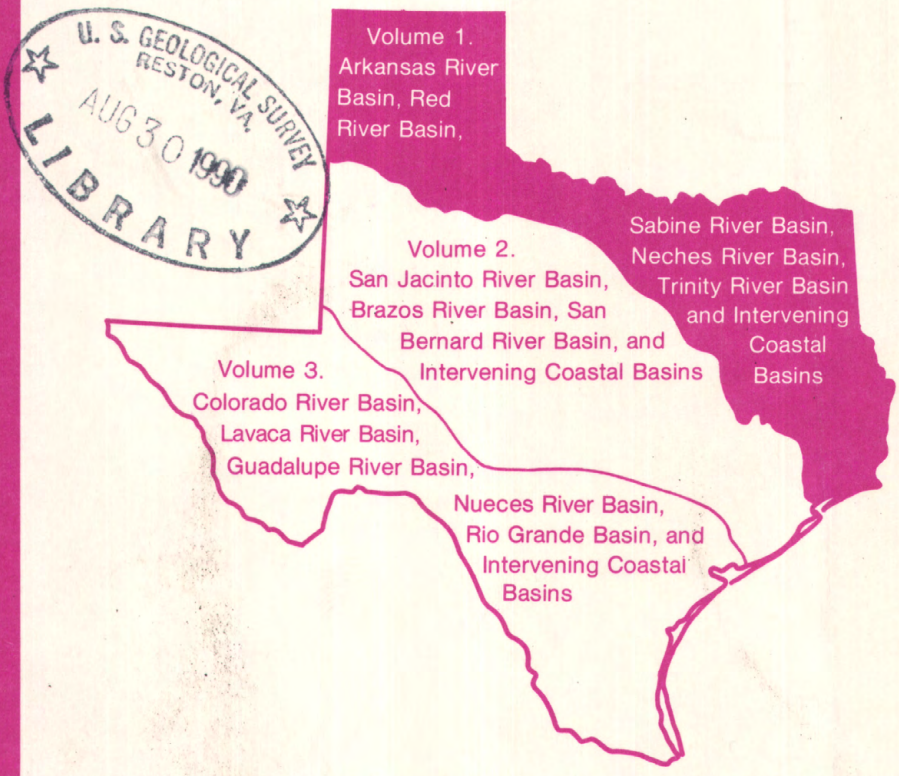
Water Resources Data Texas

Water Year 1989

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



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-89-1
Prepared in cooperation with the State of Texas
and with other agencies

CALENDAR FOR WATER YEAR 1989

1988

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1989

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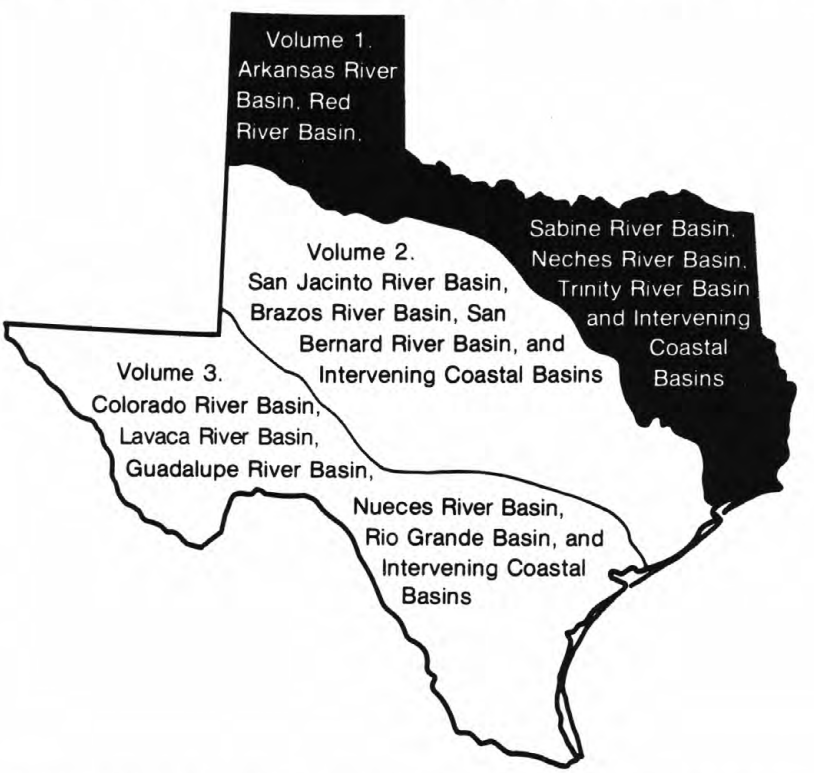
Water Resources Data
Texas
Water Year 1989

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, W.J. Shelby, and H.J. Davidson



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-89-1
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:
District Chief, Water Resources Division
U.S. Geological Survey
8011A Cameron Rd.
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- and ground-water data-collection networks in each State, Puerto Rico, and the Trust Territories. Records of streamflow and quality-of-water data required to provide 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

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

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

This report is the culmination of a concerted effort by dedicated personnel of the Texas District, U.S. Geological Survey, who collected, compiled, analyzed, verified, and organized the data, typed, edited, and assembled the report, and who assured that the information contained here is accurate, complete, and adheres to Geological Survey policy and established guidelines.

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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16. Abstract (Limit: 200 words)

Surface-water data for the 1989 water year for Texas are presented in three volumes, appropriately identified as to content by river basins. Data in each volume consist of records of stage, discharge, and water quality of streams and canals; and stage, contents, and water quality of lakes and reservoirs. Also included are crest-stage and flood-hydrograph partial-record stations, reconnaissance partial-record stations, and low-flow partial-record stations. Additional water data were collected at various sites, not part of the systematic data-collection program, and are published as miscellaneous measurements. Records for a few pertinent stations in bordering States also are included. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in Texas.

17. Document Analysis. a. Descriptors
*Texas, *Hydrologic data, *Surface water, *Water quality, Flow rate, Gaging stations, Lakes, Reservoirs, Chemical analyses, Sediments, Water temperatures, Sampling sites, Water analyses

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report)	21. No. of Pages
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FOR WHICH RECORDS ARE PUBLISHED

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

WATER RESOURCES DATA - TEXAS, 1989

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 132 gaging stations; stage only at 2 gaging stations; stage and contents at 37 lakes and reservoirs; and water quality at 70 gaging stations. Also included are data for 22 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-89-1." 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 1989 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 1989 followed the long-term pattern and decreased across the State from east to west. Total precipitation for the year were near normal in the area between the Brazos and Colorado Rivers, greater than normal east of the Brazos River, and below normal west of the Colorado River.

The greater than normal precipitation totals recorded in North Central, East, and extreme Southeast Texas during the year were the result of heavy rains that occurred during May and June. Several locations had totals near 19 inches, with more than 10 inches common throughout the entire area during May. Intense storms in June over the same areas as the May storms resulted in severe flooding in some areas. During June, several stations in North Central Texas reported nearly 17 inches of rainfall. In East Texas, rainfall amounts for June were almost 20 inches, and in extreme Southeast Texas, rainfall amounts in excess of 20 inches for the month were not uncommon.

Streamflow during water year 1989 generally followed the precipitation patterns. North and East of the Brazos River, streamflow was normal to greater than normal, while West of the Brazos River, streamflow usually was normal to below normal.

The precipitation pattern was reflected by changes in reservoirs contents. Conservation storage in 74 selected reservoirs throughout the State, with a combined conservation capacity of 33,958,690 acre-feet, increased from 78 percent at the end of September 1988 to 86 percent at the end of September 1989. Records from these reservoirs indicate that storage increased in 47, decreased in 23, and remained the same in 4.

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 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 1.

Streamflow

Streamflow was generally greater than normal in most of the area described in volume 1 for water year 1989. Four of five selected streamflow stations in the area indicated streamflow during the year to be in the greater than normal range, with only the Panhandle station (Canadian River near Amarillo, station 07227500) indicating slightly below normal runoff.

Streamflow at the hydrologic index station Neches River near Rockland (08033500) was greater than normal (within the highest 25 percent of record) during the period April through July, and normal for the remainder of the year. A comparison of

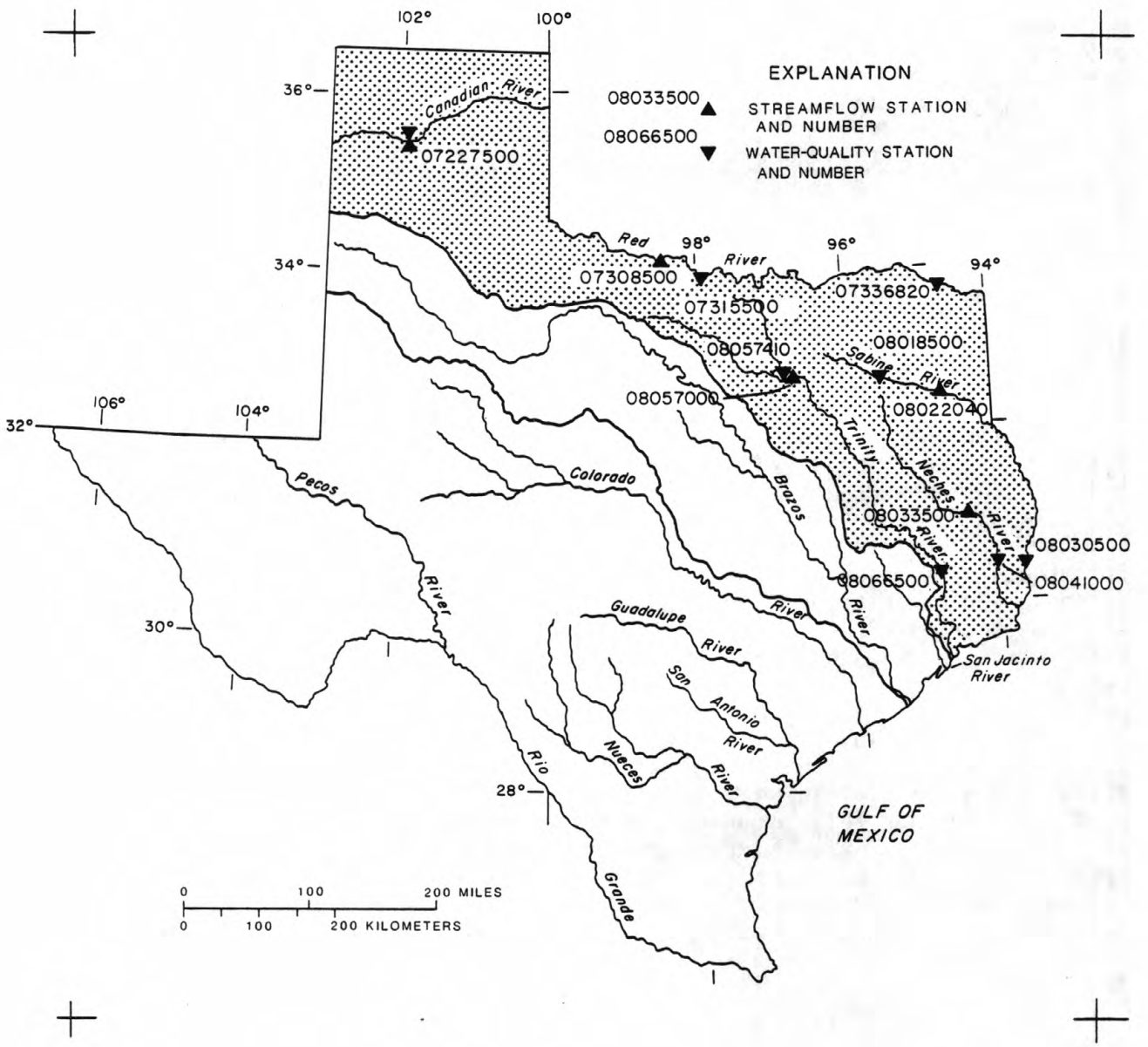

Figure 1.--Area of Texas covered by volume 1 (shaded) and location of selected streamflow and water-quality stations in volume 1.

streamflow for water year 1989 with streamflow for the period of record at five selected stations (fig. 1) for which data are included in volume 1 is presented in the following table:

Station no. and name	Discharge during 1989 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.	8,380	4.6	145	135,000	0 (1925, 1939-89)	309
Red River basin						
07308500 Red River near Burkburnett, Tex.	38,400	154	1,290	166,000	0 (1961-89)	1,024
Sabine River basin						
08022040 Sabine River near Beckville, Tex.	41,300	24	3,962	123,000	2.4 (1961-89)	2,271
Neches River basin						
08033500 Neches River near Rockland, Tex. 1/	42,000	90	3,429	49,800	1.6 (1962-89)	2,030
Trinity River basin						
08057000 Trinity River at Dallas, Tex.	58,700	318	3,968	184,000	1.2 (1904-89)	1,553

1/ Hydrologic index station.

At the other three index stations in the State, streamflow during water year 1989 ranged from below normal to greater than normal. Monthly mean discharges and the median of the long-term monthly means for the water years 1951-80 for the four hydrologic index stations in the state are shown in figure 2. For the North Bosque River near Clifton, streamflow was greater than normal in March and during the period May through September, below normal (within the lowest 25 percent of record) in November, and normal for the remainder of the year. The North Concho River near Carlsbad had greater than normal streamflow from December through March and during June, and normal streamflow during the remaining seven months. Streamflow for the Guadalupe River near Spring Branch was normal from October through August and below normal during September.

Conservation storage in 34 selected reservoirs in this area of the state, with a total combined conservation capacity of 21,222,960 acre-feet, increased from 74 percent of capacity at the end of September 1988 to 93 percent of capacity at the end of September 1989. Records from these reservoirs indicate that storage increased in 29, decreased in 3, and remained the same in 2 during water year 1989.

Water Quality

Dissolved-solids concentrations in most streams in the State are inversely related to streamflow. During years when precipitation and runoff are deficient,

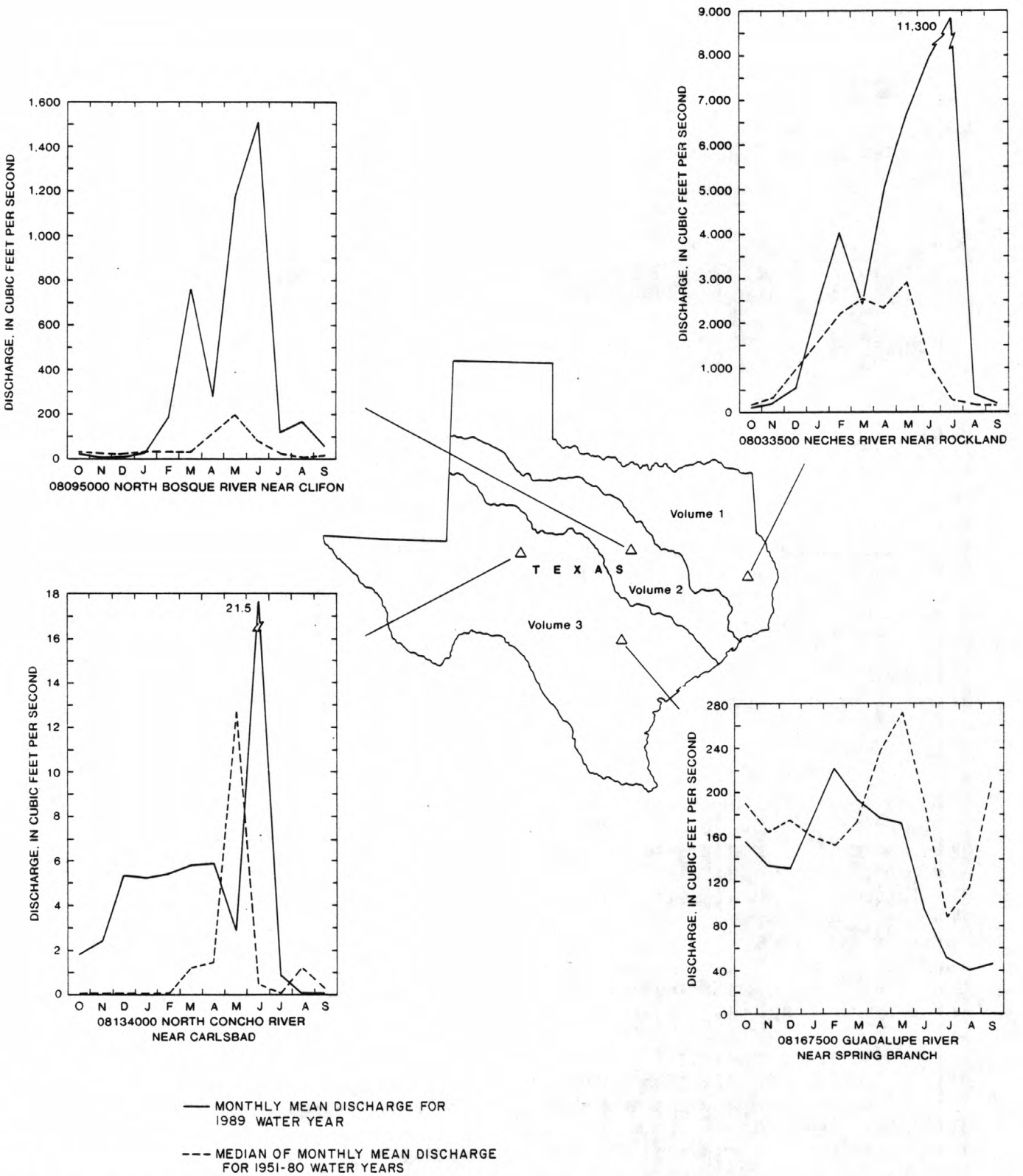

Figure 2.--Comparison of monthly mean discharges at four long-term hydrologic index gaging stations during the 1989 water year with median of the monthly mean discharges for 1951-80 water years.

streamflow commonly is much more mineralized than during years when precipitation and runoff are normal or excessive. However, for streams where discharge is controlled by reservoirs, the mineralization of the water may remain relatively constant despite large fluctuations in precipitation and runoff. Records of discharge-weighted-average concentrations of dissolved solids for the 1989 water year are compared with those for the 1985-89 water years for selected long-term daily or continuous-record stations in the Arkansas, Red, Sabine, Neches, and Trinity River basins in the following table:

Station no. and name	Mean discharge (cubic feet per second)		Discharge-weighted-average concentration of dissolved solids (milligrams per liter)	
	1989	1985-89	1989	1985-89
Arkansas River basin				
07227500 Canadian River near Amarillo, Tex.	145	164	1,050	903
Red River basin				
07315500 Red River near Terral, Okla.	3,247	4,082	1,410	1,320
07336820 Red River near DeKalb, Tex.	14,430	17,480	464	500
Sabine River basin				
08018500 Sabine River near Mineola, Tex.	1,125	809	114	123
08030500 Sabine River near Ruliff, Tex.	13,570	8,921	69	75
Neches River basin				
08041000 Neches River at Evadale, Tex.	8,111	6,304	82	87
Trinity River basin				
08057410 Trinity River below Dallas, Tex.	4,573	2,511	219	266
08066500 Trinity River at Romayor, Tex.	9,961	8,124	201	197

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 1989 water year that began October 1, 1988, and ended September 30, 1989. 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 eight-digit number for each station, such as 08057000, which appears just to the left of the station name, includes the two-digit Part number "08" plus the six-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 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 to which the revisions apply. 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 other-wise 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 manuscript 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 once 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 Regional 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 (carbonate and bicarbonate), 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 carbonate and bicarbonate 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 whose 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 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 its 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 multi-celled plants, containing chlorophyll and lacking roots, stems, and leaves.

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

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

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

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

Fecal streptococcal bacteria are bacteria found also in the intestine of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours 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).

Cubic-foot-per-second day 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.

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 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 aquatic organisms. 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 eight-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.....	.004 - .062	Sedimentation
Sand.....	.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 qual-

ity 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 O/(m^2.time)] for periphyton and macrophytes and [mg O/(m^3.time)] for 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 U.S.G.S. 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, 1989, is called the "water year 1989."

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

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

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

PUBLICATIONS ON 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 pages.

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 pages.

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 pages.

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

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 pages.

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 pages.

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 pages.

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 pages.

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

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

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

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

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

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

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 pages.

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

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 pages.

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 pages.

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

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

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

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

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

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 pages.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS—Continued

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

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

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 pages.

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 pages.

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 pages.

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

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 pages.

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

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

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

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

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

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

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

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 pages.

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 pages.

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 pages.

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 pages.

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 pages.

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 pages.

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

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

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

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 pages.

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. 1981. 110 pages.

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 pages.

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

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 pages.

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 mi 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.--Estimated daily discharges: Mar. 22 to Apr. 6, July 11-26, July 30 to Aug. 2 and Aug. 5-9. Records poor. Flow regulated by Conchas Lake, 45 mi upstream (capacity, 330,100 acre-ft) and by Ute Reservoir, 2 mi upstream (capacity, 246,600 acre-ft). There are diversions above station for the irrigation of about 90,000 acres. Several observations of water temperature were made during the yar.

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); 26 years (water years 1963-88), 37.8 ft³/s (27,390 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 State Engineer.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 179 ft³/s Sept. 22 (gage height, 2.89 ft); minimum daily, 1.8 ft³/s May 16.

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	3.8	15	2.3	2.6	4.5	4.2	4.2	4.5	3.9	5.6	5.0	4.1
2	4.8	14	1.9	2.7	4.3	4.3	4.4	4.7	4.0	5.8	5.0	3.7
3	4.7	13	1.8	3.0	4.2	5.2	4.2	4.7	4.0	5.9	4.7	3.9
4	4.8	12	1.8	2.9	4.3	4.8	4.2	4.6	5.3	6.2	4.6	4.4
5	5.5	11	2.1	4.3	4.3	4.4	4.3	4.6	4.3	6.4	4.6	4.0
6	6.3	12	4.7	4.0	4.3	4.3	4.3	4.6	3.8	6.2	4.6	4.0
7	5.6	12	6.2	3.8	4.3	4.3	4.2	4.6	3.8	6.2	4.5	4.0
8	5.1	12	6.6	3.6	4.3	4.2	4.0	4.6	4.0	6.3	4.4	3.8
9	5.1	20	6.5	3.4	4.3	4.2	3.9	4.3	4.6	6.5	4.2	3.7
10	5.0	12	6.5	3.4	4.2	4.2	3.9	4.4	4.3	6.6	4.1	3.4
11	5.0	22	6.7	3.4	4.2	4.3	3.8	4.1	4.3	6.5	5.0	3.2
12	5.1	5.9	6.7	3.5	4.1	4.3	3.8	4.1	9.0	7.0	4.9	9.4
13	6.2	4.4	6.7	3.5	4.0	4.4	3.9	4.1	34	8.1	7.2	3.9
14	5.2	132	6.0	3.8	4.0	4.5	3.8	4.2	5.3	26	6.8	3.7
15	4.7	487	4.0	3.7	4.0	4.6	3.8	4.3	4.6	10	3.5	3.7
16	4.6	357	4.2	3.9	4.0	4.3	3.8	5.9	4.3	6.3	3.6	3.7
17	4.5	348	4.4	3.9	4.2	4.4	3.9	5.3	4.1	5.8	3.4	3.7
18	4.6	342	4.6	4.0	4.2	4.7	4.1	5.2	4.0	4.3	3.3	3.7
19	4.6	335	42	4.1	4.1	4.3	4.1	4.3	4.1	3.8	3.2	3.5
20	4.7	329	5.8	4.1	4.5	4.5	4.1	4.2	4.0	4.1	3.0	3.2
21	5.1	324	2.8	4.2	4.4	4.5	4.3	4.2	4.0	4.9	2.9	3.0
22	9.3	320	2.5	4.0	4.2	4.5	4.3	4.0	4.3	4.9	2.9	2.8
23	5.4	320	11	4.0	4.1	4.4	4.4	3.9	4.4	4.9	2.8	2.5
24	6.8	321	3.6	4.1	4.2	4.3	4.4	3.8	10	4.8	3.2	2.3
25	4.8	321	2.8	4.1	4.3	4.3	4.5	3.7	8.7	5.6	3.9	2.4
26	5.7	319	4.4	4.1	4.4	4.3	4.5	3.8	5.3	5.4	3.8	2.3
27	6.4	318	3.6	4.1	4.4	4.3	4.4	3.9	5.2	4.4	4.4	2.4
28	7.1	217	2.8	4.1	4.2	4.3	4.6	3.9	6.5	4.4	3.9	2.3
29	7.9	4.8	2.4	4.0	---	4.3	4.6	3.7	5.4	4.5	5.0	2.2
30	8.6	2.8	2.5	4.1	---	4.2	4.5	3.8	5.3	4.7	4.3	2.2
31	9.9	---	2.6	4.3	---	4.2	---	3.8	---	5.0	5.5	---
TOTAL	176.9	4962.9	172.5	116.7	118.5	136.0	125.2	133.8	178.8	197.1	132.2	105.1
MEAN	5.71	165	5.56	3.76	4.23	4.39	4.17	4.32	5.96	6.36	4.26	3.50
MAX	9.9	487	42	4.3	4.5	5.2	4.6	5.9	34	26	7.2	9.4
MIN	3.8	2.8	1.8	2.6	4.0	4.2	3.8	3.7	3.8	3.8	2.8	2.2
AC-FT	351	9840	342	231	235	270	248	265	355	391	262	208

CAL YR 1988 TOTAL 6605.7 MEAN 18.0 MAX 487 MIN 1.8 AC-FT 13100
WTR YR 1989 TOTAL 6555.7 MEAN 18.0 MAX 487 MIN 1.8 AC-FT 13000

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 3,665 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.--Estimated daily discharges: Dec. 18 to Jan. 7 and May 25 to June 1. Records poor. Low flows supplemented by surface and ground-water return from irrigation in vicinity of Tucumcari. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--29 years, 44.9 ft³/s (32,530 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 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)
June 14	0315	*18,000	*12.84	Sept. 14	1030	10,600	9.83
Aug. 26	0430	5,420	7.23				

Minimum discharge, 0.12 ft³/s Mar. 30.

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	2.7	23	4.9	5.3	2.3	1.9	14	e5.8	.72	275	58	5.4
2	2.3	23	5.4	4.5	2.3	1.7	19	e7.5	16	145	18	2.3
3	4.5	24	4.6	4.0	e2.0	1.3	23	e10	218	95	16	1.3
4	4.2	23	4.3	3.5	e3.0	2.2	20	e8.0	240	38	19	.65
5	8.1	23	4.3	2.8	e4.0	1.9	18	e5.9	78	14	28	.47
6	10	24	4.5	2.6	e5.0	2.4	17	e5.1	28	7.9	28	.29
7	12	23	4.5	2.4	e8.0	3.0	18	e4.6	13	6.2	102	.18
8	12	23	5.3	3.1	9.2	1.9	15	e4.5	10	4.6	167	.19
9	14	20	5.4	2.6	9.6	1.6	15	e4.5	75	4.3	128	.12
10	13	17	11	3.4	11	1.4	e20	e4.6	36	4.0	67	.14
11	17	14	9.4	4.3	10	1.4	e32	e5.7	28	2.7	275	.05
12	20	13	8.3	2.8	7.7	1.4	e68	e10	95	5.7	330	115
13	28	13	7.3	2.2	5.2	1.2	e99	e8.0	162	89	374	525
14	27	12	5.8	3.3	3.9	.95	e105	e6.4	58	48	32	172
15	36	11	5.1	5.0	3.4	.89	e60	e4.6	43	322	12	118
16	43	10	4.0	4.2	2.7	.74	e33	e210	20	269	75	76
17	53	9.4	4.4	4.5	4.0	.51	e18	e50	9.0	197	1310	45
18	42	8.7	5.2	5.1	5.1	.48	e6.8	e98	3.9	32	754	33
19	15	11	4.3	3.7	4.2	.90	e6.1	84	2.6	e20	342	24
20	16	14	3.3	3.2	3.5	1.6	e6.1	28	1.8	e12	115	15
21	20	10	3.2	3.2	4.6	10	e6.2	16	.77	9.2	45	41
22	20	7.8	2.9	2.9	5.0	26	e6.6	9.9	4.1	9.4	25	45
23	14	8.9	2.3	2.7	4.0	16	e6.6	8.2	11	9.2	5.2	53
24	14	9.7	3.0	2.5	2.7	22	e6.0	5.0	268	21	4.8	45
25	14	6.7	3.3	3.1	2.3	9.3	e5.9	3.1	290	442	10	40
26	23	5.6	3.6	3.7	2.0	8.9	e5.5	2.6	.48	275	30	34
27	24	5.5	2.9	4.2	2.0	8.5	e5.0	2.0	.09	50	549	30
28	24	4.6	e2.6	5.3	1.8	16	e4.7	1.9	12	43	110	27
29	26	4.9	3.1	e3.0	---	17	e4.8	1.1	90	15	739	23
30	27	4.1	e2.6	3.9	---	12	e4.9	1.0	254	7.1	488	19
31	25	---	e4.1	3.5	---	9.9	---	1.0	---	6.2	22	---
TOTAL	610.8	406.9	144.9	110.5	130.5	184.97	669.2	617.0	2068.46	2478.5	6278.0	1491.09
MEAN	19.7	13.6	4.67	3.56	4.66	5.97	22.3	19.9	68.9	80.0	203	49.7
MAX	53	24	11	5.3	11	26	105	210	290	442	1310	525
MIN	2.3	4.1	2.3	2.2	1.8	.48	4.7	1.0	.09	2.7	4.8	.05
AC-FT	1210	807	287	219	259	367	1330	1220	4100	4920	12450	2960

CAL YR 1988 TOTAL 30579.49 MEAN 83.6 MAX 6780 MIN .29 AC-FT 60650
WTR YR 1989 TOTAL 15190.82 MEAN 41.6 MAX 1310 MIN .05 AC-FT 30130

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. There is some regulation by Conchas and Ute Reservoirs in New Mexico, total capacity 439,700 acre-ft. Conchas Canal and Bell Ranch Canal divert water from Conchas Reservoir for irrigation.

AVERAGE DISCHARGE.--52 years (water years 1925, 1939-89), 309 ft³/s (223,900 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)
May 17	0850	*8,380	*5.63				

Minimum discharge, 4.6 ft³/s Apr. 29-30.

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	77	50	275	46	34	38	15	6.5	29	160	166	519
2	70	46	126	42	30	38	14	6.0	37	117	88	302
3	74	47	80	42	23	34	13	5.6	85	166	91	223
4	61	47	59	41	29	31	13	20	159	186	75	152
5	69	51	48	40	33	17	13	49	229	189	50	113
6	63	55	42	38	41	22	13	33	142	135	52	78
7	70	53	37	35	51	40	13	18	175	99	104	53
8	68	54	38	35	63	40	13	13	215	79	92	45
9	64	48	38	47	45	36	13	9.6	391	67	57	37
10	60	42	42	37	46	31	15	7.6	464	60	35	57
11	60	42	42	39	41	28	17	6.2	285	50	22	97
12	56	47	41	33	37	25	19	9.9	236	39	28	312
13	45	50	41	27	35	24	29	22	3940	47	1540	697
14	38	55	43	30	52	21	27	27	1440	56	701	743
15	40	51	45	27	55	17	24	111	662	135	300	538
16	39	57	43	38	51	16	25	717	458	88	241	405
17	36	93	44	39	55	14	22	2680	302	46	722	396
18	40	159	45	38	56	13	21	2130	216	220	963	343
19	42	325	46	36	59	13	20	683	166	190	874	267
20	39	371	45	33	53	12	17	366	126	218	624	180
21	39	453	44	31	51	15	17	380	96	158	449	144
22	41	391	44	32	49	20	14	304	143	104	267	106
23	42	270	44	30	44	19	12	192	173	71	190	81
24	47	233	42	29	43	18	11	127	119	165	136	81
25	49	221	44	31	41	16	10	90	108	113	103	84
26	46	255	47	31	38	14	8.7	62	315	141	78	65
27	43	312	45	37	40	14	6.8	48	396	57	200	63
28	48	325	41	43	39	16	5.8	46	250	180	287	53
29	46	324	37	47	---	14	5.3	43	616	178	533	47
30	43	309	42	46	---	15	5.5	49	288	127	582	40
31	48	---	34	43	---	17	---	29	---	178	860	---
TOTAL	1603	4836	1684	1143	1234	688	452.1	8290.4	12261	3819	10510	6321
MEAN	51.7	161	54.3	36.9	44.1	22.2	15.1	267	409	123	339	211
MAX	77	453	275	47	63	40	29	2680	3940	220	1540	743
MIN	36	42	34	27	23	12	5.3	5.6	29	39	22	37
AC-FT	3180	9590	3340	2270	2450	1360	897	16440	24320	7570	20850	12540

CAL YR 1988	TOTAL	91197.9	MEAN	249	MAX	11900	MIN	2.4	AC-FT 180900
WTR YR 1989	TOTAL	52841.5	MEAN	145	MAX	3940	MIN	5.3	AC-FT 104800

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, 6,870 microsiemens July 11, 1983; minimum daily, 346 microsiemens Oct. 29, 1964.
WATER TEMPERATURE (1949-76): Maximum daily, 39.0°C July 7, 1973; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 6,060 microsiemens Apr. 23; minimum daily, 480 microsiemens May 17.
WATER TEMPERATURE; Maximum daily, 29.0°C Apr. 21, 22, July 7; minimum reported, 0.0°C Feb. 3, 4.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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 WH WAT TOT FLD MG/L AS CACO3
NOV										
15...	0830	49	4550	8.50	7.5	12.2	118	0.8	550	370
29...	0920	324	1490	8.20	2.5	--	--	--	300	120
DEC										
20...	0810	45	4460	8.50	0.5	12.4	98	1.2	580	360
MAR										
08...	0900	40	3970	8.20	5.0	14.7	131	2.0	530	350
MAY										
10...	0905	8.1	4550	8.30	16.0	10.6	122	1.3	720	560
JUN										
14...	1530	880	660	8.20	20.0	--	--	--	110	0
JUL										
18...	1700	260	2820	8.20	28.0	8.5	123	2.3	240	61
AUG										
15...	1940	273	956	8.20	27.5	8.6	123	2.4	87	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 WH TOT FET FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
NOV										
15...	120	61	660	13	5.9	182	560	940	0.50	13
29...	66	33	210	5	4.5	185	300	180	0.50	5.4
DEC										
20...	130	61	780	15	6.3	220	510	1100	0.40	13
MAR										
08...	120	55	650	13	6.6	176	480	870	0.80	15
MAY										
10...	170	72	750	13	6.9	164	700	1000	0.50	18
JUN										
14...	28	9.4	89	4	3.5	120	73	83	0.40	9.8
JUL										
18...	52	27	480	14	6.4	180	280	610	0.60	9.4
AUG										
15...	21	8.4	150	7	3.5	112	99	160	0.50	8.3

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)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)
NOV										
15...	2470	--	<0.010	0.100	0.040	0.56	0.60	0.110	2	200
29...	910	--	--	--	--	--	--	--	--	--
DEC										
20...	2730	--	0.010	<0.100	0.190	0.71	0.90	0.110	--	--
MAR										
08...	2300	1.56	0.040	1.60	0.070	0.33	0.40	0.670	--	--
MAY										
10...	2820	--	<0.010	<0.100	0.060	0.44	0.50	0.330	--	--
JUN										
14...	368	--	--	--	--	--	--	--	--	--
JUL										
18...	1570	0.470	0.030	0.500	0.060	1.9	2.0	0.110	4	200
AUG										
15...	518	--	<0.010	0.400	0.030	2.3	2.3	0.070	--	--

