gage height, 24.96 ft); no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	12	.00	.00	41	1190	839	2710	181	16	.50	.00
2	34	14	.00	.00	61	1430	556	2820	619	14	.00	.00
3	27	15	.00	.00	54	1440	345	10500	1170	13	.00	.00
4	18	14	.00	.00	73	1230	351	8850	1610	11	.00	.00
5	13	12	.00	.00	115	851	324	8020	1810	10	.00	.00
6	18	10	.00	.00	196	551	245	6930	1900	8.4	.00	.00
7	18	9.7	.00	.00	72	521	373	5970	1830	6.8	.00	.00
8	11	9.7	.00	.00	88	349	443	5220	1480	4.7	.00	.00
9	8.0	6.8	.00	.00	64	347	495	4370	845	2.6	.00	.00
10	6.2	4.8	.00	.00	51	379	340	3160	417	2.6	.00	.01
11	3.5	4.0	.00	.00	71	677	156	2370	293	.93	.00	.39
12	1.5	3.3	.00	.00	66	1510	157	1940	293	.27	.00	2.0
13	.28	2.9	.00	.00	179	1830	300	1010	298	.02	.00	3.6
14	.04	2.8	.00	.00	63	2260	420	621	263	.00	.00	4.3
15	.04	2.7	.00	.00	23	2360	377	567	137	.00	.00	4.8
16	.03	2.1	.00	.00	31	2260	324	510	123	.00	.00	6.1
17	.03	1.6	.00	.00	41	2040	310	172	89	.00	.00	31
18	.02	.68	.00	.00	72	1630	343	147	48	.00	.00	18
19	.00	.20	.00	245	66	827	2090	303	33	.00	.00	19
20	.00	.00	.00	133	44	429	4540	186	35	.00	.00	3.1
21	.00	.00	.00	33	142	434	5540	101	33	.00	.00	10
22	.00	.00	.00	44	317	400	5200	51	26	.00	.00	54
23	.00	.00	.00	79	402	174	4500	59	24	.00	.00	7.4
24	.00	.00	.00	68	559	76	4180	162	20	.00	.00	.00
25	.00	.00	.00	45	496	41	3760	209	35	.00	.00	.00
26	.00	.00	.00	51	432	45	4980	170	34	.00	.00	.00
27	.00	.00	.00	168	353	76	8100	112	27	.00	.00	.00
28	.00	.00	.00	44	732	223	6470	49	22	.00	.00	.00
29	.00	.00	.00	22	---	1320	5150	35	19	.00	.00	.00
30	9.8	.00	.00	48	---	1130	3850	136	17	.00	.00	.00
31	9.3	---	.00	32	---	1020	---	80	---	5.5	.00	---
TOTAL	212.74	128.28	0.00	1012.00	4904	29050	65058	67540	13731	95.82	0.50	163.70
MEAN	6.86	4.28	.000	32.6	175	937	2169	2179	458	3.09	.016	5.46
MAX	35	15	.00	245	732	2360	8100	10500	1900	16	.50	54
MIN	.00	.00	.00	.00	23	41	156	35	17	.00	.00	.00
AC-FT	422	254	.00	2010	9730	57620	129000	134000	27240	190	1.0	325

CAL YR 1989 TOTAL 49004.62 MEAN 134 MAX 2430 MIN .00 AC-FT 97200
WTR YR 1990 TOTAL 181896.04 MEAN 498 MAX 10500 MIN .00 AC-FT 360800

07315200 EAST FORK LITTLE WICHITA RIVER NEAR HENRIETTA, TX

LOCATION.--Lat 33°48'46", long 98°05'05", Clay County, Hydrologic Unit 11130209, at downstream side of bridge on U.S. Highway 82, 5.8 mi upstream from Little Wichita River, 6.4 mi east of Henrietta, and 8.9 mi west of Ringgold.

DRAINAGE AREA.--178 mi².

PERIOD OF RECORD.--November 1963 to current year.

REVISED RECORDS.--WRD TX-72-1: 1966(M).

GAGE.--Water-stage recorder. Datum of gage is 825.32 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges which are fair. There are no known diversions upstream from station.

AVERAGE DISCHARGE.--26 years (water years 1965-90), 32.9 ft³/s (2.51 in/yr), 23,840 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,500 ft³/s Oct. 13, 1981 (gage height, 31.70 ft), from rating curve extended above 5,100 ft³/s on basis of contracted-opening measurement of 15,500 ft³/s; no flow for many days most years.
Maximum stage since at least 1920, that of Oct. 13, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1941 reached a stage of 28.8 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 1	0200	521	15.38	Apr. 26	1600	*13,400	*27.69
Mar. 13	0530	1,340	20.76	May 3	0900	12,800	27.38
Mar. 29	2010	1,490	21.13	June 4	0340	854	17.75
Apr. 21	0850	1,260	20.09				

Minimum discharge, 0.02 ft³/s Dec. 12-17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.24	3.0	.12	.18	35	502	194	65	42	.33	92	.06
2	.21	1.3	.13	.18	85	325	92	762	333	.29	14	.06
3	.17	.80	.14	.16	55	63	62	8320	627	.26	6.6	.07
4	.13	.60	.14	.12	66	32	47	2760	559	.25	4.1	.08
5	.13	.54	.14	.11	36	18	39	795	69	.22	2.4	.08
6	.12	.43	.14	.12	15	12	75	118	40	.19	1.4	.08
7	.11	.36	.08	.12	7.9	41	57	81	25	.17	1.1	.06
8	.09	.26	.06	.12	5.3	241	49	64	16	.14	1.0	.04
9	.09	.21	.05	.13	3.6	102	35	53	12	.13	.67	.06
10	.08	.19	.04	.12	2.6	37	30	43	9.1	.12	.46	.08
11	.07	.17	.03	.13	1.9	487	27	36	7.6	.11	.36	.10
12	.06	.17	.02	.14	1.6	1130	29	32	6.5	.16	.27	.12
13	.06	.18	.02	.13	1.2	1170	26	30	5.5	.14	.20	.13
14	.06	.21	.02	.14	.95	416	44	28	4.9	.14	.18	.14
15	.06	.20	.02	.18	1.0	477	88	25	4.1	.15	.15	.16
16	.07	.18	.02	.17	1.0	272	90	22	3.6	.15	.13	.18
17	.06	.16	.02	.32	.88	98	39	20	3.2	.14	.11	.91
18	.04	.14	.04	.38	.77	67	43	17	2.7	.14	.11	6.4
19	.04	.12	.05	75	.67	50	555	15	2.2	.12	.11	12
20	.04	.10	.05	146	.64	39	904	13	1.9	.11	.12	4.3
21	.06	.10	.06	63	6.7	33	1200	11	1.6	.09	.10	23
22	.06	.11	e.04	20	92	29	905	10	1.2	.10	.08	57
23	.06	.12	e.02	8.3	87	27	365	9.1	1.0	.09	.07	28
24	.06	.11	e.04	4.4	42	25	89	8.1	.85	.08	.06	7.4
25	.06	.13	.06	2.7	19	23	145	7.3	.75	.08	.05	3.5
26	.07	.13	.10	1.8	9.1	21	7560	6.8	.64	.08	.05	1.8
27	.08	.13	.12	1.2	4.9	22	5760	6.3	.56	.07	.05	.72
28	.09	.12	.15	1.1	255	38	1630	5.8	.49	.05	.05	.43
29	.11	.11	.21	.86	---	1110	326	5.3	.42	.05	.05	.34
30	6.3	.12	.20	.77	---	1150	89	6.6	.37	5.7	.05	.23
31	8.6	---	.20	.74	---	428	---	45	---	257	.05	---
TOTAL	17.48	10.50	2.53	328.82	837.71	8485	20594	13420.3	1782.18	266.85	126.13	147.53
MEAN	.56	.35	.082	10.6	29.9	274	686	433	59.4	8.61	4.07	4.92
MAX	8.6	3.0	.21	146	255	1170	7560	8320	627	257	92	57
MIN	.04	.10	.02	.11	.64	12	26	5.3	.37	.05	.05	.04
AC-FT	35	21	5.0	652	1660	16830	40850	26620	3530	529	250	293
CFSM	.00	.00	.00	.06	.17	1.54	3.86	2.43	.33	.05	.02	.03
IN.	.00	.00	.00	.07	.18	1.77	4.30	2.80	.37	.06	.03	.03

CAL YR 1989 TOTAL 29535.05 MEAN 80.9 MAX 5640 MIN .00 AC-FT 58580 CFSM .45 IN. 6.17
WTR YR 1990 TOTAL 46019.03 MEAN 126 MAX 8320 MIN .02 AC-FT 91280 CFSM .71 IN. 9.62

e Estimated

07315500 RED RIVER NEAR TERRAL, OK

LOCATION.--Lat 33°52'43", long 97°56'03", Jefferson County, Hydrologic Unit 11130201, on left bank at downstream side of bridge abutment on U.S. Highway 81, 0.5 mi downstream from Chicago, Rock Island, and Railroad Co. bridge, 1.2 mi south of Terral, 3.6 mi downstream from Little Wichita River, and at mile 872.

DRAINAGE AREA.--28,723 mi², of which 5,936 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 770.31 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 12, 1939, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period of estimated daily discharges, which are poor. There are many small diversions upstream from station for irrigation, oil field and municipal uses. Gage-height telemeter at station.

AVERAGE DISCHARGE.--52 years (water years 1939-90), 2,375 ft³/s (1,721,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 225,000 ft³/s May 30, 1987 (gage height, 32.65)ft; maximum gage height, 33.60 ft, Oct. 22, 1983: minimum, 43 ft³/s Mar. 15, 1939.
Maximum stage since at least 1891, that of Oct. 22, 1983.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 19, 1935, reached a stage of 27.2 ft, although floods in 1891 and on May 1, 1908, are reported to have reached about the same stage.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 21,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 12	2300	38,900	17.92	May 4	1200	*115,000	*23.78
Apr. 21	1350	75,600	21.61	June 3	1410	42,000	18.66
Apr. 27	0155	49,900	18.87				

Minimum daily discharge, 240 ft³/s Dec. 24 (result of freeze-up).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2290	4650	381	699	777	17300	8500	12700	5030	921	1190	764
2	1950	3830	388	689	747	17100	6100	21600	24000	879	1090	602
3	1720	2370	373	669	795	15000	4260	69300	40500	829	2120	551
4	1500	1670	374	635	778	10700	3350	107000	30600	795	4590	517
5	1320	1190	389	582	770	6660	2960	53100	23200	764	4070	482
6	1170	915	391	551	771	4880	3920	33000	12000	737	2450	494
7	1060	767	373	519	817	4370	4490	29400	7820	703	1630	508
8	1010	678	367	509	660	4510	3840	26900	6340	681	1510	454
9	947	620	373	493	622	4260	3240	24800	5360	667	1200	462
10	882	583	397	471	597	3800	7950	21100	4620	641	1000	443
11	834	556	347	453	575	7240	13300	16000	4540	621	854	432
12	777	538	329	419	586	32600	8660	13000	4280	714	963	431
13	753	520	346	404	592	34200	5190	12000	4060	918	1110	425
14	744	504	377	405	655	26100	3730	10300	4000	818	819	421
15	720	470	330	407	532	25400	3960	8740	3950	655	699	414
16	690	443	e290	406	492	22200	3960	8610	3780	646	605	397
17	645	439	e270	439	527	18000	3710	8600	3680	729	541	561
18	622	437	e260	428	580	13800	3670	8350	3530	713	532	720
19	594	440	e260	826	612	11100	22300	8250	3350	716	666	755
20	592	441	e260	1680	623	9500	53800	8290	2940	690	527	668
21	581	433	e260	1700	615	8520	72300	7720	2470	619	1130	1130
22	567	438	e260	1950	932	8770	49300	6710	2170	617	5250	1280
23	567	412	e250	1890	1650	8860	33700	6070	1940	651	3550	819
24	545	413	e240	1840	2040	8310	26000	5660	1570	684	2550	572
25	537	427	350	1380	2230	8390	26300	4980	1340	988	2090	612
26	534	419	466	1170	2000	8440	42700	4350	1200	3500	1650	903
27	526	408	466	1050	1910	7690	44100	4070	1140	2180	1260	1030
28	520	384	509	1010	3670	8120	33700	3850	1070	2750	996	783
29	526	369	638	841	---	10400	25500	3690	1030	2350	1090	621
30	682	377	701	756	---	11200	17800	3730	978	1340	1040	542
31	2300	---	698	722	---	12000	---	3850	---	1020	962	---
TOTAL	28705	26141	11713	25993	28155	389420	542290	555720	212488	31536	49734	18793
MEAN	926	871	378	838	1006	12560	18080	17930	7083	1017	1604	626
MAX	2300	4650	701	1950	3670	34200	72300	107000	40500	3500	5250	1280
MIN	520	369	240	404	492	3800	2960	3690	978	617	527	397
AC-FT	56940	51850	23230	51560	55850	772400	1076000	1102000	421500	62550	98650	37280

CAL YR 1989 TOTAL 1188271 MEAN 3256 MAX 62600 MIN 240 AC-FT 2357000
WTR YR 1990 TOTAL 1920688 MEAN 5262 MAX 107000 MIN 240 AC-FT 3810000

e Estimated

07315500 RED RIVER NEAR TERRAL, OK--Continued

WATER-QUALITY RECORDS

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

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 13,000 microsiemens June 15, 1984; minimum daily, 255 microsiemens Jan. 1, 1985.
WATER TEMPERATURE: Maximum daily, 35.0°C Aug. 13, 16, 17, 1983; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 7,090 microsiemens Jan. 16; minimum daily, 640 microsiemens May 2.
WATER TEMPERATURE: Maximum daily, 33.0°C Sept. 5; minimum daily, 0.0°C Dec. 19, 23, 24.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)
NOV 21...	1040	437	5720	8.0	16.0	1100	900	270	93
JAN 24...	1220	1770	5500	8.0	11.0	970	820	260	78
APR 02...	1025	6400	3360	8.5	15.0	440	290	110	40
MAY 03...	1530	76800	650	8.5	15.0	--	--	--	--

DATE	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT DIS FIX END FIELD CACO3 (MG/L)	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 21...	890	12	8.0	150	880	1500	0.40	4.0	3740
JAN 24...	820	11	7.2	150	840	1300	0.40	7.3	3400
APR 02...	290	6	9.1	150	290	480	0.10	7.0	1310
MAY 03...	79	--	4.3	160	78	--	0.30	--	--

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICROSIEMENS)	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.	1989	28705	5240	3180	246000	1300	98200	690	53400	920
NOV.	1989	26141	3750	2230	158000	870	61200	500	35200	670
DEC.	1989	11713	4390	2650	83700	1000	33100	580	18300	770
JAN.	1990	25993	5190	3160	222000	1300	89100	680	47700	900
FEB.	1990	28155	4830	2920	222000	1200	87900	640	48300	850
MAR.	1990	389420	1540	877	922000	320	333300	210	221500	290
APR.	1990	542290	1230	701	1027000	250	369800	170	247600	230
MAY	1990	555720	1250	712	1068000	260	383800	170	258400	240
JUNE	1990	212488	2790	1640	938000	620	355800	370	215100	510
JULY	1990	31536	4410	2640	224000	1000	87700	580	49800	780
AUG.	1990	49734	2990	1750	235000	660	88500	400	54100	550
SEPT	1990	18793	3700	2190	111000	840	42700	500	25100	670
TOTAL		1920688	**	**	5457000	**	2031000	**	1275000	**
WTD.AVG.		5262	1810	1050	**	390	**	250	**	340

07315500 RED RIVER NEAR TERRAL, OK--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4770	3010	3460	6160	5900	1360	e1800	1200	e2000	4850	3570	3070
2	4850	2700	4780	5940	5870	1160	2050	640	5370	5290	3970	3440
3	4940	2640	5400	6170	5020	1030	2210	650	2290	5160	4250	4090
4	4810	2010	e5650	6650	5170	1940	3470	720	1690	4990	2630	4420
5	4930	2340	5890	6490	5210	2130	4790	e790	1500	e4870	e2720	4380
6	4960	2780	5870	6210	5250	2210	3920	850	1540	4760	2810	4440
7	4890	3270	3370	e6360	4450	2470	3480	990	1790	4740	2420	4470
8	4810	3680	3140	6510	5280	2720	3360	1220	1870	4820	3190	4390
9	5010	3860	3660	6820	e5380	2870	3720	1430	2060	4810	3950	4380
10	5110	4320	4680	6660	e5480	3160	2070	1640	2630	4760	4440	4300
11	5150	4870	e3450	6930	e5580	3010	1350	1620	3090	4780	4200	4640
12	5160	5020	2190	6710	5670	1750	2350	1620	3320	4420	4390	4660
13	5330	5210	2010	e6730	5730	970	2130	e1810	3610	4220	3630	4550
14	5500	5300	1500	6750	e5830	720	2250	2000	3690	4120	3190	4570
15	5650	5250	e1450	6800	e5970	680	e2750	2260	3770	4490	e3690	4580
16	5730	5420	1400	7090	e6110	780	3110	2410	3890	3890	e4190	4680
17	5740	5410	e1450	6700	6260	990	3170	2510	e3900	4700	4690	4040
18	5420	5550	e2160	6770	6280	1240	3400	2540	3910	4590	4730	3380
19	5810	5580	2860	4830	6240	1490	1380	2580	3960	4060	3740	3500
20	6020	5600	4190	2890	6380	1650	750	2620	4030	4170	3990	3820
21	6010	5620	e4480	e3410	e5540	2030	700	2640	4050	3910	4570	3070
22	5710	5650	e4770	3930	4710	2120	720	2720	4210	4030	2270	2310
23	5760	e5670	e5060	3410	4300	2100	800	2520	4400	e4180	1960	3090
24	5740	5690	e5350	5480	3450	2220	1000	2370	4420	4320	1960	3650
25	5660	5850	e5640	4350	3010	2370	1240	e2260	4550	4330	2070	3700
26	5580	5820	5910	4540	3310	2280	1060	2160	4580	3130	2920	4380
27	5910	5820	e5840	4910	4230	e2310	870	2070	4590	5150	e2890	3470
28	5800	5820	5760	e5340	5220	2340	1030	1980	4620	4710	2850	2990
29	5750	5880	5420	5780	---	2230	1150	2020	4680	4700	2920	2820
30	5600	5810	5750	6430	---	1960	2040	2060	4710	3790	2920	3110
31	5280	---	6030	6440	---	1630	---	2010	---	3990	3030	---
MEAN	5400	4710	4150	5810	5240	1870	2140	1840	3490	4480	3380	3880

e Estimated

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.0	25.0	8.0	7.0	15.0	8.0	e15.0	17.0	e21.0	29.0	26.0	31.0
2	22.0	11.0	9.0	7.0	13.0	8.0	16.0	15.0	19.0	29.0	27.0	29.0
3	22.0	14.0	8.0	12.0	12.0	12.0	14.0	14.0	22.0	28.0	25.0	29.0
4	24.0	14.0	e9.0	12.0	7.0	14.0	17.0	25.0	21.0	26.0	26.0	27.0
5	24.0	13.0	10.0	8.0	9.0	14.0	17.0	e20.0	25.0	e27.0	e25.0	33.0
6	23.0	23.0	15.0	7.0	10.0	15.0	9.0	16.0	25.0	29.0	24.0	29.0
7	19.0	23.0	9.0	e9.0	13.0	14.0	13.0	17.0	26.0	27.0	25.0	28.0
8	18.0	23.0	6.0	10.0	14.0	16.0	16.0	20.0	23.0	26.0	24.0	28.0
9	19.0	18.0	8.0	11.0	e13.0	16.0	15.0	21.0	27.0	27.0	24.0	29.0
10	20.0	21.0	7.0	13.0	e13.0	20.0	15.0	19.0	27.0	27.0	26.0	28.0
11	21.0	21.0	e5.0	10.0	e13.0	18.0	16.0	19.0	26.0	27.0	26.0	25.0
12	21.0	20.0	3.0	8.0	12.0	19.0	15.0	20.0	27.0	26.0	27.0	25.0
13	21.0	21.0	5.0	e8.0	15.0	19.0	15.0	e21.0	e27.0	24.0	27.0	29.0
14	20.0	19.0	6.0	8.0	e14.0	18.0	17.0	22.0	e27.0	24.0	27.0	25.0
15	21.0	14.0	e5.0	14.0	e11.0	16.0	e20.0	22.0	27.0	23.0	e27.0	27.0
16	22.0	10.0	4.0	10.0	e9.0	15.0	22.0	23.0	26.0	24.0	e27.0	29.0
17	15.0	15.0	e3.0	15.0	8.0	15.0	17.0	22.0	e27.0	25.0	27.0	25.0
18	13.0	10.0	e1.0	12.0	10.0	14.0	15.0	22.0	29.0	25.0	27.0	26.0
19	10.0	15.0	.0	10.0	13.0	13.0	13.0	23.0	23.0	26.0	26.0	28.0
20	8.0	17.0	5.0	8.0	13.0	13.0	17.0	23.0	27.0	26.0	28.0	26.0
21	13.0	17.0	e3.0	e9.0	e12.0	17.0	17.0	23.0	29.0	27.0	29.0	25.0
22	19.0	17.0	e1.0	9.0	11.0	16.0	18.0	22.0	27.0	24.0	29.0	24.0
23	18.0	e17.0	e.0	13.0	8.0	15.0	19.0	23.0	26.0	e25.0	29.0	24.0
24	20.0	16.0	e.0	13.0	13.0	9.0	21.0	24.0	26.0	26.0	28.0	24.0
25	21.0	12.0	e4.0	12.0	16.0	10.0	21.0	e24.0	26.0	26.0	28.0	23.0
26	22.0	17.0	5.0	13.0	10.0	12.0	21.0	24.0	28.0	25.0	28.0	26.0
27	22.0	14.0	e4.0	9.0	16.0	e12.0	20.0	26.0	28.0	26.0	e29.0	23.0
28	22.0	8.0	4.0	e9.0	15.0	12.0	18.0	28.0	26.0	27.0	29.0	24.0
29	23.0	6.0	5.0	9.0	---	13.0	20.0	23.0	27.0	24.0	29.0	25.0
30	18.0	8.0	4.0	8.0	---	13.0	18.0	23.0	28.0	26.0	29.0	25.0
31	14.0	---	4.0	7.0	---	14.0	---	25.0	---	26.0	29.0	---
MEAN	19.2	16.0	5.2	10.0	12.1	14.2	16.9	21.5	25.8	26.0	27.0	26.6

e Estimated

07315950 MOSS LAKE NEAR GAINESVILLE, TX

LOCATION.--Lat 33°46'26", long 97°12'50", Cooke County, Hydrologic Unit 11130201, on top of upstream side of dam adjacent to guardrail of roadway about 250 ft from right end of Fish Creek dam on Fish Creek, 1.6 mi upstream from Bearhead Creek, 3.7 mi upstream from mouth, and 10 mi northwest of Gainesville.

DRAINAGE AREA.--65.0 mi².

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Apr. 20, 1979, recording gage at site about 150 ft upstream at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 1,460 ft long. The dam was completed and storage began Dec. 2, 1966. An uncontrolled morning-glory-type spillway with a 7- by 7-foot opening is designed to discharge 2,500 ft³/s at a 10-foot head. The emergency spillway is a 400-foot-wide cut through natural ground located about 100 ft 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 morning-glory type (top of conservation pool)	715.0	23,210
Lowest gated outlet (invert)	666.0	78

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 50,990 acre-ft Oct. 13, 1981 (elevation, 733.72 ft); minimum since lake filled in May 1968, 11,490 acre-ft Jan. 18, 1990 (elevation, 702.08 ft, from graph).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 33,940 acre-ft May 3 at 1300 hours (elevation, 723.31 ft); minimum, 11,490 acre-ft Jan. 18 (elevation, 702.08 ft, from graph).

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

702.0	11,430	714.0	22,110	720.0	29,340
706.0	14,510	716.0	24,360	722.0	32,070
710.0	18,040	718.0	26,770	724.0	34,950

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22690	21930	19490	14010	12370	12750	22190	23590	23880	23170	23190	22540
2	22660	21640	19310	13850	12290	12790	22330	29580	23700	23130	23190	22510
3	22640	21450	19090	13720	12140	12890	22290	32790	23530	23100	23880	22480
4	22620	21330	18890	13570	12030	12900	22240	28920	23420	23090	23820	22480
5	22580	21210	18700	13370	11920	12940	23420	26440	23300	23080	23530	22460
6	22540	21130	18510	13220	11880	13000	23660	25410	23190	23060	23390	22450
7	22520	20990	18310	13080	11870	13320	23460	24630	23080	23030	23300	22410
8	22470	20920	18120	12940	11850	13430	23340	24110	23020	23020	23270	22380
9	22440	20820	17930	12750	11880	13500	23230	23700	22950	23010	23190	22380
10	22430	20730	17740	12640	11910	13570	23490	23530	22910	22990	23130	22320
11	22420	20650	17560	12480	11920	17510	23420	23420	22880	23820	23060	22330
12	22400	20590	17370	12330	11930	18050	23420	23410	22850	24110	23020	22320
13	22370	20550	17180	12170	11950	18140	23410	23390	22820	23930	22980	22320
14	22360	20500	17000	12030	11960	20160	23380	23380	22800	23690	22950	22320
15	22360	20380	16830	11880	11990	20370	23380	23370	22740	23450	22910	22300
16	22350	20350	16650	11700	12030	20410	23280	23360	22680	23310	22890	22230
17	22330	20300	16470	11600	12060	20380	23310	23360	22630	23280	22870	22090
18	22310	20250	16300	11490	12090	20300	24450	23350	22590	23260	22850	21920
19	22310	20200	16120	12060	12100	20140	24760	23350	22570	23220	22820	21810
20	22310	20120	15940	12060	12110	20040	25350	23320	22550	23240	22800	21700
21	22310	20070	15760	11850	12400	19940	24810	23320	22530	23290	22760	21600
22	22310	20010	15590	11700	12520	19790	24400	23320	22530	23880	22760	21400
23	22310	19960	15410	11630	12600	19590	23990	23310	22800	24080	22700	21180
24	22310	19890	15240	11600	12640	19450	23650	23310	23020	23820	22710	21010
25	22310	19860	15120	11620	12640	19330	24930	23310	23270	23590	22690	20850
26	22310	19810	14950	11640	12660	19210	29850	23310	23240	23360	22680	20680
27	22310	19760	14780	11650	12700	19420	26500	23300	23230	23300	22660	20500
28	22330	19710	14630	11650	12710	20090	25050	23300	23210	23280	22640	20300
29	22950	19680	14490	11680	---	21910	24220	23300	23190	23260	22630	20170
30	22860	19630	14330	11700	---	22120	23740	23300	23190	23230	22600	19940
31	22340	---	14170	11730	---	22190	---	23530	---	23210	22590	---
MAX	22950	21930	19490	14010	12710	22190	29850	32790	23880	24110	23880	22540
MIN	22310	19630	14170	11490	11850	12750	22190	23300	22530	22990	22590	19940
(†)	714.21	711.62	705.58	702.41	703.73	714.07	715.46	715.28	714.98	715.00	714.44	711.93
(ϕ)	-460	-2710	-5460	-2440	+980	+9480	+1550	-210	-340	+20	-620	-2650

CAL YR 1989 MAX 25880 MIN 14170 (ϕ) -6650
WTR YR 1990 MAX 32790 MIN 11490 (ϕ) -2860

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

07316000 RED RIVER NEAR GAINESVILLE, TX

LOCATION.--Lat 33°43'40", long 97°09'35", in SW 1/4 sec.36, T.9 S., R.1 E., Love County, OK, Hydrologic Unit 11130201, on downstream right bank near end of bridge on Interstate 35, 0.2 mi downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 5.0 mi downstream from Fish Creek, 4.5 mi southwest of Thackerville, OK, 7.0 mi north of Gainesville, and at mile 791.5.

DRAINAGE AREA.--30,782 mi², of which 5,936 mi² probably is noncontributing.

PERIOD OF RECORD.--May 1936 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 627.91 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 17, 1939, and Feb. 13, 1965, to Nov. 14, 1966, nonrecording gage at same site and datum.

REMARKS.--Records poor, including those days of estimated daily discharges. Flow slightly regulated by Lake Kemp (station 07312000) since 1943, by Lake Altus (station 07302500 in Oklahoma) since 1946, by Lake Kickapoo (station 07314000) since 1967, by Lake Arrowhead (station 07314800), and by Moss Lake (station 07315950). A U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--54 years, 3,098 ft³/s (2,245,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 265,000 ft³/s May 31, 1987 (gage height, 40.08 ft); minimum, 48 ft³/s Jan. 27, 1940.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 24,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 13	2130	48,300	20.82	May 5	0500	*134,000	*33.13
Apr. 22	1600	86,800	26.70	June 4	1000	47,800	20.38
Apr. 27	1500	102,000	28.85				

Minimum daily dischargre, 450 ft³/s Dec. 25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e2900	e700	741	e950	e1600	e3000	11000	37300	4390	1600	2190	1070
2	3020	e1300	741	e970	1950	16600	8630	53100	5860	1530	1780	1010
3	2780	e2600	732	e950	e2100	14800	6540	91300	33700	1450	1660	908
4	2550	e2200	738	e900	e1500	11600	5300	122000	47000	1390	1660	789
5	2300	e1700	740	e800	e1400	7120	4900	131000	40000	1320	2410	725
6	2060	1270	750	e750	e1200	e6300	e6000	109000	31900	1270	4830	683
7	1850	1090	741	e700	1050	e5400	e5000	85800	15600	1210	3670	649
8	1680	960	743	e710	982	e4500	e5500	67000	9420	1170	2720	653
9	1520	884	752	e700	1010	3670	e5000	55800	7330	1130	2070	653
10	1400	845	756	e670	986	e3400	e5200	49800	6160	1100	1830	621
11	1300	822	740	e650	927	5330	13400	43000	5290	1070	1560	606
12	1200	807	705	e625	897	25600	13100	33500	4880	1140	1340	586
13	1140	788	738	e600	882	46400	9550	25800	4700	1360	1210	558
14	1060	789	742	e600	874	45500	e6800	22200	4370	1120	1240	539
15	1000	806	713	e625	1020	41000	e4500	17800	4230	1240	1360	523
16	955	787	659	e625	1040	36100	e4800	13800	4150	1200	1140	504
17	908	767	688	e650	1020	27800	e4400	12500	4020	1100	1030	e550
18	859	763	709	e625	948	19100	4000	11900	3870	1020	919	663
19	793	763	683	1500	910	12100	9270	11100	3740	1120	908	883
20	e750	759	651	e2200	910	8620	38900	10400	3580	1130	855	2520
21	e710	765	599	e3000	977	7080	64300	10100	3390	1080	892	2130
22	e680	781	508	e2900	1080	6320	83500	9470	3080	1090	842	2920
23	647	770	490	e2700	1210	6380	71700	8060	2810	1110	1540	6320
24	602	765	e470	e2600	1430	7340	41700	6960	2870	1060	3700	3840
25	591	766	e450	e2200	1970	7740	35600	6440	2580	1060	2630	1860
26	577	760	e550	e1800	2150	7700	66500	5900	2270	1060	2120	1300
27	556	747	e700	e1400	2200	7120	97900	5280	2230	1250	1810	1090
28	535	733	e750	e1300	e2300	8630	86900	4880	1990	2930	1520	1220
29	503	736	e800	e1100	---	13900	56300	4630	1800	2430	1270	1360
30	491	741	e900	e1000	---	17300	45900	4440	1680	2850	1090	1210
31	e600	---	e900	e1200	---	14800	---	4400	---	2810	1100	---
TOTAL	38517	28964	21579	38000	36523	448250	822090	1074660	268890	43400	54896	38943
MEAN	1242	965	696	1226	1304	14460	27400	34670	8963	1400	1771	1298
MAX	3020	2600	900	3000	2300	46400	97900	131000	47000	2930	4830	6320
MIN	491	700	450	600	874	3000	4000	4400	1680	1020	842	504
AC-FT	76400	57450	42800	75370	72440	889100	1631000	2132000	533300	86080	108900	77240

CAL YR 1989 TOTAL 1642954 MEAN 4501 MAX 72900 MIN 367 AC-FT 3259000
WTR YR 1990 TOTAL 2914712 MEAN 7986 MAX 131000 MIN 450 AC-FT 5781000

e Estimated

RED RIVER BASIN

07331500 LAKE TEXOMA NEAR DENISON, TX

LOCATION.--Lat 33°49'05", long 96°34'20", in NE1/4 sec.33, T.8 S., R.7 E., Bryan County, OK, Hydrologic Unit 11130210, in control tower of Denison Dam on Red River, 1.2 mi upstream from Shawnee Creek, 1.8 mi upstream from Sand Creek, 4.0 mi northwest of Denison, 6.0 mi southwest of Colbert, and at mile 725.9.

DRAINAGE AREA.--39,719 mi², of which 5,936 mi² is probably noncontributing.

PERIOD OF RECORD.--July 1942 to current year. Monthend contents only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Mar. 30, 1944, non-recording gage at same site and datum. Prior to Oct. 1, 1948, supplementary nonrecording gage in Cumberland pool at the same datum.

REMARKS.--The Lake is formed by a rolled earthfill dam. The controlled outlet consists of eight 20-foot-diameter conduits and the uncontrolled outlet is a concrete, ogee-type weir spillway. Flow was diverted through conduits July 27, 1942; regulated storage began Oct. 31, 1943; power pool was first filled March 15, 1945. Capacity, based on 1969 survey, 5,312,000 acre-ft at elevation 640.0 ft, crest of spillway, 2,643,000 acre-ft at elevation 617.0 ft maximum power pool; 1,031,000 acre-ft at elevation 590.0 ft, minimum power pool, in Denison pool. Dead storage 11,000 acre-ft at elevation 610.0 ft in Cumberland pool. When contents are below 2,105,000 acre-ft, the reservoir is divided into two pools by protective levees around the Cumberland oil field on the Washita River arm with bottom outlet channel for the upper pool (known as Cumberland pool) at elevation 610 ft. At higher elevations the two pools are considered as being at a common level, contents being computed from gage in Denison pool. Figures given herein represent total contents of both pools. Lake is used principally for flood control and power development. Revised capacity table, based on survey in 1969, used since Oct. 1, 1977. U.S. Army Corps of Engineers' satellite telemeter at station.

COOPERATION.--Records provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 6,028,000 acre-ft May 6, 1990 (elevation, 644.76 ft); minimum since power pool was first filled, 1,565,100 acre-ft Sept. 16, 1964; minimum elevation, 599.96 ft Mar. 1, 2, 1957.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 6,028,000 acre-ft May 6 (elevation, 644.76 ft); minimum, 2,426,000 acre-ft Dec. 24 (elevation, 614.35 ft).

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

614.0	2,399,000	626.0	3,538,000	638.0	5,029,000
620.0	2,920,000	632.0	4,240,000	645.0	6,066,000

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2660000	2549000	2509000	2448000	2601000	2529000	3364000	5033000	4119000	2844000	2723000	2572000
2	2647000	2542000	2506000	2449000	2601000	2556000	3324000	5307000	4084000	2842000	2709000	2567000
3	2635000	2543000	2501000	2456000	2599000	2597000	3267000	5555000	4060000	2842000	2701000	2562000
4	2619000	2546000	2498000	2460000	2593000	2625000	3207000	5822000	4054000	2840000	2698000	2557000
5	2612000	2554000	2498000	2463000	2586000	2642000	3154000	5997000	4042000	2838000	2693000	2554000
6	2611000	2555000	2500000	2465000	2583000	2661000	3130000	6011000	4015000	2835000	2689000	2550000
7	2606000	2554000	2502000	2467000	2576000	2670000	3082000	5906000	3977000	2833000	2692000	2550000
8	2608000	2553000	2499000	2471000	2570000	2708000	3024000	5781000	3926000	2833000	2690000	2541000
9	2605000	2550000	2497000	2474000	2568000	2713000	2963000	5672000	3872000	2829000	2687000	2538000
10	2602000	2548000	2504000	2476000	2560000	2710000	2935000	5561000	3815000	2827000	2681000	2533000
11	2598000	2547000	2501000	2478000	2554000	2815000	2897000	5458000	3758000	2825000	2671000	2534000
12	2596000	2546000	2494000	2479000	2542000	2899000	2850000	5364000	3707000	2828000	2659000	2534000
13	2592000	2544000	2493000	2478000	2538000	3014000	2818000	5281000	3658000	2821000	2649000	2534000
14	2589000	2542000	2492000	2480000	2533000	3213000	2800000	5228000	3591000	2812000	2634000	2531000
15	2586000	2545000	2490000	2484000	2531000	3351000	2790000	5178000	3525000	2806000	2623000	2531000
16	2589000	2533000	2474000	2497000	2525000	3475000	2779000	5133000	3456000	2799000	2619000	2532000
17	2580000	2527000	2471000	2502000	2524000	3558000	2751000	5073000	3388000	2799000	2614000	2538000
18	2573000	2525000	2465000	2511000	2525000	3601000	2765000	5013000	3320000	2803000	2615000	2539000
19	2565000	2525000	2460000	2565000	2519000	3600000	2825000	4955000	3250000	2800000	2605000	2546000
20	2557000	2525000	2456000	2595000	2508000	3572000	2950000	4889000	3194000	2798000	2601000	2550000
21	2554000	2524000	2452000	2611000	2511000	3528000	3125000	4825000	3155000	2790000	2595000	2562000
22	2553000	2530000	2439000	2616000	2509000	3482000	3361000	4759000	3107000	2794000	2590000	2583000
23	2551000	2524000	2428000	2618000	2505000	3433000	3565000	4700000	3063000	2787000	2587000	2596000
24	2547000	2522000	2428000	2618000	2503000	3379000	3663000	4635000	3029000	2783000	2585000	2611000
25	2546000	2525000	2429000	2608000	2509000	3318000	3799000	4568000	2983000	2779000	2590000	2621000
26	2543000	2524000	2429000	2596000	2514000	3255000	4173000	4498000	2945000	2771000	2590000	2628000
27	2543000	2526000	2431000	2598000	2519000	3199000	4490000	4424000	2916000	2764000	2591000	2631000
28	2540000	2521000	2431000	2594000	2528000	3220000	4794000	4360000	2895000	2755000	2589000	2627000
29	2550000	2516000	2438000	2583000		3317000	4948000	4295000	2879000	2751000	2587000	2626000
30	2549000	2513000	2444000	2579000		3368000	4999000	4238000	2861000	2741000	2584000	2623000
31	2545000		2445000	2575000		3383000		4173000		2729000	2579000	
MAX	2660000	2555000	2509000	2618000	2601000	3601000	4999000	6011000	4119000	2844000	2723000	2631000
MIN	2540000	2513000	2428000	2448000	2503000	2529000	2751000	4173000	2861000	2729000	2579000	2531000
(†)	615.85	615.45	614.60	616.21	615.64	624.57	637.78	631.46	619.38	617.95	616.26	616.77
(ϕ)	-129000	-32000	-68000	+130000	-47000	+855000	+1616000	-826000	-1312000	-132000	-150000	+44000

CAL YR 1989 MAX 4185000 MIN 2321000 (ϕ) +68000
WTR YR 1990 MAX 6011000 MIN 2428000 (ϕ) -51000

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

07335390 PAT MAYSE LAKE NEAR CHICOTA, TX

LOCATION.--Lat 33°51'09", long 95°32'40", Lamar County, Hydrologic Unit 11140101, on upstream side of dam on Sanders Creek, 2,800 ft to right of outlet channel, 2.0 mi southeast of Chicota, and 4.6 mi upstream from mouth.

DRAINAGE AREA.--175 mi².

PERIOD OF RECORD.--October 1967 to current year. Prior to October 1970, published as Pat Mayse Reservoir.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to May 10, 1968, non-recording gage at present site and datum. Digital recorder was put in operation Sept. 12, 1988.

REMARKS.--The lake is formed by a rolled earthfill dam about 7,080 ft long, including a spillway 100 ft wide located near the right abutment of dam. The dam was completed and deliberate impoundment began Sept. 28, 1967. The flood-control outlet works consist of an uncontrolled morning-glory-type drop-inlet spillway that is connected to a 7.25-foot-diameter concrete conduit through the dam. A 24- and 12-inch diameter low-flow pipe is 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. Water is diverted from the lake for municipal and industrial uses by the city of Paris. Any resultant effluent is discharged into Pine Creek below Lake Crook (capacity, 11,010 acre-ft), which is located in another drainage basin. The capacity table is based on Geological Survey topographic maps dated 1949. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	488.5	
Crest of spillway	477.0	352,700
Top of flood-control pool	460.5	189,100
Crest of morning-glory drop-inlet spillway (top of conservation pool)	450.6	122,100
Streambed	393.0	0

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 208,000 acre-ft Dec. 11, 12, 1971 (elevation, 462.87 ft); minimum since conservation pool was first reached on Apr. 20, 1968, 100,900 acre-ft Nov. 10, 1978 (elevation, 446.80 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 183,300 acre-ft ft May 5 at 0400 hrs (elevation, 459.73 ft); minimum, 119, acre-ft Sept. 11 (elevation, 450.07 ft).

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

450.0	118,600	454.0	143,200	458.0	170,600
452.0	130,600	456.0	156,500	460.0	185,300

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	126000	123200	121700	120500	147400	135000	147300	139700	145700	128600	123700	120200
2	126200	123200	121600	120500	158600	134600	145700	147900	150500	128200	123700	120000
3	126200	123100	121500	120700	158500	134200	144400	176900	155500	127800	123800	120000
4	125900	123100	121600	120600	157100	133700	143100	183100	155000	127500	123700	119800
5	125900	123100	121600	120600	155500	133300	143800	182600	153500	127300	123700	119700
6	125800	123100	121400	120600	154000	133200	148600	181000	151800	127000	123500	119600
7	125600	123100	121400	120600	152400	133900	150300	179200	150300	126700	123300	119400
8	125500	122900	121500	120600	150900	134800	149100	177200	148400	126400	123200	119400
9	125300	122800	121400	120600	149500	135100	147600	175400	146800	126100	123100	119200
10	125200	122800	121500	120600	148000	134800	146800	173600	145100	125900	123000	119000
11	125300	122700	121200	120500	146600	136600	145800	171700	143600	125600	122900	119800
12	125100	122700	121200	120400	145200	139100	144500	170200	142100	125600	122800	119900
13	124900	122600	121200	120200	144000	139600	143200	168400	140700	125300	122700	119900
14	124900	122600	121200	120200	142700	143700	144100	166500	139500	125100	122600	119800
15	124900	122400	120900	120200	141500	150500	144700	164800	138300	124900	122500	119700
16	124700	122100	120900	120600	140400	150700	143500	163000	137300	124700	122400	119600
17	123700	122000	120900	120800	139500	149300	141900	161300	136400	124700	122200	120000
18	123700	122000	120800	122300	138600	147400	141500	159800	135600	124700	122200	120000
19	123500	122000	120800	131200	137800	146000	141700	158400	134700	124600	122100	120400
20	123400	122000	120800	140000	137100	144500	142900	156700	133900	124400	121900	120400
21	123300	121900	120500	140900	137600	143400	143600	154900	132700	124100	121900	120400
22	123200	122100	120500	140200	138200	142200	143300	153200	132500	124500	121800	120200
23	123200	122100	120400	139100	138300	141100	142300	151300	131900	124600	121600	119900
24	123200	122000	120500	138300	137700	139900	141100	149700	131300	124600	121500	119800
25	123100	122100	120500	137400	137100	139200	140100	148000	130900	124400	121400	119700
26	123100	122100	120400	136700	136500	138600	140900	146200	130400	124400	121300	119600
27	123000	121900	120500	136000	135900	138800	142600	145600	130000	124300	121200	119500
28	122900	121800	120600	135500	135500	143000	142400	145200	129600	124200	121000	119400
29	122800	121700	120500	134800	---	148600	141300	143600	129200	124100	120900	119200
30	123400	121700	120600	134400	---	149800	140200	142900	128900	123800	120600	119200
31	123400	---	120500	135100	---	148600	---	143700	---	123700	120500	---
MAX	126200	123200	121700	140900	158600	150700	150300	183100	155500	128600	123800	120400
MIN	122800	121700	120400	120200	135500	133200	140100	139700	128900	123700	120500	119000
(†)	450.81	450.53	450.33	452.73	452.80	454.83	453.53	454.08	451.72	450.87	450.32	450.10
(ϕ)	-2700	-1700	-1200	+14600	+400	+13100	-8400	+3500	-14800	-5200	-3200	-1300

CAL YR 1989 MAX 174100 MIN 110900 (ϕ) +8900
WTR YR 1990 MAX 183100 MIN 119000 (ϕ) -6900

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

07335500 RED RIVER AT ARTHUR CITY, TX

LOCATION (REVISED).--Lat 33°52'30", long 95°30'06", in NW 1/4 sec.11.T.8 S., R.17 E., Choctaw County, OK, Hydrologic Unit 11140101, on right downstream bank of bridge on U.S. Highway 271 at Arthur City, 10.6 mi downstream from Muddy Boggy River, 26.0 mi upstream from Kiamichi River, and at mile 633.1.

DRAINAGE AREA.--44,531 mi², of which 5,936 mi² 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 above National Geodetic Vertical Datum of 1929. From 1905-11 nonrecording gage at St. Louis-San Francisco Railway Co. bridge 200 ft upstream at same datum. July 1, 1936, to Mar 24, 1940, nonrecording gage at present site and datum.

REMARKS.--Records good except those days of estimated daily discharges, which are fair. Flow regulated since October 1943 by Lake Texoma (station 07331500), 92.8 mi upstream from this station.

AVERAGE DISCHARGE.--13 years (water years 1906-11, 1937-43) prior to regulation by Lake Texoma, 9,266 ft³/s (6,713,000 acre-ft/yr); 46 years (water years 1945-90) since regulation by Lake Texoma, 8,677 ft³/s (6,286,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 400,000 ft³/s May 28, 1908 (gage height, 43.2 ft), from rating curve extended above 41,000 ft³/s, on basis of records for later years; minimum 130 ft³/s Dec. 11-12, 1956 (gage height, 4.49 ft).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 275,000 ft³/s May 4 at 1400 hours (gage height, 34.21 ft); minimum daily, 517 ft³/s Jan. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9890	2400	2720	746	17600	5790	41200	66400	46300	12900	8970	3290
2	9260	2940	2780	732	37300	7100	50800	79900	50800	12700	9400	3310
3	8590	2920	2770	703	32900	9300	54600	173000	57400	9480	9590	3780
4	8530	2910	2780	704	21300	9120	55600	269000	55600	7120	9990	3920
5	8500	2890	2800	689	17200	8040	54900	249000	49900	5750	8850	3580
6	7480	2620	2780	669	15400	7350	64200	234000	45600	5510	6930	3480
7	6010	1490	2280	655	12800	9140	62200	236000	41100	5080	6640	3140
8	4350	2070	1410	621	10100	22500	51600	225000	40000	4380	6630	2830
9	4130	2740	1220	607	9470	20700	48800	201000	39300	3950	6480	2850
10	2610	2820	1270	582	9260	15800	50400	171000	38900	3430	6340	3210
11	2790	2830	1320	566	9310	17100	52700	146000	38700	4620	6220	2900
12	3900	2830	1300	539	9230	40100	53000	123000	39000	4150	6320	2570
13	3900	2620	1310	517	8720	45300	50500	106000	35800	4850	7850	2450
14	4020	1900	1590	653	8390	40000	52900	90900	29700	4200	8480	2190
15	3920	1930	2270	816	16000	55600	45500	69000	38300	5730	8490	1850
16	3470	2650	2010	910	18900	57200	40200	56800	39100	5550	8300	2340
17	3160	2740	2060	882	17100	54300	46300	54100	38600	5140	7910	2350
18	3450	2790	4870	3790	14600	53800	44100	51700	38300	e4800	4470	2050
19	3580	2990	3230	7750	9620	52600	44200	51300	38200	e4500	3700	1760
20	3830	2780	3310	16000	7050	51000	49800	50300	38000	e4000	3700	5640
21	3580	2400	3590	21900	8810	52000	58800	49700	33800	3760	3740	9760
22	3560	1950	3080	18300	13400	53100	59800	49400	28200	3080	3770	9970
23	3010	1500	e2000	13700	16300	53500	55400	48500	26000	5020	3860	11200
24	1820	1760	e1900	13900	14900	50000	60800	44700	25800	6000	3760	13400
25	2550	2340	e3500	15300	12500	47800	63700	44000	26200	8220	3700	13200
26	3170	1980	2840	12500	8960	49200	65200	44300	25800	7940	3100	13400
27	2580	1390	1500	9430	5410	50800	91500	47700	24900	8590	3500	12700
28	2220	1570	1390	8500	5550	55100	76500	50500	21100	8100	3480	8660
29	2180	1650	1350	7560	---	69200	60300	47200	17600	9210	3300	5560
30	2300	2230	909	6710	---	51500	59600	44100	13700	8460	3300	6980
31	2360	---	802	6870	---	41300	---	46700	---	8130	3290	---
TOTAL	134700	70630	68941	173801	388080	1155340	1665100	3220200	1081700	194350	184060	164320
MEAN	4345	2354	2224	5606	13860	37270	55500	103900	36060	6269	5937	5477
MAX	9890	2990	4870	21900	37300	69200	91500	269000	57400	12900	9990	13400
MIN	1820	1390	802	517	5410	5790	40200	44000	13700	3080	3100	1760
AC-FT	267200	140100	136700	344700	769800	2292000	3303000	6387000	2146000	385500	365100	325900

CAL YR 1989 TOTAL 4719261 MEAN 12930 MAX 67300 MIN 802 AC-FT 9361000
WTR YR 1990 TOTAL 8501222 MEAN 23290 MAX 269000 MIN 517 AC-FT 16860000

e Estimated

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 upstream from North Mill Creek, 13 mi north of De Kalb, and at mile 556.9.

DRAINAGE AREA.--47,348 mi², of which 5,936 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 302.92 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. At times, flood peaks may be affected by Lake Texoma (station 07331500) located approximately 169 mi upstream, and low flows may be affected by releases for the generation of electric power. Storage and/or releases from Lake Hugo on the Kiamichi River, a tributary to the Red River about 45 miles upstream, may also affect flows. Gage-height telemeter at station.

AVERAGE DISCHARGE.--22 years (water years 1969-90), 13,560 ft³/s (9,824,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 279,000 ft³/s May 6, 1990 (gage height, 34.42 ft), from rating curve extended above 269,000 ft³/s; minimum, 213 ft³/s Nov. 30, 1979, from graph based on gage readings.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since 1957, 205,000 ft³/s June 1957 (gage height, 32.2 ft), from rating curve extended above 186,500 ft³/s. The greatest flood since 1936 occurred in February 1938, stage unknown.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 279,000 ft³/s May 6 at 2130 hours (gage height, 34.42 ft from rating curve extended above 269,000 ft³/s); minimum daily, 841 ft³/s Jan. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11400	3070	1910	1340	20000	9010	48300	62100	62300	25900	11800	3920
2	11300	3050	2440	1250	39300	9170	47600	71900	67100	24900	11500	3940
3	11200	3030	2850	e1200	48400	9690	52500	98900	78300	25000	11900	3930
4	10400	3420	2920	e1100	44500	12100	60100	162000	81900	20000	15200	3990
5	10000	3420	2930	e1110	35200	13200	63100	224000	71000	14600	19600	4320
6	10100	3430	2940	e1090	32500	12100	68000	268000	60000	10700	19000	4290
7	9630	3410	2980	e1040	31200	12600	72500	278000	56600	8070	15500	4040
8	7620	2920	2980	e1000	28700	33900	70000	271000	56700	7430	11100	3940
9	5700	2220	2470	e951	25800	45500	59700	265000	56500	6960	9050	3670
10	4920	2710	1890	e915	24900	41600	57100	249000	56100	6490	8520	3500
11	4280	3150	1810	e880	24500	34300	57700	219000	55100	6010	7810	3700
12	3060	3240	1770	e841	24100	35400	60200	183000	54700	5970	6530	3920
13	3910	3270	1750	e859	23700	50000	62200	159000	54400	6250	6320	3600
14	4390	3250	1740	e1190	22700	51700	60700	142000	51100	6080	7070	3440
15	4400	2850	1720	e1660	21000	55600	59800	123000	46600	6060	7980	3210
16	4570	2330	1780	e1750	25800	64400	53400	100000	52500	6010	8170	2920
17	4110	2420	2310	e1410	31800	63500	50500	80800	53900	7050	8640	2720
18	3870	2880	2210	1670	31400	59000	53600	73900	53600	7100	9290	3590
19	3780	3020	2920	6790	28600	57600	55800	75400	52900	6600	7650	3780
20	4090	3090	4360	19300	24500	59200	54000	72200	52300	6270	6180	3180
21	4360	3230	3310	25900	20200	61300	55600	68400	51100	4880	5860	3410
22	4280	3070	3280	29800	21700	62800	65000	65200	46800	4790	5140	6190
23	4150	2700	3350	26700	26700	64200	65800	62300	41100	4990	4600	10500
24	4060	2330	2660	24500	30400	65300	63700	62200	40000	5160	4480	14300
25	3260	1990	2970	26000	30400	66400	66200	61500	39700	6750	4480	18100
26	2810	2160	6130	26900	27200	69000	68600	64200	40000	8530	4380	18600
27	3330	2480	4860	24400	18500	68800	72800	68500	40400	9390	4270	16800
28	3680	2240	2450	21400	11000	71400	96200	75400	38400	8440	3980	14100
29	3120	1890	1340	20200	---	80400	84400	66500	33700	9780	3680	10100
30	3000	1860	1420	18300	---	82800	64800	60500	29300	11300	3720	6270
31	3020	---	1470	16100	---	60600	---	58800	---	12100	3830	---
TOTAL	171800	84130	81920	307546	774700	1482570	1869900	3891700	1574100	299560	257230	191970
MEAN	5542	2804	2643	9921	27670	47820	62330	125500	52470	9663	8298	6399
MAX	11400	3430	6130	29800	48400	82800	96200	278000	81900	25900	19600	18600
MIN	2810	1860	1340	841	11000	9010	47600	58800	29300	4790	3680	2720
AC-FT	340800	166900	162500	610000	1537000	2941000	3709000	7719000	3122000	594200	510200	380800

CAL YR 1989 TOTAL 5330280 MEAN 14600 MAX 61000 MIN 1340 AC-FT 10570000
WTR YR 1990 TOTAL 10987126 MEAN 30100 MAX 278000 MIN 841 AC-FT 21790000

e Estimated

07336820 RED RIVER NEAR DE KALB, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: October 1970 to July 1981. Sediment analyses: November 1979 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1968 to current year.
WATER TEMPERATURE: 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 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, 2,140 microsiemens July 13, 1980; minimum daily, 114 microsiemens Oct. 31, 1984.
WATER TEMPERATURE (1968-89): 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, 1,260 microsiemens Dec. 25; minimum daily, 203 microsiemens Sep. 27.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
OCT 18...	1345	4040	1230	5.5	13.0	9.5	91	3.0	290	150
JAN 23...	1545	26400	220	7.8	8.0	10.4	89	3.0	67	6
MAR 14...	1345	51600	390	7.9	16.0	7.9	83	2.4	110	31
MAY 02...	1345	67000	500	7.0	17.0	8.7	92	1.3	140	55
JUN 26...	1300	39800	495	7.8	26.0	6.8	85	1.3	140	60
AUG 21...	1415	5870	700	7.4	31.0	8.1	110	3.1	190	66

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 WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
OCT 18...	78	24	130	3	5.2	140	180	180	0.30	4.6
JAN 23...	20	4.1	13	0.7	3.2	61	22	16	0.10	4.7
MAR 14...	34	6.9	29	1	3.2	82	43	40	0.30	7.2
MAY 02...	40	8.7	43	2	3.2	81	58	64	0.20	6.5
JUN 26...	38	9.8	45	2	3.0	76	30	29	0.20	6.5
AUG 21...	52	15	65	2	4.0	130	93	96	0.30	5.6

DATE	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)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)
OCT 18...	685	--	<0.010	0.100	0.030	0.67	0.70	0.050	53	578
JAN 23...	118	0.340	0.060	0.400	0.070	0.53	0.60	0.120	712	50800
MAR 14...	213	0.090	0.110	0.200	0.130	0.67	0.80	0.230	2020	281000
MAY 02...	273	0.160	0.040	0.200	0.060	0.44	0.50	0.100	577	104000
JUN 26...	208	0.190	0.010	0.200	0.040	0.26	0.30	0.040	544	58500
AUG 21...	406	--	0.010	<0.100	0.020	0.38	0.40	0.050	48	761

07336820 RED RIVER NEAR DE KALB, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)
OCT 18...	41	--	--	--	--	--	--	--	--	--
JAN 23...	80	1	42	<0.5	<1.0	<5	<3	<10	66	<10
MAR 14...	56	--	--	--	--	--	--	--	--	--
MAY 02...	89	<1	91	<0.5	1.0	<5	<3	<10	46	<10
JUN 26...	74	1	100	<0.5	1.0	<5	<3	<10	45	<10
AUG 21...	100	--	--	--	--	--	--	--	--	--

DATE	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 18...	--	--	--	--	--	--	--	--	--	--
JAN 23...	<4	4	0.5	<10	<10	<1	<1.0	160	<6	<3
MAR 14...	--	--	--	--	--	--	--	--	--	--
MAY 02...	6	5	0.2	<10	<10	<1	<1.0	290	<6	29
JUN 26...	6	5	<0.1	<10	<10	<1	<1.0	320	<6	7
AUG 21...	--	--	--	--	--	--	--	--	--	--

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1989	171800	1190	674	313000	200	90800	160	74100	290
NOV.	1989	84130	1180	671	153000	190	44200	160	36100	290
DEC.	1989	81920	826	463	102000	120	27600	100	22100	210
JAN.	1990	307546	446	246	205000	60	50100	47	39000	120
FEB.	1990	774700	406	223	467000	53	111400	41	86200	110
MAR.	1990	1482570	743	415	1662000	110	438200	87	348600	190
APR.	1990	1869900	628	349	1764000	90	454600	71	359400	170
MAY	1990	3891700	507	280	2941000	69	720800	53	561700	140
JUNE	1990	1574100	477	263	1118000	64	270500	49	210000	130
JULY	1990	299560	655	364	294000	93	75400	74	59500	170
AUG.	1990	257230	720	402	279000	110	73400	84	58400	190
SEPT	1990	191970	609	341	177000	91	46900	72	37400	160
TOTAL		10987126	**	**	9475000	**	2404000	**	1892000	**
WTD.AVG.		30100	575	319	**	81	**	64	**	150

07336820 RED RIVER NEAR DE KALB, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e1210	1160	1100	e770	520	e520	533	300	491	e500	e680	1050
2	1210	1170	e900	e830	300	478	300	480	458	506	686	e1050
3	1210	1160	e800	e890	e250	e700	744	453	e500	532	705	1060
4	1220	e1100	614	e940	e300	e750	859	368	410	e520	e450	1060
5	1230	e1150	550	1020	309	773	864	337	436	517	e400	e1080
6	1250	1200	521	e1010	342	799	835	340	483	469	464	1100
7	e1210	1200	428	e980	361	745	e850	437	484	630	466	1100
8	e1170	1200	e490	973	377	567	e650	522	470	689	570	e1100
9	1140	1190	e560	946	403	560	698	544	e450	774	702	e1100
10	1140	1070	e630	936	e440	e570	812	562	455	805	702	1100
11	1180	1210	702	927	e470	e580	902	573	459	784	682	1040
12	1170	e1220	873	941	492	428	e900	556	454	752	694	1060
13	1080	e1220	900	e940	508	626	856	584	456	743	870	1110
14	e1120	1230	1050	e950	508	e650	e800	633	461	e770	934	e1100
15	e1160	1230	1050	961	520	e550	e750	644	421	e800	1020	e1100
16	1210	e1250	e1050	e980	e400	482	738	620	483	826	988	1080
17	1040	1160	e800	962	e330	e550	672	596	e490	794	995	1010
18	1210	e1050	925	871	e350	e600	819	631	492	e810	866	1010
19	1250	e1100	e650	280	374	624	664	581	499	830	856	530
20	1230	1250	755	e470	378	737	664	e580	500	810	727	851
21	e1220	1250	932	565	295	786	e400	570	494	829	687	840
22	e1210	1250	e900	370	325	850	272	578	493	e800	701	e500
23	1210	1230	e1020	e220	591	900	465	565	e500	793	983	e400
24	1230	1200	e1140	e240	e650	e950	471	545	e500	805	987	390
25	1220	e1250	e1260	251	e550	e950	583	522	506	811	1050	331
26	1140	e1150	800	392	413	1020	656	e500	496	865	e1050	e250
27	1060	1120	900	e440	447	1010	697	e450	484	776	1050	203
28	e1050	1190	e1100	e480	619	1030	e250	473	536	650	1030	265
29	e1180	1170	1230	e530	---	1000	e250	502	547	e650	1010	e400
30	1120	1120	e700	584	---	522	212	502	e550	637	983	e500
31	e1140	---	710	593	---	763	---	490	---	666	994	---
MEAN	1170	1180	840	717	422	712	639	517	482	714	806	826

e Estimated

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	15.0	9.0	---	12.0	---	11.0	19.0	21.0	---	---	30.0
2	23.0	14.0	---	---	12.0	12.0	15.0	18.0	21.0	27.0	---	---
3	23.0	14.0	---	---	---	---	15.0	17.0	---	29.0	---	29.0
4	23.0	---	8.0	---	---	---	15.0	17.0	20.0	---	---	29.0
5	23.0	---	8.0	8.0	10.0	13.0	16.0	17.0	20.0	29.0	---	---
6	23.0	18.0	10.0	---	10.0	13.0	15.0	17.0	21.0	29.0	---	30.0
7	---	20.0	10.0	---	11.0	13.0	---	17.0	22.0	29.0	27.0	30.0
8	---	20.0	---	8.0	11.0	14.0	---	17.0	22.0	29.0	26.0	---
9	19.0	16.0	---	9.0	12.0	11.0	14.0	17.0	---	---	26.0	---
10	20.0	16.0	---	10.0	---	---	14.0	17.0	22.0	---	27.0	28.0
11	21.0	12.0	8.0	10.0	---	---	14.0	17.0	23.0	---	28.0	26.0
12	21.0	---	3.0	9.0	12.0	18.0	---	18.0	23.0	---	28.0	26.0
13	21.0	---	3.0	---	13.0	17.0	15.0	18.0	23.0	---	29.0	26.0
14	---	19.0	4.0	---	14.0	---	---	18.0	24.0	---	28.0	---
15	---	18.0	4.0	9.0	13.0	---	---	18.0	25.0	---	28.0	---
16	23.0	---	---	---	---	16.0	18.0	18.0	25.0	---	28.0	29.0
17	21.0	11.0	---	14.0	---	---	18.0	19.0	---	---	29.0	26.0
18	18.0	---	1.0	14.0	---	---	17.0	19.0	25.0	---	29.0	27.0
19	16.0	---	.5	10.0	10.0	15.0	15.0	20.0	26.0	---	28.0	26.0
20	13.0	14.0	2.0	---	9.0	14.0	16.0	---	26.0	---	29.0	28.0
21	---	14.0	---	10.0	11.0	14.0	---	21.0	27.0	---	29.0	28.0
22	---	14.0	---	10.0	10.0	15.0	18.0	21.0	26.0	---	29.0	---
23	17.0	11.0	---	10.0	9.0	15.0	17.0	20.0	---	---	30.0	---
24	19.0	10.0	---	---	---	---	18.0	20.0	---	---	30.0	23.0
25	19.0	---	---	9.0	---	---	18.0	20.0	27.0	---	30.0	23.0
26	18.0	---	2.0	10.0	10.0	12.0	18.0	---	27.0	---	---	---
27	19.0	15.0	2.0	---	11.0	12.0	18.0	---	26.0	---	31.0	24.0
28	---	12.0	---	---	13.0	12.0	---	21.0	27.0	---	30.0	24.0
29	---	10.0	8.0	---	---	12.0	---	21.0	29.0	---	30.0	---
30	19.0	10.0	---	10.0	---	12.0	18.0	21.0	---	---	31.0	---
31	---	---	8.0	10.0	---	13.0	---	21.0	---	---	30.0	---
MEAN	20.0	14.5	5.5	10.0	11.0	13.5	16.0	18.5	24.0	28.5	28.5	27.0

07337000 RED RIVER AT INDEX, ARK.
(National stream-quality accounting network station)

LOCATION.--Lat 33°33'07", long 94°02'28", in NW\SW\ sec.7, T.14 S., R.28 W., Miller County, Hydrologic Unit 11140106, near right bank on downstream side of southbound bridge on U.S. Highway 71 at Index, 2.2 mi south of Ogden, 20.6 mi upstream from Little River, and at mile 485.3.

DRAINAGE AREA.--48,030 mi², of which 5,936 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1936 to current year. Gage-height records collected at same site since 1917 are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 246.87 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 12, 1939, nonrecording gage, and Dec. 12, 1939, to July 19, 1979, water-stage recorder, at site 500 ft downstream at present datum.

REMARKS.--No estimated daily discharges. Water-discharge records good. Some regulation since Oct. 31, 1943, by Lake Texoma (station 07331500) 241 mi upstream, since Sept. 28, 1967, by Pat Mayse Lake (station 07335390), and since Jan. 18, 1974, by Hugo Lake (Oklahoma) capacity, 966,700 acre-ft. Satellite telemeter at station.

AVERAGE DISCHARGE.--54 years, 12,470 ft³/s (9,035,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 297,000 ft³/s Feb. 23, 1938 (gage height, 34.25 ft); minimum, 378 ft³/s Nov. 28, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 270,000 ft³/s May 10 (gage height, 32.30 ft, from graph based on gage readings); minimum daily, 1,380 ft³/s Jan. 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12200	3180	2240	2340	18600	15600	61400	63800	61100	30300	11000	3930
2	12300	3160	2250	2180	28900	13700	50100	65900	62100	26100	11300	4020
3	12100	3170	2350	1950	46100	13600	49000	76000	64600	24100	11300	4100
4	11900	3140	2790	1830	52100	13900	55100	95300	84900	23000	11200	4110
5	11400	3230	3130	1740	44600	15300	61000	121000	87000	20000	13200	4110
6	10800	3490	3210	1710	37200	16500	69900	160000	74000	13500	17900	4260
7	10700	3510	3240	1670	34600	17000	75400	197000	62500	10300	18000	4450
8	10500	3510	3200	1630	32400	33500	77500	229000	59900	7420	15300	4350
9	8980	3390	3260	1600	30000	57300	73600	264000	59500	6530	11600	4190
10	7110	2900	3170	1550	28200	57200	65300	268000	59100	5930	9150	4040
11	5740	2500	2680	1520	27400	46400	62600	264000	58700	5450	8420	4010
12	5170	2910	2260	1470	27100	37300	61900	245000	58200	5120	7890	3930
13	4040	3220	2070	1430	26800	40300	62000	212000	57800	4920	6780	4060
14	3720	3320	2030	1410	26500	51100	63500	174000	57600	5070	6280	4090
15	4490	3320	2020	1390	26000	54400	62800	145000	55400	5080	6480	3810
16	4660	3260	1990	1380	24800	58900	60700	123000	53800	5320	7390	3660
17	4690	2910	2010	1460	28900	63900	54900	101000	56200	5250	7810	3460
18	4690	2610	2200	1760	32200	61900	52100	77700	57000	5740	8030	3300
19	4440	2770	2560	3380	31300	58400	53800	73200	56600	5970	8750	3400
20	4450	3120	2530	11300	28300	56800	54400	72300	56200	5850	8280	4070
21	4510	3250	3440	25500	24800	57500	52600	70300	56000	5750	6650	3850
22	4660	3370	4140	31700	23200	58700	54300	67300	55500	4910	6020	3510
23	4780	3430	3850	32800	24700	59400	59400	65700	53500	4740	5530	4640
24	4580	3250	2960	28600	27200	59000	59100	64000	50800	4710	4890	8000
25	4430	2920	2790	26800	28800	58300	57200	63800	47400	4740	4660	12000
26	4070	2630	3190	28100	27800	58300	59300	63500	46700	5310	4650	16200
27	3270	2420	4830	28200	24900	59900	61000	64400	47100	6670	4570	17300
28	3130	2560	5820	25200	20000	63400	65600	67000	47300	8410	4480	16100
29	3590	2710	4530	23400	---	71600	74400	68600	43900	7940	4300	13800
30	3690	2500	3270	21800	---	82500	73800	65600	37600	8300	4010	11000
31	3290	---	2550	19300	---	80100	---	62300	---	10000	3850	---
TOTAL	198080	91660	92560	336100	833400	1491700	1843700	3749700	1728000	292430	259670	185750
MEAN	6390	3055	2986	10840	29760	48120	61460	121000	57600	9433	8376	6192
MAX	12300	3510	5820	32800	52100	82500	77500	268000	87000	30300	18000	17300
MIN	3130	2420	1990	1380	18600	13600	49000	62300	37600	4710	3850	3300
AC-FT	392900	181800	183600	666700	1653000	2959000	3657000	7438000	3427000	580000	515100	368400

CAL YR 1989	TOTAL	6095880	MEAN	16700	MAX	66900	MIN	1990	AC-FT	12090000
WTR YR 1990	TOTAL	11102750	MEAN	30420	MAX	268000	MIN	1380	AC-FT	22020000

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 upstream from St. Louis Southwestern Railroad bridge, 1.8 mi downstream from Dunbar Creek, and 3.0 mi southeast of Commerce.

DRAINAGE AREA.--189 mi².

WATER-DISCHARGE RECORDS

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 U.S. Army Corps of Engineers.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 450.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--11 years (water years 1980-90), 167 ft³/s (12.00 in/yr), 121,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,100 ft³/s May 13, 1982 (gage height, 28.66 ft); minimum, 0.09 ft³/s Apr. 21, 1985.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 20, 1971, reached a stage of 27.80 ft, from records published by the U.S. Army Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 19	1015	8,740	a24.21	Mar. 15	1415	6,010	22.42
Feb. 1	0215	5,190	21.44	Mar. 29	1115	8,510	24.10
Feb. 2	0745	10,800	25.08	Apr. 6	0715	3,710	18.98
Mar. 8	0415	4,870	21.06	May 3	1330	*13,400	*26.16
Mar. 14	1915	8,850	24.26				

a From graph.

Minimum daily discharge, 1.1 ft³/s Dec. 22, July 21, July 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	2.2	1.4	1.3	4680	10	138	39	726	1.3	1.2	1.5
2	1.5	1.5	1.8	1.3	7340	10	71	8630	1570	1.6	2.9	1.9
3	1.5	1.4	1.2	1.3	920	10	38	12100	482	1.4	2.2	1.5
4	1.6	1.4	1.4	2.0	154	9.1	23	6860	1670	1.3	111	1.4
5	1.7	1.6	1.5	1.7	69	8.1	20	770	460	1.2	86	1.5
6	1.7	1.6	1.6	1.6	39	7.1	2800	126	112	1.3	90	1.5
7	1.9	1.6	1.4	1.3	23	1240	888	57	49	1.7	13	1.4
8	1.8	1.5	1.4	1.2	16	2590	167	31	23	1.5	6.2	1.6
9	1.8	1.5	1.7	1.2	15	373	75	18	14	1.3	3.6	2.6
10	1.8	1.5	1.8	1.2	204	122	1270	11	9.6	1.5	2.2	6.2
11	2.2	1.5	1.5	1.3	125	74	970	8.8	7.0	1.6	2.0	64
12	2.0	1.4	1.4	1.3	48	969	170	33	5.9	1.7	1.9	77
13	1.9	1.6	1.5	1.5	21	240	79	17	5.2	1.9	1.8	7.8
14	2.2	1.7	1.6	1.4	13	2830	1780	8.4	4.3	1.4	1.6	4.7
15	1.8	1.9	1.5	1.4	10	4370	1180	6.5	3.5	1.4	1.5	2.3
16	2.4	1.6	1.4	1.7	12	987	227	79	3.4	1.4	1.5	1.9
17	2.0	1.5	1.4	10	24	151	105	58	3.0	1.4	1.4	12
18	2.1	1.4	1.4	107	11	70	271	7.3	2.4	1.4	1.4	135
19	2.0	1.6	1.4	5970	8.8	36	734	113	2.6	1.4	1.4	16
20	2.3	1.5	1.4	3860	7.1	20	535	37	2.2	1.3	1.4	4.8
21	2.4	1.5	1.2	940	19	14	1560	10	1.9	1.1	1.4	2.9
22	2.6	2.8	1.1	100	453	11	510	4.9	1.8	1.2	1.4	2.6
23	2.7	1.9	1.2	44	232	11	226	2.9	2.2	10	1.3	2.0
24	3.3	1.4	1.2	21	74	8.8	83.0	2.3	1.6	3.1	1.4	1.9
25	3.0	1.5	1.4	12	34	9.4	44	2.3	1.7	2.3	1.4	1.8
26	2.8	1.5	1.5	8.9	16	78	389	2.0	1.7	1.7	1.4	1.5
27	2.7	1.4	1.7	7.8	11	212	2050	64	1.7	1.3	1.4	1.4
28	3.2	1.3	1.2	6.7	10	1690	446	75	1.8	1.5	1.4	1.4
29	2.8	1.2	1.4	8.2	---	4810	125	41	1.7	1.2	1.9	1.4
30	6.9	1.2	1.6	6.7	---	1770	60	10	1.5	1.1	1.6	1.3
31	4.0	---	1.9	502	---	327	---	1630	---	1.2	1.4	---
TOTAL	74.4	47.2	45.1	11627.0	14588.9	23067.5	17034.0	30854.4	5172.7	54.7	350.2	364.8
MEAN	2.40	1.57	1.45	375	521	744	568	995	172	1.76	11.3	12.2
MAX	6.9	2.8	1.9	5970	7340	4810	2800	12100	1670	10	111	135
MIN	1.5	1.2	1.1	1.2	7.1	7.1	20	2.0	1.5	1.1	1.2	1.3
AC-FT	148	94	89	23060	28940	45750	33790	61200	10260	108	695	724
CFSM	.01	.01	.01	1.98	2.76	3.94	3.00	5.27	.91	.01	.06	.06
IN.	.01	.01	.01	2.29	2.87	4.54	3.35	6.07	1.02	.01	.07	.07

CAL YR 1989 TOTAL 89156.6 MEAN 244 MAX 9320 MIN 1.1 AC-FT 176800 CFSM 1.29 IN. 17.55
WTR YR 1990 TOTAL 103280.9 MEAN 283 MAX 12100 MIN 1.1 AC-FT 204900 CFSM 1.50 IN. 20.33

07342470 SOUTH SULPHUR RIVER NEAR COMMERCE, TX--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1987 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)
NOV 28...	1400	1.1	830	7.7	13.0	15	14	10.6	101	1.7	93
JAN 30...	1600	6.6	486	7.5	10.5	47	20	11.2	101	1.6	120
MAR 15...	1800	5300	192	7.5	15.5	110	320	8.1	83	2.9	73
MAY 02...	1400	12600	70	6.8	16.5	130	58	7.9	82	3.4	26
JUN 26...	1100	1.8	780	8.6	29.5	23	5.4	14.1	186	7.8	120
AUG 22...	1200	1.4	739	8.5	31.0	28	17	9.2	125	4.0	80

DATE	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
NOV 28...	0	31	3.6	140	6	6.7	180	87	61	0.30	1.9
JAN 30...	0	41	4.6	51	2	6.0	130	59	25	0.30	9.2
MAR 15...	4	26	1.9	7.8	0.4	2.5	69	9.5	3.8	0.10	9.7
MAY 02...	0	8.9	0.99	2.8	0.2	2.2	27	3.8	1.5	<0.10	4.5
JUN 26...	0	41	4.7	120	5	6.1	180	81	55	0.30	7.7
AUG 22...	0	27	3.0	130	6	6.6	190	73	55	0.60	6.1

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, 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 28...	443	15	15	0	12.9	0.100	13.0	0.040	1.4	1.4	3.50
JAN 30...	276	35	30	5	3.62	0.080	3.70	0.200	0.90	1.1	0.880
MAR 15...	104	953	56	897	0.550	0.350	0.900	0.300	0.50	0.80	0.420
MAY 02...	41	239	22	217	0.050	0.050	0.100	0.090	0.61	0.70	0.180
JUN 26...	425	22	2	20	8.55	0.150	8.70	0.020	1.6	1.6	2.70
AUG 22...	416	31	8	23	8.26	0.240	8.50	0.050	1.0	1.1	2.90

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)
NOV 28...	6.6	3	30	<0.5	1.0	<5	<3	10	20	<10
JAN 30...	9.2	--	--	--	--	--	--	--	--	--
MAR 15...	18	--	--	--	--	--	--	--	--	--
MAY 02...	12	1	18	<0.5	3.0	<5	<3	<10	130	<10
JUN 26...	8.5	5	50	<0.5	<1.0	<5	<3	<10	13	<10
AUG 22...	8.4	--	--	--	--	--	--	--	--	--

07342470 SOUTH SULPHUR RIVER NEAR COMMERCE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV										
28...	15	19	<0.1	30	<10	<1	2.0	240	<6	18
JAN										
30...	--	--	--	--	--	--	--	--	--	--
MAR										
15...	--	--	--	--	--	--	--	--	--	--
MAY										
02...	<4	4	0.1	<10	<10	<1	<1.0	63	<6	24
JUN										
26...	13	4	<0.1	20	<10	<1	<1.0	370	<6	13
AUG										
22...	--	--	--	--	--	--	--	--	--	--

07342480 MIDDLE SULPHUR RIVER AT COMMERCE, TX

LOCATION.--Lat 33°15'59", long 95°54'55", Hunt County, Hydrologic Unit 11140301, at bridge on State Highway 11, 1.5 mi upstream from Willow Creek, and 1.5 mi northwest of Commerce.

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1987 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)
FEB 01...	1800	1360	139	7.1	14.0	150	130	9.8	97	3.0	56
MAR 15...	1400	1160	137	7.0	15.0	130	75	7.8	79	4.2	54
MAY 02...	1800	4190	40	6.8	16.0	140	66	7.5	78	3.8	15

DATE	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
FEB 01...	12	20	1.5	6.8	0.4	3.7	44	19	3.6	0.20	9.9
MAR 15...	4	19	1.5	5.6	0.3	3.1	50	6.4	3.8	<0.10	11
MAY 02...	0	4.9	0.66	2.5	0.3	1.6	15	2.3	1.6	<0.10	4.2

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
FEB 01...	93	279	63	216	0.190	0.210	0.400	0.210	0.69	0.90	0.280
MAR 15...	80	93	8	85	0.190	0.110	0.300	0.120	1.1	1.2	0.340
MAY 02...	27	113	22	91	0.040	0.060	0.100	0.070	0.73	0.80	0.220

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)
FEB 01...	16	--	--	--	--	--	--	--	--	--
MAR 15...	12	--	--	--	--	--	--	--	--	--
MAY 02...	10	9	12	<0.5	2.0	<5	<3	<10	120	<10

DATE	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
FEB 01...	--	--	--	--	--	--	--	--	--	--
MAR 15...	--	--	--	--	--	--	--	--	--	--
MAY 02...	<4	11	<0.1	<10	<10	<1	<1.0	39	<6	29

07342500 SOUTH SULPHUR RIVER NEAR COOPER, TX

LOCATION.--Lat 33°21'23 , long 95°35'41, Delta County, Hydrologic Unit 11140301, on levee on left bank 110 ft downstream from bridge on State Highways 19 and 154, 1.0 mi downstream from Big Creek, 1.0 mi upstream from Brushy Creek, 4.5 mi downstream from Doctors Creek, and 5.6 mi southeast of Cooper.

DRAINAGE AREA.--527 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1942 to current year. Monthly discharge only for some periods, published in WSP 1311.

GAGE.--Water-stage recorder. Datum of gage is 371.91 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 15, 1985, at site 360 ft to right and 90 ft upstream at same datum. Oct. 1, 1970, at datum 3.00 ft higher. May 9, 1942, to Nov. 8, 1949, nonrecording gage, and Nov. 9, 1949, to May 13, 1955, water-stage recorder at site 1,060 ft to right of present gage. Gage-height telemeter at station.

REMARKS.--Records good except those for estimated daily discharges, which are fair. There are many small diversions upstream from station. Low flow is sustained by sewage effluent released upstream. Construction of Cooper Dam, about 7.0 miles upstream from station, was begun during the 1988 water year.

AVERAGE DISCHARGE.--48 years (water years 1943-90), 417 ft³/s (10.75 in/yr), 302,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,200 ft³/s May 13, 1982 (gage height, 27.21 ft, from floodmark), in gage well; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 8,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 2	1900	9,750	20.45	Mar. 30	1300	8,740	20.15
Mar. 8	2130	8,300	20.02	May 3	2300	*30,200	*23.76
Mar. 15	2030	8,140	19.97				

Minimum discharge, no flow Oct. 2-3, July 7-9, and Sept. 3-10, 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	5.8	3.5	e3.6	3740	35	3250	135	4010	.78	.37	.97
2	.00	6.9	2.7	e3.4	8290	34	e642	4600	4690	.67	.20	.18
3	.00	6.6	2.5	e3.4	8590	32	e392	21000	3410	.55	2.6	.00
4	.79	6.7	1.4	e5.1	6070	29	e336	25100	2470	.34	29	.00
5	.75	6.7	3.1	e4.9	2370	27	e315	8640	1560	.16	268	.00
6	.89	6.4	2.9	e4.1	554	25	1610	e2150	847	.08	213	.00
7	1.5	6.6	3.2	e3.7	266	899	2620	e1210	351	.00	117	.00
8	1.6	6.8	3.2	e3.6	110	7250	3540	764	94	.00	34	.00
9	1.6	6.6	3.4	e2.9	75	7450	1180	343	40	.00	6.4	.00
10	1.7	6.7	3.6	e2.9	70	4660	906	217	32	.11	11	.00
11	1.7	6.5	2.9	e2.8	194	1010	1790	150	45	.22	11	1.5
12	1.6	6.1	4.2	e2.4	192	489	1580	134	29	.30	9.9	5.0
13	2.1	6.6	2.8	e2.2	107	840	569	108	22	.34	6.9	1.2
14	2.0	6.6	2.2	e2.3	64	1690	1230	84	18	.29	5.8	.07
15	2.3	6.8	2.3	e2.3	44	6630	2750	58	14	.21	3.8	.00
16	2.3	6.5	2.4	e2.6	38	7580	4710	92	12	.18	2.5	9.4
17	2.4	6.4	2.5	e9.0	32	5740	2040	417	9.1	.16	1.8	14
18	3.3	6.2	2.6	53	30	1780	769	233	7.7	.15	1.3	38
19	3.9	6.1	2.6	1840	31	431	2460	548	6.7	.13	.83	65
20	5.2	6.4	2.6	e2010	28	209	2430	483	5.7	.21	9.5	66
21	7.2	7.3	2.5	e708	29	78	1970	164	5.2	.20	7.9	43
22	8.2	7.1	2.5	e259	334	48	1930	62	4.5	.30	1.1	29
23	7.1	6.1	e2.8	e196	601	39	1080	34	3.6	2.0	.79	22
24	5.5	6.3	e2.5	e173	425	34	451	26	3.1	1.4	.21	15
25	6.3	6.2	e2.4	193	161	33	194	21	2.9	.90	12	11
26	5.7	4.8	e3.2	166	76	105	93	17	2.6	1.2	21	7.2
27	5.9	4.5	e3.0	76	45	381	314	216	2.3	2.3	14	5.3
28	5.7	3.6	e2.7	49	37	1580	1330	711	1.5	1.4	8.4	3.5
29	6.0	3.2	e3.0	45	---	4680	853	359	.94	.76	5.5	1.8
30	7.9	3.4	e3.6	40	---	8120	370	145	.81	.61	3.3	.80
31	6.5	---	e4.2	144	---	6890	---	1850	---	.48	1.8	---
TOTAL	107.65	182.5	89.0	6013.2	32603	68828	43704	70071	17700.65	16.43	810.90	339.92
MEAN	3.47	6.08	2.87	194	1164	2220	1457	2260	590	.53	26.2	11.3
MAX	8.2	7.3	4.2	2010	8590	8120	4710	25100	4690	2.3	268	66
MIN	.00	3.2	1.4	2.2	28	25	93	17	.81	.00	.20	.00
AC-FT	214	362	177	11930	64670	136500	86690	139000	35110	33	1610	674
CFSM	.01	.01	.01	.37	2.21	4.21	2.76	4.29	1.12	.00	.05	.02
IN.	.01	.01	.01	.42	2.30	4.86	3.08	4.95	1.25	.00	.06	.02

CAL YR 1989	TOTAL	186140.38	MEAN	510	MAX	9810	MIN	.00	AC-FT	369200	CFSM	.97	IN.	13.14
WTR YR 1990	TOTAL	240466.25	MEAN	659	MAX	25100	MIN	.00	AC-FT	477000	CFSM	1.25	IN.	16.97

e Estimated

07342500 SOUTH SULPHUR RIVER NEAR COOPER, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1958 to September 1966, October 1967 to current year. Chemical and biochemical analyses: December 1979 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1958 to September 1966, October 1967 to September 1989.
WATER TEMPERATURE: October 1958 to September 1966, October 1967 to September 1989.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,710 microsiemens Aug. 14, 1973; minimum daily, 82 microsiemens July 2, 1976, and July 12, 1988.
WATER TEMPERATURE: Maximum daily, 36.0°C Aug. 6, 1960, Aug. 10, 1962; minimum daily, 0.0°C on many days during winter months.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	HARDNESS TOTAL (MG/L AS CACO3)
OCT 17...	0905	2.0	491	7.8	17.0	28	6.9	4.9	51	2.8	180
JAN 25...	1345	165	209	7.8	8.5	210	90	9.4	81	2.4	77
MAR 13...	1030	935	280	7.8	18.0	55	350	7.8	84	3.0	99
MAY 02...	1615	6410	98	7.4	18.0	130	60	9.2	99	2.7	33
JUN 28...	1330	1.3	560	8.0	31.0	25	5.4	7.8	107	3.0	210
AUG 23...	1045	1.1	370	7.6	28.0	55	21	5.0	65	2.0	120

DATE	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	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 WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
OCT 17...	0	60	6.5	38	1	5.2	180	44	22	0.30	9.9
JAN 25...	4	26	2.9	15	0.7	3.9	73	23	11	0.20	8.2
MAR 13...	1	34	3.3	16	0.7	3.5	98	23	8.9	0.30	9.7
MAY 02...	0	11	1.3	4.5	0.3	2.2	38	5.6	1.9	<0.10	5.6
JUN 28...	0	70	7.8	34	1	4.1	220	36	30	0.10	12
AUG 23...	0	42	4.3	27	1	4.7	150	25	13	0.60	11

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L)	RESIDUE VOLATILE, SUSPENDED (MG/L)	RESIDUE FIXED NON FILTERABLE (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, 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)
OCT 17...	291	14	6	8	--	<0.010	<0.100	0.020	0.58	0.60	0.130
JAN 25...	135	264	38	226	1.00	0.100	1.10	0.080	0.62	0.70	0.220
MAR 13...	157	1070	86	984	0.600	0.200	0.800	0.150	0.35	0.50	0.250
MAY 02...	55	314	36	278	0.340	0.060	0.400	0.060	0.74	0.80	0.180
JUN 28...	326	17	<1	--	--	<0.010	<0.100	<0.010	--	0.90	0.100
AUG 23...	216	21	4	17	--	0.020	<0.100	0.030	0.67	0.70	0.140

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)
OCT 17...	9.2	--	--	--	--	--	--	--	--	--
JAN 25...	13	4	35	<0.5	<1.0	<5	<3	<10	67	10
MAR 13...	23	--	--	--	--	--	--	--	--	--
MAY 02...	12	2	20	<0.5	3.0	<5	<3	<10	100	<10
JUN 28...	9.4	3	110	<0.5	4.0	<5	<3	<10	14	10
AUG 23...	10	--	--	--	--	--	--	--	--	--

07342500 SOUTH SULPHUR RIVER NEAR COOPER, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT										
17...	--	--	--	--	--	--	--	--	--	--
JAN										
25...	<4	16	0.1	<10	<10	<1	1.0	210	<6	8
MAR										
13...	--	--	--	--	--	--	--	--	--	--
MAY										
02...	<4	4	0.4	<10	<10	<1	<1.0	100	<6	18
JUN										
28...	9	25	<0.1	<10	<10	<1	2.0	630	<6	13
AUG										
23...	--	--	--	--	--	--	--	--	--	--

07343000 NORTH SULPHUR RIVER NEAR COOPER, TX

LOCATION.--Lat 33°28'29", long 95°35'15", Lamar County, Hydrologic Unit 11140301, on left bank at downstream side of highway embankment near left end of downstream bridge on State Highways 19 and 24, 2.3 mi upstream from Auds Creek, 5.5 mi upstream from Hickory Creek, 8.7 mi northeast of Cooper, and 15.6 mi upstream from mouth.

DRAINAGE AREA.--276 mi².

PERIOD OF RECORD.--October 1949 to current year.
Water-quality records.--Chemical analyses: July 1950 to September 1958, January 1967 to September 1988.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 372.42 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Nov. 8, 1949, nonrecording gage, Nov. 8, 1949, to May 21, 1960, water-stage recorder at site 50 ft upstream at datum 9.00 ft higher, and May 22, 1960, to Sept. 30, 1970, at datum 5.00 ft higher.

REMARKS.--Estimated daily discharges: Oct. 11-17, and Sept. 16-25. Records good. In 1928-29, the channel was rectified for a distance of 28 mi upstream and 18 mi downstream from this station. Gage-height telemeter at station.

AVERAGE DISCHARGE.--41 years, 248 ft³/s (12.20 in/yr), 179,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 90,600 ft³/s Oct. 19, 1971 (gage height, 36.16 ft, 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, present datum, and flood in 1932 reached about same stage, from information by U.S. Army Corps of Engineers and local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 20,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 19	0330	25,900	21.88	May 2	1315	36,700	26.65
Feb. 1	1315	*51,900	*31.05	May 3	0830	27,800	22.75
Mar. 14	1745	35,400	26.10	May 31	0045	36,200	26.45

Minimum discharge, no flow Aug. 23 to Sept. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	5.2	1.5	12	15800	99	156	55	1110	9.8	10	.00
2	2.1	3.5	1.7	12	2320	99	108	13600	3850	9.0	27	.00
3	1.7	2.7	1.7	12	614	82	79	14800	617	8.4	15	.00
4	1.3	2.0	2.0	17	317	73	69	1170	763	7.7	80	.00
5	1.2	1.8	2.3	16	212	67	77	332	169	7.5	72	.00
6	2.3	1.5	2.6	15	169	66	4290	171	88	6.8	29	.00
7	5.4	1.2	2.7	14	141	1860	446	111	61	6.7	19	.00
8	3.1	1.0	3.8	14	124	2390	160	86	47	5.9	13	.00
9	1.9	.85	3.9	13	397	460	117	75	39	5.3	10	.00
10	1.5	.78	4.0	13	805	233	2150	65	35	4.9	8.0	.11
11	e.57	.76	3.5	13	259	1050	357	62	32	4.8	6.4	7.8
12	e.40	.75	2.9	13	160	741	141	77	32	9.4	5.1	15
13	e.33	.80	3.2	12	124	270	97	64	28	12	4.3	12
14	e.35	.93	3.3	13	105	9360	2560	52	26	11	5.5	6.8
15	e.55	.77	3.4	13	100	1880	381	47	24	9.0	4.9	3.5
16	e.86	.55	3.0	15	99	387	151	43	22	7.7	3.7	e2.0
17	e1.3	.50	3.4	44	85	202	97	43	20	7.8	3.0	e55
18	1.7	.55	3.6	510	76	137	628	47	19	8.9	2.3	e51
19	2.0	.67	4.2	11600	72	104	1440	176	18	8.8	1.9	e23
20	1.8	.89	4.7	1670	68	85	1390	77	16	8.5	.62	e12
21	1.5	.92	5.0	355	269	77	1240	51	23	20	.17	e7.6
22	1.2	2.7	3.8	170	1110	72	273	40	19	21	.04	e4.1
23	.95	4.2	3.5	110	275	67	136	34	14	34	.00	e2.3
24	.93	3.8	3.1	85	153	63	87	31	13	34	.00	e1.4
25	.99	3.3	3.8	71	111	61	74	29	17	21	.00	e.86
26	.84	2.4	5.4	61	91	490	2070	27	15	27	.00	.79
27	.74	1.9	6.8	56	81	261	605	1150	13	18	.00	1.1
28	.72	1.5	8.1	54	81	5820	180	348	13	13	.00	1.2
29	.73	1.3	9.6	59	---	3570	99	87	12	11	.00	1.4
30	8.3	1.4	11	55	---	660	67	2680	11	8.5	.00	1.4
31	8.8	---	13	711	---	265	---	7590	---	6.4	.00	---
TOTAL	58.16	51.12	134.5	15828	24218	31051	19725	43220	7166	373.8	320.93	210.36
MEAN	1.88	1.70	4.34	511	865	1002	657	1394	239	12.1	10.4	7.01
MAX	8.8	5.2	13	11600	15800	9360	4290	14800	3850	34	80	55
MIN	.33	.50	1.5	12	68	61	67	27	11	4.8	.00	.00
AC-FT	115	101	267	31390	48040	61590	39120	85730	14210	741	637	417
CFSM	.01	.01	.02	1.85	3.13	3.63	2.38	5.05	.87	.04	.04	.03
IN.	.01	.01	.02	2.13	3.26	4.19	2.66	5.83	.97	.05	.04	.03

CAL YR 1989 TOTAL 156830.81 MEAN 430 MAX 31600 MIN .33 AC-FT 311100 CFSM 1.56 IN. 21.14
WTR YR 1990 TOTAL 142356.87 MEAN 390 MAX 15800 MIN .00 AC-FT 282400 CFSM 1.41 IN. 19.19

e Estimated

07343000 NORTH SULPHUR RIVER NEAR COOPER, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: July 1950 to September 1958, January 1967 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1968 to 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, 3,000 microsiemens July 2, 3, 1988; minimum daily, 191 microsiemens Oct. 12, Dec. 10, 1971.
WATER TEMPERATURES: Maximum daily, 39.0°C June 1, 1977; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,660 microsiemens Dec. 29; minimum daily, 248 microsiemens Jan. 19, Mar. 29.
WATER TEMPERATURE: Maximum daily, 34.5°C July 28; minimum daily, 2.0°C Dec. 12.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT 17...	1330	1.5	1200	6.6	18.0	300	160	100	13
JAN 22...	1545	146	496	7.8	9.0	190	66	65	5.6
MAR 13...	1415	257	520	7.9	18.5	200	48	71	5.4
APR 30...	1515	66	610	8.3	23.0	230	43	79	7.1
JUN 25...	1230	15	760	8.0	31.0	210	48	73	7.7
AUG 20...	1145	0.76	860	8.1	34.0	230	160	72	11

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 17...	130	3	3.5	150	320	89	0.40	2.3	746
JAN 22...	30	1	3.1	120	98	18	0.30	7.0	298
MAR 13...	30	0.9	2.9	150	75	16	0.30	9.9	302
APR 30...	40	1	3.2	180	95	22	0.30	8.3	365
JUN 25...	76	2	2.4	170	140	50	0.30	7.2	456
AUG 20...	97	3	3.5	62	280	68	0.60	2.1	571

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1989	58.16	1130	712	112	82	13	290	45	340
NOV.	1989	51.12	1250	796	110	98	14	330	46	370
DEC.	1989	134.5	1340	865	314	110	41	380	136	390
JAN.	1990	15828	314	188	8040	12	514	60	2570	110
FEB.	1990	24218	385	230	15000	15	954	73	4800	130
MAR.	1990	31051	386	231	19300	15	1230	74	6170	130
APR.	1990	19725	402	241	12800	16	832	77	4120	140
MAY	1990	43220	331	197	23000	11	1340	61	7140	110
JUNE	1990	7166	371	222	4290	14	274	71	1370	130
JULY	1990	373.8	1070	679	686	80	80	280	281	320
AUG.	1990	320.93	722	444	385	40	35	160	140	230
SEPT	1990	210.36	905	564	321	58	33	220	124	280
TOTAL		142356.87	**	**	84500	**	5360	**	26900	**
WTD.AVG.		390	368	220	**	14	**	70	**	130

07343000 NORTH SULPHUR RIVER NEAR COOPER, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	888	1170	1250	1460	331	723	560	600	386	1040	1260	---
2	934	1140	1190	1430	310	681	610	340	283	1060	993	---
3	957	1110	1100	1480	411	727	683	310	399	1090	828	---
4	964	1090	1020	1560	495	739	697	460	429	1130	669	---
5	989	1080	1090	1540	573	756	540	500	508	1130	414	---
6	1000	1090	1170	1380	641	772	300	542	565	1160	810	---
7	1070	1110	1280	1380	674	470	384	572	576	1180	832	---
8	1070	1130	1400	1370	713	333	509	580	576	1200	820	---
9	1080	1150	1380	1370	520	454	490	588	614	1220	818	---
10	1090	1180	1370	1380	487	575	335	681	653	1230	805	1180
11	1070	1200	1380	1380	492	510	386	700	680	1260	804	1160
12	1100	1220	1320	1330	566	413	517	723	714	1230	811	1260
13	1100	1230	1380	1360	632	582	617	720	730	1300	821	1210
14	1120	1270	1260	1390	680	410	275	724	757	1330	828	1270
15	1130	1280	1290	1380	679	320	395	750	795	1350	841	1320
16	1150	1330	1380	1360	735	454	530	785	816	1350	860	1360
17	1170	1340	1390	1120	735	565	616	806	821	1370	874	920
18	1190	1330	1370	772	769	641	664	790	861	1400	897	700
19	1210	1360	1260	248	768	697	540	640	884	1430	897	630
20	1230	1390	960	279	800	725	448	610	923	1460	912	810
21	1240	1390	870	396	720	740	364	658	963	1550	938	840
22	1260	1360	940	492	502	748	504	655	956	1380	948	920
23	1250	1370	1020	563	477	767	609	713	881	601	---	980
24	1270	1380	1180	580	561	774	661	745	761	640	---	1010
25	1280	1350	1220	620	612	779	647	802	756	703	---	1050
26	1300	1270	1290	660	666	560	510	610	827	702	---	1060
27	1310	1260	1410	720	701	610	351	302	924	968	---	1090
28	1320	1280	1560	775	701	292	500	372	992	1220	---	1140
29	1340	1300	1660	783	---	248	601	432	1020	1210	---	1130
30	1170	1350	1520	790	---	377	639	340	1040	1240	---	1160
31	1160	---	1610	410	---	506	---	267	---	1250	---	---
MEAN	1140	1250	1270	1020	605	579	516	591	736	1170	849	1060

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
INSTANTANEOUS VALUES

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

07343200 SULPHUR RIVER NEAR TALCO, TX

LOCATION.--Lat 33°23'10", long 95°07'56", Franklin County, Hydrologic Unit 11140302, at downstream side of highway embankment near right end of bridge on U.S. Highway 271, 2.2 mi northwest of Talco, 3.2 mi downstream from Mustang Creek, and 162 mi upstream from mouth.

DRAINAGE AREA.--1,365 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1956 to current year.

REVISED RECORDS.--WDR TX-76-1(P).

GAGE.--Water-stage recorder. Datum of gage is 290.82 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. The River Crest Steam Electric Generating Plant diverts water (amount unknown) upstream from this station. Flow is also affected at times by discharge from the flood-detention pools of 14 floodwater-retarding structures with a combined detention capacity of 8,210 acre-ft. These structures runoff from 23.4 mi² in the Auds and Depot Creek drainage basins. Gage-height telemeter at station. station.

AVERAGE DISCHARGE.--34 years, 1,420 ft³/s (14.13 in/yr), 1,029,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 77,000 ft³/s Dec. 11, 1971 (gage height, 29.40 ft, from floodmark); no flow at times in 1957, 1964-65, 1970, and 1979-80.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in 1908 and 1914 each reached a stage of 27.5 ft, and flood in 1945 reached a stage of 26.5 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 15,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 20	1430	32,600	25.60	Mar. 15	1930	18,100	24.23
Feb. 2	1730	29,600	25.37	May 4	1400	*51,500	*27.17
Mar. 9	0200	28,500	25.30				

Minimum daily discharge, 2.2 ft³/s Dec. 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	12	6.8	6.4	5440	184	9720	657	8820	30	20	8.3
2	41	17	4.7	8.0	22600	177	6510	4390	6380	22	19	8.1
3	39	16	3.1	8.6	18000	172	2150	27800	8020	22	22	7.7
4	37	14	3.0	9.8	12500	151	843	48600	6160	29	34	7.1
5	34	13	2.8	10	11000	127	562	38600	4320	31	59	6.2
6	29	12	2.6	13	6390	112	4210	21700	2330	27	181	5.7
7	24	12	2.4	15	1890	977	10500	13400	1370	18	270	5.1
8	18	11	2.2	14	771	18600	6310	8680	701	14	168	4.8
9	14	9.6	2.3	13	449	24300	4400	4350	409	11	102	4.6
10	12	8.2	2.3	11	811	14100	2940	2380	279	9.5	59	5.2
11	9.6	6.1	2.4	9.9	910	10100	5290	1660	284	8.3	38	10
12	7.8	5.3	2.6	8.0	544	5510	3380	1350	246	11	30	2050
13	6.7	4.9	2.8	6.7	438	2510	2190	1090	214	10	27	1320
14	5.6	4.5	2.8	5.7	302	2190	2380	820	182	9.5	27	224
15	4.9	4.3	2.9	4.7	216	13100	7790	537	155	10	30	110
16	4.5	4.1	3.8	4.1	171	14100	4770	635	131	11	22	69
17	4.5	3.5	3.9	6.4	149	9810	4000	1360	119	10	19	51
18	4.6	3.2	4.0	80	132	8610	2910	1380	117	9.1	15	180
19	4.4	3.1	3.9	3520	114	4350	5260	2380	114	9.6	13	361
20	4.5	3.1	3.9	26400	102	1220	7440	3350	107	13	11	201
21	4.7	2.9	4.1	20500	125	593	6160	1870	101	16	9.6	158
22	4.6	3.2	4.1	14900	1220	338	4540	997	91	17	8.6	350
23	5.7	3.4	4.1	11600	1970	236	2590	528	84	30	8.2	216
24	6.5	3.4	3.0	6230	1280	214	1660	333	78	37	8.3	116
25	6.5	4.3	3.1	1870	821	195	947	250	71	51	8.0	84
26	6.3	6.1	3.6	646	461	248	594	206	65	52	7.5	66
27	7.6	7.6	3.7	400	286	958	2220	224	61	45	6.9	57
28	8.2	8.8	3.4	281	208	3070	1190	3240	58	39	6.8	49
29	8.0	8.3	3.7	283	---	11800	1390	2480	54	31	8.1	45
30	8.0	7.4	4.7	239	---	13300	1170	1250	45	24	8.5	38
31	6.3	---	5.9	235	---	10600	---	4740	---	28	8.5	---
TOTAL	418.5	222.3	108.6	87338.3	89300	171952	116016	201237	41166	685.0	1255.0	5817.8
MEAN	13.5	7.41	3.50	2817	3189	5547	3867	6492	1372	22.1	40.5	194
MAX	41	17	6.8	26400	22600	24300	10500	48600	8820	52	270	2050
MIN	4.4	2.9	2.2	4.1	102	112	562	206	45	8.3	6.8	4.6
AC-FT	830	441	215	173200	177100	341100	230100	399200	81650	1360	2490	11540
CFSM	.01	.01	.00	2.06	2.34	4.06	2.83	4.76	1.01	.02	.03	.14
IN.	.01	.01	.00	2.38	2.43	4.69	3.16	5.48	1.12	.02	.03	.16

CAL YR 1989 TOTAL 768734.6 MEAN 2106 MAX 33100 MIN 2.2 AC-FT 1525000 CFSM 1.54 IN. 20.95
WTR YR 1990 TOTAL 715516.5 MEAN 1960 MAX 48600 MIN 2.2 AC-FT 1419000 CFSM 1.44 IN. 19.50

07343200 SULPHUR RIVER NEAR TALCO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: January 1965 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: January 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1966 to current year.
WATER TEMPERATURE: 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 microsiemens Feb. 17, 1976; minimum daily, 65 microsiemens Jan. 15, 1989.
WATER TEMPERATURE (1966-89): Maximum daily, 39.0°C Aug. 13, 1987; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1320 microsiemens Jan. 17; minimum daily, 130 microsiemens May 6.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT 19...	1345	4.2	480	6.1	13.0	7.4	70	1.6	180	0	66	4.8
JAN 25...	0845	1840	204	6.0	8.0	9.4	80	2.3	90	12	32	2.4
MAR 15...	1245	15600	198	7.3	14.0	10.2	101	3.2	81	6	29	2.1
MAY 06...	0900	23800	132	7.0	16.0	9.0	92	1.9	60	0	21	1.7
JUN 28...	1000	59	446	8.0	28.0	5.7	74	1.9	180	8	63	4.3
AUG 22...	1315	8.5	465	7.3	32.0	4.9	68	1.2	150	0	52	4.2

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
OCT 19...	27	0.9	3.9	180	44	17	0.30	6.0	280	--	<0.010	<0.100
JAN 25...	9.3	0.4	4.2	78	22	5.2	0.20	8.0	130	0.530	0.070	0.600
MAR 15...	10	0.5	2.0	75	20	4.0	0.20	7.2	119	0.400	0.300	0.700
MAY 06...	5.6	0.3	2.2	67	5.9	2.7	<0.10	7.1	87	0.140	0.060	0.200
JUN 28...	22	0.7	3.5	170	31	22	0.30	7.5	255	--	<0.010	<0.100
AUG 22...	40	1	3.7	150	56	28	0.40	8.2	282	0.090	0.010	0.100

DATE	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)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
OCT 19...	0.020	0.58	0.60	0.060	--	--	--	--	--	--	--	--
JAN 25...	0.060	0.64	0.70	0.240	2	39	<0.5	1.0	<5	<3	<10	71
MAR 15...	0.280	0.42	0.70	0.370	--	--	--	--	--	--	--	--
MAY 06...	0.050	0.55	0.60	0.140	2	27	<0.5	<1.0	<5	<3	<10	93
JUN 28...	0.020	0.78	0.80	0.070	3	82	<0.5	2.0	<5	<3	<10	12
AUG 22...	0.040	0.76	0.80	0.060	--	--	--	--	--	--	--	--

07343200 SULPHUR RIVER NEAR TALCO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 19...	--	--	--	--	--	--	--	--	--	--	--
JAN 25...	<10	<4	15	0.2	<10	<10	<1	<1.0	280	<6	10
MAR 15...	--	--	--	--	--	--	--	--	--	--	--
MAY 06...	<10	<4	4	0.1	<10	<10	<1	<1.0	170	<6	22
JUN 28...	<10	9	18	<0.1	<10	<10	<1	<1.0	520	<6	5
AUG 22...	--	--	--	--	--	--	--	--	--	--	--

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1989	418.5	356	211	238	13	15	42	48	130
NOV.	1989	222.3	760	462	277	47	28	120	73	260
DEC.	1989	108.6	1110	690	202	89	26	210	62	350
JAN.	1990	87338.3	208	122	28700	5.9	1390	22	5110	79
FEB.	1990	89300	231	135	32600	6.9	1660	25	5940	88
MAR.	1990	171952	209	123	56900	6.0	2800	22	10200	80
APR.	1990	116016	307	181	56800	11	3320	35	11000	110
MAY	1990	201237	191	112	60900	5.2	2850	20	10700	73
JUNE	1990	41166	265	155	17300	8.2	908	29	3190	100
JULY	1990	685.0	553	331	613	26	49	76	140	200
AUG.	1990	1255.0	682	414	1400	41	137	110	361	230
SEPT	1990	5817.8	309	182	2860	10	164	35	549	120
TOTAL		715516.5	**	**	259000	**	13400	**	47400	**
WTD.AVG.		1960	228	134	**	6.9	**	25	**	86

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	281	541	1080	1130	248	446	360	357	246	480	580	477
2	288	522	1090	1150	221	443	410	380	257	490	597	480
3	299	556	1090	1160	205	473	480	260	250	510	697	480
4	292	585	1100	1160	172	510	510	162	248	520	710	480
5	298	613	1100	1170	181	539	580	139	256	530	804	482
6	297	656	1110	1190	211	566	610	130	271	590	891	483
7	309	685	1100	1210	261	360	340	163	292	640	973	489
8	330	698	1110	1220	289	153	260	191	317	680	690	488
9	345	743	1110	1240	320	135	234	209	330	720	475	490
10	364	766	1120	1250	351	154	266	203	350	740	411	470
11	380	789	1110	1260	380	179	269	227	361	780	426	450
12	388	824	1120	1270	425	374	260	228	392	540	410	270
13	409	838	1110	1270	405	276	256	245	407	520	380	360
14	418	849	1120	1290	424	267	273	300	405	480	360	296
15	430	849	1110	1300	450	229	256	373	404	510	339	243
16	447	850	1120	1300	485	194	220	351	386	536	372	234
17	459	859	1120	1320	510	193	228	360	382	542	404	248
18	457	867	1110	440	529	211	270	244	399	515	418	199
19	477	911	1120	376	524	239	290	226	408	520	429	230
20	484	957	1120	234	530	288	225	203	411	535	448	328
21	492	987	1110	180	540	328	248	228	414	522	453	320
22	490	983	1120	156	556	367	274	265	402	540	466	321
23	499	937	1110	176	358	396	295	299	404	493	476	320
24	510	931	1120	202	354	399	310	317	420	495	479	422
25	524	918	1120	247	392	423	348	332	425	533	481	426
26	529	930	1120	269	398	510	410	360	432	553	490	424
27	532	1040	1120	289	407	640	320	390	449	548	491	426
28	539	1030	1130	320	420	427	351	265	450	571	492	423
29	530	1050	1130	369	---	248	380	267	460	608	489	418
30	526	1060	1130	355	---	210	318	274	470	612	480	430
31	537	---	1120	300	---	240	---	290	---	600	483	---
MEAN	425	827	1110	800	377	336	328	266	370	563	519	387

07343200 SULPHUR RIVER NEAR TALCO, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
INSTANTANEOUS VALUES

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

07343500 WHITE OAK CREEK NEAR TALCO, TX

LOCATION.--Lat 33°19'20", long 95°05'33", Titus County, Hydrologic Unit 11140300, near center of main channel at downstream side of bridge on U.S. Highway 271, 0.8 mi downstream from Lewis Creek, 2.4 mi upstream from Ripley Creek, 2.7 mi south of Talco, and 38.4 mi upstream from mouth.

DRAINAGE AREA.--494 mi².

PERIOD OF RECORD.--December 1949 to current year.
Water-quality records.--Chemical analyses: October 1967 to June 1989. Chemical biochemical analyses: November 1982 to September 1985. Specific conductance: Recorded continuously from October 1967 to September 1989. Water Temperature: Recorded continuously from October 1967, to September 1989.

REVISED RECORDS.--WSP 1711: Elevation of historical maximum.

GAGE.--Water-stage recorder. Datum of gage is 286.45 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. There are several small diversions upstream from station for municipal supply. The cities of Sulphur Springs and Mount Vernon discharged sewage effluent into tributaries above this station. Gage-height telemeter at station.

AVERAGE DISCHARGE.--40 years (water years 1951-90), 463 ft³/s (12.73 in/yr), 335,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,000 ft³/s Dec. 11, 1971 (gage height, 21.20 ft), from rating curve extended above 23,000 ft³/s; no flow at times in 1954, 1956, 1964-65, 1969-73, 1976, 1978-79, and 1988.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, 22.9 ft Mar. 31, 1945, from floodmarks and from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 9,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 9	0900	*28,600	*19.47	May 4	1730	28,300	19.20
Mar. 31	0530	10,200	17.99	June 5	0700	11,700	17.99

Minimum discharge, 1.1 ft³/s Nov. 18-22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	5.1	4.0	6.8	573	96	5900	86	1800	20	26	3.3
2	3.8	6.3	3.1	7.8	1320	86	3930	1560	1570	19	23	3.1
3	3.6	24	2.7	8.9	2020	87	2600	8320	1700	17	84	2.9
4	3.4	22	2.7	12	4200	84	1500	24300	5430	15	282	2.7
5	3.4	14	2.7	12	4130	74	561	19800	9660	14	345	2.6
6	3.7	9.0	2.6	11	3120	64	1130	8910	7120	13	347	2.4
7	3.9	5.8	2.5	8.9	2070	268	1790	4930	4570	12	487	2.1
8	3.7	3.7	2.4	7.3	1200	10200	2170	3150	2760	10	829	1.9
9	3.3	2.6	2.4	7.3	428	24900	2580	1760	1390	9.6	1030	1.9
10	2.8	2.4	2.4	7.8	295	14000	2800	617	421	8.8	714	2.6
11	2.4	2.1	2.3	7.2	430	6670	2310	266	210	8.0	156	15
12	2.4	1.7	2.2	6.2	476	4140	1890	209	177	7.7	61	40
13	2.5	1.7	2.2	5.8	414	2890	1390	182	327	7.7	43	232
14	2.3	1.8	2.8	5.7	261	2070	1280	160	255	7.7	39	312
15	2.1	1.6	3.3	5.6	176	2220	1510	149	137	7.7	32	160
16	2.4	1.3	3.4	5.8	138	4300	1760	498	99	7.7	26	58
17	2.2	1.2	3.4	8.2	112	5870	3020	2370	82	7.7	23	28
18	1.9	1.1	3.4	15	93	4140	3240	3040	71	7.8	21	16
19	2.1	1.1	3.4	152	79	2840	1930	3660	64	7.9	20	10
20	2.1	1.1	3.3	718	69	1820	754	3010	57	7.7	19	9.2
21	2.1	1.1	3.2	1180	66	788	343	2640	53	7.0	17	14
22	2.0	1.4	3.2	1470	470	306	276	1870	48	6.6	11	13
23	1.8	1.6	3.2	1780	785	217	218	1150	43	41	6.6	34
24	1.6	1.6	3.2	1850	808	184	170	356	40	482	6.1	29
25	1.6	1.8	3.2	1310	655	160	148	164	36	857	5.8	12
26	1.5	3.5	3.3	545	361	171	132	122	32	899	5.4	7.8
27	1.4	5.8	3.5	233	173	304	120	138	29	623	5.1	10
28	1.2	13	3.8	173	118	696	109	507	26	207	4.7	10
29	1.2	7.3	4.5	163	---	2270	103	1050	25	66	3.3	9.0
30	1.7	5.1	5.2	181	---	7040	95	1450	23	40	3.5	8.3
31	2.1	---	6.2	224	---	9280	---	1730	---	34	3.6	---
TOTAL	76.4	151.8	99.7	10128.3	25040	108235	45759	98154	38255	3478.6	4679.1	1052.8
MEAN	2.46	5.06	3.22	327	894	3491	1525	3166	1275	112	151	35.1
MAX	4.2	24	6.2	1850	4200	24900	5900	24300	9660	899	1030	312
MIN	1.2	1.1	2.2	5.6	66	64	95	86	23	6.6	3.3	1.9
AC-FT	152	301	198	20090	49670	214700	90760	194700	75880	6900	9280	2090
CFSM	.00	.01	.01	.66	1.81	7.07	3.09	6.41	2.58	.23	.31	.07
IN.	.01	.01	.01	.76	1.89	8.15	3.45	7.39	2.88	.26	.35	.08

CAL YR 1989 TOTAL 231213.4 MEAN 633 MAX 14900 MIN 1.1 AC-FT 458600 CFSM 1.28 IN. 17.41
WTR YR 1990 TOTAL 335109.7 MEAN 918 MAX 24900 MIN 1.1 AC-FT 664700 CFSM 1.86 IN. 25.23

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 upstream from U.S. Highway 59, 10 mi southwest of Texarkana, and 44.5 mi upstream from mouth.

DRAINAGE AREA.--3,443 mi².

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 U.S. Army Corps of Engineers). July 19 to Dec. 31, 1953, nonrecording gage at site about 125 ft upstream at datum 200 ft higher.

REMARKS.--The lake is formed by a rolled earthfill dam 18,500 ft long, including a 200-foot uncontrolled spillway and a 1-mile 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 conduits controlled by four 10.0- by 20.0-foot electrically driven broome-type gates. Flow is affected at times by discharge from the flood-detention pools of 25 floodwater-retarding structures with a combined detention capacity of 13,450 acre-ft. These structures control runoff from 40.0 mi² in the Sulphur River and Langford Creek drainage basins. Outflow discharging over the spillway passes into an outlet channel and then to the Sulphur River. The lake was built for flood control and for conservation. An unknown amount of water is diverted for industrial and municipal uses. 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 U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,912,100 acre-ft May 9, 1966 (elevation, 252.64 ft); minimum since first appreciable storage and after deliberate impoundment began, 137,500 acre-ft Sept. 5, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,867,000 acre-ft May 25 at 0200 hours (elevation, 252.17 ft); minimum, 153,300 acre-ft Dec. 22 (elevation, 220.39 ft).

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

220.0	145,300	234.0	607,900	246.0	1,339,000
225.0	268,400	238.0	813,200	250.0	1,668,000
230.0	437,200	242.0	1,055,000	253.0	1,947,000

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	275800	204100	169500	158800	339300	251000	970500	1015000	1807000	1438000	811000	307500
2	274600	201100	168000	158800	334600	249000	996800	1021000	1794000	1416000	784000	304700
3	272800	198700	166400	161000	328100	248200	1027000	1035000	1819000	1394000	763400	301900
4	271400	196200	165100	161000	319000	247900	1050000	1048000	1831000	1372000	744200	300400
5	271700	194100	163600	161000	310100	247600	1067000	1083000	1840000	1352000	722200	298500
6	268400	191900	159900	161400	309100	247900	1096000	1176000	1853000	1331000	701100	296600
7	268200	189800	160100	161400	326400	260300	1109000	1313000	1863000	1310000	681800	295100
8	267300	187200	162100	161900	349400	325400	1112000	1441000	1871000	1286000	661400	294200
9	265500	184800	161000	161600	374200	389200	1114000	1542000	1871000	1265000	642700	293000
10	264100	183700	160800	161600	391700	440700	1122000	1606000	1862000	1244000	623500	291400
11	261800	182700	159300	161200	400800	526600	1128000	1645000	1846000	1223000	603200	294200
12	258900	181800	160100	161200	403400	648600	1131000	1679000	1829000	1205000	584700	294200
13	255500	181100	159300	160800	398600	745300	1131000	1695000	1811000	1181000	565200	293600
14	251500	180600	159300	160600	390600	826100	1137000	1706000	1792000	1160000	545700	292700
15	248500	180200	158000	160100	383500	867200	1137000	1712000	1772000	1139000	527000	293600
16	246500	177900	157100	160100	369700	894100	1134000	1741000	1751000	1118000	507000	293600
17	242700	177000	156900	164900	353400	902400	1123000	1758000	1730000	1099000	487500	293900
18	240200	176100	156900	168200	337900	913100	1120000	1777000	1710000	1079000	467600	294500
19	237500	175200	156900	177400	318000	930600	1115000	1806000	1690000	1057000	448500	293300
20	233700	174700	157100	182300	299400	950100	1109000	1821000	1669000	1036000	429900	290200
21	230800	173600	156500	187600	288400	964300	1105000	1836000	1648000	1017000	417500	289000
22	227600	175400	156700	195000	281800	972400	1099000	1848000	1625000	996800	401900	286000
23	225500	174700	156500	201400	278200	973600	1095000	1861000	1604000	979200	388500	283600
24	222900	174200	156300	212100	274900	968000	1091000	1866000	1582000	960600	373200	281800
25	220500	173800	156100	219500	272800	962400	1085000	1860000	1565000	941500	358900	280300
26	217700	173300	156100	245700	267600	949500	1085000	1846000	1542000	922800	344000	279100
27	215400	173300	156100	279700	260600	933600	1076000	1856000	1522000	903600	336300	277600
28	212600	172700	156100	314200	251300	924000	1067000	1855000	1499000	882900	327700	276100
29	210100	171800	156300	336300	---	946400	1055000	1842000	1479000	864300	321600	274600
30	209800	170900	158400	346000	---	958700	1038000	1829000	1458000	848200	315100	272600
31	206600	---	159300	341600	---	958700	---	1818000	---	829400	310400	---
MAX	275800	204100	169500	346000	403400	973600	1137000	1866000	1871000	1438000	811000	307500
MIN	206600	170900	156100	158800	251300	247600	970500	1015000	1458000	829400	310400	272600
(†)	222.71	221.20	220.67	227.34	224.40	240.48	241.73	251.65	247.51	238.29	226.38	225.14
(ϕ)	-69800	-35700	-11600	-182300	-90300	+707400	+79300	+780000	-360000	-628600	-519000	-37800

CAL YR 1989 MAX 1142000 MIN 156100 (ϕ) -91400
WTR YR 1990 MAX 1871000 MIN 156100 (ϕ) -3800

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

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 downstream from Texarkana Dam, 1.4 mi upstream from Elliott Creek, 11.7 mi southwest of Texarkana, and at mile 44.1.

DRAINAGE AREA.--3,443 mi².

PERIOD OF RECORD.--October 1985 to current year (midnight elevations). August 1937 to July 1953 and October 1953 to September 1979 (daily gage heights); January to December 1933, January 1937 to December 1942, and January 1945 to September 1979 (discharge measurements); January to December 1939 and January 1945 to September 1979 (daily discharges) published by U.S. Army Corps of Engineers; October 1979 to September 1985 (daily discharges).

GAGE.--Water-stage recorder. Datum of gage is 180.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Elevation records good, except those for estimated daily elevations, which are fair. Station was converted from daily discharge to daily elevation station on October 1, 1985.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,100 ft³/s June 16 to July 5, 1981; maximum gage height, 32.57 ft June 15, 1981; no flow June 25, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 94,000 ft³/s Apr. 4, 1945; maximum stage, 47.23 ft Apr. 14, 1945; no flow on various occasions.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 211.98 ft at 2000 hours Apr. 6; minimum, 186.30 ft Jan. 5-6.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	191.32	195.87	192.46	186.33	201.91	208.67	211.75	211.74	211.70	211.79	211.83	199.54
2	191.30	195.84	192.52	186.31	202.46	207.08	211.73	211.79	211.70	211.79	211.81	198.14
3	191.30	195.82	192.53	186.31	205.16	204.77	211.74	211.83	211.83	211.79	211.77	195.72
4	191.14	195.83	192.55	186.31	208.51	201.84	211.79	211.26	211.87	211.79	211.85	194.46
5	191.15	195.83	192.56	186.30	210.89	198.53	211.87	209.38	211.79	211.76	211.85	194.16
6	192.90	195.81	192.82	186.30	211.59	195.87	211.94	207.98	211.77	211.88	211.79	194.07
7	193.13	195.80	189.26	186.31	211.54	197.43	211.87	205.97	211.75	211.88	211.78	192.24
8	193.16	195.79	188.93	186.33	211.52	e199.21	211.88	203.59	211.71	211.89	211.82	191.81
9	193.17	194.05	188.86	186.35	211.54	e200.99	211.88	202.03	211.74	211.84	211.83	191.74
10	193.15	193.87	188.85	186.35	211.59	e202.77	211.85	201.05	211.73	211.85	211.79	191.72
11	195.78	191.30	188.85	187.67	211.67	e204.55	211.82	200.79	211.75	211.83	211.78	191.98
12	196.39	190.63	188.86	188.59	211.84	206.32	211.83	201.40	211.75	211.82	211.73	191.86
13	197.38	190.70	188.79	188.87	211.86	205.92	211.83	201.96	211.72	211.79	211.78	193.79
14	197.79	190.92	188.75	188.86	211.90	206.33	211.88	202.54	211.76	211.79	211.76	194.01
15	197.88	190.68	187.40	188.85	211.89	207.85	211.91	202.89	211.72	211.77	211.75	194.02
16	196.74	190.64	186.62	188.81	211.86	210.31	211.86	203.23	211.72	211.76	211.74	193.99
17	196.29	190.63	186.44	188.79	211.82	211.36	211.01	203.79	211.72	211.88	211.68	194.06
18	196.17	190.62	186.44	188.79	201.70	211.52	211.80	202.90	211.69	211.89	211.65	194.03
19	196.13	190.61	186.44	188.79	211.68	211.53	211.79	202.30	211.70	211.88	211.61	195.99
20	196.12	189.47	186.45	188.79	211.59	211.53	211.81	201.84	211.63	211.85	211.52	196.76
21	196.12	189.19	186.46	188.80	211.54	211.55	211.83	201.53	211.63	211.82	210.73	196.87
22	196.08	189.15	186.46	189.44	210.87	211.54	211.83	202.20	211.64	211.81	210.56	196.87
23	196.06	189.09	186.46	191.07	209.09	211.58	211.84	204.13	211.62	211.79	210.47	196.84
24	196.02	189.07	186.47	192.47	208.40	211.64	211.82	206.19	211.61	211.89	210.42	194.46
25	195.98	189.05	186.47	193.25	208.02	211.63	211.81	208.46	211.78	211.89	210.37	193.81
26	195.95	189.05	186.46	192.68	209.47	211.66	211.84	211.24	211.81	211.86	210.31	193.68
27	195.93	189.05	186.46	192.11	209.77	211.63	211.80	211.72	211.80	211.85	208.88	193.64
28	195.90	189.04	186.46	192.98	209.84	211.65	211.83	211.75	211.77	211.82	208.25	193.60
29	195.88	190.08	186.44	195.26	---	211.68	211.84	211.74	211.79	211.79	206.79	193.59
30	195.90	191.94	186.39	198.05	---	211.84	211.80	211.72	211.80	211.86	204.69	193.57
31	195.88	---	186.35	200.61	---	211.72	---	211.71	---	211.83	201.70	---
MAX	197.88	195.87	192.82	200.61	211.90	211.84	211.94	211.83	211.87	211.89	211.85	199.54
MIN	191.14	189.04	186.35	186.30	201.70	195.87	211.01	200.79	211.61	211.76	201.70	191.72
(†)	195.88	191.94	186.35	200.61	209.84	211.72	211.80	211.71	211.80	211.83	201.70	193.57

CAL YR 1989 MAX 212.02 MIN 186.35
WTR YR 1990 MAX 211.94 MIN 186.30

e Estimated

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

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 downstream from Glade Branch, 1.8 mi upstream from Little Cypress Creek, 4.7 mi north of Winnsboro, and 146.5 mi upstream from mouth.

DRAINAGE AREA.--27.2 mi².

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

REVISED RECORDS.--WRD TX-89-1: 1985-88.

GAGE.--Water-stage recorder. Datum of gage is 375.83 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Flow slightly affected by Lake Franklin located 1.4 mi upstream on Glade Branch. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--16 years (water years (1975-90), 22.3 ft³/s (11.13 in/yr), 16,160 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,290 ft³/s Nov. 26, 1988 (gage height, 12.91 ft); no flow at times in water years 1974, 1978-80, 1982, and 1984-88.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 900 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 8	0130	1,590	11.24	May 2	1200	*2,210	*11.62
Mar. 29	1845	1,040	10.83	May 3	1315	1,750	11.35
Apr. 6	0830	1,160	10.93	June 3	2145	1,210	10.97

Minimum daily discharge, 0.87 ft³/s Oct. 15-16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	1.6	2.2	2.6	31	7.2	23	9.0	30	e2.4	19	2.4
2	.91	1.2	2.2	2.4	103	6.9	16	1000	16	e2.4	44	2.3
3	.94	1.4	1.9	2.7	29	6.1	12	1150	322	e2.4	6.3	2.3
4	1.0	1.6	2.0	2.8	16	5.7	11	497	353	e2.3	5.6	2.4
5	1.1	2.3	2.1	2.5	11	5.4	11	46	22	e2.3	16	2.6
6	1.2	2.3	2.0	2.4	9.8	5.2	758	23	11	e2.3	50	2.6
7	1.5	2.5	1.7	2.3	8.5	365	82	16	7.9	e2.3	6.2	2.7
8	1.4	2.5	1.9	2.5	7.9	1320	25	13	6.4	e2.2	4.3	e2.6
9	1.2	2.5	2.0	2.6	9.2	221	18	12	5.5	e2.2	3.7	e2.5
10	1.2	2.7	2.5	2.5	32	39	138	10	5.1	e2.2	3.5	e2.3
11	1.1	2.6	2.2	2.5	17	23	50	10	4.8	e2.3	3.4	e7.0
12	1.2	2.7	2.0	2.2	11	18	20	14	4.9	3.1	3.2	e3.0
13	1.3	2.8	2.0	2.2	9.3	15	17	12	4.5	3.9	3.2	e2.8
14	.89	2.9	2.2	2.4	8.0	319	670	9.5	3.9	3.4	3.2	e2.6
15	.87	2.8	2.0	2.4	7.6	350	154	8.7	3.8	3.3	3.1	e2.4
16	.87	2.5	1.6	2.3	7.0	31	33	7.9	3.6	3.5	3.1	e2.3
17	.95	2.3	1.6	6.5	6.2	18	21	16	e3.4	4.3	3.1	e2.2
18	1.0	2.2	1.6	14	5.9	14	16	29	e3.2	4.9	3.1	e2.1
19	.95	2.0	1.6	107	5.7	11	14	177	e3.1	3.7	3.1	2.1
20	.92	1.9	1.7	53	5.2	10	14	22	e3.0	3.2	3.1	1.9
21	1.1	1.8	1.7	15	10	10	28	11	e4.5	3.0	3.1	2.2
22	1.2	2.3	1.7	9.6	47	9.7	16	8.0	e4.0	2.8	3.0	2.4
23	1.2	2.7	1.7	7.8	14	9.5	13	6.7	e3.5	104	3.0	1.8
24	1.1	2.8	1.7	6.8	9.5	9.1	13	6.1	e3.2	11	2.9	1.4
25	1.1	3.0	1.9	7.4	7.8	11	20	5.7	e3.0	6.3	2.9	1.4
26	1.2	2.4	1.9	7.3	7.0	22	15	5.1	e2.8	4.3	2.8	1.4
27	1.0	2.5	1.6	7.1	6.5	16	16	203	e2.7	3.5	2.7	1.4
28	.99	2.3	1.6	8.2	6.5	253	41	76	e2.6	3.3	2.7	1.5
29	1.0	2.2	1.9	11	---	557	16	12	e2.5	3.2	2.8	1.5
30	6.1	2.1	2.1	9.0	---	357	10	8.8	e2.4	3.0	2.7	1.6
31	3.3	---	2.8	9.5	---	42	---	319	---	3.1	2.5	---
TOTAL	40.99	69.4	59.6	318.5	448.6	4086.8	2291	3743.5	848.3	206.1	221.3	69.7
MEAN	1.32	2.31	1.92	10.3	16.0	132	76.4	121	28.3	6.65	7.14	2.32
MAX	6.1	3.0	2.8	107	103	1320	758	1150	353	104	50	7.0
MIN	.87	1.2	1.6	2.2	5.2	5.2	10	5.1	2.4	2.2	2.5	1.4
AC-FT	81	138	118	632	890	8110	4540	7430	1680	409	439	138
CFSM	.05	.09	.07	.38	.59	4.85	2.81	4.44	1.04	.24	.26	.09
IN.	.06	.09	.08	.44	.61	5.59	3.13	5.12	1.16	.28	.30	.10

CAL YR 1989 TOTAL 12292.37 MEAN 33.7 MAX 2100 MIN .84 AC-FT 24380 CFSM 1.24 IN. 16.81
WTR YR 1990 TOTAL 12403.79 MEAN 34.0 MAX 1320 MIN .87 AC-FT 24600 CFSM 1.25 IN. 16.96

e Estimated

07344484 LAKE CYPRESS SPRINGS NEAR MOUNT VERNON, TX

LOCATION.--Lat 33°03'22", long 95°08'22", 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 upstream from Andy's Creek, 2.6 mi downstream from Panther Creek, and 10.3 mi southeast of Mount Vernon.

DRAINAGE AREA.--75.0 mi².

PERIOD OF RECORD.--February 1974 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 long. Deliberate impoundment began July 7, 1970, and the dam was completed Feb. 15, 1971. The spillway is an excavated channel through natural ground 1,000 ft wide located to the left of left end of dam. The service spillway is a rectangular 23- by 23-foot drop inlet located near the right end of dam. The low-flow outlet works consist of an 18-inch-diameter 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, provided by the Franklin County Water District, was based on data prepared by Wisenbaker, Fix, and Associates, Consulting Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 85,050 acre-ft Dec. 26, 1988 (elevation, 381.33 ft); minimum, 59,440 acre-ft Nov. 12-14, 1978 (elevation, 373.79 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 82,850 acre-ft May 4 at 0400 hours (elevation, 380.76 ft); minimum, 70,190 acre-ft Dec. 25 (elevation, 377.21 ft).

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

377.0	69,490	379.0	76,340	381.0	83,770
378.0	72,850	380.0	79,980		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71360	71050	70750	70480	74120	73670	77000	74300	75070	72780	72920	72070
2	71360	71050	70720	70480	74440	73640	76480	78180	75030	72720	73020	72000
3	71320	71050	70650	70620	74470	73610	75880	82620	76980	72650	73020	72000
4	71260	71050	70650	70620	74470	73570	75590	82200	77310	72610	73060	71930
5	71260	71050	70650	70620	74400	73500	75380	80580	77020	72550	73740	71900
6	71260	71090	70650	70620	74260	73470	77490	79240	76530	72480	73670	71860
7	71190	71090	70650	70650	74190	75840	77410	78210	75950	72380	73710	71760
8	71190	71090	70650	70690	74190	81440	77010	77410	75560	72310	73710	71760
9	71190	71020	70620	70720	74160	80610	76570	76990	75280	72170	73640	71760
10	71190	71020	70620	70720	74190	79390	76480	76330	75030	72140	73540	72070
11	71150	71020	70480	70750	74190	78390	76480	75840	74960	72100	73430	72680
12	71090	71020	70420	70720	74160	77590	75950	75630	74890	72100	73370	72720
13	71050	71020	70420	70720	74160	77030	75670	75380	74650	72070	73230	72750
14	71020	71090	70420	70720	74120	77560	77450	75140	74440	71970	73130	72750
15	70990	70820	70350	70720	74060	77740	77520	74890	74120	71930	73130	72750
16	70950	70720	70350	70750	73990	77130	77050	74790	74060	71860	73060	72750
17	70890	70650	70320	71150	73920	76770	76670	74750	73920	71830	72990	72850
18	70790	70650	70320	71930	73880	76180	76130	74860	73850	71830	72890	72820
19	70720	70650	70320	73130	73780	75630	75630	75240	73710	71830	72890	72820
20	70720	70650	70320	73300	73640	75310	75450	75210	73610	71830	72820	72820
21	70690	70690	70320	73300	73710	75070	75350	75140	73470	71760	72780	72820
22	70650	70820	70320	73300	73810	74860	75170	74930	73370	71730	72750	72820
23	70650	70820	70320	73330	73810	74720	74960	74720	73230	72920	72680	72780
24	70650	70820	70320	73160	73810	74470	74960	74580	73060	73020	72610	72720
25	70650	70820	70220	73230	73780	74370	74930	74440	72920	73020	72550	72680
26	70650	70820	70220	73230	73780	74330	74820	74190	72920	73020	72480	72650
27	70650	70850	70290	73300	73710	74330	74680	74750	72920	73020	72480	72610
28	70650	70850	70290	73370	73670	74930	74720	74890	72920	73020	72410	72580
29	70590	70790	70420	73370	---	77410	74650	74860	72920	73020	72340	72510
30	71050	70750	70480	73370	---	77850	74540	74890	72820	72960	72310	72510
31	71050	---	70480	73670	---	77230	---	75030	---	72890	72240	---
MAX	71360	71090	70750	73670	74470	81440	77520	82620	77310	73020	73740	72850
MIN	70590	70650	70220	70480	73640	73470	74540	74190	72820	71730	72240	71760
(†)	377.47	377.38	377.30	378.24	378.24	379.25	378.49	378.63	377.99	378.01	377.82	377.90
(ϕ)	-340	-300	-270	+3190	0	+3560	-2690	+490	-2210	+70	-650	+270

CAL YR 1989 MAX 84040 MIN 70220 (ϕ) -3370
WTR YR 1990 MAX 82620 MIN 70220 (ϕ) +1120

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

07344486 BRUSHY CREEK AT SCROGGINS, TX

LOCATION.--Lat 32°58'32", long 95°11'03", Franklin County, Hydrologic Unit 11140305, at downstream side of highway embankment near left end of bridge on Farm Road 115, 0.1 mi north of Scroggins, 0.3 mi downstream from Briary Creek, 2.5 mi upstream from South Brushy Creek, and 9.5 mi upstream from mouth.

DRAINAGE AREA.--23.4 mi².

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

REVISED RECORDS.--WDR TX-89-1 1983-88 (M).

GAGE.--Water-stage recorder. Datum of gage is 343.90 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records fair, except those below 5 ft³/s, which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--12 years (water years 1979-90), 15.8 ft³/s (9.17 in/yr), 11,450 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,520 ft³/s, Dec. 2, 1982 (gage height, 14.39 ft); no flow in water years 1978, 1980, 1984-88.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 8	0800	829	12.78	No other peak greater than base discharge.			

Minimum discharge, 1.3 ft³/s Sept. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	1.9	3.1	10	30	13	31	15	44	9.8	2.8	1.6
2	1.7	1.7	3.4	9.7	119	12	21	341	25	9.6	12	1.4
3	1.7	1.8	3.5	10	34	10	16	408	104	8.7	5.2	1.4
4	1.6	1.7	4.1	14	18	8.9	14	284	171	7.9	3.3	1.4
5	1.7	1.6	4.9	8.2	14	8.5	14	81	25	7.1	3.5	1.5
6	1.8	1.6	5.1	6.4	12	8.3	255	35	15	7.3	7.3	2.3
7	1.8	1.6	4.8	4.9	11	54	99	25	10	6.8	3.2	1.8
8	1.9	1.9	4.9	6.1	13	466	30	21	8.1	5.8	2.9	1.6
9	2.1	2.1	6.0	6.4	19	135	21	20	6.4	5.0	2.7	2.4
10	2.0	2.0	6.1	9.7	48	45	58	17	6.4	4.6	2.2	4.3
11	1.9	2.0	6.1	10	20	30	48	16	5.9	4.0	2.1	22
12	1.9	2.1	6.0	9.7	13	26	19	21	6.4	6.8	1.8	8.2
13	1.9	2.5	6.1	12	12	22	15	22	5.9	9.4	1.8	3.3
14	1.9	2.8	6.7	12	11	116	267	16	5.1	7.3	1.7	2.5
15	1.9	2.9	7.0	12	13	184	145	14	4.9	6.3	1.8	2.1
16	2.0	2.7	6.8	12	13	40	40	13	6.7	5.8	2.0	1.9
17	2.0	2.6	7.0	22	12	24	25	12	5.0	5.5	2.1	2.1
18	2.0	2.8	7.7	70	13	20	18	12	4.9	9.3	2.2	2.8
19	2.5	2.9	8.1	219	14	17	17	50	4.9	7.3	2.0	2.3
20	2.4	3.1	8.1	134	12	15	16	21	5.0	6.0	2.1	2.0
21	2.4	3.3	8.1	17	17	15	15	15	6.1	5.1	2.1	1.9
22	2.6	3.9	7.3	10	51	18	13	12	6.1	4.2	2.3	2.2
23	2.7	4.5	6.1	7.9	17	16	12	9.9	6.4	14	2.5	2.1
24	2.9	2.8	5.0	7.5	12	15	18	9.0	7.2	8.2	2.4	2.2
25	2.9	2.7	6.9	5.9	11	17	104	8.3	9.7	5.4	2.1	3.5
26	2.8	2.8	9.1	7.1	9.8	27	26	7.3	10	4.7	1.9	3.1
27	2.5	3.3	9.6	7.8	9.8	20	28	49	11	3.9	2.0	3.0
28	2.3	2.6	9.4	9.9	10	55	205	67	11	3.2	1.8	3.6
29	2.3	2.4	11	20	---	334	37	15	10	2.7	1.7	4.7
30	3.7	2.7	9.5	9.8	---	210	19	12	10	2.3	1.7	5.2
31	3.7	---	11	7.7	---	67	---	177	---	2.3	1.7	---
TOTAL	69.1	75.3	208.5	708.7	588.6	2048.7	1646	1825.5	557.1	196.3	86.9	100.4
MEAN	2.23	2.51	6.73	22.9	21.0	66.1	54.9	58.9	18.6	6.33	2.80	3.35
MAX	3.7	4.5	11	219	119	466	267	408	171	14	12	22
MIN	1.6	1.6	3.1	4.9	9.8	8.3	12	7.3	4.9	2.3	1.7	1.4
AC-FT	137	149	414	1410	1170	4060	3260	3620	1110	389	172	199
CFSM	.10	.11	.29	.98	.90	2.82	2.34	2.52	.79	.27	.12	.14
IN.	.11	.12	.33	1.13	.94	3.26	2.62	2.90	.89	.31	.14	.16

CAL YR 1989 TOTAL 6929.1 MEAN 19.0 MAX 871 MIN 1.6 AC-FT 13740 CFSM .81 IN. 11.02
WTR YR 1990 TOTAL 8111.1 MEAN 22.2 MAX 466 MIN 1.4 AC-FT 16090 CFSM .95 IN. 12.89

07344489 LAKE BOB SANDLIN NEAR MOUNT PLEASANT, TX

LOCATION.--Lat 33°04'48", long 95°00'07", Titus County, Hydrologic Unit 11140305, in control room in left abutment of service spillway at left end of Fort Sherman Dam on Big Cypress Creek, 1.7 mi upstream from Tankersley Creek, 3.5 mi upstream from bridge on U.S. Highway 271, 5.7 mi southwest of the county courthouse in Mount Pleasant, and 129.2 mi upstream from mouth.

DRAINAGE AREA.--239 mi².

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Apr. 12, 1978, a nonrecording gage was located at same site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam 10,800 ft long, including spillways. Deliberate impoundment began Aug. 8, 1977, and dam was completed by April 1978. The spillway is an excavated channel cut through natural ground. The spillway is 4,500 ft wide, located to the left of the left end of the dam. The service spillway is 289.5 ft wide with 160 ft of net flow width controlled by four 40- by 22.5-foot tainter gates. The dam was built, and is owned, maintained, and operated by the Titus County Fresh Water Supply District No. 1 to provide water for municipal use. Flow from 75.0 mi² above this station is controlled by Lake Cypress Springs on Big Cypress Creek and 36.0 mi² is controlled by Montecello Reservoir on Blundell Creek, a tributary to Big Cypress Creek. There is a stage telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-ft)
Top of dam	349.0	-
Crest of uncontrolled spillway	341.3	251,000
Crest of gated spillway	316.5	64,790
Lowest gated outlet (invert)	294.5	3,300

COOPERATION.-Area and capacity tables were compiled by Forest and Cotton, Inc., Consulting Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 222,800 acre-ft Mar. 17, 1987 (elevation, 338.49 ft); minimum, 516 acre-ft Aug. 8-17, 1977 (elevation, 290.00 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 217,100 acre-ft Mar. 8 at 0800 hours (elevation, 337.90 ft); minimum, 187,200 acre-ft Dec. 25-28 (elevation, 334.64 ft).

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

334.0	181,600	336.0	199,400	338.0	218,100
335.0	190,400	337.0	208,600		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	198900	194800	191500	187800	196300	204600	214100	213600	214500	208500	207700	202200
2	198800	194600	191000	187800	197900	205000	213500	215000	213700	208000	208000	201800
3	198600	194400	190800	188300	198800	204900	213600	214500	213500	207800	207900	201600
4	198500	194400	190700	188300	199200	204900	213600	214400	215000	207500	207900	201200
5	198500	194400	190500	188300	199400	204900	214300	214100	213500	207100	208400	201100
6	198400	194400	190100	188300	199800	205100	214300	214300	213500	207100	208400	200700
7	198100	194400	190000	188300	199800	205200	213400	214100	214200	206800	208200	200400
8	198000	194400	189900	188300	200100	217100	213400	214600	214200	206400	208200	200300
9	198000	194300	189600	188400	200100	212900	214200	215100	214200	206000	208100	200800
10	197900	194100	189500	188200	201000	213900	213700	213600	214100	205700	208000	201300
11	197700	194000	189200	188200	201600	214700	214100	213700	213900	205400	207900	203100
12	197600	193900	189000	188000	201600	213900	214200	214400	213800	204600	207800	204200
13	197500	193900	188700	187900	201800	213500	214400	213900	213500	205400	207500	204200
14	197400	193900	188600	187900	201900	213100	213900	213900	213400	204600	207200	204100
15	197300	193700	188300	188000	202200	214000	215100	213900	213300	204400	206900	204000
16	197300	193300	188000	188200	202300	213900	214000	213700	213300	204100	206800	203900
17	196900	193100	187900	189400	202300	213600	213400	213900	213300	203700	206400	204200
18	196700	193000	187800	191300	202300	213800	213500	213700	213300	203600	206200	204200
19	196100	193000	187800	193600	202500	213800	213400	214300	213200	203200	205900	204200
20	195800	192900	187800	194200	202400	213900	213600	213800	213000	202900	205700	204100
21	195400	193000	187600	194400	202500	213900	213600	213900	212700	202700	205500	204200
22	195300	193400	187400	194400	203900	214000	213600	213700	212000	202300	205300	204000
23	195100	193100	187300	194500	204000	214100	213400	213600	211600	204000	204900	203500
24	194900	192900	187300	194600	204200	214100	214900	213300	211200	204700	204600	203400
25	194800	192700	187200	194300	204200	214400	214900	213300	211100	205300	204400	203100
26	194600	192600	187200	194700	204200	214400	213100	213200	210500	205300	204100	203000
27	194400	192500	187200	194500	204400	214300	213800	212900	210300	205200	203800	202900
28	194300	192100	187300	194700	204300	214100	213500	214300	209800	205000	203500	202700
29	194200	191800	187300	195600	---	214700	214000	214300	209400	205000	203300	202500
30	195100	191600	187800	195500	---	213400	213900	213900	209000	205400	202900	202300
31	194900	---	187800	195700	---	214400	---	214100	---	205300	202600	---
MAX	198900	194800	191500	195700	204400	217100	215100	215100	215000	208500	208400	204200
MIN	194200	191600	187200	187800	196300	204600	213100	212900	209000	202300	202600	200300
(†)	335.50	335.13	334.71	335.59	336.53	337.61	337.56	337.58	337.04	336.64	336.35	336.32
(ϕ)	-4100	-3300	-3800	+7900	+8600	+10100	-500	+200	-5100	-3700	-2700	-300

CAL YR 1989 MAX 219500 MIN 187200 (ϕ) -21800
WTR YR 1990 MAX 217100 MIN 187200 (ϕ) +3300

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

07344500 BIG CYPRESS CREEK NEAR PITTSBURG, TX
(Flood-hydrograph Partial-record Station)

LOCATION.--Lat 33°01'15", long 94°52'55", Camp-Titus County line, Hydrologic Unit 11140305, near center of stream at downstream side of bridge on State Highway 11, 0.5 mi upstream from Louisiana & Arkansas Railway Co. bridge, 1.4 mi upstream from Williamson Creek, 5.2 mi east of Pittsburg, 19.2 mi downstream from Lake Bob Sandlin, and 110.0 mi upstream from mouth.

DRAINAGE AREA.--366 mi^2.

PERIOD OF RECORD.--March 1943 to January 1963 (published as Cypress Creek near Pittsburg), October 1967 to September 1989. October 1989 to current year, (peaks above base discharge and annual maximum). Gage-height records collected at this site from September 1963 to December 1967, are published in reports by the U.S. Army Corps of Engineers.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 247.49 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 12, 1954, water-stage recorder at site 1,900 ft downstream at present datum.

REMARKS.--Estimated daily discharges: Jan. 20. Records good. Flow partly regulated by Lake Cypress Springs (station 07344484) since July 1970, and by Monticello Reservoir (on Blundell Creek) since August 1972. Flow largely regulated by Lake Bob Sandlin (station 07344489) since August 1977. Sewage effluent was returned to a tributary above this station by the city of Mount Pleasant, and sewage effluent was returned to a tributary below the station by the city of Pittsburg. Gage-height telemeter at station. Nov. 12, 1954, water-stage recorder at site 1,900 ft downstream at present datum.

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 (12.13 in/yr), 236,900 acre-ft/yr; 17 years (water years 1973-89) regulated, 255 ft^3/s (184,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58,500 ft^3/s Mar. 30, 1945 (gage height, 28.3 ft, from floodmark, and adjusted to present site on basis of record for flood of Apr. 27, 1958), from rating curve extended above 20,000 ft^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, present site, adjusted as explained above, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 25,300 ft^3/s May 18 at 0600 hours (gage height, 22.39 ft); minimum daily, 3.0 ft^3/s Oct. 20.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 390 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage-height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan. 20	0600	497	10.89	May 4	0900	10,500	17.61
Feb. 3	2300	576	11.23	May 11	1000	636	11.46
Mar. 9	0500	*14,000	*18.96	May 21	0100	711	11.71
Mar. 30	0800	9,600	17.24	May 29	0900	485	10.84
Apr. 7	0600	4,780	14.78	June 5	0800	2,660	13.59
Apr. 27	0200	775	11.88				

Minimum discharge, not determined.

07345900 LAKE O' THE PINES NEAR JEFFERSON, TX

LOCATION.--Lat 32°45'04", long 94°29'59", Marion County, Hydrologic Unit 11140305, on left bank 1,500 ft upstream from left end of Ferrell's Bridge Dam on Big Cypress Creek, on Farm Road 726, 9.0 mi west of Jefferson, and 80.1 mi upstream from mouth.

DRAINAGE AREA.--850 mi².

PERIOD OF RECORD.--August 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Nov. 12, 1957, non-recording gage at same site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam 10,600 ft long, including a 200-foot-wide concrete spillway. Impoundment of water began Aug. 21, 1957, and the dam was completed June 25, 1958. Official operation began Dec. 11, 1959. The flood-control outlet works consist of two 10.0-foot-diameter conduits that are controlled by two 8.0- by 12.5-foot electrically driven broome-type gates. The low-flow outlet works consist of a controlled 14-inch pipe. Flow over the spillway is discharged into a 2,000-foot-long rectified channel and then into Cypress Creek. The capacity table is based on a survey made in 1950. The lake was built for conservation, flood control, and water supply. During the current year, an unknown amount of water was diverted from the lake for municipal and industrial uses. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	277.0	-
Crest of spillway	249.5	842,100
Top of conservation pool	228.5	254,900
Crest of intake to wet well (14 in)	202.5	5,760
Lowest gated outlet (invert)	200.0	2,860

COOPERATION.--Records furnished by the U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 694,360 acre-ft May 5, 1966 (elevation, 245.41 ft); minimum since December 1959, 210,100 acre-ft Oct. 6, 1984 (elevation, 225.98 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 452,300 acre-ft May 21 at 1600 hours (elevation, 237.38 ft); minimum, 244,100 acre-ft Dec. 28 (elevation, 227.92 ft).

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

227.0	227,600	233.0	346,500	236.0	417,100
229.0	264,300	234.0	369,100	237.0	442,500
231.0	303,800	235.0	392,700	238.0	468,700

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	266800	254500	248200	246300	284700	258600	438100	392200	417100	292100	279300	270200
2	265600	253700	248200	246100	287700	258400	441400	391500	412400	291500	279900	269800
3	264500	253700	248200	248900	288700	258400	442700	398700	410200	290300	280100	269100
4	261600	253700	247600	248500	287900	258400	438600	415400	407000	289600	280300	268700
5	260500	253700	247400	249300	285300	258400	438400	432700	403300	289200	280700	268300
6	260500	253700	247400	248900	283900	258200	436300	438900	401100	288500	280700	267900
7	259900	253700	247800	248700	281700	271900	439100	433800	398500	287900	280700	267300
8	258600	252600	247800	248500	278800	301600	443200	432700	395800	287300	279900	266800
9	257500	251900	247400	248700	277200	325200	445800	437600	391700	286700	279700	267500
10	256900	251500	247200	248700	275100	360700	446100	437800	385500	285700	279500	273300
11	256700	251500	247200	248900	272500	378400	443800	437800	380100	285300	279200	274500
12	256500	251100	247100	249300	269600	384100	439600	445600	374500	285100	278400	274500
13	256300	250900	247100	248500	266900	388800	439100	446100	368200	284300	278000	274900
14	256200	250900	247100	248400	264700	394600	443200	447100	362300	283900	278000	275200
15	256200	251300	246900	248400	263900	400400	443000	447900	357000	282100	277800	274900
16	256200	251100	246700	248500	262200	411700	444800	450800	350300	281300	277600	274900
17	255800	250400	246700	255200	260900	418100	445600	451800	343200	282900	277400	274500
18	256300	250000	246700	264500	259900	418100	442500	452800	337300	283700	277000	274100
19	256000	250000	246700	270400	259400	417100	438600	455200	329500	283300	276400	273900
20	255400	250000	244900	274300	258000	412700	434800	457600	324800	282500	275800	273500
21	255000	250000	244900	276600	259500	407700	431200	458100	318400	281900	275600	273300
22	254500	249500	244900	279000	262000	403300	426700	457800	313400	281500	275200	273100
23	254300	249300	244300	281700	262400	399200	421600	454700	309200	281300	274900	272700
24	253700	248700	244300	284900	262000	394800	415900	450200	305100	281100	274300	272100
25	253500	248500	244300	283700	262200	388600	411400	445000	303200	280700	273900	271400
26	253400	248500	244100	281700	262000	384300	408000	438100	301200	280300	273500	270600
27	253000	249300	244100	281300	261200	382700	405500	437300	297900	279900	272900	270000
28	252600	249300	244100	284300	259400	385500	402400	433500	296300	279300	272500	269200
29	252200	248700	244100	281900	---	392700	400900	428200	294700	279300	271900	268500
30	257100	248400	247100	281500	---	406800	398500	423900	293100	279300	271600	267500
31	255600	---	247100	280500	---	427700	---	421100	---	279000	271000	---
MAX	266800	254500	248200	284900	288700	427700	446100	458100	417100	292100	280700	275200
MIN	252200	248400	244100	246100	258000	258200	398500	391500	293100	279000	271000	266800
(†)	228.54	228.15	228.08	229.84	228.74	236.42	235.24	236.16	230.47	229.76	229.35	229.17
(Φ)	-12900	-7200	-1300	+33400	-21100	+168300	-29200	+22600	-128000	-14100	-8000	-3500

CAL YR 1989 MAX 429900 MIN 244100 (Φ) -21800
WTR YR 1990 MAX 458100 MIN 244100 (Φ) -1000

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

07346000 BIG CYPRESS CREEK NEAR JEFFERSON, TX

LOCATION.--Lat 32°44'58", long 94°29'55", Marion County, Hydrologic Unit 11140306, on left bank 950 ft downstream from Ferrell's Bridge Dam, 7.6 mi upstream from French Creek, and 8.5 mi west of Jefferson.

DRAINAGE AREA.--850 mi².

PERIOD OF RECORD.--July 1924 to September 1959 (published as Cypress Creek), October 1979 to current year. Records of stage and discharge for the period October 1959 to September 1979 published by the U.S. Army Corps of Engineers, New Orleans District.
Water-quality records.--Chemical and biochemical analyses: January 1983 to September 1985.

GAGE.--Water-stage recorder. Datum of gage is 180.00 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers benchmark). Prior to Nov. 2, 1933, staff gage, and Nov. 2, 1933, to Dec. 8, 1955, water-stage recorder, at site about 950 ft upstream at datum 3.70 ft higher. After Dec. 9, 1955, at site about 550 ft downstream or at present site at datum 180.00 ft lower.

REMARKS.--Records good, except those for estimated daily discharges, which are poor. Flow completely regulated by Lake O' the Pines (station 07345900), 950 ft upstream, since August 1957. Gage-height telemeter at station.

AVERAGE DISCHARGE.--33 years (water years 1925-57), prior to completion of Ferrells Bridge Dam, 660 ft³/s (478,200 acre-ft/yr); 13 years (water years-1959, 1980-90) regulated, 640 ft³/s (463,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 57,100 ft³/s Apr. 1, 1945 (gage height, 28.78 ft, site and datum then in use), from rating curve extended above 29,000 ft³/s; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,030 ft³/s June 13 at 0745 hours (gage height, 19.39 ft); minimum daily, 27 ft³/s Dec. 22-24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	594	36	32	28	659	560	587	2860	2970	373	76	55
2	594	36	32	28	866	309	901	2850	2960	309	41	56
3	593	35	32	29	1190	190	1330	2850	2960	243	60	55
4	590	33	33	29	1220	184	2130	2730	2980	244	59	55
5	437	33	33	32	1420	184	2770	2530	2960	214	59	55
6	209	33	33	33	1880	182	2910	2910	2940	153	59	54
7	129	33	50	33	1930	274	2870	2940	2950	151	59	55
8	86	33	55	34	1940	440	2860	2590	2950	151	59	54
9	41	33	38	34	1950	206	2870	1820	2940	150	59	52
10	38	34	39	33	1960	53	2890	1160	2950	149	58	53
11	38	34	38	34	1950	38	2890	646	2950	126	57	68
12	38	37	37	34	1930	37	2880	327	2970	105	57	54
13	39	41	34	34	1910	92	2870	137	3000	103	57	52
14	38	38	29	34	1900	305	2930	65	3000	103	58	53
15	39	32	28	34	1620	534	2930	55	2990	102	58	52
16	39	31	28	34	1260	942	2920	53	2980	102	58	52
17	38	32	28	67	978	1620	2910	60	2960	103	58	53
18	36	32	28	135	678	2410	2890	54	2950	103	58	53
19	35	32	28	258	622	2770	2900	56	2940	100	58	54
20	36	32	28	118	609	2790	2900	241	2930	100	57	57
21	36	33	28	52	511	2790	2900	552	2920	100	58	56
22	36	33	27	45	375	2790	2900	1010	2580	99	57	e59
23	36	33	27	43	467	2790	2900	1680	2150	99	57	e59
24	36	33	27	112	618	2780	2890	2430	1750	100	57	e59
25	36	33	28	392	625	2760	2890	2790	1370	102	58	e148
26	36	32	28	626	626	2460	2880	2800	1330	99	58	e232
27	36	32	28	649	624	1800	2890	2850	1280	98	57	288
28	35	32	28	654	624	1170	2910	2890	1020	98	57	328
29	35	32	28	671	---	803	2900	2860	712	98	57	327
30	36	32	29	662	---	587	2880	2900	536	90	56	329
31	36	---	28	652	---	475	---	2980	---	81	56	---
TOTAL	4081	1005	989	5653	32942	35325	80078	52676	74878	4248	1793	2977
MEAN	132	33.5	31.9	182	1176	1140	2669	1699	2496	137	57.8	99.2
MAX	594	41	55	671	1960	2790	2930	2980	3000	373	76	329
MIN	35	31	27	28	375	37	587	53	536	81	41	52
AC-FT	8090	1990	1960	11210	65340	70070	158800	104500	148500	8430	3560	5900

CAL YR 1989 TOTAL 314488.0 MEAN 862 MAX 2850 MIN 5.6 AC-FT 623800
WTR YR 1990 TOTAL 296645 MEAN 813 MAX 3000 MIN 27 AC-FT 588400

e Estimated

07346045 BLACK CYPRESS BAYOU AT JEFFERSON, TX

LOCATION.--Lat 32°46'40", long 94°21'26", Marion County, Hydrologic Unit 11140306 near center of channel at downstream side of bridge on U.S. Highway 59, 1.1 mi north of Jefferson, 2.0 mi upstream from Texas and Pacific Railway Co. bridge, and 5.2 mi upstream from mouth.

DRAINAGE AREA.--365 mi².

PERIOD OF RECORD.--September 1968 to current year. May 1938 to September 1955 (daily gage heights) and November 1956 to August 1968 (daily gage heights and discharge measurements) published by U.S. Army Corps of Engineers as "Black Cypress Creek at Jefferson". September 1964 to August 1968 operated as low-flow partial-record station only.
Water-quality records.--Chemical analyses: October 1967 to September 1981.

GAGE.--Water-stage recorder. Datum of gage is 171.47 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark).

REMARKS.--Records good except those below 25 ft³/s, which are fair, and those for estimated daily discharges, which are poor. No known regulation or diversion in vicinity of the gage. Gage-height telemeter at station.

AVERAGE DISCHARGE.--22 years (water years 1969-90), 333 ft³/s (12.39 in/yr), 241,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,600 ft³/s Dec. 28, 1987 (gage height, 19.34 ft); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1938, 22.42 ft Apr. 29, 1958, from records by U.S. Army Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft³/s (16.19 ft) and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 11	0200	*7,900	*18.13	No other peak greater than base discharge.			

Minimum discharge, no flow for Sept. 6-10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	14	39	e119	455	618	2050	821	490	26	15	.37
2	4.1	15	36	e113	775	532	2460	1060	590	28	14	.17
3	5.0	13	36	e111	864	435	2080	969	674	26	13	.07
4	8.1	13	38	e210	849	368	1550	867	660	20	20	.02
5	7.6	14	38	e188	891	333	1180	769	571	16	64	.01
6	6.3	15	36	e148	949	316	1190	731	540	13	89	.00
7	6.5	16	e132	e123	926	526	1060	827	600	11	89	.00
8	7.8	15	e101	e107	859	2430	944	989	567	9.5	77	.00
9	8.6	14	e119	e107	775	4740	988	926	443	7.9	57	.00
10	8.0	13	e80	e189	715	7100	1170	783	346	6.4	38	.00
11	7.9	13	e60	e172	621	7380	1430	658	267	4.6	25	.91
12	7.6	e21	e49	141	532	5190	1300	635	201	3.8	18	14
13	7.0	17	e43	115	519	3140	1100	617	155	3.3	15	51
14	6.8	12	e42	98	570	1950	1090	487	125	2.8	17	89
15	6.6	22	e42	89	615	1490	1200	407	103	2.5	12	119
16	7.2	25	e41	84	661	1230	1180	384	87	2.2	12	106
17	6.5	20	e41	153	649	1050	1140	401	74	8.3	11	79
18	5.7	19	e40	513	569	1030	1020	396	63	13	9.6	52
19	5.1	18	e42	1030	470	1120	882	380	54	11	8.3	32
20	5.4	14	e44	1160	406	1210	807	353	48	11	7.1	22
21	6.4	16	e43	1160	394	1060	746	335	40	13	6.4	17
22	7.0	26	e42	1400	482	865	660	318	33	26	6.0	14
23	7.7	51	e41	1420	499	715	548	322	28	20	5.3	11
24	8.1	53	e40	1310	479	589	446	334	23	17	4.6	9.5
25	7.6	51	e39	1160	533	471	379	345	21	22	3.8	9.1
26	7.7	61	e38	973	604	407	346	341	22	26	2.9	8.5
27	7.7	65	e37	795	628	379	375	335	20	20	2.0	7.4
28	7.6	66	e39	672	637	373	484	397	18	18	1.6	5.4
29	7.5	56	e133	626	---	567	479	357	15	21	1.4	4.4
30	8.9	45	e225	526	---	935	500	330	17	21	1.1	3.9
31	12	---	e149	444	---	1240	---	396	---	18	.68	---
TOTAL	219.5	813	1925	15456	17926	49789	30784	17270	6895	448.3	646.78	655.75
MEAN	7.08	27.1	62.1	499	640	1606	1026	557	230	14.5	20.9	21.9
MAX	12	66	225	1420	949	7380	2460	1060	674	28	89	119
MIN	3.5	12	36	84	394	316	346	318	15	2.2	.68	.00
AC-FT	435	1610	3820	30660	35560	98760	61060	34260	13680	889	1280	1300
CFSM	.02	.07	.17	1.37	1.75	4.40	2.81	1.53	.63	.04	.06	.06
IN.	.02	.08	.20	1.58	1.83	5.07	3.14	1.76	.70	.05	.07	.07

CAL YR 1989 TOTAL 170394.9 MEAN 467 MAX 8350 MIN 2.8 AC-FT 338000 CFSM 1.28 IN. 17.37
WTR YR 1990 TOTAL 142828.33 MEAN 391 MAX 7380 MIN .00 AC-FT 283300 CFSM 1.07 IN. 14.56

e Estimated

07346050 LITTLE CYPRESS CREEK NEAR ORE CITY, TX

LOCATION.--Lat 32°40'21", long 94°45'03", Upshur County, Hydrologic Unit 11140307, on right bank at downstream side of bridge on U.S. Highway 259, 4 mi downstream from Clear Creek, 9 mi south of Ore City, and 12 mi north of Longview.

DRAINAGE AREA.--383 mi².

PERIOD OF RECORD.--December 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 232.67 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. No known diversion above station. During the year, the city of Gilmer discharged a small amount of sewage effluent into a tributary above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--27 years (water years 1964-90), 269 ft³/s (9.54 in/yr), 194,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,500 ft³/s Apr. 24, 1966 (gage height, 20.20 ft); 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, or 1.3 ft lower than the flood of March 1945 at a point 6 mi upstream, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 21	0700	4,110	12.33	Mar. 31	2200	3,770	12.14
Mar. 10	0500	*6,070	*13.25	Apr. 16	0830	4,240	12.40
Mar. 17	1230	2,850	11.52	May 5	1530	4,560	12.57

Minimum discharge, 0.03 ft³/s on Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.05	4.9	2.4	17	394	260	3450	636	1060	27	e16	2.0
2	.07	5.1	2.5	12	922	221	2340	737	947	23	e30	1.6
3	.12	5.1	2.2	13	1340	199	1550	913	816	21	e21	3.4
4	.18	3.4	1.8	e27	1230	191	1160	1620	908	18	e15	1.6
5	.23	2.6	1.8	e31	1020	180	899	4280	979	16	e13	1.4
6	.54	2.0	1.8	e41	962	164	898	3670	1020	14	e11	1.5
7	.61	1.8	1.8	e39	886	785	988	2310	1190	13	e9.5	1.4
8	.26	1.8	1.8	e31	758	2760	1190	1500	1040	12	e9.0	1.0
9	.35	1.5	2.4	e25	634	4210	1750	1110	837	11	e8.5	1.5
10	.22	1.7	3.1	19	610	5780	1610	844	632	10	e7.5	2.8
11	.15	1.5	2.3	14	577	4040	1360	650	406	9.9	e6.0	24
12	.16	1.5	2.5	12	480	2380	1070	589	202	15	e5.2	200
13	3.1	1.5	2.5	11	413	1590	916	601	126	13	e4.6	275
14	.61	1.4	2.6	9.5	410	1240	1260	514	103	11	e4.0	220
15	.28	2.0	2.6	7.8	423	1170	2420	377	88	e10	e3.7	116
16	.17	2.5	4.1	6.3	440	1360	3840	319	77	e15	e3.4	75
17	.15	2.7	3.5	43	437	2700	2520	284	68	e32	3.2	44
18	.21	2.8	3.3	467	414	2230	1780	235	60	e22	3.2	31
19	.18	3.2	3.3	1310	426	1550	1350	291	53	e17	3.4	25
20	.16	3.8	3.5	1950	419	1150	1040	349	48	e13	4.2	21
21	.23	4.3	3.3	3800	357	893	830	377	43	e11	4.3	18
22	.29	5.5	3.3	2620	418	712	662	363	38	e10	3.2	18
23	.33	6.6	3.3	1880	438	547	506	312	34	e13	3.2	17
24	.33	6.7	3.3	1520	405	400	381	235	29	e19	3.5	15
25	.36	5.9	3.3	1210	394	294	330	166	30	e24	2.6	14
26	.39	5.1	3.5	935	412	250	432	129	57	e18	2.7	13
27	.38	4.2	4.4	720	395	235	583	183	80	e15	2.8	14
28	.36	3.4	5.0	539	328	245	668	443	55	e13	3.6	15
29	.37	2.9	6.1	482	---	411	692	456	40	e11	2.9	15
30	1.7	2.4	8.5	436	---	997	657	364	31	e8.5	2.6	13
31	1.5	---	19	394	---	2690	---	766	---	e7.5	2.3	---
TOTAL	14.04	99.8	114.8	18621.6	16342	41834	39132	25623	11097	472.9	215.1	1201.2
MEAN	.45	3.33	3.70	601	584	1349	1304	827	370	15.3	6.94	40.0
MAX	3.1	6.7	19	3800	1340	5780	3840	4280	1190	32	30	275
MIN	.05	1.4	1.8	6.3	328	164	330	129	29	7.5	2.3	1.0
AC-FT	28	198	228	36940	32410	82980	77620	50820	22010	938	427	2380
CFSM	.00	.01	.01	1.57	1.52	3.52	3.41	2.16	.97	.04	.02	.10
IN.	.00	.01	.01	1.81	1.59	4.06	3.80	2.49	1.08	.05	.02	.12

CAL YR 1989 TOTAL 115127.65 MEAN 315 MAX 12800 MIN .00 AC-FT 228400 CFSM .82 IN. 11.18
WTR YR 1990 TOTAL 154767.44 MEAN 424 MAX 5780 MIN .05 AC-FT 307000 CFSM 1.11 IN. 15.03

e Estimated

07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX

LOCATION (REVISED).--Lat 32°42'46", long 94°20'45", Marion County, Hydrologic Unit 11140307, at downstream side of upstream bridge on U.S. Highway 59, 0.3 mi downstream from Texas and Pacific Railway Co. bridge, 3.3 mi downstream from Grays Creek, 3.5 mi south of Jefferson, and 6.8 mi upstream from mouth.

DRAINAGE AREA.--675 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1946 to current year.

GAGE.--Water-stage recorder. Datum of gage is 174.60 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 19, 1947, nonrecording gage at upstream side of bridge at same datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. There is no known diversions above station, but some sewage effluent is discharged into tributaries that enter Little Cypress Creek above this station. Gage-height telemeter at station.

AVERAGE DISCHARGE.--44 years (water years 1947-90), 513 ft³/s (10.32 in/yr), 371,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,500 ft³/s Apr. 26, 1966 (gage height, 22.28 ft); 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.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,900 ft³/s Apr. 19 at about 1000 hours (gage height, 13.21 ft) from graph based on several wire-weight gage readings; minimum, 1.0 ft³/s Sept. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	28	63	144	1390	626	1160	761	1130	94	28	2.3
2	16	38	59	155	1640	587	1240	763	1170	73	39	2.1
3	16	43	e57	159	1940	567	1390	821	1210	59	51	1.9
4	16	45	55	175	1930	548	1970	918	1460	50	114	1.7
5	15	47	55	182	1810	520	2070	946	1660	43	130	1.5
6	15	51	55	191	1710	474	2050	938	1830	38	105	1.4
7	16	53	55	177	1660	565	1770	1030	1790	34	92	1.3
8	17	53	55	168	1580	1030	1540	2410	1520	32	88	1.2
9	19	49	54	164	1470	1180	1420	4140	1310	31	72	1.2
10	19	48	56	155	1570	1570	e1310	3480	1200	33	56	1.4
11	19	47	56	143	1710	2590	e1280	e2520	1180	30	44	2.9
12	19	45	56	130	1630	3640	e1380	e1870	1170	26	36	47
13	18	44	56	117	1500	4120	e1500	e1490	1070	23	30	203
14	18	43	56	106	1310	3270	e1460	e1230	878	20	26	254
15	18	40	56	e97	1120	2390	e1330	e1010	628	19	22	281
16	18	33	54	e96	985	1870	e1280	e784	399	22	19	280
17	19	31	54	e95	869	1560	e1500	e604	224	29	16	269
18	18	38	54	e94	774	1380	e2500	e544	161	67	14	231
19	18	42	55	e94	725	1230	4470	e578	134	78	12	154
20	18	44	59	e92	694	1280	3830	e570	115	101	10	94
21	19	45	61	e1600	697	1600	e3120	e538	100	88	9.0	63
22	19	51	62	e2000	928	1580	e2600	e530	87	77	8.3	48
23	19	68	57	2390	992	1440	e2170	468	77	70	7.5	39
24	20	76	61	2950	932	1250	e1790	452	68	59	6.2	35
25	20	83	61	3590	862	1070	e1530	444	61	56	5.3	32
26	19	87	62	3170	811	895	e1350	428	115	46	4.3	30
27	19	83	65	2570	752	727	1280	443	121	36	3.8	29
28	e19	75	68	2110	682	613	1530	472	106	30	3.5	25
29	e21	70	73	1940	---	652	1190	405	110	26	3.2	21
30	22	66	85	1750	---	962	908	437	113	23	3.0	18
31	25	---	117	1530	---	1080	---	816	---	21	2.8	---
TOTAL	568	1566	1892	28334	34673	42866	53918	32840	21197	1434	1060.9	2171.9
MEAN	18.3	52.2	61.0	914	1238	1383	1797	1059	707	46.3	34.2	72.4
MAX	25	87	117	3590	1940	4120	4470	4140	1830	101	130	281
MIN	14	28	54	92	682	474	908	405	61	19	2.8	1.2
AC-FT	1130	3110	3750	56200	68770	85020	106900	65140	42040	2840	2100	4310
CFSM	.03	.08	.09	1.35	1.83	2.05	2.66	1.57	1.05	.07	.05	.11
IN.	.03	.09	.10	1.56	1.91	2.36	2.97	1.81	1.17	.08	.06	.12

CAL YR 1989 TOTAL 276225 MEAN 757 MAX 18600 MIN 11 AC-FT 547900 CFSM 1.12 IN. 15.22
WTR YR 1990 TOTAL 222520.8 MEAN 610 MAX 4470 MIN 1.2 AC-FT 441400 CFSM .90 IN. 12.26

e Estimated

07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: June 1964 to current year. Pesticide analyses: January 1968 to June 1981.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1967 to September 1990 (discontinued).
WATER TEMPERATURE: October 1967 to September 1990 (discontinued).