07227500 CANADIAN RIVER NEAR AMARILLO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV										
15...	2	1	3	20	<5	20	0.1	<1	<1.0	<10
29...	--	--	--	--	--	--	--	--	--	--
DEC										
20...	--	--	--	--	--	--	--	--	--	--
MAR										
08...	--	--	--	--	--	--	--	--	--	--
MAY										
10...	--	--	--	--	--	--	--	--	--	--
JUN										
14...	--	--	--	--	--	--	--	--	--	--
JUL										
18...	<1	2	13	20	<1	10	0.3	1	<1.0	20
AUG										
15...	--	--	--	--	--	--	--	--	--	--

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	1603	3360	2010	8710	730	3150	440	1880	500
NOV.	1988	4836	2080	1240	16200	420	5470	270	3540	310
DEC.	1988	1684	3340	2000	9120	750	3410	430	1960	500
JAN.	1989	1143	4250	2550	7870	990	3050	550	1690	630
FEB.	1989	1234	3680	2210	7360	820	2730	480	1590	550
MAR.	1989	688	4550	2740	5080	1100	2010	590	1090	670
APR.	1989	452.1	5320	3200	3910	1300	1630	680	831	780
MAY	1989	8290.4	1120	670	15000	210	4720	150	3290	170
JUNE	1989	12261	1430	855	28300	270	9070	190	6200	220
JULY	1989	3819	2030	1210	12500	400	4110	270	2730	300
AUG.	1989	10510	1260	751	21300	230	6550	170	4690	190
SEPT	1989	6321	1450	867	14800	270	4670	190	3250	220
TOTAL		52841.5	**	**	150000	**	50600	**	32700	**
WTD.AVG.		145	1760	1050	**	350	**	230	**	260

07227500 CANADIAN RIVER NEAR AMARILLO, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2800	3660	1510	4030	3640	4220	5740	5350	3730	1200	1390	800
2	3000	3700	1640	4310	3640	4280	5430	5390	3320	1890	1570	820
3	3200	3710	1840	4210	3640	4340	5340	5400	3320	2400	2040	920
4	3300	3700	2100	4290	3630	4400	5250	5380	3360	3020	2190	1110
5	3300	3690	2310	4370	3630	4480	5290	4720	1440	2400	2060	1370
6	3150	3680	2700	4450	3630	4550	5330	1750	1400	1960	2050	1720
7	3150	3610	3100	4440	3620	3870	5380	3280	2210	2000	2390	2130
8	2920	3770	3600	4490	3620	4010	5420	3920	2680	2130	1370	2460
9	3210	3800	3990	4440	3610	4100	5470	3940	2690	2370	2670	2850
10	3290	3840	4030	4390	3610	4190	5430	4230	1460	2580	2430	2600
11	3440	3870	4030	4340	3610	4280	5390	4580	1390	2500	2700	2740
12	3480	3910	4070	4290	3520	4630	5470	4800	1810	2730	3080	1980
13	3520	3900	4170	4240	3640	4780	5150	4350	750	3110	1670	840
14	3560	4010	4410	4190	3600	4900	4830	1770	590	2860	980	1060
15	3600	4130	4450	5080	3500	5070	4850	2690	1050	1790	1050	1550
16	3560	4040	4480	4670	3400	5030	4880	1020	1630	2160	960	1560
17	3470	4000	4520	4660	3480	5080	4910	480	1510	2190	770	1170
18	3400	3900	4440	4570	3550	5070	4940	790	1890	2250	800	1280
19	3500	1900	4440	4140	3630	5060	4980	1720	2200	2020	1030	1490
20	3430	1830	4430	4220	3700	5050	5330	1380	2210	1450	960	1860
21	3370	1630	4420	4200	3800	5040	5610	1420	2730	1200	960	2090
22	3310	1570	4440	4190	3880	5030	5910	1580	2810	1450	930	2250
23	3620	1540	4400	4170	3890	4510	6060	1910	2710	1700	1100	2530
24	3550	1520	4410	4200	3890	4730	6050	2060	3030	1020	1250	2640
25	3700	1510	4380	4150	3850	4820	5920	2390	2590	1560	1460	2630
26	3580	1500	4380	4310	3930	4930	5800	2730	2890	2340	1700	2840
27	3640	1490	4420	4100	4020	4550	5630	3000	3110	1880	2010	2820
28	3480	1480	4500	4010	4160	4770	5630	2910	2040	3100	1090	3160
29	3540	1480	4810	3720	---	4970	5720	3350	1600	2500	2020	3560
30	3600	1470	4100	3690	---	5160	5530	3330	980	1530	1910	3570
31	3630	---	4240	3650	---	5370	---	3650	---	1510	780	---
MEAN	3400	2930	3830	4260	3690	4690	5420	3070	2170	2090	1590	2010

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e18.0	e19.0	9.0	8.0	e3.0	e5.0	23.0	10.0	17.0	23.0	23.0	23.0
2	e19.0	20.0	10.0	8.0	e2.0	e7.0	26.0	13.0	18.0	22.0	23.0	23.0
3	e20.0	20.0	10.0	10.0	e.0	7.0	e24.0	15.0	17.0	23.0	22.0	23.0
4	e19.0	e19.0	e9.0	e13.0	e.0	e3.0	22.0	14.0	15.0	23.0	23.0	23.0
5	19.0	e18.0	10.0	e11.0	e1.0	e2.0	9.0	12.0	15.0	22.0	22.0	22.0
6	15.0	17.0	e8.0	10.0	e3.0	5.0	e13.0	14.0	18.0	21.0	23.0	22.0
7	13.0	18.0	e6.0	8.0	e4.0	3.0	e15.0	15.0	17.0	29.0	20.0	21.0
8	22.0	18.0	e4.0	5.0	e5.0	20.0	e10.0	17.0	16.0	21.0	19.0	21.0
9	22.0	e17.0	6.0	e10.0	e5.0	e20.0	7.0	15.0	17.0	23.0	19.0	18.0
10	22.0	e16.0	4.0	e10.0	e5.0	e18.0	e7.0	15.0	18.0	21.0	19.0	17.0
11	22.0	15.0	8.0	e5.0	3.0	10.0	6.0	14.0	18.0	22.0	20.0	18.0
12	e23.0	16.0	9.0	e4.0	2.0	12.0	8.0	15.0	20.0	25.0	21.0	17.0
13	e25.0	17.0	11.0	e2.0	1.0	10.0	e9.0	15.0	18.0	23.0	21.0	22.0
14	23.0	e15.0	9.0	1.0	e6.0	10.0	9.0	16.0	17.0	23.0	21.0	10.0
15	20.0	8.0	e5.0	1.0	e4.0	6.0	e11.0	17.0	17.0	23.0	21.0	13.0
16	23.0	12.0	e5.0	1.0	2.0	8.0	e15.0	17.0	18.0	24.0	21.0	16.0
17	24.0	e10.0	6.0	1.0	e5.0	8.0	e21.0	14.0	22.0	22.0	20.0	17.0
18	21.0	e6.0	2.0	1.0	e7.0	e22.0	e25.0	14.0	22.0	22.0	22.0	17.0
19	21.0	e1.0	e10.0	1.0	e8.0	e22.0	27.0	17.0	22.0	21.0	22.0	17.0
20	e23.0	1.0	e8.0	2.0	e14.0	e21.0	28.0	19.0	23.0	21.0	23.0	17.0
21	e20.0	2.0	e10.0	e14.0	e14.0	e10.0	29.0	21.0	21.0	21.0	23.0	18.0
22	14.0	3.0	e10.0	e15.0	13.0	18.0	29.0	19.0	17.0	20.0	23.0	16.0
23	12.0	e13.0	e8.0	e15.0	13.0	22.0	28.0	21.0	16.0	21.0	23.0	11.0
24	11.0	6.0	e10.0	e9.0	17.0	22.0	23.0	19.0	19.0	19.0	23.0	10.0
25	11.0	6.0	e11.0	7.0	17.0	23.0	e18.0	18.0	20.0	20.0	22.0	18.0
26	9.0	e2.0	e10.0	11.0	e16.0	22.0	e15.0	15.0	19.0	19.0	23.0	14.0
27	12.0	e4.0	e5.0	e10.0	14.0	23.0	13.0	15.0	20.0	22.0	22.0	16.0
28	9.0	e5.0	e3.0	10.0	8.0	25.0	11.0	18.0	23.0	22.0	22.0	14.0
29	e16.0	e8.0	5.0	11.0	---	e23.0	8.0	18.0	22.0	23.0	23.0	14.0
30	e15.0	7.0	7.0	11.0	---	e22.0	13.0	18.0	23.0	23.0	23.0	15.0
31	e19.0	---	5.0	14.0	---	21.0	---	18.0	---	22.0	23.0	---
MEAN	19.0	11.5	7.5	7.5	7.0	14.5	16.5	16.0	19.0	22.0	22.0	17.5

e Estimated

07227920 DIXON CREEK NEAR BORGER, TX

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

DRAINAGE AREA.--134 mi².

PERIOD OF RECORD.--March 1974 to Sept. 1989 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 2,834.84 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges which are poor.

AVERAGE DISCHARGE.--15 years, 2.54 ft³/s (1,840 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,640 ft³/s May 26, 1977 (gage height, 8.99 ft), from rating curve extended above 25 ft³/s on basis of slope-conveyance studies; maximum gage height 9.50 ft May 26, 1987; no flow for many days each year.

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 17	unknown	*2,580	a*9.75	June 13	unkonwn	1,510	a8.86

a From high-water mark.

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	.00	.00	.13	e.59	.84	.40	.05	.00	.08	.00	.15
2	.00	.00	.02	.19	e.43	.90	.40	.10	.00	.01	.00	.00
3	.00	.00	.02	.25	e.25	.83	.37	.05	.00	.01	.00	.00
4	.00	.00	.00	.28	e.20	.50	.31	1.1	2.1	.00	.00	.00
5	.00	.00	.00	.35	e.16	.35	.23	1.7	.50	.00	.00	.00
6	.00	.05	.02	.30	e.13	.39	.23	.55	.25	.00	.76	.00
7	.00	.05	.00	.28	e.16	.68	.22	.22	.05	.00	.89	.00
8	.00	.03	.00	.19	e.22	.74	.21	.16	.00	.00	.08	.00
9	.00	.05	.00	.19	e.28	.63	.21	.08	.40	.00	.00	.00
10	.00	.05	.10	e.25	e.47	.55	.20	.00	.25	.00	.00	.00
11	.00	.02	.10	e.25	e.69	.51	.20	.00	.13	.00	.00	.00
12	.00	.00	.10	e.22	e.69	.48	.19	.00	e31	.00	.00	.28
13	.00	.00	.10	e.25	e.84	.48	.31	.66	e595	.00	.00	.02
14	.00	.05	.07	e.25	e.74	.49	.66	.16	54	.00	.00	.03
15	.00	.03	.05	e.28	e.64	.38	.54	.10	12	.00	.00	.04
16	.01	.03	.05	e.28	e.59	.33	.41	e37	3.8	.00	.00	.05
17	.00	.03	.06	e.32	e.55	.34	.31	e793	1.4	.00	.00	.03
18	.00	.05	.10	e.36	e.64	.29	.22	e40	1.1	.00	.00	.03
19	.00	.05	.10	e.40	e.74	.28	.16	6.0	1.7	.00	.00	.02
20	.00	.08	.10	e.43	e.80	.27	.15	1.4	1.0	.00	.00	.01
21	.00	.11	.07	e.47	e.84	.27	.13	1.2	.54	.00	.00	.00
22	.00	.12	.05	e.55	.78	.55	.12	1.3	e3.8	.00	.00	.00
23	.00	.07	.05	e.47	.72	.54	.10	.99	e6.4	.00	.00	.00
24	.00	.05	.06	e.40	.72	.48	.11	.55	3.0	.00	.00	.00
25	.00	.05	.10	e.36	.78	.44	.13	.19	1.5	.00	.00	.00
26	.00	.05	.10	e.36	.81	.43	.10	.00	.81	.00	.00	.00
27	.00	.05	.10	e.50	.82	.77	.05	.00	.49	.00	.00	.00
28	.00	.08	.07	e.64	.79	1.4	.05	.00	1.1	.00	.00	.00
29	.00	.03	.06	e.69	---	1.0	.05	.00	.40	.00	.00	.00
30	.00	.00	.06	e.64	---	.65	.05	.01	.13	.00	.79	.00
31	.00	---	.13	e.59	---	.45	---	.00	---	.00	4.4	---
TOTAL	0.01	1.18	1.84	11.12	16.07	17.24	6.82	886.57	722.85	0.10	6.92	0.66
MEAN	.000	.039	.059	.36	.57	.56	.23	28.6	24.1	.003	.22	.022
MAX	.01	.12	.13	.69	.84	1.4	.66	793	595	.08	4.4	.28
MIN	.00	.00	.00	.13	.13	.27	.05	.00	.00	.00	.00	.00
AC-FT	.02	2.3	3.6	22	32	34	14	1760	1430	.2	14	1.3

CAL YR 1988 TOTAL 1375.21 MEAN 3.76 MAX 321 MIN .00 AC-FT 2730
WTR YR 1989 TOTAL 1671.38 MEAN 4.58 MAX 793 MIN .00 AC-FT 3320

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 of 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); 25 years (water years 1965-89) regulated, 89.3 ft³/s (64,700 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, 4,580 ft³/s May 18 at 0245 hours (gage height, 6.86 ft); minimum, 14 ft³/s Sept. 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	42	35	50	62	e63	88	89	33	98	177	47	29
2	38	36	51	61	e62	86	71	34	100	148	49	27
3	37	36	50	63	e62	79	64	34	93	122	46	26
4	34	36	47	62	e62	61	61	38	198	113	37	26
5	34	35	49	66	e62	41	59	48	199	99	37	25
6	37	34	48	63	e61	e60	60	42	161	89	45	20
7	50	35	50	61	e61	e65	59	44	138	79	101	18
8	49	35	49	58	e61	70	53	42	118	67	120	16
9	46	37	50	56	e61	69	49	33	125	58	92	15
10	43	38	50	59	e61	70	49	29	143	52	76	16
11	41	37	49	61	e60	69	51	28	166	47	61	24
12	39	38	49	61	e60	65	52	66	386	42	46	51
13	39	38	51	61	e60	63	64	74	482	76	50	82
14	38	39	53	61	e60	66	73	70	1420	84	89	72
15	36	39	52	61	e60	62	63	65	850	76	63	67
16	36	36	54	61	e60	64	61	100	495	71	51	55
17	36	37	51	61	e90	63	56	1960	529	57	48	47
18	36	37	52	62	e80	61	54	2190	555	53	42	42
19	35	37	55	63	e70	60	53	625	251	50	36	40
20	35	41	56	63	e66	59	49	467	179	45	33	36
21	35	43	56	63	e80	58	45	404	138	41	33	33
22	35	46	58	63	e94	60	44	221	133	39	38	32
23	34	45	58	63	e81	62	41	175	225	37	53	29
24	33	43	56	63	e75	61	38	160	404	46	61	28
25	32	44	56	63	e73	63	46	125	303	47	40	28
26	32	46	57	63	e74	63	46	106	259	54	31	28
27	31	48	56	e65	e78	106	43	95	222	46	28	28
28	31	46	56	e80	e86	203	38	90	355	43	30	27
29	33	50	57	e70	---	164	34	84	355	36	36	27
30	36	50	59	e63	---	119	34	77	237	37	32	27
31	35	---	58	e63	---	104	---	76	---	45	31	---
TOTAL	1148	1197	1643	1945	1923	2384	1599	7635	9317	2076	1582	1021
MEAN	37.0	39.9	53.0	62.7	68.7	76.9	53.3	246	311	67.0	51.0	34.0
MAX	50	50	59	80	94	203	89	2190	1420	177	120	82
MIN	31	34	47	56	60	41	34	28	93	36	28	15
AC-FT	2280	2370	3260	3860	3810	4730	3170	15140	18480	4120	3140	2030

CAL YR 1988 TOTAL 46032 MEAN 126 MAX 1550 MIN 19 AC-FT 91300
WTR YR 1989 TOTAL 33470 MEAN 91.7 MAX 2190 MIN 15 AC-FT 66390

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 1988 TO SEPTEMBER 1989

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 15...	1235	39	3120	8.40	11.5	10	10.7	111	0.9	K230	220
DEC 20...	1315	53	3050	8.40	7.0	22	11.1	101	1.1	K5	40
MAR 08...	1440	72	3070	8.40	13.0	18	13.7	144	2.2	K8	150
MAY 10...	1430	29	2810	8.40	25.0	1.5	12.1	162	1.9	130	120
JUL 19...	1200	53	3100	8.40	28.0	5.1	10.0	142	3.6	110	230
AUG 16...	1100	53	2540	8.40	25.0	8.1	10.2	137	1.8	160	190

DATE	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
NOV 15...	570	360	130	58	430	8	6.4	211	240	740	2.7
DEC 20...	560	310	130	57	430	8	6.7	246	250	720	1.9
MAR 08...	560	310	130	55	440	8	6.8	254	260	720	2.5
MAY 10...	550	360	120	60	410	8	7.7	194	270	640	2.4
JUL 19...	490	290	110	53	430	9	7.9	205	250	720	2.8
AUG 16...	470	260	110	48	350	7	6.7	211	200	590	2.9

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRATE DISSOLVED (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)
NOV 15...	20	1800	1760	--	--	<0.010	0.020	<0.100	<0.100	0.040
DEC 20...	23	1790	1770	0.840	0.790	0.060	0.060	0.900	0.850	0.070
MAR 08...	25	1880	1800	0.580	0.580	0.020	0.030	0.600	0.610	0.100
MAY 10...	10	1700	1640	0.350	0.310	0.050	0.050	0.400	0.360	0.030
JUL 19...	19	1820	1720	--	--	<0.010	<0.010	<0.100	<0.100	0.030
AUG 16...	18	1500	1450	--	--	<0.010	<0.010	<0.100	<0.100	0.020

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHOROUS TOTAL (MG/L AS P)	PHOSPHOROUS DISSOLVED (MG/L AS P)	PHOSPHOROUS 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 15...	0.040	0.46	0.50	0.030	0.010	0.020	0.06	45	4.7	60
DEC 20...	0.060	0.53	0.60	0.040	0.020	0.020	0.06	148	21	26
MAR 08...	0.080	0.40	0.50	0.090	0.080	0.080	0.25	102	20	64
MAY 10...	0.050	0.47	0.50	0.030	0.010	<0.010	--	17	1.3	82
JUL 19...	0.020	0.57	0.60	0.010	<0.010	<0.010	--	34	4.9	88
AUG 16...	0.010	0.48	0.50	0.050	0.020	0.010	0.03	34	4.9	98

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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 15...	<10	2	400	<10	<1	1	1	2	20	<5
DEC 20...	--	--	--	--	--	--	--	--	--	--
MAR 08...	<10	3	300	<10	<1	2	<1	1	30	<5
MAY 10...	<10	2	300	<10	<1	2	<1	1	20	1
JUL 19...	--	--	--	--	--	--	--	--	--	--
AUG 16...	10	3	300	<10	<1	1	<1	6	20	6

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 15...	90	30	0.2	4	2	2	<1.0	2200	9	<10
DEC 20...	--	--	--	--	--	--	--	--	--	--
MAR 08...	100	30	<0.1	3	<1	2	<1.0	8300	11	<10
MAY 10...	100	20	0.3	3	3	2	<1.0	2200	9	10
JUL 19...	--	--	--	--	--	--	--	--	--	--
AUG 16...	90	10	0.4	3	2	<1	<1.0	1700	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.--33 years (water years 1938-42, 1962-89), 13.9 ft³/s (0.40 in/yr), 10,070 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	1650	*1,100	*7.41	No other peak greater than base discharge.			

Minimum discharge, 1.5 ft³/s Oct. 1.

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	3.0	2.0	2.6	2.5	2.9	4.0	2.7	2.4	11	9.3	e6.4	e2.4
2	3.4	2.0	2.5	2.5	e2.7	4.0	2.5	2.5	11	8.9	e6.0	e2.4
3	2.5	2.2	2.5	2.5	e2.6	e4.0	2.3	2.8	12	8.7	e5.7	e2.4
4	2.1	2.1	2.5	2.5	e2.5	e3.6	2.3	3.1	16	8.6	e5.4	e2.4
5	2.2	1.8	2.6	2.5	e2.4	e3.2	2.3	3.4	14	8.5	e5.2	e2.4
6	2.3	1.8	2.5	2.6	e2.4	e3.4	2.2	3.4	14	8.4	e5.0	e2.4
7	2.7	1.8	2.5	2.5	e2.5	3.5	2.2	3.3	72	8.5	e9.0	e2.4
8	2.8	1.9	2.5	2.5	e2.6	3.5	2.0	3.1	25	8.5	e8.0	e2.2
9	2.5	2.1	2.6	3.6	e2.8	3.3	2.0	2.8	20	8.7	e7.3	e2.2
10	2.3	2.2	2.6	2.7	e3.0	3.2	2.1	2.5	17	8.7	e6.7	e2.2
11	2.1	2.4	2.5	2.5	3.4	3.1	2.0	2.7	14	9.1	e6.2	e2.2
12	2.0	2.1	2.5	2.5	3.5	2.9	2.0	2.4	16	9.9	e6.0	e2.2
13	1.8	1.9	2.5	e2.4	3.5	2.8	2.1	3.1	60	e12	e6.7	e2.1
14	1.8	1.9	2.5	e2.3	3.5	2.9	2.2	3.3	26	e10	e5.6	e2.1
15	1.7	2.0	2.5	e2.3	3.5	2.7	2.2	3.3	20	e9.0	4.8	e2.2
16	1.8	2.1	2.5	e2.5	3.5	2.6	2.2	4.1	37	e8.5	4.1	e2.2
17	1.7	2.1	2.5	e2.5	6.0	2.6	2.2	173	31	e7.8	3.7	e2.2
18	1.6	2.2	2.5	2.7	e6.4	2.4	2.0	491	24	e7.5	3.4	e2.2
19	1.8	2.4	2.5	2.7	e5.2	2.5	2.1	600	19	e7.0	3.2	e2.1
20	1.8	2.6	2.5	2.7	4.2	2.3	2.2	176	16	e6.8	3.1	e2.1
21	1.8	2.4	2.5	2.8	3.9	2.2	2.3	82	14	e6.6	3.3	e2.1
22	1.8	2.3	2.5	2.8	3.6	2.3	2.3	52	14	e6.4	3.3	e2.1
23	1.7	2.4	2.5	2.8	3.5	2.3	2.0	35	18	e6.1	3.1	e2.1
24	1.8	2.4	2.5	2.8	3.6	2.3	2.0	27	17	e5.9	2.8	e2.1
25	1.7	2.4	2.5	2.9	3.7	2.2	2.4	22	15	e5.7	2.7	e2.0
26	1.7	2.5	2.5	2.9	3.8	2.2	2.5	18	13	e5.4	2.5	e2.0
27	1.9	2.6	2.5	3.0	3.9	2.9	2.5	15	12	e5.2	2.3	e2.1
28	1.7	2.7	2.5	3.0	4.0	3.5	2.5	14	11	e5.3	2.2	e2.1
29	1.8	2.7	2.5	2.9	---	3.0	2.5	13	10	e5.2	2.3	e2.1
30	1.8	2.6	2.5	2.9	---	2.8	2.5	12	9.8	e5.1	2.4	e2.0
31	2.0	---	2.5	2.9	---	2.8	---	11	---	e5.0	2.4	---
TOTAL	63.6	66.6	77.9	83.2	99.1	91.0	67.3	1789.2	608.8	236.3	140.8	65.7
MEAN	2.05	2.22	2.51	2.68	3.54	2.94	2.24	57.7	20.3	7.62	4.54	2.19
MAX	3.4	2.7	2.6	3.6	6.4	4.0	2.7	600	72	12	9.0	2.4
MIN	1.6	1.8	2.5	2.3	2.4	2.2	2.0	2.4	9.8	5.0	2.2	2.0
AC-FT	126	132	155	165	197	180	133	3550	1210	469	279	130
CFSM	.00	.00	.01	.01	.01	.01	.00	.12	.04	.02	.01	.00
IN.	.00	.01	.01	.01	.01	.01	.01	.14	.05	.02	.01	.01

CAL YR 1988 TOTAL 2217.91 MEAN 6.06 MAX 21 MIN .65 AC-FT 4400 CFSM .01 IN. .17
WTR YR 1989 TOTAL 3389.5 MEAN 9.29 MAX 600 MIN 1.6 AC-FT 6720 CFSM .02 IN. .27

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 diverions upstream from station. Sewage effluent released into river above station by the city of Amarillo.

AVERAGE DISCHARGE.--22 years, 28.4 ft³/s (20,580 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)
June 13	0035	*21,100	*11.14	No other peak greater than base discharge.			

Minimum discharge, 0.22 ft³/s Sept. 8.

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	4.5	2.4	3.9	13	11	11	4.6	2.1	5.1	79	152	1.9
2	5.5	3.2	5.6	12	e10	11	4.6	1.5	32	75	79	1.5
3	6.0	4.6	6.3	12	e9.5	7.8	4.9	2.3	243	67	47	1.1
4	4.2	4.6	6.7	12	e9.0	7.4	5.2	6.9	551	62	17	.68
5	5.0	4.5	7.7	13	e9.0	e6.5	5.5	13	29	53	28	.65
6	5.7	4.6	8.6	13	e9.0	e6.0	5.8	4.8	19	41	80	.68
7	8.8	4.7	10	13	e9.0	e6.3	6.0	3.8	14	34	228	.54
8	8.0	4.0	10	13	e9.5	6.6	5.6	3.1	15	27	53	.45
9	7.6	3.0	10	12	e10	5.4	4.8	2.2	45	24	38	.48
10	6.5	3.6	11	15	e11	4.5	4.1	2.2	44	25	83	.85
11	5.6	16	13	14	13	4.4	3.8	81	93	19	91	312
12	6.1	12	12	13	12	4.7	4.1	292	713	19	80	273
13	6.7	7.7	12	14	11	6.6	4.2	10	3120	111	179	355
14	6.3	6.8	11	14	11	6.4	3.7	5.2	564	39	124	256
15	6.5	5.2	11	15	11	6.3	3.0	4.5	300	467	34	236
16	6.3	5.5	11	15	9.5	7.4	2.6	59	163	71	30	148
17	6.4	5.5	11	13	16	7.0	2.3	71	118	49	28	81
18	6.2	5.0	11	12	12	6.7	2.1	9.9	97	39	28	48
19	6.7	6.7	11	13	13	8.3	2.0	3.9	70	35	23	34
20	7.1	6.1	10	12	11	8.6	1.9	2.9	46	30	20	25
21	7.0	4.9	10	13	11	13	1.7	2.5	33	26	19	20
22	6.4	4.4	9.9	13	11	11	1.6	2.2	110	21	62	13
23	5.7	4.1	10	13	11	11	1.3	2.3	369	19	13	12
24	4.6	3.6	9.8	13	11	9.9	1.3	2.0	134	94	8.8	11
25	3.7	3.5	11	14	11	8.5	1.1	1.8	116	56	8.4	11
26	3.3	3.5	12	13	9.6	8.1	1.0	1.7	129	25	6.6	9.8
27	3.3	3.4	11	16	9.5	230	1.0	2.1	133	17	7.1	9.1
28	2.6	3.1	10	17	10	12	1.4	2.3	120	13	5.7	8.4
29	2.8	2.9	12	15	---	5.7	1.5	2.0	103	8.7	5.0	8.2
30	3.3	3.1	13	15	---	4.5	2.0	1.9	88	6.7	3.1	8.0
31	3.1	---	13	14	---	4.6	---	2.3	---	5.5	2.0	---
TOTAL	171.5	152.2	314.5	419	300.6	457.2	94.7	604.4	7616.1	1657.9	1582.7	1887.33
MEAN	5.53	5.07	10.1	13.5	10.7	14.7	3.16	19.5	254	53.5	51.1	62.9
MAX	8.8	16	13	17	16	230	6.0	292	3120	467	228	355
MIN	2.6	2.4	3.9	12	9.0	4.4	1.0	1.5	5.1	5.5	2.0	.45
AC-FT	340	302	624	831	596	907	188	1200	15110	3290	3140	3740

CAL YR 1988 TOTAL 7820.6 MEAN 21.4 MAX 767 MIN 1.9 AC-FT 15510
WTR YR 1989 TOTAL 15258.13 MEAN 41.8 MAX 3120 MIN .45 AC-FT 30260

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: Msximum 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 1988 TO SEPTEMBER 1989

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...	1430	6.8	4850	8.50	23.0	18	8.9	117	0.8	210	320	1200
DEC 19...	1520	11	3970	8.60	10.5	30	10.5	107	1.3	320	190	1200
MAR 07...	1500	6.3	6200	8.50	17.0	9.2	13.8	161	2.6	90	120	1300
MAY 09...	1430	1.9	5870	8.40	29.0	2.0	8.8	129	1.7	600	46	1600
JUL 18...	1250	39	5260	8.50	28.5	52	9.5	138	3.9	440	K53	1200
AUG 15...	1410	34	2660	8.40	31.0	81	8.5	128	1.5	1200	240	650

DATE	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET 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...	1000	340	77	770	10	13	158	1400	820	1.6	26	3600
DEC 19...	980	340	78	590	8	14	188	1300	770	1.5	23	3280
MAR 07...	1200	390	90	920	11	14	180	1500	1300	1.7	26	4540
MAY 09...	1400	440	110	750	9	16	119	1700	1000	1.6	26	4360
JUL 18...	1100	350	80	720	9	15	139	1300	910	1.4	22	3590
AUG 15...	460	180	48	320	6	12	192	710	360	1.7	19	1840

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-PHOROUS DIS-SOLVED (MG/L AS P)	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
NOV 14...	3560	1.25	0.050	1.30	0.100	0.170	0.80	0.90	0.390	0.350	0.330	1.0
DEC 19...	3240	1.36	0.140	1.50	0.330	0.330	1.3	1.6	0.880	0.840	0.790	2.4
MAR 07...	4360	1.46	0.040	1.50	0.110	0.090	0.49	0.60	0.820	0.820	0.790	2.4
MAY 09...	4120	--	<0.010	<0.100	0.100	0.120	0.40	0.50	0.070	0.050	0.030	0.09
JUL 18...	3110	--	<0.010	<0.100	0.120	0.050	0.78	0.90	0.220	0.120	0.090	0.28
AUG 15...	1780	--	<0.010	1.60	0.050	0.040	0.95	1.0	0.650	0.480	0.470	1.4

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...	59	1.1	60	<10	7	400	<10	<1	2	1	4	20
DEC 19...	122	3.6	46	--	--	--	--	--	--	--	--	--
MAR 07...	30	0.51	65	<10	6	200	<10	<1	3	<1	1	50
MAY 09...	32	0.16	93	20	9	200	<10	<1	3	<1	1	40
JUL 18...	105	11	97	--	--	--	--	--	--	--	--	--
AUG 15...	278	26	100	20	10	100	<10	2	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 1988 TO SEPTEMBER 1989

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...	<5	130	30	<0.1	5	1	1	<1.0	7800	17	10
DEC											
19...	--	--	--	--	--	--	--	--	--	--	--
MAR											
07...	<5	160	40	0.2	3	<1	1	<1.0	30	23	10
MAY											
09...	<1	180	40	0.2	6	<1	<1	<1.0	710	21	20
JUL											
18...	--	--	--	--	--	--	--	--	--	--	--
AUG											
15...	<1	130	10	0.2	8	2	<1	<1.0	4200	28	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.--24 years (water years 1966-89), 115 ft³/s (83,320 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)
June 4	1500	8,950	9.78	June 12	1600	9,040	9.77
June 13	2030	*24,800	*10.75				

Minimum discharge, no flow July 22.

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	5.4	e5.8	e8.9	12	14	18	9.2	3.6	7.5	16	1.4	17
2	5.4	e5.8	8.3	12	11	20	5.0	3.6	8.0	15	1.4	17
3	5.7	e5.8	8.5	14	e7.4	20	3.5	3.6	72	12	1.6	20
4	5.7	e5.8	8.1	13	e7.0	11	2.8	55	3680	8.4	.84	32
5	5.7	e5.8	8.3	13	e6.8	e9.0	2.6	423	241	7.1	.83	15
6	5.7	e5.6	9.4	13	e7.0	9.0	2.4	64	119	6.1	1.3	8.0
7	5.7	e5.6	17	11	e11	12	2.3	23	80	4.9	1280	5.1
8	5.7	e5.6	73	10	9.3	15	2.1	12	56	4.0	731	4.4
9	6.4	e5.6	35	10	7.6	13	1.9	7.4	51	3.9	111	4.7
10	6.7	e5.6	22	10	13	12	2.1	4.7	98	3.0	43	4.7
11	e6.7	e5.4	55	11	13	11	3.0	206	1000	2.0	13	65
12	e6.4	e5.4	39	9.2	13	10	6.9	609	2600	2.2	8.2	311
13	e6.4	e5.4	25	8.6	14	9.3	8.1	1240	10600	9.0	6.7	2880
14	e6.4	e5.2	18	10	17	10	7.3	264	8150	3.9	402	1700
15	e6.4	e5.2	13	13	30	9.5	5.0	96	1830	1.5	359	192
16	e6.4	e5.2	12	13	25	8.9	4.5	438	680	25	77	90
17	e6.4	e5.1	12	12	80	9.7	4.1	1990	345	61	20	80
18	e6.4	e5.2	11	11	72	8.6	3.8	596	267	16	15	60
19	e6.2	e5.2	11	12	59	8.3	3.7	144	192	6.0	9.5	32
20	e6.2	e10	11	11	63	9.5	3.7	30	130	1.9	6.0	19
21	e6.2	e9.8	11	11	55	15	54	30	91	.46	75	17
22	e6.2	e9.8	11	11	37	23	8.0	16	75	.23	65	15
23	e6.2	e9.6	9.2	11	24	16	4.0	12	67	4.8	71	11
24	e6.2	e9.6	8.7	10	18	14	3.3	9.5	510	6.4	20	8.9
25	e6.2	e9.4	9.0	10	18	14	3.6	6.7	212	2.2	61	8.4
26	e6.0	e9.4	11	10	18	37	3.5	5.7	85	1.7	38	8.0
27	e6.0	e9.4	12	12	17	88	3.6	5.1	57	2.3	14	7.1
28	e6.0	e9.2	11	64	17	79	3.6	6.0	46	2.1	7.5	6.7
29	e6.0	e9.0	11	49	---	106	3.5	5.7	27	1.3	18	6.7
30	e5.8	e8.9	11	35	---	48	3.4	5.7	20	.99	75	6.7
31	e5.8	---	12	25	---	16	---	5.7	---	2.6	51	---
TOTAL	188.6	208.4	522.4	476.8	684.1	689.8	174.5	6321.0	31396.5	233.98	3584.27	5652.4
MEAN	6.08	6.95	16.9	15.4	24.4	22.3	5.82	204	1047	7.55	116	188
MAX	6.7	10	73	64	80	106	54	1990	10600	61	1280	2880
MIN	5.4	5.1	8.1	8.6	6.8	8.3	1.9	3.6	7.5	.23	.83	4.4
AC-FT	374	413	1040	946	1360	1370	346	12540	62270	464	7110	11210

CAL YR 1988 TOTAL 38372.53 MEAN 105 MAX 2600 MIN .00 AC-FT 76110
WTR YR 1989 TOTAL 50132.75 MEAN 137 MAX 10600 MIN .23 AC-FT 99440

e Estimated.

RED RIVER BASIN

07299570 RED RIVER NEAR QUANAH, TEX.
(Flood-hydrograph partial-record station)

LOCATION.--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.

DRAINAGE AREA.--8,321 mi², of which 4,769 mi² is probably noncontributing.

PERIOD OF RECORD.--November 1959 to September 1982 (continuous-record station), October 1983 to current year.

REMARKS.--Gage-height telemeter at station.

EXTREMES.--Maximum discharge, 20,500 ft³/s June 13 (gage height, 11.17 ft).

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM
JUN								
05...	1105	3630	13100	20.0	28400	278000	28	36
15...	1355	690	6920	24.5	14500	27000	30	36
AUG								
18...	1345	48	16300	29.5	2220	288	--	--

DATE	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM
JUN							
05...	46	54	58	65	81	97	100
15...	45	53	58	67	86	99	100
AUG							
18...	--	--	--	90	--	--	--

07299670 GROESBECK CREEK AT STATE HIGHWAY 6 NEAR QUANAH, TX

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

DRAINAGE AREA.--303 mi².

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

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

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

AVERAGE DISCHARGE.--27 years (water years 1963-89), 15.9 ft³/s (0.71 in/yr), 11,520 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)
Sept. 13	1030	*2,650	*17.47	No other peak greater than base discharge.			

Minimum discharge, 6.8 ft³/s Aug. 4-6.

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	12	12	12	12	12	11	11	8.0	9.7	12	7.3	7.4
2	12	12	12	12	11	11	10	8.0	9.7	12	7.1	8.7
3	11	12	12	12	11	10	10	8.1	12	12	7.1	10
4	11	12	11	12	11	10	10	8.9	344	11	7.0	8.8
5	11	11	12	12	11	10	10	11	475	11	6.9	8.0
6	11	11	12	12	11	10	10	43	117	11	6.9	7.6
7	11	11	12	12	11	10	10	22	26	11	8.9	7.4
8	11	11	12	12	11	10	10	13	20	10	9.8	7.5
9	11	11	11	12	11	10	10	9.7	15	10	8.7	8.1
10	11	10	11	12	11	10	9.7	8.6	13	10	8.2	8.3
11	10	10	12	12	12	11	9.6	8.9	63	10	7.5	29
12	10	10	12	11	11	11	9.7	14	50	10	7.6	31
13	10	9.8	12	11	11	11	9.9	39	415	10	7.7	1700
14	10	9.7	12	11	11	11	10	27	312	9.9	8.0	683
15	10	10	12	12	11	11	10	19	75	9.7	7.9	318
16	11	10	11	12	11	11	10	14	28	9.3	8.0	56
17	11	11	11	11	11	11	9.9	54	21	9.1	8.0	21
18	11	12	11	12	12	11	9.9	269	18	8.2	8.0	19
19	10	12	12	12	12	11	10	320	16	7.7	7.8	16
20	11	13	12	12	11	11	9.8	45	17	7.7	7.4	13
21	11	13	11	11	11	11	9.9	19	16	7.5	7.5	12
22	11	13	11	11	11	11	9.5	15	14	7.3	8.0	10
23	12	12	11	11	10	12	8.6	14	13	7.5	7.8	10
24	13	12	11	11	10	12	8.3	12	13	8.0	7.5	9.8
25	14	12	11	12	11	11	8.3	11	13	8.0	7.6	9.8
26	13	12	12	12	10	11	8.0	10	13	7.7	7.4	9.8
27	12	12	12	12	11	13	8.0	10	12	7.4	7.3	9.3
28	11	13	11	13	11	21	8.1	10	12	7.4	7.1	9.3
29	11	13	12	13	---	16	7.9	10	12	7.3	7.3	9.2
30	12	13	12	12	---	13	7.8	9.7	12	7.2	7.6	9.3
31	12	---	12	12	---	12	---	9.7	---	7.1	7.3	---
TOTAL	348	345.5	360	366	309	355	283.9	1080.6	2186.4	284.0	238.2	3066.3
MEAN	11.2	11.5	11.6	11.8	11.0	11.5	9.46	34.9	72.9	9.16	7.68	102
MAX	14	13	12	13	12	21	11	320	475	12	9.8	1700
MIN	10	9.7	11	11	10	10	7.8	8.0	9.7	7.1	6.9	7.4
AC-FT	690	685	714	726	613	704	563	2140	4340	563	472	6080
CFSM	.04	.04	.04	.04	.04	.04	.03	.12	.24	.03	.03	.34
IN.	.04	.04	.04	.04	.04	.04	.03	.13	.27	.03	.03	.38

CAL YR 1988 TOTAL 9526.1 MEAN 26.0 MAX 2020 MIN 7.3 AC-FT 18900 CFSM .09 IN. 1.17
WTR YR 1989 TOTAL 9222.9 MEAN 25.3 MAX 1700 MIN 6.9 AC-FT 18290 CFSM .08 IN. 1.13

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, 35,630 acre-ft June 24 at 2400 hours (elevation, 2,649.90 ft); minimum, 32,360 acre-ft Dec. 22 (elevation, 2,647.53 ft).

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

2,646.0	30,370
2,648.0	32,990
2,650.0	35,770

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33350	32940	32670	32600	32670	32840	32880	32560	32780	35490	34220	34140
2	33360	32940	32680	32630	32670	32870	32980	32580	32790	35460	34150	34130
3	33350	32880	32670	32630	32670	32630	32950	32560	32920	35390	34110	34110
4	33320	32900	32660	32630	32670	32750	32950	32640	32920	35400	34060	34070
5	33260	32860	32670	32620	32670	32680	32940	32680	32990	35390	34030	34040
6	33260	32860	32640	32550	32670	32780	32920	32680	32980	35360	34090	33990
7	33290	32830	32660	32600	32670	32780	32920	32680	32990	35320	34150	33950
8	33330	32820	32640	32600	32670	32780	32880	32670	32960	35320	34150	33950
9	33320	32820	32660	32580	32670	32780	32830	32640	32990	35260	34110	33880
10	33310	32790	32670	32600	32670	32780	32830	32590	32990	35140	34070	33850
11	33290	32840	32670	32560	32800	32790	32820	32670	32830	35060	34020	33990
12	33280	32860	32640	32580	32800	32790	32800	32920	33330	35020	34000	34130
13	33250	32860	32660	32560	32820	32800	32830	32980	35180	34980	34210	34260
14	33220	32860	32680	32590	32830	32760	32820	32980	35500	34880	34250	34310
15	33220	32780	32640	32580	32830	32760	32800	32990	35560	34950	34260	34330
16	33220	32780	32640	32580	32830	32760	32800	33020	35570	34910	34250	34330
17	33200	32750	32620	32580	32840	32750	32790	33070	35590	34870	34240	34320
18	33150	32740	32620	32560	32820	32750	32760	33090	35540	34800	34200	34290
19	33150	32720	32520	32580	32790	32750	32760	33090	35560	34710	34180	34290
20	33130	32740	32620	32580	32760	32640	32760	33060	35520	34670	34170	34240
21	33130	32750	32630	32580	32740	32720	32760	33070	35490	34630	34260	34210
22	33110	32750	32630	32580	32760	32740	32790	33060	35500	34520	34250	34150
23	33090	32740	32560	32580	32780	32740	32760	33040	35560	34520	34240	34100
24	33060	32750	32620	32590	32790	32750	32780	33020	35630	34490	34220	34090
25	33040	32750	32600	32580	32800	32720	32750	32980	35630	34460	34200	34060
26	33020	32750	32590	32560	32820	32750	32750	32900	35610	34400	34150	34040
27	32990	32700	32590	32600	32830	32940	32680	32880	35600	34360	34140	34000
28	32950	32670	32590	32670	32840	32980	32670	32860	35570	34320	34220	34000
29	32950	32670	32580	32670	---	32990	32620	32830	35560	34280	34210	33980
30	32950	32660	32560	32670	---	32990	32580	32780	35530	34240	34200	33950
31	32960	---	32600	32670	---	32980	---	32790	---	34200	34150	---
MAX	33360	32940	32680	32670	32840	32990	32980	33090	35630	35490	34260	34330
MIN	32950	32660	32520	32550	32670	32630	32580	32560	32780	34200	34000	33850
(†)	2647.98	2647.75	2647.71	2647.76	2647.89	2647.99	2647.69	2647.85	2649.83	2648.88	2648.85	2648.70
(Φ)	-470	-300	-60	+70	+170	+140	-400	+210	+2740	-1330	-50	-200
(††)	279	256	250	247	234	283	322	301	306	494	401	307

CAL YR 1988 MAX 35810 MIN 32520 (†) -2010 (††) 3706
WTR YR 1989 MAX 35630 MIN 32520 (†) +520 (††) 3680

(†) 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.

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); 23 years (water years 1967-89) regulated, 48.6 ft³/s (35,210 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, 25,700 ft³/s June 13 at unknown hour (gage height, 10.40 ft from HWM); minimum, 1.6 ft³/s July 23.

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	12	11	16	29	18	27	60	6.8	709	31	5.1	23
2	10	10	16	29	14	26	47	7.9	210	25	4.6	25
3	9.4	9.8	18	32	5.9	26	36	8.9	323	19	4.6	20
4	9.4	9.2	18	31	e5.9	12	30	25	1320	15	3.4	15
5	9.8	8.5	19	31	e6.0	18	29	119	298	16	3.4	13
6	9.5	8.5	21	29	e9.0	24	31	107	163	7.1	3.4	12
7	16	9.4	24	25	e10	29	30	37	103	3.4	140	11
8	21	9.6	28	22	e14	38	30	25	81	2.6	73	13
9	25	10	26	18	e24	33	29	16	76	2.4	35	77
10	20	9.9	25	18	e26	34	26	11	115	8.8	27	35
11	14	11	27	19	28	29	27	12	109	9.2	20	30
12	11	17	27	19	52	26	29	528	2420	8.2	17	48
13	10	22	24	18	36	25	33	489	14200	9.1	14	235
14	9.3	22	24	20	31	21	40	336	5500	10	60	128
15	9.6	19	19	21	45	18	39	227	783	10	38	74
16	10	17	17	24	46	18	34	675	548	7.6	17	48
17	9.5	17	17	25	80	14	24	741	301	7.5	10	40
18	7.8	17	19	25	100	12	18	585	160	6.0	10	35
19	9.2	21	23	23	51	13	15	243	103	3.8	9.4	30
20	11	31	24	22	48	15	13	126	83	2.7	7.1	27
21	12	37	22	19	46	20	13	87	62	2.7	38	24
22	11	35	22	20	31	34	14	60	54	2.4	151	21
23	9.0	32	22	19	25	32	16	51	397	2.2	40	17
24	8.4	29	20	17	22	25	17	39	161	7.7	25	15
25	8.1	25	21	15	24	16	10	26	89	8.2	18	17
26	7.2	25	28	15	28	61	29	19	64	7.5	18	18
27	8.6	22	30	17	28	351	29	15	236	6.8	14	18
28	7.7	19	24	57	28	516	15	17	96	6.8	12	19
29	8.4	17	21	64	---	234	9.8	14	58	6.2	21	17
30	9.1	16	24	35	---	102	9.6	13	43	6.2	40	17
31	10	---	28	27	---	66	---	49	---	6.2	28	---
TOTAL	343.0	546.9	694	785	881.8	1915	782.4	4715.6	28865	267.3	907.0	1122
MEAN	11.1	18.2	22.4	25.3	31.5	61.8	26.1	152	962	8.62	29.3	37.4
MAX	25	37	30	64	100	516	60	741	14200	31	151	235
MIN	7.2	8.5	16	15	5.9	12	9.6	6.8	43	2.2	3.4	11
AC-FT	680	1080	1380	1560	1750	3800	1550	9350	57250	530	1800	2230

CAL YR 1988 TOTAL 10974.8 MEAN 30.0 MAX 295 MIN 1.7 AC-FT 21770
WTR YR 1989 TOTAL 41825.0 MEAN 115 MAX 14200 MIN 2.2 AC-FT 82960

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, 3,870 microsiemens Feb. 6; minimum daily, 680 microsiemens June 13.
WATER TEMPERATURE: Maximum daily, 31.0°C Aug. 6; minimum daily, 0.0°C Feb. 4, Mar. 5.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV										
16...	0805	18	3690	8.20	2.0	12.7	100	0.8	340	780
DEC										
21...	0920	22	3100	8.30	1.5	11.6	90	1.0	K78	260
MAR										
09...	0830	33	2890	8.20	4.5	15.1	128	1.5	180	120
MAY										
10...	1830	12	3200	8.10	24.0	8.7	113	1.9	92	40
JUN										
14...	1400	3130	890	8.40	20.0	--	--	--	--	--
15...	1045	773	1500	8.40	18.0	--	--	--	--	--
JUL										
19...	1710	3.5	3510	8.20	31.5	9.3	138	2.2	K50	84
AUG										
16...	1525	15	2610	8.00	33.0	7.6	116	0.8	430	K65

DATE	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
NOV										
16...	1600	1400	480	88	230	3	4.1	159	--	330
DEC										
21...	1300	1100	390	78	230	3	4.2	170	1300	300
MAR										
09...	1200	1000	360	76	220	3	4.0	167	1200	280
MAY										
10...	1500	1400	460	90	200	2	3.5	142	1500	270
JUN										
14...	330	220	96	21	54	1	4.8	108	250	65
15...	550	380	150	42	110	2	5.9	164	450	140
JUL										
19...	1700	1600	510	96	240	3	5.1	114	1600	320
AUG										
16...	1200	1000	350	71	200	3	5.4	130	1100	270

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE 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, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
NOV										
16...	--	--	--	1.38	0.020	1.40	0.170	0.63	0.80	<0.010
DEC										
21...	0.60	20	2420	0.690	0.010	0.700	0.190	0.51	0.70	0.010
MAR										
09...	0.60	20	2260	0.990	0.010	1.00	0.090	0.51	0.60	0.020
MAY										
10...	0.60	21	2710	1.48	0.020	1.50	0.150	0.55	0.70	0.020
JUN										
14...	0.40	13	569	--	--	--	--	--	--	--
15...	0.50	19	1020	--	--	--	--	--	--	--
JUL										
19...	0.60	23	2950	1.38	0.020	1.40	0.120	0.18	0.30	<0.010
AUG										
16...	0.70	22	2100	0.690	0.010	0.700	0.080	0.72	0.80	0.080

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

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	343.0	3370	2770	2570	300	281	1500	1420	1700
NOV.	1988	546.9	3360	2760	4070	300	446	1500	2250	1700
DEC.	1988	694	3050	2450	4580	280	525	1300	2480	1500
JAN.	1989	785	3080	2470	5240	280	598	1300	2840	1500
FEB.	1989	881.8	2820	2220	5290	260	624	1200	2830	1300
MAR.	1989	1915	2840	2240	11600	260	1360	1200	6190	1300
APR.	1989	782.4	3180	2570	5430	290	611	1400	2960	1600
MAY	1989	4715.6	2430	1850	23600	230	2930	960	12200	1100
JUNE	1989	28865	1100	764	59600	110	8650	360	28100	430
JULY	1989	267.3	3140	2540	1830	290	207	1400	1000	1500
AUG.	1989	907.0	2340	1800	4400	220	540	940	2300	1100
SEPT	1989	1122	2510	1930	5860	240	714	1000	3070	1100
TOTAL		41825.0	**	**	134000	**	17500	**	67700	**
WTD.AVG.		115	1600	1190	**	150	**	600	**	690

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3530	3290	3100	3020	2970	2820	e3000	e3260	1100	e2710	e3400	2680
2	3320	3300	3240	3040	3450	e2970	3100	3180	2080	e2760	e3400	2620
3	3340	3230	3100	2980	e3400	3130	3140	3270	1930	e2810	e3400	3090
4	3340	3270	3040	3180	e3360	e3380	3200	2690	1730	e2880	3330	e3160
5	3380	e3290	3110	3160	3310	3620	3100	3250	e2000	2960	3470	3240
6	3370	3310	3100	2980	3870	2870	3220	2590	2400	3180	3470	3340
7	e3370	3320	3070	3240	3270	3090	e3180	3040	2660	3110	1470	3400
8	3430	3210	e3070	e3190	3540	2890	e3130	3020	e2650	3360	2600	3420
9	3370	3350	3070	3140	e3200	e2890	3080	3230	e2660	3370	2790	2360
10	3340	3320	3090	2950	2820	3000	3300	3250	2660	e3440	3290	2080
11	3400	3210	3130	3250	3160	2950	3260	3400	e2660	3520	3170	2520
12	3420	3480	2940	e3190	2260	3350	3080	2380	1220	3470	3530	2640
13	3370	3830	2990	e3130	2600	3140	3270	2190	680	3020	e3530	1860
14	e3360	3390	3000	3070	2710	3340	3110	e2320	1010	3390	3180	2010
15	3340	e3360	3020	3140	2790	3440	e3180	2450	e1750	e3390	2040	2280
16	3320	e3330	3040	e3040	2650	3400	3240	2560	1970	e3400	2930	2470
17	3410	3300	3130	2950	2630	3500	3080	1960	e2400	3400	e2960	2690
18	3350	3470	3050	e3050	2590	3650	3360	2280	e2500	3500	3000	2810
19	e3340	e3400	3040	3160	e2640	3770	3140	2620	2540	3420	e3160	3070
20	3340	3400	2950	3030	2690	3790	3360	e2690	2600	3530	3310	e3080
21	3340	3310	3030	3040	2920	3280	3380	2760	2740	3410	2530	e3090
22	e3340	3440	2970	3090	2880	e3000	e3220	e2840	e2730	3520	1380	3100
23	3440	3200	3020	3290	3120	3060	3270	2930	2720	e3520	2080	e3200
24	3500	e3210	3110	3050	2960	3270	e3290	2910	2070	2700	2500	3290
25	3310	3220	e3070	3180	3000	e3170	3350	3110	2370	3260	2930	3250
26	3340	3270	e3030	3160	2900	3070	3200	3240	2520	3360	2950	3270
27	3350	3250	2960	3070	3150	2730	3040	3290	2560	3560	e3150	3270
28	3340	3500	3100	3350	3160	2640	e3350	3270	2480	3500	3300	3300
29	3350	3560	e3130	2800	---	2600	3420	3340	3030	e3510	3140	3340
30	3310	3520	3160	2910	---	e2780	3350	3300	2690	3530	2060	3300
31	3420	---	2990	3010	---	2950	---	3280	---	3570	2310	---
MEAN	3370	3350	3060	3090	3000	3150	3210	2900	2240	3290	2900	2910

e Estimated

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

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.0	16.0	3.0	12.0	4.0	7.0	e14.0	e20.0	18.0	e21.0	e22.0	24.0
2	16.0	19.0	12.0	8.0	2.0	e8.0	14.0	12.0	19.0	e21.0	e23.0	27.0
3	24.0	7.0	16.0	13.0	e1.0	16.0	24.0	14.0	21.0	e22.0	e22.0	23.0
4	22.0	18.0	7.0	10.0	e.0	e1.0	12.0	12.0	19.0	e22.0	23.0	e24.0
5	19.0	e18.0	9.0	7.0	1.0	.0	17.0	13.0	e20.0	23.0	22.0	24.0
6	17.0	19.0	16.0	4.0	1.0	6.0	10.0	17.0	24.0	25.0	31.0	22.0
7	e18.0	19.0	7.0	7.0	3.0	4.0	e10.0	24.0	20.0	24.0	20.0	21.0
8	21.0	7.0	e7.0	e6.0	2.0	7.0	e11.0	22.0	e21.0	25.0	20.0	27.0
9	21.0	8.0	8.0	6.0	e4.0	e10.0	11.0	20.0	e22.0	23.0	19.0	20.0
10	11.0	7.0	6.0	8.0	6.0	24.0	16.0	15.0	23.0	e23.0	18.0	19.0
11	23.0	12.0	9.0	12.0	3.0	13.0	15.0	15.0	e20.0	24.0	23.0	18.0
12	20.0	11.0	11.0	e10.0	2.0	11.0	11.0	18.0	19.0	29.0	21.0	17.0
13	10.0	9.0	14.0	e10.0	11.0	6.0	10.0	16.0	20.0	22.0	e21.0	13.0
14	e14.0	19.0	11.0	7.0	6.0	15.0	11.0	e18.0	23.0	28.0	20.0	12.0
15	17.0	e16.0	7.0	12.0	5.0	17.0	e15.0	18.0	e21.0	e28.0	24.0	21.0
16	19.0	e16.0	9.0	e12.0	3.0	11.0	19.0	18.0	19.0	e27.0	28.0	15.0
17	25.0	3.0	12.0	13.0	4.0	7.0	15.0	18.0	e21.0	27.0	e24.0	21.0
18	12.0	12.0	7.0	e10.0	6.0	9.0	26.0	18.0	e23.0	26.0	22.0	17.0
19	e12.0	e11.0	9.0	2.0	e7.0	10.0	16.0	21.0	27.0	22.0	e26.0	24.0
20	14.0	10.0	5.0	11.0	9.0	7.0	18.0	e22.0	22.0	20.0	30.0	e22.0
21	21.0	12.0	12.0	5.0	12.0	16.0	15.0	24.0	29.0	19.0	24.0	e20.0
22	e20.0	4.0	4.0	6.0	11.0	e11.0	e17.0	e23.0	e23.0	22.0	30.0	18.0
23	18.0	8.0	2.0	15.0	3.0	6.0	19.0	22.0	17.0	e21.0	27.0	e15.0
24	21.0	e7.0	2.0	12.0	17.0	17.0	e20.0	23.0	20.0	19.0	22.0	13.0
25	12.0	7.0	e3.0	7.0	19.0	e17.0	27.0	21.0	25.0	24.0	26.0	13.0
26	20.0	7.0	e6.0	3.0	8.0	18.0	20.0	19.0	21.0	22.0	14.0	22.0
27	13.0	7.0	8.0	7.0	5.0	18.0	19.0	19.0	20.0	21.0	e18.0	21.0
28	11.0	10.0	1.0	7.0	7.0	23.0	e17.0	26.0	20.0	25.0	22.0	12.0
29	10.0	9.0	e4.0	4.0	---	20.0	12.0	20.0	20.0	e25.0	24.0	24.0
30	12.0	2.0	10.0	16.0	---	e19.0	20.0	23.0	21.0	25.0	24.0	17.0
31	20.0	---	9.0	14.0	---	15.0	---	22.0	---	22.0	23.0	---
MEAN	17.0	11.0	8.0	9.0	6.0	12.0	16.0	19.0	21.5	23.5	23.0	19.5

e Estimated

07300500 SALT FORK RED RIVER AT MANGUM, OK

LOCATION (REVISED).--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. Several unpublished observations of water temperature, specific conductance, and pH were made during the year.

AVERAGE DISCHARGE.--52 years (water years 1938-89), 85.7 ft³/s (62,100 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)
June 14	1000	*8,680	*10.97	No other peak greater than base discharge.			

Minimum daily discharge, 0.50 ft³/s , Oct. 1.

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	e.50	13	24	28	47	42	61	16	55	e70	e2.3	e9.8
2	e3.0	14	24	28	40	42	87	13	183	e49	e2.1	e30
3	e2.5	15	24	30	e38	42	75	13	99	e40	e4.0	52
4	e2.0	15	24	30	e36	43	41	15	e400	e30	e3.4	e36
5	e1.7	13	24	30	e34	36	37	37	e150	e26	e3.0	e25
6	e1.5	12	25	29	e31	24	34	83	e80	e22	e10	e17
7	e5.0	11	27	28	e30	25	32	70	e1500	e18	e250	e14
8	e6.6	11	35	27	e32	32	31	64	500	e16	219	e11
9	e7.0	12	35	26	e33	41	29	47	200	e15	130	e9.2
10	e6.8	12	33	25	e35	34	27	28	108	e12	70	e8.0
11	e7.0	13	34	24	40	36	27	22	100	e11	48	e7.0
12	e7.6	16	32	24	50	34	27	137	800	e10	38	e300
13	e7.4	17	34	23	58	31	28	234	1520	e15	e30	e1500
14	e8.0	18	35	26	64	28	30	307	5490	e13	e20	e700
15	e8.4	19	31	26	61	26	32	177	563	e11	e15	e250
16	e9.0	21	30	26	59	26	32	158	237	e10	e25	e150
17	e9.4	20	29	25	71	26	32	460	170	e9.0	46	e100
18	e9.8	20	28	26	74	24	30	350	122	e8.4	41	e80
19	11	21	28	27	93	24	28	274	e98	e7.6	e35	e65
20	11	28	27	27	83	24	26	157	e80	e6.6	e30	e58
21	12	29	28	27	70	25	24	94	e72	e5.8	e25	e50
22	12	34	29	27	62	28	23	63	e66	e5.2	53	e45
23	11	34	29	27	53	27	22	46	93	e4.7	80	e40
24	10	33	27	27	47	30	19	35	200	e7.0	76	e37
25	9.3	31	26	29	45	33	17	30	e170	e6.3	58	e34
26	8.3	29	28	27	44	32	16	32	e130	e5.0	35	e32
27	8.6	27	27	27	41	43	16	30	e110	e4.4	e30	e30
28	7.9	26	27	41	42	234	15	27	e90	e3.7	e22	e28
29	7.8	26	27	48	---	177	20	24	120	e3.2	e17	e26
30	11	24	27	68	---	122	21	23	e94	e2.8	e14	e24
31	12	---	28	58	---	79	---	21	---	e2.7	e11	---
TOTAL	235.10	614	886	941	1413	1470	939	3087	13600	450.4	1442.8	3768.0
MEAN	7.58	20.5	28.6	30.4	50.5	47.4	31.3	99.6	453	14.5	46.5	126
MAX	12	34	35	68	93	234	87	460	5490	70	250	1500
MIN	.50	11	24	23	30	24	15	13	55	2.7	2.1	7.0
AC-FT	466	1220	1760	1870	2800	2920	1860	6120	26980	893	2860	7470

CAL YR 1988 TOTAL 17790.43 MEAN 48.6 MAX 861 MIN .00 AC-FT 35290
WTR YR 1989 TOTAL 28846.30 MEAN 79.0 MAX 5490 MIN .50 AC-FT 57220

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.--25 years, 33.3 ft³/s (24,130 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, 3,170 ft³/s June 14 at 1000 hours (gage height, 4.02 ft); no flow for several 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	1.6	7.1	9.9	50	29	42	17	.30	474	41	.00	.25
2	1.1	5.5	12	46	16	55	10	.30	408	23	.00	2.1
3	1.2	4.1	14	45	5.5	47	8.6	.25	371	16	.00	2.8
4	1.4	2.9	13	36	e5.0	8.3	5.2	25	660	12	.00	.57
5	1.8	1.9	13	32	e5.0	e6.4	5.0	115	429	8.1	.0	.14
6	1.5	1.6	16	22	e5.0	5.3	5.4	20	345	3.5	11	.01
7	4.2	1.1	22	19	e5.0	25	2.9	1.1	366	1.5	238	.00
8	9.8	.79	18	11	e5.5	74	3.5	.70	321	.51	82	.00
9	15	1.4	16	11	e6.0	20	1.2	.51	335	.05	26	.00
10	11	2.4	24	16	e7.5	11	1.1	.28	499	.0	1.7	.00
11	6.1	8.2	52	57	e21	7.7	2.3	2.4	383	.0	.02	1.1
12	3.6	34	35	37	65	6.0	5.0	365	610	.00	.0	34
13	1.9	22	32	16	32	5.2	14	348	1640	46	.09	519
14	1.0	19	28	32	65	5.1	29	298	1350	47	94	115
15	.77	17	20	50	85	3.9	21	211	471	19	49	50
16	1.2	13	15	42	27	3.4	9.3	333	262	4.0	22	34
17	1.3	9.4	15	35	106	2.8	7.0	566	260	.41	32	22
18	.86	7.9	27	34	97	1.8	5.8	539	158	.04	16	15
19	.71	41	40	32	34	1.7	3.8	381	70	.02	2.3	11
20	.95	70	39	22	31	2.8	4.1	328	35	.00	1.1	7.9
21	1.5	51	30	18	15	4.3	13	265	21	.00	1.8	6.6
22	1.9	41	28	17	6.9	26	4.6	233	15	.00	18	4.4
23	1.5	29	26	20	5.1	31	2.6	180	147	.00	16	1.3
24	.84	21	16	18	6.4	17	.70	138	120	11	2.6	.40
25	.41	17	19	18	14	14	73	107	102	.81	.51	.43
26	.31	17	30	15	20	10	41	56	55	.22	.11	.75
27	.43	21	31	70	21	151	1.0	18	99	.17	.20	.63
28	.24	18	14	191	35	423	.60	14	133	.11	.18	.50
29	.34	14	13	103	---	85	.40	6.1	64	.05	.11	.43
30	.61	11	29	68	---	63	.35	12	51	.03	2.3	.32
31	2.7	---	55	51	---	24	---	135	---	.00	.76	---
TOTAL	77.77	510.29	751.9	1234	775.9	1182.7	298.45	4698.94	10254	234.52	617.78	830.63
MEAN	2.51	17.0	24.3	39.8	27.7	38.2	9.95	152	342	7.57	19.9	27.7
MAX	15	70	55	191	106	423	73	566	1640	47	238	519
MIN	.24	.79	9.9	11	5.0	1.7	.35	.25	15	.00	.00	.00
AC-FT	154	1010	1490	2450	1540	2350	592	9320	20340	465	1230	1650

CAL YR 1988	TOTAL	17022.01	MEAN	46.5	MAX	699	MIN	.00	AC-FT	33760
WTR YR 1989	TOTAL	21466.88	MEAN	58.8	MAX	1640	MIN	.00	AC-FT	42580

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.--27 years (water years 1963-89), 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)
June 14	0030	*952	*13.14	No other peak greater than base discharge.			

Minimum discharge, 6.2 ft³/s Sept. 8-9.

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	12	12	14	15	17	18	20	12	12	26	12	e7.8
2	11	12	14	15	16	18	19	12	13	23	12	e7.7
3	11	12	14	15	e14	18	18	13	13	22	11	e7.7
4	11	12	14	15	e13	16	17	14	28	21	10	e7.3
5	11	11	14	15	e13	e15	17	16	27	20	9.5	e6.9
6	12	11	14	15	e13	e15	17	14	17	19	9.4	e6.8
7	12	12	14	15	e14	e16	17	13	15	18	68	6.5
8	13	12	14	14	e15	17	16	12	15	17	31	6.3
9	13	12	14	15	e15	17	16	12	14	17	24	6.3
10	12	12	14	15	e15	16	15	11	15	16	18	6.6
11	12	12	14	15	e16	16	15	11	14	15	15	7.1
12	11	14	14	15	17	16	16	20	19	14	13	9.4
13	11	14	15	15	18	16	16	38	458	15	13	31
14	11	14	15	15	18	16	16	23	490	15	45	17
15	11	14	15	16	20	15	16	18	117	14	35	12
16	12	13	15	16	19	16	15	20	68	14	24	11
17	11	13	15	16	21	15	15	53	51	13	18	9.5
18	11	14	15	16	24	15	15	69	41	12	16	8.8
19	12	15	16	16	23	15	14	43	36	12	14	8.3
20	12	19	15	17	22	15	14	28	33	11	13	8.0
21	12	19	15	17	20	15	14	22	30	10	13	7.8
22	12	19	15	17	19	16	14	18	29	9.6	13	7.5
23	12	18	15	17	18	16	14	16	74	9.3	13	7.2
24	12	17	15	17	17	15	13	15	39	24	12	7.5
25	12	16	15	17	18	15	13	14	31	26	e10	7.7
26	12	16	15	16	18	15	14	13	28	17	e9.8	7.5
27	12	15	15	17	18	17	14	12	29	15	e9.3	7.4
28	11	15	14	24	18	61	13	12	51	14	e9.0	7.2
29	12	15	15	25	---	44	13	11	41	13	e8.6	7.2
30	12	14	15	20	---	27	13	10	29	12	e8.4	7.0
31	12	---	15	18	---	22	---	9.7	---	12	e8.3	---
TOTAL	363	424	453	511	489	584	459	604.7	1877	495.9	525.3	266.0
MEAN	11.7	14.1	14.6	16.5	17.5	18.8	15.3	19.5	62.6	16.0	16.9	8.87
MAX	13	19	16	25	24	61	20	69	490	26	68	31
MIN	11	11	14	14	13	15	13	9.7	12	9.3	8.3	6.3
AC-FT	720	841	899	1010	970	1160	910	1200	3720	984	1040	528
CFSM	.04	.05	.05	.06	.07	.07	.06	.07	.23	.06	.06	.03
IN.	.05	.06	.06	.07	.07	.08	.06	.08	.26	.07	.07	.04

CAL YR 1988	TOTAL	6519.30	MEAN	17.8	MAX	359	MIN	.86	AC-FT	12930	CFSM	.07	IN.	.91
WTR YR 1989	TOTAL	7051.9	MEAN	19.3	MAX	490	MIN	6.3	AC-FT	13990	CFSM	.07	IN.	.98

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.--24 years (water years 1961-62, 1967-89), 62.5 ft³/s (0.39 in/yr), 45,280 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)
May 17	unknown	3,230	b10.30	Aug. 7	0930	3,990	10.54
June 4	unknown	6,250	b11.20	Sept. 13	1650	*10,700	*12.46
June 13	1600	5,620	11.01				

b From high-water mark.

Minimum discharge, 1.40 ft³/s July 22, 23, and Aug. 4-6.

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	11	8.6	7.2	8.7	11	11	9.7	4.9	e4.9	12	2.1	11
2	10	7.6	7.4	8.7	9.8	12	8.8	5.5	e4.9	10	2.3	26
3	11	7.4	7.9	8.9	e7.5	12	8.2	6.1	e52	9.1	2.8	26
4	11	6.9	7.9	8.9	e7.0	e8.2	7.6	16	e3300	8.5	2.3	10
5	11	5.8	8.2	8.8	e6.8	e8.0	7.1	79	e1810	7.3	1.8	7.2
6	11	5.6	8.6	8.5	e6.8	9.2	6.8	25	451	6.9	1.8	e4.6
7	11	6.2	9.2	8.1	11	9.8	6.3	15	286	6.2	1480	e4.6
8	11	6.6	14	8.0	13	10	6.1	11	202	6.1	525	e4.3
9	11	7.3	12	8.3	11	10	5.7	8.3	162	5.5	217	e4.0
10	11	6.4	12	8.6	11	10	5.8	6.3	202	5.2	102	e4.0
11	10	6.5	15	8.7	11	9.6	6.4	7.8	583	4.6	61	e265
12	9.5	7.0	14	8.3	11	9.2	7.6	82	940	4.5	41	303
13	9.0	6.6	11	8.5	11	8.7	8.3	119	2130	4.3	37	6100
14	8.2	6.6	11	9.0	12	9.4	9.2	42	1830	4.5	34	2660
15	8.3	6.4	9.0	9.5	14	8.8	9.1	24	758	4.4	27	816
16	8.9	5.1	8.6	9.2	13	8.7	8.6	274	394	3.7	57	397
17	8.8	5.2	8.7	9.3	19	9.2	7.4	e1200	237	3.3	44	214
18	7.7	5.1	8.7	9.3	20	8.3	7.0	e143	143	2.7	83	132
19	7.8	6.9	8.7	9.1	18	8.3	6.7	e18	92	2.2	29	92
20	8.6	13	8.7	9.1	17	9.5	7.3	e9.1	60	2.3	23	66
21	9.3	10	8.5	9.1	15	12	9.0	e8.0	38	2.2	62	49
22	9.3	8.7	8.5	9.1	13	13	7.7	e7.0	30	2.0	49	38
23	8.0	8.0	8.2	9.8	12	10	6.8	e6.5	27	3.3	26	29
24	7.6	7.3	8.3	9.5	11	9.6	7.0	e5.7	26	2.8	20	26
25	8.2	6.5	8.6	10	11	9.1	6.2	e5.3	23	2.7	16	24
26	8.3	7.1	9.4	10	11	8.6	6.4	e5.3	20	2.9	14	22
27	8.3	7.3	9.4	9.8	11	30	6.2	e5.3	70	2.9	12	20
28	6.4	7.4	8.5	15	11	24	5.4	e4.9	22	7.6	11	18
29	6.6	6.9	8.2	17	---	19	5.0	e4.9	15	5.0	12	17
30	8.1	6.9	8.5	14	---	13	5.1	e4.9	14	2.9	13	15
31	9.1	---	8.5	13	---	11	---	e4.9	---	2.1	9.5	---
TOTAL	285.0	212.9	292.4	301.8	335.9	349.2	214.5	2158.7	13926.8	149.7	3017.6	11404.7
MEAN	9.19	7.10	9.43	9.74	12.0	11.3	7.15	69.6	464	4.83	97.3	380
MAX	11	13	15	17	20	30	9.7	1200	3300	12	1480	6100
MIN	6.4	5.1	7.2	8.0	6.8	8.0	5.0	4.9	4.9	2.0	1.8	4.0
AC-FT	565	422	580	599	666	693	425	4280	27620	297	5990	22620
CFSM	.00	.00	.00	.00	.01	.01	.00	.03	.21	.00	.04	.17
IN.	.00	.00	.00	.01	.01	.01	.00	.04	.24	.00	.05	.19

CAL YR 1988 TOTAL 9099.1 MEAN 24.9 MAX 872 MIN 1.5 AC-FT 18050 CFSM .01 IN. .15
WTR YR 1989 TOTAL 32649.2 MEAN 89.4 MAX 6100 MIN 1.8 AC-FT 64760 CFSM .04 IN. .55

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 those for estimated daily discharges, which are poor. There are many small diversions upstream from station for irrigation, but total amounts are unknown.