INSTRUMENTATION.--From June 1981 to September 1990, specific conductance and water temperature were recorded continuously at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,350 microsiemens Nov. 9, 1969; minimum, 20 microsiemens Mar. 29, 30, 1989.
WATER TEMPERATURE (1967-87, 1989-90): Maximum, 32.5°C on several days during July and August 1987; minimum, 0.0°C on several days during winter months of 1983, 1985.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 299 microsiemens July 21; minimum, 52 microsiemens Mar. 12.
WATER TEMPERATURE; Minimum 0.5°C Dec. 23-27.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
JAN 18...	0830	94	102	6.3	14.0	7.8	75	2.5	14	2	3.4	1.4
FEB 28...	1045	694	134	6.5	14.5	13.2	128	1.3	26	16	6.2	2.6
APR 20...	1200	3850	86	6.5	19.0	7.2	77	3.3	18	6	4.4	1.7
JUN 14...	0850	949	100	7.1	27.0	--	--	1.3	26	8	6.3	2.4
AUG 09...	1145	65	160	7.0	24.5	7.2	88	0.7	24	6	5.9	2.3

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
JAN 18...	11	1	3.2	12	14	14	0.10	9.4	62	0.070	0.030	0.100
FEB 28...	13	1	3.3	9.8	18	21	<0.10	15	85	--	0.030	<0.100
APR 20...	7.8	0.8	4.4	12	7.7	10	<0.10	9.3	52	0.090	0.010	0.100
JUN 14...	7.1	0.6	3.4	18	8.5	11	0.10	14	64	0.280	0.020	0.300
AUG 09...	18	2	3.6	18	12	30	<0.10	17	102	0.190	0.010	0.200

DATE	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)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
JAN 18...	0.060	0.84	0.90	0.130	<1	45	<0.5	2.0	<5	<3	<10	340
FEB 28...	0.050	0.25	0.30	0.280	--	--	--	--	--	--	--	--
APR 20...	0.420	1.7	2.1	0.130	--	--	--	--	--	--	--	--
JUN 14...	0.100	1.0	1.1	0.190	--	--	--	--	--	--	--	--
AUG 09...	<0.010	--	1.1	0.110	1	56	<0.5	1.0	<5	<3	<10	2000

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN 18...	<10	7	170	<0.1	<10	<10	<1	<1.0	59	<6	17
FEB 28...	--	--	--	--	--	--	--	--	--	--	--
APR 20...	--	--	--	--	--	--	--	--	--	--	--
JUN 14...	--	--	--	--	--	--	--	--	--	--	--
AUG 09...	<10	8	190	0.1	<10	<10	<1	3.0	120	<6	14

07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1989	568	160	104	159	25	38	20	31	30
NOV.	1989	1566	125	83	349	18	77	16	69	25
DEC.	1989	1892	138	90	460	20	105	18	91	27
JAN.	1990	28334	84	56	4300	11	860	11	871	17
FEB.	1990	34673	104	69	6500	15	1360	14	1300	21
MAR.	1990	42866	85	57	6610	12	1330	12	1330	18
APR.	1990	53918	82	55	8030	11	1580	11	1630	17
MAY	1990	32840	81	55	4850	11	956	11	984	17
JUNE	1990	21197	94	63	3620	13	738	13	729	19
JULY	1990	1434	175	112	432	28	109	22	83	32
AUG.	1990	1060.9	130	86	245	19	55	17	49	25
SEPT	1990	2171.9	132	86	507	19	114	17	100	26
TOTAL		222520.8	**	**	36100	**	7320	**	7280	**
WTD.AVG.		610	90	60	**	12	**	12	**	18

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	e140	---	---	e150	---	---	e124	146	135	143
2	---	---	e140	---	---	e120	---	---	e120	135	128	130
3	---	---	e140	---	---	e120	---	---	e130	137	131	135
4	---	---	e140	---	---	e130	---	---	e130	149	134	138
5	---	---	e140	---	---	e130	---	---	e130	187	151	174
6	---	---	e150	---	---	e130	---	---	e130	171	139	150
7	---	---	e150	---	---	e130	---	---	e130	144	140	142
8	---	---	e150	---	---	e130	---	---	e130	146	143	144
9	---	---	e150	---	---	e130	---	---	e130	156	146	151
10	---	---	e150	---	---	e130	---	---	e130	155	144	150
11	---	---	e150	---	---	e130	---	---	e130	144	142	143
12	---	---	e150	---	---	e130	---	---	e130	148	144	147
13	---	---	e150	---	---	e130	---	---	e134	146	144	145
14	---	---	e160	---	---	e130	132	130	131	144	141	143
15	---	---	e160	---	---	e130	131	130	130	142	140	141
16	---	---	e160	---	---	e110	132	130	131	149	142	145
17	---	---	e160	---	---	e104	132	131	132	---	---	e142
18	---	---	e160	---	---	e120	133	131	132	---	---	e150
19	---	---	e160	---	---	e120	134	133	133	---	---	e150
20	---	---	e160	---	---	e120	134	132	133	---	---	e140
21	---	---	e170	---	---	e120	133	132	133	72	65	69
22	---	---	e170	---	---	e120	133	132	133	75	72	74
23	---	---	e170	---	---	e105	141	133	136	100	75	80
24	---	---	e170	---	---	e108	147	142	145	103	75	86
25	---	---	e170	---	---	e110	156	148	152	75	69	72
26	---	---	e170	---	---	e120	160	156	158	70	69	69
27	---	---	e170	---	---	e130	161	157	159	72	69	71
28	---	---	e180	---	---	e140	158	155	156	77	72	74
29	---	---	e180	---	---	e140	155	153	154	84	76	80
30	---	---	e180	166	100	143	153	149	152	90	84	87
31	---	---	e180	---	---	---	154	146	151	101	90	95
MONTH	---	---	159	166	100	125	161	130	136	187	65	121

e Estimated

07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	107	101	104	132	130	131	92	88	91	---	---	e80
2	106	85	93	136	132	134	91	87	89	---	---	e85
3	84	81	83	140	136	138	91	86	89	---	---	e75
4	88	82	85	144	139	142	85	73	77	---	---	e70
5	89	88	89	148	144	146	73	72	72	---	---	e70
6	91	89	90	149	147	148	74	71	72	---	---	e70
7	90	88	89	150	106	138	75	72	74	---	---	e70
8	93	89	90	104	96	101	78	75	77	---	---	e70
9	97	93	95	95	87	90	82	78	80	---	---	e70
10	97	90	93	88	74	83	---	---	e80	73	61	68
11	95	90	93	72	54	62	---	---	e85	76	72	75
12	99	94	96	57	52	54	---	---	e75	77	75	76
13	105	99	101	58	57	57	---	---	e80	76	74	75
14	117	105	111	63	57	60	---	---	e85	77	74	75
15	123	117	120	70	63	67	---	---	e90	84	77	79
16	125	122	123	78	70	74	---	---	e75	96	84	90
17	128	125	126	87	78	82	---	---	e70	100	96	98
18	133	127	129	99	87	92	---	---	e75	104	100	102
19	140	134	137	107	99	104	---	---	e80	107	103	105
20	142	139	141	109	103	107	---	---	e75	109	107	108
21	142	130	138	103	88	94	---	---	e80	---	---	e100
22	129	116	120	88	87	87	---	---	e85	---	---	e110
23	116	113	114	89	87	88	---	---	e90	---	---	e110
24	120	113	117	94	89	91	---	---	e95	116	114	115
25	128	120	124	100	94	96	---	---	e100	115	113	114
26	132	129	131	108	100	104	---	---	e105	118	113	115
27	131	130	130	117	108	113	---	---	e110	123	110	118
28	131	129	130	124	117	120	---	---	e70	117	108	112
29	---	---	---	126	111	122	---	---	e75	118	113	116
30	---	---	---	109	94	101	---	---	e80	113	100	108
31	---	---	---	95	90	92	---	---	---	99	92	95
MONTH	142	81	110	150	52	101	92	71	83	123	61	91

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	99	94	96	---	---	e160	176	161	167	---	---	e165
2	95	92	93	---	---	e160	158	126	135	---	---	e165
3	94	86	91	---	---	e160	154	125	140	---	---	e165
4	85	82	83	---	---	e150	135	115	125	---	---	e165
5	82	81	82	---	---	e150	113	96	100	---	---	e170
6	83	81	82	---	---	e150	125	101	110	---	---	e170
7	86	80	82	---	---	e150	184	113	142	---	---	e170
8	92	87	90	---	---	e160	185	147	171	---	---	e170
9	93	91	92	---	---	e160	153	135	144	---	---	e175
10	94	92	93	---	---	e170	134	120	127	---	---	e180
11	93	91	92	---	---	e160	---	---	e120	---	---	e180
12	93	91	92	---	---	e150	---	---	e122	---	---	e150
13	98	94	96	145	143	143	---	---	e121	149	91	111
14	104	98	101	146	143	144	---	---	e125	---	---	e120
15	113	104	108	145	142	144	---	---	e125	---	---	e120
16	126	114	120	144	141	143	---	---	e125	---	---	e120
17	136	126	132	143	136	140	---	---	e130	---	---	e130
18	---	---	e130	141	94	122	---	---	e130	134	130	132
19	---	---	e130	175	100	125	---	---	e130	---	---	e140
20	---	---	e130	230	185	207	---	---	e135	158	145	151
21	---	---	e140	299	192	238	---	---	e140	162	158	160
22	---	---	e140	237	176	198	---	---	e140	162	161	162
23	---	---	e140	243	174	200	---	---	e140	163	162	162
24	---	---	e150	277	176	225	---	---	e150	162	160	161
25	---	---	e150	278	213	256	---	---	e150	160	158	159
26	---	---	e160	216	190	206	---	---	e155	159	158	158
27	---	---	e160	192	165	177	---	---	e155	159	156	158
28	---	---	e150	172	162	164	---	---	e155	158	155	156
29	---	---	e150	171	160	163	---	---	e160	158	156	157
30	---	---	e150	176	160	165	---	---	e160	157	156	157
31	---	---	---	176	163	166	---	---	e160	---	---	---
MONTH	136	80	117	299	94	168	185	96	138	163	91	155

e Estimated

07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

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

07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	22.5	22.0	22.5	---	---	---	27.5	26.0	26.5	---	---	---
2	23.5	22.5	23.0	---	---	---	26.5	25.5	26.0	---	---	---
3	24.0	23.5	24.0	---	---	---	26.5	25.5	26.0	---	---	---
4	24.0	23.5	24.0	---	---	---	26.5	26.0	26.0	---	---	---
5	24.0	23.0	23.5	---	---	---	26.0	25.5	26.0	---	---	---
6	25.5	24.0	24.5	---	---	---	26.0	25.0	25.5	---	---	---
7	26.0	25.0	25.5	---	---	---	26.0	24.5	25.5	---	---	---
8	27.0	26.0	26.5	---	---	---	25.5	24.0	24.5	---	---	---
9	27.0	26.5	27.0	---	---	---	---	---	---	---	---	---
10	27.5	26.5	27.0	---	---	---	---	---	---	---	---	---
11	27.5	26.5	27.0	---	---	---	---	---	---	---	---	---
12	27.5	26.5	27.0	---	---	---	---	---	---	---	---	---
13	27.5	27.0	27.0	26.5	25.0	25.5	---	---	---	---	---	---
14	28.0	27.0	27.5	25.0	24.0	24.5	---	---	---	---	---	---
15	28.0	27.5	27.5	24.0	23.0	23.5	---	---	---	---	---	---
16	28.0	27.5	27.5	23.5	22.5	23.0	---	---	---	---	---	---
17	28.5	27.5	28.0	23.0	22.5	22.5	---	---	---	---	---	---
18	28.5	27.5	28.0	23.0	22.0	22.5	---	---	---	---	---	---
19	29.0	27.5	28.5	24.0	22.5	23.5	---	---	---	---	---	---
20	29.5	28.0	28.5	25.0	24.0	24.5	---	---	---	---	---	---
21	30.0	26.5	28.5	26.0	24.5	25.5	---	---	---	---	---	---
22	34.0	25.0	29.5	26.5	25.0	26.0	---	---	---	---	---	---
23	---	---	---	26.0	25.5	26.0	---	---	---	---	---	---
24	---	---	---	25.5	25.0	25.5	---	---	---	---	---	---
25	---	---	---	25.5	25.0	25.5	---	---	---	---	---	---
26	---	---	---	26.5	24.5	26.0	---	---	---	---	---	---
27	26.5	25.0	26.0	27.0	25.5	26.5	---	---	---	---	---	---
28	27.5	26.0	26.5	27.5	26.0	27.0	---	---	---	---	---	---
29	27.5	26.0	26.5	28.0	26.5	27.5	---	---	---	---	---	---
30	27.5	26.5	27.0	28.5	26.5	27.0	---	---	---	---	---	---
31	---	---	---	28.0	26.0	27.0	---	---	---	---	---	---
MONTH	34.0	22.0	26.5	28.5	22.0	25.0	27.5	24.0	25.5	---	---	---

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 upstream from Colley Creek, 3.7 mi upstream from Johns Creek, and 5.3 mi northeast of Linden.

DRAINAGE AREA.--48.0 mi².

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 above National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation bridge plans).

REMARKS.--Records good except those for estimated daily discharges, which are poor. No known diversion. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--25 years (water years 1966-90), 43.0 ft³/s (12.16 in/yr), 31,150 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,750 ft³/s Mar. 28, 1989 (gage height, 12.80 ft from graph); no flow at times for most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1945, 15.6 ft Apr. 26, 27, 1958, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 8	1900	*5,510	*12.37	No other peak greater than base discharge.			

Minimum discharge, 0.12 ft³/s July 31.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	e11.3	e6.4	e13	56	79	e149	51	60	3.4	1.9	1.9
2	2.4	e12.2	e6.4	e11	170	73	e119	73	35	5.3	1.4	1.9
3	2.0	e12.0	e6.5	e11	179	49	e95	162	32	4.2	1.5	1.7
4	1.4	e10.9	e6.6	e18	155	42	e84	164	83	4.6	1.0	1.6
5	.94	e10.0	e6.7	e16	88	37	e82	124	51	4.0	.97	1.4
6	.68	e7.9	e6.9	e13	61	35	e124	70	30	4.0	1.2	1.3
7	.63	e6.0	e7.0	e12	51	434	e113	50	23	3.5	1.6	1.1
8	.83	e5.0	e7.1	e11	44	3510	e82	42	17	2.5	1.8	1.0
9	1.1	e4.1	e7.1	e11	45	1230	e70	44	15	2.6	1.4	2.3
10	1.0	e3.9	e7.2	e11	108	346	e63	39	11	2.1	1.2	1.7
11	.86	e3.7	e7.4	e11	100	214	e60	34	9.6	1.2	1.1	2.4
12	.75	e3.5	e7.5	e11	57	143	e63	61	8.8	2.3	5.1	8.5
13	.65	e3.4	e7.6	e12	47	109	e88	103	8.1	1.5	8.4	2.9
14	.58	e3.4	e7.7	e12	42	106	e94	59	7.3	1.3	6.5	1.4
15	.56	3.8	e7.7	e12	42	185	e77	42	6.3	1.3	5.4	1.4
16	.52	e4.4	e7.8	e12	46	179	e67	37	5.9	.89	5.0	1.5
17	.57	e4.4	e8.1	28	39	e112	e64	51	5.0	.85	9.0	1.4
18	.70	e4.6	e8.1	130	34	e76	61	48	3.7	2.6	7.1	1.3
19	.86	e4.7	e8.2	273	33	e60	55	63	3.1	3.4	4.4	1.6
20	.98	e4.9	e8.3	335	32	e112	54	62	3.0	2.6	2.4	1.9
21	.97	e5.0	e8.4	214	42	e103	51	45	2.5	3.0	2.0	1.6
22	.92	e5.8	e8.6	79	139	e80	47	36	1.7	2.7	3.3	1.4
23	.92	e11.0	e8.8	52	112	e61	43	30	1.2	1.0	2.1	2.3
24	.91	e9.8	e8.9	45	57	e46	37	28	.95	1.8	1.5	2.4
25	.85	e7.3	e9.0	41	45	e38	34	26	2.1	5.4	1.4	2.1
26	.96	e6.3	e9.1	34	40	e35	34	24	31	6.6	1.3	1.9
27	1.0	e5.9	e9.2	29	37	e36	51	52	15	4.9	1.3	1.6
28	1.0	e6.0	e9.5	40	37	e60	136	191	6.7	3.3	1.3	1.4
29	1.0	e6.1	e10	125	---	e317	229	112	3.5	2.2	1.3	1.4
30	1.0	e6.3	e15	97	---	e260	91	55	2.2	1.0	1.6	1.5
31	1.9	---	e17	52	---	e192	---	55	---	.70	1.8	---
TOTAL	31.64	193.6	259.8	1771	1938	8359	2417	2033	484.65	86.74	87.27	57.8
MEAN	1.02	6.45	8.38	57.1	69.2	270	80.6	65.6	16.2	2.80	2.82	1.93
MAX	2.4	12	17	335	179	3510	229	191	83	6.6	9.0	8.5
MIN	.52	3.4	6.4	11	32	35	34	24	.95	.70	.97	1.0
AC-FT	63	384	515	3510	3840	16580	4790	4030	961	172	173	115
CFSM	.02	.13	.17	1.19	1.44	5.62	1.68	1.37	.34	.06	.06	.04
IN.	.02	.15	.20	1.37	1.50	6.48	1.87	1.58	.38	.07	.07	.04

CAL YR 1989 TOTAL 28566.34 MEAN 78.3 MAX 3690 MIN .52 AC-FT 56660 CFSM 1.63 IN. 22.14
WTR YR 1990 TOTAL 17719.50 MEAN 48.5 MAX 3510 MIN .52 AC-FT 35150 CFSM 1.01 IN. 13.73

e Estimated

SABINE RIVER MAIN STEM

08017200 COWLEECH FORK SABINE RIVER AT GREENVILLE, TX

LOCATION.--Lat 33°07'58", long 96°04'36", Hunt County, Hydrologic Unit 12010001, on left bank 103 ft downstream from centerline of downstream bridge on Interstate Highway 30 (U.S. Highway 67), 0.3 mi downstream from Horse Creek, 0.9 mi downstream from Louisiana and Arkansas Railroad Co. bridge, 1.8 mi east of Greenville, and at mile 558.3.

DRAINAGE AREA.--77.7 mi².

PERIOD OF RECORD.--February 1959 to current year. Prior to October 1963, published as Sabine River at Greenville.

REVISED RECORDS.--WSP 1732: Drainage area. WSP 2122: 1960, 1963-65.

GAGE.--Water-stage recorder. Datum of gage is 485.07 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. The city of Greenville diverted water from city lakes upstream from the gage and from Lake Tawakoni for municipal use. Sewage effluent is returned to a tributary downstream from gage. Extreme low flow is largely sustained by return water from water treatment plant upstream. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--31 years (water years 1960-90), 63.1 ft³/s (11.03 in/yr), 45,720 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,300 ft³/s May 13, 1982 (gage height, 18.47 ft); no flow in 1964, 1969-70, 1972-73, and 1977-90.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1895, 22 ft in May 1935, from information by local resident and city engineer of Greenville. Flood of July 3, 1913, reached a stage of 20 ft, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 19	1600	*8,720	*a17.72	May 2	1800	6,970	17.38

Minimum discharge, no flow for many days.

a From Highwater mark.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.40	.09	e.20	1620	4.0	29	9.8	155	.00	.01	.00
2	.00	.38	.09	e.18	1420	3.6	21	4070	428	.11	.53	.00
3	.00	.32	.09	e.18	108	3.5	16	4980	109	.10	.20	.00
4	.00	.32	.09	e.21	42	3.2	12	2070	366	.04	28	.00
5	.00	.41	.08	e.22	31	2.9	19	97	38	.01	14	.00
6	.00	.43	.08	e.25	27	2.7	1220	49	12	.00	7.0	.00
7	.00	.35	.08	e.23	24	217	159	33	4.8	.00	3.2	.00
8	.00	.25	.08	e.22	22	252	32	10	2.0	.00	.40	.00
9	.02	.21	.09	e.20	20	60	21	4.7	.59	.00	.15	.00
10	.04	.16	.09	e.20	18	27	660	2.4	.25	.00	.08	.00
11	.04	.13	.09	e.17	16	21	125	3.5	.15	.00	.05	38
12	.04	.11	.09	e.16	13	60	31	4.2	.12	4.2	.04	11
13	.04	.10	e.09	e.15	13	29	23	2.7	.10	.30	.02	1.7
14	.02	.09	e.08	e.13	11	687	1460	2.3	.09	.10	.01	.36
15	.02	.08	e.08	e.13	9.9	1670	730	2.5	.09	.06	.00	.19
16	.02	.06	e.08	e.15	8.6	76	67	8.8	.08	.04	.00	.08
17	.02	.06	e.09	e.25	7.2	33	39	2.5	.06	.03	.00	2.4
18	.03	.05	e.10	e10	6.4	22	29	.72	.05	.02	.00	11
19	.03	.04	e.10	e4430	5.6	16	172	5.1	.04	.01	.00	1.2
20	.06	.04	e.12	1140	4.9	12	192	2.1	.02	.01	.00	.21
21	.08	.04	e.11	42	16	11	677	.92	.07	.01	.00	.11
22	.08	.65	e.11	14	150	9.1	69	.54	.07	8.6	.00	.09
23	.08	.34	e.10	5.7	35	7.8	28	.62	.04	9.8	.00	.09
24	.08	.11	e.10	2.8	14	6.6	16	.99	.02	.46	.00	.04
25	.10	.10	e.10	1.7	8.1	9.3	11	1.0	.01	.24	.00	.03
26	.13	.09	e.12	1.2	5.8	20	504	.97	.00	.20	.00	.00
27	.15	.09	e.15	1.2	4.8	35	550	7.6	.00	.13	.00	.00
28	.19	.09	e.17	1.2	4.6	771	74	4.1	.00	.06	.00	.00
29	.27	.09	e.18	1.2	---	1230	31	1.6	.00	.03	.00	.00
30	7.4	.09	e.18	.85	---	274	17	.74	.00	.01	.00	.00
31	.67	---	e.21	69	---	52	---	189	---	.00	.00	---
TOTAL	9.61	5.68	3.31	5724.08	3665.9	5627.7	7034	11568.40	1116.65	24.57	53.69	66.50
MEAN	.31	.19	.11	185	131	182	234	373	37.2	.79	1.73	2.22
MAX	7.4	.65	.21	4430	1620	1670	1460	4980	428	9.8	28	38
MIN	.00	.04	.08	.13	4.6	2.7	11	.54	.00	.00	.00	.00
AC-FT	19	11	6.6	11350	7270	11160	13950	22950	2210	49	106	132
CFSM	.00	.00	.00	2.38	1.69	2.34	3.02	4.80	.48	.01	.02	.03
IN.	.00	.00	.00	2.74	1.76	2.69	3.37	5.54	.53	.01	.03	.03

CAL YR 1989 TOTAL 31694.29 MEAN 86.8 MAX 6130 MIN .00 AC-FT 62870 CFSM 1.12 IN. 15.17
WTR YR 1990 TOTAL 34900.09 MEAN 95.6 MAX 4980 MIN .00 AC-FT 69220 CFSM 1.23 IN. 16.71

e Estimated

08017300 SOUTH FORK SABINE RIVER NEAR QUINLAN, TX

LOCATION.--Lat 32°53'52", long 96°15'11", Hunt County, Hydrologic Unit 12010001, on right bank at downstream side of bridge on Farm Road 1565, 2.4 mi upstream from Dry Creek, 6.2 mi upstream from Bearpen Creek, 7 mi southwest of Quinlan, and 25 mi upstream from mouth.

DRAINAGE AREA.--78.7 mi².

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

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 461.0 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. The city of Royse City discharged sewage effluent into the river above this station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--31 years (water years 1960-90), 80.0 ft³/s (13.80 in/yr), 57,960 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,000 ft³/s June 16, 1981 (gage height, 18.24 ft); maximum gage height, 18.77 ft Apr. 5, 1986; no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1890, 21 ft July 29, 1902, from information by local resident. Flood of Apr. 27, 1957, reached a stage of 17.76 ft, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 19	0945	6,930	17.07	Apr. 14	1715	3,210	16.46
Feb. 1	1515	5,830	16.90	May 3	1215	*12,900	*17.80

Minimum discharge, no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.03	.04	.16	3220	16	62	7.9	378	.00	.00	.00
2	.00	.03	.03	.12	1570	10	32	2980	253	.00	.00	.00
3	.00	.02	.03	.09	233	5.0	13	7050	95	.00	.00	.00
4	.00	.00	.03	.11	78	2.6	5.5	776	659	.00	.00	.00
5	.00	.00	.05	.17	37	1.4	2.4	e180	127	.00	.01	.00
6	.00	.00	.12	.25	18	.78	157	e74	37	.00	27	.00
7	.00	.00	.09	.16	7.0	462	69	e32	16	.00	11	.00
8	.00	.01	.05	.12	3.4	639	29	19	5.6	.00	4.1	.00
9	.00	.02	.04	.12	3.9	147	12	11	1.7	.00	1.0	.00
10	.00	.01	.05	.10	11	70	492	5.2	.45	.00	.41	.00
11	.00	.01	.04	.09	8.8	75	272	4.0	.22	.00	.26	.00
12	.00	.01	.06	.08	3.1	99	32	31	.15	.00	.17	.00
13	.00	.00	.07	.06	1.2	49	53	21	.06	.00	.12	.00
14	.00	.00	.06	.04	.72	468	1460	8.6	.03	.00	.08	.00
15	.00	.00	.09	.05	.77	1170	881	3.9	.01	.00	.06	.00
16	.00	.00	.07	.07	.81	165	378	1.3	.00	.00	.04	.00
17	.00	.00	.06	.22	.45	75	97	1.0	.00	.00	.02	.00
18	.00	.00	.05	24	.33	35	23	2.9	.00	.00	.02	.00
19	.00	.00	.08	3990	.33	18	21	1.4	.00	.00	.01	.00
20	.00	.00	.12	1060	.29	8.1	34	8.5	.00	.00	.00	.00
21	.00	.01	.11	147	35	4.7	158	23	.00	.00	.00	.00
22	.00	.14	.10	64	238	3.0	35	3.9	.00	.00	.00	.00
23	.00	.26	.10	26	57	2.2	11	1.2	.00	.00	.00	.00
24	.00	.18	.09	7.8	26	1.0	3.3	.55	.01	.00	.00	.00
25	.00	.17	.10	2.1	9.4	25	.71	.34	.00	.00	.00	.00
26	.00	.11	.14	1.1	4.3	104	404	.10	.00	.00	.00	.00
27	.00	.09	.20	.41	2.4	47	990	.14	.00	.00	.00	.00
28	.00	.06	.21	.16	2.6	560	482	.85	.00	.00	.00	.00
29	.00	.04	.17	.13	---	799	88	.26	.00	.00	.00	.00
30	.00	.04	.17	.10	---	629	24	.23	.00	.00	.00	.00
31	.00	---	.20	108	---	122	---	211	---	.00	.00	---
TOTAL	0.00	1.24	2.82	5432.81	5572.80	5812.78	6320.91	11460.27	1573.23	0.00	44.30	0.00
MEAN	.000	.041	.091	175	199	188	211	370	52.4	.000	1.43	.000
MAX	.00	.26	.21	3990	3220	1170	1460	7050	659	.00	27	.00
MIN	.00	.00	.03	.04	.29	.78	.71	.10	.00	.00	.00	.00
AC-FT	.00	2.5	5.6	10780	11050	11530	12540	22730	3120	.00	88	.00
CFSM	.00	.00	.00	2.23	2.53	2.38	2.68	4.70	.67	.00	.02	.00
IN.	.00	.00	.00	2.57	2.63	2.75	2.99	5.42	.74	.00	.02	.00

CAL YR 1989 TOTAL 39163.27 MEAN 107 MAX 10700 MIN .00 AC-FT 77680 CFSM 1.36 IN. 18.51
WTR YR 1990 TOTAL 36221.16 MEAN 99.2 MAX 7050 MIN .00 AC-FT 71840 CFSM 1.26 IN. 17.12

e Estimated

08017400 LAKE TAWAKONI NEAR WILLS POINT, TX

LOCATION.--Lat 32°48'31", long 95°55'10", Van-Zandt County, Hydrologic Unit 12010001, in stairwell at left end of spillway of Iron Bridge Dam on Sabine River, 750 ft upstream from bridge on Farm Road 47, 3.8 mi upstream from McBee Creek, 9.0 mi northeast of Wills Point, and at mile 514.5.

DRAINAGE AREA.--756 mi².

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

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

REMARKS.--The lake is formed by a rolled earthfill dam 29,500 ft long, including a 480-foot uncontrolled concrete ogee spillway. Outlet works consist of two 4- by 6-foot sluice gates and two 20-inch steel pipes controlled by service valves. Closure of earthen dam began July 1, 1960, and deliberate impoundment of water began Oct. 7, 1960. Capacity table is based on a 1956 survey. Diversions are made for municipal use by the city of Dallas and various other users in the Sabine River basin. The lake was built for water conservation. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	454.0	-
Design flood	446.2	1,290,000
Crest of spillway	437.5	936,200
Lowest intake to wet well (invert)	416.5	342,700
Lowest gated outlet (invert)	378.0	0

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,130,000 acre-ft May 1, 1966 (elevation, 442.58 ft); minimum since lake first filled in May 1965, 802,700 acre-ft Oct. 21, 1972 (elevation, 433.65 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,037,000 acre-ft July 6 at 2400 hours (elevation, 440.20 ft); minimum, 841,400 acre-ft Jan. 16 (elevation, 434.80 ft).

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

434.0	814,300	437.0	918,200	440.0	1,029,000
435.0	848,200	438.0	954,300	441.0	1,067,000
436.0	882,800	439.0	991,200		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	904400	884200	867600	849200	962100	943800	982800	962800	948200	921400	1014000	870000
2	904000	882400	867900	848200	993900	941700	978300	1010000	951800	920000	1013000	868600
3	903300	880400	865500	847800	998000	941300	973200	1029000	952900	921800	1014000	867900
4	902200	879300	865100	850300	990100	939900	969500	1033000	954700	920300	1017000	867200
5	901500	879700	864800	848900	984600	939100	969800	1011000	954700	918900	1017000	866200
6	901500	879700	865100	848200	979400	939500	972000	1026000	952500	1037000	897300	864800
7	900500	879700	867200	847500	975000	955100	974300	1007000	950700	1035000	895900	863800
8	899400	879700	864100	846100	970900	989400	970900	1010000	948900	1033000	894800	862700
9	898000	877900	862700	846500	972400	990900	968000	1018000	947500	1033000	893800	862700
10	896900	877600	862400	845800	966500	986400	973200	1007000	946000	1031000	893400	864100
11	895500	876600	864500	845500	963500	980500	975400	994600	944600	1029000	892300	865800
12	895200	875500	860700	844500	959100	979800	972400	993100	942800	1029000	890900	866500
13	894500	875200	859600	842800	958000	975700	970900	986400	940900	1026000	890200	865500
14	893800	875900	858900	842400	956500	975000	989400	980900	939500	1024000	889200	865100
15	893400	875900	859300	842100	954300	999500	998000	975700	939100	1023000	888100	864100
16	895200	871000	856800	841400	952100	1008000	995400	975400	937700	1021000	887400	863400
17	892300	871400	855800	845800	949600	1003000	989400	969800	936600	1020000	886000	861700
18	891300	870700	855100	858900	948200	995000	984200	966500	935900	1020000	884900	861700
19	887700	870700	854700	895900	946000	989800	979100	963900	934400	1019000	883800	860700
20	886000	870700	854400	924000	944600	982800	976800	963500	933300	1018000	883500	859600
21	884600	870300	856500	930100	947500	977200	976100	961700	933700	1016000	882400	859600
22	884200	872700	853700	930500	946700	973200	973500	958400	932300	1017000	881100	858600
23	883800	870000	850600	930500	947100	970200	969800	955800	930800	1019000	880000	856500
24	883800	868900	848200	933300	946400	967600	967600	954000	928600	1019000	878600	854400
25	883100	870300	848500	928300	945300	965000	964700	951800	927900	1018000	877600	853000
26	882100	869300	849200	925800	944200	963200	963500	950700	930800	1017000	876600	852300
27	882100	872100	848900	927600	944200	960200	966900	950700	925800	1017000	875500	851600
28	881400	870300	848200	928600	946400	962800	968400	949600	925000	1015000	874800	850900
29	880400	868600	848500	927200	---	976100	969100	947500	923600	1015000	873800	849900
30	884600	867900	849900	926500	---	986800	966500	947800	922100	1013000	872700	849200
31	882800	---	849900	933300	---	987200	---	948900	---	1015000	871400	---
MAX	904400	884200	867900	933300	998000	1008000	998000	1033000	954700	1037000	1017000	870000
MIN	880400	867900	848200	841400	944200	939100	963500	947500	922100	918900	871400	849200
(†)	436.00	435.57	435.05	437.42	437.78	438.89	438.33	437.85	437.13	439.63	435.67	435.03
(ϕ)	-22300	-14900	-18000	+83400	+13100	+40800	-20700	-17600	-26800	+92900	-143600	-22200

CAL YR 1989 MAX 1026000 MIN 841400 (ϕ) +2100
WTR YR 1990 MAX 1037000 MIN 841400 (ϕ) -55900

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

08017410 SABINE RIVER NEAR WILLS POINT, TX

LOCATION.--Lat 32°48'22", long 95°55'09", Van Zandt County, Hydrologic Unit 12010001, on right bank at downstream side of bridge on Farm Road 47, 750 ft downstream from Iron Bridge Dam that forms Lake Tawakoni, 3.6 mi upstream from McBee Creek, 9.0 mi northeast of Wills Point, and at mile 514.3.

DRAINAGE AREA.--756 mi².

PERIOD OF RECORD.--October 1970 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 370.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those below 1.0 ft³/s, which are fair, and those for estimated daily discharges, which are poor. Flow regulated by Lake Tawakoni (see station 08017400) 750 ft upstream. Several observations of water temperature were obtained during the year.

AVERAGE DISCHARGE.--20 years, 414 ft³/s (299,900 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,600 ft³/s May 4, 1991 (gage height, 19.11 ft); no flow most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since construction of Iron Bridge Dam in 1960, about 21,000 ft³/s May 1, 1966, from theoretical rating curve of flow over dam 750 ft upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 20,600 ft³/s May 4 at 1215 hours (gage height, 19.11 ft), no flow Jan. 14-16, and Aug. 24 to Sept. 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.61	.63	.83	.19	404	551	2670	1330	667	.45	.69	e.00
2	.57	30	1.5	.19	2090	316	2450	3330	646	1.3	.59	e.00
3	.52	.82	4.3	.25	3530	228	2080	11700	683	.47	.43	e.00
4	.52	.61	.72	.20	3390	197	1730	20000	758	.55	.67	e.00
5	.52	.61	.72	.13	2980	173	1460	16600	791	.45	2.9	e.00
6	7.4	.61	.72	.09	2620	156	1840	11800	741	.52	4.5	e.00
7	4.3	.71	1.3	.09	2280	420	1920	8470	654	.25	.82	e.00
8	.67	11	19	.09	1960	2540	1910	6600	570	.28	1.4	e.00
9	.61	1.2	1.1	.06	1750	3040	1690	5540	499	.33	.57	e.00
10	1.4	.72	.83	.06	1620	2830	1850	4590	437	.36	.52	e.00
11	1.1	.72	24	.06	1320	2540	2090	3870	373	.37	.52	e.00
12	1.1	.72	8.9	.28	1130	2310	1990	3450	309	11	.52	e.00
13	1.1	.84	.83	.01	968	2060	1780	2990	247	74	.52	e.00
14	1.1	2.0	.74	.00	902	2230	2570	2600	206	17	.52	e.00
15	1.2	85	28	.00	867	3530	3370	2230	174	.25	.52	e.00
16	20	30	1.8	.00	786	4000	3590	1960	142	.24	e.52	e.00
17	85	.73	.83	.30	606	3790	3340	1820	110	.24	e.52	.00
18	55	.72	.83	.97	493	3320	2820	1480	89	.24	e.52	e.00
19	72	.72	.96	783	443	3000	2480	1380	59	.24	e.52	e.00
20	.60	.74	.72	566	369	2550	2210	1250	31	.26	e.50	e6.6
21	.43	.83	14	74	393	2190	2020	1170	17	.36	e.50	e10
22	.39	24	24	.30	562	1900	1950	1030	61	5.0	e.50	e10
23	.43	4.8	5.2	5.9	543	1660	1730	866	57	1.8	e.30	e10
24	.45	.79	.55	73	425	1540	1460	725	4.5	.67	e.00	e10
25	.52	.72	.91	402	359	1360	1300	631	.35	.38	e.00	e10
26	.64	.72	.31	16	331	1270	1180	554	.24	.33	e.00	e10
27	.86	3.4	.22	11	313	1120	1200	539	.29	.29	e.00	e10
28	1.1	22	.19	127	388	1130	1420	586	.29	.37	e.00	e10
29	2.0	1.9	.19	62	---	1720	1540	500	.25	.42	e.00	e10
30	27	.83	.70	11	---	2680	1530	425	.29	4.2	e.00	e10
31	3.2	---	.99	8.7	---	2890	---	498	---	1.1	e.00	---
TOTAL	292.34	229.09	145.89	2142.87	33822	59241	61170	120514	8327.21	123.72	19.57	106.60
MEAN	9.43	7.64	4.71	69.1	1208	1911	2039	3888	278	3.99	.63	3.55
MAX	85	85	28	783	3530	4000	3590	20000	791	74	4.5	10
MIN	.39	.61	.19	.00	313	156	1180	425	.24	.24	.00	.00
AC-FT	580	454	289	4250	67090	117500	121300	239000	16520	245	39	211

CAL YR 1989	TOTAL	248633.59	MEAN	681	MAX	11500	MIN	.04	AC-FT 493200
WTR YR 1990	TOTAL	286134.29	MEAN	784	MAX	20000	MIN	.00	AC-FT 567500

e Estimated

08018500 SABINE RIVER NEAR MINEOLA, TX

LOCATION.--Lat 32°36'49", long 95°29'08", Wood County, Hydrologic Unit 12010001, on left bank at downstream side of highway embankment 3 ft downstream from left end of bridge on U.S. Highway 69, 3.5 mi south of Mineola, 4.5 mi upstream from Missouri Pacific Railway Lines bridge, 16.2 mi upstream from Lake Fork Creek, and at mile 461.1.

DRAINAGE AREA.--1,357 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1939 to September 1959, October 1967 to current year. Gage-height records collected at this site since July 1946 are contained in reports published by the National Weather Service.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 304.16 ft above National Geodetic Vertical Datum of 1929. May 12, 1939, to Dec. 11, 1955, at site 55 ft upstream from downstream side of bridge; Dec. 12, 1955, to Dec. 12, 1959, at downstream side of bridge; Oct. 1, 1967, to Sept. 12, 1968, nonrecording gage at downstream side of bridge; Sept. 13, 1968, to Oct. 23, 1974, water-stage recorder at downstream side of bridge; Oct. 24, 1974, to Oct. 16, 1975, at site on right bank 75 ft downstream from bridge. All gages at present datum.

REMARKS.--Records good, except those for estimated daily discharges, which are poor. Since October 1960, flow partly regulated by Lake Tawakoni (see station 08017400), capacity 936,200 acre-ft, 53 mi upstream, and since September 1962, by Lake Holbrook (capacity, 7,990 acre-ft), located on Keys Creek, a tributary to the Sabine River 8.0 mi upstream. Flow may also be slightly affected at times by discharge from one floodwater-retarding structure with a detention capacity of 3,570 acre-ft. This structure controls runoff from 9.70 mi² in the Mill Creek drainage basin.

AVERAGE DISCHARGE.--20 years (water years 1940-59) prior to regulation by Lake Tawakoni, 1,054 ft³/s (763,600 acre-ft/yr); 23 years (water years 1968-90) regulated, 877 ft³/s (635,400 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 76,000 ft³/s Apr. 1, 1945 (gage height, 24.00 ft); maximum gage height, 24.37 ft June 8, 1943; no flow at times.
Maximum stage since at least 1890, that of June 8, 1943.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 29,700 ft³/s May 5 at 1400 hours (gage height, 21.09 ft); minimum daily, 0.50 ft³/s Sept. 5-8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.9	12	8.9	17	254	492	8370	1880	1440	13	e9.0	e.70
2	8.7	9.2	8.2	15	958	540	6490	2260	2340	12	e35	e.60
3	7.8	6.9	7.6	15	1760	653	4900	4840	3070	10	e9.0	e.55
4	7.0	6.4	6.9	19	2310	564	3910	20100	3330	9.4	e8.0	.52
5	6.4	11	7.7	22	2850	394	3460	28600	2670	8.7	e100	e.50
6	6.5	11	9.3	22	3460	311	3370	26100	2060	9.7	e75	e.50
7	18	9.6	9.3	20	3800	376	3320	20900	1560	9.8	e55	e.50
8	14	11	9.2	17	3740	1540	3150	16400	1240	9.0	e30	e.50
9	11	9.4	8.7	15	3510	2920	2960	13100	1060	7.4	e20	e60
10	9.2	7.3	8.2	14	3180	10200	3040	10800	905	9.7	e10	e30
11	7.6	6.2	8.1	12	2810	9490	3450	8690	763	8.9	e7.5	e150
12	6.3	5.5	7.8	12	2590	6170	3650	7550	649	7.4	e6.5	e80
13	5.0	4.9	7.7	10	2540	4510	3770	6620	546	6.8	e6.5	e25
14	4.4	4.6	8.3	10	2440	4060	4500	6020	441	6.2	6.1	e12
15	4.0	4.5	9.0	10	2200	5130	5720	5280	345	5.7	e6.0	e6.0
16	4.6	5.3	9.7	10	1900	6820	6820	4410	277	15	e6.0	e4.0
17	6.4	6.1	11	111	1600	8680	8010	3840	231	44	e5.5	3.7
18	6.7	6.5	13	942	1340	7220	6610	3400	188	57	e5.5	4.7
19	7.6	13	13	2010	1140	5660	5360	3040	149	24	e5.5	4.4
20	8.7	30	12	2620	930	5010	4510	2640	120	17	e5.0	3.5
21	24	20	13	4830	742	4510	3860	2460	95	13	e4.5	3.2
22	46	16	14	7910	712	3910	3510	2300	70	9.3	e4.0	8.3
23	36	15	13	5620	827	3570	3110	2080	50	e9.0	e3.5	14
24	21	12	11	3530	972	3170	2750	1810	39	e60	e3.5	7.2
25	14	10	11	2120	998	2760	2660	1540	79	e80	e3.0	4.7
26	11	9.0	12	1080	859	2500	2540	1290	63	e65	e2.5	3.6
27	8.2	7.6	12	634	667	2320	2410	1090	35	e30	e2.0	2.6
28	7.1	7.2	15	351	543	2200	2270	942	25	e20	e1.5	2.4
29	6.5	9.6	18	248	---	2560	2120	835	21	e10	e1.0	1.8
30	12	9.7	17	248	---	4590	1980	815	16	e9.0	e.90	1.5
31	18	---	18	277	---	7300	---	822	---	e9.0	e.80	---
TOTAL	363.6	296.5	337.6	32771	51632	120130	122580	212454	23877	605.0	438.30	436.97
MEAN	11.7	9.88	10.9	1057	1844	3875	4086	6853	796	19.5	14.1	14.6
MAX	46	30	18	7910	3800	10200	8370	28600	3330	80	100	150
MIN	4.0	4.5	6.9	10	254	311	1980	815	16	5.7	.80	.50
AC-FT	721	588	670	65000	102400	238300	243100	421400	47360	1200	869	867

CAL YR 1989	TOTAL 397383.6	MEAN 1089	MAX 31500	MIN 3.7	AC-FT 788200				
WTR YR 1990	TOTAL 565921.97	MEAN 1550	MAX 28600	MIN .50	AC-FT 1123000				

e Estimated

08018500 SABINE RIVER NEAR MINEOLA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1967 to current year. Biochemical analyses: October 1973 to current year.

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 11,400 microsiemens June 3, 1971; minimum daily, 64 microsiemens May 5, 1990.
WATER TEMPERATURE: Maximum daily, 36.0°C Aug. 21, 1984; minimum daily, 0.0°C Jan. 15, Feb. 1, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 5,520 microsiemens Nov. 11; minimum daily, 64 microsiemens May 5.
WATER TEMPERATURE: Maximum daily, 29.0°C on several days during November, June and July.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
NOV 14...	1200	4.6	3200	6.7	18.0	8.0	86	0.7	170	100
JAN 10...	1100	13	1740	6.7	8.0	12.6	107	1.2	140	99
FEB 28...	1200	560	246	7.0	14.0	8.8	85	1.3	87	18
APR 23...	1800	3060	201	6.8	21.0	7.0	79	1.4	73	5
JUN 18...	1700	185	230	6.9	29.0	5.3	70	1.9	71	6
SEP 04...	1240	0.50	1020	7.6	28.0	7.4	95	8.0	180	95

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV 14...	52	8.9	540	18	7.5	64	77	890	0.20
JAN 10...	41	9.3	300	11	6.8	42	86	460	0.10
FEB 28...	27	4.8	22	1	4.3	69	33	26	<0.10
APR 23...	23	3.7	11	0.6	3.7	68	14	9.4	0.20
JUN 18...	23	3.4	15	0.8	3.4	65	20	19	<0.10
SEP 04...	52	12	120	4	4.9	84	68	210	0.30

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 14...	12	1630	--	<0.010	<0.100	0.030	0.57	0.60	0.070
JAN 10...	13	941	--	<0.010	<0.100	0.020	0.48	0.50	0.060
FEB 28...	3.2	162	--	0.050	<0.100	0.120	0.78	0.90	0.120
APR 23...	1.0	107	0.190	0.010	0.200	0.040	0.66	0.70	0.080
JUN 18...	4.2	127	0.470	0.030	0.500	0.050	1.2	1.2	0.050
SEP 04...	11	529	--	0.030	<0.100	0.160	0.64	0.80	0.070

08018500 SABINE RIVER NEAR MINEOLA, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

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.	1989	363.6	456	246	241	100	100	32	32	61
NOV.	1989	296.5	1470	792	634	380	307	74	59	150
DEC.	1989	337.6	1060	573	522	250	231	66	60	130
JAN.	1990	32771	234	126	11100	53	4670	16	1420	31
FEB.	1990	51632	223	120	16700	48	6730	16	2290	31
MAR.	1990	120130	174	94	30400	37	12100	13	4190	24
APR.	1990	122580	163	88	29000	35	11600	12	4000	23
MAY	1990	212454	143	77	44300	31	17700	11	6130	20
JUNE	1990	23877	199	107	6920	43	2770	15	951	28
JULY	1990	605.0	400	216	352	88	144	29	47	54
AUG.	1990	438.30	473	255	301	100	124	34	40	64
SEPT	1990	436.97	560	302	356	130	149	39	46	74
TOTAL		565921.97	**	**	141000	**	56600	**	19300	**
WTD.AVG.		1550	171	92	**	37	**	13	**	24

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e300	e264	e394	e1180	e450	e267	135	e235	e265	353	534	926
2	296	e233	e501	e1100	e186	e286	e133	e190	e205	354	e518	953
3	308	e308	e632	877	e274	e305	e157	145	157	361	488	e988
4	322	e352	e661	e903	195	e320	181	e113	171	368	477	1020
5	332	e467	e1310	e1010	164	e335	e200	64	188	e370	e389	1060
6	e308	e506	e3610	e1070	152	e348	212	e82	218	361	377	e1100
7	e280	e555	e2900	e1120	e154	360	e218	e130	203	e377	e400	1140
8	e318	e680	e1960	e1240	179	e321	228	158	200	383	e448	1180
9	e340	e1040	e1200	e1480	194	e210	219	167	207	396	e520	e1040
10	e318	e2660	e806	e1790	203	e133	202	175	202	e358	e618	e233
11	307	e5520	e926	e2190	209	107	195	e178	202	e317	707	e371
12	321	e5190	e1170	e2550	217	e130	e193	180	203	340	769	e740
13	337	e3980	e1110	e2800	e220	162	184	180	207	347	e756	e759
14	343	e3170	e1050	e3110	225	188	172	183	210	359	e720	e564
15	337	e2650	e794	e3720	233	190	171	189	218	364	e665	489
16	330	2370	e600	e4390	e235	e195	e158	194	227	e426	629	483
17	338	e2390	e1160	e4290	245	154	133	200	e230	e624	605	482
18	339	e2230	e1230	e1130	e259	133	128	199	233	e305	594	e455
19	e325	e2110	e938	e404	278	150	e124	199	236	e300	588	e420
20	e285	e2640	e595	e229	e282	173	e119	e200	248	354	590	e417
21	e180	e2370	822	e140	286	187	e110	e201	253	366	597	432
22	e490	e1440	823	119	e336	195	e100	202	258	373	e551	e285
23	e863	748	e823	108	e606	201	e99	e213	278	390	522	e335
24	e684	e656	823	e145	e365	207	e122	e222	291	363	e540	e420
25	724	e574	822	e236	e315	212	e153	e231	304	387	e580	e415
26	e691	500	825	e346	290	217	e184	e249	e270	416	e622	e390
27	e610	466	824	e315	e260	e220	e205	e254	e290	e455	e680	397
28	567	e450	e885	e310	e246	234	e232	e263	304	491	e743	420
29	e461	496	e908	e390	---	e215	253	e270	e323	e505	e810	e440
30	e485	e457	e1090	e489	---	e193	251	e265	e338	e529	852	427
31	e430	---	e1230	627	---	e163	---	e240	---	534	e892	---
MEAN	405	1580	1080	1280	259	216	172	193	238	394	606	626

e Estimated

08018500 SABINE RIVER NEAR MINEOLA, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.0	24.0	23.0	19.0	9.0	12.0	16.0	20.0	23.0	27.0	27.0	27.0
2	28.0	23.0	22.0	---	11.0	11.0	17.0	19.0	23.0	26.0	26.0	26.0
3	28.0	21.0	22.0	---	14.0	10.0	16.0	15.0	26.0	28.0	26.0	27.0
4	28.0	22.0	22.0	---	11.0	10.0	17.0	18.0	24.0	29.0	28.0	26.0
5	28.0	27.0	23.0	---	11.0	13.0	18.0	18.0	24.0	29.0	26.0	27.0
6	---	28.0	27.0	---	13.0	14.0	17.0	18.0	26.0	26.0	25.0	27.0
7	28.0	---	28.0	---	12.0	13.0	15.0	18.0	26.0	28.0	25.0	27.0
8	27.0	---	26.0	---	14.0	13.0	16.0	20.0	26.0	28.0	24.0	27.0
9	27.0	28.0	24.0	---	15.0	18.0	15.0	20.0	26.0	28.0	26.0	26.0
10	26.0	28.0	24.0	---	13.0	18.0	16.0	19.0	26.0	27.0	25.0	23.0
11	27.0	28.0	28.0	---	14.0	18.0	15.0	20.0	26.0	28.0	26.0	22.0
12	27.0	28.0	21.0	---	12.0	20.0	16.0	21.0	27.0	26.0	26.0	22.0
13	26.0	27.0	20.0	---	14.0	20.0	17.0	20.0	27.0	26.0	27.0	25.0
14	26.0	29.0	20.0	---	16.0	19.0	17.0	22.0	28.0	24.0	27.0	25.0
15	27.0	28.0	19.0	---	14.0	16.0	16.0	23.0	27.0	26.0	27.0	24.0
16	27.0	26.0	15.0	---	13.0	16.0	18.0	24.0	28.0	26.0	27.0	25.0
17	26.0	25.0	19.0	---	---	16.0	18.0	22.0	27.0	25.0	25.0	26.0
18	24.0	27.0	19.0	---	11.0	16.0	18.0	23.0	28.0	26.0	28.0	26.0
19	20.0	27.0	19.0	---	10.0	16.0	18.0	23.0	28.0	25.0	28.0	27.0
20	19.0	28.0	17.0	---	10.0	14.0	18.0	24.0	29.0	26.0	28.0	27.0
21	19.0	29.0	17.0	---	10.0	15.0	19.0	22.0	29.0	27.0	26.0	26.0
22	20.0	29.0	16.0	---	10.0	16.0	20.0	23.0	28.0	27.0	27.0	26.0
23	23.0	26.0	15.0	---	9.0	16.0	20.0	23.0	27.0	27.0	27.0	25.0
24	25.0	25.0	15.0	---	10.0	15.0	22.0	23.0	27.0	26.0	27.0	20.0
25	26.0	26.0	12.0	---	11.0	15.0	21.0	23.0	26.0	26.0	27.0	20.0
26	26.0	27.0	13.0	11.0	12.0	15.0	22.0	24.0	26.0	27.0	27.0	20.0
27	26.0	27.0	15.0	12.0	13.0	12.0	19.0	24.0	27.0	29.0	28.0	22.0
28	26.0	25.0	16.0	12.0	15.0	14.0	18.0	24.0	27.0	28.0	26.0	22.0
29	27.0	24.0	20.0	9.0	---	15.0	20.0	23.0	27.0	29.0	28.0	22.0
30	25.0	23.0	21.0	8.0	---	14.0	21.0	24.0	27.0	27.0	28.0	---
31	24.0	---	19.0	8.0	---	15.0	---	23.0	---	28.0	28.0	---
MEAN	25.5	26.0	20.0	11.5	12.0	15.0	18.0	21.5	26.5	27.0	26.5	24.5

08018800 LAKE FORK RESERVOIR NEAR QUITMAN, TX

LOCATION.--Lat 32°48'48", long 95°31'40", Wood County, Hydrologic Unit 12010003, in room at left end of gated concrete spillway structure of Lake Fork Dam on Lake Fork Creek, 2,000 ft upstream from bridge on State Highway 182, 2.3 mi upstream from Alum Branch, and 4.4 mi west-northwest of the county courthouse in Quitman.

DRAINAGE AREA.--490 mi².

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

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

REMARKS.--The lake is formed by a rolled earthfill dam 12,660 ft long, including a 260-foot gated concrete spillway. The outlet works consist of two 5- 8-foot low flow sluice gates, five 40- by 20-foot taintor gates, and two 5- by 6-foot sluice gates that open into a wet well where there are two 36-inch and one 10-inch valve-controlled and metered-outlet pipes. Deliberate impoundment began June 29, 1979, and closure of the dam was completed in January 1980. The lake was built for water conservation and is owned by the Sabine River Authority. No known diversions were made from the lake this year. Flow is affected at times by discharge from the flood-detention pools of 21 floodwater-retarding structures with a combined detention capacity of 20,270 acre-ft. These structures control runoff 60 mi² above the lake. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	419.5	1,270,000
Top of tainter gates	405.0	732,900
Crest of gated spillway	385.0	291,900
Invert of upper sluice gate	383.0	260,400
Invert of lower sluice gate	360.5	43,120
Invert of sluice gate in two center pieces	360.0	40,620

COOPERATION.--Area and capacity tables were prepared and provided by URS/Forest and Cotton, Inc., Consulting Engineers for the Sabine River Authority. Observed elevations for the period Oct. 31, 1979, to Jan. 31, 1980, were provided by the Sabine River Authority.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 737,300 acre-ft May 4, 1990 (elevation, 405.15 ft); minimum observed, 46,140 acre-ft Dec. 11-14, 1979 (elevation, 361.10 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 737,300 acre-ft May 4 at 2100 hours (elevation 405.15 ft); minimum, 630,000 acre-ft Jan. 13-16 (elevation, 401.30).

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

401.0	622,100	403.0	675,800	405.0	732,900
402.0	648,500	404.0	703,900	406.0	762,700

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	659000	651000	644000	631000	678000	667000	684000	678000	683000	662000	654000	643000
2	659000	650000	644000	630000	687000	666000	682000	692000	681000	661000	653000	642000
3	659000	650000	643000	631000	685000	666000	680000	713000	680000	661000	654000	642000
4	658000	649000	642000	631000	681000	666000	678000	736000	681000	661000	655000	641000
5	658000	649000	642000	631000	674000	666000	681000	710000	680000	660000	656000	641000
6	658000	649000	642000	631000	670000	666000	693000	695000	678000	660000	656000	640000
7	658000	649000	643000	631000	667000	694000	690000	687000	677000	659000	656000	640000
8	657000	650000	642000	631000	665000	718000	687000	683000	676000	659000	656000	642000
9	656000	649000	641000	631000	666000	703000	685000	679000	676000	658000	656000	643000
10	656000	649000	642000	631000	665000	691000	688000	681000	676000	658000	655000	647000
11	656000	648000	642000	631000	664000	684000	686000	679000	674000	658000	654000	648000
12	655000	648000	640000	631000	662000	680000	683000	678000	673000	658000	654000	647000
13	655000	648000	640000	630000	662000	674000	682000	677000	671000	656000	653000	647000
14	655000	647000	639000	630000	663000	690000	702000	677000	671000	655000	653000	647000
15	655000	648000	639000	630000	664000	693000	700000	676000	671000	655000	653000	647000
16	656000	646000	637000	631000	663000	686000	694000	674000	670000	654000	652000	646000
17	654000	646000	637000	636000	662000	679000	688000	674000	670000	653000	652000	646000
18	654000	645000	636000	645000	663000	678000	685000	675000	669000	653000	651000	646000
19	652000	645000	636000	659000	662000	675000	682000	674000	668000	653000	650000	646000
20	651000	645000	635000	666000	662000	673000	681000	674000	668000	652000	650000	645000
21	650000	645000	636000	667000	664000	671000	680000	674000	668000	652000	649000	645000
22	650000	645000	634000	666000	665000	669000	678000	674000	667000	653000	649000	650000
23	650000	645000	632000	666000	666000	668000	676000	674000	667000	654000	648000	653000
24	650000	645000	632000	666000	666000	667000	675000	673000	666000	656000	647000	653000
25	650000	646000	632000	663000	665000	667000	676000	672000	665000	657000	647000	646000
26	649000	645000	631000	662000	665000	667000	676000	671000	664000	657000	646000	641000
27	649000	644000	631000	664000	666000	667000	676000	670000	664000	656000	646000	641000
28	649000	644000	631000	665000	667000	673000	679000	672000	664000	656000	645000	641000
29	649000	644000	632000	664000	---	689000	679000	672000	663000	656000	645000	641000
30	652000	644000	632000	664000	---	690000	679000	671000	662000	655000	644000	641000
31	651000	---	631000	666000	---	685000	---	678000	---	655000	643000	---
MAX	659000	651000	644000	667000	687000	718000	702000	736000	683000	662000	656000	653000
MIN	649000	644000	631000	630000	662000	666000	675000	670000	662000	652000	643000	640000
(†)	402.10	401.83	401.34	402.65	402.69	403.34	403.13	403.07	402.51	402.22	401.80	401.73
(ϕ)	-8000	-7000	-13000	+35000	+1000	+18000	-6000	-1000	-16000	-7000	-12000	-2000

CAL YR 1989 MAX 719000 MIN 631000 (ϕ) -22000
WTR YR 1990 MAX 736000 MIN 630000 (ϕ) -18000

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

08019000 LAKE FORK CREEK NEAR QUITMAN, TX

LOCATION.--Lat 32°45'47", long 95°27'46", Wood County, Hydrologic Unit 12010003, at downstream side of highway embankment near left end of bridge on State Highway 37, 0.3 mi downstream from Dry Creek, 2.4 mi south of Quitman, and 23.4 mi upstream from mouth.

DRAINAGE AREA.--585 mi².

PERIOD OF RECORD.--June 1924 to April 1926, February 1939 to current year. Discharge from some high-water periods in 1925-26 published in WSP 1342. Monthly discharge only for some periods, published in WSP 1312. Prior to October 1961, published as Lake Fork Sabine River near Quitman.
Water-quality records.--Chemical analyses: December 1961 to August 1989. Specific Conductance: November 1967 to September 1989. Water Temperature: December 1967 to September 1989.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 317.42 ft above National Geodetic Vertical Datum of 1929. From June 27, 1924, to Apr. 30, 1926, a nonrecording gage was located at site 1,000 ft downstream at same datum. Prior to Sept. 5, 1978, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Records good. Since May 1962, flow from 31.0 mi² above this station has been controlled by Lake Quitman (capacity, 7,440 acre-ft) on Dry Creek, a tributary above this station and below Lake Fork Reservoir. Construction of Lake Fork Dam and Reservoir (capacity, 675,800 acre-ft), located about 5 mi upstream from this station, began in 1975. Deliberate impoundment began June 29, 1979, and the dam was completed in January 1980. Lake Fork Reservoir controls runoff from 490 mi² above this station. The city of Quitman discharged a small amount of sewage effluent into a tributary above this station.

AVERAGE DISCHARGE.--41 years (water years 1925, 1940-79), prior to regulation by Lake Fork Reservoir, 432 ft³/s (313,000 acre-ft/yr); 11 years (water years 1980-90) regulated, 332 ft³/s (240,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 75,600 ft³/s Mar. 30, 1945 (gage height, 29.85 ft, from floodmark), from rating curve extended above 49,000 ft³/s; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in July 1895 reached a stage of about 25.9 ft, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21,600 ft³/s May 4 at 0700 hours (gage height, 21.75 ft); minimum daily, 3.4 ft³/s Nov. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	16	6.2	144	86	31	2830	503	1770	18	60	54
2	12	14	6.0	132	915	31	1840	2370	2020	18	65	28
3	12	13	6.6	32	1620	28	1410	12700	1840	18	69	16
4	12	11	6.9	13	2580	24	1240	21300	1710	17	62	15
5	12	8.6	6.9	12	2910	22	1180	18600	1550	15	61	14
6	13	7.6	7.0	9.5	2880	21	1500	8160	1410	15	61	14
7	14	7.4	7.3	8.1	2780	114	3450	4010	951	15	60	14
8	14	7.8	7.4	7.9	1840	6620	3630	3270	447	15	60	14
9	13	7.1	8.5	7.7	1360	15300	2260	2050	346	15	60	18
10	14	5.9	8.7	8.1	1240	10200	2020	1400	323	15	60	18
11	14	5.5	8.6	8.6	1210	7330	2100	1200	312	15	60	50
12	14	5.2	10	9.1	1150	4040	2020	1180	303	16	59	50
13	14	5.2	11	9.3	662	3610	1910	1190	300	16	59	19
14	14	4.9	59	9.3	122	3940	2760	1180	267	15	59	14
15	14	4.6	134	9.7	44	5030	5330	1140	74	14	59	14
16	14	4.0	141	10	35	6010	4750	690	34	14	58	13
17	14	4.3	145	51	29	5510	3910	362	28	15	58	12
18	14	4.0	142	258	24	3590	3500	325	26	15	58	13
19	14	3.7	144	790	23	1970	2190	340	25	20	58	13
20	14	3.5	144	728	21	1470	1660	337	22	49	58	12
21	14	3.4	144	415	23	1320	1330	299	21	59	57	12
22	14	3.5	143	766	92	1270	1220	279	20	59	57	12
23	13	5.5	142	1040	75	1250	1150	272	20	61	57	12
24	13	5.8	143	1130	45	1230	690	268	23	64	56	11
25	13	5.4	144	1140	36	1210	521	263	25	61	56	11
26	14	5.6	144	722	30	782	444	297	21	61	56	11
27	14	5.6	145	90	28	436	437	322	20	61	56	11
28	14	5.0	145	34	27	430	781	431	19	61	55	11
29	14	5.0	147	50	---	875	985	378	19	60	56	11
30	15	5.8	144	46	---	3390	683	358	18	61	56	11
31	17	---	145	35	---	3990	---	1550	---	60	56	---
TOTAL	423	193.9	2596.1	7725.3	21887	91074	59731	87024	13964	1018	1822	528
MEAN	13.6	6.46	83.7	249	782	2938	1991	2807	465	32.8	58.8	17.6
MAX	17	16	147	1140	2910	15300	5330	21300	2020	64	69	54
MIN	12	3.4	6.0	7.7	21	21	437	263	18	14	55	11
AC-FT	839	385	5150	15320	43410	180600	118500	172600	27700	2020	3610	1050

CAL YR 1989 TOTAL 211085.7 MEAN 578 MAX 23600 MIN 3.4 AC-FT 418700
WTR YR 1990 TOTAL 287986.3 MEAN 789 MAX 21300 MIN 3.4 AC-FT 571200

08019500 BIG SANDY CREEK NEAR BIG SANDY, TX

LOCATION.--Lat 32°36'14", long 95°05'29", Upshur County, Hydrologic Unit 12010002, on downstream side of highway embankment near left end of bridge on State Highway 155, 0.5 mi upstream from St. Louis Southwestern Railway Lines bridge, 1.6 mi northeast of Big Sandy, and 6.5 mi upstream from mouth.

DRAINAGE AREA.--231 mi².

PERIOD OF RECORD.--February 1939 to current year.
Water-quality records.--Chemical analyses: March 1961 to September 1986. Chemical and biochemical analyses: October 1984 to September 1986.

REVISED RECORDS.--WSP 1732: 1941(M), 1945-46, 1956, drainage area. WSP 1922: 1944(M), 1945-46.

GAGE.--Water-stage recorder. Datum of gage is 278.38 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 5, 1940, nonrecording gage, and Oct. 5, 1940, to Nov. 26, 1951, water-stage recorder at site 1.3 mi upstream at datum 3.00 ft higher.

REMARKS.--Records fair. Since June 1962, streamflow has been affected somewhat by Lake Winnsboro, about 27 miles upstream (capacity 8,100 acre-ft) and by several other smaller lakes. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--51 years, 180 ft³/s (130,400 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,000 ft³/s Mar. 31, 1945 (gage height, 24.1 ft, from floodmark, present site and datum), from rating curve extended above 13,000 ft³/s; minimum, 3.5 ft³/s July 24, Aug. 7-8, 1984. Maximum stage since at least 1875, that of Mar. 31, 1945, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 10	2400	2,800	15.02	Apr. 16	1900	2,970	15.23
Apr. 1	0200	2,660	14.84	May 5	1300	*4,150	*16.44

Minimum daily discharge, 8.5 ft³/s Sept. 6, 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	64	35	59	189	158	2400	554	504	33	32	10
2	12	47	36	70	263	155	1500	760	700	34	89	11
3	14	36	35	82	281	152	859	857	810	30	86	12
4	15	32	34	115	340	141	630	2300	1010	28	74	9.4
5	14	32	34	156	444	137	483	4020	675	31	59	9.0
6	14	33	36	119	478	130	490	3340	560	30	44	8.5
7	26	34	41	101	367	212	524	1810	520	31	36	8.8
8	39	34	36	83	242	720	635	1190	498	28	28	8.5
9	31	33	36	72	189	1070	1150	896	620	25	24	11
10	31	32	36	63	182	1960	969	662	560	23	31	23
11	30	31	36	57	168	2480	732	513	432	23	77	98
12	25	30	37	53	172	1370	595	428	375	28	68	143
13	21	31	36	49	209	885	551	340	275	24	53	173
14	21	31	36	47	240	738	933	295	185	21	45	151
15	21	31	36	44	224	1080	1480	265	125	19	38	130
16	21	31	36	43	223	1140	2460	230	92	18	31	108
17	22	30	35	118	193	1200	2430	198	82	23	26	74
18	21	30	35	379	170	1090	1210	187	73	41	22	53
19	20	30	37	1050	157	768	805	224	65	68	18	55
20	20	30	38	1350	144	554	636	205	61	56	16	54
21	20	32	38	1110	141	420	507	177	57	34	15	50
22	20	37	38	980	189	333	413	151	53	32	17	45
23	19	47	35	827	180	262	334	140	43	28	18	39
24	21	49	44	597	182	219	274	135	38	25	16	33
25	22	46	43	389	207	196	281	130	39	23	15	28
26	23	47	42	244	222	194	300	165	60	22	15	25
27	23	48	44	177	189	192	367	190	57	21	14	21
28	22	44	46	157	164	205	467	161	49	20	13	20
29	22	39	48	188	---	391	496	142	42	19	12	19
30	26	37	52	179	---	902	397	131	35	18	11	18
31	54	---	54	170	---	1920	---	230	---	17	11	---
TOTAL	703	1108	1205	9128	6349	21374	25308	21026	8695	873	1054	1448.2
MEAN	22.7	36.9	38.9	294	227	689	844	678	290	28.2	34.0	48.3
MAX	54	64	54	1350	478	2480	2460	4020	1010	68	89	173
MIN	12	30	34	43	141	130	274	130	35	17	11	8.5
AC-FT	1390	2200	2390	18110	12590	42400	50200	41710	17250	1730	2090	2870

CAL YR 1989 TOTAL 77001 MEAN 211 MAX 6240 MIN 12 AC-FT 152700
WTR YR 1990 TOTAL 98271.2 MEAN 269 MAX 4020 MIN 8.5 AC-FT 194900

08020000 SABINE RIVER NEAR GLADEWATER, TX

LOCATION.--Lat 32°31'37", long 94°57'36", Gregg County, Hydrologic Unit 12010002, on right bank 46 ft downstream from bridge on U.S. Highway 271, 0.4 mi downstream from Glade Creek, 1.2 mi southwest of Gladewater, and at mile 397.5.

DRAINAGE AREA.--2,791 mi².

PERIOD OF RECORD.--October 1932 to current year.

REVISED RECORDS.--WSP 1732: Drainage area. WDR TX-73-1: 1972.

GAGE.--Water-stage recorder. Datum of gage is 243.85 ft above National Geodetic Vertical Datum of 1929 (Texas Reclamation Department bench mark based on Geological Survey datum). Prior to Oct. 13, 1933, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow partially regulated by Lake Tawakoni (station 08017400), capacity 936,200 acre-ft, by Lake Fork Creek Reservoir (station 08018800), capacity 675,800 acre-ft, and by five tributary reservoirs with a total combined capacity of 42,370 acre-ft. There are many diversions above station for oil field operations and municipal supply. Several observations of water temperature were obtained during the year. A rain gage and gage-height telemeter are located at station.

AVERAGE DISCHARGE.--28 years (water years 1933-60) prior to regulation by Lake Tawakoni, 2,012 ft³/s (1,458,000 acre-ft/yr); 30 years (water years 1961-90) regulated, 1,729 ft³/s (1,253,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 138,000 ft³/s Apr. 2, 1945 (gage height, 44.16 ft, from floodmark), from rating curve extended above 91,000 ft³/s; minimum, 5.6 ft³/s Aug. 16, 1939.
Maximum stage since at least 1892, that of Apr. 2, 1945.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1914 reached a stage of about 41.7 ft (discharge, 85,900 ft³/s), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 43,500 ft³/s May 8 at 2300 hours (gage height, 38.54 ft); minimum daily, 43 ft³/s Sept. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83	167	e100	e290	2220	1280	7430	6290	3740	182	146	91
2	73	201	e95	e280	2350	1170	7750	5870	3980	159	162	89
3	63	178	e90	e270	2760	1090	8230	5590	3840	146	251	87
4	59	155	e85	e310	3100	1040	9200	5420	4160	133	269	88
5	58	145	e83	e300	3220	1050	9850	5640	4420	120	242	82
6	57	141	e82	e320	3360	982	10200	8040	4540	115	281	68
7	e60	122	e80	e296	3580	1780	10200	28100	4720	109	261	55
8	e70	127	e85	e286	3820	4010	9720	41600	4860	109	228	44
9	e80	120	e95	e265	4170	5190	9080	42500	4880	105	184	43
10	e70	117	e110	249	4610	5310	8830	38000	4720	105	157	83
11	e75	108	e105	233	5010	5480	8580	32200	4260	103	141	341
12	e70	100	e102	212	5350	6000	8120	27300	3390	93	134	503
13	e65	107	e100	192	5550	7460	8120	22700	2280	92	133	540
14	e60	102	e98	183	5650	12400	8710	19000	1530	90	131	569
15	e58	93	e95	178	5660	16600	9460	16100	1150	88	130	563
16	e58	79	e92	179	5640	17500	9850	13700	1000	83	131	377
17	e60	80	e90	327	5480	16900	10700	11800	814	105	130	262
18	e64	79	e140	1700	5150	16000	11600	10200	607	147	122	195
19	e62	74	e220	3460	4640	15700	12300	9240	491	167	117	171
20	61	83	e230	4580	3830	15700	13000	8300	416	197	111	170
21	64	94	e230	4810	2900	18500	13200	7500	359	188	105	163
22	69	107	e230	4780	2310	18300	12800	6860	316	150	111	157
23	68	117	e230	4730	1950	16600	11900	6310	277	135	106	165
24	69	168	e230	4750	1720	14800	10900	5750	242	143	103	179
25	80	182	e230	4950	1600	12900	10000	5140	226	158	104	170
26	106	174	e220	5280	1560	11300	9190	4420	346	168	104	142
27	106	e150	e220	5490	1540	9330	8510	3740	470	177	104	120
28	90	e125	e230	5610	1420	7820	7840	3320	446	170	101	108
29	88	e110	e260	5490	---	7500	7290	2830	331	155	98	104
30	94	e105	e270	4890	---	7590	6770	2440	224	141	95	91
31	105	---	e280	3600	---	7390	---	2770	---	138	91	---
TOTAL	2245	3710	4807	68490	100150	284672	289330	408670	63035	4171	4583	5820
MEAN	72.4	124	155	2209	3577	9183	9644	13180	2101	135	148	194
MAX	106	201	280	5610	5660	18500	13200	42500	4880	197	281	569
MIN	57	74	80	178	1420	982	6770	2440	224	83	91	43
AC-FT	4450	7360	9530	135800	198600	564600	573900	810600	125000	8270	9090	11540

CAL YR 1989 TOTAL 958167 MEAN 2625 MAX 51000 MIN 52 AC-FT 1901000
WTR YR 1990 TOTAL 1239683 MEAN 3396 MAX 42500 MIN 43 AC-FT 2459000

e Estimated

08020450 SABINE RIVER ABOVE LONGVIEW, TX

LOCATION.--Lat 32°28'47", long 94°48'15", Gregg County, Hydrologic Unit 12010002, on left bank at city of Longview pumping station at the end of Swinging Bridge Road, 1.4 mi southwest of the intersection of Swinging Bridge Road and Farm Road 2206 in Longview, 2.5 mi downstream from Hawkins Creek, 2.6 mi upstream from U.S. Highway 259, and at mile 357.4.

DRAINAGE AREA.--2,943 mi².

PERIOD OF RECORD.--August 1983 to current year (operated as a low-flow station only).

GAGE--Water-stage recorder and concrete control. Datum of gage is 230.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Daily discharges above 500 ft³/s are not published. Flow partially regulated by Lake Tawakoni (station 08017400), capacity 936,200 acre-ft, by Lake Fork Reservoir (station 08018800), capacity 675,800 acre-ft, and by five tributary reservoirs with a combined capacity of 42,370 acre-ft. There are many diversions above station for municipal, industrial supply, and oil field operations.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 31.64 ft May 10, 1990; minimum daily discharge, 0.50 ft³/s Sept. 4, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 31.64 ft May 10 at 1100 hours; minimum daily discharge, 25 ft³/s Sept. 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91	115	135	472	---	---	---	---	---	245	175	75
2	76	159	132	477	---	---	---	---	---	195	370	75
3	65	172	121	462	---	---	---	---	---	173	246	72
4	58	164	116	447	---	---	---	---	---	161	292	67
5	57	143	116	448	---	---	---	---	---	149	301	53
6	48	125	116	456	---	---	---	---	---	140	286	53
7	60	118	116	410	---	---	---	---	---	140	332	41
8	64	116	116	341	---	---	---	---	---	134	301	25
9	160	112	116	294	---	---	---	---	---	143	245	33
10	207	111	116	257	---	---	---	---	---	164	204	114
11	172	111	116	234	---	---	---	---	---	144	182	---
12	143	108	116	217	---	---	---	---	---	136	166	---
13	122	92	118	202	---	---	---	---	---	120	157	---
14	102	87	120	189	---	---	---	---	---	116	145	---
15	87	83	120	180	---	---	---	---	---	114	141	---
16	71	75	117	175	---	---	---	---	---	104	138	---
17	60	75	116	205	---	---	---	---	---	120	138	411
18	51	75	129	---	---	---	---	---	---	340	135	285
19	46	75	201	---	---	---	---	---	---	219	125	203
20	44	75	250	---	---	---	---	---	---	203	118	173
21	44	75	275	---	---	---	---	---	453	214	113	168
22	45	85	285	---	---	---	---	---	394	205	119	164
23	50	119	290	---	---	---	---	---	351	181	128	175
24	43	127	290	---	---	---	---	---	309	176	109	173
25	44	163	266	---	---	---	---	---	277	178	98	172
26	51	172	269	---	---	---	---	---	---	185	95	163
27	84	172	275	---	---	---	---	---	---	193	95	140
28	85	170	289	---	---	---	---	---	---	197	81	115
29	83	158	305	---	---	---	---	---	---	190	75	102
30	83	143	331	---	---	---	---	---	364	178	75	89
31	109	---	421	---	---	---	---	---	---	162	75	---
TOTAL	2505	3575	5899	---	---	---	---	---	---	5319	5260	---
MEAN	80.8	119	190	---	---	---	---	---	---	172	170	---
MAX	207	172	421	---	---	---	---	---	---	340	370	---
MIN	43	75	116	---	---	---	---	---	---	104	75	---
AC-FT	4970	7090	11700	---	---	---	---	---	---	10550	10430	---

CAL YR 1989	TOTAL	---	MEAN	---	MAX	---	MIN	---	AC-FT	---
WTR YR 1990	TOTAL	---	MEAN	---	MAX	---	MIN	---	AC-FT	---

08022040 SABINE RIVER NEAR BECKVILLE, TX

LOCATION.--Lat 32°19'38", long 94°21'12", Panola County, Hydrologic Unit 12010002, at downstream side of highway embankment near right end of downstream bridge on U.S. Highway 59, 0.9 mi upstream from Eightmile Creek, 6.0 mi upstream from Farm Road 1794, 8.4 mi northeast of Beckville, 12.4 mi downstream from State Highway 43, and at mile 327.0.

DRAINAGE AREA.--3,589 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1938 to current year. Prior to October 1978, published as "near Tatum".

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 190.00 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1978, at site 12.4 mi upstream at datum 14.18 ft higher. Prior to Sept. 21, 1945, nonrecording gage.

REMARKS.--No estimated daily discharges. Records fair. Eight major reservoirs, with a combined capacity of 1,701,000 acre-ft, largely regulated flow. Several diversions above station and below Lake Tawakoni for oil field operation, municipal, and industrial uses. Low flows are sustained by sewage effluents returned to the river above the station. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08018500.

AVERAGE DISCHARGE.--22 years (water years 1939-60) prior to regulation by Lake Tawakoni, 2,663 ft³/s (1,929,000 acre-ft/yr); 30 years (water years 1961-90) regulated, 2,321 ft³/s (1,682,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 123,000 ft³/s Apr. 4, 1945 (gage height, 33.80 ft), site and datum then in use, from graph based on gage readings, from rating curve extended above 66,000 ft³/s on basis of partly estimated measurement of 88,900 ft³/s; minimum observed, 2.4 ft³/s Aug. 11, 1964.
Maximum stage since at least 1884, that of Apr. 4, 1945.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1884 reached a stage of about 2 ft lower than flood of Apr. 4, 1945. These dates and gage heights are based on information for stations near Tatum (08022000) and at Logansport, La. (08022500).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 33,200 ft³/s May 14 at 1530 hours (gage height, 31.40 ft); minimum daily, 91 ft³/s Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91	233	185	686	6250	1930	12500	11100	6990	563	345	106
2	114	194	179	601	6930	1860	12100	10500	8570	438	935	104
3	123	183	169	564	8310	1700	11600	9890	8460	365	1170	101
4	113	207	163	676	8650	1550	11000	9270	8560	311	674	104
5	109	202	159	729	7560	1430	10400	8700	7930	274	531	109
6	101	183	161	614	5980	1370	10100	8030	6900	252	594	109
7	101	169	169	575	4840	1370	10300	7340	6010	276	681	108
8	111	156	167	536	4360	2660	10400	6910	5490	256	568	105
9	125	147	167	475	4280	4560	10400	7380	5280	228	440	100
10	128	147	171	419	5770	5160	10600	9270	5250	218	368	105
11	199	147	165	381	7210	5400	11000	11100	5230	273	313	468
12	205	146	163	353	7480	5550	11200	14400	5140	251	269	1550
13	171	145	168	329	6770	5650	11100	25200	4940	228	231	1620
14	156	142	172	319	6320	5770	11200	32400	4300	205	211	1360
15	139	139	171	295	6200	6160	11900	31500	3060	191	293	954
16	125	128	170	284	6200	6640	12600	27200	2050	187	229	804
17	117	120	168	295	6250	7230	12300	23300	1620	184	192	724
18	110	120	167	966	6160	8100	12000	19800	1400	211	181	589
19	106	122	169	3330	6110	9060	11800	17200	1080	441	181	475
20	107	123	214	6220	6010	9970	11600	15100	835	402	173	376
21	103	125	294	6790	5800	10700	11400	14100	698	323	160	316
22	98	157	318	6490	5840	11200	11200	13500	593	309	152	330
23	99	224	338	5980	5430	11500	11200	12700	536	320	157	309
24	94	277	340	5730	4200	11900	11200	12000	493	350	179	309
25	94	234	334	5570	2970	12100	11300	11400	459	331	168	296
26	92	217	334	5390	2340	12200	11400	10500	599	330	142	272
27	92	230	341	5210	2100	12400	11500	9440	1090	350	134	258
28	97	223	341	5160	1990	12300	11600	8710	972	307	126	233
29	118	218	355	5910	---	12300	11600	7720	854	271	131	212
30	129	201	402	6520	---	12600	11400	6290	708	256	124	191
31	171	---	555	6560	---	12800	---	5370	---	250	116	---
TOTAL	3738	5259	7369	83957	158310	225120	339900	417320	106097	9151	10168	12697
MEAN	121	175	238	2708	5654	7262	11330	13460	3537	295	328	423
MAX	205	277	555	6790	8650	12800	12600	32400	8570	563	1170	1620
MIN	91	120	159	284	1990	1370	10100	5370	459	184	116	100
AC-FT	7410	10430	14620	166500	314000	446500	674200	827800	210400	18150	20170	25180

CAL YR 1989 TOTAL 1359462 MEAN 3725 MAX 39000 MIN 85 AC-FT 2696000
WTR YR 1990 TOTAL 1379086 MEAN 3778 MAX 32400 MIN 91 AC-FT 2735000

08022040 SABINE RIVER NEAR BECKVILLE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: February 1952 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: March 1968 to June 1981.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: February 1952 to current year.
WATER TEMPERATURE: February 1952 to current year.

REMARKS.--Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request. Formerly published as 08022000 Sabine River near Tatum.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,040 microsiemens Jan. 13, 1966; minimum daily, 53 microsiemens Mar. 31, 1979, Mar. 30, 1989.
WATER TEMPERATURE: Maximum daily, 38.0°C July 8, 1969; minimum daily, 0.0°C on several days during December 1983.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 993 microsiemens Nov. 18; minimum daily, 103 microsiemens Feb. 10.
WATER TEMPERATURE: Maximum daily, 33.0°C Aug.25; minimum daily, 1.0°C Dec. 23

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
NOV 15...	1200	139	631	6.7	18.5	8.4	90	0.9	68	0	20	4.4
JAN 11...	1800	376	390	6.5	9.0	11.5	100	1.7	66	16	19	4.4
MAR 01...	1900	1920	360	7.2	13.0	--	--	1.8	73	34	20	5.6
APR 18...	1900	12000	155	6.7	17.5	6.6	69	1.2	43	14	12	3.2
JUN 20...	1100	858	260	7.2	30.5	5.1	68	1.5	60	18	17	4.3
SEP 05...	0815	109	420	7.5	29.5	5.8	76	2.4	64	2	18	4.7

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
NOV 15...	100	5	5.1	140	35	84	0.30	11	344	0.870	0.030	0.900
JAN 11...	52	3	5.4	50	29	64	0.10	12	216	0.470	0.030	0.500
MAR 01...	35	2	3.9	39	37	47	<0.10	12	184	0.250	0.050	0.300
APR 18...	13	0.9	3.6	29	--	--	0.20	6.7	--	0.080	0.020	0.100
JUN 20...	24	1	3.8	42	23	37	0.30	9.7	144	0.630	0.070	0.700
SEP 05...	54	3	5.1	62	37	65	0.20	7.3	228	0.290	0.010	0.300

DATE	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)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
NOV 15...	0.120	0.68	0.80	0.540	1	39	<0.5	<1.0	<5	<3	<10	47
JAN 11...	0.350	0.75	1.1	0.250	--	--	--	--	--	--	--	--
MAR 01...	0.120	0.48	0.60	0.060	--	--	--	--	--	--	--	--
APR 18...	0.050	0.65	0.70	0.080	<1	<100	<10	4.0	50	4	12	650
JUN 20...	0.080	0.62	0.70	0.070	--	--	--	--	--	--	--	--
SEP 05...	0.060	0.44	0.50	0.090	--	--	--	--	--	--	--	--

08022040 SABINE RIVER NEAR BECKVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 15...	<10	12	64	<0.1	<10	<10	<1	<1.0	290	<6	9
JAN 11...	--	--	--	--	--	--	--	--	--	--	--
MAR 01...	--	--	--	--	--	--	--	--	--	--	--
APR 18...	4	<10	30	<0.1	2	8	<1	<4.0	150	6	10
JUN 20...	--	--	--	--	--	--	--	--	--	--	--
SEP 05...	--	--	--	--	--	--	--	--	--	--	--

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1989	3738	706	388	3910	120	1230	51	519	88
NOV.	1989	5259	696	382	5430	120	1700	51	721	87
DEC.	1989	7369	523	288	5740	85	1690	43	848	78
JAN.	1990	83957	209	116	26300	30	6700	21	4690	41
FEB.	1990	158310	197	110	46900	27	11700	20	8500	40
MAR.	1990	225120	169	94	57100	23	14100	17	10500	35
APR.	1990	339900	165	91	84000	22	20600	17	15500	34
MAY	1990	417320	163	91	102000	22	25100	17	18900	34
JUNE	1990	106097	193	107	30700	27	7670	19	5560	39
JULY	1990	9151	450	248	6140	71	1760	38	942	71
AUG.	1990	10168	289	160	4400	42	1160	28	755	54
SEPT	1990	12697	315	175	5980	47	1600	29	1010	57
TOTAL		1379086	**	**	379000	**	95000	**	68500	**
WTD.AVG.		3778	183	102	**	26	**	18	**	37

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	557	931	440	440	186	365	189	178	190	266	471	410
2	576	727	399	377	149	346	183	183	169	277	266	410
3	595	722	368	421	184	331	169	189	132	308	190	430
4	634	625	474	405	169	324	164	202	148	313	180	410
5	688	541	355	388	182	325	162	216	151	344	247	420
6	737	677	510	297	193	323	163	210	167	384	290	430
7	742	665	289	356	252	319	166	193	165	394	310	450
8	713	631	486	408	224	321	170	153	169	405	272	460
9	713	589	269	376	160	201	166	147	175	426	304	460
10	741	568	562	380	103	175	158	134	178	421	251	470
11	933	555	398	390	185	140	158	144	185	516	269	460
12	813	554	560	404	173	139	167	138	205	716	277	350
13	739	554	756	425	175	169	173	139	240	838	298	210
14	755	602	690	419	175	169	170	147	264	908	295	220
15	858	620	620	464	177	168	167	135	272	609	290	220
16	712	897	834	503	189	167	162	138	268	480	312	240
17	626	704	833	480	197	159	160	139	259	508	334	260
18	610	993	755	442	227	148	158	144	254	562	335	290
19	616	937	735	348	213	147	161	153	255	660	263	290
20	616	840	727	173	221	140	160	160	257	576	297	300
21	596	759	591	157	226	138	157	166	272	550	361	330
22	651	733	670	158	236	142	157	174	279	500	394	360
23	662	772	379	219	252	146	157	181	292	461	407	380
24	643	737	492	214	243	152	156	184	312	364	390	380
25	648	773	457	206	254	160	155	188	323	404	382	370
26	676	731	467	199	269	161	155	193	310	395	396	395
27	701	594	591	183	277	161	159	199	360	318	398	410
28	730	616	529	148	287	164	167	200	310	314	382	590
29	749	640	467	147	---	167	170	217	327	363	379	580
30	714	668	441	162	---	171	174	210	287	452	401	490
31	728	---	434	179	---	178	---	204	---	456	399	---
MEAN	693	698	535	318	206	204	164	173	239	467	324	382

08022040 SABINE RIVER NEAR BECKVILLE, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
INSTANTANEOUS VALUES

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

08022060 MARTIN LAKE NEAR TATUM, TX

LOCATION.--Lat 32°15'42", long 94°34'23", Rusk County, Hydrologic Unit 12010002, on retaining wall, 30 ft to right of intake to generating plant No. 1, 1.9 mi upstream from Martin Dam on Martin Creek, 5.8 mi southwest of Tatum, and 21.9 mi upstream from mouth.

DRAINAGE AREA.--130 mi².

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to May 15, 1976, non-recording gage near left end of dam 1.9 mi downstream at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 8,675 ft long, including a 1,000-foot uncontrolled spillway. Deliberate impoundment began in April 1974. The uncontrolled spillway is an excavated channel cut through natural ground and located at the left end of the dam. The controlled spillway is a concrete ogee design with four 14.0-by 40.0-foot-wide tainter gates located near the left end of the dam. The low-flow outlet works consist of a 3.0-by 5.0-foot conduit with a sluice gate located in one of the gate piers. There is an 8-inch pipe with sluice gate. The area and capacity tables are based on an aerial survey made in October 1971. There are no known diversions. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	321.5	-
Crest of uncontrolled spillway	312.0	111,500
Top of gates	308.0	87,960
Top of conservation pool	306.0	77,500
Crest of gated spillway	294.0	31,040
Lowest gated outlet (invert)	284.0	10,320

COOPERATION.--Area and capacity tables provided by Forrest and Cotton, Consulting Engineers, for Texas Utilities Services, Inc.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 118,000 acre-ft Mar. 29, 1989 (elevation, 313.00 ft); minimum since first appreciable storage, 54,380 acre-ft Oct. 25, 1988 (elevation, 300.87 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 78,760 acre-ft Feb. 11 at 2400 hours (elevation, 306.25 ft from graph); minimum (observed), 64,700 acre-ft Dec. 28 (elevation, 303.60 ft).

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

303.0	63,360	305.0	72,580	307.0	82,620
304.0	67,880	306.0	77,500		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71200	68430	67410	67140	77550	77050	76900	77000	77300	75260	73360	69130
2	71100	68430	66500	67050	77950	77350	76800	76850	77500	75210	72920	68990
3	70540	68340	67140	67230	77700	77250	76850	77300	77550	74970	72920	68750
4	70160	68290	67140	67640	77200	77300	77100	77650	77250	74920	73260	68520
5	69920	68240	67140	67920	77000	77300	78000	77300	77250	74570	73700	68340
6	70020	68290	67050	67920	76700	77200	77600	76700	77400	74770	73840	68110
7	70160	68290	66960	67830	77450	77250	77350	76400	77600	75160	73750	67870
8	70110	68150	66820	67780	77250	77600	77650	76550	77300	75410	73210	67600
9	69970	68110	66730	67920	76900	78000	77550	76450	77250	75360	72870	67600
10	69970	67920	66690	68200	77950	78150	77550	76200	77400	74820	72630	68340
11	69920	67970	66640	68480	78760	78000	77550	77700	77350	74480	72490	69640
12	69780	67920	66590	68620	78660	77850	77250	77700	77150	74380	72390	70110
13	69690	67830	66550	68620	78260	77850	76750	77300	77300	74280	72540	70300
14	69640	67830	66460	68570	77550	78050	77350	77200	76800	74230	72060	70200
15	69550	67640	66320	68620	77050	77200	77800	76900	76750	74130	71630	70200
16	69410	67410	66190	68710	77000	76900	77300	77350	76750	74230	71770	70200
17	68800	67460	65920	68850	77100	76800	77050	77100	76700	74330	71630	70110
18	68890	67370	65780	69450	77300	76750	77300	77800	76700	73600	71480	70020
19	68850	67320	66010	70060	77200	76650	77300	77650	76150	73600	71150	69730
20	68750	67320	65960	71440	77350	76300	77500	77250	76000	73750	71340	69730
21	68570	67190	65920	72870	77200	76400	77600	76800	76000	73450	71250	69640
22	68570	67920	65830	74530	76950	76650	77700	76700	75950	74090	70870	69920
23	68380	68060	65780	76550	77100	76300	77250	76850	75410	73550	70680	69730
24	68430	67920	65780	77250	77200	76500	77050	76750	75110	73260	70490	69640
25	68380	67920	65780	77000	77300	76300	77050	76600	75510	73260	70350	69550
26	68340	67920	65740	76950	77250	76600	77200	76700	73790	73500	70250	69270
27	68240	67830	65640	76800	77200	76550	77050	77200	72870	73990	70020	69270
28	68150	67230	65510	76750	77150	76700	77450	77050	73360	74040	69780	69170
29	68060	67510	65780	77650	---	77200	77000	77500	75360	73890	69640	69030
30	68570	67510	66370	77600	---	77550	76900	77950	75310	73550	69500	68990
31	68570	---	67090	77500	---	77450	---	77750	---	73840	69270	---
MAX	71200	68430	67410	77650	78760	78150	78000	77950	77600	75410	73840	70300
MIN	68060	67190	65510	67050	76700	76300	76750	76200	72870	73260	69270	67600
(†)	304.15	303.92	303.83	306.00	305.93	305.99	305.88	306.05	305.56	305.26	304.30	304.24
(ϕ)	-2680	-1060	-420	+10410	-350	+300	-550	+850	-2440	-1470	-4570	-280

CAL YR 1989 MAX 101600 MIN 65510 (ϕ) -1570
WTR YR 1990 MAX 78760 MIN 65510 (ϕ) -2260

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

08022070 MARTIN CREEK NEAR TATUM, TX

LOCATION.--Lat 32°17'44", long 94°29'29", Panola County, Hydrologic Unit 1201002, on right bank, 35 ft downstream from right abutment, 360 ft to right of bridge on State Highway 149, 50 ft upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 1.7 mi upstream from Hogan Creek, 2.0 mi southeast of Tatum, 5.0 mi downstream from Martin Lake, and 15.0 mi upstream from mouth.

DRAINAGE AREA.--148 mi².

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

REVISED RECORDS.--WDR TX-76-1: 1975.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 240.26 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 31, 1978, at site 50 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow is largely regulated by Martin Lake, located 5 mi upstream. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--16 years (water years 1975-90), 91.9 ft³/s (66,580 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,250 ft³/s Mar. 29, 1989 (gage height, 19.52 ft); minimum, 0.25 ft³/s Oct. 17, 1977.
Maximum stage since at least 1948, that of Mar. 29, 1989.

EXTREMES OUTSIDE PERIOD OF RECORD.--Second highest stage, since 1948, 18.15 ft April 1969. The flood in April 1957 reached a stage of 13.95 ft, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,610 ft³/s May 13 at 0300 hours (gage height, 17.05 ft); minimum daily, 1.1 ft³/s Nov. 13, 18-19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.9	11	8.7	e22	274	146	87	11	1640	8.0	13	6.1
2	8.7	9.4	8.6	e13	1360	164	67	10	242	7.8	12	6.1
3	9.1	9.0	8.2	e13	1620	e59	192	12	609	7.8	10	6.2
4	6.9	9.0	8.1	e13	e1050	e24	23	40	1270	7.8	9.0	6.3
5	7.0	9.5	8.7	e13	e345	e14	16	544	154	7.8	15	6.3
6	7.9	9.6	8.7	e12	e43	e11	119	43	27	8.4	22	6.0
7	11	6.6	9.1	e12	e63	e9.3	662	12	19	10	12	5.9
8	12	3.9	8.7	e12	e122	e8.7	175	11	15	9.0	12	5.9
9	10	3.0	8.7	e12	e134	e8.5	e70	13	13	8.2	9.4	6.1
10	8.1	2.1	8.8	12	1590	e8.4	109	11	12	8.8	9.4	9.1
11	7.9	1.7	9.0	11	471	e8.2	968	11	11	8.3	10	51
12	8.6	1.3	8.9	11	51	e8.1	479	2060	8.4	8.1	9.3	29
13	11	1.1	8.8	10	29	e7.9	549	3620	7.9	8.0	7.8	14
14	9.0	2.1	9.0	10	926	e7.9	654	1230	7.3	7.8	6.4	12
15	8.6	2.5	9.1	11	728	502	1260	841	7.1	7.8	5.8	11
16	8.4	1.5	8.6	12	54	507	542	147	7.2	7.8	6.8	9.5
17	7.6	1.3	8.8	21	22	29	749	27	7.2	11	7.1	8.6
18	7.3	1.1	10	223	19	12	104	19	7.0	16	7.2	8.0
19	7.6	1.1	11	215	20	11	23	30	7.0	11	7.0	7.7
20	7.3	1.6	10	268	19	9.9	21	608	7.0	9.2	7.2	7.3
21	8.2	4.0	9.9	157	33	9.5	19	613	6.7	8.5	7.1	7.1
22	7.9	23	9.5	171	659	9.2	17	35	6.9	8.1	7.0	8.2
23	7.1	22	8.9	229	282	8.2	16	15	7.2	14	6.8	9.4
24	6.9	14	9.4	578	32	8.5	232	13	7.5	17	6.9	8.3
25	7.2	11	11	399	19	10	86	12	8.7	22	7.0	7.9
26	7.9	10	11	34	17	8.6	17	13	40	12	6.7	7.9
27	7.5	11	11	20	17	9.3	417	64	14	10	6.7	6.0
28	7.3	9.3	11	50	18	13	115	146	9.7	9.0	6.9	6.8
29	7.4	7.8	11	1140	---	229	18	1090	8.5	8.4	6.7	5.4
30	15	8.1	30	777	---	1460	14	127	8.2	8.1	6.5	5.6
31	18	---	71	235	---	991	---	1250	---	8.5	6.3	---
TOTAL	272.3	208.6	373.2	4716	10017	4312.2	7820	12678	4195.5	304.2	273.0	294.7
MEAN	8.78	6.95	12.0	152	358	139	261	409	140	9.81	8.81	9.82
MAX	18	23	71	1140	1620	1460	1260	3620	1640	22	22	51
MIN	6.9	1.1	8.1	10	17	7.9	14	10	6.7	7.8	5.8	5.4
AC-FT	540	414	740	9350	19870	8550	15510	25150	8320	603	541	585

CAL YR 1989 TOTAL 68451.9 MEAN 188 MAX 5720 MIN 1.1 AC-FT 135800
WTR YR 1990 TOTAL 45464.7 MEAN 125 MAX 3620 MIN 1.1 AC-FT 90180

e Estimated

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, on left bank just upstream from bridge on U.S. Highway 84, 3 mi upstream from Bayou Castor, 111 mi upstream from Toledo Bend Dam, and at mile 267.1.

DRAINAGE AREA.--4,842 mi².

PERIOD OF RECORD.--Gage-height record March 1968 to current year. Discharge record July 1903 to February 1968.

REVISED RECORDS.--WSP 1312: 1903-6 (monthly and annual means). WSP 1732: 1929(M), 1933(M).

GAGE.--Water-stage recorder. Datum of gage is 147.72 ft above National Geodetic Vertical Datum of 1929. July 1, 1903, to Sept. 30, 1956, nonrecording gage. Oct. 1, 1956, to Jan. 16, 1964, water-stage recorder 4,600 ft upstream. Jan. 16, 1964, to Dec. 10, 1968, water-stage recorder 4,700 ft upstream. All gages to present datum except prior to Dec. 31, 1906 when datum was 2.00 ft lower.

REMARKS.--Station discontinued as a 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, largely regulate the flow. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08018500. Numerous diversions above station for oil field operations, municipal, and industrial uses.

AVERAGE DISCHARGE.--64 years (water years 1904-67), 3,208 ft³/s (2,324,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height (1968-90), 33.38 ft Apr. 3, 1989; minimum since initial filling of Toledo Bend Reservoir in June 1968, 16.85 ft Nov. 9, 1987. Maximum discharge (1903-67), 92,000 ft³/s Apr. 8, 1945 (gage height, 44.07 ft, from floodmark); minimum, 16 ft³/s Sept. 26-28, Oct. 3, 4, 1939.
Maximum stage since at least 1884, that of Apr. 8, 1945.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1884 reached a stage of 39.4 ft, present site and datum.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 33.05 ft May 17 at 1600 hours; minimum recorded, 18.70 ft Dec. 7.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.98	20.29	---	20.12	25.20	24.27	28.00	25.79	28.31	24.01	22.29	20.42
2	20.90	20.14	---	20.18	25.55	24.38	27.85	25.86	27.64	23.98	22.31	20.52
3	20.83	20.29	---	20.36	26.25	24.30	27.57	26.48	27.40	24.07	22.34	20.32
4	20.77	20.49	---	20.16	26.89	24.19	27.15	26.53	27.17	23.84	22.12	20.27
5	20.70	20.38	---	20.27	27.08	24.10	26.72	26.24	27.08	23.71	22.09	---
6	20.54	20.38	---	20.41	26.95	23.88	26.25	25.93	27.03	23.64	22.01	---
7	20.46	20.38	19.26	20.58	26.70	24.04	26.02	25.76	26.81	23.61	21.83	---
8	20.53	20.02	19.32	20.71	26.43	23.69	25.81	25.58	26.44	23.52	21.73	---
9	20.44	20.26	19.68	20.59	26.19	23.70	25.66	25.24	26.05	23.60	21.68	---
10	20.38	20.22	19.73	20.64	26.19	23.85	25.66	25.04	25.74	23.53	21.59	---
11	20.36	20.24	19.41	20.56	26.21	23.94	25.73	25.20	25.46	23.52	21.51	---
12	20.33	20.26	19.66	20.47	26.30	23.78	25.78	27.09	25.31	23.22	21.47	---
13	20.33	20.21	19.76	20.72	26.30	23.97	25.70	29.16	25.23	22.99	21.42	---
14	20.35	20.35	19.88	20.77	26.30	23.89	25.99	30.29	25.08	23.16	21.26	---
15	20.42	---	19.30	20.71	26.17	23.81	26.30	31.92	24.99	23.10	21.16	---
16	20.55	---	19.68	20.78	25.98	23.81	26.56	32.87	24.85	23.13	21.07	---
17	20.38	---	19.65	20.71	25.83	23.78	26.53	32.97	24.74	22.88	20.94	---
18	20.11	---	19.65	22.27	25.63	23.82	26.67	32.57	24.60	22.88	20.95	---
19	20.31	---	19.55	23.30	25.49	23.67	26.73	32.96	24.55	22.85	21.05	---
20	20.46	---	19.67	24.24	25.38	23.77	26.63	31.21	24.48	22.80	20.79	---
21	20.50	---	19.33	24.44	25.51	24.00	26.40	30.43	24.58	22.94	20.66	---
22	20.51	---	19.15	24.48	25.54	23.95	26.19	29.67	24.37	22.91	20.74	---
23	20.42	---	19.34	24.39	25.64	23.98	26.04	28.97	24.33	22.76	20.64	---
24	20.34	---	19.27	24.50	25.53	23.97	25.87	28.41	24.32	22.73	20.47	---
25	20.31	---	19.25	24.45	25.46	24.07	25.78	28.02	24.17	22.61	20.46	---
26	20.30	---	19.25	24.59	25.20	24.21	25.74	27.62	24.25	22.50	20.37	---
27	20.30	---	19.24	24.37	24.80	24.42	25.71	27.44	24.24	22.46	20.37	19.56
28	20.29	---	19.40	24.29	24.62	24.69	25.75	27.24	24.15	22.38	20.47	19.52
29	20.34	---	19.27	24.64	---	25.24	25.87	27.05	24.13	22.49	20.40	19.48
30	20.09	---	19.59	24.80	---	26.35	25.80	26.80	24.15	22.42	20.32	19.47
31	20.35	---	20.05	25.00	---	27.72	---	27.36	---	22.27	20.31	---
MAX	20.98	---	---	25.00	27.08	27.72	28.00	32.97	28.31	24.07	22.34	---
MIN	20.09	---	---	20.12	24.62	23.67	25.66	25.04	24.13	22.27	20.31	---

08025350 TOLEDO BEND RESERVOIR NEAR BURKEVILLE, TX

LOCATION.--Lat 31°10'25", long 93°33'57", Newton County, Hydrologic Unit 12010004, in powerhouse at right end of Toledo Bend Dam on Sabine River, 15 mi northeast of Burkeville, and at mile 156.5.

DRAINAGE AREA.--7,178 mi².

PERIOD OF RECORD.--October 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Sabine River Authority). Prior to July 20, 1967, nonrecording gage at same site and datum. July 20, 1967, to June 30, 1973, recording gage at right end of spillway 1.6 mi north of present site and at same datum.

REMARKS.--The reservoir is formed by a rolled earthfill dam. Closure of embankment completed and deliberate impoundment 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- x 28-foot tainter gates. An 8.33- x 12-foot gated conduit through the dam is used for low-flow releases. Two additional 20-inch-diameter conduits, which bypass the larger conduit, may also be used for low-flow releases. Water for turbines is admitted through four 16.75- x 29-foot penstocks and controlled by vertically operated caterpillar-type gates. The capacity table is based on Geological Survey topographic maps. For statement regarding regulation by upstream reservoirs, see station 08020000. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	185.0	-
Design flood	175.3	5,102,000
Top of gates	173.0	4,660,000
Top of power drawdown storage	172.0	4,476,000
Top of power head storage	162.2	2,922,000
Crest of spillway (controlled)	145.0	1,162,000
Lowest gated outlet (invert)	100.0	4,090

COOPERATION.--Capacity table furnished by the Sabine River Authority.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 4,840,000 acre-ft May 18, 1989 (elevation, 173.95 ft); minimum since initial filling of reservoir in June 1968, 3,290,000 acre-ft Nov. 14, 15, 1987 (elevation, 164.78 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 4,694,000 acre-ft June 2 at 0800 hours (elevation, 173.18 ft); minimum, 3,450,300 acre-ft Dec. 28 (elevation, 165.85 ft).

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

165.0	3,322,000	168.0	3,788,000	172.0	4,476.000
166.0	3,473,000	169.0	3,953,000	174.0	4,849,000
167.0	3,628,000	170.0	4,123,000		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3879000	3786000	3726000	3727000	4367000	4485000	4207000	4342000	4677000	4413000	4086000	3754000
2	3870000	3786000	3740000	3737000	4401000	4455000	4241000	4317000	4668000	4403000	4072000	3751000
3	3866000	3769000	3716000	3742000	4482000	4426000	4243000	4354000	4664000	4378000	4063000	3748000
4	3854000	3756000	3698000	3759000	4467000	4401000	4245000	4429000	4640000	4363000	4063000	3748000
5	3834000	3764000	3703000	3786000	4480000	4372000	4231000	4426000	4608000	4345000	4072000	3740000
6	3828000	3766000	3708000	3805000	4498000	4351000	4274000	4422000	4590000	4331000	4069000	3730000
7	3821000	3766000	3743000	3813000	4511000	4320000	4269000	4415000	4575000	4331000	4048000	3732000
8	3808000	3788000	3727000	3808000	4509000	4299000	4260000	4422000	4577000	4333000	4024000	3713000
9	3796000	3769000	3689000	3828000	4553000	4281000	4255000	4447000	4575000	4315000	4004000	3714000
10	3790000	3756000	3695000	3816000	4559000	4260000	4294000	4412000	4564000	4301000	3987000	3714000
11	3788000	3756000	3726000	3824000	4568000	4241000	4278000	4383000	4548000	4285000	3973000	3714000
12	3788000	3751000	3721000	3826000	4555000	4233000	4267000	4438000	4524000	4281000	3967000	3713000
13	3785000	3756000	3687000	3808000	4577000	4210000	4257000	4513000	4502000	4276000	3953000	3714000
14	3783000	3740000	3676000	3818000	4570000	4219000	4285000	4555000	4509000	4250000	3940000	3714000
15	3772000	3805000	3724000	3819000	4596000	4227000	4295000	4577000	4509000	4241000	3920000	3713000
16	3814000	3756000	3689000	3818000	4570000	4212000	4292000	4642000	4511000	4229000	3904000	3708000
17	3833000	3740000	3692000	3831000	4555000	4196000	4317000	4660000	4516000	4227000	3887000	3703000
18	3839000	3746000	3690000	3877000	4553000	4194000	4327000	4647000	4511000	4210000	3870000	3695000
19	3809000	3740000	3702000	3982000	4542000	4173000	4317000	4642000	4494000	4193000	3870000	3695000
20	3795000	3740000	3686000	4057000	4518000	4146000	4318000	4642000	4489000	4186000	3854000	3694000
21	3777000	3740000	3713000	4106000	4546000	4126000	4324000	4642000	4483000	4173000	3837000	3692000
22	3775000	3788000	3689000	4116000	4570000	4118000	4327000	4620000	4483000	4173000	3821000	3708000
23	3775000	3743000	3630000	4142000	4533000	4109000	4315000	4605000	4467000	4187000	3805000	3698000
24	3785000	3722000	3608000	4245000	4531000	4123000	4304000	4590000	4453000	4175000	3796000	3676000
25	3785000	3732000	3611000	4245000	4518000	4103000	4304000	4583000	4474000	4160000	3793000	3673000
26	3783000	3737000	3608000	4240000	4507000	4086000	4335000	4572000	4440000	4144000	3791000	3668000
27	3777000	3740000	3612000	4262000	4494000	4069000	4356000	4627000	4437000	4126000	3786000	3662000
28	3774000	3759000	3605000	4369000	4491000	4058000	4351000	4623000	4412000	4126000	3782000	3658000
29	3770000	3740000	3612000	4335000	---	4109000	4340000	4597000	4408000	4123000	3774000	3655000
30	3814000	3735000	3708000	4358000	---	4149000	4356000	4568000	4413000	4123000	3769000	3654000
31	3786000	---	3714000	4349000	---	4175000	---	4618000	---	4106000	3761000	---
MAX	3879000	3805000	3743000	4369000	4596000	4485000	4356000	4660000	4677000	4413000	4086000	3754000
MIN	3770000	3722000	3605000	3727000	4367000	4058000	4207000	4317000	4408000	4106000	3761000	3654000
(†)	167.99	167.68	167.54	171.29	172.08	170.30	171.33	172.77	171.65	169.90	167.83	167.16
(Φ)	-98000	-51000	-21000	+635000	+142000	-316000	+181000	+262000	-205000	-307000	-345000	-107000

CAL YR 1989 MAX 4832000 MIN 3605000 (Φ) -36000
WTR YR 1990 MAX 4677000 MIN 3605000 (Φ) -230000

(†) Elevation, in feet, at end of month.
(Φ) 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 upstream from Sabine River near Burkeville gage, and at mile 156.5.

DRAINAGE AREA.--7,178 mi².

PERIOD OF RECORD.--October 1971 to current year.
Water-quality records.--Chemical and biochemical analyses: October 1967 to September 1986.

GAGE.--Water-stage recorders. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Sabine River Authority).

REMARKS.--No estimated daily discharges. Records fair. Daily discharges are a combination of releases from various outlets at the dam. Discharges for releases through the turbines are computed using scroll case differential pressure relationships and operation logs. Taintor gate releases, low-flow sluiceway releases, bypass gate releases, and turbine leakages are based on discharge measurements and operation logs.

AVERAGE DISCHARGE.--19 years, 5,602 ft³/s (4,059,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 114,000 ft³/s May 19, 1989; minimum daily (estimated), 30 ft³/s Oct. 1-4, 1972.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 44,700 ft³/s June 2; minimum daily, 174 ft³/s on many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	174	788	844	204	14400	15700	14900	13400	33800	174	7120	2150
2	3100	861	844	846	14400	15700	14800	13700	44700	3630	7110	174
3	4830	1410	844	888	14700	15300	14800	12700	41300	7010	6910	1480
4	4930	174	844	804	14500	15300	14800	14400	38400	6910	204	1440
5	4910	174	844	815	14500	15200	14600	14500	31900	6940	204	1480
6	4880	865	844	978	15000	14500	14600	14500	24000	6400	4740	1470
7	4750	766	844	204	15500	14500	14600	14400	18900	174	6970	1500
8	174	824	1130	204	15600	14500	14600	14400	15100	174	7360	2060
9	4680	772	733	204	15600	14800	14600	14400	14800	3630	7610	174
10	174	1400	204	204	14200	14600	15000	15100	14400	6960	7250	1420
11	174	174	814	913	14200	14500	14600	14700	14700	6460	7450	1520
12	174	174	862	849	14400	14700	14600	14600	14600	7030	265	1570
13	174	862	534	851	13000	14700	14800	14300	13800	6330	5660	1450
14	174	801	894	204	14800	14700	14700	16900	6000	174	7290	1470
15	174	519	204	874	20800	14700	14700	20200	6080	174	7340	2100
16	174	844	873	844	18000	14900	14600	24100	204	3660	7440	174
17	174	844	204	904	14700	14900	14600	33500	204	7050	7300	1360
18	2450	844	890	812	14700	14800	14800	38200	6190	6990	7530	1400
19	2340	844	823	4030	14500	14900	14700	37700	6120	6970	204	1560
20	531	844	912	3680	14800	14800	14600	37700	3300	6460	5730	1500
21	174	844	903	7540	15400	14800	14500	38200	3060	174	7410	1470
22	174	844	9640	10100	15600	14800	14600	38400	3060	174	7430	2040
23	2790	844	13900	9690	15200	14800	13700	31700	2610	3670	7400	174
24	174	844	4960	9950	15200	14900	14500	23100	3010	7070	5050	1570
25	174	844	204	9910	15100	14900	14400	20300	3600	6960	174	1510
26	174	844	789	9800	15600	14900	14300	17200	6940	6950	174	1500
27	174	844	795	9390	15800	14600	14600	14300	6950	6600	1500	1500
28	174	844	765	9720	13700	14900	14800	21200	7020	174	1500	1630
29	174	844	843	12100	---	14900	14500	26900	6400	174	1490	2040
30	174	844	725	15000	---	15100	14400	25100	174	2680	1310	174
31	710	---	204	14800	---	15000	---	21600	---	7120	1410	---
TOTAL	44207	23224	48713	137312	423900	461300	438300	671400	391322	135046	146535	41060
MEAN	1426	774	1571	4429	15140	14880	14610	21660	13040	4356	4727	1369
MAX	4930	1410	13900	15000	20800	15700	15000	38400	44700	7120	7610	2150
MIN	174	174	204	204	13000	14500	13700	12700	174	174	174	174
AC-FT	87680	46060	96620	272400	840800	915000	869400	1332000	776200	267900	290700	81440

CAL YR 1989 TOTAL 3372510 MEAN 9240 MAX 114000 MIN 174 AC-FT 6689000
WTR YR 1990 TOTAL 2962319 MEAN 8116 MAX 44700 MIN 174 AC-FT 5876000

08026000 SABINE RIVER NEAR BURKEVILLE, TX

LOCATION.--Lat 31°03'50", long 93°31'10", Newton County, Texas-Vernon Parish, Louisiana State line, Hydrologic Unit 12010005, near left edge of low-water channel at downstream side of bridge on State Highway 63, about 200 ft downstream from Pearl Creek, 10 mi northeast of Burkeville, 16 mi downstream from Bayou Toro, and at mile 139.7.

DRAINAGE AREA.--7,482 mi².

PERIOD OF RECORD.--September 1955 to current year. Published as "below Toledo Bend near Burkeville" for period 1955-75. Water-quality records.--Chemical and biochemical analyses: May 1968 to September 1986. Pesticide analyses: October 1972 to September 1981.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 60.59 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 23, 1958, nonrecording gage at current site. Prior to Jan. 1, 1989, at datum 10.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow regulated by Toledo Bend Reservoir (station 08025350) 16.8 mi upstream, capacity, 4,660,000 acre-ft. National Weather Service rain gage and gage-height telemeters at gage.

AVERAGE DISCHARGE.--11 years (water years 1956-66) prior to completion of Toledo Bend Reservoir, 4,653 ft³/s (3,371,000 acre-ft/yr); 24 years (water years 1967-90) regulated, 5,438 ft³/s (3,940,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 116,000 ft³/s May 20, 1989 (gage height, 47.45 ft); minimum daily, 38 ft³/s Sept. 14, 15, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1860, that of May 20, 1989. Flood in May 1884 reached a stage of 45.9 ft, current datum from information by local resident. Flood of Apr. 15, 1945, reached a stage of 45.8 ft, current datum, and flood of May 23, 1953, reached a stage of 45.3 ft, current datum, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 39,200 ft³/s June 3 at 1500 hours (gage height, 39.30 ft); minimum daily, 261 ft³/s Nov. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2550	590	662	1130	16200	15900	17300	14100	27600	501	6810	1690
2	1460	1050	668	1120	16500	16300	16000	13900	34500	1470	6740	1060
3	4720	1330	663	1190	17500	16300	15400	12800	38400	6900	7010	673
4	5150	807	659	1630	17700	16000	15300	14700	38500	7190	2240	1570
5	4780	284	673	1550	16700	15900	15100	15400	37500	7110	324	1310
6	4760	580	691	2240	16200	15200	15100	15000	32600	7130	2120	1410
7	5360	940	809	2450	16200	14800	15100	14700	26200	2390	6470	1150
8	2100	766	1040	1770	16500	14900	14900	14700	19300	460	6890	1670
9	2820	789	770	1160	17200	15000	14900	15200	16500	1510	7000	1120
10	2440	1210	588	721	16200	15100	15100	15500	15600	6780	6950	726
11	439	895	522	755	15400	14800	15200	15400	15500	6700	6890	1210
12	390	261	827	1060	15300	15000	15100	15100	15300	7230	2830	1460
13	373	389	1110	947	14800	15000	15000	14800	15600	7110	3100	1500
14	357	935	653	917	13300	15000	15000	16000	8000	2260	6930	1410
15	346	619	549	674	e22000	15400	15300	19600	6780	412	7010	1680
16	607	604	458	984	e18000	e15400	15200	21500	4070	1490	7150	1090
17	632	655	621	1040	e16000	e15400	14900	26500	737	6810	7090	635
18	1280	662	583	2170	e15000	e15300	15000	32300	3170	7110	7150	1300
19	3230	664	839	5900	e14500	e15200	14800	34300	6630	7110	2880	1300
20	1150	673	879	11900	15000	e15100	14800	34900	5210	7220	3200	1380
21	373	682	815	13100	15800	15100	14700	35500	3440	2470	7110	1400
22	322	694	5880	15100	18000	15100	14800	36000	3100	437	7230	1390
23	1630	720	14300	12300	17500	15100	14100	35700	2860	1780	7240	1170
24	1430	695	7470	11800	16500	15100	14600	30900	2920	6880	6350	606
25	321	708	939	16200	15900	15200	14700	24800	3190	7260	1660	1290
26	296	703	746	15100	16200	15200	14600	20900	6840	7290	345	1280
27	288	711	725	12400	16400	14800	15700	16300	7130	7100	809	1310
28	280	714	927	11100	15000	15100	16400	17500	7370	2460	1320	1280
29	282	675	1010	e16000	---	17400	15700	24800	7230	277	1470	1540
30	290	659	958	e15800	---	18900	15000	26300	2610	671	1380	1030
31	596	---	1180	e16000	---	18300	---	23000	---	6120	1370	---
TOTAL	51052	21664	49214	196208	457500	482300	454800	668100	414387	137638	143068	37640
MEAN	1647	722	1588	6329	16340	15560	15160	21550	13810	4440	4615	1255
MAX	5360	1330	14300	16200	22000	18900	17300	36000	38500	7290	7240	1690
MIN	280	261	458	674	13300	14800	14100	12800	737	277	324	606
AC-FT	101300	42970	97620	389200	907500	956600	902100	1325000	821900	273000	283800	74660

CAL YR 1989	TOTAL	3798819	MEAN	10410	MAX	111000	MIN	261	AC-FT	7535000
WTR YR 1990	TOTAL	3113571	MEAN	8530	MAX	38500	MIN	261	AC-FT	6176000

e Estimated

08028500 SABINE RIVER NEAR BON WIER, TX

LOCATION.--Lat 30°44'49", long 93°36'30", Beauregard Parish, Louisiana-Newton County, Texas State line, Hydrologic Unit 12010005, near left bank at downstream side of bridge on U.S. Highway 190, 0.7 mi upstream from Quicksand Creek, 0.8 mi upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 2.0 mi east of Bon Wier, 2.4 mi upstream from Caney Creek, and at mile 97.7.

DRAINAGE AREA.--8,229 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1923 to current year. Monthly discharge only for some periods, published in WSP 1312. Gage-height records collected in this vicinity since 1913 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 1342: 1953. WSP 1442: 1924, 1926-27(M), 1929(M), 1939. WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 33.42 ft above National Geodetic Vertical Datum of 1929. Prior to July 8, 1931, nonrecording gage at site 0.8 mi downstream at datum 13.00 ft higher. July 8, 1931, to Oct. 15, 1958, nonrecording gage at present site at datum 13.00 ft higher. Oct. 16, 1958, to Sept. 30, 1975, water-stage recorder at present site at datum 13.00 ft higher. Oct. 1, 1975, to Dec. 31, 1988, at present site at datum 10.00 ft higher.

REMARKS.--Records poor. Flow regulated by Toledo Bend Reservoir (station 08025350) located 58.8 mi upstream. Gage-height telemeter at station.

AVERAGE DISCHARGE.--43 years (water years 1924-66) prior to completion of Toledo Bend Reservoir, 6,846 ft³/s (4,960,000 acre-ft/yr); 24 years (water years 1967-90) regulated, 6,513 ft³/s (4,719,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 115,000 ft³/s May 19, 1953 (gage height, 38.70 ft, current datum); minimum daily, 134 ft³/s Nov. 9, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1833, 43.5 ft Apr. 23 or 24, 1913, from information by Gulf, Colorado, and Santa Fe Railway Co. and local residents. Flood in May 1884 reached a stage of 39 ft. Floods occurring about 1844 and 1860 were higher than flood in May 1884, from information by local residents. All flood data referenced to current datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 38,200 ft³/s June 5 at about 1200 hours (gage height, 34.14 ft, from observer reading); minimum daily, 681 ft³/s Oct. 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5200	1470	1250	1980	22100	16300	23300	15700	24400	2730	6650	1770
2	2510	1550	1220	1810	20600	17600	21300	14600	27800	1340	7230	2140
3	2510	1740	1230	1730	20200	17900	18800	14000	30800	3170	7270	1510
4	4990	1990	1240	2180	20500	17500	17500	14600	35100	7250	6800	1270
5	5370	1640	1240	3160	20400	17100	16400	16600	38100	7650	2610	1940
6	5180	1110	1260	3720	19300	16700	16300	16600	37900	7500	1170	2000
7	5230	1220	1310	5010	18400	15800	16500	15800	34000	6800	4100	1830
8	5360	1520	1630	4810	18000	15500	16400	15600	28600	2680	7140	1680
9	2160	1350	1750	3870	18800	15600	15900	16800	21800	1220	7330	2100
10	3610	1330	1510	3110	19800	15800	16100	17700	18000	3090	7520	1520
11	2300	1530	1250	2440	19300	15600	16000	17400	16800	6770	7390	1260
12	1030	1390	1040	2190	18600	15600	16000	16700	16600	7020	6400	1740
13	885	793	1380	2110	17500	15600	16000	16300	16400	7590	2820	1970
14	816	800	1620	1920	16000	15800	15800	16000	14700	6520	4430	1970
15	777	1260	1210	1650	16200	16900	17200	17300	9170	2450	7260	1980
16	768	1140	1220	1440	19800	18200	17200	20200	7750	1050	7640	2220
17	1340	1030	919	1650	19800	18000	16300	22500	4020	2930	7450	1450
18	1160	1180	1280	2100	17600	16000	15600	26300	1870	6910	7450	1180
19	1800	1220	1040	7250	16600	16400	15700	29700	4810	7520	6890	1770
20	3190	1230	1440	13200	16400	15900	15500	31700	6920	7420	2950	1880
21	1580	1190	1450	18500	16400	15800	15200	33500	5400	6250	4700	1910
22	925	1220	1420	19700	18300	15700	15000	34600	4040	2680	7250	1930
23	791	1350	6600	21400	20600	15700	15100	35000	3930	1280	7410	2030
24	1910	1450	12300	20900	20200	15200	14700	34000	3540	3170	7370	1570
25	1640	1340	6870	23200	18600	15200	15100	30300	3640	7520	5650	1240
26	820	1280	2070	23100	17500	14900	15000	28000	4350	7320	2000	1850
27	710	1270	1260	18100	17000	15400	16300	20700	7110	7250	969	1850
28	681	1330	1310	18100	17000	15000	17900	17700	7530	6550	1280	1890
29	779	1320	1470	19400	---	18400	17600	20100	7750	2560	1740	1830
30	1060	1270	1590	21800	---	26400	16600	24800	6770	1180	1870	2030
31	1230	---	1660	22200	---	26300	---	24800	---	2310	1790	---
TOTAL	68312	39513	64039	293730	521500	523800	498300	675600	449600	147680	160529	53310
MEAN	2204	1317	2066	9475	18620	16900	16610	21790	14990	4764	5178	1777
MAX	5370	1990	12300	23200	22100	26400	23300	35000	38100	7650	7640	2220
MIN	681	793	919	1440	16000	14900	14700	14000	1870	1050	969	1180
AC-FT	135500	78370	127000	582600	1034000	1039000	988400	1340000	891800	292900	318400	105700

CAL YR 1989 TOTAL 4391424 MEAN 12030 MAX 98000 MIN 681 AC-FT 8710000
WTR YR 1990 TOTAL 3495913 MEAN 9578 MAX 38100 MIN 681 AC-FT 6934000

08028500 SABINE RIVER NEAR BON WIER, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to current year. Chemical and biochemical analyses: October 1969 to May 1973. Sediment analyses: April 1957 tp September 1962.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1969 to June 1983.
WATER TEMPERATURE: November 1969 to June 1983.
COLOR: November 1969 to June 1983.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 407 microsiemens Aug. 31, 1978; minimum daily, 34 microsiemens Feb. 3, 1983.
WATER TEMPERATURE: Maximum daily, 33.0°C July 17, 1978, July 14, 26, 1980; minimum daily, 4.0°C Feb. 2, 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT								
06...	1835	5210	125	25.0	60	12	13	--
12...	1150	906	147	24.5	80	16	15	--
17...	1725	1440	149	23.0	100	14	15	--
24...	1825	2950	130	20.0	120	12	13	--
31...	1520	1270	312	20.0	160	51	35	--
NOV								
08...	1155	1270	232	23.0	140	35	29	--
14...	1555	750	209	21.0	140	29	24	--
24...	1350	1370	176	15.0	140	23	20	--
30...	1620	1140	162	13.0	120	19	19	--
DEC								
07...	1324	1190	172	10.0	120	12	19	--
14...	1535	1650	150	10.0	140	20	17	--
20...	1245	1380	145	6.0	120	18	16	--
28...	1245	1110	153	10.0	120	17	16	--
JAN								
01...	1715	1860	155	10.0	140	20	18	--
10...	1730	2860	91	11.0	210	15	9.3	--
15...	1625	1480	139	13.0	160	18	14	--
22...	1525	20800	72	13.0	240	7.0	7.8	--
FEB								
01...	1020	22100	90	13.5	140	9.4	11	--
06...	1315	19000	100	12.0	160	10	11	--
15...	1340	16000	106	15.0	140	11	13	--
20...	1510	16000	108	15.0	240	11	12	--
28...	1450	17200	112	14.0	140	11	13	--
MAR								
06...	1120	16600	109	14.0	240	12	12	--
14...	1615	15400	108	16.0	140	12	12	--
23...	1625	17400	110	17.0	50	12	12	--
29...	1430	20100	94	17.0	120	10	10	--
APR								
03...	1740	18200	99	20.0	50	11	10	--
11...	1345	16100	111	20.0	40	12	12	--
19...	1520	15700	111	19.0	40	12	12	--
25...	1950	14300	118	20.0	40	13	13	--
MAY								
01...	1915	15800	121	21.0	50	13	16	--
11...	1420	17300	122	22.0	50	13	17	--
18...	1615	25700	129	22.0	50	14	18	--
24...	1915	29900	133	24.0	40	15	19	--
31...	1345	25000	139	25.0	50	15	20	--
JUN								
05...	1205	38200	137	20.0	60	14	20	--
13...	2010	16000	143	28.0	40	14	21	--
21...	1050	4570	138	30.0	40	14	20	--
27...	0555	7340	142	28.0	40	14	20	--
JUL								
05...	1925	7540	144	30.0	50	16	20	--
12...	1140	6790	139	28.0	40	15	20	--
16...	1415	1140	151	26.0	50	15	20	--
24...	1900	5340	124	30.0	60	11	16	--
AUG								
06...	1305	7360	139	30.0	40	16	18	--
11...	1140	7350	145	30.0	40	19	18	--
15...	1505	7140	140	30.0	40	16	18	--
23...	1900	7390	140	30.0	50	15	17	--
30...	1414	1800	143	31.0	50	16	18	--
SEP								
07...	1055	1590	146	30.0	60	18	20	0.20
14...	1330	1600	150	27.0	60	21	23	0.20
20...	1900	2080	165	30.0	70	13	11	0.10
25...	1810	1490	158	25.0	70	21	23	0.20

08029500 BIG COW CREEK NEAR NEWTON, TX

LOCATION.--Lat 30°49'08", long 93°47'07", Newton County, Hydrologic Unit 12010005, near center of span at downstream side of bridge on State Highway 87, 2.6 mi southwest of Newton, 5.0 mi downstream from Melhomes Creek, and 8.0 mi upstream from White Oak Creek.

DRAINAGE AREA.--128 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 134.69 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 19, 1957, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. No known diversion above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--38 years, 120 ft³/s (12.73 in/yr), 86,940 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,200 ft³/s Apr. 29, 1953 (gage height, 19.45 ft); minimum daily, 10 ft³/s July 7, 8, 21-23, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1907, 27.5 ft in April 1922, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 20	2300	1,910	15.23	Apr. 27	2400	1,810	15.14
Jan. 25	1300	1,160	14.30	May 4	1600	4,170	16.22
Mar. 29	1600	*6,020	*16.85				

Minimum discharge, 26 ft³/s on Sept. 1-2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	89	44	164	152	297	343	124	119	54	55	27
2	50	61	44	81	287	535	218	102	191	54	67	26
3	48	53	45	68	359	293	174	121	110	52	48	31
4	46	51	44	162	486	154	135	2320	122	147	41	31
5	45	50	43	189	234	118	118	1610	112	101	37	29
6	45	51	44	345	149	103	165	417	85	68	36	29
7	45	53	53	464	128	98	215	190	76	56	56	29
8	46	61	61	324	119	101	141	185	71	48	46	28
9	47	54	65	152	226	107	107	505	68	44	37	29
10	45	50	52	101	345	98	110	350	67	43	34	35
11	44	47	48	84	244	90	149	181	67	45	32	81
12	44	46	47	75	142	87	142	147	66	43	32	60
13	43	46	46	68	114	84	96	216	64	44	31	53
14	43	48	45	63	104	87	127	223	61	44	32	61
15	44	50	45	62	106	394	284	148	60	40	31	46
16	200	52	45	62	127	282	229	126	59	39	30	39
17	148	57	45	62	102	134	114	113	57	41	29	35
18	96	52	46	235	90	101	94	107	55	47	29	33
19	59	57	57	674	135	87	86	102	54	52	29	39
20	54	60	71	1240	129	79	82	102	53	44	29	39
21	50	55	57	1490	133	75	78	116	52	51	30	33
22	49	59	49	482	866	74	75	121	50	77	33	31
23	49	88	46	185	520	72	71	95	49	54	35	32
24	48	105	46	384	179	70	68	87	47	91	36	46
25	48	68	50	1070	125	68	65	83	46	94	36	34
26	46	58	47	487	107	66	92	80	51	61	34	31
27	45	55	50	193	98	64	1110	78	91	48	31	30
28	44	55	50	166	94	70	1340	98	95	42	30	30
29	44	50	55	704	---	3180	483	169	74	38	29	29
30	53	45	71	563	---	2470	196	132	56	41	28	28
31	75	---	105	218	---	1160	---	90	---	45	27	---
TOTAL	1795	1726	1616	10617	5900	10698	6707	8538	2228	1748	1110	1104
MEAN	57.9	57.5	52.1	342	211	345	224	275	74.3	56.4	35.8	36.8
MAX	200	105	105	1490	866	3180	1340	2320	191	147	67	81
MIN	43	45	43	62	90	64	65	78	46	38	27	26
AC-FT	3560	3420	3210	21060	11700	21220	13300	16940	4420	3470	2200	2190
CFSM	.45	.45	.41	2.68	1.65	2.70	1.75	2.15	.58	.44	.28	.29
IN.	.52	.50	.47	3.09	1.71	3.11	1.95	2.48	.65	.51	.32	.32

CAL YR 1989 TOTAL 64065 MEAN 176 MAX 3620 MIN 43 AC-FT 127100 CFSM 1.37 IN. 18.62
WTR YR 1990 TOTAL 53787 MEAN 147 MAX 3180 MIN 26 AC-FT 106700 CFSM 1.15 IN. 15.63

08030500 SABINE RIVER NEAR RULIFF, TX
(Radiochemical and national stream-quality accounting network)

LOCATION.--Lat 30°18'13", long 93°44'37", Calcasieu Parish, Louisiana-Newton County, Texas State line, Hydrologic Unit 12010005, at downstream side of bridge on State Highway 12, 2.4 mi north of Ruliff, 4.2 mi upstream from the Kansas City Southern Railway Co. bridge, 4.5 mi downstream from Cypress Creek, and at mile 40.2.

DRAINAGE AREA.--9,329 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1924 to current year.

REVISED RECORDS.--WSP 1282: 1941(M), 1942. WSP 1442: 1925-29, 1937-39, 1943. WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 5.92 ft below National Geodetic Vertical Datum of 1929. Prior to Mar. 1, 1941, nonrecording gage at Kansas City Southern Railway Co. bridge, 4.2 mi downstream and at datum 7.98 ft higher than current datum. Mar. 1, 1941, to Dec. 8, 1948, nonrecording gage at present site and at datum 10.00 ft higher than current datum. Dec. 9, 1948, to Dec. 31, 1989, recording gage at present site and at datum 10.00 ft higher than current datum.

REMARKS.--Records good. Flow is partly regulated by Toledo Bend Reservoir (station 08025350) 116.3 mi upstream.

AVERAGE DISCHARGE.--42 years (water years 1925-66) prior to completion of Toledo Bend Reservoir, 8,422 ft³/s (6,102,000 acre-ft/yr); 24 years (water years 1967-90 regulated, 7,866 ft³/s (5,699,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 121,000 ft³/s May 22, 1953 (gage height, 29.98 ft, current datum); minimum, 270 ft³/s Sept. 27-30, Oct. 1-3, 17-20, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1835, 32.2 ft in May or June 1884 (adjusted to present site and datum on basis of slope of flood of June 8, 9, 1950); flood of Apr. 26-29, 1913, reached a stage of 29.5 ft, present site and datum, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 35,000 ft³/s Jan. 27 at 1100 hours (gage height, 25.20 ft); minimum daily, 1,170 ft³/s Oct. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5280	1560	1710	2240	23200	17200	26500	18700	18200	7860	2410	2090
2	5140	1800	1660	2410	24000	17100	32300	18500	19300	7420	4280	2060
3	4770	2060	1620	2520	23500	17400	29400	17500	20300	5080	6070	2150
4	3270	2120	1590	2600	21800	17900	25200	16900	21800	3210	6900	2220
5	3590	2270	1580	3150	20600	18600	21800	16000	24200	5080	7360	1610
6	4530	2440	1590	4420	19700	18400	19800	15600	27600	6600	7020	1810
7	4990	1960	1650	5770	19400	17800	18500	16200	30700	7380	4500	2040
8	5120	1680	1710	6910	19300	16900	17600	18600	32200	7730	2890	2010
9	5250	1850	1840	7820	19500	15900	17200	20400	31200	7240	4960	1940
10	4780	1870	2060	8240	18800	15200	17000	19500	27400	4830	6280	1980
11	3460	1790	2120	7520	17900	14700	16900	18400	22800	2890	6960	2170
12	3580	1800	1880	6340	17900	14400	16700	17800	19400	4770	7350	1610
13	2520	1970	1580	4900	18000	14400	16500	17400	17100	6210	7550	1780
14	1590	1580	1600	3920	17700	14500	16800	16800	15900	6890	7090	2080
15	1340	1300	1800	3370	17200	16200	16700	16300	15300	7310	5630	2190
16	1260	1440	1760	3000	16400	16600	16600	15900	14600	6900	5910	2170
17	1200	1610	1650	2610	15700	16500	16500	15800	13300	4460	6680	2240
18	1450	1490	1490	2600	15500	16800	16500	16000	11400	2680	7190	2310
19	2110	1530	1530	2860	16400	17100	16600	16700	8340	4670	7500	1630
20	2010	1580	1520	4600	16800	16500	16500	18000	5980	6270	7630	1680
21	2900	1600	1650	6650	16800	15900	16000	20600	6190	6990	7160	1920
22	2910	1620	1810	8640	17300	15300	15700	24200	6780	7360	5730	2000
23	2020	1650	1840	11300	17300	14700	15300	26800	6530	7050	6020	2020
24	1470	1720	3240	16000	17800	14300	15100	28300	5740	4680	6810	2060
25	1500	1840	5780	26400	19400	14000	15000	29400	5180	2850	7320	2150
26	2320	1890	7280	33200	20500	13700	15300	29700	4940	4880	7500	1580
27	1770	1810	6900	34500	19700	13500	16700	28600	4970	6340	6540	1660
28	1320	1770	4270	33300	18100	13600	16700	26300	5950	7060	3570	1870
29	1190	1790	2730	31500	---	14100	17100	23000	6870	7390	1830	1900
30	1170	1750	2260	27300	---	15600	17800	19500	7450	6910	1900	1890
31	1360	---	2200	24000	---	18000	---	17800	---	4410	2070	---
TOTAL	87170	53140	73900	340590	526200	492800	552300	621200	457620	181400	178610	58820
MEAN	2812	1771	2384	10990	18790	15900	18410	20040	15250	5852	5762	1961
MAX	5280	2440	7280	34500	24000	18600	32300	29700	32200	7860	7630	2310
MIN	1170	1300	1490	2240	15500	13500	15000	15600	4940	2680	1830	1580
AC-FT	172900	105400	146600	675600	1044000	977500	1095000	1232000	907700	359800	354300	116700

CAL YR 1989 TOTAL 5021220 MEAN 13760 MAX 108000 MIN 1170 AC-FT 9960000
WTR YR 1990 TOTAL 3623750 MEAN 9928 MAX 34500 MIN 1170 AC-FT 7188000

08030500 SABINE RIVER NEAR RULIFF, TX--Continued
(Radiochemical and national stream-quality accounting network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: September 1945 to September 1946, October 1947 to current year. Chemical and biochemical analyses: February 1968 to current year. Pesticide analyses: January 1968 to May 1982. Radiochemical analyses: October 1969 to current year. Sediment analyses: October 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: September 1945 to September 1946, October 1947 to current year.
WATER TEMPERATURE: October 1947 to current year.
pH: July 1968 to May 1975
COLOR: November 1969 to December 1975.
DISSOLVED OXYGEN: July 1968 to May 1975.
CHLORIDE: July 1968 to September 1968.

INSTRUMENTATION.--From February 1967 to December 1975, a water-quality monitor continuously recorded specific conductance, pH, water temperature, dissolved oxygen, and chloride 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, 779 microsiemens Aug. 31, 1966; minimum, 27 microsiemens Feb. 16, 1984.
WATER TEMPERATURE (1947-1988): Maximum, 36.0°C Aug. 14, 1962; minimum, 1.0°C Jan. 28, 1948.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, (more than 30 percent estimated record) 261 microsiemens Nov. 10; minimum daily, 48 microsiemens Jan. 26.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV 13...	1601	1990	162	7.0	20.0	8.6	9.5	104	1.0	36	210
FEB 26...	1355	20600	92	7.0	15.5	15	8.6	85	1.1	170	700
MAY 30...	0930	19900	130	7.1	24.0	17	6.2	73	0.9	88	110
JUL 24...	1103	4900	132	6.9	27.0	14	6.8	84	0.4	130	170

DATE	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB DISSOLVED FLD. AS CACO3 (MG/L)	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 WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
NOV 13...	26	2	7.1	2.0	21	2	2.8	24	21	19	0.10
FEB 26...	20	6	5.3	1.7	8.1	0.8	2.4	15	14	9.3	<0.10
MAY 30...	30	9	7.5	2.6	13	1	3.0	20	13	19	<0.10
JUL 24...	30	9	7.3	2.7	13	1	3.6	22	14	19	<0.10

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRITE DISSOLVED (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, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)	PHOSPHORUS DISSOLVED (MG/L AS P)
NOV 13...	11	102	100	<0.010	0.250	0.040	0.040	0.36	0.40	0.040	0.030
FEB 26...	6.5	72	56	<0.010	<0.100	0.020	0.021	0.38	0.40	0.030	0.020
MAY 30...	7.0	87	78	<0.010	<0.100	0.030	0.010	0.37	0.40	0.040	0.020
JUL 24...	7.4	84	80	<0.010	<0.100	0.040	0.030	0.56	0.60	0.030	0.040

DATE	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)
NOV 13...	0.020	0.06	17	91	91	90	<1	40	<0.5	<1.0	<1
FEB 26...	0.020	0.06	13	723	94	120	<1	39	<0.5	2.0	<5
MAY 30...	<0.010	--	28	1500	93	40	<1	55	0.5	<1.0	<1
JUL 24...	0.020	0.06	35	463	92	40	<1	49	<0.5	<1.0	<1

08030500 SABINE RIVER NEAR RULIFF, TX--Continued
(Radiochemical and national stream-quality accounting network)

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)
NOV 13...	<3	2	250	<1	<4	31	<0.1	<10	2	<1	<1.0
FEB 26...	<3	<10	190	<10	<4	20	<0.1	<10	<10	<1	<1.0
MAY 30...	<3	2	89	<1	<4	56	<0.1	<10	2	<1	<1.0
JUL 24...	<3	1	100	<1	6	44	<0.1	<10	1	<1	<1.0

DATE	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	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 NATURAL DIS-SOLVED (UG/L AS U)
NOV 13...	80	<6	11	2.6	0.6	5.2	0.8	4.1	0.7	0.10	0.03
FEB 26...	68	<6	13	--	--	--	--	--	--	--	--
MAY 30...	96	<6	4	--	--	--	--	--	--	--	--
JUL 24...	99	<6	5	--	--	--	--	--	--	--	--

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1989	87170	125	78	18300	16	3760	16	3660	26
NOV.	1989	53140	178	105	15000	23	3270	21	3020	28
DEC.	1989	73900	125	77	15400	16	3190	16	3100	25
JAN.	1990	340590	61	40	36800	7.8	7170	8.0	7370	15
FEB.	1990	526200	90	57	81400	11	16200	11	16300	21
MAR.	1990	492800	96	61	81000	12	16200	12	16200	22
APR.	1990	552300	95	60	90200	12	18100	12	18100	22
MAY	1990	621200	115	72	121000	15	24600	14	24200	25
JUNE	1990	457620	135	83	102000	17	21200	17	20500	27
JULY	1990	181400	134	83	40500	17	8390	17	8130	27
AUG.	1990	178610	136	84	40400	17	8390	17	8110	27
SEPT	1990	58820	144	88	14000	18	2920	18	2810	28
TOTAL		3623750	**	**	656000	**	133000	**	132000	**
WTD.AVG.		9928	107	67	**	14	**	13	**	23

08030500 SABINE RIVER NEAR RULIFF, TX--Continued
(Radiochemical and national stream-quality accounting network)

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e120	150	142	e96	67	e93	e60	97	131	133	e140	e140
2	118	176	e146	e99	72	e96	62	101	e132	134	e138	136
3	e130	239	143	e101	e76	93	78	106	e132	134	e130	140
4	e125	e225	143	e102	82	e92	96	110	e131	132	e132	137
5	e113	204	148	e92	86	e93	78	97	e133	136	e138	139
6	115	e200	142	e92	87	e94	88	101	e134	133	e130	141
7	115	e220	155	94	87	95	93	106	e133	144	e132	138
8	116	e235	156	100	e89	e99	97	100	e136	132	e136	141
9	117	e255	150	74	e91	101	e99	98	138	142	e140	140
10	116	261	155	71	93	102	98	99	133	132	e132	140
11	124	e210	157	72	94	e101	100	101	133	136	e138	140
12	135	176	130	72	93	101	e102	101	133	e132	136	142
13	129	164	126	79	92	e102	e102	100	139	e136	137	141
14	154	168	140	91	95	102	e105	99	138	e137	133	142
15	141	151	e143	93	93	e100	e107	115	140	e132	136	e140
16	133	145	e146	104	e96	96	107	116	139	e135	136	e144
17	154	166	e148	118	98	e99	e105	118	138	e135	138	e145
18	162	149	e148	e110	e99	e97	103	120	140	e138	136	153
19	137	188	e152	137	102	e95	102	121	131	e136	140	155
20	113	149	e150	52	103	e97	107	115	131	e140	137	e158
21	e105	149	e156	53	101	e96	107	123	132	e132	137	161
22	e110	e155	e158	59	e97	e93	e102	124	133	e130	131	150
23	121	e160	e158	50	96	e91	e103	125	134	e134	135	150
24	129	149	e120	e53	e90	e93	105	126	131	130	137	151
25	140	143	e110	52	88	e93	110	115	134	127	e140	138
26	167	142	e100	48	87	94	113	129	133	130	e144	144
27	136	144	e95	49	e91	107	109	e130	133	129	135	150
28	141	130	e90	52	93	98	98	e132	131	e136	e138	139
29	132	126	e94	51	---	97	101	e130	137	e138	e139	147
30	141	138	e92	55	---	106	97	131	137	e130	146	152
31	149	---	e93	62	---	63	---	131	---	e136	153	---
MEAN	130	176	135	78	91	96	98	113	134	134	137	144

e Estimated

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	19.0	14.0	---	15.0	---	---	23.0	25.0	29.0	---	---
2	25.0	18.0	---	---	16.0	---	18.0	24.0	---	29.0	---	30.0
3	---	17.0	12.0	---	---	14.0	18.0	23.0	---	29.0	---	29.0
4	---	---	12.0	---	15.0	---	19.0	23.0	---	29.0	---	29.0
5	---	17.0	13.0	---	14.0	---	20.0	23.0	---	29.0	---	29.0
6	26.0	---	13.0	---	13.0	---	19.0	22.0	---	30.0	---	29.0
7	26.0	---	15.0	10.0	14.0	16.0	18.0	23.0	---	30.0	---	30.0
8	24.0	---	13.0	11.0	---	---	17.0	21.0	---	29.0	---	30.0
9	24.0	---	12.0	11.0	---	13.0	---	22.0	26.0	29.0	---	30.0
10	22.0	20.0	13.0	11.0	15.0	14.0	18.0	21.0	26.0	30.0	---	28.0
11	23.0	---	13.0	12.0	15.0	---	18.0	21.0	26.0	30.0	---	28.0
12	23.0	20.0	10.0	12.0	15.0	17.0	---	22.0	27.0	30.0	30.0	28.0
13	24.0	20.0	10.0	12.0	15.0	---	---	25.0	28.0	30.0	30.0	28.0
14	25.0	20.0	10.0	12.0	15.0	18.0	---	25.0	28.0	---	30.0	20.0
15	25.0	20.0	---	12.0	16.0	---	---	24.0	29.0	---	31.0	---
16	25.0	18.0	---	14.0	---	17.0	18.0	19.0	30.0	---	31.0	---
17	25.0	16.0	---	15.0	14.0	---	19.0	19.0	30.0	---	31.0	---
18	23.0	15.0	---	---	---	---	20.0	24.0	30.0	---	30.0	28.0
19	20.0	16.0	---	18.0	12.0	---	19.0	20.0	30.0	---	30.0	28.0
20	20.0	16.0	---	15.0	13.0	---	19.0	20.0	30.0	---	30.0	---
21	---	18.0	---	12.0	15.0	---	19.0	20.0	30.0	---	30.0	30.0
22	---	---	---	14.0	---	---	18.0	20.0	32.0	---	30.0	28.0
23	19.0	---	---	14.0	15.0	---	21.0	19.0	32.0	---	30.0	27.0
24	20.0	15.0	---	12.0	---	---	22.0	19.0	31.0	30.0	30.0	26.0
25	20.0	15.0	---	11.0	15.0	---	23.0	19.0	31.0	27.0	---	25.0
26	20.0	17.0	---	13.0	15.5	17.0	22.0	24.0	30.0	30.0	---	26.0
27	21.0	19.0	---	13.0	---	17.0	21.0	---	30.0	29.0	30.0	26.0
28	20.0	17.0	---	14.0	16.0	17.0	21.0	---	30.0	---	---	26.0
29	22.0	16.0	---	14.0	---	16.0	22.0	---	30.0	---	---	27.0
30	22.0	14.0	---	13.0	---	16.0	22.0	25.0	29.0	---	30.0	27.0
31	20.0	---	---	13.0	---	---	---	25.0	---	---	31.0	---
MEAN	22.5	17.5	12.5	13.0	14.5	16.0	19.5	22.0	29.0	29.5	30.0	27.5

08031400 LAKE PALESTINE NEAR FRANKSTON, TX

LOCATION.--Lat 32°03'12", long 95°26'12", Anderson-Cherokee County line, Hydrologic Unit 12020001, in outlet tower near right bank, 140 ft upstream from Blackburn Crossing Dam on Neches River, 5 mi east of Frankston, 21 mi upstream from gage (station 08032000), and at mile 354.0.

DRAINAGE AREA.--839 mi².

PERIOD OF RECORD.--February 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Sept. 20, 1962, non-recording gage read once daily.

REMARKS.--The lake is formed by a rolled earthfill dam with a 500-foot-wide uncontrolled spillway near left end of dam. Deliberate impoundment began May 1, 1962. The enlargement of lake began Sept. 26, 1969, and was completed on Mar. 3, 1971. The outlet works consist of two 5- x 7-foot gates located in concrete tower near center of dam and connected to an 8.5-foot-diameter concrete conduit through the dam. The low-flow outlet consists of two 3-foot iron pipes connected to the tower structure for low-flow releases. Water is used for municipal and industrial purposes in the Palestine area. The diversion point is downstream from gage (station 08032000). There are no large diversions above station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	364.0	-
Design flood	355.3	726,000
Crest of spillway (top of conservation pool)	345.0	412,000
Lowest gated outlet (invert)	298.0	550

COOPERATION.--The capacity table, furnished by the Upper Neches River Municipal Water Authority, is based on Geological Survey topographic maps dated 1946 and 1948-49.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 531,100 acre-ft May 19, 1989 (elevation, 349.31 ft); minimum since first appreciable storage, 11,450 acre-ft Nov. 28, 1970 (elevation, 310.00 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 459,500 acre-ft May 6 at 1100 hours (elevation, 346.80 ft); minimum, 358,400 acre-ft Dec. 24 (elevation, 342.82 ft).

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

342.0	339,500	344.0	386,700	346.0	437,900
343.0	362,600	345.0	411,800	347.0	464,900

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	374600	367900	362400	361400	402500	419600	453300	431400	440600	411500	403800	392700
2	374400	367200	362800	361400	405300	418300	451700	429800	443000	411000	403500	392000
3	374200	366200	361400	362600	409300	417800	447100	437100	451400	410500	403300	391500
4	373700	365700	361200	363300	409500	416800	443000	444400	452500	409800	404000	391000
5	373200	365300	361000	363800	410300	416000	441100	456800	449500	409300	405800	390500
6	375100	366000	361400	364000	412600	415700	438400	458100	445700	408800	406500	389200
7	374600	366000	363100	363800	413900	430100	435600	453600	442000	408300	406300	389200
8	374200	366200	361400	363800	414400	439800	432700	449500	439000	408300	405500	388700
9	373400	365300	359800	364800	418100	444600	430600	446800	436100	408000	405000	389200
10	373200	365000	360800	364300	417000	444900	433500	440600	433200	406800	404500	394500
11	372500	364800	362800	365500	417000	444900	434000	438200	430300	407300	404000	395700
12	372500	364800	360100	365000	415500	444100	434000	456300	426700	406800	403500	396700
13	372200	365000	359400	363800	416500	440300	434200	454600	424600	405500	403000	396700
14	371800	363800	359400	364000	417800	445200	439500	450100	423500	404300	403000	397000
15	371800	365000	361400	364500	418300	450100	441400	445500	422200	403300	402500	397000
16	373400	363600	359400	364500	418600	454900	442500	444600	420700	403000	401500	396700
17	372000	362600	359400	369800	417300	454900	443300	441400	419900	404500	400500	397000
18	370600	362600	359800	375600	417500	452800	441700	437400	418800	404300	400500	396500
19	368600	362600	359800	381400	417000	448700	439200	435300	417500	404500	400500	395700
20	367200	362400	359800	384300	416200	443300	437400	433700	416800	403800	399800	395500
21	366700	362100	363300	386000	417000	438200	435800	434000	415500	402800	399200	395700
22	366200	365700	361000	387500	418300	435600	433500	431400	415700	403000	398000	397000
23	366500	363600	358900	390000	418300	433500	430300	429300	413600	404300	397500	395700
24	366500	362400	358900	396000	418800	432400	432900	426400	412800	405300	396700	394200
25	366500	363600	358900	393000	417800	429500	432700	425900	413400	405300	396200	394000
26	366000	363100	358700	392500	417300	427500	434500	423800	414400	405500	395700	393500
27	365700	365000	359100	395500	418300	425100	434800	425100	414400	405300	395500	393200
28	365300	364300	358900	398000	420700	424100	432700	425100	413100	405000	394700	392000
29	365000	362800	359600	397000	---	429800	432700	423500	412800	404800	395000	391700
30	368400	362600	362800	399000	---	437900	432700	422200	411800	404300	394500	392500
31	367400	---	361200	398700	---	450100	---	437900	---	404000	393200	---
MAX	375100	367900	363300	399000	420700	454900	453300	458100	452500	411500	406500	397000
MIN	365000	362100	358700	361400	402500	415700	430300	422200	411800	402800	393200	388700
(†)	343.20	343.00	342.94	344.48	345.34	346.45	345.80	346.00	345.00	344.69	344.26	344.23
(Φ)	-8000	-4800	-1400	+37500	+22000	+29400	-17400	+5200	-26100	-7800	-10800	-700

CAL YR 1989 MAX 528700 MIN 358700 (Φ) -21900
WTR YR 1990 MAX 458100 MIN 358700 (Φ) +17100

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

08032000 NECHES RIVER NEAR NECHES, TX

LOCATION.--Lat 31°53'32", long 95°25'50", Anderson-Cherokee County line, Hydrologic Unit 12020001, on left bank just downstream from bridge on U.S. Highway 79, 1.0 mi downstream from Missouri Pacific Railroad Co. bridge, 1.4 mi downstream from Walnut Creek, 4.4 mi northeast of Neches, and at mile 333.2.

DRAINAGE AREA.--1,145 mi².

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 264.06 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 27, 1945, nonrecording gage at present site and datum.

REMARKS.--Records good. Some regulation by Lake Palestine (station 08031400) 11 mi upstream and by Lake Athens (station 08031290) 50 mi upstream, combined capacity 454,600 acre-ft. No large diversion above station. Gage-height telemeter at station.

AVERAGE DISCHARGE.--22 years (water years 1940-61) unregulated, 804 ft³/s (582,500 acre-ft/yr); 29 years (water years 1962-90) regulated, 648 ft³/s (469,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,500 ft³/s Apr. 2, 1945 (gage height, 22.07 ft); no flow Oct. 3-5, 1939.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1908 (stage 24.3 ft) was the highest since flood in May 1884, which was probably higher.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,260 ft³/s June 2 at 0300 hours, (gage height, 16.27 ft); minimum daily, 73 ft³/s Dec. 24-25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	92	159	76	166	248	715	1850	1650	4050	263	152	119
2	92	125	75	134	458	776	2440	1570	6650	230	195	119
3	92	110	75	119	513	720	3320	1530	4930	207	237	120
4	92	101	75	132	556	627	3550	1620	5780	184	188	120
5	92	95	75	144	465	554	3210	1920	5870	165	145	120
6	93	92	75	130	352	497	2850	2560	5100	149	140	121
7	100	89	76	127	320	508	2600	3680	4230	141	147	121
8	121	88	77	123	341	872	2410	4390	3420	134	132	119
9	112	87	77	113	399	1560	2160	4220	2910	129	116	121
10	101	85	77	105	766	2230	1920	3690	2540	125	107	183
11	98	83	78	100	779	2700	1730	3190	2210	123	103	451
12	94	84	78	96	678	2980	1680	3460	1960	116	100	418
13	92	83	78	91	567	2990	1680	5470	1710	125	98	315
14	91	85	77	90	495	2910	1700	6800	1460	192	103	261
15	91	88	79	90	517	2750	1780	5680	1220	134	131	226
16	90	88	81	90	586	2710	1920	4660	1040	109	134	191
17	91	87	81	122	608	3180	2080	3940	901	116	133	173
18	91	87	79	529	566	3900	2220	3420	768	177	130	170
19	92	90	82	1220	561	4130	2360	4410	671	166	127	153
20	92	92	83	1470	566	3950	2330	4230	584	146	127	135
21	93	91	83	1220	541	3560	2200	3450	503	145	126	124
22	93	100	83	790	728	3010	2050	2580	427	132	124	135
23	93	155	80	451	788	2560	1900	2130	390	121	124	247
24	93	131	73	320	764	2220	1760	1860	361	121	125	253
25	93	106	73	284	697	1990	1700	1620	297	133	124	202
26	93	97	78	245	626	1820	1650	1380	311	146	123	154
27	93	92	85	209	575	1630	1700	1180	391	148	123	132
28	92	85	89	200	584	1410	1760	1170	375	141	122	124
29	95	79	94	281	---	1280	1810	1320	336	128	121	122
30	111	78	102	294	---	1500	1760	1340	298	120	121	117
31	172	---	151	256	---	1630	---	1400	---	124	121	---
TOTAL	3030	2912	2545	9741	15644	63869	64080	91520	61693	4590	4099	5366
MEAN	97.7	97.1	82.1	314	559	2060	2136	2952	2056	148	132	179
MAX	172	159	151	1470	788	4130	3550	6800	6650	263	237	451
MIN	90	78	73	90	248	497	1650	1170	297	109	98	117
AC-FT	6010	5780	5050	19320	31030	126700	127100	181500	122400	9100	8130	10640

CAL YR 1989 TOTAL 282557 MEAN 774 MAX 22000 MIN 60 AC-FT 560500
WTR YR 1990 TOTAL 329089 MEAN 902 MAX 6800 MIN 73 AC-FT 652700

08032000 NECHES RIVER NEAR NECHES, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: December 1969 to current year. Biochemical analyses: October 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1969 to current year.
WATER TEMPERATURES: December 1983 to current year.

INSTRUMENTATION.--Since December 1969, specific conductance is recorded continuously at this station. Since December 1983 water temperature is recorded continuously at this station.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. Where maximum and minimum specific conductance values are not shown, mean 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 (1974-current year): Maximum, 1,190 microsiemens Aug. 29, 1976; minimum 65 microsiemens June 1, 1990.
WATER TEMPERATURE: Maximum, 36.0°C July 16, 1985; minimum, 0.0°C Dec. 24, 25, 1989.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 360 microsiemens Aug. 1; Minimum, 65 microsiemens June 1.
WATER TEMPERATURE: Maximum, 30.5°C July 11, Aug. 29-31; minimum, 0.0°C Dec. 24, 25.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
NOV										
14...	0729	86	159	6.4	17.5	8.2	86	1.1	38	13
JAN										
24...	1105	316	189	5.9	12.5	8.9	85	1.3	38	24
APR										
05...	0735	3230	152	6.3	17.0	7.6	79	1.3	36	16
JUL										
17...	1813	128	174	6.4	25.0	6.5	79	1.8	35	7
AUG										
03...	1030	241	149	6.5	27.0	6.2	78	1.4	40	15
SEP										
04...	1300	120	147	6.3	28.0	7.0	89	1.5	36	13

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV									
14...	8.7	4.0	14	1	4.3	25	16	22	0.10
JAN									
24...	8.7	4.0	18	1	4.2	14	21	29	0.10
APR									
05...	8.5	3.6	15	1	4.0	20	19	23	0.10
JUL									
17...	9.3	2.9	12	0.9	3.1	28	11	20	<0.10
AUG									
03...	10	3.7	12	0.8	3.7	25	10	21	<0.10
SEP									
04...	8.8	3.3	12	0.9	1.1	23	9.7	20	<0.10

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, 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									
14...	11	95	--	<0.010	0.100	0.020	0.48	0.50	0.050
JAN									
24...	16	109	--	<0.010	0.200	0.050	0.45	0.50	0.070
APR									
05...	1.6	87	--	0.010	<0.100	0.010	1.5	1.5	0.050
JUL									
17...	7.1	82	0.080	0.020	0.100	0.030	0.87	0.90	0.030
AUG									
03...	10	85	0.090	0.010	0.100	0.050	0.55	0.60	0.050
SEP									
04...	8.2	77	0.090	0.010	0.100	0.030	0.57	0.60	0.030

08032000 NECHES RIVER NEAR NECHES, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1989	3030	151	88	719	22	176	21	170	30
NOV.	1989	2912	168	99	776	26	202	22	176	33
DEC.	1989	2545	168	98	675	25	175	22	153	33
JAN.	1990	9741	154	90	2370	23	600	21	547	30
FEB.	1990	15644	168	98	4150	25	1080	22	943	33
MAR.	1990	63869	156	91	15700	23	3930	21	3670	31
APR.	1990	64080	157	92	15900	23	3970	21	3700	31
MAY	1990	91520	148	86	21200	21	5150	20	5050	30
JUNE	1990	61693	109	62	10400	13	2190	16	2670	24
JULY	1990	4590	159	93	1150	23	289	21	266	31
AUG.	1990	4099	137	79	876	19	205	19	213	28
SEPT	1990	5366	150	88	1270	22	315	21	298	30
TOTAL		329089	**	**	75200	**	18300	**	17900	**
WTD.AVG.		902	146	85	**	21	**	20	**	29

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	149	145	147	200	169	182	168	164	166	199	165	175
2	149	145	147	173	161	167	166	164	166	165	162	164
3	149	145	147	167	164	165	165	164	164	169	164	166
4	149	145	147	167	164	166	167	164	166	253	171	199
5	149	145	147	166	163	164	169	164	166	215	174	189
6	149	145	147	163	160	162	166	163	165	202	172	180
7	149	141	145	162	159	160	166	164	165	198	178	185
8	149	141	143	163	159	161	165	163	164	195	180	185
9	157	145	150	164	161	162	166	163	164	179	172	176
10	161	153	159	161	159	160	166	161	164	177	171	174
11	161	153	157	161	158	159	166	164	165	175	169	172
12	157	149	153	160	155	158	165	163	164	176	170	173
13	157	149	151	158	155	157	166	163	164	175	170	173
14	153	149	151	158	157	157	165	162	164	171	168	169
15	153	149	151	158	155	158	165	163	164	171	169	170
16	153	149	150	160	157	158	165	162	164	179	170	174
17	153	149	151	160	158	159	166	163	164	204	167	179
18	153	149	151	159	157	158	166	164	165	256	144	195
19	153	145	149	161	159	160	165	163	164	147	100	114
20	153	145	149	160	159	159	165	163	164	116	103	109
21	157	149	153	160	159	159	165	163	164	139	116	126
22	157	149	152	187	157	163	165	162	164	166	139	153
23	153	149	151	275	190	230	165	162	164	178	167	173
24	153	149	151	199	177	187	167	162	165	202	178	186
25	153	149	150	177	166	170	171	164	167	200	177	188
26	153	149	150	168	164	167	175	168	171	188	177	181
27	153	149	152	169	165	167	175	171	172	186	183	185
28	153	149	151	170	164	168	172	168	169	195	186	188
29	153	145	150	176	164	166	167	163	165	268	191	220
30	161	145	150	179	168	173	189	162	170	192	179	184
31	196	161	169	---	---	---	247	178	200	185	179	181
MONTH	196	141	151	275	155	166	247	161	167	268	100	174

08032000 NECHES RIVER NEAR NECHES, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	216	185	198	214	166	182	160	151	155	157	155	156
2	252	174	208	167	164	166	161	156	157	157	155	156
3	175	161	168	170	166	168	162	156	159	157	154	156
4	163	153	158	171	166	169	162	154	157	162	156	158
5	172	161	166	171	167	168	156	155	155	156	149	152
6	179	172	175	171	167	169	157	155	156	154	149	151
7	178	166	172	201	168	178	158	154	156	156	152	154
8	167	163	165	198	134	158	160	156	158	154	152	153
9	194	163	171	139	125	130	159	155	157	155	153	154
10	203	156	176	146	137	141	159	157	158	157	154	155
11	157	152	155	157	145	150	160	157	158	---	---	e155
12	159	156	157	156	151	153	159	157	158	---	---	e155
13	161	157	159	157	151	154	159	158	159	---	---	e150
14	166	158	162	160	156	158	159	156	157	---	---	e140
15	187	165	171	159	156	157	158	154	156	---	---	e135
16	178	162	168	158	154	156	157	154	156	---	---	e140
17	164	160	162	157	152	155	158	155	157	---	---	e150
18	166	162	163	157	152	154	159	157	158	---	---	e155
19	187	166	173	157	153	155	159	157	158	---	---	e150
20	166	162	164	160	153	155	160	155	158	---	---	e150
21	193	164	169	163	155	158	159	157	158	---	---	e150
22	209	164	184	163	156	159	159	157	158	---	---	e145
23	164	158	161	164	159	161	160	158	159	---	---	e145
24	168	160	163	163	157	160	160	157	159	---	---	e145
25	168	163	165	164	158	161	158	152	156	147	146	146
26	167	162	164	164	158	160	160	154	158	147	145	146
27	167	162	164	163	158	160	160	157	159	147	145	146
28	179	160	165	163	159	160	158	156	157	150	136	144
29	---	---	---	174	161	163	156	154	155	144	128	133
30	---	---	---	174	148	161	157	155	156	131	117	126
31	---	---	---	153	148	150	---	---	---	132	108	121
MONTH	252	152	169	214	125	159	162	151	157	162	108	147

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	109	65	80	133	130	131	360	144	178	131	123	124
2	88	70	78	140	131	136	262	146	171	128	122	124
3	104	89	97	142	139	140	160	136	143	124	122	123
4	103	96	100	152	141	148	149	137	141	129	123	124
5	109	103	105	157	152	155	177	136	148	126	123	125
6	117	109	113	168	158	164	152	136	142	126	117	125
7	119	115	117	170	166	168	186	134	141	127	125	126
8	120	114	117	167	162	164	151	134	139	129	125	127
9	121	117	118	165	161	162	247	135	146	128	126	127
10	124	121	123	164	160	162	180	136	149	239	122	139
11	124	122	123	165	164	165	150	139	141	225	143	162
12	125	122	123	169	166	168	148	136	140	160	134	140
13	126	123	125	174	170	171	148	138	140	143	136	139
14	130	124	128	175	172	173	140	132	137	166	140	148
15	134	125	130	175	172	173	136	129	130	164	145	150
16	137	131	134	174	172	173	131	127	128	146	142	145
17	133	128	131	174	171	173	148	127	130	151	139	141
18	133	128	131	297	157	189	156	126	129	173	139	147
19	129	126	128	163	155	159	155	126	128	216	138	153
20	132	128	130	161	157	159	132	125	127	187	142	149
21	135	130	132	159	154	157	131	124	126	156	144	147
22	133	126	131	162	157	160	143	124	129	255	142	163
23	134	128	131	164	160	162	126	122	124	238	140	172
24	133	129	131	162	156	160	137	122	124	336	147	227
25	134	126	130	161	156	158	166	120	129	294	152	206
26	135	129	131	158	155	157	149	120	124	150	141	146
27	142	130	136	157	151	154	127	121	122	157	144	147
28	133	127	129	181	151	161	139	120	123	149	146	148
29	134	129	132	157	153	155	150	119	129	177	147	157
30	141	131	136	157	152	154	162	118	128	151	147	149
31	---	---	---	166	146	152	126	123	123	---	---	---
MONTH	142	65	122	297	130	160	360	118	136	336	117	147

08032000 NECHES RIVER NEAR NECHES, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	23.0	21.0	22.0	15.5	15.0	15.0	10.5	10.0	10.5	8.0	7.0	7.5
2	24.0	22.0	22.5	15.5	14.0	15.0	11.0	10.0	10.5	7.5	7.0	7.0
3	24.0	22.5	23.0	14.5	13.0	14.0	10.0	9.0	9.5	8.5	7.0	8.0
4	24.0	22.5	23.5	14.5	13.0	13.5	9.0	8.0	8.5	9.0	8.5	9.0
5	24.5	23.0	23.5	16.5	14.5	15.5	10.0	8.0	9.0	9.5	9.0	9.0
6	24.5	23.0	23.5	19.0	16.5	18.0	11.5	9.5	10.5	9.0	9.0	9.0
7	23.5	22.0	23.0	20.5	18.5	19.5	12.0	11.5	12.0	9.0	8.5	9.0
8	22.0	20.5	21.0	21.5	20.0	20.5	11.5	9.5	10.5	8.5	7.5	8.0
9	20.5	19.0	20.0	20.0	17.5	19.0	9.5	8.5	9.0	9.5	8.0	8.5
10	21.0	19.0	20.0	17.5	16.0	17.0	10.0	8.0	9.0	9.5	8.0	8.5
11	21.5	20.0	20.5	17.0	15.5	16.0	9.5	8.5	9.5	10.5	8.5	9.5
12	22.0	20.5	21.0	17.0	15.0	16.0	8.5	6.5	8.0	10.0	9.0	9.5
13	22.0	20.5	21.5	18.0	16.0	17.0	6.5	5.5	6.0	8.5	7.5	8.0
14	22.5	21.0	21.5	19.5	15.5	18.0	6.5	5.0	6.0	9.0	8.0	8.5
15	22.0	21.0	21.5	20.0	18.0	19.0	6.5	5.5	6.0	11.0	9.0	10.0
16	23.0	21.5	22.5	17.5	14.5	16.5	5.0	3.5	4.0	12.5	11.0	11.5
17	22.5	20.0	21.5	14.5	13.0	13.5	4.0	3.5	3.5	15.0	12.5	13.5
18	20.0	17.5	19.0	13.0	12.5	12.5	4.0	3.5	4.0	15.5	15.0	15.5
19	17.5	15.5	16.5	13.5	12.0	13.0	4.0	4.0	4.0	16.0	15.5	15.5
20	15.5	14.0	14.5	15.0	13.5	14.5	4.5	3.5	4.0	16.0	14.5	15.5
21	15.5	14.0	14.5	16.5	15.0	16.0	4.5	3.5	4.0	14.5	12.5	13.5
22	17.5	15.0	16.0	17.0	15.5	16.5	3.5	1.5	2.5	12.5	11.5	12.0
23	19.0	17.0	18.0	15.5	13.0	14.0	1.5	.5	1.0	12.5	11.0	11.5
24	20.5	18.5	19.5	13.0	12.0	12.5	.5	.0	.5	13.5	12.5	13.0
25	20.5	19.5	20.0	13.5	12.0	13.0	1.5	.0	.5	13.0	10.0	12.5
26	20.0	19.0	19.5	15.5	13.5	14.5	3.0	1.0	2.0	12.0	10.0	10.5
27	20.0	19.0	19.5	17.0	15.0	16.0	4.0	2.0	3.0	11.5	10.0	10.5
28	19.0	18.5	19.0	16.5	14.5	15.5	5.0	3.0	4.0	12.0	11.5	11.5
29	19.0	18.0	18.5	14.0	12.0	13.5	7.5	5.0	6.0	11.5	10.5	11.0
30	18.5	17.5	18.0	12.0	10.5	11.5	8.0	7.5	8.0	11.0	10.0	10.5
31	17.0	15.5	16.0	---	---	---	8.5	7.5	8.0	11.0	9.5	10.0
MONTH	24.5	14.0	20.0	21.5	10.5	15.5	12.0	.0	6.0	16.0	7.0	10.5

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

08032000 NECHES RIVER NEAR NECHES, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	23.0	22.0	22.5	29.0	28.0	28.5	27.5	26.5	27.0	29.5	28.5	29.0
2	24.0	22.5	23.0	29.5	28.0	28.5	27.5	26.0	26.5	28.5	27.5	28.0
3	25.0	24.0	24.5	30.0	28.0	29.0	28.0	26.5	27.0	28.5	27.5	28.0
4	24.5	23.5	24.0	30.0	28.5	29.0	28.0	27.0	27.5	29.0	27.5	28.0
5	25.0	23.5	24.0	30.0	28.5	29.0	28.5	26.5	27.5	29.0	28.0	28.5
6	26.0	24.5	25.5	29.5	28.5	29.0	27.0	26.0	27.0	29.5	27.5	28.5
7	26.5	25.5	26.0	29.5	28.0	28.5	27.0	25.5	26.5	29.5	28.0	28.5
8	26.5	26.0	26.0	29.5	27.5	28.5	27.0	25.5	26.0	29.5	28.0	29.0
9	26.5	26.0	26.5	29.0	28.0	28.5	27.0	25.0	26.0	28.5	27.0	28.0
10	27.0	26.0	26.5	30.0	27.5	28.5	28.0	25.5	26.5	27.0	24.0	26.0
11	27.5	26.5	27.0	30.5	28.0	29.0	28.5	26.0	27.5	24.5	23.5	24.0
12	27.5	27.0	27.5	29.5	28.5	29.0	29.0	26.5	28.0	25.0	24.0	24.5
13	27.5	27.0	27.5	28.5	26.5	27.5	29.5	27.0	28.0	25.5	25.0	25.0
14	27.5	26.5	27.0	26.5	25.5	26.0	29.5	27.5	28.0	26.0	25.5	25.5
15	27.5	26.5	27.0	25.5	25.0	25.5	29.0	28.0	28.5	27.5	26.0	26.5
16	28.0	27.0	27.5	25.5	24.5	25.0	29.0	27.5	28.0	28.0	26.5	27.0
17	28.0	27.0	27.5	25.5	24.0	25.0	29.5	27.5	28.5	28.5	26.0	27.5
18	28.5	27.5	28.0	25.5	23.5	24.5	29.0	28.0	28.5	28.0	27.0	27.5
19	29.0	27.5	28.5	26.5	25.0	26.0	29.5	28.0	29.0	28.0	27.0	27.5
20	29.0	28.0	28.5	27.5	26.0	26.5	30.0	28.5	29.0	28.0	27.0	27.5
21	29.0	28.0	28.5	28.5	26.5	27.5	30.0	28.5	29.0	28.5	27.0	27.5
22	29.0	28.0	28.5	29.0	27.5	28.0	29.0	27.5	28.5	27.5	26.5	27.0
23	29.0	28.0	28.5	29.0	27.5	28.0	29.0	28.0	28.5	26.0	24.0	25.0
24	28.5	27.5	28.0	28.0	25.5	27.5	29.5	28.0	28.5	24.0	22.0	22.5
25	28.5	27.0	27.5	28.0	25.5	27.0	29.5	28.0	29.0	22.5	21.5	22.0
26	28.0	27.0	27.5	28.0	26.5	27.0	30.0	28.0	29.0	23.5	22.0	22.5
27	28.0	27.0	28.0	28.5	27.0	27.5	30.0	28.5	29.0	24.5	23.0	24.0
28	28.5	27.5	28.0	29.5	27.5	28.0	29.5	28.0	29.0	25.5	24.0	24.5
29	28.5	28.0	28.0	29.5	27.5	28.5	30.5	28.5	29.0	25.0	24.0	24.5
30	28.5	27.5	28.0	30.0	28.0	29.0	30.5	29.0	29.5	25.0	24.0	24.5
31	---	---	---	29.0	27.5	28.5	30.5	29.0	29.5	---	---	---
MONTH	29.0	22.0	27.0	30.5	23.5	27.5	30.5	25.0	28.0	29.5	21.5	26.5

08033000 NECHES RIVER NEAR DIBOLL, TX
(Flood-hydrograph Partial-record Station)

LOCATION.--Lat 31°07'58", long 94°48'35", Angelina-Polk County line, Hydrologic Unit 12020002, near center of main span of downstream bridge on U.S. Highway 59, 700 ft downstream from Texas and New Orleans Railroad Co. bridge, 2.9 mi downstream from Alabama Creek, 3.8 mi south of Diboll, and at mile 203.5

DRAINAGE AREA.--2.724 mi².

PERIOD OF RECORD.--October 1923 to September 1925, March 1939 to September 1985. Monthly discharge only for some period published in WSP 1312. October 1985 to September 1989 (annual maximum), October 1989 to September 1990 (peaks above base discharge and annual maximum).
Water-quality records: Chemical and biochemical analyses: October 1969 to September 1981.

REVISED RECORDS.--WSP 1242: 1950. WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 136.46 ft above National Geodetic Vertical Datum of 1929. Prior to July 10, 1925, nonrecording gage at site 630 ft upstream; July 10 to Aug. 31, 1925, and Mar. 30, 1939, to Sept. 24, 1943, nonrecording gage at site 500 ft upstream; Sept. 25, 1943, to Aug. 16, 1973, nonrecording gage at site 70 ft upstream all at present datum.

REMARKS.--Satellite telemeter at station.

AVERAGE DISCHARGE.--24 years (water years 1923-25, 1939-61) unregulated, 1,807 ft³/s (1,309,000 acre-ft/yr); 24 years (water years 1962-85) regulated, 1,353 ft³/s (980,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,900 ft³/s May 4, 1944 (gage height, 18.70 ft); no flow Aug. 15-22, 1925.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1874, 21 ft in May 1884 (discharge, about 110,000 ft³/s from rating curve extended above 40,000 ft³/s; flood in 1900 reached a stage of 19.9 ft (discharge, about 80,000 ft³/s); from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 6,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 30	1900	12,800	15.23	May 22	1300	6,740	13.92
May 5	1400	12,300	15.15	June 1	1400	*24,700	*16.68

Minimum discharge, not determined.

08033500 NECHES RIVER NEAR ROCKLAND, TX

LOCATION.--Lat 31°01'29", long 94°23'55", Tyler County, Hydrologic Unit 12020003, at downstream side of bridge at U.S. Highway 69, 2,200 ft upstream from abandoned ferry crossing, 0.8 mi upstream from Texas and New Orleans Railway Co. bridge, 1.2 mi north of Rockland, 3.2 mi downstream from Billiams Creek, and 32.4 mi upstream from Angelina River.

DRAINAGE AREA.--3,636 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1903 to current year.

REVISED RECORDS.--WSP 878: 1926-27. WSP 1342: 1922(M), 1935. WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 88.41 ft above National Geodetic Vertical Datum of 1929. Prior to May 23, 1973, nonrecording gage located 2,200 ft downstream at datum 3.00 ft higher. May 23, 1973, to Sept. 30, 1975, recording gage at present site at datum 3.00 ft higher.

REMARKS.-- Records good except those for estimated discharges which are fair. At times, low flow may be affected by regulations by Lake Athens (station 08031290), Lake Palestine (station 08031400), and Lake Jacksonville, combined capacity 130,700 acre-ft/yr. During the current year, the Upper Neches River Municipal Water Authority diverted 2,300 acre-ft from the Neches River at diversion point located about 10 mi downstream from station 08032000. This water is used for municipal and industrial purposes in the Palestine area. Gage-height telemeter at station.

AVERAGE DISCHARGE.--58 years (water years 1904-61) unregulated, 2,362 ft³/s (1,711,000 acre-ft/yr); 29 years (water years 1962-90) regulated, 2,063 ft³/s (1,495,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,800 ft³/s May 6, 1944 (gage height, 35.04 ft), present site; minimum observed during period of daily records, 1.6 ft³/s Sept. 28-30, Oct. 1, 2, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Historical flood information begins with flood in May 1884, which reached a stage of 38.0 ft, present site, from information by local resident (discharge, about 62,000 ft³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 25,900 ft³/s June 5 at 1400 hours (gage height, 28.59 ft); minimum daily, 111 ft³/s Oct. 5-6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	125	158	298	e3670	8170	4840	18300	2650	8990	997	354	141
2	121	157	281	e2440	8630	5760	20100	2570	14600	849	480	141
3	117	158	260	e1740	8980	5540	19600	2630	21200	765	413	141
4	113	167	236	e1370	9520	4690	18400	5010	24900	697	372	135
5	111	201	218	e1220	9120	4000	16700	4690	25800	649	304	134
6	111	243	201	e1340	8580	3510	14800	4930	24400	618	261	132
7	113	253	190	e1460	7510	3160	12800	5810	22100	583	341	132
8	121	255	180	e1460	6180	2890	11000	7630	19700	557	337	130
9	124	239	174	e1250	4700	2660	9280	9180	17600	519	287	145
10	122	221	171	991	4020	2460	7680	9690	15400	492	283	221
11	120	205	170	740	3940	2290	6320	9350	13300	456	285	169
12	122	190	167	591	3670	2110	5060	8470	11500	452	271	182
13	127	180	167	499	3140	1940	4200	7440	10300	448	245	226
14	138	173	165	439	2760	1900	3840	5860	9480	406	220	258
15	147	168	165	399	2450	2530	4000	4090	8880	401	207	348
16	441	163	167	366	2240	2830	3890	3100	8320	368	194	497
17	556	151	169	344	2270	2510	3750	2810	7700	325	181	576
18	304	153	174	615	2290	2270	3690	2810	7000	299	170	583
19	207	151	182	2290	2390	2170	3640	2950	6290	278	161	550
20	176	151	185	5500	2430	2170	3570	3140	5560	257	152	507
21	161	146	183	4620	2450	2190	3470	3410	4900	259	142	448
22	151	158	181	3210	2720	2220	3320	3890	4300	258	137	446
23	145	188	175	2580	2800	2250	3140	4440	3810	298	139	403
24	143	194	173	3490	2710	2290	2940	4990	3370	383	145	293
25	143	200	181	7250	2590	2350	2740	5520	2990	432	152	266
26	143	225	186	7930	2540	2420	2590	5850	2590	409	153	244
27	145	272	191	7450	2520	2510	2720	5950	2040	376	149	228
28	147	310	192	7310	2620	2750	2830	6340	1530	358	147	214
29	145	320	194	9000	---	8960	2780	7060	1190	341	147	206
30	150	313	2930	9140	---	12100	2730	6850	1030	306	147	222
31	158	---	e5340	8790	---	14300	---	6790	---	276	143	---
TOTAL	5147	6063	13846	99494	123940	116570	219880	165900	310770	14112	7119	8318
MEAN	166	202	447	3209	4426	3760	7329	5352	10360	455	230	277
MAX	556	320	5340	9140	9520	14300	20100	9690	25800	997	480	583
MIN	111	146	165	344	2240	1900	2590	2570	1030	257	137	130
AC-FT	10210	12030	27460	197300	245800	231200	436100	329100	616400	27990	14120	16500

CAL YR 1989 TOTAL 1249962 MEAN 3425 MAX 41600 MIN 111 AC-FT 2479000
WTR YR 1990 TOTAL 1091159 MEAN 2989 MAX 25800 MIN 111 AC-FT 2164000

e Estimated

08033500 NECHES RIVER NEAR ROCKLAND, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: April 1941 to September 1942, September 1945 to September 1947. Chemical and biochemical analyses: December 1967 to current year. Sediment analyses: 1961 to 1963.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1941 to September 1942, September 1945 to September 1947.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)
NOV 15...	1452	203	190	7.5	19.5	9.5	104	1.2	33	1	7.9	3.3
JAN 10...	1540	908	200	7.0	10.0	10.8	94	1.9	37	12	10	3.0
MAR 01...	1340	5440	136	6.4	14.5	8.8	85	2.0	29	16	8.0	2.3
APR 19...	1058	3640	187	6.8	19.5	7.2	78	0.1	38	17	9.0	3.8
JUN 01...	1015	18000	118	7.0	23.5	6.6	77	1.5	27	9	6.7	2.6
JUL 26...	1610	406	220	7.5	29.0	7.5	96	0.5	42	17	9.6	4.3

DATE	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT DIS FIX END FIELD CACO3 (MG/L)	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)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)
NOV 15...	23	2	4.2	32	17	27	0.10	12	114	--	0.010	<0.100
JAN 10...	25	2	3.3	25	33	23	0.10	15	127	0.180	0.020	0.200
MAR 01...	12	1	3.2	13	22	14	<0.10	11	80	--	0.050	<0.100
APR 19...	19	1	2.5	21	25	25	0.20	7.7	105	--	0.020	<0.100
JUN 01...	11	0.9	3.5	18	12	18	<0.10	7.8	72	0.070	0.030	0.100
JUL 26...	24	2	3.6	25	29	28	<0.10	14	128	0.260	0.040	0.300

DATE	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)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)
NOV 15...	0.030	0.27	0.30	0.070	1	42	<0.5	<1.0	<5	<3	<10	160
JAN 10...	0.110	0.59	0.70	0.090	--	--	--	--	--	--	--	--
MAR 01...	0.060	0.84	0.90	0.080	--	--	--	--	--	--	--	--
APR 19...	<0.010	--	0.80	0.070	--	--	--	--	--	--	--	--
JUN 01...	0.070	0.53	0.60	0.080	--	--	--	--	--	--	--	--
JUL 26...	0.040	0.46	0.50	0.070	<1	49	<0.5	2.0	<5	<3	<10	250

DATE	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)
NOV 15...	<10	6	64	<0.1	<10	<10	<1	<1.0	92	<6	<3
JAN 10...	--	--	--	--	--	--	--	--	--	--	--
MAR 01...	--	--	--	--	--	--	--	--	--	--	--
APR 19...	--	--	--	--	--	--	--	--	--	--	--
JUN 01...	--	--	--	--	--	--	--	--	--	--	--
JUL 26...	<10	12	61	<0.1	<10	<10	<1	<1.0	120	<6	12

08036500 ANGELINA RIVER NEAR ALTO, TX

LOCATION.--Lat 31°40'10", long 94°57'24", Nacogdoches-Cherokee County line, Hydrologic Unit 12020004, near center of rectified channel at downstream side of bridge on State Highway 21, 0.4 mi upstream from Allen Creek, 1.5 mi upstream from Bingham Creek, 7.5 mi east of Alto, and 149.3 mi upstream from mouth.

DRAINAGE AREA.--1,276 mi².

PERIOD OF RECORD.--May to August 1940 (discharge measurements only), September 1940 to March 1949 (fragmentary for 1941-42, 1944-49), February 1959 to current year.
Water-quality records.--Chemical analyses: November 1961 to September 1963.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 204.30 ft above National Geodetic Vertical Datum of 1929. May 9, 1940, to Mar. 31, 1949, nonrecording gage on bridge at natural channel 1,400 ft to right at same datum. Feb. 18 to Sept. 15, 1959, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharge: Dec. 24. Records good. No large diversions above station. Flow partly regulated since May 1957 by Lake Striker, 35.5 mi upstream and by Lake Tyler, 69.9 mi upstream since January 1949 (combined capacity, 110,700 acre-ft). Several observations of water temperature were made during the year. A U.S. Army Corps of Engineers telemeter for rainfall and stage at station.

AVERAGE DISCHARGE.--32 years (water years 1943, 1960-90), 804 ft³/s (582,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,500 ft³/s Mar. 31, 1989 (gage height, 23.20 ft); minimum, 2.0 ft³/s Aug. 14, 15, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1905, that of Mar. 31, 1989. A flood in May 1908 reached a stage of about 22 ft, from information by local residents. Flood in 1932 reached a stage of 21.5 ft, from floodmarks and from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14,000 ft³/s May 15 at 1800 hours (gage height, 19.45 ft); minimum daily, 27 ft³/s Sept. 5-9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71	123	177	337	1590	1390	1260	1110	6320	237	123	33
2	71	164	160	433	1760	1460	1450	1050	5370	208	100	30
3	71	212	148	557	1810	1550	1590	1090	6630	176	92	28
4	70	196	142	631	1920	1600	1660	1390	6730	150	98	28
5	68	163	140	571	2100	1560	1670	1230	5820	135	100	27
6	64	147	137	529	2360	1440	1630	1150	4760	124	92	27
7	66	139	136	563	2600	1270	1580	1060	3880	120	87	27
8	69	133	142	579	2710	1110	1470	932	3300	113	87	27
9	71	127	207	590	2650	1050	1360	780	2810	109	84	27
10	102	125	271	540	2690	1070	1250	631	2300	107	82	32
11	153	123	254	416	2590	1050	1070	556	1800	102	81	115
12	144	120	170	317	2580	958	895	961	1340	97	81	306
13	121	114	141	270	2660	885	940	2100	956	93	78	371
14	107	113	136	249	2790	978	1100	4080	733	88	67	456
15	96	112	133	288	2910	1280	1260	12200	549	84	59	497
16	89	110	130	331	2860	1440	1320	12400	431	83	59	440
17	83	109	127	282	2650	1510	1530	9630	368	82	80	319
18	81	113	128	543	2320	1490	1820	7820	331	80	94	254
19	80	137	129	831	1970	1370	2100	6510	296	82	96	212
20	80	145	129	1100	1600	1180	2280	5400	262	95	95	164
21	80	138	132	1570	1330	955	2280	4190	236	121	93	132
22	81	157	136	2390	1400	808	2120	3590	216	115	92	106
23	82	195	134	3370	1400	746	1890	3430	198	107	91	97
24	82	216	e128	3970	1480	701	1600	3300	176	101	94	99
25	83	318	124	4040	1570	641	1250	3050	165	95	108	167
26	85	425	127	3690	1610	589	974	2650	178	113	95	263
27	85	434	133	3210	1540	614	916	2160	181	130	71	218
28	84	312	138	2770	1400	640	993	2260	249	121	56	143
29	82	231	150	2460	---	624	1090	2170	346	107	48	110
30	89	198	178	2050	---	1130	1130	1820	301	104	41	89
31	111	---	310	1710	---	1140	---	3530	---	93	37	---
TOTAL	2701	5349	4827	41187	58850	34229	43478	104230	57232	3572	2561	4844
MEAN	87.1	178	156	1329	2102	1104	1449	3362	1908	115	82.6	161
MAX	153	434	310	4040	2910	1600	2280	12400	6730	237	123	497
MIN	64	109	124	249	1330	589	895	556	165	80	37	27
AC-FT	5360	10610	9570	81690	116700	67890	86240	206700	113500	7090	5080	9610

CAL YR 1989 TOTAL 512620 MEAN 1404 MAX 41600 MIN 64 AC-FT 1017000
WTR YR 1990 TOTAL 363060 MEAN 995 MAX 12400 MIN 27 AC-FT 720100

e Estimated

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 west of Nacogdoches.

DRAINAGE AREA.--87.9 mi².

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 spillway is an uncontrolled 500-foot-wide cut through natural ground located near the right end of dam. There is an uncontrolled drop inlet with a 20.5-foot-diameter top opening that is connected to an 8- x 7-foot conduit that extends through the dam. A separate multi-gated inlet tower is connected to a valve by a 30-inch conduit through the dam. The valve box directs water to a purification plant. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	303.0	-
Top of design flood	298.5	102,900
Crest of spillway	286.0	59,570
Crest of drop inlet (top of conservation pool)	279.0	42,320
Lowest gated outlet (invert of 30 in conduit)	238.25	254

COOPERATION.--The capacity table, furnished by the city of Nacogdoches, is based on Geological Survey topographic maps dated 1952.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 53,550 acre-ft June 3, 1979 (elevation, 283.76 ft); minimum since first appreciable storage, 20,540 acre-ft Nov. 26, 1977 (elevation, 266.62 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 49,730 acre-ft June 1 at 1200 hours (elevation, 282.24 ft); minimum, 38,100 acre-ft Sept. 30 (elevation, 276.98 ft).

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

276.0	36,140	279.0	42,320	281.5	48,460
277.0	38,140	280.0	44,500	282.0	49,140
278.0	40,200	281.0	47,770	282.5	50,370

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40710	40390	39230	e39800	42430	42040	43170	41730	49060	41240	40370	38820
2	40690	40330	39190	e39800	43040	42110	42950	41660	47890	41180	40310	38800
3	40670	40330	39190	e40200	43190	42170	42690	42560	46630	41130	40240	38780
4	40650	40260	39150	e40100	43100	42130	42520	43410	45190	41090	40240	38760
5	40620	40240	39170	e40000	42890	42070	42360	43170	44190	41050	40180	38720
6	40650	40240	39170	e39900	42710	42000	42320	42870	43690	41030	40160	38660
7	40650	40240	39070	e39900	42520	41980	42210	42650	43240	41050	40080	38610
8	40670	40200	39070	e39900	42410	41960	42130	42490	42970	41050	40040	38570
9	40670	40200	39070	e39900	42870	41900	42070	42360	42710	41030	39970	38510
10	40650	40140	39070	e39800	43370	41850	42020	42210	42540	40900	39910	38610
11	40580	40040	38960	e39700	43190	41810	42000	42110	42360	40860	39850	38860
12	40560	39950	39010	e39600	42890	41770	41940	43580	42170	40880	39830	38860
13	40560	39870	38960	e39600	42730	41680	41850	45580	42070	40790	39790	38840
14	40560	39850	e39000	e39600	42580	41770	42150	44600	41960	40710	39730	38840
15	40540	39640	e39000	e39600	42470	41790	42360	44000	41900	40750	39710	38780
16	40560	39560	e39000	e39600	42390	41730	42320	43610	41790	40670	39620	38740
17	40430	39520	e39000	e39600	42210	41680	42170	43240	41730	40730	39560	38740
18	40390	39440	e39000	e39600	42150	41620	42110	42930	41640	40690	39520	38700
19	40350	39330	e39000	e40000	42110	41540	42000	42690	41580	40710	39480	38630
20	40370	39270	e39000	e39900	42040	41450	41940	42540	41510	40650	39480	38590
21	40280	39230	e39000	e39700	42090	41390	41900	42450	41450	40600	39380	38570
22	40310	39620	e39000	e39600	42110	41390	41830	42280	41410	40560	39310	38530
23	40330	39690	e39000	e39500	42070	41430	41750	42150	41280	40560	39270	38430
24	40310	39600	e39000	e40000	42000	41410	41680	42070	41240	40540	39230	38390
25	40330	39560	e39000	e40700	41920	41410	41620	41920	41300	40520	39190	38330
26	40310	39560	e39000	e40600	41870	41390	41870	41850	41300	40450	39150	38280
27	40280	39500	e39000	e40500	41810	41390	41980	41940	41320	40430	39090	38260
28	40240	39270	e39500	e40400	41920	41510	41920	44300	41280	40410	39050	38200
29	40240	39250	e40000	e40300	---	42540	41850	44260	41240	40390	39030	38140
30	40390	39250	e39900	e40200	---	43560	41790	43760	41220	40430	38920	38120
31	40390	---	e39900	e41800	---	43390	---	47870	---	40410	38860	---
MAX	40710	40390	40000	41800	43370	43560	43170	47870	49060	41240	40370	38860
MIN	40240	39230	38960	39500	41810	41390	41620	41660	41220	40390	38860	38120
(†)	278.09	277.54	---	---	278.81	279.49	278.75	281.07	278.48	278.10	277.35	276.99
(Φ)	-320	-1140	+650	+1900	+120	+1470	-1600	+6080	-6650	-810	-1550	-740
(††)	236	197	220	190	162	176	232	249	353	367	503	371

CAL YR 1989 MAX 48610 MIN 35140 (Φ) +4760 (††) 2524
WTR YR 1990 MAX 49060 MIN 38120 (Φ) -2590 (††) 3256

(†) Elevation, in feet, at end of month.
(Φ) Change in contents, in acre-feet.
(††) Diversions, in acre-feet, by the city of Nacogdoches.

e Estimated

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 upstream from mouth.

DRAINAGE AREA.--31.3 mi².

PERIOD OF RECORD.--October 1964 to September 1986, May 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Prior to July 1974, concrete control. Datum of gage is 264.23 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. No diversion above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--24 years (water years 1964-86, 1989-90), 32.0 ft³/s (13.88 in/yr), 23,180 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,500 ft³/s June 2, 1979 (gage height, 22.18 ft), from rating curve extended above 2,800 ft³/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.--Peak discharges greater than base discharge of 1,100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 9	2400	1,420	13.75	May 28	0700	1,230	12.46
May 3	1515	2,280	15.60	May 31	2200	*5,290	*18.41
May 4	0200	2,220	15.48				

Minimum discharge, no flow Aug. 26, 30, Sept. 10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	.46	e.21	2.4	165	81	34	5.1	1060	1.7	2.3	.38
2	1.0	.32	e.20	1.5	420	62	25	4.3	116	1.6	1.2	.19
3	.88	.25	e.20	22	151	41	19	786	61	1.3	.68	.08
4	.62	.25	e.20	e2.5	80	30	16	850	41	1.1	.53	.18
5	.55	.32	e.25	e4.0	44	25	14	87	32	.99	2.4	.61
6	1.3	.29	e.23	e6.0	33	23	28	41	24	1.3	1.5	.38
7	5.9	.32	e.35	e4.5	27	29	18	26	19	1.0	.71	.33
8	2.2	.32	e.40	e3.0	28	35	15	25	16	.87	.43	.12
9	1.4	.25	e.33	e2.6	267	27	13	22	13	.81	.35	.02
10	1.1	.19	e.70	e2.3	269	23	13	16	12	.83	.30	.00
11	.95	.21	e.56	e2.1	68	21	14	13	11	.61	.24	6.2
12	.75	.29	.51	e1.9	40	22	11	437	9.4	.60	.18	1.9
13	.73	.24	.43	e1.8	31	19	10	335	8.3	.60	.14	1.1
14	.69	e.22	.48	e1.7	26	45	147	85	7.2	.54	.16	.69
15	.68	e.26	.51	e1.6	61	73	47	43	6.5	.51	.15	.57
16	.70	e.23	.39	e1.5	75	29	19	27	6.1	.62	.14	.49
17	.68	e.22	.41	e2.5	54	22	14	20	5.3	2.1	.13	.41
18	1.1	e.22	.56	e45	70	18	11	16	4.7	1.1	.05	.66
19	1.0	e.40	.73	e40	98	15	9.9	15	4.2	.93	.01	.40
20	.51	e.70	.68	e80	69	13	9.1	21	3.7	.84	.07	.33
21	.54	e.75	.58	e30	87	13	8.6	17	3.2	.45	.03	.31
22	.61	e2.0	.50	e50	133	13	7.7	11	2.8	.29	.16	.32
23	.55	e2.5	.35	e25	84	12	7.2	8.6	2.4	8.2	.09	.45
24	.54	e.60	.34	e15	66	11	6.8	8.3	2.0	1.9	.02	.09
25	.48	e.38	.58	e40	58	10	6.4	6.9	4.4	.82	.01	.48
26	.53	e.28	.77	e25	56	10	16	5.8	8.8	.54	.00	.36
27	.67	e.40	.76	e15	52	9.9	17	16	3.0	.48	.07	.18
28	.46	e.30	1.2	e12	85	17	18	617	2.2	.41	.24	.20
29	.58	e.25	5.0	e220	---	217	8.4	84	1.9	.26	.01	.24
30	8.4	e.22	15	e100	---	387	6.3	30	1.8	14	.00	.10
31	1.5	---	5.9	e50	---	60	---	1160	---	8.7	.33	---
TOTAL	38.60	13.64	39.31	810.9	2697	1412.9	589.4	4839.0	1492.9	56.00	12.63	17.77
MEAN	1.25	.45	1.27	26.2	96.3	45.6	19.6	156	49.8	1.81	.41	.59
MAX	8.4	2.5	15	220	420	387	147	1160	1060	14	2.4	6.2
MIN	.46	.19	.20	1.5	26	9.9	6.3	4.3	1.8	.26	.00	.00
AC-FT	77	27	78	1610	5350	2800	1170	9600	2960	111	25	35
CFSM	.04	.01	.04	.84	3.08	1.46	.63	4.99	1.59	.06	.01	.02
IN.	.05	.02	.05	.96	3.21	1.68	.70	5.75	1.77	.07	.02	.02

CAL YR 1989 TOTAL 14079.74 MEAN 38.6 MAX 1400 MIN .19 AC-FT 27930 CFSM 1.23 IN. 16.73
WTR YR 1990 TOTAL 12020.05 MEAN 32.9 MAX 1160 MIN .00 AC-FT 23840 CFSM 1.05 IN. 14.29

e Estimated

08038000 ATTOYAC BAYOU NEAR CHIRENO, TX
(Flood-hydrograph Partial-record Station)

LOCATION.--lat 31°30'15", long 94°18'15", Nacogdoches-San Augustine County Line, Hydrologic Unit 12020005, near right bank at downstream side of bridge on State Highway 21, 2.2 mi upstream from Amaladeros Creek, 2.8 mi east of Chireno, 5.4 mi downstream from Arenoso Creek, and 41 mi upstream from mouth.

DRAINAGE AREA.--503 mi².

PERIOD OF RECORD.--January 1924 to September 1925, July 1939 to November 1954, and October 1955 to Sept. 30, 1985. Monthly discharge only for some periods, published in WSP 1312 and 1732. October 1985 to September 1989 (annual maximum). October 1989 to September 1990 (peaks above base discharge and annual maximum).

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 169.58 ft above National Geodetic Vertical Datum of 1929. Jan. 24, 1924, to Aug. 29, 1925, and Sept. 6, 1957, to Oct. 27, 1958, nonrecording gage at same site and datum.

REMARKS.--Flow is affected at times by discharge from the flood-detention pools of twelve floodwater-retarding structures with a combined detention capacity of 15,870 acre-ft. These structures control runoff from 46.7 mi² above this station. Satellite telemeter at station.

AVERAGE DISCHARGE.--46 years, 457 ft³/s (12.34 in/yr), 331,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,900 ft³/s Nov. 24, 1940 (gage height, 25.97 ft); minimum, 0.8 ft³/s Aug. 26, 27, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1865, 29.9 ft June 29, 1902, from information by local residents. Flood in July 1933 reached a stage of 25.2 ft from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft³/s and maximum(*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 5	1700	2,580	16.65	May 15	1100	3,870	17.96
Apr. 1	1700	2,630	17.11	June 2	1300	*6,760	*19.18
May 6	0200	4,050	18.05				

Minimum discharge, not determined.

08039100 AYISH BAYOU NEAR SAN AUGUSTINE, TX
(Flood-hydrograph Partial-record Station)

LOCATION.--Lat 31°23'46", Long 94°09'03", San Augustine County, Hydrologic Unit 12020005, near center of span at downstream side of bridge on State Highway 103, 3.0 mi upstream from Turkey Creek, and 9.5 mi south of San Augustine.

DRAINAGE AREA.--89.0 mi².

PERIOD OF RECORD.--February 1959 to September 1985. October 1985 to September 1989 (annual maximum), October 1989 to September 1990 (peaks above base discharge and annual maximum).

REVISED RECORDS.--WSP 1922: 1959(M).

GAGE.--Water-stage recorder. Datum of gage is 190.22 ft above National Geodetic Vertical Datum of 1929. Prior to June 1959, nonrecording gage at same site and datum.

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

AVERAGE DISCHARGE.--26 years (water years 1960-85), 83.7 ft³/s, 12.77 in/yr, 60,640 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,200 ft³/s Sept. 14, 1978 (gage height, 18.02 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Between October 1957 and February 1959, the maximum discharge was 15.900 ft³/s Sept. 21 or 22, 1958 (gage height, 17.5 ft), from floodmarks.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 20	1500	1,620	12.07	May 13	0500	2,070	12.46
Feb. 4	0200	1,890	12.32	June 1	0900	*4,970	*14.04

Minimum discharge, not determined.

08039300 SAM RAYBURN RESERVOIR NEAR JASPER, TX

LOCATION.--Lat 31°03'38", long 94°06'21", Jasper County, Hydrologic Unit 12020005, in the powerhouse-intake structure of Sam Rayburn Dam on the Angelina River, 10 mi northwest of Jasper, and 25.2 mi upstream from mouth.

DRAINAGE AREA.--3,449 mi².

PERIOD OF RECORD.--January 1965 to current year.

GAGE.--Stevens-type AP recording transmitter. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Apr. 20, 1965, nonrecording gage at same site and datum.

REMARKS.--The reservoir is formed by a rolled earthfill dam 19,430 ft long, including spillway and dikes. The dam was completed and deliberate impoundment began Mar. 29, 1965. The spillway is an uncontrolled broad-crested weir 2,200 ft wide, on right bank 7,000 ft to right of outlet works, and is designed to discharge 125,300 ft³/s at maximum flood design. The flood-control outlet works consists of two 10.0- by 20.0-foot rectangular concrete-lined conduits controlled by two 10.0- by 20.0-foot tractor-type service gates and one 10.0- by 20.0-foot tractor-type emergency gate. Water for turbines is admitted through four 18.0- by 26.0-foot penstocks and controlled by two wheeled-leaf-type headgates. The reservoir is operated for flood control and power generation. The area-capacity tables are based on topographic maps prepared by the U.S. Army Corps of Engineers and detailed sedimentation ranges established in 1961 and dated February 1965. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08038000. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	190.0	-
Design flood	183.0	5,610,000
Crest of spillway	176.0	4,442,400
Top of flood-control pool	173.0	3,997,600
Top of conservation pool (power pool)	164.0	2,852,600
Top of power head and sediment pool	149.0	1,452,000
Lowest gated outlet (invert)	105.0	21,940

COOPERATION.--Records furnished by the U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 3,881,000 acre-ft Feb. 7, 1974 (elevation, 172.17 ft); minimum since conservation storage was reached in 1968, 1,797,000 acre-ft Nov. 15, 1977 (elevation, 153.35 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 3,390,000 acre-ft June 12 at 0800 hours (elevation, 168.37 ft); minimum, 2,267,000 acre-ft Nov. 8 (elevation, 158.47 ft).

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

158.0	2,221,000	164.0	2,853,000	167.0	3,206,000
160.0	2,421,000	165.0	2,967,000	168.0	3,329,000
162.0	2,631,000	166.0	3,085,000	169.0	3,456,000

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2716000	2589000	2454000	2364000	2806000	2967000	3016000	2940000	3157000	2988000	2788000	2548000
2	2713000	2589000	2454000	2366000	2831000	2964000	3032000	2932000	3198000	2979000	2783000	2540000
3	2709000	2577000	2443000	2375000	2887000	2964000	3038000	2947000	3239000	2967000	2776000	2536000
4	2703000	2571000	2438000	2380000	2896000	2958000	3044000	2987000	3263000	2956000	2774000	2527000
5	2694000	2566000	2433000	2395000	2904000	2957000	3045000	2978000	3284000	2952000	2769000	2517000
6	2694000	2562000	2437000	2408000	2921000	2953000	3070000	2976000	3303000	2943000	2769000	2511000
7	2690000	2556000	2441000	2414000	2928000	2953000	3070000	2970000	3321000	2940000	2763000	2500000
8	2682000	2556000	2437000	2414000	2933000	2951000	3074000	2977000	3339000	2933000	2754000	2495000
9	2676000	2550000	2422000	2421000	2947000	2950000	3070000	2985000	3356000	2922000	2744000	2495000
10	2668000	2545000	2418000	2424000	2955000	2942000	3073000	2972000	3366000	2918000	2737000	2486000
11	2662000	2539000	2428000	2428000	2960000	2947000	3051000	2953000	3375000	2911000	2731000	2479000
12	2658000	2534000	2414000	2432000	2960000	2940000	3032000	2974000	3372000	2911000	2721000	2479000
13	2653000	2531000	2406000	2426000	2966000	2932000	3014000	2979000	3363000	2903000	2713000	2470000
14	2646000	2521000	2400000	2426000	2966000	2913000	3019000	2985000	3344000	2891000	2707000	2470000
15	2639000	2534000	2405000	2424000	2976000	2937000	3007000	2985000	3323000	2887000	2698000	2464000
16	2656000	2517000	2390000	2420000	2981000	2937000	2991000	2988000	3301000	2876000	2691000	2459000
17	2656000	2505000	2388000	2424000	2976000	2930000	2981000	2985000	3275000	2873000	2682000	2454000
18	2653000	2505000	2386000	2443000	2978000	2927000	2978000	2981000	3252000	2873000	2672000	2449000
19	2642000	2499000	2387000	2497000	2978000	2927000	2972000	2995000	3225000	2864000	2663000	2444000
20	2629000	2496000	2387000	2523000	2978000	2920000	2965000	3019000	3200000	2861000	2652000	2439000
21	2619000	2494000	2382000	2541000	2991000	2911000	2965000	3027000	3169000	2854000	2642000	2434000
22	2616000	2509000	2368000	2550000	3008000	2911000	2962000	3027000	3145000	2847000	2631000	2434000
23	2616000	2489000	2333000	2560000	2993000	2911000	2956000	3021000	3119000	2850000	2619000	2428000
24	2612000	2479000	2312000	2635000	2983000	2911000	2947000	3012000	3090000	2845000	2607000	2415000
25	2610000	2479000	2306000	2646000	2963000	2907000	2943000	3000000	3071000	2839000	2600000	2408000
26	2605000	2476000	2299000	2653000	2955000	2903000	2943000	2991000	3052000	2831000	2592000	2402000
27	2603000	2473000	2297000	2667000	2955000	2895000	2966000	2991000	3038000	2824000	2583000	2398000
28	2600000	2473000	2293000	2712000	2959000	2891000	2956000	3005000	3016000	2818000	2575000	2391000
29	2596000	2466000	2293000	2737000	---	2942000	2945000	3009000	3006000	2809000	2569000	2385000
30	2599000	2460000	2359000	2757000	---	2984000	2945000	3007000	2997000	2807000	2565000	2382000
31	2592000	---	2361000	2768000	---	3002000	---	3079000	---	2796000	2554000	---
MAX	2716000	2589000	2454000	2768000	3008000	3002000	3074000	3079000	3375000	2988000	2788000	2548000
MIN	2592000	2460000	2293000	2364000	2806000	2891000	2943000	2932000	2997000	2796000	2554000	2382000
(†)	161.64	160.38	159.42	163.25	164.93	165.30	164.81	165.95	165.25	163.50	161.28	159.62
(ϕ)	-130000	-132000	-99000	+407000	+191000	+43000	-57000	+134000	-82000	-201000	-242000	-172000

CAL YR 1989 MAX 3740000 MIN 1618000 (ϕ) +728000
WTR YR 1990 MAX 3375000 MIN 2293000 (ϕ) -340000

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

08040000 B.A. STEINHAGEN LAKE AT TOWN BLUFF, TX

LOCATION.--Lat 30°47'43", long 94°10'48", Tyler County, Hydrologic Unit 12020003, near right bank 70 ft upstream from outlet structure of Town Bluff Dam on Neches River, 0.4 mi north of Town Bluff, and at mile 113.7.

DRAINAGE AREA.--7,573 mi².

PERIOD OF RECORD.--April 1951 to current year. Prior to October 1967, published as Dam B Reservoir at Town Bluff.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 25, 1954, at site 490 ft upstream at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam with concrete spillway sections. The total length of dam is 6,698 ft, including a concrete spillway and non-overflow section. Deliberate impoundment of water began Apr. 16, 1951, and the dam was completed in June 1951. The uncontrolled spillway is 6,100 ft long. A 326-foot-long gated service spillway with six 40.0- by 35.0-foot tainter gates is located near right end of dam. The capacity of the spillways at maximum flood design is 218,300 ft³/s. The capacity table is based on a survey made in 1945. Water is used for industrial, municipal and irrigation supplies. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam (nonoverflow)	95.0	-
Design flood	93.0	306,400
Crest of uncontrolled spillway (top of tainter gates)	85.0	124,700
Top of conservation pool	83.0	94,200
Bottom of tainter gates (sill)	50.0	0

COOPERATION.--Records furnished by the U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 128,400 acre-ft May 22, 1953 (elevation, 85.21 ft); no storage Sept. 18 to Oct. 13, 1954.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 111,200 acre-ft Mar. 30 at 0100 hours (elevation, 84.16 ft); minimum, 66,660 acre-ft June 3 (elevation, 80.72 ft).

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

80.5	64,350	82.0	81,280	83.5	101,300
81.0	69,680	82.5	87,580	84.0	108,700
81.5	75,310	83.0	94,250	84.5	116,500

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	81280	80420	87580	96040	84890	89540	80790	83250	77540	76600	84260	80300
2	80910	81770	87450	94800	86420	90070	79810	80300	72340	77780	83630	81150
3	80540	79330	86550	90870	88360	86420	80910	80180	70890	82010	82630	82010
4	81030	76710	85650	88620	86800	82510	82260	89940	75080	84760	80540	82380
5	80910	74960	85650	88360	83130	77540	82630	93700	77180	87580	80300	83000
6	79940	75310	82260	91810	81640	79450	83750	94250	84760	84380	79690	83500
7	80300	77780	82510	94110	78370	83130	79330	95080	92890	82140	77660	83880
8	80180	79090	80180	93570	76950	86160	76360	93160	97720	81400	77420	84130
9	79810	77900	80540	91670	82010	86550	76130	89940	96460	82630	75780	86040
10	80420	78130	80660	89810	84000	84380	78610	86930	90600	83500	75780	87580
11	80910	79210	82140	88100	85520	82380	81890	84260	84130	84380	77070	86930
12	81520	79690	79570	85650	85780	80910	81770	83750	75780	85910	76480	85270
13	81280	81150	79690	81890	85140	79450	80790	81520	71780	87710	77900	84380
14	79450	80660	78970	81890	83500	81150	80420	77300	73700	86420	76600	83750
15	79810	83750	80300	83380	81770	84380	79810	71890	78490	85400	76480	82880
16	85140	83130	79330	83630	81030	85270	78130	72680	84130	84890	79330	82140
17	87710	84380	79450	82760	80910	82140	78730	81640	87840	84260	79330	82010
18	89280	84760	79690	89540	81640	75080	79570	87840	90600	82880	81280	81890
19	89680	84640	79690	95210	81770	75540	78490	87840	91670	81520	85020	81890
20	87970	84130	78490	95490	82140	75200	80060	88620	91400	79940	88890	81520
21	87190	83130	81150	89810	84760	78610	80910	86800	90070	78970	86550	81280
22	86420	85400	83630	86160	85780	83380	82510	87450	87970	77300	73250	81640
23	85780	83500	87840	85270	81520	85140	83750	89410	85400	76600	72120	81280
24	84890	83880	88760	90740	85020	85780	84000	89410	83880	75540	76240	80300
25	83750	84890	85910	91670	87840	86420	84130	88620	86290	76130	78610	79570
26	81280	85910	81640	89020	90740	86550	85780	88100	85140	77300	79810	78730
27	79450	86550	81400	88760	88890	85910	91000	87450	84380	78490	78730	78370
28	79690	88100	80910	91000	86550	91810	92080	90340	81520	78370	80060	78610
29	78730	87450	81150	91270	---	109300	89810	91270	82880	79570	80420	79210
30	79570	87450	89810	87060	---	99000	86800	84760	79450	80540	79330	79810
31	79940	---	97160	84260	---	87060	---	81150	---	81150	79570	---
MAX	89680	88100	97160	96040	90740	109300	92080	95080	97720	87710	88890	87580
MIN	78730	74960	78490	81890	76950	75080	76130	71890	70890	75540	72120	78370
(†)	81.89	82.49	83.21	82.24	82.42	82.46	82.44	81.99	81.85	81.99	81.86	81.88
(ϕ)	-970	+7510	+9710	-12900	+2290	+510	-260	-5650	-1700	³1700	-1580	+240

CAL YR 1989 MAX 109800 MIN 70110 (ϕ) +23690
WTR YR 1990 MAX 109300 MIN 70890 (ϕ) -1100

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

08040600 NECHES RIVER NEAR TOWN BLUFF, TX
(Formerly published as Neches River at Town Bluff, TX)

LOCATION.--Lat 30°47'27", long 94°09'03", Jasper-Tyler County line, Hydrologic Unit 12020003, on left bank 1.8 mi downstream from Town Bluff Dam, 2.0 mi northeast of Town Bluff, 1.0 mi upstream from Walnut Run, 6.5 mi downstream from Wolf Creek, and at mile 114.9.

DRAINAGE AREA.--7,574 mi².

WATER-DISCHARGE RECORDS

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. Dec. 4, 1954 to Oct. 27, 1989, water-stage recorder at site 1.5 miles upstream at same datum. Prior to May 21, 1953, water-stage recorder, and May 21, 1953, to Dec. 3, 1954, nonrecording gage at former site at same datum.

REMARKS.--No estimated daily discharges. Records good. Flow is regulated by B.A. Steinhagen Lake (station 08040000) 1.8 mi upstream and by Sam Rayburn Reservoir (station 08039300) 37.9 mi upstream. Some diversions upstream from station. Formerly published as 08040500 Neches River at Town Bluff, Tx. Gage-height telemeter at station.

AVERAGE DISCHARGE.--13 years (water years 1952-64) prior to regulation by Sam Rayburn Reservoir, 4,406 ft³/s (3,192,000 acre-ft/yr); 25 years (water years 1965-90) regulated, 4,976 ft³/s (3,605,100 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 90,900 ft³/s May 21, 22, 1953 (elevation, 82.85 ft) at former site; no flow at times due to regulation of B.A. Steinhagen Lake.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 1884 reached a stage about 86.8 ft (discharge, about 120,000 ft³/s) and is the highest since that date, from information by the U.S. Army Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 23,900 ft³/s Mar. 30 at 1300 hours (elevation, 71.06 ft), minimum daily, 1,790 ft³/s Nov. 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2060	2180	2270	5370	9800	9990	18200	9210	15600	7590	2790	3010
2	2320	2240	2470	3780	9940	11300	16300	8840	15500	5760	3410	3010
3	2710	3110	2510	3700	10700	12600	15400	9090	15300	4500	3310	2920
4	2160	3880	2540	3920	11000	12400	15700	10900	16100	4170	3350	3100
5	2220	3440	2550	2520	11100	10900	16100	14100	17600	3850	3310	3120
6	2480	3020	2410	2490	11200	8810	16100	14100	18100	4690	3240	3140
7	2680	2370	2370	3260	11100	7050	16200	14100	18800	4880	3520	3130
8	2370	2470	2380	3810	10200	6960	15000	14100	19200	4350	3390	3130
9	2390	2970	2300	3640	8990	7220	13700	14100	19600	3440	3390	3120
10	2220	2400	2370	2950	9040	8520	14600	14100	19600	3310	3330	3170
11	2090	2510	2370	2480	8720	8260	14800	13900	18900	3380	3420	3500
12	2120	2260	2390	2400	8580	8080	14900	13900	17900	3310	3330	3460
13	2410	2250	2350	2520	8560	7670	14600	13900	17500	2870	3320	3320
14	2620	2320	2330	2450	8560	7030	14000	13700	17400	3360	3330	3170
15	2410	2440	2320	2430	8550	7480	13900	12600	17500	3330	3250	3070
16	2030	1990	2290	2430	8010	7570	13900	10000	17600	3130	3280	3170
17	1980	1790	2340	2410	7190	7920	13500	8360	17800	3410	3160	3070
18	2140	2350	2340	2430	7200	7850	11700	8930	18000	3400	3250	3010
19	1810	2620	2340	3210	7290	7340	9320	9860	18000	3350	3170	2970
20	2250	2580	2360	10100	7360	6120	8160	9860	18000	3370	3470	3060
21	2430	2560	2270	11700	7380	3860	7610	10400	18000	3290	4660	3000
22	2220	2570	2690	8140	9220	3880	7630	12100	18000	3210	10100	3020
23	2270	2640	5960	4960	11000	4580	7630	12300	17700	3330	7490	3020
24	2170	2630	9380	3950	10800	5660	7600	12900	17100	3360	3530	3040
25	2200	2460	9650	7420	10800	5570	7610	13900	15900	3170	3320	2980
26	2710	2280	7150	10900	10800	5660	7640	14500	14900	3300	3250	3050
27	2250	2510	2880	8630	10200	5940	8110	14900	14000	3220	3170	3070
28	2160	2350	2630	8490	9860	6140	9020	15500	13000	3320	2720	2900
29	2150	2360	2610	10300	---	13300	9210	16500	11200	3350	3030	2700
30	2180	2370	2580	12400	---	23300	9320	17000	8710	3290	3020	2680
31	2160	---	3820	11200	---	21100	---	16400	---	3110	2990	---
TOTAL	70370	75920	99220	166390	263150	270060	367460	394050	502510	115400	113300	92110
MEAN	2270	2531	3201	5367	9398	8712	12250	12710	16750	3723	3655	3070
MAX	2710	3880	9650	12400	11200	23300	18200	17000	19600	7590	10100	3500
MIN	1810	1790	2270	2400	7190	3860	7600	8360	8710	2870	2720	2680
AC-FT	139600	150600	196800	330000	522000	535700	728900	781600	996700	228900	224700	182700

CAL YR 1989	TOTAL	2691240	MEAN	7373	MAX	46600	MIN	1360	AC-FT	5338000
WTR YR 1990	TOTAL	2529940	MEAN	6931	MAX	23300	MIN	1790	AC-FT	5018000

08040600 NECHES RIVER NEAR TOWN BLUFF, TX--Continued
(Formerly published as Neches River at Town Bluff, TX)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: January 1981 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
NOV 15...	1033	2400	138	7.1	21.5	8.9	101	0.9	28	8	6.6	2.7
JAN 09...	1625	3690	108	6.9	12.5	10.0	92	1.2	24	9	6.6	1.9
MAR 01...	1022	10400	145	7.4	15.0	10.8	105	1.1	29	13	7.0	2.8
APR 17...	1620	13000	136	6.9	20.5	9.2	101	0.2	29	9	7.1	2.7
MAY 30...	1612	17200	120	6.5	25.0	7.2	87	1.2	27	11	6.5	2.5
JUL 26...	1058	3390	142	7.0	28.5	6.6	84	0.9	31	11	7.4	3.0

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
NOV 15...	14	1	3.6	20	16	16	0.10	9.5	81	0.020	<0.100	0.040
JAN 09...	12	1	2.6	15	14	14	0.10	8.9	69	0.010	<0.100	0.050
MAR 01...	14	1	2.6	16	22	15	0.10	9.4	82	0.010	<0.100	0.020
APR 17...	14	1	2.0	20	19	17	0.20	8.3	82	0.010	<0.100	<0.010
MAY 30...	12	1	2.6	16	14	18	<0.10	7.2	72	0.020	<0.100	0.020
JUL 26...	15	1	3.3	20	17	20	<0.10	10	88	0.040	<0.100	0.040

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
NOV 15...	0.46	0.50	0.050	<1	37	<0.5	<1.0	<5	<3	<10	72
JAN 09...	0.55	0.60	0.040	--	--	--	--	--	--	--	--
MAR 01...	0.78	0.80	0.030	--	--	--	--	--	--	--	--
APR 17...	--	0.60	0.030	--	--	--	--	--	--	--	--
MAY 30...	0.38	0.40	0.040	--	--	--	--	--	--	--	--
JUL 26...	0.36	0.40	0.280	1	41	<0.5	1.0	<5	<3	<10	200

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 15...	<10	<4	3	0.2	<10	<10	<1	<1.0	80	<6	19
JAN 09...	--	--	--	--	--	--	--	--	--	--	--
MAR 01...	--	--	--	--	--	--	--	--	--	--	--
APR 17...	--	--	--	--	--	--	--	--	--	--	--
MAY 30...	--	--	--	--	--	--	--	--	--	--	--
JUL 26...	<10	5	13	<0.1	<10	<10	<1	<1.0	86	<6	9

08041000 NECHES RIVER AT EVADALE, TX
(National stream-quality accounting network)

LOCATION.--Lat 30°21'20", long 94°05'35", Jasper-Hardin County line, Hydrologic Unit 12020003, near right bank on downstream side of bridge on U.S. Highway 96 at Evadale, 0.8 mi upstream from Mill Creek, 16 mi upstream from Village Creek, and at mile 55.6.

DRAINAGE AREA.--7,951 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1904 to December 1906, April 1921 to current year. Monthly discharge only for some periods, published in WSP 1312.

REVISED RECORDS.--WSP 718: 1929. WSP 1342: 1905-07, 1924. WSP 1732: Drainage area at former site.

GAGE.--Water-stage recorder. Datum of gage is 8.25 ft above National Geodetic Vertical Datum of 1929. July 1, 1904, to Dec. 31, 1906, nonrecording gage on Gulf, Colorado, and Santa Fe Railway Co. bridge at site 1.2 mi downstream at datum 5.50 ft lower; Apr. 1, 1921, to Dec. 7, 1948, nonrecording gages at site 1.2 mi downstream at present datum; Dec. 8, 1948, to Nov. 8, 1963, water-stage recorder at site 1.2 mi downstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow regulated by B. A. Steinhagen Lake (station 08040000) 58.1 mi upstream, and by Sam Rayburn Reservoir (station 08039300) 95.7 mi upstream. There are some diversions upstream for municipal use. Gage-height telemeter at station.

AVERAGE DISCHARGE.--45 years (water years 1905-06, 1922-64) unregulated, 6,308 ft³/s (4,570,000 acre-ft/yr); 26 years (water years 1965-90) regulated, 5,566 ft³/s (4,033,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 92,100 ft³/s May 11, 1944 (gage height, 23.58 ft, from floodmark), at site then in use; minimum daily, 63 ft³/s Nov. 26-28, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1884 reached a stage of 26.2 ft, at former site (discharge, about 125,000 ft³/s), and flood in August 1915 reached a stage of 24.5 ft, at former site (discharge, about 102,000 ft³/s). These are the highest floods since at least 1884. Stages furnished by Gulf, Colorado, and Santa Fe Railway Co.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 22,100 ft³/s Apr. 2 at 2100 (gage height, 17.44 ft); minimum daily, 2,010 ft³/s Nov. 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2390	2420	2630	3180	12200	11400	16200	9500	16400	12000	3480	2980
2	2450	2420	2540	4550	12500	11800	21300	9500	16500	9990	3330	2990
3	2520	2440	2530	4600	11600	12200	21400	9380	15900	8170	3300	2990
4	2890	2780	2590	4300	11000	12600	19100	9320	15700	6520	3510	2950
5	2660	3430	2600	5170	11100	13100	17200	9600	15400	5410	3560	2980
6	2470	3660	2610	4900	11400	13100	16500	10800	15400	4980	3590	3070
7	2540	3550	2570	4590	11700	12200	16300	12600	16200	4710	3470	3100
8	2850	3030	2510	4580	11900	10200	16300	13800	16900	5070	3530	3100
9	2670	2810	2480	4790	12000	8500	16400	14400	17700	5060	3590	3110
10	2630	2870	2440	4630	11200	7720	16000	14400	18200	4540	3600	3150
11	2510	2800	2440	4130	10300	7830	15600	14300	18800	3990	3560	3140
12	2340	2640	2470	3350	9670	8210	e15500	14200	19000	3880	3580	3340
13	2310	2530	2470	2940	9290	8310	e15400	14100	18900	3840	3560	3470
14	2440	2480	2460	2850	9020	8220	e15200	14100	18400	3580	3530	3460
15	2590	2440	2420	2780	8880	8030	e15000	14100	17900	3530	3500	3390
16	3060	2540	2410	2710	8800	7900	14800	13900	17300	3640	3460	3210
17	3360	2390	2390	2680	8670	7960	14500	13300	17000	3600	3450	3160
18	2920	2010	2410	2710	8250	8000	14500	11400	17000	3640	3360	3150
19	2680	2270	2430	3290	7810	7970	13900	9770	17200	3710	3380	3080
20	2460	2580	2440	4150	7570	7830	12800	9350	17400	3760	3410	3020
21	2320	2650	2440	6430	7740	7260	10900	9540	17400	3770	3500	3030
22	2550	2660	2490	9180	8410	6180	9220	9760	17500	3680	3960	3050
23	2500	2700	2780	10900	8930	5030	8410	10200	17500	3600	5700	3030
24	2420	2720	3570	10800	9850	4650	8030	11000	17300	3600	7080	3020
25	2390	2740	5220	8890	10800	5180	7890	11700	17300	3640	6040	3030
26	2350	2670	6500	7920	11200	5550	7880	12300	17100	3580	4280	3020
27	2490	2510	7670	9210	11200	5620	8490	13000	16200	3500	3530	3010
28	2610	2590	6370	10400	11100	5760	8700	13800	15200	3520	3300	3040
29	2370	2660	4000	10700	---	6160	9040	14400	14300	3500	3020	3000
30	2330	2630	3080	10400	---	7580	9380	14800	13300	3580	2870	2790
31	2410	---	2840	11100	---	10900	---	15400	---	3570	2970	---
TOTAL	79480	80620	96800	182810	284090	262950	411840	377720	506300	143160	116000	92860
MEAN	2564	2687	3123	5897	10150	8482	13730	12180	16880	4618	3742	3095
MAX	3360	3660	7670	11100	12500	13100	21400	15400	19000	12000	7080	3470
MIN	2310	2010	2390	2680	7570	4650	7880	9320	13300	3500	2870	2790
AC-FT	157600	159900	192000	362600	563500	521600	816900	749200	1004000	284000	230100	184200

CAL YR 1989 TOTAL 2957940 MEAN 8104 MAX 47400 MIN 1730 AC-FT 5867000
WTR YR 1990 TOTAL 2634630 MEAN 7218 MAX 21400 MIN 2010 AC-FT 5226000

e Estimated

08041000 NECHES RIVER AT EVADALE, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: September 1939 to current year. Pesticide analyses: February 1968 to July 1981. Sediment analyses: October 1960 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1947 to current year.
WATER TEMPERATURE: October 1947 to current year.

INSTRUMENTATION.--From October 1954 to September 1963, water temperature was continuously recorded at this station.

REMARKS.--Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression 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, 422 microsiemens Jan. 25, 1957; minimum daily, 23 microsiemens Sept. 19, 1963.
WATER TEMPERATURE (1947-85, 1987 to current year): Maximum daily, 34.0°C June 29, 1953; minimum daily, 3.0°C Jan. 30, 31, 1948, Jan. 31, 1949, Jan 24, 1963.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 204 microsiemens Mar. 15; minimum daily, 68 microsiemens Dec. 21.
WATER TEMPERATURE: Maximum daily, 31.0°C on many days during summer months; minimum daily, 4.0°C on several days during December and January.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CACO3)
NOV												
13...	1220	2510	130	7.0	20.0	22	10.0	109	1.3	20	780	28
JAN												
08...	1332	4590	94	6.6	11.0	27	10.2	91	1.7	150	190	21
FEB												
27...	1125	11000	136	7.0	15.5	18	8.0	79	1.1	120	110	27
APR												
16...	1600	16000	130	6.5	19.0	15	8.0	85	0.2	92	130	27
MAY												
29...	1240	13300	133	6.7	25.5	13	8.0	97	2.6	84	320	28
JUL												
23...	1505	3330	142	7.2	29.0	23	6.3	81	0.5	80	170	32

DATE	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
NOV												
13...	9	6.8	2.6	15	1	2.6	21	16	16	0.10	11	78
JAN												
08...	10	5.6	1.8	10	0.9	2.3	13	14	12	<0.10	9.9	73
FEB												
27...	14	7.0	2.4	13	1	2.6	16	20	15	<0.10	11	100
APR												
16...	12	6.7	2.4	13	1	2.5	15	19	16	0.20	9.2	84
MAY												
29...	10	6.7	2.6	14	1	3.0	18	16	19	<0.10	7.8	90
JUL												
23...	10	7.7	3.0	15	1	2.8	21	18	21	<0.10	10	100

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	SEDI-MENT, SUS-PENDED (MG/L)
NOV												
13...	82	<0.010	<0.100	0.030	0.010	0.67	0.70	0.050	0.060	0.050	0.15	24
JAN												
08...	63	<0.010	<0.100	0.040	0.030	0.56	0.60	0.050	0.020	0.020	0.06	51
FEB												
27...	80	<0.010	<0.100	0.020	0.010	0.28	0.30	0.040	0.020	0.010	0.03	107
APR												
16...	78	<0.010	<0.100	0.060	0.020	0.74	0.80	0.040	0.020	<0.010	--	18
MAY												
29...	80	<0.010	<0.100	0.020	<0.010	0.38	0.40	0.040	0.020	0.010	0.03	19
JUL												
23...	91	<0.010	<0.100	0.040	0.020	0.46	0.50	0.030	0.020	<0.010	--	42

08041000 NECHES RIVER AT EVADALE, TX--Continued
(National stream-quality accounting network)

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)
NOV 13...	163	96	50	<1	38	<0.5	<1.0	<1	<3	3	130
JAN 08...	632	69	--	--	--	--	--	--	--	--	--
FEB 27...	3180	17	60	<1	45	<0.5	3.0	<5	<3	<10	140
APR 16...	778	88	--	--	--	--	--	--	--	--	--
MAY 29...	682	97	40	<1	47	0.5	<1.0	<1	<3	3	230
JUL 23...	378	84	60	<1	41	<0.5	1.0	<1	<3	3	210

DATE	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)
NOV 13...	<1	4	20	<0.1	<10	2	<1	<1.0	81	<6	<3
JAN 08...	--	--	--	--	--	--	--	--	--	--	--
FEB 27...	<10	6	20	<0.1	<10	<10	<1	<1.0	75	<6	27
APR 16...	--	--	--	--	--	--	--	--	--	--	--
MAY 29...	1	5	48	<0.1	<10	3	<1	<1.0	68	<6	13
JUL 23...	<1	6	17	<0.1	<10	1	<1	<1.0	87	<6	4

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICROSIEMENS)	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.	1989	79480	135	85	18200	17	3660	20	4370	29
NOV.	1989	80620	138	87	18800	18	3810	21	4520	29
DEC.	1989	96800	133	84	21900	17	4400	20	5260	28
JAN.	1990	182810	119	76	37700	15	7260	18	9080	26
FEB.	1990	284090	131	82	63100	17	12700	20	15100	28
MAR.	1990	262950	148	91	64600	19	13600	22	15400	30
APR.	1990	411840	122	77	86100	15	17000	19	20700	26
MAY	1990	377720	132	84	85400	17	17000	20	20500	28
JUNE	1990	506300	109	71	97000	13	18400	17	23400	24
JULY	1990	143160	144	90	34600	18	7130	21	8280	30
AUG.	1990	116000	150	92	28900	19	6060	22	6900	31
SEPT	1990	92860	145	90	22600	19	4660	22	5390	30
TOTAL		2634630	**	**	579000	**	116000	**	139000	**
WTD.AVG.		7218	129	81	**	16	**	20	**	27

08041000 NECHES RIVER AT EVADALE, TX--Continued
(National stream-quality accounting network)

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	139	135	121	148	89	149	82	132	125	137	144	143
2	140	135	99	126	124	158	83	133	128	136	145	147
3	140	137	134	146	87	146	75	158	129	146	148	163
4	145	133	133	147	102	141	75	146	123	141	146	144
5	143	137	136	123	101	124	116	147	105	144	152	141
6	140	142	136	118	112	125	113	130	81	140	143	145
7	140	158	139	120	111	148	77	130	75	139	142	140
8	150	149	140	147	112	133	100	128	81	138	149	140
9	142	134	138	148	121	155	108	136	81	138	146	177
10	142	134	138	133	114	150	102	130	88	143	e146	147
11	143	135	137	135	121	156	129	126	72	145	147	133
12	140	136	141	115	114	151	128	125	75	148	154	146
13	142	136	140	116	165	168	136	116	82	142	154	143
14	138	136	145	116	133	155	150	115	91	144	145	140
15	142	137	91	e122	152	204	158	119	79	147	146	130
16	143	135	91	126	143	154	153	118	107	151	144	149
17	117	136	140	123	136	154	156	126	117	154	145	140
18	111	144	111	107	143	154	159	136	123	145	145	139
19	114	138	140	123	192	154	144	132	112	146	147	139
20	119	140	140	107	171	154	152	142	90	145	146	141
21	120	140	68	133	133	160	133	137	127	151	146	139
22	137	138	126	132	142	203	151	141	128	146	145	139
23	131	138	139	110	179	167	143	141	140	150	139	143
24	128	137	142	117	140	166	150	141	134	165	178	144
25	137	134	143	104	e143	165	87	139	130	145	161	143
26	e134	134	137	107	146	164	159	143	136	149	146	155
27	137	137	144	120	134	163	147	136	137	148	192	150
28	135	137	139	113	170	164	149	138	139	146	152	151
29	137	137	146	117	---	149	149	136	135	147	145	157
30	134	136	146	94	---	83	140	132	136	148	144	150
31	133	---	145	91	---	83	---	129	---	150	144	---
MEAN	135	138	131	122	133	152	127	133	110	146	149	145

e Estimated

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.0	19.0	15.0	4.0	14.0	15.0	20.0	23.0	28.0	31.0	31.0	31.0
2	25.0	18.0	15.0	4.0	14.0	15.0	20.0	23.0	28.0	31.0	31.0	31.0
3	25.0	18.0	15.0	4.0	14.0	15.0	20.0	23.0	28.0	31.0	30.0	31.0
4	25.0	18.0	15.0	4.0	14.0	15.0	20.0	23.0	28.0	31.0	31.0	30.0
5	25.0	18.0	15.0	4.0	14.0	15.0	20.0	23.0	28.0	31.0	31.0	30.0
6	24.0	18.0	15.0	4.0	14.0	15.0	20.0	23.0	28.0	31.0	31.0	30.0
7	24.0	18.0	13.0	5.0	14.0	15.0	20.0	23.0	28.0	31.0	31.0	30.0
8	28.0	18.0	13.0	6.0	14.0	15.0	20.0	23.0	28.0	31.0	31.0	30.0
9	24.0	18.0	13.0	5.0	14.0	15.0	20.0	23.0	28.0	31.0	31.0	30.0
10	24.0	18.0	13.0	6.0	14.0	15.0	20.0	23.0	28.0	31.0	---	30.0
11	24.0	18.0	13.0	8.0	14.0	15.0	20.0	23.0	29.0	31.0	31.0	30.0
12	24.0	17.0	12.0	8.0	14.0	15.0	20.0	23.0	29.0	31.0	30.0	30.0
13	24.0	17.0	12.0	8.0	14.0	15.0	20.0	23.0	29.0	31.0	30.0	30.0
14	24.0	17.0	11.0	9.0	14.0	15.0	20.0	25.0	29.0	31.0	31.0	30.0
15	24.0	17.0	9.0	---	14.0	15.0	20.0	25.0	29.0	31.0	31.0	30.0
16	24.0	16.0	9.0	9.0	14.0	15.0	21.0	25.0	29.0	31.0	31.0	30.0
17	23.0	16.0	8.0	9.0	14.0	15.0	21.0	25.0	30.0	31.0	31.0	29.0
18	21.0	16.0	8.0	9.0	14.0	15.0	20.0	25.0	30.0	31.0	30.0	29.0
19	19.0	16.0	8.0	9.0	14.0	15.0	21.0	25.0	30.0	31.0	30.0	29.0
20	19.0	16.0	8.0	9.0	14.0	16.0	21.0	25.0	30.0	31.0	31.0	29.0
21	19.0	16.0	7.0	10.0	15.0	16.0	21.0	25.0	30.0	31.0	31.0	29.0
22	19.0	16.0	6.0	10.0	15.0	16.0	21.0	26.0	30.0	31.0	31.0	29.0
23	20.0	16.0	6.0	12.0	15.0	17.0	21.0	26.0	30.0	31.0	31.0	29.0
24	20.0	16.0	4.0	12.0	15.0	18.0	21.0	26.0	30.0	31.0	31.0	26.0
25	20.0	16.0	4.0	12.0	---	18.0	21.0	26.0	30.0	31.0	31.0	26.0
26	---	16.0	4.0	12.0	15.0	18.0	21.0	26.0	30.0	31.0	31.0	26.0
27	20.0	16.0	4.0	12.0	15.0	18.0	23.0	26.0	30.0	31.0	31.0	26.0
28	20.0	16.0	4.0	14.0	15.0	18.0	23.0	28.0	30.0	31.0	31.0	26.0
29	20.0	15.0	4.0	14.0	---	18.0	23.0	28.0	30.0	31.0	29.0	26.0
30	20.0	15.0	4.0	14.0	---	18.0	23.0	28.0	30.0	31.0	31.0	26.0
31	19.0	---	4.0	14.0	---	18.0	---	28.0	---	31.0	31.0	---
MEAN	22.5	17.0	9.5	8.5	14.5	16.0	20.5	24.5	29.0	31.0	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 upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 3.1 mi upstream from Cypress Creek, 3.4 mi northeast of Kountze, and 4.3 mi downstream from Beech Creek.

DRAINAGE AREA.--860 mi².

PERIOD OF RECORD.--May 1924 to September 1927, October 1927 to November 1929 (discharge measurements only), April 1939 to current year.
Water-quality records: November 1967 to September 1985.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 25.12 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 30, 1939, nonrecording gage at site 1.6 mi downstream at different datum. Apr. 30, 1939, to Sept. 30, 1966, water-stage recorder at site 2,000 ft downstream at present datum.

REMARKS.--Records good except those for estimated daily discharges which are poor. Small diversions above station. Several measurements of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--54 years, 858 ft³/s (13.56 in/yr), 621,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 67,200 ft³/s Nov. 26, 1940 (gage height, 27.6 ft), former site, from floodmark and from rating curve extended above 32,000 ft³/s; minimum not determined, probably occurred during period of no gage-height record Sept. 16 to Oct. 3, 1956; minimum daily, 16 ft³/s Oct. 1, 2, 1956.
Flood of May 27, 1929, reached a stage of about 32 ft at site 2,000 ft downstream at present datum; stage was determined on basis of information by engineers of Gulf, Colorado, and Santa Fe Railway Co. for site 1.6 mi downstream.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1884, about 34 ft in August 1915 at site 2,000 ft downstream at present datum; stage was determined on basis of information by engineers of Gulf, Colorado, and Santa Fe Railway Co. for site 1.6 mi downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,940 ft³/s Apr. 2 at 0500 hours (gage height, 18.34 ft); minimum, 69 ft³/s Sept. 1, 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94	353	198	317	2390	1310	6140	1870	836	211	e155	70
2	94	359	184	452	2340	2700	9460	1240	752	198	e140	73
3	94	322	173	561	2360	4300	6570	742	832	188	e125	85
4	94	281	167	843	2720	4860	4470	839	943	184	e120	87
5	93	252	163	1040	3010	4960	3100	1580	962	169	e118	83
6	92	395	162	1130	3140	4490	2320	4790	1230	161	e116	79
7	90	396	162	1220	3310	3150	1930	7460	1420	163	e114	75
8	89	277	162	1350	2970	2120	1810	5590	1080	150	113	74
9	87	233	163	1410	2400	1470	1840	4190	609	139	112	73
10	87	222	164	1340	2020	1170	1820	2990	453	132	113	78
11	87	208	164	1130	1770	1040	1940	2210	390	127	107	118
12	87	188	164	980	1680	941	2110	1650	344	122	99	199
13	87	171	164	733	1540	862	2020	1270	313	121	94	216
14	86	159	162	517	1260	827	1650	1210	305	145	89	253
15	84	154	159	438	1030	1020	1500	1100	286	243	87	263
16	319	153	158	395	927	1270	1560	1150	265	283	84	218
17	702	153	157	370	912	1280	1500	1130	248	219	82	184
18	596	154	157	379	860	1170	1280	917	230	182	80	159
19	625	156	163	569	790	1050	950	692	215	171	78	139
20	556	157	175	1090	776	957	751	572	202	195	77	149
21	410	157	197	1720	816	745	675	511	190	208	75	149
22	293	161	210	2060	1100	599	610	474	180	184	75	135
23	243	173	210	2300	1450	537	549	447	172	172	74	125
24	219	191	197	2800	1530	500	501	409	164	300	91	123
25	204	224	181	3620	1410	473	462	370	156	e420	96	121
26	193	250	171	3430	1150	451	435	342	150	e600	96	125
27	184	245	169	2830	869	429	809	319	144	e450	90	127
28	177	265	170	2490	708	414	1620	305	148	e340	85	114
29	172	270	181	2560	---	541	2110	337	154	e240	81	104
30	176	220	192	2580	---	1390	2210	567	190	e190	77	96
31	241	---	221	2500	---	2390	---	787	---	e170	74	---
TOTAL	6655	6899	5420	45154	47238	49416	64702	48060	13563	6777	3017	3894
MEAN	215	230	175	1457	1687	1594	2157	1550	452	219	97.3	130
MAX	702	396	221	3620	3310	4960	9460	7460	1420	600	155	263
MIN	84	153	157	317	708	414	435	305	144	121	74	70
AC-FT	13200	13680	10750	89560	93700	98020	128300	95330	26900	13440	5980	7720
CFSM	.25	.27	.20	1.69	1.96	1.85	2.51	1.80	.53	.25	.11	.15
IN.	.29	.30	.23	1.95	2.04	2.14	2.80	2.08	.59	.29	.13	.17

CAL YR 1989 TOTAL 483889 MEAN 1326 MAX 37000 MIN 84 AC-FT 959800 CFSM 1.54 IN. 20.93
WTR YR 1990 TOTAL 300795 MEAN 824 MAX 9460 MIN 70 AC-FT 596600 CFSM .96 IN. 13.01

e Estimated

08041700 PINE ISLAND BAYOU NEAR SOUR LAKE, TX

LOCATION.--Lat 30°06'21", long 94°20'04", Jefferson-Hardin County line, Hydrologic Unit 12020007, on right bank at downstream side of bridge on county road and 5.1 mi southeast of Sour Lake.

DRAINAGE AREA.--336 mi².

PERIOD OF RECORD.--October 1967 to current year.
Water-quality records.--Chemical analyses: February 1968 to June 1989. Specific conductance: February 1968 to September 1989. Water temperature: February 1968 to September 1989.

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

REMARKS.--Records good, no estimated daily discharges. Low flow for period March through September affected by small diversions and return flow from irrigated fields. Gage height telemeter at station.

AVERAGE DISCHARGE.--23 years, 478 ft³/s (346,300 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,000 ft³/s Apr. 22, 1979 (elevation, 34.29 ft); minimum daily, 0.25 ft³/s Oct. 28, 1982.
Maximum stage since at least 1917, that of Apr. 22, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,200 ft³/s Jan. 29 at 1200 hours (elevation, 26.04 ft); minimum daily, 3.1 ft³/s Dec. 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.2	11	56	4.2	2000	437	1080	594	35	33	27	20
2	6.6	12	55	4.3	1860	895	1120	552	46	33	23	24
3	6.0	41	38	52	1660	1150	1130	502	66	34	24	27
4	5.6	85	29	191	1420	1310	1120	546	92	29	32	25
5	5.3	84	24	368	1220	1340	1130	521	215	25	34	23
6	5.1	66	18	667	1030	1290	1090	384	109	30	29	21
7	5.0	50	18	877	863	1210	920	287	52	29	31	18
8	4.6	40	17	1000	785	1110	630	323	34	29	37	19
9	4.2	36	13	1090	1020	927	369	589	23	27	40	24
10	4.0	106	11	1100	994	639	265	633	17	26	32	60
11	4.0	187	10	1090	847	355	266	590	18	26	30	65
12	3.9	227	8.5	1000	674	215	288	470	18	28	38	41
13	3.9	219	7.1	866	515	170	325	296	16	33	29	52
14	3.9	157	6.2	707	404	172	333	164	14	32	58	134
15	3.9	90	6.2	503	336	299	360	106	20	30	41	126
16	236	53	5.8	301	280	459	379	84	21	31	33	80
17	382	34	4.9	174	229	506	382	60	25	59	21	53
18	410	24	5.4	119	192	439	333	66	20	105	16	60
19	366	20	5.4	100	187	334	263	86	26	72	15	72
20	279	21	4.5	123	193	238	198	81	21	73	15	53
21	224	20	3.8	204	229	166	141	72	20	59	16	34
22	204	20	4.1	328	481	118	95	45	20	43	20	23
23	172	27	4.6	402	591	83	77	35	18	34	23	19
24	110	23	4.0	808	680	59	54	27	20	42	25	13
25	57	22	3.5	1490	694	43	40	26	19	40	22	7.8
26	31	24	3.3	1720	623	33	40	26	23	44	15	5.5
27	51	20	3.2	1950	519	25	336	19	28	37	14	4.1
28	13	27	3.2	1970	398	21	544	26	52	31	14	3.6
29	10	36	3.1	2160	---	86	610	43	44	26	15	3.5
30	11	42	4.1	2110	---	646	638	44	35	26	25	3.6
31	23	---	4.3	2080	---	968	---	27	---	29	20	---
TOTAL	2652.2	1824	384.2	25558.5	20924	15743	14556	7324	1167	1195	814	1114.1
MEAN	85.6	60.8	12.4	824	747	508	485	236	38.9	38.5	26.3	37.1
MAX	410	227	56	2160	2000	1340	1130	633	215	105	58	134
MIN	3.9	11	3.1	4.2	187	21	40	19	14	25	14	3.5
AC-FT	5260	3620	762	50700	41500	31230	28870	14530	2310	2370	1610	2210

CAL YR 1989 TOTAL 278512.7 MEAN 763 MAX 21500 MIN 3.1 AC-FT 552400
WTR YR 1990 TOTAL 93256.0 MEAN 255 MAX 2160 MIN 3.1 AC-FT 185000

08042000 TAYLOR BAYOU NEAR LABELLE, TX

LOCATION.--Lat 29°52'30", long 94°09'34", Jefferson County, Hydrologic Unit 12040201, near center of stream at downstream side of bridge on county road, 0.7 mi south of LaBelle, 6.0 mi upstream from Hillebrandt Bayou, 7.2 mi upstream from State Highway 73, and 11.2 mi upstream from saltwater gates and barge locks. Distances are measured along rectified channel.

DRAINAGE AREA.--262 mi².

PERIOD OF RECORD.--April 1954 to September 1984 (complete records for storms of 1.0 inch or more runoff, except for the period Sept. 10-22, 1961). October 1984 to current year (gage heights only).

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4.63 ft below National Geodetic Vertical Datum of 1929, originally determined by several comparisons of water surface with auxiliary water-stage recorder 7.2 mi downstream during times of no flow and ideal weather conditions. Prior to October 1984, auxiliary water-stage recorder 7.2 mi downstream.

REMARKS.--Estimated maximum gage heights: Oct. 1-5, June 4 to July 9. Records fair. Prior to October 1984, records were computed using fall as a factor. Low flow is regulated by drainage from ricefields and operation of saltwater gates and barge locks. An unknown amount of water is diverted above and below gage for irrigation of ricefields.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,590 ft³/s Sept. 22, 1963, and Apr. 23, 1979; maximum gage height, 11.78 ft Sept. 20, 1963 (backwater from Hillebrandt Bayou); minimum discharge not determined (affected by tides and pumping); minimum gage height, 2.31 ft July 17, 1954.
Maximum stage since at least 1941, that of Sept. 20, 1963, and Apr. 23, 1979. Flood of Sept. 13, 1961 (Hurricane Carla), reached a stage of 11.51 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1941 reached a stage of 11.3 ft, from information by U.S. Army Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 7.7 ft May 4 at 1700 hours; minimum gage height, 4.7 ft Dec. 26.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	6.0	5.8	5.1	6.4	6.3	6.9	6.3	6.6	---	6.2	6.0
2	---	6.1	5.8	5.1	6.4	6.3	6.6	6.3	6.5	---	6.2	6.0
3	---	6.1	5.7	5.4	6.4	6.4	6.4	6.8	6.5	---	6.2	6.1
4	---	6.0	5.6	5.8	6.1	6.2	6.2	7.7	e6.3	---	6.2	6.1
5	---	6.0	5.5	6.4	6.1	6.1	6.1	7.6	e6.4	---	6.2	6.1
6	---	6.1	5.5	6.5	6.2	6.1	6.1	6.7	e6.4	---	6.1	6.1
7	6.0	6.0	5.8	6.4	6.0	6.1	6.0	6.5	e6.2	---	6.1	6.1
8	6.0	6.0	5.8	6.4	6.1	6.2	6.1	7.3	e6.1	---	6.1	6.1
9	6.0	6.0	5.7	6.1	6.4	6.1	6.2	7.6	e6.0	---	6.1	6.1
10	6.0	5.9	5.6	6.1	6.5	6.1	6.3	7.3	e5.9	6.0	6.1	5.9
11	6.0	5.9	5.7	5.9	6.1	6.2	6.3	7.7	e5.9	5.9	6.1	6.1
12	6.0	5.9	5.6	5.9	6.2	6.4	6.2	6.8	e5.9	6.0	6.1	6.1
13	6.0	5.9	5.4	5.8	6.1	6.4	6.2	6.8	e6.0	6.0	6.1	6.6
14	6.1	5.9	5.4	5.8	6.1	6.7	6.3	6.5	e6.1	5.9	6.1	6.6
15	6.2	5.9	5.4	5.8	6.3	7.0	6.3	6.4	e6.1	5.9	6.1	6.4
16	6.4	5.9	5.4	5.8	6.5	6.8	6.3	6.4	e6.1	6.1	6.2	6.1
17	6.4	5.7	5.3	5.8	6.2	6.6	6.2	6.4	e6.1	6.2	6.0	6.2
18	6.2	5.8	5.4	5.9	6.3	6.2	6.2	6.2	e6.1	6.3	6.1	6.3
19	6.1	5.9	5.4	6.0	6.4	6.1	6.2	6.3	e6.0	6.0	6.2	6.3
20	5.8	5.9	5.3	6.1	6.2	6.0	6.2	6.4	e6.0	6.1	6.2	6.2
21	5.7	5.9	5.3	6.1	7.0	6.0	6.2	6.3	e6.0	6.2	6.0	6.2
22	5.7	6.1	5.3	5.8	7.1	6.1	6.2	6.0	e6.0	6.3	6.2	6.0
23	5.7	6.1	5.0	5.9	6.5	6.1	6.2	5.7	e6.0	6.3	6.2	6.0
24	5.8	6.1	4.8	6.6	6.1	5.9	6.3	6.0	---	6.3	6.0	5.9
25	5.8	6.0	4.8	6.6	6.0	5.9	6.3	6.1	---	6.3	6.0	5.9
26	5.8	6.1	4.8	6.4	6.1	5.9	6.7	6.1	---	6.0	6.0	6.0
27	5.8	6.1	4.8	6.1	6.2	5.9	7.2	6.2	---	6.0	6.0	5.9
28	5.8	6.1	4.9	6.3	6.1	6.5	7.1	6.4	---	6.0	5.9	5.9
29	5.8	6.0	5.0	6.8	---	7.1	6.7	6.4	---	6.1	5.9	5.9
30	6.0	5.9	5.0	6.6	---	7.3	6.5	6.4	---	6.1	5.9	5.9
31	6.1	---	5.1	6.4	---	7.2	---	6.6	---	6.2	5.9	---
MAX	---	6.1	5.8	6.8	7.1	7.3	7.2	7.7	---	---	6.2	6.6

CAL YR 1989 MAX ---
WTR YR 1990 MAX ---

e Estimated

08042500 HILLEBRANDT BAYOU NEAR LOVELL LAKE, TX

LOCATION.--Lat 29°55'44", long 94°06'35", Jefferson County, Hydrologic Unit 12040201, near center of stream at downstream side of bridge on county road, 1.3 mi southeast of Lovell Lake, and 4.4 mi upstream (along rectified channel) from Taylor Bayou.

DRAINAGE AREA.--128 mi².

PERIOD OF RECORD.--April 1954 to September 1984 (complete records for storms of 1.0 inch or more runoff, except for the period Sept. 11-18, 1961). October 1984 to current year (gage heights only).

GAGE.--Water-stage recorder. Auxiliary water-stage recorder 3.0 mi downstream. Datum of gage is 4.63 ft below National Geodetic Vertical Datum of 1929, originally determined by comparisons of water surface with Taylor Bayou near LaBelle, auxiliary gage 5.6 mi 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 downstream from Hillebrandt Bayou, nonrecording gages on Taylor Bayou 2.3 and 5.2 mi downstream from Hillebrandt Bayou; Aug. 28, 1963, to Sept. 30, 1984, auxiliary water-stage recorder 3.0 mi downstream.

REMARKS.--Records fair. Prior to October 1984, records were computed using fall as a factor. Low flow regulated by drainage from ricefields and operation of saltwater gates and barge locks. An unknown amount of water is diverted above and below gage for rice irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,000 ft³/s Sept. 18, 1963; maximum gage height, 12.34 ft Sept. 19, 1963; minimum discharge not determined (affected by tides and pumping); minimum gage height, 2.33 ft July 17, 1954. Maximum stage since 1941, 12.34 ft Sept. 19, 1963.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 7.6 ft May 4 from 0800 to 0900 hours; minimum gage height, 5.4 ft (date unknown).

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.2	6.1	6.2	---	---	6.4	6.9	6.5	6.7	6.4	6.4	6.2
2	6.2	6.2	6.2	---	---	6.3	6.7	6.5	6.8	6.4	6.4	6.2
3	6.2	6.3	6.1	---	---	6.4	6.5	6.8	6.7	5.9	6.4	6.3
4	6.1	6.3	6.1	---	---	6.4	6.4	7.6	6.6	6.0	6.4	6.3
5	6.1	6.3	6.1	---	---	6.3	6.2	7.1	6.6	6.2	6.3	6.3
6	6.1	6.3	6.1	---	---	6.3	6.2	6.5	6.6	6.3	6.3	6.3
7	6.1	6.3	6.1	---	6.2	6.3	6.1	6.7	6.4	6.3	6.3	6.3
8	6.1	6.3	6.0	---	6.4	6.4	6.2	7.3	6.3	6.2	6.2	6.3
9	6.1	6.3	6.1	---	6.6	6.3	6.3	7.5	6.1	6.2	6.2	6.3
10	6.1	6.3	6.1	---	6.6	6.3	6.4	6.9	6.1	6.2	6.2	6.1
11	6.1	6.2	6.1	---	6.3	6.4	6.4	6.8	6.1	6.1	6.2	6.3
12	6.2	6.2	6.0	---	6.4	6.6	6.3	7.0	6.1	6.1	6.3	6.3
13	6.2	6.2	6.0	---	6.2	6.6	6.4	6.9	6.2	6.1	6.3	6.7
14	6.2	6.2	6.0	---	6.4	7.1	6.4	6.6	6.2	6.1	6.3	6.7
15	6.3	6.2	6.0	---	6.5	7.2	6.4	6.6	6.3	6.1	6.4	6.6
16	6.4	6.1	5.9	---	6.6	6.9	6.4	6.6	6.3	6.2	6.4	6.4
17	6.5	6.1	---	---	6.4	6.8	6.3	6.6	6.3	6.4	6.2	6.4
18	6.4	6.0	---	---	6.5	6.4	6.3	6.4	6.2	6.5	6.3	6.4
19	6.3	6.0	---	---	6.6	6.3	6.3	6.5	6.3	6.1	6.4	6.5
20	6.2	6.1	---	---	6.3	6.1	6.4	6.6	6.2	6.3	6.4	6.4
21	6.1	6.1	---	---	7.3	6.2	6.4	6.5	6.2	6.4	6.2	6.4
22	6.1	6.1	---	---	7.4	6.3	6.4	6.1	6.2	6.5	6.4	6.2
23	6.0	6.2	---	---	6.3	6.3	6.4	5.9	6.2	6.5	6.4	6.2
24	6.0	6.3	---	---	6.3	6.1	6.4	6.1	6.2	6.4	6.2	6.1
25	5.9	6.3	---	---	6.1	6.1	6.4	6.3	6.3	6.4	6.2	6.1
26	5.9	6.3	---	---	6.3	6.1	6.7	6.4	6.3	6.1	6.2	6.1
27	5.9	6.3	---	---	6.4	6.1	7.3	6.4	6.4	6.1	6.2	6.1
28	5.9	6.3	---	---	6.3	6.6	7.2	6.5	6.4	6.2	6.1	6.1
29	5.9	6.2	---	---	---	7.2	6.8	6.6	6.1	6.3	6.2	6.1
30	6.1	6.2	---	---	---	7.2	6.6	6.6	6.3	6.3	6.1	6.1
31	6.2	---	---	---	---	7.0	---	6.7	---	6.4	6.1	---
MAX	6.5	6.3	---	---	---	7.2	7.3	7.6	6.8	6.5	6.4	6.7

CAL YR 1989 MAX ---
WTR YR 1990 MAX ---

08042800 WEST FORK TRINITY RIVER NEAR JACKSBORO, TX

LOCATION.--Lat 33°17'36", long 98°04'43", Jack County, Hydrologic Unit 12030101, on left abutment at downstream side of bridge on State Highway 59, 4 mi downstream from Big Cleveland Creek, 7 mi upstream from Carroll Creek, 7 mi northeast of Jacksboro, and at mile 660.

DRAINAGE AREA.--683 mi².

PERIOD OF RECORD.--March 1956 to current year.
Water-quality records.--Sediment records: October 1976 to September 1978.

GAGE.--Water-stage recorder. Datum of gage is 869.28 ft above National Geodetic Vertical Datum of 1929, from State Department of Highways and Public Transportation. Sept. 20, 1960, to May 30, 1961, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. At end of year, flow from 70.9 mi² upstream from this station was partly controlled by 21 floodwater-retarding structures with a combined detention capacity of 19,780 acre-ft. Gage-height telemeter at station via data-collection platform installed April 1987.

AVERAGE DISCHARGE.--34 years (water years 1957-90), 118 ft³/s (2.35 in/yr), 85,490 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,100 ft³/s Apr. 27, 1957 (gage height, 32.10 ft, 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, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft³/s and maximum (*).

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 9	0800	2,450	19.49	Apr. 27	1800	*21,800	*28.21
Mar. 13	2030	2,610	19.74	May 3	2200	17,600	27.05
Apr. 22	0445	5,320	21.60	June 4	1730	3,150	19.85

Minimum discharge, no flow for several days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	84	.32	.71	2.5	447	454	1540	558	28	12	.00
2	.78	63	.27	.51	2.6	643	291	5230	1380	27	13	.00
3	.67	26	.23	.60	106	774	180	15500	1900	27	25	.00
4	.52	13	.23	.85	199	822	144	14500	2840	27	16	.00
5	.49	7.6	.27	.79	72	237	109	7530	2590	22	30	.00
6	.36	4.6	.29	.79	38	90	131	4030	1680	11	89	.00
7	.33	3.0	.32	.68	24	905	211	2640	1130	6.6	11	.00
8	.35	1.9	.40	.95	15	1370	375	1690	e253	4.5	5.0	.00
9	.38	1.5	.44	.91	10	2170	229	916	e87	2.2	3.2	.00
10	.44	1.1	.51	.57	7.6	1530	388	576	e76	1.3	2.1	.00
11	.33	.89	.52	.37	5.5	823	741	469	71	1.2	1.5	.00
12	.23	.75	.47	.29	3.8	906	792	404	68	e1.1	1.2	.00
13	.20	.58	.48	.35	2.8	1950	685	295	63	e.97	.97	.00
14	.16	.41	.55	.53	2.0	2490	230	246	e59	e.88	.64	.00
15	.13	.24	.59	.65	2.0	2130	261	225	49	e.79	.51	.00
16	.10	.13	.47	.75	1.6	1550	259	207	43	e.88	.37	.00
17	.07	.09	.46	1.4	1.3	1010	398	190	41	.79	.30	.10
18	.08	.11	.50	3.1	1.1	392	362	183	39	.64	.27	.15
19	.06	.15	.56	165	.91	169	1180	179	38	.66	.20	36
20	.06	.18	.65	242	.76	119	2900	171	36	.75	.15	60
21	.06	.19	e.60	144	3.1	89	4680	159	36	.74	.13	83
22	.06	.22	e.50	190	79	71	4950	150	35	e2.2	.08	441
23	.06	.28	e.40	98	397	59	3350	145	34	e4.6	.06	455
24	.06	.38	e.50	38	554	50	1990	136	33	e2.8	.05	218
25	.07	.39	.60	20	479	47	1470	128	32	e1.8	.04	68
26	.08	.36	.85	12	100	43	5050	125	31	e3.0	.02	30
27	.09	.41	1.2	8.0	34	41	19000	121	31	2.3	.01	13
28	.10	.42	1.1	5.6	127	47	14300	107	31	1.9	.00	6.8
29	.10	.40	.50	4.1	---	69	4760	81	30	1.2	.00	3.9
30	98	.33	.60	3.1	---	172	1620	467	29	2.1	.00	2.4
31	53	---	.98	2.3	---	386	---	622	---	5.1	.00	---
TOTAL	158.42	212.61	16.36	946.90	2271.57	21601	71490	58962	13323	193.00	212.80	1417.35
MEAN	5.11	7.09	.53	30.5	81.1	697	2383	1902	444	6.23	6.86	47.2
MAX	98	84	1.2	242	554	2490	19000	15500	2840	28	89	455
MIN	.06	.09	.23	.29	.76	41	109	81	29	.64	.00	.00
AC-FT	314	422	32	1880	4510	42850	141800	117000	26430	383	422	2810
CFSM	.01	.01	.00	.04	.12	1.02	3.49	2.78	.65	.01	.01	.07
IN.	.01	.01	.00	.05	.12	1.18	3.89	3.21	.73	.01	.01	.08

CAL YR 1989 TOTAL 162637.14 MEAN 446 MAX 29100 MIN .00 AC-FT 322600 CFSM .65 IN. 8.86
WTR YR 1990 TOTAL 170805.01 MEAN 468 MAX 19000 MIN .00 AC-FT 338800 CFSM .69 IN. 9.30

e Estimated

08043000 BRIDGEPORT RESERVOIR ABOVE BRIDGEPORT, TX

LOCATION.--Lat 33°13'22", long 97°49'54", Wise County, Hydrologic Unit 12030101, in brick valve house on upstream side and near left end of Bridgeport Dam on West Fork Trinity River, 4.6 mi west of Bridgeport, 13 mi upstream from Big Sandy Creek, and at mile 626.

DRAINAGE AREA.--1,111 mi².

PERIOD OF RECORD.--April 1932 to current year. Prior to October 1950, monthend figures only.

REVISED RECORDS.--WSP 1922: Drainage Area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Jan. 12, 1988, nonrecording gages at various sites in vicinity of present gage at present datum.

REMARKS.--The reservoir is formed by a rolled earthfill dam 2,040 ft long. The dam was completed in December 1931 and storage began Apr. 1, 1932. The original dam was 1,900 ft long, but was lengthened to the present length (2,040 ft) in 1971-72. The original service spillway was eliminated during construction (1971-72), and a new spillway with approach and discharge channels was built through natural ground 2,800 ft from the left end of dam. The new spillway is 90 ft wide and has eight vertical lift gates that are 11.25 by 22 ft. The controlled outlet works consist of a 48-inch-diameter and an 18-inch-diameter pipe encased in a concrete conduit extending through the dam. In addition, a controlled 60-inch-diameter steel pipe extends through the service spillway wall to the spillway discharge basin. For elevations of outlet works, see table below. Capacity tables are based on surveys made in 1956 and 1968. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	874.0	-
Crest of spillway	866.0	889,700
Top of gates	842.0	456,900
Top of conservation pool	836.0	374,800
Crest of spillway	820.0	202,200
Lowest gated outlet (invert, at spillway)	810.0	124,300
Lowest gated outlet (invert)	751.4	0

COOPERATION.--Capacity table No. 5-C was provided by Tarrant County Water Control and Improvement District No. 1. The table was put into use Oct. 1, 1988.

EXTREMES FOR PERIOD OF RECORD.--Prior to Jan. 12, 1988, once-daily reading of nonrecording gage at 0700 hours; maximum contents observed, 491,700 acre-ft May 5, 1990 (elevation, 844.36 ft); minimum contents observed since first appreciable storage in 1935, 7,170 acre-ft Oct. 12-16, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 491,700 acre-ft May 5 at 1600 hours (elevation, 844.36 ft); minimum 324,700 acre-ft Jan. 13-14 (elevation, 831.95 ft).

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

831.0	313,600	837.0	387,900	843.0	471,500
833.0	337,300	839.0	414,700	844.0	486,300
835.0	362,100	841.0	442,600	845.0	501,400

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	372200	362400	346200	325400	333100	339100	376000	416500	379000	373300	373900	368500
2	372400	361600	345600	325300	333000	340300	375300	444200	380300	373100	374000	367900
3	372200	361100	344700	325800	332900	341800	374900	468000	379200	372900	373900	367500
4	372000	360800	344400	325400	333200	343400	375200	488000	378200	372800	374300	367300
5	371900	360800	344000	325300	333200	344500	375200	491300	377800	372200	374400	367300
6	371300	360600	343300	325400	333600	345700	375100	479500	376400	371700	374300	366900
7	371000	360100	342300	325300	333600	348400	375300	463200	375400	371100	374400	366000
8	370700	359300	341600	325400	333900	351100	376000	446200	375300	370800	374000	364600
9	370400	358900	341100	325500	334100	355000	376400	429200	374500	370800	374000	364000
10	370400	358600	340800	325500	334100	358600	377500	417500	374400	370600	374000	363200
11	370200	358200	339500	325400	334200	370800	376200	404800	374500	370400	374000	362400
12	369900	357800	339000	324900	334200	374300	375800	393800	374800	370400	373800	362000
13	369800	357300	338600	324700	334400	376600	375700	382400	374800	369700	373400	361300
14	369600	356900	338200	325100	333300	381700	375800	374800	374800	369300	373300	361100
15	369300	355900	337100	325300	334100	383400	375200	374500	374900	368700	372900	360600
16	368800	354900	336300	325500	333900	383100	375600	374400	375100	368800	372800	359600
17	367900	354300	336000	326000	334100	381000	374800	374300	375100	368700	372200	359700
18	366900	353900	335300	326700	333900	377800	376600	374800	375200	369300	372000	359300
19	366400	353800	334400	331700	334100	375200	384900	375700	375100	369600	372100	358800
20	366100	353500	333700	332400	333900	375100	395400	376100	375100	369700	372100	358100
21	365900	353300	332400	332600	334900	375300	400400	375400	374800	369800	371500	358600
22	365800	352100	331300	333100	334900	375800	403500	374900	374500	370800	371000	359300
23	365600	351100	330500	333300	335500	375300	404000	374800	374300	371100	369800	359500
24	365000	350600	330000	333200	336600	374300	401500	375100	374200	371100	370100	359500
25	364400	350400	329500	333100	337700	374400	412900	375400	373900	371200	370100	359300
26	363900	349900	328900	332900	338000	374400	435700	375800	374200	371200	370100	359200
27	363500	349100	328200	332900	338200	375200	441900	376100	374000	371200	369900	358700
28	363000	347900	327300	332700	338500	375600	455200	376100	373800	371200	369700	357900
29	362700	347300	326600	332600	---	375600	449900	376500	373500	370800	369600	357300
30	363100	346800	325800	332700	---	376200	430100	379300	373300	373600	369300	356300
31	362600	---	325300	332600	---	376500	---	377800	---	373800	369200	---
MAX	372400	362400	346200	333300	338500	383400	455200	491300	380300	373800	374400	368500
MIN	362600	346800	325300	324700	332900	339100	374800	374300	373300	368700	369200	356300
(†)	835.04	833.78	832.00	832.61	833.10	836.13	840.11	836.23	835.88	835.92	835.56	834.54
(ϕ)	-9900	-15800	-21500	+7300	+5900	+38000	+53600	-52300	-4500	+500	-4600	-12900

CAL YR 1989 MAX 420800 MIN 207700 (ϕ) +206200
WTR YR 1990 MAX 491300 MIN 324700 (ϕ) -16200

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

08044000 BIG SANDY CREEK NEAR BRIDGEPORT, TX

LOCATION.--Lat 33°13'54", long 97°41'40", Wise County, Hydrologic Unit 12030101, at downstream side of bridge on U.S. Highway 380, 1.9 mi upstream from Greathouse Branch, 4.0 mi east of Bridgeport, and 4.4 mi upstream from mouth.

DRAINAGE AREA.--333 mi².

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

REVISED RECORDS.--WSP 1148: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 724.44 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1984, at datum 3.00 ft higher.

REMARKS.--Records good, except those for estimated daily discharges, which are fair. Since May 1, 1956, runoff from 100 mi² above this station is affected at times, by storage in Lake Amon G. Carter, 30 mi upstream, with a capacity of 15,240 acre-ft at elevation 920.0 ft (spillway crest). During year, the city of Bowie diverted water from Lake Amon G. Carter for municipal use and discharged sewage effluent into tributaries to Big Sandy Creek upstream from this station. Flow was also affected at times by discharge from the flood-detention pools of 19 floodwater-retarding structures with a combined capacity of 11,430 acre-ft. These structures control runoff from 46.0 mi² between this station and Lake Amon G. Carter. Gage-height telemeter at station.

AVERAGE DISCHARGE.--54 years, 77.8 ft³/s (56,370 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,000 ft³/s June 10, 1941 (gage height, 15.69 ft, datum then in use, from floodmark), from rating curve extended above 22,000 ft³/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, 18,100 ft³/s May 3 at 0345 hours (gage height, 14.61 ft), from rating curve extended above 22,000 ft³/s; no flow Oct. 9, 19-21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.07	10	2.1	11	16	47	200	911	e62	19	17	.20
2	.07	4.5	1.9	11	20	32	169	5270	e372	18	11	.18
3	.05	1.8	2.2	11	17	24	145	12600	e183	19	12	.19
4	.03	1.3	2.5	10	15	21	129	4690	e459	17	17	.21
5	.02	1.2	3.4	9.7	15	21	105	2560	e319	14	46	.15
6	.05	1.1	4.2	9.2	14	25	88	1790	e246	13	33	.15
7	.03	1.1	4.7	9.9	13	111	90	1470	e202	11	18	e.16
8	.01	1.0	4.8	11	13	132	62	1340	e167	10	13	e.18
9	.00	.98	4.8	12	13	49	54	1290	e138	9.1	10	e.19
10	.01	.90	5.1	12	14	32	332	1200	e116	8.3	8.6	e.17
11	.11	.89	4.7	12	14	304	237	1080	e97	7.5	7.2	e.14
12	.07	1.1	4.4	12	13	883	85	936	e82	9.8	6.7	e.15
13	.03	1.1	4.5	12	12	1210	66	775	e69	12	6.1	e.17
14	.02	1.3	5.0	12	12	484	462	641	e59	10	4.7	e.16
15	.03	1.6	6.0	13	17	822	524	537	e49	7.8	3.6	e.17
16	.04	1.5	5.1	14	19	694	378	429	43	6.7	2.6	e.15
17	.03	1.2	5.9	17	16	278	408	327	39	7.1	1.4	e.15
18	.01	1.1	5.8	23	14	175	236	259	36	7.9	1.3	e.15
19	.00	1.3	7.2	194	14	138	653	216	34	8.8	1.3	e.13
20	.00	1.6	7.9	282	13	117	1770	e179	32	7.6	1.3	e.12
21	.00	1.9	7.4	52	20	154	1920	e147	30	6.1	1.3	e.18
22	.04	3.0	7.6	28	39	164	1220	e117	28	5.8	1.2	e.35
23	.04	2.4	6.2	22	29	150	911	e93	26	17	.83	e.22
24	.05	3.6	5.3	20	21	137	691	e77	252	15	.72	e.12
25	.04	3.9	5.9	17	18	129	1760	e66	73	12	.63	e.09
26	.04	4.6	8.0	15	16	123	10200	e57	43	8.6	.59	e.10
27	.04	3.5	11	17	16	123	5540	e50	31	6.3	.47	e.12
28	.06	2.7	12	16	27	222	2140	e48	27	4.6	.36	e.11
29	.22	2.4	11	16	---	436	1410	e438	23	3.0	.33	e.10
30	3.9	2.1	11	16	---	469	1070	e142	21	4.2	.27	e.09
31	19	---	12	13	---	320	---	e69	---	9.9	.23	---
TOTAL	24.11	66.67	189.6	929.8	480	8026	33055	39804	3358	316.1	228.73	4.75
MEAN	.78	2.22	6.12	30.0	17.1	259	1102	1284	112	10.2	7.38	.16
MAX	19	10	12	282	39	1210	10200	12600	459	19	46	.35
MIN	.00	.89	1.9	9.2	12	21	54	48	21	3.0	.23	.09
AC-FT	48	132	376	1840	952	15920	65560	78950	6660	627	454	9.4

CAL YR 1989 TOTAL 82261.44 MEAN 225 MAX 10500 MIN .00 AC-FT 163200
WTR YR 1990 TOTAL 86482.76 MEAN 237 MAX 12600 MIN .00 AC-FT 171500

e Estimated

08044500 WEST FORK TRINITY RIVER NEAR BOYD, TX

LOCATION.--Lat 33°05'07", long 97°33'30", Wise County, Hydrologic Unit 12030101, on right bank at downstream side of highway embankment, 10 ft right of right abutment of bridge on Farm Road 730, 0.6 mi northeast of Boyd, 3.5 mi downstream from Boggy Creek, and at mile 602.

DRAINAGE AREA.--1,725 mi².

PERIOD OF RECORD.--January 1947 to current year.

GAGE.--Water-stage recorder. Datum of gage is 660.57 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 14, 1954, water-stage recorder at site 2.2 mi downstream at datum 5.48 ft lower.

REMARKS.--Records good, including those for estimated daily discharges. During the current year, sustained flows at this site were the result of water released for downstream supply from Bridgeport Reservoir (drainage area, 1,111 mi²), 25 mi upstream from this station. In addition, flow from 100 mi² is affected by storage in Lake Amon G. Carter (capacity, 15,240 acre-ft) on Big Sandy Creek. Flow is also affected at times by discharge from the flood-detention pools of 36 floodwater-retarding structures with a total combined detention capacity of 24,450 acre-ft. These structures control runoff from 91.2 mi² in the Big Sandy and Salt Creeks drainage basins. Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--43 years, 262 ft³/s (189,800 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 60,400 ft³/s Oct. 14, 1981 (gage height, 25.87 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1880, about 25 ft in May 1908, present site and datum, from information by local residents, who also reported a flood of about the same gage height between 1870-80. A flood in April 1942 reached a stage of 20.6 ft, present site and datum, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 41,800 ft³/s Apr. 26 at 1100 hours (gage height, 24.19 ft); minimum daily, 10 ft³/s Jan. 14-15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	217	244	238	32	98	1060	14800	1580	82	226	18
2	20	204	244	32	55	95	1190	18200	1890	76	93	18
3	20	199	244	20	40	58	1200	24000	2160	70	62	18
4	19	198	244	17	31	46	831	16100	2670	66	85	18
5	18	198	246	15	27	41	640	10700	2630	62	79	18
6	18	198	248	14	26	40	555	12500	2480	58	195	17
7	18	198	248	13	24	468	416	12000	2410	55	86	49
8	18	196	248	12	23	418	216	11200	2240	52	57	234
9	19	195	230	12	22	213	176	10800	1480	48	48	245
10	18	220	215	12	27	107	679	9550	1010	46	43	248
11	18	233	212	12	27	476	1310	7070	560	44	40	250
12	18	232	211	11	23	1540	1430	6340	378	47	39	252
13	17	235	211	11	21	1380	1250	6000	325	53	36	254
14	17	237	211	10	21	1490	1140	5760	298	48	36	254
15	17	238	211	10	22	1670	1500	5300	218	45	33	254
16	17	200	211	12	40	1900	1430	3010	156	43	31	254
17	46	130	212	14	32	2080	1210	1510	138	43	30	253
18	119	205	213	35	26	2130	877	1040	127	46	31	258
19	120	200	295	239	23	2140	966	684	116	49	31	214
20	121	195	393	572	22	1780	2140	563	106	52	30	241
21	123	235	397	352	25	793	3350	575	103	45	29	250
22	124	251	397	109	116	474	3460	733	98	41	96	142
23	124	249	397	62	96	411	3720	679	94	58	149	26
24	212	249	398	47	54	600	3880	508	802	97	36	21
25	254	249	400	37	38	e550	4350	380	1360	103	24	123
26	214	249	400	32	30	e500	30900	337	432	64	21	236
27	188	248	399	30	28	330	20400	240	163	49	21	239
28	189	245	399	29	43	378	12700	194	117	42	19	239
29	192	244	399	29	---	709	12600	178	99	38	19	240
30	221	244	399	28	---	1160	14600	676	88	202	18	240
31	231	---	399	28	---	1150	---	1530	---	637	18	---
TOTAL	2770	6591	9175	2094	994	25225	130176	183157	26328	2461	1761	5123
MEAN	89.4	220	296	67.5	35.5	814	4339	5908	878	79.4	56.8	171
MAX	254	251	400	572	116	2140	30900	24000	2670	637	226	258
MIN	17	130	211	10	21	40	176	178	88	38	18	17
AC-FT	5490	13070	18200	4150	1970	50030	258200	363300	52220	4880	3490	10160

CAL YR 1989 TOTAL 293678 MEAN 805 MAX 15400 MIN 11 AC-FT 582500
WTR YR 1990 TOTAL 395855 MEAN 1085 MAX 30900 MIN 10 AC-FT 785200

e Estimated

08045000 EAGLE MOUNTAIN RESERVOIR ABOVE FORT WORTH, TX

LOCATION.--Lat 32°52'39", long 97°28'29", Tarrant County, Hydrologic Unit 12030101, at right end of main section (left) of Eagle Mountain Dam on West Fork Trinity River, 11.8 mi northwest of Fort Worth, and at mile 583.3.

DRAINAGE AREA.--1,970 mi².

PERIOD OF RECORD.--February 1934 to current year. Prior to October 1950, month-end figures only.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 16, 1988, nonrecording gages at several sites within 1.0 mi of present site at present datum.

REMARKS.--The reservoir is formed by two sections of rolled earthfill and a concrete spillway separated by high natural ground. Total length of the dam including spillway, is 4,800 ft. The dam was completed Oct. 24, 1932, and storage began Feb. 24, 1934. The spillway is a 1,300-foot-wide cut through natural ground located between the two sections of earthfill that make up the dam. The original service spillway, located in the section to the right of the main dam, contains a concrete spillway with four 25-foot bays, three are equipped with vertical lift gates and the fourth is left open. In 1971, a side-channel spillway was constructed. The newest spillway is located 300 ft to the left of the original service spillway and has six 11.25- by 22-foot-wide roller lift gates. The main section of the dam contains the outlet works that consist of two concrete conduits with two 48-inch diameter valves in each conduit. The reservoir is used for flood control and for part of the municipal water supply for the city of Fort Worth. Capacities are based on a survey made in 1968. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08044500. For storage above the reservoir, see REMARKS for West Fork Trinity River near Boyd (station 08044500). Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	682.0	-
Crest of spillway	676.0	545,900
Top of gates (new side-channel spillway)	659.0	283,200
Crest of (old service) spillway (top of conservation pool)	649.1	178,400
Crest of spillway (new side-channel spillway)	637.0	89,450
Lowest gated outlet (invert)	599.9	36

COOPERATION.--New capacity table, No. 4-C, furnished by Tarrant County Water Control and Improvement District No. 1, was put into use Oct. 1, 1988.

EXTREMES FOR PERIOD OF RECORD.--Prior to Oct. 16, 1987, once-daily reading of nonrecording gage at 0700 hours, maximum contents observed, 333,500 acre-ft Apr. 26, 1942 (elevation, 659.9 ft); minimum observed since first appreciable storage in 1935, 57,690 acre-ft Nov. 19, 20, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 260,600 acre-ft May 4 at 0730 hrs (elevation, 657.08 ft); minimum, 161,000 acre-ft Sept. 9 (elevation, 647.09 ft).

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

647.0	160,200	653.0	215,100	656.0	248,300
649.0	177,500	654.0	226,600	657.0	259,700
651.0	196,200	655.0	237,300	658.0	271,300

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	168500	162500	163300	168500	173400	175700	178100	225200	179000	179000	172600	164300
2	168400	161900	163700	168400	173700	175700	178000	242800	177600	178800	172100	163700
3	168200	161700	163600	168500	173600	175900	178000	259000	178200	178600	172200	163200
4	167800	161600	163800	168600	173600	175700	178000	255000	178900	177700	172400	162700
5	167600	161700	163900	168400	173400	175800	177700	240900	178600	177100	173100	162200
6	167400	161700	164300	168400	173600	176100	177300	230900	178100	176600	173200	161600
7	167200	161900	164300	168300	173400	177400	177400	224100	178800	176400	173400	161300
8	166800	161700	164200	168200	173500	177700	177300	217900	179200	175500	173300	161000
9	166400	161600	164000	168100	174000	177900	177200	212900	178900	175100	173200	161000
10	166300	161600	164600	168000	173800	177500	178700	207300	178600	174600	173200	161300
11	165700	161600	164700	167800	173800	183200	178400	199300	178000	174300	173100	161400
12	165600	161700	164000	167800	173300	181300	178400	189500	177700	174300	173000	161300
13	165300	161800	164000	167700	173600	179600	179000	180800	177900	173800	172900	161300
14	165000	161900	164200	167400	173700	179000	181100	178600	178200	173100	172600	161400
15	164800	161800	164400	167400	173800	177800	179900	178000	178400	172700	172100	161600
16	164500	161600	164000	167400	173700	177000	178900	177100	178100	172400	171700	161900
17	163900	161500	164100	168400	173600	177700	178000	177800	178100	172500	170900	162200
18	163200	161400	164200	169100	173600	179200	177900	178100	178000	172500	170500	162400
19	162900	161500	164300	170100	173600	179800	178000	178600	177900	172200	169900	162700
20	162600	161500	164400	171200	173500	180600	182000	178500	177600	171900	169600	163300
21	162200	161700	165100	172000	174200	179500	183000	178200	177200	171700	169000	163800
22	162100	162500	164900	172600	174300	178000	183200	177800	177000	171900	168700	164000
23	161900	162200	164900	172700	174400	177700	183300	177800	176600	172000	168400	163700
24	161700	162200	164900	173100	174600	177500	183300	178200	177200	172100	168100	163500
25	161700	162700	164900	172600	174400	178000	183400	178300	179100	172000	167800	163300
26	161700	162800	165700	172200	174500	177800	223700	178400	180800	171900	167600	163300
27	161600	163300	166500	172600	175000	178100	238000	178700	180900	171700	167300	163300
28	161600	163100	166900	172500	175900	178200	233700	178300	180400	171600	166700	163300
29	161600	163000	167500	172000	---	178400	227800	178000	179800	171300	166300	163500
30	162200	163200	168100	172400	---	178000	225200	177100	179500	171300	165900	163700
31	162100	---	168400	172600	---	178000	---	177600	---	172000	165400	---
MAX	168500	163300	168400	173100	175900	183200	238000	259000	180900	179000	173400	164300
MIN	161600	161400	163300	167400	173300	175700	177200	177100	176600	171300	165400	161000
(↑)	647.22	647.35	647.96	648.45	648.82	649.05	653.87	649.01	649.22	648.38	647.61	647.41
(ϕ)	-6800	+1100	+5200	+4200	+3300	+2100	+47200	-47600	+1900	-7500	-6600	-1700

CAL YR 1989 MAX 212500 MIN 160800 (ϕ) +3800
WTR YR 1990 MAX 259000 MIN 161000 (ϕ) -5200

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

08045400 LAKE WORTH ABOVE FORT WORTH, TX

LOCATION.--Lat 32°47'21", long 97°24'58", Tarrant County, Hydrologic Unit 12030102, on top of Lake Worth Dam on West Fork Trinity River, 240 ft to right of right end of uncontrolled concrete spillway, 2.9 mi upstream from Farmer's Branch, 3.3 mi upstream from bridge on State Highway 183 crossing West Fork Trinity River, 5.3 mi northwest of Tarrant County Courthouse in Fort Worth, and at river mile 572.0.

DRAINAGE AREA.--2,064 mi².

PERIOD OF RECORD.--October 1981 to current year.

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

REMARKS.--The lake is formed by a rolled earthfill dam 3,200 ft long, with an uncontrolled concrete spillway 700 ft long near the center of the dam. Deliberate impoundment began in June 1914 and the dam was completed in October 1914. There is a 48-inch diameter pipe controlled by a 36-inch valve, which may be used to make small releases through the dam. The dam is owned by the city of Fort Worth. Area-capacity curves are based on a survey made in 1968. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	606.3	-
Crest of concrete spillway	594.0	37,070
Lowest gated outlet (invert)	584.25	12,290

COOPERATION.--Copies of the capacity table (prepared by the U.S. Army Corps of Engineers) and area-capacity curves (prepared by Freese, Nichols, and Endress, Consulting Engineers) were provided by Tarrant County Water Control and Improvement District No. 1.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 56,040 acre-ft May 3, 1990 (elevation, 598.70 ft); minimum, 24,730 acre-ft Sept. 9-10, 1985 (elevation, 589.95 ft).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum contents observed, 52,080 acre-ft May 25, 1957 (elevation, 598.47 ft); minimum observed, 20,540 acre-ft June 30, 1955 (elevation, 589.45 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 56,040 acre-ft May 3 at 0500 hours (elevation, 598.70 ft); minimum, 31,610 acre-ft Oct. 17 (elevation, 592.34 ft).

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

592.0	30,540	596.0	44,520	599.0	57,400
594.0	37,070	598.0	52,890		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32390	32270	32550	36460	36630	35850	39370	52590	40240	36160	35140	34770
2	32390	32240	32620	36630	36660	35820	39230	55820	40670	36120	35180	34970
3	32330	32270	32620	36800	36660	35790	39300	55460	40350	36090	35380	35110
4	32270	32140	32740	36700	36700	35750	39340	55640	40900	36060	35750	35110
5	32270	32050	32870	36660	36630	35650	40200	54460	41790	36190	37070	35080
6	32270	32080	33030	36660	36700	35790	39590	53340	41830	36220	36870	35040
7	32270	32080	33180	36660	36630	36800	38760	52550	41170	36290	36660	34970
8	32240	32140	33180	36730	36660	37390	38260	52030	41130	36260	36430	35080
9	32200	32140	33340	36730	36870	37500	37970	51430	41130	36330	36260	34970
10	32200	32110	33530	36800	36730	37650	38220	51000	40240	36360	36020	34810
11	32080	32110	33660	36770	36730	40940	38830	50610	39700	36390	35820	34910
12	32020	32140	33660	36700	36660	40860	39120	49750	38690	36460	35550	35110
13	31920	32170	33760	36630	36660	40710	39520	48680	37930	36260	35210	35350
14	31830	32080	33890	36630	36660	40750	40940	46400	37390	36120	35010	35510
15	31670	32050	34060	36530	36660	40630	41020	45130	37070	35990	34940	35580
16	31700	32050	34100	36730	36600	40530	41090	44370	37000	35890	34910	35580
17	31670	32110	34230	36800	36560	40200	40790	41250	36900	35950	34970	35410
18	31670	32200	34370	37140	36530	40170	40020	39910	36800	36060	34970	35240
19	31670	32240	34530	37110	36560	40090	40090	39090	36700	36060	35010	35080
20	31760	32270	34700	36900	36430	40090	41400	38870	36500	35950	34970	34970
21	31700	32390	34940	36770	36630	40350	42520	38760	36390	35920	35010	34840
22	31760	32330	35040	36660	36460	40130	43100	38730	36190	35820	35080	34670
23	31860	32360	35140	36600	36390	38980	43250	38620	35950	35790	35040	34430
24	31800	32390	35210	36600	36260	38290	43560	38150	35790	35790	35110	34260
25	31830	32520	35310	36330	36020	38290	43870	37830	35680	35720	35140	34060
26	31860	32520	35350	36160	35920	38110	50780	37680	35790	35620	34940	33960
27	31860	32520	35410	36220	35890	38290	52540	37650	35820	35580	34810	33860
28	31920	32490	35550	36060	36020	38400	52670	37500	35990	35550	34770	33960
29	31920	32460	35820	35950	---	38800	52370	37470	36090	35550	34700	34130
30	31980	32490	36090	35920	---	39370	52070	37680	36160	35450	34670	34230
31	32270	---	36260	36020	---	39370	---	38150	---	35380	34640	---
MAX	32390	32520	36260	37140	36870	40940	52670	55820	41830	36460	37070	35580
MIN	31670	32050	32550	35920	35890	35650	37970	37470	35680	35380	34640	33860
(↑)	592.55	592.62	593.76	593.69	593.69	594.64	597.81	594.30	593.73	593.50	593.28	593.16
(ϕ)	-160	+220	+3770	-240	0	+3350	+12700	-13920	-1990	-780	-740	-410

CAL YR 1989 MAX 51940 MIN 31140 (ϕ) +5120
WTR YR 1990 MAX 55820 MIN 31670 (ϕ) +1800

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

08045850 CLEAR FORK TRINITY RIVER NEAR WEATHERFORD, TX
(Flood-hydrograph Partial-record Station)

LOCATION.--Lat 32°44'25", long 97°39'06", Parker County, Hydrologic Unit 12030102, near left end of bridge on weigh station exit road associated with Interstate Highway 20, 150 ft downstream from Squaw Creek, 2.8 mi downstream from Lake Weatherford Dam on the Clear Fork Trinity River, 3.8 mi upstream from South Fork Trinity River, and 8.5 mi east of county courthouse in Weatherford.

DRAINAGE AREA.--121 mi².

PERIOD OF RECORD.--July 1924 to September 1925 and November 1947 to September 1985. October 1985 to current year, (peaks above base discharge and annual maximum).

REVISED RECORDS.--WSP 1312. 1925(M). WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 810.00 ft above National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation bench mark).

AVERAGE DISCHARGE.--5 years (water years 1981-85) 23.0 ft³/s (16,660 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,080 ft³/s Nov. 1, 1981 (gage height, 21.58 ft); minimum, no flow Sept. 12-15, 1984.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 190 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 12	0730	375	11.64	Apr. 21	1945	571	12.46
Apr. 5	2230	219	11.15	Apr. 27	0315	*3,810	*22.07
Apr. 14	0815	422	11.99	May 3	0315	2,380	19.19

Minimum discharge, not determined.

08046020 CLEAR FORK TRINITY RIVER ABOVE BENBROOK NEAR ALEDO, TX

LOCATION.--Lat 32°37'14", long 97°31'46", Tarrant County, Hydrologic Unit 12030102, on U.S. Highway 377, over center of channel at upstream side of upstream bridge, 1/4 mi southwest of FM 2376, 1/4 mi northeast of FM 1187, and 6.5 mi southwest of Benbrook.

DRAINAGE AREA.--258 mi².

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1989 to September 1990.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	HARDNESS TOTAL (MG/L AS CACO3)
NOV 13...	1115	9.3	718	8.3	17.0	20	1.2	11.4	121	0.8	300
JAN 09...	1115	14	744	8.6	8.0	15	1.5	16.1	138	1.4	300
FEB 26...	0945	23	666	8.3	12.0	12	7.6	12.4	118	1.6	270
APR 26...	1245	4160	340	7.9	18.5	70	180	7.7	85	5.8	140
JUN 19...	1335	25	810	8.4	30.0	2	3.4	12.2	167	1.1	340
AUG 07...	0820	56	312	7.6	22.0	47	47	6.8	79	2.3	120

DATE	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	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 WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
NOV 13...	25	100	12	44	1	5.4	280	50	50	0.60	14
JAN 09...	29	100	13	43	1	4.2	270	56	54	0.40	4.1
FEB 26...	37	89	11	34	0.9	3.4	230	46	46	0.40	8.3
APR 26...	22	47	5.6	12	0.4	4.1	120	15	14	<0.10	11
JUN 19...	65	110	15	44	1	2.9	270	65	58	0.30	10
AUG 07...	17	42	4.8	13	0.5	3.8	110	18	15	0.20	7.7

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L)	RESIDUE VOLATILE, SUSPENDED (MG/L)	RESIDUE FIXED NON FILTERABLE (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, 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 13...	442	8	<1	--	--	<0.010	<0.100	0.030	0.57	0.60	0.170
JAN 09...	439	12	6	6	1.22	0.080	1.30	0.040	0.56	0.60	0.940
FEB 26...	377	14	14	0	0.920	0.080	1.00	0.050	0.65	0.70	0.460
APR 26...	179	850	75	775	0.100	0.100	0.200	0.130	1.1	1.2	0.150
JUN 19...	468	16	3	13	0.750	0.050	0.800	0.010	0.29	0.30	0.270
AUG 07...	170	80	14	66	0.370	0.030	0.400	0.050	0.85	0.90	0.690

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)
NOV 13...	6.3	4	74	<0.5	<1.0	<5	<3	<10	<3	<10
JAN 09...	3.7	--	--	--	--	--	--	--	--	--
FEB 26...	4.1	2	80	<0.5	1.0	<5	<3	<10	4	10
APR 26...	16	--	--	--	--	--	--	--	--	--
JUN 19...	3.5	--	--	--	--	--	--	--	--	--
AUG 07...	5.9	3	54	<0.5	7.0	<5	<3	<10	26	<10

08046020 CLEAR FORK TRINITY RIVER ABOVE BENBROOK NEAR ALEDO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 13...	12	29	<0.1	<10	<10	<1	<1.0	640	<6	8
JAN 09...	--	--	--	--	--	--	--	--	--	--
FEB 26...	8	55	<0.1	<10	<10	<1	3.0	560	<6	11
APR 26...	--	--	--	--	--	--	--	--	--	--
JUN 19...	--	--	--	--	--	--	--	--	--	--
AUG 07...	5	10	0.1	<10	<10	<1	2.0	250	7	18

08046150 BEAR CREEK AT FM 1187 NEAR BENBROOK, TX

LOCATION.--Lat 32°35'38", long 97°30'47", Tarrant County, Hydrologic Unit 12030102, on FM 1187 bridge over center of channel at upstream side of bridge, 0.3 mi downstream from an unnamed tributary on left bank, 0.3 mi upstream from Benbrook Lake, and 6.4 mi south of Benbrook.

DRAINAGE AREA.--62.8 mi².

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1989 to September 1990.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	HARDNESS TOTAL (MG/L AS CACO3)
NOV 13...	1445	0.78	480	8.3	21.5	4	0.20	9.4	109	0.3	230
JAN 09...	1415	1.0	478	8.3	13.0	3	0.30	11.4	110	0.7	220
FEB 26...	1400	19	432	8.3	14.5	5	0.40	11.5	116	1.2	210
APR 26...	1415	2700	192	8.1	17.0	75	180	8.6	92	3.9	90
JUN 19...	1640	18	450	7.9	32.0	12	0.40	8.4	119	0.4	210
AUG 07...	1220	8.0	408	8.0	26.5	11	11	6.7	85	0.2	190

DATE	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	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 WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
NOV 13...	37	85	4.9	12	0.3	1.5	200	37	16	0.30	12
JAN 09...	32	81	4.9	12	0.4	1.3	190	39	16	0.30	9.2
FEB 26...	42	79	3.6	9.2	0.3	1.0	170	33	10	0.30	6.8
APR 26...	10	33	1.8	2.7	0.1	3.2	80	4.7	2.2	0.10	16
JUN 19...	29	76	4.7	11	0.3	1.0	180	30	14	0.60	10
AUG 07...	30	69	3.9	11	0.3	1.2	160	31	11	0.30	11

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L)	RESIDUE VOLATILE, SUSPENDED (MG/L)	RESIDUE FIXED NON FILTERABLE (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, 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 13...	287	5	<1	--	--	<0.010	<0.100	0.020	0.58	0.60	0.020
JAN 09...	278	9	9	0	--	<0.010	<0.100	0.020	--	<0.20	<0.010
FEB 26...	250	2	2	0	--	0.020	<0.100	<0.010	--	0.20	<0.010
APR 26...	112	281	36	245	0.120	0.080	0.200	0.060	0.64	0.70	0.070
JUN 19...	255	12	8	4	0.250	0.050	0.300	0.010	0.29	0.30	0.020
AUG 07...	234	5	1	4	--	<0.010	<0.100	<0.010	--	0.30	0.020

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)
NOV 13...	1.3	<1	67	<0.5	<1.0	<5	<3	<10	5	20
JAN 09...	1.2	--	--	--	--	--	--	--	--	--
FEB 26...	1.6	<1	56	<0.5	<1.0	<5	<3	<10	15	20
APR 26...	11	--	--	--	--	--	--	--	--	--
JUN 19...	1.2	--	--	--	--	--	--	--	--	--
AUG 07...	1.5	<1	61	<0.5	<1.0	<5	<3	<10	6	<10

08046150 BEAR CREEK AT FM 1187 NEAR BENBROOK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 13...	12	5	0.1	<10	<10	<1	2.0	510	<6	<3
JAN 09...	--	--	--	--	--	--	--	--	--	--
FEB 26...	7	2	<0.1	<10	10	<1	3.0	390	<6	13
APR 26...	--	--	--	--	--	--	--	--	--	--
JUN 19...	--	--	--	--	--	--	--	--	--	--
AUG 07...	11	4	<0.1	<10	<10	<1	2.0	410	<6	6

08046500 BENBROOK LAKE NEAR BENBROOK, TX

LOCATION.--Lat 32°39'02", long 97°26'54", Tarrant County, Hydrologic Unit 12030102, in intake structure of Benbrook Dam on Clear Fork Trinity River, 2.5 mi south of Benbrook, 3.5 mi upstream from Marys Creek, and 14.6 mi upstream from mouth.

DRAINAGE AREA.--429 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1952 to current year. Prior to October 1970, published as Benbrook Reservoir.
Water-quality records.--Chemical analyses: October 1969 to September 1982.

REVISED RECORDS.--WSP 1922: Drainage area.

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

REMARKS.--The lake is formed by a rolled earthfill dam 9,130 ft long, including a 500-foot uncontrolled off-channel concrete-gravity spillway with a 100-foot notch in center of ogee weir section. The outlet works consist of a 13.0-foot-diameter concrete conduit controlled by two 6.5- by 13.0-foot broome-type gates and two 30-inch steel pipes controlled by slide gates. Deliberate impoundment began Sept. 29, 1952. From August 1950 to Sept. 28, 1952, the lake was operated as a detention basin only. The capacity table is based on a survey made in 1945. The lake was built for flood control, navigation, and low-flow regulation. Inflow is affected at times by the discharge from flood-detention pools of 12 floodwater-retarding structures with a combined detention capacity of 11,170 acre-ft. These structures control runoff from 37.6 mi². Gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	747.0	-
Crest of spillway	724.0	258,600
Crest of notch in spillway	710.0	164,800
Top of conservation storage	694.0	88,250
Crest of intake to wet wells (inverts)	656.0	6,550
Lowest gated outlet (invert)	622.0	12

COOPERATION.--Records of elevations and contents furnished by the U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 212,200 acre-ft May 3, 1990 (elevation, 717.54 ft); minimum since lake first filled in 1957, 61,450 acre-ft Oct. 10, 1984 (elevation, 686.16 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 212,200 acre-ft May 3 at 1700 hours (elevation, 717.54 ft); minimum 78,300 acre-ft Nov. 3 (elevation, 691.28 ft).

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

691.0	77,350	704.0	132,200	713.0	182,800
696.0	95,990	707.0	147,900	716.0	201,900
700.0	113,000	710.0	164,800	718.0	215,300

FROM DCP
RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85940	83320	82130	81220	84640	87170	99760	172000	108900	88970	85720	83910
2	85790	83290	82090	81220	84820	87280	98420	201500	110000	88940	85720	83800
3	85640	83220	82050	81290	84970	87390	97690	211700	109600	88740	85720	83650
4	85490	83140	82020	81290	85010	87500	97820	205700	108300	88590	85860	83580
5	85340	83140	81980	81330	85080	87580	97980	199800	107900	88520	86010	83510
6	85230	83140	81940	81330	85080	87690	99970	195000	108100	88400	86420	83400
7	85040	83110	81910	81330	85120	88210	100400	191200	107300	88140	86390	83250
8	84930	83000	81870	81330	85160	88740	99970	188000	105600	87910	86270	83180
9	84710	83000	81840	81290	85190	89200	99440	185500	103900	87760	86240	83110
10	84560	82920	81800	81290	85230	89510	98950	183400	102300	87580	86160	83030
11	84420	82890	81690	81250	85230	103300	98300	181900	100600	87390	86090	82890
12	84200	82850	81650	81220	85600	106400	97650	180800	98950	87280	85980	82780
13	84120	82850	81620	81220	85600	108100	96840	179600	97250	87060	85940	82670
14	84090	82820	81580	81220	85720	110200	102800	178600	95830	86940	85830	82520
15	84020	82670	81470	81220	85750	111400	105100	177300	94930	86830	85750	82420
16	83940	82600	81440	81360	85750	111600	106200	176400	93990	86760	85640	82270
17	83830	82560	81400	81650	85750	111000	107100	175700	93040	86760	85490	82270
18	83720	82520	81360	82090	85790	110100	107400	173200	92260	86720	85380	82160
19	83650	82490	81360	82600	85830	108700	107400	169000	91640	86610	85310	82020
20	83580	82450	81330	82670	85860	106600	108600	164300	91030	86540	85190	81980
21	83510	82490	81180	82740	86240	104400	111200	158600	90380	86460	85080	81840
22	83430	82520	81110	82780	86420	102500	112200	152800	90080	86350	85010	81760
23	83360	82520	81110	82780	86500	101200	112800	147000	89810	86420	84900	81510
24	83360	82450	81110	82740	86540	99720	113800	141300	89660	86390	84780	81330
25	83290	82420	81110	82740	86650	98830	113900	135600	89660	86350	84670	81180
26	83290	82420	81110	82740	86680	97770	135600	129900	89510	86270	84560	81040
27	83220	82340	81070	82670	86760	97080	150300	124100	89390	86160	84490	80930
28	83180	82240	81070	82670	87020	98460	158500	118600	89240	86050	84380	80750
29	83180	82200	81070	82710	---	99400	161600	113400	89160	85980	84270	80640
30	83430	82200	81220	82670	---	101000	163900	110400	89050	85860	84160	80460
31	83430	---	81220	82890	---	100900	---	107700	---	85750	84050	---
MAX	85940	83320	82130	82890	87020	111600	163900	211700	110000	88970	86420	83910
MIN	83180	82200	81070	81220	84640	87170	96840	107700	89050	85750	84050	80460
(†)	692.70	692.36	692.09	692.55	693.67	697.21	709.85	698.80	694.21	693.33	692.87	691.88
(ϕ)	-2660	-1230	-980	+1670	+4130	+13880	+63000	-56200	-18650	-3300	-1700	-3590

CAL YR 1989 MAX 205900 MIN 59970 (ϕ) +20880
WTR YR 1990 MAX 211700 MIN 80460 (ϕ) -5630

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

08046500 BENBROOK LAKE NEAR BENBROOK, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1969 to September 1982. February to September 1990.

323858097265601 - BENBROOK LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (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 TOTAL (MG/L AS CACO3)
FEB											
07...	0937	1.00	350	8.6	9.5	0.80	11.2	100	K12	K10	140
07...	0939	10.0	350	8.6	9.0	--	10.9	96	--	--	--
07...	0941	20.0	350	8.6	9.0	--	10.9	96	--	--	--
07...	0943	30.0	350	8.5	9.0	--	10.9	96	--	--	--
07...	0945	40.0	350	8.5	9.0	--	10.9	96	--	--	--
07...	0947	50.0	350	8.5	9.0	--	10.7	94	--	--	--
07...	0949	59.0	350	8.4	9.0	--	10.5	92	--	--	140
MAY											
22...	0940	1.00	329	8.2	22.5	1.40	8.0	94	<1	<1	140
22...	0943	10.0	329	8.2	22.5	--	7.6	89	--	--	--
22...	0946	20.0	329	8.1	22.5	--	7.5	88	--	--	--
22...	0949	30.0	328	7.9	22.0	--	6.7	78	--	--	--
22...	0952	40.0	331	7.6	21.0	--	4.4	50	--	--	--
22...	0955	50.0	322	7.4	20.0	--	2.8	31	--	--	--
22...	0957	60.0	294	7.3	18.5	--	0	0	--	--	--
22...	1000	74.0	276	7.2	17.5	--	0	0	--	--	120
JUL											
30...	1123	1.00	355	7.9	27.5	1.10	5.5	71	K1	K1	150
30...	1128	10.0	356	7.8	27.5	--	4.6	59	--	--	--
30...	1133	20.0	358	7.7	27.0	--	3.6	46	--	--	--
30...	1138	30.0	359	7.5	27.0	--	2.1	27	--	--	--
30...	1143	40.0	360	7.4	27.0	--	1.3	17	--	--	--
30...	1148	50.0	370	7.3	26.5	--	0	0	--	--	--
30...	1153	61.0	394	7.0	26.5	--	0	0	--	--	160

DATE	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	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 WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
FEB											
07...	13	47	5.8	15	0.5	4.5	130	22	19	0.20	7.4
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	19	48	5.8	15	0.5	4.5	120	22	19	--	7.6
MAY											
22...	9	50	4.5	10	0.4	3.1	130	13	11	<0.10	1.0
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	9	43	3.5	7.0	0.3	3.0	110	8.6	12	<0.10	9.7
JUL											
30...	16	51	5.3	12	0.4	3.7	130	17	15	<0.10	3.9
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	10	54	5.2	12	0.4	3.7	150	12	18	0.10	9.0

08046500 BENBROOK LAKE NEAR BENBROOK, TX--Continued

323858097265601 - BENBROOK LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
FEB										
07...	198	--	<0.010	<0.100	<0.010	--	0.60	0.100	16	1
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	197	--	0.010	<0.100	0.030	0.67	0.70	0.050	27	11
MAY										
22...	173	--	0.020	<0.100	<0.010	--	0.60	0.030	10	1
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	0.010	<0.100	0.020	0.68	0.70	0.020	10	<10
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	0.180	0.020	0.200	0.060	0.44	0.50	0.040	20	20
22...	--	--	--	--	--	--	--	--	--	--
22...	155	0.270	0.030	0.300	0.090	0.41	0.50	0.090	35	200
JUL										
30...	188	--	<0.010	<0.100	0.030	0.47	0.50	0.020	<3	30
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	0.020	<0.100	0.150	0.55	0.70	0.030	390	390
30...	--	--	0.020	<0.100	0.490	0.61	1.1	0.070	170	350
30...	203	--	0.020	<0.100	1.20	1.1	2.3	0.350	870	760

323908097273401 - BENBROOK LAKE SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAM-PLING DEPTH (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
FEB							
07...	1000	1.00	350	8.6	9.5	11.2	100
07...	1002	10.0	350	8.6	9.0	10.9	96
07...	1004	20.0	350	8.6	9.0	10.8	95
07...	1006	30.0	350	8.6	9.0	10.8	95
07...	1008	41.0	350	8.6	9.0	10.6	93
MAY							
22...	1006	1.00	327	8.3	23.0	8.0	95
22...	1008	10.0	327	8.2	22.5	7.5	88
22...	1010	20.0	328	8.1	22.5	7.1	83
22...	1014	30.0	328	8.0	22.5	6.5	76
22...	1017	40.0	330	7.8	22.0	5.2	61
22...	1019	50.0	322	7.6	20.0	2.3	26
22...	1022	60.0	303	7.7	19.5	1.5	17
JUL							
30...	1207	1.00	356	7.8	27.5	4.9	63
30...	1210	10.0	359	7.7	27.0	3.2	41
30...	1213	20.0	360	7.7	27.0	2.8	36
30...	1218	30.0	361	7.7	27.0	2.6	33
30...	1222	40.0	362	7.6	26.5	1.0	13
30...	1226	49.0	364	7.6	26.5	0	0

08046500 BENBROOK LAKE NEAR BENBROOK, TX--Continued

323735097274701 - BENBROOK LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (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 TOTAL (MG/L AS CACO3)
FEB											
07...	1017	1.00	346	8.7	10.0	0.80	11.4	103	K17	K18	140
07...	1019	10.0	348	8.6	9.5	--	11.0	98	--	--	--
07...	1021	20.0	348	8.6	9.5	--	11.0	98	--	--	--
07...	1023	30.0	348	8.6	9.5	--	10.9	97	--	--	--
07...	1025	41.0	348	8.6	9.5	--	10.8	96	--	--	150
MAY											
22...	1034	1.00	326	8.4	23.5	1.30	9.3	111	K2	K1	140
22...	1037	10.0	326	8.4	23.5	--	8.6	103	--	--	--
22...	1040	20.0	326	8.3	23.0	--	8.3	98	--	--	--
22...	1044	30.0	327	8.3	23.5	--	8.2	98	--	--	--
22...	1047	40.0	327	7.7	21.5	--	4.2	48	--	--	--
22...	1050	50.0	318	7.6	20.0	--	1.1	12	--	--	--
22...	1053	57.0	299	7.7	19.5	--	0	0	--	--	130
JUL											
30...	1245	1.00	347	8.1	28.0	0.70	7.5	98	K5	K1	140
30...	1250	10.0	347	8.1	28.0	--	7.4	96	--	--	--
30...	1255	20.0	348	8.0	28.0	--	6.8	88	--	--	--
30...	1300	30.0	367	7.6	27.0	--	1.8	23	--	--	--
30...	1305	35.0	366	7.7	27.0	--	1.7	22	--	--	150

DATE	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	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 WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
FEB											
07...	12	47	5.8	17	0.6	0.90	130	18	19	--	7.3
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--
07...	18	49	6.1	15	0.5	4.5	130	22	19	--	7.8
MAY											
22...	8	50	4.5	10	0.4	3.3	130	13	12	<0.10	0.80
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	8	46	3.9	8.5	0.3	3.0	120	11	14	<0.10	0.80
JUL											
30...	14	49	5.2	12	0.4	3.6	130	18	17	0.30	4.2
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	13	52	5.2	12	0.4	3.8	140	18	16	<0.10	5.3

DATE	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)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
FEB										
07...	196	--	0.010	<0.100	0.010	0.59	0.60	1.10	40	50
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	201	--	0.010	<0.100	0.030	0.67	0.70	0.210	<3	3
MAY										
22...	175	--	0.010	<0.100	<0.010	--	0.50	0.020	5	<1
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	0.010	<0.100	<0.010	--	0.60	0.020	10	<10
22...	--	--	--	--	--	--	--	--	--	--
22...	--	0.180	0.020	0.200	0.120	0.28	0.40	0.050	50	40
22...	161	0.280	0.020	0.300	0.100	0.40	0.50	0.070	26	150
JUL										
30...	187	--	<0.010	<0.100	0.030	0.57	0.60	0.020	14	4
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	<0.010	<0.100	0.020	0.68	0.70	0.030	180	30
30...	--	--	0.010	<0.100	0.050	0.75	0.80	0.030	320	60
30...	195	--	0.020	<0.100	0.080	0.62	0.70	0.030	6	12

08046500 BENBROOK LAKE NEAR BENBROOK, TX--Continued

323628097275101 - BENBROOK LAKE SITE CR

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
FEB							
07...	1042	1.00	340	8.6	10.5	10.7	98
07...	1044	10.0	340	8.6	10.0	10.4	94
07...	1046	20.0	340	8.6	10.5	10.3	94
MAY							
22...	1106	1.00	324	8.5	24.0	9.8	119
22...	1109	10.0	325	8.4	23.5	9.1	109
22...	1111	20.0	326	8.3	23.5	8.7	104
22...	1113	30.0	330	8.0	23.5	6.5	78
22...	1115	36.0	334	7.8	22.5	3.0	35
JUL							
30...	1329	1.00	345	8.2	29.0	8.1	107
30...	1331	10.0	344	8.2	29.0	8.1	107
30...	1333	20.0	347	8.1	29.0	7.4	98
30...	1336	26.0	351	7.8	28.5	4.1	54

323629097280901 - BENBROOK LAKE SITE CL

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
FEB							
07...	1056	1.00	337	8.5	10.5	10.3	94
07...	1058	10.0	337	8.5	10.5	10.1	92
07...	1100	16.0	337	8.5	10.5	10.0	91
MAY							
22...	1122	1.00	324	8.6	24.5	9.6	117
22...	1125	10.0	325	8.4	24.0	8.8	106
22...	1127	20.0	325	8.4	23.5	8.5	102
22...	1130	35.0	330	8.2	23.5	6.8	81
JUL							
30...	1346	1.00	345	8.2	29.0	7.9	105
30...	1349	10.0	345	8.2	29.0	7.9	105
30...	1352	18.0	345	8.2	29.0	7.8	103

323652097291901 - BENBROOK LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (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 TOTAL (MG/L AS CACO3)
FEB											
07...	1129	1.00	354	8.7	10.5	0.50	11.3	103	K22	24	150
07...	1131	10.0	354	8.6	10.5	--	11.1	101	--	--	--
07...	1133	15.0	352	8.6	10.5	--	10.6	97	--	--	150
MAY											
22...	1145	1.00	325	8.6	25.0	1.20	9.4	116	K4	K1	150
22...	1148	10.0	325	8.6	24.0	--	9.6	116	--	--	--
22...	1151	20.0	327	8.5	24.0	--	8.6	104	--	--	--
22...	1155	30.0	339	8.3	24.0	--	7.8	94	--	--	150
JUL											
30...	1414	1.00	347	8.3	29.5	0.40	7.9	106	K2	K3	140
30...	1418	10.0	347	8.3	29.5	--	7.8	104	--	--	--
30...	1423	20.0	347	8.3	29.0	--	7.7	102	--	--	--
30...	1429	24.0	346	8.2	29.5	--	7.7	103	--	--	140

08046500 BENBROOK LAKE NEAR BENBROOK, TX--Continued

323652097291901 - BENBROOK LAKE SITE DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
FEB											
07...	12	49	6.0	15	0.5	4.5	130	23	20	--	7.3
07...	--	--	--	--	--	--	--	--	--	--	--
07...	16	49	6.0	15	0.5	4.4	130	22	19	--	7.4
MAY											
22...	12	51	4.5	10	0.4	3.2	130	17	14	0.30	<0.10
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	14	52	4.5	9.9	0.4	3.1	130	17	14	0.40	0.80
JUL											
30...	13	47	5.3	13	0.5	4.0	130	19	18	0.20	4.0
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	12	47	5.3	13	0.5	3.9	130	20	17	0.20	4.1

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
FEB										
07...	206	--	0.010	<0.100	<0.010	--	0.60	0.060	5	<1
07...	--	--	--	--	--	--	--	--	--	--
07...	201	0.090	0.010	0.100	0.020	0.78	0.80	0.070	7	1
MAY										
22...	180	--	<0.010	<0.100	<0.010	--	0.50	0.020	17	<1
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	182	--	0.020	<0.100	<0.010	--	0.60	0.060	8	4
JUL										
30...	186	--	<0.010	<0.100	0.020	0.58	0.60	0.020	<3	1
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	187	--	0.010	<0.100	0.020	0.58	0.60	0.030	6	8

Benbrook Lake AC (323858097265601)

Phytoplankton Analyses October 1989 to September 1990

Date	2-07-90
Time	0938
TOTAL CELLS/mL	132,340
NUMBER OF SPECIES	28
DEPTH COLLECTED (ft.)	1.3

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella stelligera	11,981
Order Pennales	
Navicula sp.	311
Neidium sp.	311
Nitzschia sp.	311
Synedra radians	1,245
CHLOROPHYTA (Green algae)	
Ankistrodesmus convolutus	545
Ankistrodesmus falcatus	545
Chlorella ellipsoida	1,089
Chlorococcum humicola	3,268
Chodatella quadriseta	1,634
Chodatella sp.	545
Crucigenia tetrapedia	2,178
Kirchneriella lunaris	9,803
Oocystis parva	2,178
Scenedesmus bijuga	1,089
Scenedesmus quadricauda	2,178
Schroederia setigera	545
Selenastrum gracile	545
Selenastrum minutum	545
Tetraedron muticum	545
Tetrastrum staurogeniaeforme	6,535
CYANOPHYTA (Blue-green algae)	
Aphanocapsa delicatissima	4,357
Chroococcus dispersus	27,230
Chroococcus limneticus	1,089
Chroococcus multicoloratus	46,291
Chroococcus varius	4,357
Lyngbya nana	545
EUGLENOPHYTA (Euglenoids)	
Trachelomonas hispida	545

Benbrook Lake DC (323652097291901)

Phytoplankton Analyses October 1989 to September 1990

Date	2-07-90
Time	1130
TOTAL CELLS/mL	99,238
NUMBER OF SPECIES	36
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella stelligera	13,269
Melosira granulata	447
Melosira italica	4,026
Stephanodiscus astraea var. *minutula*	1,044
Order Pennales	
Navicula cryptocephala var. *veneta*	95
Nitzschia acicularis	3,324
Nitzschia palea	285
Nitzschia sp.	285
Synedra sp.	95
CHLOROPHYTA (Green algae)	
Ankistrodesmus convolutus	1,225
Ankistrodesmus falcatus	408
Ankistrodesmus nannoselene	408
Chlorella ellipsoidea	408
Chlorococcum humicola	408
Chodatella quadriseta	408
Chodatella subsalsa	817
Crucigenia tetrapedia	1,634
Kirchneriella lunaris	2,450
Kirchneriella sp.	3,267
Oocystis parva	817
Oocystis pusilla	1,634
Scenedesmus bijuga	817
Scenedesmus obliquus	817
Scenedesmus quadricauda	4,901
Selenastrum minutum	3,267
Tetraedron minimum	408
Tetraedron sp.	408
Tetrastrum staurogeniaeforme	408
CHRYSOPHYTA (Golden-brown algae)	
Unknown flagellate	408
CYANOPHYTA (Blue-green algae)	
Aphanocapsa delicatissima	12,660
Aphanocapsa elachista var. *conferta*	15,111
Chroococcus dispersus	8,985
Chroococcus limneticus	3,267
Chroococcus multicoloratus	2,450
Chroococcus varius	7,760
Dactylococcopsis fascicularis	817

Benbrook Lake AC 323858097265601

Phytoplankton Analyses October 1989 to September 1990

Date	5-22-90
Time	0941
TOTAL CELLS/mL	31,703
NUMBER OF SPECIES	23
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella kutzingiana	181
Cyclotella ocellata	903
Cyclotella stelligera	361
Melosira distans	903
Stephanodiscus astraea var. *minutula*	12,635
Stephanodiscus niagarae	542
CHLOROPHYTA (Green algae)	
Carteria sp.	163
Crucigenia quadrata	654
Crucigenia tetrapedia	654
Chlorococcum humicola	327
Coelastrum microporum	327
Kirchneriella contorta	327
Oocystis pusilla	1,307
Oocystis parva	1,307
Scenedesmus quadricauda	327
CYANOPHYTA (Blue-green algae)	
Aphanocapsa delicatissima	6,373
Chroococcus dispersus	817
Chroococcus varius	1,961
Dactylococcopsis fascicularis	327
Oscillatoria sp.	163
CHRYSOPHYTA (Golden-brown algae)	
Unknown flagellate	654
CRYPTOPHYTA (Cryptomonads)	
Chroomonas sp.	163
Rhodomonas minuta	327

Benbrook Lake DC 323652097291901

Phytoplankton Analyses October 1989 to September 1990

Date	5-22-90
Time	1146
TOTAL CELLS/mL	49,190
NUMBER OF SPECIES	34
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella kutzingiana	177
Cyclotella ocellata	886
Cyclotella stelligera	295
Melosira distans	236
Stephanodiscus astraea var. *minutula*	5,968
Stephanodiscus niagarae	59
Order Pennales	
Nitzschia palea	545
CHLOROPHYTA (Green algae)	
Ankyra judayi	182
Chlorococcum humicola	363
Chodatella quadriseta	182
Coelastrum microporum	545
Crucigenia tetrapedia	1,452
Crucigenia quadrata	363
Elakatothrix viridis	363
Gloeocystis sp.	545
Kirchneriella contorta	363
Kirchneriella lunaris	363
Scenedesmus bijuga	363
Scenedesmus quadricauda	545
Schroederia setigera	182
Tetrastrum staurogeniaeforme	726
CHRYSOPHYTA (Golden-brown algae)	
Unknown flagellate	1,089
CYANOPHYTA (Blue-green algae)	
Aphanocapsa delicatissima	18,513
Aphanocapsa elachista var. *conferta*	1,089
Aphanothece saxicola	726
Chroococcus dispersus	5,445
Chroococcus varius	1,634
Chroococcus sp.	726
Dactylococcopsis fascicularis	182
Gomphonema aponina	1,452
Marssoniella elegans	1,089
Pseudanabaena catenata	182
Synechococcus sp.	1,271
CRYPTOPHYTA (Cryptomonads)	
Rhodomonas minuta	1,089

Benbrook Lake AC (323858097265601)

Phytoplankton Analyses October 1989 to September 1990

Date	7-30-90
Time	1124
TOTAL CELLS/mL	88,383
NUMBER OF SPECIES	29
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella meneghiniana	29
Melosira italica	58
Melosira lirata	77
Order Pennales	
Navicula circumtexa	1,307
CHLOROPHYTA (Green algae)	
Ankistrodesmus falcatus	163
Chlamydomonas sp.	163
Chlorella ellipsoidea	327
Crucigenia tetrapedia	653
Kirchneriella contorta	327
Oocystis sp.	327
CHRYSOPHYTA (Golden-brown algae)	
Chrysapsis sagene?	163
Unknown flagellate	490
CYANOPHYTA (Blue-green algae)	
Anabaena circinalis	817
Aphanocapsa delicatissima	31,203
Aphanocapsa elachista var. *conferta*	17,480
Chroococcus dispersus	817
Chroococcus limneticus	3,431
Chroococcus multicoloratus	1,144
Chroococcus sp.	2,451
Dactylococcopsis fascicularis	163
Merismopedia punctata	6,535
Merismopedia tenuissima	5,228
Oscillatoria limnetica	653
Phormidium mucicola	4,738
Pseudanabaena catenata	1,144
Raphidiopsis curvata	3,267
Spirulina sp.	163
Synechococcus lineare	4,738
PYRROPHYTA (Dinoflagellates)	
Glenodinium sp.	327

08046500 BENBROOK LAKE NEAR BENBROOK, TX—Continued

Benbrook Lake DC (323652097291901)

Phytoplankton Analyses October 1989 to September 1990

Date	7-30-90
Time	1415
TOTAL CELLS/mL	81,881
NUMBER OF SPECIES	44
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella meneghiniana	95
Melosira granulata	760
Melosira italica	285
Stephanodiscus astraea	84
Order Pennales	
Cymbella minuta	136
Navicula circumtexta	272
Synedra acus	272
Synedra delicatissima	136
CHLOROPHYTA (Green algae)	
Ankistrodesmus falcatus	204
Ankyra judayi	204
Chlorella ellipsoidea	204
Chlorococcum humicola	204
Cosmarium sp.	204
Crucigenia tetrapedia	1,225
Golenkinia radiata	408
Kirchneriella contorta	204
Mesotaenium sp.	204
Oocystis sp.	204
Pediastrum simplex	408
Scenedesmus bijuga	408
Scenedesmus quadricauda	408
Tetradron caudatum	204
Tetradron minimum	204
Tetradron sp.	204
CHRYSOPHYTA (Golden-brown algae)	
Unknown flagellate	613
CYANOPHYTA (Blue-green algae)	
Anabaena circinalis	2,451
Aphanocapsa delicatissima	35,328
Aphanocapsa elachista var. *conferta*	1,634
Chroococcus dispersus	1,225
Chroococcus limneticus	408
Chroococcus multicoloratus	1,634
Chroococcus sp.	408
Dactylococcopsis fascicularis	817
Lyngbya nana	817
Merismopedia punctata	2,659
*Oscillatoria limnetica*2,246	
Phormidium mucicola	6,535
Pseudanabaena catenata	408
Raphidiopsis curvata	3,063
Spirulina sp.	408
Synechococcus lineare	11,844
Synechococcus sp.	1,634
EUGLENOPHYTA (Euglenoids)	
Euglena gracilis	204
CRYPTOPHYTA (Cryptomonads)	
Cryptomonas erosa	204

08047000 CLEAR FORK TRINITY RIVER NEAR BENBROOK, TX

LOCATION.--Lat 32°39'54", long 97°26'30", Tarrant County, Hydrologic Unit 12030102, on left bank 1.5 mi downstream from Benbrook Dam, 1.7 mi southeast of Benbrook, 2.9 mi upstream from Marys Creek, and 13.1 mi upstream from mouth.

DRAINAGE AREA.--431 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1947 to current year.

REVISED RECORDS.--WDR TX-89-1: 1988.

GAGE.--Water-stage recorder. Datum of gage is 604.22 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark).

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Benbrook Lake (station 08046500) since September 1952. There is a diversion 1.0 mi upstream for Pecan Valley Golf Course. Gage-height telemeter at station.

AVERAGE DISCHARGE.--5 years (water years 1948-52) prior to regulation by Benbrook Lake, 105 ft³/s (76,070 acre-ft/yr); 38 years (water years 1953-90) regulated, unadjusted, 78.5 ft³/s (56,870 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 82,900 ft³/s May 17, 1949 (gage height, 28.72 ft), from rating curve extended above 11,000 ft³/s on basis of velocity-area studies and slope-area measurement of 82,900 ft³/s; no flow at times most years. Maximum discharge since construction of Benbrook Dam in 1952, 6,740 ft³/s May 3, 1990 (gage height, 14.71 ft).
Maximum stage since at least 1922, that of May 17, 1949.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,740 ft³/s May 3 at 1545 hours (gage height, 14.71 ft); minimum daily, 6.8 ft³/s Oct. 14 and Jan. 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	13	13	11	46	15	971	92	967	56	29	28
2	54	13	13	13	14	15	1020	2610	86	54	29	28
3	52	12	13	15	13	15	678	6320	579	54	29	28
4	53	13	13	12	13	15	267	5940	975	54	32	27
5	53	13	12	11	14	15	622	4670	496	66	32	26
6	53	12	12	14	14	16	344	3630	23	73	30	26
7	53	12	12	13	15	20	449	2810	540	74	29	26
8	53	12	13	12	15	15	707	2210	929	73	28	28
9	53	12	10	7.4	17	15	705	1760	925	72	26	32
10	55	13	10	7.7	16	16	705	1500	922	72	26	38
11	55	13	9.3	7.4	15	181	705	1320	917	69	27	38
12	55	12	9.8	7.1	15	29	704	1200	917	56	27	37
13	27	15	10	8.6	15	21	703	1100	917	36	27	37
14	6.8	15	10	13	15	24	396	1020	793	31	27	37
15	10	15	10	14	15	20	71	955	591	30	27	37
16	9.8	14	11	15	15	413	69	884	588	28	29	37
17	9.9	13	11	15	15	779	68	805	586	26	29	42
18	11	13	10	14	15	821	314	1490	490	30	30	44
19	12	13	9.0	18	15	974	639	2220	375	39	29	43
20	11	13	8.9	7.5	14	1240	811	2460	374	37	29	43
21	11	13	9.4	7.3	19	1230	395	2780	327	36	30	43
22	11	15	11	7.8	15	1110	589	2880	219	37	28	43
23	11	15	10	7.9	15	909	454	2850	153	38	28	43
24	12	14	10	7.8	15	902	65	2820	153	38	29	42
25	12	14	9.1	8.2	15	899	376	2800	152	38	29	39
26	13	14	9.1	8.2	14	892	433	2780	115	36	28	37
27	12	12	8.6	7.2	15	894	52	2750	82	35	27	37
28	14	13	8.0	6.8	18	414	48	2720	61	36	28	37
29	14	13	8.6	7.2	---	70	43	2410	54	36	27	38
30	17	14	9.9	7.3	---	227	34	1720	55	37	27	39
31	13	---	9.3	12	---	673	---	1370	---	34	27	---
TOTAL	881.5	398	323.0	323.4	452	12879	13437	72876	14361	1431	879	1080
MEAN	28.4	13.3	10.4	10.4	16.1	415	448	2351	479	46.2	28.4	36.0
MAX	55	15	13	18	46	1240	1020	6320	975	74	32	44
MIN	6.8	12	8.0	6.8	13	15	34	92	23	26	26	26
AC-FT	1750	789	641	641	897	25550	26650	144500	28490	2840	1740	2140

CAL YR 1989	TOTAL	101615.6	MEAN	278	MAX	5180	MIN	2.3	AC-FT 201600
WTR YR 1990	TOTAL	119320.9	MEAN	327	MAX	6320	MIN	6.8	AC-FT 236700

08047000 CLEAR FORK TRINITY RIVER NEAR BENBROOK, TX--Continued

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1982, October 1989 to September 1990.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)
FEB 07...	1225	15	341	8.4	10.5	15	5.3	11.8	108	1.4	140
MAY 22...	1250	2870	317	7.8	21.5	15	5.9	9.4	108	1.3	140
JUL 30...	1530	36	366	7.6	27.0	7	1.5	4.7	60	2.0	160

DATE	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
FEB 07...	25	48	5.9	15	0.5	4.4	120	22	19	0.20	7.4
MAY 22...	17	49	4.3	9.6	0.4	3.5	120	15	14	<0.10	4.6
JUL 30...	19	54	5.3	12	0.4	3.8	140	16	17	<0.10	6.1

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, 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)
FEB 07...	197	281	33	248	--	0.020	<0.100	0.030	0.67	0.70	0.050
MAY 22...	174	13	13	0	0.180	0.020	0.200	0.050	0.55	0.60	0.050
JUL 30...	198	24	14	10	--	0.020	<0.100	0.410	0.59	1.0	0.080

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)
FEB 07...	5.8	<1	52	<0.5	<1.0	<5	<3	<10	7	<10
MAY 22...	9.7	2	48	<0.5	<1.0	<5	<3	<10	15	<10
JUL 30...	5.9	5	65	<0.5	<1.0	<5	<3	<10	6	<10

DATE	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
FEB 07...	6	1	<0.1	<10	<10	<1	<1.0	280	<6	<3
MAY 22...	<4	17	0.1	<10	<10	<1	1.0	230	<6	6
JUL 30...	10	370	0.1	<10	<10	<1	1.0	280	<6	<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 upstream from the Texas and Pacific Railway Co. bridge in Fort Worth, 830 ft upstream from East West Expressway bridge, 2.5 mi upstream from mouth, 5 mi downstream from Marys Creek, and 10 mi downstream from Benbrook Dam.

DRAINAGE AREA.--518 mi².

PERIOD OF RECORD.--March 1924 to current year.

REVISED RECORDS.--WSP 1392: 1924-25, 1927. WSP 1922: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 532.91 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 3, 1970, various nonrecording and recording gages were located within 650 ft of present site at different datums.

REMARKS.--No estimated daily discharges. Records good. Since September 1952, flow largely regulated by Benbrook Lake (station 08046500). The city of Fort Worth diverted water from pool at gage during the current year. The Benbrook Water and Sewage Authority diverted water from the river upstream from station during current year for municipal use. Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--28 years (water years 1925-52) prior to regulation by Benbrook Lake, 112 ft³/s (81,140 acre-ft/yr); 38 years (water years 1953-90) regulated, unadjusted, 115 ft³/s (83,300 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 107,000 ft³/s May 17, 1949 (gage height, 28.20 ft, present datum), from rating curve extended above 16,000 ft³/s on basis of contracted-opening measurement of 107,000 ft³/s; no flow at times most years.
Maximum stage since at least 1900, 28.20 ft May 17, 1949, present datum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 25, 1922, reached a stage of 27.5 ft, present datum (discharge, 74,300 ft³/s, by slope-area measurement of peak flow); data furnished by Fort Worth city engineer.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 20,900 ft³/s May 2 at 0100 hours (gage height, 16.80 ft, from rating curve extended above 7,000 ft³/s by calculations using equation for flow over ogee-shaped broad-crested concrete weir); minimum daily, 2.7 ft³/s Sept. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	23	16	16	1150	45	1160	573	1960	58	54	17
2	18	15	16	16	97	38	1230	8740	218	57	37	22
3	16	15	16	39	62	37	979	8960	623	52	40	16
4	17	15	15	32	39	37	272	6570	1180	51	181	15
5	18	17	14	20	31	37	872	5140	737	42	430	15
6	20	16	14	20	33	37	1010	4240	48	49	65	15
7	20	13	14	18	34	194	509	3400	490	64	38	15
8	17	14	16	18	33	61	849	2770	1060	67	35	13
9	17	14	17	18	63	53	849	2280	1060	48	33	19
10	17	14	16	16	68	45	872	1920	1060	25	29	43
11	17	15	15	15	33	11000	850	1660	1060	22	30	32
12	15	16	14	13	43	5670	829	1530	1060	37	29	14
13	20	16	15	13	32	218	825	1370	1060	46	24	11
14	15	13	15	14	29	314	1590	1260	938	38	22	8.2
15	8.0	13	12	14	29	169	300	1140	610	35	23	8.0
16	8.7	13	13	48	28	407	221	1070	610	35	22	4.1
17	10	14	15	455	27	857	174	952	598	35	19	17
18	19	14	16	353	25	935	332	1650	522	46	20	40
19	16	14	15	453	26	1060	812	2670	367	42	20	19
20	14	14	14	74	26	1430	1400	2920	367	38	19	39
21	12	14	14	50	136	1430	834	3190	332	35	17	30
22	9.6	56	14	35	55	1330	694	3310	237	85	19	22
23	7.9	26	18	33	36	1040	735	3310	157	123	17	16
24	8.6	19	24	27	34	1030	170	3260	158	49	19	15
25	8.6	16	31	20	33	1190	384	3230	156	43	18	12
26	8.6	17	35	20	32	1060	3270	3200	133	39	18	8.0
27	9.3	16	28	19	31	1110	574	3200	91	35	18	4.3
28	9.8	15	22	18	118	993	324	3200	70	34	18	7.8
29	10	15	22	22	---	352	238	2960	55	33	18	8.3
30	182	15	41	17	---	530	168	2230	56	44	19	2.7
31	33	---	32	194	---	798	---	1700	---	36	16	---
TOTAL	622.1	507	579	2120	2383	33507	23326	93605	17073	1443	1367	508.4
MEAN	20.1	16.9	18.7	68.4	85.1	1081	778	3020	569	46.5	44.1	16.9
MAX	182	56	41	455	1150	11000	3270	8960	1960	123	430	43
MIN	7.9	13	12	13	25	37	168	573	48	22	16	2.7
AC-FT	1230	1010	1150	4210	4730	66460	46270	185700	33860	2860	2710	1010

CAL YR 1989	TOTAL	150543.0	MEAN	412	MAX	6450	MIN	7.6	AC-FT 298600
WTR YR 1990	TOTAL	177040.5	MEAN	485	MAX	11000	MIN	2.7	AC-FT 351200

08048000 WEST FORK TRINITY RIVER AT FORT WORTH, TX

LOCATION.--Lat 32°45'39", long 97°19'56", Tarrant County, Hydrologic Unit 12030102, on left bank 125 ft upstream from Texas Electric Service Co.'s concrete dam, 980 ft downstream from centerline of Paddock Viaduct (North Main Street) at Fort Worth, 2,600 ft downstream from Clear Fork Trinity River, and at mile 556.8.

DRAINAGE AREA.--2,615 mi².

PERIOD OF RECORD.--October 1920 to current year. Gage-height records collected in this vicinity since 1910 are contained in reports of the National Weather Service.
Water-quality records.--Chemical and biochemical analyses: October 1967 to September 1976.

REVISED RECORDS.--WSP 1392: 1925. WSP 1922: Drainage area.

GAGE.--Water-stage recorder and concrete dam control with angle-iron-crested notch for flow below 50 ft³/s. Datum of gage is 519.24 ft above Texas Reclamation Department datum. Prior to Aug. 22, 1954, at site 1,200 ft upstream at same datum. Aug. 22, 1954, to Oct. 15, 1955, at site 2,000 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Flow is largely regulated by Lake Worth (station 08045400) on the West Fork Trinity River and by Benbrook Lake (station 08046500) on the Clear Fork Trinity River. At times, flow is sustained by releases from the flood-detention pool of Benbrook Lake. The city of Fort Worth diverts water upstream from station and from Cedar Creek Reservoir (station 08063010) for municipal and industrial uses and returns sewage effluent to river downstream from station 08048543. There are many small diversions upstream from station. Gage-height telemeter at station.

AVERAGE DISCHARGE.--70 years, 399 ft³/s (289,100 acre-ft/yr, unadjusted).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 85,000 ft³/s Apr. 25, 1922 (gage height, 23.95 ft), site then in use, by slope-area measurement of peak flow by city engineer of Fort Worth; maximum gage height, 25.91 ft May 17, 1949, site then in use (discharge, 64,300 ft³/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, 36,200 ft³/s May 3 at 0130 hours (gage height, 9.91 ft); minimum daily, 12 ft³/s Sept. 28 & 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	36	25	37	1340	77	2400	18700	3350	69	74	18
2	25	30	25	35	185	52	2460	26400	2980	66	51	22
3	23	27	25	73	134	48	2180	31900	2740	55	46	25
4	24	27	24	75	92	46	1430	29700	3560	55	389	24
5	25	28	22	43	62	47	2390	28100	3850	113	806	24
6	26	28	21	40	52	48	3080	25300	3820	80	149	25
7	28	25	23	40	59	298	1550	23400	3620	79	56	24
8	27	24	23	40	54	117	1330	22000	3870	76	44	21
9	27	25	25	40	106	221	1100	20300	3870	60	37	27
10	26	25	24	40	160	246	1110	19000	3290	32	33	47
11	25	26	24	39	61	5670	1350	18100	2680	27	33	54
12	23	28	23	38	60	3400	1670	17200	2010	31	31	27
13	22	30	23	49	51	2890	1840	15800	1440	46	32	24
14	24	30	25	43	46	3160	4150	13200	1020	40	27	18
15	17	28	27	37	48	2770	2820	10300	593	39	26	16
16	14	26	27	108	47	2940	2700	8970	564	39	26	13
17	15	28	31	402	43	3110	2660	6550	547	42	25	32
18	30	30	33	509	41	2960	2320	3980	491	64	25	77
19	31	30	33	880	40	3040	2360	4230	342	67	25	32
20	25	33	33	196	39	3580	3700	4040	337	45	25	65
21	22	33	32	123	236	3600	4430	4170	330	41	22	60
22	18	87	30	73	115	3730	5290	4220	246	136	24	33
23	17	41	36	50	82	2560	5780	4160	172	175	25	27
24	21	29	54	44	55	1800	5240	3920	176	67	25	23
25	19	24	81	55	46	1930	5870	3620	178	60	24	20
26	18	24	78	45	44	1590	14100	3490	157	43	24	17
27	18	23	54	35	41	1630	17700	3420	126	38	23	14
28	18	21	44	32	214	1890	19000	3400	93	35	21	12
29	19	23	46	36	---	1180	19300	3130	69	35	20	14
30	341	23	116	31	---	1660	19100	2440	66	47	22	12
31	43	---	83	197	---	2050	---	2050	---	38	20	---
TOTAL	1036	892	1170	3485	3553	58340	160410	385190	46587	1840	2210	847
MEAN	33.4	29.7	37.7	112	127	1882	5347	12430	1553	59.4	71.3	28.2
MAX	341	87	116	880	1340	5670	19300	31900	3870	175	806	77
MIN	14	21	21	31	39	46	1100	2050	66	27	20	12
AC-FT	2050	1770	2320	6910	7050	115700	318200	764000	92410	3650	4380	1680

CAL YR 1989 TOTAL 563059 MEAN 1543 MAX 24600 MIN 14 AC-FT 1117000
WTR YR 1990 TOTAL 665560 MEAN 1823 MAX 31900 MIN 12 AC-FT 1320000

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX

LOCATION.--Lat 32°45'06", long 97°17'21", Tarrant County, Hydrologic Unit 12030102, at downstream side of bridge on Beach Street, 1,700 ft downstream from Sycamore Creek, 0.9 mi downstream from Riverside Drive bridge, 2.6 mi east of the Tarrant County Courthouse, and at mile 549.6.

DRAINAGE AREA.--2,685 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is 478.70 ft above National Geodetic Vertical Datum of 1929, State Department of Highways and Public Transportation datum.

REMARKS.--No estimated daily discharge. Records good. Flow is largely regulated by Lake Worth (station 08045400) on the West Fork Trinity River and by Benbrook Lake (station 08046500) on the Clear Fork Trinity River. At times, flow is sustained by releases from the flood-detention pool of Benbrook Lake. There are many diversions upstream from this station for municipal, industrial, and other uses. Gage-height telemeter at station.

AVERAGE DISCHARGE.--14 years, 556 ft³/s (402,800 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 46,600 ft³/s May 2, 1990 (gage height, 38.02 ft); minimum, 0.84 ft³/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, 46,600 ft³/s May 2 at 0330 hours (gage height, 38.02 ft); minimum daily, 8.0 ft³/s Dec. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	51	26	51	3510	132	2870	18800	4060	43	247	17
2	26	35	27	39	446	72	2940	33300	3060	43	273	16
3	23	29	27	89	194	61	2740	35200	2780	37	66	19
4	20	25	25	136	138	56	1810	30300	3470	35	812	21
5	20	24	8.0	62	94	54	2480	28400	3730	181	1630	22
6	21	26	17	51	79	55	4150	26000	3670	147	417	22
7	22	25	26	46	78	656	1920	23500	3510	55	139	22
8	24	22	33	48	76	142	1690	21300	3720	64	86	27
9	24	20	40	46	115	254	1400	19700	3710	59	60	39
10	24	20	29	46	278	308	1400	18200	3310	32	47	40
11	23	20	29	43	89	9300	1610	16900	2750	8.8	43	70
12	22	20	28	40	67	5010	1970	16100	2190	11	43	63
13	22	22	27	43	69	3570	2140	14300	1660	16	40	43
14	20	23	27	45	59	3890	4820	12000	1250	20	40	30
15	22	22	26	37	59	3340	3150	9690	725	20	33	20
16	18	21	26	107	60	3300	2980	8550	669	19	28	15
17	15	22	29	775	55	3500	2940	6650	644	31	25	32
18	34	23	31	1170	51	3350	2630	3940	602	31	24	88
19	35	23	33	2330	50	3360	2710	4220	425	71	23	54
20	31	24	33	347	50	3860	3980	3990	404	39	22	56
21	24	24	30	167	439	3870	4550	4020	402	32	22	110
22	21	116	27	96	219	4040	4880	4060	303	201	20	58
23	18	86	41	67	107	3040	5630	3990	175	368	19	45
24	18	52	75	56	75	2270	4980	3810	168	110	20	31
25	18	38	135	59	62	2560	5370	3560	175	99	22	24
26	17	32	125	55	57	2070	14600	3440	161	44	22	19
27	16	29	84	42	53	2080	18500	3380	115	35	22	15
28	16	27	60	40	390	2960	20100	3350	70	29	21	11
29	16	24	48	44	---	1740	20000	3200	54	25	22	9.5
30	713	26	121	38	---	2110	19100	2680	41	36	19	11
31	93	---	145	340	---	2540	---	2240	---	44	19	---
TOTAL	1443	951	1438.0	6555	7019	73550	170040	388770	48003	1985.8	4326	1049.5
MEAN	46.5	31.7	46.4	211	251	2373	5668	12540	1600	64.1	140	35.0
MAX	713	116	145	2330	3510	9300	20100	35200	4060	368	1630	110
MIN	15	20	8.0	37	50	54	1400	2240	41	8.8	19	9.5
AC-FT	2860	1890	2850	13000	13920	145900	337300	771100	95210	3940	8580	2080

CAL YR 1989	TOTAL 561229.0	MEAN 1538	MAX 22800	MIN 8.0	AC-FT 1113000				
WTR YR 1990	TOTAL 705130.3	MEAN 1932	MAX 35200	MIN 8.0	AC-FT 1399000				

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1976 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1976 to current year.
pH: October 1976 to current year.
WATER TEMPERATURE: October 1976 to current year.
DISSOLVED OXYGEN: October 1976 to current year.