AVERAGE DISCHARGE.--29 years (water years 1961-89), 1,024 ft³/s (741,900 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)
May 19	0855	11,000	8.15	June 16	0100	*38,400	*10.73
June 6	0250	16,300	8.78	Sept. 14	1130	29,900	10.11
June 8	0520	19,300	9.12				

Minimum discharge, 154 ft³/s May 1, 2.

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	858	293	264	254	352	346	1800	163	213	2130	269	238
2	755	300	261	255	e300	352	1130	158	200	2040	295	248
3	678	300	262	257	e260	367	1130	186	185	1610	305	228
4	585	294	261	256	e240	320	861	265	1970	1420	275	252
5	538	298	270	258	e230	e300	672	353	12400	1170	272	595
6	539	269	268	245	e240	e280	514	394	10300	916	222	912
7	539	245	261	240	e270	e290	477	470	7840	704	355	473
8	558	224	264	231	e310	e300	423	794	15400	589	1240	341
9	540	217	281	229	e330	312	387	611	10400	530	2280	254
10	506	200	279	228	367	326	325	461	7540	533	2870	219
11	484	214	332	230	341	291	296	336	5170	469	1580	534
12	437	260	375	213	311	277	276	342	3560	435	974	723
13	411	243	406	213	325	278	275	373	12600	424	644	5420
14	403	264	390	238	387	276	305	1050	28000	540	554	19700
15	408	263	347	232	440	259	282	2770	34000	610	463	9320
16	412	306	336	233	434	264	272	3570	35000	506	419	4200
17	402	357	312	240	544	265	255	4760	20000	450	383	2230
18	375	311	297	242	712	234	243	6050	7140	411	446	1730
19	348	282	285	239	668	241	237	7880	5770	403	549	1410
20	331	283	264	231	641	237	235	4890	4160	383	411	1230
21	318	281	254	231	618	241	223	4990	3650	359	332	1080
22	327	293	254	236	608	266	208	2800	2860	336	375	978
23	326	294	242	233	556	256	197	2360	2510	332	347	890
24	310	294	230	223	496	253	185	1580	2300	349	328	808
25	300	306	228	223	461	255	177	911	2240	333	333	753
26	294	307	250	224	415	251	181	610	2480	355	460	687
27	286	297	257	235	374	250	181	495	2510	498	433	644
28	270	301	253	375	356	326	189	418	2510	380	372	617
29	293	285	245	481	---	2240	172	341	2320	339	304	595
30	308	272	245	365	---	1890	168	280	2210	315	270	566
31	298	---	252	346	---	1400	---	252	---	295	231	---
TOTAL	13437	8353	8725	7936	11586	13443	12279	50913	247438	20164	18591	57875
MEAN	433	278	281	256	414	434	409	1642	8248	650	600	1929
MAX	858	357	406	481	712	2240	1800	7880	35000	2130	2870	19700
MIN	270	200	228	213	230	234	168	158	185	295	222	219
AC-FT	26650	16570	17310	15740	22980	26660	24360	101000	490800	40000	36880	114800

CAL YR 1988 TOTAL 352921 MEAN 964 MAX 16900 MIN 132 AC-FT 700000
WTR YR 1989 TOTAL 470740 MEAN 1290 MAX 35000 MIN 158 AC-FT 933700

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.--
SECIFIC 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 1988 TO SEPTEMBER 1989

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 17...	1350	325	7230	8.20	12.0	56	13.1	129	5.4	270	360	1400
DEC 22...	1535	268	9350	8.30	13.0	12	10.3	105	2.4	K30	K33	1500
MAR 13...	1320	278	8500	8.30	17.0	9.6	14.4	163	4.1	K24	44	1500
MAY 12...	0800	344	7720	7.90	15.0	42	8.9	96	6.1	800	110	1200
JUL 21...	1330	357	5370	8.10	29.0	20	9.4	131	8.0	K5	K35	1100
AUG 18...	0945	363	5870	8.10	25.5	80	10.4	136	4.7	260	42	1000

DATE	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET 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 17...	1300	350	130	1100	13	7.7	146	1200	1800	0.40	5.0	4810
DEC 22...	1300	390	130	1500	17	8.5	164	1400	2500	0.40	6.0	6090
MAR 13...	1400	380	140	1300	15	8.5	125	1400	2000	0.40	1.6	5810
MAY 12...	1100	330	90	1200	16	9.7	63	1100	1800	0.40	2.8	4640
JUL 21...	1000	250	110	710	10	8.6	78	990	1200	0.40	10	3520
AUG 18...	950	270	85	870	12	1.6	76	940	1400	0.50	9.0	3820

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-PHOROUS TOTAL (MG/L AS P)	PHOS-PHOROUS DIS-SOLVED (MG/L AS P)	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
NOV 17...	4690	0.370	0.040	0.410	0.090	0.120	1.5	1.6	0.100	<0.010	<0.010	--
DEC 22...	6020	0.650	0.030	0.680	0.160	0.160	1.1	1.3	0.040	<0.010	<0.010	--
MAR 13...	5310	--	0.020	<0.100	0.100	0.090	1.0	1.1	0.040	<0.010	<0.010	--
MAY 12...	4580	--	<0.010	<0.100	0.120	0.110	0.48	0.60	0.050	0.010	<0.010	--
JUL 21...	3430	--	<0.010	<0.100	0.080	0.050	0.62	0.70	0.070	<0.010	0.020	0.06
AUG 18...	3630	--	<0.010	<0.100	0.060	0.050	1.2	1.3	0.150	<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 17...	66	58	88	<10	2	100	<10	<1	<1	<1	14	20
DEC 22...	49	35	76	--	--	--	--	--	--	--	--	--
MAR 13...	53	40	90	<10	2	300	<10	2	3	<1	2	50
MAY 12...	82	76	97	<10	2	200	<10	<1	3	<1	1	30
JUL 21...	27	26	90	--	--	--	--	--	--	--	--	--
AUG 18...	77	75	98	<10	2	100	<10	<1	2	<1	3	30

07308500 RED RIVER NEAR BURKBURNETT, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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 17...	<5	70	20	0.2	4	<1	4	<1.0	4600	46	10
DEC 22...	--	--	--	--	--	--	--	--	--	--	--
MAR 13...	<5	100	20	<0.1	1	<1	5	<1.0	5400	32	20
MAY 12...	<1	80	50	0.2	4	1	3	<1.0	4800	27	10
JUL 21...	--	--	--	--	--	--	--	--	--	--	--
AUG 18...	<1	70	<10	0.3	3	1	2	<1.0	3400	14	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, 13,950 acre-ft Sept. 15-17, 1989 (elevation, 1,452.34 ft); minimum, 1,190 acre-ft Oct. 18, 19, 1984 (elevation, 1,429.47 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 13,950 acre-ft Sept. 15-17 (elevation, 1,452.34 ft); minimum, 9,870 acre-ft Nov. 7 (elevation, 1,447.91 ft).

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

1,447.0	9,140	1,451.0	12,630
1,449.0	10,800	1,453.0	14,620

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9960	9960	9980	10240	10480	10770	10890	10760	13160	13430	13000	13200
2	9950	9960	10000	10250	10470	10790	10890	10780	13190	13430	12890	13180
3	9950	9960	10010	10260	10450	10840	10870	10790	13220	13420	13000	13180
4	9950	9960	10000	10250	10450	10790	10860	10840	13330	13420	12990	13180
5	9950	9940	10000	10280	10460	10770	10870	10840	13320	13410	12990	13150
6	9950	9930	10020	10290	10460	10760	10860	10840	13290	13410	12990	13140
7	9950	9930	10020	10300	10460	10760	10850	10840	13300	13390	13380	13140
8	9960	9920	10020	10290	10480	10760	10820	10850	13290	13360	13400	13060
9	9960	9950	10020	10280	10480	10760	10790	10850	13260	13350	13410	13080
10	9960	9950	10060	10300	10490	10760	10770	10840	13290	13320	13400	13050
11	9960	9970	10070	10310	10500	10760	10760	10840	13300	13300	13380	13430
12	9960	9960	10090	10300	10500	10770	10770	10870	13360	13300	13360	13490
13	9950	9970	10090	10290	10520	10780	10760	10950	13540	13270	13360	13930
14	9950	9990	10120	10300	10540	10800	10760	10960	13510	13280	13360	13940
15	9940	9940	10110	10310	10550	10780	10770	11230	13540	13280	13350	13940
16	9950	9940	10110	10310	10590	10790	10770	13120	13540	13280	13330	13950
17	9960	9910	10130	10330	10640	10810	10790	13270	13540	13250	13330	13940
18	9960	9930	10120	10330	10650	10810	10790	13280	13540	13220	13340	13930
19	9960	9940	10150	10330	10670	10800	10800	13300	13540	13190	13320	13920
20	9960	9940	10150	10350	10710	10790	10780	13290	13540	13140	13310	13910
21	9960	9960	10170	10350	10720	10800	10800	13280	13520	13140	13300	13890
22	9950	9950	10170	10360	10710	10820	10800	13360	13520	13130	13300	13860
23	9970	9950	10140	10370	10710	10820	10810	13310	13510	13150	13310	13820
24	9970	9960	10180	10380	10730	10800	10790	13280	13500	13150	13300	13800
25	9980	9960	10160	10390	10750	10850	10780	13280	13500	13150	13290	13790
26	9970	9960	10200	10390	10760	10860	10770	13240	13480	13150	13280	13770
27	9970	9960	10200	10410	10760	10860	10780	13230	13480	13110	13250	13760
28	9960	9950	10200	10450	10760	10880	10800	13200	13470	13010	13240	13780
29	9970	9970	10190	10460	---	10900	10770	13170	13460	13000	13220	13770
30	9970	9970	10210	10480	---	10900	10760	13170	13450	12920	13230	13790
31	9970	---	10230	10480	---	10770	---	13180	---	12610	13210	---
MAX	9980	9990	10230	10480	10760	10900	10890	13360	13540	13430	13410	13950
MIN	9940	9910	9980	10240	10450	10760	10760	10760	13160	12610	12890	13050
(†)	1448.03	1448.03	1448.33	1448.63	1448.95	1448.97	1448.95	1451.56	1451.84	1450.98	1451.59	1452.18
(ϕ)	0	0	+260	+250	+280	+10	-10	+2420	+270	-840	+600	+580

CAL YR 1988 MAX 10230 MIN 8520 (ϕ) +1720
WTR YR 1989 MAX 13950 MIN 9910 (ϕ) +3820

(†) 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 current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1984 to current year.
WATER TEMPERATURE: October 1984 to current year.

INSTRUMENTATION.--Beginning October 1, 1984 specific conductance and water temperature are 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. Comprehensive surveys at 15 different points in Truscott Brine Lake were made during October, January, May, and August.

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.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 23,200 microsiemens May 11, 12, 15, 16; minimum, 13,700 microsiemens Sept. 14.
WATER TEMPERATURE: Maximum, 33.0°C July 5; minimum, 2.5°C Feb. 7.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
OCT 04...	1030	17300	8.10	22.0	2300	2200	630	170	3100
DEC 28...	0905	19200	7.90	12.0	2500	2400	680	190	3400
MAR 21...	1450	20800	8.10	12.5	2700	2600	740	200	3700
APR 28...	1220	21700	7.90	23.5	2900	2800	810	210	4400
MAY 22...	1230	16000	7.90	27.0	2100	2000	590	150	2600
JUL 20...	1515	20300	7.80	27.0	2800	2700	790	190	3600

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
OCT 04...	29	17	102	2000	5200	0.40	8.2	11200
DEC 28...	31	20	105	2200	6100	0.40	8.1	12700
MAR 21...	32	21	115	2300	6200	0.40	5.9	13200
APR 28...	37	34	98	2400	6900	0.40	4.8	14800
MAY 22...	26	18	89	1600	4600	0.40	5.2	9620
JUL 20...	31	24	102	2100	6000	0.40	5.0	12800

07311669 TRUSCOTT BRINE LAKE NEAR TRUSCOTT, TX--Continued

334747099495001 - TRUSCOTT BRINE LAKE AR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
OCT							
25...	1035	1.00	18000	8.30	19.0	6.3	77
25...	1037	10.0	18000	8.30	18.5	6.3	76
25...	1039	20.0	18000	8.30	18.5	6.2	75
JAN							
30...	1050	1.00	19600	8.00	7.5	9.9	95
30...	1052	10.0	19600	8.00	7.5	10.0	96
30...	1054	23.0	19700	8.00	7.5	10.2	98
MAY							
23...	1128	1.00	15700	8.20	25.5	5.9	81
23...	1130	10.0	19600	8.00	22.5	5.2	68
23...	1132	23.0	20600	8.00	21.0	3.7	47
AUG							
08...	1143	1.00	19000	8.10	26.5	5.3	74
08...	1145	10.0	19700	8.10	26.5	4.8	67
08...	1147	24.0	19700	8.00	26.5	4.3	60

334752099501101 - TRUSCOTT BRINE LAKE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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 WH WAT TOT FLD MG/L AS CACO3	CALCIUM DISSOLVED (MG/L AS CA)
OCT											
25...	1005	1.00	18000	8.30	18.5	0.60	6.5	78	2300	2200	640
25...	1007	10.0	18000	8.30	18.5	--	6.4	77	--	--	--
25...	1009	20.0	18000	8.30	18.5	--	6.5	78	2300	2200	640
25...	1011	33.0	18000	8.30	18.5	--	6.4	77	2300	2200	650
JAN											
30...	1024	1.00	19600	8.00	7.5	0.77	9.9	95	2600	2500	730
30...	1026	10.0	19400	8.00	7.5	--	9.9	95	--	--	--
30...	1028	20.0	19400	8.00	7.5	--	9.9	95	2600	2500	730
30...	1030	30.0	20200	7.70	7.5	--	9.9	95	--	--	--
30...	1032	35.0	20300	7.70	8.0	--	7.6	74	--	--	--
30...	1034	40.0	20500	7.70	8.0	--	7.3	71	2500	2300	670
MAY											
23...	1103	1.00	15700	8.00	25.5	0.82	5.8	79	2200	2100	620
23...	1105	10.0	19300	7.80	22.5	--	5.3	69	--	--	--
23...	1107	20.0	20000	7.80	20.5	--	4.3	54	2900	2800	800
23...	1109	25.0	20400	7.70	20.5	--	2.9	37	--	--	--
23...	1111	30.0	20500	7.70	20.0	--	1.9	24	--	--	--
23...	1113	35.0	20300	7.70	20.0	--	1.7	21	--	--	--
23...	1115	40.0	20300	7.70	19.5	--	1.4	17	--	--	--
23...	1117	44.0	20400	7.70	19.5	--	0.5	6	3000	2800	820
AUG											
08...	1115	1.00	20200	8.10	27.0	1.01	4.9	69	2700	2600	770
08...	1117	10.0	20300	8.10	26.5	--	4.6	64	--	--	--
08...	1119	25.0	20400	8.00	26.5	--	3.6	50	--	--	--
08...	1121	20.0	20500	8.10	26.0	--	4.5	63	2800	2700	790
08...	1123	30.0	20700	7.30	22.0	--	0.1	1	--	--	--
08...	1125	35.0	20900	7.30	21.5	--	0.1	1	--	--	--
08...	1127	40.0	21200	7.30	21.0	--	0	0	--	--	--
08...	1129	44.0	21400	7.20	20.5	--	0.2	3	2900	2700	820

07311669 TRUSCOTT BRINE LAKE NEAR TRUSCOTT, TX--Continued

334752099501101 - TRUSCOTT BRINE LAKE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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 WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	ARSENIC DIS-SOLVED (UG/L AS AS)
OCT											
25...	170	3300	31	15	102	2000	5600	0.30	8.2	11800	3
25...	--	--	--	--	--	--	--	--	--	--	--
25...	170	3200	30	22	102	2000	5600	0.30	8.0	11700	--
25...	170	3300	31	17	108	2100	5600	0.30	8.3	11900	3
JAN											
30...	200	3800	33	20	113	2300	6200	0.40	7.5	13400	3
30...	--	--	--	--	--	--	--	--	--	--	--
30...	190	3500	31	20	115	2200	6100	0.40	7.6	12800	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	190	4100	37	20	112	2300	6500	0.40	7.5	13900	2
MAY											
23...	160	2900	28	14	91	1700	5000	0.40	5.3	10500	2
23...	--	--	--	--	--	--	--	--	--	--	--
23...	210	4000	34	41	110	2300	6800	0.40	5.0	14200	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	220	4200	35	21	121	2300	6800	0.40	7.1	14400	4
AUG											
08...	190	4100	36	23	103	2200	6500	0.40	6.0	13900	4
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	190	4000	34	22	107	2200	6400	0.40	6.0	13700	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	200	4000	34	24	167	2300	6600	0.40	10	14100	13

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)
OCT											
25...	<100	1	2	1	40	<5	20	0.1	<1	<1.0	30
25...	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--
25...	<100	2	2	1	50	25	20	0.5	<1	<1.0	30
JAN											
30...	89	<3	2	1	12	<5	<3	0.3	<1	10	12
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--
30...	100	1	2	2	80	<5	30	<0.1	<1	<1.0	20
MAY											
23...	200	<1	4	2	70	3	40	<0.1	<1	<1.0	20
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	200	<2	4	2	110	<2	960	0.5	<1	<1.0	30
AUG											
08...	400	4	4	4	60	<2	30	0.1	<1	<2.0	20
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	400	4	9	2	140	<2	880	<0.1	<1	<2.0	20

07311669 TRUSCOTT BRINE LAKE NEAR TRUSCOTT, TX--Continued

334753099502201 - TRUSCOTT BRINE LAKE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
OCT							
25...	0945	1.00	18000	8.30	18.5	6.8	82
25...	0947	10.0	18000	8.30	18.5	7.0	84
25...	0949	20.0	18000	8.30	18.5	7.2	87
JAN							
30...	1010	1.00	19500	7.90	7.5	10.1	97
30...	1012	10.0	19600	7.90	7.5	10.3	99
30...	1014	21.0	19700	7.80	7.5	10.3	99
MAY							
23...	1045	1.00	15200	7.80	25.0	6.6	89
23...	1047	10.0	18400	7.50	23.5	6.1	81
23...	1049	15.0	19200	7.60	21.0	5.1	65
23...	1051	23.0	20100	7.40	20.5	3.4	43
AUG							
08...	1102	1.00	19700	8.20	26.5	5.0	70
08...	1104	10.0	20100	8.10	26.5	4.8	67
08...	1106	22.0	21100	8.10	26.5	4.7	66

334724099500001 - TRUSCOTT BRINE LAKE BR

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
OCT							
25...	1050	1.00	18000	8.40	19.0	6.4	78
25...	1052	10.0	18000	8.30	18.5	6.1	74
25...	1054	20.0	18000	8.30	18.5	6.0	72
25...	1056	30.0	18000	8.20	18.5	5.2	63
JAN							
30...	1102	1.00	19800	8.00	8.0	9.8	95
30...	1104	10.0	19700	8.00	7.5	9.8	94
30...	1106	20.0	19800	8.00	7.5	9.9	95
30...	1108	25.0	19700	8.00	7.5	9.9	95
30...	1110	31.0	21000	7.70	8.0	5.6	55
MAY							
23...	1140	1.00	15500	8.20	26.0	5.7	78
23...	1142	10.0	19400	8.00	22.5	5.1	67
23...	1144	20.0	20300	8.00	21.0	4.1	52
23...	1146	25.0	20600	8.00	20.5	3.1	39
23...	1148	30.0	20800	8.00	20.5	2.1	27
23...	1150	34.0	20800	8.10	20.5	1.9	24
AUG							
08...	1215	1.00	19100	8.20	26.5	5.2	73
08...	1217	10.0	19600	8.10	26.5	5.0	70
08...	1219	20.0	19800	8.10	26.5	4.5	63
08...	1223	25.0	20200	8.00	26.0	4.5	63
08...	1224	30.0	21100	7.30	23.0	0.2	3
08...	1225	34.0	21400	7.30	22.5	0.2	3

07311669 TRUSCOTT BRINE LAKE NEAR TRUSCOTT, TX--Continued

334730099501801 - TRUSCOTT BRINE LAKE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
OCT							
25...	1107	1.00	18000	8.40	19.0	6.3	77
25...	1109	10.0	18000	8.30	19.0	6.0	73
25...	1111	20.0	18000	8.30	19.0	6.0	73
25...	1113	30.0	18000	8.30	19.0	5.9	72
25...	1115	35.0	18200	8.10	19.0	4.0	49
25...	1117	40.0	18200	8.10	19.0	3.8	46
JAN							
30...	1120	1.00	19800	8.00	8.0	9.8	95
30...	1122	10.0	19800	8.00	7.5	9.8	94
30...	1124	20.0	19800	8.00	7.5	9.8	94
30...	1126	30.0	20900	7.80	8.0	7.9	77
30...	1128	35.0	21400	7.70	8.0	5.7	56
30...	1130	41.0	21500	7.60	8.0	4.6	45
MAY							
23...	1157	1.00	15600	8.20	26.0	5.7	79
23...	1159	10.0	19200	8.00	23.0	5.1	67
23...	1201	20.0	20600	8.00	21.0	3.9	50
23...	1203	30.0	20900	8.00	20.5	2.5	32
23...	1205	40.0	21000	8.00	20.5	1.9	24
23...	1207	46.0	21000	8.10	20.5	1.5	19
AUG							
08...	1232	1.00	19500	8.20	27.0	5.0	70
08...	1234	10.0	20000	8.10	26.5	4.5	63
08...	1236	25.0	20100	8.10	26.0	4.1	57
08...	1238	30.0	21200	7.30	23.0	0.2	3
08...	1240	40.0	21400	7.30	21.5	0.2	3
08...	1242	46.0	21600	7.20	21.5	0.2	3

334735099503201 - TRUSCOTT BRINE LAKE BL

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
OCT							
25...	1125	1.00	17900	8.40	19.0	6.3	77
25...	1127	10.0	17900	8.30	19.0	6.1	74
25...	1129	20.0	17900	8.30	18.5	6.1	73
25...	1131	27.0	18000	8.30	18.5	6.1	74
JAN							
30...	1140	1.00	19800	8.00	8.0	9.8	95
30...	1142	10.0	19900	8.00	7.5	9.9	95
30...	1144	20.0	19800	8.00	7.5	9.7	93
30...	1146	30.0	20700	7.80	8.0	7.8	76
MAY							
23...	1214	1.00	15500	8.20	26.0	5.7	79
23...	1216	10.0	19200	8.10	23.0	4.8	63
23...	1218	20.0	20600	8.10	21.0	3.9	50
23...	1220	28.0	21000	8.10	21.0	3.1	40
AUG							
08...	1253	1.00	19700	8.20	27.0	5.1	72
08...	1255	10.0	19700	8.10	26.5	4.8	67
08...	1257	20.0	20300	8.10	26.5	4.5	63
08...	1259	27.0	20500	7.90	26.5	2.9	41

07311669 TRUSCOTT BRINE LAKE NEAR TRUSCOTT, TX--Continued

334707099503701 - TRUSCOTT BRINE LAKE CR

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
OCT							
25...	1215	1.00	18000	8.40	19.5	7.1	88
25...	1217	10.0	18000	8.30	19.0	6.5	79
25...	1219	20.0	18000	8.30	19.0	6.4	78
25...	1221	32.0	18100	8.30	19.0	5.4	66
JAN							
30...	1228	1.00	19800	8.10	9.0	9.7	96
30...	1230	10.0	19800	8.10	8.0	9.8	95
30...	1232	20.0	19800	8.10	7.5	9.7	93
30...	1234	25.0	19800	8.10	7.5	9.6	92
30...	1236	30.0	21000	7.80	8.0	7.4	72
30...	1238	34.0	21300	7.70	8.0	6.5	63
MAY							
23...	1317	1.00	15800	8.00	26.5	5.8	81
23...	1319	10.0	19800	7.80	22.5	4.6	60
23...	1321	20.0	20600	7.90	21.0	4.3	55
23...	1323	30.0	21300	7.90	20.5	2.4	31
23...	1325	35.0	21200	7.90	20.5	2.1	27
AUG							
08...	1343	1.00	19800	8.20	27.0	5.1	72
08...	1345	10.0	20300	8.10	26.5	4.8	67
08...	1347	20.0	20400	8.10	26.5	4.3	60
08...	1349	25.0	21100	7.30	23.0	0.1	1
08...	1351	34.0	21300	7.30	22.0	0.2	3

334714099504801 - TRUSCOTT BRINE LAKE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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 WH WAT TOT FLD MG/L AS CACO3	CALCIUM DISSOLVED (MG/L AS CA)
OCT											
25...	1158	1.00	18000	8.40	19.5	0.80	6.7	83	2200	2100	620
25...	1200	10.0	18000	8.30	19.0	--	6.0	73	--	--	--
25...	1202	20.0	18000	8.30	19.0	--	5.9	72	2500	2400	700
25...	1204	30.0	18200	8.30	19.0	--	5.5	67	--	--	--
25...	1206	36.0	19100	8.10	19.0	--	4.0	49	2600	2500	720
JAN											
30...	1208	1.00	19800	8.10	8.5	0.91	9.2	90	2700	2600	740
30...	1210	10.0	19800	8.10	8.0	--	9.8	95	--	--	--
30...	1212	20.0	19800	8.10	7.5	--	9.7	93	2700	2600	740
30...	1214	25.0	19900	8.00	7.5	--	9.3	89	--	--	--
30...	1216	30.0	20800	7.90	8.0	--	8.0	78	--	--	--
30...	1218	36.0	21700	7.70	8.0	--	6.1	60	2600	2500	720
MAY											
23...	1255	1.00	15800	8.00	26.0	0.82	5.8	80	1900	1800	520
23...	1257	10.0	19400	7.80	23.0	--	4.8	64	--	--	--
23...	1259	20.0	20800	7.80	21.0	--	4.2	54	2800	2700	790
23...	1301	30.0	21200	7.80	20.5	--	2.6	33	--	--	--
23...	1303	39.0	21500	7.90	20.5	--	1.7	22	2700	2600	760
AUG											
08...	1323	1.00	19900	8.20	27.0	0.99	5.2	74	2600	2500	750
08...	1325	10.0	20200	8.10	26.5	--	4.9	69	--	--	--
08...	1327	20.0	20400	8.10	26.5	--	4.5	63	2600	2500	760
08...	1329	25.0	20700	8.00	26.0	--	2.5	35	--	--	--
08...	1331	30.0	21000	7.30	23.5	--	0.1	1	--	--	--
08...	1333	38.0	21300	7.20	21.5	--	0.2	3	2900	2800	830

07311669 TRUSCOTT BRINE LAKE NEAR TRUSCOTT, TX--Continued

334714099504801 - TRUSCOTT BRINE LAKE CC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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 WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT										
25...	160	3400	33	16	105	2000	5700	0.30	8.3	12000
25...	--	--	--	--	--	--	--	--	--	--
25...	190	3400	30	17	105	2000	5700	0.30	8.0	12100
25...	--	--	--	--	--	--	--	--	--	--
25...	190	3900	35	19	108	2100	5900	0.40	8.2	12900
JAN										
30...	200	3500	31	20	98	2200	6100	0.40	7.7	12800
30...	--	--	--	--	--	--	--	--	--	--
30...	200	3600	31	20	111	2200	6100	0.40	7.7	12900
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	200	4000	35	21	112	2400	6800	0.40	7.0	14300
MAY										
23...	140	2800	29	16	87	1700	4800	0.30	5.3	10000
23...	--	--	--	--	--	--	--	--	--	--
23...	210	4100	35	34	111	2300	7000	0.40	5.1	14500
23...	--	--	--	--	--	--	--	--	--	--
23...	200	4300	37	41	115	2300	6900	0.40	5.9	14600
AUG										
08...	180	3700	33	23	101	2200	6400	0.40	6.0	13300
08...	--	--	--	--	--	--	--	--	--	--
08...	180	3700	33	23	104	2200	6600	0.40	6.0	13500
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	210	4000	33	23	147	2300	6700	0.40	9.0	14200

334723099505801 - TRUSCOTT BRINE LAKE CL

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
OCT							
25...	1145	1.00	18000	8.40	19.0	6.7	82
25...	1147	10.0	18000	8.30	19.0	6.4	78
25...	1149	20.0	18000	8.30	19.0	6.3	77
25...	1151	25.0	18000	8.30	19.0	6.2	76
25...	1153	31.0	19100	8.00	19.0	3.6	44
JAN							
30...	1152	1.00	19800	8.00	8.5	9.1	89
30...	1154	10.0	19800	8.10	8.0	9.7	94
30...	1156	20.0	19800	8.00	7.5	9.7	93
30...	1158	25.0	20000	8.00	7.5	9.3	89
30...	1200	32.0	21400	7.80	8.0	6.9	67
MAY							
23...	1241	1.00	15800	8.00	26.0	5.7	79
23...	1243	10.0	19300	7.90	23.5	5.4	72
23...	1245	20.0	20700	7.80	21.0	4.0	51
23...	1247	30.0	21300	7.80	20.5	2.6	33
23...	1249	33.0	21300	7.80	20.5	2.8	36
AUG							
08...	1308	1.00	19800	8.20	27.0	4.6	65
08...	1310	10.0	20300	8.10	27.0	3.8	54
08...	1312	25.0	20200	7.70	26.5	2.1	29
08...	1314	32.0	20900	7.30	22.5	0.1	1

07311669 TRUSCOTT BRINE LAKE NEAR TRUSCOTT, TX--Continued

334700099505501 - TRUSCOTT BRINE LAKE DR

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
OCT							
25...	1255	1.00	17800	8.40	20.0	7.1	88
25...	1257	10.0	17800	8.30	19.0	6.6	81
25...	1259	19.0	17900	8.30	18.5	6.6	80
JAN							
30...	1326	1.00	19800	7.90	10.0	9.6	97
30...	1328	10.0	19800	7.90	8.0	9.9	95
30...	1330	20.0	19800	7.80	8.0	9.9	95
MAY							
23...	1406	1.00	15900	7.70	27.0	5.6	79
23...	1408	10.0	20100	7.40	22.5	4.0	53
23...	1410	23.0	21000	7.40	21.5	3.8	49
AUG							
08...	1434	1.00	19500	8.10	27.5	5.6	80
08...	1436	10.0	20100	8.10	27.0	5.0	71
08...	1438	22.0	20400	8.00	27.0	4.4	62

334705099510101 - TRUSCOTT BRINE LAKE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
OCT							
25...	1315	1.00	18000	8.40	20.0	7.1	88
25...	1317	10.0	18000	8.30	19.0	6.5	79
25...	1319	20.0	18000	8.30	18.5	6.5	79
25...	1321	25.0	18100	8.30	18.5	6.7	81
25...	1323	30.0	19400	8.10	18.5	4.7	57
JAN							
30...	1338	1.00	19800	8.00	9.5	9.4	94
30...	1340	10.0	19800	8.00	8.0	9.8	95
30...	1342	20.0	19800	8.00	7.5	9.8	94
30...	1344	25.0	19900	7.90	7.5	9.4	90
30...	1346	31.0	20800	7.70	8.0	7.5	73
MAY							
23...	1415	1.00	15800	7.80	26.5	5.7	80
23...	1417	10.0	19200	7.70	23.5	5.1	68
23...	1419	20.0	20700	7.60	22.0	3.5	46
23...	1421	30.0	21100	7.60	21.0	2.0	26
23...	1423	35.0	21300	7.70	20.5	1.8	23
AUG							
08...	1447	1.00	19600	8.20	27.5	5.8	83
08...	1449	10.0	20100	8.20	27.0	5.8	82
08...	1451	20.0	19800	8.10	26.5	5.1	71
08...	1455	25.0	20300	8.00	26.5	4.6	65
08...	1456	30.0	20900	7.30	23.0	0.2	3
08...	1457	35.0	21300	7.20	22.0	0.2	3

334711099510801 - TRUSCOTT BRINE LAKE DL

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
OCT							
25...	1337	1.00	18000	8.30	20.5	7.1	89
25...	1339	11.0	18000	8.20	19.0	7.1	87
JAN							
30...	1352	1.00	19800	8.00	9.0	9.8	97
30...	1354	13.0	19800	8.00	8.0	10.0	97
MAY							
23...	1429	1.00	15700	8.00	27.0	5.9	83
23...	1431	11.0	18900	7.80	24.5	5.2	71
AUG							
08...	1501	1.00	20000	8.20	28.0	5.7	82
08...	1503	12.0	19700	8.20	27.0	5.8	82

07311669 TRUSCOTT BRINE LAKE NEAR TRUSCOTT, TX--Continued

334652099511201 - TRUSCOTT BRINE LAKE ER

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
OCT							
25...	1415	1.00	17800	8.40	20.5	7.1	89
25...	1417	10.0	17800	8.20	18.0	5.9	70
JAN							
30...	1419	1.00	19800	8.10	9.0	9.7	96
30...	1421	10.0	19800	8.10	8.0	10.1	98
MAY							
23...	1503	1.00	17100	7.90	27.0	5.2	74
23...	1505	10.0	19200	7.90	24.0	4.4	59
AUG							
08...	1530	1.00	20100	8.20	27.5	5.7	81
08...	1532	10.0	20500	8.10	27.0	5.1	72

334655099511701 - TRUSCOTT BRINE LAKE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
OCT							
25...	1405	1.00	17800	8.40	20.0	7.3	91
25...	1407	5.00	17800	8.40	19.0	7.6	93
25...	1409	10.0	18000	8.40	18.0	7.7	92
25...	1411	14.0	22400	8.00	19.0	5.2	64
JAN							
30...	1410	1.00	19900	8.00	10.0	9.7	99
30...	1412	10.0	19900	8.00	8.0	9.9	96
30...	1414	15.0	23300	7.90	9.0	9.1	92
MAY							
23...	1448	1.00	16600	7.90	27.5	4.1	58
23...	1450	10.0	19400	7.80	24.0	5.2	70
23...	1452	18.0	21000	7.80	22.0	2.2	29
AUG							
08...	1521	1.00	20000	8.20	27.5	5.8	83
08...	1523	10.0	20200	8.20	27.0	5.3	75
08...	1525	17.0	20400	8.00	27.0	4.2	60