INSTRUMENTATION.--Since October 1976, a four-parameter water-quality monitor records temperature, DO, pH, and specific conductance continuously at this station. Beginning this year, the satellite downlink was extended to include water-quality parameters such that unit-values can be accessed on a timely basis.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 2,000 microsiemens Nov. 6, 1978; minimum, 102 microsiemens June 7, 1982, May 9, 1986.
pH: Maximum, 9.8 units Aug. 8, Sept. 2. 1980; minimum, 6.6 units Aug. 15, 1987.
WATER TEMPERATURE: Maximum, 38.0°C July 14, 16, 1978; minimum, 0.0°C Jan. 31, Feb. 1, 2, 1985.
DISSOLVED OXYGEN: Maximum, 22.1 mg/L Oct. 4, 1983; minimum, 0.0 mg/L on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 839 microsiemens Oct. 19 minimum, 126 microsiemens Feb. 1.
pH: Maximum, 8.9 units Aug. 9, 10; minimum, 7.2 units Feb. 2.
WATER TEMPERATURE: Maximum, 35.5°C June 26, July 11; minimum, 0.5°C Dec. 21, 23, 24.
DISSOLVED OXYGEN: Maximum, 16.9 mg/L July 26; minimum, 1.7 mg/L Aug. 4.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
NOV										
08...	1240	22	512	8.0	20.5	11.4	130	0.4	180	25
JAN										
22...	1113	100	351	7.8	11.0	10.1	92	1.6	140	25
APR										
10...	1005	1500	441	8.2	16.0	9.3	95	1.4	170	29
JUN										
12...	1325	2170	334	8.1	27.5	7.9	102	1.0	140	16
JUL										
23...	1350	405	338	7.6	28.0	6.8	88	3.7	130	23
SEP										
14...	1320	25	535	8.3	29.5	10.0	133	4.4	190	30

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV									
08...	62	6.5	32	1	4.8	160	45	38	0.40
JAN									
22...	48	4.1	17	0.6	5.1	110	32	20	0.20
APR									
10...	58	5.8	20	0.7	4.0	140	32	24	0.30
JUN									
12...	46	5.9	13	0.5	3.7	120	19	19	0.40
JUL									
23...	46	4.4	16	0.6	3.8	110	32	24	0.30
SEP									
14...	63	6.8	36	1	5.0	150	50	45	0.30

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									
08...	5.5	288	0.180	0.020	0.200	0.030	0.87	0.90	0.090
JAN									
22...	6.0	200	0.760	0.040	0.800	0.190	0.51	0.70	0.120
APR									
10...	7.6	239	0.470	0.030	0.500	0.050	0.65	0.70	0.050
JUN									
12...	7.0	188	0.320	0.080	0.400	0.050	0.25	0.30	0.050
JUL									
23...	5.5	198	0.350	0.050	0.400	0.130	1.2	1.3	0.090
SEP									
14...	8.4	307	0.270	0.030	0.300	0.030	0.57	0.60	0.060

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1989	1443	428	243	946	30	118	38	149	150
NOV.	1989	951	515	293	752	38	98	50	129	180
DEC.	1989	1438.0	547	311	1210	42	161	55	214	190
JAN.	1990	6555	402	228	4030	28	494	35	617	150
FEB.	1990	7019	369	209	3970	25	480	31	595	130
MAR.	1990	73550	376	213	42300	26	5070	31	6230	140
APR.	1990	170040	372	211	96700	25	11600	31	14200	140
MAY	1990	388770	288	163	171000	18	19200	21	22400	110
JUNE	1990	48003	325	184	23800	21	2750	25	3290	120
JULY	1990	1985.8	425	241	1290	30	160	38	202	150
AUG.	1990	4326	346	196	2290	23	269	28	325	130
SEPT	1990	1049.5	461	262	742	33	94	42	120	160
TOTAL		705130.3	**	**	349000	**	40500	**	48400	**
WTD.AVG.		1932	324	183	**	21	**	25	**	120

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	456	446	453	483	463	477	572	560	567	526	523	524
2	462	442	453	486	478	482	572	558	566	539	526	531
3	447	433	441	487	472	478	572	552	561	539	405	503
4	462	438	448	504	489	494	---	---	e550	520	451	495
5	469	445	457	516	500	507	---	---	e520	531	520	527
6	475	461	469	516	488	505	---	---	e505	---	---	e531
7	490	474	481	518	484	499	---	---	e497	---	---	e533
8	490	481	484	521	472	503	---	---	e491	---	---	e536
9	489	488	488	548	502	528	556	489	519	---	---	e539
10	495	487	488	520	505	513	556	547	550	---	---	e542
11	502	486	490	521	509	515	557	543	549	526	468	511
12	515	493	499	521	507	514	---	---	e563	582	564	570
13	531	500	513	519	505	513	584	574	579	578	570	574
14	592	507	546	521	500	511	588	573	581	568	562	565
15	507	483	491	518	504	512	595	580	583	582	560	572
16	498	474	488	526	514	519	608	591	598	586	466	552
17	512	497	505	546	526	538	610	598	603	---	---	e440
18	580	511	533	552	545	548	615	594	604	---	---	e420
19	839	504	646	553	545	550	594	589	592	---	---	e340
20	549	494	511	556	537	546	606	595	600	296	268	284
21	508	493	497	558	544	550	619	604	609	328	296	310
22	508	493	501	606	402	490	686	616	642	388	330	357
23	515	492	505	544	494	511	718	580	663	408	390	402
24	522	505	516	520	510	513	616	562	582	428	410	419
25	529	506	520	542	518	527	552	491	512	434	410	423
26	543	512	525	550	538	542	524	494	506	448	418	435
27	533	495	514	558	540	546	531	513	522	470	450	462
28	521	508	515	570	544	555	536	518	524	526	468	487
29	531	520	526	572	552	564	556	540	549	538	486	509
30	531	210	363	570	560	565	569	442	531	494	484	490
31	461	372	420	---	---	---	525	489	519	500	286	439
MONTH	839	210	493	606	402	520	718	442	559	586	268	478

e Estimated

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	428	126	279	498	462	478	408	398	403	---	---	e297
2	388	322	350	540	502	524	400	396	398	---	---	e290
3	370	342	356	564	542	558	404	394	396	306	152	254
4	404	352	381	578	552	567	410	404	407	302	216	278
5	434	396	414	566	550	559	442	208	393	300	292	297
6	482	418	442	558	548	554	400	250	349	300	290	297
7	468	450	461	562	278	414	434	404	418	298	294	296
8	488	472	480	512	432	474	434	420	428	292	276	284
9	518	432	488	518	460	485	440	414	423	274	270	272
10	494	430	456	466	456	464	442	418	427	272	266	269
11	504	494	500	464	166	285	428	412	421	270	266	268
12	504	492	500	398	290	364	412	406	408	276	272	274
13	504	494	500	410	388	394	416	406	409	280	274	278
14	540	498	524	450	366	406	410	280	345	286	278	281
15	548	534	543	396	390	393	400	380	394	286	284	284
16	536	524	532	418	392	401	412	396	406	290	284	286
17	536	524	533	420	388	395	480	410	428	300	288	292
18	542	534	539	390	384	388	---	---	e430	328	300	308
19	550	538	543	388	382	385	---	---	e440	318	306	311
20	552	546	549	382	378	379	---	---	e450	378	314	337
21	556	304	486	380	378	380	404	374	394	---	---	e314
22	510	472	485	382	378	380	404	386	397	322	316	320
23	540	512	528	388	384	386	392	386	388	324	320	322
24	546	540	544	388	386	388	392	384	389	332	324	326
25	544	530	539	390	316	365	412	386	394	334	330	332
26	540	524	534	400	368	386	412	246	317	336	332	335
27	534	524	530	412	316	394	386	376	381	346	336	339
28	534	340	456	402	302	354	374	356	363	344	338	340
29	---	---	---	430	376	406	356	342	348	346	340	342
30	---	---	---	432	414	422	346	304	325	380	340	347
31	---	---	---	416	408	413	---	---	---	352	346	350
MONTH	556	126	481	578	166	424	480	208	396	380	152	304

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	346	226	282	466	446	457	488	174	429	496	460	481
2	302	230	287	472	460	466	428	246	363	502	480	491
3	352	302	315	478	462	470	456	410	437	496	472	487
4	332	320	323	480	460	470	548	238	357	482	458	470
5	326	312	321	508	298	452	392	150	318	508	456	472
6	312	310	311	468	324	442	296	270	286	476	450	464
7	368	310	321	474	420	454	316	294	306	478	450	464
8	330	322	323	444	406	425	328	314	320	490	458	470
9	322	320	321	460	422	437	340	326	333	474	454	465
10	328	320	325	458	434	448	346	308	333	466	432	455
11	332	328	330	482	454	469	334	300	322	464	428	450
12	338	332	335	550	482	504	362	324	339	476	418	464
13	352	338	344	566	470	522	424	356	380	480	462	471
14	366	352	357	492	468	480	386	364	376	538	478	503
15	378	364	369	500	480	492	496	378	417	502	476	491
16	382	376	379	520	488	503	418	382	401	---	---	e502
17	384	376	380	532	470	500	422	398	410	---	---	e518
18	384	378	381	550	462	506	432	406	417	---	---	e461
19	394	378	387	482	442	464	448	420	432	470	450	462
20	402	384	395	494	460	479	452	424	437	476	404	458
21	404	382	393	494	458	478	452	420	438	446	418	429
22	402	392	397	514	190	443	456	428	442	440	424	433
23	396	380	391	458	274	352	462	442	454	432	422	426
24	414	386	400	384	244	358	474	446	461	460	432	439
25	420	392	406	410	314	376	474	446	460	470	454	463
26	---	---	e422	420	364	398	476	450	462	475	457	466
27	---	---	e428	402	362	386	490	456	470	---	---	e477
28	---	---	e430	420	384	402	490	460	476	---	---	e487
29	452	414	431	450	422	434	494	458	477	519	491	502
30	464	418	443	484	450	464	496	458	476	527	506	518
31	---	---	---	476	456	468	498	458	477	---	---	---
MONTH	464	226	364	566	190	452	548	150	403	538	404	471

e Estimated

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	8.5	8.0	8.2	7.8	7.7	7.8	8.1	7.9	8.0	8.0	7.9	7.9
2	8.4	7.9	8.1	7.7	7.6	7.7	8.0	7.9	7.9	7.9	7.8	7.9
3	8.4	7.9	8.1	7.7	7.6	7.7	8.1	7.9	8.0	7.9	7.7	7.8
4	8.2	7.7	8.0	7.7	7.6	7.6	---	---	---	7.9	7.6	7.8
5	8.4	7.7	8.0	7.8	7.6	7.7	---	---	---	7.9	7.8	7.9
6	8.2	7.5	7.9	8.0	7.6	7.8	---	---	---	---	---	---
7	8.2	7.7	7.9	8.0	7.6	7.8	---	---	---	---	---	---
8	8.3	7.8	8.0	8.1	7.6	7.8	---	---	---	---	---	---
9	8.0	7.8	7.9	8.1	7.7	7.9	8.1	8.0	8.1	---	---	---
10	8.1	7.8	7.9	8.1	7.8	7.9	8.1	8.0	8.0	---	---	---
11	8.1	7.8	7.9	8.0	7.8	7.9	8.1	8.0	8.1	8.3	8.1	8.3
12	8.2	7.8	7.9	8.1	7.8	7.9	---	---	---	8.3	8.2	8.3
13	8.2	7.8	8.0	8.2	7.8	7.9	8.0	7.9	8.0	8.4	8.2	8.3
14	8.2	7.8	7.9	8.2	7.8	8.0	7.9	7.9	7.9	8.5	8.2	8.3
15	8.1	7.7	7.9	8.2	7.8	7.9	8.0	7.9	8.0	8.3	8.1	8.2
16	8.2	7.7	7.9	8.2	7.8	8.0	8.1	8.0	8.1	8.3	7.9	8.1
17	8.1	7.7	7.8	8.1	7.8	7.9	8.1	8.1	8.1	---	---	---
18	7.9	7.7	7.8	8.1	7.8	7.9	8.1	8.1	8.1	---	---	---
19	7.8	7.6	7.7	8.0	7.8	7.9	8.1	8.1	8.1	---	---	---
20	8.0	7.8	7.9	8.1	7.8	7.9	8.1	8.1	8.1	8.1	8.0	8.0
21	8.0	7.8	7.9	8.2	7.9	8.0	8.1	8.0	8.1	8.0	7.8	7.9
22	8.1	7.8	7.9	7.9	7.6	7.8	8.1	7.9	8.0	7.9	7.8	7.9
23	8.2	7.8	8.0	8.1	7.8	8.0	8.1	7.8	8.0	7.9	7.8	7.9
24	8.2	7.7	7.9	8.1	8.0	8.0	8.1	7.9	8.1	8.0	7.8	7.9
25	8.2	7.6	7.9	8.2	8.0	8.1	8.2	8.1	8.1	8.0	8.0	8.0
26	8.1	7.6	7.8	8.1	7.9	8.0	8.2	8.1	8.1	8.1	7.9	8.0
27	8.3	7.6	7.8	8.1	7.9	8.0	8.1	8.0	8.1	8.1	8.0	8.1
28	8.2	7.7	7.8	8.2	7.9	8.1	8.0	7.9	8.0	8.1	8.0	8.0
29	8.1	7.7	7.8	8.2	8.0	8.1	8.0	7.9	7.9	8.2	8.0	8.1
30	7.9	7.7	7.8	8.1	7.9	8.0	8.0	7.7	7.9	8.3	8.0	8.1
31	7.8	7.7	7.8	---	---	---	8.0	7.9	8.0	8.2	8.0	8.1
MONTH	8.5	7.5	7.9	8.2	7.6	7.9	8.2	7.7	8.0	8.5	7.6	8.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	8.3	7.5	7.9	8.0	7.8	7.9	8.3	8.2	8.3	---	---	---
2	7.8	7.2	7.5	8.2	7.9	8.0	8.4	8.3	8.3	---	---	---
3	7.8	7.7	7.8	8.2	8.0	8.1	8.4	8.3	8.4	---	---	---
4	7.8	7.8	7.8	8.3	8.0	8.2	8.5	8.4	8.5	---	---	---
5	7.9	7.8	7.8	8.3	8.0	8.2	---	---	---	8.0	8.0	8.0
6	7.9	7.9	7.9	8.2	8.0	8.1	---	---	---	8.0	8.0	8.0
7	7.9	7.8	7.9	8.1	7.9	8.0	---	---	---	8.0	8.0	8.0
8	8.0	7.8	7.9	8.1	7.9	8.0	---	---	---	8.0	8.0	8.0
9	7.9	7.8	7.9	8.1	7.9	8.0	---	---	---	8.0	8.0	8.0
10	8.1	7.8	7.9	8.1	7.9	8.0	---	---	---	8.0	8.0	8.0
11	8.1	7.9	8.0	8.1	7.7	7.9	8.4	8.3	8.3	8.0	7.9	8.0
12	8.2	7.8	8.0	8.2	7.5	7.9	8.4	8.3	8.3	8.1	8.0	8.0
13	8.4	8.0	8.2	8.1	7.8	8.1	8.4	8.3	8.3	8.0	8.0	8.0
14	8.2	7.9	8.1	8.2	7.4	7.9	8.3	8.1	8.2	8.0	7.8	7.9
15	8.3	8.0	8.1	8.3	8.2	8.2	8.3	8.2	8.3	8.0	7.9	7.9
16	8.3	8.1	8.2	8.3	8.2	8.3	8.3	8.2	8.3	7.9	7.9	7.9
17	8.2	8.1	8.1	8.3	8.2	8.3	---	---	---	7.9	7.9	7.9
18	8.3	8.0	8.1	8.3	8.3	8.3	---	---	---	8.1	7.9	7.9
19	8.2	8.0	8.1	8.3	8.3	8.3	---	---	---	8.1	7.9	8.0
20	8.2	8.0	8.1	8.3	8.3	8.3	---	---	---	---	---	---
21	8.1	7.9	8.0	8.4	8.3	8.4	---	---	---	---	---	---
22	8.1	8.0	8.1	8.4	8.3	8.4	8.3	8.2	8.2	---	---	---
23	8.1	8.0	8.1	8.4	8.3	8.3	8.3	8.2	8.2	8.1	8.0	8.0
24	8.1	7.9	8.0	8.3	8.3	8.3	8.3	8.2	8.2	8.1	8.0	8.0
25	8.2	7.9	8.0	8.3	8.2	8.3	8.4	8.2	8.3	8.1	8.0	8.0
26	8.2	8.0	8.1	8.3	8.2	8.3	8.3	8.1	8.2	8.1	8.0	8.1
27	8.2	7.9	8.1	8.3	8.2	8.3	8.2	8.1	8.2	8.2	8.0	8.1
28	8.1	7.7	7.9	8.3	8.2	8.2	8.1	8.1	8.1	8.1	8.1	8.1
29	---	---	---	8.2	8.1	8.2	8.1	8.1	8.1	8.1	8.1	8.1
30	---	---	---	8.2	8.1	8.2	8.1	8.1	8.1	8.2	7.9	8.1
31	---	---	---	8.3	8.3	8.3	---	---	---	8.1	8.1	8.1
MONTH	8.4	7.2	8.0	8.4	7.4	8.2	8.5	8.1	8.3	8.2	7.8	8.0

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.0	7.8	7.9	8.3	7.7	8.0	8.5	7.8	8.1	8.4	7.8	8.1
2	8.0	7.8	7.9	8.3	7.8	8.0	8.5	7.8	8.1	8.5	7.9	8.2
3	8.0	7.9	8.0	8.3	7.8	8.0	8.5	7.9	8.2	8.5	7.9	8.2
4	8.1	7.6	7.9	8.3	7.8	8.0	7.9	7.7	7.8	8.4	7.9	8.1
5	8.1	8.0	8.1	---	---	---	8.3	7.8	7.9	8.2	7.8	8.0
6	8.1	8.0	8.1	---	---	---	7.9	7.8	7.9	7.9	7.7	7.8
7	8.2	8.1	8.1	8.5	7.7	8.1	8.2	7.9	8.0	7.8	7.7	7.7
8	8.2	8.1	8.2	8.5	7.7	8.1	8.3	7.9	8.1	7.8	7.7	7.7
9	8.2	8.1	8.2	8.5	7.7	8.0	8.9	8.0	8.4	7.8	7.7	7.7
10	8.2	8.1	8.2	8.5	7.8	8.1	8.9	8.1	8.5	7.9	7.7	7.8
11	8.2	8.1	8.2	8.4	7.8	8.0	8.8	7.9	8.3	8.5	7.8	8.0
12	8.2	8.1	8.1	8.3	7.7	8.0	8.7	7.8	8.2	8.6	8.0	8.2
13	8.2	8.1	8.1	8.6	7.8	8.2	8.6	7.8	8.2	8.6	7.9	8.2
14	8.2	8.1	8.1	8.6	7.9	8.2	8.6	7.8	8.2	8.4	7.8	8.1
15	8.3	8.1	8.2	8.4	7.9	8.2	8.6	7.9	8.2	8.3	7.8	8.0
16	8.3	8.1	8.2	8.6	7.8	8.1	8.5	7.8	8.1	---	---	---
17	8.4	8.1	8.2	8.5	7.9	8.2	8.4	7.7	8.0	---	---	---
18	8.4	8.1	8.2	8.5	7.8	8.2	8.4	7.7	8.0	---	---	---
19	8.5	8.1	8.3	8.6	7.8	8.2	8.4	7.7	8.0	8.4	7.8	8.0
20	8.5	8.1	8.3	8.7	7.9	8.2	8.4	7.7	8.0	8.4	7.7	8.0
21	8.5	8.1	8.3	8.5	7.8	8.1	8.4	7.7	8.0	8.4	7.6	8.0
22	8.4	8.1	8.2	8.4	7.8	8.0	8.4	7.8	8.0	8.5	7.8	8.1
23	8.4	8.0	8.2	8.2	7.6	7.9	8.4	7.8	8.0	8.4	7.7	8.0
24	8.3	8.0	8.1	8.3	7.7	8.0	8.4	7.8	8.1	8.3	7.8	8.0
25	8.2	7.9	8.1	8.6	7.8	8.1	8.5	7.8	8.1	8.3	7.8	8.0
26	---	---	---	8.6	7.8	8.2	8.5	7.8	8.1	8.3	7.8	8.0
27	---	---	---	8.6	7.6	8.1	8.4	7.8	8.1	---	---	---
28	---	---	---	8.6	7.5	8.0	8.4	7.8	8.1	---	---	---
29	---	---	---	8.5	7.6	8.0	8.4	7.8	8.1	---	---	---
30	8.3	7.7	8.0	8.6	7.7	8.1	8.4	7.8	8.1	8.2	7.7	7.9
31	---	---	---	8.5	7.9	8.2	8.4	7.8	8.1	---	---	---
MONTH	8.5	7.6	8.1	8.7	7.5	8.1	8.9	7.7	8.1	8.6	7.6	8.0

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

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

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	11.5	10.0	10.5	16.0	14.0	15.5	---	---	---
2	---	---	---	15.5	10.0	12.5	16.5	15.0	15.5	---	---	---
3	---	---	---	16.5	11.0	14.0	16.5	14.0	15.5	---	---	---
4	13.5	9.5	11.5	16.0	12.0	14.0	---	---	---	---	---	---
5	13.0	9.0	11.0	16.0	13.5	14.5	---	---	---	19.0	18.0	18.5
6	14.0	10.5	12.5	16.0	14.5	15.0	---	---	---	19.0	18.0	18.5
7	15.0	10.0	12.5	16.5	14.5	15.5	---	---	---	19.0	18.0	18.5
8	18.0	12.5	15.0	18.0	14.5	16.0	---	---	---	19.5	18.5	19.0
9	17.0	14.0	15.5	21.0	17.0	18.5	---	---	---	20.0	19.0	19.5
10	16.5	12.0	14.0	21.0	17.5	19.0	17.5	16.0	16.5	20.0	19.0	19.5
11	17.0	11.5	14.5	21.5	19.0	20.0	18.0	15.5	16.5	20.0	19.5	19.5
12	16.5	12.5	14.5	23.5	17.5	19.5	17.0	16.0	16.5	21.0	19.5	20.5
13	17.5	13.5	15.5	21.5	17.0	18.5	17.0	16.0	16.5	21.5	20.5	21.0
14	17.0	12.0	15.0	23.0	17.0	20.0	18.0	16.0	17.0	23.0	21.5	22.0
15	12.0	10.5	11.5	18.0	16.0	17.0	19.5	16.5	18.0	23.5	22.0	23.0
16	13.5	10.0	11.5	17.5	16.5	17.0	20.5	18.5	19.5	24.0	22.5	23.0
17	13.5	9.0	11.5	17.5	16.0	17.0	22.0	20.0	21.0	23.5	23.0	23.5
18	13.5	11.0	12.0	18.0	16.5	17.5	23.0	16.5	18.5	23.5	22.0	22.5
19	14.5	12.0	13.0	17.5	16.0	16.5	20.5	16.0	18.5	24.0	21.5	22.5
20	14.5	11.0	13.5	17.0	15.0	16.0	22.0	17.5	19.5	---	---	---
21	14.0	11.0	12.0	17.5	15.0	16.5	19.5	17.5	18.5	---	---	---
22	11.5	9.5	10.5	17.0	16.0	16.5	20.0	18.0	19.0	---	---	---
23	15.0	8.5	11.5	17.5	16.0	17.0	20.0	18.0	19.0	23.5	21.5	22.5
24	16.5	10.5	13.5	17.0	13.5	15.0	20.5	19.0	19.5	24.0	21.5	22.5
25	16.5	12.0	14.5	13.5	10.5	12.0	20.5	19.5	20.0	24.5	22.0	23.5
26	17.0	12.5	15.0	13.5	12.0	12.5	20.5	18.5	19.0	24.5	22.5	23.5
27	17.0	14.0	15.5	13.5	12.0	13.0	19.5	19.0	19.5	25.0	23.0	24.0
28	16.5	12.0	14.5	14.0	12.0	13.0	20.0	19.0	19.5	24.5	23.0	23.5
29	---	---	---	15.5	14.5	15.0	21.0	20.0	20.5	25.0	23.0	24.0
30	---	---	---	15.0	14.5	15.0	20.5	19.5	20.0	26.0	23.5	24.5
31	---	---	---	16.0	14.0	15.0	---	---	---	26.5	23.5	25.5
MONTH	18.0	8.5	13.5	23.5	10.0	16.0	23.0	14.0	18.5	26.5	18.0	22.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	25.5	23.5	24.0	34.5	27.0	30.5	30.5	26.0	28.0	33.5	29.0	31.5
2	26.0	24.0	25.5	34.5	28.0	31.0	31.0	26.5	28.5	32.0	28.5	29.5
3	28.0	25.5	26.5	34.5	28.0	31.0	30.0	27.0	28.5	31.5	28.5	29.5
4	28.0	26.0	27.0	34.0	27.5	31.0	28.5	25.5	27.5	32.0	29.0	30.5
5	27.5	25.0	26.5	34.0	28.0	30.0	27.5	24.0	26.5	33.0	29.0	31.0
6	28.0	26.0	27.0	34.0	27.5	30.5	29.0	24.0	26.0	34.0	30.0	31.5
7	28.0	26.5	27.0	33.0	27.0	29.5	29.5	24.0	26.5	32.5	29.0	30.5
8	28.0	26.0	27.0	33.0	26.0	29.5	30.0	24.5	27.0	30.0	27.0	28.5
9	28.5	26.5	27.5	34.0	27.0	30.5	30.5	25.0	27.5	27.5	26.0	27.0
10	28.5	27.0	27.5	34.0	27.5	31.0	31.5	26.5	29.5	27.0	25.5	26.0
11	28.5	26.5	27.5	35.5	28.0	31.0	32.5	27.5	30.5	26.0	25.0	25.5
12	28.0	27.0	27.5	32.0	27.5	29.5	32.0	28.5	30.5	29.5	25.0	27.0
13	29.0	27.0	28.0	29.5	25.5	27.0	32.0	28.5	30.5	29.0	27.0	27.5
14	29.0	27.0	28.0	29.5	23.5	26.5	32.0	28.5	30.5	31.5	27.0	29.0
15	31.0	27.5	28.5	27.5	24.0	25.0	32.0	28.5	30.5	---	---	---
16	31.0	27.0	28.5	27.5	23.5	25.5	32.5	28.5	30.5	---	---	---
17	31.5	26.5	29.0	27.0	24.5	25.5	31.5	28.5	30.5	---	---	---
18	32.0	27.0	29.0	28.0	24.5	26.5	32.0	28.5	30.5	---	---	---
19	32.0	27.0	29.5	31.5	25.0	28.0	32.0	28.5	30.5	31.0	27.5	29.5
20	32.5	27.5	29.5	32.0	25.5	28.5	33.0	29.5	31.5	30.0	28.0	29.0
21	32.0	27.5	29.5	33.0	26.0	29.5	33.5	30.0	32.0	29.0	27.0	28.0
22	32.5	27.5	30.0	30.0	26.5	28.0	33.5	30.0	31.5	29.0	26.5	27.5
23	33.5	27.0	30.0	31.0	25.5	28.0	33.0	30.0	31.0	27.5	23.5	25.5
24	32.0	26.0	29.0	29.0	26.5	28.0	33.0	29.0	31.0	25.0	21.5	23.5
25	33.5	27.0	30.0	31.0	26.0	28.0	33.5	29.0	31.0	26.5	22.5	24.0
26	35.5	26.5	30.5	32.0	26.0	29.0	34.0	29.5	32.0	29.0	23.5	26.0
27	34.0	28.5	30.5	33.5	26.5	30.0	34.0	30.0	32.0	---	---	---
28	33.0	27.5	30.0	34.5	27.0	31.0	34.5	31.0	32.5	---	---	---
29	33.5	26.5	29.5	34.5	28.5	32.0	34.0	30.5	32.5	30.0	25.0	27.0
30	34.0	26.5	30.0	32.5	28.5	29.5	34.5	31.0	32.5	29.0	25.0	26.5
31	---	---	---	29.5	26.5	28.0	35.0	31.0	33.0	---	---	---
MONTH	35.5	23.5	28.5	35.5	23.5	29.0	35.0	24.0	30.0	34.0	21.5	28.0

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	12.3	8.1	10.2	8.9	7.6	8.3	13.4	10.5	11.6	10.6	9.7	10.1
2	12.3	8.0	10.2	9.9	7.9	8.9	13.1	10.5	11.7	10.4	9.6	10.0
3	11.7	7.5	9.6	10.3	8.8	9.5	13.0	10.6	11.7	9.6	7.3	8.8
4	10.7	8.3	9.3	10.3	9.1	9.7	---	---	---	10.0	6.8	9.0
5	12.6	7.9	9.5	10.7	8.6	9.4	---	---	---	9.6	8.8	9.1
6	9.9	2.8	7.5	12.0	8.0	9.7	---	---	---	---	---	---
7	10.8	6.9	8.6	12.0	8.3	9.8	---	---	---	---	---	---
8	11.6	9.1	10.2	11.6	8.1	9.5	---	---	---	---	---	---
9	10.4	8.2	9.3	11.9	8.0	9.7	12.6	11.6	12.0	---	---	---
10	10.5	7.9	8.9	12.4	8.9	10.4	12.3	11.4	11.9	---	---	---
11	10.9	8.4	9.4	12.0	8.7	10.2	12.0	11.5	11.8	---	---	---
12	11.6	8.3	9.5	12.0	8.3	10.0	---	---	---	12.2	10.5	11.4
13	11.7	8.6	9.8	11.9	8.4	9.7	13.1	12.4	12.8	13.8	11.4	12.4
14	12.6	8.5	10.0	11.4	7.9	9.3	12.8	11.9	12.5	13.9	11.0	12.3
15	11.6	8.5	9.5	11.6	7.9	9.5	12.4	11.8	12.1	11.8	9.9	10.9
16	13.0	7.9	9.7	12.1	8.4	10.1	13.2	11.9	12.6	10.2	7.1	9.0
17	11.3	7.3	9.0	13.1	9.5	11.0	12.9	12.4	12.7	---	---	---
18	10.3	8.1	9.0	12.3	9.8	10.9	12.4	12.0	12.2	---	---	---
19	10.2	8.0	9.2	12.9	9.8	11.0	12.6	11.9	12.2	---	---	---
20	11.9	10.4	11.0	12.5	9.9	10.8	12.8	12.3	12.5	---	---	---
21	13.4	10.6	11.6	12.6	8.9	10.7	12.5	12.1	12.3	9.6	9.3	9.5
22	12.8	9.6	11.1	8.8	6.1	7.4	16.0	12.1	14.0	9.8	9.4	9.6
23	14.1	9.3	10.9	10.4	7.5	9.2	14.1	12.6	13.4	9.6	9.3	9.4
24	13.1	8.5	10.3	11.1	9.2	10.2	12.7	12.0	12.5	9.6	9.0	9.3
25	13.8	7.8	10.0	11.4	9.4	10.3	12.0	11.3	11.8	10.8	9.7	10.4
26	12.7	7.5	9.5	11.3	9.0	10.0	11.9	11.1	11.5	11.1	10.3	10.6
27	13.8	7.6	9.5	11.4	9.1	10.1	11.4	10.9	11.1	11.4	10.3	10.7
28	12.4	7.3	9.1	12.0	9.1	10.5	11.0	10.5	10.8	11.4	10.2	10.8
29	12.1	7.1	9.0	13.2	10.3	11.6	10.6	9.8	10.1	12.4	10.8	11.5
30	8.8	8.0	8.4	12.7	10.6	11.7	10.0	9.2	9.6	13.1	10.8	11.9
31	8.9	7.6	8.2	---	---	---	10.6	9.6	10.1	12.7	10.0	11.2
MONTH	14.1	2.8	9.6	13.2	6.1	10.0	16.0	9.2	11.9	13.9	6.8	10.4
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	11.4	9.6	10.6	10.1	9.3	9.6	---	---	---
2	---	---	---	12.3	10.0	11.1	10.1	9.3	9.6	---	---	---
3	9.6	8.7	9.1	12.8	9.9	11.4	10.3	9.1	9.8	9.5	8.7	9.4
4	9.9	9.5	9.7	13.0	9.7	11.3	10.1	8.5	9.3	9.5	8.6	9.1
5	10.2	9.6	9.9	12.4	9.2	10.8	---	---	---	9.6	9.4	9.5
6	10.1	9.7	9.9	11.3	8.7	10.0	---	---	---	9.8	9.6	9.7
7	10.0	9.7	9.9	9.5	8.6	9.2	---	---	---	9.8	9.6	9.7
8	9.8	9.3	9.5	9.9	8.6	9.1	---	---	---	9.8	9.5	9.6
9	9.7	8.4	9.0	9.9	8.3	8.9	---	---	---	9.9	9.5	9.7
10	11.2	8.9	10.1	10.1	8.2	8.9	---	---	---	10.2	9.6	9.8
11	11.6	9.2	10.3	8.1	4.8	6.9	---	---	---	9.6	9.4	9.6
12	11.3	9.2	10.1	9.3	4.1	7.0	10.5	9.3	9.8	9.5	9.3	9.4
13	12.3	8.6	10.2	9.1	6.3	8.2	9.9	9.2	9.5	9.4	9.1	9.3
14	10.1	8.1	9.2	9.0	3.1	6.7	9.4	9.0	9.2	9.1	8.4	8.8
15	12.3	9.4	10.8	9.3	9.0	9.2	9.3	8.6	9.1	8.6	8.3	8.5
16	12.7	10.1	11.4	9.4	9.1	9.3	8.9	7.7	8.6	8.6	8.2	8.4
17	12.5	10.5	11.5	9.5	9.0	9.3	---	---	---	8.6	8.3	8.5
18	12.4	10.1	11.2	9.4	9.0	9.2	---	---	---	8.7	8.2	8.4
19	11.8	9.9	10.9	9.9	9.1	9.5	---	---	---	8.6	6.9	8.3
20	11.5	10.0	10.7	9.8	9.4	9.6	---	---	---	---	---	---
21	10.5	9.4	10.0	9.7	9.1	9.4	---	---	---	---	---	---
22	11.3	10.2	10.7	9.5	9.0	9.3	9.3	9.0	9.1	---	---	---
23	11.6	10.5	11.0	9.4	8.8	9.1	9.3	8.9	9.1	---	---	---
24	11.9	10.2	10.9	9.7	8.8	9.3	9.2	8.8	9.0	---	---	---
25	12.2	9.8	10.9	10.5	9.6	10.0	9.0	8.7	8.9	---	---	---
26	12.2	9.8	10.9	10.0	9.6	9.9	8.8	8.4	8.6	---	---	---
27	12.3	9.4	10.9	10.3	9.5	9.9	9.1	8.8	8.9	---	---	---
28	11.5	8.9	10.0	10.2	9.3	10.0	9.1	8.8	8.9	---	---	---
29	---	---	---	9.5	8.8	9.2	8.9	8.6	8.7	---	---	---
30	---	---	---	9.7	9.1	9.4	9.2	8.6	8.9	---	---	---
31	---	---	---	10.0	9.4	9.7	---	---	---	---	---	---
MONTH	12.7	8.1	10.3	13.0	3.1	9.4	10.5	7.7	9.1	10.2	6.9	9.2

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	10.1	5.3	7.4	11.7	3.4	7.0	12.7	6.9	10.7
2	---	---	---	10.4	5.1	7.3	11.0	5.2	7.4	---	---	---
3	---	---	---	10.4	5.0	7.2	11.1	4.8	7.6	---	---	---
4	---	---	---	10.8	5.1	7.4	6.6	1.7	5.1	12.1	6.0	9.1
5	---	---	---	11.3	4.8	6.8	6.7	5.2	5.7	12.4	6.0	9.2
6	8.2	7.6	7.9	8.9	4.7	6.4	6.1	5.5	5.8	12.0	5.7	9.1
7	8.5	7.9	8.2	14.0	4.7	8.3	7.8	5.7	6.8	11.3	5.5	8.7
8	8.3	7.8	8.0	14.6	5.0	8.9	8.8	6.5	7.5	9.7	5.5	7.1
9	8.3	7.6	7.9	12.2	4.9	8.1	11.8	6.5	8.6	---	---	---
10	8.0	7.4	7.8	11.8	4.6	7.7	15.7	6.4	10.2	---	---	---
11	7.9	7.2	7.6	11.4	4.5	7.7	16.4	6.5	10.9	9.8	5.3	7.1
12	7.7	6.8	7.2	10.0	4.4	6.8	12.4	5.8	9.0	12.3	5.5	8.2
13	7.7	7.1	7.4	12.2	4.5	8.0	11.7	5.3	8.1	12.5	5.8	8.8
14	8.0	7.0	7.5	13.8	5.6	9.1	11.8	5.2	8.1	13.8	5.7	9.8
15	8.7	7.1	7.8	10.6	5.5	8.2	12.3	5.3	8.3	12.1	6.2	9.2
16	8.5	7.2	7.7	14.7	5.1	9.3	12.6	5.5	8.9	6.0	2.3	4.7
17	9.1	7.2	8.0	11.8	5.3	8.8	12.3	5.3	8.8	10.3	5.2	6.1
18	9.0	7.0	7.8	16.2	5.4	10.1	12.2	5.2	8.7	10.0	2.5	6.1
19	---	---	---	15.9	5.6	9.9	11.9	5.3	8.5	12.3	4.7	7.9
20	---	---	---	15.6	5.0	10.0	12.2	5.3	8.6	10.9	4.9	7.4
21	---	---	---	13.9	5.1	9.1	12.3	5.1	8.5	10.5	3.9	7.1
22	---	---	---	9.9	4.7	6.5	11.3	5.6	8.7	12.3	5.4	8.4
23	10.7	6.8	8.6	9.0	4.7	6.6	10.6	5.8	8.5	12.6	6.3	9.3
24	9.8	6.8	8.0	10.1	5.3	7.2	13.2	5.6	8.9	11.9	7.1	9.7
25	10.1	6.7	8.2	13.5	5.4	8.5	12.5	5.7	9.0	12.5	7.0	9.9
26	---	---	---	16.9	5.5	10.4	13.6	5.8	9.5	14.2	7.3	11.4
27	---	---	---	16.4	5.7	10.6	12.9	5.8	9.5	---	---	---
28	---	---	---	15.1	5.0	9.3	12.3	5.9	9.3	---	---	---
29	12.9	6.0	9.0	13.4	4.2	8.0	12.1	5.7	9.2	---	---	---
30	12.1	5.8	8.6	11.1	3.8	7.2	12.8	5.5	9.2	13.3	8.5	10.1
31	---	---	---	10.5	4.4	7.3	13.5	5.7	9.6	---	---	---
MONTH	12.9	5.8	8.0	16.9	3.8	8.2	16.4	1.7	8.4	14.2	2.3	8.5

08048970 VILLAGE CREEK AT EVERMAN, TX

LOCATION.--Lat 32°36'12", long 97°15'53", Tarrant County, Hydrologic Unit 12030102, at center of channel at downstream side of bridge on Rendon Road (Tarrant County Road 1015), 1.4 mi downstream from Deer Creek, and 1.8 mi southeast of Everman High School.

DRAINAGE AREA.--84.5 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1989 to September 1990.

GAGE.--Water-stage recorder. Datum of gage is 589.93 ft above National Geodetic Vertical Datum of 1929 (Tarrant County Public Works Department reference mark).

REMARKS.--Records good except those for estimated daily discharges, which are fair. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,500 ft³/s May 3, 1990 (gage height, 21.38 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum known stage since about 1930, 27.37 ft date uncertain, but may be same date, Mar. 27, 1977, as date of maximum stage at discontinued downstream station, Village Creek at Kennedale (08048980). Flood of May 18, 1989, may have equalled, or slightly exceeded, the indicated known maximum stage.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,500 ft³/s May 3 at 0600 hrs (gage height, 21.38 ft); no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.10	2.1	1.5	3.1	946	8.3	14	85	286	2.2	.66	.00
2	e.06	.69	1.9	.44	154	7.0	9.7	3970	153	2.1	3.3	.00
3	.06	1.5	2.0	.14	49	6.6	8.3	5290	46	1.9	2.8	.00
4	e.06	1.2	2.1	.13	15	6.4	7.7	223	85	1.6	126	.00
5	e.04	.69	2.1	.80	10	6.3	7.9	119	15	4.0	9.9	.00
6	.04	.74	2.0	.59	9.3	6.2	209	84	9.0	23	6.7	.00
7	e.04	.61	1.7	.33	8.7	15	37	68	7.5	4.7	3.0	.00
8	e.04	.41	1.6	.19	8.2	14	11	59	6.8	3.3	1.4	.00
9	e.04	.39	1.6	.07	8.1	8.6	9.3	49	6.2	2.6	.25	.00
10	e.04	.73	1.6	.05	8.9	7.6	11	33	5.7	2.1	.08	.00
11	e.03	1.4	1.6	.04	7.9	323	8.7	23	5.7	1.5	.02	.27
12	.03	1.6	1.8	.06	7.4	124	7.7	43	5.2	1.1	.01	.62
13	e.03	1.1	1.7	.06	7.0	44	7.3	14	5.0	.74	.01	.07
14	e.03	1.3	1.6	.08	6.9	304	302	10	4.8	.57	1.4	.03
15	e.03	.92	1.6	.08	6.9	138	96	9.1	4.6	.41	.19	.04
16	e.02	1.1	1.6	.12	6.8	45	32	9.8	4.5	.58	.01	.05
17	e.02	1.1	1.6	3.4	6.6	17	13	8.4	4.3	.38	.01	.03
18	e.02	1.4	1.6	57	6.5	11	9.8	7.7	4.2	.59	.00	.01
19	e.02	1.8	1.8	239	6.6	8.9	10	7.7	4.0	1.6	.00	.00
20	e.01	2.5	2.3	38	6.6	8.1	131	12	3.9	1.2	.00	.00
21	e.01	3.1	2.4	6.5	25	7.8	183	8.9	3.7	.71	.00	1.0
22	e.01	11	2.4	4.4	13	7.5	53	7.1	3.5	.59	.10	2.2
23	.01	7.1	1.3	3.3	7.9	7.3	15	6.5	3.4	.71	.02	1.4
24	.01	3.8	.97	2.2	6.8	7.0	9.8	6.2	3.3	1.4	.01	.03
25	e.01	1.8	1.1	1.5	6.6	13	8.6	5.9	3.4	3.5	.00	.00
26	.01	.42	2.2	1.1	6.5	9.2	4980	5.6	3.2	1.6	.00	.00
27	.02	.57	2.9	.69	6.3	8.7	437	5.5	3.0	.54	.00	.00
28	.03	.97	2.6	.69	12	156	191	5.2	2.9	.18	.00	.00
29	.10	1.1	2.2	2.0	---	61	105	5.2	2.7	1.0	.00	.00
30	15	1.1	1.9	1.4	---	79	77	93	2.4	.16	.00	.00
31	5.2	---	4.5	.23	---	43	---	228	---	.06	.00	---
TOTAL	21.17	54.24	59.77	367.69	1370.5	1508.5	7001.8	10501.8	697.9	66.62	155.87	5.75
MEAN	.68	1.81	1.93	11.9	48.9	48.7	233	339	23.3	2.15	5.03	.19
MAX	15	11	4.5	239	946	323	4980	5290	286	23	126	2.2
MIN	.01	.39	.97	.04	6.3	6.2	7.3	5.2	2.4	.06	.00	.00
AC-FT	42	108	119	729	2720	2990	13890	20830	1380	132	309	11

CAL YR 1989	TOTAL	---	MEAN	---	MAX	---	MIN	---	AC-FT	---
WTR YR 1990	TOTAL	21811.61	MEAN	59.8	MAX	5290	MIN	.00	AC-FT	43260

e Estimated

08048970 VILLAGE CREEK AT EVERMAN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1989 to September 1990.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1989 to September 1990.
pH: October 1989 to September 1990.
WATER TEMPERATURE: October 1989 to September 1990.
DISSOLVED OXYGEN: October 1989 to September 1990.

INSTRUMENTATION.--Since October 1989, a four-parameter water-quality monitor continuously records specific conductance, pH, water temperature, and dissolved oxygen at this station.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. Where maximum or minimum specific conductance values are not shown, mean value is estimated. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using 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 CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 1,000 microsiemens on several days during January and May; minimum, 129 microsiemens May 3.
pH: Maximum, 9.1 units Jan. 13; minimum, 7.0 units Nov. 22.
WATER TEMPERATURE: Maximum, 34.5°C July 11; minimum, 0.5°C Dec. 22.
DISSOLVED OXYGEN: Maximum, 20.8 mg/L Feb. 25; minimum, 2.4 mg/L Nov. 8.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
NOV										
07...	1125	0.70	563	7.6	19.5	5.4	60	1.1	150	0
JAN										
23...	1010	2.4	458	7.8	10.5	9.3	85	1.4	140	0
APR										
05...	1020	7.9	730	8.0	18.0	6.3	68	1.0	250	50
JUN										
14...	0730	4.8	849	7.8	27.0	5.1	65	1.2	280	72
JUL										
10...	1110	2.1	521	8.0	29.0	7.9	104	1.7	160	14
AUG										
23...	0930	0.05	459	7.6	27.5	5.1	66	0.5	140	32

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV									
07...	46	7.6	67	2	5.2	180	54	30	0.30
JAN									
23...	47	6.0	37	1	7.0	180	44	30	0.30
APR									
05...	80	12	53	1	6.0	200	94	55	0.30
JUN									
14...	85	17	65	2	3.1	210	150	67	0.40
JUL									
10...	48	8.7	46	2	4.7	140	55	41	0.20
AUG									
23...	40	8.7	41	2	3.4	100	64	39	0.60

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									
07...	4.1	325	--	0.010	<0.100	0.020	0.98	1.0	0.100
JAN									
23...	9.1	261	0.960	0.040	1.00	0.050	0.75	0.80	0.400
APR									
05...	1.1	421	--	<0.020	<0.100	<0.020	--	0.60	0.070
JUN									
14...	6.1	520	--	<0.010	<0.100	<0.010	--	0.50	0.030
JUL									
10...	3.3	292	--	<0.010	<0.100	0.030	0.47	0.50	0.080
AUG									
23...	5.5	265	--	<0.010	<0.100	<0.010	--	0.30	0.050

08048970 VILLAGE CREEK AT EVERMAN, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1989	21.17	228	129	7.4	15	0.8	14	0.8	62
NOV.	1989	54.24	515	292	43	36	5.3	56	8.2	160
DEC.	1989	59.77	768	438	71	58	9.4	120	19	250
JAN.	1990	367.69	426	242	241	31	30	50	49	130
FEB.	1990	1370.5	358	203	752	25	91	33	120	100
MAR.	1990	1508.5	509	289	1180	36	147	57	232	150
APR.	1990	7001.8	361	205	3870	25	465	31	592	100
MAY	1990	10501.8	247	140	3970	17	469	19	528	69
JUNE	1990	697.9	453	257	485	32	60	49	91	140
JULY	1990	66.62	444	252	45	31	5.6	45	8.1	130
AUG.	1990	155.87	382	217	91	26	11	33	14	110
SEPT	1990	5.75	479	272	4.2	34	0.5	49	0.8	140
TOTAL		21811.61	**	**	10800	**	1300	**	1660	**
WTD.AVG.		60	322	183	**	22	**	28	**	93

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	e500	---	---	e290	549	537	544	937	894	918
2	---	---	e500	---	---	e320	565	549	554	992	941	968
3	---	---	e500	---	---	e390	584	565	570	988	969	979
4	---	---	e490	---	---	e420	600	584	590	1000	988	996
5	---	---	e490	---	---	e440	620	600	609	1000	988	996
6	---	---	e500	---	---	e520	639	620	627	1000	1000	1000
7	---	---	e500	---	---	e560	643	639	642	1000	1000	1000
8	---	---	e510	561	561	561	675	639	657	1000	1000	1000
9	---	---	e510	561	553	556	694	675	681	1000	1000	1000
10	---	---	e510	553	545	550	710	694	700	1000	969	991
11	---	---	e510	549	541	546	729	710	717	996	980	985
12	---	---	e510	549	537	544	757	729	741	996	941	970
13	---	---	e500	537	529	531	780	761	773	980	965	971
14	---	---	e500	533	525	530	776	773	774	980	976	978
15	---	---	e500	---	---	e530	800	773	780	984	976	981
16	---	---	e490	---	---	e530	831	800	822	980	976	977
17	---	---	e490	---	---	e520	839	827	835	980	961	974
18	---	---	e490	---	---	e520	843	835	840	1000	255	921
19	---	---	e480	---	---	e520	851	839	844	420	224	296
20	---	---	e480	---	---	e520	886	851	862	373	286	341
21	---	---	e490	---	---	e510	867	855	862	404	376	391
22	---	---	e490	561	482	520	910	863	896	435	404	420
23	---	---	e490	561	522	553	957	914	944	489	435	457
24	---	---	e480	565	557	562	969	949	958	517	489	500
25	---	---	e480	557	545	555	953	910	940	530	516	521
26	---	---	e470	549	545	545	910	871	892	545	534	540
27	---	---	e460	545	540	544	871	839	856	563	549	555
28	---	---	e460	541	533	537	843	812	831	573	560	568
29	---	---	e460	541	537	539	808	765	793	588	572	579
30	---	---	e210	541	533	537	784	761	765	598	590	593
31	---	---	e230	---	---	---	890	788	839	609	589	602
MONTH	---	---	474	565	482	510	969	537	766	1000	224	773

e Estimated

08048970 VILLAGE CREEK AT EVERMAN, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	608	158	299	877	752	803	635	608	620	722	431	710
2	329	230	279	762	696	737	663	639	651	278	137	208
3	413	337	374	697	663	677	682	655	669	333	129	196
4	468	416	442	677	658	668	706	678	692	557	349	459
5	513	472	493	718	675	691	729	675	713	655	561	610
6	557	516	538	804	723	767	561	322	396	698	659	678
7	598	560	581	901	805	842	549	431	495	718	698	708
8	638	601	620	964	683	778	604	553	575	725	718	722
9	662	638	651	803	737	767	651	608	628	745	722	736
10	694	662	677	898	811	864	722	651	681	737	729	732
11	708	694	704	911	184	555	729	698	716	741	718	733
12	722	699	714	435	322	385	729	694	715	780	675	736
13	736	709	725	502	439	468	761	714	744	898	796	849
14	741	724	735	525	247	404	773	306	495	847	816	835
15	761	737	749	412	314	355	471	404	440	855	816	837
16	745	714	733	506	416	459	557	478	516	933	847	876
17	741	722	730	584	510	545	635	561	593	933	835	890
18	757	729	742	643	588	613	---	---	e620	855	824	834
19	765	741	754	678	647	664	---	---	e660	890	863	881
20	769	719	758	714	682	695	773	424	689	1000	886	930
21	827	686	766	733	690	712	514	451	477	1000	847	895
22	608	463	489	745	694	719	604	518	555	874	851	863
23	569	490	518	765	659	733	675	608	642	863	839	852
24	678	573	625	812	725	769	733	678	701	847	835	840
25	741	678	711	835	761	791	769	733	748	871	839	855
26	776	745	764	835	733	802	773	165	305	871	843	857
27	779	765	773	725	682	696	455	231	357	882	859	867
28	885	755	812	733	408	542	600	467	529	894	875	882
29	---	---	---	576	545	556	686	596	638	890	871	884
30	---	---	---	620	537	573	710	690	699	816	294	483
31	---	---	---	612	553	575	---	---	---	675	235	348
MONTH	885	158	634	964	184	652	773	165	599	1000	129	735

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	498	235	376	---	---	e720	494	459	485	---	---	---
2	420	290	361	---	---	e700	518	459	478	---	---	---
3	540	424	479	---	---	e680	553	522	533	---	---	---
4	459	341	387	---	---	e660	561	192	365	---	---	---
5	596	467	532	---	---	e490	424	380	403	---	---	---
6	682	600	643	---	---	e340	486	416	460	---	---	---
7	737	686	717	---	---	e280	498	486	493	---	---	---
8	776	741	766	---	---	e360	494	471	485	---	---	---
9	831	776	804	---	---	e420	478	451	467	---	---	---
10	843	800	816	---	---	e510	463	435	452	---	---	---
11	883	816	830	---	---	e520	447	435	441	---	---	e480
12	894	835	859	529	509	524	443	435	440	490	467	479
13	886	847	869	533	522	525	443	431	439	489	451	471
14	882	859	869	537	522	529	459	424	436	490	475	482
15	882	859	869	537	525	531	478	459	469	494	482	490
16	867	839	857	545	533	540	478	467	473	502	490	497
17	---	---	e850	539	529	533	---	---	e472	506	490	500
18	---	---	e840	545	529	535	---	---	---	506	486	500
19	---	---	e840	545	522	533	---	---	---	---	---	---
20	---	---	e830	533	514	526	---	---	---	---	---	---
21	---	---	e830	525	510	517	---	---	---	490	478	485
22	---	---	e830	537	506	521	467	443	457	490	182	459
23	---	---	e820	525	498	512	510	443	459	514	490	504
24	---	---	e820	518	462	500	463	439	455	502	490	499
25	---	---	e800	494	451	467	---	---	---	---	---	---
26	---	---	e800	514	463	488	---	---	---	---	---	---
27	---	---	e790	518	475	497	---	---	---	---	---	---
28	---	---	e770	518	490	504	---	---	---	---	---	---
29	---	---	e770	510	486	498	---	---	---	---	---	---
30	---	---	e750	502	490	493	---	---	---	---	---	---
31	---	---	---	502	482	493	---	---	---	---	---	---
MONTH	894	235	746	545	451	514	561	192	458	514	182	487

e Estimated

08048970 VILLAGE CREEK AT EVERMAN, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	---	---	---	8.3	8.1	8.2	8.4	8.1	8.2
2	---	---	---	---	---	---	8.4	8.2	8.3	8.3	8.1	8.2
3	---	---	---	---	---	---	8.4	8.2	8.3	8.3	8.0	8.2
4	---	---	---	---	---	---	8.6	8.3	8.5	8.1	7.9	8.0
5	---	---	---	---	---	---	8.5	8.3	8.5	8.4	8.0	8.3
6	---	---	---	---	---	---	8.5	8.0	8.3	8.4	8.1	8.2
7	---	---	---	---	---	---	8.3	8.0	8.2	8.5	8.1	8.3
8	---	---	---	7.7	7.2	7.5	8.4	8.0	8.3	8.6	8.2	8.4
9	---	---	---	7.7	7.3	7.4	---	---	---	8.5	8.2	8.3
10	---	---	---	7.6	7.1	7.3	---	---	---	8.8	8.3	8.6
11	---	---	---	---	---	---	---	---	---	8.8	8.4	8.6
12	---	---	---	---	---	---	---	---	---	8.6	7.8	8.2
13	---	---	---	7.7	7.2	7.4	---	---	---	9.1	8.5	8.7
14	---	---	---	7.5	7.1	7.3	---	---	---	8.6	8.5	8.5
15	---	---	---	7.9	7.2	7.6	---	---	---	8.5	8.2	8.3
16	---	---	---	7.8	7.5	7.7	---	---	---	8.3	8.0	8.1
17	---	---	---	7.8	7.5	7.6	---	---	---	8.1	7.8	7.9
18	---	---	---	7.8	7.6	7.7	---	---	---	8.1	7.7	7.9
19	---	---	---	7.8	7.4	7.6	---	---	---	7.9	7.8	7.9
20	---	---	---	7.9	7.2	7.5	---	---	---	7.8	7.6	7.8
21	---	---	---	7.7	7.1	7.3	---	---	---	7.8	7.6	7.7
22	---	---	---	8.0	7.0	7.5	8.1	7.9	8.0	7.6	7.5	7.6
23	---	---	---	8.0	7.8	7.9	8.1	8.0	8.1	8.1	7.4	7.7
24	---	---	---	7.9	7.7	7.8	8.1	8.1	8.1	8.2	7.9	8.0
25	---	---	---	7.8	7.5	7.6	8.3	8.0	8.1	8.1	7.7	8.0
26	---	---	---	7.7	7.4	7.5	8.4	7.9	8.1	8.1	7.9	8.0
27	---	---	---	7.8	7.5	7.7	8.3	8.0	8.1	8.2	7.8	8.0
28	---	---	---	8.3	7.7	8.0	8.3	8.0	8.1	8.2	8.0	8.0
29	---	---	---	8.3	8.1	8.2	8.3	8.0	8.1	8.3	7.9	8.1
30	---	---	---	8.4	8.0	8.2	8.1	7.9	8.0	8.1	7.9	8.0
31	---	---	---	---	---	---	8.2	7.9	8.1	8.0	7.7	7.9
MONTH	---	---	---	8.4	7.0	7.6	8.6	7.9	8.2	9.1	7.4	8.1
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	8.2	7.8	8.0	8.3	8.0	8.1	8.7	8.2	8.5	---	---	---
2	8.2	8.0	8.0	8.8	8.2	8.5	8.7	8.0	8.3	---	---	---
3	8.2	8.0	8.1	8.8	8.3	8.5	8.6	8.3	8.4	---	---	---
4	8.2	8.1	8.1	8.8	8.2	8.5	8.7	8.3	8.4	---	---	---
5	8.2	8.1	8.2	8.5	8.2	8.4	8.6	7.9	8.2	---	---	---
6	8.3	8.1	8.2	8.3	8.0	8.1	8.1	7.8	8.0	8.2	8.1	8.1
7	8.3	8.2	8.2	8.3	8.0	8.1	8.2	7.7	7.9	8.2	8.1	8.2
8	8.4	8.2	8.3	8.2	8.0	8.1	8.3	7.8	8.0	8.3	8.2	8.2
9	8.3	8.2	8.2	8.5	7.9	8.2	8.1	7.8	7.9	8.3	8.1	8.2
10	8.4	8.2	8.3	8.5	7.9	8.2	8.3	7.7	8.0	8.4	8.0	8.1
11	8.5	8.2	8.3	8.2	7.8	8.0	8.4	7.8	8.1	8.4	8.0	8.1
12	8.4	8.2	8.3	8.1	7.9	8.0	8.4	7.8	8.1	---	---	---
13	8.5	8.2	8.4	8.3	8.1	8.2	8.1	7.7	7.9	---	---	---
14	8.6	8.0	8.4	8.2	8.0	8.1	7.8	7.7	7.8	---	---	---
15	8.8	8.4	8.6	8.3	8.1	8.2	8.0	7.8	7.8	---	---	---
16	8.8	8.5	8.7	8.4	8.2	8.3	8.2	7.8	7.9	---	---	---
17	8.8	8.4	8.6	8.5	8.3	8.4	8.2	7.8	7.9	8.3	7.9	8.1
18	8.8	8.4	8.6	8.5	8.3	8.4	---	---	---	8.1	7.9	8.0
19	8.7	8.4	8.6	8.9	8.3	8.6	---	---	---	8.2	7.8	8.0
20	8.6	8.4	8.5	8.9	8.4	8.7	---	---	---	8.3	8.0	8.1
21	8.6	8.2	8.3	9.0	8.4	8.7	---	---	---	8.3	7.8	8.1
22	8.4	8.1	8.3	8.9	8.4	8.6	---	---	---	8.3	7.7	8.1
23	8.5	8.1	8.3	9.0	8.3	8.6	---	---	---	8.4	7.9	8.1
24	8.7	8.2	8.4	8.8	8.4	8.6	---	---	---	8.3	7.9	8.1
25	8.7	8.3	8.5	9.0	8.5	8.7	---	---	---	8.4	8.0	8.1
26	---	---	---	9.0	8.6	8.8	---	---	---	8.4	7.8	8.1
27	---	---	---	8.9	8.5	8.7	---	---	---	8.3	7.9	8.1
28	---	---	---	8.8	8.3	8.6	---	---	---	8.2	7.9	8.0
29	---	---	---	8.6	8.3	8.4	---	---	---	8.2	7.7	8.0
30	---	---	---	8.6	8.3	8.4	---	---	---	8.0	7.4	7.8
31	---	---	---	8.6	8.4	8.5	---	---	---	7.8	7.6	7.7
MONTH	8.8	7.8	8.3	9.0	7.8	8.4	8.7	7.7	8.1	8.4	7.4	8.1

08048970 VILLAGE CREEK AT EVERMAN, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.0	7.6	7.8	---	---	---	8.1	7.7	7.9	---	---	---
2	7.9	7.7	7.8	---	---	---	8.7	7.9	8.2	---	---	---
3	8.0	7.8	7.9	---	---	---	8.4	8.0	8.2	---	---	---
4	7.9	7.6	7.7	---	---	---	8.5	8.0	8.2	---	---	---
5	8.2	7.8	7.9	---	---	---	8.0	7.9	7.9	---	---	---
6	8.3	7.8	8.0	---	---	---	8.4	7.8	8.0	---	---	---
7	8.4	7.9	8.2	---	---	---	8.3	7.8	8.0	---	---	---
8	8.5	8.0	8.3	---	---	---	8.5	7.8	8.1	---	---	---
9	8.4	8.0	8.2	---	---	---	8.5	7.8	8.1	---	---	---
10	8.3	7.9	8.0	---	---	---	8.6	7.8	8.1	---	---	---
11	8.3	7.8	8.0	---	---	---	8.5	7.8	8.1	---	---	---
12	8.2	7.8	7.9	8.2	7.5	7.8	8.4	7.7	8.0	8.5	7.9	8.1
13	8.2	7.7	7.9	8.2	7.6	7.9	8.4	7.7	8.0	8.3	7.9	8.0
14	8.2	7.8	8.0	8.3	7.8	8.1	8.5	7.7	8.0	8.4	8.0	8.1
15	8.2	7.8	8.0	8.1	7.9	8.0	8.4	7.7	8.0	8.5	7.8	8.1
16	8.3	7.8	8.0	8.3	7.7	8.0	8.3	7.7	8.0	8.2	7.7	7.9
17	---	---	---	8.3	7.9	8.1	8.2	7.8	8.0	8.1	7.5	7.7
18	---	---	---	8.3	7.8	8.1	---	---	---	8.0	7.6	7.8
19	---	---	---	8.4	7.7	8.1	---	---	---	---	---	---
20	---	---	---	8.3	7.6	8.0	---	---	---	---	---	---
21	---	---	---	8.4	7.8	8.1	---	---	---	---	---	---
22	---	---	---	8.2	7.9	8.1	---	---	---	8.4	7.6	7.9
23	---	---	---	8.4	7.8	8.1	8.2	7.5	7.9	7.9	7.5	7.7
24	---	---	---	8.4	7.8	8.1	8.1	7.6	7.8	7.7	7.5	7.6
25	---	---	---	8.7	7.8	8.2	---	---	---	---	---	---
26	---	---	---	8.3	7.6	7.8	---	---	---	---	---	---
27	---	---	---	7.8	7.5	7.7	---	---	---	---	---	---
28	---	---	---	8.2	7.5	7.7	---	---	---	---	---	---
29	---	---	---	8.0	7.6	7.7	---	---	---	---	---	---
30	---	---	---	8.0	7.5	7.7	---	---	---	---	---	---
31	---	---	---	7.9	7.7	7.8	---	---	---	---	---	---
MONTH	8.5	7.6	8.0	8.7	7.5	8.0	8.7	7.5	8.0	8.5	7.5	7.9

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	---	---	---	9.5	8.0	9.0	6.0	4.0	5.0
2	---	---	---	---	---	---	10.0	8.5	9.0	8.0	6.0	7.0
3	---	---	---	---	---	---	9.0	7.0	8.0	10.0	8.0	8.5
4	---	---	---	---	---	---	8.0	6.0	7.0	9.5	8.0	8.5
5	---	---	---	---	---	---	10.0	7.5	9.0	7.5	7.0	7.0
6	---	---	---	---	---	---	11.0	9.5	10.0	8.0	7.0	7.5
7	---	---	---	---	---	---	10.5	9.0	10.0	8.0	6.5	7.5
8	---	---	---	17.0	14.5	16.0	8.5	7.0	8.0	8.0	5.5	7.0
9	---	---	---	15.0	12.0	13.5	7.5	6.0	6.5	9.0	7.0	8.0
10	---	---	---	14.5	12.0	13.5	9.0	6.5	7.5	9.5	7.0	8.5
11	---	---	---	14.5	12.5	13.5	8.0	4.5	6.5	10.0	8.0	8.5
12	---	---	---	15.5	13.0	14.5	4.5	3.5	4.0	8.5	6.5	8.0
13	---	---	---	18.0	15.5	16.5	4.0	3.0	3.5	6.5	4.5	5.5
14	---	---	---	19.5	17.0	18.0	5.0	3.5	4.0	10.5	6.0	8.0
15	---	---	---	18.0	13.0	15.5	4.0	2.0	3.5	13.5	10.0	11.5
16	---	---	---	13.0	10.0	11.5	2.5	2.0	2.0	14.5	13.0	13.5
17	---	---	---	10.0	9.0	9.5	2.5	2.0	2.0	15.5	14.5	15.0
18	---	---	---	11.0	10.0	10.5	2.5	2.5	2.5	15.0	12.5	14.0
19	---	---	---	12.0	10.0	11.0	3.5	2.5	3.0	15.0	12.0	13.0
20	---	---	---	13.5	11.5	12.5	3.5	2.0	3.0	13.0	11.0	12.5
21	---	---	---	15.5	13.5	14.5	3.0	1.5	2.0	12.0	9.0	10.5
22	---	---	---	16.5	14.0	15.5	1.5	.5	1.0	12.0	8.5	10.0
23	---	---	---	13.5	11.0	12.0	2.0	1.0	1.5	12.5	10.5	11.5
24	---	---	---	11.0	10.0	10.5	2.0	1.0	1.5	14.5	11.5	12.5
25	---	---	---	14.0	11.0	12.5	2.5	1.0	2.0	11.5	9.0	10.0
26	---	---	---	14.5	13.0	13.5	3.0	1.5	2.0	10.0	7.5	9.0
27	---	---	---	15.0	13.0	14.0	3.5	2.0	3.0	11.0	8.5	10.0
28	---	---	---	13.5	9.5	11.0	4.5	2.5	3.0	11.0	9.0	9.5
29	---	---	---	10.0	9.0	9.0	5.5	4.5	5.0	9.0	6.5	8.0
30	---	---	---	9.0	8.5	9.0	5.5	5.5	5.5	10.0	7.5	8.5
31	---	---	---	---	---	---	7.0	4.5	5.5	9.5	8.0	8.5
MONTH	---	---	---	19.5	8.5	13.0	11.0	.5	5.0	15.5	4.0	9.5

08048970 VILLAGE CREEK AT EVERMAN, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	14.5	9.5	13.0	12.0	9.5	10.5	21.0	14.5	17.5	18.5	16.0	17.5
2	14.5	12.0	13.5	13.5	9.0	11.0	21.0	17.5	19.0	18.5	14.5	16.0
3	13.5	10.0	12.0	14.5	9.5	12.0	20.5	15.0	17.5	21.0	17.0	19.0
4	11.5	8.0	9.5	15.0	10.5	12.5	22.0	16.0	19.0	20.5	17.5	18.5
5	11.0	7.0	9.0	15.0	13.0	14.0	23.5	17.5	20.5	20.0	16.5	18.0
6	13.0	9.0	11.0	15.5	14.5	15.0	18.5	13.5	15.0	21.5	17.5	19.0
7	12.5	8.5	10.5	15.5	14.5	15.0	17.5	12.5	14.5	22.0	18.0	20.0
8	16.5	11.5	13.5	16.5	14.5	15.5	16.0	13.5	15.0	23.0	19.5	21.0
9	15.5	14.0	15.0	21.0	16.5	18.5	16.5	14.5	15.5	24.5	20.5	22.0
10	14.5	11.5	13.0	21.5	18.5	20.0	18.0	16.0	17.0	22.5	19.0	20.5
11	14.5	10.0	12.5	20.5	18.0	19.0	19.5	14.0	16.5	21.5	19.0	20.0
12	14.5	11.0	12.5	20.0	18.5	19.5	20.0	14.0	17.0	25.0	20.0	22.0
13	16.5	13.5	15.0	21.0	19.0	19.5	18.0	16.0	16.5	26.0	20.5	23.0
14	16.0	13.0	15.0	20.0	15.5	18.0	18.5	15.5	17.0	27.0	22.5	24.5
15	12.5	11.0	11.5	17.0	14.0	15.5	21.5	17.0	19.0	27.5	23.5	25.0
16	12.0	9.0	10.5	16.5	14.5	15.5	23.0	20.0	21.0	27.5	23.5	25.0
17	11.5	8.0	9.5	18.5	12.5	15.0	21.5	18.5	20.0	26.5	22.0	24.0
18	12.0	10.0	10.5	19.0	14.0	16.5	18.5	16.0	17.0	24.5	22.0	23.5
19	13.5	11.0	12.0	18.0	14.0	16.0	16.5	14.5	15.5	26.5	22.5	24.0
20	14.5	11.0	12.5	17.5	11.5	14.5	18.5	16.5	17.0	27.5	23.5	25.0
21	13.0	10.0	11.5	19.0	13.0	16.0	21.0	18.0	19.5	28.5	24.0	26.0
22	10.0	8.5	9.0	19.0	15.5	17.5	24.5	20.5	22.0	28.0	22.5	25.5
23	13.0	7.0	9.5	20.5	17.0	18.5	25.0	21.5	23.0	28.0	22.5	25.0
24	14.5	9.0	11.5	18.5	11.5	14.5	24.5	21.5	22.5	27.5	23.0	25.0
25	15.5	10.5	13.0	11.0	9.0	10.0	23.0	21.0	22.0	29.0	24.0	26.5
26	16.5	12.5	14.5	9.5	8.0	9.0	22.0	17.5	18.5	28.0	25.0	26.5
27	16.5	14.5	15.5	10.0	9.0	9.5	20.0	17.5	18.5	28.0	25.5	26.5
28	16.0	12.5	14.5	13.5	9.5	11.0	20.5	17.5	19.0	27.0	24.5	25.5
29	---	---	---	15.5	13.5	14.5	24.0	19.5	21.5	28.0	23.5	25.5
30	---	---	---	16.5	14.5	15.5	22.5	18.5	21.0	27.5	23.0	25.5
31	---	---	---	17.5	13.5	15.5	---	---	---	26.5	23.0	25.0
MONTH	16.5	7.0	12.0	21.5	8.0	15.0	25.0	12.5	18.5	29.0	14.5	23.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	25.5	23.0	24.5	---	---	---	29.5	26.5	27.5	---	---	---
2	25.5	24.5	25.0	---	---	---	30.5	26.5	28.0	---	---	---
3	27.5	23.5	25.0	---	---	---	28.5	27.0	28.0	---	---	---
4	27.5	24.0	25.5	---	---	---	27.5	23.5	25.0	---	---	---
5	30.0	24.5	27.0	---	---	---	25.5	24.5	25.0	---	---	---
6	31.0	25.5	28.0	---	---	---	28.0	23.5	25.5	---	---	---
7	29.0	25.5	27.5	---	---	---	28.0	23.5	25.5	---	---	---
8	31.0	25.5	28.0	---	---	---	30.0	23.5	26.5	---	---	---
9	31.0	26.5	28.5	---	---	---	30.5	24.5	27.5	---	---	---
10	31.5	26.5	29.0	---	---	---	32.0	26.0	28.5	---	---	---
11	31.0	26.5	28.5	34.5	29.0	31.5	32.0	26.5	29.0	---	---	---
12	32.0	27.0	29.0	31.5	28.0	29.5	32.0	27.0	29.0	28.0	23.5	25.5
13	32.0	27.0	29.5	29.0	26.0	27.0	32.0	27.0	29.0	26.5	25.5	26.0
14	31.5	27.5	29.0	27.5	24.5	26.0	32.0	27.0	29.0	29.0	25.0	26.5
15	32.5	27.5	29.5	25.5	23.5	24.0	32.5	27.5	29.5	30.5	25.5	27.5
16	33.0	27.5	30.0	26.0	23.0	24.5	33.0	28.0	30.0	29.5	26.0	27.5
17	---	---	---	27.0	24.5	25.5	32.5	28.0	30.0	29.0	26.0	27.0
18	---	---	---	26.5	25.0	25.5	---	---	---	30.0	26.0	27.5
19	---	---	---	30.0	24.5	27.0	---	---	---	---	---	---
20	---	---	---	31.0	25.5	28.0	---	---	---	---	---	---
21	---	---	---	32.0	27.0	29.5	---	---	---	---	---	---
22	---	---	---	30.0	28.0	29.0	---	---	---	27.5	25.5	26.5
23	---	---	---	28.5	26.5	27.5	31.0	28.0	29.0	26.0	22.5	24.0
24	---	---	---	29.0	26.5	27.5	31.0	27.0	29.0	22.5	19.5	21.0
25	---	---	---	30.0	26.0	27.5	---	---	---	---	---	---
26	---	---	---	32.0	26.5	29.0	---	---	---	---	---	---
27	---	---	---	32.5	27.5	30.0	---	---	---	---	---	---
28	---	---	---	33.0	28.0	30.0	---	---	---	---	---	---
29	---	---	---	33.0	28.5	30.5	---	---	---	---	---	---
30	---	---	---	30.5	28.5	29.5	---	---	---	---	---	---
31	---	---	---	28.5	27.0	28.0	---	---	---	---	---	---
MONTH	33.0	23.0	27.5	34.5	23.0	28.0	33.0	23.5	28.0	30.5	19.5	26.0

08048970 VILLAGE CREEK AT EVERMAN, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	---	---	---	14.4	11.2	12.6	11.8	8.8	10.1
2	---	---	---	---	---	---	15.0	12.4	13.7	11.4	9.6	10.4
3	---	---	---	---	---	---	18.4	11.6	14.9	11.2	9.0	10.0
4	---	---	---	---	---	---	---	---	---	10.0	8.4	9.3
5	---	---	---	---	---	---	---	---	---	10.6	9.4	10.2
6	---	---	---	---	---	---	---	---	---	11.6	8.6	9.9
7	---	---	---	---	---	---	---	---	---	11.2	9.6	10.5
8	---	---	---	3.6	2.4	2.9	---	---	---	11.6	9.8	10.7
9	---	---	---	3.4	2.6	3.0	---	---	---	11.4	10.2	10.9
10	---	---	---	4.8	2.6	3.4	---	---	---	11.6	10.4	11.1
11	---	---	---	---	---	---	---	---	---	11.4	10.0	10.8
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	6.6	5.0	6.1	---	---	---	---	---	---
15	---	---	---	5.8	4.0	4.9	---	---	---	---	---	---
16	---	---	---	6.2	4.0	4.9	---	---	---	---	---	---
17	---	---	---	5.8	4.2	4.9	---	---	---	10.6	7.0	8.6
18	---	---	---	6.4	4.6	5.2	---	---	---	9.0	4.6	6.5
19	---	---	---	7.2	5.6	6.3	---	---	---	---	---	---
20	---	---	---	8.0	6.4	7.2	---	---	---	10.8	9.4	10.2
21	---	---	---	9.0	5.8	7.2	---	---	---	---	---	---
22	---	---	---	8.8	6.2	7.4	12.8	11.2	11.7	---	---	---
23	---	---	---	10.4	7.0	8.4	12.8	11.6	12.1	---	---	---
24	---	---	---	14.8	8.0	10.1	13.2	11.4	12.3	---	---	---
25	---	---	---	14.4	11.6	13.1	13.4	11.0	12.1	11.6	7.8	9.5
26	---	---	---	13.6	10.6	11.7	12.0	10.2	11.4	12.4	9.6	11.0
27	---	---	---	11.2	9.8	10.6	11.8	10.4	11.0	12.4	9.4	11.0
28	---	---	---	11.6	9.6	10.4	12.0	9.8	11.0	11.2	9.0	9.9
29	---	---	---	13.4	9.4	11.3	11.6	10.0	10.6	14.2	6.2	11.2
30	---	---	---	13.8	11.4	12.6	11.0	9.0	9.8	14.8	10.6	12.6
31	---	---	---	---	---	---	11.0	8.4	9.8	14.0	10.6	12.0
MONTH	---	---	---	14.8	2.4	7.6	18.4	8.4	11.8	14.8	4.6	10.3
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	11.0	8.4	9.3	9.4	7.0	8.1	15.6	7.4	10.5	8.8	7.9	8.3
2	9.8	8.4	8.9	10.0	7.4	8.6	15.8	6.0	9.7	9.2	8.1	8.6
3	9.0	8.2	8.6	10.0	7.2	8.6	16.6	6.6	10.5	8.1	7.4	7.7
4	10.4	8.8	9.5	9.8	7.2	8.6	---	---	---	8.6	7.4	8.1
5	11.0	9.0	9.9	9.2	7.0	8.2	---	---	---	8.6	8.0	8.3
6	10.6	9.0	9.7	7.6	5.8	6.8	8.6	7.2	8.3	8.6	7.8	8.1
7	11.2	8.6	9.8	7.2	5.4	6.2	11.0	7.8	9.0	8.8	7.6	8.1
8	10.6	8.6	9.5	6.8	5.4	6.0	11.6	7.4	9.1	9.0	7.4	8.1
9	9.4	7.4	8.4	8.0	4.6	6.0	10.2	7.0	8.3	9.8	7.2	8.2
10	12.0	7.8	9.5	8.2	4.4	6.3	11.6	6.4	8.3	11.0	7.6	8.9
11	13.2	8.2	10.2	---	---	---	14.4	6.8	9.7	11.4	7.6	8.9
12	13.4	8.4	10.5	---	---	---	16.0	6.6	10.3	12.6	6.8	9.1
13	14.4	8.0	10.9	---	---	---	20.0	6.2	13.4	14.6	6.4	9.5
14	---	---	---	9.0	7.0	7.8	15.6	13.2	14.5	15.2	6.0	9.6
15	---	---	---	9.6	8.4	9.0	16.4	12.4	14.7	15.2	5.6	9.6
16	19.8	11.8	15.7	10.0	8.4	9.1	17.6	12.0	14.0	12.8	5.4	8.1
17	20.4	10.5	16.0	12.0	8.6	9.9	18.0	11.2	13.9	12.9	5.8	8.7
18	20.0	13.0	16.0	13.4	8.2	10.3	---	---	---	10.6	5.7	7.8
19	18.4	12.3	15.0	15.8	8.0	11.1	---	---	---	11.0	5.7	7.8
20	18.0	11.7	14.6	18.4	8.6	12.6	9.0	7.9	8.4	10.2	5.5	7.1
21	13.4	10.2	11.6	19.8	8.2	13.1	8.7	7.5	8.2	10.9	5.6	7.7
22	12.9	9.8	11.2	20.0	7.6	13.0	9.9	6.9	8.0	11.8	5.6	8.2
23	16.6	10.1	12.6	19.6	7.2	12.6	10.8	6.4	8.0	13.4	6.0	9.0
24	19.5	10.5	14.0	13.8	7.2	10.3	11.7	6.4	8.3	13.9	6.0	9.3
25	20.8	10.8	15.0	13.0	9.4	10.9	11.3	6.4	8.3	15.3	6.3	10.0
26	20.0	10.7	14.7	16.4	9.8	12.4	8.1	6.9	7.7	14.9	5.7	9.8
27	11.6	8.2	10.0	13.4	9.0	11.3	8.3	7.7	8.1	15.6	5.5	9.9
28	9.2	7.0	8.1	10.0	8.6	9.5	8.4	7.4	8.0	15.8	5.9	10.1
29	---	---	---	10.0	7.6	8.6	8.4	7.1	7.7	17.8	6.6	11.4
30	---	---	---	9.6	7.4	8.1	8.3	6.9	7.6	16.0	6.4	9.5
31	---	---	---	13.4	7.6	9.7	---	---	---	---	---	---
MONTH	20.8	7.0	11.5	20.0	4.4	9.4	20.0	6.0	9.7	17.8	5.4	8.8

08048970 VILLAGE CREEK AT EVERMAN, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	---	---	---	8.4	4.0	5.9	---	---	---
2	---	---	---	---	---	---	10.4	2.6	6.2	---	---	---
3	---	---	---	---	---	---	9.2	3.6	6.3	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	7.6	5.3	6.5	---	---	---
9	16.4	5.8	10.3	---	---	---	7.8	4.9	6.4	---	---	---
10	16.6	6.0	10.6	---	---	---	7.2	4.7	6.0	---	---	---
11	15.6	5.8	9.8	---	---	---	10.3	4.5	7.1	---	---	---
12	11.8	5.4	8.3	11.0	4.0	7.5	12.8	5.0	8.8	11.7	4.5	7.6
13	11.6	5.2	8.1	11.0	5.4	8.2	13.3	6.1	9.1	8.7	4.5	6.6
14	12.4	5.4	8.5	11.8	6.4	8.8	12.3	5.7	8.7	11.0	5.6	7.7
15	12.4	5.4	8.6	9.4	7.4	8.1	13.1	4.7	8.3	12.4	5.0	7.7
16	12.0	5.4	8.4	12.8	5.8	9.0	12.1	4.8	8.3	11.2	3.3	6.4
17	11.6	5.4	8.1	12.4	8.2	9.9	12.0	6.3	8.4	10.4	2.8	6.2
18	11.2	5.2	7.9	11.4	7.0	9.2	---	---	---	10.1	3.0	5.9
19	11.0	5.0	7.7	13.6	5.4	9.4	---	---	---	---	---	---
20	10.4	5.0	7.4	13.6	4.6	8.9	---	---	---	---	---	---
21	10.6	4.8	7.3	12.4	5.8	9.2	---	---	---	---	---	---
22	10.6	4.8	7.3	10.6	7.2	8.6	---	---	---	10.6	4.4	6.4
23	10.8	5.0	7.5	10.6	5.4	8.0	---	---	---	9.8	5.0	7.0
24	10.2	4.8	7.1	10.4	5.8	8.9	---	---	---	9.0	5.4	7.1
25	11.6	5.0	7.8	12.8	4.6	8.4	---	---	---	---	---	---
26	12.4	5.0	8.3	13.2	4.0	8.2	---	---	---	---	---	---
27	12.6	5.0	8.2	11.0	5.0	8.1	---	---	---	---	---	---
28	12.6	5.4	8.8	10.6	6.2	7.9	---	---	---	---	---	---
29	---	---	---	11.6	3.6	7.5	---	---	---	---	---	---
30	---	---	---	9.2	5.2	6.9	---	---	---	---	---	---
31	---	---	---	9.0	4.2	6.5	---	---	---	---	---	---
MONTH	16.6	4.8	8.3	13.6	3.6	8.4	13.3	2.6	7.4	12.4	2.8	6.9

TRINITY RIVER BASIN
08048980 VILLAGE CREEK AT KENNEDALE, TX

LOCATION.--Lat 32°38'18", long 97°14'31", Tarrant County, Hydrologic Unit 12030102, at center of channel on downstream s of bridge on Everman-Kennedale Road, 1.5 mi downstream from Elm Branch, and 3.0 mi upstream from bridge on Interstate Highway 20.

DRAINAGE AREA.--100 mi².

PERIOD OF RECORD.--July 1986 to September 1989 (discontinued).
Water-quality records.--Chemical and biochemical analyses: July 1986 to 1989. Specific conductance: July 1986 to 1989. pH: July 1986 to 1989. Water temperature: July 1986 to 1989. Dissolved oxygen: July 1986 to 1989.

GAGE.--Water-stage recorder. Datum of gage is 559.96 ft above National Geodetic Vertical Datum of 1929 (Tarrant County bench mark).

REMARKS.--Records good except those for estimated daily discharges, which are poor. Measured discharges include intraba transfers from Cedar Creek Reservoir (station 08063010). Releases enter the channel on the left bank about 50 ft dow from the gage and cause backwater such that the stage record at the gage is a measure of both the controlled releases unregulated flow in Village Creek. Water-quality monitor and gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,000 ft³/s May 18, 1989 (gage height, 23.15 ft), from rating curve extended above 11,500 ft³/s; no flow Oct. 30 and Nov. 3, 1987 and Sept. 1-9, 1988.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1977 reached a stage of 23.5 ft, from high-water mark painted on abut of bridge at gage.

EXTREMES FOR WATER YEAR 1989.--Maximum discharge, 27,000 May 18 at 0600 hours (gage height, 23.15 ft), from rating curve extended above 11,500 ft³/s; no flow Sept. 1-9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	184	121	113	55	15	22	4.4	8.9	e23	26	2.3	.00
2	177	122	124	84	12	41	2.9	21	22	29	10	.00
3	189	123	125	42	52	30	2.4	145	26	63	41	.00
4	165	123	101	16	44	30	1.8	2130	454	45	32	.00
5	86	108	118	45	19	32	1.4	870	86	102	12	.00
6	138	126	103	59	24	40	1.4	108	34	100	2.4	.00
7	140	124	132	59	28	39	1.5	160	289	99	124	.00
8	139	128	140	32	28	34	1.7	71	123	42	126	.00
9	101	e128	140	36	23	24	1.9	48	48	52	50	.00
10	93	128	140	35	7.6	3.6	1.7	40	33	74	56	2.0
11	118	54	151	31	11	1.9	1.8	37	394	73	49	33
12	118	.23	87	60	17	34	2.2	38	715	26	48	66
13	120	.19	57	67	53	58	46	61	3030	50	69	115
14	121	.19	30	49	35	29	177	53	2240	72	24	105
15	86	14	6.1	25	25	35	51	45	200	91	7.5	88
16	80	64	.39	36	77	56	31	1660	80	70	41	75
17	125	152	.35	35	868	49	12	7200	51	70	12	43
18	125	145	11	60	150	35	9.8	15900	39	52	2.9	42
19	124	130	16	36	31	72	4.0	e883	34	2.0	11	69
20	126	125	5.5	22	15	42	1.6	90	27	1.8	33	61
21	125	123	24	45	14	4.4	1.7	50	25	1.7	1.2	48
22	125	123	50	40	37	41	1.4	40	23	1.7	.93	27
23	126	124	48	35	47	50	1.2	35	25	2.1	.76	54
24	125	88	16	46	28	49	2.3	32	25	2.2	.75	68
25	125	124	1.7	51	2.3	48	5.4	e31	24	2.7	.80	68
26	123	143	.76	64	31	48	.83	e29	24	3.2	.72	40
27	123	124	15	49	11	49	.72	e28	24	3.7	.54	39
28	123	124	15	196	2.3	1500	.43	e26	28	32	.35	39
29	123	125	41	71	---	131	.70	e25	34	2.9	.17	26
30	158	125	77	38	---	32	.73	e24	33	2.3	.04	55
31	118	---	35	32	---	8.4	---	e24	---	2.2	.01	---
TOTAL	3949	3138.61	1923.80	1551	1707.2	2668.3	372.91	29912.9	8213	1196.5	759.37	1163.00
MEAN	127	105	62.1	50.0	61.0	86.1	12.4	965	274	38.6	24.5	38.8
MAX	189	152	151	196	868	1500	177	15900	3030	102	126	115
MIN	80	.19	.35	16	2.3	1.9	.43	8.9	22	1.7	.01	.00
AC-FT	7830	6230	3820	3080	3390	5290	740	59330	16290	2370	1510	2310

CAL YR 1988 TOTAL 38237.34 MEAN 104 MAX 290 MIN .19 AC-FT 75840
WTR YR 1989 TOTAL 56555.59 MEAN 155 MAX 15900 MIN .00 AC-FT 112200

e Estimated

08049200 LAKE ARLINGTON AT ARLINGTON, TX

LOCATION.--Lat 32°42'58", long 97°11'32", Tarrant County, Hydrolgoic Unit 12030102, in new pumphouse at right end of Arlington Dam on Village Creek near western boundary of Arlington, 1.5 mi upstream from the Texas and Pacific Railway Co. bridge, and 7 mi upstream from mouth.

DRAINAGE AREA.--143 mi².

WATER-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, non-recording gage at same site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam 6,482 ft long. The service spillway is a 10-foot-diameter uncontrolled circular drop inlet. The spillway is an 882-foot-wide cut through natural ground near the right end of dam. The dam was completed and storage began Mar. 31, 1957. Capacities are based on a 1980 survey. The dam was built by the city of Arlington to impound water for municipal and industrial uses. Water is diverted from Cedar Creek Reservoir (station 08063010) into Lake Arlington. Water is pumped from the lake to a generating plant of Texas Electric Service Co. Gage-height telemeter located at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	572.0	-
Crest of spillway	559.7	64,360
Crest of drop inlet (top of conservation pool)	550.0	39,930
Lowest gated outlet (invert)	505.0	40

COOPERATION.--Capacity table provided by Freese and Nichols, Inc., Consulting Engineers, for the city of Arlington.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 72,500 acre-ft May 17, 1989 (elevation, 562.42 ft); minimum since lake first filled in April 1957, 18,110 acre-ft Oct. 17, 1971 (elevation, 534.27 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 65,920 acre-ft May 3 at 1725 hours (elevation, 560.24 ft); minimum, 19,180 acre-ft Jan. 11 (elevation, 538.23 ft.)

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

538.0	18,870	549.0	37,800	557.0	56,900
542.0	24,650	552.0	44,460	559.0	62,370
546.0	31,750	555.0	51,720	561.0	68,160

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24460	22350	21860	19810	28560	32760	39460	43190	40540	33190	31110	26460
2	24290	22370	21870	19760	29200	32940	39350	52410	40840	32920	31240	26150
3	24140	22330	21780	19770	29420	33100	39290	64930	40630	32590	31280	25860
4	24010	22350	21800	19710	29590	33270	39180	56900	40590	32180	32220	25560
5	23980	22370	21770	19600	29770	33370	39820	48890	40320	31870	32800	25330
6	23980	22370	21750	19500	29860	33520	40340	44580	40070	31690	33060	25050
7	23890	22370	21720	19420	30030	33980	40250	42790	39840	31410	33080	24730
8	23820	22310	21680	19440	30160	34160	40090	41840	39610	31110	33020	24590
9	23680	22250	21680	19410	30410	34310	40020	41270	39480	30810	32920	24510
10	23540	22160	21650	19310	30540	34250	39950	40880	39230	30560	32720	24510
11	23370	22130	21630	19210	30690	36360	39890	40750	38990	30370	32530	24490
12	23210	22060	21620	19290	30840	36720	39740	40630	38740	30280	32330	24490
13	23170	22000	21590	19450	30900	36720	39670	40430	38440	30300	32140	24480
14	23080	21960	21560	19410	30820	37400	41200	40250	38160	30280	31910	24380
15	23020	21990	21520	19370	30750	37430	40930	40130	37820	30160	31640	24320
16	22910	21960	21540	19520	30650	37780	40770	39930	37530	30220	31370	24180
17	22830	21910	21520	19710	30730	37820	40520	39820	37220	30330	31070	23980
18	22720	21870	21480	20700	30840	37840	40360	39700	36910	30450	30750	23870
19	22660	21900	21440	22350	30980	37840	40340	39650	36550	30600	30470	23790
20	22690	21880	21350	22590	31110	38060	40860	39610	36200	30640	30120	23680
21	22600	21840	21210	22770	31520	38010	41110	39480	35800	30580	29840	23670
22	22460	21840	21090	22960	31730	37970	40860	39380	35480	30520	29510	23640
23	22350	21880	20980	23080	31850	37820	40610	39230	35190	30770	29240	23540
24	22310	21880	20820	23260	31960	37740	40410	39080	34950	31110	29000	23400
25	22240	21960	20670	23450	32100	37890	40340	38890	34830	31320	28650	23280
26	22130	22000	20490	23600	32220	37860	52230	38630	34730	31410	28320	23120
27	21990	21970	20320	23650	32330	37970	46990	38480	34430	31390	28010	22930
28	21970	21800	20150	23840	32650	38030	44030	38460	34140	31280	27700	22740
29	21910	21800	20040	23990	---	38030	42630	38250	33840	31160	27390	22530
30	22250	21830	19980	24170	---	38030	41770	38610	33500	31030	27060	22310
31	22300	---	19880	24370	---	39460	---	39080	---	31030	26770	---
MAX	24460	22370	21870	24370	32650	39460	52230	64930	40840	33190	33080	26460
MIN	21910	21800	19880	19210	28560	32760	39180	38250	33500	30160	26770	22310
(↑)	540.46	540.14	538.75	541.82	546.46	549.78	550.81	549.60	546.90	545.62	543.27	540.47
(ϕ)	-2290	-470	-1950	+4490	+8280	+6810	+2310	-2690	-5580	-2470	-4260	-4460

CAL YR 1989 MAX 71410 MIN 19880 (ϕ) -7370
WTR YR 1990 MAX 64930 MIN 19210 (ϕ) -2280

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

08049200 LAKE ARLINGTON AT ARLINGTON, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: January 1964 to current year.

324304097113601 - LAKE ARLINGTON SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB DISSOLVED. AS CACO3 (MG/L)
JAN										
30...	1114	1.00	300	8.4	13.0	0.70	9.0	87	110	0
30...	1116	10.0	300	8.4	13.0	--	8.9	86	--	--
30...	1118	20.0	300	8.4	13.0	--	8.9	86	--	--
30...	1125	30.0	300	8.4	12.5	--	8.8	84	--	--
30...	1129	35.0	301	8.2	12.5	--	8.7	83	110	15
JUN										
06...	1140	1.00	270	7.7	28.5	0.50	6.5	85	110	15
06...	1144	10.0	270	7.7	28.5	--	6.5	85	--	--
06...	1148	20.0	270	7.7	28.5	--	6.4	84	--	--
06...	1152	30.0	269	7.6	28.0	--	6.3	82	--	--
06...	1156	40.0	271	7.5	27.5	--	5.2	67	--	--
06...	1201	46.0	264	7.1	24.0	--	0	0	110	0
AUG										
02...	1015	1.00	287	8.4	30.0	1.20	7.5	100	110	12
02...	1018	10.0	286	8.2	29.5	--	7.1	94	--	--
02...	1021	20.0	296	7.3	28.5	--	0	0	--	--
02...	1024	30.0	308	7.1	27.5	--	0	0	--	--
02...	1027	41.0	327	7.0	26.0	--	0	0	120	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 WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
JAN										
30...	38	4.2	16	0.7	5.0	110	29	14	0.20	3.3
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	38	4.4	16	0.7	5.1	98	28	16	--	3.4
JUN										
06...	37	3.6	12	0.5	3.9	92	24	14	0.10	5.5
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	38	3.5	11	0.5	3.8	110	17	11	0.10	8.3
AUG										
02...	36	4.0	15	0.6	4.9	94	26	15	0.20	4.8
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	43	4.2	14	0.5	5.0	120	19	13	0.20	4.8

DATE	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)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JAN										
30...	177	--	--	0.100	--	--	0.70	0.120	36	8
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	0.100	--	--	0.50	0.120	10	<10
30...	--	--	--	--	--	--	--	--	--	--
30...	170	--	--	0.100	--	--	0.50	0.120	13	2
JUN										
06...	155	0.480	0.020	0.500	0.020	0.88	0.90	0.070	15	11
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	0.480	0.020	0.500	0.030	0.77	0.80	0.090	20	120
06...	160	--	<0.010	0.100	0.530	0.87	1.4	0.300	120	1000
AUG										
02...	162	--	<0.010	<0.100	0.010	1.1	1.1	0.030	<3	34
02...	--	--	<0.010	<0.100	<0.010	--	0.80	0.020	20	190
02...	--	--	<0.010	<0.100	0.030	0.67	0.70	0.040	160	530
02...	--	--	--	--	--	--	--	--	--	--
02...	181	--	<0.010	<0.100	1.40	0.50	1.9	0.210	1100	2100

08049200 LAKE ARLINGTON AT ARLINGTON, TX--Continued

324320097121101 - LAKE ARLINGTON SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JAN							
30...	1144	1.00	301	8.4	13.5	8.8	86
30...	1146	10.0	301	8.4	13.0	8.7	84
30...	1148	20.0	301	8.4	13.0	8.7	84
30...	1151	26.0	301	8.4	13.5	8.6	84
JUN							
06...	1206	1.00	269	7.8	28.5	6.8	89
06...	1208	10.0	269	7.8	28.5	6.7	88
06...	1210	20.0	269	7.8	28.5	6.6	87
06...	1212	30.0	270	7.8	28.5	6.5	85
06...	1214	35.0	269	7.7	28.5	6.2	81
AUG							
02...	1034	1.00	287	8.5	30.0	7.3	98
02...	1036	10.0	287	8.3	30.0	7.0	94
02...	1038	20.0	290	7.9	29.5	4.3	57
02...	1041	28.0	305	7.6	28.0	0	0

324253097121801 - LAKE ARLINGTON SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JAN							
30...	1201	1.00	300	8.5	13.0	9.2	89
30...	1202	10.0	300	8.4	13.0	9.2	89
30...	1204	20.0	301	8.4	13.0	8.8	85
30...	1206	30.0	302	8.4	13.0	8.8	85
JUN							
06...	1226	1.00	270	7.8	28.0	6.5	85
06...	1228	10.0	269	7.7	28.0	6.3	82
06...	1230	20.0	269	7.7	28.0	6.1	79
06...	1232	30.0	274	7.5	27.0	3.6	46
06...	1234	39.0	279	7.5	26.5	0	0
AUG							
02...	1054	1.00	287	8.4	30.0	7.1	95
02...	1056	10.0	286	8.3	30.0	6.8	91
02...	1058	20.0	286	7.8	29.0	3.2	42
02...	1100	30.0	309	7.5	27.5	0	0
02...	1102	39.0	322	7.5	27.0	0	0

324301097123301 - LAKE ARLINGTON SITE BL

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JAN							
30...	1211	1.00	300	8.5	13.5	9.2	90
30...	1213	10.0	299	8.5	13.0	8.9	86
30...	1215	20.0	301	8.4	13.0	8.9	86
30...	1218	25.0	303	8.4	12.5	9.0	86
JUN							
06...	1238	1.00	270	7.8	28.5	6.5	85
06...	1240	10.0	270	7.8	28.0	6.4	83
06...	1242	20.0	270	7.7	28.0	6.2	81
06...	1244	31.0	277	7.6	27.5	3.9	50
AUG							
02...	1108	1.00	286	8.5	30.0	7.2	96
02...	1110	10.0	287	8.4	30.0	6.9	92
02...	1113	20.0	296	7.7	29.0	1.2	16
02...	1116	27.0	304	7.6	28.5	0	0

08049200 LAKE ARLINGTON AT ARLINGTON, TX--Continued

324257097130301 - LAKE ARLINGTON SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JAN							
30...	1233	1.00	302	8.4	19.5	8.7	96
30...	1235	12.0	302	8.4	19.0	8.8	97
JUN							
06...	1255	1.00	268	7.8	31.5	6.7	93
06...	1257	10.0	269	7.8	30.5	6.7	91
06...	1259	21.0	268	7.8	30.0	6.5	88
AUG							
02...	1130	1.00	286	8.5	34.0	6.5	93
02...	1135	10.0	286	8.5	34.5	6.5	94
02...	1138	16.0	287	8.5	32.5	6.4	89

324228097130301 - LAKE ARLINGTON SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JAN							
30...	1250	1.00	301	8.4	16.0	9.1	94
30...	1253	13.0	300	8.4	14.0	8.8	87
JUN							
06...	1309	1.00	269	7.7	29.0	6.3	83
06...	1311	10.0	270	7.7	28.5	5.9	77
06...	1313	22.0	273	7.6	28.5	4.2	55
AUG							
02...	1149	1.00	287	8.3	31.5	6.1	84
02...	1152	10.0	289	8.2	30.0	5.1	68
02...	1154	17.0	291	8.1	30.0	3.6	48

324143097132201 - LAKE ARLINGTON SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB DISSOLVED. AS CACO3 (MG/L)
JAN										
30...	1304	1.00	302	8.7	13.0	0.60	10.1	97	--	--
30...	1307	10.0	309	8.6	11.0	--	9.8	90	--	--
30...	1311	17.0	308	8.5	11.5	--	9.6	90	--	--
JUN										
06...	1322	1.00	278	7.7	27.5	0.20	5.9	76	--	--
06...	1324	10.0	279	7.7	27.5	--	5.8	75	--	--
06...	1327	20.0	282	7.6	27.5	--	5.0	64	--	--
06...	1331	25.0	284	7.5	27.5	--	2.4	31	--	--
AUG										
02...	1207	1.00	282	8.7	30.0	0.70	8.0	107	110	12
02...	1211	10.0	282	8.6	30.0	--	7.2	96	--	--
02...	1216	21.0	254	7.9	29.0	--	3.1	41	97	13

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 WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
JAN										
30...	--	--	--	--	--	100	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	110	--	--	--	--
JUN										
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
AUG										
02...	36	4.0	15	0.6	5.0	94	25	15	0.60	4.9
02...	--	--	--	--	--	--	--	--	--	--
02...	33	3.6	13	0.6	4.7	84	22	14	0.60	5.2

08049200 LAKE ARLINGTON AT ARLINGTON, TX--Continued

324143097132201 - LAKE ARLINGTON SITE EC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
JAN										
30...	--	--	--	0.100	--	--	0.60	0.120	20	<10
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	0.100	--	--	0.60	0.130	10	<10
JUN										
06...	--	0.460	0.040	0.500	0.050	0.55	0.60	0.090	20	<10
06...	--	--	--	--	--	--	--	--	--	--
06...	--	0.450	0.050	0.500	0.070	0.43	0.50	0.110	30	30
06...	--	0.510	0.090	0.600	0.090	0.91	1.0	0.110	30	60
AUG										
02...	162	--	<0.010	<0.100	0.020	0.68	0.70	0.040	<3	13
02...	--	--	<0.010	<0.100	0.050	0.55	0.60	0.050	<10	60
02...	147	--	0.020	<0.100	0.070	0.83	0.90	0.060	16	130

324133097130601 - LAKE ARLINGTON SITE EL

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAM-PLING DEPTH (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
JAN							
30...	1316	1.00	302	8.7	13.0	10.1	97
30...	1319	11.0	311	8.6	11.5	9.7	90
JUN							
06...	1336	1.00	277	7.8	28.0	6.0	78
06...	1339	10.0	277	7.8	27.5	6.0	77
06...	1342	20.0	279	7.7	28.0	5.8	75
AUG							
02...	1224	1.00	282	8.7	30.5	7.8	105
02...	1226	10.0	283	8.6	30.0	7.1	95
02...	1228	15.0	285	8.2	29.5	3.2	42

324041097134601 - LAKE ARLINGTON SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAM-PLING DEPTH (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TRANS-PAR-ENCY (SECCHI DISK) (M)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
JAN										
30...	1342	1.00	317	8.2	12.0	0.40	9.6	91	120	26
30...	1345	7.00	316	8.3	12.5	--	9.5	91	120	11
JUN										
06...	1354	1.00	286	7.8	28.5	0.20	6.5	85	110	15
06...	1359	10.0	289	7.8	27.5	--	5.8	75	--	--
06...	1405	16.0	289	7.7	28.0	--	5.7	74	110	16
AUG										
02...	1247	1.00	272	8.6	30.0	0.40	7.3	98	98	18
02...	1251	12.0	236	8.3	29.5	--	5.5	73	86	7

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
JAN										
30...	43	4.1	16	0.6	5.0	98	25	16	--	3.7
30...	43	4.1	16	0.6	5.3	110	24	17	--	3.7
JUN										
06...	39	3.9	14	0.6	4.1	98	25	16	0.20	6.0
06...	--	--	--	--	--	--	--	--	--	--
06...	39	4.0	14	0.6	4.0	98	26	16	<0.10	6.2
AUG										
02...	33	3.8	13	0.6	4.6	80	24	15	0.50	4.9
02...	29	3.4	11	0.5	4.2	79	16	15	0.20	9.4

08049200 LAKE ARLINGTON AT ARLINGTON, TX--Continued

324041097134601 - LAKE ARLINGTON SITE FC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
JAN										
30...	172	--	--	0.200	--	--	0.70	0.130	13	37
30...	181	--	--	0.200	--	--	0.60	0.160	16	35
JUN										
06...	167	0.470	0.030	0.500	0.040	0.46	0.50	0.100	22	4
06...	--	--	--	--	--	--	--	--	--	--
06...	168	0.460	0.040	0.500	0.050	0.55	0.60	0.100	17	13
AUG										
02...	147	--	<0.010	<0.100	0.040	0.56	0.60	0.040	12	6
02...	136	0.080	0.020	0.100	0.060	0.64	0.70	0.060	30	10

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX

LOCATION.--Lat 32°45'46", long 96°59'42", Dallas County, Hydrologic Unit 12030102, on left bank at upstream side of bridge on Belt Line Road, 1.3 mi northeast of Grand Prairie, 3.7 mi upstream from Mountain Creek, and at mile 514.6.

DRAINAGE AREA.--3,065 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1925 to current year.

REVISED RECORDS.--WSP 628: 1925. WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 405.42 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 6, 1933, nonrecording gage at bridge on old channel 2,500 ft southeast of present site at datum 7.56 ft higher. Dec. 6, 1933, to May 24, 1956, water-stage recorder at site 440 ft downstream from site of nonrecording gage at datum 7.56 ft higher than present datum. May 25, 1956, to Apr. 18, 1957, nonrecording gage at site 1.5 mi downstream at different datum. Apr. 19 to Aug 13, 1957, nonrecording gage on bridge at present site and at datum 5.00 ft higher than present datum. Aug. 14, 1957, to Sept. 30, 1982, water-stage recorder at present site and at datum 5.00-ft higher than present datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow is affected at times by three upstream reservoirs with a combined capacity of 248,600 acre-ft, of which 76,550 acre-ft is for flood control. During the current year, the city of Fort Worth discharged sewage effluent into the river upstream from this station. There are many diversions upstream from 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.--65 years (water years 1926-90), 607 ft³/s (439,800 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 64,400 ft³/s May 3, 1990 (gage-height, 33.88 ft, from graph based on several wire-weight gage readings), from rating curve extended above 54,000 ft³/s; minimum observed, 3.2 ft³/s June 6, 1925.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, 30.6 ft in May 1908 (former site and datum), from information by local resident. Flood in April 1922 reached a stage of 29.0 ft (former site and datum), from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 64,400 ft³/s May 3 at about 1500 hours (gage height, 33.88 ft, from graph based on several wire-weight gage readings), from rating curve extended above 54,000 ft³/s; minimum daily, 141 ft³/s Oct. 25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	183	307	167	306	5450	759	2500	18500	3500	217	203	163
2	173	264	162	216	4340	361	2710	25500	4720	208	542	168
3	174	238	170	232	867	288	2610	48900	3250	209	359	153
4	186	212	170	378	607	266	2040	37800	3340	190	1140	163
5	172	187	165	297	452	263	1910	34300	3720	180	1830	165
6	164	198	152	221	384	259	4490	31100	3740	403	2660	170
7	156	191	149	200	345	1120	2670	26600	3640	251	554	163
8	155	184	161	188	317	988	1900	23000	3620	195	374	168
9	168	190	166	181	399	485	1590	21400	3670	195	356	207
10	176	188	180	180	591	564	1560	18300	3600	193	238	248
11	170	163	175	179	462	3750	1620	17200	3040	170	250	286
12	168	176	172	182	326	10300	1810	16600	2580	206	235	247
13	161	157	165	175	309	6870	2020	15700	2010	181	219	219
14	168	153	163	181	315	4770	4430	14400	e1500	175	212	217
15	164	159	165	193	325	4670	5000	12500	e1200	148	203	183
16	169	207	e172	197	307	3320	3190	10100	e1000	146	199	172
17	190	202	e174	425	283	3440	2890	8390	e900	157	202	163
18	179	213	172	1510	278	3300	2660	5820	e840	283	190	225
19	183	186	180	5020	274	3140	2540	4380	e740	362	193	258
20	174	172	176	2190	286	3440	3060	4280	e700	233	188	251
21	164	186	174	602	553	3670	5840	4200	e630	182	190	274
22	164	256	e165	432	981	3800	4830	4160	528	181	193	301
23	154	394	e160	332	431	3440	5240	4140	421	734	176	238
24	148	300	e185	282	312	2340	5070	4060	332	678	195	199
25	141	225	e350	234	259	2500	4910	3830	351	815	190	185
26	146	215	e300	231	245	2660	9450	3610	352	337	188	181
27	164	173	e260	226	243	1980	17000	3520	318	227	188	183
28	159	180	243	222	575	4500	18700	3440	280	189	174	174
29	152	175	221	234	---	2600	16900	3410	239	177	187	172
30	1050	171	244	219	---	2050	17700	3200	231	212	191	170
31	797	---	400	250	---	2300	---	2530	---	199	172	---
TOTAL	6672	6222	6058	15915	20516	84193	158840	434870	54992	8233	12391	6066
MEAN	215	207	195	513	733	2716	5295	14030	1833	266	400	202
MAX	1050	394	400	5020	5450	10300	18700	48900	4720	815	2660	301
MIN	141	153	149	175	243	259	1560	2530	231	146	172	153
AC-FT	13230	12340	12020	31570	40690	167000	315100	862600	109100	16330	24580	12030

CAL YR 1989 TOTAL 817471 MEAN 2240 MAX 37100 MIN 141 AC-FT 1621000
WTR YR 1990 TOTAL 814968 MEAN 2233 MAX 48900 MIN 141 AC-FT 1616000

e Estimated

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: January 1964 to current year. Chemical and biochemical analyses: January 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1966 to current year.
pH: October 1976 to current year.
WATER TEMPERATURE: October 1966 to current year.
DISSOLVED OXYGEN: October 1976 to current year.

INSTRUMENTATION.--Since November 1976, a four-parameter water-quality monitor records temperature, DO, pH, and specific conductance continuously at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 1,320 microsiemens Dec. 12, 1978; minimum, 108 microsiemens May 1, 1986.
pH: Maximum, 8.6 units July 2, 1981, June 27, 1982, Mar. 26, 1983, Feb. 5, 1986; minimum, 6.6 units Jan. 6, 1979.
WATER TEMPERATURE: Maximum, 35.0°C Aug. 8, 1982; minimum, 3.0°C Jan. 9, 1973.
DISSOLVED OXYGEN: Maximum, 14.8 mg/L Dec. 14, 16, 1983; minimum, 0.0 mg/L on several days during period of record.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 910 microsiemens Oct. 16; minimum, 124 microsiemens Aug.5.
pH: Maximum, 8.5 units Apr. 3, 4; minimum, 6.8 units Aug. 3.
WATER TEMPERATURE: Maximum, 32.0°C Aug. 22; minimum, 5.5°C Dec. 23.
DISSOLVED OXYGEN: Maximum, 10.7 mg/L Dec. 27; minimum, 3.1 mg/L July 30, Aug. 12.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
NOV										
09...	1355	190	738	7.6	19.5	7.3	80	1.2	170	36
JAN										
24...	1430	275	632	7.5	15.5	7.3	74	8.1	170	22
APR										
13...	1235	2120	487	8.0	16.5	8.4	86	1.5	170	22
JUN										
13...	1445	2120	403	8.0	28.0	7.0	91	2.0	150	23
JUL										
27...	0910	243	589	7.7	28.0	5.9	76	1.6	160	25
SEP										
12...	1355	245	653	7.8	27.0	6.0	76	2.4	160	29

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV									
09...	56	7.8	87	3	11	140	76	85	1.0
JAN									
24...	59	6.1	60	2	6.8	150	67	56	0.70
APR									
13...	57	6.6	29	1	4.9	150	39	32	0.10
JUN									
13...	51	6.4	22	0.8	4.5	130	26	27	0.30
JUL									
27...	53	6.8	59	2	8.2	130	59	62	0.60
SEP									
12...	52	7.0	67	2	9.2	130	59	73	1.0

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									
09...	11	416	11.0	0.050	11.0	0.130	1.3	1.4	4.30
JAN									
24...	8.7	354	2.60	1.10	3.70	1.10	1.1	2.2	2.20
APR									
13...	7.0	264	0.880	0.120	1.00	0.090	0.61	0.70	0.240
JUN									
13...	7.7	223	0.800	0.100	0.900	0.140	1.2	1.3	0.170
JUL									
27...	8.3	338	4.47	0.130	4.60	0.180	1.2	1.4	1.30
SEP									
12...	11	357	5.41	0.090	5.50	0.130	1.1	1.2	1.80

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1989	6672	700	386	6960	70	1250	71	1290	170
NOV.	1989	6222	696	385	6470	68	1140	70	1180	180
DEC.	1989	6058	725	400	6540	72	1180	74	1210	180
JAN.	1990	15915	497	276	11900	43	1840	48	2070	150
FEB.	1990	20516	489	272	15100	42	2300	47	2610	150
MAR.	1990	84193	423	237	53800	32	7210	39	8860	140
APR.	1990	158840	397	223	95500	29	12300	36	15500	140
MAY	1990	434870	299	169	198000	19	22500	26	30900	110
JUNE	1990	54992	382	214	31800	28	4100	35	5170	130
JULY	1990	8233	627	348	7730	58	1290	62	1390	170
AUG.	1990	12391	517	287	9610	45	1520	50	1690	150
SEPT	1990	6066	727	401	6580	73	1190	74	1220	180
TOTAL		814968	**	**	450000	**	57900	**	73100	**
WTD.AVG.		2233	365	205	**	26	**	33	**	130

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	800	771	791	569	466	497	750	733	737	696	645	662
2	795	780	789	620	573	599	762	748	751	656	635	647
3	793	767	779	674	626	659	804	765	790	677	572	656
4	765	749	754	703	663	691	780	722	747	739	582	678
5	781	759	768	722	694	714	719	701	709	704	650	678
6	783	762	771	717	698	710	748	699	717	685	650	669
7	774	749	761	715	696	707	772	749	760	694	672	686
8	773	758	764	733	691	709	808	774	793	729	689	716
9	772	759	765	737	714	727	806	774	784	730	701	719
10	760	736	751	787	738	767	772	759	766	753	714	736
11	787	733	759	765	745	750	757	711	734	766	754	763
12	806	782	790	757	740	751	713	703	709	785	763	776
13	802	768	783	756	735	742	753	698	718	842	782	812
14	818	785	803	733	694	715	763	746	756	837	817	828
15	895	822	838	733	683	703	752	726	737	828	776	808
16	910	816	858	737	720	728	762	745	753	777	729	765
17	813	756	786	740	733	736	770	757	762	786	733	757
18	781	729	752	742	725	732	778	753	768	681	291	466
19	798	773	782	740	718	731	748	690	711	395	236	299
20	785	750	765	743	705	722	744	690	712	408	274	336
21	773	747	757	751	712	731	761	746	751	537	409	483
22	775	762	769	741	638	705	782	760	766	577	506	545
23	773	757	767	751	703	730	785	770	778	621	548	581
24	771	739	750	706	650	674	768	715	737	684	627	650
25	787	733	755	674	633	659	711	676	690	722	688	703
26	804	789	796	657	622	639	681	658	670	803	721	771
27	816	798	807	706	659	687	659	617	633	801	761	785
28	814	800	805	734	692	715	671	621	640	789	746	771
29	801	783	791	734	680	700	684	674	679	820	764	797
30	791	292	555	744	733	738	728	682	698	787	729	760
31	465	358	407	---	---	---	736	700	717	775	637	739
MONTH	910	292	760	787	466	702	808	617	731	842	236	679

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	726	168	472	672	520	567	493	452	473	352	248	336
2	---	---	e230	650	544	589	463	441	454	283	216	263
3	---	---	e280	687	654	670	465	449	458	263	199	234
4	---	---	e350	708	683	693	506	454	479	304	239	277
5	---	---	e420	713	678	696	573	474	500	310	298	302
6	---	---	e490	706	682	695	561	309	393	314	286	303
7	---	---	e560	703	436	586	484	377	445	316	296	305
8	---	---	e630	494	397	452	501	481	490	306	297	303
9	---	---	e708	589	491	535	502	488	497	376	287	298
10	---	---	696	593	566	577	558	504	519	328	201	284
11	628	599	610	585	201	386	533	485	515	286	281	284
12	668	612	631	---	---	e300	511	460	493	---	---	e300
13	700	662	676	---	---	e325	496	467	479	---	---	e260
14	735	705	722	---	---	e381	484	324	392	---	---	e290
15	737	721	728	---	---	417	435	323	381	---	---	322
16	764	731	743	451	441	446	454	435	443	339	327	333
17	752	734	741	459	434	449	465	448	456	370	294	336
18	740	729	735	502	433	465	468	457	462	403	328	354
19	764	734	748	501	430	485	490	469	481	417	337	370
20	744	723	734	497	382	470	483	415	459	394	350	365
21	777	499	681	476	403	461	419	340	377	386	339	363
22	674	484	569	468	439	453	432	416	428	376	337	358
23	650	515	580	464	434	449	434	418	425	383	345	358
24	687	653	668	476	452	465	431	418	425	454	346	369
25	738	690	708	497	421	466	431	421	426	410	360	383
26	750	730	741	453	424	434	---	---	e336	417	369	385
27	756	726	740	480	406	460	---	---	e323	407	366	378
28	751	520	672	424	329	376	379	360	373	404	366	382
29	---	---	---	472	378	441	377	363	373	446	377	397
30	---	---	---	521	466	500	370	353	364	490	393	436
31	---	---	---	506	476	492	---	---	---	---	---	e420
MONTH	777	168	617	713	201	490	573	309	437	490	199	334

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	e410	756	727	748	750	678	713	750	737	743
2	---	---	e400	748	701	732	756	521	698	752	736	743
3	---	---	e260	714	695	706	505	434	465	761	745	752
4	---	---	e290	737	693	717	551	210	445	753	747	750
5	---	---	e360	768	731	756	383	124	323	751	722	730
6	---	---	342	757	656	725	375	216	282	756	720	732
7	338	330	333	641	523	577	511	333	412	799	758	776
8	379	334	347	699	592	636	626	517	561	819	801	811
9	344	331	339	719	666	701	674	634	658	815	795	802
10	342	330	338	684	663	677	717	623	667	808	713	771
11	356	344	351	742	671	708	755	679	726	730	628	673
12	374	356	366	737	689	721	768	718	744	689	646	668
13	401	377	390	725	656	693	750	730	741	721	687	703
14	432	398	419	764	721	749	721	670	695	738	704	724
15	---	---	e425	728	707	716	728	661	696	730	712	720
16	---	---	e450	760	730	748	760	716	740	736	709	721
17	---	---	e470	756	732	745	755	736	751	798	735	756
18	---	---	e490	775	294	723	740	726	733	799	709	736
19	---	---	e520	718	461	624	752	726	740	752	694	717
20	---	---	e550	684	610	647	764	730	747	730	582	694
21	---	---	e575	728	690	710	759	710	725	710	564	677
22	---	---	e580	772	712	743	737	702	714	738	666	713
23	624	586	605	739	351	573	746	730	739	687	660	674
24	672	617	633	506	207	420	758	748	753	718	676	700
25	678	631	659	512	344	437	753	720	736	705	675	685
26	667	627	649	545	448	479	744	732	738	703	661	678
27	672	641	660	610	549	588	754	721	735	757	706	725
28	693	659	678	695	603	664	759	711	736	---	---	792
29	734	702	718	742	688	723	729	697	712	827	782	806
30	762	728	748	735	685	718	790	732	760	799	767	780
31	---	---	---	710	649	681	794	742	765	---	---	---
MONTH	762	330	478	775	207	670	794	124	666	827	564	732

e Estimated

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.7	7.7	7.7	7.6	7.5	7.6	---	---	---	---	---	---
2	7.8	7.7	7.7	7.6	7.5	7.5	---	---	---	---	---	---
3	7.8	7.7	7.7	7.6	7.5	7.5	---	---	---	---	---	---
4	7.8	7.7	7.7	7.7	7.5	7.6	---	---	---	---	---	---
5	7.8	7.7	7.8	7.7	7.6	7.6	---	---	---	---	---	---
6	7.7	7.6	7.7	7.7	7.6	7.6	---	---	---	---	---	---
7	7.7	7.6	7.7	7.6	7.5	7.6	---	---	---	---	---	---
8	7.9	7.7	7.8	7.6	7.5	7.5	---	---	---	---	---	---
9	7.8	7.7	7.8	7.7	7.5	7.7	---	---	---	---	---	---
10	7.8	7.7	7.7	7.8	7.6	7.7	---	---	---	---	---	---
11	7.7	7.6	7.7	7.7	7.5	7.6	---	---	---	---	---	---
12	7.8	7.5	7.7	7.6	7.4	7.5	---	---	---	---	---	---
13	7.7	7.5	7.6	7.6	7.5	7.6	---	---	---	---	---	---
14	7.8	7.6	7.7	7.6	7.4	7.5	---	---	---	---	---	---
15	7.8	7.6	7.7	7.6	7.5	7.5	---	---	---	---	---	---
16	7.9	7.7	7.8	7.6	7.4	7.5	---	---	---	---	---	---
17	7.9	7.8	7.9	7.5	7.4	7.5	---	---	---	---	---	---
18	8.0	7.8	7.9	7.5	7.3	7.4	---	---	---	---	---	---
19	7.9	7.8	7.9	7.4	7.2	7.3	---	---	---	---	---	---
20	8.0	7.8	7.9	7.4	7.1	7.3	---	---	---	---	---	---
21	7.9	7.7	7.8	7.9	7.2	7.5	---	---	---	---	---	---
22	7.9	7.6	7.8	7.9	7.8	7.8	---	---	---	---	---	---
23	7.9	7.7	7.8	7.9	7.7	7.8	---	---	---	---	---	---
24	7.9	7.6	7.8	7.9	7.8	7.9	---	---	---	---	---	---
25	7.7	7.6	7.7	7.9	7.7	7.8	---	---	---	---	---	---
26	7.7	7.6	7.7	7.7	7.5	7.6	---	---	---	---	---	---
27	7.7	7.6	7.7	7.5	7.3	7.5	---	---	---	---	---	---
28	7.6	7.2	7.5	7.4	7.2	7.3	---	---	---	---	---	---
29	7.2	6.9	7.1	---	---	---	---	---	---	---	---	---
30	7.8	6.9	7.4	---	---	---	---	---	---	---	---	---
31	7.7	7.6	7.6	---	---	---	---	---	---	---	---	---
MONTH	8.0	6.9	7.7	7.9	7.1	7.6	---	---	---	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	7.9	7.7	7.8	8.3	8.2	8.2	8.1	7.9	8.0
2	---	---	---	7.9	7.7	7.8	8.4	8.2	8.3	8.3	8.0	8.1
3	---	---	---	7.8	7.7	7.7	8.5	8.3	8.4	8.2	7.9	8.1
4	---	---	---	7.8	7.6	7.7	8.5	8.1	8.3	8.1	7.9	8.0
5	---	---	---	7.8	7.6	7.7	8.4	8.2	8.3	8.3	8.1	8.2
6	---	---	---	7.7	7.6	7.6	8.4	7.9	8.2	---	---	---
7	---	---	---	7.8	7.6	7.7	8.3	7.9	8.1	---	---	---
8	---	---	---	7.7	7.6	7.7	8.3	8.1	8.2	---	---	---
9	---	---	---	7.7	7.6	7.7	8.4	8.1	8.2	---	---	---
10	7.6	7.5	7.5	7.7	7.5	7.6	8.2	8.0	8.1	---	---	---
11	7.6	7.5	7.6	7.9	7.3	7.6	8.2	8.1	8.1	8.2	7.9	8.1
12	7.8	7.5	7.6	---	---	---	8.3	8.1	8.2	8.2	7.9	8.1
13	7.7	7.5	7.6	---	---	---	8.3	8.1	8.2	8.2	7.9	8.1
14	7.6	7.5	7.6	---	---	---	8.3	8.0	8.2	8.2	8.0	8.1
15	7.6	7.4	7.5	8.0	7.8	7.9	8.3	8.1	8.2	8.1	7.9	8.0
16	7.7	7.4	7.6	8.1	8.0	8.1	8.3	8.2	8.3	8.0	7.9	8.0
17	7.7	7.5	7.6	8.2	8.1	8.2	8.3	8.3	8.3	8.1	7.9	7.9
18	7.7	7.4	7.5	8.3	8.1	8.2	8.3	8.2	8.3	7.9	7.8	7.8
19	7.6	7.4	7.5	8.2	8.1	8.2	8.2	8.2	8.2	8.0	7.9	7.9
20	7.5	7.3	7.4	8.3	8.1	8.2	8.1	8.0	8.1	8.0	7.9	8.0
21	7.6	7.3	7.4	8.2	8.1	8.2	8.0	7.8	8.0	8.0	7.9	7.9
22	7.7	7.3	7.5	8.3	8.1	8.2	8.1	8.0	8.1	8.0	7.9	8.0
23	7.8	7.5	7.6	8.2	8.1	8.2	8.1	8.0	8.1	8.0	7.9	8.0
24	7.7	7.4	7.5	8.2	8.0	8.1	8.2	8.1	8.2	8.0	8.0	8.0
25	7.6	7.3	7.4	8.1	7.9	8.1	8.2	8.1	8.2	8.0	7.9	8.0
26	7.8	7.2	7.5	8.0	7.9	8.0	8.2	7.8	8.1	8.1	8.0	8.0
27	7.8	7.6	7.7	8.1	8.0	8.0	7.9	7.6	7.8	8.0	8.0	8.0
28	7.9	7.7	7.8	8.3	8.0	8.1	7.9	7.8	7.8	8.0	8.0	8.0
29	---	---	---	8.1	8.0	8.0	7.9	7.7	7.8	8.0	7.9	8.0
30	---	---	---	8.1	7.9	8.1	8.0	7.7	7.9	8.0	7.9	7.9
31	---	---	---	8.3	8.1	8.2	---	---	---	8.0	7.8	7.9
MONTH	7.9	7.2	7.5	8.3	7.3	7.9	8.5	7.6	8.1	8.3	7.8	8.0

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.9	7.6	7.8	7.6	7.4	7.5	7.3	7.1	7.2	7.7	7.5	7.6
2	7.7	7.5	7.6	7.6	7.4	7.5	7.2	7.0	7.1	7.8	7.6	7.7
3	7.7	7.6	7.6	7.7	7.4	7.5	7.1	6.8	7.0	7.8	7.6	7.7
4	7.7	7.6	7.6	7.7	7.6	7.6	7.4	6.9	7.1	7.7	7.6	7.6
5	7.9	7.6	7.8	7.7	7.5	7.6	7.6	7.1	7.3	7.6	7.5	7.6
6	7.8	7.7	7.8	7.8	7.5	7.7	---	---	---	7.5	7.4	7.5
7	7.8	7.7	7.7	7.8	7.5	7.7	---	---	---	7.5	7.5	7.5
8	7.7	7.6	7.7	---	---	---	---	---	---	7.7	7.5	7.6
9	7.7	7.5	7.6	---	---	---	7.7	7.7	7.7	7.7	7.6	7.6
10	7.6	7.5	7.5	---	---	---	7.8	7.7	7.7	7.7	7.6	7.7
11	7.5	7.3	7.4	---	---	---	7.7	7.6	7.7	7.7	7.6	7.7
12	7.4	7.2	7.3	7.9	7.7	7.8	7.8	7.6	7.7	7.8	7.6	7.7
13	8.1	7.3	7.7	7.9	7.7	7.8	7.8	7.7	7.7	7.8	7.7	7.7
14	8.1	7.9	8.0	8.0	7.7	7.9	7.8	7.6	7.7	7.7	7.6	7.7
15	---	---	---	8.0	7.8	7.9	7.7	7.6	7.7	7.6	7.4	7.6
16	---	---	---	8.0	7.8	7.9	7.8	7.6	7.7	7.6	7.5	7.5
17	---	---	---	8.0	7.8	7.9	7.8	7.6	7.7	7.7	7.5	7.6
18	---	---	---	8.0	7.7	7.9	7.6	7.4	7.6	7.7	7.5	7.6
19	---	---	---	7.8	7.5	7.7	7.7	7.4	7.6	7.7	7.5	7.6
20	---	---	---	7.8	7.4	7.6	7.8	7.6	7.7	7.8	7.7	7.7
21	---	---	---	7.8	7.5	7.7	7.7	7.6	7.6	7.7	7.6	7.7
22	8.1	7.8	8.0	7.7	7.5	7.6	7.8	7.6	7.7	7.7	7.6	7.7
23	8.1	7.8	8.0	7.7	7.4	7.6	7.7	7.6	7.7	7.8	7.7	7.7
24	7.9	7.7	7.8	7.8	7.4	7.6	7.6	7.6	7.6	7.8	7.7	7.8
25	7.9	7.7	7.8	7.7	7.4	7.6	7.6	7.5	7.5	7.8	7.6	7.7
26	7.9	7.6	7.8	7.8	7.4	7.6	7.6	7.5	7.5	7.7	7.5	7.6
27	7.8	7.6	7.7	7.7	7.5	7.6	7.7	7.6	7.6	7.6	7.5	7.6
28	7.8	7.6	7.7	7.7	7.6	7.7	7.6	7.5	7.6	7.6	7.6	7.6
29	7.8	7.5	7.7	7.6	7.3	7.5	7.6	7.5	7.5	7.7	7.5	7.6
30	7.6	7.4	7.6	7.5	7.3	7.4	7.6	7.5	7.5	7.6	7.5	7.6
31	---	---	---	7.3	7.2	7.3	7.6	7.5	7.5	---	---	---
MONTH	8.1	7.2	7.7	8.0	7.2	7.7	7.8	6.8	7.5	7.8	7.4	7.6

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	25.0	24.0	24.5	18.5	16.5	17.5	16.0	15.0	15.5	12.0	8.5	10.0
2	25.5	24.0	25.0	18.5	17.5	17.5	16.0	15.0	15.5	11.5	10.5	11.0
3	26.0	24.5	25.5	17.5	16.5	17.0	15.5	14.0	15.0	13.5	12.0	13.0
4	25.5	24.5	25.5	18.0	16.5	17.5	15.0	13.0	14.0	14.5	13.0	13.5
5	25.5	24.5	25.0	20.5	18.0	19.0	16.0	14.0	15.0	13.5	11.0	12.0
6	26.0	25.5	25.5	22.0	20.0	21.0	17.0	15.5	16.5	13.0	12.0	12.5
7	25.5	24.0	25.0	22.5	21.5	22.0	16.5	15.0	16.0	13.5	12.5	13.0
8	24.0	22.5	23.5	21.5	20.0	21.0	15.0	14.0	14.5	13.5	12.5	13.0
9	23.5	22.0	23.0	20.0	18.5	19.0	14.0	13.0	13.5	14.0	13.0	13.5
10	24.0	22.5	23.5	19.5	18.0	19.0	15.0	13.0	14.0	14.0	13.0	13.5
11	24.5	23.0	24.0	19.5	18.5	19.0	14.5	12.0	13.5	14.5	13.5	14.0
12	24.5	23.0	24.0	20.5	19.0	20.0	11.5	10.5	11.0	14.0	12.5	13.5
13	24.5	23.5	24.0	21.0	20.0	20.5	11.5	10.0	10.5	12.5	11.5	12.0
14	25.0	23.5	24.5	22.0	20.5	21.0	12.5	11.0	11.5	13.5	11.5	12.5
15	25.5	24.0	25.0	21.5	19.0	20.5	12.5	10.5	11.5	15.5	13.5	14.5
16	26.0	24.5	25.0	19.0	16.5	17.5	10.0	9.0	9.5	16.5	15.0	16.0
17	24.5	21.0	22.5	16.5	15.5	16.0	10.0	9.0	9.5	17.5	16.0	17.0
18	21.0	19.0	20.0	16.5	15.5	16.0	11.0	10.0	10.5	16.0	12.5	14.5
19	18.5	17.5	18.0	18.0	16.5	17.0	11.0	10.0	10.5	13.5	12.0	13.0
20	18.5	17.0	18.0	20.0	17.5	18.5	11.0	9.5	10.5	13.5	12.5	13.0
21	19.0	18.0	18.5	21.5	19.5	20.5	10.5	9.0	10.0	13.5	12.0	12.5
22	21.0	19.0	20.0	21.0	18.5	20.0	8.5	7.0	7.5	14.0	11.5	12.5
23	22.5	20.5	21.5	18.5	16.5	17.5	7.0	5.5	6.5	14.0	13.0	13.5
24	23.0	22.0	22.5	16.0	15.0	15.5	9.0	7.0	7.5	15.5	14.0	14.5
25	24.0	22.5	23.0	17.0	15.0	16.0	10.5	8.5	10.0	14.5	13.0	13.5
26	23.5	23.0	23.5	18.0	17.0	17.5	10.5	9.5	10.0	13.5	12.0	13.0
27	23.5	22.5	23.0	19.0	17.5	18.5	9.5	8.0	9.0	14.0	13.0	13.5
28	23.0	22.5	23.0	18.0	16.0	17.0	11.0	8.5	9.5	14.0	13.0	13.5
29	23.0	22.0	22.5	16.0	15.0	15.5	13.0	11.0	12.5	13.5	12.0	13.0
30	22.5	18.0	20.5	15.5	14.5	15.0	13.5	10.0	12.5	13.5	12.5	13.0
31	18.5	17.0	18.0	---	---	---	13.0	10.5	12.0	13.5	12.5	13.0
MONTH	26.0	17.0	23.0	22.5	14.5	18.5	17.0	5.5	12.0	17.5	8.5	13.5

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

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

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.0	5.9	6.5	7.0	6.6	6.8	7.3	6.7	7.0	9.8	9.0	9.5
2	6.8	5.8	6.3	7.1	6.9	7.0	7.1	6.5	6.8	9.4	8.2	8.9
3	7.0	6.0	6.5	7.3	7.0	7.2	7.6	6.8	7.2	8.5	8.1	8.2
4	6.6	6.2	6.4	7.4	7.2	7.3	8.0	7.5	7.7	8.5	7.8	8.1
5	6.5	6.0	6.3	7.2	6.8	7.0	8.3	7.7	7.9	9.1	8.3	8.8
6	6.3	5.6	6.0	6.8	6.5	6.7	8.1	7.3	7.8	8.7	8.1	8.4
7	6.2	5.3	5.7	6.6	6.4	6.5	7.6	7.3	7.5	8.3	7.8	8.0
8	6.7	5.8	6.2	6.8	6.4	6.5	8.3	7.3	7.9	8.3	8.0	8.2
9	7.0	6.1	6.5	7.1	5.7	6.4	8.8	8.0	8.4	8.3	7.8	8.0
10	7.0	6.3	6.6	5.8	5.6	5.7	8.6	7.7	8.2	8.1	7.8	8.0
11	6.6	6.1	6.4	6.2	5.7	5.9	8.4	7.9	8.2	8.2	7.9	8.1
12	6.4	5.8	6.1	6.2	5.9	6.0	9.1	8.5	8.9	8.1	7.9	8.0
13	6.2	5.6	5.9	6.3	5.9	6.0	9.5	8.8	9.2	8.1	7.6	7.9
14	5.8	5.3	5.6	6.3	5.9	6.0	9.2	8.4	8.9	7.9	7.3	7.5
15	5.9	5.3	5.5	6.3	5.9	6.0	9.1	8.4	8.7	7.4	6.6	6.9
16	5.9	5.2	5.5	6.6	5.9	6.2	9.5	8.6	9.1	6.7	5.7	6.0
17	5.9	5.5	5.8	7.0	6.2	6.7	9.4	9.0	9.2	6.7	5.3	5.8
18	7.3	5.8	6.8	7.4	6.9	7.1	9.2	8.3	8.6	8.8	5.5	6.9
19	7.9	7.3	7.6	7.7	6.9	7.2	9.0	8.5	8.7	8.5	6.9	7.7
20	8.1	7.7	7.9	7.5	7.0	7.2	8.9	8.4	8.6	8.1	7.4	7.7
21	8.2	7.9	8.0	7.4	6.3	6.8	9.0	8.5	8.8	8.2	7.8	8.1
22	8.1	7.8	8.0	6.4	6.1	6.3	9.3	9.0	9.2	8.3	7.7	8.0
23	7.9	7.0	7.5	7.3	6.1	6.6	9.8	9.2	9.5	8.0	7.5	7.8
24	7.2	7.0	7.1	8.1	7.2	7.6	9.8	9.4	9.6	7.4	6.9	7.2
25	7.1	5.9	6.7	7.9	7.4	7.5	9.9	8.9	9.4	7.0	6.7	6.9
26	6.2	5.9	6.0	7.4	6.7	7.1	10.4	9.3	9.9	6.9	6.5	6.7
27	6.2	5.8	6.0	7.4	6.2	6.9	10.7	9.8	10.2	6.9	6.6	6.7
28	6.1	5.9	6.0	6.5	5.8	6.2	9.8	9.3	9.6	6.9	6.6	6.7
29	6.3	5.9	6.1	7.7	6.5	7.2	9.3	8.4	8.8	7.0	6.6	6.7
30	7.7	5.5	6.5	7.5	6.9	7.3	9.2	8.1	8.3	7.0	6.6	6.8
31	6.6	5.1	5.8	---	---	---	9.2	8.3	8.7	7.4	6.5	6.8
MONTH	8.2	5.1	6.4	8.1	5.6	6.7	10.7	6.5	8.6	9.8	5.3	7.6
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	8.4	8.1	8.2	9.0	8.8	8.9	8.3	8.0	8.1
2	---	---	---	8.7	8.1	8.4	9.1	8.7	8.9	8.7	7.7	8.1
3	---	---	---	8.4	8.0	8.2	9.1	8.8	9.0	8.4	7.7	8.1
4	---	---	---	8.1	7.6	7.9	9.2	8.4	8.8	8.3	7.8	8.1
5	---	---	---	7.8	7.2	7.5	8.4	8.1	8.3	8.3	8.2	8.3
6	---	---	---	7.5	7.0	7.2	8.2	6.3	7.5	8.4	8.2	8.3
7	---	---	---	7.8	7.2	7.4	8.4	7.8	8.3	8.4	8.2	8.3
8	---	---	---	7.3	7.0	7.2	8.5	8.3	8.4	---	---	---
9	---	---	---	7.3	6.7	7.1	8.5	8.4	8.5	---	---	---
10	8.3	8.0	8.1	6.9	6.3	6.7	8.4	7.9	8.1	---	---	---
11	8.7	8.1	8.5	---	---	---	8.3	8.0	8.2	---	---	---
12	8.9	8.1	8.5	---	---	---	8.4	8.3	8.4	---	---	---
13	8.6	8.2	8.4	---	---	---	8.5	8.1	8.3	---	---	---
14	8.2	7.9	8.0	---	---	---	8.5	7.6	8.1	---	---	---
15	8.2	8.0	8.1	8.1	7.6	7.9	8.5	8.0	8.2	7.9	7.1	7.5
16	8.7	8.1	8.5	8.4	8.1	8.2	8.6	8.2	8.4	7.6	6.7	7.0
17	9.0	8.4	8.7	8.6	8.3	8.5	8.7	8.3	8.4	7.8	6.7	7.2
18	8.9	8.3	8.6	8.6	8.5	8.5	8.8	8.5	8.7	7.4	6.8	7.0
19	8.5	8.0	8.2	8.9	8.6	8.7	8.9	8.8	8.8	7.5	6.9	7.3
20	8.2	7.6	7.9	9.3	8.9	9.0	8.9	8.5	8.7	7.6	7.2	7.4
21	10.5	7.5	8.5	9.3	9.0	9.1	9.0	8.0	8.6	7.6	7.3	7.4
22	9.6	8.4	9.2	9.2	8.9	9.0	9.2	8.6	8.8	8.0	7.6	7.7
23	9.9	9.4	9.7	9.2	8.8	9.0	9.3	8.7	8.9	8.8	7.7	7.9
24	9.5	9.1	9.3	9.1	8.9	9.0	9.1	8.6	8.8	7.8	7.5	7.7
25	9.1	8.6	8.9	10.3	9.2	9.7	9.0	8.7	8.8	7.7	7.4	7.6
26	8.6	8.0	8.3	10.0	9.7	9.9	9.3	7.7	8.5	7.8	7.3	7.5
27	8.1	7.7	7.9	9.9	9.6	9.8	7.8	7.0	7.4	7.6	7.3	7.4
28	8.7	7.6	8.0	10.2	9.3	9.5	7.9	7.6	7.7	7.7	7.4	7.6
29	---	---	---	9.3	8.2	8.8	7.8	7.7	7.7	7.9	7.4	7.6
30	---	---	---	8.7	8.2	8.5	8.0	7.6	7.7	7.9	6.9	7.5
31	---	---	---	8.9	8.7	8.8	---	---	---	7.6	6.9	7.2
MONTH	10.5	7.5	8.5	10.3	6.3	8.4	9.3	6.3	8.4	8.8	6.7	7.7

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.9	5.7	7.0	6.3	5.2	5.6	5.4	3.5	5.0	7.2	5.2	6.1
2	6.7	5.9	6.2	6.0	5.2	5.6	---	---	---	7.5	5.6	6.4
3	6.9	6.7	6.8	6.3	5.5	5.9	---	---	---	7.4	5.7	6.6
4	7.0	6.8	6.8	6.2	5.4	5.9	---	---	---	7.6	6.0	6.7
5	7.1	6.9	7.0	6.3	5.2	5.8	---	---	---	7.3	6.0	6.6
6	7.0	6.7	6.9	6.3	5.5	5.9	---	---	---	6.7	5.3	6.0
7	6.9	6.7	6.8	6.0	4.3	5.1	---	---	---	5.9	4.6	5.3
8	6.9	6.6	6.7	5.3	4.4	4.7	6.2	5.6	5.8	5.1	4.4	4.8
9	6.9	6.7	6.8	5.6	4.8	5.1	5.6	4.7	5.1	5.1	4.3	4.7
10	7.0	6.6	6.8	6.5	5.3	5.8	4.7	3.4	4.3	5.9	4.8	5.2
11	6.8	6.5	6.7	5.9	4.7	5.2	3.6	3.3	3.5	6.2	5.4	5.9
12	6.7	6.5	6.6	4.7	3.7	4.5	5.3	3.1	3.8	6.2	5.4	5.8
13	6.9	6.6	6.8	4.5	3.6	4.0	5.0	3.7	4.3	5.5	5.1	5.3
14	6.9	6.5	6.7	4.9	4.4	4.7	5.9	4.1	5.0	7.1	5.1	5.6
15	7.1	6.5	6.8	5.3	4.8	5.1	5.4	4.4	5.0	7.0	5.5	6.1
16	7.5	6.5	7.0	5.4	4.7	5.0	5.7	4.6	5.1	8.1	5.5	6.7
17	7.3	6.3	6.8	5.6	5.2	5.4	5.9	4.4	5.1	6.7	5.1	6.0
18	7.1	6.5	6.8	6.0	4.2	5.6	6.2	4.6	5.4	6.1	4.9	5.5
19	7.2	6.6	6.9	6.0	5.0	5.6	6.1	4.7	5.3	6.6	5.2	5.8
20	7.3	6.7	7.0	5.6	4.8	5.2	7.1	4.9	5.7	6.3	5.1	5.4
21	7.2	6.1	6.6	5.4	4.9	5.2	6.8	5.5	6.0	5.4	5.1	5.2
22	6.3	5.9	6.2	5.2	4.8	5.0	7.0	5.9	6.2	5.8	5.1	5.4
23	6.2	5.8	6.0	5.5	4.6	5.0	6.1	5.0	5.6	5.8	5.4	5.6
24	5.9	5.5	5.8	6.9	5.0	5.5	5.8	5.0	5.4	5.7	5.3	5.4
25	6.1	5.7	5.9	6.4	5.0	5.5	5.9	4.8	5.3	6.5	5.3	5.8
26	6.1	5.6	5.9	5.8	5.5	5.7	5.8	4.5	5.2	6.6	5.6	6.0
27	5.8	5.1	5.5	5.8	5.6	5.7	6.6	4.7	5.3	6.0	5.2	5.6
28	5.6	5.3	5.5	5.6	5.2	5.4	7.3	5.0	5.7	6.4	5.0	5.6
29	5.7	5.0	5.3	5.2	4.9	5.1	7.1	5.4	6.1	5.9	5.0	5.4
30	5.6	5.3	5.4	5.2	3.1	4.7	6.8	5.3	6.1	6.0	4.9	5.5
31	---	---	---	5.1	4.5	4.8	7.4	5.2	6.1	---	---	---
MONTH	7.9	5.0	6.5	6.9	3.1	5.3	7.4	3.1	5.3	8.1	4.3	5.7

08049580 MOUNTAIN CREEK NEAR VENUS, TX
(Flood-hydrograph Partial-record Station)

LOCATION.--Lat 32°29'27", long 97°07'22", Johnson County, Hydrologic Unit 12030102, on right bank on downstream side of highway embankment near right end of bridge on Farm Road 157, 3.0 mi upstream from Grassy Creek, 3.2 mi upstream from Reece Branch, and 3.9 mi north of Venus.

DRAINAGE AREA.--25.5 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1985 to September 1987. October 1987 to current year, (peaks above base discharge and annual maximum).

GAGE.--Water-stage recorder. Datum of gage is 580.49 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,100 ft³/s May 17, 1988 (gage height, 15.04 ft); no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base of 580 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 1	0815	2,120	10.10	May 31	0315	4,700	12.54
Apr. 26	1145	*8,950	*14.60	June 3	2030	882	7.84
May 2	0915	5,220	12.88				

Minimum discharge, not determined.

08049580 MOUNTAIN CREEK NEAR VENUS, TX

PERIOD OF RECORD.--Chemical and biochemical analyses: December 1985 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)
JAN											
26...	1215	5.0	663	7.9	10.5	55	2.8	12.8	115	1.6	270
APR											
02...	1315	20	900	8.5	19.0	55	5.0	14.9	163	1.5	360
26...	1400	5600	85	7.0	16.5	230	330	8.4	89	3.8	73
JUN											
13...	1230	0.01	1580	7.7	27.0	25	5.5	9.8	125	2.9	680

DATE	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
JAN											
26...	150	96	6.5	27	0.7	5.1	110	150	22	0.50	12
APR											
02...	200	130	9.7	49	1	6.3	170	240	30	0.30	11
26...	20	27	1.3	4.6	0.2	3.4	53	15	1.7	0.20	9.7
JUN											
13...	430	240	20	100	2	4.5	260	550	81	0.60	16

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
JAN											
26...	388	20	9	11	10.7	0.270	11.0	0.040	1.5	1.5	0.050
APR											
02...	576	18	14	4	2.55	0.050	2.60	0.010	0.89	0.90	0.070
26...	95	565	86	479	0.900	0.200	1.10	0.140	0.86	1.0	0.190
JUN											
13...	1170	9	<1	--	0.090	0.010	0.100	0.020	0.38	0.40	0.020

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)
JAN										
26...	9.4	1	41	<0.5	<1.0	<5	<3	<10	100	<10
APR										
02...	11	--	--	--	--	--	--	--	--	--
26...	16	--	--	--	--	--	--	--	--	--
JUN										
13...	7.3	2	120	<0.5	<1.0	<5	<3	<10	7	<10

DATE	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN										
26...	15	19	<0.1	<10	<10	<1	<1.0	580	<6	4
APR										
02...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
JUN										
13...	52	76	<0.1	<10	<10	<1	<1.0	1800	<6	6

08049700 WALNUT CREEK NEAR MANSFIELD, TX

LOCATION.--Lat 32°34'51", long 97°06'06", Tarrant County, Hydrologic Unit 12030102, on right bank at downstream side of bridge on county road, 2.6 mi northeast of Mansfield, 3.3 mi downstream from Texas and New Orleans Railroad Co. bridge, and 10.2 mi upstream from mouth.

DRAINAGE AREA.--62.8 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 531.08 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair, except those for periods of estimated daily discharges, which are poor. Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--30 years, 16.4 ft³/s (3.55 in/yr), 11,880 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,800 ft³/s May 17, 1989 from rating curve extended above 14,000 ft³/s (gage height, 33.77 ft, from floodmark); no flow at times in 1960-74, 1976-90.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft³/s and maximum (*), from rating curve extended above 14,000 ft³/s:

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 1	0730	1,790	17.78	May 3	0930	6,030	26.58
Apr. 26	1715	*7,430	*27.37	May 31	1345	1,160	14.97
May 2	1200	4,360	24.69				

Minimum discharge, no flow Oct. 4-29, Aug. 16 to Sept. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.01	.03	.09	867	3.6	4.8	23	163	.14	4.1	.00
2	.01	.00	.03	.09	123	2.2	3.7	2770	99	.14	1.5	.00
3	.01	.00	.03	.14	17	1.8	2.8	3480	21	.12	.41	.00
4	.00	.06	.03	.31	5.1	1.6	2.4	168	183	.11	21	.00
5	.00	.03	.03	.06	2.9	1.6	20	64	15	.11	1.2	.00
6	.00	.02	.03	.04	2.2	1.5	e100	39	5.3	.16	.69	.00
7	.00	.02	.03	.03	1.8	11	e40	27	3.0	.14	.13	.00
8	.00	.02	.03	.03	1.7	9.8	e20	20	2.3	.14	.07	.00
9	.00	.02	.03	.03	1.6	3.8	e10	15	1.8	.14	.05	.00
10	.00	.02	.04	.03	1.7	2.6	6.2	11	1.6	.14	.06	.00
11	.00	.02	.05	.03	1.8	153	4.4	11	1.4	.14	.04	.00
12	.00	.02	.05	.03	1.6	45	3.3	20	1.3	.14	.03	.00
13	.00	.02	.05	.03	1.4	11	2.9	10	1.2	.14	.02	.00
14	.00	.03	.05	.03	1.3	314	217	7.4	1.0	.14	.02	.00
15	.00	.03	.05	.03	1.3	93	40	5.8	.93	.14	.01	.00
16	.00	.03	.05	.03	1.3	15	12	4.9	.85	.16	.00	.00
17	.00	.03	.05	.83	1.2	7.8	6.9	4.2	.77	.27	.00	.00
18	.00	.02	.05	41	1.1	5.5	4.9	4.4	.69	1.3	.00	.00
19	.00	.02	.05	145	1.2	4.1	5.5	4.5	.63	.47	.00	.00
20	.00	.03	.05	41	1.2	3.3	102	27	.56	.10	.00	.00
21	.00	.03	.05	9.0	12	2.8	116	6.2	.51	.07	.00	.00
22	.00	.19	.05	.39	5.3	2.7	19	3.0	.46	.07	.00	.00
23	.00	.07	.05	.33	2.3	2.7	9.9	2.5	.49	.81	.00	.00
24	.00	.04	.05	.27	1.6	2.5	6.7	2.4	.88	9.1	.00	.00
25	.00	.04	.07	.22	1.5	6.0	5.4	2.3	.71	2.8	.00	.00
26	.00	.03	.09	.22	1.3	3.9	3630	2.1	.36	.13	.00	.00
27	.00	.03	.09	.22	1.2	6.6	635	2.0	.34	.05	.00	.00
28	.00	.03	.09	.22	7.4	62	114	1.9	.27	.04	.00	.00
29	.00	.03	.09	.22	---	19	42	1.9	.22	.03	.00	.00
30	.69	.03	.09	.22	---	10	27	47	.17	.03	.00	.00
31	.02	---	.09	3.7	---	6.9	---	436	---	.03	.00	---
TOTAL	0.74	0.97	1.62	243.87	1070.0	816.3	5213.8	7223.5	508.74	17.50	29.33	0.00
MEAN	.024	.032	.052	7.87	38.2	26.3	174	233	17.0	.56	.95	.000
MAX	.69	.19	.09	145	867	314	3630	3480	183	9.1	21	.00
MIN	.00	.00	.03	.03	1.1	1.5	2.4	1.9	.17	.03	.00	.00
AC-FT	1.5	1.9	3.2	484	2120	1620	10340	14330	1010	35	58	.00
CFSM	.00	.00	.00	.13	.61	.42	2.77	3.71	.27	.01	.02	.00
IN.	.00	.00	.00	.14	.63	.48	3.09	4.28	.30	.01	.02	.00

CAL YR 1989 TOTAL 17109.87 MEAN 46.9 MAX 7900 MIN .00 AC-FT 33940 CFSM .75 IN. 10.14
WTR YR 1990 TOTAL 15126.37 MEAN 41.4 MAX 3630 MIN .00 AC-FT 30000 CFSM .66 IN. 8.96

e Estimated

08049700 WALNUT CREEK NEAR MANSFIELD, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1985 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)
NOV											
08...	1350	0.02	1170	7.5	16.0	8	3.0	0.4	4	2.2	450
JAN											
22...	1420	0.38	582	7.5	9.5	110	14	8.2	72	2.9	220
MAY											
16...	0950	5.1	1560	7.7	22.0	5	1.4	6.6	78	0.9	640
JUL											
20...	1040	0.30	1280	7.7	23.5	12	1.2	2.2	26	1.9	490

DATE	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
NOV											
08...	220	140	25	82	2	6.6	230	300	86	0.40	15
JAN											
22...	100	72	9.7	31	0.9	6.8	120	130	32	0.40	10
MAY											
16...	350	200	33	90	2	5.2	290	390	120	0.30	16
JUL											
20...	330	150	27	90	2	5.2	160	380	110	0.40	9.2

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
NOV											
08...	795	3	<1	--	--	<0.010	0.300	0.030	0.67	0.70	1.60
JAN											
22...	364	33	4	29	0.930	0.070	1.00	0.080	0.72	0.80	0.200
MAY											
16...	1030	11	14	0	0.290	0.010	0.300	0.040	0.36	0.40	0.040
JUL											
20...	866	4	4	0	0.060	0.040	0.100	0.160	0.44	0.60	0.060

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)
NOV										
08...	4.2	1	79	<0.5	<1.0	<5	<3	<10	68	20
JAN										
22...	9.7	--	--	--	--	--	--	--	--	--
MAY										
16...	4.7	<1	120	<0.5	<1.0	<5	<3	<10	4	<10
JUL										
20...	6.1	--	--	--	--	--	--	--	--	--

DATE	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV										
08...	48	1100	<0.1	<10	<10	<1	<1.0	1100	<6	<3
JAN										
22...	--	--	--	--	--	--	--	--	--	--
MAY										
16...	49	240	--	<10	<10	<1	<1.0	1600	<6	8
JUL										
20...	--	--	--	--	--	--	--	--	--	--

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX

LOCATION.--Lat 32°38'36", long 97°00'03", Dallas County, Hydrologic Unit 12030102, in control room of outlet works tower located 285 ft upstream from centerline of Joe Pool Dam on Mountain Creek, 0.7 mi downstream from Walnut Creek, 0.7 mi upstream from bridge over Mountain Creek on Camp Wisdom Road, 1.0 mi downstream from John Penn Branch, 5.5 mi west of water towers in downtown Duncanville, 7.1 mi upstream from Mountain Creek Dam on Mountain Creek, and 11.2 mi upstream from mouth.

DRAINAGE AREA.--232 mi².

WATER-DISCHARGE RECORDS

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

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

REMARKS.--The lake is formed by a rolled earthfill dam 22,360 ft long, including a 50-foot uncontrolled broad-crested concrete spillway. Impoundment of water began Jan. 7, 1986, after closure of the dam was completed in December 1985. The flood-control outlet works consist of a 10.5-foot-diameter conduit that is controlled by two 4.75- by 10.5-foot slide gates. Above an elevation of 541 ft, water will flow over a 50-foot-long uncontrolled broad-crested concrete spillway located 0.5 mi to left of the outlet works tower. The low-flow outlet works consist of four 3- by 5-foot slide gates having invert elevations at 486.0, 495.0, 504.0, and 513.0 ft that open to a wet-well. Discharge from the wet-well to the 10.5-foot-diameter conduit is controlled by a 2- by 4-foot gate with invert at elevation 483.0 ft. A low-flow bypass system consisting of a turbine pump and 10-inch-diameter piping is also available for use if needed. The capacity table was provided by the U.S. Army Corps of Engineers. The lake was built for water supply, conservation, and flood-control. During the current year, no water has been diverted for municipal or industrial supply since the initial filling of the lake is in progress. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	564.5	-
Crest of spillway	541.0	362,700
Top of conservation pool	522.0	176,900
Lowest gated outlet	466.0	1,095

COOPERATION.--Records provided by the U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 274,600 acre-ft May 20, 1990 (elevation, 533.21 ft); minimum since initial filling began, 1,595 acre-ft Jan. 24, 1986 (elevation, 467.65 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 274,600 acre-ft May 20 at 1000 hours (elevation, 533.21 ft); minimum, 163,700 acre-ft Jan. 12 (elevation, 520.20 ft).

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

520.0	162,300	526.0	208,400	532.0	262,600
522.0	176,900	528.0	225,500	533.0	272,500
524.0	192,200	530.0	243,500	534.0	282,800

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	173200	169600	166900	164000	179500	177800	180200	218600	234600	178800	176000	172800
2	173000	169500	166700	164000	180800	177800	179700	246000	234900	178700	175900	172700
3	173000	169300	166800	164100	181200	177600	179100	269300	234700	178500	175900	172500
4	172900	169200	166500	164100	181400	177600	178800	270000	231900	178200	176300	172400
5	172700	169200	166500	164100	181300	177500	179300	270600	227900	178100	176600	172300
6	172600	169200	166300	164100	181000	177600	180000	270800	223800	177900	176400	172200
7	172400	169100	166300	164100	180600	178100	180100	271100	219800	177800	176300	171900
8	172400	168900	166200	164100	180300	178100	179900	271300	215400	177600	176100	171900
9	172200	168900	166100	164000	179900	178200	179900	271300	210800	177300	175900	171900
10	172000	168800	166000	164000	179400	178200	179700	271500	206300	177200	175900	171900
11	171900	168600	165700	163900	179000	179600	179400	272100	201700	177000	175700	171800
12	171700	168700	165700	163800	178700	179700	179100	272200	197100	176700	175600	171600
13	171600	168600	165600	163700	178500	180200	179000	272500	193700	176500	175400	171600
14	171500	168500	165500	163800	178200	183200	181400	272700	191400	176300	175300	171600
15	171300	168300	165200	163800	177900	183900	181800	273000	189300	176100	175100	171400
16	171200	168100	165200	164000	177700	183900	181900	273000	187300	176000	175000	171300
17	171000	167800	165100	164200	177600	183900	181700	273000	185400	175900	174800	171200
18	170800	167800	165000	165400	177500	183900	181700	273700	183400	176300	174700	171000
19	170600	167800	164900	167200	177500	183600	181700	274100	182000	176100	174500	171000
20	170400	167800	164700	167600	177300	183000	182600	274100	181000	176100	174400	170800
21	170200	167600	164500	167600	177900	182300	183100	271900	180100	175900	174300	170800
22	170100	167800	164400	167700	177900	181500	183200	269100	179700	175700	174200	171000
23	170000	167800	164300	167600	177900	180900	183200	265300	179600	176100	174100	170800
24	169800	167600	164200	167600	177800	180400	183200	260400	179600	176700	173900	170500
25	169800	167600	164100	167500	177800	180000	183200	255800	179400	176600	173800	170200
26	169800	167600	164100	167500	177600	179500	212800	251000	179300	176400	173600	170200
27	169600	167300	164000	167200	177600	179400	216300	246200	179300	176300	173500	170100
28	169600	167100	164000	167300	177800	179700	217200	241500	179100	176100	173300	170000
29	169500	167000	164000	167300	---	180800	217400	236600	179000	176000	173300	169900
30	169900	167000	164100	167200	---	181000	217800	233100	178800	175900	173100	169700
31	169800	---	164100	167900	---	180600	---	236200	---	175900	173000	---
MAX	173200	169600	166900	167900	181400	183900	217800	274100	234900	178800	176600	172800
MIN	169500	167000	164000	163700	177300	177500	178800	218600	178800	175700	173000	169700
(†)	521.04	520.65	520.25	520.78	522.12	522.49	527.11	529.20	522.26	521.86	521.48	521.03
(ϕ)	-3500	-2800	-2900	+3800	+9900	+2800	+37200	+18400	-57400	-2900	-2900	-3300

CAL YR 1989 MAX 234000 MIN 75910 (ϕ) +87410
WTR YR 1990 MAX 274100 MIN 163700 (ϕ) -3600

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

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: January 1986 to current year.

323812096591701 - JOE POOL LAKE SITE AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JAN							
31...	1005	1.00	462	8.5	9.5	10.5	93
31...	1007	10.0	461	8.5	9.5	10.5	93
31...	1009	20.0	462	8.5	9.5	10.4	92
31...	1011	30.0	462	8.5	9.5	10.4	92
31...	1013	40.0	464	8.4	9.5	10.4	92
JUN							
08...	0945	1.00	423	8.3	26.5	7.3	92
08...	0948	10.0	428	8.3	26.5	7.3	92
08...	0951	20.0	424	8.3	26.5	7.3	92
08...	0955	30.0	429	8.2	26.0	7.3	91
08...	0957	40.0	420	8.2	26.5	7.1	89
08...	0959	50.0	423	8.0	26.0	6.0	75
08...	1001	54.0	434	7.7	24.5	2.5	30
AUG							
01...	1044	1.00	430	8.2	27.5	7.8	100
01...	1046	10.0	431	8.2	27.5	7.6	97
01...	1048	20.0	435	8.1	27.5	7.5	96
01...	1050	30.0	442	8.0	27.5	7.1	91
01...	1053	42.0	442	7.6	27.0	1.2	15

323819096584801 - JOE POOL LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (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 TOTAL (MG/L AS CACO3)
JAN											
31...	0935	1.00	492	8.5	9.5	0.70	10.5	93	K1	K6	170
31...	0938	10.0	465	8.4	9.5	--	10.5	93	--	--	--
31...	0940	20.0	461	8.5	9.5	--	10.5	93	--	--	--
31...	0944	30.0	467	8.4	9.0	--	10.6	93	--	--	--
31...	0948	40.0	467	8.4	9.5	--	10.6	94	--	--	--
31...	0954	51.0	490	8.3	9.5	--	10.5	93	--	--	170
JUN											
08...	0915	1.00	419	8.2	26.5	0.80	7.1	89	K1	K2	150
08...	0917	10.0	419	8.2	26.5	--	7.1	89	--	--	--
08...	0920	20.0	418	8.1	26.5	--	7.1	89	--	--	--
08...	0923	30.0	418	8.1	26.5	--	7.0	88	--	--	--
08...	0927	40.0	419	8.0	26.0	--	7.0	87	--	--	--
08...	0933	50.0	420	7.9	26.0	--	6.8	85	--	--	--
08...	0936	59.0	432	7.2	24.5	--	2.2	27	--	--	160
AUG											
01...	1022	1.00	429	8.2	27.5	1.20	7.8	100	K3	K3	150
01...	1027	10.0	437	8.1	27.5	--	7.4	95	--	--	--
01...	1032	20.0	432	8.0	27.5	--	7.0	90	--	--	--
01...	1034	30.0	434	7.9	27.5	--	6.9	88	--	--	--
01...	1036	40.0	447	7.2	26.5	--	1.0	13	--	--	--
01...	1038	53.0	452	7.0	26.0	--	0	0	--	--	160

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX--Continued

323819096584801 - JOE POOL LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	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 WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
JAN											
31...	42	60	5.5	29	1	7.9	130	91	16	0.30	4.3
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	42	60	5.5	29	1	7.9	130	91	17	--	4.4
JUN											
08...	41	54	4.4	24	0.8	6.7	110	76	13	0.20	1.9
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	64	56	4.6	24	0.8	6.8	95	100	9.1	0.30	4.7
AUG											
01...	42	53	4.6	25	0.9	8.1	110	79	15	0.50	3.5
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--
01...	30	56	4.7	24	0.8	8.0	130	71	11	0.30	6.2

DATE	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)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JAN										
31...	293	0.190	0.010	0.200	0.030	0.47	0.50	0.050	5	<1
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	293	0.180	0.020	0.200	0.030	0.47	0.50	0.060	5	4
JUN										
08...	247	0.280	0.020	0.300	0.010	0.79	0.80	0.030	7	3
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	0.290	0.010	0.300	0.010	0.79	0.80	0.020	20	20
08...	263	0.340	0.060	0.400	0.070	0.33	0.40	0.080	7	140
AUG										
01...	254	--	<0.010	<0.100	<0.010	--	0.50	<0.010	<3	12
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	<0.010	<0.100	0.100	0.40	0.50	0.010	20	70
01...	--	0.180	0.020	0.200	0.030	0.47	0.50	0.020	30	330
01...	260	--	<0.010	<0.100	0.360	0.44	0.80	0.050	250	1100

323731097013901 - JOE POOL LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (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 TOTAL (MG/L AS CACO3)
JAN											
31...	1207	1.00	490	8.5	9.5	0.80	10.5	93	K3	K4	170
31...	1209	10.0	463	8.5	9.5	--	10.5	93	--	--	--
31...	1212	20.0	462	8.5	9.5	--	10.5	93	--	--	--
31...	1215	30.0	463	8.5	9.5	--	10.4	92	--	--	--
31...	1217	40.0	490	8.4	9.5	--	10.4	92	--	--	180
JUN											
08...	1333	1.00	423	8.4	27.0	1.20	7.5	95	K1	K1	150
08...	1336	10.0	432	8.3	27.0	--	7.4	94	--	--	--
08...	1339	20.0	431	8.2	26.5	--	7.0	88	--	--	--
08...	1342	30.0	426	8.0	26.5	--	6.7	84	--	--	--
08...	1345	40.0	427	7.8	26.0	--	5.4	67	--	--	--
08...	1348	50.0	422	7.7	25.5	--	5.1	63	--	--	--
08...	1352	57.0	423	7.5	25.5	--	0	0	--	--	160
AUG											
01...	1240	1.00	413	8.4	29.0	1.20	9.3	122	K1	K1	140
01...	1243	10.0	415	8.2	28.5	--	8.2	107	--	--	--
01...	1246	20.0	440	7.8	27.5	--	5.1	65	--	--	--
01...	1249	30.0	435	7.5	27.5	--	1.8	23	--	--	--
01...	1252	40.0	447	7.4	27.0	--	0	0	--	--	--
01...	1256	50.0	497	7.4	27.0	--	0	0	--	--	170

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX--Continued

323731097013901 - JOE POOL LAKE SITE BC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
JAN											
31...	42	60	5.5	29	1	8.0	130	88	18	--	4.4
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--
31...	45	61	5.6	31	1	8.0	130	89	19	--	4.4
JUN											
08...	40	54	4.4	23	0.8	6.6	110	77	13	0.40	1.7
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	42	55	4.7	21	0.7	6.3	120	72	15	0.40	5.4
AUG											
01...	41	50	4.5	24	0.9	7.7	100	76	15	0.60	3.2
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--
01...	38	59	5.1	27	0.9	6.8	130	85	19	0.60	5.4

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
JAN										
31...	291	--	<0.010	0.200	0.040	0.36	0.40	0.060	15	<1
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	296	0.190	0.010	0.200	0.040	0.36	0.40	0.060	6	<1
JUN										
08...	248	0.290	0.010	0.300	0.010	0.39	0.40	0.040	<3	5
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	0.350	0.050	0.400	0.110	0.69	0.80	0.050	20	140
08...	249	0.250	0.050	0.300	0.210	0.39	0.60	0.070	24	360
AUG										
01...	242	--	<0.010	<0.100	0.020	0.78	0.80	0.010	<3	9
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	<0.010	0.100	<0.010	--	0.70	0.010	30	150
01...	--	0.090	0.010	0.100	0.040	0.56	0.60	0.020	20	190
01...	287	--	0.020	<0.100	0.240	0.66	0.90	0.070	630	810

323645097002001 - JOE POOL LAKE SITE CR

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAM-PLING DEPTH (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
JAN							
31...	1040	1.00	468	8.5	9.5	10.6	94
31...	1042	10.0	464	8.5	9.5	10.5	93
31...	1044	20.0	468	8.5	9.0	10.5	92
31...	1046	30.0	465	8.5	9.5	10.5	93
31...	1050	37.0	464	8.5	9.5	10.4	92
JUN							
08...	1050	1.00	421	8.2	26.0	6.8	85
08...	1053	10.0	722	8.2	26.0	6.8	85
08...	1056	20.0	421	8.1	26.0	6.7	84
08...	1059	30.0	422	8.1	26.0	6.5	81
08...	1102	44.0	425	7.9	25.5	4.5	56
AUG							
01...	1129	1.00	463	8.4	28.0	9.4	122
01...	1132	10.0	442	8.2	28.0	8.2	106
01...	1135	20.0	440	7.8	27.5	5.7	73
01...	1137	30.0	454	7.6	27.0	1.1	14
01...	1140	39.0	482	7.6	26.5	0	0

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX--Continued

323646097005101 - JOE POOL LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	NITROGEN, NITRATE TOTAL (MG/L AS N)
JAN									
31...	1018	1.00	466	8.5	9.5	0.70	10.5	93	0.190
31...	1020	10.0	462	8.5	9.5	--	10.5	93	--
31...	1024	20.0	464	8.5	9.5	--	10.5	93	--
31...	1026	30.0	463	8.5	9.5	--	10.5	93	--
31...	1030	40.0	462	8.5	9.5	--	10.4	92	--
31...	1033	51.0	467	8.5	9.5	--	10.2	90	0.190
JUN									
08...	1022	1.00	423	8.1	26.0	0.50	6.6	82	0.380
08...	1025	10.0	418	8.0	26.0	--	6.5	81	--
08...	1028	20.0	417	8.0	26.0	--	6.4	80	--
08...	1031	30.0	423	7.8	25.5	--	6.0	74	--
08...	1035	40.0	428	7.6	24.5	--	2.1	25	0.340
08...	1038	50.0	438	7.5	24.0	--	0	0	0.360
08...	1042	55.0	438	7.7	24.5	--	0	0	0.330
AUG									
01...	1109	1.00	430	8.3	28.5	1.20	8.5	111	--
01...	1112	10.0	441	8.1	28.0	--	7.7	100	--
01...	1114	20.0	450	7.6	27.0	--	4.5	57	--
01...	1116	30.0	446	7.5	27.0	--	1.5	19	--
01...	1119	40.0	442	7.5	27.0	--	0	0	--
01...	1121	54.0	473	7.6	26.5	--	0	0	--

DATE	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)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JAN								
31...	0.010	0.200	0.030	0.47	0.50	0.040	40	<10
31...	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--
31...	0.010	0.200	0.040	0.36	0.40	0.050	30	20
JUN								
08...	0.020	0.400	0.020	0.28	0.30	0.030	20	20
08...	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--
08...	0.060	0.400	0.040	0.76	0.80	0.050	40	190
08...	0.140	0.500	0.130	0.27	0.40	0.150	20	210
08...	0.070	0.400	0.060	0.34	0.40	0.060	20	130
AUG								
01...	<0.010	<0.100	<0.010	--	0.80	0.010	30	30
01...	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--
01...	<0.010	0.200	0.010	0.49	0.50	0.020	30	70
01...	<0.010	0.200	0.020	0.78	0.80	0.010	50	230
01...	0.020	<0.100	0.360	0.64	1.0	0.030	730	990

323503097012201 - JOE POOL LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	NITROGEN, NITRATE TOTAL (MG/L AS N)
JAN									
31...	1103	1.00	469	8.5	9.5	0.70	10.3	91	0.180
31...	1105	10.0	469	8.5	9.5	--	10.2	90	--
31...	1107	20.0	479	8.4	9.0	--	9.9	87	--
31...	1109	30.0	470	8.4	9.0	--	9.5	83	0.190
JUN									
08...	1113	1.00	401	8.0	26.0	0.40	6.3	79	0.460
08...	1115	10.0	408	7.9	26.0	--	5.9	74	--
08...	1118	20.0	415	7.8	25.5	--	5.0	62	--
08...	1121	30.0	426	7.6	24.5	--	2.5	30	0.330
08...	1124	35.0	428	7.7	24.5	--	0	0	0.250
AUG									
01...	1150	1.00	436	8.3	28.5	0.40	8.1	106	--
01...	1152	10.0	429	8.1	28.5	--	7.6	99	--
01...	1155	20.0	453	7.6	27.5	--	1.6	21	--
01...	1157	29.0	496	7.6	26.5	--	0	0	--

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX--Continued

323503097012201 - JOE POOL LAKE SITE DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
JAN								
31...	0.020	0.200	0.060	0.74	0.80	0.060	20	20
31...	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--
31...	0.010	0.200	0.040	0.66	0.70	0.090	20	10
JUN								
08...	0.040	0.500	0.030	0.47	0.50	0.030	20	20
08...	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--
08...	0.070	0.400	0.080	0.62	0.70	0.050	30	130
08...	0.150	0.400	0.240	0.26	0.50	0.090	30	330
AUG								
01...	<0.010	<0.100	<0.010	--	0.60	0.010	40	20
01...	<0.010	<0.100	<0.010	--	0.60	0.010	40	30
01...	0.010	<0.100	0.080	0.62	0.70	0.030	70	140
01...	0.030	<0.100	0.220	0.58	0.80	0.040	580	490

323329097024101 - JOE POOL LAKE SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAM-PLING DEPTH (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TRANS-PAR-ENCY (SECCHI DISK) (M)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CACO3)
JAN											
31...	1123	1.00	540	8.4	10.0	0.70	10.0	90	K7	K8	180
31...	1128	10.0	517	8.3	9.5	--	9.6	85	--	--	--
31...	1133	23.0	620	8.3	9.0	--	9.0	79	--	--	180
JUN											
08...	1134	1.00	399	7.8	26.5	0.20	5.1	64	92	27	150
08...	1137	10.0	399	7.7	26.0	--	4.8	60	--	--	--
08...	1140	20.0	420	7.6	25.0	--	2.0	24	--	--	--
08...	1144	30.0	420	7.6	25.5	--	1.4	17	--	--	150
AUG											
01...	1214	1.00	460	7.7	29.0	0.20	4.1	54	K4	23	160
01...	1219	10.0	470	7.6	29.0	--	1.8	24	--	--	170

DATE	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
JAN											
31...	47	63	5.7	40	1	9.4	130	100	23	--	3.6
31...	--	--	--	--	--	--	--	--	--	--	--
31...	42	63	5.5	50	2	10	140	120	31	--	3.8
JUN											
08...	40	53	3.7	21	0.8	6.8	110	71	10	0.40	6.5
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	37	54	4.2	23	0.8	6.8	120	74	12	0.40	5.1
AUG											
01...	42	57	4.7	26	0.9	9.2	120	83	15	0.60	4.6
01...	46	59	4.8	25	0.8	8.9	120	85	15	0.50	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, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
JAN										
31...	325	0.460	0.040	0.500	0.070	0.53	0.60	0.050	11	2
31...	--	--	--	--	--	--	--	--	--	--
31...	366	1.10	0.100	1.20	0.140	0.66	0.80	0.040	8	10
JUN										
08...	237	0.530	0.070	0.600	0.040	0.46	0.50	0.060	<3	10
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	249	0.460	0.040	0.500	0.050	1.2	1.2	0.080	<3	97
AUG										
01...	272	--	0.020	<0.100	0.080	0.62	0.70	0.040	4	40
01...	276	--	0.020	<0.100	0.150	0.75	0.90	0.030	4	150

Joe Pool Lake AC (323819096584801)

Phytoplankton Analyses October 1989 to September 1990

Date	1-31-90
Time	0937
TOTAL CELLS/mL	11,654
NUMBER OF SPECIES	23
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella meneghiniana	9
Cyclotella ocellata	9
Cyclotella stelligera	9
Stephanodiscus hantzschii var. *pusillus*	499
Stephanodiscus sp.	19
Order Pennales	
Achnanthes minutissima	109
CHLOROPHYTA (Green algae)	
Ankistrodesmus falcatus var. *mirabilis*	218
Chlorococcum humicola	218
Chodatella quadriseta	327
Golenkinia radiata var. *brevispina*	218
Oocystis sp.	109
Scenedesmus quadricauda	218
Schroederia setigera	871
Tetrastrum staurogeniaeforme	436
CHRYSOPHYTA (Golden-brown algae)	
Kephyrion sp.	109
CYANOPHYTA (Blue-green algae)	
Aphanocapsa delicatissima	436
Aphanothece saxicola	653
Chroococcus dispersus	1,742
Chroococcus limneticus	1,307
Chroococcus multicoloratus	1,851
Chroococcus varius	1,198
Dactylococcopsis fascicularis	653
Synechococcus sp.	436

Joe Pool Lake EC (323329097024101)

Phytoplankton Analyses October 1989 to September 1990

Date	1-31-90
Time	1124
TOTAL CELLS/mL	34,541
NUMBER OF SPECIES	32
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella meneghiniana	14
Melosira distans	57
Stephanodiscus hantzschii var. *pusillus*	128
Stephanodiscus niagarae	14
Stephanodiscus vestibulus	14
Stephanodiscus sp.	43
Order Pennales	
Achnanthes minutissima	22
Navicula sp.	22
Nitzschia acicularis	90
Nitzschia palea	22
Synedra radians	112
CHLOROPHYTA (Green algae)	
Ankistrodesmus falcatus	163
Ankistrodesmus falcatus var. *mirabilis*	338
Chlorella ellipsoidea	327
Chlorococcum humicola	327
Chodatella quadriseta	135
Golenkinia radiata var. *brevispina*	327
Micratinium pusillum	270
Scenedesmus bijuga	270
Scenedesmus dimorphus	270
Selenastrum minutum	68
CHRYSOPHYTA (Golden-brown algae)	
Kephyrion sp.	327
Unknown flagellate	163
CYANOPHYTA (Blue-green algae)	
Aphanocapsa delicatissima	8,007
Chroococcus dispersus	3,268
Chroococcus multicoloratus	13,399
Chroococcus varius	1,307
Dactylococcopsis acicularis	163
Dactylococcopsis fascicularis	1,307
Lyngbya nana	327
Synechococcus sp.	3,105
CRYPTOPHYTA (Cryptomonads)	
Rhodomonas minuta	135

Joe Pool Lake AC 323819096584801

Phytoplankton Analyses October 1989 to September 1990

Date	6-08-90
Time	0916
TOTAL CELLS/mL	8,992
NUMBER OF SPECIES	23
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella kutzingiana	19
Cyclotella ocellata	77
Cyclotella stelligera	441
Melosira distans	77
Melosira granulata var. *angustissima*	77
Stephanodiscus astraea var. minutula	273
Stephanodiscus hantzschii	96
Stephanodiscus vestibulus	1,420
Order Pennales	
Navicula minuscula	55
CHLOROPHYTA (Green algae)	
Ankistrodesmus falcatus var. *mirabilis*	82
Chodatella quadriseta	82
Coelastrum microporum	654
Kirchneriella lunaris	245
Oocystis elliptica	327
Pediastrum duplex	327
CYANOPHYTA (Blue-green algae)	
Anabaena circinalis	654
Aphanocapsa delicatissima	2,533
Chroococcus dispersus	327
Chroococcus varius	327
Merismopedia tenuissima	327
Oscillatoria sp.	163
Synechococcus sp.	327
CRYPTOPHYTA (Cryptomonads)	
Rhodomonas minuta	82

Joe Pool Lake EC 323329097024101

Phytoplankton Analyses October 1989 to September 1990

Date	6-08-90
Time	1135
TOTAL CELLS/mL	22,220
NUMBER OF SPECIES	24
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella ocellata	163
Cyclotella stelligera	327
Stephanodiscus hantzschii	572
Stephanodiscus vestibulus	572
Order Pennales	
Navicula minuscula	535
Nitzschia palea	59
Nitzschia paleacea	59
CHLOROPHYTA (Green algae)	
Ankistrodesmus falcatus	163
Chlamydomonas sp.	163
Chodatella quadriseta	163
Kirchneriella contorta	163
Pediastrum duplex	327
CYANOPHYTA (Blue-green algae)	
Aphanocapsa delicatissima	1,961
Aphnothece saxicola	980
Chroococcus dispersus	654
Chroococcus limneticus	327
Dactylococcopsis fascicularis	163
Marssoniella elegans	980
Merismopedia tenuissima	10,458
Oscillatoria limnetica	817
Spirulina laxa	163
Synechococcus sp.	1,634
CRYPTOPHYTA (Cryptomonads)	
Chroomonas sp.	163
Rhodomonas minuta	654

Joe Pool Lake AC (323819096584801)

Phytoplankton Analyses October 1989 to September 1990

Date	8-01-90
Time	1023
TOTAL CELLS/mL	394,415
NUMBER OF SPECIES	18
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella bodanica	26
Cyclotella meneghiniana	42
Melosira italica	506
Melosira lirata	100
Order Pennales	
Navicula sanctaecrucis	281
Synedra delicatissima	3,377
Synedra delicatissima var. *angustissima*	141
Synedra filiformis var. *exilis*	3,658
Synedra radians	2,673
CHLOROPHYTA (Green algae)	
Ankistrodesmus falcatus	70,914
Crucigenia quadrata	5,403
Scenedesmus abundans var. *brevicada*	1,351
CYANOPHYTA (Blue-green algae)	
Anabaena wisconsenense	43,224
Aphanocapsa elachista	246,510
Chroococcus limneticus var. *elegans*	10,806
Spirulina sp.	2,026
EUGLENOPHYTA (Euglenoids)	
Euglena gracilis	2,026
PYRROPHYTA (Dinoflagellates)	
Gymnodinium caudatum	1,351

Joe Pool Lake EC (323329097024101)

Phytoplankton Analyses October 1989 to September 1990

Date	8-01-90
Time	1215
TOTAL CELLS/mL	31,405
NUMBER OF SPECIES	17
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella meneghiniana	19
Melosira italica	45
Melosira lirata	105
Order Pennales	
Cymbella minuta	289
Synedra delicatissima	724
Synedra delicatissima var. *angustissima*	145
Synedra filiformis var. *exilis*	289
Synedra radians	579
CHLOROPHYTA (Green algae)	
Ankistrodesmus falcatus	1,351
Oocystis borgei	338
Scenedesmus armatus	675
Tetradron victoriae	844
CHRYSOPHYTA (Golden-brown algae)	
Chlorochromonas minuta	844
CYANOPHYTA (Blue-green algae)	
Aphanocapsa delicatissima	23,300
Spirogyra sp.	169
EUGLENOPHYTA (Euglenoids)	
Euglena gracilis	507
Phacus acuminatus	1,182

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 downstream from Walnut Creek, 4.5 mi west of Duncanville, and 5.5 mi upstream from Mountain Creek Lake Dam.

DRAINAGE AREA.--225 mi².

PERIOD OF RECORD.--October 1970 to September 1990 (discontinued).

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

REMARKS.--Elevation records good except those for Apr. 1 to May 3 and Aug. 29 to Sept. 30, which are fair. This station is used as an aid in the operation of Mountain Creek Lake. Joe Pool Dam, located about 2 mi upstream, was completed at the end of the 1985 water year, and deliberate impoundment began Jan. 7, 1986. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 469.83 ft Apr. 19, 1976; channel dry at times June 16 to Sept. 28, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 463.24 ft June 1 at 0850 hours; minimum, 455.96 ft Sept. 22-30.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	456.71	457.17	457.45	457.15	459.04	457.44	e459.20	e457.60	459.57	456.90	456.72	e456.31
2	457.52	457.63	457.28	457.76	457.70	457.67	e458.85	e457.64	457.56	456.87	456.70	e456.28
3	457.00	457.38	457.19	457.43	457.28	457.69	e458.44	e457.70	462.63	456.85	456.70	e456.27
4	456.79	457.19	457.81	457.77	457.14	457.69	e457.73	457.77	462.63	456.84	457.08	e456.27
5	457.53	457.12	457.48	457.41	459.38	457.69	e457.35	457.42	462.64	456.84	457.41	e456.26
6	457.10	457.67	457.33	457.25	459.62	457.69	e457.55	457.23	462.62	456.84	457.07	e456.25
7	456.93	457.42	457.84	457.17	459.63	457.79	e457.60	457.12	462.63	456.84	456.95	e456.24
8	456.86	457.77	457.42	457.75	459.63	457.73	e457.65	457.08	462.79	456.83	456.87	e456.22
9	457.58	457.48	457.27	457.40	459.64	457.70	e457.55	457.05	462.78	456.83	456.71	e456.20
10	457.15	457.32	457.19	457.23	459.63	457.69	e457.40	457.07	462.76	456.83	456.69	e456.17
11	456.95	457.24	457.76	457.75	459.63	458.08	e457.25	457.08	462.75	456.83	456.65	e456.16
12	457.48	457.19	457.42	457.40	458.97	457.73	e457.15	457.02	462.73	456.87	456.63	e456.13
13	457.20	457.82	457.25	457.23	458.91	457.67	e457.00	456.98	461.64	456.86	456.60	e456.11
14	456.98	457.52	457.80	457.15	458.91	458.62	e457.05	456.96	461.63	456.86	456.59	e456.08
15	456.90	457.37	457.43	457.11	458.91	457.87	e457.15	456.94	461.30	456.86	456.56	e456.07
16	457.45	457.86	457.27	457.72	457.86	457.74	e457.20	456.95	461.30	456.87	456.54	e456.05
17	457.15	457.51	457.19	457.45	457.66	457.67	e457.15	456.92	461.30	456.87	456.51	e456.02
18	456.94	457.32	457.77	458.20	457.66	457.65	e457.15	456.96	461.30	456.86	456.48	e456.00
19	457.55	457.24	457.82	457.79	457.67	459.52	e457.15	456.94	460.50	456.85	456.46	e455.99
20	457.13	457.83	457.83	457.31	457.68	459.63	e457.15	460.49	460.48	456.82	456.46	e455.98
21	456.92	457.89	457.85	457.16	457.96	460.46	e457.25	462.07	459.77	456.81	456.46	e455.97
22	456.85	457.58	457.84	457.12	457.74	459.82	e457.30	462.05	458.23	456.79	456.45	e455.96
23	457.50	457.32	457.84	457.09	457.69	459.77	e457.34	462.94	457.84	456.89	456.44	e455.96
24	457.20	457.22	457.84	457.05	457.69	459.75	e457.30	462.95	457.82	457.29	456.43	e455.96
25	457.01	457.17	457.84	457.03	457.67	459.80	e457.35	462.95	457.75	457.01	456.42	e455.96
26	457.56	457.14	457.85	457.01	457.67	459.77	e457.45	462.95	457.70	456.91	456.41	e455.96
27	457.30	457.80	457.84	457.00	457.67	459.83	e457.50	462.94	457.70	456.85	456.41	e455.96
28	457.18	457.49	457.84	456.99	457.34	457.94	e457.55	462.93	457.69	456.81	456.40	e455.96
29	457.14	457.31	457.44	456.99	---	457.57	e457.55	463.07	457.17	456.77	e456.38	e455.96
30	457.70	457.82	457.28	456.98	---	459.42	e457.59	463.04	456.96	456.75	e456.35	e455.96
31	457.33	---	457.20	457.42	---	459.63	---	463.16	---	456.72	e456.33	---
MAX	457.70	457.89	457.85	458.20	459.64	460.46	459.20	463.16	462.79	457.29	457.41	456.31
MIN	456.71	457.12	457.19	456.98	457.14	457.44	457.00	456.92	456.96	456.72	456.33	455.96
(†)	457.33	457.82	457.20	457.42	457.34	459.63	457.59	463.16	456.96	456.72	456.33	455.96

CAL YR 1989 MAX 462.46 MIN 456.15
WTR YR 1990 MAX 463.16 MIN 455.96

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

08050050 MOUNTAIN CREEK LAKE NEAR GRAND PRAIRIE, TX

LOCATION.--Lat 32°43'55", long 96°56'35", Dallas County, Hydrologic Unit 12030102, at right end of spillway in Mountain Creek Dam on Mountain Creek, 2.5 mi upstream from Texas and Pacific Railway Co. bridge, and 3.7 mi southeast of Grand Prairie.

DRAINAGE AREA.--295 mi².

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 21, 1960, non-recording gage at powerplant at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 5,800 ft long, including a controlled spillway six 34- by 27 foot tainter gates. The dam was completed in December 1936 and deliberate impoundment began on Mar. 24, 1937. The lake was built and is operated by Dallas Power and Light Co. to supply cooling water for their generating plant. The capacity curve is based on a survey made in 1963. For statement regarding regulation by Joe Pool Dam, see station 08049900. Figures given herein represent total contents. Gage-height telemeter 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 provided by the Dallas Power and Light Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 28,360 acre-ft May 17, 1989 (elevation, 458.80 ft); minimum, 14,120 acre-ft Oct. 18, 1972 (elevation, 453.25 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 24,480 acre-ft Feb. 1 at 0900 hours (elevation, 457.57 ft); minimum, 19,550 acre-ft May 2 (elevation, 455.70 ft).

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

455.0	17,890	457.0	22,840
456.0	20,260	458.0	25,720

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21830	21270	20800	20880	22480	22930	21210	20700	20930	23160	21630	21110
2	21810	21210	20700	20850	22870	23010	21630	19710	20700	22790	22090	20780
3	21760	21210	20750	20980	23210	23040	22040	21470	22250	22760	21630	20720
4	21730	21240	20780	20980	23010	23070	22530	21890	22270	22660	22400	20700
5	21700	21210	20780	20980	23010	23160	22840	22010	21990	22570	22360	20600
6	21600	21270	20670	21010	23330	23190	22660	22090	21630	22500	e22300	20540
7	21580	21210	20650	21010	23130	22760	22740	22250	21290	22400	e22270	20410
8	21550	21140	20650	21110	23040	22840	22760	22220	20960	22250	22270	20410
9	21500	21140	20650	21010	23270	23040	21810	22140	20980	22070	22270	20600
10	21450	21110	20600	21030	22760	23040	21730	22140	21030	e22070	22270	20440
11	21420	21090	20490	20960	23100	22690	21960	22300	21270	e22040	22270	20440
12	21320	21090	20540	20930	22930	22690	22220	22480	21190	22010	22120	20410
13	21290	21110	20540	20900	23100	21780	22480	22480	21730	22140	22230	20410
14	21270	21090	20540	20960	23300	22500	21630	22500	22220	21810	22070	20410
15	21210	20900	20390	20960	23790	21600	21730	22530	23070	21760	22010	20700
16	21140	20830	20490	21030	22760	21730	21470	21190	23040	22250	21990	20600
17	21010	20800	20490	21060	22790	21760	21470	21210	23210	21730	22140	20260
18	20980	20800	20470	21990	22810	21760	21550	21240	23010	21800	21810	20190
19	20980	20800	20470	23210	22810	21890	20340	21340	22930	21760	21760	20190
20	21030	20830	20490	23040	22870	22250	21110	21550	23300	21760	21700	20080
21	21010	20880	20360	23070	23590	22740	21210	22500	23040	21730	21700	20070
22	20960	20930	20390	e23100	23130	23790	21320	21700	23330	21630	21630	20050
23	20900	20980	20490	e23040	22810	22840	21450	21730	23330	21730	21550	19950
24	20900	21110	20540	e23010	22810	23330	21470	21990	23360	22250	21470	19950
25	20900	20930	20600	e22980	22930	22740	20190	21700	23330	21990	21450	19860
26	20880	21030	20600	e22930	23010	22660	20720	21630	23040	21960	21370	19810
27	20830	20880	20600	e22900	23010	23790	21650	21630	23040	22140	21290	19790
28	20800	20780	20720	e22870	22930	21830	21960	21580	23330	22090	21210	19740
29	20830	20780	20720	22870	---	21450	21730	21580	23010	21760	21190	19710
30	21290	20780	20800	22790	---	20310	20260	22270	23210	21730	21110	19620
31	21320	---	20850	23100	---	20780	---	22430	---	21630	20980	---
MAX	21830	21270	20850	23210	23790	23790	22840	22530	23360	23160	22400	21110
MIN	20800	20780	20360	20850	22480	20310	20190	19710	20700	21630	20980	19620
(†)	456.41	456.20	456.23	457.09	457.03	456.20	456.00	456.84	457.13	456.53	456.28	455.73
(ϕ)	-510	-540	+70	+2250	-170	-2150	-520	+2170	+780	-1580	-650	-1360

CAL YR 1989 MAX 25030 MIN 20360 (ϕ) -1680
WTR YR 1990 MAX 23790 MIN 19620 (ϕ) -2210

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

e Estimated

08050100 MOUNTAIN CREEK AT GRAND PRAIRIE, TX

LOCATION (revised).--Lat 32°44'51", long 96°55'32", Dallas County, Hydrologic Unit 12030102, on roadway embankment at upstream right end of downstream bridge on Jefferson Street, 1,000 ft upstream from bridge on U.S. Highway 80, 1.2 mi upstream from Texas and Pacific Railroad Co. bridge, 1.5 mi downstream from Mountain Creek Lake Dam, and 4.4 mi east of Grand Prairie.

DRAINAGE AREA.--298 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 404.31 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 19, 1984, at datum 3.0 ft higher.

REMARKS.--Records fair Oct. 1 to Mar. 13, and poor thereafter including estimated daily discharges. Flow regulated by Mountain Creek Lake (station 08050050), 1.5 mi upstream. Several observations of water temperature were made during the year. Reconstruction of the upstream road embankment and bridge was started during the 1990 water year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--30 years, 99.6 ft³/s (72,160 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,100 ft³/s Apr. 19, 1976 (gage height, 24.21 ft); maximum gage height, 24.62 ft May 7, 1969; no flow in 1964, 1972-74, 1984, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,300 ft³/s Apr. 26 at 1930 hours (gage height, 22.31 ft); maximum gage height 23.79 ft May 3 during period of backwater from West Fork Trinity River; minimum daily, 0.18 ft³/s Nov. 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.83	1.5	1.3	1.5	4270	3.4	3.1	e6.5	3870	2.4	.78	1.6
2	.75	.81	1.1	1.5	1100	1.6	2.4	e7860	976	2.4	1.0	1.8
3	.62	1.0	.95	1.8	31	.96	1.9	e4570	29	2.3	.39	2.1
4	.77	1.2	1.8	1.5	10	.64	1.8	e10	2060	2.2	6.4	2.3
5	.95	1.2	2.7	1.2	8.7	.54	1.8	e4.0	2180	2.1	785	1.5
6	.95	.85	2.5	1.2	7.9	.59	367	e3.5	2220	2.0	183	.78
7	.95	.62	2.4	1.1	175	436	8.8	e3.0	2230	3.0	2.5	.51
8	1.1	.54	2.7	1.0	189	4.8	2.8	e2.5	2220	3.2	1.3	.53
9	1.5	.53	3.5	.86	39	2.5	464	e2.3	2230	3.1	.75	.88
10	1.4	.61	3.4	.98	304	2.1	312	e2.1	2230	2.8	.57	1.1
11	1.2	.72	2.5	1.1	6.1	615	16	e2.0	2190	2.6	.53	1.1
12	1.0	.66	2.5	.99	197	94	15	e1.9	2150	2.7	.53	.75
13	.91	.62	2.7	.95	5.3	378	15	e1.8	1420	2.7	.56	.56
14	.96	.46	2.4	1.0	2.1	749	1990	e1.7	880	2.7	.48	.56
15	.87	.34	1.6	1.1	1.5	688	52	e1.6	278	2.5	.55	.50
16	.72	.18	1.5	1.1	264	4.1	286	e666	801	2.4	.67	.39
17	.85	.95	1.5	1.4	4.9	2.8	55	e5.0	584	2.4	.72	.42
18	2.6	1.2	1.6	9.7	1.3	2.1	22	e3.0	838	2.0	.72	.48
19	2.8	1.3	1.4	484	.67	1.3	684	e2.3	654	1.6	.63	.50
20	2.8	1.1	1.2	417	.41	1.3	44	e2.0	196	1.2	.90	.56
21	2.4	.95	1.1	2.4	5.1	.44	33	e805	425	.83	1.4	.71
22	1.8	1.8	.97	1.5	152	.27	24	1860	5.9	.92	1.6	1.0
23	1.2	1.5	.90	1.1	170	480	20	1620	3.7	1.9	1.6	.76
24	.93	1.6	.95	.99	2.7	5.5	16	2430	3.3	4.7	1.9	2.1
25	.70	1.3	1.2	.80	1.5	667	651	2400	3.3	5.1	1.9	1.8
26	.59	.95	1.3	.82	1.6	319	5690	2380	141	1.6	1.9	.73
27	.56	.72	1.3	2.5	.81	4.8	114	2360	5.4	1.2	1.9	.65
28	.47	.38	1.2	1.2	124	1720	7.9	2340	3.3	1.3	2.1	.52
29	.62	.72	1.2	.88	---	355	138	2330	2.7	.54	2.1	.47
30	5.3	1.2	1.3	.65	---	740	838	2330	2.5	.45	2.1	.44
31	2.9	---	1.6	1.9	---	4.7	---	2350	---	.40	1.9	---
TOTAL	42.00	27.51	54.27	945.72	7075.59	7285.44	11876.5	36356.2	30832.1	67.24	1008.38	28.10
MEAN	1.35	.92	1.75	30.5	253	235	396	1173	1028	2.17	32.5	.94
MAX	5.3	1.8	3.5	484	4270	1720	5690	7860	3870	5.1	785	2.3
MIN	.47	.18	.90	.65	.41	.27	1.8	1.6	2.5	.40	.39	.39
AC-FT	83	55	108	1880	14030	14450	23560	72110	61160	133	2000	56

CAL YR 1989 TOTAL 64094.51 MEAN 176 MAX 11000 MIN .18 AC-FT 127100
WTR YR 1990 TOTAL 95599.05 MEAN 262 MAX 7860 MIN .18 AC-FT 189600

e Estimated

08050400 ELM FORK TRINITY RIVER AT GAINESVILLE, TX

LOCATION.--Lat 33°37'27", long 97°09'22", Cooke County, Hydrologic Unit 12030103, on right bank 16 ft to the right of the right end of the bridge on Farm Road 51, 31 ft downstream from the centerline of the road, 0.6 mi west of Cooke County courthouse in Gainesville, 1.0 mi upstream from Interstate Highway 35, and 1.2 mi downstream from Dozier Creek (corrected).

DRAINAGE AREA.--174 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 700.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--5 years (water years 1986-90), 143 ft³/s (103,600 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,000 ft³/s May 16, 1989 (gage height, 25.33 ft) from rating curve extended above 20,000 ft³/s on basis of velocity-area study; no flow for several days in August 1988, because of construction in channel.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1981, reached a peak stage of 28.1 ft, from information by an employee of the Gainesville Department of Public Works.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21,300 ft³/s May 2 at 1315 hours (gage height, 22.80 ft) from rating curve extended above 20,000 ft³/s on basis of velocity-area study; minimum discharge, 0.74 ft³/s Sept. 4-10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	3.8	2.9	3.9	36	339	305	1130	379	3.9	2.2	.80
2	2.3	2.7	2.9	3.7	51	205	250	12500	491	3.7	2.2	.80
3	2.3	2.6	2.9	3.6	35	141	211	8010	393	3.3	12	.80
4	2.1	2.1	3.0	3.4	25	93	187	1940	372	2.9	5.5	.77
5	2.1	2.0	3.0	3.0	17	73	228	1660	349	2.7	3.2	.74
6	1.9	2.0	3.3	2.9	13	69	728	1440	339	2.5	24	.74
7	1.8	2.1	3.4	2.9	11	227	325	1320	324	2.3	9.5	.74
8	1.8	2.0	3.4	2.9	9.0	246	227	1220	311	2.2	3.6	.74
9	1.7	1.9	3.6	2.9	13	183	185	1160	296	2.2	2.7	.74
10	1.6	1.9	3.7	3.1	13	134	625	1090	284	2.0	2.5	.75
11	1.6	1.9	3.6	2.7	12	3480	260	1010	274	1.9	2.3	.86
12	1.5	1.8	3.7	2.8	9.1	1270	146	907	261	53	2.1	.94
13	1.4	2.0	3.9	2.7	7.1	751	105	755	253	2.7	1.8	1.0
14	1.3	2.1	3.5	2.6	6.1	1910	127	660	245	2.8	2.4	1.1
15	1.4	2.1	4.0	2.8	54	876	109	609	227	2.4	1.9	1.3
16	1.3	2.2	4.3	5.1	74	488	407	573	179	2.2	1.7	1.3
17	1.5	2.3	4.5	26	40	356	190	527	137	2.1	1.5	1.3
18	1.7	2.4	4.6	26	27	261	197	477	109	2.2	1.4	1.5
19	1.7	2.5	4.6	682	21	204	2440	452	94	2.3	1.3	1.7
20	1.7	2.7	4.6	300	17	180	2160	432	83	2.2	1.2	3.3
21	1.9	2.8	e4.5	174	37	168	1160	416	76	2.1	.98	3.0
22	2.0	6.6	e4.3	120	182	156	1110	406	72	96	.98	2.7
23	1.9	3.0	e4.1	75	102	147	678	395	70	40	.98	2.5
24	1.9	2.9	4.0	38	68	138	437	391	255	6.4	.94	2.3
25	1.9	2.7	3.8	23	49	119	710	389	91	4.0	.91	2.1
26	1.8	2.5	3.9	13	40	143	12400	383	30	3.0	.91	1.6
27	1.8	2.7	3.7	9.4	33	232	1990	390	16	2.5	.91	1.5
28	1.8	2.7	3.7	6.7	216	1380	1500	378	9.4	2.3	.86	1.5
29	1.7	2.7	3.8	5.0	---	2340	1310	371	5.9	2.1	.85	1.5
30	25	3.2	4.0	4.3	---	756	1190	375	4.5	6.6	.85	1.5
31	13	---	4.1	3.9	---	446	---	355	---	2.2	.85	---
TOTAL	89.7	76.9	117.3	1557.3	1217.3	17511	31897	42121	6029.8	268.7	95.02	42.12
MEAN	2.89	2.56	3.78	50.2	43.5	565	1063	1359	201	8.67	3.07	1.40
MAX	25	6.6	4.6	682	216	3480	12400	12500	491	96	24	3.3
MIN	1.3	1.8	2.9	2.6	6.1	69	105	355	4.5	1.9	.85	.74
AC-FT	178	153	233	3090	2410	34730	63270	83550	11960	533	188	84

CAL YR 1989 TOTAL 64658.42 MEAN 177 MAX 10200 MIN .42 AC-FT 128200
WTR YR 1990 TOTAL 101023.14 MEAN 277 MAX 12500 MIN .74 AC-FT 200400

e Estimated

08050410 ELM FORK TRINITY RIVER NEAR GAINESVILLE, TX

LOCATION.--Lat 33°34'56", long 97°07'49", Cooke County, Hydrologic Unit 12030103, on Farm Road 2071 bridge, over center of channel at downstream side of bridge, 1.0 mi downstream from Atchison, Topeka, and Santa Fe Railroad Co. bridge, and 3.0 mi south of Cooke County Courthouse in Gainesville.

DRAINAGE AREA.--1.65 mi.²

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1988 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)
OCT 19...	1340	4.6	900	7.9	12.5	15	2.6	9.4	89	1.3	180
NOV 29...	1015	5.8	920	8.0	9.0	20	2.8	10.4	90	1.6	200
JAN 23...	1315	69	472	8.1	10.0	55	13	11.3	103	1.9	160
MAR 19...	1315	251	482	7.8	16.0	25	20	12.6	128	1.6	190
JUN 25...	1614	71	445	7.7	27.0	25	110	9.0	115	5.2	150
AUG 21...	0910	5.4	960	8.1	27.0	22	19	6.2	79	1.7	170

DATE	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT 19...	0	63	5.2	140	5	6.3	310	57	52	0.30	12
NOV 29...	0	70	6.0	130	4	6.0	300	58	87	0.20	9.5
JAN 23...	9	57	3.9	35	1	4.9	150	26	43	0.20	6.8
MAR 19...	30	69	3.5	25	0.8	3.6	160	25	29	0.20	12
JUN 25...	14	53	3.8	31	1	3.5	130	27	33	0.30	8.5
AUG 21...	0	61	5.2	150	5	5.9	300	63	76	0.60	14

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
OCT 19...	520	<1	<1	--	9.66	0.040	9.70	0.040	1.4	1.4	0.370
NOV 29...	545	1	1	0	7.47	0.030	7.50	0.030	1.1	1.1	2.60
JAN 23...	267	63	20	43	1.28	0.020	1.30	0.050	0.75	0.80	0.290
MAR 19...	267	44	<1	--	1.07	0.030	1.10	0.050	0.65	0.70	0.190
JUN 25...	240	304	32	272	1.50	0.100	1.60	0.140	1.1	1.2	0.450
AUG 21...	557	<1	<1	--	5.65	0.050	5.70	0.070	1.2	1.3	2.80

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)
OCT 19...	6.0	1	62	<0.5	2.0	<5	<3	<10	11	<10
NOV 29...	5.2	--	--	--	--	--	--	--	--	--
JAN 23...	8.1	<1	82	<0.5	<1.0	<5	<3	<10	16	<10
MAR 19...	6.7	--	--	--	--	--	--	--	--	--
JUN 25...	12	--	--	--	--	--	--	--	--	--
AUG 21...	5.5	2	71	<0.5	2.0	<5	<3	<10	5	<10

08050410 ELM FORK TRINITY RIVER NEAR GAINESVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 19...	15	5	<0.1	20	10	1	<1.0	380	<6	7
NOV 29...	--	--	--	--	--	--	--	--	--	--
JAN 23...	7	6	<0.1	<10	<10	<1	<1.0	300	<6	<3
MAR 19...	--	--	--	--	--	--	--	--	--	--
JUN 25...	--	--	--	--	--	--	--	--	--	--
AUG 21...	13	4	0.1	<10	20	<1	<1.0	390	<6	5

08050800 TIMBER CREEK NEAR COLLINSVILLE, TX

LOCATION.--Lat 33°33'16", long 96°56'49", Cooke County, Hydrologic Unit 12030103, on left bank 13 ft to the left of bridge on Farm Road 902 and 19 ft downstream from the centerline of the road, 2.1 mi west of Collinsville, and 3.0 mi upstream from mouth.

DRAINAGE AREA.--38.8 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 640.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--5 years, 31.4 ft³/s (22,750 acre-ft/yr), 10.99 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,900 ft³/s May 16, 1989 (gage height, 14.23 ft); maximum gage height 14.79 ft Apr. 26, 1990 (debris in channel); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1981 reached a peak stage of 15.0 ft, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges greather than base discharge of 1,000 cfs and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 11	2100	1,090	13.18	May 2	1530	5,410	14.61
Apr. 26	0745	*6,500	*14.79				

Minimum discharge, no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.38	263	12	e14	92	21	8.9	30	.00
2	.00	.00	.00	.29	134	7.0	e12	1890	121	7.9	74	.00
3	.00	.00	.00	.25	14	5.6	11	1100	45	6.8	3.6	.00
4	.00	.00	.00	.10	7.5	5.1	11	140	19	5.7	6.3	.00
5	.00	.00	.00	.33	5.8	4.8	25	28	15	5.4	3.4	.00
6	.00	.00	.00	.21	5.0	4.7	118	20	14	5.0	1.7	.00
7	.00	.00	.00	.23	4.3	247	22	17	13	4.7	1.1	.00
8	.00	.00	.00	.25	4.0	37	12	15	12	4.4	.79	.00
9	.00	.00	.00	.28	4.3	16	11	14	12	4.2	.57	.00
10	.00	.00	.00	.13	5.0	11	257	13	11	3.9	.39	.00
11	.00	.00	.00	.07	4.6	495	33	13	11	3.6	.24	.00
12	.00	.00	.00	.04	4.2	525	19	12	10	63	.17	.00
13	.00	.00	.00	.07	4.1	42	15	12	9.0	9.1	9.0	.00
14	.00	.00	.00	.08	4.0	e146	33	12	10	5.4	4.6	.00
15	.00	.00	.00	.06	5.1	e81	40	12	8.5	4.5	.27	.00
16	.00	.00	.00	1.4	8.2	e18	773	12	8.3	3.8	.08	.00
17	.00	.00	.00	1.4	4.8	e12	50	11	9.0	3.3	.04	.00
18	.00	.00	.00	9.8	4.2	e9.4	22	11	8.4	3.0	.02	.00
19	.00	.00	.00	275	3.9	e8.5	613	11	7.9	3.0	.01	.00
20	.00	.00	.09	155	3.6	7.8	700	11	8.3	3.3	.00	.68
21	.00	.00	.15	14	4.2	7.6	593	11	8.2	2.7	.00	.08
22	.00	.00	.14	6.9	18	7.3	43	9.8	7.8	80	.00	.02
23	.00	.00	.07	5.5	8.4	6.9	27	9.1	8.0	40	.00	.00
24	.00	.00	.05	4.6	5.4	6.4	20	9.0	9.3	5.6	.00	.00
25	.00	.00	.05	3.7	4.5	6.3	392	8.8	11	5.5	.00	.00
26	.00	.00	.06	3.3	4.1	12	3280	8.5	14	3.0	.00	.00
27	.00	.00	.33	3.1	3.9	e12	527	7.9	13	2.2	.00	.00
28	.00	.00	.52	3.0	4.9	e179	51	7.2	12	1.6	.00	.00
29	.00	.00	.51	2.8	---	707	29	6.6	10	1.2	.00	.00
30	.00	.00	.50	2.8	---	114	21	14	9.5	.94	.00	.00
31	.00	---	.53	3.5	---	e23	---	8.7	---	1.7	.00	---
TOTAL	0.00	0.00	3.00	498.57	547.0	2776.4	7774	3546.6	476.2	303.34	136.28	0.78
MEAN	.000	.000	.097	16.1	19.5	89.6	259	114	15.9	9.79	4.40	.026
MAX	.00	.00	.53	275	263	707	3280	1890	121	80	74	.68
MIN	.00	.00	.00	.04	3.6	4.7	11	6.6	7.8	.94	.00	.00
AC-FT	.00	.00	6.0	989	1080	5510	15420	7030	945	602	270	1.5
CFSM	.00	.00	.00	.41	.50	2.31	6.68	2.95	.41	.25	.11	.00
IN.	.00	.00	.00	.48	.52	2.66	7.45	3.40	.46	.29	.13	.00

CAL YR 1989	TOTAL	18027.04	MEAN	49.4	MAX	2260	MIN	.00	AC-FT	35760	CFSM	1.27	IN.	17.28
WTR YR 1990	TOTAL	16062.17	MEAN	44.0	MAX	3280	MIN	.00	AC-FT	31860	CFSM	1.13	IN.	15.40

e Estimated

08050815 JORDAN CREEK TRIBUTARY NEAR COLLINSVILLE, TX.

LOCATION.--Lat 33°32'15", long 96°55'22", Grayson County, Hydrologic Unit 12030103, at culvert on gravel road, 0.4 mi upstream from mouth (Jordan Creek), and 1.5 mi southwest of Collinsville.

DRAINAGE AREA.--179 mi.²

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1988 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	HARDNESS TOTAL (MG/L AS CACO3)
JAN 23...	0930	0.40	798	7.9	9.0	65	10	8.4	75	3.8	110
FEB 01...	1305	20	299	7.5	12.5	130	16	10.6	102	8.4	59
MAR 20...	1240	1.4	445	7.7	17.0	47	17	10.8	112	3.4	110
MAY 01...	1000	2.3	394	7.5	15.5	170	15	10.1	103	2.3	110
JUN 26...	1715	0.06	684	8.1	27.5	35	7.9	9.6	124	3.8	110

DATE	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	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 WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
JAN 23...	0	34	6.5	130	5	6.2	260	50	71	0.30	9.7
FEB 01...	0	18	3.3	37	2	6.8	94	18	18	0.20	9.0
MAR 20...	0	34	6.2	46	2	7.2	140	30	27	0.40	8.4
MAY 01...	0	34	6.1	36	1	5.7	130	27	22	0.30	7.7
JUN 26...	0	33	6.4	100	4	6.4	220	43	57	0.30	4.7

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L)	RESIDUE VOLATILE, SUSPENDED (MG/L)	RESIDUE FIXED NON FILTERABLE (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, 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)
JAN 23...	466	10	8	2	0.930	0.070	1.00	0.910	0.99	1.9	1.50
FEB 01...	167	47	38	9	0.400	0.100	0.500	1.00	1.5	2.5	0.880
MAR 20...	243	27	<1	--	1.19	0.110	1.30	0.220	0.88	1.1	0.560
MAY 01...	220	98	16	82	1.19	0.110	1.30	0.120	0.98	1.1	0.460
JUN 26...	380	16	2	14	0.260	0.040	0.300	0.020	1.2	1.2	0.690

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)
JAN 23...	8.3	2	42	<0.5	<1.0	<5	<3	<10	58	<10
FEB 01...	14	--	--	--	--	--	--	--	--	--
MAR 20...	8.2	--	--	--	--	--	--	--	--	--
MAY 01...	9.7	1	49	<0.5	2.0	<5	<3	<10	55	<10
JUN 26...	9.8	--	--	--	--	--	--	--	--	--

DATE	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)
JAN 23...	7	51	0.1	<10	20	<1	<1.0	250	<6	7
FEB 01...	--	--	--	--	--	--	--	--	--	--
MAR 20...	--	--	--	--	--	--	--	--	--	--
MAY 01...	<4	130	<0.1	<10	<10	<1	<1.0	210	<6	9
JUN 26...	--	--	--	--	--	--	--	--	--	--

08051100 Ray Roberts Lake near Pilot Point, TX

LOCATION.--Lat 32°21'19", long 97°02'59", Denton County, Hydrologic Unit 12030103, in control room of outlet works tower located 336 ft upstream from centerline of Ray Roberts Dam (and Farm Road 455 which is located on top of dam) on Elm Fork Trinity River, 3.7 mi upstream from Bray Branch, 5.7 mi southwest of Pilot Point, and at river mile 60.0.

DRAINAGE AREA.--692 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1987 to current year.

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

REMARKS.--Lake is formed by a rolled earthfill dam 15,250 ft long. There is an uncontrolled, broad-crested spillway excavated in natural ground about 5,000 ft right of right end of dam. A reinforced concrete tower houses the flood-control and low-flow gates and operating equipment. Construction started Sept. 16, 1980 and closure was made in May 1986. The dam was built and is owned by the U.S. Army Corps of Engineers. Deliberate impoundment started June 30, 1987. The lake was built for water supply, flood control, and recreation purposes. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	665.0	-
Spillway crest (uncontrolled)	645.5	1,262,000
Top of flood-control pool	640.5	1,065,000
Top of conservation pool	632.5	799,600
Invert, lowest gated outlet	551.0	990

COOPERATION.--Area and capacity tables provided by the U.S. Army Corps of Engineers. Records of elevations and contents provided by the U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,219,000 acre-ft May 3, 1990 (elevation, 644.48 ft); minimum since initial filling began, 990 acre-ft July 1, 1987 (elevation, 551.00 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,219,000 acre-ft May 3 at 2100 hours (elevation, 644.48 ft); minimum, 645,300 acre-ft Jan. 13 (elevation, 626.80 ft).

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

626.0	625,500	636.0	908,100	642.0	1,121,000
630.0	729,000	638.0	975,300	644.0	1,200,000
633.0	814,500	640.0	1,046,000	645.0	1,241,000

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	671700	663500	654400	646300	686700	697500	850900	1074000	1062000	921600	861800	769400
2	671500	662500	653900	646300	690700	697800	851300	1172000	1067000	921600	858100	768800
3	671500	662000	653400	646800	690900	697800	851600	1218000	1070000	919300	856200	768300
4	670900	661200	653100	646800	690700	697800	852200	1207000	1066000	914300	853100	768000
5	670700	661500	653100	646800	690400	698100	864300	1196000	1061000	912700	850900	767700
6	670700	660700	653100	646800	690700	698800	873100	1182000	1055000	910400	847200	767100
7	670200	661000	652900	646600	690700	704700	874100	1168000	1050000	909100	845100	766600
8	669400	660700	652100	646300	690700	706300	874100	1156000	1045000	906500	844500	766000
9	668900	660500	651300	646300	692000	706800	872800	1146000	1040000	905900	842000	765400
10	668600	660200	652100	646300	691700	707400	879500	1131000	1035000	903900	838700	764900
11	667900	660000	651300	646300	691700	747500	877900	1131000	1030000	902300	835900	764600
12	667600	659700	650300	646100	690900	768300	874400	1103000	1025000	905500	832300	764300
13	667400	659400	650300	645800	691500	771700	872200	1087000	1019000	902900	829800	764000
14	667100	659200	650100	645600	692200	787200	870900	1078000	1014000	900700	826800	763700
15	667100	658900	649800	645600	692500	794200	871900	1071000	1009000	898700	823800	763700
16	666800	658200	649100	648800	692500	795400	879800	1068000	1004000	896800	821100	763500
17	665800	657400	648800	651300	692500	795900	878500	1064000	998600	895200	818400	762900
18	665100	657200	648600	655100	692200	796500	876300	1062000	993400	894800	816600	762600
19	664000	656900	648300	667600	692500	797100	896800	1061000	988100	893600	813600	762300
20	663300	656900	648300	674500	692500	796800	919300	1061000	982600	891600	811600	762300
21	662500	656900	648300	674800	693800	796800	926500	1061000	977700	889100	810100	763700
22	662200	657400	647600	675300	694600	797700	927900	1060000	972900	889100	808300	763200
23	662200	656900	646600	675600	694900	798300	926500	1059000	965300	887500	806500	762000
24	662000	656100	646300	675800	695400	798000	925900	1058000	961900	884600	804800	761200
25	661700	656400	646300	675600	694900	799700	944900	1057000	955800	881700	803900	760300
26	661500	656100	646300	674800	694900	800600	1066000	1057000	949000	880800	803000	759800
27	661500	656100	646300	675300	695400	805000	1071000	1057000	942900	879500	802400	759200
28	661200	655400	646300	675100	696700	820500	1067000	1056000	935500	875400	771400	758900
29	660500	654600	646600	674800	---	843300	1065000	1055000	929200	872200	771400	758700
30	664000	654400	647100	674800	---	848200	1066000	1058000	924900	868400	771100	758100
31	663500	---	646800	676600	---	849700	---	1055000	---	864600	770600	---
MAX	671700	663500	654400	676600	696700	849700	1071000	1218000	1070000	921600	861800	769400
MIN	660500	654400	646300	645600	686700	697500	850900	1055000	924900	864600	770600	758100
(†)	627.52	627.16	626.86	628.03	628.80	634.16	640.55	640.25	636.51	634.64	631.49	631.05
(ϕ)	-8700	-9100	-7600	+29800	+20100	+153000	+216300	-11000	-130100	-60300	-94000	-12500

CAL YR 1989 MAX 687500 MIN 143300 (ϕ) +503400
WTR YR 1990 MAX 1218000 MIN 645600 (ϕ) +85900

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

08051100 Ray Roberts Lake near Pilot Point, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: February 1989 to current year.

332138097024101 - LAKE RAY ROBERTS SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (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 TOTAL (MG/L AS CACO3)
MAR											
09...	0910	1.00	311	8.1	12.0	1.10	9.4	88	<1	<1	120
09...	0912	10.0	311	8.1	11.5	--	9.3	86	--	--	--
09...	0915	20.0	312	8.1	11.5	--	9.3	86	--	--	--
09...	0917	30.0	311	8.1	11.5	--	9.2	85	--	--	--
09...	0919	40.0	311	8.1	11.5	--	9.1	84	--	--	--
09...	0921	50.0	310	8.0	11.0	--	9.0	82	--	--	--
09...	0924	60.0	310	8.0	11.0	--	8.9	82	--	--	--
09...	0927	70.0	310	8.0	11.0	--	8.9	82	--	--	--
09...	0930	77.0	309	7.8	11.0	--	8.8	81	--	--	120
JUN											
19...	0953	1.00	260	8.3	28.0	1.90	8.1	105	K1	--	100
19...	0956	10.0	261	7.8	27.5	--	6.6	85	--	--	--
19...	0959	20.0	263	7.6	27.0	--	5.3	68	--	--	--
19...	1002	30.0	264	7.5	25.5	--	4.7	58	--	--	--
19...	1005	40.0	261	7.3	24.5	--	1.7	21	--	--	--
19...	1008	50.0	229	7.2	20.5	--	0	0	--	--	--
19...	1011	60.0	231	7.2	19.5	--	0	0	--	--	--
19...	1014	70.0	249	7.3	18.5	--	0	0	--	--	--
19...	1017	80.0	253	7.3	18.5	--	0	0	--	--	--
19...	1020	90.0	261	7.4	18.0	--	0	0	--	--	--
19...	1023	96.0	271	7.2	18.0	--	0	0	--	--	100
AUG											
29...	1007	1.00	286	8.0	29.5	1.50	7.0	94	K1	K1	110
29...	1010	10.0	285	7.6	29.0	--	5.0	66	--	--	--
29...	1013	20.0	283	7.3	28.5	--	3.5	46	--	--	--
29...	1017	30.0	284	7.0	27.5	--	0	0	--	--	--
29...	1020	40.0	279	6.9	26.5	--	0	0	--	--	--
29...	1023	50.0	284	6.9	25.0	--	0	0	--	--	--
29...	1026	60.0	284	6.8	21.5	--	0	0	--	--	--
29...	1028	70.0	276	6.8	20.0	--	0	0	--	--	--
29...	1031	77.0	276	6.7	20.0	--	0	0	--	--	100

DATE	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	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 WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
MAR											
09...	1	41	4.0	15	0.6	4.9	120	11	16	0.20	3.1
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	1	41	3.9	15	0.6	4.9	120	12	16	0.20	3.2
JUN											
19...	4	35	3.6	11	0.5	3.6	98	12	14	0.20	1.0
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	0	35	3.8	11	0.5	4.1	110	9.6	14	0.30	6.9
AUG											
29...	5	39	3.4	12	0.5	4.3	110	9.6	16	0.20	1.7
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	0	36	3.4	11	0.5	4.1	120	3.0	14	0.20	8.6

08051100 Ray Roberts Lake near Pilot Point, TX--Continued

332138097024101 - LAKE RAY ROBERTS SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
MAR										
09...	166	--	<0.010	0.200	0.050	0.55	0.60	0.020	15	<1
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	167	--	<0.010	0.200	0.060	0.44	0.50	0.010	19	16
JUN										
19...	139	0.080	0.020	0.100	0.010	0.99	1.0	0.020	5	26
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	<0.010	0.200	0.020	1.3	1.3	0.020	40	220
19...	--	--	0.030	<0.100	0.210	1.4	1.6	0.040	50	480
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	152	--	0.040	<0.100	0.360	0.54	0.90	0.300	880	2400
AUG										
29...	150	--	<0.010	<0.100	<0.010	--	0.40	0.020	3	38
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	<0.010	<0.100	<0.010	--	0.50	0.030	80	190
29...	--	--	<0.010	<0.100	0.020	0.38	0.40	0.030	10	120
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
29...	151	--	0.010	<0.100	1.10	0.40	1.5	0.290	960	650

332200097010001 - LAKE RAY ROBERTS SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAM-PLING DEPTH (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
AUG							
29...	1041	1.00	284	8.1	29.5	7.3	98
29...	1043	10.0	285	7.7	29.0	5.1	68
29...	1045	20.0	282	7.6	28.5	3.9	51
29...	1047	30.0	282	7.3	28.0	0	0
29...	1049	40.0	280	7.3	26.5	0	0
29...	1051	52.0	283	7.3	26.0	0	0

08051100 Ray Roberts Lake near Pilot Point, TX--Continued

332301097050601 - LAKE RAY ROBERTS SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR							
09...	1217	1.00	314	8.3	13.0	10.0	96
09...	1220	10.0	313	8.3	13.0	10.0	96
09...	1222	20.0	312	8.2	12.5	10.0	95
09...	1225	30.0	315	8.1	11.5	8.9	82
09...	1227	40.0	312	8.1	11.0	8.7	80
09...	1230	50.0	312	8.1	11.0	8.7	80
09...	1233	60.0	312	8.0	11.0	8.4	77
09...	1236	70.0	313	8.0	11.0	8.1	74
09...	1239	78.0	313	8.0	11.0	8.1	74
JUN							
19...	1244	1.00	269	8.4	29.0	8.0	106
19...	1246	10.0	269	8.3	28.5	7.7	101
19...	1248	20.0	268	8.1	28.0	7.0	91
19...	1250	30.0	264	7.6	26.0	4.0	50
19...	1252	40.0	246	7.4	23.0	0	0
19...	1254	50.0	252	7.5	21.5	0	0
19...	1258	60.0	253	7.5	19.5	0	0
19...	1300	70.0	253	7.5	19.5	0	0
19...	1303	80.0	253	7.6	19.0	0	0
19...	1305	92.0	255	7.8	19.5	0	0
AUG							
29...	1437	1.00	276	8.4	32.0	8.0	112
29...	1439	10.0	281	8.3	30.5	7.7	105
29...	1441	20.0	283	7.6	29.0	4.0	53
29...	1443	30.0	281	7.2	27.5	0	0
29...	1445	40.0	285	7.2	27.0	0	0
29...	1448	50.0	292	7.2	25.5	0	0
29...	1450	60.0	314	7.1	22.0	0	0
29...	1453	70.0	292	7.1	21.0	0	0
29...	1456	77.0	289	7.2	21.5	0	0

332353097020101 - LAKE RAY ROBERTS SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR							
09...	0951	1.00	306	8.3	13.0	10.2	98
09...	0953	10.0	307	8.2	12.5	9.9	94
09...	0956	20.0	308	8.0	12.0	9.1	85
09...	0959	30.0	307	8.1	11.5	9.2	85
09...	1001	40.0	307	8.0	11.5	9.0	83
09...	1005	50.0	310	8.0	11.5	9.0	83
09...	1007	60.0	310	8.0	11.5	8.6	80
09...	1009	72.0	311	7.9	11.5	8.5	79
JUN							
19...	1047	1.00	261	8.4	29.0	7.8	103
19...	1049	10.0	261	7.2	28.5	7.6	100
19...	1051	20.0	261	7.9	28.0	6.6	86
19...	1053	30.0	260	7.5	26.5	3.5	44
19...	1055	40.0	262	7.4	25.5	2.5	31
19...	1058	50.0	221	7.3	24.5	0	0
19...	1100	60.0	232	7.4	19.5	0	0
19...	1102	70.0	238	7.5	19.5	0	0
19...	1105	76.0	245	7.7	20.5	0	0
AUG							
29...	1107	1.00	276	8.5	31.0	7.8	107
29...	1110	10.0	278	8.3	30.0	7.7	104
29...	1112	20.0	281	7.8	29.0	5.9	78
29...	1115	30.0	281	7.2	28.0	0	0
29...	1117	40.0	281	7.1	26.5	0	0
29...	1120	50.0	287	7.0	25.0	0	0
29...	1122	60.0	273	7.1	22.0	0	0
29...	1124	70.0	279	7.2	20.0	0	0
29...	1126	80.0	276	7.3	19.5	0	0
29...	1128	87.0	278	7.4	20.0	0	0

08051100 Ray Roberts Lake near Pilot Point, TX--Continued

332459097063001 - LAKE RAY ROBERTS SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (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 TOTAL (MG/L AS CACO3)
MAR											
09...	1255	1.00	318	8.3	14.0	0.80	10.0	98	49	100	120
09...	1259	10.0	317	8.3	14.0	--	10.0	98	--	--	--
09...	1303	20.0	318	8.2	13.5	--	9.7	94	--	--	--
09...	1306	30.0	341	7.9	12.5	--	6.8	64	--	--	--
09...	1309	37.0	346	7.8	12.0	--	4.7	44	--	--	130
JUN											
19...	1320	1.00	271	8.5	30.0	1.30	8.4	113	K1	--	110
19...	1323	10.0	271	8.4	29.5	--	7.9	106	--	--	--
19...	1326	20.0	272	8.2	29.0	--	7.3	97	--	--	--
19...	1329	30.0	270	7.5	27.0	--	0	0	--	--	--
19...	1332	40.0	286	7.4	25.0	--	0	0	--	--	--
19...	1336	50.0	295	7.3	22.0	--	0	0	--	--	--
19...	1339	60.0	284	7.4	21.0	--	0	0	--	--	--
19...	1341	69.0	284	7.4	21.0	--	0	0	--	--	--
AUG											
29...	1514	1.00	281	8.3	32.5	1.50	7.8	110	K1	K1	110
29...	1516	10.0	284	8.2	31.0	--	7.5	103	--	--	--
29...	1518	20.0	295	7.3	30.0	--	0.8	11	--	--	--
29...	1521	30.0	295	7.2	27.5	--	0	0	--	--	--
29...	1523	40.0	327	7.2	27.0	--	0	0	--	--	--
29...	1526	50.0	346	7.2	26.0	--	0	0	--	--	--
29...	1530	60.0	358	7.2	24.0	--	0	0	--	--	140

DATE	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	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 WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
MAR											
09...	1	42	4.0	15	0.6	4.7	120	11	17	0.20	2.7
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	1	45	4.0	17	0.7	5.0	130	13	19	0.20	3.1
JUN											
19...	14	39	3.6	11	0.5	3.4	98	12	15	0.30	0.60
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	80	--	--	--	--
AUG											
29...	5	39	3.5	13	0.5	4.3	110	10	17	0.20	1.6
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	0	48	4.1	13	0.5	4.5	150	4.0	15	0.10	6.6

08051100 Ray Roberts Lake near Pilot Point, TX--Continued

332459097063001 - LAKE RAY ROBERTS SITE DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
MAR										
09...	169	--	<0.010	0.200	0.030	0.77	0.80	0.030	7	3
09...	--	--	--	--	--	--	--	--	--	--
09...	--	0.190	0.010	0.200	0.030	0.47	0.50	0.020	70	10
09...	--	0.290	0.010	0.300	0.120	0.48	0.60	0.020	10	50
09...	183	0.290	0.010	0.300	0.200	0.60	0.80	0.060	18	160
JUN										
19...	144	--	0.010	<0.100	0.010	0.39	0.40	0.030	<3	32
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	<0.010	0.200	0.020	0.18	0.20	0.030	90	270
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	0.020	<0.100	0.570	0.23	0.80	0.120	1100	1200
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	0.030	<0.100	0.640	0.06	0.70	0.310	--	--
AUG										
29...	153	--	<0.010	<0.100	<0.010	--	0.40	<0.010	66	290
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	<0.010	<0.100	<0.010	--	0.50	0.030	400	520
29...	--	--	<0.010	<0.100	0.160	0.44	0.60	0.020	220	510
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
29...	191	--	0.020	<0.100	1.90	0.50	2.4	0.160	4000	2600

332509096595301 - LAKE RAY ROBERTS SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAM-PLING DEPTH (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TRANS-PAR-ENCY (SECCHI DISK) (M)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CACO3)
MAR											
09...	1033	1.00	306	8.3	13.5	1.20	10.6	103	<1	<1	120
09...	1036	10.0	306	8.3	13.5	--	10.5	102	--	--	--
09...	1039	20.0	306	8.2	13.0	--	10.0	96	--	--	--
09...	1042	30.0	304	7.8	12.0	--	8.0	75	--	--	--
09...	1045	40.0	300	7.8	11.5	--	7.3	68	--	--	--
09...	1049	46.0	304	7.8	11.5	--	5.5	51	--	--	110
JUN											
19...	1116	1.00	257	8.6	29.5	1.50	8.9	119	K1	--	110
19...	1119	10.0	259	8.3	29.5	--	8.2	110	--	--	--
19...	1121	20.0	261	7.4	28.0	--	3.1	40	--	--	--
19...	1124	30.0	256	7.2	26.5	--	2.2	28	--	--	--
19...	1127	40.0	227	7.0	25.0	--	0	0	--	--	--
19...	1130	50.0	216	6.9	21.5	--	0	0	--	--	--
19...	1132	60.0	210	6.9	20.0	--	0	0	--	--	--
19...	1135	70.0	201	7.1	19.5	--	0	0	--	--	--
19...	1138	78.0	199	7.1	19.5	--	0	0	--	--	68
AUG											
29...	1148	1.00	277	8.1	31.5	1.20	7.0	97	K1	K1	110
29...	1150	10.0	277	7.9	30.0	--	6.4	86	--	--	--
29...	1152	20.0	279	7.3	29.0	--	1.8	24	--	--	--
29...	1155	30.0	280	7.2	28.0	--	0	0	--	--	--
29...	1157	40.0	274	7.0	27.0	--	0	0	--	--	--
29...	1200	50.0	299	6.8	25.0	--	0	0	--	--	--
29...	1204	60.0	314	6.9	22.5	--	0	0	--	--	--
29...	1207	74.0	312	7.1	21.0	--	0	0	--	--	110

08051100 Ray Roberts Lake near Pilot Point, TX--Continued

332509096595301 - LAKE RAY ROBERTS SITE EC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
MAR											
09...	1	40	4.0	14	0.6	4.9	120	11	17	0.20	2.9
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--
09...	1	39	4.1	14	0.6	5.0	110	11	16	0.20	3.3
JUN											
19...	0	36	3.8	11	0.5	3.6	110	1.0	15	0.50	1.0
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	0	22	3.1	7.3	0.4	3.6	79	1.2	10	0.20	7.9
AUG											
29...	3	37	3.4	12	0.5	4.6	100	8.9	14	0.10	1.3
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	0	37	3.8	10	0.4	4.4	130	<1.0	13	0.20	10

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
MAR										
09...	163	--	<0.010	0.200	<0.010	--	0.50	0.020	34	2
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	<0.010	0.200	0.020	0.58	0.60	0.020	10	<10
09...	--	--	<0.010	0.200	0.050	0.55	0.60	0.020	20	10
09...	--	--	--	--	--	--	--	--	--	--
09...	160	--	<0.010	0.200	0.120	0.58	0.70	0.030	12	84
JUN										
19...	135	--	<0.010	<0.100	<0.010	--	0.70	0.030	7	18
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	0.160	0.040	0.200	0.020	0.38	0.40	0.020	220	180
19...	--	--	<0.010	<0.100	0.160	0.24	0.40	0.010	310	350
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
19...	106	--	0.020	<0.100	1.40	0.40	1.8	0.470	2800	920
AUG										
29...	143	--	<0.010	<0.100	<0.010	--	0.50	0.020	17	26
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	<0.010	<0.100	<0.010	--	0.40	0.020	600	340
29...	--	--	<0.010	<0.100	<0.010	--	0.40	0.010	60	120
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	<0.010	<0.100	3.00	0.80	3.8	0.660	5600	1800

08051100 Ray Roberts Lake near Pilot Point, TX--Continued

332758097063301 - LAKE RAY ROBERTS SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR							
09...	1328	1.00	358	8.7	16.0	13.1	134
09...	1330	10.0	346	8.3	14.5	10.3	102
09...	1333	20.0	456	7.8	13.0	5.0	48
09...	1336	30.0	515	7.8	12.5	5.1	48
09...	1339	41.0	523	7.8	12.5	4.2	40
JUN							
19...	1356	1.00	259	8.6	31.0	9.7	133
19...	1358	10.0	259	8.4	30.5	9.1	124
19...	1400	20.0	283	7.5	29.0	2.0	26
19...	1403	30.0	366	7.3	27.5	0	0
19...	1406	40.0	333	7.4	25.0	0	0
19...	1410	48.0	304	7.7	23.0	0	0
AUG							
29...	1553	1.00	293	8.3	33.5	8.0	114
29...	1557	10.0	293	8.1	34.5	5.2	76
29...	1603	22.0	367	7.0	30.0	0	0

332800096565401 - LAKE RAY ROBERTS SITE HC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR							
09...	1132	1.00	305	8.3	14.0	10.4	102
09...	1135	10.0	305	8.2	14.0	10.2	100
09...	1138	20.0	304	7.9	12.5	8.6	82
09...	1141	30.0	303	7.8	12.0	7.2	67
09...	1143	40.0	299	7.5	11.5	3.1	29
09...	1146	50.0	301	7.5	11.0	2.6	24
09...	1149	63.0	300	7.6	12.0	2.8	26

Ray Roberts Lake AC (332138097024101)

Phytoplankton Analyses October 1989 to September 1990

Date	3-9-90
Time	0911
TOTAL CELLS/mL	11,889
NUMBER OF SPECIES	22
DEPTH COLLECTED (ft.)	1.8

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella stelligera	71
Melosira distans	531
Stephanodiscus sp.	142
CHLOROPHYTA (Green algae)	
Ankistrodesmus convolutus	68
Ankistrodesmus falcatus	68
Chlorella ellipsoidea	338
Chlorococcum humicola	338
Chodatella quadriseta	608
Cosmarium sp.	68
Oocystis pusilla	743
Oocystis solitaria	68
Scenedesmus obliquus	68
Tetraedron caudatum	68
CYANOPHYTA (Blue-green algae)	
Aphanocapsa delicatissima	2,160
Aphanothece saxicola	810
Chroococcus dispersus	1,688
Chroococcus multicoloratus	2,295
Lyngbya sp.	338
Synechococcus sp.	1,215
EUGLENOPHYTA (Euglenoids)	
Trachelomonas sp.	68
PYRRHOPHYTA (Dinoflagellates)	
Ceratium hirundinella	68
CRYPTOPHYTA (Cryptomonads)	
Rhodomonas minuta	68

08051100 RAY ROBERTS LAKE NEAR PILOT POINT, TX—Continued

Ray Roberts Lake DC (332459097063001)

Phytoplankton Analyses October 1989 to September 1990

Date	3-9-90
Time	1257
TOTAL CELLS/mL	38,642
NUMBER OF SPECIES	29
DEPTH COLLECTED (ft.)	1.3

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella stelligera	197
Cyclotella sp.	66
Melosira distans	1,441
Stephanodiscus sp.	459
Order Pennales	
Achnanthes linearis	180
Achnanthes minutissima	180
Synedra delicatissima	180
CHLOROPHYTA (Green algae)	
Ankistrodesmus falcatus	135
Ankistrodesmus falcatus var. *mirabilis*	135
Chlamydomonas sp.	270
Chlorella ellipsoidea	676
Chlorococcum sp.	811
Chodatella quadriseta	1,351
Chodatella sp.	946
Kirchneriella contorta	270
Kirchneriella lunaris	540
Nephrocytium sp.	270
Oocystis pusilla	3,513
Scenedesmus bijuga	811
Scenedesmus quadricauda	1,081
Treubaria setigerum	135
CYANOPHYTA (Blue-green algae)	
Aphanocapsa delicatissima	9,052
Aphanocapsa elachista var. *conferta*	2,432
Aphanothece saxicola	2,702
Chroococcus dispersus	2,297
Chroococcus limneticus	811
Chroococcus multicoloratus	3,107
Chroococcus varius	3,513
CRYPTOPHYTA (Cryptomonads)	
Rhodomonas minuta	1,081

08051100 RAY ROBERTS LAKE NEAR PILOT POINT, TX—Continued

Ray Roberts Lake AC (332138097024101)

Phytoplankton Analyses October 1989 to September 1990

Date	6-19-90
Time	0953
TOTAL CELLS/mL	21,551
NUMBER OF SPECIES	40
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella stelligera	117
Melosira distans	263
Melosira granulata	146
Stephanodiscus sp.	351
Order Pennales	
Nitzschia sp.	68
CHLOROPHYTA (Green algae)	
Ankistrodesmus falcatus	68
Ankistrodesmus falcatus var. *mirabilis*	68
Chlamydomonas sp.	68
Chlorococcum humicola	203
Chodatella quadriseta	68
Coelastrum sphaericum	540
Crucigenia crucifera	1,081
Crucigenia quadrata	203
Dictyosphaerium pulchellum	338
Elakatothrix viridis	68
Kirchneriella subsolitaria	203
Oocystis pusilla	203
Pediastrum duplex	203
Scendesmus bijuga	270
Scendesmus dimorphus	135
Scenedesmus quadicauda	270
Selenastrum minutum	68
Sphaerocystis schroeteri	203
Tetraedron minimum	68
Treubaria setigerum	68
CHRYSOPHYTA	
Ochromonas sp.	135
CYANOPHYTA (Blue-green algae)	
Anabaena sp.	1,621
Aphanocapsa delicatissima	11,616
Aphanocapsa elachista var. *conferta*	203
Aphanothece saxicola	270
Chroococcus dispersus	405
Chroococcus multicoloratus	540
Chroococcus sp.	675
Synechococcus sp.	270
EUGLENOPHYTA (Euglenoids)	
Euglena acus	68
Trachelomonas volvocina	68
PYRRHOPHYTA (Dinoflagellates)	
Ceratium hirundinella	68
Glenodinium palustre	68
CRYPTOPHYTA (Cryptomonads)	
Cryptomonas ovata	68
Rhodomonas minuta	135

Ray Roberts Lake EC (332509096595301)

Phytoplankton Analyses October 1989 to September 1990

Date	6-19-90
Time	1116
TOTAL CELLS/mL	51,054
NUMBER OF SPECIES	34
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella kutzingiana	31
Cyclotella stelligera	31
Melosira distans	125
Stephanodiscus sp.	218
CHLOROPHYTA (Green algae)	
Ankistrodesmus falcatus	135
Ankistrodesmus falcatus var. *mirabilis*	135
Chlamydomonas globosa	270
Chlamydomonas sp.	270
Chlorococcum humicola	405
Chodatella quadriseta	135
Closterium sp.	135
Coelastrum sphaericum	1,081
Crucigenia quadrata	540
Elalkatothrix viridis	270
Kirchneriella lunaris	810
Kirchneriella subsolitaria	135
Pediastrum duplex	405
Scenedesmus bijuga	270
Scenedesmus quadricauda	270
Treubaria setigerum	135
CHRYSOPHYTA	
Ochromonas sp.	135
CYANOPHYTA (Blue-green algae)	
Anabaena circinalis	540
Anabaena sp.	675
Aphanocapsa delicatissima	37,010
Aphanocapsa elachista var. *conferta*	1,216
Chroococcus dispersus	2,026
Chroococcus sp.	1,486
Lyngbya nana	270
Synechococcus lineare	405
Synechococcus sp.	405
PYRRHOPHYTA	
Ceratium hirudinella	135
Glenodinium palustre	675
Gymnodinium linmeticum	135
CRYPTOPHYTA (Cryptomonads)	
Rhodomonas minuta	135

Ray Roberts Lake AC (332138097024101)

Phytoplankton Analyses October 1989 to September 1990

Date	8-29-90
Time	1008
TOTAL CELLS/mL	1,192,587
NUMBER OF SPECIES	25
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella meneghiniana	4,084
Melosira islandica	5,446
Melosira italica	6,806
Order Pennales	
Navicula circumtexta	198
Navicula pupula var. *mutata*	8,316
Synedra delicatissima	1,386
Synedra filiformis var. *exilis*	9,306
Tabellaria quadrisepta	396
CHLOROPHYTA (Green algae)	
Chlamydomonas sp.	16,337
Chlorella ellipsoidea	22,872
Chlorococcum humicola	19,604
Crucigenia rectangularis	52,278
Protococcus viridis	6,535
Scenedesmus bijuga	32,674
Sphaerocystis schroeteri	26,139
CYANOPHYTA (Blue-green algae)	
Anabaena helicoidea	39,208
Aphanocapsa delicatissima	414,956
Aphanothece nidulans	130,695
Chroococcus dispersus	88,219
Merismopedia glauca	52,278
Oscillatoria angustissima	35,941
Phormidium mucicola	140,497
Spirogyra sp.	45,743
EUGLENOPHYTA (Euglenoids)	
Euglena sp.	3,267
CRYPTOPHYTA (Cryptomonads)	
Cryptomonas erosa	29,406

Ray Roberts Lake DC (332459097063001)

Phytoplankton Analyses October 1989 to September 1990

Date	8-29-90
Time	1515
TOTAL CELLS/mL	704,118
NUMBER OF SPECIES	23
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella meneghiniana	303
Melosira islandica	1,385
Melosira italica	4,457
Melosira sp.	303
Stephanodiscus astraea	87
Order Pennales	
Navicula elginensis	1,307
Navicula pupula var. *mutata*	5,228
Synedra delicatissima	4,574
Synedra delicatissima var. *angustissima*	3,921
Synedra filiformis var. *exilis*	1,307
CHLOROPHYTA (Green algae)	
Ankistrodesmus falcatus	99,655
Chlamydomonas sp.	3,267
Chlorella ellipsoidea	3,267
Chlorococcum humicola	22,872
Coelastrum reticulatum	112,724
Crucigenia rectangularis	6,535
Scenedesmus bijuga	6,535
Staurastrum leptocladum var. *cornutum*	1,634
CYANOPHYTA (Blue-green algae)	
Aphanocapsa elachista	91,486
Chroococcus dispersus	222,181
Merismopedia glauca	29,406
Oscillatoria angustissima	31,040
Spirogyra sp.	50,644

08051130 ELM FORK TRINITY RIVER NEAR PILOT POINT, TX

LOCATION.--Lat 33°21'01", long 97°02'49", Denton County, Hydrologic Unit 12030103, on right bank of excavated outlet channel, 1,600 ft downstream from center line of Ray Roberts Dam on Elm Fork Trinity River, 3.3 mi upstream from Bray Branch, 4.9 mi upstream from Farm Road 428 bridge, and 5.7 mi southwest of town square in Pilot Point.

DRAINAGE AREA.--692 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Occasional low-flow measurements and annual maximum, water years 1981-84, July 1985 to current year.

GAGE.--Water-stage recorder. Datum of gage is 526.26 ft above National Geodetic Vertical Datum of 1929. Prior to July 1985, nonrecording staff and crest-stage gages at site 0.8 mi downstream at 526.26 ft lower datum.

REMARKS.--No estimated daily discharges. Records fair, except those below 15 ft³/s, which are poor. Flow regulated by Ray Roberts Lake (station 08051100) 1,600 ft upstream.

AVERAGE DISCHARGE.--5 years (water years 1986-90) regulated, 323 ft³/s (234,000 acre-ft per year).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,190 ft³/s May 3, 1990 (gage height, 27.33 ft); no flow in 1987-89 water years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1900, 183,000 ft³/s in October 1981 from discontinued gages 5.0 mi upstream on Elm Fork Trinity River and 6.3 mi upstream on Isle du Bois Creek. The crest-stage gage then in use recorded an elevation of 566.32 ft (gage height to current datum 40.06 ft) for that flood.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,190 ft³/s May 3 at 0315 hours (gage height, 27.33 ft); minimum daily, 0.17 ft³/s, Mar. 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	1.7	1.6	4.2	31	.76	.52	312	1020	1790	1770	1.6
2	1.6	1.0	1.7	4.2	9.5	.67	.34	2300	340	1660	1750	1.4
3	1.6	1.0	1.9	4.7	6.2	.67	.34	7960	1040	1730	1720	1.4
4	1.6	1.3	1.9	4.3	5.2	.67	.34	7730	1970	1810	1700	1.4
5	1.6	1.4	2.0	3.5	5.3	.67	.44	7660	2730	1570	1680	1.3
6	1.6	1.2	2.4	3.4	4.8	.76	111	7620	2670	1270	1650	1.2
7	1.9	1.1	2.5	2.9	4.4	6.3	223	7580	2620	1240	1620	.98
8	2.5	1.0	2.5	2.5	5.2	1.7	220	7560	2580	1230	1600	.82
9	2.9	1.1	3.5	2.6	6.3	.87	921	7550	2550	1000	1580	.88
10	2.7	1.2	4.7	2.9	6.9	.82	1690	7500	2520	629	1420	1.0
11	2.5	1.3	3.5	2.5	6.3	153	1660	7480	2490	620	1280	1.0
12	3.1	1.3	3.0	2.3	7.0	144	1630	7470	2480	615	1270	1.0
13	3.3	1.6	3.2	2.4	6.1	2.6	1630	7430	2460	631	1220	1.0
14	2.9	1.6	3.3	2.5	.90	24	1630	6440	2430	636	1250	1.0
15	1.4	.92	2.7	2.5	.42	5.4	1610	4120	2410	613	1280	1.0
16	1.4	.65	2.3	11	.45	.68	1590	3580	2390	628	1140	1.0
17	1.5	.82	2.5	17	.45	.29	1590	2660	2370	625	906	1.0
18	2.1	.88	2.5	12	.45	.25	1560	1220	2350	614	876	.97
19	1.8	.85	2.5	38	.45	.22	1640	706	2300	611	994	.82
20	1.6	.74	2.6	18	.67	.17	1740	654	2270	770	838	.72
21	1.8	.99	2.1	15	1.7	.25	1740	604	2240	1310	641	.47
22	2.2	2.4	1.8	14	1.9	.34	1630	566	2210	1280	410	.55
23	2.2	2.5	1.5	15	.63	.34	1600	539	2660	1290	181	.55
24	2.2	2.5	1.6	10	.55	.27	1590	517	3240	1300	180	.55
25	2.2	2.5	1.6	6.0	.55	.33	1580	489	3170	1280	180	.55
26	2.2	2.5	1.6	6.3	.55	.45	2320	465	3100	1450	180	.55
27	1.9	2.2	2.0	7.0	.55	1.2	4460	444	3070	1770	180	.55
28	2.0	1.5	2.3	7.0	.85	12	4350	420	3170	1870	99	.55
29	2.9	1.5	3.2	7.0	---	43	3350	944	2870	1840	13	.55
30	7.8	1.6	4.0	7.0	---	7.4	478	1450	2230	1810	10	.55
31	2.6	---	4.2	8.0	---	.77	---	1400	---	1790	1.9	---
TOTAL	71.1	42.85	78.7	245.7	115.27	410.85	42544.98	113370	71950	37282	29619.9	26.91
MEAN	2.29	1.43	2.54	7.93	4.12	13.3	1418	3657	2398	1203	955	.90
MAX	7.8	2.5	4.7	38	31	153	4460	7960	3240	1870	1770	1.6
MIN	1.4	.65	1.5	2.3	.42	.17	.34	312	340	611	1.9	.47
AC-FT	141	85	156	487	229	815	84390	224900	142700	73950	58750	53

CAL YR 1989	TOTAL	608.38	MEAN	1.67	MAX	47	MIN .00	AC-FT	1210
WTR YR 1990	TOTAL	295758.26	MEAN	810	MAX	7960	MIN .17	AC-FT	586600

08051130 ELM FORK TRINITY RIVER NEAR PILOT POINT, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: December 1985 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)
OCT											
16...	1530	1.3	370	8.2	25.0	13	10	9.6	119	2.8	130
NOV											
27...	1515	1.9	350	8.1	15.0	17	5.5	9.4	95	1.3	120
MAR											
22...	1531	0.36	305	8.0	17.0	13	10	12.2	128	1.0	120
JUN											
19...	1615	2290	242	7.2	20.0	31	5.4	8.3	93	1.4	95
AUG											
22...	1530	196	248	8.0	--	65	7.4	8.4	--	2.0	100
29...	1720	27	270	7.8	21.5	32	8.2	7.8	90	1.5	100

DATE	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT											
16...	6	43	4.6	25	1	4.8	120	25	22	0.20	5.2
NOV											
27...	2	42	4.2	18	0.7	5.1	120	19	21	0.20	4.3
MAR											
22...	1	42	3.9	15	0.6	5.0	120	12	20	0.20	3.8
JUN											
19...	10	33	3.1	11	0.5	3.8	85	12	14	0.50	4.7
AUG											
22...	0	35	3.4	11	0.5	4.3	110	10	15	0.40	7.6
29...	0	36	3.4	11	0.5	4.1	110	4.1	13	0.20	6.9

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
OCT											
16...	204	13	6	7	0.190	0.010	0.200	0.030	0.67	0.70	0.070
NOV											
27...	186	13	13	0	0.280	0.020	0.300	0.020	1.3	1.3	0.090
MAR											
22...	172	16	5	11	0.260	0.040	0.300	0.100	0.30	0.40	0.040
JUN											
19...	134	20	10	10	0.150	0.050	0.200	0.120	0.88	1.0	0.060
AUG											
22...	153	21	4	17	--	<0.010	0.100	0.910	0.69	1.6	0.270
29...	148	25	8	17	--	<0.010	<0.100	0.800	0.50	1.3	0.230

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)
OCT										
16...	5.9	--	--	--	--	--	--	--	--	--
NOV										
27...	5.5	--	--	--	--	--	--	--	--	--
MAR										
22...	5.4	--	--	--	--	--	--	--	--	--
JUN										
19...	5.7	1	46	<0.5	<1.0	<5	<3	<10	25	<10
AUG										
22...	7.2	--	--	--	--	--	--	--	--	--
29...	7.1	6	57	<0.5	<1.0	<5	<3	<10	410	<10

DATE	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT										
16...	--	--	--	--	--	--	--	--	--	--
NOV										
27...	--	--	--	--	--	--	--	--	--	--
MAR										
22...	--	--	--	--	--	--	--	--	--	--
JUN										
19...	<4	530	<0.1	<10	<10	<1	<1.0	150	<6	3
AUG										
22...	--	--	--	--	--	--	--	--	--	--
29...	<4	1600	<0.1	<10	<10	<1	<1.0	160	<6	35

08051500 CLEAR CREEK NEAR SANGER, TX

LOCATION.--Lat 33°20'10", long 97°10'45", Denton County, Hydrologic Unit 12030103, at the downstream side near right end of bridge on county road, 1,350 ft downstream from Duck Creek, 1.1 mi upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, and 1.8 mi south of Sanger.

DRAINAGE AREA.--295 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1949 to current year.

REVISED RECORDS.--WSP 1512: 1950, 1955. WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 582.23 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Apr. 18, 1975, water-stage recorder at datum 5.00 ft higher. Apr. 18, 1975 to June 9, 1988, at site 950 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Apr. 26 to May 23. Records good. There are no appreciable diversions above station. Flow affected at times by discharge from the flood-detention pools of 51 floodwater-retarding structures with a combined detention capacity of 38,850 acre-ft. These structures control runoff from 149 mi² in the Clear Creek watershed. Gage-height telemeter at station.

AVERAGE DISCHARGE.--31 years (water years 1950-80) prior to regulation, 74.3 ft³/s (53,830 acre-ft/yr); 10 years (water years 1981-90) after completion of floodwater-retarding structures, 174 ft³/s (126,100 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 104,000 ft³/s Oct. 13, 1981 (gage height, 35.70 ft, site and datum then in use); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1880, 36.5 ft in May 1908, from information by Gulf, Colorado, and Santa Fe Railway Co. Flood in May 1935 reached a stage of 34.0 ft, from information by State Department of Highways and Public Transportation. Both peaks now referenced to present site and datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 24,300 ft³/s Apr. 26 at 0615 hrs (gage height, 29.94 ft); minimum discharge, 3.8 ft³/s Dec. 22-25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	29	9.3	12	55	259	702	e2170	556	33	34	8.1
2	12	20	9.3	11	71	193	476	e8400	2310	31	28	8.0
3	12	17	9.3	9.8	55	128	394	e14600	1010	30	27	7.7
4	11	16	9.1	9.8	44	96	280	e4100	797	28	25	7.3
5	10	16	8.8	9.8	39	82	225	e3070	355	27	28	7.3
6	11	14	8.8	9.6	37	73	725	e2530	213	26	36	7.3
7	11	14	8.8	9.2	34	466	446	e2250	154	25	33	7.2
8	11	13	8.8	8.8	32	339	260	e2070	124	25	27	7.0
9	11	13	8.8	8.4	32	200	207	e1920	107	24	24	7.0
10	11	13	8.8	8.3	32	149	1010	e1770	95	23	22	7.0
11	10	13	8.8	8.3	32	2400	650	e1670	87	22	21	7.0
12	9.9	12	8.6	8.3	34	2580	328	e1590	79	26	20	7.0
13	10	12	7.9	8.3	33	1360	233	e1480	74	33	19	7.6
14	10	12	7.9	8.3	32	1620	383	e1330	69	30	18	9.3
15	10	11	7.9	8.1	32	1600	370	e1210	65	25	18	9.3
16	10	11	7.5	7.9	38	945	655	e912	62	24	18	9.1
17	10	12	7.4	10	41	587	472	e513	56	24	17	8.1
18	10	13	7.2	16	41	358	285	e328	53	24	15	8.2
19	10	13	7.0	315	40	225	2260	e262	52	24	14	11
20	10	13	7.0	362	38	173	2690	e227	47	24	14	11
21	10	13	6.9	125	37	147	2300	e195	46	24	14	11
22	11	12	4.0	78	90	133	1840	e174	41	24	22	16
23	11	12	3.8	57	129	124	1460	e155	38	59	12	18
24	11	12	3.8	46	87	109	1100	140	84	44	14	13
25	11	12	4.0	41	71	99	2240	133	161	32	13	11
26	11	12	6.0	37	56	189	e17600	122	66	28	11	11
27	11	13	10	32	56	252	e6850	117	48	24	10	11
28	11	11	12	29	56	1630	e3000	110	44	22	10	11
29	12	9.7	12	27	---	3150	e2550	107	38	20	9.7	11
30	24	9.3	13	26	---	1580	e2350	756	35	21	8.8	11
31	46	---	13	25	---	1050	---	274	---	30	8.1	---
TOTAL	381.9	403.0	255.5	1371.9	1374	22296	54341	54685	6966	856	590.6	285.5
MEAN	12.3	13.4	8.24	44.3	49.1	719	1811	1764	232	27.6	19.1	9.52
MAX	46	29	13	362	129	3150	17600	14600	2310	59	36	18
MIN	9.9	9.3	3.8	7.9	32	73	207	107	35	20	8.1	7.0
AC-FT	757	799	507	2720	2730	44220	107800	108500	13820	1700	1170	566

CAL YR 1989	TOTAL	110719.4	MEAN	303	MAX	8190	MIN	3.5	AC-FT	219600
WTR YR 1990	TOTAL	143806.4	MEAN	394	MAX	17600	MIN	3.8	AC-FT	285200

08051500 CLEAR CREEK NEAR SANGER, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: April 1959, January 1966, October 1984 to current year. Sediment analyses: February 1966 to May 1977.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1969 to August 1977.
WATER TEMPERATURE: May 1968 to August 1977.
SUSPENDED SEDIMENT DISCHARGE: May 1968 to August 1977.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE (1972-77): Maximum daily, 1,920 microsiemens Oct. 12, 1976; minimum daily, 182 microsiemens July 29, 1973.
WATER TEMPERATURE (1968-70, 1972-77): Maximum daily, 39.0°C June 8, 1969; minimum daily, 0.0°C Jan. 9, 1970.
SEDIMENT CONCENTRATION: Maximum daily mean, 7,370 mg/L May 12, 1972; minimum, no flow on many days.
SEDIMENT LOADS: Maximum daily, 79,000 tons May 7, 1969; minimum daily, 0 tons on many days.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	HARDNESS TOTAL (MG/L AS CACO3)
OCT 16...	1135	10	790	7.8	26.0	5	3.5	7.8	99	0.8	270
NOV 27...	1215	14	722	7.9	13.0	10	3.3	8.8	86	1.2	280
JAN 22...	1215	79	411	8.2	7.5	25	64	11.9	100	2.0	170
MAR 22...	1200	133	572	7.9	17.0	7	12	11.2	118	1.0	250
JUN 25...	1315	129	382	7.6	27.0	180	150	8.5	109	3.5	150
AUG 20...	1400	14	688	8.2	38.0	7	12	7.0	108	1.3	230

DATE	HARDNESS NONCARB DISSOLVFLD. AS CACO3 (MG/L)	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 WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
OCT 16...	57	81	16	61	2	2.3	210	63	91	0.30	12
NOV 27...	38	83	17	47	1	2.5	240	57	71	0.20	14
JAN 22...	23	57	7.2	16	0.5	3.1	150	27	18	0.20	6.7
MAR 22...	22	88	6.9	23	0.6	2.8	230	33	22	0.20	12
JUN 25...	18	49	7.2	16	0.6	2.8	130	26	20	0.40	10
AUG 20...	61	63	18	58	2	2.1	170	73	87	0.50	13

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L)	RESIDUE VOLATILE, SUSPENDED (MG/L)	RESIDUE FIXED NON FILTERABLE (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, 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)
OCT 16...	445	<1	<1	--	--	<0.010	0.100	0.040	0.36	0.40	0.100
NOV 27...	435	8	8	0	--	<0.010	<0.100	0.010	0.39	0.40	0.010
JAN 22...	225	146	36	110	0.940	0.060	1.00	0.060	0.44	0.50	0.050
MAR 22...	323	32	1	31	0.360	0.040	0.400	0.010	0.29	0.30	0.060
JUN 25...	212	335	28	307	0.520	0.080	0.600	0.180	1.0	1.2	0.170
AUG 20...	418	26	8	18	--	<0.010	0.100	0.050	0.45	0.50	0.030

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)
OCT 16...	2.7	<1	110	<0.5	<1.0	<5	<3	<10	7	<10
NOV 27...	3.0	--	--	--	--	--	--	--	--	--
JAN 22...	6.0	1	68	<0.5	1.0	<5	<3	<10	33	<10
MAR 22...	4.2	--	--	--	--	--	--	--	--	--
JUN 25...	8.7	--	--	--	--	--	--	--	--	--
AUG 20...	3.3	1	110	<0.5	1.0	<5	<3	<10	7	<10

08051500 CLEAR CREEK NEAR SANGER, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT										
16...	12	16	0.2	<10	<10	<1	<1.0	810	<6	7
NOV										
27...	--	--	--	--	--	--	--	--	--	--
JAN										
22...	5	9	<0.1	<10	<10	<1	<1.0	330	<6	5
MAR										
22...	--	--	--	--	--	--	--	--	--	--
JUN										
25...	--	--	--	--	--	--	--	--	--	--
AUG										
20...	12	2	<0.1	<10	<10	<1	1.0	780	<6	3

08052700 LITTLE ELM CREEK NEAR AUBREY, TX

LOCATION.--Lat 33°17'00", long 96°53'33", Denton County, Hydrologic Unit 12030103, on left bank at downstream side of bridge on Farm Road 1385, 1.5 mi upstream from Mustang Creek, 5.5 mi east of Aubrey, and 18 mi upstream from Lewisville Dam on the Elm Fork Trinity River.

DRAINAGE AREA.--75.5 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1956 to September 1976, October 1979 to current year.

REVISED RECORDS.--WDR TX-70-1: 1969.

GAGE.--Water-stage recorder. Datum of gage is 534.76 ft above National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation bench mark).

REMARKS.--Records good except those for estimated daily discharges, which are poor. There are several small diversions for irrigation above station. Flow affected at times by discharge from the flood-detention pools of 17 floodwater-retarding structures with a combined detention capacity of 10,460 acre-ft. These structures control runoff from 36.4 mi² above this station. Several observations of water temperature were obtained during the year.

AVERAGE DISCHARGE.--31 years (water year 1957-76, 1980-1990), 47.5 ft³/s (34,410 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,300 ft³/s May 13, 1982 (gage height, 17.80 ft); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1900, 18.2 ft in May 1941, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 11	2215	2,960	16.23	Apr. 21	0237	1,110	14.63
Mar. 15	0030	1,540	15.24	Apr. 26	2134	2,160	15.80
Apr. 16	0909	1,380	15.04	May 3	0300	*7,630	a*17.35

a Gage heights above 16.94 ft were estimated on basis of shape of comparable peaks at this station.

Minimum discharge, no flow for many days.

CORRECTION.--The average discharge for the 30 years of record was incorrectly published as 78.3 in the 1989 report, Water Resources Data for Texas. The correct 30 year average discharge should be 46.4 ft³/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.15	.00	.06	.10	361	2.5	150	117	126	e.00	.92	.00
2	.10	.00	.06	.10	362	1.8	97	1950	127	.00	.74	.00
3	.07	.00	.06	.09	170	1.0	e53	4790	107	.00	2.3	.00
4	.05	.00	.05	.09	112	.42	e24	829	178	.00	5.6	.00
5	.04	.00	.05	.08	92	.22	e11	e388	105	.00	4.1	.00
6	.02	.00	.05	.07	78	.12	117	e267	e70	.00	104	.00
7	.01	.00	.04	.06	65	256	150	e218	e38	.00	71	.00
8	.00	.00	.13	.05	53	151	103	e185	e21	.00	31	.00
9	.00	.00	.20	.04	49	e84	e59	e160	e13	.00	13	.00
10	.00	.00	.23	.03	47	e63	232	e137	e9.5	.00	7.7	.00
11	.00	.00	.22	.02	33	927	111	e118	e7.5	.00	5.2	.00
12	.00	.00	.17	.02	24	1380	e41	e102	e6.0	153	3.3	.00
13	.00	.00	.14	.01	17	378	e17	e86	e4.8	172	1.8	.00
14	.00	.00	.16	.02	12	646	106	e69	e3.9	46	.64	.00
15	.00	.00	.18	.02	9.4	758	83	e54	e3.2	17	.21	.00
16	.00	.00	.17	6.6	7.5	321	1020	82	e2.8	8.2	.06	.00
17	.00	.00	.16	12	5.7	284	206	77	e2.4	5.2	.02	.00
18	.00	.00	.17	17	4.4	233	120	e41	e2.0	3.7	.00	.00
19	.00	.00	.17	253	2.9	159	310	e27	e1.6	4.7	.00	.00
20	.00	.00	.16	318	1.8	e109	467	e19	e1.3	4.9	.00	.00
21	.00	.00	.14	128	2.6	79	653	e14	e1.0	3.4	.00	.00
22	.00	.00	.09	99	6.2	e56	e178	e10	e.90	1.8	.00	.00
23	.00	.00	.07	82	7.6	e41	e94	e8.1	e.76	6.6	.00	.00
24	.00	.00	.06	65	7.3	e31	e53	e6.4	e.65	9.5	.00	.00
25	.00	.00	.07	46	6.4	57	e31	e5.6	e.59	6.5	.00	.00
26	.00	.05	.07	33	5.5	e78	979	e5.2	e.56	4.3	.00	.00
27	.00	.25	.06	24	4.5	89	834	e4.9	.55	2.8	.00	.00
28	.00	.12	.05	18	3.6	365	359	e4.8	e.38	1.8	.00	.00
29	.00	.08	.05	14	---	651	e205	e4.6	e.29	1.0	.00	.00
30	.00	.08	.31	12	---	357	e147	52	e.06	.57	.00	.00
31	.00	---	.21	11	---	210	---	81	---	.45	.00	---
TOTAL	0.44	0.58	3.81	1139.40	1550.4	7769.06	7010	9912.6	835.74	453.42	251.59	0.00
MEAN	.014	.019	.12	36.8	55.4	251	234	320	27.9	14.6	8.12	.000
MAX	.15	.25	.31	318	362	1380	1020	4790	178	172	104	.00
MIN	.00	.00	.04	.01	1.8	.12	11	4.6	.06	.00	.00	.00
AC-FT	.9	1.2	7.6	2260	3080	15410	13900	19660	1660	899	499	.00

CAL YR 1989 TOTAL 28235.90 MEAN 77.4 MAX 3260 MIN .00 AC-FT 56010
WTR YR 1990 TOTAL 28927.04 MEAN 79.3 MAX 4790 MIN .00 AC-FT 57380

e Estimated

08052700 LITTLE ELM CREEK NEAR AUBREY, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: June 1962 to June 1963, June 1965 to January 1968. Chemical and biochemical analyses: October 1984 to current year. Sediment analyses: April 1966 to October 1974.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1966 to June 1975.
WATER TEMPERATURES: February 1966 to June 1975.
SUSPENDED SEDIMENT DISCHARGE: February 1966 to September 1975.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: (1966-68, 1971-74): Maximum daily, 1,380 microsiemens Jan. 24, Feb. 25, 1967; minimum daily, 195 microsiemens June 4, 1968.
WATER TEMPERATURE (1966-68, 1971-74): Maximum daily, 33.0°C June 16, 1968; minimum daily, 0.0°C Feb. 22, 1968.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 4,750 mg/L Aug. 13, 1966; minimum daily mean, no flow on many days.
SEDIMENT LOADS: Maximum daily, 17,900 tons May 31, 1967; minimum daily, 0 tons on many days.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)
JAN 22...	1715	95	272	7.9	10.0	130	11	10.8	97	2.6	110
FEB 01...	1440	515	441	7.6	13.0	150	700	9.1	88	3.0	150
MAR 21...	1330	77	262	7.9	12.0	140	240	10.2	96	1.9	100
MAY 04...	1200	660	186	7.9	16.0	130	230	8.6	88	2.5	74
JUN 27...	1200	0.56	479	7.9	27.0	25	27	5.8	74	2.2	190

DATE	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
JAN 22...	42	37	3.1	13	0.6	4.5	64	47	6.3	0.30	7.7
FEB 01...	94	52	5.6	25	0.9	6.1	59	120	6.1	0.30	11
MAR 21...	27	37	2.8	9.9	0.4	4.2	77	38	3.2	0.40	8.1
MAY 04...	10	27	1.6	5.1	0.3	2.4	64	21	2.7	<0.10	6.6
JUN 27...	55	65	6.0	27	0.9	4.8	130	89	13	0.60	6.2

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
JAN 22...	158	429	67	362	4.12	0.180	4.30	0.310	0.89	1.2	0.210
FEB 01...	261	264	192	72	5.59	0.510	6.10	0.580	1.0	1.6	0.280
MAR 21...	150	283	108	175	1.91	0.390	2.30	0.280	0.62	0.90	0.310
MAY 04...	105	276	63	213	0.170	0.130	0.300	0.120	0.68	0.80	0.190
JUN 27...	291	51	3	48	--	0.010	<0.100	0.030	0.77	0.80	0.070

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)
JAN 22...	16	2	24	<0.5	<1.0	<5	<3	<10	60	<10
FEB 01...	33	--	--	--	--	--	--	--	--	--
MAR 21...	12	--	--	--	--	--	--	--	--	--
MAY 04...	11	1	19	<0.5	2.0	<5	<3	<10	96	<10
JUN 27...	8.1	--	--	--	--	--	--	--	--	--

08052700 LITTLE ELM CREEK NEAR AUBREY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN										
22...	6	5	<0.1	<10	<10	<1	<1.0	290	<6	4
FEB										
01...	--	--	--	--	--	--	--	--	--	--
MAR										
21...	--	--	--	--	--	--	--	--	--	--
MAY										
04...	<4	3	<0.1	<10	<10	<1	3.0	180	<6	10
JUN										
27...	--	--	--	--	--	--	--	--	--	--

08052730 PECAN CREEK NEAR AUBREY, TX

LOCATION.--Lat 33°17'50", long 96°55'06", Denton County, Hydrologic Unit 12030103, on Farm Road 428 bridge, over center of channel at downstream side of bridge, 1.1 mi downstream from unnamed tributary on right bank, 2.2 mi upstream from unnamed tributary on right bank, and 4.0 mi east of Aubrey.

DRAINAGE AREA.--32.2 mi².

PERIOD OF RECORD.--Chemical and biochemical analyses: December 1985 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	HARDNESS TOTAL (MG/L AS CACO3)
JAN 22...	1600	2.4	270	7.4	8.5	140	47	10.6	92	3.0	79
FEB 01...	1745	813	169	6.8	13.5	230	270	9.0	88	4.6	51
MAR 21...	1046	3.6	798	7.6	12.0	25	10	9.6	90	1.0	290
MAY 03...	1700	1220	79	7.0	18.0	170	88	8.3	89	2.7	29

DATE	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	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 WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
JAN 22...	40	21	6.4	16	0.8	5.9	39	60	10	0.20	8.7
FEB 01...	20	14	4.0	8.0	0.5	6.2	31	34	5.1	0.20	7.0
MAR 21...	180	81	21	54	1	5.9	110	230	42	0.30	12
MAY 03...	1	8.8	1.7	3.1	0.3	3.2	28	6.8	2.5	<0.10	5.5

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L)	RESIDUE VOLATILE, SUSPENDED (MG/L)	RESIDUE FIXED NON FILTERABLE (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, 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)
JAN 22...	152	55	11	44	1.62	0.080	1.70	0.110	0.99	1.1	0.310
FEB 01...	97	257	56	201	1.41	0.190	1.60	0.340	1.2	1.5	0.320
MAR 21...	514	19	<1	--	0.080	0.020	0.100	0.020	0.48	0.50	0.090
MAY 03...	49	115	20	95	0.240	0.060	0.300	0.050	0.65	0.70	0.200

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)
JAN 22...	9.5	2	41	<0.5	<1.0	<5	<3	<10	130	10
FEB 01...	23	--	--	--	--	--	--	--	--	--
MAR 21...	6.3	--	--	--	--	--	--	--	--	--
MAY 03...	8.9	1	21	<0.5	4.0	<5	<3	<10	140	10

DATE	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)
JAN 22...	15	19	<0.1	<10	10	<1	2.0	140	<6	22
FEB 01...	--	--	--	--	--	--	--	--	--	--
MAR 21...	--	--	--	--	--	--	--	--	--	--
MAY 03...	<4	13	<0.1	<10	<10	<1	1.0	49	<6	38

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX

LOCATION.--Lat 33°04'09", long 96°57'51", Denton County, Hydrologic Unit 12030103, in intake structure of Lewisville Dam on Elm Fork Trinity River, 2 mi upstream from bridge on State Highway 121, 2.4 mi northeast of Lewisville, 12 mi upstream from Denton Creek, and 30.0 mi upstream from mouth.

DRAINAGE AREA.--1,660 mi².

WATER-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, non-recording gage at site 4,000 ft upstream at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 32,888 ft long, including a 560-foot uncontrolled off-channel concrete-gravity spillway with ogee weir section. Deliberate impoundment began Nov. 1, 1954, and the dam was completed in August 1955. The controlled low-flow outlet works consist of a 16.0-foot-diameter conduit that is controlled by three 6.5- by 13.0-foot broome-type gates and two 60-inch steel pipes with service valves. The lake was built for flood control and water conservation. The city of Dallas obtains most of its municipal water supply from this lake. The capacity table is based on a survey made in 1965. Inflow is affected at times by discharge from the flood-detention pools of 118 floodwater-retarding structures with a combined detention capacity of 81,670 acre-ft. These structures control runoff from 298 mi² in the Elm Fork Trinity River, Clear, Little Elm, and Hickory Creeks watersheds. An unknown amount of water was diverted for municipal and industrial uses. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	560.0	-
Crest of spillway	532.0	981,800
Top of conservation pool	515.0	457,600
Lowest intakes to wet wells (invert)	481.0	42,560
Invert of three broome-type gates	448.0	0

COOPERATION.--Records furnished by the U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,181,000 acre-ft May 4, 1990 (elevation, 536.73 ft); minimum since initial filling in 1957, 184,700 acre-ft Sept. 28, 1980 (elevation, 498.65 ft).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 1,181,000 acre-ft May 4 at 0700 hours (elevation, 536.73 ft); minimum, 570,800 acre-ft Jan. 16 (elevation, 519.54 ft).

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

519.0	556,500	527.0	798,400	534.0	1,062,000
521.0	611,800	529.0	868,900	535.0	1,105,000
523.0	670,900	531.0	943,100	536.0	1,148,000
525.0	732,900	533.0	1,021,000	537.0	1,193,000

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	638600	615600	591600	574400	622500	634800	741800	993600	963100	804600	708100	641600
2	638300	614100	591300	573800	627800	634800	735800	1083000	966200	798800	705600	640400
3	638000	612400	589600	574400	629200	634800	728500	1177000	961100	793300	702500	639500
4	637400	611200	589100	574100	628900	634200	721500	1173000	955000	787900	700000	638300
5	636600	610900	588800	573800	628600	634200	716800	1161000	949600	782600	698500	637100
6	636600	610400	588800	573800	629500	634500	710600	1153000	943500	775300	694200	636000
7	635700	610100	588500	573300	629200	644500	704700	1144000	937400	769000	689600	634500
8	634800	608900	587100	573000	629200	646900	697600	1136000	932400	769700	684700	633300
9	633600	608400	586000	572700	631000	647800	692000	1132000	926800	771000	679800	632100
10	633000	607500	586800	572700	631000	647800	699400	1126000	920800	770300	675200	631600
11	631900	606400	586000	572700	631300	696000	698200	1122000	914400	769700	672500	630700
12	630700	605500	584300	571900	629500	727200	693900	1121000	907300	772300	669700	629800
13	630100	604600	584000	571100	630400	733500	691700	1116000	901400	771600	666700	629200
14	629200	604100	583500	570800	631900	753700	703100	1112000	895500	770600	664000	628600
15	628600	604100	583500	570800	631300	764100	713100	1102000	889300	770300	662200	627800
16	628000	601800	581800	572700	631000	767400	739300	1096000	883100	768700	660400	627200
17	626600	600700	581500	575700	630400	767700	745300	1086000	877200	765100	658600	626300
18	624800	599500	581000	581200	630100	766700	750200	1074000	871400	759900	656800	625100
19	623400	599200	580400	593600	630400	759500	768000	1066000	864900	754000	655300	624300
20	621300	598700	579900	600100	629800	752400	797400	1056000	858400	748200	654400	623700
21	619900	598100	580400	600700	632100	744400	819500	1048000	850900	743700	653200	623400
22	619000	599500	579000	600700	633000	738300	825700	1038000	846300	741200	652600	622800
23	618700	598400	577400	601200	632700	732000	825400	1028000	839200	738300	652300	620800
24	617900	596100	576800	601200	632700	724400	822900	1019000	834900	735800	651400	619000
25	617300	596700	576000	600900	631900	719300	820500	1009000	830300	731300	650200	618200
26	616400	595800	575200	599800	631900	713100	898500	1001000	826400	727500	649600	617300
27	615600	595800	574900	600400	632700	710900	945800	994000	822200	724400	648700	616700
28	614400	594700	574400	600100	635400	715300	965000	983700	817700	721900	647500	615800
29	613200	593000	574600	599200	---	733900	979800	972400	814600	719700	646300	615000
30	616700	592200	575500	599200	---	742100	985700	969700	809700	716500	645100	613800
31	615800	---	574900	601800	---	743400	---	963100	---	712500	643700	---
MAX	638600	615600	591600	601800	635400	767700	985700	1177000	966200	804600	708100	641600
MIN	613200	592200	574400	570800	622500	634200	691700	963100	809700	712500	643700	613800
(†)	521.14	520.31	519.69	520.65	521.81	525.33	532.10	531.52	527.33	524.35	522.09	521.07
(ϕ)	-23100	-23600	-17300	+26900	+33600	+108000	+242300	-22600	-153400	-97200	-68800	-29900

CAL YR 1989 MAX 994000 MIN 308900 (ϕ) +261400
WTR YR 1990 MAX 1177000 MIN 570800 (ϕ) -25100

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

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: March 1962 to July 1964, December 1969 to current year.

330419096575401 - LEWISVILLE LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (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 TOTAL (MG/L AS CACO3)
MAR											
08...	0938	1.00	342	8.3	12.0	1.00	8.3	78	120	K10	130
08...	0942	10.0	343	8.2	11.5	--	7.5	69	--	--	--
08...	0946	20.0	344	8.1	11.5	--	7.6	70	--	--	--
08...	0950	30.0	344	8.1	11.0	--	7.7	71	--	--	--
08...	0953	40.0	344	8.1	11.0	--	7.8	71	--	--	--
08...	0958	50.0	345	8.0	11.0	--	7.7	71	--	--	--
08...	1006	65.0	344	7.9	11.5	--	7.9	73	--	--	130
JUN											
18...	1142	1.00	279	8.1	29.0	1.00	7.9	104	K1	--	120
18...	1145	10.0	279	7.9	28.0	--	6.5	84	--	--	--
18...	1148	20.0	279	7.8	27.5	--	6.3	81	--	--	--
18...	1151	30.0	279	7.7	27.0	--	6.0	76	--	--	--
18...	1154	40.0	279	7.6	27.0	--	5.6	71	--	--	--
18...	1157	50.0	279	7.3	25.5	--	3.6	44	--	--	--
18...	1200	60.0	291	7.2	22.5	--	3.6	42	--	--	--
18...	1203	72.0	296	7.0	23.5	--	0	0	--	--	120
AUG											
28...	1234	1.00	264	8.4	31.5	1.50	8.7	119	K1	K1	99
28...	1237	10.0	273	8.3	30.0	--	8.6	115	--	--	--
28...	1240	20.0	280	7.8	29.5	--	4.7	62	--	--	--
28...	1244	30.0	294	7.4	27.5	--	0.8	10	--	--	--
28...	1249	40.0	298	7.3	27.5	--	0	0	--	--	--
28...	1253	50.0	300	7.2	27.0	--	0	0	--	--	--
28...	1257	60.0	309	7.1	26.5	--	0	0	--	--	--
28...	1301	65.0	312	7.0	26.0	--	0	0	--	--	120

DATE	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	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 WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
MAR											
08...	11	44	4.0	19	0.7	4.7	120	29	14	0.30	3.9
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	14	45	4.1	19	0.7	4.7	120	30	14	0.20	4.1
JUN											
18...	14	41	3.7	12	0.5	3.1	100	21	12	0.50	4.0
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	15	43	3.9	12	0.5	3.2	110	21	11	0.30	8.8
AUG											
28...	9	34	3.3	13	0.6	4.0	90	13	14	0.20	4.0
28...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
28...	0	42	3.6	12	0.5	4.0	120	8.9	20	0.20	8.7

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330419096575401 - LEWISVILLE LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
MAR										
08...	188	0.190	0.010	0.200	0.070	0.43	0.50	0.030	9	1
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	<0.010	0.200	0.070	0.33	0.40	0.020	20	<10
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	190	0.190	0.010	0.200	0.120	0.48	0.60	0.050	52	37
JUN										
18...	160	0.290	0.010	0.300	0.010	1.3	1.3	0.030	<3	4
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	0.390	0.010	0.400	0.020	0.78	0.80	0.040	10	20
18...	--	--	--	--	--	--	--	--	--	--
18...	--	0.380	0.020	0.400	0.020	0.38	0.40	0.050	40	60
18...	--	--	--	--	--	--	--	--	--	--
18...	168	0.460	0.040	0.500	0.070	0.33	0.40	0.090	17	380
AUG										
28...	139	--	<0.010	<0.100	<0.010	--	0.40	<0.010	4	8
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	<0.010	<0.100	<0.010	--	0.50	0.010	20	50
28...	--	--	<0.010	<0.100	<0.010	--	0.40	0.020	30	130
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	176	--	<0.010	<0.100	0.550	0.35	0.90	0.170	910	1200

330410096584501 - LEWISVILLE LAKE SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAM-PLING DEPTH (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
MAR							
08...	1019	1.00	343	8.3	12.0	9.9	93
08...	1022	10.0	343	8.2	11.5	9.8	91
08...	1026	20.0	342	8.2	11.5	9.6	89
08...	1029	30.0	342	8.2	11.5	9.7	90
08...	1032	40.0	343	8.2	11.5	9.8	91
08...	1035	48.0	343	8.2	11.5	9.8	91
JUN							
18...	1213	1.00	279	8.2	28.5	7.8	102
18...	1215	10.0	279	8.0	28.0	6.5	84
18...	1217	20.0	279	7.9	27.5	6.3	81
18...	1219	30.0	279	7.8	27.5	6.0	77
18...	1221	40.0	280	7.8	27.0	5.7	72
18...	1223	50.0	280	7.6	25.0	3.1	38
18...	1225	62.0	290	7.6	23.0	0.8	9
AUG							
28...	1313	1.00	273	8.4	31.5	8.6	118
28...	1316	10.0	273	8.3	30.0	8.0	107
28...	1319	20.0	281	7.9	29.5	5.1	68
28...	1321	30.0	292	7.6	28.5	0.5	7
28...	1324	42.0	297	7.6	28.0	0	0

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330450096560501 - LEWISVILLE LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR							
08...	1044	1.00	368	8.4	13.0	10.5	101
08...	1047	10.0	374	8.2	12.5	9.8	93
08...	1050	20.0	342	8.2	11.5	9.9	92
08...	1053	30.0	343	8.2	11.5	9.8	91
08...	1056	37.0	343	8.1	11.5	9.9	92
JUN							
18...	1232	1.00	286	8.4	29.5	8.6	114
18...	1234	10.0	289	8.2	28.5	7.4	96
18...	1236	20.0	280	7.9	27.5	6.1	78
18...	1238	30.0	281	7.7	26.5	4.8	60
18...	1240	42.0	294	7.6	25.5	0	0
AUG							
28...	1330	1.00	289	8.4	32.5	8.4	117
28...	1332	10.0	273	8.2	30.0	7.2	96
28...	1335	20.0	288	7.6	29.0	1.8	24
28...	1337	34.0	306	7.6	28.5	0	0

330606097025601 - LEWISVILLE LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR							
08...	1437	1.00	337	8.3	15.0	10.3	103
08...	1439	10.0	338	8.1	13.5	9.2	89
08...	1443	20.0	337	8.1	13.0	9.3	89
08...	1446	30.0	339	8.0	13.0	8.7	83
JUN							
18...	1502	1.00	269	8.4	32.0	8.2	114
18...	1504	10.0	270	8.2	29.5	6.7	89
18...	1506	20.0	276	7.7	28.5	2.4	31
18...	1508	30.0	283	7.7	27.5	0.9	12
18...	1510	38.0	292	7.8	28.0	0	0
AUG							
28...	1608	1.00	277	8.6	32.5	8.7	121
28...	1611	10.0	286	8.4	31.0	7.6	103
28...	1614	20.0	304	7.6	30.0	0	0
28...	1617	30.0	317	7.7	29.5	0	0

330755096572001 - LEWISVILLE LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	NITROGEN, NITRATE TOTAL (MG/L AS N)
MAR									
08...	1235	1.00	339	8.5	14.0	0.80	10.5	103	0.480
08...	1238	10.0	341	8.2	13.0	--	9.3	89	--
08...	1241	20.0	342	8.2	12.5	--	9.5	90	--
08...	1243	30.0	343	8.2	12.5	--	9.6	91	--
08...	1246	41.0	344	8.1	13.0	--	9.4	90	0.380
JUN									
18...	1258	1.00	269	8.5	31.0	0.70	7.9	108	0.180
18...	1300	10.0	273	8.2	29.5	--	6.3	84	--
18...	1302	20.0	272	8.1	29.5	--	6.0	80	--
18...	1304	30.0	276	8.0	28.5	--	5.4	70	0.160
18...	1308	40.0	291	7.6	27.5	--	1.8	23	0.260
18...	1310	50.0	296	7.6	26.0	--	0	0	0.220
AUG									
28...	1402	1.00	264	8.4	33.0	1.20	8.6	121	--
28...	1404	10.0	273	7.9	30.5	--	5.4	73	--
28...	1406	20.0	289	7.5	29.5	--	0	0	--
28...	1408	30.0	299	7.5	28.5	--	0	0	--
28...	1411	39.0	307	7.7	29.0	--	0	0	--

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330755096572001 - LEWISVILLE LAKE SITE DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
MAR								
08...	0.020	0.500	0.030	0.57	0.60	0.040	10	<10
08...	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--
08...	0.020	0.400	0.090	0.71	0.80	0.060	10	10
JUN								
18...	0.020	0.200	0.020	0.38	0.40	0.040	<10	10
18...	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--
18...	0.040	0.200	0.070	1.5	1.6	0.040	20	40
18...	0.040	0.300	0.110	0.49	0.60	0.100	30	200
18...	0.080	0.300	0.210	0.59	0.80	0.150	180	700
AUG								
28...	<0.010	<0.100	<0.010	--	0.50	0.010	<10	20
28...	<0.010	<0.100	<0.010	--	0.40	<0.010	<10	70
28...	<0.010	<0.100	0.020	0.38	0.40	0.030	80	220
28...	--	--	--	--	--	--	--	--
28...	<0.010	<0.100	0.330	0.47	0.80	0.080	780	490

330959096565301 - LEWISVILLE LAKE SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAM-PLING DEPTH (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TRANS-PAR-ENCY (SECCHI DISK) (M)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CACO3)
MAR											
08...	1300	1.00	331	8.4	14.5	0.70	10.4	103	130	150	130
08...	1304	10.0	330	8.1	13.5	--	9.4	91	--	--	--
08...	1308	20.0	333	8.1	13.0	--	9.2	88	--	--	--
08...	1313	30.0	336	8.0	13.5	--	8.0	78	--	--	120
JUN											
18...	1322	1.00	265	8.7	31.5	0.70	9.9	136	K1	--	110
18...	1324	10.0	268	8.3	30.0	--	6.6	88	--	--	--
18...	1326	20.0	265	8.0	29.5	--	6.0	80	--	--	--
18...	1330	30.0	265	7.9	29.5	--	4.5	60	--	--	--
18...	1335	38.0	271	7.6	29.5	--	1.2	16	--	--	110
AUG											
28...	1434	1.00	261	8.6	33.0	0.90	9.5	134	K1	K1	99
28...	1438	10.0	272	8.0	31.0	--	5.6	76	--	--	--
28...	1442	20.0	295	7.5	29.0	--	0	0	--	--	--
28...	1446	27.0	301	7.7	29.5	--	0	0	--	--	110

DATE	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
MAR											
08...	21	44	3.7	17	0.7	4.5	100	36	11	0.30	4.2
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	19	43	3.5	16	0.6	4.7	100	36	11	0.30	4.5
JUN											
18...	14	40	3.6	11	0.4	3.2	100	20	9.7	0.40	4.8
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	12	40	3.6	9.8	0.4	3.1	100	21	8.8	0.30	6.1
AUG											
28...	8	34	3.3	12	0.5	4.0	91	14	14	0.20	4.1
28...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
28...	0	39	3.5	12	0.5	4.0	110	8.7	14	0.20	6.1

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330959096565301 - LEWISVILLE LAKE SITE EC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
MAR										
08...	183	0.970	0.030	1.00	0.020	0.68	0.70	0.030	9	1
08...	--	--	--	--	--	--	--	--	--	--
08...	--	1.35	0.050	1.40	0.090	0.51	0.60	0.040	40	<10
08...	181	1.25	0.050	1.30	0.130	0.67	0.80	0.050	40	17
JUN										
18...	153	0.170	0.030	0.200	0.020	0.38	0.40	0.060	10	8
18...	--	0.170	0.030	0.200	0.030	0.37	0.40	0.040	20	20
18...	--	--	--	--	--	--	--	--	--	--
18...	--	0.150	0.050	0.200	0.090	0.41	0.50	0.050	10	60
18...	155	0.180	0.020	0.200	0.070	0.43	0.50	0.190	5	190
AUG										
28...	140	--	<0.010	<0.100	<0.010	--	0.40	0.010	10	50
28...	--	--	<0.010	<0.100	<0.010	--	0.50	0.020	<10	110
28...	--	--	<0.010	<0.100	0.110	0.39	0.50	0.020	280	580
28...	156	--	<0.010	<0.100	0.220	0.38	0.60	0.040	590	570

330722096592201 - LEWISVILLE LAKE SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAM-PLING DEPTH (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TRANS-PAR-ENCY (SECCHI DISK) (M)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)
MAR									
08...	1333	1.00	342	8.4	14.0	0.70	11.4	112	0.290
08...	1335	10.0	357	8.1	12.5	--	9.3	88	0.190
08...	1338	20.0	357	8.1	12.5	--	9.4	89	--
08...	1341	30.0	359	8.1	12.5	--	9.4	89	--
08...	1344	40.0	357	8.1	12.0	--	9.4	88	--
08...	1347	47.0	350	8.1	12.5	--	9.6	91	0.190
JUN									
18...	1356	1.00	293	8.4	34.5	0.90	8.6	124	--
18...	1359	10.0	295	8.3	29.5	--	7.7	102	--
18...	1402	20.0	298	8.1	28.5	--	6.3	82	--
18...	1405	30.0	299	7.9	28.5	--	5.3	69	--
18...	1408	40.0	302	7.7	27.5	--	2.8	36	--
18...	1411	52.0	302	7.8	27.5	--	1.9	24	0.180
AUG									
28...	1503	1.00	266	8.6	33.0	0.70	8.8	124	--
28...	1507	10.0	279	8.3	30.5	--	7.5	101	--
28...	1510	20.0	285	7.7	29.5	--	3.6	48	--
28...	1514	30.0	302	7.5	28.0	--	0	0	--
28...	1517	44.0	310	7.6	27.5	--	0	0	--

DATE	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
MAR								
08...	0.010	0.300	0.040	0.56	0.60	0.030	<10	<10
08...	0.010	0.200	0.070	1.0	1.1	0.040	10	110
08...	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--
08...	0.010	0.200	0.090	0.51	0.60	0.050	<10	<10
JUN								
18...	0.020	<0.100	0.010	0.49	0.50	0.050	20	10
18...	--	--	--	--	--	--	--	--
18...	0.010	<0.100	0.030	0.37	0.40	0.050	10	10
18...	--	--	--	--	--	--	--	--
18...	0.010	<0.100	0.070	0.43	0.50	0.050	10	40
18...	0.020	0.200	0.100	0.30	0.40	0.080	30	80
AUG								
28...	<0.010	<0.100	<0.010	--	0.40	0.030	20	150
28...	--	--	--	--	--	--	--	--
28...	<0.010	<0.100	<0.010	--	0.60	0.050	40	240
28...	<0.010	<0.100	0.190	0.51	0.70	0.220	480	1200
28...	<0.010	<0.100	0.310	0.49	0.80	0.400	1800	1700

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330944097003601 - LEWISVILLE LAKE SITE GC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (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 TOTAL (MG/L AS CACO3)
MAR											
08...	1404	1.00	371	8.3	14.5	0.70	10.6	105	<1	K6	140
08...	1408	10.0	384	8.1	13.5	--	8.3	80	--	--	--
08...	1412	12.0	380	8.0	13.5	--	7.6	74	--	--	140
JUN											
18...	1422	1.00	287	8.8	31.5	0.90	10.8	148	K1	--	120
18...	1425	10.0	292	8.5	29.5	--	8.6	114	--	--	--
18...	1428	20.0	292	8.2	29.0	--	6.2	82	--	--	--
18...	1432	26.0	284	7.8	28.0	--	2.0	26	--	--	110
AUG											
28...	1530	1.00	266	8.9	32.5	0.70	11.5	161	K1	K1	110
28...	1535	10.0	276	8.0	31.0	--	5.2	71	--	--	--
28...	1540	19.0	299	7.7	30.0	--	0	0	--	--	120

DATE	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	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 WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
MAR											
08...	9	48	4.5	21	0.8	4.5	130	29	16	0.30	2.9
08...	--	--	--	--	--	--	--	--	--	--	--
08...	8	48	4.5	20	0.7	4.7	130	30	17	0.30	3.3
JUN											
18...	7	42	4.2	12	0.5	3.4	120	14	15	0.20	2.5
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	5	39	4.0	12	0.5	3.3	110	14	16	0.50	4.7
AUG											
28...	13	36	3.7	13	0.6	4.2	92	13	20	0.20	5.4
28...	--	--	--	--	--	--	--	--	--	--	--
28...	3	40	3.8	13	0.5	4.2	110	8.7	16	0.20	6.4

DATE	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)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
MAR										
08...	204	0.190	0.010	0.200	0.020	0.48	0.50	0.050	4	<1
08...	--	--	--	--	--	--	--	--	--	--
08...	206	0.190	0.010	0.200	0.090	0.61	0.70	0.070	13	4
JUN										
18...	162	--	<0.010	<0.100	<0.010	--	0.40	0.040	<3	2
18...	--	--	<0.010	<0.100	0.010	0.49	0.50	0.080	<10	<10
18...	--	--	<0.010	<0.100	0.020	0.38	0.40	0.070	10	20
18...	159	--	0.040	<0.100	0.040	0.36	0.40	0.110	13	49
AUG										
28...	151	--	<0.010	<0.100	<0.010	--	0.50	0.040	11	26
28...	--	--	<0.010	<0.100	<0.010	--	0.80	0.040	30	270
28...	162	--	<0.010	<0.100	0.100	0.60	0.70	0.160	490	1200

Lewisville Lake AC (330419096575401)

Phytoplankton Analyses October 1989 to September 1990

Date	3-8-90
Time	0940
TOTAL CELLS/mL	15,532
NUMBER OF SPECIES	31
DEPTH COLLECTED (ft.)	1.65

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella sp.	360
Stephanodiscus sp.	180
Order Pennales	
Nitzschia palea	135
CHLOROPHYTA (Green algae)	
Ankistrodesmus falcatus	203
Chlamydomonas sp.	68
Chlorococcum humicola	338
Chodatella quadriseta	405
Chodatella subsalsa	135
Closterium sp.	68
Kirchneriella lunaris	1,350
Mesotaenium sp.	135
Oocystis parva	270
Oocystis sp.	405
Pediastrum boryanum	203
Scenedesmus bijuga	270
Scenedesmus opoliensis	540
Scenedesmus quadricauda	810
Selenastrum minutum	878
Tetraedron minimum	68
CYANOPHYTA (Blue-green algae)	
Aphanocapsa delicatissima	1,283
Aphanothece nidulans	540
Aphanothece saxicola	810
Chroococcus dispersus	270
Chroococcus limneticus	1,418
Chroococcus varius	473
Dactylococcopsis fascicularis	203
Merismopedia glauca	1,080
Merismopedia tenuissima	2,160
EUGLENOPHYTA (Euglenoids)	
Trachelomonas volvocina	68
PYRROPHYTA (Dinoflagellates)	
Glenodinium sp.	68
CRYPTOPHYTA (Cryptomonads)	
Rhodomonas minuta	338

Lewisville Lake GC (330944097003601)

Phytoplankton Analyses October 1989 to September 1990

Date	3-8-90
Time	1406
TOTAL CELLS/mL	15,056
NUMBER OF SPECIES	22
DEPTH COLLECTED (ft.)	1.2

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella sp.	405
CHLOROPHYTA (Green algae)	
Ankistrodesmus falcatus	68
Chlamydomonas sp.	135
Chlorococcum humicola	203
Chodatella quadriseta	338
Closterium sp.	68
Golenkinia radiata var. *brevispina*	135
Kirchneriella lunaris	135
Mesotaenium sp.	68
Phacotus lenticularis	135
Scenedesmus quadricauda	135
Selenastrum minutum	270
CYANOPHYTA (Blue-green algae)	
Aphanocapsa delicatissima	2,160
Aphanothece saxicola	540
Chroococcus dispersus	135
Chroococcus multicoloratus	1,485
Dactylococcopsis fascicularis	810
Synechococcus lineare	6,818
Synechococcus sp.	270
EUGLENOPHYTA (Euglenoids)	
Phacus sp.	68
CRYPTOPHYTA (Cryptomonads)	
Chroomonas sp	135
Rhodomonas minuta	540

Lewisville Lake AC (330419096575401)

Phytoplankton Analyses October 1989 to September 1990

Date	6-18-90
Time	1143
TOTAL CELLS/mL	133,962
NUMBER OF SPECIES	26
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella kutzingiana	754
Cyclotella stelligera	452
Melosira distans	1,809
Melosira granulata	302
Stephanodiscus astraea var. *minutula*	4,147
Stephanodiscus hantzschii	754
Stephanodiscus vestibulus	603
Order Pennales	
Nitzschia sp.	163
Synedra sp.	163
CHLOROPHYTA (Green algae)	
Ankistrodesmus falcatus var. *mirabilis*	327
Ankyra judayi	327
Chodatella quadriseta	327
Closterium sp.	327
Crucigenia quadrata	2,941
Pediastrum duplex	1,960
Scenedesmus bijuga	653
Scenedesmus quadricauda	327
Selenastrum minutum	327
Tetraedron minimum	327
CYANOPHYTA (Blue-green algae)	
Aphanocapsa delicatissima	8,168
Chroococcus dispersus	1,634
Chroococcus multicoloratus	3,921
Chroococcus sp.	2,614
Merismopedia tenuissima	98,021
Synechococcus lineare	1,307
Synechococcus sp.	1,307

Lewisville Lake GC (330944097003601)

Phytoplankton Analyses October 1989 to September 1990

Date	6-18-90
Time	1423
TOTAL CELLS/mL	269,560
NUMBER OF SPECIES	34
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella kutzingiana	91
Cyclotella stelligera	457
Melosira distans	1,189
Melosira granulata	4,300
Stephanodiscus astraea var. *minutula*	4,575
Stephanodiscus dubius	183
Stephanodiscus hantzschii	366
Stephanodiscus vestibulus	274
Order Pennales	
Nitzschia sp.	545
CHLOROPHYTA (Green algae)	
Actinastrum hantzschii	2,178
Ankistrodesmus falcatus	545
Ankistrodesmus falcatus var. *mirabilis*	545
Ankistrodesmus nannoselene	1,089
Chlamydomonas globosa	545
Chlamydomonas sp.	545
Chlorococcum humicola	1,089
Chodatella quadriseta	2,178
Chodatella subsalsa	545
Eudorina elegans	6,535
Kirchneriella lunaris	1,089
Scenedesmus quadricauda	1,089
Selenastrum minutum	545
Tetraedron minimum	545
Treubaria setigerum	545
CYANOPHYTA (Blue-green algae)	
Aphanocapsa delicatissima	100,199
Aphanothece saxicola	13,614
Chroococcus dispersus	14,159
Chroococcus limneticus	1,089
Chroococcus sp.	13,614
Merismopedia tenuissima	87,130
Raphidiopsis curvata	1,089
Synechococcus lineare	1,089
Synechococcus sp.	4,901
CRYPTOPHYTA (Cryptomonads)	
Rhodomonas minuta	1,089

Lewisville Lake AC (330419096575401)

Phytoplankton Analyses October 1989 to September 1990

Date	8-28-90
Time	1235
TOTAL CELLS/mL	289,977
NUMBER OF SPECIES	24
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella meneghiniana	296
Cyclotella operculata	82
Melosira islandica	1,807
Melosira italica	641
Stephanodiscus astraea	33
Order Pennales	
Navicula sanctaecrucis	45
Navicula secreta var. *apiculata*	45
Synedra delicatissima	181
Synedra radians	136
CHLOROPHYTA (Green algae)	
Ankistrodesmus falcatus	408
Chlamydomonas sp.	1,225
Chlorella ellipsoidea	7,760
Chlorococcum humicola	6,535
Crucigenia rectangularis	12,253
Scenedesmus bijuga	1,634
Schroederia judayi	408
Staurastrum leptocladum var. *cornutum*	817
CYANOPHYTA (Blue-green algae)	
Anabaena helicoidea	13,886
Aphanocapsa elachista	73,107
Chroococcus dispersus	57,179
Merismopedia glauca	9,394
Oscillatoria angustissima	9,394
Phormidium mucicola	84,543
Spirogyra sp.	8,168

Lewisville Lake GC (330944097003601)

Phytoplankton Analyses October 1989 to September 1990

Date	8-28-90
Time	1531
TOTAL CELLS/mL	924,666
NUMBER OF SPECIES	23
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella meneghiniana	40
Melosira islandica	562
Melosira italica	4,298
Order Pennales	
Navicula secreta var. *apiculata*	1,634
CHLOROPHYTA (Green algae)	
Chlamydomonas sp.	16,337
Chlorella ellipsoidea	27,773
Chlorococcum humicola	29,406
Crucigenia rectangularis	70,248
Kirchneriella lunaris	4,901
Micractinium quadrisetum	6,535
Protococcus viridis	22,872
Scenedesmus bijuga	6,535
Scenedesmus dimorphus	6,535
Tetradron minimum	3,267
CYANOPHYTA (Blue-green algae)	
Anabaena helicoidea	22,872
Aphanocapsa elachista	339,806
Aphanothece nidulans	57,179
Chroococcus dispersus	29,406
Merismopedia glauca	62,080
Oscillatoria angustissima	17,971
Phormidium mucicola	171,537
Spirogyra sp.	17,971
PYRROPHYTA (Dinoflagellates)	
Glenodinium armatum	4,901

08053000 ELM FORK TRINITY RIVER NEAR LEWISVILLE, TX

LOCATION.--Lat 33°02'44", long 96°57'39", Denton County, Hydrologic Unit 12030103, on left bank at downstream edge of highway right-of-way, 90 ft to left of left end of bridge on State Highway 121, 1.8 mi east of Lewisville 1.9 mi downstream from Lewisville Lake, 8.3 mi upstream from Denton Creek, and 28.2 mi upstream from mouth.

DRAINAGE AREA.--1,673 mi².

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 above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Jan. 6, 1950, nonrecording gage 0.6 mi upstream at datum 3.26 ft lower.

REMARKS.--Estimated daily discharges: Dec. 15-18 and 22-28. Records fair. Flow regulated by Lewisville Lake (station 08052800) 1.9 mi upstream since November 1954. Most of low flow is used by the city of Dallas for municipal supply (see station 08055500). Gage-height telemeter at station.

AVERAGE DISCHARGE.--5 years (water years 1950-54) prior to regulation, 402 ft³/s (291,200 acre-ft/yr); 36 years (water years 1955-90) regulated, 672 ft³/s (486,900 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,700 ft³/s Sept. 15, 1950 (gage height, 30.75 ft); minimum daily, 0.8 ft³/s Jan. 19, 1955. Maximum discharge since construction of Lewisville Dam in 1954, 19,600 ft³/s (gage height, 30.15 ft) May 4, 1990.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1907, 33.8 ft in 1908, present site and datum, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 19,600 ft³/s May 4 at 1630 hours (gage height, 30.15 ft); minimum daily, 9.2 ft³/s Apr. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	215	252	125	797	50	1880	13	4750	4710	3610	346
2	13	254	236	134	147	67	2980	1370	1820	4690	3630	349
3	44	250	194	134	67	68	3410	10600	3870	4690	3640	350
4	146	241	149	110	47	79	3500	19000	5180	4680	3530	352
5	133	266	144	108	34	110	3520	17700	5500	4690	3390	353
6	131	238	158	115	30	116	3590	15700	5540	4700	3690	355
7	120	221	155	107	41	219	3540	14100	5540	4650	3710	357
8	123	222	136	104	41	60	3510	13100	5510	1540	3810	359
9	149	224	115	106	53	107	3510	12500	5500	363	3840	344
10	153	235	111	106	49	103	3610	11900	5470	608	3790	328
11	229	277	125	113	39	828	3360	11400	5440	603	3380	231
12	290	260	133	123	42	362	3470	11200	5260	626	2760	217
13	249	236	127	98	61	106	3520	10900	5180	606	2540	213
14	248	242	138	90	79	695	3610	10600	5150	600	2370	208
15	240	232	e133	99	77	291	462	9960	5140	596	2000	199
16	228	236	e134	92	77	176	341	9130	5120	834	1810	237
17	260	253	e130	97	85	669	69	8290	5100	2170	1500	218
18	246	253	e122	94	82	1700	53	6970	5050	2910	1500	194
19	241	254	108	258	65	2650	299	5820	4940	3240	1500	203
20	258	242	108	90	65	3180	1120	5200	5130	3350	1290	193
21	237	230	107	100	79	3370	794	5160	5500	3350	930	144
22	244	214	e142	88	51	3450	1980	5180	5590	3290	655	169
23	254	173	e187	71	68	3550	2960	4720	5650	3170	398	210
24	253	239	e259	69	66	3540	3180	4690	5700	3160	504	256
25	255	252	e369	124	65	3340	3880	4980	5710	3150	425	218
26	256	226	e360	193	66	2830	3920	4860	5720	3120	389	202
27	257	244	e346	107	68	2910	679	4810	5720	3120	388	286
28	260	235	e249	90	67	2810	61	4890	5650	3140	409	283
29	258	231	150	102	---	2030	19	5090	4920	3150	430	243
30	245	261	138	110	---	331	9.2	5150	4710	3190	397	291
31	216	---	136	127	---	917	---	5140	---	3470	346	---
TOTAL	6248	7156	5351	3484	2508	40714	66836.2	260123	155060	86166	62561	7908
MEAN	202	239	173	112	89.6	1313	2228	8391	5169	2780	2018	264
MAX	290	277	369	258	797	3550	3920	19000	5720	4710	3840	359
MIN	12	173	107	69	30	50	9.2	13	1820	363	346	144
AC-FT	12390	14190	10610	6910	4970	80760	132600	516000	307600	170900	124100	15690

CAL YR 1989	TOTAL	233861.1	MEAN	641	MAX	5450	MIN	9.0	AC-FT	463900
WTR YR 1990	TOTAL	704115.2	MEAN	1929	MAX	19000	MIN	9.2	AC-FT	1397000

08053000 ELM FORK TRINITY RIVER NEAR LEWISVILLE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: January 1981 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1981 to current year.
WATER TEMPERATURE: November 1976 to current year.

INSTRUMENTATION.--From November 1976 to October 1981, water temperature was continuously recorded at this station.

REMARKS.--Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression 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, 1,050 microsiemens Feb. 5, 8, 1989; minimum daily, 200 microsiemens May 13, 1982.
WATER TEMPERATURES (1976-89): Maximum, 33.5°C July 16, Aug. 18, 1988, Sept. 14, 15, 1989; minimum, 0.0°C Jan. 31, Feb. 9, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 740 microsiemens Mar. 13; minimum daily, 275 microsiemens on several days during July and August.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)
NOV											
29...	1345	222	364	8.1	14.0	--	--	11.7	113	1.0	120
MAR											
08...	1550	33	732	7.8	18.0	25	15	8.8	94	1.8	260
APR											
17...	1015	69	563	7.8	19.5	--	--	7.7	85	0.9	220
JUN											
18...	1630	5050	281	7.8	26.5	25	10	8.3	104	1.0	120
AUG											
07...	1112	3680	272	8.2	27.0	--	--	8.9	112	1.8	110
28...	1855	410	297	7.8	28.0	11	3.2	7.5	98	1.8	110

DATE	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
NOV											
29...	5	42	3.9	23	0.9	5.1	120	33	18	0.30	5.1
MAR											
08...	130	87	11	48	1	6.6	130	170	33	0.40	9.7
APR											
17...	99	75	7.6	31	0.9	4.4	120	95	25	0.20	6.2
JUN											
18...	16	42	3.2	12	0.5	3.6	100	20	11	0.30	5.9
AUG											
07...	4	37	3.3	12	0.5	3.6	100	14	11	0.20	4.0
28...	5	40	3.5	14	0.6	4.2	110	16	14	0.20	5.0

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
NOV											
29...	200	--	--	--	0.580	0.020	0.600	0.030	0.47	0.50	0.260
MAR											
08...	446	59	4	55	1.75	0.050	1.80	0.120	0.68	0.80	0.660
APR											
17...	316	--	--	--	0.990	0.010	1.00	0.070	0.63	0.70	0.250
JUN											
18...	159	19	13	6	0.360	0.040	0.400	0.020	0.38	0.40	0.040
AUG											
07...	146	--	--	--	--	<0.010	<0.100	0.010	0.49	0.50	0.050
28...	163	8	4	4	--	<0.010	0.300	0.040	0.46	0.50	0.120

08053000 ELM FORK TRINITY RIVER NEAR LEWISVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)
NOV 29...	--	--	--	--	--	--	--	--	--	--
MAR 08...	8.8	1	41	<0.5	<1.0	<5	<3	<10	20	<10
APR 17...	--	--	--	--	--	--	--	--	--	--
JUN 18...	4.8	2	43	<0.5	<1.0	<5	<3	<10	11	<10
AUG 07...	--	--	--	--	--	--	--	--	--	--
28...	5.1	6	52	<0.5	<1.0	<5	<3	<10	16	<10

DATE	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 29...	--	--	--	--	--	--	--	--	--	--
MAR 08...	18	69	<0.1	<10	<10	<1	<1.0	740	<6	13
APR 17...	--	--	--	--	--	--	--	--	--	--
JUN 18...	<4	19	<0.1	<10	<10	<1	<1.0	210	<6	6
AUG 07...	--	--	--	--	--	--	--	--	--	--
28...	6	170	0.3	<10	<10	<1	<1.0	220	<6	13

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1989	6248	341	189	3190	21	357	33	563	120
NOV.	1989	7156	358	199	3840	22	434	36	695	120
DEC.	1989	5351	372	207	2990	24	340	38	552	130
JAN.	1990	3484	473	268	2520	32	302	57	541	150
FEB.	1990	2508	545	311	2110	38	258	71	480	170
MAR.	1990	40714	375	209	23000	24	2640	39	4340	130
APR.	1990	66836.2	355	197	35600	22	4020	36	6440	120
MAY	1990	260123	319	177	124000	20	13800	30	21400	110
JUNE	1990	155060	282	155	65000	17	7090	25	10500	100
JULY	1990	86166	284	156	36300	17	3960	25	5900	100
AUG.	1990	62561	284	156	26400	17	2880	25	4280	100
SEPT	1990	7908	326	180	3850	20	429	31	667	120
TOTAL		704115.2	**	**	329000	**	36500	**	56300	**
WTD.AVG.		1929	313	173	**	19	**	30	**	110

08053000 ELM FORK TRINITY RIVER NEAR LEWISVILLE, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	364	342	357	378	590	418	341	e700	285	280	279	310
2	362	342	360	380	593	418	340	e620	283	283	284	310
3	361	355	356	381	587	419	341	e410	282	283	283	310
4	362	354	356	381	593	417	341	332	284	282	285	310
5	359	353	372	382	590	418	341	332	282	283	275	310
6	361	350	373	380	589	553	340	331	283	283	278	310
7	350	349	374	381	590	e580	340	332	283	285	280	310
8	342	350	373	381	586	e730	365	331	284	337	277	310
9	341	357	374	381	590	e620	365	327	284	441	280	310
10	342	356	374	381	589	e610	364	317	285	310	277	300
11	341	355	373	381	589	558	e360	319	283	309	276	e320
12	342	354	373	381	589	607	e350	312	283	304	279	e330
13	341	354	373	381	589	740	e340	312	e280	305	281	e330
14	342	353	374	381	589	608	e420	321	283	303	280	e340
15	341	363	373	381	474	e630	e460	312	285	299	283	e350
16	342	363	374	381	474	e670	e510	312	e280	281	286	e340
17	341	363	374	381	474	e530	e560	312	e280	297	284	e340
18	342	363	374	382	476	e420	e580	300	280	280	283	e340
19	342	363	374	580	474	347	e500	300	282	280	282	e350
20	342	363	374	590	474	347	e420	301	281	280	288	e340
21	342	363	374	592	474	346	e380	298	281	282	e310	e360
22	342	363	375	594	474	347	e360	299	281	285	344	e370
23	342	363	375	593	474	347	337	288	281	281	345	e370
24	335	363	377	593	474	347	337	289	281	275	e330	e350
25	335	363	377	591	478	347	e340	287	281	281	e320	e340
26	335	363	375	594	479	351	e330	285	284	275	e320	e330
27	334	363	376	594	479	360	e380	283	281	275	e330	e330
28	333	363	376	593	479	362	e440	285	283	284	e300	e320
29	332	365	377	592	---	345	e650	285	281	275	e310	e330
30	333	363	376	593	---	e360	e680	285	282	275	e310	e330
31	333	---	376	592	---	e340	---	280	---	280	e310	---
MEAN	344	358	372	469	532	467	407	332	282	293	295	330

e Estimated

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30.5	27.5	---	---	---	---	17.0	16.0	---	26.0	27.5	30.0
2	30.5	27.0	---	---	---	---	15.0	16.0	---	28.0	28.0	30.0
3	30.0	27.0	---	---	---	---	16.0	15.5	---	29.0	28.0	30.5
4	30.0	27.5	---	---	---	---	16.0	15.5	---	29.5	27.5	30.0
5	29.5	28.0	---	---	---	---	17.0	15.5	---	27.5	27.5	30.0
6	30.0	28.0	---	---	---	---	17.0	15.5	---	26.5	27.5	30.5
7	31.5	28.5	---	---	---	---	17.0	15.5	---	28.0	28.0	30.5
8	31.0	28.5	---	---	---	---	16.0	15.5	---	29.0	28.0	30.5
9	31.5	28.5	---	---	---	---	17.0	15.5	---	29.5	28.5	31.0
10	32.0	29.0	---	---	---	---	16.0	16.0	---	28.0	28.5	31.0
11	32.0	29.0	---	---	---	---	16.0	15.5	---	27.5	28.0	30.5
12	32.5	29.5	---	---	---	---	17.0	15.5	---	27.5	28.5	30.5
13	32.5	29.0	---	---	---	---	16.0	20.0	---	25.5	28.0	31.0
14	33.0	29.0	---	---	---	---	16.0	16.5	---	27.5	28.0	31.0
15	33.0	29.5	---	---	---	---	16.5	16.0	---	25.5	28.5	31.0
16	33.5	---	---	---	---	---	16.0	16.5	---	25.5	28.5	31.0
17	33.0	---	---	---	---	---	16.0	16.0	---	25.5	28.0	31.5
18	33.0	---	---	---	---	---	16.5	16.5	---	25.0	28.0	31.5
19	32.0	---	---	---	---	---	16.0	16.5	---	27.0	28.0	31.5
20	29.5	---	---	---	---	---	16.5	15.5	---	27.0	28.5	31.0
21	29.0	---	---	---	---	---	16.5	16.0	---	27.5	29.5	31.0
22	30.0	---	---	---	---	---	16.5	16.5	---	27.0	29.5	31.0
23	30.5	---	---	---	---	---	16.5	16.5	---	27.5	30.0	30.5
24	29.0	---	---	---	---	16.5	16.0	16.0	25.5	27.5	29.5	30.5
25	29.0	---	---	---	---	17.0	16.0	16.0	25.5	28.0	29.0	29.0
26	28.5	---	---	---	---	15.5	16.0	16.5	26.0	27.5	29.5	30.0
27	28.5	---	---	---	---	16.0	16.5	16.5	25.5	28.0	29.0	30.0
28	28.0	---	---	---	---	16.0	16.0	---	25.5	28.0	29.0	29.5
29	28.0	---	---	---	---	16.0	16.5	---	26.0	28.0	30.0	29.5
30	27.5	---	---	---	---	16.0	16.0	---	26.5	27.5	29.5	29.5
31	27.0	---	---	---	---	12.0	---	---	---	27.0	29.5	---
MEAN	30.5	28.5	---	---	---	15.5	16.5	16.0	26.0	27.5	28.5	30.5

08053500 DENTON CREEK NEAR JUSTIN, TX

LOCATION.--Lat 33°07'08", long 97°17'25", Denton County, Hydrologic Unit 12030104, on right bank at downstream side of bridge on Farm Road 156, 100 ft upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 2.2 mi north of Justin, 3.0 mi upstream from Olivers Creek, 12.9 mi upstream from Harriet Creek, and 32.9 mi upstream from Grapevine Dam.

DRAINAGE AREA.--400 mi².

PERIOD OF RECORD.--October 1949 to current year.
Water-quality records.--Chemical and biochemical analyses: October 1980 to September 1982.

REVISED RECORDS.--WSP 1732: 1950(M). WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 606.66 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good, except those for periods when intakes were sluggish, which are fair. There are several small diversions above station. Flow is affected at times by discharge from the flood-detention pools of 84 floodwater-retarding structures with a combined detention capacity of 52,750 acre-ft. These structures control runoff from 197 mi² in the Denton Creek watershed. Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--31 years (water years 1950-80) prior to completion of floodwater-retarding structures, 77.4 ft³/s (56,080 acre-ft/yr); 10 years (water years 1981-90) after completion of floodwater-retarding structures, 183 ft³/s (132,600 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,700 ft³/s Oct. 13, 1981 (gage height, 18.68 ft), from high-water mark; no flow at times in 1949-65, 1967-74, 1976-85, 1988-89.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1935 was the highest since 1908 and reached a stage of 20.6 ft at site about 1,500 ft upstream, from information by local resident. Flood in May 1908 reached a stage about 1.0 ft higher than flood in May 1935, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 22,800 ft³/s Apr. 26 at 1115 hours (gage height, 17.26 ft); minimum daily discharge, 3.2 ft³/s Oct. 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.7	32	14	33	135	105	454	2390	371	e44	40	6.8
2	6.4	24	14	31	69	104	320	6820	1600	e41	39	6.3
3	6.1	21	14	31	58	80	252	10800	1120	e40	33	5.6
4	5.7	20	14	31	51	67	196	6650	e475	e38	34	5.0
5	5.3	20	15	31	47	61	171	3660	e286	e36	38	5.0
6	4.9	19	16	31	44	60	274	3170	e215	37	41	5.0
7	4.5	19	17	31	43	264	305	2890	e183	36	35	4.9
8	4.2	18	17	31	42	275	203	2580	e162	36	29	4.7
9	3.9	18	17	30	42	154	160	2240	e141	34	26	4.3
10	3.9	17	18	30	43	105	794	e1940	e128	33	22	4.2
11	5.6	17	18	31	45	1910	658	e1580	e119	32	20	4.6
12	5.5	16	18	30	46	2720	338	e1350	e114	32	19	5.3
13	5.1	16	18	26	45	1090	244	e1160	e111	46	17	5.8
14	4.7	16	19	31	44	959	1730	e960	e107	37	17	6.2
15	4.4	15	22	31	44	1490	489	e869	e102	32	16	6.2
16	4.0	15	19	37	57	690	2190	e753	e98	31	15	6.2
17	4.2	14	18	40	56	361	2260	e668	e94	31	14	6.0
18	4.5	14	18	56	50	246	813	e594	e90	31	12	5.8
19	3.9	14	21	218	47	189	2580	e529	e88	38	11	9.3
20	4.3	13	19	490	46	152	4380	e474	e84	36	11	13
21	5.6	14	18	157	47	129	4030	e416	e82	31	10	12
22	5.0	16	16	90	75	116	2710	e385	e80	29	10	16
23	5.1	16	22	67	90	107	1190	e349	e78	38	10	19
24	4.2	16	22	56	68	100	881	e316	e188	46	12	19
25	3.8	16	19	49	59	93	758	e289	e455	37	10	17
26	3.3	15	22	43	54	94	14700	e265	e139	34	10	14
27	3.2	15	28	40	51	115	8550	e241	e86	30	9.2	13
28	3.3	14	34	39	61	480	4690	e226	e66	27	8.6	12
29	3.3	14	37	38	---	1730	3550	e215	e55	26	8.1	11
30	47	13	36	38	---	1390	2990	e1120	e48	24	7.6	11
31	68	---	34	38	---	746	---	777	---	29	7.3	---
TOTAL	249.6	507	634	1955	1559	16182	62860	56676	6965	1072	591.8	264.2
MEAN	8.05	16.9	20.5	63.1	55.7	522	2095	1828	232	34.6	19.1	8.81
MAX	68	32	37	490	135	2720	14700	10800	1600	46	41	19
MIN	3.2	13	14	26	42	60	160	215	48	24	7.3	4.2
AC-FT	495	1010	1260	3880	3090	32100	124700	112400	13820	2130	1170	524

CAL YR 1989 TOTAL 104812.9 MEAN 287 MAX 7740 MIN 3.2 AC-FT 207900
WTR YR 1990 TOTAL 149515.6 MEAN 410 MAX 14700 MIN 3.2 AC-FT 296600

e Estimated

08054500 GRAPEVINE LAKE NEAR GRAPEVINE, TX

LOCATION.--Lat 32°58'21", long 97°03'22", Tarrant County, Hydrologic Unit 12030104, in intake structure of Grapevine Dam on Denton Creek, 2.7 mi northeast of Grapevine, 4.3 mi upstream from bridge on State Highway 121, and 11.7 mi upstream from mouth.

DRAINAGE AREA.--695 mi².

PERIOD OF RECORD.--July 1952 to current year. Prior to October 1970, published as Grapevine Reservoir.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to May 16, 1953, non-recording gage at site 1,000 ft upstream at present datum.

REMARKS.--The lake is formed by a rolled earthfill dam 12,850 ft long, including a 500-foot uncontrolled off-channel concrete-gravity spillway with an ogee weir section. The dam was completed in June 1952, and deliberate impoundment began July 3, 1952. The controlled outlet works consist of a 13.0-foot-diameter concrete conduit that is controlled by two 6.5- by 13.0-foot broome-type gates and two 30-inch steel pipes with service valves. The capacity table, used since April 1972, is based on a survey made in October 1966. The lake was built for flood control, navigation, and water conservation. The city of Dallas uses part of this water for their municipal supply. An unknown amount of water is diverted for industrial and municipal uses. Inflow is affected at times by discharge from the flood-detention pools of 87 floodwater-retarding structures with a combined detention capacity of 57,850 acre-ft. These structures control runoff from 217 mi² in the Denton Creek watershed. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	588.0	-
Crest of spillway	560.0	425,500
Top of conservation pool	535.0	181,100
Lowest intake to wet wells (invert)	500.5	22,140
Invert of two broome-type gates	475.0	100

COOPERATION.--Records furnished by the U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 471,200 acre-ft Nov. 1, 1981 (elevation, 563.29 ft); minimum since lake first filled in 1957, 94,480 acre-ft Feb. 26, 1979 (elevation, 520.67 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 464,300 acre-ft May 4 at 2100 hours (elevation, 562.96 ft); minimum, 158,900 acre-ft Jan. 16 (elevation, 531.84 ft).

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

531.0	153,300	547.0	282,300	558.0	400,700
535.0	181,100	550.0	312,100	560.0	425,500
539.0	211,500	553.0	343,800	562.0	451,500
543.0	245,200	556.0	377,200	563.0	464,900

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	173200	168100	164100	160200	169500	171300	217900	379100	398300	302700	219600	181000
2	172900	167800	164000	160100	170000	171500	217200	413000	400200	298900	216800	180500
3	172700	167500	163700	160400	170200	171500	216200	455600	399700	295000	214200	180300
4	172500	167400	163600	160200	170200	171500	215000	464300	397400	291200	211600	179900
5	172400	167400	163500	160200	170200	171500	214400	459700	394400	287400	209600	179500
6	172300	167300	163500	160000	170200	171600	213600	454800	391600	283400	206700	179100
7	172100	167300	163400	159900	170100	174200	212800	451600	388400	279500	204100	178600
8	171900	167100	163000	159800	170200	175000	211500	448800	385400	278800	202100	178300
9	171600	167000	162800	159800	170600	175500	210500	446700	382400	278600	200100	177900
10	171500	166800	162900	159600	170500	175800	213000	444600	379400	278400	198400	177500
11	171300	166700	162600	159500	170500	197500	213500	443800	376000	278000	196800	177200
12	171100	166600	162400	159300	170400	207200	212700	442200	372200	278300	195300	176800
13	170900	166500	162200	159200	170400	210600	212100	440400	368600	277500	193700	176700
14	170800	166500	162100	159100	170500	214700	228300	438800	365100	277000	192000	176400
15	170600	166400	161900	159000	170500	218300	230300	437400	361400	276600	190800	176100
16	170500	165900	161600	159200	170300	220000	233500	436500	357800	275600	189600	175800
17	170100	165600	161500	159900	170200	220800	238700	435200	354200	272300	188600	175500
18	169600	165500	161400	161300	170200	221000	240500	434200	350500	268700	187600	175200
19	169400	165400	161300	163700	170100	220000	246000	433500	346700	265100	186500	174800
20	169000	165400	161100	165000	170100	218300	261600	432400	343000	261200	185800	174500
21	168800	165200	161100	165300	170700	216700	274400	430200	339000	257400	185200	174300
22	168700	165600	160900	165500	170800	215100	279900	427200	335500	253700	184700	173900
23	168500	165300	160500	165500	170800	213400	279400	423900	331300	250400	184500	173300
24	168400	165000	160400	165400	170800	211700	278100	420400	327500	247200	184200	172800
25	168300	165000	160400	165100	170800	210500	276500	416900	324500	243500	183900	172500
26	168100	164900	160300	164900	170800	208900	316200	413400	321200	239700	183400	172200
27	168000	164900	160200	164900	170800	208100	346000	410200	317800	236000	183000	171800
28	167700	164600	160200	164900	171300	209000	359700	406600	313700	232400	182600	171500
29	167700	164300	160300	164800	---	213900	367100	402000	310000	228900	182300	171300
30	168400	164200	160500	164600	---	217500	373100	400100	306400	225500	181900	171000
31	168200	---	160400	165400	---	218200	---	398000	---	222600	181500	---
MAX	173200	168100	164100	165500	171300	221000	373100	464300	400200	302700	219600	181000
MIN	167700	164200	160200	159000	169500	171300	210500	379100	306400	222600	181500	171000
(†)	533.19	532.62	532.07	532.79	533.64	539.82	555.64	557.78	549.44	540.36	535.05	533.59
(ϕ)	-5800	-4000	-3800	+5000	+5900	+46900	+154900	+24900	-91600	-83800	-41100	-10500

CAL YR 1989 MAX 455700 MIN 139100 (ϕ) +20500
WTR YR 1990 MAX 464300 MIN 159000 (ϕ) -3000

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

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 downstream from Bakers Branch, 4.1 mi downstream from Grapevine Dam, 5.0 mi northeast of Grapevine, and 6.1 mi upstream from mouth.

DRAINAGE AREA.--705 mi².

PERIOD OF RECORD.--October 1947 to current year.
Water-quality records.--Chemical and biochemical analyses: October 1980 to September 1982.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 439.11 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Since July 1952, flow regulated by Grapevine Lake (see preceding page), 4.1 mi upstream. Much of flow of Denton Creek is used by the city of Dallas for municipal supply (see station 08055500). The city of Grapevine diverts water from Denton Creek just downstream from Grapevine Dam, upstream from this station. There were several observations of water temperature made during the year.

AVERAGE DISCHARGE.--5 years (water years 1948-52) prior to regulation, 140 ft³/s (101,400 acre-ft/yr); 38 years (water years 1953-90) regulated, unadjusted, 183 ft³/s (132,600 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,900 ft³/s Feb. 26, 1948 (gage height, 30.38 ft), from rating curve extended above 6,000 ft³/s on basis of conveyance-slope study; no flow at times. Maximum discharge since construction of Grapevine Dam in 1952, 9,700 ft³/s Nov. 1, 1981 (gage height, 27.93 ft).

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, from floodmarks, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,140 ft³/s May 5 at 0600 hours (gage height, 26.62 ft); minimum daily, 24 ft³/s Nov. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	287	51	51	56	285	59	855	98	1620	1820	1430	128
2	116	50	51	56	55	59	849	565	515	1830	1430	126
3	69	51	50	57	59	60	846	2370	1600	1870	1430	126
4	53	51	51	55	62	61	846	5500	1640	1860	1430	125
5	53	52	51	53	60	61	856	6750	1640	1850	1420	123
6	51	52	52	53	60	61	893	5480	1640	1850	1420	122
7	43	49	52	53	59	159	843	4410	1640	1840	1340	121
8	42	27	50	53	59	57	846	3730	1640	443	1110	121
9	40	24	50	57	60	35	843	3260	1640	63	980	122
10	38	47	50	62	59	35	901	2820	1630	62	924	123
11	42	48	49	61	58	445	836	2460	1640	96	847	124
12	51	52	49	61	58	77	834	2350	1770	140	845	122
13	52	52	50	61	59	90	843	2060	1790	135	845	123
14	55	50	50	61	58	422	1070	1760	1850	133	803	113
15	56	48	51	60	58	209	117	1480	1850	133	668	104
16	55	49	52	61	58	139	108	1270	1840	306	592	103
17	54	49	52	66	58	51	107	1080	1830	1560	488	103
18	54	49	52	90	59	214	105	880	1830	1850	485	104
19	51	50	52	165	58	635	170	787	1820	1920	482	106
20	51	49	52	64	58	975	714	883	1820	1910	387	110
21	51	48	52	60	60	977	436	1140	1820	1900	261	114
22	51	50	51	60	59	973	1260	1450	1870	1890	196	114
23	51	49	50	61	59	967	1720	1600	1870	1890	131	114
24	50	49	50	60	59	967	1740	1660	1870	1890	149	114
25	54	49	51	59	58	981	1740	1760	1870	1880	141	114
26	53	48	53	59	58	972	1790	1760	1860	1880	134	108
27	53	49	56	59	59	979	154	1750	1850	1870	131	98
28	54	50	56	60	63	1040	100	1780	1840	1860	131	96
29	55	50	56	60	---	948	98	1880	1840	1860	130	97
30	59	50	57	61	---	212	96	1880	1830	1770	130	97
31	54	---	57	79	---	634	---	1870	---	1440	128	---
TOTAL	1898	1442	1606	1983	1875	13554	22616	68523	51765	41801	21018	3415
MEAN	61.2	48.1	51.8	64.0	67.0	437	754	2210	1725	1348	678	114
MAX	287	52	57	165	285	1040	1790	6750	1870	1920	1430	128
MIN	38	24	49	53	55	35	96	98	515	62	128	96
AC-FT	3760	2860	3190	3930	3720	26880	44860	135900	102700	82910	41690	6770

CAL YR 1989	TOTAL 221676.62	MEAN 607	MAX 4830	MIN .82	AC-FT 439700				
WTR YR 1990	TOTAL 231496	MEAN 634	MAX 6750	MIN 24	AC-FT 459200				

08055500 ELM FORK TRINITY RIVER NEAR CARROLLTON, TX

LOCATION.--Lat 32°57'57", long 96°56'39", Dallas County, Hydrologic Unit 12030103, near left bank at downstream side of bridge on Sandy Lake Road, 40 ft upstream from Carrollton Dam, 0.3 mi downstream from Denton Creek, 1.0 mi upstream from St. Louis Southwestern Railway Lines bridge, 2.3 mi northwest of Carrollton, and 18.2 mi upstream from mouth.

DRAINAGE AREA.--2,459 mi².

PERIOD OF RECORD.--January 1907 to current year. Monthly discharge only for some periods, published in WSP 1312. Prior to November 1923, published as "near Dallas".

REVISED RECORDS.--WSP 788: 1924. WSP 1148: Drainage area at former site. WSP 1632: 1908(M). WSP 1922: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 431.40 ft above National Geodetic Vertical Datum of 1929. Prior to November 1923, nonrecording gage at site 15.5 mi downstream at different datum. Nov. 1, 1923, to Nov. 13, 1934, nonrecording gage, and Nov. 14, 1934, to July 6, 1938, water-stage recorder at present site and datum. July 7, 1938, to Apr. 14, 1939, nonrecording gage at site 9.3 mi downstream at datum 22.94 ft lower. Apr. 15, 1939, to Sept. 30, 1955, water-stage recorder at site 8.5 mi downstream at datum 22.94 ft lower. Oct. 1, 1955, to Sept. 30, 1987, water-stage recorder at present site and at datum 2.00 ft higher.

REMARKS.--Records good, except those for estimated daily discharges which is fair. Flow largely regulated by Lewisville Lake (station 08052800) since November 1954, and by Grapevine Lake (station 08054500) since July 1952. The city of Dallas diverts water from the pool at gage and from the river 14 mi downstream for municipal use. A water treatment plant returns water to the river below this station. In addition, Dallas Power and Light Co. divert water from pool at gage into North Lake for cooling water at their electric generating plant. Several observations of water temperature were made during the year. Gage-height telemeters at station.

AVERAGE DISCHARGE.--47 years (water years 1908-54) prior to regulation by Lewisville and Grapevine Lakes, 818 ft³/s (592,600 acre-ft/yr); 36 years (water years 1955-90) regulated, unadjusted, 796 ft³/s (576,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, about 19 ft May 25, 1908, present site and datum, from information by local resident; estimated discharge, 145,000 ft³/s, at site 8.5 mi downstream (from information by U.S. Army Corps of Engineers); maximum gage height subsequent to 1908, 16.5 ft Apr. 26, 1942, present site and datum, from observation by National Weather Service; discharge at site 8.5 mi downstream, 90,700 ft³/s; no flow at times.
Flood in 1866, reached about the same stage as flood of May 25, 1908.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 27,600 ft³/s May 5 at 0800 hours (gage height, 13.48 ft); minimum daily discharge, 1.8 ft³/s Nov. 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	152	24	62	55	3420	21	2920	186	7120	6370	5370	185
2	64	29	45	32	557	73	4480	4650	2940	6360	5400	190
3	75	86	58	59	117	80	5120	12600	5400	6410	5590	195
4	89	29	64	20	69	77	5280	17800	6650	6410	5600	189
5	55	86	28	26	69	115	5320	25300	6980	6400	5360	191
6	57	61	53	60	22	132	5580	22400	7070	6360	5520	176
7	34	74	63	34	63	859	5360	20100	7070	6350	5510	175
8	22	185	86	38	23	204	5310	18200	7080	3090	5390	204
9	52	113	52	28	41	84	5300	16800	7080	e433	5210	125
10	73	17	35	100	83	61	5820	15800	7060	365	5120	166
11	76	65	39	44	47	3450	5290	14500	7040	345	4650	108
12	123	85	78	102	36	1630	5300	14100	7080	507	3790	166
13	60	41	61	69	19	193	5390	13300	7000	489	3550	116
14	59	40	79	40	27	2590	7480	12500	6960	479	3470	125
15	57	36	126	50	31	1030	1960	11800	6970	471	2760	81
16	37	21	52	118	24	253	1550	10700	6960	633	2450	124
17	51	46	69	150	56	606	398	9790	6930	3270	1830	112
18	94	55	64	293	84	1690	298	8760	6930	4810	1780	96
19	22	58	49	1360	28	3490	588	7450	6940	5330	1790	93
20	79	53	39	239	42	4710	2560	6770	6910	5420	1590	143
21	41	32	40	82	116	5040	1950	6690	6840	5520	970	86
22	38	59	70	81	72	5140	3370	6950	6880	5520	754	103
23	63	1.8	129	57	47	5240	5310	6810	6940	5460	190	166
24	57	41	129	56	39	5270	5630	6610	6980	5410	319	190
25	65	86	259	66	50	5340	6200	6810	6970	5370	224	157
26	69	25	280	139	46	4740	8490	6780	6940	5350	168	101
27	76	47	122	116	42	4820	2910	6760	6980	5300	147	189
28	71	38	84	62	53	5300	498	6760	6950	5270	244	169
29	71	20	90	47	---	4360	309	6950	6650	5260	309	102
30	206	50	75	63	---	1020	254	7030	6420	5260	271	166
31	49	---	66	116	---	1540	---	7010	---	5250	185	---
TOTAL	2137	1603.8	2546	3802	5323	69158	116225	338666	202720	129272	85511	4389
MEAN	68.9	53.5	82.1	123	190	2231	3874	10920	6757	4170	2758	146
MAX	206	185	280	1360	3420	5340	8490	25300	7120	6410	5600	204
MIN	22	1.8	28	20	19	21	254	186	2940	345	147	81
AC-FT	4240	3180	5050	7540	10560	137200	230500	671700	402100	256400	169600	8710

CAL YR 1989 TOTAL 435066.2 MEAN 1192 MAX 7380 MIN 1.8 AC-FT 863000
WTR YR 1990 TOTAL 961352.8 MEAN 2634 MAX 25300 MIN 1.8 AC-FT 1907000

e Estimated

08056500 TURTLE CREEK AT DALLAS, TX

LOCATION.--Lat 32°48'26", long 96°48'08", Dallas County, Hydrologic Unit 12030105, on left bank 68 ft upstream from Hall Street Dam, 210 ft upstream from Hall Street in Dallas, and 2.0 mi north of Dallas County Courthouse.

DRAINAGE AREA.--7.98 mi².

PERIOD OF RECORD.--Water years 1948-51 (annual maximum only), October 1951 to September 1980, April 1984 to current year. Daily discharge records for April 1948 to September 1951, published in WSP 1392, are unreliable and should not be used.

REVISED RECORDS.--See PERIOD OF RECORD.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 428.13 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 17, 1951, at site 52 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Flow is slightly affected by eight small on-channel dams above the station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--35 years (water years 1952-80, 1986-90) 9.00 ft³/s (6,520 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,200 ft³/s Apr. 28, 1966 (gage height 10.54 ft), from rating curve extended above 2,460 ft³/s on basis of contracted-opening measurement of 12,200 ft³/s; no flow at times during most years.
Maximum stage since at least 1903, that of Apr. 28, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 1	0615	2,180	5.63	May 2	0145	*6,030	*8.97
Mar. 14	1300	3,830	7.36	May 3	0145	2,890	6.42
Apr. 14	0645	2,350	5.82	June 1	1530	2,060	5.48
Apr. 16	0100	2,130	5.56	Aug. 4	0730	2,460	5.95
Apr. 26	1030	2,560	6.06				

Minimum discharge, 0.56 ft³/s, Oct. 20-21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.90	2.8	2.2	1.5	320	5.1	6.0	11	214	1.3	1.3	1.3
2	.90	2.3	2.1	1.8	16	8.4	5.4	528	6.1	1.3	30	1.6
3	.94	2.2	1.1	26	15	12	4.9	394	37	1.1	24	3.6
4	1.0	2.4	1.3	5.6	6.8	12	4.9	16	5.1	.95	164	5.1
5	1.4	2.1	1.7	1.9	10	10	14	9.9	3.7	.97	73	4.6
6	1.5	1.7	1.6	2.0	18	13	24	7.9	3.4	1.1	7.5	5.1
7	1.2	1.6	2.6	1.8	26	40	4.4	6.6	2.8	1.0	3.8	6.1
8	.96	1.7	1.8	1.7	22	6.7	4.4	5.9	2.6	1.0	3.3	6.7
9	1.1	1.4	1.6	1.9	25	5.2	4.2	5.4	2.1	1.7	3.4	2.6
10	.94	1.4	1.7	1.5	13	4.7	76	4.8	2.1	1.2	2.8	20
11	.89	2.3	1.6	1.5	10	54	6.1	17	2.2	1.0	2.5	28
12	.83	1.7	1.8	1.4	26	8.5	4.7	20	1.9	3.5	3.3	3.6
13	.95	1.5	1.1	1.4	27	5.8	34	4.1	2.0	1.8	3.0	2.4
14	1.1	1.5	1.7	1.7	34	279	181	4.3	1.6	1.1	2.6	2.5
15	.98	1.4	2.4	1.8	34	15	11	4.0	1.5	1.1	2.4	1.9
16	1.0	1.1	1.4	9.9	28	10	119	5.7	1.5	1.4	3.3	1.6
17	1.7	1.1	1.7	12	28	8.8	7.8	3.4	1.4	1.6	1.8	1.7
18	6.4	1.9	2.3	145	28	6.5	6.1	12	1.3	7.9	1.7	1.5
19	1.1	2.0	2.1	173	28	4.9	17	5.8	.99	4.7	1.8	1.1
20	.60	1.6	1.8	8.7	28	4.3	32	3.4	1.0	2.6	1.8	1.1
21	.71	1.9	1.3	5.6	63	5.1	9.3	2.7	1.3	2.0	1.6	1.2
22	.71	26	1.2	4.8	5.6	4.4	6.7	1.7	1.5	1.7	1.5	1.5
23	.70	3.5	1.6	4.2	2.9	4.4	5.9	2.8	1.1	8.8	1.4	1.1
24	.77	2.4	4.7	11	2.5	3.7	5.2	2.3	6.1	4.6	2.2	1.2
25	1.0	2.3	7.3	29	2.4	69	14	2.2	3.1	3.0	3.8	1.0
26	.94	1.9	6.3	27	2.0	8.5	348	2.1	1.5	1.5	3.4	1.1
27	.94	1.9	4.8	20	3.1	21	19	3.0	1.2	1.3	3.4	.97
28	.72	1.3	3.8	4.6	35	65	10	2.1	1.3	1.1	3.2	.94
29	.80	1.1	3.7	3.7	---	26	7.7	1.9	1.4	1.1	3.6	1.0
30	147	2.3	8.7	12	---	8.8	6.2	15	1.4	1.1	1.2	1.1
31	4.0	---	4.8	50	---	6.8	---	2.1	---	1.1	2.5	---
TOTAL	184.68	80.3	83.8	574.0	859.3	736.6	998.9	1107.1	314.19	65.62	365.1	113.21
MEAN	5.96	2.68	2.70	18.5	30.7	23.8	33.3	35.7	10.5	2.12	11.8	3.77
MAX	147	26	8.7	173	320	279	348	528	214	8.8	164	28
MIN	.60	1.1	1.1	1.4	2.0	3.7	4.2	1.7	.99	.95	1.2	.94
AC-FT	366	159	166	1140	1700	1460	1980	2200	623	130	724	225

CAL YR 1989 TOTAL 6194.51 MEAN 17.0 MAX 532 MIN .60 AC-FT 12290
WTR YR 1990 TOTAL 5482.80 MEAN 15.0 MAX 528 MIN .60 AC-FT 10880

08057000 TRINITY RIVER AT DALLAS, TX

LOCATION.--Lat 32°46'29", long 96°49'18", Dallas County, Hydrologic Unit 12030105, on right bank (levee) 90 ft downstream from Commerce Street viaduct in Dallas, 5.2 mi downstream from confluence of West and Elm Forks, and at mile 500.3.

DRAINAGE AREA.--6,106 mi².

PERIOD OF RECORD.--October 1898 to December 1899 (gage heights only published in WSP 28 and 37), July 1903 to current year.

REVISED RECORDS.--WSP 850: 1903-6 (monthly and annual means). WSP 1732: 1937(M). WSP 1922: Drainage area. WDR TX-73-1: 1972.

GAGE.--Water-stage recorder. Datum of gage is 368.02 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1898, to Dec. 31, 1899, nonrecording gage at site 2 mi upstream at different datum. July 1, 1903, to July 20, 1930, non-recording gage at present site and datum. July 21, 1930, to Sept. 30, 1932, nonrecording gage at site 6 mi downstream at datum 3.08 ft lower.

REMARKS.--Records good, except those for estimated daily discharges, which are poor. At times, flow is affected by storage in seven upstream reservoirs, combined capacity 1,703,000 acre-ft, of which 846,200 acre-ft is for flood control. The city of Dallas diverts water for municipal use from Elm Fork, Lake Ray Hubbard (on the East Fork), and Lake Tawakoni (on the Sabine River), and purchases water from North Texas Municipal Water District (from the East Fork). Sewage effluent is returned to the river downstream from this station. The Trinity River Authority discharges sewage effluent into the river upstream from this station. For additional information on diversions and effluent returns for this station, see stations 08048000, 08049200, and 08049500. Several observations of water temperature were made during the year. Gage-height telemeters at station.

AVERAGE DISCHARGE.--87 years, 1,596 ft³/s (1,156,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 184,000 ft³/s May 25, 1908 (gage height, 52.6 ft), from rating curve extended above 109,000 ft³/s; minimum observed for periods 1903-6, 1920-75, 1.2 ft³/s July 4, 1953, result of storage behind temporary dam 4 mi 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 as that of May 25, 1908.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 82,300 ft³/s May 3 at 1845 hours (gage height, 47.10 ft); minimum daily, 311 ft³/s Sept. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	378	603	347	552	9490	1260	4050	20600	14300	6120	4870	e381
2	361	455	346	430	14900	607	4600	36500	15500	5930	5090	e366
3	360	421	353	459	5950	470	5290	72100	10300	5850	5510	e352
4	354	408	359	705	2310	432	5420	67600	10400	5850	6860	e321
5	361	393	360	534	944	432	5160	60300	11900	5840	7920	e313
6	366	394	350	429	770	463	6630	57500	12700	5940	9520	e311
7	385	392	339	414	758	2170	7220	51000	12900	5950	6850	e311
8	350	448	340	398	1100	3220	5830	44600	12800	1300	5750	e321
9	348	473	356	389	680	1100	5410	40000	12900	1200	5260	e321
10	348	394	368	382	1470	791	6230	36600	12900	1050	4950	517
11	338	349	355	377	947	3900	5850	34100	12600	960	4760	642
12	350	347	347	377	850	10400	5540	33000	12100	1000	4320	e536
13	354	363	352	375	578	9130	5650	31200	11400	1150	3590	e477
14	340	359	357	380	542	7120	8680	29200	10100	885	3310	e437
15	336	359	363	387	585	7670	e12500	27000	8740	796	3120	e421
16	338	351	375	410	781	4810	11500	24000	8480	817	2680	e398
17	331	353	368	510	553	3270	6670	20800	8160	1430	2350	379
18	364	341	367	2040	449	3090	4660	17700	8290	3360	2010	506
19	382	353	365	7820	460	3550	3970	14500	8080	4700	1940	450
20	337	361	375	7590	429	4460	4860	13100	7680	4990	1930	425
21	334	368	370	2580	1010	5200	8440	12200	7480	5050	1570	502
22	322	633	368	853	2030	5180	8290	12200	7070	5110	1200	465
23	334	609	374	619	1340	5370	8240	12700	6880	5680	785	414
24	337	438	409	516	580	5240	9510	13000	6910	5780	545	381
25	322	399	453	456	474	6070	9780	12900	6950	6120	609	376
26	332	392	530	448	444	e6450	19100	12700	7020	5500	e489	354
27	317	373	538	459	428	e6180	28900	12600	6900	5150	e437	351
28	334	360	465	474	970	8630	26000	12500	6800	5000	e411	349
29	326	360	449	472	---	9470	23200	12400	6700	4910	e387	344
30	2390	352	465	422	---	8440	22000	12600	6440	4880	e444	333
31	1850	---	644	598	---	4980	---	12300	---	4860	e425	---
TOTAL	14279	12201	12207	32855	51822	139555	289180	869500	291380	123158	99892	12054
MEAN	461	407	394	1060	1851	4502	9639	28050	9713	3973	3222	402
MAX	2390	633	644	7820	14900	10400	28900	72100	15500	6120	9520	642
MIN	317	341	339	375	428	432	3970	12200	6440	796	387	311
AC-FT	28320	24200	24210	65170	102800	276800	573600	1725000	578000	244300	198100	23910

CAL YR 1989 TOTAL 1441192 MEAN 3948 MAX 43000 MIN 317 AC-FT 2859000
WTR YR 1990 TOTAL 1948083 MEAN 5337 MAX 72100 MIN 311 AC-FT 3864000

e Estimated

08057055 TRINITY RIVER AT CEDAR CREST BOULEVARD, DALLAS, TX

LOCATION.--Lat 32°45'04", long 96°47'07", Dallas County, Hydrologic Unit 12030105, on right bank at abandoned bridge abutment, 0.2 mi upstream from Cedar Crest Blvd. bridge, 1.8 mi southeast of Dallas City Hall, 2.1 mi downstream from Coombs Creek, and 2.7 mi downstream from Commerce Street Bridge (station 08057000).

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: February 1984 to current year.
pH: February 1984 to current year.
WATER TEMPERATURES: February 1984 to current year.
DISSOLVED OXYGEN: February 1984 to current year.