334700099512201 - TRUSCOTT BRINE LAKE EL

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
OCT							
25...	1345	1.00	17800	8.30	20.5	7.1	89
25...	1347	5.00	17800	8.30	19.0	7.2	88
25...	1349	10.0	19000	8.10	18.5	4.8	58
JAN							
30...	1400	1.00	19800	8.00	9.0	9.7	96
30...	1402	11.0	19800	8.00	7.5	9.9	95
MAY							
23...	1440	1.00	15800	8.00	27.0	5.9	83
23...	1442	13.0	19800	7.80	23.5	3.5	47
AUG							
08...	1509	1.00	20000	8.20	27.5	5.2	74
08...	1511	12.0	20200	8.10	27.0	5.1	72

07311669 TRUSCOTT BRINE LAKE NEAR TRUSCOTT, TX--Continued

334648099513501 - TRUSCOTT BRINE LAKE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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 WH WAT TOT FLD MG/L AS CACO3	CALCIUM DISSOLVED (MG/L AS CA)
OCT											
25...	1423	1.00	17900	8.40	20.0	0.90	7.4	92	2300	2200	640
25...	1425	5.00	20300	8.30	17.5	--	7.2	86	2400	2300	660
JAN											
30...	1426	1.00	19900	8.00	10.0	0.91	9.3	95	2700	2600	740
30...	1428	6.00	20500	8.00	8.0	--	10.4	101	2500	2400	700
MAY											
23...	1511	1.00	16000	8.00	28.0	0.55	5.9	85	2100	2100	610
23...	1513	9.00	19300	7.80	24.0	--	3.3	45	2200	2100	700
AUG											
08...	1537	1.00	19300	8.30	28.0	0.73	6.0	86	2400	2400	700
08...	1539	9.00	20400	8.10	27.0	--	4.6	65	2600	2500	750

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
OCT										
25...	170	3300	31	16	105	2000	5200	0.30	8.0	11400
25...	180	3400	31	18	108	2100	5900	0.30	8.2	12300
JAN										
30...	200	3600	31	20	110	2200	6100	0.40	7.2	12900
30...	190	3700	33	21	113	2200	6200	0.40	6.3	13100
MAY										
23...	150	2900	28	16	86	1700	4900	0.40	5.6	10300
23...	100	3900	38	25	108	2100	6500	0.40	6.1	13400
AUG										
08...	170	4000	37	21	91	2100	6100	0.40	6.0	13200
08...	180	3700	33	23	103	2200	6500	0.40	6.0	13400

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	17400	17300	17400	18200	17800	18000	---	---	e18700	---	---	e19200
2	17400	17200	17300	18100	17700	17900	---	---	e18700	---	---	e19200
3	17500	17200	17300	18000	17700	17800	---	---	e18700	---	---	e19200
4	17500	17200	17400	18000	17800	17900	---	---	e18800	---	---	e19300
5	17600	17300	17400	18000	17600	17900	---	---	e18800	---	---	e19300
6	17700	17300	17500	18200	17500	17800	---	---	e18800	---	---	e19300
7	17600	17500	17500	18200	17800	17900	---	---	e18800	---	---	e19400
8	17700	17500	17600	18400	17800	18100	---	---	e18800	---	---	e19400
9	17600	17500	17600	18300	17900	18200	---	---	e18900	---	---	e19400
10	17700	17500	17600	18100	17800	18000	---	---	e18900	---	---	e19400
11	17700	17500	17600	18300	17900	18100	---	---	e18900	---	---	e19400
12	17700	17600	17600	18400	18100	18300	---	---	e18900	---	---	e19500
13	17800	17300	17700	18400	18200	18300	---	---	e18900	---	---	e19500
14	17800	17300	17700	18400	18200	18300	---	---	e19000	---	---	e19500
15	17900	17600	17800	18400	18300	18400	---	---	e19000	---	---	e19600
16	17900	17300	17700	18500	18300	18400	---	---	e19000	---	---	e19600
17	17900	17800	17900	18400	18300	18400	---	---	e19000	---	---	e19600
18	17900	17700	17800	18600	18400	18400	---	---	e19000	---	---	e19600
19	17900	17600	17800	18600	18200	18400	---	---	e19100	---	---	e19600
20	18000	17800	17900	18600	18400	18500	---	---	e19100	19800	19700	19700
21	18000	17800	17900	18600	18400	18500	---	---	e19100	20000	19800	19800
22	17900	17700	17900	18600	18400	18500	---	---	e19100	20100	19800	19900
23	17700	17600	17700	---	---	e18500	---	---	e19100	19900	19500	19800
24	17900	17600	17800	---	---	e18600	---	---	e19100	19900	19700	19800
25	17900	17700	17800	---	---	e18600	---	---	e19100	19800	19700	19800
26	17900	17600	17800	---	---	e18600	---	---	e19100	19900	19700	19800
27	18000	17800	17800	18700	18600	18700	19200	19100	19100	19900	19400	19800
28	18000	17800	17800	---	---	e18600	19300	19000	19100	19700	19000	19300
29	18100	17900	17900	---	---	e18700	---	---	e19100	19200	19000	19200
30	18000	17900	17900	---	---	e18700	---	---	e19200	19200	19000	19200
31	18000	17800	17900	---	---	---	---	---	e19200	19800	19000	19500
MONTH	18100	17200	17700	18700	17500	18300	19300	19000	19000	20100	19000	19500

e Estimated

07311669 TRUSCOTT BRINE LAKE NEAR TRUSCOTT, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	19800	18700	19000	19800	19700	19800	21100	20800	21000	22100	21800	22000
2	19100	18900	19000	20000	19700	19800	21200	20900	21100	22200	18300	21500
3	19200	19000	19100	20400	19700	20000	21200	21000	21100	22200	21100	22000
4	19100	19000	19100	20400	19900	20300	21200	21000	21100	22300	21400	22000
5	19200	19000	19100	20500	20300	20500	21300	21000	21100	22600	22100	22300
6	19300	19100	19200	20600	20300	20500	21300	20800	21100	22500	22300	22400
7	19300	19100	19200	20600	20300	20500	21200	21000	21100	22900	22300	22500
8	19300	19100	19200	20500	20200	20400	21200	21000	21100	23100	22400	22900
9	19300	19000	19200	20500	20200	20400	21200	21100	21200	23000	22700	22900
10	19600	19200	19400	20700	20000	20400	21300	20900	21200	23100	22900	23000
11	19500	19000	19200	20200	19600	19900	21300	21100	21200	23200	22200	23100
12	19200	19100	19200	20000	19300	19900	21400	21100	21200	23200	22300	22900
13	19200	19100	19200	20000	19400	19800	21200	21100	21200	---	---	e22700
14	19200	18600	19100	20100	19600	19800	21300	21000	21300	---	---	e22500
15	19200	18900	19100	20100	19800	19900	21400	21200	21300	23200	18800	22300
16	19200	18700	19100	20400	19900	20100	21600	21300	21400	23200	18500	21400
17	19000	18500	18900	20400	19800	20100	21600	21300	21400	21200	16500	18000
18	19200	18900	19000	19900	19800	19800	21500	21200	21300	---	---	e17000
19	19700	18900	19300	20500	19500	19900	21400	21200	21300	---	---	e17500
20	19700	19200	19400	20800	20400	20600	21600	21300	21400	---	---	e16000
21	19400	19300	19300	20900	20600	20800	21500	21200	21400	---	---	e16000
22	19400	19200	19300	20800	20600	20800	21800	21200	21500	16700	15000	16100
23	19800	19100	19500	20900	20600	20700	21800	21500	21600	16700	15700	16100
24	19900	19600	19700	21000	20800	20900	21700	21500	21500	16300	15500	15900
25	19700	18800	19600	20900	20800	20900	21700	21400	21600	16700	16100	16400
26	19800	19700	19700	20900	20800	20900	21700	21300	21600	17300	16400	16900
27	19800	19700	19700	20900	20700	20800	21700	21300	21600	17500	17100	17200
28	19800	19700	19800	21000	20800	20900	21800	21300	21600	17800	17200	17500
29	---	---	---	21000	20800	20800	21900	21400	21700	18300	17700	18000
30	---	---	---	20900	20700	20800	22000	21700	21900	18400	18000	18300
31	---	---	---	20900	20800	20900	---	---	---	18500	17900	18300
MONTH	19900	18500	19300	21000	19300	20400	22000	20800	21300	23200	15000	19800

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	18600	18200	18400	19800	19300	19500	---	---	e20500	21800	21200	21400
2	18700	18300	18500	19700	19300	19600	---	---	e20500	21400	21100	21200
3	18700	16500	18400	19700	19200	19600	---	---	e20500	21600	21100	21300
4	18600	17000	18200	19800	19600	19700	---	---	e20500	21800	21200	21500
5	18600	18200	18400	20100	19600	19800	20800	20400	20600	21700	21400	21500
6	19100	18000	18500	20100	19800	19900	20600	20200	20400	21600	21200	21300
7	19200	18800	19000	20200	19700	19900	---	---	e20200	21600	21200	21400
8	19100	18600	18900	20400	19800	20000	20200	20000	20100	21700	21200	21500
9	19200	18800	19100	20100	19500	19800	20700	20100	20400	21600	21100	21400
10	19500	18700	19200	20000	19800	19900	20600	20200	20400	21600	21200	21400
11	19300	18700	18900	20200	19700	19900	20600	20100	20400	21400	16700	20500
12	19200	17100	18400	20200	19800	20000	20500	20100	20300	21100	20400	20900
13	19100	17200	18800	20000	19600	19900	20300	19900	20200	20700	18200	20200
14	19200	18900	19100	19900	19200	19700	20200	19900	20100	20600	13700	19700
15	19300	18800	19100	20300	19700	19900	20400	20100	20200	19900	14400	17600
16	19300	18600	19000	20100	19900	20000	20700	19800	20200	19600	14600	16900
17	19200	18700	19000	20600	19800	20200	20700	20200	20500	18000	15300	17000
18	19100	18800	19000	20600	20100	20300	20800	20300	20500	19000	17600	18300
19	19300	18700	19000	20500	20000	20200	20900	20200	20600	20000	19100	19600
20	19600	18800	19300	20400	20100	20300	21200	20400	20700	20100	19400	19700
21	19700	19100	19400	20500	20300	20400	20600	20300	20600	20200	19500	19800
22	19400	19100	19200	20800	20400	20500	21200	20400	20700	20600	19800	20100
23	19300	19000	19100	---	---	e20500	20900	20400	20700	20600	19900	20300
24	19600	19100	19300	---	---	e20500	21000	20500	20700	20500	20200	20300
25	19600	18900	19300	---	---	e20500	21100	20400	20800	20300	20000	20200
26	19600	19000	19400	---	---	e20500	21100	20500	20800	20300	20000	20200
27	19600	19300	19400	---	---	e20500	21100	20500	20800	20300	20100	20200
28	19500	19200	19400	---	---	e20500	21300	20800	20900	20400	20100	20200
29	19600	19300	19400	---	---	e20500	21200	20800	20900	20500	20200	20300
30	19500	19200	19400	---	---	e20500	21300	20900	21000	20500	19900	20400
31	---	---	---	---	---	e20500	21800	20800	21300	---	---	---
MONTH	19700	16500	19000	20800	19200	20100	21800	19800	20500	21800	13700	20200

e Estimated

07311669 TRUSCOTT BRINE LAKE NEAR TRUSCOTT, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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

07311669 TRUSCOTT BRINE LAKE NEAR TRUSCOTT, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	25.0	22.5	23.5	31.0	27.0	28.5	---	---	e27.0	31.5	26.5	28.0
2	26.5	22.0	24.0	29.5	27.0	28.0	---	---	e27.0	28.5	26.5	27.0
3	24.5	21.0	23.0	29.5	27.0	28.0	---	---	e27.0	31.0	26.5	28.0
4	24.5	22.0	23.0	30.0	27.5	28.5	---	---	e28.5	31.0	26.5	28.0
5	25.0	22.0	23.5	33.0	27.5	29.5	---	---	e27.0	31.0	27.0	28.5
6	24.0	22.0	23.0	31.0	28.0	29.0	---	---	e27.5	31.0	27.0	28.0
7	23.5	22.0	22.5	30.5	27.5	29.0	---	---	e27.0	30.5	26.5	28.0
8	23.5	22.0	23.0	31.5	28.0	29.0	---	---	e26.0	29.5	27.0	27.5
9	23.5	21.5	23.0	31.5	28.0	29.0	---	---	e25.5	27.5	25.5	26.5
10	26.0	23.0	24.0	30.0	26.0	28.0	---	---	e24.5	28.0	25.5	26.5
11	27.5	23.5	25.0	31.0	23.5	27.5	---	---	e24.0	26.0	24.0	25.0
12	27.0	22.5	25.0	31.0	26.0	28.0	---	---	e25.0	25.0	24.0	24.5
13	25.0	23.0	24.0	31.0	27.0	28.5	---	---	e25.0	24.0	22.5	23.0
14	25.0	23.0	24.0	28.5	26.5	27.5	---	---	e25.0	23.5	20.0	22.0
15	24.0	23.0	23.5	32.0	27.0	28.5	---	---	e26.5	23.0	18.5	21.5
16	24.5	23.0	23.5	30.5	28.0	29.0	---	---	e25.5	25.0	19.5	22.0
17	27.0	23.0	24.5	31.5	28.0	29.0	---	---	e25.5	25.0	21.5	23.0
18	26.0	24.0	25.0	30.5	27.0	28.5	29.5	24.5	26.5	24.5	22.0	23.0
19	29.0	24.5	26.0	29.0	26.5	27.5	29.5	25.5	27.0	24.0	22.0	23.0
20	31.0	26.0	28.0	28.5	26.0	27.0	29.5	25.5	26.5	25.0	22.0	23.0
21	29.0	26.0	27.0	28.0	25.5	27.0	28.0	25.5	26.5	25.5	22.5	24.0
22	27.0	25.0	26.0	31.0	26.0	26.0	30.5	26.0	27.5	24.0	22.0	23.0
23	28.0	24.5	25.5	28.0	25.5	26.0	28.0	26.5	27.0	22.5	21.5	22.0
24	26.5	25.0	25.5	---	---	e26.5	30.5	26.5	27.5	23.0	20.5	21.5
25	27.5	25.5	26.5	---	---	e26.0	30.0	26.5	28.0	22.5	20.0	21.0
26	29.0	26.0	27.0	---	---	e26.0	31.0	26.5	28.0	22.0	20.0	20.5
27	29.0	26.0	27.5	---	---	e26.5	30.5	26.5	28.0	22.0	20.0	20.5
28	27.5	26.0	26.5	---	---	e28.0	31.5	27.0	28.0	23.0	20.0	21.0
29	28.0	26.0	27.0	---	---	e28.0	30.0	27.0	28.0	23.5	20.5	21.5
30	28.5	26.5	27.5	---	---	e28.0	30.5	27.0	28.0	24.5	20.0	21.5
31	---	---	---	---	---	e29.0	30.0	27.0	28.0	---	---	---
MONTH	31.0	21.0	25.0	33.0	23.5	28.0	31.5	24.5	26.5	31.5	18.5	24.0

e Estimated

07311700 NORTH WICHITA RIVER NEAR TRUSCOTT, TX

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

DRAINAGE AREA.--937 mi².

WATER-DISCHARGE RECORDS

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

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

REMARKS.--Records good except 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.--29 years (water years 1961-89), 62.6 ft³/s (0.91 in/yr), 45,350 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)
May 16	2020	*5,140	*17.37	Aug. 7	0820	1,320	11.90
June 12	0730	2,860	15.28	Sept. 11	1235	1,040	10.88
June 13	1430	3,860	16.63	Sept. 13	1135	2,220	14.78

Minimum discharge, 6.6 ft³/s Aug. 6

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	28	22	19	20	18	19	17	15	39	42	12	14
2	25	21	19	20	17	20	17	33	39	38	12	13
3	23	20	20	20	14	19	16	44	45	34	16	14
4	20	20	20	20	17	17	16	36	713	33	16	14
5	21	19	20	19	20	15	16	38	582	32	12	14
6	21	18	20	19	25	18	16	50	159	31	10	12
7	21	18	21	19	26	17	16	49	86	29	635	12
8	22	17	22	18	22	16	15	34	65	28	482	12
9	22	17	24	19	19	16	15	24	67	27	155	13
10	22	17	24	19	18	16	15	19	58	28	66	15
11	22	17	26	18	18	16	e17	18	610	26	49	526
12	20	20	27	18	17	15	e18	41	2340	23	40	147
13	20	20	26	17	18	15	e20	72	2920	21	34	1480
14	19	20	24	17	19	15	e20	51	1870	23	32	495
15	19	19	21	17	19	15	19	66	288	25	29	141
16	19	18	21	18	19	15	18	2370	142	21	27	67
17	20	18	21	19	26	15	16	1280	100	19	25	46
18	18	17	21	19	30	15	15	1100	81	16	24	36
19	19	18	21	19	27	15	16	200	73	14	44	31
20	19	22	21	19	24	16	17	86	70	13	31	28
21	20	24	21	18	22	18	20	56	65	12	25	26
22	21	23	21	18	20	18	25	53	61	12	24	24
23	20	21	20	18	19	18	19	54	59	28	34	22
24	19	20	20	17	18	17	19	50	56	28	38	21
25	18	20	20	17	18	15	18	47	54	32	42	21
26	17	20	20	18	18	14	17	44	52	20	32	20
27	18	20	20	18	18	15	16	47	50	18	25	20
28	17	19	20	26	18	17	16	45	48	17	22	20
29	18	19	20	27	---	27	15	42	46	14	16	20
30	18	19	20	25	---	24	14	40	43	13	12	20
31	21	---	20	21	---	19	---	39	---	12	13	---
TOTAL	627	583	660	597	564	527	514	6143	10881	729	2034	3344
MEAN	20.2	19.4	21.3	19.3	20.1	17.0	17.1	198	363	23.5	65.6	111
MAX	28	24	27	27	30	27	25	2370	2920	42	635	1480
MIN	17	17	19	17	14	14	14	15	39	12	10	12
AC-FT	1240	1160	1310	1180	1120	1050	1020	12180	21580	1450	4030	6630
CFSM	.02	.02	.02	.02	.02	.02	.02	.21	.39	.03	.07	.12
IN.	.02	.02	.03	.02	.02	.02	.02	.24	.43	.03	.08	.13

CAL YR 1988 TOTAL 11280.6 MEAN 30.8 MAX 1010 MIN 7.1 AC-FT 22380 CFSM .03 IN. .45
WTR YR 1989 TOTAL 27203 MEAN 74.5 MAX 2920 MIN 10 AC-FT 53960 CFSM .08 IN. 1.08

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 current year. Sediment analyses: April 1978 to current year.

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

INSTRUMENTATION.--Since August 1968, specific conductance is recorded continuously at this station. Since June 1982, water temperature is 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.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 20,700 microsiemens May 1; minimum, 456 microsiemens June 13.
WATER TEMPERATURE: Maximum, 34.5°C July 15, 16; minimum, 0.0°C on several days during February and March.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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 WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT										
04...	0825	21	15300	8.00	16.5	2100	2100	610	150	2800
NOV										
15...	1005	20	18000	--	17.0	--	--	--	--	--
DEC										
28...	1145	20	17600	8.10	4.5	2500	2400	720	160	3200
FEB										
21...	1040	22	16400	8.10	8.5	2600	2400	750	170	3000
MAR										
21...	1340	19	18800	--	9.5	--	--	--	--	--
MAY										
01...	1650	15	7260	--	24.0	--	--	--	--	--
16...	1200	1380	2700	8.00	20.0	510	440	160	26	380
22...	1115	62	6670	8.10	25.0	1100	980	330	66	890
JUN										
05...	1610	362	1470	--	23.0	--	--	--	--	--
06...	1555	125	2500	--	26.5	--	--	--	--	--
13...	1408	3820	920	8.00	21.0	300	230	100	12	54
JUL										
20...	1730	14	18000	--	33.0	--	--	--	--	--
SEP										
05...	1155	14	17000	--	29.5	--	--	--	--	--
13...	1635	1740	2500	--	15.0	--	--	--	--	--

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)
OCT										
04...	27	10	75	2200	4400	0.30	2.5	10200	13	0.74
NOV										
15...	--	--	--	--	--	--	--	--	16	0.86
DEC										
28...	29	12	105	2600	5000	0.40	3.4	11800	39	2.1
FEB										
21...	27	12	138	2400	4600	0.50	6.0	11000	--	--
MAR										
21...	--	--	--	--	--	--	--	--	10	0.51
MAY										
01...	--	--	--	--	--	--	--	--	41	1.7
16...	8	6.6	66	430	620	0.30	7.0	1670	4410	16400
22...	12	9.3	118	970	1500	0.40	8.4	3840	94	16
JUN										
05...	--	--	--	--	--	--	--	--	2310	2300
06...	--	--	--	--	--	--	--	--	679	229
13...	1	5.8	66	250	89	0.20	8.3	559	2020	20800
JUL										
20...	--	--	--	--	--	--	--	--	34	1.3
SEP										
05...	--	--	--	--	--	--	--	--	55	2.1
13...	--	--	--	--	--	--	--	--	3080	14500

07311700 NORTH WICHITA RIVER NEAR TRUSCOTT, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM
OCT									
04...	--	--	--	--	--	89	--	--	--
NOV									
15...	--	--	--	--	--	80	--	--	--
DEC									
28...	--	--	--	--	--	94	--	--	--
FEB									
21...	--	--	--	--	--	--	--	--	--
MAR									
21...	--	--	--	--	--	96	--	--	--
MAY									
01...	--	--	--	--	--	82	--	--	--
16...	--	--	--	--	--	89	--	--	--
22...	--	--	--	--	--	96	--	--	--
JUN									
05...	--	--	--	--	--	92	--	--	--
06...	--	--	--	--	--	95	--	--	--
13...	54	66	69	77	79	83	84	88	97
JUL									
20...	--	--	--	--	--	30	--	--	--
SEP									
05...	--	--	--	--	--	90	--	--	--
13...	44	48	51	53	56	59	61	66	90

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	627	16900	11400	19400	5000	8450	2400	3980	*
NOV.	1988	583	17800	12100	19000	5300	8360	2500	3880	*
DEC.	1988	660	17300	11700	20900	5100	9140	2400	4280	*
JAN.	1989	597	16800	11400	18400	5000	8000	2300	3780	*
FEB.	1989	564	16700	11300	17200	4900	7480	2300	3550	*
MAR.	1989	527	18300	12400	17600	5500	7780	2500	3580	*
APR.	1989	514	19200	13100	18100	5800	8050	2600	3640	*
MAY	1989	6143	3510	2300	38200	930	15400	530	8790	590
JUNE	1989	10881	2460	1610	47300	640	18800	380	11000	420
JULY	1989	729	16400	11100	21800	4800	9460	2300	4500	*
AUG.	1989	2034	6850	4530	24900	1900	10200	1000	5580	1100
SEPT	1989	3344	4660	3060	27700	1200	11200	700	6350	780
TOTAL		27203	**	**	290000	**	122000	**	63000	**
WTD.AVG.		75	5920	3950	**	1700	**	860	**	940

07311700 NORTH WICHITA RIVER NEAR TRUSCOTT, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	13700	12900	13300	18100	17700	17900	17700	17600	17700	17500	17300	17400
2	14600	13600	14100	18100	17700	17900	17800	17600	17700	17400	17300	17300
3	15200	14400	14700	18100	17800	17900	17800	17600	17700	17400	17200	17300
4	15500	15000	15300	18100	17700	17900	17700	17600	17700	17300	17100	17200
5	15700	15400	15600	18300	18000	18100	17700	17500	17600	17300	17100	17200
6	16200	15600	15800	18400	18100	18200	17600	17500	17600	17300	17100	17200
7	16400	16100	16200	18500	18100	18300	17500	17400	17500	17200	17000	17100
8	16700	16400	16500	18400	18100	18300	17400	17300	17400	17300	17100	17200
9	16800	16500	16700	18500	18200	18300	17500	17300	17400	17300	17200	17200
10	17000	16600	16800	18500	18200	18300	17300	16700	17200	17300	17100	17200
11	17100	16700	16900	18400	17900	18200	16600	16200	16500	17300	17000	17200
12	17300	16800	17000	18100	17700	17900	16600	16400	16500	17300	17100	17300
13	17500	17100	17200	18100	17800	17900	16600	16400	16500	17400	17300	17300
14	17600	17200	17400	18000	17700	17800	16700	16500	16700	17300	17200	17200
15	17800	17300	17500	18000	17700	17800	17100	16700	16900	17300	17000	17200
16	17800	17400	17600	18000	17800	17900	17200	17000	17100	17200	17000	17100
17	18000	17400	17700	18100	17900	18000	17200	17100	17100	17100	16900	17000
18	18000	17600	17700	18100	17900	18000	17300	17200	17200	17100	16900	17000
19	18000	17600	17700	17900	17500	17700	17300	17300	17300	17000	16900	16900
20	17800	17600	17700	17600	17400	17500	17400	17300	17300	16900	16800	16900
21	18000	17500	17800	17600	17400	17500	17400	17300	17400	17000	16900	16900
22	18100	17500	17800	17500	17300	17400	17600	17400	17500	17000	16900	16900
23	18000	17600	17800	17400	17300	17300	17600	17400	17500	17000	16800	16900
24	18200	17700	17900	17500	17300	17400	17600	17500	17600	16900	16800	16900
25	18300	17900	18100	17600	17400	17500	17600	17500	17600	16800	16700	16800
26	18400	18100	18200	17600	17400	17500	17600	17400	17500	16700	16600	16700
27	18400	18000	18200	17600	17500	17600	17600	17400	17500	16700	16000	16500
28	18300	18000	18100	17600	17500	17600	17600	17500	17600	15900	15500	15600
29	18400	18000	18200	17600	17500	17600	17700	17500	17600	15800	15400	15500
30	18300	17800	18100	17700	17500	17700	17600	17300	17500	15600	15400	15500
31	18200	17700	17900	---	---	---	17400	17300	17400	15800	15600	15700
MONTH	18400	12900	17000	18500	17300	17800	17800	16200	17300	17500	15400	16900

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	16100	15800	15900	17500	17400	17400	19300	18700	19200	20700	20100	20300
2	16100	16000	16100	17400	17200	17300	19400	18700	19100	20500	11200	18000
3	16600	16100	16300	17500	17200	17300	19100	18200	18700	---	---	e11000
4	17300	16400	16900	17700	17400	17600	18700	18100	18400	---	---	e12000
5	17700	16100	17300	18100	17300	17800	18900	18200	18600	---	---	e13000
6	18000	17300	17700	18100	17800	18000	18800	18400	18500	---	---	e10000
7	18100	17100	17500	17900	17200	17700	18900	18100	18500	---	---	e12000
8	18000	16800	17400	18000	17700	17900	18900	18000	18500	---	---	e14000
9	17100	16600	16900	18000	17600	17800	19000	18700	18900	---	---	e16000
10	16900	16500	16700	18100	17600	17800	19200	18900	19100	---	---	e18000
11	16900	16600	16800	18300	17900	18100	19200	18700	19000	---	---	e18500
12	17000	16700	16800	18500	18100	18200	19000	18800	19000	13600	5750	10500
13	16900	16800	16900	18600	18200	18400	18900	18600	18800	7940	1010	4860
14	16900	16300	16500	18700	18300	18500	18900	18500	18700	11400	3590	8190
15	16600	16300	16500	18800	18600	18700	19300	18500	18900	11300	2500	8860
16	16800	16300	16600	18700	18400	18500	19500	18900	19200	2780	965	1570
17	16300	15500	15800	18800	18300	18500	19800	19200	19500	10400	1410	3140
18	15700	15500	15600	18700	18400	18600	20000	19300	19600	2630	711	1290
19	16000	15600	15800	18600	18300	18500	20100	19500	19800	---	---	e2000
20	16300	16000	16100	18500	18300	18400	20300	19100	19800	---	---	e4000
21	16400	16300	16400	18500	18200	18300	20300	19500	19800	---	---	e6000
22	16600	16400	16500	18400	18200	18300	20300	19600	20000	---	---	e7000
23	16800	16600	16700	18400	18200	18300	20100	18500	19600	---	---	e8000
24	17100	16800	17000	18600	18100	18400	18900	18100	18500	---	---	e9000
25	17300	17000	17100	18900	18300	18600	19800	18700	19300	---	---	e9800
26	17400	17200	17300	19100	18500	18700	20000	19400	19600	10500	9820	10200
27	17500	17300	17400	19000	18600	18700	19800	19200	19700	11200	10600	10900
28	17500	17400	17400	18900	18500	18600	19600	19100	19300	11900	11200	11400
29	---	---	---	18800	18200	18400	20000	19100	19600	---	---	e12000
30	---	---	---	19700	18500	19100	20500	19700	20100	---	---	e13000
31	---	---	---	19600	19200	19500	---	---	---	---	---	e13800
MONTH	18100	15500	16700	19700	17200	18300	20500	18000	19200	---	---	9970

e Estimated

07311700 NORTH WICHITA RIVER NEAR TRUSCOTT, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	14300	13900	14100	14400	13900	14200	18300	18000	18100	15900	15500	15700
2	14500	14100	14300	14700	14100	14400	18000	17800	17900	16200	15500	15800
3	---	---	e13600	15000	14400	14700	18300	17700	18100	16500	15900	16200
4	---	---	e3700	15200	14500	14800	18500	18000	18300	16900	16500	16700
5	---	---	e1600	16600	14900	15600	18300	17900	18100	16900	16800	16900
6	---	---	e2600	16300	15700	16000	18400	4030	17200	17300	16800	17000
7	3890	2830	3310	16100	15600	15800	8500	2120	4810	17600	17200	17400
8	4850	3930	4400	16300	15700	16000	11000	1870	4110	18300	17600	17800
9	6780	4920	5760	16500	15900	16200	3300	2280	2710	18100	17700	17900
10	7820	6800	7300	16700	16300	16400	4450	3300	3900	18400	17700	18000
11	---	---	e3270	16900	16400	16700	5410	4450	4960	---	---	e6000
12	---	---	e852	17200	16600	16800	6370	5520	5880	---	---	e6200
13	1200	456	910	17000	16700	16900	7120	6490	6760	---	---	e2900
14	---	---	e1800	17000	16400	16700	7980	7120	7610	---	---	e2450
15	---	---	e2500	17600	16600	17100	8950	7990	8470	---	---	e2110
16	4620	2920	3790	17600	17100	17400	9940	8860	9350	3600	2600	3080
17	5810	4610	5160	17400	17000	17200	10900	9940	10400	4500	3600	4050
18	7130	5810	6400	17500	17000	17300	11700	10800	11300	5550	4500	5000
19	8100	7120	7620	17600	17100	17400	13700	11700	12700	6580	5480	6060
20	8860	7990	8490	17900	17200	17600	15300	13700	14600	7690	6580	7140
21	9720	8850	9250	18200	17600	17900	15500	14800	15200	8690	7690	8190
22	10400	9490	9960	18300	17700	18100	15500	14700	15200	9410	8700	9090
23	11100	10400	10700	18300	13400	17500	16400	14500	15400	10200	9400	9790
24	11600	11000	11300	17800	6830	12900	16400	11300	14700	11200	10200	10700
25	12100	11500	11800	18100	17300	17700	11300	10300	10700	12100	11000	11600
26	12700	12000	12400	18200	17300	17700	12000	10200	11100	12900	12100	12500
27	13100	12400	12800	18600	18000	18300	12900	12000	12500	13700	12800	13300
28	13300	12600	13000	18400	17900	18200	13500	11800	12400	14300	13600	13900
29	13700	13200	13400	18400	18000	18200	14500	13500	14000	14800	14100	14500
30	14200	13500	13900	18800	18300	18500	15200	14400	14700	15200	14600	14900
31	---	---	---	18800	18300	18600	15900	15300	15600	---	---	---
MONTH	---	---	7670	18800	6830	16700	18500	1870	11800	---	---	11100

e Estimated

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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

07311700 NORTH WICHITA RIVER NEAR TRUSCOTT, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	13.0	9.5	11.0	9.5	6.5	8.0	23.0	14.0	18.0	---	---	e19.5
2	9.0	2.0	6.0	13.0	8.5	10.5	25.0	15.5	20.0	21.5	18.0	19.5
3	2.5	.0	1.0	18.5	11.5	14.0	24.5	16.5	20.5	18.5	16.5	17.5
4	1.5	.0	.0	10.5	2.0	5.5	21.5	15.0	18.0	22.0	18.0	19.5
5	1.5	.0	.0	6.0	.0	2.5	23.0	13.5	18.0	22.5	18.0	20.0
6	2.0	.0	.5	8.0	.0	4.0	24.0	14.5	19.0	22.5	20.0	21.0
7	2.5	.0	.5	11.0	1.5	6.0	25.0	16.0	20.5	24.5	19.5	22.0
8	3.5	.0	1.5	13.5	4.5	9.0	21.5	15.0	18.5	27.5	22.5	24.5
9	5.0	.0	2.5	16.5	7.5	12.0	19.5	12.0	15.0	26.0	23.5	24.5
10	9.0	2.0	5.0	19.0	10.0	14.5	17.0	9.5	13.0	23.5	20.0	21.5
11	11.0	5.5	8.0	21.5	12.0	16.5	16.5	9.0	13.0	20.5	17.0	18.5
12	8.0	6.5	6.5	23.5	14.5	18.5	12.5	11.0	12.0	19.0	17.0	17.5
13	9.5	6.5	7.5	22.0	15.0	18.5	12.0	11.0	11.5	21.0	16.0	18.0
14	7.0	5.5	6.0	23.5	15.5	18.5	22.0	10.0	16.0	23.0	18.0	20.5
15	6.0	5.0	5.5	17.0	11.5	14.5	24.5	15.0	19.5	25.0	19.0	21.5
16	5.0	4.0	4.5	19.5	10.5	15.0	25.0	16.0	20.0	19.5	15.5	17.5
17	5.0	3.5	4.0	23.5	15.0	19.0	27.5	17.0	22.0	19.5	18.0	19.0
18	6.5	4.0	5.5	18.0	12.0	15.0	28.5	20.0	24.0	21.0	17.5	19.5
19	7.5	6.0	6.5	16.0	12.0	13.5	27.5	19.5	23.0	25.0	19.5	22.0
20	10.0	6.5	8.5	15.0	8.0	12.5	28.5	18.5	23.5	26.5	21.5	23.5
21	12.5	6.5	9.5	11.0	4.5	7.5	29.5	20.0	24.5	28.0	22.0	25.0
22	12.0	6.5	9.0	15.0	5.0	10.0	29.5	21.5	25.0	---	---	e25.0
23	11.0	5.0	8.0	18.5	9.0	13.5	---	---	e24.5	---	---	e24.5
24	13.0	5.0	9.0	22.5	13.0	17.5	---	---	e23.5	---	---	e24.5
25	16.5	8.5	12.5	24.0	15.5	19.5	---	---	e22.5	---	---	e24.5
26	14.5	11.5	13.0	25.5	17.5	21.0	---	---	e22.0	26.5	22.5	24.5
27	11.5	9.0	10.5	23.0	18.5	20.5	---	---	e21.5	22.5	20.5	21.5
28	8.5	7.0	8.0	25.5	17.0	21.0	---	---	e20.5	27.0	21.0	23.5
29	---	---	---	26.0	18.0	22.0	---	---	e20.0	---	---	e23.5
30	---	---	---	23.5	17.0	20.0	---	---	e20.0	---	---	e24.0
31	---	---	---	22.0	14.5	18.0	---	---	---	---	---	e24.0
MONTH	16.5	.0	6.0	26.0	.0	14.0	---	---	19.5	---	---	21.5

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	26.5	22.0	24.0	32.5	25.5	29.0	31.5	26.0	28.5	32.0	25.0	28.5
2	28.0	22.5	25.0	33.0	25.0	28.5	28.0	25.0	26.5	31.5	25.0	28.0
3	27.5	22.0	24.5	32.0	25.5	29.0	30.5	24.5	27.0	32.0	25.0	28.5
4	---	---	e24.0	32.5	25.5	29.0	32.0	24.5	28.0	31.5	24.5	28.0
5	---	---	e23.5	33.5	25.5	29.5	33.0	25.0	29.0	30.0	25.5	27.5
6	---	---	e23.0	33.0	26.5	29.5	32.0	19.5	28.0	29.5	25.0	27.0
7	24.5	21.0	22.5	32.0	26.0	29.0	23.5	20.5	22.0	29.0	25.5	27.0
8	28.0	21.5	24.5	33.5	26.0	29.0	25.0	21.5	23.5	29.0	25.0	27.0
9	25.0	23.0	23.5	32.0	25.5	28.5	27.0	22.5	24.5	26.5	24.0	25.5
10	27.0	22.0	24.0	31.0	24.5	27.5	24.5	22.0	23.0	25.5	22.0	23.5
11	---	---	e23.0	31.5	24.5	28.0	26.0	20.5	23.5	24.0	20.0	22.0
12	24.0	21.5	22.5	32.5	25.0	28.5	28.0	22.5	25.0	21.5	20.5	21.0
13	---	---	e23.0	31.5	25.5	28.5	24.5	22.5	23.5	21.5	15.0	18.5
14	---	---	e23.0	31.0	26.0	28.0	26.5	22.0	24.0	17.5	14.5	16.0
15	---	---	e23.5	34.5	26.0	30.0	28.5	23.5	25.5	21.0	16.5	18.5
16	26.5	21.0	23.5	34.5	27.5	31.0	31.0	24.0	27.0	23.0	18.5	20.5
17	28.0	21.5	24.0	33.5	27.0	30.0	29.5	24.5	27.0	23.5	20.0	22.0
18	30.0	23.5	26.5	33.5	25.5	29.0	31.0	24.0	27.5	26.0	20.5	23.0
19	31.5	24.5	28.0	31.0	24.5	28.0	31.0	25.0	27.5	26.5	20.5	23.5
20	31.5	26.0	28.5	30.5	23.5	27.0	31.5	25.0	28.0	26.0	20.5	23.0
21	30.0	24.5	27.0	30.5	22.5	26.5	31.0	26.0	28.5	27.0	20.5	23.5
22	28.5	23.5	26.0	30.5	23.0	27.0	32.0	25.0	28.0	24.5	21.0	23.0
23	27.5	22.0	24.5	29.0	23.5	26.0	31.0	26.0	28.5	20.5	16.0	18.0
24	29.5	23.5	26.0	29.0	23.5	26.5	30.5	25.5	28.0	20.0	13.0	16.5
25	29.5	23.5	26.5	31.0	25.0	27.5	31.0	26.0	28.0	21.5	14.5	18.0
26	31.0	24.5	27.5	28.5	24.0	26.0	32.0	25.5	28.5	22.5	15.5	19.0
27	31.5	25.0	28.0	31.5	24.0	27.5	31.5	25.5	28.0	23.0	16.0	19.5
28	32.0	25.0	28.5	32.5	25.5	29.0	32.0	25.0	28.5	23.5	16.5	20.0
29	30.5	25.5	28.0	31.5	25.5	28.5	31.5	25.5	28.5	24.5	17.5	20.5
30	32.0	24.5	28.0	32.0	25.0	28.5	32.0	25.5	28.5	24.5	17.5	21.0
31	---	---	---	33.5	26.0	29.5	31.5	25.0	28.0	---	---	---
MONTH	---	---	25.0	34.5	22.5	28.5	33.0	19.5	27.0	32.0	13.0	22.5

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 discharge. 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.