INSTRUMENTATION.--Since February 1984, a four-parameter water-quality monitor records temperature, DO, pH, and specific conductance continuously at this station.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. Where maximum or minimum specific conductance values are not shown, mean value is estimated. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request. Records of discharge are given for gaging station 08057000. No appreciable inflow between the two stations.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 1,030 microsiemens Feb. 12, 1988; minimum, 93 microsiemens Oct. 20, 1984.
pH: Maximum, 8.6 units Oct. 20, 1984; minimum, 6.8 units Sept. 6, 1988.
WATER TEMPERATURE: Maximum, 33.5°C Aug. 12, 1987; minimum, 5.0°C Feb. 7, 8, 1989.
DISSOLVED OXYGEN: Maximum, 13.7 mg/L Feb. 8, 1989; minimum, 0.0 mg/L July 21, 1985.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 841 microsiemens Jan. 31; minimum, 169 microsiemens Oct. 30.
pH: Maximum, 8.3 units Feb. 14; minimum, 7.1 units Oct. 6, Jan. 19, Sept. 30.
WATER TEMPERATURE: Maximum, 32.5°C Aug. 31; minimum, 5.5°C Dec. 23.
DISSOLVED OXYGEN: Maximum, 10.9 mg/L Dec. 23; minimum, 2.4 mg/L Oct. 15.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
NOV 14...	1435	594	762	7.8	22.0	7.4	86	0.9	170	23
JAN 25...	1255	792	733	7.6	14.0	9.3	90	4.8	190	53
APR 12...	1405	6910	411	8.2	16.0	9.7	98	2.2	160	29
JUN 15...	0950	9900	332	8.0	25.5	7.5	93	1.4	130	15
JUL 27...	1005	4870	324	8.0	26.5	7.9	99	2.9	120	13
SEP 13...	1610	800	689	7.6	28.5	6.7	87	3.2	150	34

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV 14...	55	6.9	91	3	11	140	85	74	1.1
JAN 25...	66	6.3	73	2	9.4	140	96	62	0.80
APR 12...	53	5.7	24	0.8	4.4	130	43	22	0.30
JUN 15...	45	4.5	16	0.6	3.8	120	25	16	0.50
JUL 27...	43	4.2	18	0.7	4.4	110	25	18	0.30
SEP 13...	52	5.8	72	3	9.6	120	73	68	1.0

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 14...	10	420	8.94	0.060	9.00	0.130	0.97	1.1	4.30
JAN 25...	9.1	405	6.28	0.620	6.90	0.620	1.5	2.1	2.90
APR 12...	5.4	234	0.870	0.030	0.900	0.030	0.67	0.70	0.170
JUN 15...	6.8	187	0.630	0.070	0.700	0.080	0.42	0.50	0.120
JUL 27...	6.0	186	0.570	0.030	0.600	0.050	0.45	0.50	0.180
SEP 13...	11	364	8.34	0.060	8.40	0.080	1.2	1.3	1.90

08057055 TRINITY RIVER AT CEDAR CREST BOULEVARD, DALLAS, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1989	14279	675	379	14600	62	2390	81	3120	160
NOV.	1989	12201	687	386	12700	63	2080	82	2720	170
DEC.	1989	12207	731	409	13500	69	2260	88	2890	170
JAN.	1990	32855	493	282	25000	40	3530	59	5240	140
FEB.	1990	51822	458	263	36800	35	4950	55	7670	140
MAR.	1990	139555	353	207	78100	22	8480	42	15900	120
APR.	1990	289180	384	225	176000	25	19700	46	35800	130
MAY	1990	869500	314	185	435000	19	44100	37	87900	110
JUNE	1990	291380	344	203	159000	21	16800	41	32300	120
JULY	1990	123158	350	206	68300	22	7350	42	13900	120
AUG.	1990	99892	352	206	55600	23	6080	42	11300	120
SEPT	1990	12054	730	409	13300	68	2230	88	2850	170
TOTAL		1948083	**	**	1088000	**	120000	**	222000	**
WTD.AVG.		5337	353	207	**	23	**	42	**	120

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	771	721	751	535	413	480	---	---	e760	732	692	719
2	770	720	746	620	541	576	---	---	e790	723	704	713
3	775	754	764	679	624	660	---	---	e790	738	656	720
4	809	761	787	719	670	697	---	---	e800	656	634	646
5	790	764	774	758	715	740	---	---	e810	676	639	653
6	804	774	787	762	743	750	---	---	e800	700	681	691
7	785	750	766	769	732	747	---	---	e790	719	700	707
8	805	765	784	771	664	733	---	---	e790	741	718	727
9	800	780	791	667	643	656	---	---	e780	794	739	758
10	790	768	780	736	670	692	---	---	e760	778	759	769
11	794	775	788	819	743	783	---	---	e740	805	761	775
12	798	771	784	819	795	806	---	---	e740	789	780	783
13	790	750	770	796	772	785	---	---	e740	801	784	792
14	809	791	798	791	767	781	743	713	720	831	801	813
15	815	790	803	819	781	800	761	740	753	830	810	819
16	811	804	807	799	775	786	732	693	708	825	764	800
17	839	801	820	805	789	799	738	725	733	791	561	739
18	809	711	765	814	801	806	738	716	729	751	214	566
19	791	745	760	821	809	815	758	739	745	368	260	302
20	805	760	792	809	788	798	759	722	739	335	300	313
21	799	789	793	794	765	783	745	720	729	470	340	407
22	794	784	788	---	---	e800	761	744	755	580	481	539
23	784	771	776	---	---	e450	762	727	746	641	554	609
24	769	755	762	---	---	e360	749	715	732	691	629	658
25	775	764	771	---	---	e420	719	659	689	749	694	723
26	770	744	758	---	---	e620	664	619	649	789	749	767
27	769	746	760	---	---	e680	652	602	625	799	772	786
28	781	760	771	---	---	e710	668	652	661	800	757	781
29	774	761	769	---	---	e720	692	664	675	795	758	774
30	765	169	445	---	---	e730	751	680	698	838	800	827
31	468	386	413	---	---	---	696	669	681	841	373	734
MONTH	839	169	756	821	413	699	762	602	737	841	214	691

e Estimated

08057055 TRINITY RIVER AT CEDAR CREST BOULEVARD, DALLAS, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	661	263	396	---	---	e640	---	---	e400	385	376	381
2	296	240	261	---	---	e670	---	---	e410	---	---	e310
3	414	289	340	---	---	e700	---	---	e420	---	---	e280
4	522	423	481	---	---	e710	---	---	e400	---	---	e250
5	614	530	584	---	---	e610	---	---	e400	---	---	e270
6	669	600	641	---	---	e410	418	401	408	---	---	e290
7	718	661	691	---	---	e330	440	370	413	322	296	304
8	700	585	610	---	---	e450	382	363	373	342	322	333
9	742	644	718	---	---	e380	399	375	390	350	342	347
10	720	626	659	---	---	e290	413	403	407	347	342	344
11	709	659	695	---	---	e280	420	413	416	343	333	337
12	723	650	704	---	---	e260	421	415	418	334	330	333
13	745	652	701	---	---	e290	424	418	420	338	331	334
14	745	730	738	---	---	e310	454	417	438	334	331	333
15	764	731	747	---	---	e330	437	406	424	347	333	337
16	774	569	713	---	---	e310	450	437	445	360	321	334
17	814	574	720	---	---	e320	---	---	e450	341	315	329
18	834	789	811	---	---	e360	446	442	444	325	284	301
19	810	749	790	---	---	e380	443	436	439	321	290	303
20	831	740	799	---	---	e380	437	419	429	341	319	329
21	815	441	687	---	---	e390	428	414	420	351	339	345
22	621	521	582	---	---	e400	421	314	394	351	340	348
23	620	515	558	---	---	e400	393	354	381	350	340	346
24	721	625	680	---	---	e360	381	333	355	344	310	326
25	765	728	754	---	---	e380	345	328	336	324	319	322
26	791	760	779	---	---	e380	346	330	338	319	310	314
27	811	790	800	---	---	e340	344	330	336	---	---	e325
28	815	555	697	---	---	e340	356	339	347	---	---	e330
29	---	---	---	---	---	e350	371	351	362	---	---	e340
30	---	---	---	---	---	e370	377	371	373	---	---	e350
31	---	---	---	---	---	e390	---	---	---	---	---	e350
MONTH	834	240	655	---	---	404	454	314	400	385	284	325

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	e350	---	---	e340	329	326	328	827	761	795
2	---	---	e330	---	---	e330	373	324	341	811	765	787
3	---	---	e310	---	---	e330	373	319	345	775	749	758
4	---	---	e330	---	---	e330	329	263	309	767	741	754
5	---	---	e350	---	---	e330	365	281	326	769	732	749
6	---	---	e350	---	---	e340	326	281	298	771	745	754
7	---	---	e350	---	---	e340	312	301	308	779	751	767
8	---	---	e350	---	---	e340	321	310	317	783	762	771
9	---	---	e350	---	---	e400	331	318	326	771	732	761
10	---	---	e350	---	---	e480	332	325	330	764	489	676
11	---	---	e350	---	---	e580	335	324	331	721	590	640
12	---	---	e350	---	---	e600	354	331	342	677	651	665
13	---	---	e350	---	---	e570	354	350	352	679	666	672
14	---	---	e350	---	---	e550	354	349	351	715	684	702
15	---	---	e350	---	---	e570	365	349	356	772	709	743
16	---	---	e350	---	---	e570	371	363	367	799	754	773
17	---	---	e350	---	---	e500	399	369	382	768	728	743
18	---	---	e350	---	---	e370	400	393	396	750	600	666
19	---	---	e350	395	327	354	401	387	395	760	690	740
20	---	---	e350	343	330	337	396	381	388	752	724	736
21	---	---	e340	333	329	331	453	392	419	745	632	697
22	---	---	e340	332	328	330	481	444	460	752	645	704
23	---	---	e340	384	332	360	617	472	530	783	742	762
24	---	---	e340	351	316	333	707	639	671	741	701	718
25	---	---	e340	359	304	328	691	638	663	750	713	729
26	---	---	e340	332	322	327	731	685	713	753	703	727
27	---	---	e340	328	321	325	788	721	743	769	722	748
28	---	---	e340	331	325	328	795	763	783	780	763	770
29	---	---	e340	332	326	329	837	703	776	804	771	785
30	---	---	e340	337	327	332	698	666	685	824	803	817
31	---	---	---	332	328	330	779	669	721	---	---	---
MONTH	---	---	344	395	304	394	837	263	453	827	489	737

e Estimated

08057055 TRINITY RIVER AT CEDAR CREST BOULEVARD, DALLAS, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.5	7.4	7.5	7.9	7.8	7.9	---	---	---	7.7	7.6	7.7
2	7.6	7.4	7.5	7.9	7.7	7.9	---	---	---	7.8	7.7	7.8
3	7.6	7.3	7.5	7.9	7.7	7.8	---	---	---	8.0	7.7	7.8
4	8.0	7.5	7.8	7.6	7.2	7.5	---	---	---	8.1	7.8	8.0
5	8.0	7.8	8.0	7.4	7.2	7.3	---	---	---	7.8	7.6	7.7
6	7.7	7.1	7.4	7.7	7.3	7.6	---	---	---	7.7	7.6	7.7
7	---	---	---	---	---	---	---	---	---	7.7	7.6	7.7
8	---	---	---	---	---	---	---	---	---	7.7	7.6	7.7
9	---	---	---	8.1	7.8	8.0	---	---	---	7.7	7.6	7.7
10	---	---	---	7.9	7.7	7.8	---	---	---	7.7	7.3	7.6
11	---	---	---	---	---	---	---	---	---	7.7	7.3	7.6
12	---	---	---	---	---	---	---	---	---	7.7	7.5	7.7
13	---	---	---	---	---	---	---	---	---	7.7	7.4	7.7
14	---	---	---	---	---	---	7.8	7.8	7.8	7.7	7.4	7.6
15	---	---	---	---	---	---	7.9	7.8	7.9	7.7	7.4	7.6
16	---	---	---	---	---	---	8.0	7.9	7.9	7.6	7.3	7.5
17	---	---	---	---	---	---	7.9	7.8	7.9	7.5	7.4	7.4
18	7.7	7.6	7.6	7.9	7.8	7.9	7.9	7.8	7.9	7.7	7.2	7.4
19	7.6	7.5	7.6	7.8	7.5	7.7	7.9	7.8	7.9	7.5	7.1	7.3
20	7.6	7.4	7.5	7.6	7.4	7.5	7.9	7.8	7.8	7.8	7.4	7.6
21	---	---	---	7.6	7.2	7.4	7.9	7.8	7.8	7.7	7.4	7.5
22	---	---	---	---	---	---	8.0	7.9	7.9	---	---	---
23	---	---	---	---	---	---	8.0	7.9	7.9	---	---	---
24	---	---	---	---	---	---	7.9	7.8	7.9	---	---	---
25	---	---	---	---	---	---	7.9	7.8	7.8	---	---	---
26	---	---	---	---	---	---	7.9	7.7	7.9	---	---	---
27	---	---	---	---	---	---	7.9	7.7	7.9	---	---	---
28	7.8	7.5	7.7	---	---	---	7.9	7.8	7.8	---	---	---
29	7.6	7.4	7.5	---	---	---	7.8	7.7	7.7	---	---	---
30	8.1	7.3	7.8	---	---	---	7.7	7.7	7.7	---	---	---
31	8.0	7.8	8.0	---	---	---	7.8	7.7	7.7	---	---	---
MONTH	8.1	7.1	7.6	8.1	7.2	7.7	8.0	7.7	7.8	8.1	7.1	7.6
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	---	---	---	7.9	7.7	7.9
2	---	---	---	---	---	---	---	---	---	7.9	7.8	7.8
3	---	---	---	---	---	---	---	---	---	7.9	7.8	7.9
4	---	---	---	---	---	---	---	---	---	7.9	7.7	7.8
5	---	---	---	---	---	---	---	---	---	7.8	7.7	7.7
6	---	---	---	---	---	---	---	---	---	7.8	7.7	7.8
7	---	---	---	---	---	---	8.1	7.5	7.9	7.8	7.7	7.7
8	---	---	---	---	---	---	7.9	7.9	7.9	7.8	7.7	7.8
9	---	---	---	---	---	---	8.0	7.9	8.0	7.9	7.8	7.8
10	---	---	---	---	---	---	8.0	8.0	8.0	7.9	7.9	7.9
11	---	---	---	---	---	---	8.1	8.0	8.1	8.0	7.9	8.0
12	---	---	---	---	---	---	8.1	8.0	8.0	8.0	7.9	8.0
13	---	---	---	---	---	---	8.1	8.0	8.0	8.0	8.0	8.0
14	8.3	7.8	8.0	---	---	---	8.1	7.9	8.0	8.0	7.9	8.0
15	---	---	---	---	---	---	8.0	8.0	8.0	8.1	8.0	8.0
16	---	---	---	---	---	---	8.0	7.9	8.0	8.0	7.9	8.0
17	8.1	7.4	7.7	---	---	---	8.0	7.9	8.0	7.9	7.8	7.9
18	7.5	7.4	7.4	---	---	---	8.1	8.0	8.0	7.8	7.5	7.7
19	7.5	7.3	7.4	---	---	---	8.1	8.0	8.1	7.7	7.5	7.6
20	7.6	7.5	7.5	---	---	---	8.1	8.0	8.1	7.6	7.4	7.5
21	7.9	7.5	7.6	---	---	---	8.1	7.9	8.0	7.8	7.3	7.6
22	7.6	7.5	7.6	---	---	---	8.0	7.8	7.9	7.8	7.4	7.6
23	7.8	7.5	7.6	---	---	---	8.0	7.9	8.0	7.5	7.4	7.4
24	7.6	7.5	7.6	---	---	---	7.9	7.7	7.8	7.8	7.4	7.5
25	7.5	7.4	7.4	---	---	---	7.8	7.7	7.8	7.5	7.4	7.5
26	7.5	7.4	7.5	---	---	---	7.8	7.7	7.8	7.5	7.4	7.5
27	7.8	7.4	7.6	---	---	---	7.8	7.8	7.8	7.9	7.4	7.8
28	7.9	7.6	7.7	---	---	---	7.9	7.8	7.9	---	---	---
29	---	---	---	---	---	---	7.8	7.8	7.8	---	---	---
30	---	---	---	---	---	---	7.9	7.8	7.9	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	8.3	7.3	7.6	---	---	---	8.1	7.5	7.9	8.1	7.3	7.8

08057055 TRINITY RIVER AT CEDAR CREST BOULEVARD, DALLAS, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	---	---	---	8.1	8.1	8.1	7.7	7.6	7.7
2	---	---	---	---	---	---	8.1	8.0	8.1	7.8	7.6	7.7
3	---	---	---	---	---	---	8.0	8.0	8.0	7.8	7.6	7.7
4	---	---	---	---	---	---	8.0	7.8	7.9	7.8	7.6	7.7
5	---	---	---	---	---	---	7.9	7.8	7.8	7.7	7.6	7.7
6	---	---	---	---	---	---	8.0	7.8	7.9	7.7	7.5	7.6
7	---	---	---	---	---	---	8.0	7.9	8.0	7.6	7.5	7.6
8	---	---	---	---	---	---	8.1	8.0	8.1	7.6	7.5	7.5
9	---	---	---	---	---	---	8.1	7.9	8.1	7.6	7.4	7.5
10	---	---	---	---	---	---	8.0	7.9	7.9	7.5	7.4	7.5
11	---	---	---	---	---	---	7.9	7.9	7.9	7.5	7.3	7.4
12	---	---	---	---	---	---	7.9	7.9	7.9	7.5	7.3	7.4
13	---	---	---	---	---	---	7.9	7.9	7.9	7.8	7.4	7.6
14	---	---	---	---	---	---	7.9	7.9	7.9	7.9	7.7	7.8
15	---	---	---	---	---	---	7.9	7.9	7.9	7.8	7.5	7.7
16	---	---	---	---	---	---	7.9	7.9	7.9	7.6	7.4	7.5
17	---	---	---	---	---	---	7.9	7.9	7.9	7.5	7.3	7.4
18	---	---	---	---	---	---	7.9	7.8	7.9	7.5	7.4	7.4
19	---	---	---	7.9	7.4	7.8	7.9	7.8	7.8	7.6	7.5	7.5
20	---	---	---	8.0	7.8	7.9	7.9	7.8	7.8	7.8	7.6	7.7
21	---	---	---	8.0	7.9	8.0	7.8	7.8	7.8	7.8	7.7	7.8
22	---	---	---	8.1	8.0	8.0	7.9	7.8	7.8	7.9	7.7	7.8
23	---	---	---	8.0	7.9	8.0	7.8	7.6	7.7	7.9	7.8	7.9
24	---	---	---	8.0	8.0	8.0	7.8	7.6	7.7	7.9	7.7	7.8
25	---	---	---	8.0	7.9	7.9	7.8	7.6	7.7	7.8	7.7	7.8
26	---	---	---	8.1	7.9	8.0	7.7	7.5	7.6	7.8	7.5	7.7
27	---	---	---	8.1	8.0	8.1	7.6	7.4	7.5	7.8	7.5	7.7
28	---	---	---	8.2	8.1	8.1	7.7	7.6	7.6	7.8	7.7	7.7
29	---	---	---	8.2	8.1	8.1	7.7	7.5	7.6	7.7	7.5	7.6
30	---	---	---	8.1	8.1	8.1	7.7	7.5	7.6	7.4	7.1	7.3
31	---	---	---	8.1	8.1	8.1	7.7	7.5	7.6	---	---	---
MONTH	---	---	---	8.2	7.4	8.0	8.1	7.4	7.8	7.9	7.1	7.6

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	26.0	23.0	24.5	18.5	17.5	18.0	---	---	---	12.0	10.5	11.0
2	27.0	23.5	25.0	18.5	17.0	17.5	---	---	---	12.5	10.0	11.0
3	27.0	24.5	25.5	18.5	16.5	17.5	---	---	---	14.0	12.0	13.0
4	27.0	24.5	26.0	19.0	16.5	17.5	---	---	---	13.5	11.5	12.0
5	27.0	25.0	26.0	21.0	18.0	19.5	---	---	---	13.0	12.0	12.5
6	26.5	25.0	26.0	23.0	20.0	21.5	---	---	---	13.0	12.0	12.5
7	25.0	23.5	24.5	23.0	21.5	22.0	---	---	---	14.0	12.0	12.5
8	25.5	22.5	23.5	22.0	19.5	21.5	---	---	---	15.0	12.0	13.0
9	25.0	22.0	23.5	19.5	18.0	19.0	---	---	---	15.0	13.0	14.0
10	25.5	22.5	24.0	20.0	18.0	19.0	---	---	---	15.5	13.0	14.5
11	25.5	22.5	24.0	21.0	18.5	19.5	---	---	---	16.0	14.0	15.0
12	25.5	22.5	24.0	22.0	19.0	20.5	---	---	---	14.5	13.0	13.5
13	25.5	22.5	24.0	22.0	20.0	21.0	---	---	---	13.5	12.0	13.0
14	26.0	23.5	24.5	23.0	20.5	21.5	14.0	11.5	12.5	15.5	12.5	14.0
15	26.0	23.5	25.0	21.5	18.5	20.5	13.0	10.0	11.5	17.0	14.5	15.5
16	27.0	24.5	25.5	18.5	17.0	17.5	10.0	8.0	9.0	17.5	16.0	16.5
17	24.0	20.5	22.0	17.0	16.0	16.5	11.5	9.5	10.5	17.5	17.0	17.5
18	20.5	18.5	20.0	17.0	16.0	16.5	11.0	10.0	10.5	17.5	13.5	16.0
19	19.0	17.5	18.0	19.0	16.0	17.5	11.5	9.5	10.5	13.5	13.0	13.0
20	20.0	17.0	18.5	20.5	17.5	19.0	12.0	9.5	11.0	13.0	13.0	13.0
21	20.5	17.5	19.0	---	---	---	11.0	8.5	10.5	13.5	12.5	13.0
22	22.0	19.0	20.5	---	---	---	8.5	6.5	7.0	14.5	13.0	13.5
23	23.5	20.5	22.0	---	---	---	9.0	5.5	7.0	14.5	14.0	14.5
24	23.5	22.0	23.0	---	---	---	10.0	7.0	8.5	16.0	14.0	15.0
25	24.0	22.5	23.0	---	---	---	10.5	8.0	9.0	14.0	12.5	13.5
26	23.5	22.0	23.0	---	---	---	11.5	9.0	10.0	14.0	13.0	13.5
27	23.5	22.0	23.0	---	---	---	11.0	9.5	10.0	15.0	13.0	13.5
28	23.0	22.0	22.5	---	---	---	12.0	10.0	10.5	14.0	12.5	13.5
29	23.5	21.5	22.5	---	---	---	14.0	11.5	12.5	14.0	12.0	12.5
30	22.5	17.5	19.5	---	---	---	12.5	11.0	12.0	14.5	12.5	13.5
31	18.5	17.5	18.0	---	---	---	11.0	10.0	10.5	14.0	12.5	13.0
MONTH	27.0	17.0	23.0	23.0	16.0	19.0	14.0	5.5	10.0	17.5	10.0	13.5

08057055 TRINITY RIVER AT CEDAR CREST BOULEVARD, DALLAS, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

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

08057055 TRINITY RIVER AT CEDAR CREST BOULEVARD, DALLAS, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.0	6.5	6.7	7.1	5.3	6.5	---	---	---	9.8	9.1	9.5
2	7.0	6.5	6.8	7.6	6.5	7.2	---	---	---	10.2	9.8	10.0
3	7.1	6.5	6.8	7.6	7.5	7.6	---	---	---	9.9	7.8	9.4
4	7.1	6.6	6.8	7.7	7.5	7.6	---	---	---	9.4	8.5	9.1
5	7.0	3.7	5.6	7.6	7.3	7.5	---	---	---	9.2	8.7	9.0
6	4.7	3.0	3.6	7.3	4.7	6.4	---	---	---	9.5	9.1	9.3
7	6.9	2.8	4.5	7.0	3.1	5.8	9.0	8.0	8.7	9.4	9.1	9.3
8	7.2	6.2	6.9	6.7	3.8	4.9	9.1	8.7	8.9	9.2	7.2	8.8
9	7.4	6.7	7.0	7.8	5.5	7.0	10.1	9.0	9.3	9.0	6.6	8.5
10	7.4	5.9	6.9	---	---	---	10.1	9.2	9.7	---	---	---
11	7.3	6.6	6.9	---	---	---	10.1	9.7	9.8	---	---	---
12	7.1	6.5	6.8	---	---	---	9.9	9.6	9.8	---	---	---
13	7.0	3.5	6.2	---	---	---	9.9	9.1	9.6	---	---	---
14	6.4	3.6	5.4	---	---	---	9.5	9.0	9.2	---	---	---
15	6.7	2.4	5.2	7.7	6.9	7.3	9.5	9.0	9.2	---	---	---
16	5.8	3.5	4.8	8.0	7.3	7.6	9.9	9.5	9.8	---	---	---
17	7.4	5.4	7.0	8.0	7.6	7.8	9.7	9.4	9.6	---	---	---
18	7.6	6.4	7.1	8.0	7.7	7.8	9.6	9.4	9.5	---	---	---
19	8.1	7.4	7.7	8.1	7.9	8.0	9.6	9.3	9.5	9.9	8.6	9.2
20	8.1	7.9	8.0	8.0	7.7	7.9	9.6	9.2	9.4	9.2	8.7	8.9
21	8.0	7.9	7.9	9.4	7.6	8.3	9.8	9.1	9.5	9.5	9.1	9.3
22	8.0	7.8	7.9	---	---	---	10.7	9.7	10.3	---	---	---
23	7.8	7.5	7.7	---	---	---	10.9	10.5	10.7	---	---	---
24	7.7	7.4	7.5	---	---	---	10.6	10.3	10.5	---	---	---
25	7.7	7.3	7.5	---	---	---	10.6	10.4	10.5	9.4	8.5	9.0
26	7.7	7.0	7.4	---	---	---	10.6	9.9	10.4	9.3	9.1	9.1
27	7.1	6.7	6.9	---	---	---	10.6	10.0	10.4	9.2	8.8	8.9
28	7.0	6.7	6.9	---	---	---	10.4	10.1	10.3	9.0	8.8	8.9
29	7.1	6.7	6.9	---	---	---	10.0	9.7	9.9	9.1	8.8	9.0
30	8.0	6.6	7.1	---	---	---	9.9	8.9	9.5	9.0	8.8	8.8
31	6.9	5.9	6.3	---	---	---	10.0	7.9	9.4	9.3	8.4	8.9
MONTH	8.1	2.4	6.7	9.4	3.1	7.2	10.9	7.9	9.7	10.2	6.6	9.1
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	9.7	8.8	9.3	---	---	---	---	---	---	7.8	7.7	7.7
2	8.7	8.2	8.3	---	---	---	---	---	---	7.8	7.5	7.7
3	9.0	8.2	8.6	---	---	---	---	---	---	8.1	7.8	8.0
4	9.2	8.9	9.1	---	---	---	---	---	---	8.1	7.8	7.9
5	9.4	9.1	9.3	---	---	---	---	---	---	7.8	7.4	7.7
6	9.5	9.2	9.3	---	---	---	9.6	9.2	9.3	7.8	7.3	7.6
7	9.5	8.8	9.1	---	---	---	9.2	7.8	8.6	7.4	7.3	7.4
8	9.7	8.8	9.5	---	---	---	8.5	8.1	8.2	7.4	7.3	7.3
9	8.7	7.6	8.3	---	---	---	9.1	8.4	8.8	7.7	7.4	7.5
10	9.3	6.8	8.5	---	---	---	9.2	9.1	9.1	7.9	7.7	7.8
11	9.1	6.3	8.3	---	---	---	9.4	9.2	9.3	7.9	7.8	7.8
12	---	---	---	---	---	---	9.4	9.3	9.3	7.9	7.9	7.9
13	---	---	---	---	---	---	9.4	9.3	9.4	8.0	7.6	7.8
14	8.1	7.8	8.0	---	---	---	9.3	8.6	9.0	8.1	7.7	8.0
15	8.7	7.6	8.2	---	---	---	9.1	8.8	9.0	8.1	7.8	8.0
16	10.0	8.7	9.0	---	---	---	9.0	8.8	8.9	7.9	7.3	7.7
17	9.8	9.0	9.2	---	---	---	9.2	8.9	9.0	7.3	6.6	7.0
18	9.0	8.8	8.9	---	---	---	9.1	9.0	9.1	6.6	6.3	6.4
19	8.8	8.7	8.7	---	---	---	9.3	9.1	9.2	6.3	6.2	6.2
20	8.7	8.4	8.6	---	---	---	9.2	9.1	9.1	6.4	6.1	6.2
21	9.2	8.0	8.6	---	---	---	9.1	8.9	9.0	6.4	6.4	6.4
22	9.5	8.8	9.1	---	---	---	8.9	8.6	8.8	6.4	6.3	6.4
23	9.7	9.0	9.4	---	---	---	8.5	7.7	8.1	6.4	6.2	6.3
24	9.2	8.7	9.0	---	---	---	7.7	7.1	7.3	6.4	6.2	6.3
25	8.7	8.4	8.6	---	---	---	7.5	7.2	7.4	6.6	6.4	6.5
26	8.4	8.2	8.3	---	---	---	7.5	7.3	7.4	6.7	6.6	6.6
27	8.6	8.0	8.3	---	---	---	7.7	7.4	7.6	7.3	6.8	7.0
28	9.2	8.0	8.5	---	---	---	7.7	7.5	7.6	---	---	---
29	---	---	---	---	---	---	7.6	7.4	7.5	---	---	---
30	---	---	---	---	---	---	7.7	7.4	7.5	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	10.0	6.3	8.8	---	---	---	9.6	7.1	8.5	8.1	6.1	7.2

08057055 TRINITY RIVER AT CEDAR CREST BOULEVARD, DALLAS, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	---	---	---	7.7	7.5	7.5	6.8	5.0	6.1
2	---	---	---	---	---	---	7.8	7.3	7.6	7.4	5.5	6.6
3	---	---	---	---	---	---	7.5	7.2	7.4	7.7	6.1	6.8
4	---	---	---	---	---	---	7.4	5.8	6.9	7.7	6.2	6.8
5	---	---	---	---	---	---	6.9	6.2	6.7	7.8	6.1	6.9
6	---	---	---	---	---	---	6.7	5.7	6.3	7.6	6.3	6.8
7	---	---	---	---	---	---	7.8	6.8	7.3	7.2	6.2	6.6
8	---	---	---	---	---	---	8.1	7.6	7.8	6.7	5.0	6.2
9	---	---	---	---	---	---	7.9	7.7	7.8	6.0	5.1	5.6
10	---	---	---	---	---	---	7.8	7.6	7.7	5.8	4.2	5.2
11	---	---	---	---	---	---	7.7	7.4	7.6	6.0	4.9	5.6
12	---	---	---	---	---	---	7.6	7.3	7.4	6.4	5.5	6.1
13	---	---	---	---	---	---	7.8	7.1	7.4	6.6	5.6	6.3
14	---	---	---	---	---	---	7.7	7.3	7.5	6.4	5.9	6.2
15	---	---	---	---	---	---	8.0	7.3	7.6	6.5	6.0	6.2
16	---	---	---	---	---	---	7.7	7.4	7.5	7.0	5.9	6.5
17	---	---	---	---	---	---	7.7	7.3	7.5	8.1	6.0	6.9
18	---	---	---	---	---	---	7.7	7.1	7.4	7.0	6.2	6.6
19	---	---	---	8.0	7.6	7.8	7.7	7.3	7.5	6.6	6.2	6.4
20	---	---	---	7.8	7.7	7.7	8.0	7.4	7.7	6.6	6.0	6.3
21	---	---	---	7.9	7.7	7.8	7.7	7.3	7.5	6.3	4.7	6.0
22	---	---	---	7.9	7.7	7.8	7.8	7.2	7.4	6.3	5.5	6.0
23	---	---	---	7.7	7.3	7.5	7.2	5.7	6.7	6.6	6.0	6.3
24	---	---	---	7.6	7.3	7.5	6.1	5.2	5.9	7.0	6.2	6.6
25	---	---	---	7.5	7.1	7.3	6.1	5.7	6.0	7.0	6.3	6.6
26	---	---	---	7.6	7.4	7.5	6.2	5.7	6.0	6.9	6.3	6.5
27	---	---	---	7.7	7.4	7.5	6.5	5.5	6.0	6.7	6.2	6.4
28	---	---	---	7.7	7.5	7.6	6.7	5.0	6.1	6.2	5.2	5.7
29	---	---	---	7.8	7.4	7.6	6.5	5.4	5.9	6.1	5.4	5.7
30	---	---	---	7.8	7.5	7.6	6.5	5.8	6.2	6.5	5.5	5.9
31	---	---	---	7.8	7.4	7.6	6.6	5.5	6.1	---	---	---
MONTH	---	---	---	8.0	7.1	7.6	8.1	5.0	7.0	8.1	4.2	6.3

08057200 WHITE ROCK CREEK AT GREENVILLE AVENUE, DALLAS, TX

LOCATION.--Lat 32°53'21", long 96°45'23", Dallas County, Hydrologic Unit 12030105, on left bank 20 ft upstream from bridge on Greenville Avenue in Dallas, 1.1 mi downstream from Texas and New Orleans Railroad Co. bridge, 1.2 mi downstream from Cottonwood Creek, 2.9 mi upstream from White Rock Lake, and 8.2 mi northeast of Dallas County Courthouse.

DRAINAGE AREA.--66.4 mi².

PERIOD OF RECORD.--August 1961 to September 1980, April 1984 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 24, 1961, non-recording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. There is some regulation of low flow by diversions from small on channel dams upstream from station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--25 years (water years 1962-80, 85-90), 69.1 ft³/s (14.13 in/yr), 50,060 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,200 ft³/s May 2, 1990 (elevation, 490.59 ft); minimum daily, 0.01 ft³/s July 8, 1970, June 27, July 14, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation since at least 1886, that of May 2, 1990.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base discharge of 2,900 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Elevation (ft)	Date	Time	Discharge (ft³/s)	Elevation (ft)
Oct. 30	0800	3,480	482.91	April 14	Unknown	Unknown	Unknown
Jan. 19	1345	3,790	483.18	April 16	Unknown	Unknown	Unknown
Feb. 1	0730	23,700	488.92	April 26	1045	20,100	488.34
Mar. 11	1215	13,400	486.98	May 2	0130	*39,200	*490.59
Mar. 14	1215	20,300	488.37				

Minimum daily discharge, 3.0 ft³/s Sept. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	26	20	23	6630	91	150	130	e500	7.5	5.4	3.7
2	12	20	20	20	218	80	142	7940	e160	7.6	55	3.0
3	10	17	16	90	146	76	134	e4000	e90	6.2	557	4.3
4	12	19	16	49	96	74	128	e300	e70	4.7	300	3.8
5	10	19	17	28	84	80	189	e150	e50	12	397	5.3
6	28	17	20	26	77	90	223	e120	e35	50	115	4.6
7	18	17	18	19	70	466	124	e80	e28	26	51	4.9
8	13	14	20	17	66	163	116	e70	e25	5.5	38	42
9	12	11	21	16	104	130	e45	e73	e23	5.2	33	41
10	19	12	19	15	110	119	e70	e70	e21	3.9	34	49
11	10	17	17	15	66	2890	e1000	e67	e21	6.1	21	57
12	6.5	17	20	14	59	286	e80	e250	e20	46	18	51
13	6.5	19	19	13	56	171	e200	e80	e16	19	16	39
14	5.9	20	17	13	93	4550	e2000	e72	e15	10	16	20
15	8.1	12	20	15	105	226	e200	e67	14	7.4	12	16
16	8.2	13	19	48	55	172	e4000	e60	12	8.4	9.7	13
17	8.9	13	22	121	50	149	e220	e55	12	11	7.6	86
18	57	15	26	472	48	138	e130	e50	9.9	123	7.1	99
19	14	17	25	1280	51	130	217	e43	10	60	7.7	19
20	9.5	18	23	137	48	121	693	e35	9.4	19	6.2	50
21	11	18	24	83	270	114	227	e32	7.5	14	5.9	39
22	10	142	20	72	136	114	209	e30	7.8	32	35	16
23	9.7	38	19	60	100	117	123	e27	8.0	305	8.7	13
24	7.8	24	24	53	86	107	106	e25	34	354	6.8	11
25	9.4	21	34	44	81	343	130	e23	31	257	7.2	9.0
26	9.9	21	31	40	83	147	6300	e22	17	15	5.7	7.2
27	9.2	21	27	38	81	192	256	e21	11	11	6.0	7.7
28	11	18	23	54	164	512	174	e20	9.8	8.0	5.3	7.6
29	10	19	23	49	---	368	143	e20	9.1	6.1	4.1	7.9
30	614	21	66	37	---	187	115	e25	8.1	5.3	4.5	6.3
31	43	---	49	208	---	162	---	e300	---	4.8	4.7	---
TOTAL	1027.6	676	735	3169	9233	12565	17844	14257	1284.6	1450.7	1800.6	736.3
MEAN	33.1	22.5	23.7	102	330	405	595	460	42.8	46.8	58.1	24.5
MAX	614	142	66	1280	6630	4550	6300	7940	500	354	557	99
MIN	5.9	11	16	13	48	74	45	20	7.5	3.9	4.1	3.0
AC-FT	2040	1340	1460	6290	18310	24920	35390	28280	2550	2880	3570	1460

CAL YR 1989 TOTAL 62922.90 MEAN 172 MAX 10300 MIN 5.2 AC-FT 124800
WTR YR 1990 TOTAL 64778.8 MEAN 177 MAX 7940 MIN 3.0 AC-FT 128500

e Estimated

08057410 TRINITY RIVER BELOW DALLAS, TX

LOCATION.--Lat 32°42'26", long 96°44'08", Dallas County, Hydrologic Unit 12030105, on right bank at downstream side of bridge on South Loop Highway 12, 1.0 mi downstream from White Rock Creek, 1.5 mi upstream from Fivemile Creek, 6.4 mi southeast of Dallas County Courthouse in Dallas, and at mile 491.8.

DRAINAGE AREA.--6,278 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1956 to September 1961 (monthly records only), October 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 365.89 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good, except those for estimated daily discharges, which are fair. Flow is affected at times by eight upstream reservoirs with a combined capacity of 1,714,400 acre-ft, of which 846,200 acre-ft is for flood control. Several cities within the Dallas-Fort Worth 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.--33 years (water years 1958-90), 2,017 ft³/s (1,461,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 87,000 ft³/s May 4, 1990 (gage height, 34.79 ft); minimum daily, 131 ft³/s Dec. 9, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 25, 1908, reached a stage of 41.1 ft, from information by U.S. Army Corps of Engineers, and is the highest since that date. Floods in 1866 and 1908 reached about the same stage at Dallas.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 87,000 ft³/s May 4 at 0200 hours (gage height, 34.79 ft); minimum daily, 524 ft³/s Oct. 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	584	1130	587	887	6510	1770	4460	19800	13700	6090	4600	604
2	583	781	579	725	16900	1080	4790	32600	17300	5850	4710	579
3	571	684	585	720	11200	816	5530	67600	14300	5750	5330	567
4	574	635	592	1060	4530	756	5840	79200	12300	5720	6400	593
5	580	607	598	928	1470	731	5630	65000	12200	5720	8270	607
6	569	631	588	744	1120	726	6590	61700	12800	5770	10300	599
7	606	634	576	702	1020	1850	8390	57700	13300	5860	9050	600
8	558	672	585	681	1410	3560	7540	52300	13400	5670	6500	684
9	552	734	598	659	1000	1740	6380	46900	13500	3430	5250	726
10	552	663	590	656	1640	1180	6880	41800	13500	1040	4810	842
11	542	594	592	645	1390	2710	7220	37300	13300	924	4580	1030
12	548	609	612	659	1080	9850	6530	35000	12900	970	4160	890
13	563	596	598	642	972	14500	6180	32700	12400	1210	3510	787
14	544	594	600	618	851	12100	8910	30000	11700	1050	3220	755
15	537	576	602	632	974	14400	15700	27500	10800	957	3090	681
16	542	594	627	674	1060	10300	16200	25000	9780	967	2730	630
17	542	588	621	750	1000	6130	10700	22300	9210	1430	2470	625
18	610	571	630	2050	748	4540	6070	19500	8960	3030	2100	765
19	617	576	615	7110	760	4490	3910	16800	8810	4220	2020	758
20	569	587	630	9640	745	5270	4340	14700	8420	4720	1970	684
21	546	604	621	4770	881	6090	6900	13400	7860	4820	e1880	759
22	525	890	654	1510	2410	6670	8800	12700	7530	4840	e1600	732
23	525	998	660	978	1910	7170	8440	12900	7070	5300	e1350	680
24	540	715	695	844	1020	7290	9130	13200	6970	5650	e1000	631
25	528	648	760	776	833	6880	9730	13500	7030	5920	e900	616
26	535	643	811	764	777	8180	14000	13300	7080	5490	e860	596
27	530	625	832	758	764	7560	26000	13200	7060	4990	e750	579
28	528	628	752	780	1200	8070	25600	13000	6910	4770	675	570
29	524	627	726	802	---	10500	23000	12800	6780	4650	655	555
30	2210	599	719	739	---	9570	21000	13100	6510	4590	711	543
31	2610	---	937	931	---	6060	---	13000	---	4600	675	---
TOTAL	20944	20033	20172	44834	66175	182539	300390	929500	313380	125998	106126	20267
MEAN	676	668	651	1446	2363	5888	10010	29980	10450	4064	3423	676
MAX	2610	1130	937	9640	16900	14500	26000	79200	17300	6090	10300	1030
MIN	524	571	576	618	745	726	3910	12700	6510	924	655	543
AC-FT	41540	39740	40010	88930	131300	362100	595800	1844000	621600	249900	210500	40200

CAL YR 1989 TOTAL 1658817 MEAN 4545 MAX 61500 MIN 524 AC-FT 3290000
WTR YR 1990 TOTAL 2150358 MEAN 5891 MAX 79200 MIN 524 AC-FT 4265000

e Estimated

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1967 to current year. Pesticide analyses: October 1970 to July 1981. Sediment analyses: Arpil 1972 to April 1975.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1967 to current year.
pH: January 1977 to current year.
WATER TEMPERATURE: October 1967 to current year.
DISSOLVED OXYGEN: January 1977 to current year.

INSTRUMENTATION.--Since October 1976, a four-parameter water-quality monitor continuously records specific conductance, pH, water temperature, and dissolved oxygen at this station.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument and pump, plugged intake, and pump failures. Where maximum or minimum specific conductance values are not shown, mean value is estimated. 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, 1,130 microsiemens Dec. 17, 1977; minimum, 112 microsiemens Oct. 20, 1984.
pH: Maximum, 8.8 units Jan. 23, 1980; minimum, 6.8 units Sept. 17, 18, 1981.
WATER TEMPERATURES: Maximum, 35.0°C Aug. 20, 25, 28, 31, 1972; minimum, 1.0°C Jan. 29, 1968.
DISSOLVED OXYGEN: Maximum, 12.8 mg/L Mar. 19, 1990; minimum, 0.0 mg/L on many days during spring and summer of 1977-81.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 873 microsiemens Oct. 22; minimum, 233 microsiemens Feb. 1.
pH: Maximum, 8.3 units Apr. 1-3; minimum, 6.9 units Dec. 22.
WATER TEMPERATURE: Maximum, 32.0°C Aug. 30, 31; minimum, 7.0°C Dec. 23.
DISSOLVED OXYGEN: Maximum, 12.8 mg/L Mar. 19; minimum, 4.4 mg/L July 13.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
NOV										
13...	1615	638	698	7.3	22.0	7.5	87	0.7	150	42
JAN										
26...	1255	760	726	7.4	14.0	9.3	91	3.9	190	56
APR										
11...	1500	7140	424	8.1	16.0	9.6	97	1.3	150	34
JUN										
14...	1555	10900	349	7.9	27.5	7.2	92	1.4	140	21
JUL										
25...	1305	5610	312	8.0	27.0	7.2	91	1.7	120	13
SEP										
14...	0940	723	639	7.5	27.5	5.9	76	1.7	140	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 WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV									
13...	49	5.9	83	3	11	100	84	67	1.3
JAN									
26...	67	5.7	69	2	11	130	96	63	1.0
APR									
11...	53	5.4	25	0.9	4.7	120	48	25	0.20
JUN									
14...	47	4.7	17	0.6	4.1	120	30	16	0.30
JUL									
25...	40	3.7	18	0.7	4.5	100	26	18	0.30
SEP									
14...	49	5.2	64	2	10	110	65	62	1.0

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									
13...	10	374	11.0	0.030	11.0	0.110	1.7	1.8	4.80
JAN									
26...	9.1	403	7.27	0.330	7.60	0.500	1.1	1.6	3.10
APR									
11...	5.6	239	1.06	0.040	1.10	0.070	0.73	0.80	0.270
JUN									
14...	6.6	195	0.850	0.050	0.900	0.060	0.74	0.80	0.170
JUL									
25...	5.6	177	0.860	0.040	0.900	0.060	0.84	0.90	0.290
SEP									
14...	10	332	7.23	0.070	7.30	0.120	1.3	1.4	1.10

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1989	20944	742	416	23500	70	3960	94	5320	160
NOV.	1989	20033	677	382	20600	60	3240	84	4560	160
DEC.	1989	20172	698	393	21400	63	3440	87	4760	160
JAN.	1990	44834	504	287	34700	39	4750	61	7350	140
FEB.	1990	66175	440	251	44800	32	5760	52	9320	130
MAR.	1990	182539	409	235	116000	27	13100	47	23300	140
APR.	1990	300390	403	232	188000	26	20900	46	37600	140
MAY	1990	929500	311	180	452000	17	43200	35	87100	120
JUNE	1990	313380	332	192	162000	19	16000	37	31600	120
JULY	1990	125998	351	203	69000	21	7140	40	13500	130
AUG.	1990	106126	359	207	59400	22	6300	41	11700	130
SEPT	1990	20267	695	391	21400	63	3430	87	4760	160
TOTAL		2150358	**	**	1213000	**	131000	**	241000	**
WTD.AVG.		5891	363	209	**	23	**	41	**	130

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	753	723	736	---	---	e640	776	664	702	665	633	646
2	718	686	701	---	---	e640	734	714	724	653	610	631
3	748	714	725	663	645	651	---	---	e740	666	625	644
4	---	---	e740	676	659	668	---	---	e750	660	562	594
5	---	---	e730	677	657	664	---	---	e750	663	561	611
6	747	715	731	683	669	677	---	---	e740	682	670	676
7	758	717	741	670	663	668	---	---	e740	681	666	675
8	749	722	734	677	663	669	---	---	e750	686	661	670
9	767	732	747	661	618	629	---	---	e750	725	689	702
10	780	745	759	640	625	630	---	---	e730	727	710	717
11	804	753	778	672	641	656	---	---	e730	726	714	721
12	798	765	780	685	670	678	---	---	e730	730	696	709
13	790	758	776	709	665	682	---	---	e740	734	700	720
14	822	777	798	734	704	715	---	---	e740	764	732	740
15	817	785	797	747	722	732	759	719	740	765	721	739
16	828	789	801	738	703	722	748	690	723	756	704	731
17	844	797	819	736	716	725	726	694	706	731	590	684
18	823	761	799	750	731	739	724	688	700	708	294	574
19	831	783	799	766	736	747	727	690	704	358	289	320
20	844	789	816	748	722	737	739	698	715	337	311	327
21	865	843	852	744	722	728	718	691	705	437	336	374
22	873	837	850	751	604	684	711	689	701	576	433	509
23	850	804	826	636	580	595	702	656	686	625	555	587
24	830	770	804	692	640	675	686	637	662	693	618	663
25	789	722	762	691	642	672	654	608	638	737	682	708
26	730	690	708	681	596	652	635	605	619	751	716	737
27	711	691	699	668	638	657	621	601	608	743	715	732
28	698	662	684	738	662	683	653	621	639	726	703	715
29	710	674	694	736	678	694	653	639	644	704	682	692
30	---	---	e680	754	702	733	687	639	655	750	700	727
31	---	---	e650	---	---	---	687	618	639	765	397	666
MONTH	873	662	759	766	580	681	776	601	703	765	289	643

e Estimated

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	492	233	341	699	572	626	485	467	475	---	---	e370
2	290	246	263	747	673	725	495	485	491	359	286	311
3	321	260	289	738	561	655	497	451	479	298	257	283
4	459	322	388	612	497	553	450	434	444	267	243	253
5	576	462	528	514	464	491	434	417	426	---	---	e270
6	623	567	591	522	468	495	427	416	420	---	---	e290
7	673	606	632	602	524	562	459	422	434	---	---	e310
8	690	548	589	663	592	619	423	374	394	---	---	e310
9	693	581	652	614	402	503	417	408	412	---	---	e320
10	676	533	593	417	362	398	436	410	413	---	---	e320
11	623	547	587	361	282	304	440	384	418	---	---	e320
12	648	533	612	282	267	273	---	---	e415	---	---	e330
13	683	520	588	342	274	307	421	410	415	---	---	e330
14	704	689	698	409	344	379	417	332	388	---	---	e320
15	702	658	682	414	338	373	377	344	365	---	---	e320
16	754	562	677	370	346	360	---	---	e410	329	318	322
17	756	553	624	394	370	381	---	---	e450	330	325	327
18	792	750	770	415	394	405	---	---	e480	335	326	329
19	780	748	763	434	415	423	536	477	505	349	329	339
20	808	741	771	446	434	440	507	469	500	334	312	321
21	846	645	774	461	446	456	488	373	422	---	---	e330
22	668	615	636	481	460	474	436	375	415	---	---	e330
23	651	603	635	480	461	467	435	427	431	---	---	e330
24	679	618	646	467	449	454	426	415	419	---	---	e330
25	718	679	698	448	423	434	415	396	407	---	---	e340
26	736	717	724	428	404	415	414	325	368	---	---	e340
27	751	613	737	413	402	408	355	309	331	---	---	e340
28	696	542	597	---	---	e406	385	321	356	---	---	e350
29	---	---	---	414	396	404	393	385	391	---	---	e350
30	---	---	---	437	413	430	391	384	388	---	---	e360
31	---	---	---	467	434	450	---	---	---	---	---	e360
MONTH	846	233	610	747	267	454	536	309	422	359	243	324

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	e330	335	327	331	---	---	e330	781	716	753
2	---	---	e310	331	325	329	---	---	e330	775	754	764
3	---	---	e290	330	324	328	---	---	e340	769	722	747
4	---	---	e320	330	324	327	---	---	e310	756	727	739
5	---	---	e340	330	323	326	---	---	e330	763	752	758
6	---	---	e340	355	323	335	---	---	e300	769	755	762
7	---	---	e340	346	326	336	---	---	e310	766	751	758
8	---	---	e340	339	321	326	---	---	e320	760	558	681
9	---	---	e340	481	343	412	342	326	334	721	636	678
10	---	---	e340	---	---	e540	345	331	339	704	456	621
11	---	---	e340	619	591	604	347	331	341	654	506	588
12	---	---	e340	621	603	611	361	338	350	620	558	590
13	---	---	e340	631	548	575	366	355	362	628	596	614
14	---	---	e340	584	547	567	369	356	363	699	614	648
15	344	330	337	598	558	579	376	357	366	714	681	696
16	343	337	340	595	559	571	386	372	380	737	710	728
17	350	321	338	558	397	516	407	379	394	736	715	728
18	342	338	340	396	340	357	419	406	412	719	666	707
19	348	321	337	381	321	348	415	399	409	704	651	668
20	338	321	332	339	326	332	408	396	402	724	704	714
21	347	321	338	449	318	333	457	396	421	720	701	709
22	336	326	332	325	318	323	497	461	477	703	682	689
23	334	323	330	375	318	343	483	470	475	713	691	704
24	329	320	324	357	308	330	---	---	e490	714	692	705
25	330	319	325	---	---	e330	---	---	e520	700	691	696
26	358	317	331	---	---	e330	---	---	e610	---	---	e700
27	330	317	325	---	---	e330	---	---	e680	---	---	e720
28	327	321	324	---	---	e330	738	696	715	---	---	e730
29	328	318	325	---	---	e340	764	722	739	---	---	e730
30	334	324	330	---	---	e340	729	657	679	---	---	e740
31	---	---	---	---	---	e340	720	654	680	---	---	---
MONTH	358	317	332	631	308	397	764	326	436	781	456	702

e Estimated

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	---	---	---	---	---	---	7.5	7.0	7.3
2	7.3	7.1	7.1	---	---	---	---	---	---	7.6	7.3	7.4
3	7.2	7.1	7.2	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	7.4	7.3	7.4
7	---	---	---	---	---	---	---	---	---	7.5	7.3	7.3
8	---	---	---	---	---	---	---	---	---	7.4	7.3	7.3
9	---	---	---	---	---	---	---	---	---	7.4	7.2	7.3
10	---	---	---	---	---	---	---	---	---	7.3	7.1	7.2
11	---	---	---	---	---	---	---	---	---	7.2	7.1	7.2
12	---	---	---	---	---	---	---	---	---	7.4	7.1	7.3
13	---	---	---	---	---	---	---	---	---	7.4	7.2	7.3
14	---	---	---	7.5	7.3	7.4	---	---	---	7.4	7.2	7.3
15	---	---	---	7.5	7.3	7.4	7.5	7.3	7.4	7.3	7.2	7.2
16	---	---	---	7.6	7.4	7.5	7.6	7.4	7.5	7.3	7.2	7.3
17	---	---	---	7.5	7.4	7.4	7.5	7.4	7.4	7.4	7.2	7.3
18	---	---	---	7.5	7.4	7.5	7.5	7.3	7.4	7.6	7.2	7.4
19	---	---	---	7.6	7.3	7.4	7.5	7.3	7.4	7.6	7.5	7.5
20	---	---	---	7.5	7.3	7.4	7.4	7.3	7.4	7.7	7.4	7.6
21	---	---	---	7.5	7.3	7.4	7.4	7.1	7.3	7.5	7.3	7.4
22	---	---	---	7.5	7.2	7.3	7.4	6.9	7.2	7.3	7.2	7.3
23	---	---	---	7.5	7.2	7.3	7.4	7.3	7.4	7.2	7.1	7.2
24	---	---	---	7.4	7.3	7.3	7.4	7.3	7.4	7.2	7.1	7.1
25	---	---	---	7.5	7.3	7.4	7.5	7.2	7.4	7.3	7.1	7.1
26	---	---	---	7.5	7.3	7.4	7.5	7.3	7.4	---	---	---
27	---	---	---	---	---	---	7.6	7.2	7.5	7.5	7.3	7.4
28	---	---	---	---	---	---	7.6	7.4	7.5	7.5	7.3	7.4
29	---	---	---	---	---	---	7.5	7.3	7.4	7.5	7.3	7.4
30	---	---	---	---	---	---	7.5	7.0	7.3	7.4	7.2	7.3
31	---	---	---	---	---	---	7.4	7.1	7.3	7.6	7.2	7.4
MONTH	7.3	7.1	7.1	7.6	7.2	7.4	7.6	6.9	7.4	7.7	7.0	7.3

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	8.0	7.5	7.8	7.6	7.4	7.5	8.3	8.1	8.2	---	---	---
2	8.0	7.9	7.9	7.8	7.5	7.6	8.3	8.2	8.2	7.8	7.6	7.7
3	7.9	7.7	7.8	7.6	7.5	7.6	8.3	8.2	8.2	7.9	7.6	7.7
4	7.7	7.6	7.6	7.8	7.4	7.7	---	---	---	7.8	7.5	7.7
5	7.6	7.5	7.5	7.7	7.5	7.6	---	---	---	7.7	7.7	7.7
6	7.6	7.4	7.5	7.6	7.5	7.6	---	---	---	7.7	7.7	7.7
7	7.5	7.4	7.4	7.6	7.5	7.5	---	---	---	---	---	---
8	7.6	7.4	7.5	7.6	7.5	7.6	---	---	---	---	---	---
9	7.5	7.3	7.4	7.7	7.6	7.7	---	---	---	---	---	---
10	7.6	7.4	7.5	7.7	7.6	7.7	---	---	---	---	---	---
11	7.6	7.3	7.5	7.8	7.7	7.8	---	---	---	---	---	---
12	7.5	7.3	7.4	7.8	7.7	7.8	---	---	---	---	---	---
13	7.5	7.3	7.4	8.0	7.7	7.8	---	---	---	---	---	---
14	7.5	7.2	7.4	8.0	8.0	8.0	---	---	---	---	---	---
15	7.5	7.4	7.5	8.0	8.0	8.0	---	---	---	---	---	---
16	7.7	7.4	7.5	8.0	8.0	8.0	---	---	---	---	---	---
17	7.8	7.4	7.6	8.0	8.0	8.0	---	---	---	---	---	---
18	7.6	7.4	7.5	8.0	8.0	8.0	---	---	---	---	---	---
19	7.5	7.4	7.4	8.0	7.9	7.9	7.9	7.8	7.8	---	---	---
20	7.5	7.3	7.4	7.9	7.8	7.9	7.9	7.7	7.8	---	---	---
21	7.6	7.4	7.4	7.9	7.8	7.9	7.8	7.7	7.7	---	---	---
22	7.6	7.4	7.5	7.9	7.8	7.9	7.8	7.7	7.8	---	---	---
23	7.6	7.4	7.5	8.0	7.8	7.9	8.0	7.8	7.9	---	---	---
24	7.7	7.4	7.5	8.0	7.9	7.9	8.0	7.9	8.0	---	---	---
25	7.7	7.4	7.6	8.0	7.8	7.9	8.0	7.9	8.0	---	---	---
26	7.5	7.3	7.4	8.1	7.8	7.9	8.0	7.8	7.9	---	---	---
27	7.4	7.1	7.3	8.1	7.8	7.9	7.8	7.5	7.7	---	---	---
28	7.7	7.4	7.6	8.2	7.8	7.9	7.7	7.6	7.7	---	---	---
29	---	---	---	7.9	7.9	7.9	7.8	7.7	7.7	---	---	---
30	---	---	---	8.2	7.7	8.0	7.8	7.5	7.7	---	---	---
31	---	---	---	8.2	8.0	8.1	---	---	---	---	---	---
MONTH	8.0	7.1	7.5	8.2	7.4	7.8	8.3	7.5	7.9	7.9	7.5	7.7

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	7.9	7.8	7.9	---	---	---	7.6	7.5	7.5
2	---	---	---	7.9	7.5	7.7	---	---	---	7.7	7.5	7.6
3	---	---	---	7.7	7.6	7.6	---	---	---	7.7	7.6	7.7
4	---	---	---	7.7	7.5	7.6	---	---	---	7.7	7.6	7.6
5	---	---	---	7.6	7.4	7.6	---	---	---	7.7	7.5	7.6
6	---	---	---	7.6	7.3	7.5	---	---	---	7.6	7.5	7.5
7	---	---	---	7.7	7.5	7.7	---	---	---	7.6	7.4	7.5
8	---	---	---	7.7	7.6	7.7	---	---	---	7.5	7.0	7.4
9	---	---	---	7.7	7.2	7.4	8.1	8.0	8.1	7.5	7.2	7.4
10	---	---	---	7.3	7.2	7.2	8.1	8.0	8.1	7.6	7.4	7.5
11	---	---	---	7.7	7.2	7.5	8.0	7.8	7.9	7.5	7.4	7.5
12	---	---	---	7.6	7.5	7.6	7.8	7.6	7.7	7.6	7.4	7.5
13	---	---	---	7.7	7.6	7.6	7.8	7.5	7.6	7.5	7.4	7.4
14	---	---	---	7.7	7.6	7.7	8.0	7.5	7.7	---	---	---
15	7.9	7.9	7.9	7.7	7.6	7.6	8.1	8.0	8.0	---	---	---
16	8.0	7.9	8.0	7.7	7.6	7.7	8.0	7.9	8.0	---	---	---
17	8.0	7.9	8.0	7.9	7.6	7.7	8.0	7.9	7.9	---	---	---
18	8.0	8.0	8.0	7.9	7.8	7.9	7.9	7.8	7.9	---	---	---
19	8.0	7.9	8.0	8.0	7.9	7.9	7.9	7.9	7.9	---	---	---
20	8.0	7.9	7.9	8.0	7.9	8.0	8.0	7.9	7.9	---	---	---
21	8.0	7.8	7.9	8.0	8.0	8.0	8.1	7.8	7.9	---	---	---
22	8.0	7.8	7.9	8.1	8.0	8.0	7.9	7.7	7.8	---	---	---
23	7.9	7.7	7.8	8.1	7.9	8.0	---	---	---	---	---	---
24	7.9	7.7	7.8	8.1	8.0	8.1	---	---	---	---	---	---
25	7.8	7.7	7.8	---	---	---	---	---	---	---	---	---
26	8.0	7.6	7.9	---	---	---	---	---	---	---	---	---
27	8.0	7.9	8.0	---	---	---	---	---	---	---	---	---
28	8.0	7.9	8.0	---	---	---	7.5	7.3	7.4	---	---	---
29	8.0	7.9	8.0	---	---	---	7.4	7.3	7.4	---	---	---
30	7.9	7.8	7.9	---	---	---	7.6	7.4	7.5	---	---	---
31	---	---	---	---	---	---	7.6	7.3	7.5	---	---	---
MONTH	8.0	7.6	7.9	8.1	7.2	7.7	8.1	7.3	7.8	7.7	7.0	7.5

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	19.5	18.5	18.5	---	---	---	12.0	10.5	11.0
2	26.0	24.5	25.5	19.5	18.5	19.0	---	---	---	12.5	10.5	12.0
3	26.5	25.5	26.0	19.0	18.0	18.5	---	---	---	14.0	12.0	13.0
4	---	---	---	19.5	17.5	18.5	---	---	---	14.0	11.5	12.5
5	---	---	---	21.5	19.5	20.0	---	---	---	12.5	11.5	12.0
6	26.5	26.0	26.5	23.0	21.5	22.0	---	---	---	13.5	12.0	13.0
7	26.5	24.5	25.0	23.5	22.5	23.0	---	---	---	13.5	12.0	13.0
8	24.5	23.0	24.0	23.5	22.0	22.5	---	---	---	14.0	12.0	13.0
9	24.5	23.0	24.0	22.0	19.5	20.0	---	---	---	---	---	---
10	24.5	23.5	24.0	20.5	19.0	20.0	---	---	---	15.0	13.5	14.5
11	25.0	23.5	24.5	21.0	19.5	20.5	---	---	---	15.0	14.0	14.5
12	25.0	23.5	24.0	21.5	20.5	21.0	---	---	---	15.0	13.0	14.0
13	24.5	23.0	24.0	22.0	21.0	21.5	---	---	---	14.0	12.5	13.5
14	25.0	24.0	24.5	22.5	21.5	22.0	---	---	---	15.5	13.0	14.0
15	25.0	24.0	24.5	23.0	20.0	21.5	14.5	12.5	13.5	17.0	15.0	16.0
16	25.5	24.5	25.0	20.0	17.5	18.5	12.5	10.0	11.0	18.0	16.5	17.0
17	25.0	21.5	23.0	17.5	17.0	17.0	12.0	10.5	11.5	18.0	17.0	17.5
18	21.5	19.5	20.0	17.5	17.0	17.0	12.5	11.0	12.0	17.5	14.0	16.0
19	19.5	17.5	18.5	18.5	17.0	17.5	12.0	11.0	12.0	14.0	13.0	13.5
20	19.0	17.0	18.0	20.0	18.5	19.0	12.5	11.0	11.5	13.0	12.5	13.0
21	19.5	18.0	19.0	21.0	19.5	20.5	12.5	11.0	12.0	13.0	12.0	12.5
22	20.5	19.5	20.0	21.0	18.5	20.0	11.0	8.0	9.0	14.5	12.5	13.5
23	22.0	20.5	21.0	18.0	16.0	16.5	9.0	7.0	8.0	15.0	14.0	14.5
24	22.5	21.5	22.0	17.5	15.5	16.5	10.5	8.5	9.5	16.5	14.5	15.5
25	22.5	22.0	22.5	18.5	15.5	17.5	11.0	9.0	10.0	15.5	13.0	14.5
26	---	---	---	19.5	17.0	18.5	12.0	9.5	11.0	15.0	13.5	14.5
27	24.0	23.0	23.5	19.5	16.0	18.5	12.0	10.0	11.0	15.5	14.0	14.5
28	23.5	23.0	23.5	---	---	---	12.5	10.5	11.5	15.5	14.0	14.5
29	23.5	22.5	23.0	---	---	---	14.5	12.5	13.0	14.5	12.5	14.0
30	23.5	20.0	21.5	---	---	---	14.5	12.5	13.0	15.0	13.5	14.5
31	20.0	18.5	19.0	---	---	---	12.5	10.5	11.5	15.0	13.0	14.0
MONTH	26.5	17.0	23.0	23.5	15.5	19.5	14.5	7.0	11.0	18.0	10.5	14.0

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

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

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	6.8	6.6	6.7	---	---	---	---	---	---	8.9	7.8	8.4
2	6.9	6.5	6.7	---	---	---	---	---	---	11.9	8.5	10.1
3	6.8	6.5	6.6	---	---	---	---	---	---	11.8	8.6	9.7
4	---	---	---	6.6	5.7	6.1	---	---	---	11.4	7.0	9.1
5	---	---	---	6.5	5.8	6.0	---	---	---	9.1	7.2	8.0
6	6.2	5.9	6.1	6.1	5.4	5.7	---	---	---	8.7	7.1	7.7
7	6.4	5.9	6.1	5.8	5.4	5.7	---	---	---	9.4	7.5	8.5
8	6.5	6.2	6.4	6.0	5.1	5.7	---	---	---	---	---	---
9	6.7	6.3	6.5	6.0	5.0	5.5	---	---	---	---	---	---
10	6.7	6.4	6.6	6.7	5.2	6.1	---	---	---	---	---	---
11	6.6	6.4	6.5	7.1	6.3	6.8	---	---	---	---	---	---
12	6.7	6.4	6.5	7.2	6.9	7.0	---	---	---	---	---	---
13	6.7	6.3	6.5	7.4	6.9	7.1	---	---	---	8.6	8.3	8.4
14	6.6	6.3	6.4	7.0	6.8	6.9	---	---	---	8.6	8.4	8.5
15	6.6	6.3	6.4	7.3	6.7	6.9	8.8	8.3	8.5	8.4	7.8	8.0
16	6.6	6.3	6.4	7.9	7.4	7.6	9.3	8.7	8.9	7.9	6.8	7.5
17	7.0	6.3	6.6	8.0	7.8	7.9	9.0	8.7	8.9	7.3	5.8	6.9
18	7.1	6.8	7.0	8.0	7.9	8.0	8.9	8.6	8.7	8.6	6.6	7.2
19	7.5	6.9	7.2	8.2	7.9	8.0	8.8	8.6	8.7	9.0	7.9	8.4
20	7.7	7.4	7.5	8.1	7.8	8.0	9.0	8.6	8.7	8.2	7.9	8.1
21	7.7	7.3	7.5	8.0	7.8	7.9	9.0	8.5	8.7	8.4	7.8	8.0
22	7.7	7.2	7.4	7.9	6.1	7.1	9.9	8.8	9.4	8.9	8.1	8.6
23	7.6	7.4	7.5	---	---	---	10.2	9.6	9.9	9.1	8.9	9.0
24	7.4	7.1	7.3	---	---	---	9.8	9.5	9.6	9.2	8.8	9.0
25	7.3	7.0	7.1	---	---	---	9.8	9.4	9.6	9.6	9.1	9.4
26	7.1	4.8	6.2	---	---	---	9.6	9.2	9.5	---	---	---
27	---	---	---	---	---	---	9.8	7.0	9.3	---	---	---
28	---	---	---	---	---	---	9.5	8.9	9.2	---	---	---
29	---	---	---	---	---	---	9.2	8.6	9.0	---	---	---
30	---	---	---	---	---	---	9.2	8.5	8.8	---	---	---
31	---	---	---	---	---	---	8.8	8.3	8.6	---	---	---
MONTH	7.7	4.8	6.7	8.2	5.0	6.8	10.2	7.0	9.1	11.9	5.8	8.4
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	9.0	8.5	8.8	9.0	8.1	8.6	---	---	---
2	---	---	---	8.8	7.8	8.3	---	---	---	---	---	---
3	---	---	---	7.9	6.9	7.6	---	---	---	---	---	---
4	---	---	---	8.9	7.8	8.5	---	---	---	---	---	---
5	---	---	---	8.8	8.2	8.5	---	---	---	---	---	---
6	---	---	---	8.3	7.9	8.1	---	---	---	---	---	---
7	---	---	---	8.1	7.8	8.0	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	10.5	9.2	9.7	---	---	---
14	---	---	---	7.5	6.9	7.2	---	---	---	---	---	---
15	9.5	8.9	9.2	8.0	7.3	7.7	---	---	---	8.3	7.0	7.5
16	10.4	9.1	9.5	7.9	7.3	7.6	---	---	---	7.9	6.8	7.4
17	---	---	---	8.2	7.8	8.0	---	---	---	7.4	6.8	7.1
18	---	---	---	8.4	8.0	8.2	---	---	---	7.6	6.6	7.0
19	---	---	---	12.8	8.3	9.5	8.3	7.3	7.7	7.6	6.4	6.8
20	---	---	---	10.8	8.3	8.9	8.3	7.8	8.1	---	---	---
21	---	---	---	10.3	8.4	9.4	8.2	7.5	7.8	---	---	---
22	---	---	---	11.9	7.7	9.3	7.6	7.3	7.4	7.0	6.5	6.7
23	---	---	---	---	---	---	8.0	7.4	7.8	---	---	---
24	---	---	---	---	---	---	8.1	7.9	8.0	---	---	---
25	---	---	---	---	---	---	8.2	7.8	8.0	---	---	---
26	---	---	---	---	---	---	7.8	6.6	7.3	---	---	---
27	---	---	---	---	---	---	---	---	---	8.4	7.2	7.7
28	8.9	7.9	8.5	---	---	---	6.7	5.8	6.2	8.5	7.3	7.8
29	---	---	---	---	---	---	---	---	---	7.8	7.3	7.5
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	10.4	7.9	9.1	12.8	6.9	8.3	10.5	5.8	7.9	8.5	6.4	7.3

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	7.6	6.2	7.0	---	---	---	---	---	---
2	---	---	---	7.3	6.4	6.8	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	8.2	8.0	8.1	---	---	---
10	---	---	---	---	---	---	8.0	7.8	7.9	---	---	---
11	---	---	---	---	---	---	7.8	7.7	7.7	---	---	---
12	---	---	---	5.6	4.6	5.3	7.8	7.5	7.6	---	---	---
13	---	---	---	6.2	4.4	5.5	7.7	7.2	7.5	---	---	---
14	---	---	---	6.4	6.0	6.2	7.9	7.4	7.6	---	---	---
15	---	---	---	6.4	6.0	6.2	7.9	7.4	7.6	---	---	---
16	---	---	---	---	---	---	7.7	7.3	7.5	---	---	---
17	---	---	---	---	---	---	8.2	6.7	7.5	---	---	---
18	---	---	---	---	---	---	8.4	8.0	8.2	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	7.6	7.4	7.5	---	---	---	---	---	---
21	---	---	---	7.6	7.3	7.5	---	---	---	---	---	---
22	---	---	---	7.8	7.4	7.6	---	---	---	---	---	---
23	---	---	---	7.7	7.2	7.4	9.2	7.2	8.2	---	---	---
24	---	---	---	7.6	7.2	7.3	9.3	8.1	8.8	---	---	---
25	---	---	---	---	---	---	9.2	8.1	8.6	---	---	---
26	---	---	---	---	---	---	9.0	8.0	8.6	---	---	---
27	7.5	7.2	7.3	---	---	---	---	---	---	---	---	---
28	7.5	7.2	7.3	---	---	---	---	---	---	---	---	---
29	7.8	6.7	7.3	---	---	---	---	---	---	---	---	---
30	7.5	6.4	6.9	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	7.8	6.4	7.2	7.8	4.4	6.8	9.3	6.7	8.0	---	---	---

08057445 PRAIRIE CREEK AT U.S. HIGHWAY 175, DALLAS, TX

LOCATION.--Lat 32°42'17", long 96°40'11", Dallas County, Hydrologic Unit 12030105, on left bank at downstream side of the downstream access road bridge on U.S. Highway 175, 3.4 mi upstream from mouth, and 9.0 mi southeast of Dallas City Hall.

DRAINAGE AREA.--9.03 mi².

PERIOD OF RECORD.--October 1975 to September 1980, April 1984 to current year.

GAGE.--Water-stage recorder. Datum of gage is 390.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharge. Records good. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--11 years (water years 1976-80, 1985-90), 7.72 ft³/s (5,590 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,660 ft³/s May 17, 1989 (gage height, 29.21 ft); from rating curve extended above 1,900 ft³/s on basis of velocity-area study; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 900 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 31	1915	939	19.51	Apr. 16	0230	1,280	21.30
Feb. 1	0930	1,610	22.49	Apr. 26	1130	1,050	20.17
Mar. 14	1345	913	19.35	May 2	0500	*1,930	*23.48
Apr. 14	0745	1,740	22.92	May 3	0715	1,040	20.10

Minimum discharge, no flow on many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.07	.00	.00	.64	332	5.4	4.3	4.9	100	.12	.01	.00
2	.04	.00	.00	.39	37	3.0	4.3	474	9.4	.10	.02	.00
3	.05	.00	.00	1.2	5.0	2.7	3.6	400	82	.10	.73	.00
4	.04	.00	.00	3.4	3.5	2.5	3.3	11	14	.10	20	.00
5	.09	.00	.05	.52	3.0	2.9	4.6	4.8	2.4	.09	17	.00
6	.07	.00	.19	.28	3.4	4.4	54	3.8	1.3	.10	7.3	.00
7	.06	.00	.04	.26	3.5	65	5.2	3.0	.85	.10	.60	.00
8	.08	.00	.06	.27	3.8	9.2	3.8	3.1	.74	.13	.25	.23
9	.09	.00	.09	.32	3.5	4.6	3.6	3.4	.59	.11	.10	.08
10	.04	.00	.14	.46	4.4	3.3	115	2.1	.40	.11	.05	5.5
11	.06	.01	.13	.62	2.7	32	7.3	2.1	.36	.09	.07	24
12	.07	.02	.23	1.2	2.6	7.8	4.3	4.7	.28	.10	.05	1.1
13	.07	.02	.26	.96	2.6	4.7	22	2.5	.25	.10	.02	.32
14	.17	.05	.30	.87	2.5	176	303	2.1	.24	.10	.05	.12
15	.06	.09	.23	.88	4.9	14	12	1.9	.24	.12	.07	.09
16	.03	.08	.29	3.2	3.7	6.0	194	2.0	.35	.16	.08	.08
17	.03	.11	.33	14	3.4	5.9	7.9	2.2	.44	.22	.10	.06
18	.20	.20	.35	193	3.5	4.8	4.6	2.1	.28	1.3	.08	.07
19	.06	.26	.37	214	2.0	5.2	5.8	11	.17	.06	.06	.28
20	.13	.32	.47	4.8	2.2	4.2	18	3.5	.15	.02	.04	.43
21	.21	.41	.47	1.1	48	5.4	12	2.6	.15	.05	.04	.42
22	.51	8.2	.49	.75	8.9	4.5	6.6	1.7	.13	.05	.02	1.2
23	.45	.10	.47	1.0	2.8	3.3	4.9	1.4	.14	.08	.01	.36
24	.61	.00	.44	1.1	2.7	2.9	2.9	1.0	.25	.23	.00	.37
25	.37	.00	3.9	1.1	2.3	42	2.7	1.1	.22	.11	.00	.39
26	.58	.00	5.7	1.1	2.6	7.6	300	1.1	.21	.06	.00	.41
27	.13	.00	2.0	.94	2.5	5.0	121	1.2	.20	.04	.00	.42
28	.02	.00	.76	1.7	16	56	23	2.5	.18	.02	.00	.41
29	.03	.04	.54	2.2	---	23	6.2	1.5	.15	.01	.00	.37
30	49	.00	.41	1.8	---	7.8	4.6	29	.14	.00	.00	.37
31	.01	---	.77	161	---	5.6	---	2.1	---	.00	.00	---
TOTAL	53.43	9.91	19.48	615.06	515.0	526.7	1264.5	989.4	216.21	3.98	46.75	37.08
MEAN	1.72	.33	.63	19.8	18.4	17.0	42.1	31.9	7.21	.13	1.51	1.24
MAX	49	8.2	5.7	214	332	176	303	474	100	1.3	20	24
MIN	.01	.00	.00	.26	2.0	2.5	2.7	1.0	.13	.00	.00	.00
AC-FT	106	20	39	1220	1020	1040	2510	1960	429	7.9	93	74

CAL YR 1989 TOTAL 5362.28 MEAN 14.7 MAX 1150 MIN .00 AC-FT 10640
WTR YR 1990 TOTAL 4297.50 MEAN 11.8 MAX 474 MIN .00 AC-FT 8520

08058900 EAST FORK TRINITY RIVER AT MCKINNEY, TX

LOCATION.--Lat 33°14'38", long 96°36'31", Collin County, Hydrologic Unit 12030106, at downstream side of highway embankment near left end of main channel bridge on State Highways 5 and 121, 750 ft downstream from Honey Creek, 1.2 mi upstream from Southern Pacific Railway Co. bridge, 1.7 mi upstream from Clemons Creek, 3.3 mi north of McKinney, 26.1 mi upstream from Lavon Dam, and 86.5 mi upstream from mouth.

DRAINAGE AREA.--164 mi².

PERIOD OF RECORD.--October 1975 to current year.
Water-quality records.--Chemical and biochemical analyses: October 1980 to August 1982, November 1985 to June 1987.

GAGE.--Water-stage recorder. Datum of gage is 528.74 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow from 89.1 mi² 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. Several observations of water temperature were made during the year. Nonrecording rain gage and gage-height telemeter at station.

AVERAGE DISCHARGE.--15 years regulated, 106 ft³/s (76,800 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 61,800 ft³/s May 13, 1982 (gage height, 22.17 ft, from graph); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1913, about 28 ft in April 1942 (discharge not determined), from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 31,000 ft³/s May 3 at 0815 hours (gage height, 21.35 ft); no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e2.0	.27	.45	5.1	1580	30	282	479	812	2.2	.04	.00
2	e1.5	.05	.38	4.3	1040	21	216	3260	619	.81	.71	.00
3	e1.2	.03	.36	4.0	408	14	166	15100	466	.32	33	.00
4	e.86	e.02	.68	3.4	261	9.4	130	3000	466	.12	18	.00
5	e.65	e.02	.90	3.1	187	6.1	104	1890	250	.04	187	.00
6	e.50	e.02	1.1	3.1	147	5.0	1050	1600	190	.02	127	.00
7	e.36	e.02	1.3	3.0	114	483	517	1460	149	.01	49	.00
8	e.27	e.03	1.2	2.3	94	324	301	1280	111	.01	38	.00
9	e.18	e.03	1.3	2.2	96	160	236	1130	82	.00	30	.00
10	e.14	e.03	1.3	2.0	97	101	687	1030	67	.00	24	.00
11	e.11	e.02	1.2	1.9	73	e860	423	997	57	.00	18	.00
12	e.09	e.02	1.1	1.3	60	e2340	267	878	49	52	15	.00
13	e.06	e.02	1.1	1.1	50	e1100	247	751	42	42	12	.00
14	e.05	e.03	1.1	.89	43	2360	360	600	36	13	8.7	.00
15	e.04	7.3	.99	.79	47	2760	286	454	32	5.4	7.0	.00
16	e.04	6.5	.97	.83	42	1060	1630	407	29	2.9	5.4	.00
17	e.03	1.4	.58	7.5	32	713	468	380	26	1.6	4.1	.00
18	e.02	.40	.86	20	27	516	308	346	23	.36	3.3	.00
19	e.02	.24	.80	e578	22	390	773	337	20	.24	2.7	.00
20	e.01	.18	1.0	e583	18	306	1310	308	17	.13	2.0	.00
21	e.01	.36	1.1	e129	24	261	1940	280	15	.05	1.2	.00
22	e.01	1.5	e1.0	e93	131	225	2020	255	13	.02	.55	.00
23	e.02	3.3	e.94	e75	66	193	723	242	12	2.6	.27	.00
24	e.02	3.8	e.78	e58	43	160	544	222	11	5.8	.67	.00
25	e.02	2.2	e.74	e47	32	134	436	201	12	2.7	.12	.00
26	e.02	1.5	e.90	e39	23	209	2990	189	12	1.1	.09	.00
27	e.02	1.2	e1.1	e34	17	159	2840	166	11	.22	.04	.00
28	e.03	1.1	e1.5	e31	16	1080	1240	148	9.6	.05	.01	.00
29	e.03	.75	9.4	e30	---	1230	934	133	8.7	.01	.00	.00
30	e.03	.59	3.8	e27	---	835	679	194	6.0	.00	.00	.00
31	e.04	---	4.6	22	---	419	---	192	---	.00	.00	---
TOTAL	8.38	32.93	44.53	1812.81	4790	18463.5	24107	37909	3653.3	133.71	587.90	0.00
MEAN	.27	1.10	1.44	58.5	171	596	804	1223	122	4.31	19.0	.000
MAX	2.0	7.3	9.4	583	1580	2760	2990	15100	812	52	187	.00
MIN	.01	.02	.36	.79	16	5.0	104	133	6.0	.00	.00	.00
AC-FT	17	65	88	3600	9500	36620	47820	75190	7250	265	1170	.00

CAL YR 1989 TOTAL 70294.38 MEAN 193 MAX 4650 MIN .00 AC-FT 139400
WTR YR 1990 TOTAL 91543.06 MEAN 251 MAX 15100 MIN .00 AC-FT 181600

e Estimated

08059400 SISTER GROVE CREEK NEAR BLUE RIDGE, TX

LOCATION.--Lat 33°17'40", long 96°28'58", Collin County, Hydrologic Unit 12030106, on left bank at upstream side of highway embankment of bridge on Farm Road 545, 3.5 mi upstream from Hatler Branch, 4.8 mi west of Blue Ridge, 7.4 mi upstream from Stiff Creek, 14.7 mi upstream from mouth, and 24.7 mi upstream from Lavon Dam.

DRAINAGE AREA.--83.1 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 526.29 ft above National Geodetic Vertical Datum of 1929. Prior to June 29, 1988, at datum 10.00 ft higher at same site.

REMARKS.--No estimated daily discharge. Records good. Flow is affected at times by discharge from the flood-detention pools of 34 floodwater-retarding structures with a combined detention capacity of 12,710 acre-ft. These structures control runoff from 47.4 mi². Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--15 years regulated, 56.6 ft³/s (41,010 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,300 ft³/s May 13, 1982 (gage height, 32.5 ft, present datum, from floodmarks); no flow at times most years.
Maximum stage since about 1900, that of May 13, 1982.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of 30.7 ft, present datum, probably occurred in July 1913, from information by State Department of Highways and Public Transportation. The probable date is from published records for discontinued station 08059500, located 9.7 mi downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,540 ft³/s May 3 at 1330 hours (gage height, 26.59 ft); no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	1.6	1.4	4.3	990	50	198	348	241	3.9	2.0	.04
2	1.9	.73	1.7	3.5	607	45	164	1350	397	3.6	2.2	.01
3	1.7	.40	2.0	3.2	379	40	128	2220	239	3.4	3.1	.00
4	1.6	.43	2.2	2.8	270	36	106	1400	257	3.0	4.5	.00
5	1.3	.55	2.3	2.9	193	33	95	937	137	2.9	3.6	.00
6	.76	.70	2.6	3.2	137	33	901	850	108	2.6	52	.00
7	.69	.71	2.7	2.8	114	256	461	779	89	2.5	17	.00
8	.61	.60	2.8	2.6	100	202	285	723	74	2.3	8.6	.00
9	.58	1.2	2.9	2.9	124	107	186	679	63	2.2	5.8	.00
10	.58	.91	2.8	4.3	105	82	358	581	56	1.9	4.4	.00
11	.67	.54	2.6	2.5	79	729	219	528	50	1.9	3.2	.00
12	.64	.45	2.7	1.8	63	1290	140	462	42	9.3	2.2	.00
13	.44	.52	2.8	1.9	54	599	128	382	35	9.8	1.4	.00
14	.35	.64	3.1	2.9	109	957	256	306	29	3.7	.84	.00
15	.19	.51	2.7	2.3	251	1340	215	265	24	2.9	.83	.00
16	.07	.46	1.2	3.1	95	615	1050	261	20	2.8	.68	.00
17	.01	.46	.87	7.5	70	416	440	248	17	2.6	.52	.00
18	.02	.45	.82	11	60	314	324	214	14	2.6	.42	.00
19	.01	.53	.97	278	53	251	550	200	13	3.1	.33	.00
20	.01	.65	1.1	201	46	180	661	187	10	3.1	.21	.00
21	.45	.71	1.1	97	59	156	940	175	8.1	2.7	.19	.00
22	.70	.91	.92	62	115	132	904	157	6.8	2.4	.24	.00
23	1.4	1.0	.74	43	77	112	445	148	6.4	3.3	.20	.00
24	1.1	1.6	.71	36	61	96	309	142	6.1	3.5	.15	.00
25	1.1	1.5	.92	26	52	87	230	134	7.5	3.5	.12	.00
26	.98	1.5	1.1	17	48	176	1460	113	6.6	3.2	.11	.00
27	1.1	1.4	1.5	16	44	127	1440	96	5.3	2.9	.24	.00
28	1.3	1.4	1.6	14	44	659	706	89	4.9	2.4	.26	.00
29	1.8	1.3	1.9	13	---	703	572	72	4.6	2.0	.15	.00
30	3.6	1.3	4.4	12	---	441	430	109	4.2	2.1	.11	.00
31	2.5	---	4.8	28	---	266	---	91	---	2.3	.07	---
TOTAL	30.06	25.66	61.95	908.5	4399	10530	14301	14246	1975.5	100.4	115.67	0.05
MEAN	.97	.86	2.00	29.3	157	340	477	460	65.8	3.24	3.73	.002
MAX	3.6	1.6	4.8	278	990	1340	1460	2220	397	9.8	52	.04
MIN	.01	.40	.71	1.8	44	33	95	72	4.2	1.9	.07	.00
AC-FT	60	51	123	1800	8730	20890	28370	28260	3920	199	229	.1

CAL YR 1989 TOTAL 40168.84 MEAN 110 MAX 1940 MIN .01 AC-FT 79670
WTR YR 1990 TOTAL 46693.79 MEAN 128 MAX 2220 MIN .00 AC-FT 92620

08060500 LAVON LAKE NEAR LAVON, TX

LOCATION.--Lat 33°01'54", long 96°28'56", Collin County, Hydrologic Unit 12030106, in right abutment of spillway in dam on East Fork Trinity River, 3,850 ft upstream from St. Louis Southwestern Railway Lines bridge, 4,000 ft upstream from bridge on State Highway 78, 2.9 mi west of Lavon, and 55.9 mi upstream from mouth.

DRAINAGE AREA.--770 mi².

PERIOD OF RECORD.--September 1953 to current year. Prior to October 1970, published as Lavon Reservoir.
Water-quality records.--Chemical analyses: October 1969 to September 1974, October 1975 to September 1982.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Jan. 20, 1954, non-recording gage in the approach channel at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 18,860 ft long, including a 568-foot gated spillway with twelve 40.0- by 28.0-foot tainter gates. The original dam was 9,499 ft long, but conservation capacity was increased to present size in December 1975. Deliberate impoundment began Sept. 14, 1953, and the dam was completed in October 1953. Low-flow outlets consist of five 36-inch-diameter controlled sluice gates. Capacity Table No. 9, now in use, is based on Design Memo, 1970 Conditions. Lake was designed for flood control and water conservation. Water for municipal supply can be released down to elevation 453.0 ft. Flow is affected at times by discharge from the flood-detention pools of 149 floodwater-retarding structures with a combined detention capacity of 69,170 acre-ft. These structures control runoff from 242 mi² in the East Fork Trinity River, Pilot Grove, and Sister Grove Creek drainage basins. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	514.0	-
Design flood	509.0	921,200
Top of tainter gates	503.5	748,200
Top of conservation pool	492.0	456,500
Crest of spillway (sill of tainter gates)	475.5	178,300
Lowest gated outlet (invert)	453.0	12,700

COOPERATION.--Records furnished by the U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 791,000 acre-ft May 3, 1990 (elevation, 504.93 ft); minimum since lake first filled in 1957, 80,150 acre-ft Apr. 17, 1976 (elevation, 465.96 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 791,000 acre-ft May 3 at 1500 hours (elevation, 504.93 ft); minimum, 403,700 acre-ft Jan. 2 (elevation, 489.42 ft).

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

489.0	395,500	495.0	523,700	501.0	676,700
491.0	435,500	497.0	571,900	503.0	733,500
493.0	478,200	499.0	622,800	505.0	793,100

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	456200	439300	423300	408100	462200	460700	586600	745200	645700	519300	449200	430200
2	455500	438300	423500	407500	482700	459800	585100	745500	647000	513900	448300	429000
3	455100	437200	422100	408500	488700	459200	584400	780900	649700	508900	448500	428200
4	454500	436400	421300	408300	491600	457900	583600	727400	651300	503800	451900	427400
5	453600	436600	420900	407900	492300	457700	582100	726500	649400	499100	454100	426300
6	454100	436200	421100	407700	492800	458100	582900	723900	645900	494100	454100	425100
7	453200	436000	421100	407500	491900	462800	586400	721300	640800	488500	453400	423900
8	452100	435600	420000	406700	491000	466700	585100	719300	636300	483800	452800	423100
9	451300	434700	418600	406700	491000	468300	582600	717300	631500	479200	451900	422300
10	450900	434100	419400	406300	490700	469300	589400	713300	626500	475500	451300	422500
11	449800	433500	419200	406100	489400	479000	592700	708400	621600	471700	450400	423300
12	449200	432700	417400	405500	485400	500200	593200	707000	616100	473300	449600	422700
13	448700	432300	416600	404900	482700	510500	593500	702200	610900	469300	449000	422300
14	448100	431900	416000	404500	481200	531900	599600	695700	605700	466700	447900	421900
15	447500	431700	415800	404300	481000	554500	607000	689200	600600	464600	447300	421300
16	447300	430400	414800	404900	481000	563200	624700	684500	595500	462600	446200	420700
17	446400	429400	414200	406100	478700	567200	631800	676700	590400	461300	445200	420200
18	445000	428800	413800	412800	476800	571400	634200	672000	585100	460300	444100	419800
19	443500	428600	413400	420400	473900	571400	637400	672600	579800	459200	443100	419200
20	442200	428200	412800	428000	470400	570100	645900	674200	574600	458100	442400	418800
21	441200	427800	413800	429800	471100	566900	657500	675300	569700	457000	441400	418600
22	440600	428400	412200	430400	474100	565000	665100	675000	564500	456800	440600	417800
23	440600	427600	410600	431000	473300	562800	669000	672600	558800	456400	439500	416400
24	440100	426300	410000	431400	470200	558800	670600	668200	554200	455500	438700	414800
25	439500	426500	409600	431000	466700	557400	670600	663800	549100	454900	437600	414000
26	439100	426100	409300	430400	463300	556900	698200	660000	544300	454100	436800	413400
27	438700	425900	409300	430800	461300	558600	723100	656700	539500	453200	435800	412800
28	438100	425500	408700	430600	462000	567200	731700	652100	534300	452600	434700	412200
29	437400	424300	408900	430000	---	577900	737600	646700	529300	451700	433700	411400
30	440100	423700	409300	430200	---	585600	740800	642700	523700	451100	432700	410600
31	439500	---	408700	431900	---	587400	---	640800	---	450000	431700	---
MAX	456200	439300	423500	431900	492800	587400	740800	780900	651300	519300	454100	430200
MIN	437400	423700	408700	404300	461300	457700	582100	640800	523700	450000	431700	410600
(†)	491.18	490.41	489.66	490.81	492.24	497.61	503.24	499.67	494.99	491.68	490.80	489.76
(ϕ)	-17500	-15800	-15000	+23200	+30100	+125400	+153400	-100000	-117100	-73700	-18300	-21100

CAL YR 1989 MAX 751400 MIN 326600 (ϕ) +77700
WTR YR 1990 MAX 780900 MIN 404300 (ϕ) -46400

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

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 downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 250 ft downstream from Spring Creek, and 1.5 mi southwest of Sachse.

DRAINAGE AREA.--120 mi².

PERIOD OF RECORD.--March 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 450.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. There are no known diversions above station. The North Texas Municipal Water District returns sewage effluent into a tributary above this station. Several observations of water temperature were made during the year. Rain gage and gage-height telemeter at station.

AVERAGE DISCHARGE.--22 years (water years 1969-90), 105 ft³/s (76,070 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,900 ft³/s May 17, 1989 (gage height, 29.62 ft); no flow Aug. 24 to Sept. 2, 1969.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1942, 35.4 ft in 1942, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 1	1200	15,400	27.23	Apr. 26	1445	8,580	25.39
Mar. 14	1430	6,750	24.68	May 3	0700	*20,600	*27.90

Minimum daily discharge, 13 ft³/s Sept. 2, 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e14	e21	34	35	5220	131	139	e162	708	27	34	16
2	e14	e21	33	33	642	113	121	e4740	150	28	33	13
3	e14	e22	34	82	268	107	102	e5870	119	25	354	15
4	e14	e21	35	87	195	102	97	e483	110	25	e1140	16
5	e15	e24	34	36	166	99	98	e227	73	31	e187	15
6	e15	e24	35	36	147	99	277	e183	64	36	e82	15
7	e18	e23	34	34	131	585	100	e137	54	28	e67	13
8	e17	e21	34	32	127	264	86	e131	50	25	55	66
9	e16	e22	35	30	161	183	84	e123	51	24	46	38
10	e16	e22	36	30	187	157	539	e112	48	23	42	40
11	e17	e22	36	29	126	1980	122	e108	58	27	38	149
12	17	e22	34	28	120	880	93	e378	66	61	36	68
13	19	e22	33	28	112	282	257	e137	53	36	34	38
14	18	e23	33	29	123	2610	1970	e131	47	23	32	24
15	19	e22	32	30	347	744	283	e120	42	21	27	21
16	20	22	34	55	136	276	4270	e109	39	22	28	18
17	18	24	36	204	113	214	342	e108	37	25	26	35
18	34	26	35	544	110	175	229	e104	39	25	24	265
19	28	27	33	2290	109	150	381	e109	38	25	23	33
20	23	29	34	273	102	137	947	e94	35	23	21	108
21	21	29	33	107	449	131	641	e94	36	22	22	59
22	22	e230	34	86	258	122	435	e83	31	24	22	30
23	20	e56	35	75	147	113	200	e75	29	106	19	29
24	20	e25	38	67	131	105	159	e74	47	59	28	24
25	20	e26	36	60	121	335	143	73	48	43	23	21
26	21	e25	36	56	116	159	3810	69	35	30	20	21
27	20	e25	36	53	110	162	e570	74	30	26	20	21
28	20	e26	36	56	192	783	e336	69	32	23	19	22
29	21	e26	34	61	---	622	e200	70	30	26	17	21
30	e481	33	51	49	---	230	e166	76	27	29	16	22
31	e43	---	59	241	---	168	---	270	---	24	16	---
TOTAL	1075	961	1112	4856	10166	12218	17197	14593	2226	972	2551	1276
MEAN	34.7	32.0	35.9	157	363	394	573	471	74.2	31.4	82.3	42.5
MAX	481	230	59	2290	5220	2610	4270	5870	708	106	1140	265
MIN	14	21	32	28	102	99	84	69	27	21	16	13
AC-FT	2130	1910	2210	9630	20160	24230	34110	28950	4420	1930	5060	2530

CAL YR 1989 TOTAL 65991 MEAN 181 MAX 14200 MIN 14 AC-FT 130900
WTR YR 1990 TOTAL 69203 MEAN 190 MAX 5870 MIN 13 AC-FT 137300

e Estimated

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 upstream from Duck Creek, 1.8 mi upstream from bridge on Interstate Highway 20, 3.8 mi northwest of Forney, 24 mi downstream from Lavon Dam, and 31.8 mi upstream from mouth.

DRAINAGE AREA.--1,071 mi².

PERIOD OF RECORD.--January 1968 to 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 long, including a 664-foot gated spillway with fourteen 40- by 28-foot tainter gates. Closure was made in September 1967, but the gates were not closed until Mar. 22, 1978. Low-flow releases are made through three 4.5- by 6.75-foot sluiceways. The lake was built by the city of Dallas for municipal water supply. Flow is affected at times by discharge from the flood-detention pools of 14 floodwater-retarding structures with a combined detention capacity of 12,530 acre-ft. These structures control runoff from 44.5 mi² above this station and below Lavon Lake station (08060500). Gage-height telemeter at station. Area and capacity tables are based on surveys made in 1953 and 1959. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	450.0	-
Design flood	440.5	611,500
Top of tainter gates	437.5	536,700
Top of conservation pool	435.5	489,900
Crest of spillway (sill of tainter gates)	409.5	83,130
Lowest gated outlet (invert)	388.0	80

COOPERATION.--The area and capacity tables were provided by Forrest and Cotton, Consulting Engineers, for the city of Dallas.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 544,100 acre-ft May 4, 1990 (elevation, 437.81 ft); minimum since first appreciable filling following closure of gates on Mar. 22, 1970, 326,600 acre-ft Sept. 29, 30, 1978 (elevation, 427.48 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 544,100 acre-ft May 4 at 1600 hours (elevation, 437.81 ft); minimum, 454,300 acre-ft Jan. 2 (elevation, 433.90 ft).

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

433.0	435,000	435.0	478,600	437.0	524,700
434.0	456,500	436.0	501,400	438.0	548,800

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	482900	474800	465100	454500	504600	488600	488800	490600	492900	487900	483800	475900
2	482900	473000	466400	454300	497700	488600	488600	503500	490200	488100	483800	475300
3	482500	471900	464000	455800	494000	489200	488100	535900	490400	487900	485200	475000
4	481800	471500	463300	456100	490600	489000	488600	534800	488300	487700	489900	474600
5	480900	471900	462900	456100	490800	489700	496300	509700	488100	487700	492000	473700
6	482000	471500	464200	456100	492200	490400	494300	498400	488800	487200	491700	472600
7	480400	472100	464800	456300	491700	493100	491700	491100	489000	486700	490400	472100
8	479300	471500	462200	455600	490400	491300	490400	489700	489700	486500	489900	472600
9	478200	471000	460700	456300	491300	489500	490400	491700	490200	487900	489700	471700
10	478200	470600	463300	456100	489000	489700	494900	489900	490600	489500	489200	473300
11	477100	470100	463500	457200	488100	492900	492000	489700	490400	490400	488600	473900
12	477100	469700	460000	456700	485800	494500	489000	491300	488800	493800	488300	473900
13	476600	469500	459800	455600	487000	491500	491500	490200	487400	490800	487900	473900
14	476200	469700	459600	456100	490200	499500	499100	489500	487000	489700	487700	473700
15	475700	469500	460900	455800	490600	497700	492200	487200	486300	488600	487200	473500
16	478000	468600	458700	456700	489500	492200	503200	490200	485200	487900	486300	473300
17	476200	467900	458700	458900	488300	489200	495900	487700	485600	488800	485800	473700
18	474400	467700	458900	470400	487900	493300	492000	486500	488100	489200	484900	473300
19	472800	467500	458000	481800	487900	489900	492700	480200	487900	489500	484500	472600
20	471700	467700	457600	483800	487700	489200	495600	475500	488100	488600	484300	472800
21	470600	467300	461300	484300	490600	488600	496300	473500	488600	487900	483800	473500
22	470800	471500	457600	484500	488800	490200	494700	472800	488600	489200	482900	472800
23	470800	468200	455600	485400	487900	491700	492200	473500	487400	488100	482200	471700
24	470800	466800	455600	487900	490200	492000	491100	476800	488300	487700	481600	470400
25	470600	467900	455200	485600	490800	493300	489500	480700	486300	487200	480900	469700
26	470100	467500	454800	482700	491500	491300	503200	484900	488800	487200	480700	469300
27	469700	470100	455200	487400	491700	489500	500900	489000	487900	486700	480000	468800
28	469500	467900	454800	486500	492000	491300	493300	490400	488100	486300	479300	468600
29	468800	465900	455800	485400	---	493100	491500	490200	487900	486100	478600	468400
30	474400	465500	456700	486500	---	491100	491500	491100	487700	485800	478200	468400
31	473500	---	455200	491500	---	488800	---	491300	---	484700	477100	---
MAX	482900	474800	466400	491500	504600	499500	503200	535900	492900	493800	492000	475900
MIN	468800	465500	454800	454300	485800	488600	488100	472800	485200	484700	477100	468400
(†)	434.77	434.41	433.94	435.57	435.59	435.45	435.57	435.56	435.40	435.27	434.93	434.54
(ϕ)	-10300	-8000	-10300	+36300	+500	-3200	+2700	-200	-3600	-3000	-7600	-8700

CAL YR 1989 MAX 510400 MIN 431600 (ϕ) +22600
WTR YR 1990 MAX 535900 MIN 454300 (ϕ) -15400

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

08061700 DUCK CREEK NEAR GARLAND, TX

LOCATION.--Lat 32°49'58", long 96°35'43", Dallas County, Hydrologic Unit 12030106, on right bank in the median area between the dual bridges on Belt Line Road, 6.0 mi southeast of Garland, and 7.7 mi upstream from mouth.

DRAINAGE AREA.--31.6 mi².

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 above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1962, at datum 4.00 ft higher.

REMARKS.--No estimated daily discharge. Records good. Flow is slightly regulated by several small on-channel dams. There are several small diversions above station including the irrigation of a golf course. Low flows are sustained by effluents from the city of Garland. Record rain gage located at station.

AVERAGE DISCHARGE.--32 years, 32.8 ft³/s (14.10 in/yr), 23,760 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,900 ft³/s Apr. 16, 1990 (gage height, 21.06 ft, present datum); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1895, 21.5 ft (present datum) June 13, 1949, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 18	2200	2,520	16.66	Apr. 16	0215	*16,900	*21.06
Feb. 1	0945	8,840	18.88	Apr. 26	1330	3,450	17.27
Mar. 14	1415	7,060	18.45	May 2	0330	13,600	20.23
Apr. 14	0900	9,860	19.15	May 3	0345	6,770	18.37

Minimum daily discharge, 0.47 ft³/s Oct. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	1.7	3.3	4.7	1560	16	13	23	548	2.5	1.7	1.6
2	3.8	2.1	3.4	3.6	145	10	10	2100	36	2.6	5.3	1.3
3	1.5	3.2	3.3	44	46	9.2	7.5	1790	141	3.1	83	1.6
4	1.4	2.6	3.3	34	23	7.8	7.2	107	31	2.0	382	1.6
5	1.5	2.3	3.5	5.3	15	7.3	19	53	9.6	1.6	174	2.4
6	2.5	2.3	3.5	5.0	12	9.8	175	32	7.1	8.1	43	2.5
7	2.1	2.5	4.0	3.9	10	183	13	25	5.7	3.8	11	2.3
8	1.5	2.0	4.9	3.0	9.6	44	9.1	17	4.9	2.3	7.8	18
9	1.3	1.7	4.0	2.9	48	17	7.8	15	4.5	2.6	6.4	17
10	1.3	1.6	3.5	5.7	31	12	396	13	4.1	1.8	5.5	52
11	.95	1.7	3.5	3.1	12	172	19	33	3.4	1.6	4.3	58
12	.92	2.0	5.4	2.7	10	43	12	109	3.0	2.4	3.7	21
13	.60	2.0	4.1	2.2	9.6	17	126	16	2.9	6.4	5.1	12
14	.47	2.3	3.7	2.2	26	1010	1350	11	2.7	3.7	37	5.3
15	.84	1.8	3.3	2.0	71	67	61	9.8	2.5	2.8	6.2	4.4
16	1.2	1.4	2.9	32	9.9	25	2680	9.8	2.0	2.4	4.5	3.7
17	1.4	1.7	2.9	59	8.8	18	86	9.2	1.9	2.9	3.6	2.5
18	13	1.5	3.9	676	7.7	13	56	19	1.4	4.8	3.4	14
19	2.9	2.4	3.9	1030	9.0	10	80	49	1.4	3.5	3.0	3.8
20	1.5	2.3	3.6	46	7.4	10	152	11	1.5	2.5	2.8	5.2
21	1.4	3.1	3.3	19	256	14	77	9.6	1.8	2.0	3.3	3.7
22	1.5	114	2.8	12	44	14	38	4.7	2.1	1.8	8.9	3.1
23	1.5	14	2.3	10	16	11	31	4.7	2.1	57	5.2	2.0
24	1.3	5.7	2.0	8.5	13	9.2	25	4.5	5.8	14	5.3	1.6
25	1.3	5.0	6.5	7.2	13	220	35	3.1	11	13	3.3	1.3
26	1.6	5.0	9.6	5.8	10	36	1240	2.9	4.7	4.6	2.6	1.2
27	1.1	4.3	5.6	6.5	8.4	66	122	2.8	3.5	3.3	2.1	1.0
28	1.1	3.6	4.3	11	102	265	61	2.5	3.0	2.6	2.0	1.2
29	1.1	3.5	4.0	16	---	138	35	2.3	2.7	2.4	1.7	1.3
30	472	3.3	24	6.5	---	27	25	45	2.4	2.6	2.0	1.2
31	5.4	---	23	286	---	17	---	57	---	2.1	2.1	---
TOTAL	532.88	202.6	161.3	2355.8	2533.4	2518.3	6968.6	4590.9	853.7	168.8	831.8	247.8
MEAN	17.2	6.75	5.20	76.0	90.5	81.2	232	148	28.5	5.45	26.8	8.26
MAX	472	114	24	1030	1560	1010	2680	2100	548	57	382	58
MIN	.47	1.4	2.0	2.0	7.4	7.3	7.2	2.3	1.4	1.6	1.7	1.0
AC-FT	1060	402	320	4670	5020	5000	13820	9110	1690	335	1650	492
CFSM	.54	.21	.16	2.40	2.86	2.57	7.35	4.69	.90	.17	.85	.26
IN.	.63	.24	.19	2.77	2.98	2.96	8.20	5.40	1.00	.20	.98	.29

CAL YR 1989 TOTAL 22522.38 MEAN 61.7 MAX 4120 MIN .47 AC-FT 44670 CFSM 1.95 IN. 26.51
WTR YR 1990 TOTAL 21965.88 MEAN 60.2 MAX 2680 MIN .47 AC-FT 43570 CFSM 1.90 IN. 25.86

08061750 EAST FORK TRINITY RIVER NEAR FORNEY, TX

LOCATION.--Lat 32°46'27", long 96°30'12", Kaufman County, Hydrologic Unit 12030106, on right bank 25 ft downstream from bridge on Interstate Highway 20, 0.2 mi downstream from Duck Creek, 1.9 mi downstream from Lake Ray Hubbard Dam, 2.5 mi upstream from Texas and Pacific Railroad Co. bridge, 2.6 mi northwest of Forney, and 30.8 mi upstream from mouth.

DRAINAGE AREA.--1,118 mi², of which 1,071 mi² is above Lake Ray Hubbard.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 374.86 ft above National Geodetic Vertical Datum of 1929 (from State Department of Highways and Public Transportation bridge plans). Prior to Aug. 26, 1975, recording gage at 3-foot higher datum located at site 126 ft upstream and 868 ft to left. From Aug. 26, 1975, to May 12, 1977, recording gage at 3-foot higher datum located at site 105 ft downstream. From May 13, 1977, to Sept. 30, 1984, recording gage at 3-foot higher datum at current site.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Flow is regulated by Lake Ray Hubbard (station 08061550). Low flow is sustained by sewage effluent discharged from the city of Garland into Duck Creek, which enters the East Fork Trinity River 0.2 mi upstream from this station. Gage-height telemeter at station.

AVERAGE DISCHARGE.--17 years (water years 1974-90), 609 ft³/s (441,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,000 ft³/s May 3, 1990 (gage height, 22.01 ft), from rating extended above 52,300 ft³/s; minimum daily, 13 ft³/s Oct. 18, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 53,000 ft³/s May 3 at 1515 hours (gage height, 22.01 ft), from rating extended above 52,300 ft³/s; minimum daily, 13 ft³/s Sept. 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	48	31	42	7220	1130	1590	e447	2270	1780	40	40
2	43	43	32	34	7900	409	1590	26900	2580	1780	40	39
3	43	39	32	34	2610	50	827	45300	2010	1780	70	41
4	44	38	34	103	1610	43	139	50700	1550	1770	338	38
5	44	34	33	46	497	43	1290	28400	240	1760	250	42
6	42	36	28	36	800	43	1940	14500	1840	1770	295	43
7	50	27	33	39	1180	626	1570	11400	1940	1780	431	44
8	47	39	37	35	1500	1180	1550	6160	1940	1780	73	43
9	43	40	34	31	1510	1120	1550	5140	1940	1090	43	57
10	38	35	33	35	1550	e123	2300	5110	1930	53	40	65
11	42	35	35	35	1490	e250	1720	5110	2320	42	39	115
12	41	39	33	34	1490	1210	1000	5110	2740	560	38	104
13	44	38	35	32	1480	1410	796	5080	2770	750	36	71
14	38	36	33	31	1480	3700	7090	5080	2760	625	66	65
15	38	47	39	32	1580	3890	4460	5080	2740	446	e47	54
16	41	39	36	39	1500	3160	11500	5080	2740	240	41	53
17	47	33	31	79	1490	1520	8370	5050	2160	43	39	53
18	50	32	35	163	1490	96	1090	4160	96	41	38	53
19	62	32	35	1810	1490	272	266	2550	1500	43	36	53
20	46	34	36	503	1510	958	860	3570	1810	40	35	42
21	42	34	38	180	1760	1300	1500	2010	1810	39	35	40
22	40	118	38	133	1400	1540	1610	76	1810	41	45	40
23	40	88	35	78	800	1580	1580	53	1810	68	48	e36
24	38	38	33	59	790	1560	1550	e52	1810	67	45	e33
25	41	32	32	58	960	1860	1540	e49	1830	65	43	32
26	43	33	39	40	1240	1750	5710	e45	1830	51	42	e32
27	46	32	43	40	1470	1570	6760	e43	1820	43	42	e34
28	43	34	43	40	1570	2150	4750	705	1810	40	40	35
29	39	32	44	51	---	1960	2380	1160	1790	38	41	e35
30	354	33	39	44	---	1720	e367	2040	1780	36	42	e35
31	113	---	68	104	---	1620	---	2100	---	38	42	---
TOTAL	1726	1218	1127	4020	51367	39843	79245	248260	57976	18699	2500	1467
MEAN	55.7	40.6	36.4	130	1835	1285	2641	8008	1933	603	80.6	48.9
MAX	354	118	68	1810	7900	3890	11500	50700	2770	1780	431	115
MIN	38	27	28	31	497	43	139	43	96	36	35	32
AC-FT	3420	2420	2240	7970	101900	79030	157200	492400	115000	37090	4960	2910

CAL YR 1989 TOTAL 439172 MEAN 1203 MAX 30300 MIN 27 AC-FT 871100
WTR YR 1990 TOTAL 507448 MEAN 1390 MAX 50700 MIN 27 AC-FT 1007000

e Estimated

08061750 EAST FORK TRINITY RIVER NEAR FORNEY, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: November 1981 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1981 to current year.
pH: August 1986 to current year.
WATER TEMPERATURE: October 1981 to current year.
DISSOLVED OXYGEN: August 1986 to current year.

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 1,100 microsiemens Aug. 29, 1985; minimum, 142 microsiemens July 13, 1986.
pH: Maximum, 8.9 units Aug. 13, 1989,; minimum, 6.6 units May 27, 28, 1987.
WATER TEMPERATURE: Maximum, 33.5°C Aug. 31, 1990,; minimum, 2.5°C Feb. 4, 1989.
DISSOLVED OXYGEN: Maximum, 14.0 mg/L June 28, 1988; minimum, 3.5 mg/L Oct. 21, 1986.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 788 microsiemens July 11; minimum, 145 microsiemens Aug. 4.
PH: Maximum, 8.7 units Feb. 16, 17, 19, and 24; minimum, 6.8 units Dec. 7, 10.
WATER TEMPERATURE: Maximum, 33.5°C Aug. 31; minimum, 4.0°C Dec. 23.
DISSOLVED OXYGEN: Maximum, 13.6 mg/l Aug. 27, 31; minimum, 4.1 mg/l Sep. 7.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
NOV 21...	1530	34	626	7.4	20.5	6.9	79	4.3	140	24	51	3.1
JAN 24...	1030	60	630	7.4	15.5	8.0	82	3.2	180	40	67	3.1
MAY 11...	0925	5110	292	8.0	19.0	9.7	107	1.2	110	0	42	2.2
JUN 13...	1015	2770	299	7.9	25.5	7.7	96	1.5	120	6	46	2.2
JUL 18...	1235	41	702	7.4	26.0	5.8	72	2.4	140	47	52	3.0
SEP 06...	1145	42	595	7.5	29.5	7.2	96	5.9	130	54	48	2.8

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
NOV 21...	66	2	11	120	53	59	1.1	9.3	323	8.37	0.030	8.40
JAN 24...	51	2	8.3	140	57	52	0.90	8.9	334	6.47	0.030	6.50
MAY 11...	9.2	0.4	3.2	120	19	8.0	0.40	1.4	154	0.430	0.070	0.500
JUN 13...	9.1	0.4	3.1	120	17	6.3	0.30	1.5	156	0.690	0.010	0.700
JUL 18...	67	2	10	96	48	83	0.80	7.1	329	8.08	0.020	8.10
SEP 06...	58	2	11	77	50	69	1.5	7.4	294	9.37	0.030	9.40

DATE	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)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
NOV 21...	0.100	2.2	2.3	7.50	--	--	--	--	--	--	--	--
JAN 24...	0.120	1.7	1.8	4.40	6	39	<0.5	<1.0	<5	<3	<10	35
MAY 11...	0.100	0.40	0.50	0.080	--	--	--	--	--	--	--	--
JUN 13...	0.040	0.36	0.40	0.120	--	--	--	--	--	--	--	--
JUL 18...	0.100	2.1	2.2	6.00	2	34	<0.5	<1.0	<5	<3	10	64
SEP 06...	0.100	1.9	2.0	5.60	--	--	--	--	--	--	--	--

08061750 EAST FORK TRINITY RIVER NEAR FORNEY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 21...	--	--	--	--	--	--	--	--	--	--	--
JAN 24...	<10	8	29	<0.1	<10	20	<1	1.0	680	<6	22
MAY 11...	--	--	--	--	--	--	--	--	--	--	--
JUN 13...	--	--	--	--	--	--	--	--	--	--	--
JUL 18...	<10	10	21	0.3	<10	20	<1	<1.0	580	<6	40
SEP 06...	--	--	--	--	--	--	--	--	--	--	--

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1989	1726	555	303	1410	42	197	52	242	160
NOV.	1989	1218	603	328	1080	48	157	55	182	180
DEC.	1989	1127	650	352	1070	55	167	57	175	180
JAN.	1990	4020	351	195	2120	21	231	36	395	110
FEB.	1990	51367	253	145	20100	9.5	1320	30	4170	88
MAR.	1990	39843	303	172	18500	13	1430	35	3740	100
APR.	1990	79245	292	166	35500	12	2630	34	7240	100
MAY	1990	248260	292	166	111000	12	8160	34	22700	100
JUNE	1990	57976	295	168	26200	12	1940	34	5340	100
JULY	1990	18699	288	164	8260	12	627	33	1670	98
AUG.	1990	2500	453	250	1690	30	201	45	307	140
SEPT	1990	1467	539	296	1170	39	154	52	206	160
TOTAL		507448	**	**	229000	**	17200	**	46400	**
WTD.AVG.		1390	294	167	**	13	**	34	**	100

08061750 EAST FORK TRINITY RIVER NEAR FORNEY, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	695	572	635	---	---	e531	694	623	665	582	545	566
2	614	564	587	---	---	e586	675	620	650	548	536	540
3	657	577	617	634	578	608	650	630	640	613	555	594
4	677	622	650	647	602	627	699	609	648	645	363	468
5	707	637	678	627	589	615	680	616	655	620	565	596
6	685	632	659	590	546	564	697	645	672	666	617	640
7	695	607	637	616	559	595	740	632	681	613	572	587
8	677	618	643	676	564	635	720	634	677	609	570	587
9	644	574	619	682	628	657	635	612	626	657	598	636
10	662	576	627	684	631	656	639	609	625	696	637	672
11	670	608	641	695	636	664	673	609	638	693	657	681
12	653	605	632	641	609	624	705	613	663	722	668	698
13	653	617	638	656	590	622	684	625	651	701	671	690
14	640	622	633	657	600	635	689	636	659	684	665	676
15	660	616	640	676	622	651	708	654	685	702	649	673
16	622	590	605	699	645	671	758	676	711	713	602	688
17	628	586	606	713	647	675	---	---	e673	578	405	523
18	674	583	642	727	649	685	---	---	e663	538	202	434
19	584	559	575	644	587	613	677	624	649	204	165	181
20	625	581	606	659	585	615	683	639	661	348	211	283
21	628	592	614	654	602	629	725	652	684	380	326	353
22	624	599	611	689	288	522	749	647	696	501	375	407
23	617	583	599	599	384	501	735	585	e663	640	521	574
24	628	584	613	599	553	574	---	---	e647	683	593	629
25	657	604	634	613	558	591	---	---	e597	664	576	625
26	715	634	674	624	566	595	---	---	e614	690	660	673
27	686	651	670	570	549	558	---	---	e632	687	633	657
28	717	657	687	649	572	621	---	---	e622	682	628	650
29	663	633	647	691	615	661	669	642	652	686	625	643
30	---	---	e335	679	648	668	706	636	667	690	646	664
31	---	---	e398	---	---	---	653	527	567	707	187	621
MONTH	717	559	615	727	288	615	758	527	653	722	165	578

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	223	181	202	293	273	283	307	301	304	340	325	329
2	210	204	207	507	287	366	306	297	301	---	---	e296
3	223	209	212	667	520	603	498	299	379	295	293	294
4	272	216	220	676	611	641	621	294	515	293	289	292
5	419	262	291	638	615	626	305	294	300	290	287	288
6	300	293	296	681	648	661	366	279	296	288	284	287
7	300	271	287	693	280	444	294	288	291	289	287	288
8	286	281	283	295	278	285	297	292	295	296	282	292
9	299	277	283	419	283	319	299	294	296	286	277	283
10	303	278	285	587	430	524	366	248	284	287	284	286
11	284	279	280	614	277	466	293	286	289	293	285	287
12	283	280	281	293	280	287	496	291	351	309	287	292
13	284	274	279	290	288	289	605	293	429	289	286	287
14	280	274	277	321	231	280	330	197	263	289	286	288
15	307	271	281	281	238	272	305	236	278	292	288	290
16	277	272	274	289	279	284	302	180	249	291	287	290
17	280	273	275	457	287	364	302	282	288	289	287	288
18	279	273	276	692	466	592	414	298	345	297	287	291
19	278	273	275	690	302	523	539	385	429	313	290	296
20	280	275	277	321	296	306	382	309	344	293	290	292
21	351	255	281	309	290	300	316	301	308	442	292	348
22	288	257	275	302	294	298	311	307	309	639	453	587
23	296	288	292	301	296	299	311	308	309	711	636	686
24	297	292	294	300	294	297	311	307	309	716	662	690
25	295	281	288	377	283	300	314	307	310	707	667	688
26	288	275	282	298	285	293	355	259	294	741	686	710
27	284	278	280	338	295	300	297	278	292	723	662	696
28	333	277	288	326	276	295	303	295	299	630	292	330
29	---	---	---	320	294	301	423	301	359	300	295	297
30	---	---	---	304	298	301	544	320	386	316	294	300
31	---	---	---	307	299	303	---	---	---	314	293	296
MONTH	419	181	272	693	231	377	621	180	323	741	277	370

e Estimated

08061750 EAST FORK TRINITY RIVER NEAR FORNEY, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	371	239	287	273	267	270	660	615	637	665	610	639
2	300	246	286	271	264	267	659	619	638	610	566	585
3	345	273	299	269	264	266	643	423	549	574	518	540
4	406	276	313	268	263	265	469	145	317	573	519	547
5	530	291	393	265	260	263	424	218	377	624	541	587
6	304	299	302	274	258	265	360	189	289	607	575	595
7	305	300	302	278	269	274	390	304	323	636	597	618
8	305	297	301	276	269	272	581	401	500	640	575	613
9	302	297	299	440	263	316	636	564	601	591	485	522
10	301	296	299	753	449	638	640	573	604	510	381	495
11	299	292	296	788	337	718	616	591	607	445	321	396
12	302	297	299	301	266	281	611	594	602	480	378	421
13	303	299	301	281	269	276	610	585	599	534	437	486
14	305	299	303	299	272	287	636	435	526	571	472	523
15	305	301	303	310	295	301	579	517	561	577	540	564
16	304	300	302	454	300	356	601	574	587	582	532	562
17	397	300	320	639	466	578	654	581	626	571	498	529
18	492	292	385	689	634	665	668	617	643	575	501	543
19	301	295	298	679	602	645	615	586	605	552	513	527
20	306	301	303	659	605	633	585	565	575	615	564	597
21	307	301	304	695	623	665	654	570	609	659	563	608
22	307	276	293	724	644	686	658	622	641	627	528	574
23	280	273	277	643	422	565	657	599	632	566	536	555
24	283	274	279	536	455	492	649	606	635	566	504	532
25	286	279	283	589	476	524	627	598	612	615	516	566
26	285	273	279	609	529	584	597	568	586	663	547	616
27	278	270	273	657	590	629	592	528	567	716	608	668
28	278	270	274	642	610	623	613	572	597	664	553	606
29	276	273	274	664	605	634	656	595	630	606	544	575
30	275	270	273	605	593	601	635	615	624	580	544	563
31	---	---	---	632	598	617	653	564	614	---	---	---
MONTH	530	239	300	788	258	466	668	145	565	716	321	558

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.6	7.5	7.5	---	---	---	7.3	7.1	7.2	---	---	---
2	7.5	7.4	7.5	---	---	---	7.2	7.0	7.1	---	---	---
3	---	---	---	7.3	7.0	7.1	7.1	6.9	7.0	---	---	---
4	---	---	---	7.5	7.0	7.3	7.2	6.9	7.0	---	---	---
5	7.6	7.5	7.6	7.5	7.3	7.4	7.2	7.1	7.2	---	---	---
6	7.6	7.4	7.5	7.6	7.3	7.4	7.2	7.0	7.1	---	---	---
7	7.6	7.4	7.5	7.5	7.1	7.4	7.0	6.8	7.0	---	---	---
8	7.5	7.4	7.5	7.7	7.0	7.4	7.1	6.9	7.0	---	---	---
9	7.5	7.3	7.4	7.5	7.3	7.4	7.3	6.9	7.1	---	---	---
10	7.5	7.4	7.5	7.4	7.2	7.3	7.1	6.8	6.9	---	---	---
11	7.6	7.4	7.5	7.4	7.2	7.3	7.3	7.1	7.2	---	---	---
12	7.5	7.3	7.5	7.4	7.2	7.3	7.3	7.2	7.3	---	---	---
13	---	---	---	7.5	7.3	7.4	7.4	7.2	7.3	---	---	---
14	---	---	---	7.6	7.2	7.4	7.6	7.3	7.5	---	---	---
15	---	---	---	7.6	7.4	7.5	7.3	7.3	7.3	---	---	---
16	---	---	---	7.6	7.4	7.5	7.3	7.2	7.2	---	---	---
17	7.5	7.4	7.5	7.5	7.5	7.5	7.2	7.1	7.2	---	---	---
18	7.7	7.5	7.5	7.5	7.4	7.4	7.2	7.1	7.2	---	---	---
19	7.7	7.6	7.6	7.5	7.3	7.4	7.2	7.2	7.2	---	---	---
20	7.6	7.5	7.6	7.5	7.4	7.4	7.3	7.2	7.2	---	---	---
21	7.7	7.0	7.5	---	---	---	7.3	7.3	7.3	---	---	---
22	7.5	7.4	7.5	---	---	---	7.4	7.3	7.3	---	---	---
23	7.4	7.4	7.4	7.7	7.5	7.6	7.4	7.2	7.3	---	---	---
24	7.4	7.3	7.4	7.6	7.4	7.5	---	---	---	---	---	---
25	7.3	7.1	7.2	---	---	---	---	---	---	7.7	7.6	7.6
26	7.4	7.0	7.2	---	---	---	---	---	---	7.6	7.6	7.6
27	7.3	7.2	7.3	---	---	---	---	---	---	7.6	7.5	7.6
28	7.3	7.1	7.3	7.3	7.1	7.2	---	---	---	7.6	7.5	7.6
29	7.2	7.0	7.1	7.3	7.1	7.2	7.2	7.0	7.2	7.8	7.5	7.7
30	---	---	---	7.3	7.2	7.2	---	---	---	7.7	7.5	7.6
31	---	---	---	---	---	---	---	---	---	8.0	7.5	7.6
MONTH	7.7	7.0	7.4	7.7	7.0	7.4	7.6	6.8	7.2	8.0	7.5	7.6

08061750 EAST FORK TRINITY RIVER NEAR FORNEY, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	8.5	8.4	8.5	---	---	---	---	---	---
2	---	---	---	8.4	7.8	8.2	---	---	---	---	---	---
3	---	---	---	7.8	7.6	7.7	---	---	---	7.8	7.6	7.7
4	---	---	---	7.6	7.6	7.6	---	---	---	7.9	7.6	7.8
5	---	---	---	7.7	7.6	7.7	---	---	---	8.2	7.8	8.0
6	---	---	---	7.7	7.6	7.7	---	---	---	8.2	8.0	8.1
7	---	---	---	8.1	7.6	7.9	---	---	---	8.1	8.0	8.1
8	---	---	---	8.3	8.0	8.2	---	---	---	8.1	7.8	8.0
9	---	---	---	8.3	7.9	8.1	---	---	---	8.1	7.8	7.9
10	---	---	---	7.8	7.7	7.7	---	---	---	8.2	8.0	8.1
11	---	---	---	7.9	7.5	7.7	---	---	---	8.1	8.0	8.1
12	---	---	---	8.0	7.9	7.9	---	---	---	8.1	8.0	8.0
13	---	---	---	8.0	8.0	8.0	---	---	---	8.0	7.9	8.0
14	8.5	8.4	8.5	8.0	7.9	7.9	---	---	---	8.0	7.9	7.9
15	8.6	8.3	8.5	8.2	8.0	8.1	---	---	---	8.0	7.8	7.9
16	8.7	8.5	8.6	8.3	8.0	8.2	---	---	---	8.1	7.9	8.0
17	8.7	8.6	8.6	8.3	7.8	8.1	---	---	---	8.2	8.1	8.1
18	8.6	8.6	8.6	7.8	7.8	7.8	---	---	---	8.1	8.0	8.1
19	8.7	8.5	8.6	8.3	7.7	8.0	---	---	---	8.1	8.0	8.0
20	8.6	8.5	8.6	8.3	8.2	8.2	---	---	---	8.1	8.0	8.1
21	8.6	8.2	8.5	8.3	8.2	8.2	---	---	---	8.1	7.8	8.0
22	8.6	8.4	8.5	8.2	8.1	8.2	---	---	---	7.8	7.4	7.6
23	8.6	8.5	8.6	---	---	---	---	---	---	7.5	7.4	7.4
24	8.7	8.5	8.6	---	---	---	---	---	---	7.5	7.4	7.5
25	8.6	8.4	8.5	---	---	---	---	---	---	7.6	7.5	7.6
26	8.5	8.4	8.5	---	---	---	---	---	---	7.5	7.4	7.5
27	8.5	8.4	8.5	---	---	---	---	---	---	7.5	7.2	7.4
28	8.5	8.3	8.4	---	---	---	---	---	---	8.4	7.8	8.0
29	---	---	---	---	---	---	---	---	---	8.1	7.8	8.0
30	---	---	---	---	---	---	---	---	---	8.0	7.7	7.8
31	---	---	---	---	---	---	---	---	---	8.0	7.7	7.8
MONTH	8.7	8.2	8.5	8.5	7.5	8.0	---	---	---	8.4	7.2	7.9
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.0	7.6	7.9	8.2	7.8	8.0	7.6	7.5	7.6	7.9	7.5	7.6
2	8.2	7.9	8.0	8.4	8.1	8.2	7.5	7.5	7.5	7.8	7.4	7.6
3	8.1	7.8	8.0	8.4	8.0	8.2	7.7	7.5	7.5	7.5	7.3	7.4
4	8.1	7.8	8.0	8.3	7.8	8.0	8.4	7.6	7.9	7.6	7.4	7.5
5	8.1	7.5	7.8	8.1	7.7	7.9	---	---	---	7.6	7.3	7.4
6	8.0	7.7	7.9	8.0	7.6	7.8	---	---	---	7.5	7.3	7.4
7	7.9	7.8	7.8	7.9	7.5	7.7	---	---	---	7.3	7.3	7.3
8	8.1	7.8	8.0	7.8	7.6	7.7	---	---	---	7.3	7.3	7.3
9	8.3	8.1	8.2	7.9	7.6	7.8	---	---	---	7.5	7.2	7.4
10	8.4	8.2	8.3	7.7	7.5	7.6	7.7	7.5	7.6	7.6	7.3	7.4
11	8.4	8.1	8.3	8.2	7.4	7.6	7.9	7.6	7.8	7.7	7.4	7.5
12	8.2	8.0	8.1	8.1	7.8	8.0	7.8	7.7	7.8	7.9	7.6	7.7
13	8.0	7.8	7.9	8.3	7.8	8.1	7.8	7.8	7.8	7.7	7.3	7.5
14	7.9	7.8	7.9	8.3	8.1	8.2	8.0	7.7	7.9	7.5	7.3	7.4
15	7.9	7.8	7.9	8.2	7.9	8.1	7.8	7.7	7.7	7.4	7.2	7.3
16	7.9	7.8	7.8	8.0	7.7	7.9	7.7	7.5	7.6	7.3	7.2	7.2
17	8.0	7.6	7.8	7.7	7.5	7.6	7.5	7.4	7.5	7.2	7.2	7.2
18	8.4	7.3	7.7	7.5	7.4	7.5	7.5	7.4	7.4	7.3	7.1	7.2
19	8.3	8.1	8.2	7.5	7.4	7.4	7.5	7.4	7.4	7.3	7.2	7.2
20	8.3	8.1	8.2	7.4	7.3	7.4	7.5	7.4	7.4	---	---	---
21	8.3	8.0	8.1	7.4	7.3	7.4	8.0	7.3	7.5	---	---	---
22	8.3	7.9	8.1	7.4	7.3	7.4	7.5	7.3	7.4	---	---	---
23	8.3	8.1	8.2	7.6	7.3	7.4	7.6	7.3	7.4	---	---	---
24	8.1	7.9	8.0	7.6	7.5	7.6	7.6	7.4	7.5	---	---	---
25	8.0	7.8	7.9	7.6	7.5	7.5	7.7	7.5	7.6	---	---	---
26	8.0	7.7	7.9	7.5	7.4	7.5	7.7	7.5	7.6	---	---	---
27	8.1	7.8	8.0	7.5	7.4	7.5	8.6	7.5	7.8	---	---	---
28	8.0	7.8	7.9	7.5	7.4	7.5	7.9	7.5	7.7	---	---	---
29	8.0	7.8	7.9	8.2	7.4	7.6	7.5	7.4	7.4	---	---	---
30	8.0	7.8	7.9	7.7	7.6	7.7	7.7	7.4	7.5	---	---	---
31	---	---	---	7.7	7.6	7.7	8.4	7.5	7.7	---	---	---
MONTH	8.4	7.3	8.0	8.4	7.3	7.7	8.6	7.3	7.6	7.9	7.1	7.4

08061750 EAST FORK TRINITY RIVER NEAR FORNEY, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

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

08061750 EAST FORK TRINITY RIVER NEAR FORNEY, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	24.0	23.0	23.5	28.0	27.5	28.0	29.5	27.5	28.0	31.0	29.5	30.0
2	24.0	23.5	24.0	28.5	27.5	28.0	29.0	27.0	28.0	30.0	28.0	29.0
3	24.5	24.0	24.0	28.5	27.5	28.0	28.0	27.0	27.5	30.0	27.5	28.5
4	25.5	24.0	24.5	28.5	28.0	28.0	27.0	24.5	26.0	30.5	28.0	29.5
5	26.0	24.0	25.0	29.0	28.0	28.5	27.0	24.5	26.5	31.0	28.0	29.5
6	24.5	24.0	24.0	29.0	27.5	28.5	27.0	24.0	25.0	31.0	29.0	30.0
7	25.0	24.0	24.5	28.5	27.5	28.0	28.0	26.5	27.0	30.5	28.5	29.5
8	25.0	24.5	24.5	28.5	27.5	28.0	28.0	26.0	27.0	29.0	28.0	28.5
9	25.5	24.5	25.0	29.0	27.5	28.0	29.0	26.0	27.5	28.0	26.5	27.0
10	26.0	25.0	25.5	30.0	28.0	29.0	30.0	27.0	28.0	28.0	25.5	27.0
11	26.0	25.5	26.0	31.0	28.0	29.0	30.0	27.5	28.5	26.5	25.0	25.5
12	26.0	25.0	25.5	30.0	27.5	28.5	30.5	27.5	29.0	27.0	25.0	26.5
13	25.5	25.0	25.0	28.5	27.5	28.0	30.0	27.5	29.0	28.0	27.0	27.5
14	26.0	25.0	25.5	28.5	27.0	27.5	29.5	27.5	28.5	29.5	27.0	28.0
15	26.5	25.5	26.0	27.0	26.5	27.0	30.5	28.5	29.0	30.5	28.0	29.0
16	26.5	25.5	26.0	27.5	26.5	27.0	30.5	28.0	29.0	30.0	28.0	29.0
17	27.0	26.0	26.5	26.5	25.5	26.0	30.5	28.0	29.0	29.5	28.0	29.0
18	29.0	26.5	27.5	27.5	25.5	26.5	30.5	27.5	29.0	29.5	27.5	28.5
19	28.0	27.0	27.5	28.5	26.0	27.0	30.5	28.0	29.0	30.0	27.5	28.5
20	28.0	26.5	27.0	29.0	26.5	27.5	31.0	28.5	29.5	29.0	28.0	28.5
21	28.0	27.0	27.5	29.0	27.0	28.0	32.5	28.5	30.0	29.0	28.0	28.5
22	29.0	27.0	28.0	29.0	27.0	28.0	31.0	28.5	29.5	29.0	27.0	28.0
23	29.0	28.0	28.5	27.5	26.5	27.0	30.5	29.0	29.5	27.0	23.5	25.5
24	28.0	27.5	28.0	27.0	26.5	26.5	31.0	28.5	29.5	24.5	22.0	23.0
25	28.0	27.5	27.5	27.5	26.0	26.5	31.0	28.5	29.5	25.5	23.0	24.0
26	28.0	27.0	27.5	29.0	26.5	27.5	31.0	28.5	30.0	27.0	24.0	25.5
27	28.0	27.5	27.5	29.5	27.0	28.0	33.0	29.0	30.5	28.0	25.0	26.5
28	28.0	27.5	27.5	30.0	27.0	28.5	31.0	29.5	30.0	28.0	26.0	27.0
29	28.0	27.0	27.5	32.0	28.0	29.5	31.5	29.0	30.0	28.5	26.0	27.0
30	28.0	27.5	28.0	30.0	28.5	29.0	31.5	29.0	30.5	28.0	26.0	27.0
31	---	---	---	29.5	27.5	28.5	33.5	29.5	30.5	---	---	---
MONTH	29.0	23.0	26.0	32.0	25.5	28.0	33.5	24.0	28.5	31.0	22.0	27.5

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	8.1	6.2	6.9	---	---	---	8.4	7.4	8.0	9.2	8.5	8.8
2	8.1	6.3	7.0	---	---	---	8.2	7.5	7.8	9.0	8.5	8.8
3	8.2	5.9	7.0	7.6	7.1	7.3	8.3	7.4	7.7	8.4	7.8	8.2
4	6.9	6.0	6.5	7.4	6.9	7.1	8.4	8.0	8.3	8.6	7.8	8.2
5	7.2	5.9	6.6	6.9	6.5	6.7	8.2	7.7	8.0	8.3	8.1	8.2
6	6.8	6.1	6.5	7.0	5.9	6.4	8.2	7.2	7.8	8.3	8.0	8.1
7	7.2	5.8	6.3	6.0	5.2	5.7	7.8	6.6	7.0	8.8	8.1	8.4
8	8.4	6.6	7.5	5.9	5.1	5.5	8.6	7.3	7.8	8.9	8.1	8.4
9	8.3	6.4	7.4	6.4	5.7	6.0	8.9	8.5	8.7	8.6	8.0	8.3
10	8.6	6.6	7.5	6.6	6.1	6.3	8.5	8.0	8.3	9.1	8.1	8.6
11	8.5	6.1	7.1	6.5	5.7	6.1	8.8	7.6	8.0	9.1	8.4	8.7
12	8.1	6.5	7.3	6.6	5.8	6.2	9.1	8.7	9.0	9.1	8.2	8.6
13	7.9	6.4	7.0	6.5	5.7	6.1	9.9	8.9	9.4	9.8	8.8	9.4
14	8.0	6.1	7.0	6.4	5.8	6.1	9.9	8.8	9.3	9.5	9.1	9.3
15	7.4	5.9	6.7	7.2	5.5	6.2	9.1	8.4	8.6	9.7	8.5	9.0
16	6.8	5.9	6.4	8.0	6.9	7.5	9.8	9.2	9.5	8.4	7.7	8.0
17	7.9	5.8	6.6	7.8	7.4	7.6	9.6	8.9	9.2	8.2	7.3	7.5
18	8.3	7.5	7.7	7.5	6.9	7.2	9.3	8.7	8.9	8.4	7.3	7.7
19	9.3	8.0	8.6	7.6	6.7	7.2	9.0	8.2	8.6	8.8	7.4	8.3
20	9.4	8.3	8.9	7.6	6.7	7.1	9.5	8.8	9.1	7.5	7.2	7.3
21	9.0	7.7	8.4	6.9	6.2	6.6	9.4	8.6	8.9	7.4	7.1	7.2
22	8.7	7.4	8.1	6.9	5.6	6.2	10.6	9.5	10.0	7.2	6.6	6.8
23	8.6	7.2	7.8	8.0	6.9	7.7	10.5	10.2	10.3	8.2	7.3	7.9
24	8.4	6.5	7.4	7.7	7.4	7.6	---	---	---	8.2	7.8	8.0
25	7.9	6.1	7.0	7.7	7.5	7.6	---	---	---	9.4	8.4	8.9
26	6.7	5.9	6.2	7.4	7.0	7.2	---	---	---	9.1	8.7	8.9
27	6.4	5.2	5.8	7.3	6.6	6.9	---	---	---	9.0	8.2	8.6
28	6.0	5.1	5.6	8.1	6.7	7.3	---	---	---	8.1	7.8	7.9
29	5.9	5.3	5.6	8.2	7.8	8.0	9.0	8.7	8.9	9.1	7.9	8.5
30	---	---	---	8.2	7.8	8.0	8.4	7.3	7.7	8.7	8.2	8.5
31	---	---	---	---	---	---	10.0	7.9	9.1	9.4	8.1	8.5
MONTH	9.4	5.1	7.0	8.2	5.1	6.8	10.6	6.6	8.6	9.8	6.6	8.3

08061750 EAST FORK TRINITY RIVER NEAR FORNEY, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	12.0	9.3	10.9	---	---	---	10.7	10.3	10.5	11.7	11.1	11.3
2	12.2	11.7	12.0	11.6	10.0	11.2	10.9	10.2	10.5	---	---	---
3	12.2	11.3	12.0	9.9	8.8	9.2	10.8	9.4	10.3	---	---	---
4	12.8	11.3	12.3	9.0	8.4	8.8	13.0	8.2	9.2	---	---	---
5	12.7	9.2	10.9	8.8	8.4	8.7	10.5	10.2	10.3	---	---	---
6	12.6	11.6	12.0	8.6	8.0	8.4	10.7	9.7	10.3	---	---	---
7	12.9	11.7	12.1	10.4	8.1	9.4	10.9	10.5	10.6	---	---	---
8	12.5	11.8	12.1	11.5	10.4	11.0	10.7	10.4	10.6	---	---	---
9	12.1	11.6	11.8	11.7	9.5	10.9	10.5	10.3	10.4	---	---	---
10	12.4	11.5	11.9	9.3	7.9	8.4	10.3	9.4	9.9	---	---	---
11	12.4	11.8	12.0	9.8	7.4	8.4	10.9	10.1	10.5	---	---	---
12	12.2	11.6	11.9	10.8	9.8	10.4	10.8	9.0	10.0	9.4	9.2	9.3
13	11.8	11.0	11.5	10.8	10.4	10.6	10.7	8.1	9.4	9.6	9.3	9.5
14	11.2	10.7	10.9	10.4	8.7	9.8	10.8	9.4	10.2	9.6	9.4	9.5
15	11.0	10.3	10.6	10.5	9.1	10.1	11.0	10.3	10.7	9.5	9.1	9.3
16	11.3	10.7	11.0	10.6	10.2	10.4	12.4	8.0	10.4	9.3	9.1	9.2
17	11.6	10.8	11.1	10.7	7.7	9.2	12.0	10.4	11.3	9.5	9.2	9.3
18	11.1	10.8	10.9	8.1	7.4	7.7	11.6	9.0	10.3	9.3	9.0	9.2
19	11.4	10.8	11.0	10.1	7.4	8.6	10.9	8.6	9.3	9.1	8.9	9.0
20	11.4	10.8	11.0	11.4	10.1	10.7	11.9	10.0	11.0	9.1	8.9	9.0
21	10.9	10.1	10.7	11.1	10.5	10.8	12.2	10.8	11.7	9.1	7.6	8.5
22	11.0	10.4	10.7	11.1	10.7	10.9	12.4	11.8	12.0	7.5	6.2	6.6
23	11.6	10.6	11.0	11.2	10.9	11.0	12.3	11.4	11.9	6.4	5.8	6.1
24	11.8	10.7	11.1	11.2	10.8	11.0	11.6	11.1	11.4	6.7	6.0	6.3
25	11.8	10.9	11.3	11.3	10.9	11.2	11.4	11.1	11.2	7.0	6.1	6.4
26	---	---	---	11.5	11.2	11.4	11.3	10.2	10.7	6.9	6.0	6.5
27	---	---	---	11.4	11.1	11.3	11.6	10.8	11.3	7.0	5.9	6.4
28	---	---	---	11.2	11.0	11.1	11.8	11.4	11.6	10.7	7.9	8.5
29	---	---	---	11.1	10.8	11.0	11.5	8.5	10.2	8.8	8.3	8.5
30	---	---	---	11.6	11.1	11.2	11.5	7.1	9.4	8.5	8.2	8.4
31	---	---	---	11.1	10.3	10.7	---	---	---	8.7	8.2	8.4
MONTH	12.9	9.2	11.4	11.7	7.4	10.1	13.0	7.1	10.6	11.7	5.8	8.3
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.1	7.3	7.7	8.4	7.4	7.9	7.6	6.4	7.1	10.8	5.7	7.8
2	8.6	7.6	8.1	8.4	7.5	7.9	7.6	5.9	6.7	10.0	5.9	7.5
3	8.8	7.7	8.4	8.5	7.3	7.9	6.9	5.6	6.1	7.8	4.5	5.9
4	8.9	7.5	8.2	8.6	7.1	7.7	7.4	4.9	6.2	8.5	5.5	6.8
5	8.6	6.5	7.5	8.2	6.8	7.5	---	---	---	9.0	4.2	6.2
6	8.3	8.0	8.2	8.3	6.8	7.4	---	---	---	7.6	5.5	6.6
7	8.3	8.0	8.2	7.9	6.7	7.2	---	---	---	5.6	4.1	4.9
8	8.5	8.1	8.2	7.8	7.0	7.3	---	---	---	5.5	4.5	4.8
9	8.5	8.1	8.2	8.0	7.0	7.5	---	---	---	5.4	4.5	4.9
10	8.6	8.1	8.3	6.9	5.3	6.0	6.7	6.0	6.3	6.7	4.9	5.6
11	8.5	8.0	8.3	9.8	5.0	5.9	6.7	5.8	6.2	7.0	5.6	6.3
12	8.2	7.8	8.0	8.8	6.5	7.6	---	---	---	8.8	6.6	7.4
13	7.9	7.7	7.8	8.4	7.2	7.8	---	---	---	7.5	6.1	6.7
14	7.9	7.8	7.9	9.1	7.5	8.2	---	---	---	7.5	6.1	6.5
15	8.1	7.8	7.9	8.9	7.1	8.0	---	---	---	7.1	5.3	6.2
16	8.1	7.8	7.9	8.5	7.2	7.8	---	---	---	7.3	4.8	5.8
17	8.5	7.5	8.0	6.9	5.9	6.3	---	---	---	6.1	4.6	5.1
18	8.4	5.7	6.9	6.0	4.8	5.7	---	---	---	5.7	4.7	5.2
19	8.5	7.8	8.1	6.9	4.7	5.7	---	---	---	5.9	4.8	5.3
20	8.5	7.8	8.1	6.9	5.5	6.1	---	---	---	5.2	4.4	4.9
21	8.5	7.8	8.1	6.8	5.4	6.1	---	---	---	5.8	4.5	5.0
22	---	---	---	7.2	5.5	6.2	---	---	---	7.2	5.1	5.8
23	---	---	---	6.4	5.1	5.9	---	---	---	7.2	5.7	6.4
24	---	---	---	6.9	6.0	6.5	7.5	5.4	6.2	7.7	6.5	7.1
25	---	---	---	6.9	6.1	6.5	8.3	5.1	6.4	6.8	5.7	6.4
26	---	---	---	7.3	6.1	6.6	9.2	5.3	6.9	6.5	5.5	6.0
27	8.3	7.6	7.9	7.4	5.8	6.5	13.6	5.6	8.4	6.9	5.2	5.9
28	8.2	7.5	7.8	8.4	5.7	6.9	9.2	5.9	7.7	7.5	5.1	6.0
29	8.1	7.5	7.7	12.7	5.3	8.0	8.3	4.7	6.2	7.6	5.5	6.4
30	8.2	7.4	7.8	10.4	6.7	8.4	9.6	5.2	7.0	6.3	5.0	5.7
31	---	---	---	9.5	6.4	7.9	13.6	5.8	8.4	---	---	---
MONTH	8.9	5.7	8.0	12.7	4.7	7.1	13.6	4.7	6.8	10.8	4.1	6.0

08061970 EAST FORK TRINITY RIVER ABOVE SEAGOVILLE, TX

LOCATION.--Lat 32°42'01", long 96°31'52", Dallas County, Hydrologic Unit 12030106, at downstream side of downstream bridge on IH 20 (under construction) about 20 ft right of channel; 100 ft downstream from South Mesquite Creek and 3.7 mi north of intersection of U. S. Highway 175 and Malloy Bridge Road in Seagoville.

PERIOD OF RECORD.--Chemical and biochemical analyses: April 1987 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: March 1987 to current year.
pH: March 1987 to current year.
WATER TEMPERATURE: March 1987 to current year.
DISSOLVED OXYGEN: March 1987 to current year.

INSTRUMENTATION.--Beginning March 1987, a four-parameter water-quality monitor continuously records specific conductance, pH, water temperature, and dissolved oxygen at this station.

REMARKS.--Interruptions in the record were due to malfunction of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD --
SPECIFIC CONDUCTANCE: Maximum, 818 microsiemens Aug. 15, 1987; minimum, 110 microsiemens May 17,1989.
pH: Maximum, 8.8 units Dec. 22, 1989; minimum 6.6 units Mar. 29, 1988.
WATER TEMPERATURE: Maximum, 32.0°C Aug. 8,9 1988; minimum, 3.0°C Jan. 8, 1988, Feb. 4-6, 1989.
DISSOLVED OXYGEN: Maximum, 13.2 mg/L Mar. 5, 1989; minimum, 1.0 mg/L May 22, 1989.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 782 microsiemens Jan. 7; minimum, 110 microsiemens May 17.
pH: Maximum, 8.8 units Dec. 22; minimum, 6.8 units Aug. 11.
WATER TEMPERATURE: Maximum, 30.5°C Aug. 29, 31; minimum, 3.0°C Feb. 4, 5, 6.
DISSOLVED OXYGEN: Maximum, 13.2 mg/L Mar. 5; minimum, 1.0 mg/L May 22.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
DEC										
14...	1055	33	651	7.7	8.0	9.5	81	9.3	150	23
JAN										
24...	1545	59	524	7.7	15.0	8.2	84	1.9	160	24
APR										
26...	1215	5710	195	7.9	18.0	8.4	91	6.0	68	2
JUN										
13...	1320	2770	320	7.9	26.0	7.2	90	1.4	130	5
JUL										
19...	0830	43	647	7.5	25.5	3.8	47	8.1	160	33
SEP										
06...	1515	43	583	7.7	29.5	5.7	76	7.7	130	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 WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
DEC									
14...	55	3.7	65	2	11	130	58	62	1.0
JAN									
24...	57	3.3	37	1	7.0	130	46	39	0.60
APR									
26...	24	2.0	8.0	0.4	3.1	66	15	4.3	0.20
JUN									
13...	47	2.2	11	0.4	3.3	120	19	8.1	0.30
JUL									
19...	57	3.9	58	2	8.4	120	47	69	0.70
SEP									
06...	47	3.8	53	2	10	110	40	70	0.70

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)
DEC									
14...	9.0	343	6.82	0.280	7.10	1.70	1.5	3.2	5.70
JAN									
24...	8.6	278	2.91	0.090	3.00	1.10	1.3	2.4	2.10
APR									
26...	6.4	103	0.230	0.170	0.400	0.270	1.0	1.3	0.290
JUN									
13...	1.8	165	0.760	0.040	0.800	0.210	0.49	0.70	0.270
JUL									
19...	6.9	326	5.27	0.330	5.60	2.20	1.6	3.8	4.70
SEP									
06...	5.6	296	5.42	0.380	5.80	3.20	3.2	6.4	5.10

08061970 EAST FORK TRINITY RIVER ABOVE SEAGOVILLE, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	650	634	641	507	422	460	728	668	701	650	559	585
2	672	631	643	579	518	550	710	634	670	640	601	615
3	671	607	631	627	574	603	659	613	640	647	584	609
4	669	592	628	633	590	622	655	598	624	612	452	537
5	679	627	651	642	603	622	655	603	636	576	438	495
6	696	634	664	652	630	637	694	608	653	626	569	598
7	702	650	672	657	610	632	698	634	664	631	599	618
8	669	638	653	653	579	613	722	643	678	627	611	618
9	674	620	642	685	575	634	718	651	689	642	603	628
10	671	634	651	700	644	676	694	626	653	690	612	649
11	663	611	632	700	651	673	670	629	647	698	654	676
12	670	633	651	676	644	658	670	611	646	705	661	681
13	674	629	648	673	644	657	674	617	647	709	682	693
14	668	627	650	677	636	661	683	640	664	697	665	678
15	655	630	640	674	625	649	694	631	667	698	669	677
16	665	631	639	681	635	666	708	659	691	724	608	680
17	672	623	645	674	630	651	722	679	701	669	394	570
18	669	573	619	684	624	653	707	678	691	531	173	407
19	646	601	628	684	646	663	701	610	648	228	159	191
20	633	580	598	682	637	658	689	587	643	298	217	249
21	612	541	589	673	622	653	695	636	671	358	292	321
22	604	539	573	671	273	495	709	655	689	420	337	375
23	588	556	572	558	379	436	700	663	682	506	394	450
24	615	565	590	594	478	524	684	643	665	570	487	522
25	625	576	596	616	594	607	640	577	611	583	526	555
26	610	568	593	623	574	598	598	567	582	587	508	558
27	643	601	614	644	585	611	591	555	575	606	575	593
28	691	626	648	650	595	621	613	557	583	611	583	593
29	694	669	680	678	580	627	651	611	626	624	589	605
30	696	157	429	717	637	670	670	646	660	651	600	622
31	417	243	331	---	---	---	672	597	639	675	156	538
MONTH	702	157	614	717	273	616	728	555	653	724	156	554
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	244	147	187	335	296	314	349	332	339	379	348	365
2	268	204	237	465	323	361	345	328	338	449	127	246
3	299	271	286	558	458	500	480	321	371	295	288	292
4	308	290	302	662	559	608	607	489	540	294	292	293
5	388	303	339	669	641	658	612	312	345	293	288	290
6	328	307	318	673	643	659	595	249	329	295	287	291
7	328	288	309	671	237	404	337	317	328	304	294	298
8	308	300	304	324	309	318	339	324	332	329	305	313
9	353	301	314	372	311	324	338	324	333	333	310	319
10	352	301	326	554	386	482	410	200	281	331	310	319
11	308	295	303	583	331	469	334	288	312	336	312	323
12	307	292	300	341	311	322	429	326	348	348	315	335
13	308	290	301	330	316	323	494	302	423	333	310	320
14	309	292	302	405	194	285	360	148	230	319	305	313
15	342	299	322	308	258	279	387	218	261	355	305	314
16	330	290	304	320	305	315	228	136	175	317	306	313
17	312	292	302	420	315	339	304	189	263	332	307	316
18	307	291	299	564	425	488	383	307	335	331	309	318
19	305	293	300	622	374	585	464	388	419	416	319	343
20	306	290	300	356	315	340	479	360	413	325	310	317
21	455	223	302	384	310	332	382	329	346	431	311	334
22	326	278	294	336	316	327	340	329	334	533	428	465
23	330	308	320	335	322	329	339	331	335	587	504	549
24	335	319	327	336	318	328	341	328	336	640	586	614
25	339	296	317	426	250	331	364	331	339	671	628	653
26	315	299	306	332	304	314	409	176	258	665	636	650
27	315	292	303	433	317	335	377	232	262	668	616	650
28	444	297	328	419	279	335	331	255	299	655	303	454
29	---	---	---	396	283	335	397	327	339	333	307	320
30	---	---	---	341	326	331	466	343	409	509	299	334
31	---	---	---	349	335	343	---	---	---	335	310	318
MONTH	455	147	302	673	194	388	612	136	332	671	127	374

08061970 EAST FORK TRINITY RIVER ABOVE SEAGOVILLE, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	534	188	286	293	270	283	613	486	588	654	619	638
2	319	242	278	283	268	277	664	443	580	648	605	631
3	414	220	314	283	268	276	675	448	636	637	609	623
4	350	241	299	284	269	277	570	245	416	621	587	610
5	471	298	391	279	263	273	397	214	308	622	566	590
6	337	300	321	283	263	273	380	238	299	624	557	592
7	339	316	326	295	280	286	364	300	331	615	586	603
8	333	315	324	293	273	285	491	329	399	636	586	616
9	328	312	319	365	269	292	601	477	521	633	564	604
10	324	307	317	---	---	503	651	589	618	592	349	506
11	319	306	313	---	---	612	649	590	616	467	235	360
12	322	304	313	734	273	439	626	591	612	483	411	449
13	322	309	316	298	283	291	638	601	620	521	417	454
14	324	309	317	334	273	297	640	618	629	542	509	530
15	329	312	319	329	298	313	647	499	568	580	514	547
16	329	310	320	390	285	321	634	560	591	571	560	567
17	332	311	320	499	400	444	645	608	630	584	565	572
18	---	---	374	622	471	528	642	607	625	585	535	555
19	326	289	305	696	633	654	641	623	633	583	514	556
20	324	309	316	699	660	682	639	619	630	569	542	559
21	320	302	313	694	644	660	638	609	624	607	555	580
22	310	298	303	665	640	650	657	601	623	626	574	602
23	303	285	292	707	661	676	669	621	646	599	570	583
24	319	276	294	676	489	581	677	641	660	574	542	557
25	312	290	302	563	522	539	683	655	666	575	546	563
26	304	288	296	609	558	580	653	615	631	584	513	536
27	293	279	288	651	566	601	631	597	618	630	555	580
28	296	281	289	661	628	645	633	575	603	657	597	626
29	294	278	284	666	640	653	632	574	594	650	608	626
30	296	277	285	682	636	653	669	618	634	629	577	593
31	---	---	---	689	620	660	671	645	657	---	---	---
MONTH	534	188	311	734	263	468	683	214	574	657	235	567

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.5	7.4	7.4	7.8	7.7	7.7	7.2	7.1	7.1	7.9	7.7	7.8
2	7.4	7.3	7.3	7.7	7.6	7.7	7.1	7.0	7.1	7.8	7.7	7.7
3	7.4	7.3	7.4	7.6	7.5	7.6	7.0	7.0	7.0	7.8	7.7	7.7
4	---	---	---	7.5	7.4	7.5	7.0	6.9	7.0	7.9	7.7	7.8
5	---	---	---	7.4	7.3	7.4	7.0	6.9	7.0	7.8	7.8	7.8
6	7.4	7.4	7.4	7.3	7.1	7.2	7.0	6.9	7.0	7.8	7.7	7.8
7	7.5	7.4	7.4	7.4	7.1	7.2	7.0	6.9	7.0	7.7	7.7	7.7
8	7.6	7.4	7.5	7.5	7.3	7.4	7.1	6.9	7.0	7.7	7.6	7.7
9	7.6	7.5	7.5	7.6	7.5	7.5	7.1	7.0	7.1	7.7	7.6	7.6
10	7.6	7.5	7.5	7.6	7.5	7.6	7.1	7.0	7.0	7.6	7.5	7.6
11	7.6	7.4	7.5	7.6	7.5	7.6	---	---	---	7.7	7.5	7.6
12	7.6	7.5	7.5	7.6	7.5	7.6	---	---	---	7.8	7.6	7.7
13	7.6	7.5	7.5	7.6	7.4	7.5	---	---	---	7.9	7.8	7.8
14	7.6	7.5	7.6	7.7	7.5	7.6	---	---	---	7.9	7.8	7.8
15	7.6	7.5	7.6	7.6	7.5	7.6	7.9	7.8	7.9	7.9	7.8	7.8
16	7.6	7.5	7.6	7.7	7.6	7.6	7.9	7.8	7.9	8.1	7.8	7.9
17	7.6	7.5	7.6	7.8	7.6	7.7	7.8	7.7	7.8	8.1	7.8	7.9
18	7.8	7.5	7.6	7.7	7.6	7.6	7.8	7.7	7.7	8.4	7.9	8.0
19	7.7	7.6	7.7	7.7	7.6	7.7	7.8	7.7	7.8	8.4	8.1	8.2
20	7.7	7.7	7.7	7.7	7.6	7.6	7.8	7.7	7.8	8.0	8.0	8.0
21	7.7	7.7	7.7	7.8	7.7	7.7	7.8	7.7	7.8	8.0	7.9	8.0
22	7.7	7.6	7.7	7.9	7.7	7.8	7.9	7.7	7.8	7.9	7.9	7.9
23	7.6	7.5	7.5	7.8	7.7	7.7	7.8	7.7	7.8	7.9	7.9	7.9
24	---	---	---	7.8	7.7	7.8	7.8	7.7	7.7	7.9	7.7	7.8
25	---	---	---	7.8	7.6	7.7	7.7	7.6	7.6	7.9	7.8	7.9
26	---	---	---	7.6	7.4	7.4	7.7	7.6	7.7	7.9	7.9	7.9
27	7.7	7.5	7.6	7.4	7.3	7.3	7.7	7.6	7.7	7.9	7.8	7.9
28	7.5	7.3	7.4	7.3	7.2	7.3	7.9	7.6	7.8	7.8	7.8	7.8
29	7.2	7.0	7.1	7.3	7.2	7.2	7.8	7.8	7.8	7.9	7.8	7.8
30	9.5	7.0	7.8	7.2	7.1	7.2	7.8	7.8	7.8	7.9	7.7	7.8
31	8.1	7.8	7.9	---	---	---	7.8	7.7	7.8	8.2	7.8	7.9
MONTH	9.5	7.0	7.5	7.9	7.1	7.5	7.9	6.9	7.5	8.4	7.5	7.8

08061970 EAST FORK TRINITY RIVER ABOVE SEAGOVILLE, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	8.1	7.8	8.0	8.3	8.1	8.2	8.1	8.0	8.0	8.1	8.0	8.0
2	8.0	7.8	7.9	8.3	8.1	8.2	8.4	7.9	8.1	8.1	7.9	8.0
3	8.1	7.9	8.0	8.1	7.9	8.0	8.2	7.9	8.1	8.1	8.0	8.1
4	8.1	8.0	8.0	7.9	7.9	7.9	7.8	7.7	7.7	8.1	8.0	8.1
5	8.1	7.7	7.9	7.9	7.9	7.9	8.1	7.6	8.0	8.0	7.9	8.0
6	8.1	8.0	8.0	8.0	7.9	7.9	8.0	7.8	7.9	---	---	---
7	8.3	8.0	8.1	8.2	7.9	8.0	8.1	7.9	8.0	---	---	---
8	8.1	8.0	8.1	8.2	8.0	8.1	8.1	7.9	8.0	---	---	---
9	8.0	7.9	8.0	8.2	8.1	8.2	8.0	7.9	7.9	---	---	---
10	8.1	8.0	8.0	8.0	7.9	8.0	7.9	7.6	7.7	---	---	---
11	8.1	7.9	8.0	8.0	7.9	8.0	8.0	7.6	7.8	---	---	---
12	8.0	7.9	7.9	8.0	7.9	8.0	8.0	7.6	7.9	8.0	7.9	7.9
13	8.1	7.8	7.9	8.0	7.9	8.0	8.0	7.5	7.7	8.0	7.9	8.0
14	8.2	8.0	8.1	8.0	7.8	7.9	8.0	7.7	7.9	8.0	7.9	7.9
15	8.3	8.0	8.1	---	---	---	7.9	7.7	7.7	8.0	7.9	7.9
16	8.5	8.2	8.3	8.0	7.9	8.0	8.0	7.7	7.8	7.9	7.9	7.9
17	8.5	8.3	8.4	8.1	7.9	8.0	8.0	7.8	7.9	8.0	7.9	7.9
18	8.5	8.3	8.4	7.9	7.9	7.9	8.0	7.8	7.9	7.9	7.8	7.9
19	8.5	8.2	8.4	8.1	7.9	7.9	7.8	7.7	7.7	7.9	7.8	7.9
20	8.5	8.2	8.3	8.3	8.1	8.2	8.0	7.7	7.9	7.9	7.8	7.9
21	8.3	8.0	8.2	8.2	8.1	8.2	8.2	7.9	8.0	7.9	7.7	7.9
22	8.2	8.0	8.1	8.2	8.1	8.2	8.2	8.1	8.2	7.7	7.7	7.7
23	8.4	8.1	8.2	8.2	8.1	8.2	8.2	8.1	8.2	7.8	7.7	7.7
24	8.4	8.2	8.3	8.2	8.1	8.2	8.1	8.0	8.1	7.8	7.7	7.7
25	8.5	8.3	8.4	8.3	8.0	8.2	8.1	8.0	8.0	7.7	7.7	7.7
26	8.4	8.2	8.3	8.2	8.1	8.1	7.9	7.7	7.9	7.7	7.7	7.7
27	8.4	8.2	8.3	8.2	7.9	8.1	7.8	7.7	7.8	7.7	7.6	7.7
28	8.2	8.1	8.2	8.1	7.9	8.0	7.9	7.8	7.9	8.1	7.7	7.9
29	---	---	---	8.0	7.9	7.9	7.9	7.7	7.8	8.1	8.0	8.0
30	---	---	---	8.0	7.9	7.9	8.0	7.6	7.7	8.0	7.8	8.0
31	---	---	---	8.1	8.0	8.0	---	---	---	8.0	7.9	8.0
MONTH	8.5	7.7	8.1	8.3	7.8	8.0	8.4	7.5	7.9	8.1	7.6	7.9
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.1	7.7	7.9	7.9	7.6	7.7	---	---	---	7.7	7.4	7.5
2	7.8	7.7	7.7	8.0	7.8	7.9	---	---	---	7.7	7.4	7.5
3	8.0	7.7	7.9	8.1	7.8	7.9	---	---	---	7.6	7.4	7.5
4	7.9	7.7	7.8	8.0	7.8	7.9	---	---	---	7.5	7.4	7.4
5	8.0	7.6	7.7	7.9	7.7	7.8	---	---	---	7.6	7.4	7.5
6	7.9	7.8	7.9	7.9	7.5	7.7	---	---	---	7.7	7.4	7.5
7	7.9	7.7	7.8	7.8	7.6	7.7	---	---	---	7.7	7.5	7.6
8	8.1	7.8	7.9	7.7	7.6	7.7	---	---	---	7.5	7.4	7.4
9	8.1	8.0	8.1	7.8	7.6	7.6	---	---	---	7.5	7.3	7.4
10	8.2	8.1	8.1	7.7	7.5	7.6	---	---	---	7.6	7.3	7.4
11	8.2	8.0	8.1	7.7	7.6	7.6	7.5	7.3	7.5	7.8	7.4	7.5
12	8.1	8.0	8.0	8.0	7.7	7.8	---	---	---	7.5	7.4	7.4
13	7.9	7.9	7.9	8.1	7.9	8.0	---	---	---	7.4	7.3	7.4
14	7.9	7.8	7.9	8.2	8.0	8.1	---	---	---	7.4	7.3	7.3
15	7.9	7.8	7.9	8.1	7.9	8.0	---	---	---	7.3	7.2	7.2
16	7.9	7.8	7.9	7.9	7.7	7.8	---	---	---	7.3	7.2	7.2
17	7.9	7.8	7.9	7.7	7.6	7.7	---	---	---	7.2	7.2	7.2
18	8.2	7.3	7.8	7.7	7.6	7.6	---	---	---	7.4	7.2	7.3
19	8.1	8.0	8.0	7.6	7.5	7.5	7.4	7.2	7.3	7.4	7.3	7.3
20	8.1	7.9	8.0	7.5	7.5	7.5	7.4	7.2	7.3	7.5	7.3	7.4
21	8.1	7.9	8.0	7.5	7.5	7.5	---	---	---	7.6	7.5	7.5
22	8.1	7.9	8.0	7.5	7.5	7.5	---	---	---	7.7	7.6	7.6
23	8.1	8.0	8.1	7.5	7.5	7.5	---	---	---	7.6	7.5	7.6
24	---	---	---	7.5	7.4	7.5	7.7	7.4	7.5	7.7	7.5	7.6
25	---	---	---	7.5	7.4	7.5	7.8	7.5	7.6	7.7	7.6	7.6
26	---	---	---	---	---	---	7.7	7.5	7.6	7.7	7.6	7.7
27	---	---	---	---	---	---	7.7	7.4	7.5	7.7	7.5	7.6
28	7.8	7.7	7.7	---	---	---	7.7	7.4	7.6	7.6	7.5	7.5
29	7.7	7.6	7.6	---	---	---	7.8	7.5	7.6	7.5	7.5	7.5
30	7.7	7.5	7.6	---	---	---	7.6	7.5	7.5	7.5	7.4	7.5
31	---	---	---	---	---	---	7.7	7.4	7.5	---	---	---
MONTH	8.2	7.3	7.9	8.2	7.4	7.7	7.8	7.2	7.5	7.8	7.2	7.5

08061970 EAST FORK TRINITY RIVER ABOVE SEAGOVILLE, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

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

08061970 EAST FORK TRINITY RIVER ABOVE SEAGOVILLE, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	24.5	22.5	23.5	29.0	27.5	28.0	28.5	26.5	27.5	30.5	28.5	29.0
2	24.5	23.5	24.0	29.0	27.5	28.5	29.0	26.5	27.5	29.5	27.5	28.5
3	25.0	24.0	24.5	29.5	27.5	28.5	28.5	27.0	27.5	29.5	27.5	28.5
4	25.5	24.0	24.5	29.5	27.5	28.5	27.0	25.0	26.0	29.5	27.5	28.5
5	27.0	25.0	26.0	29.5	28.0	28.5	26.0	25.0	25.5	29.5	27.5	28.5
6	26.0	24.0	25.0	29.0	28.0	28.5	25.5	24.0	25.0	30.0	28.0	29.0
7	25.5	24.5	25.0	28.5	27.0	28.0	27.0	25.0	26.0	30.0	28.0	29.0
8	26.0	24.5	25.5	28.5	27.0	28.0	28.0	25.5	27.0	28.5	27.5	28.0
9	26.5	25.0	25.5	29.0	27.0	28.0	28.0	25.5	27.0	27.5	26.0	26.5
10	27.0	25.5	26.0	---	---	---	29.0	26.0	27.5	26.5	25.0	25.5
11	27.5	25.5	26.5	---	---	---	29.5	26.5	28.0	25.5	23.5	24.5
12	27.0	25.5	26.5	29.5	28.0	28.5	29.5	27.0	28.5	26.5	25.0	25.5
13	26.5	25.5	26.0	28.5	27.0	27.5	29.5	27.0	28.5	27.0	25.0	26.0
14	27.0	25.0	26.0	27.5	26.5	27.0	29.5	27.0	28.5	28.0	26.0	27.0
15	27.5	26.0	26.5	27.0	26.0	26.5	29.5	27.5	28.5	29.0	26.5	27.5
16	27.5	26.0	26.5	27.0	26.0	26.5	30.0	27.5	28.5	29.0	27.0	28.0
17	28.0	26.0	27.0	27.0	26.0	26.5	30.0	27.5	28.5	29.0	27.5	28.0
18	30.0	27.0	28.0	27.5	25.5	26.5	30.0	27.5	29.0	28.5	27.0	28.0
19	29.0	27.0	28.0	28.5	25.5	27.0	30.5	28.0	29.0	29.0	27.0	28.0
20	29.0	27.0	28.0	29.0	26.0	27.5	30.5	28.0	29.0	28.0	27.5	27.5
21	29.0	27.0	28.0	29.5	26.5	28.0	31.0	28.0	29.0	28.0	27.0	27.5
22	29.0	27.0	28.0	29.0	27.0	28.0	30.0	27.5	29.0	28.5	26.5	27.5
23	29.5	27.5	28.5	28.0	27.0	27.5	30.0	28.0	29.0	26.5	24.5	25.5
24	28.5	27.5	28.0	27.0	26.0	26.5	30.5	28.0	29.0	24.5	22.0	23.5
25	29.0	27.5	28.0	27.5	25.5	26.5	30.5	28.0	29.0	24.5	22.0	23.0
26	29.0	27.0	28.0	29.0	26.5	27.5	30.5	28.0	29.0	25.5	22.5	24.0
27	28.5	27.5	28.0	29.5	27.0	28.0	30.5	28.5	29.5	26.5	23.5	25.0
28	29.0	27.0	28.0	30.0	27.5	28.5	30.5	28.5	29.5	26.5	24.5	25.5
29	29.0	27.0	28.0	30.5	27.5	29.0	31.0	29.0	29.5	26.5	25.0	25.5
30	29.0	27.0	28.0	30.0	28.0	29.0	31.0	28.5	29.5	26.5	25.0	25.5
31	---	---	---	30.0	27.5	28.5	31.0	28.5	29.5	---	---	---
MONTH	30.0	22.5	26.5	30.5	25.5	28.0	31.0	24.0	28.0	30.5	22.0	27.0

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	4.7	3.3	4.2	6.4	5.8	6.1	8.3	7.4	7.8	9.4	8.1	8.8
2	4.7	3.5	4.2	6.7	5.9	6.3	8.5	7.6	8.0	8.6	7.9	8.2
3	4.9	3.5	4.3	6.8	6.1	6.5	8.7	7.6	8.2	8.5	7.5	8.0
4	5.0	3.6	4.3	7.2	6.4	6.7	8.7	7.7	8.2	9.0	7.6	8.1
5	5.1	3.3	4.2	6.5	5.9	6.3	8.8	7.5	8.1	7.9	7.5	7.7
6	4.7	2.9	4.0	6.0	5.2	5.6	8.2	7.2	7.6	8.3	7.9	8.1
7	5.0	2.7	4.1	5.7	4.5	5.1	7.5	6.8	7.1	8.3	7.8	8.0
8	5.3	3.7	4.5	5.7	4.2	5.1	8.3	6.9	7.5	8.4	7.7	8.0
9	6.0	4.6	5.2	5.9	4.8	5.3	8.5	7.5	7.9	8.4	7.5	7.9
10	6.6	4.7	5.5	6.3	5.0	5.6	9.3	7.7	8.4	8.5	7.6	7.9
11	6.6	4.6	5.5	6.5	5.3	5.8	8.7	7.8	8.2	8.7	7.7	8.1
12	6.1	4.2	5.2	6.5	5.3	5.8	9.5	8.1	8.7	9.1	7.9	8.4
13	6.5	4.2	5.2	6.0	5.0	5.5	10.5	8.5	9.5	9.1	8.2	8.6
14	6.4	4.2	5.2	6.1	4.7	5.3	10.4	8.7	9.4	9.3	8.2	8.7
15	6.6	4.4	5.2	6.1	4.5	5.2	10.1	8.6	9.3	8.7	7.8	8.3
16	6.4	4.2	5.1	6.5	5.1	5.9	10.1	8.8	9.4	8.8	7.3	7.6
17	6.0	3.9	5.0	8.0	6.5	7.3	10.0	8.6	9.2	7.9	6.8	7.3
18	7.8	5.0	6.1	7.6	7.0	7.3	9.6	8.9	9.1	9.0	7.2	7.8
19	7.7	6.5	7.1	7.8	6.8	7.2	10.0	8.7	9.1	9.2	7.0	8.5
20	8.2	7.3	7.8	7.4	6.5	6.9	10.1	8.8	9.3	7.7	6.8	7.1
21	9.1	7.4	8.2	7.2	5.8	6.4	10.3	8.6	9.4	8.6	7.8	8.4
22	8.4	6.6	7.5	7.5	5.5	6.5	10.6	9.1	9.9	8.6	8.4	8.6
23	7.1	5.9	6.4	7.1	6.0	6.6	11.0	9.6	10.3	8.3	8.2	8.3
24	6.8	4.9	5.8	7.9	7.1	7.5	10.8	10.0	10.4	8.3	8.1	8.2
25	6.8	4.7	5.8	7.5	6.8	7.2	10.6	9.6	10.1	8.7	8.1	8.3
26	6.3	4.8	5.5	6.9	6.4	6.6	11.2	9.8	10.2	9.5	8.8	9.0
27	6.2	4.6	5.3	6.9	6.1	6.5	10.0	8.9	9.4	8.9	8.4	8.8
28	5.8	4.4	5.0	7.6	6.2	6.9	9.9	8.5	9.3	8.3	8.2	8.3
29	5.8	4.1	4.8	7.9	7.0	7.4	9.0	7.8	8.4	8.6	8.2	8.4
30	8.0	4.3	6.0	8.3	7.5	7.8	8.0	7.4	7.7	8.8	8.4	8.6
31	6.4	5.8	6.1	---	---	---	8.4	7.5	8.1	10.0	8.5	8.9
MONTH	9.1	2.7	5.4	8.3	4.2	6.3	11.2	6.8	8.8	10.0	6.8	8.2

08061970 EAST FORK TRINITY RIVER ABOVE SEAGOVILLE, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	9.1	7.6	8.3	10.7	9.8	10.2	10.3	9.1	9.6	8.6	7.9	8.2
2	9.4	8.1	8.7	10.6	9.6	10.2	10.7	9.0	9.7	9.2	8.1	8.6
3	9.9	8.6	9.2	9.5	8.2	9.0	10.5	8.4	9.5	9.7	9.0	9.3
4	11.2	9.6	10.4	8.2	7.8	8.0	8.3	7.1	7.6	9.9	9.6	9.8
5	11.0	9.4	10.0	7.7	7.4	7.6	9.5	7.3	9.1	9.8	8.8	9.6
6	11.3	10.6	10.9	7.4	7.1	7.3	8.9	7.9	8.3	8.5	8.0	8.2
7	11.9	10.7	11.2	8.4	7.1	7.9	9.9	8.6	9.2	8.3	7.8	8.1
8	11.6	10.8	11.2	9.7	8.3	8.9	10.1	9.2	9.5	7.7	6.9	7.4
9	11.0	10.6	10.8	10.2	8.7	9.6	9.6	9.0	9.3	7.4	6.8	7.1
10	11.5	10.4	10.9	8.5	7.1	7.7	9.0	7.1	8.0	7.8	7.0	7.4
11	11.8	10.6	11.1	7.9	6.7	7.2	9.5	7.0	8.3	7.4	6.9	7.2
12	11.7	10.6	11.1	9.5	7.6	8.6	10.0	8.2	9.2	7.3	6.6	6.9
13	11.6	10.4	10.9	9.7	9.2	9.4	9.2	7.3	8.1	7.7	6.7	7.1
14	10.9	10.3	10.6	9.2	7.1	8.3	8.9	7.5	8.2	7.7	6.9	7.2
15	11.1	10.1	10.5	7.7	7.0	7.3	8.2	7.2	7.6	7.7	6.9	7.2
16	11.7	10.4	11.0	8.1	7.1	7.6	8.0	6.7	7.1	7.6	6.9	7.1
17	11.9	10.6	11.2	8.5	6.7	7.7	8.3	7.0	7.7	8.1	6.8	7.3
18	11.5	10.6	11.0	7.3	6.9	7.2	7.8	7.2	7.5	7.5	6.8	7.1
19	11.7	10.5	11.0	8.8	7.1	7.3	7.6	7.1	7.4	7.4	6.5	7.1
20	11.7	10.4	10.9	9.7	8.8	9.3	8.6	7.4	8.1	7.3	7.0	7.1
21	10.6	9.6	10.4	9.6	9.1	9.3	9.4	8.3	8.9	7.6	5.6	6.9
22	10.2	9.5	9.9	9.6	9.0	9.2	9.9	8.9	9.3	5.8	5.4	5.6
23	11.1	9.9	10.5	9.7	9.1	9.3	9.9	8.9	9.3	5.5	4.5	4.8
24	11.1	10.2	10.7	9.6	9.1	9.3	9.7	8.8	9.2	4.6	4.2	4.4
25	11.3	10.2	10.7	10.5	9.2	9.7	9.4	8.8	9.0	4.6	4.0	4.3
26	11.1	10.3	10.6	10.0	9.4	9.6	8.8	7.0	7.8	4.3	3.6	3.9
27	11.1	10.3	10.7	9.9	9.0	9.6	7.6	6.8	7.0	4.4	3.4	3.9
28	10.4	9.7	10.2	9.7	8.6	9.2	7.7	7.0	7.3	6.8	3.7	5.5
29	---	---	---	8.9	8.2	8.5	7.6	6.0	7.0	7.0	6.5	6.7
30	---	---	---	9.4	8.2	8.7	7.9	5.4	6.2	6.8	5.9	6.5
31	---	---	---	10.0	8.9	9.3	---	---	---	6.8	6.3	6.5
MONTH	11.9	7.6	10.5	10.7	6.7	8.6	10.7	5.4	8.3	9.9	3.4	6.9
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	6.5	5.4	6.0	8.1	6.9	7.4	6.5	4.2	5.2	9.6	3.4	5.9
2	6.2	5.3	5.7	8.1	7.0	7.5	6.9	4.8	5.6	9.2	4.3	6.3
3	6.7	5.2	6.2	8.2	6.9	7.4	5.6	4.3	4.8	8.2	4.3	5.9
4	6.4	5.4	5.8	8.1	6.6	7.4	6.1	4.8	5.3	6.8	4.0	5.2
5	6.3	4.9	5.2	7.8	6.5	7.1	7.0	5.7	6.1	8.5	3.7	5.6
6	6.3	5.6	6.1	7.5	6.1	6.8	6.5	6.1	6.4	6.0	3.3	4.6
7	---	---	---	7.1	6.0	6.5	8.0	6.0	6.9	7.2	3.1	4.8
8	---	---	---	7.0	6.1	6.5	7.9	6.1	6.9	4.1	2.9	3.6
9	7.7	6.9	7.3	7.0	6.0	6.5	6.1	5.3	5.7	4.2	2.9	3.7
10	7.9	7.0	7.4	---	---	---	5.4	4.6	5.0	5.3	3.4	4.1
11	8.0	7.0	7.5	---	---	---	6.7	4.3	5.0	6.1	4.5	5.3
12	7.8	7.0	7.3	8.6	3.6	7.1	6.2	4.3	5.1	5.2	4.4	4.8
13	7.4	7.0	7.2	8.4	6.3	7.1	5.8	4.2	4.9	5.4	4.3	4.7
14	7.3	6.9	7.1	7.5	6.7	7.1	6.0	4.2	4.8	4.8	4.1	4.4
15	7.3	6.7	7.0	7.4	6.5	6.8	6.2	4.4	5.1	4.7	3.5	4.0
16	7.3	6.4	6.9	6.9	6.0	6.6	6.3	4.3	5.1	4.9	2.7	3.7
17	7.5	6.4	6.9	5.9	5.0	5.4	6.3	4.0	5.0	4.4	3.1	3.7
18	8.3	5.0	6.4	5.2	4.5	4.8	6.8	4.0	5.0	5.0	3.1	3.9
19	8.8	7.2	7.9	4.6	3.8	4.2	6.5	4.1	5.1	4.7	3.2	3.9
20	8.5	7.5	7.9	4.4	3.7	4.0	---	---	---	4.6	3.7	4.2
21	7.7	6.8	7.4	4.8	3.4	3.9	---	---	---	5.3	3.7	4.4
22	7.4	6.5	6.9	4.6	3.3	3.9	---	---	---	5.1	4.2	4.6
23	7.5	6.4	6.9	4.4	3.4	3.9	---	---	---	5.8	4.2	4.9
24	6.9	6.4	6.7	4.7	3.9	4.3	6.5	4.1	5.1	6.4	4.8	5.5
25	7.3	6.4	6.8	5.2	4.4	4.7	7.5	4.0	5.3	6.4	5.1	5.7
26	7.3	6.5	6.9	4.9	4.2	4.5	7.2	4.0	5.2	6.5	5.0	5.6
27	7.7	6.5	7.1	5.0	4.0	4.3	7.9	4.1	5.4	6.5	4.6	5.4
28	7.9	6.9	7.4	5.4	3.6	4.3	8.5	3.9	5.7	6.0	4.4	5.1
29	7.9	7.0	7.4	6.0	3.6	4.6	8.9	4.2	6.0	6.2	4.5	5.2
30	7.9	6.9	7.3	6.6	4.0	5.1	7.4	3.5	5.0	6.7	4.8	5.6
31	---	---	---	7.4	4.4	5.5	8.7	3.4	5.4	---	---	---
MONTH	8.8	4.9	6.9	8.6	3.3	5.7	8.9	3.4	5.4	9.6	2.7	4.8

08061980 EAST FORK TRINITY RIVER AT SEAGOVILLE, TX

LOCATION.--Lat 32°39'53", long 96°31'26", Dallas County, Hydrologic Unit 12030106, on right bank at downstream side of bridge on Malloy Bridge Road, 1.3 mi north of intersection of U. S. Highway 175 and Malloy Bridge Road in Seagoville and 3.5 mi downstream from South Mesquite Creek.

PERIOD OF RECORD.-- Chemical and biochemical analyses: April 1987 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: March 1987 to current year.
pH: March 1987 to current year.
WATER TEMPERATURE: March 1987 to current year.
DISSOLVED OXYGEN: March 1987 to current year.

INSTRUMENTATION.--Beginning March 1987, a four-parameter water-quality monitor continuously records specific conductance, pH, water temperature, and dissolved oxygen at this station.

REMARKS.--Interruptions in the record were due to malfunction of the instrument. Where maximum or minimum specific conductance values are not shown, mean value is estimated. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 820 microsiemens Aug. 15, 1987; minimum, 129 microsiemens May 17, 1989.
pH: Maximum, 9.4 units Oct. 30, 1989; minimum, 6.7 units Mar. 7, 1988.
WATER TEMPERATURE: Maximum, 31.5°C on several days during summer months of 1988 and 1989; minimum, 3.5°C Jan. 8, 1988, Feb. 5, 1989.
DISSOLVED OXYGEN: Maximum, 13.2 mg/L Mar. 18, 22, 1989; minimum, 0.0 mg/L Nov. 23, 1988.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 733 microsiemens Dec. 9; minimum, 152 microsiemens Oct. 30.
pH: Maximum, 9.4 units Oct. 30; minimum, 6.8 units Nov. 8.
WATER TEMPERATURE: Maximum, 31.5°C Aug. 29-31; minimum recorded, 7.5°C Feb. 4.
DISSOLVED OXYGEN: Maximum, 12.6 mg/L Feb. 17; minimum 2.2 mg/L July 31, Aug. 1.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
DEC										
14...	1210	57	694	7.8	8.0	8.4	72	9.9	180	37
JAN										
25...	0955	163	522	7.7	12.5	8.3	79	4.7	160	28
MAY										
10...	1805	5910	302	8.1	20.0	8.4	93	1.4	120	3
JUN										
21...	1130	2140	301	8.0	27.0	6.7	85	1.8	120	6
JUL										
19...	1435	67	631	7.5	28.0	3.8	49	7.1	160	32
SEP										
07...	0905	86	605	7.5	28.0	3.3	43	8.7	130	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 WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
DEC									
14...	64	3.9	63	2	11	140	56	74	1.0
JAN									
25...	60	3.4	39	1	7.4	140	46	39	0.70
MAY									
10...	45	2.3	9.8	0.4	3.3	120	17	8.6	0.40
JUN									
21...	46	2.2	11	0.4	3.6	120	18	6.7	0.20
JUL									
19...	59	3.7	52	2	8.1	130	39	66	0.50
SEP									
07...	47	3.5	57	2	10	110	42	66	0.90

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)
DEC									
14...	9.1	365	6.57	0.630	7.20	2.10	1.8	3.9	5.10
JAN									
25...	8.8	286	3.36	0.140	3.50	1.20	1.0	2.2	2.40
MAY									
10...	1.9	160	0.530	0.070	0.600	0.060	0.44	0.50	0.140
JUN									
21...	1.5	160	0.470	0.030	0.500	0.090	0.41	0.50	0.160
JUL									
19...	6.5	313	3.95	0.550	4.50	2.30	1.8	4.1	3.90
SEP									
07...	7.8	300	5.55	0.450	6.00	2.80	2.1	4.9	4.40

08061980 EAST FORK TRINITY RIVER AT SEAGOVILLE, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	627	614	623	580	519	549	719	658	690	636	554	595
2	633	623	628	634	584	614	708	642	687	612	558	595
3	658	606	635	654	636	644	665	626	650	637	588	615
4	637	598	617	667	656	660	664	610	645	644	485	561
5	662	604	635	668	660	665	653	606	626	525	450	474
6	674	631	651	678	663	670	665	624	652	597	515	568
7	689	637	663	675	634	662	703	660	683	624	598	611
8	658	633	646	642	582	622	689	654	671	623	611	617
9	652	612	629	622	577	597	733	668	699	635	613	623
10	661	625	651	678	630	661	721	661	698	659	623	637
11	674	637	659	694	652	676	661	647	656	698	641	675
12	680	626	653	672	641	662	687	637	667	693	669	682
13	687	648	664	667	640	654	684	645	666	710	679	696
14	681	642	661	669	638	650	697	653	674	699	669	691
15	665	650	659	662	616	646	683	643	668	679	668	675
16	654	636	646	665	631	651	696	666	681	707	673	690
17	676	640	657	672	626	654	709	683	698	704	422	609
18	674	610	636	653	626	643	723	681	704	537	199	435
19	675	586	629	676	639	661	708	621	683	198	162	179
20	657	584	626	676	643	661	644	603	629	257	192	218
21	625	567	604	658	629	643	688	640	668	310	260	286
22	618	557	598	667	276	532	696	666	683	349	311	327
23	596	573	585	566	370	433	710	667	689	446	342	384
24	610	585	594	530	434	476	705	656	680	521	443	477
25	637	584	614	612	536	584	688	612	648	555	484	518
26	603	571	588	611	577	597	612	559	595	570	505	539
27	598	567	583	621	587	604	595	559	580	602	569	585
28	611	583	601	645	602	623	586	562	574	604	577	592
29	652	601	635	625	590	610	623	582	609	607	584	596
30	627	152	504	681	620	655	654	627	644	638	582	611
31	536	396	458	---	---	---	664	605	646	653	185	551
MONTH	689	152	620	694	276	622	733	559	659	710	162	546
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	226	185	203	316	287	299	320	313	317	343	333	338
2	267	217	246	365	301	317	321	310	316	336	155	244
3	279	267	273	512	384	445	385	312	320	290	281	285
4	287	279	283	620	519	563	528	399	457	290	288	289
5	356	287	309	662	626	647	549	307	363	289	283	287
6	308	299	305	663	640	652	395	289	318	289	284	287
7	309	284	300	652	248	432	354	254	310	294	289	291
8	294	291	292	312	303	308	341	302	315	303	294	297
9	299	290	292	317	304	308	337	273	312	305	293	300
10	307	293	301	477	321	410	349	263	294	302	294	297
11	292	288	290	523	243	402	309	279	294	303	295	299
12	291	287	290	319	241	302	328	310	316	309	300	304
13	293	290	291	314	309	312	451	307	386	308	293	298
14	295	285	290	317	247	293	343	181	255	303	296	301
15	307	278	295	286	249	264	291	225	258	305	299	302
16	287	276	283	301	287	298	---	---	e211	307	301	304
17	288	284	286	325	300	304	---	---	e269	306	296	302
18	289	284	287	473	332	401	315	288	297	305	298	302
19	289	285	287	579	478	535	390	318	355	325	307	316
20	289	286	288	592	312	353	442	340	376	314	302	308
21	333	265	291	320	307	316	354	316	330	334	304	312
22	304	266	286	313	307	311	318	314	316	464	342	405
23	308	290	301	313	309	311	318	315	316	530	466	497
24	313	305	309	312	295	302	318	314	316	612	514	559
25	314	294	307	340	268	293	317	315	316	647	601	624
26	301	292	298	307	290	295	356	218	274	652	620	632
27	295	290	292	299	294	297	288	231	260	644	608	628
28	329	288	300	327	294	306	301	277	290	644	301	486
29	---	---	---	311	294	301	320	302	308	301	294	298
30	---	---	---	313	304	308	423	324	368	359	294	305
31	---	---	---	317	314	315	---	---	---	306	297	301
MONTH	356	185	288	663	241	361	549	181	314	652	155	355

e Estimated

08061980 EAST FORK TRINITY RIVER AT SEAGOVILLE, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	341	254	290	---	---	e284	645	565	600	662	637	653
2	293	254	267	---	---	e281	603	462	545	647	621	636
3	319	274	300	---	---	e286	669	608	641	654	626	644
4	301	265	285	---	---	e282	653	334	483	629	614	623
5	412	305	350	---	---	e270	427	218	320	617	583	604
6	308	299	304	276	266	269	409	231	314	628	572	601
7	307	297	302	287	273	279	---	---	320	631	589	603
8	304	285	294	285	276	280	---	---	e334	666	619	637
9	295	285	291	293	273	279	---	---	e459	636	578	620
10	338	282	302	462	304	380	596	490	561	620	361	564
11	318	293	301	547	463	511	632	586	615	482	296	393
12	325	295	302	700	273	465	639	592	608	463	382	436
13	309	298	301	293	279	286	620	602	610	477	431	453
14	305	294	299	314	291	303	635	608	625	541	478	522
15	306	295	298	422	290	338	649	515	606	584	525	549
16	371	291	309	407	294	350	598	528	566	569	550	562
17	335	297	313	511	331	432	649	572	620	568	561	564
18	413	302	359	562	439	497	656	613	629	577	535	563
19	412	298	313	649	526	598	669	596	637	574	526	544
20	330	295	311	676	632	657	656	613	630	579	550	563
21	309	300	302	673	633	659	659	606	631	580	556	566
22	304	299	301	645	624	633	642	598	625	611	579	587
23	297	284	289	655	620	638	660	625	644	615	570	590
24	296	281	287	682	504	618	698	653	668	580	545	566
25	295	282	291	551	504	532	687	664	679	578	545	567
26	---	---	e290	594	535	564	687	639	664	561	523	544
27	---	---	e281	594	549	564	685	641	663	591	525	564
28	---	---	e293	645	600	626	651	601	637	628	561	602
29	---	---	e292	661	630	645	614	588	601	647	615	628
30	---	---	e284	641	626	636	648	600	630	630	578	603
31	---	---	---	682	631	658	681	636	661	---	---	---
MONTH	413	254	300	700	266	455	698	218	575	666	296	572

e Estimated

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	7.8	7.7	7.8	---	---	---	7.7	7.5	7.6
2	---	---	---	7.9	7.5	7.7	---	---	---	7.7	7.5	7.6
3	---	---	---	7.6	7.4	7.5	---	---	---	7.6	7.5	7.6
4	---	---	---	7.5	7.3	7.4	---	---	---	7.8	7.6	7.7
5	---	---	---	7.5	7.2	7.4	---	---	---	7.8	7.7	7.7
6	---	---	---	7.3	7.0	7.2	---	---	---	7.7	7.7	7.7
7	---	---	---	7.2	7.0	7.1	---	---	---	7.7	7.6	7.7
8	---	---	---	7.6	6.8	7.2	---	---	---	7.7	7.6	7.7
9	---	---	---	7.6	7.6	7.6	---	---	---	7.7	7.6	7.6
10	---	---	---	7.6	7.6	7.6	---	---	---	7.6	7.5	7.5
11	7.4	7.4	7.4	---	---	---	---	---	---	7.6	7.5	7.5
12	7.5	7.4	7.5	---	---	---	---	---	---	7.6	7.4	7.5
13	7.5	7.4	7.4	---	---	---	---	---	---	7.7	7.5	7.6
14	7.4	7.4	7.4	---	---	---	---	---	---	7.6	7.5	7.6
15	7.4	7.4	7.4	---	---	---	---	---	---	7.5	7.4	7.4
16	7.5	7.4	7.5	---	---	---	---	---	---	7.4	7.3	7.4
17	7.6	7.5	7.5	---	---	---	---	---	---	7.6	7.4	7.5
18	7.6	7.4	7.5	---	---	---	---	---	---	8.1	7.5	7.6
19	7.6	7.4	7.5	---	---	---	---	---	---	8.1	7.8	7.9
20	7.5	7.5	7.5	---	---	---	---	---	---	7.8	7.6	7.7
21	---	---	---	---	---	---	---	---	---	7.6	7.5	7.6
22	---	---	---	---	---	---	---	---	---	7.6	7.6	7.6
23	---	---	---	7.9	7.6	7.8	---	---	---	7.6	7.5	7.6
24	---	---	---	8.0	7.8	7.9	---	---	---	7.5	7.4	7.5
25	---	---	---	---	---	---	---	---	---	7.5	7.4	7.5
26	7.4	7.3	7.4	---	---	---	---	---	---	7.5	7.4	7.5
27	7.4	7.4	7.4	---	---	---	---	---	---	7.4	7.4	7.4
28	7.4	7.2	7.3	---	---	---	7.4	7.3	7.4	7.4	7.3	7.4
29	7.3	7.2	7.3	---	---	---	7.4	7.4	7.4	7.4	7.3	7.3
30	9.4	7.2	7.9	---	---	---	7.5	7.5	7.5	7.4	7.3	7.4
31	8.3	7.7	7.9	---	---	---	7.6	7.5	7.6	7.9	7.4	7.5
MONTH	9.4	7.2	7.5	8.0	6.8	7.5	7.6	7.3	7.5	8.1	7.3	7.6

08061980 EAST FORK TRINITY RIVER AT SEAGOVILLE, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.8	7.6	7.7	8.2	7.9	8.0	8.2	7.7	7.9	7.9	7.8	7.9
2	8.0	7.6	7.8	8.2	8.0	8.1	8.4	7.8	8.1	8.0	7.8	7.9
3	7.9	7.8	7.9	8.0	7.7	7.8	8.6	8.0	8.3	8.1	8.0	8.0
4	8.0	7.9	7.9	7.7	7.6	7.7	7.9	7.3	7.6	8.1	8.1	8.1
5	8.0	7.7	7.8	7.7	7.6	7.6	7.9	7.5	7.7	8.1	8.0	8.1
6	8.1	8.0	8.0	7.6	7.6	7.6	7.8	7.5	7.7	8.1	7.9	8.0
7	8.3	8.0	8.2	7.9	7.6	7.8	8.0	7.7	7.8	8.1	8.0	8.0
8	8.3	8.0	8.2	8.0	7.8	7.9	8.0	7.5	7.8	8.0	7.9	8.0
9	8.1	8.0	8.0	8.3	8.0	8.1	7.9	7.5	7.7	8.0	7.9	7.9
10	8.3	8.1	8.2	8.1	7.8	7.9	---	---	---	8.1	7.9	8.0
11	8.3	8.1	8.2	7.9	7.8	7.8	---	---	---	8.1	8.0	8.0
12	8.3	8.1	8.2	8.0	7.9	8.0	---	---	---	8.1	7.9	8.0
13	8.3	8.0	8.2	8.1	8.0	8.0	8.0	7.6	7.7	8.2	7.9	8.0
14	8.3	8.0	8.2	8.0	7.9	8.0	7.8	7.6	7.7	8.2	7.9	8.1
15	8.2	8.0	8.1	7.9	7.8	7.9	7.9	7.7	7.8	8.2	7.9	8.1
16	8.3	8.0	8.1	8.0	7.9	8.0	---	---	---	8.1	7.9	8.0
17	8.3	8.0	8.2	8.1	7.8	8.0	---	---	---	8.2	7.9	8.1
18	8.2	7.9	8.1	7.8	7.6	7.7	8.0	7.8	7.9	8.1	7.9	8.0
19	8.3	7.9	8.1	7.7	7.6	7.7	7.7	7.6	7.6	8.1	7.8	7.9
20	8.2	8.0	8.1	8.0	7.6	7.9	7.9	7.6	7.7	8.1	7.9	8.0
21	8.1	7.9	8.0	8.0	7.9	7.9	8.0	7.8	7.9	8.1	7.6	7.9
22	7.9	7.7	7.8	8.0	7.8	7.9	8.2	8.0	8.1	7.9	7.6	7.7
23	8.1	7.8	8.0	8.0	7.8	7.9	8.2	8.0	8.1	7.8	7.6	7.7
24	8.1	8.0	8.0	8.1	7.9	8.0	8.1	7.9	8.0	7.8	7.7	7.8
25	8.2	8.0	8.1	8.1	8.1	8.1	8.0	7.9	8.0	7.7	7.7	7.7
26	8.1	7.9	8.0	8.1	8.0	8.1	8.0	7.7	7.8	7.7	7.6	7.7
27	8.1	7.9	8.0	8.1	7.9	8.0	7.9	7.7	7.8	7.7	7.6	7.7
28	8.1	7.9	8.0	7.9	7.8	7.8	8.0	7.8	7.9	8.1	7.6	7.9
29	---	---	---	7.8	7.7	7.7	7.9	7.8	7.9	8.2	8.0	8.1
30	---	---	---	7.9	7.7	7.8	7.8	7.5	7.6	8.1	7.9	8.0
31	---	---	---	8.0	7.7	7.9	---	---	---	8.0	7.7	8.0
MONTH	8.3	7.6	8.0	8.3	7.6	7.9	8.6	7.3	7.8	8.2	7.6	7.9
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.1	7.5	7.9	8.1	7.9	8.0	---	---	---	---	---	---
2	7.8	7.6	7.7	8.2	7.9	8.1	---	---	---	---	---	---
3	7.8	7.6	7.7	8.2	7.9	8.1	---	---	---	---	---	---
4	8.0	7.7	7.9	8.1	7.7	7.9	---	---	---	---	---	---
5	7.8	7.5	7.7	8.0	7.8	7.9	---	---	---	---	---	---
6	7.9	7.8	7.9	8.1	7.5	7.9	---	---	---	---	---	---
7	8.1	7.7	7.9	8.1	7.8	8.0	---	---	---	---	---	---
8	8.1	7.9	8.0	8.1	7.9	8.0	---	---	---	---	---	---
9	8.1	7.8	8.0	8.1	7.9	8.0	---	---	---	---	---	---
10	8.2	7.9	8.1	7.9	7.6	7.7	7.8	7.7	7.8	---	---	---
11	8.2	7.8	8.1	7.7	7.7	7.7	7.9	7.7	7.8	---	---	---
12	8.2	7.8	8.1	7.9	7.7	7.8	7.9	7.7	7.8	---	---	---
13	8.1	7.8	8.0	8.1	7.8	7.9	7.9	7.7	7.8	---	---	---
14	8.0	7.9	8.0	8.2	8.0	8.1	7.9	7.7	7.8	---	---	---
15	8.1	7.9	8.0	8.0	7.9	8.0	7.8	7.5	7.8	---	---	---
16	8.1	7.9	8.0	8.0	7.8	7.9	7.8	7.6	7.8	---	---	---
17	8.1	7.9	8.0	7.8	7.6	7.7	7.8	7.6	7.7	---	---	---
18	8.0	7.6	7.8	7.7	7.6	7.7	7.6	7.6	7.6	---	---	---
19	8.1	7.7	8.0	7.6	7.6	7.6	7.7	7.5	7.6	---	---	---
20	8.1	7.9	8.0	7.7	7.6	7.7	7.7	7.5	7.6	7.3	7.2	7.3
21	8.2	7.9	8.1	7.6	7.6	7.6	7.6	7.5	7.6	7.3	7.2	7.3
22	8.1	7.9	8.0	7.6	7.6	7.6	7.7	7.5	7.6	7.4	7.3	7.3
23	8.2	8.0	8.1	7.7	7.6	7.6	8.1	7.6	7.8	7.5	7.4	7.4
24	8.1	7.8	8.0	7.7	7.6	7.7	---	---	---	7.5	7.5	7.5
25	8.0	7.8	7.9	7.7	7.6	7.6	---	---	---	7.5	7.5	7.5
26	8.0	7.8	7.9	7.6	7.5	7.6	---	---	---	7.5	7.5	7.5
27	8.1	7.9	8.0	7.6	7.6	7.6	---	---	---	7.6	7.5	7.5
28	8.1	7.9	8.0	7.6	7.6	7.6	---	---	---	7.6	7.5	7.5
29	8.0	7.8	7.9	7.6	7.6	7.6	---	---	---	7.6	7.4	7.5
30	8.0	7.9	8.0	7.6	7.6	7.6	---	---	---	7.6	7.5	7.6
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	8.2	7.5	8.0	8.2	7.5	7.8	8.1	7.5	7.7	7.6	7.2	7.4

08061980 EAST FORK TRINITY RIVER AT SEAGOVILLE, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	23.5	22.5	23.0	17.0	16.0	16.5	14.0	13.0	13.5	---	---	---
2	24.5	23.0	24.0	17.0	16.0	16.5	14.5	13.5	14.0	---	---	---
3	25.0	23.5	24.0	16.5	15.0	16.0	14.0	12.0	13.5	---	---	---
4	25.0	24.0	24.5	16.5	14.5	16.0	13.0	12.0	12.5	---	---	---
5	25.5	24.0	25.0	19.0	16.5	18.0	14.0	12.5	13.5	---	---	---
6	25.5	24.5	25.0	21.5	19.0	20.5	15.5	14.0	14.5	---	---	---
7	24.5	23.0	24.0	22.5	21.0	21.5	15.5	14.0	15.0	---	---	---
8	23.0	21.5	22.0	22.0	20.0	21.5	14.0	12.5	13.0	---	---	---
9	22.0	21.0	21.5	20.0	18.5	19.0	12.5	11.5	12.0	---	---	---
10	22.5	21.0	22.0	19.0	17.5	18.5	13.0	12.0	12.5	---	---	---
11	23.0	21.5	22.5	19.0	17.5	18.5	13.0	10.5	12.0	14.0	12.5	13.0
12	23.5	22.0	23.0	19.5	18.0	19.0	10.5	9.5	10.0	13.0	11.0	12.0
13	23.5	22.0	23.0	20.5	19.0	20.0	9.5	8.0	8.5	11.0	10.0	10.5
14	23.5	22.5	23.0	21.5	20.0	20.5	---	---	---	12.5	10.5	11.5
15	24.0	22.5	23.5	21.0	18.5	20.0	---	---	---	15.0	13.0	14.0
16	25.0	23.5	24.5	18.0	15.5	17.0	---	---	---	16.5	15.0	15.5
17	23.5	20.5	22.0	15.5	14.0	15.0	---	---	---	17.0	15.5	16.5
18	20.5	19.0	20.0	15.0	14.5	14.5	---	---	---	16.0	13.5	15.0
19	18.0	16.5	17.0	16.5	15.0	15.5	---	---	---	13.0	12.5	13.0
20	16.5	15.5	16.0	18.5	16.0	17.5	---	---	---	13.0	11.5	12.0
21	17.0	15.5	16.5	19.5	18.0	19.0	---	---	---	11.5	11.0	11.5
22	19.5	17.5	18.5	19.5	16.5	18.5	---	---	---	12.0	11.0	11.5
23	21.5	19.5	20.5	16.0	14.5	15.0	---	---	---	13.0	12.0	12.5
24	22.0	21.0	21.5	14.5	13.5	14.0	---	---	---	14.5	13.0	13.5
25	23.0	21.5	22.0	16.5	14.5	15.5	---	---	---	13.5	11.5	12.5
26	22.0	21.0	21.5	17.5	17.0	17.0	---	---	---	11.5	10.0	11.0
27	22.0	21.0	21.5	18.5	17.5	18.0	---	---	---	12.5	10.5	11.5
28	21.5	21.0	21.5	17.5	15.0	16.0	---	---	---	12.5	11.5	12.0
29	22.0	21.0	21.5	15.0	14.0	14.5	---	---	---	11.5	10.5	11.5
30	21.5	17.0	19.5	14.0	13.0	13.5	---	---	---	12.0	10.0	11.5
31	17.0	16.0	16.5	---	---	---	---	---	---	12.0	10.5	11.0
MONTH	25.5	15.5	21.5	22.5	13.0	17.5	15.5	8.0	12.5	17.0	10.0	12.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	14.0	10.5	12.5	11.0	10.0	10.5	18.0	15.0	16.5	20.5	19.0	19.5
2	13.0	10.0	11.0	12.0	10.0	11.0	18.0	15.5	17.0	19.5	16.5	18.0
3	11.0	9.0	10.5	14.0	11.5	12.5	18.0	15.0	16.5	19.5	19.0	19.5
4	10.0	7.5	9.0	15.0	12.0	13.5	20.0	17.0	18.5	19.5	19.0	19.0
5	10.5	8.0	9.0	16.5	14.5	15.5	19.5	16.0	17.0	19.5	18.0	19.0
6	10.5	9.5	10.0	16.5	16.0	16.0	17.0	15.0	16.0	21.0	19.0	20.0
7	11.0	9.5	10.0	16.5	15.5	16.0	16.5	13.5	15.0	21.5	19.5	20.5
8	12.0	9.5	10.5	15.5	14.0	15.0	15.5	14.0	15.0	21.5	20.0	20.5
9	11.5	11.0	11.0	16.5	14.0	15.0	16.0	14.5	15.0	21.5	20.0	21.0
10	11.5	10.0	11.0	19.0	16.5	17.5	16.5	15.5	16.0	21.0	19.0	20.0
11	12.0	9.5	11.0	20.0	18.5	19.5	17.0	15.0	16.0	20.0	18.5	19.5
12	12.5	9.5	11.0	18.0	15.5	17.0	17.5	14.5	16.0	21.5	19.5	20.5
13	13.0	11.0	12.0	16.0	14.5	15.5	17.5	15.5	17.0	22.5	20.0	21.0
14	12.5	11.0	12.0	16.0	15.0	15.5	17.0	15.5	16.0	23.5	21.0	22.0
15	11.0	10.0	10.5	16.5	13.5	15.0	19.0	16.0	17.0	23.0	21.0	22.0
16	11.5	9.5	10.5	16.0	14.0	15.5	---	---	---	22.5	21.0	22.0
17	11.5	8.5	10.0	17.5	13.5	15.5	---	---	---	22.5	19.5	21.5
18	11.0	10.0	10.5	18.0	16.5	17.0	17.0	15.5	16.0	22.5	21.0	21.5
19	12.5	10.5	11.0	18.0	16.0	17.0	16.0	15.5	15.5	23.5	21.5	22.5
20	12.0	10.0	11.0	16.5	14.0	15.0	17.5	16.0	17.0	23.5	22.0	23.0
21	11.5	10.0	10.5	16.5	14.0	15.0	19.0	17.0	18.0	25.0	22.5	24.0
22	10.0	9.5	10.0	16.0	14.5	15.5	20.0	17.5	19.0	26.0	24.0	25.0
23	11.5	9.0	10.0	17.0	15.0	16.0	20.0	18.0	19.0	25.5	23.0	24.5
24	12.5	10.5	11.5	16.5	13.0	14.5	19.0	17.5	18.5	24.5	23.5	24.0
25	12.5	11.0	12.0	12.5	10.5	12.0	19.0	17.5	18.0	27.0	23.0	25.0
26	12.5	10.5	11.5	12.5	10.5	11.5	18.5	17.5	18.0	26.5	25.0	25.5
27	13.0	11.0	12.0	13.0	12.0	12.5	19.0	18.0	18.5	27.0	25.0	26.0
28	12.5	11.5	12.0	13.5	12.5	13.0	20.0	17.5	18.5	26.0	24.0	25.0
29	---	---	---	14.5	13.5	14.0	23.0	19.5	20.5	---	---	---
30	---	---	---	15.5	14.0	14.5	23.5	21.0	23.0	---	---	---
31	---	---	---	16.5	14.0	15.5	---	---	---	---	---	---
MONTH	14.0	7.5	11.0	20.0	10.0	15.0	23.5	13.5	17.5	27.0	16.5	22.0

08061980 EAST FORK TRINITY RIVER AT SEAGOVILLE, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	29.5	27.0	28.0	28.5	27.0	27.5	30.5	28.5	30.0
2	---	---	---	29.5	27.0	28.5	28.5	26.0	27.5	30.0	27.5	29.0
3	---	---	---	---	---	---	28.0	26.5	27.5	30.5	27.5	29.0
4	---	---	---	---	---	---	27.0	25.5	26.0	29.5	28.0	29.0
5	---	---	---	---	---	---	26.0	24.0	25.0	30.0	27.5	29.0
6	---	---	---	30.0	27.5	28.5	24.0	23.0	23.5	30.5	28.0	29.5
7	---	---	---	29.0	27.0	28.5	27.0	23.5	25.5	30.5	28.0	29.5
8	26.5	24.5	25.5	29.5	27.0	28.0	29.0	26.0	27.0	30.0	28.0	29.0
9	27.0	24.5	26.0	29.5	27.0	28.5	28.5	24.5	26.0	28.0	27.0	27.0
10	27.5	25.0	26.5	30.5	28.0	29.5	29.0	27.0	28.5	27.0	25.5	26.5
11	28.0	25.5	26.5	30.5	28.0	29.5	29.5	26.0	28.0	26.0	24.5	25.5
12	27.5	25.5	26.5	30.0	28.5	29.0	29.5	27.0	28.5	27.0	25.5	26.0
13	27.5	25.5	26.5	28.5	27.5	27.5	30.0	27.5	29.0	27.0	26.0	26.5
14	27.5	25.5	26.5	27.5	26.5	27.0	29.5	27.0	28.5	28.5	26.5	27.5
15	28.0	26.0	27.0	27.5	26.5	26.5	29.0	26.5	28.0	29.5	27.0	28.0
16	28.0	26.0	27.0	27.0	26.0	26.5	29.5	27.0	28.5	29.5	27.5	28.5
17	28.0	26.0	27.0	27.0	26.5	26.5	29.5	27.5	28.5	29.5	28.0	29.0
18	29.5	27.0	28.0	27.5	26.0	26.5	30.0	27.0	28.5	29.0	27.5	28.5
19	29.5	27.0	28.0	28.0	26.0	27.0	30.0	28.0	29.0	29.0	28.0	28.5
20	29.0	27.0	28.0	29.0	26.5	27.5	30.0	28.0	29.0	28.5	27.5	28.0
21	29.0	27.0	28.0	29.5	27.0	28.0	30.0	27.5	29.0	28.5	27.5	28.0
22	29.0	26.5	28.0	29.0	27.0	28.0	30.5	28.0	29.5	28.0	27.0	27.5
23	29.5	27.0	28.5	28.0	25.5	26.5	30.5	28.5	29.5	27.5	24.0	25.5
24	29.0	27.0	27.5	27.0	26.0	26.5	30.5	28.5	29.5	24.0	22.5	23.5
25	29.5	27.0	28.0	27.5	25.5	26.5	---	---	---	24.5	22.5	23.5
26	29.5	26.5	28.0	29.0	25.5	27.0	---	---	---	25.5	23.0	24.0
27	29.0	27.0	28.0	29.5	27.0	28.5	---	---	---	26.5	24.5	25.5
28	29.0	27.0	28.0	30.0	27.5	29.0	---	---	---	26.5	24.5	25.5
29	29.0	27.0	28.0	30.5	27.5	29.5	31.5	29.0	30.5	26.5	25.0	26.0
30	29.0	26.5	28.0	30.0	28.5	29.0	31.5	29.5	30.5	26.5	25.0	26.0
31	---	---	---	29.0	27.0	28.5	31.5	29.5	30.5	---	---	---
MONTH	29.5	24.5	27.5	30.5	25.5	28.0	31.5	23.0	28.0	30.5	22.5	27.5

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

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

08061980 EAST FORK TRINITY RIVER AT SEAGOVILLE, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	9.1	7.6	8.3	---	---	---	11.2	8.7	9.7	9.0	7.9	8.5
2	10.7	8.1	9.7	---	---	---	11.5	8.5	9.7	9.4	8.6	8.9
3	10.3	9.6	10.0	---	---	---	12.3	8.4	10.1	9.9	9.4	9.5
4	11.4	10.1	10.7	---	---	---	9.0	7.0	7.6	10.1	9.8	9.9
5	11.3	10.0	10.5	---	---	---	---	---	---	10.0	9.1	9.6
6	11.7	11.1	11.4	7.0	6.7	6.9	---	---	---	8.9	7.3	8.5
7	12.2	11.3	11.7	8.0	6.7	7.5	---	---	---	9.0	8.3	8.6
8	12.0	11.0	11.5	9.1	7.9	8.4	---	---	---	8.6	8.0	8.3
9	10.9	10.4	10.6	10.0	8.7	9.2	---	---	---	8.5	7.7	8.0
10	11.7	10.3	10.9	8.5	7.2	7.9	---	---	---	8.7	7.3	8.1
11	12.0	10.3	11.1	7.8	6.7	7.0	---	---	---	7.9	7.5	7.7
12	12.0	10.6	11.1	9.2	7.7	8.4	---	---	---	8.0	7.2	7.6
13	11.8	10.2	10.9	9.4	8.7	9.0	8.6	7.0	7.5	8.5	7.2	7.8
14	10.7	9.9	10.3	8.9	7.7	8.5	8.3	7.0	7.5	8.6	7.1	7.8
15	11.6	9.8	10.6	8.0	7.6	7.8	7.8	6.9	7.4	8.6	7.0	7.8
16	12.4	10.6	11.4	8.6	7.7	8.1	---	---	---	8.3	7.1	7.7
17	12.6	10.9	11.7	9.2	7.8	8.5	---	---	---	9.2	7.2	8.2
18	12.1	10.8	11.4	7.6	6.7	7.2	8.6	7.9	8.2	8.4	7.1	7.8
19	12.3	10.8	11.5	7.9	7.2	7.3	7.8	7.3	7.6	8.1	6.9	7.4
20	12.3	10.7	11.4	9.9	7.9	9.5	8.7	7.5	8.1	7.6	6.7	7.2
21	11.3	10.7	11.0	9.9	9.3	9.6	9.1	8.4	8.7	8.2	6.3	7.2
22	11.3	10.3	10.8	9.6	9.0	9.2	9.8	8.5	9.0	6.5	5.0	5.4
23	11.9	10.5	11.2	10.0	8.8	9.3	10.0	8.6	9.2	5.0	4.0	4.7
24	11.3	10.4	10.8	9.9	8.8	9.3	9.8	8.5	9.1	4.7	3.8	4.3
25	11.2	10.4	10.8	10.2	9.5	9.8	9.8	8.7	9.2	4.5	3.5	4.0
26	11.3	10.6	11.0	10.3	9.4	9.8	9.0	7.4	8.1	3.9	3.1	3.4
27	10.7	9.9	10.3	10.3	9.4	9.8	8.0	7.4	7.8	4.0	3.0	3.3
28	10.2	9.5	9.8	9.5	8.7	9.2	8.4	7.8	8.1	6.7	3.2	4.9
29	---	---	---	8.7	8.3	8.6	8.4	7.4	7.9	7.3	6.4	6.7
30	---	---	---	9.6	8.2	8.8	7.9	5.7	6.3	7.2	6.1	6.7
31	---	---	---	10.7	8.6	9.5	---	---	---	7.2	6.4	6.7
MONTH	12.6	7.6	10.8	10.7	6.7	8.6	12.3	5.7	8.3	10.1	3.0	7.2
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	6.7	5.7	6.4	7.5	6.3	6.8	3.7	2.2	3.2	6.6	3.3	4.3
2	6.6	5.6	6.0	7.6	6.3	6.9	3.5	2.9	3.2	9.1	2.9	5.3
3	7.4	5.7	6.8	7.5	6.3	6.8	3.1	2.5	2.8	7.7	3.0	5.0
4	7.1	5.8	6.3	7.6	6.1	6.8	4.4	3.0	3.6	---	---	---
5	6.6	5.1	5.6	7.4	6.0	6.7	4.9	3.9	4.6	---	---	---
6	7.7	6.8	7.1	7.7	5.8	6.7	5.4	4.6	5.1	---	---	---
7	7.8	6.7	7.2	7.4	6.2	6.8	---	---	---	---	---	---
8	7.9	6.7	7.2	7.4	6.4	6.9	---	---	---	3.6	2.7	3.2
9	8.0	6.7	7.2	7.7	6.5	7.0	---	---	---	3.7	2.8	3.2
10	7.9	6.7	7.2	6.7	4.2	5.3	4.0	3.5	3.8	4.4	3.3	3.6
11	7.7	6.6	7.1	4.1	3.2	3.8	4.0	3.2	3.6	5.6	4.0	4.8
12	7.5	6.4	6.9	6.8	3.0	5.0	4.1	3.6	3.8	4.7	4.2	4.4
13	7.2	6.3	6.7	7.7	6.4	7.1	4.3	3.6	3.8	4.7	4.1	4.4
14	7.1	6.3	6.6	7.7	7.2	7.5	4.7	3.6	4.0	4.5	3.7	4.1
15	7.3	6.3	6.7	7.6	7.0	7.2	5.1	3.9	4.5	4.2	2.5	3.7
16	7.3	6.1	6.6	7.5	6.6	7.3	6.0	4.0	4.7	4.8	2.5	3.6
17	7.7	6.1	6.7	6.5	4.3	5.3	6.9	3.9	5.0	4.1	3.1	3.5
18	6.5	4.6	5.4	4.3	3.9	4.1	6.8	3.8	5.0	4.3	3.3	3.7
19	7.5	4.9	6.7	3.9	3.1	3.7	4.9	3.7	4.2	4.7	3.6	4.1
20	7.4	6.2	6.7	3.3	2.8	3.1	---	---	---	4.6	3.8	4.2
21	7.6	6.0	6.8	3.0	2.6	2.8	---	---	---	4.6	4.1	4.3
22	7.4	6.3	6.8	3.3	2.6	2.9	---	---	---	5.0	4.4	4.7
23	7.5	6.2	6.8	3.3	2.8	3.0	8.7	3.4	5.1	5.1	4.7	4.9
24	---	---	---	4.1	3.0	3.8	---	---	---	5.6	5.2	5.4
25	---	---	---	4.1	3.8	4.0	---	---	---	6.0	5.6	5.7
26	---	---	---	4.0	3.5	3.8	---	---	---	6.0	5.4	5.7
27	---	---	---	3.8	3.2	3.4	---	---	---	5.8	5.1	5.5
28	7.5	6.5	6.9	3.9	3.0	3.4	---	---	---	5.7	5.1	5.3
29	7.4	6.4	6.8	3.9	2.4	3.2	9.4	3.0	5.3	5.3	4.8	5.0
30	7.4	6.3	6.8	4.4	3.1	3.6	6.9	3.2	4.4	5.0	4.6	4.8
31	---	---	---	4.1	2.2	3.3	6.5	2.7	4.1	---	---	---
MONTH	8.0	4.6	6.7	7.7	2.2	5.1	9.4	2.2	4.2	9.1	2.5	4.5

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX

LOCATION.--Lat 32°38'19", long 96°29'17", Kaufman County, Hydrologic Unit 12030106, on right bank 15 ft downstream from downstream eastbound bridge on U.S. Highway 175, 0.7 mi downstream from Mustang Creek, 1.8 mi northwest of Crandall, 4.0 mi upstream from Buffalo Creek, and 11.0 mi upstream from mouth.

DRAINAGE AREA.--1,256 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1949 to current year.

REVISED RECORDS.--WSP 1922: Drainage area. WDR TX-75-1: 1974.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 338.69 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 21, 1983, at datum 5.00 ft higher.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Flow is largely regulated by Lavon Lake (station 08060500) since September 1953, and by Lake Ray Hubbard (station 08061550) since Mar. 22, 1970. The city of Forney discharges sewage effluent into a tributary below Lake Ray Hubbard and above this station. The North Texas Municipal Water District discharges sewage effluent into tributaries above this station from the Mesquite and Chandler's Landing sewage treatment plants. Flow is affected at times by discharge from the flood-detention pools of 20 floodwater-retarding structures with a combined detention capacity of 11,760 acre-ft. These structures control runoff from 39.2 mi². Gage-height telemeter at station.

AVERAGE DISCHARGE.--4 years (water years 1950-53) prior to regulation by Lavon Lake, 652 ft³/s (472,400 acre-ft/yr); 37 years (water years 1954-90) regulated, 607 ft³/s (439,800 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 59,900 ft³/s May 5, 1990 (gage height, 27.17 ft); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 59,900 ft³/s May 5 at 0030 hours (gage height, 27.17 ft); minimum daily, 49 ft³/s Jan. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	124	52	83	3180	1980	2210	1860	2200	2140	80	75
2	70	88	54	63	8410	1150	2080	8560	3110	2150	98	70
3	71	79	54	57	6450	196	2000	31000	2520	2150	e119	70
4	75	76	57	110	3360	118	544	47400	e2740	2150	235	76
5	76	76	59	97	1970	104	1200	48800	1260	2140	e813	73
6	76	76	56	67	1100	95	2100	22500	e1700	2130	550	85
7	75	77	53	61	1160	1200	2480	16800	e2060	2130	575	86
8	82	71	53	59	1660	2370	2110	11500	e2100	2130	394	74
9	77	77	56	56	1860	2240	2020	7350	2100	2110	104	104
10	76	74	54	50	1900	1000	2530	5910	2100	539	80	142
11	74	71	52	55	1900	790	3200	5570	2110	79	75	360
12	75	69	56	51	1860	1760	2550	5370	2400	432	74	208
13	76	71	55	50	1840	2060	1120	5300	2600	1180	70	130
14	74	72	57	49	1820	2640	3330	5220	2570	1180	71	103
15	72	70	55	53	1830	5200	7610	5050	2550	721	117	88
16	72	81	57	53	1870	4720	8150	5060	2550	599	83	77
17	72	76	53	113	1810	3610	10800	5090	2550	128	69	75
18	79	71	51	315	1800	1490	7130	5120	1300	65	70	80
19	102	69	56	1670	1800	336	2070	4500	1580	67	66	86
20	91	72	56	1530	1780	1090	1250	3840	2080	65	64	81
21	82	75	57	252	1840	1550	1900	3630	2140	60	62	74
22	84	159	55	e135	2380	1860	2090	1310	2150	59	63	76
23	86	196	59	e110	1650	2020	2130	204	2150	65	88	71
24	82	82	55	e108	1040	2010	2090	143	2140	150	100	64
25	75	58	55	163	1040	2070	2050	123	2180	e121	93	65
26	77	55	58	e154	1330	2430	2980	107	2170	e127	90	65
27	80	57	66	e144	1610	2290	7030	105	2160	e91	86	63
28	77	52	64	e133	1830	2350	7330	640	2160	64	86	70
29	72	52	67	123	---	2980	5610	1770	2150	62	84	68
30	345	52	66	122	---	2910	2780	2050	2150	60	79	60
31	448	---	72	243	---	2510	---	2220	---	65	75	---
TOTAL	3043	2378	1770	6329	62080	59129	102474	264102	65730	25209	4713	2819
MEAN	98.2	79.3	57.1	204	2217	1907	3416	8519	2191	813	152	94.0
MAX	448	196	72	1670	8410	5200	10800	48800	3110	2150	813	360
MIN	70	52	51	49	1040	95	544	105	1260	59	62	60
AC-FT	6040	4720	3510	12550	123100	117300	203300	523800	130400	50000	9350	5590

CAL YR 1989 TOTAL 513654 MEAN 1407 MAX 25300 MIN 51 AC-FT 1019000
WTR YR 1990 TOTAL 599776 MEAN 1643 MAX 48800 MIN 49 AC-FT 1190000

e Estimated

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: January to April 1964, May 1966 to September 1981, June 1986 to current year. Pesticide analyses: March 1977 to July 1981. Sediment analyses: Arpil to September 1964.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1967 to September 1981, May 1986 to current year.
pH: March to September 1977, May 1986 to current year.
WATER TEMPERATURE: October 1967 to September 1981, May 1986 to current year.
DISSOLVED OXYGEN: March to September 1977, May 1986 to current year.

INSTRUMENTATION.--From March to November 1977, a four-parameter water-quality monitor continuously recorded specific conductance, pH, water temperature, and dissolved oxygen at this station. Since May 1986, a four-parameter water-quality monitor continuously records specific conductance, pH, water temperature, and dissolved oxygen at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 1,010 microsiemens Nov. 23, 1968; minimum, 100 microsiemens May 17, 1989.
pH: Maximum, 9.5 units Oct. 30, 1989; minimum, 6.7 units Jan. 20, Feb. 15-18, 1988.
WATER TEMPERATURE: Maximum, 34.0°C June 26, July 1, Aug. 16, 17, 1980; minimum, 1.0°C Jan. 3, 1979.
DISSOLVED OXYGEN: Maximum, 14.5 mg/L July 8, 1977; minimum, 0.0 mg/L on many days during 1977.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 716 microsiemens Dec. 19; minimum, 139 microsiemens Jan. 19.
pH: Maximum, 9.5 units Oct. 30; minimum, 7.0 units Nov. 6.
WATER TEMPERATURE: Maximum, 32.0°C Aug. 30; minimum, 1.5°C Dec. 23.
DISSOLVED OXYGEN: Maximum, 13.7 mg/L Sep. 3; minimum, 2.7 mg/L July 22, 29.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
NOV										
20...	1505	71	661	7.6	16.0	6.0	61	6.8	140	13
MAR										
02...	1345	1150	316	8.0	11.0	10.6	97	2.9	120	9
APR										
25...	1540	2050	327	7.9	19.0	8.7	95	1.8	130	16
JUN										
13...	1540	2580	307	8.1	27.5	7.2	93	1.5	130	5
JUL										
17...	0915	130	323	7.9	26.5	5.6	70	3.0	110	5
SEP										
05...	1425	73	627	7.9	29.5	6.9	92	8.2	120	4

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV									
20...	51	3.4	67	2	11	130	56	71	1.1
MAR									
02...	44	2.8	16	0.6	4.5	110	22	14	0.40
APR									
25...	47	2.6	14	0.5	3.8	110	20	12	0.30
JUN									
13...	47	2.2	10	0.4	3.2	120	19	6.8	0.30
JUL									
17...	42	2.4	18	0.7	4.3	110	20	13	0.30
SEP									
05...	43	3.0	65	3	10	120	43	63	1.1

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									
20...	9.4	347	6.55	0.750	7.30	1.30	1.7	3.0	6.70
MAR									
02...	1.4	172	0.530	0.070	0.600	0.160	0.94	1.1	0.140
APR									
25...	0.90	168	0.440	0.060	0.500	0.130	0.47	0.60	0.180
JUN									
13...	1.8	163	0.570	0.030	0.600	0.060	0.54	0.60	0.150
JUL									
17...	3.1	169	0.920	0.180	1.10	0.270	0.63	0.90	0.740
SEP									
05...	5.8	303	5.74	0.660	6.40	2.80	2.1	4.9	5.90

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1989	3043	568	317	2600	50	412	63	518	150
NOV.	1989	2378	578	323	2070	51	327	64	412	150
DEC.	1989	1770	656	365	1750	65	312	77	366	160
JAN.	1990	6329	348	195	3330	22	376	34	586	110
FEB.	1990	62080	277	156	26100	10	1670	24	3950	100
MAR.	1990	59129	322	181	28900	14	2280	29	4580	120
APR.	1990	102474	289	162	44900	11	3080	25	6890	110
MAY	1990	264102	294	165	118000	11	8200	25	18200	110
JUNE	1990	65730	308	173	30700	13	2240	27	4780	110
JULY	1990	25209	317	178	12100	14	977	28	1940	110
AUG.	1990	4713	445	249	3170	32	410	46	584	130
SEPT	1990	2819	548	306	2330	45	346	59	452	150
TOTAL		599776	**	**	276000	**	20600	**	43200	**
WTD.AVG.		1643	303	170	**	13	**	27	**	110

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	627	611	619	422	354	388	675	624	655	---	---	617
2	631	625	628	471	417	441	704	653	679	---	---	566
3	633	623	628	502	474	490	697	661	688	---	---	603
4	651	606	628	535	501	518	663	637	655	---	---	564
5	629	603	616	559	529	536	662	637	652	---	---	499
6	652	621	634	630	531	552	644	623	630	---	---	522
7	661	632	645	640	615	626	658	624	649	---	---	589
8	674	644	656	636	606	623	682	637	656	---	---	603
9	653	634	644	625	582	601	688	655	667	---	---	608
10	663	615	632	646	587	607	706	666	687	---	---	615
11	673	651	661	661	642	651	699	644	672	664	617	632
12	664	630	649	669	645	658	661	641	647	678	650	663
13	667	629	650	656	634	646	676	640	660	675	659	668
14	672	643	656	650	635	643	686	661	674	692	674	682
15	668	648	657	648	634	640	696	671	683	682	656	674
16	658	642	653	648	618	636	686	661	675	663	656	660
17	643	635	639	656	632	645	707	680	691	685	585	645
18	662	631	644	653	625	639	713	690	701	625	335	465
19	657	604	630	650	625	636	716	689	702	327	139	180
20	653	615	637	664	652	658	706	643	676	227	186	205
21	644	601	618	679	654	669	684	636	653	254	229	246
22	623	586	608	665	362	628	691	665	679	285	253	262
23	615	573	594	590	356	481	708	681	694	337	285	309
24	597	580	589	500	430	462	---	---	691	402	337	381
25	---	---	593	572	505	532	---	---	686	536	400	450
26	---	---	600	622	576	608	---	---	625	547	509	529
27	---	---	595	621	600	611	---	---	581	568	518	543
28	616	598	603	626	605	617	585	559	572	576	538	565
29	643	618	625	646	620	631	602	563	579	601	510	556
30	656	246	517	629	614	622	629	604	613	633	541	587
31	348	267	302	---	---	---	644	630	638	617	283	562
MONTH	674	246	615	679	354	590	716	559	658	692	139	524

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	329	171	260	314	295	303	321	315	319	427	342	353
2	255	191	232	344	305	317	322	311	317	344	159	223
3	265	252	259	460	346	410	331	312	315	278	254	263
4	278	261	271	567	462	516	443	340	406	295	280	289
5	338	278	296	650	568	608	507	309	371	297	289	294
6	295	286	292	656	640	648	370	306	319	300	297	298
7	295	274	289	657	250	426	312	308	310	305	300	303
8	286	280	284	309	291	302	313	310	311	310	305	307
9	290	283	285	310	303	307	314	312	313	313	305	310
10	295	286	291	466	312	370	319	261	286	307	303	305
11	286	281	283	555	406	500	301	275	286	307	305	306
12	284	280	282	515	374	407	317	303	310	314	305	308
13	285	282	283	403	375	384	421	306	369	315	305	311
14	290	285	287	394	253	329	342	198	261	307	301	304
15	307	290	296	268	251	262	271	208	248	307	264	299
16	295	285	289	302	271	291	276	184	229	308	300	305
17	289	286	288	307	301	303	283	201	247	307	297	303
18	289	286	287	404	309	359	293	284	289	306	297	302
19	290	287	288	539	410	478	303	284	293	322	302	314
20	290	288	289	578	312	386	368	307	334	318	306	314
21	326	278	292	388	307	333	357	320	332	317	308	312
22	302	271	288	315	310	313	324	317	320	392	321	363
23	309	290	301	314	311	312	322	318	321	467	396	431
24	313	306	309	314	306	312	321	317	319	517	460	485
25	314	295	307	352	296	312	331	318	325	573	519	544
26	301	295	298	323	299	309	340	239	288	617	574	598
27	296	290	293	309	304	307	277	240	264	616	546	603
28	322	289	299	335	307	318	306	279	293	627	314	493
29	---	---	---	310	283	302	324	308	318	317	311	313
30	---	---	---	313	305	308	413	325	365	372	314	320
31	---	---	---	319	313	316	---	---	---	324	310	317
MONTH	338	171	286	657	250	366	507	184	309	627	159	348

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	358	273	306	289	284	286	668	628	648	657	641	649
2	290	270	276	286	281	283	630	552	593	642	622	633
3	316	293	305	282	279	281	625	499	555	636	607	622
4	304	279	294	282	279	281	645	320	531	638	615	628
5	406	306	346	280	275	278	366	211	282	616	608	612
6	432	308	324	322	275	284	399	241	312	609	581	594
7	320	316	318	376	282	334	351	275	311	613	570	595
8	318	315	317	369	286	335	324	295	309	610	600	606
9	318	314	316	361	306	335	445	325	386	632	601	617
10	317	314	316	---	---	353	519	450	476	630	574	607
11	317	312	315	---	---	434	613	526	572	556	291	412
12	316	310	313	698	314	498	625	586	606	470	391	428
13	320	315	318	298	282	292	609	592	601	490	440	467
14	320	317	318	302	286	292	608	601	604	533	449	477
15	321	316	319	318	278	304	625	613	620	549	528	539
16	319	315	317	314	298	307	626	525	573	570	537	556
17	318	313	316	376	314	338	598	543	571	577	569	574
18	---	---	348	459	380	424	631	602	621	589	573	579
19	---	---	332	553	467	505	639	620	629	589	551	569
20	317	314	316	648	560	616	642	628	637	583	536	562
21	316	303	311	674	652	664	639	628	636	577	561	568
22	306	302	304	674	635	659	638	624	632	577	560	569
23	303	289	295	639	630	634	632	603	620	616	578	592
24	295	286	289	686	630	658	622	603	614	613	584	595
25	299	294	297	638	523	568	632	621	627	594	565	581
26	301	295	297	560	543	550	648	629	639	592	568	583
27	294	288	291	599	564	582	632	613	623	578	544	561
28	290	287	288	613	565	579	620	598	610	596	547	578
29	291	287	289	641	617	631	621	584	601	643	596	621
30	291	286	288	653	638	645	603	577	585	653	622	636
31	---	---	---	643	614	633	639	608	622	---	---	---
MONTH	432	270	309	698	275	447	668	211	556	657	291	574

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.7	7.6	7.6	7.7	7.7	7.7	7.5	7.4	7.4	7.6	7.5	7.6
2	7.6	7.6	7.6	7.7	7.7	7.7	7.4	7.3	7.4	7.6	7.4	7.5
3	7.6	7.5	7.6	7.7	7.6	7.6	7.6	7.3	7.5	---	---	---
4	7.6	7.6	7.6	7.6	7.6	7.6	7.5	7.4	7.4	---	---	---
5	7.6	7.5	7.6	7.6	7.4	7.5	7.5	7.3	7.5	---	---	---
6	7.6	7.6	7.6	7.4	7.0	7.2	---	---	---	---	---	---
7	7.6	7.6	7.6	7.6	7.2	7.5	---	---	---	---	---	---
8	7.6	7.6	7.6	7.6	7.6	7.6	---	---	---	---	---	---
9	7.6	7.5	7.6	7.7	7.6	7.6	---	---	---	---	---	---
10	7.6	7.5	7.6	7.7	7.6	7.6	---	---	---	---	---	---
11	7.6	7.5	7.5	---	---	---	---	---	---	7.5	7.4	7.5
12	7.5	7.4	7.4	---	---	---	---	---	---	7.5	7.4	7.5
13	---	---	---	---	---	---	---	---	---	7.5	7.4	7.5
14	---	---	---	---	---	---	7.8	7.7	7.7	7.5	7.3	7.5
15	---	---	---	---	---	---	7.8	7.7	7.8	---	---	---
16	---	---	---	---	---	---	7.9	7.8	7.8	---	---	---
17	---	---	---	---	---	---	7.8	7.7	7.7	---	---	---
18	---	---	---	7.6	7.6	7.6	7.7	7.6	7.6	---	---	---
19	7.7	7.5	7.6	7.6	7.5	7.6	7.6	7.6	7.6	8.0	7.5	7.8
20	7.7	7.5	7.6	7.6	7.4	7.5	7.6	7.6	7.6	7.6	7.5	7.5
21	7.6	7.4	7.5	7.6	7.5	7.5	7.7	7.6	7.7	7.5	7.4	7.5
22	7.3	7.3	7.3	7.9	7.5	7.6	7.7	7.7	7.7	7.5	7.5	7.5
23	7.6	7.3	7.5	7.9	7.6	7.7	7.8	7.6	7.7	7.5	7.5	7.5
24	7.6	7.4	7.5	7.6	7.6	7.6	7.6	7.6	7.6	7.4	7.4	7.4
25	---	---	---	7.6	7.3	7.5	7.6	7.5	7.5	7.5	7.4	7.5
26	---	---	---	7.4	7.2	7.3	7.5	7.3	7.4	7.5	7.5	7.5
27	---	---	---	7.2	7.1	7.1	7.4	7.3	7.3	7.5	7.5	7.5
28	7.5	7.5	7.5	7.5	7.1	7.2	7.5	7.3	7.4	7.6	7.5	7.6
29	7.6	7.5	7.5	7.5	7.5	7.5	7.6	7.4	7.5	7.6	7.5	7.5
30	9.5	7.5	7.8	7.5	7.4	7.5	7.6	7.5	7.5	7.6	7.5	7.5
31	8.0	7.7	7.8	---	---	---	7.6	7.5	7.6	7.8	7.5	7.5
MONTH	9.5	7.3	7.6	7.9	7.0	7.5	7.9	7.3	7.6	8.0	7.3	7.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.8	7.6	7.7	8.1	7.9	8.0	8.3	7.9	8.1	---	---	---
2	7.9	7.7	7.8	8.1	7.9	8.0	8.6	8.0	8.2	---	---	---
3	8.0	7.8	7.9	8.0	7.6	7.7	8.7	8.3	8.5	---	---	---
4	8.0	7.8	7.9	7.8	7.7	7.8	8.4	7.8	8.0	---	---	---
5	8.0	7.7	7.8	7.7	7.6	7.7	8.1	7.7	8.0	---	---	---
6	8.1	8.0	8.0	7.6	7.6	7.6	8.0	7.7	7.8	---	---	---
7	8.4	8.1	8.3	7.7	7.5	7.6	---	---	---	---	---	---
8	8.4	8.2	8.3	7.8	7.6	7.7	---	---	---	---	---	---
9	8.2	8.1	8.1	7.9	7.7	7.8	---	---	---	---	---	---
10	8.4	8.1	8.3	7.8	7.6	7.7	---	---	---	---	---	---
11	8.4	8.2	8.3	7.6	7.5	7.6	---	---	---	8.2	8.1	8.2
12	8.4	8.2	8.3	7.7	7.6	7.7	---	---	---	8.2	8.1	8.1
13	8.4	8.2	8.3	7.7	7.6	7.7	8.4	8.0	8.1	---	---	---
14	8.4	8.1	8.3	---	---	---	8.2	8.1	8.1	---	---	---
15	8.4	8.1	8.3	---	---	---	8.3	8.1	8.2	---	---	---
16	8.5	8.2	8.4	8.0	7.9	8.0	8.2	8.0	8.1	---	---	---
17	8.6	8.3	8.4	8.2	8.0	8.1	---	---	---	---	---	---
18	8.5	8.2	8.3	8.1	7.9	8.0	---	---	---	---	---	---
19	8.4	8.1	8.3	8.0	8.0	8.0	---	---	---	---	---	---
20	8.4	7.9	8.1	8.3	8.0	8.2	---	---	---	---	---	---
21	8.2	7.9	8.1	8.2	8.2	8.2	---	---	---	---	---	---
22	8.0	7.8	7.9	8.2	8.1	8.2	---	---	---	---	---	---
23	8.0	7.8	7.9	8.2	8.1	8.1	---	---	---	8.0	7.8	8.0
24	8.1	7.9	8.0	8.2	8.0	8.1	---	---	---	7.8	7.8	7.8
25	8.2	7.9	8.0	8.2	8.1	8.1	---	---	---	7.8	7.7	7.8
26	8.1	7.9	8.0	8.1	7.9	8.0	---	---	---	7.8	7.7	7.7
27	8.1	7.9	8.0	8.1	7.8	8.0	---	---	---	7.8	7.7	7.7
28	8.1	7.9	8.0	8.1	7.7	7.9	---	---	---	7.8	7.6	7.7
29	---	---	---	7.9	7.7	7.8	---	---	---	7.8	7.8	7.8
30	---	---	---	8.0	7.8	7.9	---	---	---	7.9	7.7	7.8
31	---	---	---	8.2	7.9	8.0	---	---	---	7.8	7.7	7.8
MONTH	8.6	7.6	8.1	8.3	7.5	7.9	8.7	7.7	8.1	8.2	7.6	7.9

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	8.1	7.9	8.0	7.7	7.5	7.6	8.0	7.5	7.7
2	---	---	---	8.2	7.9	8.0	7.6	7.5	7.6	8.3	7.6	7.9
3	---	---	---	8.1	8.0	8.1	7.6	7.5	7.5	8.4	7.6	7.9
4	---	---	---	8.1	7.9	8.0	7.7	7.5	7.5	8.1	7.5	7.7
5	---	---	---	8.0	7.8	7.9	7.9	7.6	7.7	7.8	7.5	7.7
6	---	---	---	8.0	7.8	7.9	7.8	7.6	7.7	8.0	7.7	7.8
7	---	---	---	7.9	7.7	7.8	7.9	7.6	7.7	8.0	7.7	7.9
8	8.3	8.1	8.2	7.9	7.8	7.8	7.8	7.7	7.8	7.8	7.6	7.7
9	8.4	8.1	8.2	7.9	7.8	7.8	7.7	7.5	7.6	7.7	7.5	7.6
10	8.4	8.2	8.3	---	---	---	7.6	7.5	7.6	7.7	7.5	7.6
11	8.4	8.2	8.3	7.7	7.4	7.6	---	---	---	7.8	7.6	7.7
12	8.4	8.2	8.3	7.8	7.6	7.7	---	---	---	7.6	7.5	7.6
13	8.3	8.1	8.2	7.9	7.8	7.9	---	---	---	7.5	7.4	7.4
14	8.1	7.9	8.0	8.0	7.9	7.9	---	---	---	7.5	7.4	7.4
15	8.1	7.9	8.0	7.9	7.8	7.9	---	---	---	7.4	7.3	7.4
16	8.1	7.9	8.0	7.9	7.8	7.9	---	---	---	7.5	7.3	7.4
17	8.1	7.9	8.0	7.8	7.6	7.7	7.4	7.3	7.4	7.5	7.3	7.4
18	8.0	7.8	7.9	7.6	7.5	7.6	7.5	7.4	7.4	7.5	7.4	7.4
19	8.1	7.9	8.0	7.7	7.5	7.6	7.5	7.4	7.4	7.8	7.4	7.6
20	8.1	8.0	8.0	7.7	7.4	7.7	7.5	7.4	7.4	7.8	7.6	7.7
21	8.1	8.0	8.0	7.5	7.4	7.5	7.5	7.4	7.4	7.9	7.7	7.8
22	8.1	7.9	8.0	7.4	7.3	7.4	7.8	7.4	7.6	7.9	7.8	7.8
23	8.2	8.0	8.1	7.5	7.3	7.4	7.9	7.6	7.8	7.9	7.8	7.8
24	8.1	7.9	8.0	7.6	7.5	7.6	8.3	7.7	7.9	7.8	7.8	7.8
25	8.1	7.9	8.0	7.6	7.5	7.6	7.9	7.6	7.8	7.8	7.8	7.8
26	8.1	7.9	8.0	7.6	7.5	7.6	7.8	7.5	7.6	7.8	7.7	7.7
27	8.1	7.9	8.0	7.6	7.5	7.6	7.9	7.5	7.7	7.7	7.7	7.7
28	8.1	7.9	8.0	7.6	7.5	7.6	8.0	7.5	7.7	7.8	7.7	7.7
29	8.1	7.9	8.0	7.7	7.5	7.6	8.1	7.5	7.7	7.7	7.6	7.7
30	8.1	7.9	8.0	7.7	7.5	7.6	8.2	7.5	7.8	7.6	7.5	7.6
31	---	---	---	7.7	7.5	7.6	7.8	7.5	7.6	---	---	---
MONTH	8.4	7.8	8.1	8.2	7.3	7.7	8.3	7.3	7.6	8.4	7.3	7.7

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

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

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

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

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	4.6	3.8	4.1	6.8	6.5	6.6	7.7	6.9	7.2	8.5	7.4	8.0
2	4.2	3.6	3.8	7.0	6.6	6.8	7.8	6.8	7.4	9.2	7.9	8.5
3	4.1	3.2	3.7	7.1	6.6	6.8	8.1	6.9	7.4	7.7	6.9	7.4
4	---	---	---	7.3	6.7	7.0	8.3	7.1	7.6	8.7	6.5	7.4
5	---	---	---	6.9	6.1	6.7	8.3	7.2	7.7	8.7	7.7	8.4
6	---	---	---	6.1	5.3	5.8	8.0	6.7	7.3	8.2	7.7	8.0
7	4.1	3.3	3.7	5.3	4.6	4.9	7.5	6.1	6.8	8.3	7.5	7.9
8	5.0	3.5	4.1	5.5	4.3	4.8	7.6	6.3	6.9	8.3	7.4	7.8
9	5.8	3.9	4.6	6.3	4.7	5.4	8.4	7.1	7.7	8.1	7.2	7.6
10	5.5	4.3	4.9	6.8	5.4	6.0	8.5	7.2	7.8	7.6	6.8	7.2
11	5.9	4.1	4.8	7.0	5.4	6.1	7.9	6.8	7.3	7.5	6.8	7.1
12	5.9	4.0	5.0	6.9	5.4	6.1	8.6	7.3	7.9	7.6	6.6	7.1
13	5.9	4.2	5.0	6.6	5.0	5.7	8.9	8.1	8.4	8.5	7.1	7.7
14	5.7	4.4	4.9	6.1	4.9	5.5	8.9	7.6	8.3	8.8	7.4	8.1
15	5.9	4.5	5.0	6.3	4.3	5.3	8.8	7.7	8.3	8.0	6.7	7.2
16	5.7	4.3	4.9	---	---	---	9.3	7.8	8.5	6.9	5.9	6.3
17	4.9	3.9	4.3	---	---	---	9.2	8.4	8.8	7.0	5.5	6.1
18	5.9	4.6	5.2	---	---	---	8.7	7.7	8.2	8.2	6.5	7.2
19	7.0	5.1	5.9	---	---	---	8.6	7.6	8.1	9.4	8.0	8.6
20	7.6	6.1	6.7	---	---	---	9.0	7.8	8.4	7.9	7.6	7.8
21	7.6	6.0	6.6	5.3	4.8	5.1	9.3	7.9	8.6	9.5	7.9	8.9
22	6.8	5.0	6.0	5.9	4.6	4.9	9.9	8.4	9.1	9.6	9.4	9.5
23	---	---	---	7.4	6.0	6.7	10.4	9.1	9.8	9.5	9.2	9.3
24	---	---	---	7.3	6.4	6.9	10.4	9.2	9.8	9.2	8.8	9.0
25	---	---	---	7.6	7.2	7.4	9.7	9.0	9.4	9.2	8.6	8.9
26	---	---	---	7.1	6.1	6.5	9.0	8.1	8.6	9.0	8.6	8.8
27	---	---	---	6.1	5.6	5.8	9.2	8.1	8.6	9.0	8.5	8.8
28	4.6	3.8	4.1	6.4	5.5	5.9	8.6	7.8	8.2	8.6	8.4	8.5
29	4.7	3.9	4.2	7.1	6.3	6.5	8.7	7.0	7.9	8.5	8.3	8.4
30	7.1	3.8	5.0	7.4	6.8	7.0	7.2	6.5	6.8	8.6	8.2	8.4
31	6.4	5.2	6.1	---	---	---	7.9	6.5	7.1	8.8	8.3	8.5
MONTH	7.6	3.2	4.9	7.6	4.3	6.1	10.4	6.1	8.1	9.6	5.5	8.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	8.6	7.3	7.9	10.5	9.6	10.0	10.3	8.2	9.1	8.0	6.5	7.6
2	9.1	7.3	8.5	10.8	10.1	10.4	10.5	8.1	9.2	8.4	7.6	8.0
3	9.3	8.7	9.0	10.3	9.0	9.6	11.2	8.1	9.4	8.3	7.8	7.9
4	10.3	9.2	9.8	8.9	8.3	8.8	9.5	7.2	8.0	8.7	8.4	8.5
5	10.3	9.4	9.7	8.2	7.8	8.0	9.1	6.9	8.4	8.8	8.5	8.6
6	10.7	10.1	10.5	7.7	7.5	7.6	8.7	7.5	8.1	8.6	8.3	8.4
7	11.0	10.5	10.8	8.6	7.4	7.9	9.7	7.8	8.6	8.5	7.8	8.1
8	10.8	10.1	10.5	9.2	8.1	8.4	10.1	8.5	9.2	8.5	7.7	8.0
9	10.0	9.6	9.9	10.0	9.1	9.4	9.5	8.6	9.0	8.2	7.4	7.8
10	10.9	9.7	10.2	9.1	8.1	8.4	8.9	7.4	8.2	8.3	7.7	7.9
11	11.2	9.9	10.5	8.1	7.2	7.7	---	---	---	8.0	7.3	7.6
12	11.1	10.0	10.5	9.3	7.6	8.6	---	---	---	8.2	7.2	7.7
13	11.1	9.7	10.4	9.4	8.9	9.1	9.2	7.6	8.1	8.8	7.1	7.8
14	10.2	9.6	9.9	8.9	7.9	8.5	8.9	7.4	8.1	9.0	7.1	8.0
15	11.0	9.7	10.2	8.1	7.7	7.9	7.8	7.4	7.6	8.8	6.9	7.8
16	11.6	9.9	10.7	8.4	7.5	7.9	7.8	6.7	7.1	9.0	6.9	7.7
17	11.8	10.3	11.0	8.8	7.9	8.3	---	---	---	10.3	7.1	8.5
18	11.3	10.1	10.7	7.9	6.9	7.4	---	---	---	9.3	7.0	8.2
19	11.5	10.1	10.7	7.7	7.5	7.6	---	---	---	8.8	6.9	7.7
20	11.5	10.0	10.7	9.4	7.4	8.9	---	---	---	8.7	6.5	7.4
21	10.5	9.8	10.2	9.4	9.0	9.2	---	---	---	8.8	6.4	7.6
22	10.0	9.3	9.7	9.1	8.7	8.9	---	---	---	6.9	4.5	5.8
23	10.8	9.7	10.3	9.4	8.4	8.8	---	---	---	4.8	4.3	4.5
24	10.9	10.4	10.6	9.5	8.4	8.9	---	---	---	5.0	4.0	4.4
25	10.9	10.3	10.6	9.8	9.2	9.4	---	---	---	5.2	3.9	4.4
26	10.8	10.4	10.6	9.7	9.1	9.4	7.8	6.7	7.3	4.7	3.5	4.1
27	10.7	10.2	10.4	9.8	9.0	9.4	7.2	6.6	6.9	4.9	3.1	3.9
28	10.3	9.7	9.9	9.4	8.6	9.0	7.5	7.1	7.3	6.5	3.6	4.8
29	---	---	---	8.5	8.0	8.2	7.5	6.9	7.2	7.2	6.4	6.7
30	---	---	---	8.8	7.7	8.1	6.8	5.7	6.0	6.9	5.9	6.5
31	---	---	---	9.9	8.0	8.8	---	---	---	7.0	6.2	6.5
MONTH	11.8	7.3	10.2	10.8	6.9	8.7	11.2	5.7	8.0	10.3	3.1	7.0

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	6.7	5.9	6.3	7.2	6.1	6.6	5.7	3.1	4.1	10.0	2.8	6.0
2	6.7	5.7	6.1	7.3	6.1	6.6	4.9	3.0	3.8	12.3	3.6	7.4
3	7.3	6.2	6.6	7.2	6.0	6.5	3.9	2.8	3.4	13.7	4.2	8.2
4	7.6	5.8	6.7	7.2	5.9	6.5	4.1	3.0	3.6	12.7	3.6	7.4
5	6.8	5.3	5.9	7.6	5.7	6.5	4.7	3.7	4.4	9.7	3.7	6.3
6	7.7	5.7	7.2	7.3	5.8	6.5	5.1	4.3	4.7	9.9	3.0	6.0
7	7.6	6.8	7.2	7.0	5.7	6.4	5.7	4.4	5.0	7.8	2.8	5.3
8	7.8	6.7	7.2	7.1	6.0	6.5	5.8	5.2	5.6	5.0	3.0	3.9
9	8.0	6.7	7.3	7.2	6.1	6.6	5.1	4.2	4.7	3.6	2.8	3.3
10	8.0	6.7	7.3	---	---	---	4.8	3.8	4.2	4.3	3.1	3.8
11	7.7	6.6	7.1	---	---	---	4.8	3.4	4.0	5.4	3.6	4.6
12	7.5	6.4	6.9	6.1	3.3	4.4	5.5	3.4	4.2	5.0	4.2	4.6
13	7.3	6.3	6.8	6.9	6.2	6.5	5.8	3.5	4.4	4.7	3.9	4.3
14	7.3	6.3	6.8	7.0	6.7	6.8	6.3	3.3	4.5	4.9	3.6	4.1
15	7.4	6.2	6.7	6.9	6.5	6.6	6.3	3.7	4.8	4.2	3.5	3.8
16	7.4	6.1	6.7	7.1	6.3	6.7	6.5	3.9	4.9	5.1	3.3	3.9
17	7.6	6.2	6.8	6.3	5.0	5.8	6.9	3.8	5.1	6.3	3.0	4.5
18	---	---	---	4.8	3.7	4.3	7.0	3.5	5.0	5.2	3.2	4.2
19	---	---	---	4.2	3.5	3.9	---	---	---	6.1	3.2	4.4
20	7.5	6.3	6.8	4.5	3.2	3.7	---	---	---	5.0	3.8	4.3
21	7.5	6.4	6.9	4.7	3.0	3.7	---	---	---	5.0	3.8	4.3
22	6.9	5.8	6.4	4.2	2.7	3.4	---	---	---	4.6	3.9	4.3
23	---	---	---	4.2	2.9	3.4	7.3	3.2	5.0	---	---	---
24	---	---	---	4.5	3.1	3.8	9.8	4.0	6.3	---	---	---
25	---	---	---	4.9	3.6	4.1	7.9	3.6	5.5	---	---	---
26	---	---	---	5.1	3.4	4.1	8.2	3.4	5.3	---	---	---
27	---	---	---	4.9	3.0	3.8	8.1	3.2	5.2	---	---	---
28	---	---	---	5.2	2.8	3.8	10.1	3.4	6.3	---	---	---
29	7.2	6.2	6.6	6.4	2.7	4.1	11.3	3.4	6.8	---	---	---
30	7.2	6.2	6.7	6.7	2.8	4.4	12.4	3.7	7.7	---	---	---
31	---	---	---	5.6	2.9	4.2	8.9	3.3	5.8	---	---	---
MONTH	8.0	5.3	6.8	7.6	2.7	5.2	12.4	2.8	5.0	13.7	2.8	4.9

08062500 TRINITY RIVER NEAR ROSSER, TX

LOCATION.--Lat 32°25'35", long 96°27'46", Ellis County, Hydrologic Unit 12030105, on right bank at downstream side of right pier of bridge on State Highway 34, 2.5 mi south of Rosser, 8.5 mi downstream from East Fork Trinity River, and at mile 451.4.

DRAINAGE AREA.--8,147 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1924 to September 1925, October 1938 to current year. Monthly discharge only for some periods, published in WSP 1312.

REVISED RECORDS.--WSP 1922: Drainage area. WDR TX-77-1: 1942(M), drainage area. WDR TX-89-1

GAGE.--Water-stage recorder. Datum of gage is 302.65 ft above National Geodetic Vertical Datum of 1929. July 25, 1924, to Sept. 30, 1925, nonrecording gage at abandoned lock and dam No. 7, 1.7 mi upstream from present site at datum 6.94 ft higher.

REMARKS.--Estimated daily discharges: Mar. 26-30. Records good. At times, flow is affected by storage in 15 upstream reservoirs having a combined capacity of 3,572,000 acre-ft, of which 1,138,000 acre-ft is for flood control. A levee system constructed in 1916, extends several miles upstream and downstream from station. The cities of Fort Worth, Dallas, and several smaller cities divert considerable water for municipal use, of which about 60 percent is returned as sewage effluent that sustains low flows at this site. Flow may also be affected at times by discharge from the flood-detention pools of 38 floodwater-retarding structures with a combined detention capacity of 22,600 acre-ft. These structures control runoff from 76.7 mi². Two separate gage-height telemeters at station.

AVERAGE DISCHARGE.--53 years (water years 1925, 1939-90), 2,800 ft³/s (2,029,000 acre-ft/yr). The figure published in the 1988 WRD report was in error; the correct figure is 2,615 ft³/s (1,895,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 150,000 ft³/s Apr. 23, 1942, following numerous breaks in levee systems along both banks; maximum gage height, 41.55 ft Apr. 22, 1942, just prior to levee breaks; minimum discharge, 32 ft³/s for several days in 1924-25.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1908 reached a stage of about 33 ft (present site and datum), from information by U.S. Army Corps of Engineers (discharge believed to have been about the same as that of Apr. 22, 1942.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 122,000 ft³/s May 4 at 2200 hours (gage height, 37.88 ft, after several levees broke on right bank upstream from station); maximum gage height, 38.15 ft May 3 at 2200 hours, prior to levee breaks; minimum daily, 668 ft³/s Oct. 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	756	2500	726	1130	9020	4270	11600	31400	20400	8890	5590	921
2	779	1160	714	955	22800	3700	8800	36600	18300	8580	5540	852
3	750	915	716	828	27400	1770	8800	91000	18800	8380	5740	825
4	748	813	724	968	24200	1290	8510	106000	20000	8300	6400	821
5	730	767	736	1270	12000	1200	8330	107000	18200	8270	7780	855
6	726	749	734	980	4450	1170	9940	81400	15300	8280	9330	858
7	725	770	711	846	3240	4170	11000	76500	15000	8340	9380	854
8	742	758	706	798	3410	11600	11500	70600	15100	8320	8880	838
9	702	821	720	773	3920	8240	11100	60400	15100	7970	7080	1020
10	697	863	735	740	4440	4470	10900	49500	15300	4230	6030	1000
11	697	766	724	732	4500	2930	12400	42500	15300	1750	5640	1360
12	678	677	735	724	3680	8300	11900	39700	15300	1570	5380	1420
13	699	706	752	736	3520	11700	10100	38400	15200	2300	4860	1160
14	705	733	717	721	3170	15900	11400	37200	14800	2500	4180	1050
15	692	724	703	712	3140	23700	18000	36000	14100	2110	3930	998
16	681	706	716	729	3280	24500	22800	35000	13100	1860	3620	923
17	675	729	751	936	3400	20900	30700	33800	12100	1650	3190	872
18	690	724	742	1690	3000	13500	30300	32400	11100	2510	2780	872
19	808	700	745	18800	2860	7680	17500	30800	10100	4190	2480	1010
20	785	706	757	22600	2850	7250	8480	28200	10400	5260	2400	951
21	723	736	770	15300	2880	8440	8670	25400	10300	5600	2340	915
22	690	785	740	7520	5390	9430	10600	21900	9990	5650	1960	1000
23	678	1430	806	3210	5420	10100	11700	17500	9720	5720	1670	1020
24	682	1130	814	2170	3210	10400	11800	15500	9450	6260	1260	889
25	683	849	867	1540	2300	10500	11900	14900	9430	6550	1120	841
26	668	798	926	1340	2360	11000	13300	14500	9410	6630	1070	827
27	678	784	997	1240	2570	e11800	23300	14400	9420	6150	974	812
28	698	760	947	1210	2850	e13100	38000	14400	9380	5770	933	796
29	673	768	886	1250	---	15000	42200	15100	9260	5600	923	787
30	956	756	863	1200	---	16400	37300	15400	9130	5490	945	763
31	4050	---	927	1150	---	14500	---	19000	---	5490	999	---
TOTAL	25644	26083	24107	94798	175260	308910	482830	1252400	398490	170170	124404	28110
MEAN	827	869	778	3058	6259	9965	16090	40400	13280	5489	4013	937
MAX	4050	2500	997	22600	27400	24500	42200	107000	20400	8890	9380	1420
MIN	668	677	703	712	2300	1170	8330	14400	9130	1570	923	763
AC-FT	50860	51740	47820	188000	347600	612700	957700	2484000	790400	337500	246800	55760

CAL YR 1989 TOTAL 2346242 MEAN 6428 MAX 64600 MIN 619 AC-FT 4654000
WTR YR 1990 TOTAL 3111206 MEAN 8524 MAX 107000 MIN 668 AC-FT 6171000

e Estimated

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1954 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: January 1968 to July 1981. Sediment analyses: 1962, April to September 1964, April 1972 to April 1975.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1954 to current year.
pH: March 1977 to current year.
WATER TEMPERATURE: October 1954 to current year.
DISSOLVED OXYGEN: March 1977 to current year.

INSTRUMENTATION.--Since March 1977, a four-parameter water-quality monitor records temperature, DO, pH, and specific conductance continuously at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 2,990 microsiemens Oct. 13, 1956; minimum, 122 microsiemens Sept. 30, 1981.
pH: Maximum, 9.9 units July 12, 1982; minimum, 6.8 units Oct. 3, 19, 20, Nov. 19, 1980.
WATER TEMPERATURE: Maximum, 36.0°C July 1, 1955; minimum, 1.0°C on many days during winter months.
DISSOLVED OXYGEN: Maximum, 11.4 mg/L Feb. 12, 1986; minimum, 0.0 mg/L on several days during 1979-81.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 752 microsiemens Oct. 17; minimum, 244 microsiemens Apr. 17.
pH: Maximum, 8.2 units Feb. 10; minimum, 7.3 units May 20.
WATER TEMPERATURE: Maximum, 31.0°C on several days during summer months; minimum, 4.5°C Dec. 23.
DISSOLVED OXYGEN: Maximum, 10.9 mg/L Dec. 23, 24; minimum, 4.0 mg/L July 13.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
NOV										
06...	1500	783	674	7.6	20.5	7.8	88	1.8	150	46
JAN										
23...	1425	2950	361	7.6	13.0	8.3	80	4.0	120	25
APR										
04...	0945	8510	417	8.0	16.5	9.4	97	1.4	150	25
JUN										
13...	0930	15200	348	7.9	28.0	6.4	83	1.4	130	11
JUL										
12...	1000	1540	530	7.5	30.0	4.8	64	1.9	160	28
AUG										
22...	0945	2040	426	7.7	29.5	6.6	87	1.1	130	41

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV									
06...	53	5.2	72	3	13	110	81	61	1.1
JAN									
23...	45	2.8	20	0.8	4.8	99	38	17	0.30
APR									
04...	53	5.1	24	0.8	4.7	130	38	22	0.30
JUN									
13...	46	3.7	16	0.6	4.0	120	29	15	0.30
JUL									
12...	55	5.4	44	2	7.0	130	48	39	0.50
AUG									
22...	46	4.2	32	1	6.0	91	39	34	0.80

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...	9.1	360	9.91	0.090	10.0	0.190	1.1	1.3	4.50
JAN									
23...	6.9	194	1.80	0.100	1.90	0.350	0.65	1.0	0.730
APR									
04...	5.5	229	--	<0.030	1.30	<0.040	--	0.60	0.350
JUN									
13...	5.7	191	0.770	0.030	0.800	0.050	0.55	0.60	0.240
JUL									
12...	8.2	286	4.60	0.100	4.70	0.180	0.72	0.90	1.10
AUG									
22...	7.1	224	3.07	0.030	3.10	0.030	0.57	0.60	1.20

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1989	25644	686	377	26100	64	4440	82	5710	150
NOV.	1989	26083	642	354	24900	57	4020	76	5360	150
DEC.	1989	24107	675	371	24200	62	4020	81	5250	160
JAN.	1990	94798	415	232	59300	27	6900	45	11600	130
FEB.	1990	175260	355	199	94300	20	9510	38	17900	120
MAR.	1990	308910	337	190	158000	18	14900	35	29500	120
APR.	1990	482830	376	211	275000	21	27700	40	52200	130
MAY	1990	1252400	362	204	689000	20	67000	38	129700	130
JUNE	1990	398490	348	196	211000	18	19800	37	39400	120
JULY	1990	170170	359	202	92800	20	9090	38	17500	130
AUG.	1990	124404	359	202	67900	20	6730	38	12800	130
SEPT	1990	28110	647	357	27100	57	4330	76	5810	160
TOTAL		3111206	**	**	1750000	**	178000	**	333000	**
WTD.AVG.		8524	371	208	**	21	**	40	**	130

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	e660	464	396	445	686	674	677	640	612	622
2	---	---	e670	470	450	459	706	688	696	638	600	614
3	---	---	e680	548	472	507	716	704	711	622	602	612
4	---	---	e690	594	550	573	726	708	719	632	610	620
5	---	---	e700	646	596	619	736	722	730	632	592	620
6	730	720	726	684	646	671	724	710	718	590	566	579
7	738	732	735	700	686	692	714	704	710	608	560	579
8	738	712	725	708	702	705	722	708	715	648	610	631
9	730	718	726	708	698	704	720	710	716	652	644	650
10	734	708	721	728	700	711	716	704	709	654	644	650
11	724	710	718	726	660	687	722	706	712	670	644	653
12	726	712	720	668	658	661	734	712	722	694	672	684
13	734	720	727	684	666	672	724	702	713	696	688	693
14	746	728	737	716	686	704	702	680	691	704	696	699
15	740	730	735	732	712	720	690	676	680	696	682	687
16	732	718	726	722	694	706	700	686	693	706	688	700
17	752	724	739	710	698	704	696	682	690	720	614	686
18	738	722	730	730	712	723	710	694	704	680	636	667
19	728	720	723	730	710	719	700	666	681	---	---	e350
20	740	722	730	728	718	725	688	670	678	---	---	e340
21	722	700	709	746	646	725	682	662	673	---	---	e330
22	730	712	720	736	722	729	688	668	679	---	---	e340
23	744	712	726	728	668	713	692	666	677	---	---	e350
24	750	742	747	682	622	646	676	656	665	---	---	e390
25	746	732	741	622	588	596	666	640	654	---	---	e450
26	734	718	727	656	592	615	648	612	629	---	---	e540
27	726	714	721	688	658	677	628	596	611	580	554	565
28	732	720	727	682	672	678	594	590	593	608	577	593
29	736	726	731	676	648	660	594	582	587	621	593	608
30	748	720	729	674	656	663	614	588	601	613	597	604
31	736	362	509	---	---	---	618	606	611	608	571	591
MONTH	---	---	713	746	396	660	736	582	679	---	---	571

e Estimated

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	581	569	575	524	456	498	458	420	438	388	383	386
2	---	---	e240	492	444	469	466	439	454	383	298	359
3	---	---	e250	546	486	516	442	416	426	430	370	394
4	---	---	e290	594	546	570	424	408	417	406	366	394
5	---	---	e310	644	596	619	438	410	420	396	256	340
6	---	---	e320	656	610	634	422	384	405	396	366	384
7	436	409	425	646	290	490	422	372	394	412	386	398
8	448	422	434	392	292	349	386	368	378	404	384	391
9	472	368	436	370	344	356	414	386	396	---	---	e370
10	466	353	399	450	348	382	404	378	393	---	---	e350
11	483	405	454	482	402	455	378	366	371	334	329	331
12	412	403	408	464	288	376	386	376	381	329	327	328
13	436	409	424	282	246	257	394	370	384	332	328	329
14	426	390	412	278	258	266	396	364	378	332	329	331
15	448	390	421	278	254	266	392	362	377	332	329	330
16	454	432	448	---	---	e270	388	358	371	332	327	330
17	456	434	442	---	---	e320	392	244	361	336	330	333
18	434	374	411	---	---	e350	376	360	368	339	336	337
19	426	372	396	---	---	e370	424	366	384	344	335	339
20	450	424	437	---	---	e400	485	426	460	356	343	350
21	432	418	425	412	381	399	466	428	453	358	343	353
22	498	394	449	394	377	386	427	382	397	359	344	356
23	462	390	425	393	374	382	457	411	430	362	357	360
24	462	426	444	397	372	380	443	406	424	359	350	356
25	462	430	447	379	335	356	409	398	403	372	355	359
26	458	444	452	343	298	315	398	353	391	366	359	361
27	460	440	450	318	287	298	344	292	310	369	324	362
28	450	442	446	331	300	313	316	304	311	366	355	364
29	---	---	---	324	273	299	351	304	323	388	361	371
30	---	---	---	315	282	296	388	354	372	364	357	362
31	---	---	---	417	314	382	---	---	---	---	---	e360
MONTH	---	---	410	---	---	388	485	244	392	---	---	357

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	364	337	357	340	334	337	---	---	e340	---	---	e660
2	364	355	360	338	334	336	---	---	e340	---	---	e690
3	357	341	351	334	330	332	---	---	e340	---	---	e670
4	348	338	345	334	328	331	353	314	335	---	---	e650
5	357	338	347	332	328	331	322	290	308	---	---	e660
6	365	356	359	332	328	330	329	275	295	---	---	e680
7	359	351	356	352	328	338	298	282	288	690	678	684
8	354	348	351	348	334	341	---	---	e320	696	688	692
9	355	351	352	344	330	334	338	330	336	700	686	692
10	354	349	351	424	346	380	346	334	342	694	584	665
11	349	345	347	504	428	465	350	340	345	672	588	631
12	345	341	343	606	508	563	352	340	347	656	480	577
13	362	336	346	614	480	529	370	346	357	592	536	563
14	358	334	341	494	476	486	378	370	374	600	564	578
15	366	358	361	496	464	480	382	372	377	614	598	604
16	366	350	358	510	498	504	392	376	382	628	614	621
17	366	354	359	588	506	539	400	392	395	648	630	643
18	362	354	357	596	476	578	418	398	405	678	644	661
19	370	350	362	452	362	388	434	420	426	686	672	679
20	352	342	347	402	340	366	432	426	429	684	656	668
21	348	340	343	362	348	353	432	414	422	666	596	612
22	352	336	346	348	342	346	432	424	426	680	628	660
23	342	334	339	348	340	344	494	428	468	672	658	664
24	336	326	333	---	---	e350	516	494	504	660	600	630
25	334	324	329	---	---	e350	538	514	518	674	618	650
26	330	324	328	---	---	e340	---	---	e520	682	674	677
27	358	324	336	---	---	e340	---	---	e525	682	650	662
28	338	330	334	---	---	e340	---	---	e560	---	---	660
29	336	332	333	---	---	e340	---	---	e630	---	---	665
30	336	330	333	---	---	e340	---	---	e650	---	---	670
31	---	---	---	---	---	e340	---	---	e650	---	---	---
MONTH	370	324	347	---	---	389	---	---	418	---	---	651

e Estimated

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	7.6	7.5	7.6	7.7	7.6	7.6	7.6	7.6	7.6
2	---	---	---	7.7	7.6	7.6	7.7	7.6	7.6	7.7	7.6	7.6
3	---	---	---	7.6	7.5	7.6	7.7	7.6	7.6	7.7	7.6	7.7
4	---	---	---	7.6	7.6	7.6	7.7	7.6	7.7	7.7	7.6	7.7
5	---	---	---	7.6	7.5	7.6	7.7	7.6	7.7	7.6	7.5	7.6
6	---	---	---	7.6	7.6	7.6	7.7	7.6	7.7	7.7	7.6	7.6
7	7.6	7.6	7.6	7.7	7.6	7.6	7.7	7.6	7.7	7.7	7.6	7.7
8	7.6	7.6	7.6	7.6	7.6	7.6	7.7	7.6	7.7	7.7	7.6	7.6
9	7.7	7.6	7.7	7.6	7.6	7.6	7.7	7.6	7.7	7.7	7.6	7.6
10	7.7	7.7	7.7	7.6	7.6	7.6	7.7	7.7	7.7	7.7	7.6	7.6
11	7.7	7.7	7.7	7.7	7.6	7.7	7.7	7.6	7.7	7.6	7.6	7.6
12	7.7	7.7	7.7	7.7	7.6	7.7	7.8	7.7	7.7	7.7	7.6	7.6
13	7.7	7.6	7.7	7.7	7.6	7.6	7.7	7.7	7.7	7.6	7.6	7.6
14	7.6	7.6	7.6	7.7	7.6	7.6	7.7	7.7	7.7	7.6	7.6	7.6
15	7.6	7.6	7.6	7.7	7.6	7.6	7.8	7.7	7.7	7.6	7.6	7.6
16	7.7	7.6	7.6	7.7	7.6	7.7	7.8	7.7	7.7	7.6	7.5	7.6
17	7.7	7.6	7.7	7.7	7.6	7.7	7.7	7.7	7.7	7.6	7.5	7.6
18	7.7	7.7	7.7	7.7	7.6	7.7	7.7	7.7	7.7	7.6	7.5	7.5
19	7.7	7.7	7.7	7.7	7.6	7.7	7.7	7.7	7.7	---	---	---
20	7.7	7.7	7.7	7.7	7.6	7.6	7.7	7.7	7.7	---	---	---
21	7.7	7.6	7.7	7.6	7.6	7.6	7.7	7.7	7.7	---	---	---
22	7.7	7.7	7.7	7.6	7.6	7.6	7.7	7.7	7.7	---	---	---
23	7.7	7.6	7.7	7.6	7.5	7.6	7.8	7.7	7.7	---	---	---
24	7.7	7.6	7.6	7.6	7.5	7.5	7.7	7.6	7.7	---	---	---
25	7.7	7.6	7.6	7.7	7.6	7.6	7.7	7.7	7.7	---	---	---
26	7.7	7.6	7.7	7.7	7.7	7.7	7.7	7.6	7.7	---	---	---
27	7.7	7.6	7.7	7.7	7.6	7.7	7.7	7.6	7.7	7.7	7.6	7.7
28	7.7	7.6	7.6	7.7	7.7	7.7	7.7	7.7	7.7	7.6	7.6	7.6
29	7.6	7.6	7.6	7.7	7.7	7.7	7.7	7.7	7.7	7.6	7.6	7.6
30	7.7	7.5	7.6	7.7	7.6	7.7	7.7	7.6	7.6	7.6	7.5	7.6
31	7.6	7.4	7.5	---	---	---	7.7	7.6	7.6	7.6	7.6	7.6
MONTH	7.7	7.4	7.7	7.7	7.5	7.6	7.8	7.6	7.7	7.7	7.5	7.6
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.8	7.6	7.7	7.8	7.6	7.7	7.9	7.9	7.9	7.8	7.7	7.8
2	---	---	---	7.7	7.7	7.7	7.9	7.9	7.9	7.8	7.8	7.8
3	---	---	---	7.7	7.7	7.7	8.0	8.0	8.0	7.8	7.7	7.8
4	---	---	---	7.7	7.6	7.6	8.0	7.9	8.0	7.8	7.7	7.8
5	---	---	---	7.7	7.6	7.6	7.9	7.9	7.9	7.8	7.8	7.8
6	---	---	---	7.7	7.6	7.6	7.9	7.8	7.9	7.7	7.7	7.7
7	7.8	7.7	7.8	7.8	7.6	7.7	7.9	7.8	7.8	7.8	7.7	7.8
8	7.9	7.7	7.8	7.7	7.6	7.6	7.9	7.8	7.8	---	---	---
9	7.9	7.7	7.8	7.7	7.6	7.6	7.9	7.9	7.9	---	---	---
10	8.2	7.8	8.0	7.7	7.6	7.7	7.9	7.9	7.9	---	---	---
11	8.0	7.8	7.9	7.7	7.6	7.6	7.9	7.8	7.8	---	---	---
12	7.9	7.8	7.9	7.6	7.5	7.6	7.9	7.8	7.9	7.9	7.8	7.8
13	7.9	7.7	7.8	7.6	7.6	7.6	7.9	7.9	7.9	7.9	7.7	7.8
14	7.8	7.8	7.8	7.6	7.6	7.6	7.9	7.8	7.9	7.9	7.8	7.9
15	7.8	7.8	7.8	7.6	7.6	7.6	7.8	7.8	7.8	7.9	7.7	7.8
16	7.8	7.8	7.8	---	---	---	7.8	7.7	7.7	7.8	7.6	7.8
17	7.9	7.8	7.8	---	---	---	7.7	7.7	7.7	7.6	7.5	7.6
18	7.9	7.8	7.9	---	---	---	8.0	7.6	7.7	7.5	7.5	7.5
19	7.9	7.8	7.9	---	---	---	7.8	7.8	7.8	7.5	7.5	7.5
20	7.9	7.8	7.8	---	---	---	7.8	7.8	7.8	7.6	7.3	7.5
21	7.9	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.8	7.5	7.4	7.4
22	7.8	7.6	7.7	7.8	7.8	7.8	7.8	7.7	7.7	7.5	7.4	7.5
23	7.7	7.6	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.5	7.6
24	7.8	7.7	7.7	7.9	7.8	7.9	7.9	7.8	7.9	7.7	7.6	7.7
25	7.8	7.7	7.8	7.9	7.9	7.9	7.9	7.9	7.9	7.8	7.7	7.7
26	7.8	7.8	7.8	7.9	7.8	7.9	7.9	7.8	7.9	7.7	7.6	7.7
27	7.8	7.7	7.8	7.9	7.8	7.8	7.8	7.7	7.8	7.8	7.6	7.7
28	7.8	7.7	7.8	7.9	7.8	7.9	7.7	7.7	7.7	8.0	7.7	7.8
29	---	---	---	7.9	7.8	7.8	7.7	7.6	7.7	7.7	7.7	7.7
30	---	---	---	7.8	7.8	7.8	7.7	7.7	7.7	7.9	7.7	7.8
31	---	---	---	7.9	7.8	7.8	---	---	---	---	---	---
MONTH	8.2	7.6	7.8	7.9	7.5	7.7	8.0	7.6	7.8	8.0	7.3	7.7

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.8	7.7	7.8	7.8	7.7	7.7	---	---	---	---	---	---
2	7.8	7.7	7.8	7.8	7.7	7.7	---	---	---	---	---	---
3	7.7	7.7	7.7	7.8	7.7	7.8	---	---	---	---	---	---
4	7.7	7.7	7.7	7.8	7.7	7.8	7.6	7.6	7.6	---	---	---
5	7.7	7.7	7.7	7.8	7.7	7.8	7.6	7.5	7.5	---	---	---
6	7.8	7.7	7.7	7.8	7.7	7.7	7.5	7.5	7.5	---	---	---
7	7.8	7.8	7.8	7.8	7.7	7.7	7.5	7.5	7.5	7.8	7.7	7.8
8	7.8	7.8	7.8	7.7	7.7	7.7	---	---	---	7.8	7.6	7.7
9	7.8	7.8	7.8	7.8	7.7	7.7	7.8	7.7	7.7	7.6	7.5	7.6
10	7.8	7.8	7.8	7.7	7.6	7.6	7.8	7.7	7.8	7.5	7.5	7.5
11	7.8	7.8	7.8	7.6	7.5	7.6	7.8	7.7	7.7	7.5	7.4	7.4
12	7.8	7.8	7.8	7.6	7.5	7.5	7.7	7.7	7.7	7.5	7.4	7.4
13	7.8	7.8	7.8	7.6	7.5	7.5	7.7	7.7	7.7	7.5	7.4	7.5
14	7.8	7.8	7.8	7.6	7.6	7.6	7.7	7.7	7.7	7.5	7.5	7.5
15	7.8	7.8	7.8	7.7	7.6	7.6	7.7	7.7	7.7	7.5	7.5	7.5
16	7.8	7.8	7.8	7.7	7.6	7.6	7.7	7.7	7.7	7.6	7.5	7.5
17	7.8	7.8	7.8	7.7	7.6	7.6	7.7	7.7	7.7	7.6	7.5	7.6
18	7.8	7.7	7.8	7.6	7.6	7.6	7.7	7.7	7.7	7.7	7.6	7.6
19	7.8	7.7	7.7	7.7	7.6	7.7	7.7	7.7	7.7	7.6	7.6	7.6
20	7.8	7.7	7.8	7.7	7.6	7.7	7.7	7.7	7.7	7.6	7.6	7.6
21	7.8	7.7	7.8	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.6	7.6
22	7.8	7.7	7.7	7.8	7.7	7.8	7.7	7.6	7.7	7.6	7.5	7.6
23	7.8	7.7	7.7	7.8	7.8	7.8	7.7	7.6	7.6	7.7	7.5	7.6
24	7.8	7.7	7.7	---	---	---	7.6	7.6	7.6	7.6	7.6	7.6
25	7.8	7.7	7.7	---	---	---	7.7	7.6	7.7	7.6	7.6	7.6
26	7.7	7.7	7.7	---	---	---	---	---	---	7.7	7.6	7.6
27	7.7	7.6	7.7	---	---	---	---	---	---	7.6	7.6	7.6
28	7.7	7.7	7.7	---	---	---	---	---	---	---	---	---
29	7.7	7.7	7.7	---	---	---	---	---	---	---	---	---
30	7.7	7.7	7.7	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	7.8	7.6	7.8	7.8	7.5	7.7	7.8	7.5	7.7	7.8	7.4	7.6

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	18.0	17.5	18.0	14.5	14.0	14.0	12.0	11.5	12.0
2	---	---	---	18.0	17.0	17.5	14.5	14.0	14.0	11.5	11.0	11.5
3	---	---	---	17.0	16.5	17.0	14.0	13.5	13.5	12.0	11.0	11.5
4	---	---	---	18.0	16.5	17.5	13.5	12.5	13.0	13.0	12.0	12.5
5	---	---	---	20.0	18.0	19.5	14.5	13.5	14.0	13.0	12.5	12.5
6	---	---	---	21.5	20.0	20.5	15.0	14.0	14.5	12.5	12.0	12.0
7	25.5	24.0	25.0	22.0	20.5	21.0	15.0	14.0	14.5	12.5	11.5	12.0
8	24.0	23.0	23.5	22.0	21.0	21.5	14.0	13.0	13.5	13.0	12.0	12.5
9	24.0	22.5	23.5	20.5	19.5	20.0	13.0	12.0	13.0	13.5	12.0	12.5
10	24.0	22.5	23.0	20.0	19.0	19.5	13.5	12.5	13.0	13.5	12.5	13.0
11	24.0	22.5	23.0	20.0	18.5	19.0	13.0	11.0	12.0	14.0	13.0	13.5
12	24.0	23.0	23.5	19.5	18.0	19.0	11.0	9.5	10.0	13.5	12.5	13.0
13	24.5	23.0	23.5	20.0	19.0	19.5	10.5	9.5	10.0	12.5	11.5	12.0
14	25.0	23.5	24.0	21.0	20.0	20.5	11.0	9.5	10.5	13.0	12.0	12.5
15	25.0	23.5	24.5	21.0	19.0	20.5	10.5	8.5	9.5	14.5	13.0	14.0
16	25.5	24.5	25.0	19.0	17.0	17.5	8.5	7.5	8.0	16.0	14.5	15.0
17	24.5	21.5	23.0	16.5	15.5	16.0	9.0	7.5	8.5	16.5	16.0	16.5
18	21.5	20.0	20.5	15.5	15.5	15.5	9.0	8.5	8.5	16.5	16.0	16.5
19	20.0	18.5	19.0	16.0	15.0	15.5	8.5	8.0	8.0	---	---	---
20	18.5	17.0	17.5	17.5	16.0	17.0	8.5	7.5	8.0	---	---	---
21	18.0	16.5	17.5	19.0	17.5	18.0	8.5	7.5	8.0	---	---	---
22	19.0	17.5	18.0	19.0	18.5	19.0	7.0	6.0	6.5	---	---	---
23	21.0	19.0	19.5	18.5	16.5	17.5	6.0	4.5	5.5	---	---	---
24	21.5	20.5	21.0	17.5	16.5	17.0	6.5	5.0	5.5	---	---	---
25	22.5	21.5	22.0	16.5	16.0	16.0	7.5	5.0	6.5	---	---	---
26	22.5	21.5	22.0	17.5	16.0	16.5	9.0	7.0	8.0	---	---	---
27	22.5	22.0	22.0	18.0	17.0	17.5	10.5	9.0	10.0	13.5	12.5	13.0
28	22.0	22.0	22.0	18.0	16.0	17.0	11.0	10.0	10.5	14.0	13.0	13.5
29	22.0	21.5	22.0	16.0	14.5	15.0	12.5	11.5	12.0	13.0	12.0	12.5
30	22.0	20.5	21.0	15.0	14.5	14.5	12.5	11.5	12.5	13.0	12.5	12.5
31	20.5	18.0	19.0	---	---	---	12.0	11.5	12.0	13.0	12.0	12.5
MONTH	25.5	16.5	22.0	22.0	14.5	18.0	15.0	4.5	10.5	16.5	11.0	13.0

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

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

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	---	---	---	9.7	9.5	9.6	9.3	9.0	9.1
2	---	---	---	---	---	---	9.7	9.4	9.6	9.4	8.9	9.2
3	---	---	---	---	---	---	9.7	9.4	9.6	9.3	9.1	9.2
4	---	---	---	8.3	7.9	8.1	9.9	9.7	9.8	9.2	9.0	9.1
5	---	---	---	8.3	7.9	8.1	9.7	9.4	9.6	9.4	8.4	8.9
6	---	---	---	8.1	7.3	7.7	9.5	9.3	9.4	9.3	8.5	9.0
7	---	---	---	7.4	7.0	7.2	9.5	9.3	9.4	9.4	9.1	9.2
8	---	---	---	7.2	6.9	7.1	9.7	9.2	9.5	9.3	9.0	9.1
9	---	---	---	7.7	7.1	7.5	9.9	9.6	9.7	9.3	9.0	9.2
10	---	---	---	7.9	7.6	7.8	9.9	9.7	9.8	9.4	8.9	9.1
11	---	---	---	8.3	7.8	8.1	10.1	9.7	9.9	9.0	8.7	8.9
12	---	---	---	8.4	8.1	8.3	10.5	9.3	10.0	9.3	8.8	9.1
13	---	---	---	8.3	7.6	8.0	9.9	9.2	9.6	9.4	9.2	9.3
14	---	---	---	7.8	7.4	7.7	10.0	9.7	9.8	9.4	9.2	9.3
15	---	---	---	7.9	7.3	7.7	10.0	9.5	9.9	9.2	8.9	9.1
16	---	---	---	8.4	7.9	8.3	10.3	9.8	10.1	8.9	8.4	8.7
17	---	---	---	8.7	8.4	8.6	10.2	9.9	10.0	8.4	7.6	8.1
18	---	---	---	9.1	8.7	8.9	10.1	9.8	10.0	7.7	7.0	7.2
19	---	---	---	9.3	9.0	9.2	10.3	9.9	10.1	---	---	---
20	---	---	---	9.2	8.8	9.0	10.2	10.0	10.1	---	---	---
21	---	---	---	8.8	8.4	8.7	10.4	10.0	10.2	---	---	---
22	---	---	---	8.5	8.2	8.4	10.7	10.2	10.5	---	---	---
23	---	---	---	8.4	7.9	8.1	10.9	10.5	10.7	---	---	---
24	---	---	---	8.0	7.5	7.8	10.9	10.6	10.7	---	---	---
25	---	---	---	8.9	8.0	8.5	10.8	10.5	10.7	---	---	---
26	9.0	8.1	8.5	8.9	8.7	8.8	10.6	10.0	10.2	---	---	---
27	8.7	8.4	8.6	8.8	8.5	8.7	10.0	9.6	9.7	9.4	9.2	9.3
28	8.7	8.4	8.5	9.0	8.6	8.8	9.6	9.3	9.5	9.3	9.1	9.2
29	8.7	8.4	8.6	9.5	9.0	9.3	9.4	9.1	9.3	9.4	9.1	9.2
30	---	---	---	9.5	9.4	9.5	9.1	8.9	9.0	9.4	9.0	9.2
31	---	---	---	---	---	---	9.3	8.9	9.1	9.7	9.3	9.5
MONTH	9.0	8.1	8.5	9.5	6.9	8.3	10.9	8.9	9.8	9.7	7.0	9.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	9.5	8.3	9.0	9.4	8.8	9.1	9.1	8.8	8.9	7.0	6.7	6.8
2	---	---	---	9.5	9.1	9.4	9.3	9.0	9.2	7.3	7.0	7.2
3	---	---	---	9.4	9.2	9.3	9.6	9.3	9.5	---	---	---
4	---	---	---	9.2	8.9	9.0	9.8	9.0	9.3	---	---	---
5	---	---	---	8.9	8.6	8.8	9.1	8.7	9.0	---	---	---
6	---	---	---	8.7	8.5	8.6	8.9	8.2	8.6	---	---	---
7	10.1	9.8	10.0	8.5	7.8	8.3	8.6	7.8	8.2	6.9	6.5	6.7
8	10.1	10.0	10.1	8.1	7.7	7.9	8.8	8.2	8.6	6.6	6.3	6.4
9	10.0	9.6	9.8	8.2	8.0	8.1	9.1	8.8	9.0	---	---	---
10	10.0	9.8	9.9	8.2	7.7	8.0	9.1	8.6	9.0	---	---	---
11	10.2	9.5	9.9	7.7	7.5	7.6	8.5	8.4	8.5	7.7	7.3	7.5
12	10.4	10.1	10.3	7.4	6.4	7.0	8.9	8.6	8.8	8.6	7.8	8.3
13	10.4	10.0	10.1	6.6	6.4	6.6	9.1	8.9	9.0	8.3	7.5	7.9
14	10.2	9.7	9.9	7.0	6.5	6.7	8.9	8.1	8.6	7.8	7.2	7.6
15	10.1	9.8	9.9	7.2	6.9	7.1	8.1	7.4	7.8	7.5	7.1	7.3
16	10.4	10.1	10.2	---	---	---	---	---	---	7.2	6.8	7.0
17	10.7	10.4	10.5	---	---	---	---	---	---	7.1	6.7	6.9
18	10.8	10.3	10.5	---	---	---	---	---	---	7.2	6.7	6.9
19	10.7	10.3	10.5	---	---	---	8.1	7.8	7.8	7.0	6.8	6.9
20	10.4	10.0	10.2	---	---	---	8.5	8.1	8.4	6.8	6.6	6.7
21	10.3	9.9	10.1	9.9	9.8	9.9	8.5	8.2	8.4	6.6	6.4	6.5
22	10.1	9.0	9.5	9.9	9.7	9.8	8.2	7.9	8.0	6.8	6.4	6.6
23	9.8	9.5	9.7	9.7	9.5	9.6	8.0	7.9	8.0	7.0	6.6	6.8
24	9.9	9.7	9.9	9.6	9.4	9.5	8.3	8.1	8.2	7.2	6.9	7.0
25	9.9	9.7	9.8	10.1	9.6	9.9	8.3	8.2	8.3	7.2	7.1	7.1
26	9.7	9.6	9.7	10.3	10.1	10.2	8.4	7.8	8.2	7.3	7.2	7.2
27	9.6	9.5	9.6	10.3	10.1	10.2	7.7	6.9	7.3	7.4	7.2	7.3
28	9.6	9.3	9.4	10.3	9.9	10.2	6.9	6.8	6.9	8.0	7.2	7.4
29	---	---	---	9.9	9.1	9.6	6.8	6.3	6.7	7.6	7.3	7.4
30	---	---	---	9.1	8.9	9.0	6.7	6.6	6.7	7.7	7.3	7.5
31	---	---	---	9.0	8.8	8.9	---	---	---	---	---	---
MONTH	10.8	8.3	9.9	10.3	6.4	8.8	9.8	6.3	8.3	8.6	6.3	7.1

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.7	6.8	7.3	6.5	6.3	6.4	---	---	---	---	---	---
2	7.5	7.1	7.3	6.5	6.4	6.5	---	---	---	---	---	---
3	7.1	6.7	6.9	6.6	6.4	6.5	---	---	---	---	---	---
4	6.9	6.5	6.7	6.6	6.4	6.5	6.5	6.4	6.4	---	---	---
5	6.8	6.5	6.6	6.6	6.4	6.5	6.6	5.5	5.9	---	---	---
6	6.7	6.5	6.6	6.6	6.4	6.5	5.9	5.3	5.6	---	---	---
7	6.8	6.6	6.7	6.6	6.4	6.5	5.6	5.3	5.5	7.2	6.8	7.0
8	6.8	6.6	6.7	6.5	6.4	6.5	---	---	---	7.0	6.2	6.7
9	6.7	6.4	6.6	6.6	6.3	6.5	7.1	6.6	6.8	6.4	6.0	6.1
10	6.6	6.3	6.5	6.3	5.0	5.6	7.1	7.0	7.0	6.2	5.4	5.8
11	6.6	6.2	6.4	5.1	4.7	4.9	7.1	6.9	6.9	5.9	5.3	5.5
12	6.3	6.0	6.2	4.8	4.4	4.6	6.9	6.7	6.8	5.6	4.7	5.2
13	6.2	6.0	6.1	5.3	4.0	4.5	6.8	6.7	6.7	5.7	5.4	5.5
14	6.1	6.0	6.1	5.5	5.3	5.4	6.9	6.5	6.7	6.0	5.6	5.8
15	6.2	6.0	6.1	6.1	5.5	5.8	7.0	6.7	6.8	6.0	5.7	5.9
16	6.2	6.1	6.1	6.3	6.0	6.1	6.8	6.7	6.7	6.1	5.8	5.9
17	6.3	6.1	6.2	6.3	6.1	6.2	6.7	6.4	6.5	6.1	5.9	6.0
18	6.3	6.2	6.3	6.4	6.1	6.2	6.6	6.5	6.5	6.8	6.0	6.3
19	6.2	6.1	6.2	6.6	6.3	6.5	6.6	6.4	6.5	7.0	6.7	6.8
20	6.3	6.1	6.2	6.7	6.4	6.5	6.6	6.4	6.5	7.0	6.8	6.9
21	6.3	6.2	6.3	6.8	6.7	6.7	6.6	6.4	6.5	6.9	6.7	6.8
22	6.3	5.9	6.1	6.9	6.8	6.8	6.8	6.6	6.6	6.9	6.7	6.8
23	6.3	6.0	6.1	6.9	6.9	6.9	6.7	6.3	6.4	7.5	6.7	7.0
24	6.3	6.0	6.1	---	---	---	6.3	6.2	6.3	7.5	7.1	7.3
25	6.3	5.9	6.1	---	---	---	6.5	6.1	6.3	7.5	7.2	7.4
26	6.4	6.0	6.2	---	---	---	---	---	---	7.6	7.3	7.4
27	6.3	5.7	6.1	---	---	---	---	---	---	7.5	7.2	7.4
28	6.3	6.0	6.2	---	---	---	---	---	---	---	---	---
29	6.3	6.1	6.2	---	---	---	---	---	---	---	---	---
30	6.5	6.3	6.4	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	7.7	5.7	6.4	6.9	4.0	6.1	7.1	5.3	6.5	7.6	4.7	6.5

08062700 TRINITY RIVER AT TRINIDAD, TX
(National stream-quality accounting network)

LOCATION.--Lat 32°08'05", long 96°06'20", Henderson County, Hydrologic Unit 12030105, on left bank at pumping station of Texas Power and Light Co., near southwest boundary of Trinidad, 0.5 mi downstream from St. Louis Southwestern Railway Lines bridge, 0.9 mi downstream from bridge on State Highway 31, 8 mi upstream from Cedar Creek, and at mile 391.2.

DRAINAGE AREA.--8,538 mi², not including 1,007 mi² upstream from Cedar Creek Reservoir.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1964 to current year. Records of gage height collected in this vicinity for period October 1913 to September 1915 are contained in reports of U.S. Army Corps of Engineers, and records collected since October 1915 are contained in reports of the National Weather Service.

REVISED RECORDS.-- WDR TX-89-1: 1988. WDR TX-90-1: 1989.

GAGE.--Water-stage recorder. Datum of gage is 239.21 ft above National Geodetic Vertical Datum of 1929. Prior to May 3, 1967, at site 0.9 mi upstream at datum 1.28 ft higher.

REMARKS.--No estimated daily discharges. Records good. There are 62 floodwater-retarding structures with a combined detention capacity of 38,690 acre-ft in the drainage basin above this station. These structures control runoff from 126 mi². 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 upstream from this station. There are many diversions above station for municipal supply for the cities of Fort Worth, Dallas, and several smaller towns. Low flows are maintained by sewage effluent from the Dallas-Fort Worth metroplex. Gage-height telemeter at station.

AVERAGE DISCHARGE.--26 years, 3,947 ft³/s (2,860,000 acre-ft/yr). The figures published in the 1989 WRD report were in error; the correct figures are 25 years, 3,710 ft³/s (2,688,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 94,500 ft³/s May 7, 1990 (gage height, 48.11 ft); minimum daily, 312 ft³/s Aug. 9, 1972.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1908, 49.8 ft Apr. 25, 1942 (present site and datum), from records of the National Weather Service. Flood in 1908 reached a stage of 48.3 ft, present site and datum, from records of the National Weather Service.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 94,500 ft³/s May 7 at 1700 hours (gage height, 48.11 ft); minimum daily, 687 ft³/s Dec. 9.

REVISIONS.--Revised figures of discharge for the water year 1989, superseding those published in the WRD report for 1989 are given herein:

EXTREMES FOR WATER YEAR 1989.--Maximum discharge, 61,000 ft³/s June 18 at 1500 hours (gage height, 43.49 ft).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2500	1360	817	1080	6240	1630	13000	3130	13500	11600	7110	1790
2	4440	1040	739	1130	2580	1510	15100	2770	10000	11400	7090	2240
3	3180	880	709	1000	1610	1370	16600	3460	8510	12600	7100	2370
4	2040	754	687	892	2340	1430	14900	5650	8920	12800	7250	2390
5	1230	681	706	857	2940	2070	7480	12600	10300	13100	7430	2420
6	902	638	686	804	1860	2040	3710	13600	11700	13800	7290	2440
7	784	611	674	745	1300	2040	3890	14900	12300	15100	7120	2480
8	730	602	722	719	1170	2270	4310	15700	13900	16000	7650	2480
9	704	606	766	700	1430	2310	4460	16100	15300	15500	8570	2480
10	725	596	992	697	1370	2040	4450	16500	17300	14500	8880	2460
11	736	584	1160	697	1080	2090	4400	16500	21300	13700	7550	2290
12	704	585	2320	693	1010	2010	4360	15200	29100	13300	6050	2400
13	687	575	2770	705	994	1810	4240	9920	33900	13100	5580	4470
14	642	934	1760	1070	1300	1740	3920	6490	40000	13100	5120	5110
15	624	1030	1080	1480	1520	2030	7920	5290	40500	13000	4720	6590
16	606	769	906	1340	1750	2510	10300	8070	47200	12700	4470	6240
17	600	1290	839	1020	6210	2860	9680	21900	56700	12500	4300	3800
18	589	1620	772	872	10300	2800	5640	48000	60200	12300	4370	2550
19	597	935	719	777	11600	1900	4520	47900	57200	12100	5890	2260
20	596	1220	705	749	12400	1430	3650	52200	50700	11600	6020	2370
21	587	2990	715	724	13400	1400	3110	57600	43500	10800	4760	2540
22	584	2140	701	706	14000	1560	2920	56400	37300	9940	4250	2560
23	590	1150	747	705	10600	2890	2810	51300	32800	9120	4080	2560
24	572	802	1460	684	4440	2980	2720	43400	28500	8580	3930	2530
25	565	708	1630	734	3120	2450	2650	36300	24200	8200	3720	2320
26	582	916	1160	1290	2520	1950	1980	31000	20500	7840	3660	1530
27	589	2240	845	3480	2030	1420	2170	26200	17500	7760	3040	1230
28	689	1770	764	6260	1790	1610	2490	22000	15300	7930	2110	1030
29	1130	1210	1860	5290	---	4950	2510	18600	13500	7840	1870	836
30	1260	940	2240	7950	---	10200	2610	16500	12200	7600	1810	806
31	1480	---	1540	8940	---	11700	---	14900	---	7320	1790	---
TOTAL	32244	32176	34191	54790	122904	83000	172500	710080	803830	356730	164580	79572
MEAN	1040	1073	1103	1767	4389	2677	5750	22910	26790	11510	5309	2652
MAX	4440	2990	2770	8940	14000	11700	16600	57600	60200	16000	8880	6590
MIN	565	575	674	684	994	1370	1980	2770	8510	7320	1790	806
AC-FT	63960	63820	67820	108700	243800	164600	342200	1408000	1594000	707600	326400	157800

CAL YR 1988 TOTAL 456530 MEAN 1247 MAX 11600 MIN 565 AC-FT 905500
WTR YR 1989 TOTAL 2646597 MEAN 7251 MAX 60200 MIN 565 AC-FT 5250000

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued
(National stream-quality accounting network)

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	827	3900	726	981	3980	4320	27700	31500	17700	8870	5310	876
2	821	2690	691	1220	13100	4380	21500	33600	20300	8650	5410	808
3	825	1370	676	1060	18600	3780	17700	41100	22200	8340	5390	737
4	808	1010	677	884	23900	2070	14300	74500	21600	8070	5610	712
5	801	875	685	1020	24100	1480	11700	89700	e20700	7920	6290	702
6	802	814	698	1380	22500	1360	11900	91900	20100	7870	7400	733
7	806	783	706	1110	17100	4140	11600	94100	19200	7840	8440	731
8	778	799	681	916	10000	13000	11400	92200	17400	7870	8930	719
9	797	789	668	849	6180	20000	12000	87100	16400	7850	8910	721
10	753	843	690	810	6340	23800	11900	80600	15900	7410	7670	919
11	733	908	704	762	4850	18400	12600	74100	15600	4070	6130	918
12	734	799	697	752	4670	12200	13500	68900	15600	1630	5480	1260
13	715	732	701	747	3990	10700	14600	61200	15500	1370	5170	1370
14	727	721	724	758	3740	14100	15300	53300	15500	2030	4690	1090
15	735	743	696	764	3440	24600	15600	47300	15500	2230	4100	954
16	722	735	679	738	3400	29000	16600	43300	15300	1900	3830	899
17	700	715	694	790	3470	30800	20000	41600	14900	1670	3510	830
18	690	742	736	1580	3550	27800	26000	40300	14300	1500	3100	780
19	701	735	724	6280	3230	24100	27200	38900	13500	2430	2680	786
20	820	708	729	10800	3070	19500	27500	37800	12600	4000	2400	942
21	824	709	743	20000	3490	14800	22400	34800	11800	4940	2320	891
22	760	735	755	25900	5220	11700	16600	31500	11300	5300	2250	839
23	731	802	720	22100	6070	10700	13600	27900	10700	5390	1900	923
24	717	1450	803	16100	5970	10500	12500	24200	10200	5510	1610	936
25	727	1250	834	9300	3650	10600	12100	20700	9750	5980	1210	801
26	728	875	893	3970	2600	10900	12100	18100	9470	6300	1030	739
27	713	769	980	1970	2600	11100	13300	16800	9280	6350	984	722
28	719	756	1070	2160	2980	11400	13700	16200	9200	5980	878	715
29	724	725	1040	4040	---	13600	16300	15700	9120	5580	829	704
30	754	731	945	1700	---	29200	24000	15500	9000	5390	807	699
31	1290	---	914	1540	---	31500	---	16400	---	5280	828	---
TOTAL	23982	30213	23679	142981	215790	455530	497200	1460800	439620	165520	125096	25456
MEAN	774	1007	764	4612	7707	14690	16570	47120	14650	5339	4035	849
MAX	1290	3900	1070	25900	24100	31500	27700	94100	22200	8870	8930	1370
MIN	690	708	668	738	2600	1360	11400	15500	9000	1370	807	699
AC-FT	47570	59930	46970	283600	428000	903500	986200	2897000	872000	328300	248100	50490

CAL YR 1989 TOTAL 2625860 MEAN 7194 MAX 60200 MIN 668 AC-FT 5208000
WTR YR 1990 TOTAL 3605867 MEAN 9879 MAX 94100 MIN 668 AC-FT 7152000

e Estimated

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: May 1966 to current year. Pesticide analyses: November 1977 to June 1982. Sediment analyses: November 1977 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: September 1967 to September 1981, May 1986 to current year.
PH: September 1967 to October 1969, May 1986 to current year.
WATER TEMPERATURE: September 1967 to September 1981, May 1986 to current year.
DISSOLVED OXYGEN: September 1967 to October 1969, May 1986 to current year.

INSTRUMENTATION.--From April 1967 to October 1969, a four-parameter water-quality monitor continuously recorded specific conductance, pH, water temperature, and dissolved oxygen. Since May 1986, a four-parameter water quality monitor continuously records specific conductance, pH, water temperature, and dissolved oxygen at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,000 micromhos Dec. 28, 1977; minimum daily, 170 micromhos May 4, 1990.
PH: Maximum, 8.8 units July 28, 1988; minimum, 5.7 units Aug. 13, 1988.
WATER TEMPERATURE: Maximum daily, 34.0°C July 17, 1979, July 9, 13, 1980; minimum daily, 2.5°C Dec. 24, 1989.
DISSOLVED OXYGEN: Maximum, 15.6 mg/L Sept. 15, 1988; minimum, 0.0 mg/L May 3, 1987.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 759 microsiemens Oct. 18; minimum, 170 microsiemens May 4.
pH: Maximum, 8.1 units on several days during March; minimum, 7.1 units Sept. 20.
WATER TEMPERATURE: Maximum, 32.0°C Aug. 27, 29-31, Sept. 1; minimum, 2.5°C Dec. 24.
DISSOLVED OXYGEN: Maximum, 11.9 mg/L Jan. 7; minimum, 3.7 mg/L Nov. 1.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CACO3)
NOV 07...	1045	765	545	7.6	19.5	44	7.9	87	1.8	140	320	150
JAN 25...	1045	9350	286	7.9	12.0	71	9.3	86	3.9	630	1200	100
APR 03...	1000	18200	378	7.9	16.5	64	8.5	87	1.5	200	320	140
JUN 12...	1030	15600	355	8.0	28.5	76	6.7	87	1.2	100	--	140
JUL 11...	1015	4920	340	7.7	28.5	--	5.5	71	1.4	K17	340	130
AUG 21...	1015	2320	434	7.7	29.5	96	6.4	84	1.3	K32	92	140

DATE	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
NOV 07...	42	52	4.5	46	2	8.5	110	66	43	0.80	7.4	327
JAN 25...	16	36	2.9	16	0.7	4.7	86	28	15	0.30	6.5	181
APR 03...	23	50	4.2	20	0.7	3.3	119	37	17	0.20	6.1	229
JUN 12...	15	49	4.0	18	0.7	4.1	120	30	16	0.30	6.2	191
JUL 11...	9	45	4.2	18	0.7	4.5	120	23	16	0.20	5.6	212
AUG 21...	26	48	4.3	33	1	6.4	110	41	34	0.70	7.2	256

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 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,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
NOV 07...	327	6.44	0.060	6.50	0.290	0.280	0.81	1.1	2.40	1.90	1.80	5.5
JAN 25...	167	1.06	0.040	1.10	0.190	0.220	0.91	1.1	0.330	0.310	0.270	0.83
APR 03...	215	1.06	0.040	1.10	0.050	0.050	0.75	0.80	0.240	0.180	0.190	0.58
JUN 12...	206	0.690	0.010	0.700	0.040	0.040	0.66	0.70	0.160	0.130	0.130	0.40
JUL 11...	194	1.06	0.040	1.10	0.080	0.080	0.52	0.60	0.250	0.210	0.190	0.58
AUG 21...	258	2.77	0.030	2.80	0.050	0.050	0.55	0.60	0.900	0.870	0.870	2.7

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued
(National stream-quality accounting network)

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)
NOV 07...	86	178	98	20	2	47	<0.5	<1.0	<1	<3	5	15
JAN 25...	354	8940	99	20	3	31	<0.5	<1.0	1	<3	<10	28
APR 03...	114	5600	93	--	--	--	--	--	--	--	--	--
JUN 12...	191	8040	81	<10	2	44	<0.5	<1.0	1	<3	1	15
JUL 11...	752	9990	88	--	--	--	--	--	--	--	--	--
AUG 21...	235	1470	93	<10	3	50	<0.5	2.0	<1	<3	6	10

DATE	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)
NOV 07...	<1	10	3	0.1	<10	5	<1	<1.0	420	<6	<3
JAN 25...	<10	<4	4	<0.1	<10	10	<1	<1.0	280	<6	<3
APR 03...	--	--	--	--	--	--	--	--	--	--	--
JUN 12...	<1	6	1	<0.1	<10	3	<1	<1.0	340	<6	<3
JUL 11...	--	--	--	--	--	--	--	--	--	--	--
AUG 21...	<1	8	2	<0.1	<10	4	<1	<1.0	330	<6	4

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICROSIEMENS)	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.	1989	23982	698	389	25200	62	4030	82	5340	160
NOV.	1989	30213	610	341	27800	50	4090	71	5770	160
DEC.	1989	23679	711	396	25300	64	4100	84	5380	160
JAN.	1990	142981	308	176	67800	18	6820	33	12900	110
FEB.	1990	215790	339	193	113000	19	11100	37	21300	120
MAR.	1990	455530	313	179	220000	17	20600	34	41200	110
APR.	1990	497200	343	196	263000	19	25500	37	49600	120
MAY	1990	1460800	293	168	662000	15	58800	31	123000	110
JUNE	1990	439620	340	194	230000	19	22100	37	43400	120
JULY	1990	165520	371	211	94500	22	9650	40	18000	130
AUG.	1990	125096	366	208	70300	21	7130	40	13400	130
SEPT	1990	25456	643	359	24700	54	3700	75	5150	160
TOTAL		3605867	**	**	1823000	**	178000	**	344000	**
WTD.AVG.		9879	328	187	**	18	**	35	**	120

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued
(National stream-quality accounting network)

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	650	575	618	707	389	602	688	680	683	634	627	630
2	661	651	657	421	377	399	683	673	677	656	631	646
3	680	662	672	452	424	440	682	674	679	668	657	664
4	698	677	687	453	442	448	696	682	691	666	637	652
5	736	699	719	458	442	450	712	697	704	652	616	633
6	736	666	724	518	460	483	727	712	719	633	618	625
7	726	704	716	564	522	542	739	725	730	620	606	613
8	703	686	697	605	566	583	749	739	744	624	586	612
9	708	688	697	662	607	634	749	747	748	585	566	574
10	719	706	710	675	664	668	748	745	746	588	558	570
11	733	701	716	686	676	681	750	746	747	641	591	610
12	723	691	710	686	679	683	751	729	738	641	631	637
13	726	643	696	694	679	685	736	729	732	644	634	639
14	706	614	680	701	674	693	733	726	728	637	628	632
15	711	699	706	671	647	653	751	734	743	663	637	651
16	723	693	706	668	649	657	754	746	749	667	652	662
17	749	712	729	696	670	680	751	727	739	675	604	665
18	759	722	737	714	688	705	726	713	718	663	479	611
19	750	721	731	712	694	702	726	712	719	532	226	393
20	718	698	708	694	682	689	728	722	726	262	204	222
21	718	703	708	720	694	706	741	722	732	213	205	208
22	707	696	701	726	715	721	738	710	727	238	216	225
23	705	664	685	722	707	713	718	708	713	247	238	244
24	664	624	649	741	724	732	714	703	710	266	244	251
25	716	649	689	735	709	721	713	705	709	296	268	288
26	720	695	707	707	669	680	719	708	713	396	298	350
27	737	683	711	683	627	649	711	699	704	464	398	429
28	731	620	704	624	597	605	702	669	688	487	320	446
29	723	654	707	651	600	620	670	659	665	518	250	330
30	719	549	688	689	654	675	657	638	650	567	521	543
31	704	684	694	---	---	---	637	633	635	587	535	568
MONTH	759	549	699	741	377	630	754	633	713	675	204	510
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	589	250	465	440	341	374	345	276	305	346	324	334
2	313	241	272	511	437	473	363	347	355	355	346	353
3	254	233	238	501	448	472	406	360	379	357	191	305
4	268	238	253	498	451	478	409	397	404	188	170	178
5	284	269	279	540	497	514	410	392	398	221	183	197
6	315	284	303	589	541	564	410	278	347	250	220	233
7	335	315	322	597	213	460	407	371	396	271	252	266
8	410	337	368	307	229	269	409	336	387	287	270	276
9	428	304	396	235	225	228	345	299	319	305	288	297
10	463	310	378	271	237	258	364	344	353	307	295	303
11	429	367	392	306	268	277	363	328	353	295	287	293
12	482	413	456	422	297	344	330	320	323	289	283	286
13	468	413	426	446	347	401	338	326	332	316	286	304
14	438	411	417	339	198	264	345	334	339	319	316	318
15	442	425	432	244	195	219	346	314	326	333	319	328
16	428	393	405	262	244	252	311	271	285	337	332	334
17	455	424	443	290	262	275	276	267	271	332	316	326
18	452	437	444	337	291	318	294	268	276	326	322	323
19	462	439	450	355	338	347	308	294	297	330	311	325
20	444	392	412	396	356	371	351	310	328	324	311	317
21	435	273	408	422	398	411	407	353	374	343	324	334
22	440	281	367	425	399	409	445	409	432	347	343	345
23	494	385	429	398	391	395	436	351	394	350	346	347
24	433	362	409	391	388	390	406	371	396	353	349	350
25	475	438	463	399	388	393	408	405	407	352	351	352
26	464	437	446	396	392	394	405	373	400	351	347	350
27	463	445	458	398	391	394	397	312	359	350	345	349
28	462	355	454	393	388	390	394	335	354	353	348	349
29	---	---	---	390	199	322	335	314	319	352	347	351
30	---	---	---	249	213	226	324	283	313	361	351	353
31	---	---	---	274	247	256	---	---	---	354	327	341
MONTH	589	233	392	597	195	359	445	267	351	361	170	313

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued
(National stream-quality accounting network)

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	338	304	324	349	341	344	365	353	358	664	648	655
2	308	300	304	353	341	349	369	357	363	669	663	664
3	329	300	313	353	345	350	365	353	360	703	662	682
4	333	317	324	357	341	348	373	353	359	695	648	676
5	332	321	326	353	341	346	388	361	380	665	645	654
6	336	328	331	349	337	343	361	337	350	663	651	657
7	350	332	339	349	337	343	361	318	335	687	660	670
8	357	350	353	365	337	346	337	306	318	707	690	702
9	359	353	355	365	349	356	325	310	316	706	668	698
10	356	349	353	357	341	347	338	325	331	689	645	674
11	355	348	352	376	353	363	346	333	337	665	643	657
12	355	348	350	408	376	390	348	338	343	670	662	665
13	353	345	349	455	408	426	349	339	345	670	592	646
14	354	349	350	608	459	518	357	346	350	653	609	629
15	355	350	352	600	498	538	370	358	367	638	503	595
16	355	351	352	502	494	498	378	371	375	578	500	546
17	355	348	352	502	475	485	383	376	381	572	552	561
18	353	348	349	514	502	508	399	381	393	606	575	591
19	356	345	350	592	510	536	406	399	403	618	605	612
20	360	352	356	592	396	498	427	407	415	636	615	625
21	360	346	350	412	376	392	433	426	430	665	634	648
22	347	339	344	376	365	370	432	426	429	669	660	664
23	352	340	348	369	357	361	429	420	423	660	641	650
24	345	340	343	361	353	357	436	425	429	642	588	605
25	341	334	339	404	353	370	473	431	445	665	623	647
26	338	330	334	392	357	375	501	474	487	660	646	652
27	339	331	335	380	345	358	522	502	510	658	613	642
28	359	331	341	369	357	363	531	519	522	647	605	617
29	349	332	342	365	357	360	595	532	559	670	651	662
30	345	341	344	365	357	360	658	597	633	672	659	668
31	---	---	---	365	353	360	656	649	651	---	---	---
MONTH	360	300	342	608	337	395	658	306	410	707	500	644

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.7	7.6	7.6	7.8	7.6	7.7	---	---	---	---	---	---
2	7.7	7.5	7.6	7.8	7.7	7.8	---	---	---	---	---	---
3	7.7	7.6	7.6	7.9	7.8	7.9	---	---	---	---	---	---
4	7.8	7.6	7.7	7.9	7.9	7.9	---	---	---	---	---	---
5	7.8	7.6	7.8	7.9	7.7	7.8	---	---	---	7.8	7.7	7.8
6	7.9	7.7	7.8	7.7	7.3	7.6	---	---	---	7.8	7.7	7.7
7	7.9	7.8	7.9	7.7	7.3	7.6	---	---	---	7.7	7.7	7.7
8	7.9	7.8	7.9	7.8	7.7	7.8	---	---	---	7.7	7.6	7.6
9	7.9	7.8	7.8	7.8	7.7	7.7	---	---	---	7.7	7.5	7.6
10	7.8	7.7	7.8	7.7	7.6	7.6	---	---	---	7.7	7.6	7.6
11	7.8	7.7	7.8	7.6	7.5	7.6	---	---	---	7.6	7.5	7.5
12	7.8	7.7	7.7	7.6	7.3	7.4	---	---	---	---	---	---
13	7.8	7.7	7.8	7.5	7.3	7.3	---	---	---	---	---	---
14	7.8	7.7	7.8	7.4	7.3	7.3	8.0	7.9	7.9	---	---	---
15	7.8	7.7	7.8	7.5	7.3	7.4	8.0	7.9	7.9	---	---	---
16	7.8	7.7	7.8	7.4	7.3	7.3	8.0	7.9	8.0	---	---	---
17	7.9	7.8	7.9	---	---	---	7.9	7.9	7.9	---	---	---
18	8.0	7.9	7.9	---	---	---	7.9	7.9	7.9	---	---	---
19	8.0	7.8	7.9	---	---	---	7.9	7.9	7.9	---	---	---
20	8.0	7.8	7.9	---	---	---	7.9	7.9	7.9	7.8	7.7	7.8
21	7.8	7.8	7.8	---	---	---	7.9	7.8	7.9	---	---	---
22	7.8	7.7	7.8	7.8	7.6	7.8	7.9	7.9	7.9	---	---	---
23	7.8	7.7	7.7	7.8	7.7	7.8	7.9	7.9	7.9	---	---	---
24	7.8	7.7	7.7	7.8	7.7	7.7	---	---	---	---	---	---
25	7.8	7.7	7.8	7.7	7.6	7.7	---	---	---	---	---	---
26	7.8	7.6	7.7	7.6	7.5	7.6	---	---	---	---	---	---
27	7.9	7.8	7.8	7.5	7.4	7.5	---	---	---	---	---	---
28	8.0	7.9	7.9	7.5	7.5	7.5	---	---	---	---	---	---
29	8.0	7.9	7.9	7.5	7.3	7.4	---	---	---	---	---	---
30	8.0	7.8	7.9	---	---	---	---	---	---	---	---	---
31	8.0	7.8	7.9	---	---	---	---	---	---	---	---	---
MONTH	8.0	7.5	7.8	7.9	7.3	7.6	8.0	7.8	7.9	7.8	7.5	7.7

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued
(National stream-quality accounting network)

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	7.6	7.6	7.6	7.7	7.7	7.7	---	---	---
2	---	---	---	7.6	7.5	7.6	7.7	7.7	7.7	---	---	---
3	---	---	---	7.6	7.5	7.6	7.9	7.5	7.7	---	---	---
4	---	---	---	7.7	7.6	7.6	7.6	7.6	7.6	8.0	7.8	7.9
5	---	---	---	7.7	7.7	7.7	7.7	7.6	7.7	7.9	7.8	7.8
6	---	---	---	7.8	7.7	7.7	7.7	7.6	7.7	7.8	7.8	7.8
7	---	---	---	---	---	---	7.7	7.4	7.5	7.8	7.7	7.8
8	---	---	---	---	---	---	7.4	7.2	7.3	7.7	7.7	7.7
9	---	---	---	---	---	---	7.4	7.2	7.4	7.8	7.7	7.7
10	---	---	---	---	---	---	---	---	---	7.8	7.7	7.7
11	---	---	---	---	---	---	---	---	---	7.7	7.7	7.7
12	---	---	---	---	---	---	---	---	---	7.7	7.6	7.7
13	---	---	---	---	---	---	---	---	---	7.6	7.6	7.6
14	---	---	---	---	---	---	---	---	---	7.6	7.5	7.6
15	---	---	---	---	---	---	---	---	---	7.6	7.5	7.6
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	8.1	8.0	8.1	---	---	---	---	---	---
23	---	---	---	8.1	8.1	8.1	---	---	---	---	---	---
24	---	---	---	8.1	8.0	8.1	---	---	---	---	---	---
25	---	---	---	8.1	8.0	8.1	---	---	---	---	---	---
26	---	---	---	8.1	8.0	8.0	---	---	---	---	---	---
27	---	---	---	8.0	8.0	8.0	---	---	---	---	---	---
28	7.8	7.6	7.7	8.0	7.9	8.0	---	---	---	---	---	---
29	---	---	---	8.1	8.0	8.0	---	---	---	---	---	---
30	---	---	---	8.0	7.8	7.9	---	---	---	---	---	---
31	---	---	---	7.8	7.7	7.8	---	---	---	---	---	---
MONTH	7.8	7.6	7.7	8.1	7.5	7.9	7.9	7.2	7.6	8.0	7.5	7.7
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	7.6	7.5	7.5	---	---	---
11	---	---	---	---	---	---	7.6	7.5	7.5	---	---	---
12	---	---	---	---	---	---	7.6	7.4	7.5	---	---	---
13	---	---	---	---	---	---	7.5	7.5	7.5	---	---	---
14	---	---	---	---	---	---	7.5	7.4	7.5	---	---	---
15	---	---	---	---	---	---	7.5	7.4	7.4	---	---	---
16	---	---	---	---	---	---	7.5	7.4	7.5	---	---	---
17	---	---	---	---	---	---	7.6	7.5	7.5	---	---	---
18	---	---	---	---	---	---	7.6	7.6	7.6	---	---	---
19	---	---	---	---	---	---	7.6	7.4	7.5	---	---	---
20	---	---	---	---	---	---	7.5	7.4	7.4	7.5	7.1	7.3
21	---	---	---	---	---	---	7.7	7.5	7.6	7.5	7.3	7.4
22	---	---	---	---	---	---	7.6	7.5	7.5	7.6	7.2	7.4
23	---	---	---	---	---	---	---	---	---	7.8	7.5	7.7
24	---	---	---	---	---	---	---	---	---	7.8	7.5	7.7
25	---	---	---	---	---	---	---	---	---	7.6	7.4	7.5
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	7.7	7.4	7.5	7.8	7.1	7.5

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued
(National stream-quality accounting network)

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

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

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued
(National stream-quality accounting network)

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

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

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.0	6.8	6.9	7.5	3.7	5.8	9.8	9.3	9.6	---	---	---
2	6.8	6.6	6.7	6.8	5.1	6.2	10.3	9.5	9.9	---	---	---
3	6.6	6.5	6.5	7.6	6.9	7.2	10.2	9.8	10.0	---	---	---
4	6.9	6.4	6.6	7.9	7.6	7.8	10.3	9.7	10.0	---	---	---
5	7.1	6.7	6.9	8.1	7.9	8.0	10.2	9.7	9.9	10.5	9.4	10.0
6	7.2	6.8	6.9	8.0	7.6	7.9	9.8	9.5	9.6	11.8	10.6	11.2
7	7.1	6.9	7.0	7.7	7.4	7.6	9.7	9.4	9.6	11.9	11.6	11.8
8	7.5	7.1	7.2	7.7	7.4	7.5	10.0	9.5	9.7	11.6	10.5	11.1
9	7.8	7.3	7.5	7.9	7.3	7.6	10.1	9.6	9.8	11.4	10.5	11.0
10	7.9	7.4	7.6	8.0	7.6	7.8	10.1	9.6	9.9	11.5	11.2	11.3
11	8.0	7.5	7.7	8.4	7.9	8.1	10.2	9.7	9.9	11.1	10.7	11.0
12	8.1	7.5	7.7	8.6	8.1	8.3	10.4	9.9	10.1	---	---	---
13	8.1	7.6	7.8	8.6	8.2	8.5	10.6	10.1	10.4	---	---	---
14	8.1	7.5	7.7	8.6	8.1	8.4	10.9	10.5	10.6	---	---	---
15	8.1	7.6	7.8	8.8	8.2	8.4	10.7	10.3	10.5	---	---	---
16	8.1	7.5	7.8	8.9	8.5	8.7	10.7	10.1	10.4	---	---	---
17	8.1	7.5	7.8	9.1	8.7	8.9	10.8	10.3	10.5	---	---	---
18	8.3	7.7	8.0	9.3	9.0	9.1	10.7	10.4	10.5	---	---	---
19	8.9	8.1	8.5	9.9	9.1	9.5	10.5	9.9	10.3	---	---	---
20	9.1	8.6	8.8	10.2	9.3	9.6	10.5	10.2	10.4	---	---	---
21	9.3	8.8	9.0	10.2	8.8	9.3	11.0	10.1	10.3	---	---	---
22	9.3	8.8	9.0	8.8	8.6	8.7	10.4	10.1	10.2	---	---	---
23	9.6	8.6	8.9	9.2	8.7	8.9	10.9	10.0	10.2	---	---	---
24	9.9	8.5	8.9	9.0	8.7	8.8	10.1	9.8	9.9	---	---	---
25	8.7	7.9	8.3	8.7	8.5	8.6	9.9	9.6	9.7	---	---	---
26	8.3	7.6	7.9	8.5	8.2	8.3	9.7	9.4	9.5	9.2	8.3	8.7
27	8.4	7.6	7.9	8.4	8.0	8.2	9.4	9.1	9.3	9.0	8.5	8.8
28	8.3	7.6	7.9	9.0	8.4	8.7	9.2	8.8	9.0	9.9	8.9	9.1
29	8.5	7.5	7.8	9.3	8.9	9.1	8.8	8.6	8.7	10.4	9.1	10.0
30	8.1	7.5	7.7	9.4	9.0	9.2	---	---	---	9.2	9.1	9.2
31	8.1	7.5	7.8	---	---	---	---	---	---	9.4	9.2	9.3
MONTH	9.9	6.4	7.8	10.2	3.7	8.3	11.0	8.6	9.9	11.9	8.3	10.2

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued
(National stream-quality accounting network)

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	10.4	8.9	9.6	9.5	9.0	9.3	8.8	8.4	8.6	6.9	6.7	6.8
2	10.9	9.4	10.1	9.0	8.8	8.9	8.7	8.2	8.4	7.2	6.9	7.0
3	9.5	9.2	9.4	9.1	8.5	8.9	8.6	8.3	8.5	8.8	7.2	7.8
4	9.2	9.0	9.1	9.1	8.9	9.1	8.7	8.4	8.5	9.0	8.7	8.9
5	9.4	8.9	9.1	9.0	8.8	8.9	8.8	8.7	8.7	8.7	7.7	8.2
6	9.4	9.1	9.2	8.9	8.7	8.7	9.5	8.7	9.1	7.7	7.1	7.4
7	9.1	8.9	9.0	9.7	8.0	8.6	8.9	8.1	8.6	7.1	6.7	6.8
8	9.4	8.9	9.2	9.4	8.9	9.1	8.5	8.1	8.3	6.7	6.5	6.6
9	10.6	9.5	9.7	9.3	8.9	9.1	8.8	8.5	8.6	6.9	6.6	6.8
10	10.5	9.5	10.1	8.8	8.3	8.5	9.2	8.8	9.0	---	---	---
11	9.9	9.6	9.8	8.3	7.5	8.1	9.5	9.2	9.3	---	---	---
12	9.9	9.5	9.8	8.3	7.0	7.6	9.3	9.1	9.1	---	---	---
13	10.0	9.9	9.9	7.8	6.8	7.3	9.1	9.0	9.1	---	---	---
14	9.9	9.6	9.8	9.2	6.7	7.7	9.3	9.0	9.1	---	---	---
15	9.8	9.6	9.7	9.1	8.2	8.7	9.4	9.1	9.3	---	---	---
16	10.1	9.6	9.8	8.2	8.1	8.1	9.1	8.6	8.8	---	---	---
17	10.3	10.0	10.2	8.1	7.9	8.0	8.8	8.4	8.6	6.7	6.1	6.4
18	10.5	10.2	10.4	7.9	7.6	7.8	8.6	8.1	8.4	6.6	6.4	6.5
19	10.7	10.4	10.5	8.3	7.8	8.1	8.1	7.9	8.0	6.8	6.4	6.6
20	10.8	10.3	10.6	8.3	8.1	8.2	8.0	7.8	7.9	6.8	6.5	6.7
21	11.0	10.3	10.5	8.6	8.1	8.3	7.9	7.6	7.7	6.6	6.4	6.5
22	11.0	10.3	10.6	8.9	8.7	8.8	7.6	7.5	7.6	6.7	6.3	6.4
23	10.4	10.0	10.3	9.0	8.9	8.9	7.7	7.3	7.5	6.8	6.4	6.6
24	10.2	9.8	10.1	8.9	8.8	8.8	7.5	7.4	7.4	6.8	6.5	6.7
25	10.3	10.0	10.2	8.9	8.8	8.9	7.8	7.5	7.7	7.0	6.6	6.8
26	10.3	10.2	10.3	9.5	8.9	9.2	7.9	7.8	7.8	7.0	6.4	6.6
27	10.2	8.8	9.4	9.6	9.5	9.5	8.4	7.7	8.0	7.0	6.0	6.5
28	9.4	8.9	9.0	9.5	9.5	9.5	7.6	7.2	7.3	6.7	6.0	6.4
29	---	---	---	10.0	9.3	9.6	7.4	7.2	7.3	6.9	6.4	6.6
30	---	---	---	9.8	9.2	9.6	7.2	6.8	7.0	6.9	6.6	6.7
31	---	---	---	9.2	8.9	9.0	---	---	---	7.0	6.7	6.8
MONTH	11.0	8.8	9.8	10.0	6.7	8.7	9.5	6.8	8.3	9.0	6.0	6.9
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.0	6.5	6.7	6.3	6.0	6.2	6.6	6.0	6.4	6.2	5.8	6.0
2	6.9	6.6	6.7	6.4	6.1	6.2	6.5	6.4	6.5	6.2	5.8	6.0
3	6.9	6.6	6.7	6.3	6.0	6.2	6.5	6.4	6.4	6.3	5.8	6.1
4	6.6	6.4	6.5	6.4	6.0	6.2	6.6	6.4	6.5	6.4	5.8	6.1
5	6.6	6.2	6.4	6.5	6.1	6.3	6.4	6.0	6.2	6.7	5.8	6.2
6	6.8	6.2	6.5	6.6	6.0	6.3	6.3	5.4	5.8	6.1	5.6	5.9
7	6.9	6.4	6.6	6.4	6.1	6.3	5.7	5.3	5.5	6.1	5.7	5.9
8	6.7	6.2	6.4	6.6	6.0	6.3	6.0	5.5	5.7	6.1	5.7	5.9
9	6.8	6.3	6.5	6.5	6.0	6.4	6.2	5.9	6.1	6.0	5.7	5.9
10	6.8	6.4	6.6	6.5	6.1	6.4	6.7	6.2	6.5	6.0	5.8	5.9
11	6.8	6.4	6.6	6.0	4.8	5.4	6.9	6.6	6.8	6.1	5.9	6.0
12	7.2	6.3	6.5	4.8	4.7	4.8	6.8	6.8	6.8	6.1	6.0	6.0
13	6.5	6.1	6.3	5.3	4.8	5.0	6.8	6.6	6.6	6.1	5.7	6.0
14	6.5	6.1	6.3	5.4	5.3	5.3	6.6	6.4	6.5	5.7	5.4	5.5
15	6.5	6.1	6.3	5.6	4.9	5.2	6.5	6.4	6.5	5.5	5.4	5.5
16	6.5	6.1	6.3	5.8	5.6	5.7	6.6	6.5	6.5	5.7	5.5	5.6
17	6.5	6.1	6.3	---	---	---	6.6	6.5	6.6	6.0	5.8	5.8
18	6.5	6.1	6.3	---	---	---	6.6	6.4	6.5	6.3	6.0	6.1
19	6.4	6.0	6.2	---	---	---	6.5	6.4	6.4	6.4	6.1	6.3
20	6.2	5.8	6.0	---	---	---	6.5	6.4	6.5	6.5	6.2	6.3
21	6.1	6.0	6.0	---	---	---	6.6	6.4	6.5	6.5	6.2	6.4
22	6.3	6.0	6.1	---	---	---	6.7	6.5	6.6	6.5	6.3	6.4
23	6.3	6.0	6.1	---	---	---	6.5	6.4	6.4	7.0	6.5	6.7
24	6.4	6.0	6.2	6.5	6.4	6.5	6.5	6.4	6.4	7.2	6.9	7.0
25	6.2	6.0	6.1	6.5	6.3	6.4	6.4	6.1	6.3	7.3	7.0	7.1
26	6.4	6.0	6.2	6.3	6.1	6.2	6.2	6.0	6.0	7.4	7.0	7.2
27	6.5	6.2	6.3	6.3	5.5	6.1	6.2	5.9	6.1	7.3	7.0	7.1
28	6.4	6.0	6.3	6.4	6.1	6.3	6.2	5.9	6.0	7.4	7.0	7.1
29	6.5	6.0	6.2	6.5	6.0	6.4	6.3	5.9	6.1	7.4	6.9	7.1
30	6.3	6.0	6.1	6.5	6.4	6.5	6.1	5.7	5.9	7.4	7.0	7.2
31	---	---	---	6.5	6.4	6.5	6.1	5.6	5.8	---	---	---
MONTH	7.2	5.8	6.3	6.6	4.7	6.0	6.9	5.3	6.3	7.4	5.4	6.3

08063010 CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX

LOCATION.--Lat 32°14'35", long 96°08'26", Henderson County, Hydrologic Unit 12030107, inside pumphouse on lower level, 1,000 ft north of spillway, 5.5 mi upstream from Joe B. Hogsett Dam on Cedar Creek, and 8.0 mi northwest of Trinidad.

DRAINAGE AREA.--1,007 mi².

PERIOD OF RECORD.--January 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to May 15, 1972, at unfinished pumphouse at same site and datum. May 16, 1972, to Sept. 8, 1975, at site 0.25 mi north and upstream from pumphouse at same datum.

REMARKS.--The reservoir is formed by a rolled earthfill dam 17,539 ft long. The spillway is located on the right bank 5.5 mi upstream from the dam and discharges into the Trinity River through a cut channel 2 mi long. Deliberate impoundment began July 2, 1965, and the dam was completed in February 1966. The spillway is 474 ft long and has eight 40- by 24-foot radial gates and two automatically operated 40- by 8.5-foot hinged gates. Low-flow releases may be made downstream through a 5.0-foot-diameter conduit through the dam. The dam is the property of Tarrant County Water Control and Improvement District No. 1 and was built for municipal and industrial supply and for recreational purposes. The area and capacity tables were based on a survey during the period 1940-58. Water is diverted from the reservoir for municipal and industrial uses by lakeside developments and by the cities of Arlington, Fort Worth, Mansfield, Kemp, Trinidad, and Mabank. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	340.0	-
Top of radial gates	325.0	785,100
Top of automatic gates	322.5	696,400
Top of conservation pool	322.0	679,200
Crest of spillway (automatic gates)	314.0	441,000
Crest of spillway (radial gates)	302.0	197,800
Lowest gated outlet (invert)	263.5	430

COOPERATION.--Records of diversions provided by the Tarrant County Water Control and Improvement District No. 1. The area and capacity tables were provided by Freese and Nichols, Consulting Engineers, for Tarrant County Water Control and Improvement District No. 1.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 722,000 acre-ft June 4, 1973 (elevation, 323.24 ft); minimum since first appreciable storage in 1966, 332,900 acre-ft Mar. 19, 1967 (elevation, 309.42 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 706,300 acre-ft May 3 at 1800 hours (elevation, 322.79 ft); minimum, 562,000 acre-ft Jan. 16 (elevation, 318.32 ft).

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

318.0	552,300	320.0	613,800	322.0	679,200
319.0	582,600	321.0	646,000	323.0	713,500

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	616700	600100	582600	565400	685100	677900	684400	679900	685100	660000	636700	618300
2	616400	599200	581700	565100	686100	677600	682300	679600	683700	659000	635400	618000
3	616100	597600	580200	566000	682300	677200	680600	704600	683300	658000	635100	616400
4	615100	596700	579300	566000	682000	675900	681600	691600	682000	657000	637300	616100
5	614500	597000	578400	566000	678600	676200	685100	680900	681300	656300	640200	615800
6	616700	596700	578700	565400	681600	676900	680900	684000	679200	655000	640900	613800
7	615800	595100	579600	565100	682000	688100	682700	691900	677900	654700	639300	613200
8	614800	597000	577200	564400	682700	695000	681300	697400	677900	653300	638600	612600
9	613800	595400	575700	564400	681600	688100	679600	702600	679200	653300	637300	612300
10	613500	594200	576900	563800	679200	682300	684700	695700	677900	651700	636700	616700
11	612000	593900	576900	563800	680600	680900	687800	687800	677600	651000	635700	617400
12	611600	592600	573800	563500	679600	682000	687800	680900	675900	651300	634400	617000
13	611300	591700	573200	562300	680600	677900	684400	680600	675600	649000	634400	615800
14	610400	591700	572900	562300	681300	691600	686400	678600	674600	647700	633800	616100
15	610400	591700	573500	562300	681600	688500	687100	678600	674600	645700	632800	615400
16	612600	619300	571700	562000	681300	685400	689200	683300	673600	645100	631500	614800
17	609500	618000	571700	574400	679600	683700	686400	680600	673900	644400	630900	614500
18	608200	617700	571100	596700	679900	682700	685100	680900	673300	643100	629300	612900
19	607300	617700	570800	649000	679900	680900	680600	678600	671600	643800	629000	613200
20	603200	619300	570500	683700	679200	679200	680600	678200	671300	641500	628600	611600
21	602000	618700	570200	684400	679900	677600	682000	680900	668600	641500	628000	612000
22	601700	620300	569600	684000	680900	679600	682700	680600	669600	641800	627400	613200
23	601000	618300	569300	682700	679600	679900	680900	680300	668300	640600	626700	611000
24	601000	617400	567800	684400	680600	681300	681300	679600	667900	639900	625400	608500
25	600700	617400	566900	680600	679600	681300	680900	679600	662300	639900	624800	607600
26	600100	617400	566000	678900	679900	680600	680900	678900	665300	639600	624500	607300
27	599500	618700	566000	683700	679900	678900	680300	680300	664600	638900	623200	607000
28	598500	585100	565700	681600	681300	682000	682000	680600	662300	638300	621600	606300
29	598500	583300	566000	678200	---	688500	681300	679200	662000	638000	620900	606000
30	602600	582600	567200	679900	---	686800	680300	681300	660600	637700	620300	606000
31	600400	---	566000	680300	---	683700	---	683000	---	637000	618700	---
MAX	616700	620300	582600	684400	686100	695000	689200	704600	685100	660000	640900	618300
MIN	598500	582600	565700	562000	678600	675900	679600	678200	660600	637000	618700	606000
(†)	319.57	319.00	318.45	322.03	322.06	322.13	322.03	322.11	321.44	320.72	320.15	319.75
(ϕ)	-17600	-17800	-16600	+114300	+1000	+2400	-3400	+2700	-22400	-23600	-18300	-12700

CAL YR 1989 MAX 691600 MIN 542700 (ϕ) +17800
WTR YR 1990 MAX 704600 MIN 562000 (ϕ) -12000

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

08063050 NAVARRO MILLS LAKE NEAR DAWSON, TX

LOCATION.--Lat 31°57'27", long 96°41'21", Navarro County, Hydrologic Unit 12030108, in left abutment of spillway of Navarro Mills Dam on Richland Creek, 1.7 mi upstream from bridge on State Highway 31, 3.0 mi upstream from St. Louis Southwestern Railway Lines bridge, 4.2 mi upstream from Post Oak Creek, 4.6 mi north of Dawson, and 63.9 mi upstream from mouth.

DRAINAGE AREA.--320 mi².

PERIOD OF RECORD.--August 1962 to current year. Prior to October 1970, published as Navarro Mills Reservoir.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 8, 1962, nonrecording gage in low-water channel at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 7,570 ft long, including a 240-foot off-channel gated spillway with six 40.0- by 29.0-foot tainter gates. From Aug. 27, 1962, to Mar. 14, 1963, lake was operated as a detention basin only. Deliberate impoundment began Mar. 15, 1963, and dam was completed in September 1963. Low-flow outlet works consist of two 36-inch-diameter gate-controlled conduits. Lake was built for flood control and water conservation. Capacity table prior to September 1976 is based on survey made in February 1956 by U.S. Army Corps of Engineers. Capacity table after Aug. 31, 1976, is based on a sedimentation survey made in September 1972. Flow is affected at times by discharge from the flood-detention pools of 51 floodwater-retarding structures with a combined detention capacity of 26,160 acre-ft. These structures control runoff from 86.9 mi² in the Richland Creek drainage basin. An unknown amount of water is diverted for municipal and industrial uses. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	457.0	-
Design flood	451.9	329,500
Top of gates (top of flood-control storage pool)	443.0	206,200
Top of conservation pool	424.5	56,960
Crest of spillway	414.0	18,840
Lowest gated outlet (invert)	400.0	1,150

COOPERATION.--Records furnished by the U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 183,300 acre-ft May 18, 1968 (elevation, 440.36 ft); minimum since since initial filling in May 1965, 32,490 acre-ft Dec. 28, 1978 (elevation, 418.89 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 160,100 acre-ft May 21 at 0800 hours (elevation, 438.63 ft); minimum, 46,850 acre-ft Jan. 16 (elevation, 422.41 ft).

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

422.0	45,020	430.0	89,340	436.0	136,300
425.0	59,520	432.0	103,800	438.0	154,300
428.0	76,310	434.0	119,500	439.0	163,700

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52560	50420	48770	47440	55930	58150	127100	99940	128600	58300	55470	52370
2	52510	50280	48720	47400	60050	58200	128100	100400	128800	58100	55370	52170
3	52420	50180	48630	47490	61110	58250	129000	133600	129500	57950	55270	52080
4	52320	50130	48630	47490	61580	58300	129900	138500	130300	57850	55320	51980
5	52270	50130	48590	47440	61960	58100	130800	141000	130400	57700	55720	51880
6	52320	50130	48450	47400	61320	57850	132600	142700	129200	57500	55620	51780
7	52220	50080	48500	47350	60000	78260	129900	144100	126200	57390	55470	51640
8	52120	49980	48400	47400	59220	86920	127100	144900	122400	57240	55320	51540
9	52030	49930	48310	47350	59120	89140	124000	145500	118700	57090	55220	51590
10	51930	49840	48310	47310	59370	90820	120200	145600	115100	57040	55170	52030
11	51830	49790	48220	47220	59570	92230	116400	146300	110900	56890	55060	51980
12	51690	49690	48080	47170	59520	92870	112400	154700	106700	56740	54860	51880
13	51640	49690	48040	47080	59120	93510	108800	155800	102700	56580	54810	51780
14	51540	49690	47990	47080	58760	102800	107200	156300	98760	56380	54660	51730
15	51490	49500	47860	47080	58300	105900	106100	156500	94850	56280	54510	51640
16	51540	49320	47810	47120	57900	107100	106400	156600	90820	56130	54410	51540
17	51440	49230	47720	47220	57950	107500	106500	157100	86720	56130	54260	51490
18	51250	49270	47670	48220	58150	107900	106600	158500	82690	56080	54120	51440
19	51050	49230	47630	50910	58150	108000	106900	160000	78710	55930	54070	51340
20	50960	49230	47580	51880	58250	108200	106000	160100	74650	55880	53870	51200
21	50810	49180	47540	52370	59060	108400	103600	160100	71630	55770	53780	51100
22	50710	49320	47490	52660	59520	108500	101300	160000	69330	55520	53730	51150
23	50660	49230	47400	52950	59270	107200	98910	158300	67040	55520	53530	51050
24	50570	49140	47350	53140	58760	105000	96550	154900	64980	55470	53440	50810
25	50570	49140	47310	53190	58200	102700	94210	151400	62750	55370	53290	50710
26	50470	49090	47260	53190	57850	99500	94780	148000	61000	55220	53140	50620
27	50420	49090	47260	53190	57800	95840	96260	144800	59940	55060	53000	50570
28	50280	48910	47220	53340	58200	92160	98320	141900	59170	54910	52850	50470
29	50320	48860	47260	53340	---	119100	99060	138000	58660	54860	52760	50420
30	50620	48820	47400	53290	---	124300	99650	134100	58410	54760	52710	50320
31	50470	---	47490	53480	---	125200	---	130400	---	55220	52560	---
MAX	52560	50420	48770	53480	61960	125200	132600	160100	130400	58300	55720	52370
MIN	50280	48820	47220	47080	55930	57850	94210	99940	58410	54760	52560	50320
(†)	423.18	422.83	422.54	423.80	424.74	434.70	431.44	435.31	424.78	424.15	423.61	423.15
(ϕ)	-2240	-1650	-1330	+5990	+4720	+67000	-25550	+30750	-71990	-3190	-2660	-2240

CAL YR 1989 MAX 117400 MIN 44590 (ϕ) +2240
WTR YR 1990 MAX 160100 MIN 47080 (ϕ) -2390

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

08063100 RICHLAND CREEK NEAR DAWSON, TX

LOCATION.--Lat 31°56'18", long 96°40'52", Navarro County, Hydrologic Unit 12030108, at downstream side of bridge on State Highway 31, 1.3 mi upstream from St. Louis Southwestern Railway Lines bridge, 1.7 mi downstream from Navarro Mills Dam, 2.5 mi upstream from Post Oak Creek, and 3.6 mi northeast of Dawson.

DRAINAGE AREA.--333 mi².

PERIOD OF RECORD.--October 1960 to current year.
Water-quality records.--Chemical and biochemical analyses: October 1980 to September 1982.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 367.52 ft above National Geodetic Vertical Datum of 1929. Nov. 21, 1960, to Sept. 30, 1982, water-stage recorder at same site and at 3.00-foot higher datum. Prior to Nov. 21, 1960, nonrecording gage at same site and datum.

REMARKS.--Records good, except those below 2.0 ft³/s, which are fair. Since Mar. 15, 1963, flow has been regulated by Navarro Mills Lake (station 08063050), 1.7 mi upstream. Flow may be slightly affected at times by discharge from the flood-detention pool of one floodwater-retarding structure with a capacity of 297 acre-ft. This structure controls runoff from 1.28 mi² below Navarro Mills Lake and above this station. Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--30 years, 146 ft³/s (105,800 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,500 ft³/s July 3, 1961 (gage height, 25.50 ft), from rating curve extended above 14,000 ft³/s; no flow at times. Maximum discharge since completion of Navarro Mills Dam in 1963, 3,850 ft³/s Nov. 24, 1974 (gage height, 22.85 ft).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1895, about 31 ft June 19, 1929, from information by local residents. Floods in 1946 and 1957 reached a stage of about 26 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,250 ft³/s June 11 at 2130 hours (gage height, 20.58 ft); minimum daily, no flow for several days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.14	.37	.77	6.2	.55	6.8	4.6	1250	1.6	3.1	.01
2	.01	.11	.37	.66	7.6	.32	4.0	4.0	8.8	.74	1.2	.01
3	.01	.08	.38	.71	.49	.25	2.1	940	4.5	.36	.50	.01
4	.01	.07	.47	.64	.28	.21	1.4	134	4.3	.22	1.2	.01
5	.01	.06	.49	.55	.21	95	1.2	34	2.4	.15	3.3	.02
6	.01	.04	.49	.55	390	201	348	28	363	.10	2.7	.02
7	.06	.03	.54	.68	795	917	1450	22	1480	.11	.85	.00
8	.06	.04	.63	.70	620	249	1430	7.8	1910	.12	.39	.00
9	.03	.04	.66	.70	303	9.6	1550	4.9	1890	.12	.24	.01
10	.03	.02	.73	.70	1.0	5.8	1830	2.5	1860	.13	.20	.44
11	.04	.02	.85	.70	.50	4.7	1810	2.3	2050	.11	.16	.38
12	.05	.02	.85	.68	74	2.3	1770	386	2180	.06	.12	.26
13	.05	.01	.89	.62	282	1.4	1730	63	2040	.25	.05	.21
14	.06	.01	.93	.64	317	201	1750	11	1940	.12	.05	.19
15	.07	.00	.97	.73	392	55	974	4.8	1890	.08	.03	.27
16	.09	.00	1.0	.77	251	2.6	11	2.8	1960	.09	.02	.24
17	.06	.00	1.2	1.1	1.2	1.5	7.2	1.7	2020	.14	.03	.17
18	.15	.01	1.2	2.2	.55	1.0	5.9	16	1960	.16	.02	.23
19	.28	.01	1.0	2.2	.37	.63	5.6	62	1970	.16	.01	1.8
20	.26	.01	.87	.93	.32	.49	426	7.8	1970	.18	.01	.94
21	.15	.01	.85	.55	1.4	.49	1240	3.2	1550	.06	.02	.82
22	.07	.20	.76	.27	3.7	.49	1240	1.3	1110	.02	.05	.87
23	.05	.35	.89	.18	187	532	1230	688	1090	.05	.17	1.4
24	.04	.21	.91	.32	380	1100	1210	1690	1080	.13	.02	.85
25	.06	.31	.80	.20	376	1090	1200	1780	1060	.14	.01	.00
26	.05	.31	.80	.11	261	1340	1200	1770	961	.14	.00	.04
27	.04	.29	.85	.10	101	1730	1240	1750	584	.09	.00	.10
28	.10	.28	.85	.18	1.2	1680	715	1740	338	.08	.00	.22
29	.12	.29	.85	.38	---	1500	14	1870	245	.61	.01	.27
30	.32	.33	.92	.27	---	356	7.5	2030	112	.56	.01	.29
31	.23	---	1.1	.30	---	14	---	2010	---	4.9	.01	---
TOTAL	2.58	3.30	24.47	20.09	4754.02	11092.33	24409.7	17071.7	36883.0	11.78	14.48	10.08
MEAN	.083	.11	.79	.65	170	358	814	551	1229	.38	.47	.34
MAX	.32	.35	1.2	2.2	795	1730	1830	2030	2180	4.9	3.3	1.8
MIN	.01	.00	.37	.10	.21	.21	1.2	1.3	2.4	.02	.00	.00
AC-FT	5.1	6.5	49	40	9430	22000	48420	33860	73160	23	29	20

CAL YR 1989	TOTAL	64277.45	MEAN	176	MAX	1850	MIN	.00	AC-FT 127500
WTR YR 1990	TOTAL	94297.53	MEAN	258	MAX	2180	MIN	.00	AC-FT 187000

08063700 BARDWELL LAKE NEAR ENNIS, TX

LOCATION.--Lat 32°15'00", long 96°38'49", Ellis County, Hydrologic Unit 12030109, in intake structure of Bardwell Dam on Waxahachie Creek, 5 mi south of Ennis, and 5.6 mi upstream from mouth.

DRAINAGE AREA.--178 mi².

PERIOD OF RECORD.--November 1965 to current year. Prior to October 1970, published as Bardwell Reservoir.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Apr. 25, 1966, nonrecording gage on intake structure at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 15,400 ft long, including a 350-foot uncontrolled off-channel concrete-gravity spillway with ogee weir section. Deliberate impoundment began Nov. 20, 1965, and dam was completed Mar. 27, 1966. Controlled low-flow outlet works consists of a 10.0-foot-diameter concrete conduit with two 5.0- by 10.0-foot sluice gates. Lake was built for flood control and water conservation. Capacity table beginning October 1976 is based on a survey completed in 1972. Runoff from 81.4 mi² above Bardwell Lake is modified by Lake Waxahachie, with a capacity of 13,500 acre-ft at spillway elevation. The city of Waxahachie diverts water from Lake Waxahachie and returns an unknown amount of effluent to Waxahachie Creek. Inflow is affected at times by discharge from flood-detention pools of 23 floodwater-retarding structures with a combined detention capacity of 15,370 acre-ft. These structures control runoff from 52.4 mi² in the Chambers Creek watershed. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	460.0	-
Design flood	455.9	-
Crest of spillway (top of flood-control pool)	439.0	137,600
Top of conservation pool	421.0	52,300
Lowest gated outlet (invert)	391.0	690

COOPERATION.--Records furnished by the U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 112,100 acre-ft May 22, 1990 (elevation, 434.54 ft); minimum since initial filling, 39,720 acre-ft Nov. 10, 1978 (elevation, 417.21 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 112,100 acre-ft May 22 at 2200 hours (elevation, 434.54 ft): minimum, 47,270 acre-ft Dec. 25 (elevation, 419.56 ft).

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

419.0	45,390	428.0	80,300	433.0	104,100
422.0	55,920	430.0	89,370	434.0	109,300
425.0	67,520	432.0	99,020	435.0	114,600

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49860	48780	47980	47440	63080	53010	66160	73650	94350	53080	51480	50590
2	49890	48670	47980	47370	65160	53150	66480	75460	94840	53040	51440	50520
3	49860	48570	47920	47510	66080	53360	66680	94550	97240	52930	51580	50520
4	49860	48540	47850	47470	66640	53510	66920	98080	98030	52900	51650	50490
5	49790	48540	47810	47510	67040	53510	68010	99620	98420	52860	52080	50450
6	49790	48600	47810	47510	66800	53110	68170	101000	98030	52790	52220	50240
7	49720	48600	47950	47470	64970	58390	68500	102100	95470	52720	52150	50030
8	49650	48570	47810	47400	63820	60290	68700	103300	91860	52610	52080	50240
9	49580	48500	47680	47470	63700	60940	68580	104400	88810	52580	52040	50240
10	49540	48470	47810	47470	63040	61640	67930	105200	85500	52470	52010	50380
11	49440	48400	47810	47470	61980	62610	66560	106200	82070	52430	51940	50380
12	49400	48360	47580	47440	60600	63270	64650	107300	78530	52360	51860	50350
13	49370	48360	47540	47400	60750	64100	62840	108100	75730	52220	51860	50310
14	49340	48330	47540	47370	60520	67480	61560	108700	73190	52040	51760	50280
15	49300	48330	47540	47370	59340	69560	60830	109300	70800	52010	51720	50240
16	49300	48190	47440	47400	58090	70550	61210	110100	68460	51940	51620	50170
17	49300	48120	47400	48880	57680	71210	61600	110300	66160	51900	51510	50100
18	49160	48090	47370	59680	57830	71880	61710	110800	63940	51900	51400	50030
19	48950	48120	47400	67770	57940	72130	61830	111100	61950	51860	51370	50000
20	48810	48120	47370	68330	57710	72380	62100	111500	60440	51790	51330	49930
21	48740	48120	47580	68540	57710	72640	62340	111900	59000	51720	51300	49890
22	48710	48300	47510	68130	57450	72970	62530	112100	57860	51720	51190	49890
23	48710	48190	47300	67200	56890	72130	62650	111400	56670	51860	51190	49720
24	48710	48120	47270	66560	56030	70460	62800	109500	55630	51790	51190	49610
25	48670	48190	47270	65360	53360	68580	62960	106800	54820	51760	51090	49510
26	48640	48190	47270	64410	52650	66640	64570	104100	54050	51720	51090	49470
27	48570	48190	47270	64530	52290	65040	67890	101500	53650	51650	51020	49400
28	48570	48120	47270	64020	52760	63230	70300	98820	53360	51620	50910	49400
29	48570	48020	47340	62960	---	64490	71630	95520	53220	51580	50910	49340
30	48850	47980	47440	61910	---	65240	72720	93820	53180	51510	50880	49300
31	48780	---	47470	60980	---	65560	---	93240	---	51510	50740	---
MAX	49890	48780	47980	68540	67040	72970	72720	112100	98420	53080	52220	50590
MIN	48570	47980	47270	47370	52290	53010	60830	73650	53180	51510	50740	49300
(†)	420.00	419.77	419.62	423.34	421.13	424.51	426.26	430.82	421.25	420.78	420.56	420.15
(ϕ)	-1220	-800	-510	+13510	-8220	+12800	+7160	+20520	-40060	-1670	-770	-1440

CAL YR 1989 MAX 88810 MIN 46730 (ϕ) +510
WTR YR 1990 MAX 112100 MIN 47270 (ϕ) -700

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

08063800 WAXAHACHIE CREEK NEAR BARDWELL, TX

LOCATION.--Lat 32°14'36", long 96°38'24", Ellis County, Hydrologic Unit 12030109, on left bank at downstream side of highway embankment near left end of bridge on county road, 0.8 mi downstream from Bardwell Dam, 3.6 mi southeast of Bardwell, 3.8 mi downstream from bridge on State Highway 34, and 4.1 mi upstream from mouth.

DRAINAGE AREA.--178 mi².

PERIOD OF RECORD.--October 1963 to current year.
Water-quality records.--Chemical and biochemical analyses: October 1980 to September 1982.

GAGE.--Water-stage recorder. Datum of gage is 370.18 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark).