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	7.0	.03	6.6	7.2	6.9	.00	7.3	4.0	6.5	7.1	6.8	7.2
2	7.1	.17	6.7	7.2	7.3	7.1	4.0	7.4	4.1	4.0	3.2	6.9
3	6.9	2.1	6.7	7.2	4.3	5.4	3.7	7.3	.00	2.8	5.2	6.8
4	7.0	4.6	3.7	5.1	7.3	5.8	7.0	7.3	.00	6.6	6.6	6.8
5	6.9	7.4	4.3	5.7	7.3	5.3	6.9	7.3	.00	6.6	5.1	6.7
6	6.5	7.1	7.2	7.4	.00	5.8	6.9	7.1	.00	6.6	4.9	4.6
7	6.5	9.7	7.1	7.3	7.3	3.6	.00	.00	.00	6.6	2.7	4.0
8	6.6	8.6	6.9	4.4	2.0	.00	6.9	6.9	.00	5.4	7.6	4.6
9	6.7	7.0	7.1	6.1	4.5	7.3	6.9	6.9	2.8	.00	7.1	.00
10	6.6	7.0	7.1	6.9	7.2	7.3	6.9	6.6	4.5	4.1	7.1	.00
11	6.5	7.0	7.1	7.1	7.1	7.3	6.9	7.3	.00	6.9	3.6	.00
12	6.7	7.1	7.1	7.4	7.1	7.3	6.9	7.3	3.8	6.9	.00	.00
13	6.7	7.2	7.0	3.5	7.0	7.3	7.1	6.1	.50	4.7	.00	.00
14	2.7	7.2	7.1	6.9	.00	1.5	7.2	1.2	3.6	7.1	.00	.00
15	4.6	1.2	7.3	6.9	7.0	.00	.00	.00	7.3	7.0	.00	.00
16	7.1	.93	4.2	6.9	7.0	.00	7.2	7.0	7.3	4.3	.00	.00
17	7.1	4.0	7.3	6.9	6.9	.00	7.2	7.0	7.3	1.2	4.0	.00
18	7.1	8.6	7.3	6.9	6.9	.00	7.2	4.5	5.8	.00	6.7	.00
19	7.4	7.4	7.2	6.8	5.9	.00	7.1	4.2	4.1	.00	6.7	.00
20	4.6	7.4	3.5	5.4	7.2	.00	4.6	7.0	7.4	2.9	5.4	.00
21	3.7	5.0	6.9	2.1	7.2	1.3	4.9	7.0	4.0	6.6	4.7	.00
22	7.2	1.8	6.9	7.3	.00	7.4	7.3	6.9	.00	6.6	7.2	.00
23	7.2	9.2	6.9	7.3	7.2	7.4	.00	.00	3.7	1.2	7.1	.00
24	7.1	6.9	6.9	7.2	7.2	.00	7.3	7.0	7.0	4.2	7.1	.00
25	5.9	6.9	6.9	7.4	7.2	7.4	7.3	6.5	4.2	7.0	7.1	3.5
26	4.6	6.6	6.9	7.3	7.3	7.4	2.1	7.4	3.8	6.4	5.8	7.1
27	6.1	6.6	6.9	4.7	5.0	6.1	2.1	7.3	5.1	7.0	.00	7.1
28	7.3	6.6	4.1	6.1	6.8	7.3	.00	4.8	7.1	7.0	3.0	6.9
29	7.3	6.5	4.2	6.9	---	7.3	.00	2.8	7.0	6.9	7.5	6.9
30	2.1	6.5	7.3	6.9	---	7.2	.00	.00	6.9	5.3	7.4	6.7
31	.10	---	7.3	6.8	---	.00	---	7.3	---	4.5	7.5	---
TOTAL	186.90	174.33	199.7	199.2	164.10	129.80	148.90	169.40	113.80	153.50	147.10	85.80
MEAN	6.03	5.81	6.44	6.43	5.86	4.19	4.96	5.46	3.79	4.95	4.75	2.86
MAX	7.4	9.7	7.3	7.4	7.3	7.4	7.3	7.4	7.4	7.1	7.6	7.2
MIN	.10	.03	3.5	2.1	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	371	346	396	395	325	257	295	336	226	304	292	170

CAL YR 1988	TOTAL 2296.33	MEAN 6.27	MAX 13	MIN .00	AC-FT 4550
WTR YR 1989	TOTAL 1872.53	MEAN 5.13	MAX 9.7	MIN .00	AC-FT 3710

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 due to malfunction of the instrument or when the pumps were not running. Where maximum and minimum specific conductance values are not shown, mean value is sometime 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, 1.0°C Feb. 2, 1985.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 41,500 microsiemens Aug. 4; minimum, 3,920 microsiemens June 13.
WATER TEMPERATURE: Maximum, 32.0°C July 2; minimum, 2.0°C Feb. 5, 7.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
OCT 04...	1502	33300	7.90	22.0	3400	3300	970	230	6700
DEC 28...	1610	35200	8.00	10.0	3600	3500	1000	270	7100
FEB 08...	1255	34200	8.00	6.0	3900	3700	1100	270	7100
MAR 20...	1050	35700	7.90	15.5	3500	3400	1000	250	7300
MAY 22...	1425	20600	7.90	28.5	2500	2400	710	170	3400
JUN 13...	1036	11600	7.90	23.0	1100	1100	340	72	2000
JUL 05...	1005	37500	7.70	28.0	3500	3400	1000	250	7300
AUG 16...	1020	40100	8.10	25.5	3800	3700	1100	250	7100

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
OCT 04...	52	22	111	3000	11000	0.50	7.3	22000
DEC 28...	53	28	115	3100	12000	0.50	7.2	23600
FEB 08...	52	26	134	3200	12000	0.50	11	23800
MAR 20...	56	29	113	3100	13000	0.50	6.4	24800
MAY 22...	31	20	108	2200	5900	0.40	7.2	12500
JUN 13...	27	12	89	990	3300	0.30	9.0	6780
JUL 05...	56	36	105	3100	12000	0.50	6.6	23800
AUG 16...	52	35	93	3200	13000	0.60	6.0	24700

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

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	186.90	34200	23200	11700	11500	5820	3100	1580	*
NOV.	1988	174.33	34800	23600	11100	11800	5550	3200	1500	*
DEC.	1988	199.7	34400	23300	12600	11600	6260	3200	1700	*
JAN.	1989	199.2	34600	23500	12600	11700	6300	3200	1700	*
FEB.	1989	164.10	33900	23000	10200	11400	5070	3100	1380	*
MAR.	1989	129.80	35900	24400	8560	12200	4280	3300	1140	*
APR.	1989	148.90	36100	24600	9900	12300	4960	3300	1310	*
MAY	1989	169.40	29800	20000	9150	9900	4520	2800	1280	*
JUNE	1989	113.80	25400	17000	5210	8300	2560	2400	746	*
JULY	1989	153.50	38100	26100	10800	13100	5440	3400	1410	*
AUG.	1989	147.10	38400	26400	10500	13300	5280	3400	1360	*
SEPT	1989	85.80	37000	25300	5860	12700	2940	3300	770	*
TOTAL		1872.53	**	**	118000	**	59000	**	15900	**
WTD.AVG.		5.1	34400	23400	**	12000	**	3100	**	**

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	33000	31900	32400	35000	34800	34900	34500	34200	34400	35100	34600	34800
2	33000	32500	32700	35000	34900	35000	34500	34000	34300	34800	34300	34500
3	32900	32700	32800	35900	34900	35400	34500	34000	34200	34300	34000	34200
4	---	---	e33300	36200	35800	35900	34200	34000	34100	34500	34300	34400
5	---	---	e33400	36400	36200	36300	34300	34100	34300	34500	34200	34300
6	---	---	e33500	36300	35900	36100	34900	34200	34400	34800	34300	34600
7	---	---	e33600	35900	35200	35600	34900	34300	34500	34800	34200	34500
8	---	---	e33600	35600	34800	35200	34800	34200	34500	34900	34700	34800
9	---	---	e33700	35400	34800	35000	34600	34100	34200	35400	34800	35000
10	---	---	e33700	34800	34400	34700	35000	33000	34000	35900	35400	35600
11	---	---	e33800	34600	33100	34500	33900	33100	33300	35700	35400	35600
12	33700	33500	33600	34500	33100	34200	34100	33500	33800	35500	34900	35200
13	34000	33500	33700	34700	33900	34400	33500	33100	33300	34900	34700	34900
14	33800	33600	33700	34600	34300	34500	33300	33100	33200	35100	34600	34900
15	34300	33900	34100	34400	34200	34300	33300	33100	33200	35400	34800	35100
16	35300	34200	34700	34500	34200	34400	33900	33200	33400	35000	34500	34700
17	35200	34800	35000	34600	34200	34500	34800	34000	34500	35000	34400	34700
18	35000	34600	34800	35200	34200	34700	34400	34200	34300	34500	34100	34300
19	34600	34400	34500	35100	34900	35000	34400	34100	34300	34400	34100	34200
20	34900	34500	34700	35100	34600	35000	34200	34000	34100	34500	34200	34300
21	34900	34800	34800	35000	34600	34900	34500	34000	34200	34400	34200	34300
22	35600	34700	35100	35100	34500	35000	34900	34700	34800	34800	34100	34400
23	35400	34900	35200	34700	34400	34500	35000	34700	34900	35000	34700	34900
24	34900	34500	34600	34700	34100	34400	35000	34800	34900	35000	34600	34800
25	35000	34600	34700	34300	33900	34200	34900	34600	34700	34600	34400	34500
26	35000	34800	34900	34300	34100	34200	35100	34700	35000	34500	34400	34500
27	35800	34900	35300	34500	34200	34300	35300	35100	35200	34700	34500	34600
28	35800	35100	35500	34900	34000	34200	35300	35200	35300	34700	33300	33900
29	35100	34700	34900	34400	34000	34200	35700	35200	35400	34700	33800	34500
30	35200	34800	35200	34400	34200	34300	35500	35100	35300	34000	33600	33800
31	35200	34900	35000	---	---	---	35500	34900	35100	34200	33500	34000
MONTH	35800	31900	34200	36400	33100	34800	35700	33000	34400	35900	33300	34600

e Estimated

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

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	34000	33800	33900	---	---	---	36100	35100	35600	36200	35600	35900
2	33900	33700	33800	35900	35100	35400	35900	35100	35700	36400	35600	35900
3	34500	33400	34100	34600	33800	34200	36200	35400	35800	36700	35700	36100
4	36000	34500	35100	35100	34600	34900	37000	35100	36100	36300	35700	36100
5	36600	35400	36100	35000	34900	34900	36300	35700	36000	36100	33800	34700
6	---	---	---	35200	34900	35000	36400	35200	35800	36000	35300	35700
7	35200	34500	35000	36600	35000	35700	---	---	---	---	---	---
8	34700	34100	34500	---	---	---	36400	35900	36100	35100	33000	34300
9	35000	34100	34600	37300	37000	37300	36500	36100	36300	34100	32000	33200
10	34800	33300	34200	37400	36400	37100	37300	36100	36600	32600	31600	32000
11	34400	33400	34000	36700	35800	36200	37700	37200	37500	32600	32200	32300
12	34300	32800	33900	36400	35700	36100	37700	37200	37500	32400	31900	32100
13	34200	33800	33900	36500	35100	36000	37400	33400	36000	32500	32000	32300
14	---	---	---	36500	35500	36000	37600	33400	35900	32700	32200	32500
15	34000	33700	33800	---	---	---	---	---	---	---	---	---
16	34600	33400	34200	---	---	---	37500	36100	36500	31600	27700	29900
17	33500	32700	33300	---	---	---	36500	35700	35900	29200	20400	24000
18	33600	32700	33300	---	---	---	36100	35500	35800	20400	19900	20200
19	32800	32300	32500	---	---	---	36400	35700	36000	20000	19300	19600
20	32200	31900	32000	---	---	---	36700	34200	35900	19300	18300	18800
21	32500	32200	32400	36400	35500	36000	35100	34200	34500	20100	18300	18800
22	---	---	---	36500	35700	36200	36700	34700	35600	22000	20100	20700
23	33800	33000	33300	36400	35000	36100	---	---	---	---	---	---
24	33900	33500	33700	---	---	---	35800	35400	35600	26400	24800	25600
25	33800	33200	33700	36500	35200	36000	37500	35200	36100	28800	26400	27400
26	34200	33700	33900	36400	35800	36100	39300	37500	37900	29200	27500	28500
27	34700	34000	34400	36200	35700	35900	38400	36200	37400	30200	29300	29700
28	34900	34700	34800	36100	35200	35700	---	---	---	31300	30200	30600
29	---	---	---	36000	34900	35500	---	---	---	32600	31300	31900
30	---	---	---	36200	35600	35900	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	33200	32700	33000
MONTH	36600	31900	33900	37400	33800	35800	39300	33400	36200	36700	18300	29700
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	33800	33100	33400	36000	35200	35600	39900	38700	39400	38100	37700	37900
2	34300	33700	34000	36400	35500	35900	40200	39700	40000	38000	37400	37700
3	---	---	---	36700	36100	36300	40700	39500	40000	38200	37600	37800
4	---	---	---	37600	36200	36900	41500	40700	41000	38700	37900	38200
5	---	---	---	37500	36300	37200	41000	40300	40600	39100	38500	38800
6	---	---	---	37300	36700	37000	40600	40200	40400	39700	38700	39100
7	---	---	---	36800	36400	36600	40200	39600	39900	40300	39100	39700
8	---	---	---	36700	36300	36400	41300	39500	40100	40700	39600	40100
9	27100	26500	26800	---	---	---	41100	39800	40200	---	---	---
10	28600	19500	27000	37400	36800	37000	40100	38500	39100	---	---	---
11	---	---	---	38500	37400	37800	38900	38200	38500	---	---	---
12	10900	6670	9220	38400	38000	38200	---	---	---	---	---	---
13	11800	3920	7740	38000	37800	37900	---	---	---	---	---	---
14	10300	6070	8740	38300	37500	37800	---	---	---	---	---	---
15	11600	10400	11000	38200	37800	38000	---	---	---	---	---	---
16	13000	11400	12000	38200	37600	37900	---	---	---	---	---	---
17	16500	13200	14800	38600	37900	38200	39800	38900	39300	---	---	---
18	20100	16600	18200	---	---	---	39100	38900	39000	---	---	---
19	22800	20200	21500	---	---	---	39000	38700	38900	---	---	---
20	26800	23000	25300	39600	38900	39100	38900	38700	38800	---	---	---
21	28900	26700	27800	39600	39200	39500	38800	38700	38700	---	---	---
22	---	---	---	39100	38600	38900	38700	38200	38500	---	---	---
23	32100	30500	31200	41100	38700	40400	38200	37200	37700	---	---	---
24	33400	32000	32400	41200	41000	41100	37900	36800	37300	---	---	---
25	34300	33400	33900	41200	40800	40900	36800	35200	36000	34300	33500	33800
26	34300	31500	32600	41000	38500	39500	35900	33300	34100	34900	33200	34000
27	33100	32100	32400	39800	38600	39300	---	---	---	35900	34100	35100
28	34200	33000	33700	38600	37600	38200	35600	34500	35100	35900	35100	35600
29	35000	34100	34700	38600	37500	38100	35800	35100	35500	36300	34900	35800
30	35600	34900	35100	39300	36100	37900	37600	36000	36800	36300	35800	36100
31	---	---	---	39500	39100	39300	38100	37600	37800	---	---	---
MONTH	35600	3920	24700	41200	35200	38100	41500	33300	38500	40700	33200	37100

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

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	20.5	18.5	19.5	17.5	16.0	17.0	12.0	8.5	10.0	11.0	7.5	9.5
2	21.5	18.0	20.0	17.0	16.0	16.5	12.5	9.0	10.5	11.5	9.0	10.0
3	22.5	18.0	20.0	17.5	16.0	17.0	13.0	9.5	11.0	13.0	10.5	11.5
4	22.5	18.0	20.0	18.5	16.5	17.5	12.5	10.5	11.5	13.0	11.0	12.0
5	21.0	18.5	19.5	17.5	16.0	17.0	11.5	9.5	10.5	13.5	11.5	12.5
6	21.5	18.0	19.5	16.5	14.0	15.5	12.5	9.5	11.0	14.0	10.5	12.5
7	21.5	18.5	19.5	18.0	15.5	16.5	12.0	10.0	11.0	13.0	11.0	12.0
8	21.0	18.5	19.5	18.0	15.0	16.5	10.0	7.5	8.5	11.0	9.5	10.5
9	20.5	18.0	19.0	20.0	16.0	17.5	8.5	6.5	7.5	10.0	7.5	9.0
10	21.0	16.5	18.5	18.5	15.5	17.0	9.0	7.5	8.0	10.5	7.5	9.0
11	21.0	16.5	18.5	16.5	15.5	16.0	9.0	8.5	9.0	12.0	8.0	10.0
12	20.0	16.0	18.0	17.5	14.5	16.0	10.5	7.5	8.5	10.5	8.0	9.0
13	20.0	16.5	18.0	17.5	14.0	16.0	11.5	8.0	9.5	8.5	7.0	7.5
14	20.5	17.0	18.5	18.5	15.0	16.5	12.5	9.5	10.5	9.0	6.0	7.5
15	21.5	19.0	20.0	17.0	14.0	15.5	10.5	9.5	10.0	10.0	6.5	8.5
16	22.5	19.0	20.5	15.0	11.5	13.0	9.5	7.5	9.0	10.5	7.0	8.5
17	24.0	20.5	22.0	12.5	10.5	11.5	10.5	7.5	9.0	11.5	7.5	9.5
18	22.0	19.5	21.0	17.0	10.5	13.5	10.5	8.0	9.0	12.5	8.5	10.0
19	20.5	17.0	18.5	14.0	8.5	11.0	11.0	8.0	9.5	11.5	9.0	10.0
20	19.5	17.5	18.5	11.0	7.0	9.0	11.0	9.0	10.0	13.0	10.0	11.5
21	19.5	17.5	18.5	11.0	7.0	9.0	---	---	e9.0	11.5	9.0	10.0
22	21.0	17.5	19.0	11.0	9.5	10.5	---	---	e10.5	10.5	8.5	9.5
23	20.0	17.5	19.0	12.5	9.5	11.0	12.0	5.5	10.0	12.5	9.0	10.5
24	19.0	16.0	17.5	14.0	11.0	12.0	11.5	8.5	9.5	13.5	10.0	12.0
25	19.5	15.5	17.5	12.5	11.5	12.0	10.5	5.0	8.0	13.5	12.0	13.0
26	18.5	16.0	17.5	12.5	11.0	12.0	13.5	5.0	10.0	13.0	10.5	12.0
27	20.5	17.0	18.0	12.0	10.0	11.0	13.0	5.5	11.5	11.0	10.5	11.0
28	18.0	15.5	16.5	11.5	8.5	10.0	11.0	9.0	10.0	12.5	10.0	11.0
29	17.5	14.5	16.0	11.5	8.5	10.0	9.5	7.5	8.5	13.0	9.5	11.0
30	16.0	15.5	16.0	11.5	8.0	10.0	10.5	8.0	9.0	13.5	6.0	11.0
31	17.0	15.0	16.0	---	---	---	11.0	7.5	9.5	13.5	10.5	12.0
MONTH	24.0	14.5	18.5	20.0	7.0	14.0	13.5	5.0	9.5	14.0	6.0	10.5

e Estimated

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

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

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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

07311783 SOUTH WICHITA RIVER BELOW DAM NEAR GUTHRIE, TX

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

DRAINAGE AREA.--223 mi².

WATER-DISCHARGE RECORDS

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

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

REMARKS.--Records good. Diversions from station 07311782 via pipeline to station 07311669 began in May 1987. Specific conductance and water temperature for October 1986 to April 1987 were collected at station 07311782 but are published at this station and used for computation of water quality loads at this station. Mini-monitor installed at this station in May 1987 and specific conductivity values for this probe 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 via Sutron data collection platform.

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 of 20.8 ft since at least 1950, occurred in May 1954, at station 07311780 located about 1.1 mi upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 334 ft³/s June 13 at 1230 hours (gage height 6.53 ft); minimum, 0.01 ft³/s on a few 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	.05	.04	.03	.05	.06	.12	.08	.05	.12	.05	.07	.02
2	.02	1.5	.03	.05	e.06	.12	.08	.07	.10	.05	.06	.02
3	.02	1.1	.04	.05	e.06	.10	.07	.07	1.7	.04	.05	.02
4	.02	1.7	.04	.05	e.05	.10	.07	.07	28	.05	.05	.02
5	.03	.07	.03	.05	e.05	.10	.06	4.0	7.1	.06	.05	.02
6	.03	.04	.03	.05	e.05	.10	.06	.05	.09	.06	.04	.02
7	.03	.04	.02	.05	.06	.75	.06	.05	9.7	.06	.04	.02
8	.03	.04	.02	.05	.07	3.6	.06	.06	11	.08	.04	.02
9	.03	.03	.02	.05	.06	4.1	.17	.08	7.6	.08	.04	.02
10	.03	.03	.02	.08	.06	3.6	.43	.09	14	.10	.04	.99
11	.03	.03	.02	.08	.07	.06	.06	.10	81	.12	.05	34
12	.03	.02	.02	.08	.07	.06	.05	.06	9.9	.12	.05	28
13	.03	.02	.02	.08	.06	.06	.05	.07	45	.12	.05	49
14	.03	.02	.02	.08	.07	.06	.05	.07	11	.12	4.8	24
15	.03	.02	.02	.08	.07	.06	.06	.07	12	.12	6.8	6.3
16	.03	.03	.02	.08	.06	.07	.05	14	6.7	.13	8.9	1.5
17	.03	.03	.03	.05	.06	.06	.05	14	1.7	.13	12	6.8
18	.03	.04	.04	.06	.06	.05	.06	12	.84	.14	.65	6.7
19	.03	.03	.04	.06	.07	.06	.06	2.5	3.4	.15	.05	6.5
20	.03	.03	.03	.07	.08	.05	.06	.19	.08	1.5	.04	6.2
21	.03	.03	.03	.08	.09	.03	.04	.11	.05	.19	.80	6.5
22	.03	.03	.03	.10	.11	.03	.05	.09	.05	.18	.03	5.7
23	.03	.03	.02	.12	.12	.04	.05	.10	.05	.16	.02	6.5
24	.03	.03	.03	.12	.12	.04	.04	.11	.06	1.6	.02	5.7
25	.03	.03	.02	.11	.12	.05	.05	.12	.07	.14	.02	2.6
26	.03	.03	.03	.11	.11	.06	.05	.11	8.2	3.5	.02	.03
27	.03	.03	.03	.10	.12	.05	.05	.12	.05	.12	.01	.03
28	.03	.03	.02	.08	.12	.04	.07	.12	.05	.27	.80	.03
29	.03	.03	.03	.06	---	.05	.06	.12	.05	.10	.02	.03
30	.03	.03	.05	.06	---	.05	.06	.12	.06	.09	.02	.03
31	.03	---	.05	.06	---	.07	---	.11	---	.08	.02	---
TOTAL	0.92	5.16	0.88	2.25	2.16	13.79	2.21	48.88	259.72	9.71	35.65	197.32
MEAN	.030	.17	.028	.073	.077	.44	.074	1.58	8.66	.31	1.15	6.58
MAX	.05	1.7	.05	.12	.12	4.1	.43	14	81	3.5	12	49
MIN	.02	.02	.02	.05	.05	.03	.04	.05	.05	.04	.01	.02
AC-FT	1.8	10	1.7	4.5	4.3	27	4.4	97	515	19	71	391

CAL YR 1988 TOTAL 269.47 MEAN .74 MAX 33 MIN .02 AC-FT 534
WTR YR 1989 TOTAL 578.65 MEAN 1.59 MAX 81 MIN .01 AC-FT 1150

e Estimated.

07311783 SOUTH WICHITA RIVER BELOW DAM NEAR GUTHRIE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: May 1987 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: May 1987 to current year.
WATER TEMPERATURE: May 1987 to current year.

INSTRUMENTATION.--Beginning May 1987, specific conductance and water temperature are recorded continuously at this station.

REMARKS.--Interruptions in the record were due to malfunction of the instrument. Where maximum and minimum specific conductance values are not shown, mean value is 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 relationship between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 41,600 microsiemens Aug. 17, 1989; minimum, 350 microsiemens May 28, 1987.
WATER TEMPERATURE: Maximum, 34.5°C June 8, 1988; minimum, 0.0°C Feb. 5-8, 1989.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 41,600 microsiemens Aug. 17; minimum, 2,510 microsiemens June 11.
WATER TEMPERATURE: Maximum, 34.0°C July 16; minimum, 0.0°C Feb. 5-8.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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 WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT									
04...	1510	0.02	30600	7.90	24.0	3400	3300	1000	230
NOV									
15...	1412	0.02	32000	7.90	17.0	3500	3400	1000	250
FEB									
08...	1255	0.05	30700	8.10	5.0	3800	3700	1100	260
MAY									
22...	1425	0.09	22300	7.80	28.0	2800	2700	800	200
JUN									
12...	1100	0.06	9470	7.90	24.0	1100	980	310	69
JUL									
05...	1005	0.06	35000	7.70	28.0	4100	3900	1200	260
20...	0945	2.9	38900	7.80	27.5	3800	3700	1100	260

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT									
04...	6000	46	25	133	3000	10000	0.40	9.8	20300
NOV									
15...	6600	50	27	148	3100	11000	0.40	8.1	22100
FEB									
08...	6500	48	27	157	3300	10000	0.40	9.4	21300
MAY									
22...	4100	35	22	120	2300	7000	0.40	8.3	14500
JUN									
12...	1700	24	12	82	990	2800	0.30	9.1	5940
JUL									
05...	6500	46	31	126	3100	11000	0.50	9.9	22200
20...	7000	51	33	102	3200	11000	0.50	7.6	22700

07311783 SOUTH WICHITA RIVER BELOW DAM NEAR GUTHRIE, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	0.92	31100	20300	50	9700	24	3100	7.7	*
NOV.	1988	5.16	34900	22500	314	10800	150	3400	48	*
DEC.	1988	0.88	30500	19900	47	9500	23	3100	7.3	*
JAN.	1989	2.25	30500	19900	121	9500	58	3100	19	*
FEB.	1989	2.16	30500	19900	116	9500	55	3100	18	*
MAR.	1989	13.79	36200	23300	868	11200	416	3500	132	*
APR.	1989	2.21	34000	22000	131	10500	63	3400	20	*
MAY	1989	48.88	21900	14500	1910	6900	908	2300	300	*
JUNE	1989	259.72	14000	9360	6560	4400	3100	1500	1040	*
JULY	1989	9.71	38300	24600	644	11800	309	3700	97	*
AUG.	1989	35.65	39700	25300	2440	12200	1170	3800	366	*
SEPT	1989	197.32	17800	11800	6280	5600	2980	1800	984	*
TOTAL		578.65	**	**	19500	**	9260	**	3040	**
WTD.AVG.		1.6	18900	12500	**	5900	**	1900	**	**

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	30700	30200	30500	32900	30800	31100	31200	30200	30900	31300	30500	31100
2	30600	30400	30600	35100	34000	34800	31200	30100	30900	31100	30300	30800
3	31300	30400	30700	36000	34900	35400	31100	30300	30900	31000	30200	30500
4	30700	30400	30500	36100	35800	36000	31100	30000	30800	31000	30300	30500
5	30700	30300	30600	35900	34900	35400	31200	30300	31000	30900	30200	30500
6	31300	30300	30700	35100	34100	34700	31000	30200	30800	30900	30200	30400
7	31100	30400	30700	34100	33700	33900	31000	30800	30900	31000	30300	30800
8	31200	30500	30900	34000	33500	33800	31000	30200	30700	31100	30800	30900
9	31100	30900	31000	33500	32700	33100	30300	30000	30200	31000	30700	30900
10	31200	30300	30900	33000	32700	32900	30300	30000	30100	31000	30700	30800
11	31300	30800	31000	33000	31700	32300	30300	30000	30200	30900	30100	30600
12	31300	30900	31100	32000	31700	31900	30300	29300	30100	31000	30800	30900
13	31300	30900	31100	32000	31700	31800	30300	29300	30100	31000	30800	30900
14	31800	31000	31200	32000	31600	31800	30300	30000	30100	31100	30600	30800
15	31900	31000	31300	32300	31700	32000	30300	30000	30100	30900	30600	30800
16	32000	31000	31400	32200	31800	31900	30300	30000	30100	30900	30500	30700
17	32000	30900	31400	32100	31600	31700	30300	30000	30100	30800	30400	30600
18	31700	31000	31400	31900	31500	31600	30300	30000	30100	30800	30400	30600
19	31800	30900	31300	31800	31400	31600	30200	29900	30100	30700	29800	30400
20	31200	31000	31100	31500	31200	31400	---	---	e30100	30600	29800	30500
21	31800	31000	31300	31400	30100	31100	---	---	e30100	30700	30300	30600
22	31800	31000	31300	31300	30100	31000	30200	29900	30100	30600	30300	30500
23	31700	31100	31200	31300	30100	30900	30700	29900	30100	30600	30300	30500
24	31800	30900	31300	31300	31000	31100	30900	29900	30300	30500	29600	30200
25	31900	31000	31300	31200	31100	31100	30200	29900	30100	30500	30200	30400
26	31800	31200	31400	31200	31000	31100	30200	29900	30100	30500	29200	30300
27	31800	31100	31400	31200	30900	31100	30800	30100	30400	30600	30200	30400
28	31700	31100	31200	31200	30100	31000	30800	29900	30400	30600	29300	29700
29	31700	30800	31300	31200	30100	31100	31500	31100	31300	29600	29300	29400
30	31600	30900	31100	31300	30000	30800	31500	30400	31200	30100	29200	29400
31	31100	30800	31000	---	---	---	31400	30400	31200	30200	29500	30100
MONTH	32000	30200	31100	36100	30000	32300	31500	29300	30400	31300	29200	30500

e Estimated

07311783 SOUTH WICHITA RIVER BELOW DAM NEAR GUTHRIE, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	30500	30000	30200	30700	30400	30600	33300	32300	32600	33500	32900	33100
2	30400	30100	30200	30700	30400	30600	33100	31500	32400	33600	33000	33300
3	30900	30200	30400	30700	30400	30600	32600	32200	32400	33800	33000	33400
4	31100	30400	30800	31400	30600	30900	33000	32200	32500	33700	32300	33000
5	31200	30300	30800	31500	31300	31400	33300	32100	32700	33600	32100	32700
6	31200	30200	30900	31600	30600	31300	33300	32000	32700	32900	32100	32500
7	31200	30400	30900	36700	30400	32900	33200	32200	32700	33000	32200	32600
8	31500	30400	30900	37900	35700	36900	33300	32200	32900	33100	32300	32800
9	31200	30400	30800	37900	36300	37100	37700	32100	34300	33200	32400	32700
10	30700	30400	30600	37600	36300	36900	37900	36800	37200	32800	32100	32500
11	30700	30400	30500	36800	36300	36700	37200	36000	36700	32500	32200	32300
12	30600	30400	30500	36400	35500	35700	36000	34800	35300	32000	30900	31300
13	30700	30400	30500	35800	34700	35200	34900	33700	34100	31600	30400	31200
14	30700	30400	30500	34800	34500	34700	33900	32600	33500	31600	30800	31400
15	30700	30400	30600	34800	33800	34600	34500	33000	33800	31700	30500	31200
16	30700	30400	30600	33800	33500	33700	33900	32600	33400	30400	23600	26900
17	30700	30400	30500	33800	33500	33700	34400	32600	33500	25400	15200	19600
18	30500	30200	30400	33800	32700	33600	34500	32700	33900	15100	13700	14400
19	30500	30300	30400	33800	32700	33200	34600	33500	33900	---	---	e18000
20	30400	30300	30400	33200	32700	32800	34700	27600	33500	---	---	e19000
21	30600	30300	30500	33100	30800	32800	33300	29500	32000	---	---	e20000
22	30700	30200	30400	33000	31900	32600	33400	31500	32500	---	---	e22000
23	30700	30400	30500	32800	31600	32300	33300	30600	32300	25200	23000	24000
24	30700	30400	30600	32900	31700	32200	32500	31400	32000	27300	25200	26100
25	30700	30200	30500	32900	31600	32500	33400	31300	32300	28400	27200	27700
26	30700	30400	30500	33600	31900	32900	33400	32200	32700	29500	28300	28800
27	30700	30400	30600	32900	32500	32600	33100	32100	32500	30000	29300	29600
28	30700	30400	30600	32800	31300	32300	33300	32100	32800	31000	29800	30400
29	---	---	---	33300	31600	32500	33300	32800	33000	31900	30900	31300
30	---	---	---	32700	32400	32600	33200	31800	32700	32500	31600	32000
31	---	---	---	33200	32400	32600	---	---	---	32900	32300	32600
MONTH	31500	30000	30600	37900	30400	33300	37900	27600	33300	33800	13700	28700

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	33800	32700	33100	---	---	e34000	39200	38400	38900	37400	36100	36900
2	33800	32300	33200	---	---	e34500	38800	37600	38500	37300	35600	36600
3	36500	26200	30400	---	---	e34500	38400	37700	38000	37000	35400	36300
4	39100	18600	27300	---	---	e35000	38600	37800	38200	36900	35700	36400
5	18900	17800	18400	---	---	e35000	38800	37800	38300	36500	35300	36000
6	20600	19000	19800	34500	33800	34200	39000	37900	38400	36000	34900	35300
7	21400	19300	20000	34600	33900	34200	38500	33600	34700	36100	35500	35800
8	25600	21600	22800	34900	33800	34300	36300	33600	34700	36700	35000	35700
9	26300	24000	24800	35100	34100	34500	36800	35700	36200	35300	34500	34900
10	27900	18700	25400	35300	34600	35000	36400	35900	36100	39700	34500	35800
11	23200	2510	6860	35600	34800	35200	36400	35300	35800	39800	15400	32700
12	9960	6670	8900	36000	35200	35500	36200	35500	35900	12900	9160	10800
13	11700	3870	7940	36000	35300	35600	36000	35000	35500	14400	4620	7810
14	9450	5990	8360	36400	35400	35700	39700	35100	38600	10300	6680	8200
15	11400	9560	10900	36800	35500	36000	41200	39000	39800	13100	10600	12200
16	12700	10900	11800	37100	35900	36400	41400	39300	40600	17300	12700	14300
17	14800	12600	13800	37000	36100	36600	41600	38600	40300	20200	16600	18200
18	19400	14000	15500	37500	36500	36900	39400	35800	37100	22200	19000	20700
19	22600	16400	18900	37500	36600	37000	37000	35800	36200	26200	20900	23300
20	24300	18600	21400	39300	37000	38400	36400	35400	35900	29200	22100	25600
21	27700	24300	25900	38600	37900	38300	35800	30100	32000	29900	23900	26700
22	30300	25700	28600	38300	37700	38000	31800	30300	30800	31200	22100	26300
23	32000	29900	30900	37800	37200	37500	33000	31000	31700	31800	31300	31400
24	---	---	e31000	39300	37300	38700	33200	31800	32500	33000	31500	32300
25	---	---	e31500	38700	37700	38300	34500	32900	33500	33300	32600	33000
26	---	---	e32000	40600	38100	39500	34700	33300	33900	33100	31600	32200
27	---	---	e32000	39300	38500	38900	35000	33800	34400	33900	32500	33000
28	---	---	e32500	39300	38600	39000	39900	35100	38700	34200	32900	33400
29	---	---	e33000	39300	38700	39000	38800	36900	37700	34400	33100	33700
30	---	---	e33500	39300	38500	38900	38100	36500	37300	34600	33400	34000
31	---	---	---	39400	38500	38900	37800	36500	37200	---	---	---
MONTH	39100	2510	23000	40600	33800	36600	41600	30100	36400	39800	4620	28300

e Estimated

07311783 SOUTH WICHITA RIVER BELOW DAM NEAR GUTHRIE, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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

07311783 SOUTH WICHITA RIVER BELOW DAM NEAR GUTHRIE, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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

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 1988 TO SEPTEMBER 1989

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 WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT									
04...	1425	1.3	17500	8.00	23.0	2600	2500	740	180
NOV									
15...	1330	1.1	21300	8.30	17.0	3400	3300	920	260
FEB									
06...	1445	0.54	20300	8.00	5.0	3700	3600	1000	300
MAY									
01...	1155	0.02	26400	8.60	22.0	4300	4300	1100	380
JUN									
12...	1540	85	10200	8.00	29.0	1200	1100	360	72

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT									
04...	3000	27	13	49	2500	4900	0.30	1.8	11400
NOV									
15...	3900	30	19	51	3100	6200	0.30	<0.50	14400
FEB									
06...	4000	30	20	95	3300	6300	0.40	2.4	15000
MAY									
01...	4900	34	25	36	3900	7700	0.40	1.0	18000
JUN									
12...	1800	24	15	82	1000	2900	0.30	7.5	6200

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.--29 years (water years 1961-89), 39.6 ft³/s (0.92 in/yr), 28,690 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,000 ft³/s Oct. 18, 1960 (gage height, 15.40 ft); maximum gage height, 16.70 ft Oct. 20, 1983; 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)
May 16	0250	5,520	15.56	Aug. 7	0500	1,060	10.78
June 3	0805	1,450	12.42	Sept. 11	Unknown	*6,620	*15.87
June 13	1045	1,340	11.92	Sept. 13	0900	3,480	15.39

Minimum discharge, no flow for several 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	3.3	.33	.46	.55	.99	1.3	.44	.00	13	7.8	.33	.07
2	2.3	.28	.46	.55	.81	1.3	.39	.00	18	7.2	.33	.00
3	1.9	.28	.46	.59	e.75	1.3	.34	.00	734	6.4	19	.00
4	1.6	.28	.46	.63	e.70	1.1	.23	57	354	5.9	3.0	.00
5	1.4	.12	.46	.66	e.70	1.1	.17	19	112	5.6	.71	.00
6	1.3	.00	.46	.71	e.70	1.1	.16	3.9	75	5.1	.28	.00
7	1.2	.00	.46	.70	e.70	.81	.13	7.2	96	5.0	217	.00
8	1.2	.00	.57	.63	1.0	.81	.09	6.1	61	4.6	21	.00
9	1.2	.00	.62	.63	.56	.81	.05	2.7	40	4.3	13	.00
10	1.3	.00	.68	.63	.46	.81	.04	1.1	39	4.2	5.8	.00
11	1.2	6.8	1.4	.63	.53	.81	.01	.95	45	4.0	3.7	e2310
12	1.2	13	1.1	.61	.63	.81	.00	2.6	195	3.9	1.9	e380
13	1.0	3.7	1.2	.55	.63	.77	.05	30	761	4.0	2.5	2100
14	.92	1.4	1.3	.55	1.3	.85	.05	10	259	4.1	3.7	228
15	.92	.92	.99	.55	1.4	1.5	.04	335	156	3.5	1.9	110
16	.81	.81	.92	.65	1.3	1.6	.01	4260	77	2.8	61	69
17	.71	.71	1.0	.58	4.3	1.6	.00	2410	50	2.3	101	46
18	.55	.71	1.0	.55	3.1	1.3	.00	362	39	1.6	10	31
19	.46	.63	1.0	.55	2.9	1.2	.00	98	27	1.3	5.8	23
20	.46	.71	1.0	.55	2.6	1.1	.00	64	20	1.3	11	20
21	.46	.63	.92	.50	2.1	1.0	.00	51	17	1.2	8.8	18
22	.46	.63	.83	.46	2.0	.84	.00	39	15	1.2	8.8	15
23	.39	.63	.64	.46	1.7	.81	.00	31	13	11.0	6.2	12
24	.33	.70	.63	.46	1.6	.81	.00	27	12	4.8	33	11
25	.33	.71	.59	.63	1.4	.72	.00	22	10	1.5	17	12
26	.28	.71	.55	.55	1.4	.71	.00	19	8.5	1.0	7.5	12
27	.28	.61	.55	.74	1.3	.67	.00	18	7.4	.88	4.0	13
28	.10	.55	.46	1.7	1.3	.83	.00	18	7.0	.66	1.9	12
29	.00	.55	.46	1.2	---	.54	.00	17	6.9	.46	1.2	9.5
30	.07	.50	.51	1.2	---	.77	.00	16	8.6	.38	.81	7.8
31	.33	---	.55	1.1	---	.50	---	14	---	.33	.46	---
TOTAL	27.96	36.90	22.69	21.05	38.86	30.18	2.20	7941.55	3276.4	108.31	572.62	5439.37
MEAN	.90	1.23	.73	.68	1.39	.97	.073	256	109	3.49	18.5	181
MAX	3.3	13	1.4	1.7	4.3	1.6	.44	4260	761	11	217	2310
MIN	.00	.00	.46	.46	.46	.50	.00	.00	6.9	.33	.28	.00
AC-FT	55	73	45	42	77	60	4.4	15750	6500	215	1140	10790
CFSM	.00	.00	.00	.00	.00	.00	.00	.44	.19	.01	.03	.31
IN.	.00	.00	.00	.00	.00	.00	.00	.51	.21	.01	.04	.35

CAL YR 1988 TOTAL 4008.50 MEAN 11.0 MAX 708 MIN .00 AC-FT 7950 CFSM .02 IN. .26
WTR YR 1989 TOTAL 17518.09 MEAN 48.0 MAX 4260 MIN .00 AC-FT 34750 CFSM .08 IN. 1.12

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 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, 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, 24,300 microsiemens Mar. 5, 6; minimum, 427 microsiemens, Sept. 11.
WATER TEMPERATURE: Maximum, 39.0°C July 31; minimum, 0.0°C Feb. 6, 7.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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 WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT									
04...	1208	1.8	10000	7.90	23.0	2200	2100	630	150
NOV									
15...	1115	0.97	8340	7.80	17.0	1900	1800	520	140
DEC									
28...	1250	0.48	18600	8.00	9.0	3700	3500	900	350
FEB									
06...	1045	0.72	21700	8.00	0.0	4600	4500	1100	450
MAY									
16...	1030	4830	1020	7.90	18.5	390	340	130	15
JUN									
02...	1045	11	15900	7.90	25.0	3100	3000	800	260
05...	1835	110	3630	7.90	27.0	1200	1100	390	61
JUL									
05...	1145	5.8	16200	8.10	30.5	3500	3300	900	300

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT									
04...	1500	14	16	125	2000	2400	0.20	7.4	6780
NOV									
15...	1200	13	10	89	1700	1900	0.20	6.2	5530
DEC									
28...	3000	22	16	170	3200	5100	0.20	3.8	12700
FEB									
06...	3900	26	11	115	3300	6100	0.10	4.0	14900
MAY									
16...	51	1	5.7	43	310	67	0.20	6.6	611
JUN									
02...	2500	19	19	79	2700	4300	0.20	9.0	10600
05...	370	5	11	79	1200	570	0.20	7.8	2660
JUL									
05...	2900	22	22	177	2900	4700	0.20	9.0	11800

07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	27.96	11100	7670	579	3200	244	1700	130	*
NOV.	1988	36.90	8020	5530	551	2300	232	1200	123	1400
DEC.	1988	22.69	17300	11900	732	5300	322	2400	147	*
JAN.	1989	21.05	19000	13100	745	5800	332	2600	145	*
FEB.	1989	38.86	18300	12600	1320	5600	587	2500	260	*
MAR.	1989	30.18	20900	14400	1170	6500	530	2700	219	*
APR.	1989	2.20	21500	14800	88	6700	40	2700	16	*
MAY	1989	7941.55	2060	1420	30400	570	12200	350	7600	390
JUNE	1989	3276.4	4430	3050	27000	1200	10900	750	6620	830
JULY	1989	108.31	16400	11300	3310	4900	1450	2300	677	*
AUG.	1989	572.62	3930	2710	4190	1100	1690	670	1040	740
SEPT	1989	5439.37	1600	1100	16200	440	6430	280	4120	310
TOTAL		17518.09	**	**	86200	**	34900	**	21100	**
WTD.AVG.		48	2650	1820	**	740	**	450	**	490

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	8980	8620	8790	14800	14100	14400	15400	14300	14900	19400	17500	18700
2	9800	8720	9110	14300	13300	13900	15200	13600	14800	18800	17900	18500
3	10200	8720	9450	14200	13500	14000	15300	14300	14900	19200	17600	18600
4	10500	8780	9840	14300	13600	14000	15800	14600	15300	19100	17800	18600
5	10700	10100	10400	14900	13800	14400	16000	14400	15400	19100	17900	18600
6	---	---	e10600	---	---	---	15700	14700	15300	19100	17400	18700
7	---	---	e10800	---	---	---	16100	15300	15700	19300	18200	18900
8	---	---	e11000	---	---	---	16800	15200	16300	19400	18600	19200
9	---	---	e11300	---	---	---	16600	15400	16100	19700	18300	19200
10	---	---	e11500	---	---	---	16300	16000	16200	20100	17700	19200
11	---	---	e11800	---	---	e12800	16300	16000	16200	19500	17600	18900
12	12500	12000	12300	---	---	e2000	16500	14800	15900	19800	19000	19400
13	12800	12000	12400	---	---	e4000	17400	15400	16700	20200	19300	19700
14	12800	12400	12700	---	---	e6000	18000	16400	17300	20100	18100	19300
15	13000	12400	12800	---	---	e8400	18600	17600	18100	20300	18100	19300
16	13000	12300	12800	10900	9080	9560	18600	17200	18200	21300	18700	19800
17	13200	12900	13000	12200	10300	11100	18800	16800	18100	19900	17400	19100
18	13500	13100	13300	12500	11600	12100	18600	16700	18000	19600	17700	19000
19	13500	12900	13100	12900	12500	12700	18600	17000	18100	19500	18000	19000
20	13200	12600	12900	14600	12900	13400	18700	17600	18400	19700	18200	19100
21	13100	12500	12800	15000	13800	14500	18900	17600	18400	19900	17800	19200
22	13300	12700	13100	15500	13700	14700	19200	17700	18500	19700	17800	19200
23	14000	13100	13500	15400	13800	14800	19400	17400	18700	19700	17900	19200
24	14000	13300	13700	15500	14000	14900	19100	17800	18600	19900	18300	19200
25	13800	12900	13400	15100	14500	14900	19100	17500	18500	19700	19000	19300
26	13900	13200	13500	15000	14100	14800	18800	16900	18000	20100	18500	19500
27	14000	13400	13800	15300	13800	14700	19100	18100	18500	20000	19300	19800
28	14200	13800	14000	15700	14200	15000	19600	18200	19000	20000	18300	19300
29	---	---	---	15300	14000	14900	19600	18100	19000	19100	16700	18000
30	14900	14700	14800	15700	14200	15000	19300	17700	18800	19300	17200	18500
31	14900	14400	14700	---	---	---	19500	17800	18800	19500	17700	19000
MONTH	14900	8620	12200	15700	9080	12400	19600	13600	17200	21300	16700	19100

e Estimated

07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	20100	19000	19600	20200	19100	19800	22900	21600	22100	---	---	---
2	21300	19900	20300	19800	18300	19200	22400	21400	21900	---	---	---
3	---	---	e20700	20200	17600	18900	22300	20900	21500	---	---	---
4	---	---	e21100	21100	20100	20600	21900	21300	21500	11000	1800	5340
5	---	---	e21500	24300	21300	22600	21700	20100	21000	---	---	e4000
6	---	---	e21700	24300	19900	22400	21500	20500	21000	---	---	e8000
7	---	---	e21200	22300	18600	20700	21600	20900	21300	---	---	e12000
8	---	---	e20700	20900	17700	19700	22200	21000	21600	---	---	e16000
9	---	---	e20200	20300	17800	19500	22000	20000	21200	---	---	e20300
10	---	---	e19700	20100	18000	19600	21400	19800	21000	22700	21900	22300
11	---	---	e19200	20400	18400	19700	21400	19900	21000	22700	6610	21700
12	19200	18700	19000	20600	18500	19900	---	---	---	5410	5100	5260
13	19500	18200	19000	20600	19100	20100	20700	20300	20500	5800	5180	5520
14	19800	19200	19500	20900	18800	20100	---	---	e20500	6050	5760	5880
15	19200	17400	18400	22100	19600	20800	---	---	e20500	6720	1030	5220
16	17200	16200	16600	22600	21000	22100	---	---	e20500	1670	826	1220
17	16700	15200	16200	22600	21100	22000	---	---	---	1900	945	1470
18	16000	13800	14600	22900	21400	22300	---	---	---	2650	1900	2110
19	17100	16100	16700	22400	20500	21900	---	---	---	4360	2760	3380
20	17500	16200	17100	22400	21400	22000	---	---	---	5750	4250	5250
21	19000	17400	17900	21800	20900	21200	---	---	---	---	---	e9000
22	19400	17800	18800	21600	20900	21300	---	---	---	---	---	e11500
23	19700	17800	19100	21500	20900	21200	---	---	---	---	---	e12000
24	19900	17800	19200	21800	20700	21100	---	---	---	---	---	e13000
25	19900	17900	19200	22300	21000	21500	---	---	---	---	---	e14000
26	19800	18500	19400	22300	21200	21600	---	---	---	---	---	e14300
27	20200	18900	19600	21600	19200	21100	---	---	---	---	---	e14600
28	20400	19700	20100	21800	18400	20900	---	---	---	---	---	e14900
29	---	---	---	21000	19500	20300	---	---	---	---	---	e15200
30	---	---	---	20800	19900	20300	---	---	---	---	---	e15500
31	---	---	---	21500	20300	20900	---	---	---	---	---	e15800
MONTH	21300	13800	19200	24300	17600	20800	22900	19800	21100	22700	826	10500

e Estimated

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	e16000	15200	14300	14600	---	---	e19500	---	---	e9300
2	16100	1790	13300	15600	14800	15200	---	---	e19500	---	---	---
3	5440	1680	2530	15800	15400	15600	---	---	e9000	---	---	---
4	5540	1760	2770	16000	15700	15900	---	---	e4000	---	---	---
5	---	---	e3600	16500	15800	16100	5940	4160	5060	---	---	---
6	---	---	e4000	16700	16100	16400	---	---	e6500	---	---	---
7	2450	2230	2320	17000	16200	16600	---	---	e2000	---	---	---
8	---	---	e8000	17100	16400	16700	---	---	e3000	---	---	---
9	---	---	e12000	17300	16500	16800	---	---	e4100	---	---	---
10	---	---	e12500	17500	16600	17000	4560	4190	4370	---	---	---
11	---	---	e13000	17900	16900	17300	5080	4530	4810	976	427	624
12	10300	1890	6540	17900	17100	17400	5650	4980	5330	6660	979	3120
13	10100	2200	3420	17700	16900	17300	5730	2540	5140	2780	654	1230
14	4960	3260	4160	17100	15100	16800	6630	5760	6190	3460	1240	2370
15	5500	2850	4040	17500	16700	17100	6960	6270	6640	6530	1930	4130
16	5810	5460	5580	18100	17000	17500	7410	1080	6170	---	---	e4900
17	6380	5460	5920	18200	17400	17700	3760	837	2000	---	---	e5500
18	7700	6470	7050	18800	17200	18000	4590	2830	3900	---	---	e6400
19	8820	7690	8220	19000	18000	18400	5160	4630	4910	7880	6920	7400
20	---	---	e9000	---	---	e18200	5780	5010	5370	8780	7900	8320
21	---	---	e10000	---	---	e18500	7030	5440	6290	9590	8780	9150
22	11400	8170	10800	---	---	e18500	7540	6730	7150	10400	9580	9900
23	12000	11100	11500	---	---	e15000	10200	7310	9030	10900	10300	10500
24	12700	11900	12300	---	---	e16000	12400	5210	9030	11300	10800	10900
25	13200	12300	12800	---	---	e17500	7660	5690	6180	11600	11100	11400
26	---	---	e13200	---	---	e18500	6910	5790	6430	12200	11400	11700
27	---	---	e13600	---	---	e18600	7840	6930	7420	12600	11900	12200
28	13800	12700	13400	---	---	e18800	8670	7660	8190	13200	12500	12700
29	14900	13500	14100	---	---	e19000	9250	8300	8720	13500	12900	13200
30	14700	14000	14400	---	---	e19300	9710	8780	9120	13700	13200	13400
31	---	---	---	---	---	e19400	9580	9130	9290	---	---	---
MONTH	16100	1680	9000	19000	14300	17300	12400	837	6910	13700	427	8020

e Estimated

07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	24.5	17.0	19.5	15.5	13.0	14.5	8.0	4.0	6.0	10.0	2.5	5.5
2	24.5	16.0	19.5	16.0	13.0	14.5	9.5	4.5	6.5	8.0	5.5	6.5
3	26.0	10.0	19.0	16.0	13.0	15.0	9.0	4.5	7.0	10.5	6.0	7.5
4	25.0	10.0	18.5	15.5	13.5	14.5	10.0	5.0	7.0	10.5	5.5	8.0
5	24.0	16.5	19.5	14.5	12.0	13.0	9.0	4.0	6.5	13.0	8.5	10.0
6	23.5	16.0	19.5	---	---	---	10.5	6.0	8.5	12.5	5.5	9.0
7	22.0	18.0	19.5	---	---	---	9.5	7.0	8.5	11.5	6.0	8.0
8	22.0	17.5	19.5	---	---	---	7.0	3.5	4.5	7.5	4.0	5.5
9	20.5	17.5	19.0	---	---	---	6.5	2.5	4.5	8.0	2.5	5.0
10	21.0	16.0	18.5	---	---	---	6.0	5.0	5.5	9.5	2.5	5.0
11	23.0	15.5	18.5	14.5	10.5	12.5	6.0	5.5	6.0	12.0	3.5	6.5
12	23.0	12.5	17.0	14.5	13.5	14.0	9.0	3.5	5.5	7.5	3.0	5.0
13	22.5	13.0	17.0	14.5	13.5	14.0	10.5	4.0	6.5	4.0	3.0	4.0
14	22.5	14.5	18.0	16.0	13.5	14.5	11.0	5.5	7.5	8.5	2.0	4.5
15	23.5	16.0	19.5	17.0	9.5	14.5	7.0	4.5	6.0	7.5	2.5	4.5
16	23.0	17.0	20.0	16.0	7.0	10.5	7.5	3.0	5.0	8.0	1.5	4.5
17	23.0	17.5	20.5	13.0	6.0	9.0	7.5	3.0	5.0	11.0	3.0	6.0
18	19.5	15.0	17.5	15.0	8.5	11.5	9.5	3.5	6.0	10.0	3.0	6.5
19	18.0	13.0	15.5	13.0	7.5	9.5	10.5	6.5	7.5	9.0	4.0	6.5
20	18.5	16.5	17.5	11.0	4.5	7.5	9.0	5.5	7.0	10.0	4.5	6.5
21	19.0	16.0	17.0	10.5	4.5	7.0	9.0	4.5	6.5	9.0	3.0	5.5
22	20.0	15.0	17.5	10.5	4.5	7.5	10.5	6.0	8.0	10.0	3.0	6.0
23	18.0	14.0	16.0	12.0	5.5	8.5	10.5	4.0	7.0	13.5	5.5	8.5
24	15.5	11.5	14.0	14.0	7.5	10.0	8.5	4.5	6.5	12.0	7.0	9.5
25	17.0	13.5	15.5	11.0	8.0	9.0	8.5	4.0	6.0	10.5	8.5	10.0
26	16.0	13.0	15.0	11.5	6.5	9.0	13.5	7.5	10.5	10.5	6.0	8.0
27	18.0	14.5	16.5	11.0	5.5	7.5	11.0	5.5	9.0	7.0	5.0	6.5
28	14.0	11.0	12.0	9.5	4.0	6.5	7.5	4.0	5.0	11.0	6.5	8.0
29	---	---	---	10.5	4.5	7.0	7.5	3.0	4.5	11.5	6.5	8.0
30	15.0	14.5	14.5	8.5	4.0	6.0	9.5	2.0	5.0	12.5	6.0	8.5
31	15.5	14.0	15.0	---	---	---	8.0	3.5	5.5	13.5	6.5	9.5
MONTH	26.0	10.0	17.5	17.0	4.0	10.5	13.5	2.0	6.5	13.5	1.5	7.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	12.0	8.0	10.0	10.5	7.0	8.0	22.5	11.0	16.0	---	---	---
2	8.0	2.5	5.5	13.5	8.0	9.5	22.5	13.5	18.0	---	---	---
3	3.5	2.0	2.5	16.5	9.0	12.0	22.5	12.5	17.5	---	---	---
4	2.0	1.5	2.0	8.0	2.5	4.5	20.5	10.5	15.5	18.0	17.5	17.5
5	1.5	1.0	1.0	7.5	2.5	4.0	19.0	9.0	14.5	18.0	17.5	18.0
6	.5	.0	.5	9.5	2.0	4.5	23.5	11.0	16.5	18.0	17.5	18.0
7	.5	.0	.5	11.0	2.0	5.5	21.5	11.0	16.5	18.5	17.5	18.0
8	1.0	.5	.5	14.5	3.5	7.5	18.5	10.0	15.0	19.5	18.5	19.0
9	2.5	.5	1.0	16.0	6.0	10.0	16.5	7.0	11.0	25.5	18.5	21.5
10	8.0	2.0	4.5	17.0	8.0	12.0	12.0	3.5	7.5	20.0	15.5	17.5
11	9.5	4.5	6.5	19.5	9.5	13.5	14.5	6.0	10.0	20.0	16.0	18.0
12	7.0	5.0	6.0	20.5	11.5	15.0	---	---	---	19.0	17.5	18.0
13	9.5	6.0	7.0	19.0	12.0	15.5	11.5	10.5	11.0	20.5	17.5	18.5
14	7.0	5.0	6.0	21.0	12.5	16.0	18.5	9.0	14.0	19.5	18.0	18.5
15	5.5	5.0	5.5	16.5	10.5	13.0	19.0	11.0	15.5	27.5	13.5	20.5
16	5.0	4.0	4.5	18.0	10.0	13.5	20.0	12.5	16.0	20.0	16.5	18.5
17	5.0	3.5	4.0	21.0	14.0	17.0	---	---	---	21.5	17.0	19.5
18	7.0	4.5	5.0	16.5	9.5	13.0	---	---	---	24.0	19.0	21.5
19	7.5	6.0	6.5	17.0	11.0	13.5	---	---	---	28.0	21.0	24.0
20	9.5	6.5	8.0	14.5	6.0	11.5	---	---	---	28.5	22.0	25.0
21	12.0	6.5	8.5	15.5	3.5	7.5	---	---	---	29.5	23.0	26.0
22	12.5	6.5	8.5	20.0	3.0	10.0	---	---	---	30.0	22.0	26.0
23	12.5	5.0	7.5	22.5	6.0	13.0	---	---	---	30.5	23.5	27.0
24	14.5	4.5	8.0	24.0	11.0	16.5	---	---	---	30.0	23.5	26.5
25	17.0	7.0	11.0	25.5	13.0	18.0	---	---	---	30.0	23.0	26.0
26	14.0	10.0	12.0	26.5	16.0	20.0	---	---	---	---	---	e26.5
27	11.0	8.5	10.0	23.0	17.0	19.0	---	---	---	---	---	e25.0
28	9.0	7.5	8.0	28.5	16.0	20.5	---	---	---	---	---	e25.0
29	---	---	---	29.5	16.0	21.0	---	---	---	---	---	e25.5
30	---	---	---	25.0	14.5	19.0	---	---	---	---	---	e25.5
31	---	---	---	20.5	11.5	16.0	---	---	---	---	---	e26.0
MONTH	17.0	.0	5.5	29.5	2.0	13.0	23.5	3.5	14.5	30.5	13.5	22.0

e Estimated

07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	e25.5	31.5	25.5	28.5	35.5	23.0	28.5	27.0	22.5	24.5
2	29.0	19.5	25.0	32.0	25.5	29.0	29.5	23.5	26.0	---	---	---
3	24.5	19.0	21.5	31.5	26.0	29.0	30.5	22.5	26.0	---	---	---
4	23.5	19.5	21.0	32.0	27.0	29.5	34.0	24.0	28.0	---	---	---
5	26.0	21.5	22.5	34.0	26.5	30.0	38.0	23.0	28.5	---	---	---
6	28.0	23.0	25.0	34.5	26.0	29.5	36.5	22.5	28.5	---	---	---
7	23.5	22.0	22.5	34.0	25.5	29.0	25.0	21.0	23.0	---	---	---
8	27.0	21.5	24.0	34.0	26.0	29.0	25.5	20.5	24.5	---	---	---
9	25.0	22.0	23.5	32.0	25.0	28.0	31.5	22.5	25.5	---	---	---
10	28.5	21.0	24.5	33.0	24.0	27.5	26.0	21.5	23.5	---	---	---
11	30.0	20.5	25.0	34.5	24.5	28.5	29.5	21.0	24.5	21.5	19.5	20.5
12	29.0	19.5	24.5	34.5	24.5	28.0	30.5	22.0	25.0	22.0	21.0	21.5
13	26.0	19.5	22.0	33.0	24.0	27.5	23.5	22.5	23.0	21.0	13.5	15.0
14	25.5	21.5	23.5	32.5	25.0	28.0	31.5	22.0	25.5	18.5	14.5	16.5
15	27.0	21.5	24.0	33.5	26.0	29.5	34.0	23.0	27.0	21.5	15.5	18.0
16	28.5	21.5	24.5	34.0	27.5	30.0	37.0	22.0	27.5	24.0	17.0	20.0
17	30.0	21.5	25.5	32.0	26.0	28.5	29.0	21.0	25.0	24.5	18.5	21.0
18	32.5	24.0	28.0	33.5	25.0	27.5	32.0	23.5	27.5	27.0	18.5	22.5
19	31.0	24.5	28.0	31.0	23.5	27.0	32.5	25.0	28.5	27.0	20.0	23.0
20	28.5	26.0	27.0	32.5	22.5	26.0	32.5	25.0	28.0	26.5	19.5	23.0
21	30.0	24.5	27.0	35.0	20.5	26.5	32.5	26.0	29.0	27.0	19.5	23.5
22	30.0	22.5	26.5	35.0	20.5	26.5	33.0	25.5	29.0	25.5	20.5	22.5
23	29.0	20.5	24.5	33.5	22.0	26.0	34.5	26.0	29.5	21.0	15.0	18.0
24	30.5	23.0	26.5	32.5	23.5	26.5	31.0	25.0	28.0	20.0	12.0	16.5
25	31.0	22.5	27.0	35.0	23.5	27.0	31.5	25.5	28.0	21.5	13.5	18.0
26	32.0	24.0	28.0	32.5	22.0	26.5	34.0	25.0	28.5	22.0	14.5	19.0
27	32.0	24.5	28.0	35.5	22.5	27.5	34.5	25.5	28.5	23.0	15.5	19.5
28	28.0	25.5	27.0	36.5	23.0	28.0	36.0	24.0	28.5	23.5	16.0	20.5
29	31.0	25.5	28.0	36.0	23.0	27.5	37.0	24.0	28.5	23.5	17.0	21.0
30	31.5	24.5	28.0	37.0	22.0	28.0	37.5	23.5	28.0	24.0	17.5	21.5
31	---	---	---	39.0	22.5	29.0	31.5	22.5	26.5	---	---	---
MONTH	32.5	19.0	25.0	39.0	20.5	28.0	38.0	20.5	27.0	27.0	12.0	20.5

e Estimated

07312000 LAKE KEMP NEAR MABELLE, TX

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

DRAINAGE AREA.--2,086 mi².

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, 298,800 acre-ft Sept. 18 at 1300 hours (elevation, 1,145.90 ft); minimum, 157,100 acre-ft May 4 (elevation, 1,134.99 ft).

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

1,134.0	148,900	1,140.0	210,900	1,144.0	268,000
1,136.0	166,200	1,142.0	238,200	1,146.0	300,500
1,138.0	186,700				

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	179400	174500	170300	170200	163600	169300	169900	159000	226300	267500	243500	243700
2	179400	174100	169900	170500	163100	169500	169900	157600	227800	266600	245200	242700
3	179400	173900	169900	170100	162900	169400	169800	157200	229000	266600	244600	241800
4	179400	173400	169900	169400	162600	168600	169500	158500	236100	266000	244300	241000
5	179400	173000	169900	168900	162500	168900	169400	160300	239400	265300	244200	240100
6	179100	172500	169900	168500	162500	168700	169500	160600	241100	264500	243600	239100
7	179200	172100	169600	167600	162500	168800	169400	160600	241800	263400	249000	237900
8	178600	172100	169700	166800	162500	168800	168900	160800	242400	262800	251200	237100
9	178400	172100	169600	166100	162500	169000	168500	160700	242700	261600	252100	236100
10	178400	172100	170200	165700	162600	169300	168300	160400	243900	260700	251900	235100
11	178200	172300	170400	165400	162700	169400	168000	160300	243900	259800	251900	243300
12	178200	172500	170600	164900	162900	169400	167900	160700	246800	259300	251900	248000
13	178100	172800	170600	164700	162900	169500	167900	160300	253600	258600	252100	269000
14	177900	173300	170600	164300	164300	169300	167900	160500	260100	257700	252100	284200
15	177700	173300	170300	163900	164800	169300	168000	162000	265400	257100	251900	293900
16	177700	173000	170400	163800	165300	169200	167700	170800	267200	256100	251800	297500
17	177900	172600	170400	163700	167900	169400	167500	180700	268500	254900	251300	298500
18	177600	172700	170300	163300	168500	169200	167300	198800	268600	254000	251200	298700
19	177400	172900	170600	163100	168800	169100	167100	213700	269100	253700	250800	296500
20	177100	172500	170400	162800	168900	168900	166100	221000	269400	252700	250200	294600
21	176900	172500	170600	162600	169100	168800	166200	223800	269600	251800	250600	293700
22	177300	172300	170500	162800	169100	168700	165700	225700	269400	250800	250500	290600
23	176700	172300	170500	162700	168900	168700	165600	226600	269400	250200	250200	285600
24	176700	172500	170300	162800	168900	168900	164800	227300	269300	249900	249700	281800
25	176600	172400	170100	162800	169300	169100	164200	227100	269100	249300	249100	278700
26	176500	172100	170500	162700	169300	169100	163400	226600	269100	248400	248900	276800
27	175900	172100	170400	163000	169200	169600	163000	226900	269100	247700	248400	274900
28	175600	171900	170100	163500	169200	169800	162100	227000	269000	246700	247800	272600
29	175200	171600	170200	163600	---	170100	161000	226700	268600	245900	246800	271700
30	174700	171000	170400	163600	---	170000	160200	226300	268600	245200	246100	271400
31	174600	---	170200	163700	---	169800	---	226400	---	244500	245400	---
MAX	179400	174500	170600	170500	169300	170100	169900	227300	269600	267500	252100	298700
MIN	174600	171000	169600	162600	162500	168600	160200	157200	226300	244500	243500	235100
(†)	1136.86	1136.49	1136.41	1135.72	1136.31	1136.37	1135.33	1141.16	1144.04	1142.43	1142.49	1144.21
(ϕ)	-4900	-3600	-800	-6500	+5500	+600	-9600	+66200	+42200	-24100	+900	+26000

CAL YR 1988 MAX 240000 MIN 150100 (ϕ) -60900
WTR YR 1989 MAX 298700 MIN 157200 (ϕ) +91900

(†) 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 to September 1989.