REMARKS.--Records fair, except for discharges below 1.0 ft³/s, which are poor. Since November 1965, flow regulated by Bardwell Lake (station 08063700) 0.8 mi upstream. Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--27 years, 76.6 ft³/s (55,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,960 ft³/s Feb. 9, 1965 (gage height, 17.55 ft); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1944, about 23 ft in 1944 and 1945, from information by U.S. Army Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,820 ft³/s June 9 at 1945 hours (gage height, 17.26 ft); no flow for several days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.13	.00	.01	.12	421	.56	1.2	.21	4.6	.20	.03	.01
2	.08	.00	.01	.07	40	.49	.61	.27	.97	.19	.03	.00
3	.13	.00	.01	.08	18	.27	.45	189	2.7	.14	.05	.02
4	.07	.00	.01	.12	1.6	.19	.43	283	2.4	.15	.11	.01
5	.02	.00	.01	.14	1.2	107	.50	62	1.2	.18	.55	.02
6	.04	.00	.01	.16	307	189	.90	.44	85	.16	.20	.00
7	.09	.01	.00	.18	881	96	.24	.32	1150	.17	.11	.00
8	.06	.02	.00	.14	1150	29	.19	.29	1680	.22	.08	.03
9	.03	.02	.00	.13	945	.61	190	.29	1670	.25	.11	.12
10	.03	.01	.00	.12	622	.55	505	.29	1640	.22	.13	.12
11	.03	.01	.01	.12	616	.25	684	.28	1610	.16	.12	.03
12	.02	.01	.01	.12	618	.24	882	.46	1600	.48	.09	.02
13	.04	.01	.02	.12	615	.17	877	.35	1390	.30	.17	.02
14	.02	.02	.02	.13	613	10	870	.33	1130	.13	.22	.02
15	.02	.02	.02	.14	607	1.3	509	.29	1110	.08	.18	.01
16	.01	.02	.02	.16	541	.61	.44	.29	1100	.08	.15	.01
17	.00	.01	.02	2.1	216	.33	.40	.30	1080	.07	.13	.00
18	.02	.02	.02	4.0	.68	.43	.44	.30	1070	.05	.17	.00
19	.01	.03	.03	120	.60	.31	.47	.35	896	.05	.25	.00
20	.01	.03	.03	11	121	.31	.69	.39	701	.07	.25	.00
21	.02	.04	.03	.05	331	.76	1.1	.43	624	.07	.25	.00
22	.02	.18	.03	248	332	1.2	.67	.34	538	.05	.28	.04
23	.02	.02	.02	481	382	451	.29	358	466	.25	.05	.02
24	.04	.01	.00	478	456	820	.37	909	464	.11	.03	.01
25	.03	.00	.00	474	455	510	.52	1190	388	.06	.01	.01
26	.02	.00	.01	463	317	707	1.6	1360	283	.04	.01	.00
27	.02	.00	.01	468	103	859	84	1330	138	.03	.02	.00
28	.02	.00	.01	464	1.1	851	113	1320	85	.03	.00	.00
29	.02	.01	.02	460	---	530	1.9	1480	40	.03	.01	.00
30	.17	.01	.03	539	---	25	.23	1640	.31	.05	.01	.00
31	.01	---	.15	606	---	1.2	---	1090	---	.06	.01	---
TOTAL	1.25	0.51	0.57	4820.20	10712.18	5193.78	4727.64	11217.22	20950.18	4.13	3.81	0.52
MEAN	.040	.017	.018	155	383	168	158	362	698	.13	.12	.017
MAX	.17	.18	.15	606	1150	859	882	1640	1680	.48	.55	.12
MIN	.00	.00	.00	.05	.60	.17	.19	.21	.31	.03	.00	.00
AC-FT	2.5	1.0	1.1	9560	21250	10300	9380	22250	41550	8.2	7.6	1.0

CAL YR 1989	TOTAL	44907.73	MEAN	123	MAX	978	MIN	.00	AC-FT	89070
WTR YR 1990	TOTAL	57631.99	MEAN	158	MAX	1680	MIN	.00	AC-FT	114300

08064100 Chambers Creek near Rice, Tex.

LOCATION.--Lat 32°11'54, long 96°31'12", Navarro County, Hydrologic Unit 12030109, on downstream side of highway embankment 20 ft to left of left end of bridge on Farm Road 1126, 3.6 mi downstream from Oak Branch, 3.9 mi upstream from Cummins Creek, 4.2 mi upstream from bridge on Interstate Highway 45, 5.0 miles downstream from Waxahachie Creek, and 3.4 mi southwest of Rice.

DRAINAGE AREA.--807 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1983 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 340.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good, except those for July 1 to Sept. 25, which are fair. Flow from 178 mi² is affected by storage in Bardwell Lake on Waxahachie Creek. Flood releases from Bardwell Lake will sustain flows from time to time. In addition, flow is affected at times by the discharge from the flood-detention pools of numerous floodwater-retarding structures in the drainage basin above this station.

AVERAGE DISCHARGE.--7 years (water years 1984-1990) regulated, unadjusted, 412 ft³/s (298,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 43,400 ft³/s June 6, 1986 (gage height, 31.12 ft), from rating curve extended above 15,000 ft³/s on basis of velocity-area study; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood information for the next downstream station, Chambers Creek near Corsicana, (08064500) indicates that the maximum stage since at least 1870 occurred in August 1887, and that other significant floods occurred in December 1913, May 1944, and May 1958. Stages for these floods are unknown, but over the years a levee system has been developed along the main channel to limit crop land flooding.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21,100 ft³/s May 4 at 0930 hours (gage height, 30.04 ft); minimum, no flow Aug. 23 to Sept. 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.56	.47	2.7	4.8	2840	230	950	1490	775	4.6	.38	.00
2	.52	1.2	2.8	3.9	7280	221	727	1250	502	3.7	1.1	.00
3	.52	1.4	2.9	3.3	6690	199	583	7450	487	3.3	.70	.00
4	.52	1.4	2.8	3.4	1850	185	459	17500	1850	3.0	.82	.00
5	.49	1.4	2.8	3.2	813	219	400	8250	627	2.9	1.7	.00
6	.47	1.4	2.7	3.0	711	338	782	4440	525	2.7	1.6	.00
7	.42	1.4	2.8	2.9	1170	2260	627	2900	1080	2.4	2.1	.00
8	.37	1.6	2.9	2.7	1490	6540	424	1970	1680	2.1	2.3	.00
9	.40	1.8	2.9	2.7	1360	1910	406	1350	1660	2.0	1.7	.31
10	.35	1.7	2.9	2.6	1160	975	743	903	1620	1.7	1.2	.42
11	.32	1.8	2.9	2.5	1010	652	823	664	1590	1.5	.92	.07
12	.27	1.9	2.9	2.4	885	1130	1100	637	1560	1.4	.70	.07
13	.23	2.0	2.9	2.2	827	732	1080	839	1470	1.3	.53	.06
14	.22	2.0	2.9	2.2	795	1730	1180	527	1120	1.2	.36	.05
15	.20	2.2	2.9	2.3	772	4420	1570	443	1110	1.1	.28	.05
16	.19	2.5	2.9	2.2	734	2220	547	396	1090	1.1	.21	.05
17	.15	2.6	2.9	54	491	823	391	365	1080	1.0	.16	.05
18	.14	2.7	2.9	325	179	593	340	333	1070	1.1	.14	.04
19	.14	3.0	3.0	6090	169	473	315	313	969	1.1	.11	.04
20	.12	2.9	3.1	5940	185	385	289	295	772	.94	.09	.02
21	.12	2.9	3.2	1590	471	345	272	271	676	.87	.07	.01
22	.12	3.3	3.2	1120	899	321	258	249	641	.75	.03	.17
23	.10	4.2	3.2	1220	705	499	238	356	568	.62	.00	.02
24	.08	4.3	3.7	1050	698	1080	218	901	572	.58	.00	.02
25	.07	3.9	3.8	876	653	1060	203	1140	541	.43	.00	.01
26	.06	3.2	3.8	766	553	1040	276	1360	466	.36	.00	.01
27	.05	3.0	3.8	709	339	1040	5110	1350	337	.34	.00	.02
28	.04	2.8	3.7	674	197	1040	9330	1340	256	.32	.00	.02
29	.05	2.8	3.9	647	---	4390	5080	1400	201	.29	.00	.02
30	.14	2.7	4.3	662	---	6310	2320	2110	12	.28	.00	.01
31	.23	---	4.4	761	---	1740	---	3450	---	.30	.00	---
TOTAL	7.66	70.47	98.5	22530.3	35926	45100	37041	66242	26907	45.28	17.20	1.54
MEAN	.25	2.35	3.18	727	1283	1455	1235	2137	897	1.46	.55	.051
MAX	.56	4.3	4.4	6090	7280	6540	9330	17500	1850	4.6	2.3	.42
MIN	.04	.47	2.7	2.2	169	185	203	249	12	.28	.00	.00
AC-FT	15	140	195	44690	71260	89460	73470	131400	53370	90	34	3.1

CAL YR 1989 TOTAL 195937.35 MEAN 537 MAX 16000 MIN .04 AC-FT 388600
WTR YR 1990 TOTAL 233986.95 MEAN 641 MAX 17500 MIN .00 AC-FT 464100

08064100 Chambers Creek near Rice, Tex.--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1983 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1983 to current year.
WATER TEMPERATURE: October 1983 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,510 microsiemens Nov. 21, 1988; minimum daily, 187 microsiemens Dec. 18, 1984.
WATER TEMPERATURE (1983-89): Maximum daily, 38.0°C Aug. 16, 1987; minimum daily, 0.0°C Feb. 7, 1989.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,480 microsiemens Sep. 30; minimum daily, 207 microsiemens Jan. 19.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)
NOV 08...	0800	1.6	1200	7.5	19.0	18	6.5	2.2	24	2.1	310
JAN 25...	1400	865	273	8.0	10.5	45	150	11.3	101	2.0	100
APR 03...	1340	574	397	8.0	16.5	130	140	9.3	95	1.5	160
JUN 12...	1400	1580	337	8.1	27.0	12	57	8.4	106	1.2	140
JUL 11...	1400	1.5	776	7.8	29.0	12	12	6.0	78	1.5	230
AUG 21...	1330	0.04	890	7.8	30.5	12	6.0	5.7	77	1.0	240

DATE	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
NOV 08...	100	110	9.1	130	3	5.7	210	210	140	0.40	7.7
JAN 25...	9	37	2.0	15	0.7	3.4	92	28	10	0.30	5.9
APR 03...	34	57	3.4	18	0.6	3.2	120	49	12	0.30	7.2
JUN 12...	6	51	2.2	13	0.5	3.1	130	23	9.3	0.30	1.7
JUL 11...	70	82	6.9	69	2	3.6	160	130	69	0.30	7.0
AUG 21...	76	85	6.5	93	3	3.3	160	170	93	0.60	7.1

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, 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 08...	743	41	9	32	--	0.020	<0.100	0.040	0.56	0.60	0.090
JAN 25...	157	320	49	271	0.620	0.080	0.700	0.060	0.84	0.90	0.070
APR 03...	223	<1	<1	--	1.06	0.040	1.10	0.040	0.46	0.50	0.100
JUN 12...	183	207	26	181	0.570	0.030	0.600	0.030	--	<0.20	0.020
JUL 11...	466	17	1	16	--	<0.010	<0.100	0.020	0.28	0.30	0.030
AUG 21...	558	5	1	4	--	<0.010	<0.100	<0.010	--	0.50	0.030

08064100 Chambers Creek near Rice, Tex.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)
NOV 08...	6.7	2	100	<0.5	<1.0	<5	<3	<10	46	<10
JAN 25...	8.2	9	34	<0.5	<1.0	<5	<3	<10	12	<10
APR 03...	9.1	--	--	--	--	--	--	--	--	--
JUN 12...	5.2	3	51	<0.5	<1.0	<5	<3	<10	11	<10
JUL 11...	4.3	--	--	--	--	--	--	--	--	--
AUG 21...	3.8	2	96	<0.5	1.0	<5	<3	<10	4	<10

DATE	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 08...	31	460	<0.1	<10	<10	<1	1.0	1300	<6	<3
JAN 25...	5	6	<0.1	<10	<10	<1	<1.0	330	<6	<3
APR 03...	--	--	--	--	--	--	--	--	--	--
JUN 12...	6	5	<0.1	<10	<10	<1	<1.0	380	<6	9
JUL 11...	--	--	--	--	--	--	--	--	--	--
AUG 21...	23	33	<0.1	<10	<10	<1	2.0	980	<6	4

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1989	7.66	840	496	10	69	1.4	130	2.8	250
NOV.	1989	70.47	1200	712	135	130	25	210	40	300
DEC.	1989	98.5	1100	651	173	110	30	190	50	290
JAN.	1990	22530.3	247	144	8760	8.2	501	33	2010	96
FEB.	1990	35926	324	189	18300	12	1210	44	4290	120
MAR.	1990	45100	357	208	25400	15	1830	49	6020	130
APR.	1990	37041	384	224	22400	17	1710	54	5360	140
MAY	1990	66242	342	200	35700	14	2480	47	8410	130
JUNE	1990	26907	347	203	14700	14	1010	48	3470	130
JULY	1990	45.28	748	440	54	56	6.8	120	14	230
AUG.	1990	17.20	855	504	23	70	3.2	140	6.3	260
SEPT	1990	1.54	1120	662	2.8	120	0.5	190	0.8	290
TOTAL		233986.95	**	**	126000	**	8810	**	29700	**
WTD.AVG.		641	341	199	**	14	**	47	**	130

08064100 Chambers Creek near Rice, Tex.--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	734	1190	938	1280	286	e500	e390	362	e340	436	e870	---
2	738	1050	e950	1280	304	575	405	368	e360	675	e830	---
3	747	1210	e990	1290	312	602	421	e350	e400	730	869	---
4	e750	e1200	e1010	1250	e320	e600	475	e300	e350	e730	831	---
5	753	e1200	1030	1180	349	597	501	e310	e380	729	889	---
6	751	e1200	1060	e1200	360	422	423	e330	e400	725	854	---
7	767	e1200	e1080	e1200	299	e320	575	e350	e370	e730	856	---
8	e780	e1200	1100	1200	297	311	e570	e370	e300	e740	841	---
9	e790	e1240	1090	1200	294	383	575	e390	e320	750	845	e1000
10	e800	1280	e1080	e1200	e300	397	418	402	e340	766	850	1030
11	e820	1260	1070	1200	e310	e450	e400	426	341	792	e850	1050
12	e840	e1300	1080	1180	e320	481	383	463	343	e800	e860	1100
13	866	1370	1040	e1220	323	503	378	472	357	e820	e860	1130
14	880	1400	1030	e1260	325	e420	370	466	347	e840	873	1180
15	906	1380	e1030	1290	324	345	e350	501	346	e870	863	1200
16	930	1370	e1030	1270	330	400	e400	516	347	e900	855	e1250
17	950	1350	e1030	e600	338	447	e450	541	e346	936	858	1310
18	e960	1340	e1030	e500	e450	467	e500	560	346	954	868	1290
19	976	e1300	e1070	207	480	488	616	e580	340	949	884	1360
20	e990	1260	1100	e220	558	e500	619	e600	342	928	e900	1370
21	e1010	e1230	1120	e240	352	518	628	620	345	873	913	e1000
22	e1030	1210	1150	269	369	e530	650	631	348	830	e920	e1100
23	1050	1200	1120	e270	417	e380	661	493	350	830	---	e1200
24	1070	e1140	e1140	276	400	e300	663	352	e350	e830	---	e1300
25	1090	1090	e1140	e270	e400	e350	669	344	360	822	---	1440
26	1100	e1070	1160	277	400	368	e420	342	360	834	---	e1450
27	1140	1030	1190	e280	406	369	e300	e350	361	843	---	1450
28	1140	992	1200	e290	543	373	340	e340	397	e850	---	1460
29	e1140	e990	1210	291	---	210	e360	e320	401	e860	---	1470
30	1140	992	e1230	292	---	330	389	e310	447	870	---	e1480
31	e1160	---	e1260	e290	---	375	---	e300	---	870	---	---
MEAN	929	1210	1090	783	363	429	477	421	358	810	865	1260

e Estimated

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	16.0	10.0	8.0	15.0	---	---	21.0	---	27.0	---	---
2	---	15.0	---	8.0	15.0	13.0	17.0	20.0	---	30.0	28.0	---
3	---	13.0	---	10.0	13.0	13.0	18.0	---	---	30.0	27.0	---
4	---	---	---	10.0	---	---	19.0	---	---	---	26.0	---
5	---	---	11.0	9.0	12.0	15.0	20.0	---	---	29.0	---	---
6	---	---	10.0	---	13.0	14.0	17.0	---	---	28.0	---	---
7	---	---	---	---	13.0	---	20.0	---	---	---	---	---
8	---	---	10.0	10.0	13.0	17.0	---	---	---	---	---	---
9	---	---	9.0	11.0	11.0	19.0	17.0	---	---	28.0	---	---
10	---	13.0	---	---	---	20.0	18.0	22.0	---	28.0	---	25.0
11	---	14.0	8.0	11.0	---	---	---	21.0	27.0	28.0	---	26.0
12	---	---	7.0	9.0	---	21.0	18.0	22.0	28.0	---	---	26.0
13	---	18.0	7.0	---	13.0	21.0	17.0	23.0	28.0	---	---	27.0
14	---	20.0	7.0	---	15.0	---	17.0	25.0	28.0	---	29.0	29.0
15	---	18.0	---	11.0	13.0	17.0	---	25.0	29.0	---	29.0	30.0
16	---	15.0	---	14.0	11.0	18.0	---	27.0	29.0	---	30.0	---
17	---	12.0	---	---	11.0	17.0	20.0	25.0	---	25.0	30.0	29.0
18	---	11.0	---	---	---	17.0	---	24.0	30.0	25.0	30.0	30.0
19	---	---	---	15.0	11.0	17.0	18.0	---	28.0	28.0	31.0	28.0
20	---	15.0	5.0	---	14.0	---	19.0	---	28.0	28.0	---	29.0
21	---	---	3.0	---	11.0	15.0	20.0	27.0	30.0	28.0	32.0	28.0
22	---	15.0	3.0	13.0	11.0	---	22.0	27.0	30.0	28.0	---	27.0
23	---	13.0	4.0	---	12.0	---	24.0	25.0	29.0	27.0	---	---
24	---	---	---	13.0	14.0	---	22.0	25.0	---	---	---	---
25	---	13.0	---	---	---	---	22.0	25.0	29.0	28.0	---	25.0
26	---	---	5.0	11.0	14.0	14.0	---	25.0	27.0	29.0	---	---
27	---	17.0	5.0	---	15.0	14.0	---	---	28.0	30.0	---	28.0
28	---	14.0	6.0	---	16.0	14.0	20.0	---	28.0	---	---	26.0
29	---	---	7.0	11.0	---	15.0	---	---	29.0	---	---	26.0
30	---	11.0	---	11.0	---	17.0	23.0	---	29.0	30.0	---	---
31	---	---	---	---	---	17.0	---	---	---	28.0	---	---
MEAN	---	14.5	7.0	11.0	13.0	16.5	19.5	24.0	28.5	28.0	29.0	27.5

TRINITY RIVER BASIN

08064550 RICHLAND-CHAMBERS RESERVOIR NEAR KERENS, TX

LOCATION.--Lat 32°02'25", long 96°12'23", Navarro County, Hydrologic Units 12030108 and 12030109, on upper floor of pumphouse, on left bank of Chambers Creek arm of Richland-Chambers Reservoir, 7.0 mi south of intersection of State Highway 31 and Farm Road 309 in Kerens, and 14.4 mi upstream from dam on Richland Creek.

DRAINAGE AREA.--1,957 mi².

PERIOD OF RECORD.--November 1988 to current year.

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

REMARKS.--The reservoir is formed by a rolled earthfill dam 31,000 ft long. Deliberate impoundment of water began July 14, 1987, and the dam was completed in December 1988. A gated concrete spillway is located near the left end of dam. The spillway 1,155 ft long and contains twenty-four 40- x 29.4-foot radial gates. The low flow outlet works consist of two 3- X 5-foot outlets at elevation 266.0 ft, one 1.5- X 2.5-foot outlet, and one 1- X 1-foot outlet at elevation 285.0 ft. Each of the low flow outlets are controlled by sluice gates. The dam is owned by Tarrant County Water Control and Improvement District No. 1, and was built for municipal and industrial water supply and for recreation. The area and capacity tables were prepared by Freese and Nichols, Consulting Engineers for Tarrant County Water Control and Improvement District No. 1, who provided copies of the tables. Flow from 464 mi² above the dam is controlled by Bardwell and Navarro Mills Lakes. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	330.0	-
Top of gates	317.34	1,290,000
Top of conservation pool	315.0	1,182,000
Crest of spillway	290.0	370,200
Lowest gated outlet	266.0	43,240

COOPERATION.--Capacity table was prepared by Freese and Nichols, Consulting Engineer for Tarrant County Water Control and Improvement District No. 1.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents 1,262,000 acre-ft May 4, 1990 (elevation, 316.74 ft); minimum contents, 233,600 acre-ft Dec. 8, 1988 (elevation, 283.02 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,262,000 acre-ft May 4 (elevation, 316.74 ft); minimum contents, 1,030,000 acre-ft Jan. 16 (elevation, 311.38 ft).

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

311.0	1,012,000	315.0	1,182,000
313.0	1,095,000	317.0	1,274,000

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1070000	1056000	1045000	1032000	1118000	1184000	1206000	1213000	1211000	1182000	1153000	1127000
2	1069000	1055000	1044000	1032000	1136000	1182000	1205000	1213000	1203000	1181000	1153000	1126000
3	1068000	1055000	1044000	1032000	1153000	1181000	1205000	1242000	1198000	1180000	1152000	1125000
4	1068000	1055000	1044000	1032000	1164000	1181000	1203000	1262000	1201000	1179000	1151000	1125000
5	1068000	1054000	1044000	1032000	1167000	1181000	1206000	1248000	1198000	1177000	1154000	1123000
6	1067000	1055000	1042000	1032000	1168000	1181000	1204000	1238000	1196000	1177000	1151000	1123000
7	1067000	1054000	1041000	1032000	1171000	1224000	1207000	1235000	1195000	1176000	1150000	1122000
8	1067000	1053000	1041000	1032000	1176000	1244000	1205000	1230000	1195000	1174000	1150000	1120000
9	1066000	1052000	1041000	1032000	1181000	1235000	1203000	1223000	1195000	1173000	1148000	1121000
10	1065000	1053000	1041000	1032000	1181000	1210000	1202000	1212000	1193000	1172000	1147000	1126000
11	1065000	1052000	1038000	1028000	1182000	1201000	1201000	1202000	1191000	1171000	1147000	1126000
12	1064000	1052000	1039000	1028000	1184000	1196000	1200000	1225000	1190000	1170000	1146000	1125000
13	1063000	1052000	1039000	1028000	1184000	1197000	1201000	1221000	1187000	1166000	1145000	1124000
14	1063000	1052000	1038000	1028000	1186000	1239000	1205000	1213000	1184000	1165000	1144000	1123000
15	1063000	1050000	1036000	1028000	1183000	1236000	1204000	1199000	1183000	1164000	1143000	1123000
16	1061000	1049000	1036000	1028000	1183000	1231000	1198000	1190000	1183000	1163000	1141000	1122000
17	1060000	1048000	1036000	1030000	1183000	1215000	1195000	1186000	1184000	1162000	1141000	1122000
18	1059000	1048000	1035000	1045000	1184000	1209000	1191000	1197000	1185000	1161000	1141000	1120000
19	1058000	1048000	1034000	1053000	1183000	1205000	1190000	1201000	1180000	1161000	1139000	1120000
20	1058000	1048000	1034000	1074000	1182000	1203000	1187000	1203000	1183000	1161000	1139000	1120000
21	1058000	1048000	1032000	1086000	1184000	1200000	1186000	1201000	1182000	1159000	1138000	1118000
22	1056000	1049000	1031000	1090000	1185000	1197000	1187000	1198000	1181000	1157000	1137000	1119000
23	1055000	1049000	1032000	1092000	1182000	1195000	1186000	1195000	1181000	1156000	1136000	1116000
24	1055000	1049000	1032000	1094000	1181000	1195000	1185000	1194000	1182000	1156000	1135000	1115000
25	1055000	1048000	1031000	1098000	1182000	1194000	1185000	1196000	1183000	1155000	1134000	1114000
26	1054000	1048000	1031000	1100000	1183000	1191000	1188000	1198000	1184000	1154000	1133000	1113000
27	1054000	1047000	1031000	1100000	1184000	1192000	1189000	1200000	1186000	1154000	1132000	1112000
28	1054000	1046000	1031000	1102000	1186000	1191000	1189000	1202000	1185000	1153000	1132000	1111000
29	1053000	1046000	1030000	1104000	---	1216000	1221000	1197000	1182000	1151000	1131000	1112000
30	1057000	1046000	1031000	1104000	---	1235000	1217000	1195000	1182000	1150000	1130000	1110000
31	1057000	---	1032000	1106000	---	1227000	---	1206000	---	1150000	1128000	---
MAX	1070000	1056000	1045000	1106000	1186000	1244000	1221000	1262000	1211000	1182000	1154000	1127000
MIN	1053000	1046000	1030000	1028000	1118000	1181000	1185000	1186000	1180000	1150000	1128000	1110000
(†)	312.10	311.83	311.49	313.27	315.08	316.00	315.78	315.53	315.01	314.28	313.78	313.35
(Φ)	-13000	-11000	-14000	+74000	+80000	+41000	-10000	-11000	-24000	-32000	-22000	-18000

CAL YR 1989 MAX 1110000 MIN 236000 (Φ) +795000
WTR YR 1990 MAX 1262000 MIN 1028000 (Φ) +40000

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

08064700 TEHUACANA CREEK NEAR STREETMAN, TX

LOCATION.--Lat 31°50'54", long 96°17'23", Freestone County, Hydrologic Unit 12030201, at downstream side of bridge on U. Highway 75, 2.8 mi southeast of Streetman, 3.1 mi downstream from Chicago, Rock Island, and Pacific Railroad Co. brid 3.8 mi upstream from Caney Creek, and 25 mi upstream from mouth.

DRAINAGE AREA.--142 mi².

PERIOD OF RECORD.--April 1968 to current year.
Water-quality records.--Chemical analyses: February 1968 to September 1985.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 287.58 ft above National Geodetic Vertical Datum of

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

AVERAGE DISCHARGE.--22 years, 82.0 ft³/s (7.84 in/yr), 59,410 acre-ft/yr.
Figures of average discharge for water year 1989, not previously published, are given herein:
--21 years, 78.9 ft³/s (7.55 in/yr), 57,160 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 85,700 ft³/s May 17, 1989 (gage height, 30.20 ft) from rating curve extended above 21,000 ft³/s (gage height, 24.9 ft) and confirmed by indirect computation of peak flow of 48,100 ft³/s gage height, 27.48 ft); no flow at times most years.
Maximum stage since at least 1932, that of May 17, 1989.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in September 1932 reached a stage of about 24 ft, from information by State De of Highways and Public Transporation.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 7	2200	7,800	23.82	May 3	2200	16,600	24.97
Mar. 14	2000	*47,600	*27.48	May 12	1730	4,890	23.16
Mar. 30	0400	8,220	23.89	May 19	0500	4,570	23.00

Minimum discharge, no flow for several days.

WATER YEAR 1989: Peak discharges greater than base discharge of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage Height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 4	1200	72,200	29.25	June 14	1300	8,320	23.16
May 17	1830	*85,700	*30.20				

Minimum discharge, no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.04	.21	.62	5.9	2.1	e9.0	e200	3.2	3.4	.34	.00
2	.00	.01	.22	.36	4.7	2.1	e7.1	e20	2.9	3.8	.38	.00
3	.00	.01	.32	.34	e6.9	1.9	e5.9	5300	3.1	16	1.0	.00
4	.00	.01	.56	.34	e6.2	2.6	e5.0	42000	2.7	8.6	1.0	.00
5	.00	.01	.60	.25	e5.0	e2.5	e4.3	e1610	3.5	7.1	.49	.00
6	.00	.01	.68	.18	e4.1	4.8	e3.7	e65	4.7	5.8	.26	.00
7	.00	.01	.35	.15	3.5	6.5	e3.3	70	24	4.2	.79	.07
8	.00	.00	.78	.11	2.9	4.5	e2.9	107	799	14	.90	.00
9	.00	.00	.88	.06	2.5	3.3	e2.7	23	51	9.8	.45	.00
10	.00	.00	2.3	.03	1.9	2.4	e2.3	18	16	5.5	.37	296
11	.00	.00	3.0	.02	1.7	1.8	e2.2	14	12	3.6	.34	183
12	.00	.01	2.3	.03	1.9	1.3	e200	8.7	20	2.7	.30	17
13	.00	.02	5.3	.03	2.1	1.6	e20	6.8	15	2.0	.26	7.8
14	.00	.02	5.1	.07	1.6	e2.0	e12	393	5280	1.9	.25	5.6
15	.00	.03	2.9	.09	1.5	e1.8	e9.0	43	759	1.7	.19	5.5
16	.00	.06	2.6	.13	5.6	e1.7	e7.0	244	63	1.4	.17	5.0
17	.00	.03	2.0	.08	8.2	e1.6	e6.0	28100	24	1.2	.12	3.8
18	.00	.02	1.6	.09	7.3	e1.5	e5.0	11900	14	1.0	.09	3.1
19	.00	.02	1.1	.08	8.3	e1.5	e4.0	456	11	.86	.06	2.8
20	.00	.03	.70	.11	13	e1.5	e3.3	51	8.4	.83	.05	2.6
21	.00	.02	.12	.26	11	e1.6	e2.9	23	7.1	.82	.04	2.1
22	.00	.02	.11	.08	e7.2	e1.6	e2.7	15	6.0	.76	.04	2.0
23	.00	.01	.03	.08	e4.9	e1.7	e2.2	12	5.3	.81	.03	1.3
24	.00	.01	.02	.05	4.0	e1.6	e2.0	10	4.7	.69	.03	1.3
25	.00	.52	.01	.37	3.7	e1.6	e1.9	8.1	4.7	.60	.02	1.4
26	.02	1.2	.01	.15	3.3	e1.5	e1.8	6.9	4.3	.70	.02	1.2
27	.01	.82	.39	.22	2.9	e1.5	e1.7	6.1	4.2	1.0	.01	1.2
28	.01	.33	.93	.55	2.4	e450	e1.7	5.4	4.0	.87	.01	.56
29	.03	.64	.08	2.4	---	e50	e1.6	4.7	3.7	.50	.01	.69
30	.13	.56	.21	7.0	---	e18	e400	4.1	3.5	.45	.01	.60
31	.07	---	.82	6.8	---	e13	---	3.5	---	.44	.00	---
TOTAL	0.27	4.47	36.23	21.13	134.2	591.1	733.2	90728.3	7164.0	103.03	8.03	544.62
MEAN	.009	.15	1.17	.68	4.79	19.1	24.4	2927	239	3.32	.26	18.2
MAX	.13	1.2	5.3	7.0	13	450	400	42000	5280	16	1.0	296
MIN	.00	.00	.01	.02	1.5	1.3	1.6	3.5	2.7	.44	.00	.00
AC-FT	.5	8.9	72	42	266	1170	1450	180000	14210	204	16	1080
CFSM	.00	.00	.01	.00	.03	.13	.17	20.6	1.68	.02	.00	.13
IN.	.00	.00	.01	.01	.04	.15	.19	23.77	1.88	.03	.00	.14

CAL YR 1988	TOTAL	8976.34	MEAN	24.5	MAX	2850	MIN	.00	AC-FT	17800	CFSM	.17	IN.	2.35
WTR YR 1989	TOTAL	100068.58	MEAN	274	MAX	42000	MIN	.00	AC-FT	198500	CFSM	1.93	IN.	26.22

e Estimated

08064700 TEHUACANA CREEK NEAR STREETMAN, TX--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.82	.03	.02	.34	8.5	5.0	75	19	7.1	.00	.00	.00
2	.45	.02	.02	.45	218	6.2	51	19	7.3	.00	.00	.00
3	.28	.02	.02	.60	37	4.8	37	5450	7.1	.00	.00	.00
4	.24	.02	.05	.65	11	5.1	29	4330	13	.00	.00	.00
5	.21	.02	.11	.70	5.8	5.4	25	300	13	.00	.00	.00
6	.19	.01	.11	.60	4.2	5.4	469	73	5.7	.00	.00	.00
7	.19	.01	.08	.45	3.4	2980	151	45	3.9	.00	.00	.00
8	.17	.01	.06	.35	2.6	3220	49	35	3.1	.00	.01	.00
9	.15	.00	.05	.25	2.5	247	31	29	2.6	.00	.01	.00
10	.11	.00	.03	.20	2.0	49	26	24	2.2	.00	.01	.00
11	.08	.00	.02	.15	1.8	25	22	21	1.9	.00	.01	.00
12	.08	.00	.02	.10	1.9	18	20	2310	1.7	.00	.01	.00
13	.11	.00	.02	.19	1.8	16	18	1380	1.6	.00	.01	.00
14	.11	.00	.02	.26	1.6	13500	70	117	1.3	.00	.01	.00
15	.08	.00	.02	.45	1.6	5710	134	51	1.2	.00	.05	.00
16	.06	.00	.05	.34	1.7	236	38	34	1.1	.00	.08	.00
17	.04	.00	.06	.60	1.8	62	22	28	1.1	.00	.08	.00
18	.03	.00	.06	80	2.0	39	18	156	1.1	.00	.06	.16
19	.02	.00	.19	318	2.1	30	15	2810	.98	.00	.05	.45
20	.02	.00	.17	42	23	23	14	284	.70	.00	.05	.15
21	.01	.05	.15	12	72	20	14	29	.45	.00	.06	.02
22	.01	.11	.11	6.2	360	17	13	15	.08	.00	.02	.03
23	.01	.26	.09	5.0	38	16	14	9.1	.02	.00	.02	.03
24	.02	.34	.08	3.3	12	16	14	6.9	.01	.00	.03	.03
25	.01	.15	.08	2.7	7.5	13	14	5.8	.01	.00	.03	.03
26	.01	.19	.06	2.4	5.7	13	16	4.8	.00	.00	.01	e.03
27	.01	.34	.05	2.1	5.7	13	260	4.4	.00	.00	.01	e.03
28	.01	.11	.06	1.9	6.2	13	553	4.0	.00	.00	.00	e.03
29	.01	.02	.08	2.0	---	1670	83	4.3	.00	.00	.00	e.02
30	.16	.02	.19	2.0	---	4230	32	4.4	.00	.00	.00	e.02
31	.05	---	.26	1.9	---	292	---	4.7	---	.00	.00	---
TOTAL	3.75	1.73	2.39	488.18	841.4	32499.9	2327	17607.4	78.25	0.00	0.62	1.03
MEAN	.12	.058	.077	15.7	30.0	1048	77.6	568	2.61	.000	.020	.034
MAX	.82	.34	.26	318	360	13500	553	5450	13	.00	.08	.45
MIN	.01	.00	.02	.10	1.6	4.8	13	4.0	.00	.00	.00	.00
AC-FT	7.4	3.4	4.7	968	1670	64460	4620	34920	155	.00	1.2	2.0
CFSM	.00	.00	.00	.11	.21	7.38	.55	4.00	.02	.00	.00	.00
IN.	.00	.00	.00	.13	.22	8.51	.61	4.61	.02	.00	.00	.00

CAL YR 1989 TOTAL 100035.48 MEAN 274 MAX 42000 MIN .00 AC-FT 198400 CFSM 1.93 IN. 26.21
WTR YR 1990 TOTAL 53851.65 MEAN 148 MAX 13500 MIN .00 AC-FT 106800 CFSM 1.04 IN. 14.11

e Estimated

08065000 TRINITY RIVER NEAR OAKWOOD, TX

LOCATION.--Lat 31°38'54", long 95°47'21", Anderson County, Hydrologic Unit 12030201, on left bank at downstream side of bridge on U.S. Highways 79 and 84, 1.5 mi upstream from Missouri Pacific Railroad Co. bridge, 6 mi northeast of Oakwood, and at mile 313.4.

DRAINAGE AREA.--12,833 mi².

PERIOD OF RECORD.--October 1923 to September 1924 (monthly discharge only), October 1924 to current year. Records of January 1905 to September 1923, published in WSP 850 and 878, have been found unreliable and should not be used. Gage-height records collected in this vicinity since 1904 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 1442: 1934. See also PERIOD OF RECORD. WSP 1922: Drainage area. WRD TX-81-1: 1980 (M,m).

GAGE.--Water-stage recorder. Datum of gage is 175.06 ft above National Geodetic Vertical Datum of 1929. Prior to July 1932, nonrecording gage at site 1.5 mi downstream at datum 1.06 ft lower. July 15, 1932, to Oct. 7, 1934, non-recording gage at present site and datum.

REMARKS.--Records good. Twenty-one major reservoirs with a capacity of 4,200,000 acre-ft, of which 1,362,000 acre-ft is for flood control, partly regulate the flow. Streamflow is affected at times by discharge from the flood-detention pools of 252 floodwater-retarding structures with a combined detention capacity of 183,300 acre-ft. These structures control runoff from 614 mi² in the Richland, Chambers and Tehuacana Creeks drainage basins. The Industrial Generating Co., Fairfield, makes a minor diversion from the river at a site about 34 mi upstream. The diversion to Big Brown Lake is used to maintain the normal pool elevation for that lake. Gage-height telemeter at station.

AVERAGE DISCHARGE.--30 years (water years 1924-53) unregulated, 5,045 ft³/s (3,655,000 acre-ft/yr); 37 years (water years 1954-90) regulated, 4,762 ft³/s (3,450,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 153,000 ft³/s Apr. 29, 1942 (gage height, 51.64 ft); minimum observed, 28 ft³/s Aug. 24, 1925.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1890 reached a stage of 53 ft (discharge about 180,000 ft³/s) and was the highest since that date, from information in local newspapers. Flood of June 4, 1908, reached a stage of 52.2 ft, present site and datum, from information by the National Weather Service (discharge, about 164,000 ft³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 107,000 ft³/s May 7 at 1200 hours (gage height, 49.61 ft); minimum daily, 686 ft³/s Oct. 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	821	843	824	1040	2110	3460	17800	15900	25200	8800	5180	900
2	795	2500	828	1020	3200	4350	25300	16600	25400	8570	5130	923
3	780	3090	816	1170	8640	5050	38300	18900	25700	8320	5190	936
4	774	2040	788	1280	11400	4730	36200	23200	26800	8030	5200	881
5	779	1260	776	1120	13000	3390	31400	46400	27000	7740	5270	795
6	763	1000	775	1020	14200	2210	28300	92200	26600	7520	5690	806
7	779	891	793	1280	15600	2380	25900	106000	26000	7420	6450	804
8	801	838	801	1350	17000	8840	23300	101000	25300	7370	7340	807
9	787	816	796	1130	18500	13200	20400	99700	24600	7350	8010	832
10	784	817	778	1000	19600	15900	17500	98800	23900	7360	8340	1250
11	776	813	777	901	17000	19500	15600	95800	23100	7160	8050	1980
12	741	879	790	898	11000	26700	14400	95500	22300	5590	6980	2320
13	728	892	796	858	6600	32800	14000	96200	21400	3150	5900	2130
14	720	815	794	841	4950	31600	14100	92200	20700	1870	5300	2200
15	709	770	803	835	4500	28600	14500	84000	20000	1850	4860	1960
16	726	747	804	845	4980	27300	15100	75200	19500	2350	4350	1610
17	740	746	787	876	4690	35200	15700	67300	18900	2330	4000	1400
18	704	743	777	1480	4140	43500	16200	56600	18200	2070	3760	1300
19	692	742	796	2380	3780	42000	16800	50100	17500	1830	3460	1190
20	686	756	827	5400	3580	37800	17500	48100	16800	1960	3140	1050
21	731	755	825	8820	3500	33700	18700	45900	16200	3190	2770	1090
22	819	777	816	10900	4980	30900	20400	42600	15500	4230	2560	1180
23	796	815	813	12600	7120	28500	22200	38700	14500	4840	2470	1260
24	750	816	823	13800	7530	26200	23700	35100	13100	5110	2270	1270
25	723	1070	825	15000	7640	23500	24100	32600	11500	5290	1940	1310
26	703	1400	890	16000	5660	20200	22800	30600	10400	5550	1600	1220
27	706	1150	927	15500	3680	16900	21100	28900	9840	5900	1250	1090
28	706	903	987	9040	3130	14900	18900	27800	9480	6080	1140	1010
29	698	849	1070	3820	---	14400	17100	26500	9240	5980	1050	962
30	733	840	1130	3740	---	15600	16200	25000	9040	5650	963	921
31	788	---	1100	2990	---	16000	---	24100	---	5340	918	---
TOTAL	23238	31373	26132	138934	231710	629310	623500	1737500	573700	165800	130531	37387
MEAN	750	1046	843	4482	8275	20300	20780	56050	19120	5348	4211	1246
MAX	821	3090	1130	16000	19600	43500	38300	106000	27000	8800	8340	2320
MIN	686	742	775	835	2110	2210	14000	15900	9040	1830	918	795
AC-FT	46090	62230	51830	275600	459600	1248000	1237000	3446000	1138000	328900	258900	74160

CAL YR 1989 TOTAL 2757213 MEAN 7554 MAX 63800 MIN 686 AC-FT 5469000
WTR YR 1990 TOTAL 4349115 MEAN 11920 MAX 106000 MIN 686 AC-FT 8626000

08065200 UPPER KEECHI CREEK NEAR OAKWOOD, TX

LOCATION.--Lat 31°34'11", long 95°53'17", Leon County, Hydrologic Unit 12030201, at right bank at downstream side of bridge on U.S. Highway 79, 1.9 mi upstream from Missouri Pacific Railroad Co. bridge, 2 mi southwest of Oakwood, 11 mi upstream from Buffalo Creek, and 21 mi upstream from mouth.

DRAINAGE AREA.--150 mi².

PERIOD OF RECORD.--April 1962 to current year.
Water-quality records: Chemical analyses: June 1962 to April 1964, November 1967 to September 1975.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 240.11 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair, including those days of estimated daily discharges. No known diversions or regulation above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--28 years (water years 1963-90), 70.8 ft³/s (6.41 in/yr), 51,290 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,000 ft³/s May 16, 1965 (gage height, 14.91 ft), and Apr. 25, 1966, from rating curve extended above 5,800 ft³/s; maximum gage height, 15.46 ft Oct. 31, 1974; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1900, about 21 ft in 1932, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 4	1000	*3,890	*13.73	No other peak greater than base discharge.			

Minimum discharge, 0.02 ft³/s Sept. 1-8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.16	.43	1.8	9.5	21	180	597	33	346	e.93	.55	.02
2	.16	.29	1.6	6.7	39	132	108	129	402	e.93	.55	.02
3	.13	.24	1.2	5.2	39	58	43	1650	374	e.93	.51	.02
4	.12	.24	1.1	7.1	33	39	33	2770	1020	e.93	.40	.02
5	.10	.27	1.3	8.2	26	32	28	1410	778	e.93	.34	.02
6	.11	.36	1.7	7.3	21	28	37	749	368	e.93	.53	.02
7	.17	.40	2.0	6.5	18	34	42	173	70	e.87	.80	.02
8	.23	.46	2.1	5.9	16	143	39	77	34	e.87	1.0	.02
9	.24	.37	2.0	5.5	95	1040	30	59	20	e.87	.99	.06
10	.24	.42	2.0	4.4	281	546	27	47	12	e.80	.85	16
11	.24	.47	1.9	2.8	123	129	23	39	8.4	e.75	.63	99
12	.23	.49	1.8	2.5	47	49	21	229	6.0	.69	.51	74
13	.22	.67	1.9	2.2	28	39	19	1030	4.1	.75	.36	28
14	.22	.69	1.9	2.1	24	45	24	1180	3.2	.75	.24	13
15	.20	.91	2.0	2.1	22	117	38	615	2.8	.75	.23	10
16	.22	1.2	1.9	2.1	21	212	50	102	2.3	.75	.18	7.5
17	.24	1.2	2.0	3.8	19	216	32	83	2.0	1.1	.15	6.3
18	.22	1.4	2.1	117	18	52	24	65	1.8	2.1	.11	6.0
19	.25	1.4	2.3	196	23	36	21	142	1.5	2.2	.09	6.2
20	.24	1.5	2.0	91	26	28	19	196	1.4	2.2	.08	6.0
21	.25	1.5	2.0	41	56	25	18	96	1.2	2.2	.07	5.8
22	.26	4.2	2.0	26	187	23	18	49	1.1	1.8	.08	5.3
23	.27	8.0	1.6	21	190	22	17	38	1.0	1.5	.08	24
24	.28	6.1	1.3	19	108	21	65	32	1.0	2.3	.07	31
25	.28	3.9	1.2	18	40	20	166	29	1.0	26	.07	9.7
26	.29	3.5	1.4	16	31	20	94	26	1.5	6.6	.06	6.4
27	.33	3.5	1.6	15	26	20	190	24	1.9	2.2	.05	5.2
28	.37	3.4	1.9	15	77	20	182	34	e1.1	1.3	.05	4.5
29	.45	2.5	2.5	22	---	65	117	34	e1.0	.84	.03	4.2
30	1.3	2.0	3.4	22	---	217	54	24	e1.0	.58	.03	3.8
31	1.5	---	8.8	18	---	554	---	56	---	.55	.03	---
TOTAL	9.52	52.01	64.3	720.9	1655	4162	2176	11220	3469.3	66.90	9.72	372.12
MEAN	.31	1.73	2.07	23.3	59.1	134	72.5	362	116	2.16	.31	12.4
MAX	1.5	8.0	8.8	196	281	1040	597	2770	1020	26	1.0	99
MIN	.10	.24	1.1	2.1	16	20	17	24	1.0	.55	.03	.02
AC-FT	19	103	128	1430	3280	8260	4320	22250	6880	133	19	738
CFSM	.00	.01	.01	.16	.39	.90	.48	2.41	.77	.01	.00	.08
IN.	.00	.01	.02	.18	.41	1.03	.54	2.78	.86	.02	.00	.09

CAL YR 1989 TOTAL 16331.01 MEAN 44.7 MAX 4480 MIN .08 AC-FT 32390 CFSM .30 IN. 4.05
WTR YR 1990 TOTAL 23977.77 MEAN 65.7 MAX 2770 MIN .02 AC-FT 47560 CFSM .44 IN. 5.95

e Estimated

08065350 TRINITY RIVER NEAR CROCKETT, TX
(National stream-quality accounting network)

LOCATION.--Lat 31°20'18", long 95°39'22", Houston-Leon County line, Hydrologic Unit 12030201, on left bank at an abandoned bridge abutment near left end of an abandoned lock and dam, 1,000 ft upstream from State Highway 7, 6.9 mi downstream from Upper Keechi Creek, 11.9 mi west of Crockett, and at mile 265.4.

DRAINAGE AREA.--13,911 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 141.15 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 13, 1983, water-stage recorder at site 1,000 ft downstream at datum 4.56 ft lower. Gage-height telemeter at station.

REMARKS.-- Records fair. For statement regarding regulation by upstream reservoirs, see station 08065000. Flow from 44 mi² of Elkhart Creek basin is affected by storage in Houston County Lake near Crockett (capacity 19,500 acre-ft). There are many diversions above station for irrigation, municipal, and industrial uses.

AVERAGE DISCHARGE.--26 years (water years 1965-90), 6,038 ft³/s (4,375,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 109,000 ft³/s May 10, 1990 (gage height, 48.54 ft); minimum, 275 ft³/s Aug. 13, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1900, 56.1 ft Apr. 30 or May 1, 1942, at former site and datum from information by Texas Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 109,000 ft³/s May 10, at 1400 hours (gage height, 48.54 ft); minimum daily, 978 ft³/s Oct. 28-29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1330	1180	1190	1620	3460	4670	19300	20300	29400	11500	6210	1200
2	1180	1430	1170	1540	3830	5120	20700	19800	28400	11200	6170	1170
3	1140	3060	1170	1530	6590	6070	24400	20400	28300	10900	6110	1210
4	1120	3040	1140	1710	12100	6490	28400	22000	28500	10600	6090	1240
5	1110	2160	1110	1780	14700	5540	30500	24900	28700	10200	6050	1160
6	1120	1590	1100	1630	16000	3830	30600	29900	28700	9760	6230	1070
7	1150	1350	1110	1570	17200	2870	29800	42200	28500	9510	6880	1070
8	1160	1230	1140	1800	18500	5060	28400	79600	28100	9390	7950	1050
9	1170	1160	1150	1820	19400	12500	26600	103000	27400	9340	9060	1070
10	1150	1140	1180	1610	20800	16300	24100	109000	26500	9300	9810	2180
11	1140	1140	1170	1460	21400	18800	21400	109000	25800	9220	10000	3430
12	1110	1170	1160	1340	19400	21300	19000	109000	25100	8490	9410	3060
13	1080	1210	1180	1300	13100	24000	17900	108000	24500	6010	7900	2890
14	1060	1210	1190	1250	8010	26500	17500	106000	23800	3450	6660	2740
15	1050	1130	1200	1230	5980	28000	17600	105000	23100	2530	5990	2650
16	1060	1070	1210	1220	5640	28400	18000	97600	22600	2360	5430	2330
17	1070	1050	1210	1300	5850	28000	18300	90800	22000	2760	4920	2000
18	1060	1060	1190	2840	5370	28600	18900	82800	22400	2750	4480	1800
19	1020	1060	1110	5230	4750	31400	19600	76300	21000	2450	4150	1720
20	994	1060	1150	5040	4380	34600	20200	69000	20500	2220	3780	1590
21	988	1090	1190	8620	4410	36200	20600	64200	19700	2620	3400	1450
22	1040	1150	1180	12000	5660	37000	21400	59700	18500	3960	3080	1530
23	1120	1230	1160	14300	8170	35700	22200	55500	17300	5180	2900	1620
24	1090	1250	1160	15700	9190	33700	23200	51400	15800	5800	2790	1690
25	1040	1250	1170	16700	9790	30500	24300	46300	14400	6080	2560	1730
26	1000	1600	1190	17800	9120	28000	25300	43300	13600	6320	2240	1770
27	983	1800	1260	18500	6200	25200	25400	40700	12900	6800	1900	1650
28	978	1550	1310	17000	4190	21700	24400	38500	12400	7170	1610	1500
29	978	1280	1400	9480	---	18500	23000	36200	12100	7210	1490	1370
30	1030	1200	1540	4580	---	18500	21400	33700	11800	6940	1360	1310
31	1110	---	1630	4350	---	18900	---	30900	---	6480	1260	---
TOTAL	33631	41900	37420	177850	283190	641950	682400	1925000	661800	208500	157870	52250
MEAN	1085	1397	1207	5737	10110	20710	22750	62100	22060	6726	5093	1742
MAX	1330	3060	1630	18500	21400	37000	30600	109000	29400	11500	10000	3430
MIN	978	1050	1100	1220	3460	2870	17500	19800	11800	2220	1260	1050
AC-FT	66710	83110	74220	352800	561700	1273000	1354000	3818000	1313000	413600	313100	103600

CAL YR 1989 TOTAL 3134961 MEAN 8589 MAX 53300 MIN 978 AC-FT 6218000
WTR YR 1990 TOTAL 4903761 MEAN 13430 MAX 109000 MIN 978 AC-FT 9727000

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: February 1964 to current year. Chemical and biochemical analyses: February 1968 to current year. Pesticide analyses: November 1971 to July 1981. Sediment analyses: November 1972 to September 1977.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: February 1964 to current year.
pH: March 1975 to current year.
WATER TEMPERATURE: February 1964 to September 1971, March 1975 to current year.
DISSOLVED OXYGEN: March 1975 to current year.
SUSPENDED-SEDIMENT DISCHARGE: July 1972 to September 1977.

INSTRUMENTATION.--Since March 1975, a four-parameter water-quality monitor continuously records specific conductance, pH, water temperature, and dissolved oxygen at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 2,370 microsiemens Sept. 22, 1964; minimum, 96 microsiemens Mar. 29, 1989.
pH: Maximum, 9.6 units Aug. 11, 12, 1981; minimum, 5.9 units Aug. 12, 1977.
WATER TEMPERATURE (1975-current year): Maximum, 37.0°C July 4, 1970, Sept. 4, 1978; minimum, 1.0°C Jan. 17, 1978, Nov. 24, 1984.
DISSOLVED OXYGEN: Maximum, 19.3 mg/L Feb. 10, 1981; minimum, 0.0 mg/L Apr. 20, 1976.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 743 microsiemens Oct. 19; minimum, 221 microsiemens Mar. 18, 19.
pH: Maximum, 8.2 units Dec. 10; minimum, 7.2 units on several days in May and September.
WATER TEMPERATURE: Maximum, 33.0°C Aug.30; minimum, 2.0°C Dec. 24, 25.
DISSOLVED OXYGEN: Maximum, 13.4 mg/L Dec. 27; minimum, 4.7 mg/L May 22.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
NOV												
13...	1452	1220	512	7.5	19.0	8.9	96	1.6	160	36	54	4.9
JAN												
24...	1423	15800	250	7.3	13.0	8.4	81	2.7	91	11	32	2.7
APR												
05...	1500	29900	298	7.2	18.5	8.0	86	1.8	120	21	41	4.0
JUL												
17...	0855	2710	406	7.4	26.5	6.1	76	1.2	150	12	53	4.3
AUG												
03...	0710	6100	352	7.5	29.0	6.3	82	1.1	120	11	43	3.9
SEP												
04...	0931	1250	553	7.6	29.0	6.9	89	1.2	160	27	57	4.8

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
NOV												
13...	43	2	6.0	120	59	45	0.50	8.0	293	3.56	0.040	3.60
JAN												
24...	13	0.6	4.4	80	21	11	0.20	6.7	139	0.530	0.170	0.700
APR												
05...	15	0.6	4.7	98	22	9.5	0.20	5.5	161	0.470	0.030	0.500
JUL												
17...	23	0.8	4.1	140	29	21	0.30	7.0	226	1.21	0.090	1.30
AUG												
03...	22	0.9	4.7	110	23	19	0.50	6.9	191	1.46	0.040	1.50
SEP												
04...	45	2	4.2	130	46	45	0.90	8.2	292	4.06	0.040	4.10

DATE	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)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
NOV												
13...	0.060	0.94	1.0	1.00	3	53	<0.5	<1.0	<5	<3	<10	<3
JAN												
24...	0.190	0.81	1.0	0.400	--	--	--	--	--	--	--	--
APR												
05...	0.030	0.67	0.70	0.150	2	45	<0.5	<1.0	<5	<3	<10	68
JUL												
17...	0.080	0.42	0.50	0.210	2	68	<0.5	<1.0	<5	<3	<10	20
AUG												
03...	0.040	0.66	0.70	0.460	3	51	<0.5	3.0	<5	<3	<10	48
SEP												
04...	0.010	0.79	0.80	0.670	--	--	--	--	--	--	--	--

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued
(National stream-quality accounting network)

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 13...	<10	11	4	<0.1	<10	<10	<1	2.0	440	6	10
JAN 24...	--	--	--	--	--	--	--	--	--	--	--
APR 05...	<10	6	6	<0.1	<10	<10	<1	<1.0	280	<6	26
JUL 17...	<10	9	10	<0.1	<10	<10	<1	<1.0	390	<6	6
AUG 03...	<10	5	6	0.1	<10	<10	<1	<1.0	290	<6	12
SEP 04...	--	--	--	--	--	--	--	--	--	--	--

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1989	33631	664	371	33700	71	6410	79	7160	160
NOV.	1989	41900	620	348	39400	63	7080	73	8280	160
DEC.	1989	37420	669	374	37800	71	7130	79	8030	160
JAN.	1990	177850	330	192	92000	23	11000	37	17900	110
FEB.	1990	283190	318	186	142000	20	15300	36	27300	110
MAR.	1990	641950	298	175	303000	18	31200	33	57800	110
APR.	1990	682400	317	185	341000	20	36200	36	65500	110
MAY	1990	1925000	289	170	881000	17	87800	32	167500	110
JUNE	1990	661800	313	183	327000	19	34400	35	62700	110
JULY	1990	208500	355	207	116000	24	13500	40	22600	120
AUG.	1990	157870	353	206	87600	24	10000	40	17000	120
SEPT	1990	52250	530	301	42500	47	6660	62	8690	150
TOTAL		4903761	**	**	2444000	**	267000	**	470000	**
WTD.AVG.		13430	316	185	**	20	**	36	**	110

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued
(National stream-quality accounting network)

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	446	441	443	693	681	687	696	688	691	661	634	642
2	461	445	452	738	686	718	693	677	686	658	637	647
3	490	461	474	733	703	716	681	651	668	634	613	628
4	523	489	503	711	684	693	656	633	649	618	597	609
5	574	526	550	698	485	635	630	600	617	603	583	592
6	587	575	580	470	426	436	600	589	594	586	568	577
7	593	583	588	442	428	436	641	599	618	568	558	562
8	644	584	607	442	420	427	667	642	658	590	562	574
9	693	646	669	477	441	459	668	656	660	601	587	591
10	708	695	700	491	477	484	660	644	650	606	598	602
11	716	707	711	496	491	494	659	645	652	606	580	593
12	720	702	706	495	489	492	668	656	663	592	580	587
13	736	723	731	520	496	505	678	664	671	595	587	590
14	733	728	731	571	521	546	684	674	680	589	583	586
15	736	721	729	604	573	588	694	678	684	604	589	597
16	722	714	718	641	604	622	697	688	692	596	564	578
17	737	721	729	665	644	659	694	685	689	568	559	564
18	741	734	737	677	665	670	689	678	683	557	351	446
19	743	721	734	683	677	680	689	677	682	342	279	308
20	721	713	716	682	678	680	684	675	679	414	290	313
21	726	715	721	687	679	682	687	678	681	579	404	497
22	723	700	712	691	655	679	685	679	682	380	232	280
23	720	711	716	652	609	629	707	686	693	234	223	226
24	725	713	717	643	615	625	697	692	694	240	222	230
25	731	721	724	687	644	668	692	673	684	257	242	250
26	730	724	727	693	665	679	675	668	671	263	258	261
27	727	715	721	689	671	677	691	671	682	269	262	265
28	732	714	722	696	672	686	686	675	682	279	269	273
29	731	719	724	689	679	683	703	676	690	318	279	293
30	720	705	712	693	683	688	676	648	662	366	320	340
31	712	689	704	---	---	---	657	643	650	434	367	394
MONTH	743	441	668	738	420	611	707	589	669	661	222	468
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	443	274	361	414	377	404	322	246	261	339	312	324
2	294	262	278	373	344	357	256	247	253	311	309	310
3	504	295	385	416	378	403	270	258	264	310	305	307
4	512	237	302	409	330	349	278	268	273	309	302	305
5	267	232	249	434	386	401	293	278	285	310	268	286
6	247	232	238	467	438	454	310	293	303	275	268	271
7	266	249	258	460	444	452	331	311	321	268	248	255
8	279	266	272	459	349	432	345	330	338	250	244	247
9	290	278	285	324	250	274	344	327	334	251	247	249
10	295	288	290	253	226	243	353	342	348	262	251	255
11	314	289	298	251	243	247	359	331	345	273	263	268
12	338	296	321	271	251	259	359	330	348	277	272	274
13	384	296	323	272	269	270	360	340	349	290	277	283
14	388	350	367	276	269	272	341	311	326	294	290	292
15	430	363	399	285	273	278	317	309	312	294	287	290
16	441	397	420	311	285	301	322	316	320	288	280	283
17	397	372	384	304	241	277	329	320	325	287	280	282
18	390	377	385	239	221	225	321	301	315	295	287	291
19	400	380	391	236	221	227	300	283	292	304	296	299
20	427	379	396	256	236	247	282	279	280	309	304	306
21	438	379	416	276	257	265	287	278	283	309	304	306
22	393	348	369	293	274	284	298	287	292	304	301	302
23	360	340	350	310	294	303	319	300	307	308	302	304
24	381	285	345	330	312	321	342	320	329	312	304	307
25	374	287	339	344	330	338	354	340	347	321	312	316
26	409	355	377	352	343	348	360	350	355	328	321	325
27	388	348	370	358	348	353	354	348	351	333	328	330
28	409	387	394	362	352	357	354	352	353	334	331	333
29	---	---	---	366	359	362	357	327	347	338	332	334
30	---	---	---	366	325	355	357	331	346	340	333	335
31	---	---	---	348	323	337	---	---	---	338	325	333
MONTH	512	232	341	467	221	322	360	246	317	340	244	297

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued
(National stream-quality accounting network)

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	330	281	312	341	322	329	---	---	e342	501	484	489
2	293	276	282	337	320	327	345	337	339	531	504	518
3	300	278	284	338	323	327	348	339	344	549	532	540
4	293	270	274	338	322	327	349	339	344	562	549	554
5	286	269	274	345	325	332	351	340	346	574	561	564
6	290	275	279	342	328	332	350	338	345	619	575	595
7	297	280	283	338	325	329	346	333	340	670	626	650
8	308	285	294	338	323	327	368	340	357	674	665	670
9	319	299	307	338	322	326	338	321	330	677	656	671
10	329	310	317	336	320	324	337	301	315	680	472	620
11	329	320	324	349	319	328	317	301	309	450	370	406
12	---	---	e326	349	333	337	324	310	316	455	369	406
13	---	---	e327	356	331	339	339	324	331	472	456	463
14	329	327	329	383	347	361	345	336	339	470	442	457
15	330	328	329	397	370	378	349	341	345	517	459	496
16	331	328	329	407	382	393	352	343	348	540	499	526
17	334	330	332	413	396	403	358	345	354	552	527	536
18	337	333	335	453	406	425	377	353	364	560	552	557
19	340	335	337	578	455	516	385	375	378	555	528	537
20	338	333	336	577	497	542	388	382	384	570	540	557
21	334	328	332	517	498	505	394	389	391	567	542	559
22	331	327	329	504	477	493	406	391	399	538	492	507
23	332	328	330	575	497	537	419	400	411	529	514	523
24	330	326	328	474	365	394	427	417	421	566	531	543
25	332	327	329	397	351	367	445	427	437	575	568	572
26	341	331	337	361	342	351	453	445	449	574	542	563
27	338	329	333	353	335	343	457	450	452	553	537	543
28	335	323	329	373	335	343	461	454	458	602	555	575
29	337	322	326	380	352	365	472	456	461	621	607	611
30	333	321	324	357	336	348	475	466	469	633	602	611
31	---	---	---	---	---	e345	485	474	478	---	---	---
MONTH	341	269	317	578	319	377	485	301	377	680	369	547

e Estimated

PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.6	7.5	7.6	7.8	7.7	7.7	7.7	7.7	7.7	7.9	7.8	7.9
2	7.6	7.5	7.6	7.8	7.7	7.7	7.7	7.7	7.7	7.9	7.8	7.8
3	7.6	7.6	7.6	7.7	7.6	7.7	7.8	7.7	7.7	7.8	7.8	7.8
4	7.6	7.6	7.6	7.6	7.5	7.6	7.8	7.7	7.8	7.9	7.8	7.8
5	7.7	7.6	7.6	7.5	7.5	7.5	8.0	7.7	7.9	7.9	7.8	7.8
6	7.7	7.6	7.6	7.5	7.4	7.5	8.1	7.9	8.0	7.8	7.8	7.8
7	7.6	7.6	7.6	7.5	7.5	7.5	8.0	7.9	7.9	7.8	7.8	7.8
8	7.7	7.6	7.7	7.6	7.5	7.5	7.9	7.8	7.9	7.8	7.8	7.8
9	7.7	7.6	7.7	7.6	7.5	7.6	8.1	7.8	8.0	7.8	7.8	7.8
10	7.7	7.6	7.7	7.6	7.5	7.6	8.2	8.0	8.1	7.8	7.7	7.8
11	7.7	7.6	7.7	7.6	7.5	7.6	8.1	7.9	8.0	7.9	7.7	7.8
12	7.7	7.6	7.7	7.6	7.6	7.6	8.1	7.9	8.0	7.9	7.8	7.8
13	7.7	7.6	7.7	7.7	7.6	7.6	8.0	7.9	7.9	7.9	7.7	7.8
14	7.7	7.6	7.7	7.7	7.6	7.6	7.9	7.8	7.9	7.9	7.8	7.8
15	7.7	7.6	7.7	7.7	7.6	7.7	8.0	7.9	7.9	7.9	7.8	7.8
16	7.8	7.6	7.7	7.8	7.7	7.7	8.1	7.9	8.0	7.8	7.8	7.8
17	7.8	7.7	7.7	7.7	7.7	7.7	8.0	7.9	7.9	8.0	7.8	7.9
18	7.8	7.7	7.8	7.7	7.7	7.7	8.0	7.9	7.9	7.8	7.4	7.6
19	7.9	7.8	7.8	7.8	7.7	7.7	8.0	7.9	7.9	7.5	7.4	7.5
20	7.9	7.8	7.8	7.8	7.7	7.7	8.0	7.9	8.0	7.5	7.3	7.4
21	7.9	7.8	7.8	7.8	7.7	7.8	8.1	7.9	8.0	7.5	7.4	7.4
22	7.9	7.8	7.8	7.8	7.7	7.7	8.1	8.0	8.0	7.7	7.6	7.7
23	7.9	7.8	7.8	7.7	7.7	7.7	8.1	8.0	8.0	7.8	7.7	7.7
24	7.9	7.8	7.8	7.7	7.7	7.7	8.0	7.9	8.0	7.7	7.7	7.7
25	7.9	7.8	7.8	7.7	7.6	7.7	7.9	7.9	7.9	7.7	7.6	7.7
26	7.9	7.7	7.8	7.8	7.6	7.7	8.0	7.9	7.9	7.6	7.6	7.6
27	7.9	7.7	7.8	7.8	7.7	7.8	8.1	8.0	8.0	7.6	7.6	7.6
28	7.9	7.7	7.8	7.8	7.7	7.7	8.0	8.0	8.0	7.6	7.6	7.6
29	7.8	7.8	7.8	7.8	7.7	7.8	8.1	8.0	8.1	7.6	7.6	7.6
30	7.8	7.7	7.7	7.7	7.7	7.7	8.0	7.9	8.0	7.6	7.6	7.6
31	7.8	7.7	7.7	---	---	---	8.0	7.9	7.9	7.7	7.6	7.7
MONTH	7.9	7.5	7.7	7.8	7.4	7.7	8.2	7.7	7.9	8.0	7.3	7.7

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued
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PH (STANDARD UNITS), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.8	7.7	7.7	7.6	7.5	7.5	7.7	7.6	7.7	7.6	7.5	7.5
2	7.7	7.6	7.7	7.6	7.5	7.5	7.7	7.6	7.6	7.5	7.5	7.5
3	7.7	7.5	7.6	7.7	7.6	7.6	7.5	7.5	7.5	7.5	7.5	7.5
4	7.8	7.6	7.8	7.7	7.6	7.7	7.5	7.5	7.5	7.5	7.4	7.5
5	7.8	7.8	7.8	7.8	7.7	7.7	7.6	7.5	7.6	7.4	7.3	7.4
6	7.8	7.7	7.7	7.7	7.7	7.7	7.6	7.5	7.6	7.4	7.3	7.4
7	7.7	7.6	7.7	7.7	7.6	7.6	7.6	7.5	7.6	7.3	7.2	7.3
8	7.7	7.6	7.6	7.7	7.6	7.6	7.6	7.6	7.6	7.3	7.2	7.3
9	7.6	7.6	7.6	7.7	7.6	7.7	7.6	7.6	7.6	7.3	7.3	7.3
10	7.6	7.5	7.6	7.7	7.6	7.7	7.6	7.6	7.6	7.3	7.3	7.3
11	7.5	7.5	7.5	7.6	7.5	7.6	7.6	7.6	7.6	7.3	7.3	7.3
12	7.5	7.5	7.5	7.5	7.4	7.5	7.7	7.6	7.6	7.3	7.3	7.3
13	7.6	7.5	7.5	7.4	7.4	7.4	7.7	7.7	7.7	7.3	7.2	7.3
14	7.6	7.6	7.6	7.4	7.4	7.4	7.7	7.6	7.7	7.3	7.2	7.3
15	7.7	7.6	7.7	7.4	7.4	7.4	7.7	7.6	7.7	7.3	7.3	7.3
16	7.7	7.6	7.7	7.4	7.4	7.4	7.7	7.7	7.7	7.3	7.2	7.3
17	7.8	7.7	7.7	7.4	7.4	7.4	7.7	7.6	7.7	7.3	7.3	7.3
18	7.8	7.8	7.8	7.5	7.4	7.4	7.7	7.6	7.7	7.3	7.3	7.3
19	7.8	7.7	7.8	7.4	7.4	7.4	7.7	7.6	7.6	7.3	7.3	7.3
20	7.8	7.7	7.8	7.4	7.4	7.4	7.6	7.6	7.6	7.3	7.3	7.3
21	7.7	7.6	7.7	7.5	7.4	7.4	7.6	7.6	7.6	7.3	7.3	7.3
22	7.6	7.5	7.6	7.5	7.4	7.5	7.6	7.6	7.6	7.3	7.3	7.3
23	7.7	7.5	7.6	7.5	7.5	7.5	7.6	7.6	7.6	7.4	7.3	7.4
24	7.8	7.7	7.7	7.5	7.5	7.5	7.6	7.6	7.6	7.4	7.3	7.4
25	7.8	7.7	7.7	7.5	7.5	7.5	7.6	7.5	7.5	7.4	7.4	7.4
26	7.8	7.7	7.7	7.6	7.5	7.5	7.5	7.5	7.5	7.4	7.4	7.4
27	7.7	7.6	7.6	7.6	7.5	7.6	7.5	7.4	7.5	7.5	7.4	7.4
28	7.6	7.6	7.6	7.7	7.6	7.6	7.5	7.5	7.5	7.5	7.4	7.4
29	---	---	---	7.7	7.7	7.7	7.5	7.5	7.5	7.4	7.4	7.4
30	---	---	---	7.7	7.6	7.6	7.6	7.5	7.5	7.5	7.4	7.4
31	---	---	---	7.7	7.6	7.6	---	---	---	7.5	7.4	7.4
MONTH	7.8	7.5	7.7	7.8	7.4	7.5	7.7	7.4	7.6	7.6	7.2	7.4
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	7.4	---	---	---	7.7	7.5	7.6
2	7.4	7.3	7.3	7.5	7.4	7.4	7.6	7.5	7.5	7.7	7.6	7.6
3	7.5	7.3	7.4	7.5	7.4	7.4	7.6	7.5	7.6	7.8	7.6	7.7
4	7.5	7.3	7.4	7.6	7.4	7.5	7.6	7.6	7.6	7.8	7.6	7.7
5	7.5	7.3	7.4	7.6	7.4	7.5	7.6	7.6	7.6	7.8	7.6	7.7
6	7.5	7.4	7.4	7.6	7.5	7.5	7.6	7.6	7.6	7.8	7.6	7.7
7	7.5	7.4	7.4	7.5	7.5	7.5	7.6	7.6	7.6	7.8	7.6	7.7
8	7.5	7.4	7.4	7.6	7.5	7.5	7.6	7.5	7.6	7.8	7.7	7.7
9	7.5	7.4	7.5	7.6	7.5	7.5	7.5	7.4	7.5	7.7	7.6	7.7
10	7.6	7.4	7.5	7.6	7.5	7.5	7.4	7.4	7.4	7.7	7.3	7.6
11	7.5	7.4	7.5	7.6	7.5	7.5	7.4	7.4	7.4	7.3	7.3	7.3
12	---	---	---	7.6	7.5	7.5	7.5	7.4	7.4	7.3	7.2	7.3
13	---	---	---	7.6	7.5	7.5	7.5	7.4	7.5	7.3	7.2	7.3
14	7.5	7.5	7.5	7.5	7.3	7.4	7.5	7.5	7.5	7.3	7.2	7.3
15	7.5	7.5	7.5	7.5	7.4	7.4	7.5	7.5	7.5	7.3	7.2	7.3
16	7.5	7.5	7.5	7.5	7.4	7.5	7.5	7.5	7.5	7.3	7.3	7.3
17	7.5	7.5	7.5	7.6	7.5	7.5	7.5	7.5	7.5	7.3	7.3	7.3
18	7.5	7.5	7.5	7.6	7.5	7.6	7.5	7.5	7.5	7.3	7.3	7.3
19	7.5	7.5	7.5	7.6	7.5	7.5	7.5	7.5	7.5	7.3	7.3	7.3
20	7.5	7.4	7.5	7.5	7.4	7.5	7.5	7.5	7.5	7.3	7.3	7.3
21	7.5	7.4	7.4	7.5	7.5	7.5	7.5	7.5	7.5	7.4	7.3	7.3
22	7.4	7.4	7.4	7.6	7.5	7.5	7.5	7.5	7.5	7.4	7.3	7.3
23	7.4	7.4	7.4	7.5	7.4	7.5	7.5	7.5	7.5	7.4	7.3	7.4
24	7.4	7.4	7.4	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.4	7.5
25	7.4	7.3	7.4	7.6	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
26	7.4	7.3	7.4	7.6	7.5	7.5	7.5	7.5	7.5	7.5	7.4	7.5
27	7.4	7.3	7.4	7.6	7.5	7.5	7.5	7.5	7.5	7.5	7.4	7.5
28	7.4	7.4	7.4	7.6	7.5	7.5	7.5	7.5	7.5	7.6	7.5	7.5
29	7.5	7.4	7.4	7.5	7.5	7.5	7.5	7.4	7.5	7.6	7.5	7.5
30	7.5	7.4	7.4	7.5	7.5	7.5	7.5	7.5	7.5	7.6	7.5	7.5
31	---	---	---	---	---	---	7.6	7.5	7.5	---	---	---
MONTH	7.6	7.3	7.4	7.6	7.3	7.5	7.6	7.4	7.5	7.8	7.2	7.5

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued
(National stream-quality accounting network)

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

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

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued
(National stream-quality accounting network)

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	26.5	25.5	26.0	30.0	29.0	29.5	---	---	---	32.5	31.0	31.5
2	26.0	25.5	26.0	30.0	29.5	30.0	30.0	29.5	29.5	31.0	30.0	30.5
3	27.0	26.0	26.5	30.5	29.5	30.0	30.0	29.0	29.5	31.5	29.5	30.5
4	27.0	26.5	27.0	30.5	29.5	30.0	30.0	29.5	29.5	31.5	29.5	30.5
5	27.5	26.5	27.0	30.5	29.5	30.0	29.5	28.5	29.0	31.0	30.0	30.5
6	27.5	27.0	27.5	30.5	29.5	30.0	29.5	28.5	29.0	31.0	29.5	30.5
7	28.5	27.5	28.0	30.5	29.5	30.0	29.0	28.5	28.5	31.5	30.0	30.5
8	29.0	28.0	28.5	30.5	29.5	30.0	29.0	27.5	28.0	31.5	30.5	31.0
9	29.5	28.5	29.0	30.5	29.5	30.0	28.5	27.5	28.0	31.0	29.5	30.0
10	29.5	29.0	29.0	30.5	29.5	30.0	28.0	27.0	27.5	29.5	26.0	28.5
11	30.0	29.0	29.5	30.5	29.5	30.0	28.5	27.5	28.0	26.5	25.5	26.0
12	---	---	---	30.5	30.0	30.0	29.0	28.0	28.5	26.5	25.5	26.0
13	---	---	---	30.0	29.5	29.5	29.5	28.0	28.5	27.0	26.0	26.5
14	30.0	30.0	30.0	30.0	28.5	29.0	30.0	29.0	29.5	27.5	26.5	27.0
15	30.0	29.5	30.0	28.5	28.0	28.5	30.0	29.0	29.5	28.5	27.0	27.5
16	30.5	29.5	30.0	28.0	27.0	27.5	30.5	29.5	30.0	29.0	27.5	28.5
17	30.5	29.5	30.0	27.0	27.0	27.0	30.5	29.5	30.0	29.0	28.0	28.5
18	30.5	30.0	30.0	28.0	26.5	27.5	31.0	30.0	30.5	30.0	28.0	29.0
19	31.0	30.0	30.5	28.5	27.0	28.0	31.0	30.0	30.5	30.0	28.5	29.0
20	31.0	30.0	30.5	29.0	27.5	28.5	31.5	30.0	31.0	30.0	28.5	29.5
21	31.0	30.0	30.5	30.0	28.0	29.0	31.5	30.5	31.0	30.0	28.5	29.5
22	31.0	30.0	30.5	30.0	29.0	29.5	31.5	30.0	30.5	30.0	28.5	29.0
23	31.0	30.0	30.5	30.0	29.0	29.5	31.5	30.0	30.5	28.5	27.5	28.0
24	30.5	29.5	30.0	29.5	28.5	29.0	31.5	30.5	31.0	27.5	26.0	27.0
25	30.0	29.5	29.5	29.5	28.5	29.0	32.0	30.5	31.0	27.0	25.5	26.0
26	29.5	29.0	29.5	29.5	28.5	29.0	32.0	30.5	31.5	26.5	25.0	26.0
27	29.5	29.0	29.0	29.5	28.5	29.0	32.5	31.0	31.5	27.0	25.5	26.0
28	29.5	28.5	29.0	30.0	29.0	29.0	32.5	30.5	31.5	27.5	25.5	26.5
29	29.5	28.5	29.0	30.5	29.0	29.5	32.5	30.5	31.5	27.5	26.0	26.5
30	30.0	29.0	29.5	30.0	29.5	30.0	33.0	31.0	32.0	27.5	26.0	27.0
31	---	---	---	---	---	---	32.5	31.0	32.0	---	---	---
MONTH	31.0	25.5	29.0	30.5	26.5	29.0	33.0	27.0	30.0	32.5	25.0	28.5

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.9	7.7	7.8	8.8	8.2	8.4	9.8	9.3	9.5	11.4	10.8	11.0
2	7.8	7.6	7.7	9.1	8.4	8.7	9.9	9.6	9.7	11.1	10.6	10.8
3	7.8	7.6	7.7	8.9	8.5	8.7	10.3	9.7	10.0	10.7	10.4	10.5
4	7.8	7.4	7.6	8.4	7.8	8.1	10.4	9.9	10.1	10.7	10.2	10.4
5	7.8	7.4	7.5	7.8	6.9	7.4	11.3	10.2	10.7	10.5	10.0	10.2
6	7.8	7.3	7.5	7.3	6.9	7.1	11.7	10.7	11.1	10.3	9.9	10.1
7	7.5	7.2	7.3	7.5	7.3	7.4	10.9	10.4	10.7	10.7	10.0	10.3
8	7.9	7.3	7.5	7.7	7.4	7.5	10.9	10.3	10.5	10.8	10.0	10.3
9	8.1	7.3	7.6	7.8	7.7	7.7	11.7	10.5	11.2	10.7	10.1	10.4
10	8.2	7.4	7.7	8.0	7.7	7.9	12.3	11.3	11.7	10.9	10.1	10.4
11	8.4	7.4	7.8	8.2	7.9	8.0	11.6	10.9	11.3	10.7	9.9	10.2
12	8.4	7.4	7.8	8.3	8.0	8.1	11.6	10.9	11.2	10.7	9.8	10.1
13	8.5	7.4	7.8	8.5	8.2	8.3	11.7	11.0	11.3	10.7	9.8	10.1
14	8.4	7.4	7.7	8.5	8.2	8.3	11.6	11.1	11.3	10.5	9.8	10.0
15	8.3	7.3	7.6	8.7	8.1	8.4	11.9	11.2	11.5	10.3	9.5	9.8
16	8.4	7.3	7.7	8.9	8.4	8.6	12.2	11.5	11.8	9.9	9.4	9.6
17	8.6	7.4	7.9	9.0	8.6	8.8	12.1	11.7	11.9	10.6	9.5	9.8
18	8.5	7.7	8.0	9.2	8.9	9.1	12.0	11.8	11.9	9.3	7.9	8.5
19	9.3	8.1	8.6	9.6	9.1	9.4	12.3	11.8	12.0	8.1	6.9	7.5
20	9.7	8.6	9.0	9.8	9.3	9.5	12.8	12.0	12.3	7.9	7.1	7.5
21	9.9	8.8	9.2	9.8	9.4	9.6	12.8	12.2	12.4	8.0	6.3	7.3
22	9.8	9.0	9.2	9.5	9.3	9.3	12.9	12.2	12.5	7.1	6.1	6.5
23	9.5	8.9	9.1	9.6	9.3	9.4	13.2	12.4	12.7	8.5	7.1	8.0
24	9.5	8.8	9.0	9.7	9.4	9.5	13.2	12.6	12.9	8.3	8.0	8.2
25	9.4	8.6	8.9	9.7	9.3	9.4	13.2	12.8	13.0	8.1	8.0	8.0
26	9.2	8.5	8.8	9.5	9.2	9.3	13.3	12.9	13.1	8.3	8.1	8.2
27	9.1	8.4	8.7	9.3	9.1	9.2	13.4	12.8	13.1	8.4	8.2	8.3
28	9.0	8.4	8.6	9.3	8.9	9.1	12.9	12.2	12.7	8.4	8.3	8.3
29	8.6	8.3	8.4	9.7	9.1	9.4	12.6	11.9	12.2	8.8	8.3	8.6
30	8.3	8.0	8.1	9.6	9.4	9.5	11.8	11.0	11.4	9.0	8.8	8.9
31	8.7	8.0	8.3	---	---	---	11.6	10.9	11.1	9.2	9.1	9.1
MONTH	9.9	7.2	8.1	9.8	6.9	8.6	13.4	9.3	11.6	11.4	6.1	9.3

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued
(National stream-quality accounting network)

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	9.5	9.1	9.3	9.1	9.0	9.1	8.2	7.8	8.0	6.5	6.4	6.4
2	9.5	8.9	9.2	9.4	9.1	9.3	7.8	7.2	7.5	6.4	6.2	6.3
3	8.9	8.6	8.7	9.5	9.4	9.4	7.2	7.0	7.1	6.2	6.0	6.1
4	9.4	8.5	9.1	9.9	9.4	9.7	7.3	7.1	7.2	6.1	6.0	6.1
5	9.2	8.9	9.0	9.6	9.4	9.5	7.3	7.1	7.2	6.4	6.0	6.2
6	10.4	8.9	9.2	9.3	9.0	9.2	7.3	7.1	7.2	6.5	6.0	6.3
7	9.7	9.1	9.3	8.9	8.7	8.8	7.3	7.1	7.2	6.0	5.6	5.8
8	9.4	8.8	9.0	8.8	7.7	8.6	7.4	7.2	7.3	5.7	5.5	5.6
9	8.8	8.3	8.6	7.9	7.3	7.6	7.7	7.4	7.6	5.5	5.3	5.4
10	8.4	7.8	8.1	8.4	7.9	8.2	7.7	7.5	7.6	5.5	5.3	5.4
11	8.1	7.7	7.9	7.9	7.4	7.6	7.8	7.5	7.6	5.5	5.2	5.4
12	8.4	7.9	8.1	7.4	7.0	7.2	7.9	7.8	7.9	5.3	5.0	5.2
13	8.8	8.5	8.6	7.0	6.7	6.8	8.1	8.0	8.0	5.1	4.9	5.0
14	8.7	8.6	8.6	6.9	6.8	6.8	8.3	8.1	8.1	5.0	4.9	4.9
15	8.7	8.3	8.5	7.0	6.8	6.9	8.1	8.0	8.0	5.2	4.9	5.0
16	8.8	8.3	8.5	6.9	6.8	6.9	8.0	7.8	7.9	5.1	4.8	5.0
17	9.4	8.7	9.0	7.0	6.8	6.9	8.1	7.7	7.9	5.1	4.9	5.0
18	9.7	9.4	9.5	7.0	6.8	6.9	8.0	7.8	7.9	5.1	4.9	5.0
19	9.7	9.5	9.5	7.4	7.0	7.1	7.8	7.7	7.7	5.3	5.0	5.1
20	9.7	9.4	9.6	7.7	7.4	7.6	7.7	7.6	7.7	5.3	5.1	5.2
21	9.8	9.4	9.5	7.7	7.6	7.6	7.7	7.5	7.6	5.2	4.9	5.1
22	9.6	9.3	9.4	8.0	7.6	7.8	7.4	7.2	7.3	4.9	4.7	4.8
23	9.9	9.4	9.7	7.6	7.3	7.4	7.1	6.9	7.0	5.2	4.8	5.0
24	10.1	9.8	10.0	7.3	7.1	7.2	6.9	6.6	6.8	5.2	4.9	5.1
25	10.0	9.8	9.9	7.3	7.1	7.2	6.7	6.4	6.6	5.3	5.0	5.2
26	9.9	9.5	9.7	7.7	7.4	7.5	6.5	6.3	6.4	5.3	5.1	5.2
27	9.4	9.2	9.3	8.0	7.7	7.9	6.4	6.3	6.4	5.6	5.1	5.4
28	9.2	9.1	9.2	8.4	8.1	8.2	6.6	6.4	6.5	5.5	5.3	5.4
29	---	---	---	8.6	8.3	8.5	6.8	6.6	6.7	5.4	5.2	5.3
30	---	---	---	8.5	8.1	8.3	6.8	6.4	6.7	5.3	5.2	5.3
31	---	---	---	8.3	8.2	8.3	---	---	---	5.4	5.2	5.3
MONTH	10.4	7.7	9.1	9.9	6.7	7.9	8.3	6.3	7.4	6.5	4.7	5.4
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	5.2	4.9	5.1	7.4	6.8	7.1	---	---	---	7.4	6.6	7.0
2	5.4	5.0	5.3	7.4	7.2	7.3	6.3	6.3	6.3	7.5	6.8	7.2
3	5.6	5.4	5.5	7.4	7.2	7.3	6.4	6.3	6.3	8.0	6.9	7.4
4	5.5	5.4	5.5	7.4	7.2	7.3	6.5	6.3	6.4	8.1	7.0	7.5
5	5.6	5.5	5.5	7.4	7.1	7.2	6.6	6.5	6.5	8.0	7.1	7.5
6	5.6	5.5	5.6	7.2	7.0	7.1	6.6	6.5	6.6	8.3	7.1	7.6
7	5.6	5.4	5.5	7.1	7.0	7.0	6.7	6.6	6.6	8.6	7.1	7.7
8	5.9	5.5	5.7	7.0	6.8	6.9	6.7	6.5	6.6	8.6	7.2	7.8
9	5.8	5.7	5.8	6.9	6.7	6.8	6.5	6.0	6.2	7.8	7.0	7.3
10	5.9	5.7	5.8	6.8	6.6	6.7	6.1	5.9	6.0	7.2	6.4	6.9
11	5.8	5.6	5.8	6.6	6.3	6.5	6.1	6.0	6.0	6.2	5.2	5.8
12	---	---	---	6.5	6.3	6.4	6.1	6.1	6.1	6.1	5.3	5.5
13	---	---	---	6.2	5.9	6.1	6.2	6.1	6.1	6.2	6.1	6.2
14	6.1	5.9	6.0	5.9	5.3	5.5	6.4	6.2	6.3	6.3	6.1	6.2
15	6.0	5.8	5.9	5.4	5.0	5.2	6.5	6.4	6.4	6.4	6.2	6.3
16	6.0	5.9	6.0	6.1	5.0	5.5	6.5	6.4	6.4	6.5	6.3	6.4
17	6.0	5.9	5.9	6.2	5.8	6.0	6.5	6.4	6.5	6.4	6.3	6.3
18	6.0	5.8	5.9	6.2	6.2	6.2	6.6	6.5	6.6	6.3	6.2	6.3
19	6.0	5.9	5.9	6.2	5.9	6.0	6.6	6.5	6.6	6.2	6.0	6.1
20	5.9	5.7	5.8	6.0	5.8	5.9	6.6	6.5	6.6	6.2	5.9	6.1
21	5.9	5.7	5.8	6.0	6.0	6.0	6.6	6.5	6.6	6.2	5.9	6.0
22	5.9	5.7	5.8	6.0	5.9	6.0	6.6	6.5	6.6	6.2	5.9	6.0
23	5.8	5.6	5.7	5.9	5.7	5.8	6.6	6.5	6.5	6.5	6.1	6.3
24	5.8	5.6	5.7	6.2	5.8	6.1	6.7	6.5	6.6	6.7	6.4	6.5
25	5.8	5.7	5.7	6.2	6.1	6.2	6.7	6.6	6.6	6.9	6.6	6.7
26	5.8	5.7	5.7	6.3	6.2	6.3	6.7	6.5	6.6	6.9	6.5	6.7
27	6.0	5.8	5.8	6.3	6.3	6.3	6.6	6.5	6.5	7.1	6.5	6.7
28	6.1	5.9	6.0	6.3	6.1	6.3	6.6	6.5	6.6	7.3	6.9	7.0
29	6.9	6.1	6.4	6.2	6.1	6.1	6.8	6.5	6.6	7.5	7.0	7.2
30	6.9	6.8	6.9	6.1	6.0	6.0	6.8	6.4	6.6	7.7	7.1	7.3
31	---	---	---	---	---	---	6.9	6.5	6.7	---	---	---
MONTH	6.9	4.9	5.8	7.4	5.0	6.4	6.9	5.9	6.5	8.6	5.2	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 upstream from Interstate Highway 45, 1.5 mi downstream from Caney Creek, and 9.5 mi southeast of Madisonville.

DRAINAGE AREA.--321 mi².

PERIOD OF RECORD.--October 1967 to current year.
Water-quality records.--Chemical analyses: July 1962 to April 1965; January 1968 to September 1974. Chemical and biochemical analyses: September 1970 to September 1974; April 1985 to June 1988. Pesticide analyses: April 1985 to April 1988. Specific conductance: October 1984 to September 1987. Water temperature: October 1984 to September 1987. Suspended sediment discharge: October 1984 to September 1986.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 150.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair, except those for estimated daily discharges, which are poor. There are no diversions above station. Flow may be slightly affected at times by discharge from the flood-detention pools of three floodwater-retarding structures with a combined detention capacity of 1,290 acre-ft. These structures control runoff from 2.71 mi² in the upper Caney Creek and Town Branch drainage basins. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--23 years, 197 ft³/s (8.33 in/yr), 142,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,800 ft³/s Sept. 14, 1974 (gage height, 25.07 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1910, 34 ft in May 1922 (discharge unknown), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,400 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 5	1100	3,990	18.01	No other peak greater than base discharge.			

Minimum daily discharge, 0.01 ft³/s, on Oct. 3-6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	1.6	.38	1.0	63	181	572	64	e1070	e.50	3.4	.14
2	.02	2.2	.31	1.7	112	629	229	36	e1380	e.50	2.6	.10
3	.01	1.4	e.30	2.2	309	680	317	394	e700	e.50	2.8	.08
4	.01	1.0	e.29	1.7	149	313	367	2060	e200	e.50	2.7	.08
5	.01	.80	e.28	1.2	75	121	109	3460	e100	e.50	1.3	.06
6	.01	.74	e.29	2.5	99	69	208	2300	e30	e.50	.92	.04
7	.16	.63	e.30	2.7	59	49	538	589	e14	e.50	.71	.03
8	.40	.54	e.38	3.7	40	39	476	93	e8.0	e.50	.59	.02
9	.44	.47	e.49	4.2	29	33	129	58	e6.0	e.50	.49	.12
10	1.2	.44	e.50	3.9	22	30	62	43	e4.0	e.50	.31	.54
11	.85	.44	e.52	3.5	19	26	41	34	e2.0	e.50	.28	15
12	.59	.44	e.52	3.2	17	23	30	28	e1.6	e.55	.28	53
13	.35	.51	e.52	3.8	14	19	22	25	e1.4	e.66	.24	23
14	.21	.53	e.51	4.0	13	18	20	25	e1.2	.71	.18	7.6
15	.14	.54	e.51	4.1	12	16	33	23	e1.0	.71	.14	3.1
16	.10	.51	e.50	4.2	13	16	72	18	e.93	.71	.10	2.0
17	.04	.46	e.50	7.8	9.7	25	46	15	e.85	.78	.08	1.2
18	.02	.39	e.50	29	9.9	30	27	13	e.80	.85	.08	11
19	.02	.43	e.49	588	12	18	18	13	e.77	.78	.08	25
20	.02	.40	e.49	2560	87	13	13	13	e.72	.78	.08	11
21	.02	.40	.49	1540	178	13	10	13	e.70	.78	.07	4.7
22	.02	.75	e.49	360	888	11	8.9	11	e.63	.71	.08	2.7
23	.02	1.1	e.50	84	1990	e9.7	7.5	9.8	e.60	.65	.10	2.2
24	.02	2.8	e.54	49	1570	e8.3	6.8	8.4	e.59	.78	.16	1.4
25	.01	1.2	e.60	36	305	e7.4	7.0	7.5	e.58	1.1	.24	1.0
26	.01	.61	e.64	28	88	e7.2	21	6.6	e.56	1.9	.28	.90
27	.01	.57	e.70	22	58	e6.8	491	6.1	e.54	2.8	.24	.82
28	.01	.71	.79	17	46	9.3	667	5.7	e.52	2.2	.24	.73
29	.01	.63	.85	18	---	125	470	5.3	e.50	1.5	.24	.59
30	.33	.45	.92	181	---	703	195	e5.0	e.50	1.1	.24	.59
31	.74	---	1.0	125	---	809	---	e63	---	1.1	.21	---
TOTAL	5.83	23.69	16.10	5692.4	6286.6	4057.7	5213.2	9445.4	3528.99	26.65	19.46	168.74
MEAN	.19	.79	.52	184	225	131	174	305	118	.86	.63	5.62
MAX	1.2	2.8	1.0	2560	1990	809	667	3460	1380	2.8	3.4	53
MIN	.01	.39	.28	1.0	9.7	6.8	6.8	5.0	.50	.50	.07	.02
AC-FT	12	47	32	11290	12470	8050	10340	18730	7000	53	39	335
CFSM	.00	.00	.00	.57	.70	.41	.54	.95	.37	.00	.00	.02
IN.	.00	.00	.00	.66	.73	.47	.60	1.09	.41	.00	.00	.02

CAL YR 1989 TOTAL 49588.20 MEAN 136 MAX 13500 MIN .01 AC-FT 98360 CFSM .42 IN. 5.75
WTR YR 1990 TOTAL 34484.76 MEAN 94.5 MAX 3460 MIN .01 AC-FT 68400 CFSM .29 IN. 4.00

e Estimated

08066170 KICKAPOO CREEK NEAR ONALASKA, TX

LOCATION.--Lat 30°54'25", long 95°05'18", Polk County, Hydrologic Unit 12030202, on right bank 114 ft downstream from old bridge site, 1.2 mi downstream from Magnolia Creek, 6.2 mi upstream from Rocky Creek, 7.3 mi northeast of Onalaska, and 15.9 mi upstream from mouth.

DRAINAGE AREA.--57.0 mi².

PERIOD OF RECORD.--December 1965 to current year.
Water-quality records.--Chemical analyses: December 1963 to September 1969. Chemical and biochemical analyses: October 1969 to September 1974.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 139.85 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor, including those days of estimated daily discharges. Low flow is sustained by sewage effluent that enters the creek upstream from this station.

AVERAGE DISCHARGE.--24 years (water years 1967-90), 41.9 ft³/s (9.98 in/yr), 30,360 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,500 ft³/s June 7, 1981, from rating curve extended above 6,800 ft³/s on basis of slope-area measurement of peak flow (gage height, 30.37 ft); minimum, 0.01 ft³/s July 19, 20, 1971

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 29	0300	2,510	12.16	May 31	2200	*21,900	*29.12
Mar. 29	2000	11,100	22.61				

Minimum discharge, 0.20 ft³/s Oct. 6, 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.23	.77	e1.2	e77	e110	384	79	12	e1990	e2.0	.77	1.5
2	e.23	.77	e1.1	e28	e380	122	83	10	e120	e1.6	1.1	1.1
3	e.22	.73	e1.1	e14	e240	84	57	269	e87	e.80	1.0	.93
4	e.22	.65	e1.1	e12	e180	54	35	264	e141	e1.0	.85	.93
5	e.21	.62	e1.1	e15	e69	33	24	52	e81	e1.5	.77	.92
6	e.20	.62	e1.1	e66	e34	24	280	21	e50	e.90	.69	.90
7	e.20	.62	e1.0	e87	e20	21	85	12	e26	e.60	.62	.82
8	e.56	.62	e1.0	e52	e15	31	43	11	e12	e.70	.56	.77
9	e.62	.62	e1.0	e25	e13	24	28	10	e6.2	e.69	.50	.85
10	e.51	.60	e1.0	e15	e39	16	51	6.9	e4.7	.62	.50	1.4
11	e.44	e.56	e1.0	e10	e29	13	40	6.3	e3.7	.62	.50	14
12	e.43	e.54	e.99	e8.0	e18	13	21	5.8	e2.4	.56	.44	31
13	e.42	e.52	e.99	e7.0	e13	31	17	5.5	e2.0	.56	.44	5.0
14	e.41	e.50	e.98	e6.1	e10	22	63	4.7	e1.7	.56	.44	2.5
15	e.40	e.48	e.97	e5.9	e12	42	68	3.8	e1.5	.50	.39	1.7
16	e.39	e.46	e.96	e5.4	e14	20	32	3.2	e1.3	.50	.35	1.3
17	e.38	e.44	e.96	e5.3	e10	10	20	2.9	e1.2	.77	.35	1.0
18	e.45	e.42	e.96	e34	e8.8	e6.6	15	2.9	e1.0	.85	.35	.87
19	e.40	.40	e.95	e71	e19	e5.5	12	3.8	e.92	.85	.35	.74
20	e.80	.42	e.95	e66	e16	5.1	11	3.8	e.88	.77	.39	.69
21	e.60	.45	e.94	e50	e31	4.7	9.9	3.6	e.80	.77	.48	.66
22	e.50	1.1	e.87	e27	e120	4.6	8.9	3.1	e.73	.77	28	1.6
23	.44	3.2	e28	e17	e58	4.5	8.3	2.8	e.67	.77	4.2	1.4
24	e.41	2.1	e15	e71	34	4.3	7.5	2.2	e.62	.85	1.7	.72
25	e.39	1.5	e3.5	e200	19	3.9	7.3	2.0	.56	.85	1.2	.62
26	e.37	1.4	e1.8	e85	13	3.6	59	1.9	e.50	.85	.94	.62
27	e.36	1.3	e.78	e37	10	3.6	141	1.7	e.50	.85	.76	.62
28	e.35	1.3	e.72	e120	288	210	86	16	e.50	.77	.74	.62
29	e.44	1.2	e.71	e390	---	3900	30	7.1	e.50	.77	.77	e.60
30	.55	1.1	e360	e170	---	2060	17	3.6	e1.0	.77	.77	e.60
31	.76	---	e240	e62	---	153	---	3370	---	.77	.73	---
TOTAL	12.89	26.01	672.73	1838.7	1822.8	7313.4	1438.9	4124.6	2540.88	25.74	51.65	76.98
MEAN	.42	.87	21.7	59.3	65.1	236	48.0	133	84.7	.83	1.67	2.57
MAX	.80	3.2	360	390	380	3900	280	3370	1990	2.0	28	31
MIN	.20	.40	.71	5.3	8.8	3.6	7.3	1.7	.50	.50	.35	.60
AC-FT	26	52	1330	3650	3620	14510	2850	8180	5040	51	102	153
CFSM	.01	.02	.38	1.04	1.14	4.14	.84	2.33	1.49	.01	.03	.05
IN.	.01	.02	.44	1.20	1.19	4.77	.94	2.69	1.66	.02	.03	.05

CAL YR 1989 TOTAL 18380.05 MEAN 50.4 MAX 3190 MIN .15 AC-FT 36460 CFSM .88 IN. 12.00
WTR YR 1990 TOTAL 19945.28 MEAN 54.6 MAX 3900 MIN .20 AC-FT 39560 CFSM .96 IN. 13.02

e Estimated

08066190 LIVINGSTON RESERVOIR NEAR GOODRICH, TX

LOCATION.--Lat 30°38'00", long 95°00'36", Polk-San Jacinto County line, Hydrologic Unit 12030202, at left end of gated spillway at Livingston Dam on Trinity River, 4.4 mi northwest of Goodrich, 7 mi southwest of Livingston, 11.7 mi upstream from Long King Creek, and at mile 129.2.

DRAINAGE AREA.--16,583 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Trinity River Authority). Prior to Feb. 26, 1969, temporary nonrecording gages at site about 200 ft upstream and at same datum.

REMARKS.--The reservoir is formed by an earthfill dam 14,400 ft long. The dam was completed Sept. 29, 1968, and deliberate impoundment began June 26, 1969. The reservoir is operated for industrial water supply in the Houston metropolitan area. The spillway has twelve 40 x 35 ft tainter gates located near the left end of dam. Low-flow releases may be made through multi-gated inlet tower. There are five gated openings at various elevations located in the tower, and all discharge into a 10-foot-diameter concrete conduit through the dam. Flow is affected at times by discharge from the flood-detention pools of 255 floodwater-retarding structures with a combined detention capacity of 184,600 acre-ft. These structures control runoff from 617 mi² 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, 1,979,000 acre-ft Mar. 30, 1990 (elevation, 133.24 ft); minimum since conservation pool capacity was reached on Nov. 2, 1971, 1,345,000 acre-ft Oct. 25, 1988 (elevation, 125.22 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,979,000 acre-ft Mar. 30 at 0700 hours (elevation, 133.24 ft); minimum, 1,728,000 acre-ft Dec. 24 (elevation, 130.26 ft).

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

130.0	1,707,000	131.5	1,830,000	133.0	1,958,000
130.5	1,748,000	132.0	1,872,000	133.5	2,002,000
131.0	1,788,000	132.5	1,915,000		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1784000	1756000	1756000	1767000	1802000	1843000	1876000	1868000	1878000	1801000	1808000	1780000
2	1784000	1756000	1758000	1768000	1798000	1839000	1852000	1859000	1869000	1805000	1804000	1777000
3	1784000	1749000	1752000	1773000	1796000	1831000	1835000	1892000	1851000	1809000	1797000	1777000
4	1783000	1753000	1749000	1774000	1793000	1816000	1817000	1897000	1834000	1810000	1797000	1776000
5	1783000	1758000	1749000	1781000	1795000	1808000	1813000	1888000	1820000	1822000	1797000	1773000
6	1784000	1761000	1751000	1785000	1812000	1803000	1839000	1885000	1808000	1821000	1798000	1769000
7	1788000	1761000	1756000	1785000	1823000	1793000	1851000	1881000	1808000	1826000	1799000	1766000
8	1783000	1766000	1753000	1781000	1834000	1788000	1861000	1887000	1812000	1826000	1798000	1766000
9	1780000	1760000	1744000	1784000	1852000	1790000	1876000	1901000	1813000	1824000	1800000	1769000
10	1778000	1760000	1749000	1783000	1853000	1803000	1888000	1903000	1811000	1821000	1805000	1766000
11	1775000	1757000	1754000	1783000	1859000	1819000	1885000	1910000	1808000	1822000	1811000	1774000
12	1777000	1757000	1747000	1782000	1861000	1832000	1869000	1922000	1798000	1825000	1818000	1776000
13	1774000	1759000	1741000	1770000	1859000	1840000	1854000	1937000	1794000	1827000	1821000	1776000
14	1773000	1757000	1741000	1773000	1849000	1864000	1844000	1944000	1794000	1818000	1821000	1783000
15	1771000	1760000	1748000	1770000	1842000	1867000	1824000	1938000	1793000	1804000	1816000	1784000
16	1776000	1756000	e1746000	1770000	1812000	1875000	1810000	1949000	1793000	1793000	1818000	1784000
17	1774000	1752000	e1748000	1774000	1794000	1881000	1803000	1949000	1792000	1790000	1813000	1784000
18	1768000	1756000	e1751000	1790000	1796000	1884000	1801000	1945000	1799000	1790000	1809000	1782000
19	1758000	1752000	1742000	1820000	1796000	1889000	1797000	1935000	1798000	1793000	1805000	1784000
20	1754000	1755000	1739000	1824000	1792000	1890000	1790000	1915000	1796000	1793000	1798000	1780000
21	1753000	1753000	1745000	1824000	1816000	1890000	1795000	1887000	1793000	1789000	1798000	1782000
22	1754000	1768000	1740000	1827000	1826000	1899000	1799000	1862000	1797000	1788000	1793000	1784000
23	1753000	1755000	1734000	1833000	1826000	1903000	1805000	1843000	1793000	1799000	1789000	1783000
24	1753000	1750000	1732000	1871000	1829000	1911000	1807000	1826000	1783000	1801000	1792000	1777000
25	1753000	1757000	1733000	1859000	1829000	1908000	1818000	1813000	1797000	1803000	1790000	1772000
26	1750000	1756000	1732000	1845000	1832000	1904000	1842000	1813000	1794000	1808000	1793000	1771000
27	1751000	1761000	1733000	1845000	1833000	1896000	1859000	1809000	1793000	1811000	1788000	1770000
28	1749000	1762000	1734000	1859000	1849000	1903000	1868000	1805000	1786000	1814000	1787000	1770000
29	1748000	1756000	1739000	1844000	---	1966000	1874000	1798000	1790000	1817000	1784000	1769000
30	1760000	1756000	1770000	1827000	---	1953000	1876000	1805000	1797000	1824000	1784000	1769000
31	1757000	---	1766000	1803000	---	1913000	---	1868000	---	1818000	1783000	---
MAX	1788000	1768000	1770000	1871000	1861000	1966000	1888000	1949000	1878000	1827000	1821000	1784000
MIN	1748000	1749000	1732000	1767000	1792000	1788000	1790000	1798000	1783000	1788000	1783000	1766000
(†)	130.61	130.60	130.73	131.17	131.72	132.48	132.05	131.95	131.10	131.36	130.93	130.76
(ϕ)	-31000	-1000	+10000	+37000	+46000	+64000	-37000	-8000	-71000	+21000	-35000	-14000

CAL YR 1989 MAX 2080000 MIN 1431000 (ϕ) +336000
WTR YR 1990 MAX 1966000 MIN 1732000 (ϕ) -19000

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

e Estimated

08066190 LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

WATER-QUALITY RECORDS

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

303807095011101 - LIVINGSTON RES SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
JAN										
31...	1122	1.00	360	8.3	12.0	1.13	11.0	102	130	18
31...	1124	10.0	350	8.1	11.5	--	10.3	94	--	--
31...	1126	20.0	350	8.1	11.5	--	9.7	89	--	--
31...	1128	30.0	350	8.0	11.5	--	9.7	89	--	--
31...	1130	40.0	350	8.1	11.5	--	9.7	89	--	--
31...	1132	50.0	350	8.0	11.5	--	9.7	89	--	--
31...	1134	74.0	355	8.0	11.5	--	9.3	85	130	15
AUG										
08...	1215	1.00	310	8.6	30.0	0.96	7.9	104	120	8
08...	1217	5.00	310	8.4	29.5	--	6.6	86	--	--
08...	1219	10.0	310	8.4	29.5	--	6.1	79	--	--
08...	1221	20.0	310	8.3	29.0	--	6.2	80	--	--
08...	1223	30.0	315	7.6	29.0	--	2.0	26	--	--
08...	1225	40.0	315	7.4	28.0	--	0	0	--	--
08...	1227	50.0	315	7.4	28.0	--	0	0	--	--
08...	1229	60.0	315	7.4	27.5	--	0	0	--	--
08...	1231	72.0	320	7.4	27.5	--	0	0	130	8

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 WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
JAN										
31...	47	4.0	23	0.9	4.1	120	31	24	0.30	4.9
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	46	4.0	22	0.8	4.0	120	30	23	--	5.4
AUG										
08...	42	3.7	16	0.6	4.3	110	30	17	0.40	5.1
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	44	3.8	15	0.6	4.3	120	25	16	0.40	7.1

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	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)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JAN									
31...	208	--	0.300	--	--	0.60	0.110	5	<1
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	--	--	0.200	--	--	0.50	0.080	30	10
31...	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--
31...	204	--	0.300	--	--	0.60	0.110	11	4
AUG									
08...	186	<0.010	<0.100	0.020	0.78	0.80	0.120	3	9
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	--	<0.010	<0.100	0.020	0.58	0.60	0.100	<10	40
08...	--	--	--	--	--	--	--	--	--
08...	--	<0.010	<0.100	0.050	0.55	0.60	0.190	30	260
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	187	0.020	<0.100	0.280	0.42	0.70	0.390	380	450

08066190 LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

303821095005001 - LIVINGSTON RES SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JAN								
31...	1156	1.00	355	8.3	12.5	1.17	11.0	103
31...	1158	10.0	355	8.2	12.0	--	10.9	101
31...	1200	20.0	355	8.1	11.5	--	9.8	89
31...	1202	30.0	355	8.0	11.5	--	9.3	85
31...	1204	42.0	355	8.0	11.5	--	8.8	80
AUG								
08...	1310	1.00	310	8.6	30.0	0.92	8.3	109
08...	1312	5.00	310	8.4	29.5	--	6.8	88
08...	1314	10.0	310	8.3	29.5	--	5.9	77
08...	1316	20.0	310	8.2	29.0	--	5.6	72
08...	1318	30.0	310	8.0	29.0	--	5.1	66
08...	1320	40.0	315	7.4	28.0	--	0	0
08...	1322	50.0	315	7.4	28.0	--	0	0

303935095055401 - LIVINGSTON RES SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JAN								
31...	1045	1.00	370	8.5	12.5	0.89	12.0	112
31...	1047	10.0	370	8.3	12.0	--	10.7	99
31...	1049	20.0	375	8.2	12.0	--	9.8	90
31...	1051	30.0	375	8.2	11.5	--	9.7	88
31...	1053	40.0	370	8.2	11.5	--	9.7	88
31...	1055	58.0	370	8.2	11.5	--	9.5	87
AUG								
08...	1140	1.00	310	8.4	30.5	0.78	7.0	93
08...	1142	5.00	310	8.3	29.5	--	5.6	73
08...	1144	15.0	310	8.2	29.0	--	5.4	70
08...	1146	25.0	310	8.0	29.0	--	4.0	52
08...	1148	35.0	310	8.0	29.0	--	4.8	62
08...	1150	45.0	315	7.5	28.5	--	0.1	1
08...	1152	55.0	315	7.5	28.0	--	0.1	1
08...	1154	61.0	320	7.6	28.0	--	0.1	1

304144095073001 - LIVINGSTON RES SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JAN								
31...	1018	1.00	390	8.3	12.0	0.81	10.3	95
31...	1020	10.0	390	8.2	12.0	--	10.0	92
31...	1022	20.0	385	8.2	12.0	--	9.7	89
31...	1024	30.0	385	8.2	12.0	--	9.8	90
31...	1026	40.0	380	8.2	12.0	--	9.9	91
31...	1028	60.0	380	8.0	12.0	--	9.2	85
AUG								
08...	1103	1.00	310	8.4	29.0	0.85	7.0	90
08...	1105	10.0	310	8.2	28.5	--	5.9	75
08...	1107	20.0	310	8.2	28.5	--	5.7	73
08...	1109	30.0	310	8.1	28.5	--	5.6	72
08...	1111	40.0	315	8.2	28.5	--	5.6	72
08...	1113	50.0	315	8.0	28.5	--	4.8	61
08...	1115	55.0	320	7.6	28.0	--	1.6	20
08...	1117	60.0	320	7.6	28.0	--	0.1	1

08066190 LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

304521095075501 - LIVINGSTON RES SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JAN								
31...	0938	1.00	370	8.0	12.5	0.24	9.1	85
31...	0940	10.0	370	8.0	12.5	--	9.1	85
31...	0942	20.0	380	8.0	12.5	--	9.0	84
31...	0944	30.0	380	8.0	12.5	--	9.0	84
31...	0946	40.0	390	8.0	12.0	--	9.1	84
31...	0948	57.0	400	8.0	12.0	--	8.9	82
AUG								
08...	1010	1.00	315	8.4	29.0	0.72	6.7	86
08...	1012	5.00	315	8.4	28.5	--	6.2	79
08...	1014	15.0	315	8.3	28.5	--	6.1	78
08...	1016	25.0	315	8.3	28.5	--	6.0	77
08...	1018	35.0	315	8.3	28.5	--	6.0	77
08...	1020	45.0	315	8.3	28.5	--	5.9	75
08...	1022	56.0	315	8.2	28.5	--	5.5	70

DATE	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)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JAN								
31...	--	1.60	--	--	0.70	0.420	30	10
31...	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--
31...	--	1.10	--	--	0.90	0.320	30	10
AUG								
08...	0.010	<0.100	<0.010	--	1.0	0.100	10	20
08...	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--
08...	0.030	<0.100	0.080	0.92	1.0	0.180	10	40

304453095064901 - LIVINGSTON RES SITE DL

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
JAN								
31...	0925	1.00	390	8.0	13.0	0.27	9.4	89
31...	0927	10.0	390	7.9	12.5	--	9.1	85
31...	0929	23.0	385	7.8	12.5	--	8.5	79
AUG								
08...	0950	1.00	315	8.4	28.5	0.60	6.6	84
08...	0952	5.00	315	8.3	28.5	--	6.0	77
08...	0954	10.0	315	8.3	28.5	--	6.0	77
08...	0956	20.0	315	8.3	28.5	--	6.1	78

304659095052001 - LIVINGSTON RES SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	NITROGEN, NITRATE TOTAL (MG/L AS N)
JAN									
31...	0855	1.00	295	7.8	13.0	0.24	8.9	84	--
31...	0857	10.0	340	7.8	12.5	--	8.6	80	--
31...	0859	20.0	350	7.8	12.5	--	8.5	80	--
31...	0901	30.0	365	7.9	12.5	--	8.9	83	--
AUG									
08...	0910	1.00	325	8.4	28.5	0.51	5.9	75	0.060
08...	0912	5.00	325	8.3	28.5	--	5.6	72	--
08...	0914	10.0	325	8.3	28.5	--	5.8	74	--
08...	0916	20.0	325	8.3	28.5	--	5.6	72	--
08...	0918	27.0	325	8.3	28.5	--	5.5	70	0.050

08066190 LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

304659095052001 - LIVINGSTON RES SITE EC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
JAN								
31...	--	0.600	--	--	0.70	0.180	50	10
31...	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--
31...	--	1.00	--	--	0.80	0.310	60	30
AUG								
08...	0.040	0.100	0.050	0.65	0.70	0.100	10	<10
08...	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--
08...	0.050	0.100	0.080	0.72	0.80	0.130	30	260

304843095104001 - LIVINGSTON RES SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAM-PLING DEPTH (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TRANS-PAR-ENCY (SECCHI DISK) (M)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
JAN								
31...	1306	1.00	290	7.7	13.0	0.15	8.0	76
31...	1308	10.0	290	7.8	13.0	--	8.0	76
31...	1310	20.0	290	7.8	13.0	--	8.0	76
31...	1312	30.0	290	7.8	13.0	--	7.9	75
31...	1314	40.0	290	7.8	13.0	--	7.8	74
31...	1316	57.0	280	7.9	13.0	--	7.4	70
AUG								
08...	1352	1.00	345	8.8	31.0	0.45	12.0	160
08...	1354	5.00	345	8.2	29.5	--	4.6	60
08...	1356	15.0	345	8.2	29.5	--	4.6	60
08...	1358	25.0	345	8.1	29.0	--	3.9	50
08...	1400	35.0	345	7.9	29.0	--	2.3	30
08...	1402	48.0	345	8.1	29.0	--	3.3	43
08...	1404	58.0	345	8.1	29.0	--	3.4	44

305411095144901 - LIVINGSTON RES SITE GC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAM-PLING DEPTH (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TRANS-PAR-ENCY (SECCHI DISK) (M)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
JAN										
31...	1348	1.00	305	7.7	12.5	0.12	7.9	74	100	16
31...	1350	10.0	300	7.7	12.5	--	7.9	74	--	--
31...	1352	20.0	300	7.7	12.5	--	7.9	74	--	--
31...	1354	30.0	290	7.7	12.5	--	7.8	73	--	--
31...	1356	40.0	285	7.7	12.5	--	7.7	72	--	--
31...	1358	52.0	285	7.7	12.5	--	7.6	71	110	19
AUG										
08...	1515	1.00	355	8.5	30.0	0.43	9.6	126	130	14
08...	1517	5.00	355	8.2	29.0	--	7.0	90	--	--
08...	1519	10.0	355	8.2	29.0	--	6.9	89	--	--
08...	1521	20.0	355	8.2	29.0	--	6.8	88	--	--
08...	1523	30.0	355	8.2	29.0	--	6.8	88	--	--
08...	1525	40.0	355	8.2	29.0	--	6.8	88	--	--
08...	1527	49.0	355	8.2	29.0	--	6.8	88	130	13

08066190 LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

305411095144901 - LIVINGSTON RES SITE GC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
JAN										
31...	36	3.1	18	0.8	4.0	87	32	19	--	6.6
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	38	3.2	16	0.7	4.0	89	29	16	--	7.8
AUG										
08...	45	4.1	22	0.8	4.5	120	33	24	0.40	6.7
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	44	4.0	22	0.9	4.5	110	34	24	0.40	6.8

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
JAN										
31...	171	--	--	0.700	--	--	0.60	0.240	41	4
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	0.800	--	--	0.60	0.240	40	10
31...	--	--	--	--	--	--	--	--	--	--
31...	167	--	--	0.700	--	--	0.50	0.260	24	5
AUG										
08...	209	0.770	0.030	0.800	0.030	0.77	0.80	0.280	8	4
08...	--	--	--	--	--	--	--	--	--	--
08...	--	0.870	0.030	0.900	0.040	0.86	0.90	0.280	<10	<10
08...	--	--	--	--	--	--	--	--	--	--
08...	--	0.880	0.020	0.900	0.050	0.75	0.80	0.260	<10	20
08...	--	--	--	--	--	--	--	--	--	--
08...	207	0.760	0.040	0.800	0.080	0.82	0.90	0.270	4	21

305447095161401 - LIVINGSTON RES SITE HC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAM-PLING DEPTH (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TRANS-PAR-ENCY (SECCHI DISK) (M)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)
JAN									
31...	1426	1.00	400	7.6	13.0	0.25	8.1	77	--
31...	1428	10.0	400	7.6	13.0	--	8.1	77	--
31...	1430	20.0	400	7.6	13.0	--	8.1	77	--
31...	1432	30.0	390	7.6	13.0	--	7.6	72	--
31...	1434	41.0	385	7.6	13.0	--	7.6	72	--
AUG									
08...	1600	1.00	320	8.9	31.0	0.35	14.0	187	0.080
08...	1602	5.00	320	8.7	31.0	--	12.2	163	--
08...	1604	10.0	320	8.1	29.5	--	5.8	75	--
08...	1606	20.0	350	8.1	29.0	--	6.5	84	--
08...	1608	30.0	355	8.1	28.5	--	6.5	83	--
08...	1610	37.0	355	8.1	28.5	--	6.2	79	0.870

08066190 LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

305447095161401 - LIVINGSTON RES SITE HC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
JAN								
31...	--	0.800	--	--	0.90	0.170	40	10
31...	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--
31...	--	0.800	--	--	0.80	0.220	50	20
AUG								
08...	0.020	0.100	0.010	1.2	1.2	0.180	<10	<10
08...	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--
08...	0.030	0.900	0.080	0.72	0.80	0.300	20	20

305135095193601 - LIVINGSTON RES SITE IC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAM-PLING DEPTH (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TRANS-PAR-ENCY (SECCHI DISK) (M)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
FEB								
01...	0825	1.00	295	7.6	13.0	0.22	8.1	77
01...	0827	10.0	295	7.6	13.0	--	8.0	76
01...	0829	20.0	295	7.6	12.5	--	8.0	75
01...	0831	30.0	295	7.6	12.5	--	7.9	74
01...	0833	41.0	295	7.6	12.5	--	7.9	74
AUG								
09...	0922	1.00	355	7.8	29.0	0.24	6.2	80
09...	0924	5.00	355	7.9	29.0	--	6.1	79
09...	0926	10.0	355	7.9	29.0	--	6.1	79
09...	0928	20.0	355	7.9	29.0	--	6.1	79
09...	0930	30.0	355	7.9	29.0	--	6.2	80
09...	0932	44.0	355	7.9	29.0	--	6.1	79

305135095235401 - LIVINGSTON RES SITE JC

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	SAM-PLING DEPTH (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TRANS-PAR-ENCY (SECCHI DISK) (M)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)
FEB										
01...	0900	1.00	295	7.7	13.0	0.23	8.0	76	99	19
01...	0902	10.0	295	7.7	12.5	--	8.0	75	--	--
01...	0904	20.0	295	7.7	12.5	--	8.0	75	--	--
01...	0906	30.0	295	7.7	12.5	--	7.9	74	--	--
01...	0908	40.0	300	7.7	12.5	--	7.9	74	110	26
AUG										
09...	0955	1.00	360	7.8	29.0	0.26	6.2	80	130	11
09...	0957	5.00	360	7.8	29.0	--	6.1	79	--	--
09...	0959	15.0	360	7.8	28.5	--	6.1	78	--	--
09...	1001	20.0	360	7.8	28.5	--	6.1	78	--	--
09...	1003	30.0	360	7.8	28.5	--	6.1	78	--	--
09...	1005	38.0	360	7.8	28.5	--	6.1	78	130	12

08066190 LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

305135095235401 - LIVINGSTON RES SITE JC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
FEB										
01...	34	3.4	17	0.7	4.2	80	31	21	--	8.8
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	38	3.5	18	0.7	4.1	83	34	20	--	11
AUG										
09...	44	4.0	23	0.9	4.6	120	31	23	0.40	6.6
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	44	4.0	23	0.9	4.6	110	31	23	0.40	6.6

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
FEB										
01...	167	--	--	0.600	--	--	0.70	0.270	59	6
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	0.600	--	--	0.70	0.270	80	20
01...	--	--	--	--	--	--	--	--	--	--
01...	178	--	--	0.600	--	--	0.70	0.290	74	25
AUG										
09...	206	1.45	0.050	1.50	0.070	0.43	0.50	0.380	<3	<1
09...	--	--	--	--	--	--	--	--	--	--
09...	--	1.48	0.020	1.50	0.020	0.68	0.70	0.390	10	<10
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	205	1.44	0.060	1.50	0.070	0.43	0.50	0.390	<3	3

08066191 LIVINGSTON RESERVOIR AT OUTFLOW WEIR NEAR GOODRICH, TX

LOCATION.--Lat 30°37'55", long 95°01'11", San Jacinto County, Hydrologic Unit 12030202, at end of conduit into stilling basin, 1,700 ft to right of right spillway abutment, 4.8 mi northwest of Goodrich, 11.7 mi upstream from Long King Creek, and at mile 129.2.

DRAINAGE AREA.--16,583 mi².

PERIOD OF RECORD.--August 1969 to current year.
Water-quality records.--Chemical and biochemical analyses: October 1969 to September 1972.

GAGE.--Water-stage recorder, concrete control, and crest-stage gage. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Trinity River Authority). Oct. 1, 1974, to Jan. 30, 1976, staff gage and control only.

REMARKS.--Records fair. For details concerning outlet works, see Livingston Reservoir (station 08066190). The purpose of this station is to record selective withdrawal releases at outflow weir, crest 61.90 ft. These releases do not constitute the total flow from Livingston Reservoir since flow through taintor gates is not included in these totals.

AVERAGE DISCHARGE.--21 years, 203 ft³/s (147,100 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 3,990 ft³/s Jan 7, 1982; maximum elevation not determined, but probably occurred between May 16 and May 23, 1990; no flow for many days.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 1,460 ft³/s Jan. 14; maximum elevation, not determined; no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	242	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	86	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	246	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	329	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	459	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	643	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	1010	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	1180	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	1460	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	555	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	328.00	0.00	0.00	5882.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MEAN	10.6	.000	.000	190	.000	.000	.000	.000	.000	.000	.000	.000
MAX	242	.00	.00	1460	.00	.00	.00	.00	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	651	.00	.00	11670	.00	.00	.00	.00	.00	.00	.00	.00

CAL YR 1989	TOTAL	39535.00	MEAN	108	MAX	586	MIN	.00	AC-FT 78420
WTR YR 1990	TOTAL	6210.00	MEAN	17.0	MAX	1460	MIN	.00	AC-FT 12320

08066200 LONG KING CREEK AT LIVINGSTON, TX

LOCATION.--Lat 30°42'58", long 94°57'31", Polk County, Hydrologic Unit 12030202, on right bank at downstream side of bridge on U.S. Highway 190, 2 mi west of Livingston, 2 mi upstream from Choates Creek, and 14.8 mi upstream from mouth.

DRAINAGE AREA.--141 mi².

PERIOD OF RECORD.--January 1963 to current year.
Water-quality records.--Chemical analyses: January 1963 to September 1974.

GAGE.--Water-stage recorder. Datum of gage is 100.12 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good, except those for estimated daily discharges, which are fair. No diversions above station.

AVERAGE DISCHARGE.--27 years, 98.3 ft³/s (9.47 in/yr), 71,220 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,600 ft³/s May 18, 1989 (gage height, 27.27 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, about 41 ft in May 1929.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 30	1630	6,340	16.34	Mar. 29	1230	*9,390	*19.70
Jan. 28	2330	3,950	12.95	May 4	1000	2,670	10.47
Feb. 2	0200	3,850	12.79	June 1	1000	8,890	19.10
Mar. 1	0100	3,370	12.01				

Minimum daily discharge, 0.30 ft³/s Aug. 31.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	2.8	2.9	115	662	1890	239	13	5920	6.5	3.6	.59
2	1.7	2.4	2.8	53	2580	796	417	11	582	4.8	3.4	.53
3	1.7	2.4	2.8	40	1070	282	237	374	173	4.8	2.9	.49
4	1.7	2.4	2.8	45	737	124	93	2080	458	4.8	2.6	.77
5	1.7	2.4	2.8	72	181	77	58	310	194	6.1	2.2	.74
6	1.7	2.4	2.8	456	103	58	643	82	63	4.8	1.8	.74
7	1.7	2.4	2.8	469	72	52	426	39	36	4.2	1.5	.63
8	1.7	2.4	2.8	201	59	56	114	28	27	4.4	1.3	.51
9	1.7	2.4	2.8	73	55	52	61	33	22	4.4	1.1	4.4
10	1.7	2.4	2.8	49	242	44	56	25	19	4.2	1.0	6.3
11	1.7	2.4	2.8	38	123	38	75	19	16	4.2	.89	3.4
12	1.7	2.4	2.8	33	62	42	42	17	15	5.1	.77	6.2
13	1.7	2.4	2.8	29	48	186	30	27	13	4.9	.68	5.3
14	1.7	2.4	2.8	26	43	135	53	18	12	4.4	.81	3.7
15	1.7	2.6	2.8	25	54	313	71	14	11	4.4	.68	2.5
16	7.2	2.4	2.8	23	62	103	39	12	10	4.7	.61	2.0
17	4.0	2.4	2.8	23	41	55	28	10	8.9	4.7	.62	1.7
18	3.5	2.5	3.3	206	38	41	22	9.2	8.6	4.2	.64	1.5
19	2.5	2.7	3.8	430	106	33	20	14	7.8	4.2	.52	1.4
20	2.3	2.7	3.8	327	65	29	19	14	7.2	4.2	.50	1.3
21	2.1	2.7	3.7	220	185	26	17	10	6.6	4.2	.47	1.3
22	1.9	4.3	3.3	84	750	26	15	8.9	6.2	4.0	.82	1.2
23	1.8	8.5	2.8	55	163	26	14	7.8	5.7	4.0	.87	1.6
24	1.8	6.2	e2.8	460	71	25	13	6.8	5.4	4.2	.72	1.6
25	1.8	5.6	e2.8	1310	50	23	12	6.2	5.4	4.1	.66	1.4
26	1.8	4.4	2.8	220	41	23	39	5.7	5.5	3.8	.46	1.4
27	1.8	3.9	2.8	92	37	23	143	4.9	5.5	3.8	.41	1.3
28	1.8	3.3	2.8	748	445	275	61	5.5	5.3	3.8	.38	1.1
29	1.8	3.0	2.8	2120	---	8380	26	36	5.0	3.8	.37	1.0
30	2.8	3.0	3100	377	---	6000	17	13	5.0	3.9	.38	.93
31	4.6	---	883	147	---	596	---	151	---	5.0	.30	---
TOTAL	69.0	94.2	4068.2	8566	8145	19829	3100	3405.0	7659.1	138.6	33.96	57.53
MEAN	2.23	3.14	131	276	291	640	103	110	255	4.47	1.10	1.92
MAX	7.2	8.5	3100	2120	2580	8380	643	2080	5920	6.5	3.6	6.3
MIN	1.7	2.4	2.8	23	37	23	12	4.9	5.0	3.8	.30	.49
AC-FT	137	187	8070	16990	16160	39330	6150	6750	15190	275	67	114
CFSM	.02	.02	.93	1.96	2.06	4.54	.73	.78	1.81	.03	.01	.01
IN.	.02	.02	1.07	2.26	2.15	5.23	.82	.90	2.02	.04	.01	.02

CAL YR 1989 TOTAL 79235.3 MEAN 217 MAX 15900 MIN 1.7 AC-FT 157200 CFSM 1.54 IN. 20.90
WTR YR 1990 TOTAL 55165.59 MEAN 151 MAX 8380 MIN .30 AC-FT 109400 CFSM 1.07 IN. 14.55

e Estimated

08066250 TRINITY RIVER NEAR GOODRICH, TX

LOCATION.--Lat 30°34'19", long 94°56'55", Polk-San Jacinto County line, Hydrologic Unit 12030202, on left bank at downstream bridge on U.S. Highway 59, 0.2 mi downstream from Long King Creek, 3.0 mi southeast of Goodrich, 11.9 mile downstream from Livingston Dam, and at mile 117.3.

DRAINAGE AREA.--16,844 mi².

PERIOD OF RECORD.--December 1965 to current year.
Water-quality records.--March 1966 to September 1973.

GAGE.--Water-stage recorder. Datum of gage is 40.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow is completely regulated except during periods of flooding by Long King Creek. Regulation by Livingston Reservoir (station 08066190) 11.9 mi upstream, with capacity of 2,046,000 acre-ft, that began Sept. 29, 1968. No diversions between Livingston Reservoir and gaging station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--24 years (water years 1967-90), 7,258 ft³/s (5,258,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 107,000 ft³/s May 21, 1990 (gage height, 46.80 ft); minimum daily, 191 ft³/s Aug. 6, 1971 (regulation by Livingston Reservoir).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1929, 52.0 ft in May 1942, from information by State Department of Highways and Public Transportation and by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 107,000 ft³/s May 21 at 1700 hours (gage height, 46.80 ft); minimum daily, 828 ft³/s Dec. 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e1500	e1020	870	1540	13900	13600	45300	22600	47000	e8000	8480	1490
2	e1400	e1000	864	1120	15800	13900	40000	22600	49600	e8000	8030	1500
3	e1350	e1000	864	1000	13100	13100	33700	23200	47700	e8300	7760	1500
4	e1300	e990	862	1000	11200	12600	28600	29900	46900	e8050	6600	1490
5	e1280	e985	858	1060	9330	10900	25300	29800	41900	e8000	6290	1490
6	e1280	e980	858	2250	8990	9680	24700	28800	37200	e8000	4950	1490
7	e1270	e980	854	2570	8870	9050	24900	28200	e33000	e8000	4670	1460
8	e1270	e970	852	2440	9480	7600	24500	28400	e31500	e7900	4650	1450
9	e1260	e960	852	2430	11700	6140	24600	30000	e30500	e7800	4630	1450
10	e1210	e950	846	2120	14800	5460	25200	31600	e30000	e7950	4630	1530
11	e1100	e940	845	1850	15400	6640	25200	33100	e30500	e7900	4620	1520
12	e1050	e940	846	2070	16600	10700	25200	41800	e31000	7820	4710	1490
13	e940	e930	840	2430	18100	13200	25100	50700	e28000	7800	5890	1480
14	e920	e930	840	2600	18200	14600	25000	59800	e26000	7770	6030	1480
15	e900	e920	842	2290	18200	19100	25000	71700	e24500	7730	6040	1470
16	e1500	e903	836	1200	17500	22700	24300	84800	e23500	7130	6040	1460
17	e1300	e892	840	1130	13700	23000	22200	94700	e23000	5370	6030	1450
18	e1200	e887	843	1450	8750	23600	19500	102000	e22000	3670	6030	1450
19	e1100	e881	843	5440	7200	24100	18600	105000	e21000	2230	6030	1450
20	e1080	881	840	7890	6790	25200	18100	106000	e20500	2110	6010	1450
21	e1040	876	840	9870	5810	25700	16100	106000	e20500	2090	4790	1450
22	e1010	876	839	9790	9150	27200	15800	102000	e20000	2090	4370	1450
23	e1000	876	834	9920	9240	28800	15800	93000	e20000	2080	3450	1440
24	e980	876	834	12200	8910	30000	15800	84100	e17500	2300	2290	1440
25	e1000	876	834	18700	8810	31300	15800	75100	e16000	3780	1850	1440
26	e1010	876	829	20400	8740	31400	16300	63800	e15500	3990	1810	1430
27	e1020	877	828	20200	8940	31400	18700	56700	e14000	4570	1810	1340
28	e1040	880	829	20300	10300	31400	20400	54900	e11800	4630	1810	1280
29	e1040	871	832	23000	---	37100	21300	50000	e9800	4640	1800	1180
30	e1030	870	1950	21000	---	51800	22000	43400	e8000	5370	1720	1170
31	e1020	---	3540	17200	---	52500	---	39600	---	7830	1480	---
TOTAL	35400	27693	29984	228460	327510	663470	703000	1793300	798400	182900	145300	43170
MEAN	1142	923	967	7370	11700	21400	23430	57850	26610	5900	4687	1439
MAX	1500	1020	3540	23000	18200	52500	45300	106000	49600	8300	8480	1530
MIN	900	870	828	1000	5810	5460	15800	22600	8000	2080	1480	1170
AC-FT	70220	54930	59470	453200	649600	1316000	1394000	3557000	1584000	362800	288200	85630

CAL YR 1989 TOTAL 3379749 MEAN 9260 MAX 83000 MIN 799 AC-FT 6704000
WTR YR 1990 TOTAL 4978587 MEAN 13640 MAX 106000 MIN 828 AC-FT 9875000

e Estimated

08066300 MENARD CREEK NEAR RYE, TX

LOCATION.--Lat 30°28'52", long 94°46'46", Liberty County, Hydrologic Unit 12030202, on left bank 20 ft downstream from bridge on State Highway 146, 2.3 mi northwest of Rye, and about 6 mi upstream from mouth.

DRAINAGE AREA.--152 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1965 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of of gage is 62.32 ft above National Geodetic Vertical Datum of 1929. September 1974 to August 1976, wire-weight gage read twice daily.

REMARKS.--Estimated daily discharges: Jan. 2 to Apr. 12, Apr. 28 to May 11, June 1-7, Aug. 4-20, and Sept. 8-20. Records fair. No known diversions above station. Regulation by Bear Foot Lake on Mill Creek, located 0.5 mi upstream from station. A section of the dam on this lake washed out on June 26-27, 1986, and was repaired in 1987.

AVERAGE DISCHARGE.--24 years (water years 1967-90), 124 ft³/s (89,840 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,200 ft³/s June 27, 1986 (gage height, 30.78 ft); minimum daily, 2.6 ft³/s Nov. 1, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1929 reached a stage of about 39.4 ft, from information by the State Department of Highways and Public Transportation. Flood in September 1961 reached a stage of about 34.0 ft, from information by local resident. Flood of May 1929 may have been equaled or exceeded by other floods during the period 1929-65.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,370 ft³/s May 5 at 1330 hours (gage height, 22.20 ft); minimum daily, 16 ft³/s Aug. 31, Sept. 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	41	33	65	343	337	1310	140	167	39	17	17
2	19	45	31	96	309	415	771	101	166	34	19	19
3	19	44	31	86	347	653	399	193	228	31	20	18
4	18	42	31	71	542	793	208	1550	221	28	19	17
5	18	38	31	70	625	467	155	2020	121	27	19	17
6	18	37	31	91	525	243	151	1490	94	26	18	17
7	18	36	30	123	388	171	182	825	75	25	18	17
8	18	35	30	151	204	146	217	408	62	24	18	17
9	17	34	30	166	163	140	262	247	55	24	18	17
10	17	34	30	127	174	136	191	203	51	23	18	17
11	17	34	30	89	195	127	202	178	48	23	18	16
12	17	32	30	73	195	120	166	153	47	25	19	24
13	17	32	30	64	165	127	145	140	44	36	18	45
14	17	33	29	58	131	148	140	140	41	43	18	34
15	17	33	29	54	131	194	175	137	40	44	18	26
16	229	32	29	52	127	185	172	158	38	30	19	24
17	190	33	29	51	109	229	156	198	37	23	18	26
18	168	34	31	53	99	242	119	263	36	23	18	21
19	135	35	32	76	99	142	119	298	34	23	18	20
20	82	35	33	228	100	114	121	314	33	22	18	20
21	55	35	35	257	107	102	99	318	32	19	18	19
22	45	36	35	227	144	94	87	305	31	19	18	19
23	40	38	34	233	143	90	80	254	30	21	19	18
24	38	38	33	170	154	87	74	180	29	25	18	18
25	35	41	33	214	119	83	69	116	28	21	18	17
26	33	42	32	239	96	79	103	75	27	19	17	17
27	32	41	32	292	86	75	254	61	27	18	17	17
28	31	39	32	233	92	74	267	59	28	18	18	17
29	31	36	34	226	---	101	310	58	30	17	19	17
30	34	34	38	237	---	336	258	57	41	17	17	17
31	39	---	45	378	---	942	---	60	---	17	16	---
TOTAL	1483	1099	993	4550	5912	7192	6962	10699	1941	784	561	605
MEAN	47.8	36.6	32.0	147	211	232	232	345	64.7	25.3	18.1	20.2
MAX	229	45	45	378	625	942	1310	2020	228	44	20	45
MIN	17	32	29	51	86	74	69	57	27	17	16	16
AC-FT	2940	2180	1970	9020	11730	14270	13810	21220	3850	1560	1110	1200

CAL YR 1989	TOTAL 67005	MEAN 184	MAX 5680	MIN 17	AC-FT 132900				
WTR YR 1990	TOTAL 42781	MEAN 117	MAX 2020	MIN 16	AC-FT 84860				

08066300 MENARD CREEK NEAR RYE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: August 1950 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT 30...	1530	35	135	19.0	23	10	6.6	1.7	17
DEC 20...	1045	32	107	6.0	19	9	5.4	1.4	14
FEB 06...	1345	525	56	14.0	14	6	3.8	1.0	5.5
MAR 29...	1230	86	103	18.0	21	8	6.5	1.2	11
MAY 14...	1550	141	84	28.0	19	9	5.6	1.2	8.5
JUL 11...	0900	23	118	26.5	20	9	6.0	1.3	14
AUG 22...	1415	17	125	28.0	21	7	6.3	1.3	17

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS FIX END FIELD CACO3 (MG/L)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 30...	2	1.4	13	3.0	29	0.10	15	82
DEC 20...	1	0.80	10	4.0	25	<0.10	16	73
FEB 06...	0.6	1.3	8.0	5.0	10	0.10	9.2	41
MAR 29...	1	1.0	13	3.7	21	<0.10	14	66
MAY 14...	0.9	0.80	10	2.6	18	<0.10	12	55
JUL 11...	1	1.0	11	1.0	29	<0.10	17	76
AUG 22...	2	1.1	14	1.2	33	<0.10	16	84

08066500 TRINITY RIVER AT ROMAYOR, TX
(National stream-quality accounting network)

LOCATION.--Lat 30°25'30", long 94°51'02", Liberty County, Hydrologic Unit 12030202, near right bank at downstream side of bridge on State Highway 787, 1.9 mi south of Romayor, 1.9 mi downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 3.7 mi downstream from Big Creek, and at mile 94.3.

DRAINAGE AREA.--17,186 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1924 to current year. Monthly discharge only for some periods, published in WSP 1312.

REVISED RECORDS.--WSP 1392: 1932, 1935. WSP 1922: Drainage area. WRD TX-81-1: 1980(M, m).

GAGE.--Water-stage recorder. Datum of gage is 25.92 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1943, nonrecording gage at datum 63.57 ft higher at railroad bridge 1.9 mi upstream. Oct. 1, 1943 to Dec. 31, 1988, water-stage recorder and nonrecording gage (Sept. 15, 1975 to June 16, 1977) at present site and at datum 10.00 ft higher than current datum.

REMARK.--Records good except for estimated daily discharges which are fair. Since Sept. 28, 1968, flow is regulated by Livingston Reservoir (station 08066190), capacity 1,788,000 acre-ft, 35 mi upstream. There are no large diversions between Livingston Reservoir and this station.

AVERAGE DISCHARGE.--44 years (water years 1925-68) unregulated, 7,155 ft³/s (5,184,000 acre-ft/yr); 22 years (water years 1969-1990) flow regulated by Livingston Reservoir, 7,720 ft³/s (5,593,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 111,000 ft³/s May 9, 1942 (gage height, 45.8 ft, from floodmarks), present site and datum; minimum, 102 ft³/s Aug. 24, 25, 1956.
Maximum stage since at least 1908, that of May 9, 1942.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 105,000 ft³/s May 21 at 1400 hours (gage height, 41.58 ft); minimum daily, 897 ft³/s Dec. 23-29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1760	e1150	1030	2040	15400	15000	49900	25600	49600	8820	8980	1660
2	1720	e1140	1030	1320	16200	16300	43600	25500	56200	8710	8720	1660
3	1480	e1130	1010	1150	14700	15600	39900	25900	55400	8650	8210	1660
4	1410	e1130	1000	1110	12800	15200	34800	33700	52600	8600	7260	1650
5	1400	e1130	1000	1090	10600	13800	30600	36300	45100	8540	6470	1640
6	1380	e1130	1010	1750	9800	11500	28600	35000	41500	8500	5450	1630
7	1380	e1130	1010	2610	9500	10900	28800	33300	36000	8470	4650	1630
8	1340	e1110	984	2520	9960	9290	28100	32600	33700	8440	4580	1620
9	1340	1090	977	2530	12800	7660	28100	33600	32800	8020	4550	1600
10	1330	1070	969	2280	15800	6360	28700	34900	32500	8380	4540	1640
11	1320	1060	968	1880	17400	6670	28700	36000	32300	8360	4540	1680
12	1120	1060	953	1820	18100	10800	28600	40200	32400	8370	4540	1640
13	1020	1060	942	2170	20100	14100	28400	46600	31800	8350	5510	1650
14	985	1070	945	2270	20400	15900	28400	55300	28900	8290	6080	1680
15	936	1070	949	2470	20300	19400	28500	64000	27100	8230	6110	1660
16	1860	1060	929	1380	19900	24700	28000	75200	25300	e8080	6110	1650
17	1710	1040	922	1090	16800	25500	26000	82100	25100	e5910	6100	1660
18	1450	1050	925	1060	11500	26200	22800	92600	23800	e4510	6090	1650
19	1270	1050	928	3730	8510	26500	21400	100000	22100	e3780	6080	1660
20	1220	1060	928	7680	8040	27800	21000	103000	21800	e2360	6080	1670
21	1190	1070	925	10400	6690	28300	19000	104000	21700	e2170	5260	1660
22	1150	1080	906	10000	9390	29800	18200	102000	21700	e2120	4450	1660
23	1140	1080	897	9950	10800	31600	18100	98000	21600	e2080	3790	1660
24	1130	1070	e897	11100	10400	32900	18100	90400	21300	e2090	2850	1640
25	1120	1070	e897	17100	10100	34000	18100	84600	18000	e3260	2120	1620
26	1130	1070	e897	21000	10000	34400	18400	e78600	16200	e3960	2020	1620
27	1120	1070	e897	21000	9990	34400	21200	e67900	16000	e4270	1990	1550
28	1120	1070	897	20900	11300	34500	23000	e63800	15600	e4520	1980	1480
29	1110	1040	897	23100	---	37400	24200	e60400	12500	e4530	1960	1400
30	1140	1030	1020	23000	---	46700	25000	54900	9730	e4630	1950	1360
31	e1150	---	3590	19000	---	53300	---	46300	---	e7190	1710	---
TOTAL	39931	32440	32129	230500	367280	716480	806200	1862300	880330	192190	150730	48640
MEAN	1288	1081	1036	7435	13120	23110	26870	60070	29340	6200	4862	1621
MAX	1860	1150	3590	23100	20400	53300	49900	104000	56200	8820	8980	1680
MIN	936	1030	897	1060	6690	6360	18100	25500	9730	2080	1710	1360
AC-FT	79200	64340	63730	457200	728500	1421000	1599000	3694000	1746000	381200	299000	96480

CAL YR 1989	TOTAL	3659581	MEAN	10030	MAX	81700	MIN	850	AC-FT	7259000
WTR YR 1990	TOTAL	5359150	MEAN	14680	MAX	104000	MIN	897	AC-FT	10630000

e Estimated

08066500 TRINITY RIVER AT ROMAYOR, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1941 to November 1949, February 1950 to September 1951, October 1953 to current year. Chemical and biochemical analyses: February 1968 to current year. Pesticide analyses: February 1968 to July 1981, August 1983 to current year. Sediment analyses: March 1959 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1941 to September 1942, January 1944 to September 1951, October 1953 to current year.
WATER TEMPERATURE: October 1941 to September 1950, October 1953 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1954 to September 1955, October 1968 to September 1971.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE (1945-50, 1953-to current year): Maximum daily, 3,800 microsiemens Oct. 30, 1956; minimum daily, 103 microsiemens Nov. 9, 1946.
WATER TEMPERATURES (1953-58, 1961-to current year): Maximum daily, 37.0°C July 18, 27, 1953; minimum daily, 3.0°C Jan. 18, 1956, Jan. 15, 16, 1968, Jan. 2, 3, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily 378 microsiemens Feb. 13; minimum daily, 155 microsiemens Dec. 31.
WATER TEMPERATURE: Maximum daily, 32.0°C Aug. 26; minimum daily, 4.0°C Dec. 23, 24.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV 27...	1115	1070	346	8.2	19.5	4.0	10.0	109	2.0	32	80
JAN 17...	1015	1090	352	7.9	14.0	6.5	11.2	108	1.7	140	180
MAR 12...	1240	11100	356	7.5	20.0	12	9.4	103	0.6	40	68
APR 30...	1350	25100	304	7.4	21.5	15	9.2	104	1.1	24	120
JUN 13...	1024	32300	314	8.2	28.0	15	8.5	108	1.3	K12	110
JUL 31...	1230	7460	316	8.2	28.0	10	7.7	97	1.8	110	120

DATE	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV 27...	120	9	43	3.8	21	0.8	5.0	116	26	23	0.30
JAN 17...	120	7	43	3.8	21	0.8	4.4	114	27	23	0.30
MAR 12...	120	14	40	3.6	23	0.9	5.2	100	33	21	0.50
APR 30...	110	16	38	3.4	17	0.7	4.2	97	25	16	0.40
JUN 13...	130	16	44	4.2	14	0.5	4.1	113	22	16	0.30
JUL 31...	130	14	45	3.8	17	0.7	4.5	114	24	15	0.40

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
NOV 27...	6.9	221	198	--	--	0.010	<0.010	<0.100	<0.100	0.010
JAN 17...	6.7	220	200	--	--	--	<0.010	--	0.150	0.030
MAR 12...	5.8	219	197	0.780	0.790	0.020	0.010	0.800	0.800	0.010
APR 30...	7.0	184	170	0.480	--	0.020	<0.010	0.500	0.600	<0.010
JUN 13...	6.8	184	180	0.360	--	0.040	<0.010	0.400	0.300	0.050
JUL 31...	6.3	183	185	--	--	0.010	<0.010	<0.100	<0.100	0.020

08066500 TRINITY RIVER AT ROMAYOR, TX--Continued
(National stream-quality accounting network)

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

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)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 27...	0.010	0.89	0.90	0.110	0.040	0.050	0.15	12	35	67
JAN 17...	0.020	0.67	0.70	0.050	0.030	0.040	0.12	13	38	86
MAR 12...	<0.010	0.39	0.40	0.160	0.130	0.120	0.37	47	1410	68
APR 30...	0.020	--	0.60	0.130	0.150	0.130	0.40	63	4270	36
JUN 13...	0.020	3.6	3.7	0.130	0.060	0.080	0.25	56	4880	59
JUL 31...	0.020	0.58	0.60	0.120	0.080	0.070	0.21	68	1370	75

DATE	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)
NOV 27...	<10	2	65	<0.5	<1.0	<1	<3	2	8	<1
JAN 17...	--	--	--	--	--	--	--	--	--	--
MAR 12...	10	<1	51	<0.5	<1.0	<5	<3	<10	8	<10
APR 30...	--	--	--	--	--	--	--	--	--	--
JUN 13...	20	2	52	<0.5	3.0	<1	<3	7	<3	<1
JUL 31...	10	4	57	<0.5	4.0	<1	<3	5	8	1

DATE	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)
NOV 27...	7	9	<0.1	<10	2	<1	<1.0	320	<6	5
JAN 17...	--	--	--	--	--	--	--	--	--	--
MAR 12...	6	<1	<0.1	<10	<10	<1	<1.0	290	<6	14
APR 30...	--	--	--	--	--	--	--	--	--	--
JUN 13...	7	2	<0.1	<10	2	<1	<1.0	310	<6	8
JUL 31...	5	1	<0.1	<10	2	<1	<1.0	320	<6	<3

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1989 TO SEPTEMBER 1990

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICROSIEMENS)	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.	1989	39931	337	194	20900	24	2630	33	3590	120
NOV.	1989	32440	350	201	17600	26	2270	35	3050	120
DEC.	1989	32129	333	192	16600	24	2120	33	2870	110
JAN.	1990	230500	339	195	121000	25	15300	33	20800	120
FEB.	1990	367280	359	206	204000	27	27000	36	35800	120
MAR.	1990	716480	343	197	381000	25	48500	34	65800	120
APR.	1990	806200	312	181	394000	21	46100	30	65800	110
MAY	1990	1862300	309	179	899000	21	104400	30	149700	110
JUNE	1990	880330	321	185	441000	22	52800	31	74300	110
JULY	1990	192190	317	183	95200	22	11300	31	16000	110
AUG.	1990	150730	322	186	75600	22	9080	31	12800	110
SEPT	1990	48640	324	187	24500	23	2960	32	4150	110
TOTAL		5359150	**	**	2691000	**	324000	**	455000	**
WTD.AVG.		14680	322	186	**	22	**	31	**	110

08066500 TRINITY RIVER AT ROMAYOR, TX--Continued
(National stream-quality accounting network)

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	343	345	351	236	350	345	319	308	313	315	316	329
2	342	345	349	277	310	323	307	309	321	316	319	327
3	343	344	347	295	307	324	309	312	315	315	318	325
4	344	349	356	317	308	325	310	262	319	315	318	328
5	345	351	356	333	325	335	312	280	311	316	320	327
6	344	350	355	325	344	345	318	289	317	315	322	326
7	345	349	354	287	354	349	310	303	318	314	323	326
8	344	348	355	278	361	350	314	310	e325	315	323	328
9	344	350	356	298	370	351	314	315	332	314	320	326
10	345	351	356	321	370	351	317	317	326	314	319	326
11	344	351	356	331	368	358	317	320	329	316	321	317
12	349	351	356	342	373	352	317	323	323	315	323	e317
13	351	351	359	349	378	355	316	324	327	314	322	e316
14	352	349	357	351	375	352	316	323	324	316	322	313
15	273	348	347	353	374	349	317	324	326	319	320	e313
16	278	350	358	350	374	352	316	325	325	319	322	e315
17	348	353	358	349	374	353	315	320	326	320	320	317
18	304	351	357	351	370	355	313	315	324	320	321	324
19	316	351	355	352	370	353	314	309	324	323	323	325
20	322	349	357	322	370	355	314	308	321	326	323	322
21	339	350	356	334	365	355	e312	304	322	327	322	324
22	347	350	357	343	360	356	311	301	320	326	326	325
23	347	e349	359	346	350	354	311	300	319	325	323	325
24	347	350	360	347	356	354	311	307	320	320	326	326
25	347	349	361	339	365	354	312	303	316	321	331	327
26	348	349	360	347	368	352	299	e306	317	320	313	326
27	348	348	360	352	370	343	312	307	322	321	332	328
28	349	350	358	353	371	338	301	306	314	318	331	328
29	348	352	358	329	---	342	305	308	317	320	329	328
30	342	355	355	349	---	294	303	306	316	320	330	328
31	342	---	155	329	---	322	---	310	---	319	329	---
MEAN	338	350	349	329	358	345	312	308	321	319	323	324

e Estimated

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.0	18.0	15.0	10.5	14.0	13.0	20.0	22.5	28.0	30.5	29.0	30.0
2	28.0	18.0	14.0	10.0	15.0	14.0	20.0	23.0	28.0	29.0	29.0	29.0
3	26.0	17.0	12.0	10.5	15.0	15.0	18.0	23.0	28.5	30.0	29.0	29.5
4	26.0	18.0	14.0	12.0	12.5	14.5	19.0	23.0	27.0	31.0	31.0	30.0
5	26.0	21.5	12.5	12.0	12.0	16.0	20.0	22.0	28.0	30.0	31.0	30.5
6	26.5	20.5	15.5	11.0	13.0	16.5	21.5	23.0	28.0	29.0	30.0	29.5
7	27.0	23.0	17.5	10.0	14.0	16.5	15.0	23.5	27.5	30.0	29.0	30.0
8	24.0	23.0	11.5	10.0	14.5	17.0	17.5	23.0	---	31.0	29.0	30.5
9	23.0	20.0	11.5	10.0	15.0	18.0	19.5	23.0	30.0	30.0	28.0	29.0
10	22.5	19.0	14.0	10.0	14.0	19.0	21.0	25.0	29.0	30.0	29.0	30.0
11	24.0	20.0	14.0	11.0	11.0	18.0	18.0	26.0	27.0	30.0	30.0	30.0
12	23.0	20.5	10.5	10.0	14.5	18.0	18.0	25.0	28.5	30.0	30.0	---
13	24.0	20.5	10.0	11.0	15.5	18.0	20.0	25.0	28.0	29.5	29.0	---
14	27.0	21.0	10.0	10.0	15.5	19.0	20.0	25.0	28.5	28.0	29.0	29.5
15	26.5	22.0	12.0	12.5	16.0	16.5	21.0	25.5	30.0	28.0	29.0	---
16	26.5	16.5	8.0	14.0	14.0	16.5	22.0	25.0	29.0	28.0	29.0	---
17	25.0	15.5	8.0	15.0	13.5	17.5	22.0	25.0	29.0	28.0	29.0	28.5
18	25.0	15.0	8.0	15.0	15.5	18.0	23.0	25.0	29.0	28.0	30.0	30.0
19	16.0	16.0	8.0	15.5	14.0	17.0	22.0	26.0	29.0	28.0	30.5	30.0
20	16.0	17.0	8.0	13.0	14.0	16.0	23.0	27.0	30.0	29.0	30.0	30.0
21	19.5	19.0	8.0	12.5	15.0	16.0	24.0	26.0	29.5	30.0	24.5	30.0
22	19.0	19.0	5.0	12.0	13.0	18.0	25.0	21.5	31.0	29.0	29.0	29.5
23	19.5	---	4.0	12.0	15.0	18.5	24.0	26.0	30.0	29.0	29.5	26.5
24	21.0	15.0	4.0	13.5	14.0	19.5	24.0	26.0	30.0	29.0	29.5	25.0
25	24.0	17.0	5.0	12.0	17.0	18.0	24.0	27.0	30.0	29.5	31.0	29.0
26	23.0	19.0	7.0	11.5	15.0	17.0	23.0	---	29.0	29.5	32.0	25.0
27	22.0	19.5	8.0	12.0	15.0	17.0	23.0	27.0	31.0	30.0	30.0	27.0
28	23.5	17.0	15.0	13.0	15.5	18.0	---	26.0	30.0	29.5	31.0	27.0
29	22.0	15.0	12.0	11.0	---	19.5	24.0	26.0	30.5	29.0	30.5	26.0
30	23.5	14.5	14.5	12.0	---	19.5	25.0	27.5	30.0	29.0	30.5	27.0
31	17.0	---	14.5	12.0	---	19.5	---	27.0	---	29.0	31.0	---
MEAN	23.2	18.5	10.7	11.8	14.4	17.2	21.3	24.8	29.1	29.3	29.6	28.8

08067000 TRINITY RIVER AT LIBERTY, TX

LOCATION.--Lat 30°03'27", long 94°49'05", Liberty County, Hydrologic Unit 12030203, at upstream side of upstream bridge on U.S. Highway 90 in Liberty, 345 ft downstream from Texas and New Orleans Railroad Co. bridge, and at mile 40.3.

DRAINAGE AREA.--17,468 mi².

PERIOD OF RECORD.--October 1938 to September 1940 (gage heights, discharge measurements, and some records of daily discharge), October 1940 to current year (high-water records only). Gage-height records collected in this vicinity since 1903 are contained in reports of the National Weather Service.
Water-quality records.--Chemical and biochemical analyses: October 1970 to September 1972. Pesticide analyses: May 1971 to September 1972.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2.22 ft below National Geodetic Vertical Datum of 1929; unadjusted for land-surface subsidence. Prior to Mar. 13, 1973, nonrecording gage at site 105 ft downstream at same datum.

REMARKS.--Records fair. Discharges for current year were computed using stage discharge relationship. During years with predominantly low releases from Livingston Reservoir, discharges are estimated using records for Trinity River near Romayor (station 08066500), intervening area computation, and discharge measurements. Estimated discharges below 10,000 ft³/s are not published. Considerable regulation of flow by Livingston Reservoir (station 08066190) 88.9 mi upstream. Many diversions above station for municipal supplies, industrial uses, and irrigation. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 114,000 ft³/s May 12, 1942 (gage height, 29.38 ft); minimum not determined (affected by tides); minimum gage height observed, 2.32 ft Nov. 24, 1970.
Maximum stage since at least 1903, May 23, 1990 at 1700 hours (gage height, 30.03 ft).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 8-11, 1922, reached a stage of 28.6 ft, present datum, from observation by the National Weather Service at nonrecording gage on railroad bridge upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 106,000 ft³/s May 23, 1700 hours (gage height, 30.03 ft); minimum discharge not determined (affected by tides); minimum gage height, not recorded.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	19600	---	42600	23300	52200	---	---	---
2	---	---	---	---	17300	13600	45900	23800	49800	---	---	---
3	---	---	---	---	17300	14600	45800	24100	49900	---	---	---
4	---	---	---	---	16100	14200	42800	25700	50500	---	---	---
5	---	---	---	---	14300	13800	38600	30000	50300	---	---	---
6	---	---	---	---	12500	12600	35600	32500	49000	---	---	---
7	---	---	---	---	11500	11300	33300	33300	46300	---	---	---
8	---	---	---	---	10800	---	31800	33000	41700	---	---	---
9	---	---	---	---	10700	---	30800	33000	37200	---	---	---
10	---	---	---	---	12000	---	30600	33400	34400	---	---	---
11	---	---	---	---	13900	---	31100	34500	32800	---	---	---
12	---	---	---	---	15000	---	31700	35400	31800	---	---	---
13	---	---	---	---	16000	---	31100	37400	31200	---	---	---
14	---	---	---	---	17300	12500	31500	39400	30500	---	---	---
15	---	---	---	---	17800	14000	31500	44300	29100	---	---	---
16	---	---	---	---	17900	17500	32200	49700	27300	---	---	---
17	---	---	---	---	17500	20800	31700	57000	25700	---	---	---
18	---	---	---	---	15000	22000	29400	62600	24600	---	---	---
19	---	---	---	---	11600	23200	25700	68600	22900	---	---	---
20	---	---	---	---	---	24100	23200	75400	21500	---	---	---
21	---	---	---	---	---	25200	21600	87200	20700	---	---	---
22	---	---	---	---	---	26200	19900	99100	20200	---	---	---
23	---	---	---	---	---	27700	18700	103000	19800	---	---	---
24	---	---	---	---	---	29100	17900	102000	19500	---	---	---
25	---	---	---	12000	---	30500	17400	98700	18800	---	---	---
26	---	---	---	16900	---	32000	17100	92700	16600	---	---	---
27	---	---	---	19300	---	32700	18200	94300	15300	---	---	---
28	---	---	---	19800	---	32300	20100	83800	14700	---	---	---
29	---	---	---	20700	---	33100	21600	71100	13800	---	---	---
30	---	---	---	22300	---	34900	22500	59900	11600	---	---	---
31	---	---	---	21900	---	38600	---	55900	---	---	---	---
TOTAL	---	---	---	---	---	---	871900	1744100	909700	---	---	---
MEAN	---	---	---	---	---	---	29060	56260	30320	---	---	---
MAX	---	---	---	---	---	---	45900	103000	52200	---	---	---
MIN	---	---	---	---	---	---	17100	23300	11600	---	---	---
AC-FT	---	---	---	---	---	---	1729000	3459000	1804000	---	---	---

CAL YR 1989	TOTAL	---	MEAN	---	MAX	---	MIN	---	AC-FT	---		
WTR YR 1990	TOTAL	---	MEAN	---	MAX	---	MIN	---	AC-FT	---		

08067070 CIWA CANAL NEAR DAYTON, TX

LOCATION.--Lat 29°57'40", long 94°48'36", Liberty County, Hydrologic Unit 12030203, at flume on left bank of Coastal Industrial Water Authority canal, 1,000 ft west of the Trinity River, 2 mi east of Farm Road 1409, and 7.4 mi southeast of Dayton.

PERIOD OF RECORD.--April 1981 to current year.

GAGE.--Water-stage recorder. National Geodetic Vertical Datum of gage not determined.

REMARKS.--Records good except those for estimated daily discharges, which are fair. There are no known diversions between pumping plant and the gage. Water is pumped from the Trinity River for industrial use in the area.

AVERAGE DISCHARGE.--9 years, 328 ft³/s (237,600 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 593 ft³/s July 19, 1988; minimum daily, 52 ft³/s Aug. 18, 1983, and Nov. 10, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 561 ft³/s June 18, July 10; minimum daily, 293 ft³/s Oct. 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	400	319	373	325	339	385	343	377	461	495	517	495
2	404	343	358	328	336	388	354	391	461	489	498	451
3	404	339	354	321	343	385	377	392	461	512	483	438
4	414	343	358	352	358	377	360	393	490	521	485	441
5	428	343	358	400	356	377	381	396	503	525	484	393
6	432	365	362	388	381	381	377	396	488	552	482	429
7	432	404	369	347	396	346	377	396	521	552	481	456
8	428	396	365	343	396	362	377	377	521	521	482	458
9	416	338	365	343	377	362	377	360	508	556	549	459
10	385	355	369	343	373	358	373	373	486	561	550	460
11	394	373	358	369	377	354	377	375	461	521	519	435
12	428	332	365	369	381	362	377	375	465	543	503	428
13	373	347	369	369	381	381	373	376	450	538	503	454
14	336	343	350	365	358	377	381	384	473	538	508	403
15	332	369	373	e369	365	396	381	415	465	538	482	396
16	293	351	381	e369	358	396	381	490	469	538	500	397
17	377	385	404	367	347	388	360	433	512	543	504	400
18	399	388	428	388	347	362	381	464	561	538	507	473
19	424	388	416	388	347	381	377	486	552	496	529	541
20	404	388	381	385	354	388	377	486	522	501	538	544
21	385	373	377	336	365	372	388	474	556	501	530	547
22	369	365	350	321	349	388	400	397	556	502	506	547
23	369	350	347	321	365	362	467	465	556	503	473	544
24	358	339	365	321	377	358	400	486	556	489	496	548
25	305	336	412	388	388	358	404	465	556	472	485	518
26	328	358	e396	381	388	358	457	467	556	520	457	467
27	343	347	e377	369	388	388	396	469	556	526	426	508
28	373	400	362	369	370	389	405	469	508	531	473	514
29	373	373	369	358	---	373	459	469	508	537	498	513
30	377	377	343	354	---	328	392	443	508	538	505	515
31	365	---	339	328	---	328	---	458	---	538	475	---
TOTAL	11848	10827	11493	11074	10260	11508	11629	13197	15246	16235	15428	14172
MEAN	382	361	371	357	366	371	388	426	508	524	498	472
MAX	432	404	428	400	396	396	467	490	561	561	550	548
MIN	293	319	339	321	336	328	343	360	450	472	426	393
AC-FT	23500	21480	22800	21970	20350	22830	23070	26180	30240	32200	30600	28110

CAL YR 1989	TOTAL	140634	MEAN	385	MAX	593	MIN	234	AC-FT	278900
WTR YR 1990	TOTAL	152917	MEAN	419	MAX	561	MIN	293	AC-FT	303300

e Estimated

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 northeast of Crosby.

DRAINAGE AREA.--64.9 mi².

PERIOD OF RECORD.--March to August 1946, March 1963 to February 1964, May to August 1971 (discharge measurements only), October 1971 to 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 above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records fair except those for estimated daily discharges, which are poor. Stage discharge relationship is affected by seasonal vegetal growth during most years. Low flow is sustained by drainage from irrigated lands. Diversion for irrigation upstream from station. Gage-height telemetry at station.

AVERAGE DISCHARGE.--19 years (water years 1972-90), 77.4 ft³/s (56,080 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,760 ft³/s June 5, 1981 (gage height, 23.92 ft); maximum gage height, 24.95 ft May 19, 1989; no flow occasionally during pumping season of some years.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,400 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 30	0300	*865	*14.85				

Minimum daily discharge, 0.10 ft3/s Aug. 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.29	7.1	2.2	.53	35	57	99	6.5	7.1	e.22	16	.18
2	.17	4.4	2.1	.42	152	145	22	5.1	4.8	e.20	1.7	.15
3	.28	2.9	2.4	.48	276	51	6.5	4.7	4.9	e.18	.67	.18
4	13	4.4	2.4	2.5	220	25	2.6	23	2.8	e.16	e.51	.23
5	8.3	6.2	2.1	.78	62	16	1.6	11	1.9	e1.0	e.80	.26
6	3.2	5.2	1.9	9.7	31	12	1.2	13	.48	e.60	e.65	.37
7	1.5	4.9	2.0	52	21	6.8	1.2	10	.23	e.30	e.36	.55
8	.95	10	1.9	34	17	4.3	1.0	4.2	.20	e.70	e.24	3.0
9	.53	40	1.5	15	64	3.7	.99	16	e.19	e5.0	e.18	3.8
10	.35	24	1.3	9.5	48	2.9	42	5.3	e.18	e1.0	e.15	2.5
11	.29	11	1.2	6.3	34	3.1	186	1.8	e.18	e.60	e.14	5.8
12	.23	5.1	1.1	5.3	19	4.0	58	3.3	e.20	.38	e.13	9.0
13	.70	3.0	1.1	1.7	12	56	9.1	2.2	e.45	.58	e.14	13
14	2.3	2.1	.97	.86	8.5	35	12	1.6	e.26	.51	e.15	22
15	4.0	1.6	1.1	.86	9.0	24	43	.74	e.20	.48	e.16	13
16	20	1.3	1.3	.83	8.7	18	9.9	.21	e.18	.63	e.16	8.7
17	13	1.1	.93	.76	5.6	8.6	2.4	.22	e.35	.71	e.16	4.4
18	6.6	1.0	1.5	.76	5.6	5.2	1.6	.39	e.30	1.5	e.16	6.0
19	3.4	.91	2.1	.80	7.2	3.5	1.5	.29	e.21	.81	e.17	99
20	2.2	.94	1.5	3.6	7.7	2.6	1.8	.42	e.20	.40	e.18	72
21	1.6	1.1	.85	16	7.7	1.3	3.3	.26	e.18	1.5	e.18	48
22	1.3	1.6	.69	2.3	10	2.0	3.2	.29	e.18	1.1	.23	24
23	1.2	4.7	.67	1.3	10	2.0	3.4	.79	e.18	2.3	.27	35
24	1.1	6.1	1.1	34	7.7	2.0	3.2	1.4	e.19	22	1.2	20
25	1.1	4.2	2.3	91	7.1	2.1	3.1	4.1	e.24	1.6	.32	10
26	.90	3.2	2.8	13	5.7	3.6	17	.96	e.28	3.2	.28	5.3
27	.71	2.5	2.6	3.6	4.9	3.8	235	.14	e.25	.45	.15	3.3
28	.67	26	2.6	25	5.9	195	78	8.8	e.35	.40	.10	2.1
29	4.7	7.5	2.0	188	---	331	22	15	e.26	.43	.19	1.4
30	20	3.0	.98	55	---	726	9.1	6.9	e.24	.37	.11	.96
31	16	---	.65	20	---	396	---	9.2	---	13	.16	---
TOTAL	130.57	197.05	49.84	595.88	1102.3	2148.5	880.69	157.81	27.66	62.31	26.00	414.18
MEAN	4.21	6.57	1.61	19.2	39.4	69.3	29.4	5.09	.92	2.01	.84	13.8
MAX	20	40	2.8	188	276	726	235	23	7.1	22	16	99
MIN	.17	.91	.65	.42	4.9	1.3	.99	.14	.18	.16	.10	.15
AC-FT	259	391	99	1180	2190	4260	1750	313	55	124	52	822

CAL YR 1989	TOTAL	34929.98	MEAN	95.7	MAX	4030	MIN	.00	AC-FT 69280
WTR YR 1990	TOTAL	5792.79	MEAN	15.9	MAX	726	MIN	.10	AC-FT 11490

e Estimated

Because the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than continuous stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage of those events. The data collected for special reasons are called measurements at miscellaneous sites.

Streamflow data collected at partial-record stations where water-quality data other than observations of water temperature are not obtained are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations; the second is a table of annual maximum stage and (or) discharge at crest-stage stations. Discharge measurements made at miscellaneous sites for both low and high flows are given in a third table. Discharge measurements and water-quality data collected at partial-record stations are presented in downstream order in the section of this report entitled "Gaging-station records."

Low-flow partial-record stations

Measurements of streamflow at low-flow partial-record stations that are not published in the gaging-station section are given in the following table. Most of the measurements of low flow were made during periods when streamflow was sustained primarily by ground-water discharge. These measurements, when correlated with the simultaneous discharge of a nearby stream where continuous records are available, will indicate the low-flow potential of the stream. The years listed in the column headed "Period of record" identifies the water years in which measurements were made at the same or at practically the same site.

Discharge measurements made at low-flow partial-record station during water year 1990

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Measurements	
					Date	Discharge (ft^3/s)
		Red River basin				
07299890	Lelia Lake Creek below Bell Creek near Hedley, Tex.	Lat 34°56'08", long 100°41'46", Donley County, 150 ft downstream from county road crossing, 1.0 mi downstream from mouth of Bell Creek, and about 5 mi north of Hedley.	74	1964-90	01-22-90	6.06
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, 1943-90	01-26-90	1.02
		Neches River basin				
0804I720	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.	--	1979-90	10-05-89 12-19-89 07-10-90 08-21-90	6.3 5.5 24.0 16.0

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 occuring 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 1990

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Annual maximum		
					Date	Gage height	Discharge (ft^3/s)
		Red River basin					
07299570	Red River near Quanah, Tex.	Lat 34°24'47", long 99°44'03", Hardeman County, on right bank at downstream side of bridge on State Highway 6, 8 mi north of Quanah, 30 mi upstream from Salt Fork Red River, and at mile 1,030. (discontinued)	8,321	1959-82† 1984-90	u	<8.00	<680
07301200	McClellan Creek near McLean, Tex.	Lat 35°19'45", long 100°36'32", Gray County, on left bank at downstream side of bridge on State Highway 273, 5 mi upstream from mouth.	759	1967-80† 1987-90	04-25-90	6.03	200
		Sabine River basin					
08017210	Long Branch at Greenville, Tex.	Lat 33°07'20", long 96°05'54", Hunt County, on left edge of low-water channel 80 ft upstream from culvert under Moulton St. (Business Route U.S. Highway 69), 0.5 mi upstream from Interstate Highway 30, 0.6 mi downstream from Wesley St. (Business Route U.S. Highway 67), and 1.3 mi southeast of Hunt County Courthouse in Greenville.	5.37	1986-90	05-03-90	11.11	--
		Trinity River Basin					
08048800	Big Fossil Creek at Haltom City, Tex.	Lat 33°48'32", long 97°15'02", Tarrant County, at center of channel at downstream side of downstream bridge on State Highway 183, 2.0 mi upstream from Little Fossil Creek, 3.5 mi upstream from mouth, and 6.0 mi northeast of downtown section of Fort Worth.	52.8	1960-73† 1974-84ϕ 1985-90	05-03-90	13.76	--
		Cedar Bayou basin					
08067510	Cedar Bayou near Baytown, Tex.	Lat 29°46'12", long 94°54'59", Chambers-Harris County line, at bridge on State Highway 146, 0.2 mi downstream from Cary Bayou, 0.2 mi upstream from Saw Pit Gully, and 4.3 mi northeast of Baytown.	169	1984-90	10-15-89	*6.66	--

u Unknown
* Elevation, in feet.
† Operated as a continuous-record station.
ϕ Operated as an unpublished stage-only station.

Measurements of streamflow at points other than gaging stations or partial-record stations are given in the following table:

Discharge measurements made at miscellaneous sites during water year 1990

Station no.	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Trinity River basin				
West Fork Trinity River	Trinity River	Lat 32°46'49", long 97°25'05", Tarrant County, Hydrologic Unit 12030102, at bridge on meandering road in Fort Worth, 2.1 mi downstream from Lake Worth Dam and 5.7 mi northwest of Post Office Building on Lancaster Street in downtown area of Fort Worth.	d2,064	1949*, 1952-53*, 1990	05-03-90 05-07-90 05-14-90 05-16-90 05-18-90 05-21-90	20,400 20,100 9,730 7,110 2,600 1,030
Trinity River	Gulf of Mexico	Lat 32°37'03", long 96°37'19", Dallas County, at bridge on South Belt Line Road, 4.2 mi northeast of Wilmer, Tex. and 6.5 mi upstream from Tenmile Creek.	--	1974, 1989-90	10-05-89	666

d Drainage area of Lake Worth dam.
* Although measurement was at a slightly different site location, the drainage area is comparable to prior miscellaneous measurement.

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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).

Multiply inch-pound units	By	To obtain SI units
	Length	
inches (in)	2.54×10^{1}	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^{0}	kilometers (km)
	Area	
acres	4.047×10^{3}	square meters (m^2)
	4.047×10^{-1}	square hectometers (hm^2)
	4.047×10^{-3}	square kilometers (km^2)
square miles (mi^2)	2.590×10^{0}	square kilometers (km^2)
	Volume	
gallons (gal)	3.785×10^{0}	liters (L)
	3.785×10^{0}	cubic decimeters (dm^3)
	3.785×10^{-3}	cubic meters (m^3)
million gallons	3.785×10^{3}	cubic meters (m^3)
	3.785×10^{-3}	cubic hectometers (hm^3)
cubic feet (ft^3)	2.832×10^{1}	cubic decimeters (dm^3)
	2.832×10^{-2}	cubic meters (m^3)
cfs-days	2.447×10^{3}	cubic meters (m^3)
	2.447×10^{-3}	cubic hectometers (hm^3)
acre-feet (acre-ft)	1.233×10^{3}	cubic meters (m^3)
	1.233×10^{-3}	cubic hectometers (hm^3)
	1.233×10^{-6}	cubic kilometers (km^3)
	Flow	
cubic feet per second (ft^3/s)	2.832×10^{1}	liters per second (L/s)
	2.832×10^{1}	cubic decimeters per second (dm^3/s)
	2.832×10^{-2}	cubic meters per second (m^3/s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm^3/s)
	6.309×10^{-5}	cubic meters per second (m^3/s)
million gallons per day	4.381×10^{1}	cubic decimeters per second (dm^3/s)
	4.381×10^{-2}	cubic meters per second (m^3/s)
	Mass	
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons

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