334520099092101 - LAKE KEMP SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)
AUG											
22...	1117	1.00	5190	8.20	26.5	1.50	7.4	98	920	250	71
22...	1119	10.0	5190	8.20	26.0	--	7.0	92	--	--	--
22...	1121	20.0	5200	8.10	26.0	--	6.9	91	--	--	--
22...	1123	30.0	5200	8.10	25.5	--	6.8	89	--	--	--
22...	1127	40.0	5210	7.70	25.0	--	3.9	50	--	--	--
22...	1125	45.0	5220	7.40	24.5	--	0.2	3	--	--	--
22...	1129	53.0	5450	7.20	24.0	--	0	0	950	260	73

DATE	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)
AUG											
22...	750	11	8.5	87	830	1200	0.30	7.2	3170	2	100
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	780	11	8.5	150	820	1200	0.40	9.0	3200	--	--

DATE	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)
AUG										
22...	<1	2	<1	40	<1	20	<0.1	<1	<1.0	<10
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--

334533099112801 - LAKE KEMP SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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							
22...	1650	1.00	5150	8.30	28.5	7.5	103
22...	1652	10.0	5150	8.20	26.5	7.2	96
22...	1654	20.0	5150	8.20	26.5	6.8	90
22...	1656	30.0	5150	8.10	26.0	6.2	82
22...	1658	39.0	5160	8.00	26.0	4.6	61

334655099121701 - LAKE KEMP SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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							
22...	1400	1.00	5180	8.30	28.5	7.2	99
22...	1402	10.0	5170	8.30	27.0	7.0	94
22...	1404	20.0	5150	8.20	27.0	6.7	90
22...	1406	30.0	5150	8.20	26.5	6.7	89
22...	1408	35.0	5150	8.20	26.5	6.7	89

07312000 LAKE KEMP NEAR MABELLE, TX--Continued

334432099130401 - LAKE KEMP SITE DR

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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							
22...	1450	1.00	5080	8.20	29.0	7.1	99
22...	1452	10.0	5080	8.20	26.5	7.3	97
22...	1454	18.0	5080	8.10	26.0	6.6	87

334505099131601 - LAKE KEMP SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	CALCIUM DISSOLVED (MG/L AS CA)
AUG										
22...	1500	1.00	4990	8.30	28.5	0.58	7.7	106	900	250
22...	1502	10.0	5060	8.10	26.0	--	6.5	86	--	--
22...	1504	24.0	5060	8.10	26.0	--	6.6	87	900	250

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
AUG										
22...	66	730	11	7.9	85	800	1100	0.40	7.0	3010
22...	--	--	--	--	--	--	--	--	--	--
22...	68	740	11	8.2	88	800	1000	0.40	7.0	2980

334417099140701 - LAKE KEMP SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)
AUG											
22...	1620	1.00	4960	8.30	29.0	0.43	7.7	107	860	240	64
22...	1622	7.00	5070	8.20	26.0	--	6.5	86	860	240	63

DATE	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)
AUG											
22...	720	11	8.2	89	800	1100	0.30	7.3	2990	2	300
22...	720	11	8.5	87	790	1100	0.40	7.0	2950	--	--

DATE	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)
AUG										
22...	<1	2	<1	80	<1	<10	<0.1	<1	<1.0	<10
22...	--	--	--	--	--	--	--	--	--	--

07312000 LAKE KEMP NEAR MABELLE, TX--Continued

334244099130901 - LAKE KEMP SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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							
22...	1600	1.00	5020	8.30	28.5	7.8	107
22...	1602	10.0	4970	8.10	25.5	6.3	82
22...	1604	15.0	4970	8.00	26.0	6.0	79

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.--30 years, 148 ft³/s (107,200 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, 2,080 ft³/s Sept. 23 (gage height, 7.47 ft); minimum daily, 0.09 ft³/s May 8.

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	3.6	127	237	.65	.26	.40	.44	337	.37	129	269	302
2	3.6	127	151	.60	.38	.38	.44	335	.42	130	210	396
3	3.7	127	1.6	125	e.20	.38	.46	252	.53	217	1.8	395
4	3.6	127	1.4	233	e.19	e.35	.56	83	14	268	1.2	393
5	3.6	127	1.2	232	e.18	e.34	.49	1.9	.55	265	1.1	393
6	3.5	126	1.1	233	e.18	e.35	.44	.16	.40	268	1.1	465
7	3.7	54	1.2	231	e.19	.40	.40	.10	.47	269	3.1	384
8	3.5	1.5	1.3	232	e.20	.36	.68	.09	.44	269	1.0	306
9	3.5	1.2	1.1	231	.29	.35	.53	.27	.46	269	1.0	267
10	3.4	1.2	1.1	166	.25	.31	.52	.13	.46	271	1.1	269
11	3.6	1.2	1.2	115	.33	.32	.30	.10	.47	267	1.1	116
12	3.4	1.2	.91	119	.34	.33	.35	.13	.75	268	1.1	2.6
13	3.3	.99	.79	116	.34	.40	.38	.13	6.3	269	1.2	78
14	3.3	.92	.91	114	6.5	.40	.34	.13	.76	269	1.2	2.3
15	3.3	.76	1.1	115	.99	.51	39	.27	.60	269	69	1.9
16	3.4	.82	.80	114	.74	.44	107	22	.57	268	128	1.9
17	3.2	.79	.71	114	14	.42	109	.26	.61	265	130	1.8
18	3.8	.87	.68	115	1.2	.56	110	.16	.72	266	130	573
19	3.7	1.0	.68	114	.56	.45	109	.14	.75	267	129	1270
20	3.3	.86	.68	115	.51	.62	107	.16	.73	267	129	1140
21	1.8	.84	.72	45	.51	.61	108	.13	.74	266	130	658
22	1.1	.84	.71	.90	.47	.45	107	.15	.87	265	131	1420
23	1.4	.80	.64	.66	.42	.43	167	.14	.95	267	132	2060
24	1.1	.77	.68	.56	.39	.37	223	.14	1.0	267	131	2060
25	1.1	.76	.69	.49	.37	.35	223	.14	1.0	267	130	1890
26	53	.77	.65	.46	.45	.36	224	.37	1.1	267	130	1240
27	128	.79	.86	.38	.47	.38	224	.40	1.2	269	130	1080
28	129	.67	.67	.49	.45	.45	272	.27	1.3	269	220	1080
29	128	89	.67	.27	---	2.6	337	.18	1.3	272	273	554
30	128	236	.67	.24	---	.71	335	.22	38	269	274	119
31	128	---	.67	.17	---	.57	---	.27	---	267	274	---
TOTAL	770.5	1159.55	414.09	2884.87	31.36	15.35	2807.33	1035.54	77.82	7975	3165.0	18919.5
MEAN	24.9	38.7	13.4	93.1	1.12	.50	93.6	33.4	2.59	257	102	631
MAX	129	236	237	233	14	2.6	337	337	38	272	274	2060
MIN	1.1	.67	.64	.17	.18	.31	.30	.09	.37	129	1.0	1.8
AC-FT	1530	2300	821	5720	62	30	5570	2050	154	15820	6280	37520

CAL YR 1988 TOTAL 36841.93 MEAN 101 MAX 364 MIN .64 AC-FT 73080
WTR YR 1989 TOTAL 39254.91 MEAN 108 MAX 2060 MIN .09 AC-FT 77860

e Estimated.

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, 6,510 microsiemens May 2; minimum daily, 1,210 microsiemens Sept. 13.
WATER TEMPERATURE: Maximum daily, 27.0°C on many days during July, August, and September; minimum daily, 2.0°C Feb. 3, 4.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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 WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT 03...	0950	3.6	5930	8.10	18.0	980	870	270	75
NOV 14...	0910	0.90	5760	7.90	15.0	1100	890	290	87
FEB 08...	1550	0.42	5920	8.10	10.0	1100	920	290	87
MAY 04...	1350	3.1	5800	8.40	24.0	1000	890	280	77
JUN 16...	1010	0.61	5270	8.20	20.5	850	670	220	73
JUL 24...	1240	267	5100	8.00	27.0	900	810	250	68

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 03...	860	12	7.7	115	920	1400	0.30	8.4	3610
NOV 14...	890	12	6.2	192	800	1400	0.30	9.6	3600
FEB 08...	910	12	6.2	159	870	1500	0.30	10	3770
MAY 04...	800	11	8.0	131	850	1400	0.30	8.7	3500
JUN 16...	740	11	6.9	182	720	1200	0.40	11	3080
JUL 24...	760	11	46	98	840	1300	0.30	6.8	3330

07312100 WICHITA RIVER NEAR MABELLE, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	770.5	5920	3650	7600	1500	3110	800	1660	1000
NOV.	1988	1159.55	5860	3610	11300	1500	4620	790	2470	1000
DEC.	1988	414.09	6040	3730	4170	1500	1720	810	907	1000
JAN.	1989	2884.87	6010	3710	28900	1500	11900	810	6290	1000
FEB.	1989	31.36	3340	2030	172	800	68	460	39	600
MAR.	1989	15.35	5760	3550	147	1400	60	780	32	1000
APR.	1989	2807.33	6400	3980	30100	1700	12500	860	6490	1100
MAY	1989	1035.54	6370	3960	11100	1600	4600	850	2380	1100
JUNE	1989	77.82	4790	2940	618	1200	250	650	136	840
JULY	1989	7975	5250	3210	69100	1300	27800	710	15300	920
AUG.	1989	3165.0	5220	3190	27300	1300	10900	710	6060	920
SEPT	1989	18918.5	4970	3030	155000	1200	61700	680	34600	880
TOTAL		39254.91	**	**	345000	**	139000	**	76400	**
WTD.AVG.		108	5310	3260	**	1300	**	720	**	930

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5960	5870	6050	5790	5700	5580	6000	6500	6130	5240	5170	5220
2	5960	5880	6040	5790	4520	5590	5860	6510	6190	5270	5180	5220
3	5960	5880	6000	5800	5520	5570	6040	6440	5540	5250	5590	5220
4	5950	5880	5990	5980	5860	5650	6150	6440	1650	5190	5650	5220
5	5970	5880	5980	5990	5890	5550	6150	5420	4110	5190	5620	5230
6	5940	5870	5980	6010	5860	5640	5990	5820	5010	5190	5710	5220
7	5960	5880	5960	6020	5800	5650	6170	5840	6150	5210	3200	5220
8	5920	5840	5950	6020	5830	5670	6100	5870	5730	5230	4690	5250
9	5930	5830	5920	6020	5770	5680	6230	5920	5510	5190	5570	5240
10	5930	5800	5920	6020	5750	5690	6180	6090	5770	5240	5560	5240
11	5920	5830	5440	6020	5750	5710	6160	6100	5670	5220	5470	4980
12	5930	5600	5760	6030	5780	5710	6000	6080	5070	5220	5530	5170
13	5920	5790	5840	6030	5680	5710	5960	6070	2290	5220	5500	1210
14	5870	5800	5910	6020	5340	5740	6050	6100	4030	5230	5420	3680
15	5900	5800	5980	6030	2990	5750	6040	6070	4380	5250	5410	5090
16	5900	5790	5930	6030	5020	5700	6350	1340	5190	5240	5220	5600
17	5920	5780	5960	6040	1250	5730	6370	2600	5440	5210	5210	5490
18	5920	5870	5950	6060	1830	5740	6370	4560	5710	5220	5220	5460
19	5930	5790	5980	6040	5470	5790	6380	5330	5830	5240	5200	5100
20	5900	5780	5970	6050	5380	5740	6390	5740	5910	5250	5230	5070
21	5920	5780	5970	5950	4750	5770	6390	5890	5890	5260	5230	5030
22	5900	5770	5920	5870	5530	5730	6390	5960	6040	5260	5220	5020
23	5890	5780	5940	5940	5520	5770	6400	6050	6000	5270	5230	4680
24	5890	5800	5930	5900	5610	5750	6410	6000	5950	5270	5220	4940
25	5950	5810	5940	5780	5500	5710	6420	6050	5990	5280	5220	4920
26	5910	5820	5960	5790	5620	5740	6410	6250	5970	5290	5220	4900
27	5920	5790	5800	5760	5610	5820	6420	6120	5920	5290	5230	4810
28	5920	5810	5900	4970	5620	5720	6430	6100	5930	5290	5220	4770
29	5920	5810	5940	5650	---	5900	6430	6080	5930	5310	5220	4770
30	5910	5810	5950	5700	---	5940	6440	6100	5930	5300	5220	4810
31	5910	---	5940	5700	---	5910	---	6110	---	5300	5220	---
MEAN	5920	5810	5930	5900	5170	5720	6240	5730	5360	5250	5250	4930

07312100 WICHITA RIVER NEAR MABELLE, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.0	17.0	11.0	9.0	11.0	10.0	13.0	18.0	22.0	26.0	27.0	27.0
2	18.0	17.0	11.0	10.0	8.0	12.0	17.0	19.0	22.0	26.0	26.0	27.0
3	16.0	17.0	10.0	10.0	2.0	14.0	15.0	17.0	22.0	26.0	23.0	27.0
4	17.0	17.0	10.0	9.0	2.0	4.0	14.0	17.0	20.0	27.0	22.0	27.0
5	17.0	17.0	8.0	9.0	3.0	3.0	14.0	16.0	18.0	27.0	23.0	27.0
6	16.0	16.0	11.0	9.0	3.0	3.0	13.0	18.0	19.0	27.0	24.0	27.0
7	17.0	16.0	12.0	9.0	5.0	6.0	15.0	17.0	e19.0	27.0	22.0	27.0
8	17.0	13.0	8.0	9.0	6.0	6.0	16.0	18.0	19.0	26.0	19.0	27.0
9	17.0	18.0	5.0	8.0	5.0	9.0	13.0	19.0	20.0	27.0	19.0	27.0
10	16.0	13.0	9.0	8.0	7.0	10.0	10.0	17.0	21.0	27.0	21.0	26.0
11	16.0	14.0	9.0	8.0	10.0	13.0	10.0	16.0	21.0	27.0	20.0	26.0
12	14.0	14.0	7.0	8.0	9.0	15.0	12.0	17.0	21.0	27.0	22.0	27.0
13	15.0	12.0	8.0	7.0	10.0	14.0	13.0	17.0	21.0	27.0	23.0	26.0
14	15.0	14.0	9.0	7.0	9.0	14.0	12.0	17.0	20.0	27.0	22.0	25.0
15	19.0	15.0	8.0	7.0	7.0	10.0	14.0	19.0	17.0	27.0	23.0	27.0
16	17.0	10.0	6.0	7.0	8.0	11.0	16.0	e19.0	17.0	27.0	25.0	19.0
17	19.0	10.0	7.0	7.0	5.0	16.0	15.0	20.0	21.0	27.0	25.0	20.0
18	17.0	13.0	7.0	8.0	5.0	11.0	16.0	17.0	22.0	27.0	25.0	20.0
19	15.0	12.0	10.0	8.0	11.0	14.0	16.0	18.0	23.0	27.0	26.0	23.0
20	18.0	7.0	11.0	7.0	10.0	15.0	16.0	20.0	23.0	27.0	27.0	22.0
21	17.0	8.0	8.0	7.0	6.0	6.0	17.0	21.0	22.0	27.0	26.0	22.0
22	15.0	9.0	12.0	7.0	8.0	8.0	18.0	20.0	23.0	27.0	26.0	23.0
23	16.0	10.0	8.0	9.0	7.0	10.0	19.0	23.0	22.0	27.0	26.0	21.0
24	11.0	11.0	8.0	10.0	8.0	14.0	18.0	23.0	23.0	27.0	26.0	21.0
25	13.0	13.0	8.0	13.0	11.0	16.0	18.0	21.0	25.0	27.0	26.0	21.0
26	14.0	12.0	13.0	9.0	13.0	17.0	20.0	22.0	24.0	27.0	26.0	21.0
27	19.0	10.0	12.0	9.0	10.0	17.0	20.0	19.0	24.0	26.0	27.0	20.0
28	18.0	7.0	6.0	10.0	9.0	17.0	20.0	21.0	24.0	26.0	27.0	20.0
29	18.0	8.0	6.0	10.0	---	16.0	19.0	20.0	25.0	27.0	27.0	21.0
30	18.0	11.0	8.0	8.0	---	15.0	20.0	21.0	24.0	27.0	27.0	21.0
31	17.0	---	8.0	9.0	---	14.0	---	21.0	---	27.0	27.0	---
MEAN	16.5	12.5	9.0	8.5	7.5	11.5	15.5	19.0	21.5	27.0	24.5	24.0

e Estimated

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. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--18 years, 78.6 ft³/s (56,950 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, 191 ft³/s Apr. 28 to May 2; maximum gage height, 6.20 ft; minimum daily discharge, 0.11 ft³/s Dec. 28, 29.

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	2.6	32	.91	.13	.54	.30	1.5	e191	112	120	157	64
2	2.6	30	.91	.13	.54	.30	1.5	e191	112	126	157	64
3	2.6	30	.91	45	.47	.30	1.5	e146	112	147	156	64
4	3.0	30	.91	94	.46	.35	1.6	54	102	150	138	64
5	2.6	29	.91	117	.50	.41	1.8	.72	26	151	119	64
6	2.6	30	.91	124	.41	.35	1.8	.54	.39	150	119	64
7	2.6	18	.91	124	.37	.30	5.3	.48	.10	153	59	64
8	2.6	2.7	.91	128	.30	.22	13	.47	.09	154	3.1	64
9	2.6	2.6	.71	127	12	.24	13	.47	.08	154	1.5	64
10	2.6	2.6	.71	126	21	.30	13	.47	.07	154	1.6	64
11	56	2.5	.81	127	24	.35	13	.47	.07	154	1.6	40
12	116	2.5	.71	131	24	.35	14	.46	.09	154	1.6	2.3
13	116	2.3	.63	128	16	.35	14	.41	.09	154	1.6	3.2
14	113	2.3	.47	127	.24	.35	14	.41	.09	155	1.6	2.3
15	107	2.0	.41	127	.18	.35	14	2.7	.09	154	1.6	2.3
16	108	1.5	.30	108	.19	.35	54	3.2	.09	150	1.6	2.2
17	107	1.4	.16	92	.17	.35	87	.22	.09	150	1.6	2.0
18	107	1.2	.16	92	.19	.47	108	.22	.09	148	1.6	1.9
19	105	1.2	.13	93	.19	.62	110	.22	52	147	1.6	1.7
20	104	1.2	.13	92	.19	.63	124	.20	107	147	1.6	1.9
21	102	1.2	.13	42	.22	.79	141	.19	108	148	19	2.0
22	99	1.2	10	.63	.22	1.3	141	.19	107	148	61	2.0
23	101	1.2	17	.63	.22	1.4	149	.19	108	148	62	2.2
24	94	1.2	12	.63	.35	1.6	157	.17	107	148	62	2.3
25	88	1.2	.47	.63	.30	1.6	157	18	105	150	63	62
26	68	1.2	.16	.48	.22	1.6	174	42	103	156	63	121
27	67	1.1	.13	.50	.26	1.6	183	45	102	156	63	122
28	65	1.1	.11	.54	.30	1.5	191	45	101	156	63	122
29	67	1.1	.11	.54	---	1.5	191	79	101	155	64	122
30	67	.95	.13	.54	---	1.4	191	112	103	156	64	121
31	53	---	.13	.54	---	1.5	---	112	---	156	64	---
TOTAL	1936.4	236.45	52.98	2049.92	104.03	23.03	2281.0	1047.40	1669.43	4649	1575.2	1378.3
MEAN	62.5	7.88	1.71	66.1	3.72	.74	76.0	33.8	55.6	150	50.8	45.9
MAX	116	32	17	131	24	1.6	191	191	112	156	157	122
MIN	2.6	.95	.11	.13	.17	.22	1.5	.17	.07	120	1.5	1.7
AC-FT	3840	469	105	4070	206	46	4520	2080	3310	9220	3120	2730

CAL YR 1988 TOTAL 27946.18 MEAN 76.4 MAX 241 MIN .11 AC-FT 55430
WTR YR 1989 TOTAL 17003.14 MEAN 46.6 MAX 191 MIN .07 AC-FT 33730

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

AVERAGE DISCHARGE.--29 years, 67.5 ft³/s (1.41 in/yr), 48,900 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)
May 4	1330	1,120	19.79	June 7	1110	1,050	19.27
May 16	1520	1,820	23.30	June 13	2135	1,140	19.94
May 18	1520	2,500	25.26	Aug. 7	1030	1,150	20.05
June 4	1940	1,100	19.64	Sept. 14	0010	*2,980	*26.35

Minimum discharge, 1.3 ft³/s Mar. 19.

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	5.3	4.4	4.0	3.9	4.1	3.2	4.6	3.5	16	15	3.0	3.6
2	5.4	4.6	4.0	3.9	e3.2	3.1	4.3	4.8	14	13	30	3.4
3	5.2	4.6	3.9	3.9	e3.0	e2.8	4.0	244	12	11	181	3.4
4	6.3	4.3	4.0	3.6	e3.0	e2.5	3.0	727	728	10	20	3.3
5	5.7	4.1	3.9	3.6	e3.0	e2.2	2.5	647	720	9.1	7.0	3.2
6	5.6	4.0	3.9	3.5	e3.3	e2.2	2.5	159	273	8.5	5.2	3.1
7	5.5	3.8	4.0	3.2	e4.0	2.5	2.7	33	613	8.1	705	3.0
8	5.8	4.1	4.2	3.1	5.5	2.9	2.6	21	216	7.9	213	3.1
9	5.6	4.3	4.2	2.9	6.1	3.1	2.5	13	162	7.8	34	3.3
10	5.1	4.4	4.2	2.7	6.5	3.0	2.2	11	189	18	11	3.1
11	5.1	4.5	13	3.4	7.1	3.0	2.4	9.4	275	7.1	7.5	116
12	4.1	23	8.2	3.4	7.7	2.9	2.3	66	452	6.5	6.4	67
13	3.2	12	6.1	3.4	8.3	2.7	2.5	112	768	6.3	5.9	1930
14	3.1	7.7	5.1	5.3	77	2.5	3.6	86	942	21	6.3	2550
15	3.1	5.2	4.8	5.6	117	2.1	4.0	35	346	10	6.1	694
16	3.3	4.8	4.2	4.9	66	2.2	3.9	1320	166	6.2	6.8	104
17	3.3	4.8	4.1	4.5	279	2.0	3.3	1270	158	5.8	9.3	139
18	3.3	4.6	4.0	4.4	310	1.9	3.6	2250	176	6.2	5.5	191
19	3.4	4.4	3.9	4.1	49	3.9	3.5	635	213	7.2	5.2	238
20	3.2	4.8	4.4	3.9	13	8.8	3.5	69	228	5.3	5.0	209
21	3.4	4.8	4.4	3.4	6.9	2.6	3.2	32	172	4.6	4.9	138
22	3.7	4.8	4.4	3.2	4.9	3.5	3.0	27	126	4.2	5.1	100
23	3.5	4.8	4.3	3.1	4.0	3.2	3.8	67	90	3.9	5.2	71
24	3.7	4.5	4.4	3.1	3.6	3.5	3.9	65	66	3.9	6.6	51
25	3.3	4.8	4.2	3.3	3.5	3.4	3.5	54	52	4.3	8.8	43
26	3.1	4.5	4.1	3.3	3.3	3.5	3.3	43	41	4.6	7.5	37
27	3.3	4.3	4.9	3.5	3.3	3.5	3.2	30	33	5.0	4.7	31
28	3.2	4.0	5.1	15	3.2	4.0	3.2	23	26	4.2	4.2	27
29	3.5	4.1	4.5	16	---	11	2.7	23	21	3.8	4.3	23
30	3.5	4.1	4.3	9.9	---	18	2.8	22	18	3.9	4.7	20
31	4.0	---	4.3	5.7	---	7.9	---	19	---	4.5	3.9	---
TOTAL	128.8	163.1	147.0	146.7	1008.5	123.6	96.1	8120.7	7312	236.9	1333.1	6811.5
MEAN	4.15	5.44	4.74	4.73	36.0	3.99	3.20	262	244	7.64	43.0	227
MAX	6.3	23	13	16	310	18	4.6	2250	942	21	705	2550
MIN	3.1	3.8	3.9	2.7	3.0	1.9	2.2	3.5	12	3.8	3.0	3.0
AC-FT	255	324	292	291	2000	245	191	16110	14500	470	2640	13510
CFSM	.01	.01	.01	.01	.06	.01	.00	.40	.37	.01	.07	.35
IN.	.01	.01	.01	.01	.06	.01	.01	.46	.42	.01	.08	.39

CAL YR 1988 TOTAL 8261.43 MEAN 22.6 MAX 2120 MIN .38 AC-FT 16390 CFSM .03 IN. .47
WTR YR 1989 TOTAL 25628.0 MEAN 70.2 MAX 2550 MIN 1.9 AC-FT 50830 CFSM .11 IN. 1.46

e Estimated.

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.

WATER-DISCHARGE RECORDS

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.

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 except those for estimated daily discharges, which are fair. Flow from 2,086 mi² 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 33,730 acre-ft from Lake Diversion for mining, industrial use, recreation, and irrigation. Gage-height telemeter at station via Sutron data collection platform.

AVERAGE DISCHARGE.--52 years (water years 1901, 1939-89), 269 ft³/s (194,900 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, 3,380 ft³/s June 8 at 2110 hours (gage height, 14.63 ft); minimum daily, 20 ft³/s Feb. 5, 6 (result of freeze-up).

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	69	48	24	30	34	39	38	67	79	122	121	89
2	63	49	24	30	28	37	33	68	90	116	139	86
3	58	48	25	31	e21	38	29	204	163	115	186	88
4	58	44	26	30	e21	41	28	791	815	115	270	93
5	56	43	26	41	e20	35	27	1870	1230	121	175	96
6	54	42	27	52	e20	33	25	1130	855	125	140	93
7	50	40	27	47	e22	38	24	244	2480	147	230	95
8	50	45	28	52	e22	41	23	118	2760	126	983	95
9	48	43	28	37	23	43	23	89	996	130	391	92
10	46	36	29	34	24	41	24	74	329	125	149	93
11	46	35	37	35	22	37	24	66	376	132	108	320
12	46	38	38	36	23	32	25	66	596	132	99	620
13	46	36	38	41	31	31	26	124	1600	125	89	1880
14	55	44	32	46	128	29	33	134	1960	148	84	2620
15	63	37	30	47	378	25	31	117	1420	172	78	2760
16	62	34	30	46	172	26	37	1170	535	171	76	2970
17	64	31	29	44	503	27	42	2850	279	138	119	2200
18	61	31	29	44	1040	25	52	3040	242	143	105	679
19	54	31	29	40	444	26	29	2320	238	151	76	506
20	63	30	29	42	139	38	32	1470	246	141	64	510
21	63	29	29	39	82	40	35	311	260	138	60	663
22	66	28	29	40	60	34	38	190	232	135	59	779
23	64	27	29	38	53	29	43	144	203	137	57	823
24	61	27	29	33	50	29	45	139	179	142	83	752
25	59	25	29	32	47	25	54	129	165	135	70	918
26	54	25	30	30	44	25	55	117	155	130	72	1280
27	53	25	31	29	42	24	56	113	145	126	80	1500
28	50	25	31	45	41	28	61	101	139	139	86	1450
29	49	25	30	48	---	30	63	98	134	136	89	1190
30	47	25	30	45	---	27	63	95	128	133	95	1040
31	50	---	31	39	---	32	---	88	---	126	94	---
TOTAL	1728	1046	913	1223	3534	1005	1118	17537	19029	4172	4527	26380
MEAN	55.7	34.9	29.5	39.5	126	32.4	37.3	566	634	135	146	879
MAX	69	49	38	52	1040	43	63	3040	2760	172	983	2970
MIN	46	25	24	29	20	24	23	66	79	115	57	86
AC-FT	3430	2070	1810	2430	7010	1990	2220	34780	37740	8280	8980	52320

CAL YR 1988	TOTAL 31152	MEAN 85.1	MAX 2440	MIN 24	AC-FT 61790				
WTR YR 1989	TOTAL 82212	MEAN 225	MAX 3040	MIN 20	AC-FT 163100				

e Estimated.

07312500 WICHITA RIVER AT WICHITA FALLS, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: April 1966 to July 1975. Chemical and biochemical analyses: November 1981 to August 1989 (discontinued). Sediment analyses: April 1966 to July 1975.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1981 to September 1989.
WATER TEMPERATURE: October 1981 to September 1989.

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, 9,490 microsiemens Mar. 2, 1984; minimum daily, 245 microsiemens Oct. 24, 1983.
WATER TEMPERATURE: Maximum daily, 35.0°C July 21, 1982, July 4, 1983, and June 15, 16, 1984; minimum daily, 0.0°C Dec. 21, 30, 1983, Feb. 2, 1985, and Jan. 6, 10, 1988.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 8,250 microsiemens Apr. 11; minimum daily, 430 microsiemens June 7.
WATER TEMPERATURE: Maximum daily 33.0°C Aug. 23; minimum daily, 1.0°C Feb. 6.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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 WH WAT TOT FLD MG/L AS CACO3
NOV										
16...	1315	51	6230	8.30	14.0	14.7	150	2.7	1300	1100
DEC										
21...	1425	26	7240	8.10	10.0	13.9	131	1.8	1400	1200
MAR										
09...	1400	44	6070	8.20	12.0	19.4	192	2.8	1200	1000
MAY										
12...	1100	48	3700	8.20	18.0	9.2	104	5.0	750	590
19...	1255	2260	945	8.20	21.0	--	--	--	190	98
JUL										
20...	1010	142	5540	8.10	26.0	10.5	139	4.8	970	850
AUG										
17...	1550	117	4910	8.10	26.5	8.7	116	2.7	990	830

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 WH TOT FET 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									
16...	290	130	1000	13	6.7	186	620	1700	0.30
DEC									
21...	330	140	1000	12	6.5	216	780	2000	0.30
MAR									
09...	280	120	840	11	5.7	178	660	1600	0.30
MAY									
12...	180	73	500	8	5.5	160	390	910	1.9
19...	51	14	110	4	5.3	87	88	170	0.20
JUL									
20...	250	85	790	11	7.5	121	720	1300	0.50
AUG									
17...	240	95	640	9	5.8	157	510	1300	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									
16...	5.2	3860	--	<0.010	0.400	0.100	0.80	0.90	0.070
DEC									
21...	4.9	4390	--	0.010	<0.100	0.180	0.72	0.90	0.070
MAR									
09...	4.9	3620	--	0.030	<0.400	0.100	0.30	0.40	0.160
MAY									
12...	7.7	2160	--	0.010	<0.100	0.050	0.75	0.80	0.100
19...	7.3	498	--	--	--	--	--	--	--
JUL									
20...	8.1	3230	--	<0.010	<0.100	0.060	0.74	0.80	0.010
AUG									
17...	8.0	2890	0.180	0.020	0.200	0.050	0.25	0.30	0.010

07312500 WICHITA RIVER AT WICHITA FALLS, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	1728	6270	3760	17500	1600	7650	700	3250	1200
NOV.	1988	1046	7030	4240	12000	1900	5270	790	2220	1300
DEC.	1988	913	7390	4470	11000	2000	4870	830	2040	1400
JAN.	1989	1223	6900	4160	13700	1800	6040	770	2540	1300
FEB.	1989	3534	2290	1350	12900	570	5470	250	2380	420
MAR.	1989	1005	6540	3930	10700	1700	4670	730	1970	1200
APR.	1989	1118	7780	4710	14200	2100	6310	870	2640	1500
MAY	1989	17537	1590	933	44200	390	18500	170	8120	290
JUNE	1989	19029	1330	780	40100	320	16600	140	7350	240
JULY	1989	4172	5950	3560	40100	1500	17400	660	7420	1100
AUG.	1989	4527	3950	2350	28700	1000	12300	430	5300	740
SEPT	1989	26380	2830	1670	119000	710	50400	310	21900	520
TOTAL		82212	**	**	364000	**	155000	**	67200	**
WTD.AVG.		225	2760	1640	**	700	**	300	**	510

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4850	6900	7500	7930	6960	5790	7610	7400	5180	4900	6140	6310
2	5040	6900	7500	7260	7520	6280	7980	7280	5260	5170	6130	6230
3	5330	6970	7560	8040	7780	6210	8100	5950	4950	5310	5730	6120
4	5600	7050	7580	8050	7770	6180	8020	2950	1690	5570	3520	6150
5	5780	7140	7550	7950	7760	6150	7890	1200	1810	5860	3550	6200
6	5860	6990	7560	5850	7740	6120	7870	1300	1520	5920	4860	6160
7	5940	7070	7530	6020	7820	6320	7950	1610	430	5930	4390	6260
8	6140	7140	7440	7060	6620	6330	8100	2180	720	6140	1240	6230
9	6130	7210	7470	6430	7870	5990	8240	2540	1030	6080	2130	6220
10	6250	6950	7450	7880	7930	5760	8230	3200	1500	6070	3030	6270
11	6340	7040	6400	7970	7900	5520	8250	3700	1920	6110	3560	3010
12	6370	6740	6270	7740	7890	6080	8230	3480	1510	6230	4010	3190
13	6400	6950	7280	7550	7400	6560	8080	2600	890	5720	4500	630
14	6400	7330	6750	5550	4810	6490	7850	4450	920	5380	4970	640
15	6430	7220	7090	6660	1970	6770	7870	2660	970	5530	5660	510
16	6490	6280	6740	7080	2860	6880	7960	640	1240	5790	5540	2100
17	6360	6290	7110	7270	1270	6980	8120	470	1610	5610	4930	3750
18	6440	6720	7240	7270	970	7120	7040	590	2140	6120	4730	3820
19	6540	6970	6980	7530	1350	7350	7940	950	2140	6100	5370	2650
20	6510	6910	7270	7570	1400	7360	8120	3000	1940	5780	4420	2240
21	6500	7140	7440	6930	2010	6700	7810	3540	1730	6270	5500	1800
22	6750	7230	7560	7130	2530	6510	7760	3910	2080	6190	6190	3630
23	6700	7150	7610	6090	3130	5860	8100	4130	2490	6190	6380	3720
24	6680	7170	7740	7510	3790	6420	7710	4490	2730	6220	6400	3860
25	6570	7210	7780	5790	3980	6750	7580	3890	3200	6300	6420	4340
26	6550	7210	7820	7650	3120	7290	7720	4240	3640	6250	6530	4400
27	6640	7310	7820	7720	4800	7400	7700	4250	3890	6350	6560	4320
28	6690	7330	7930	3930	5680	7190	7500	4420	4230	6420	5920	4350
29	6790	7330	7930	4910	---	7310	7370	4280	4520	6260	5850	4370
30	6850	7370	7930	7610	---	7390	7140	4720	4760	6110	6030	4370
31	6790	---	8010	6510	---	7520	---	5030	---	6300	6140	---
MEAN	6280	7040	7410	6980	5090	6600	7860	3390	2420	5940	5040	4130

07312500 WICHITA RIVER AT WICHITA FALLS, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.0	17.0	10.0	8.0	12.0	13.0	17.0	23.0	26.0	27.0	31.0	32.0
2	18.0	18.0	11.0	9.0	6.0	12.0	18.0	20.0	28.0	32.0	27.0	28.0
3	22.0	18.0	8.0	11.0	3.0	18.0	24.0	19.0	18.5	30.0	28.0	30.0
4	21.0	17.0	8.0	10.5	e3.0	e12.0	21.0	19.0	20.0	27.0	28.0	27.0
5	20.0	14.0	10.0	14.0	e2.0	e13.0	22.0	20.0	22.0	31.5	27.5	31.0
6	21.0	12.0	12.0	12.0	1.0	5.0	24.0	19.0	24.0	32.0	28.0	29.0
7	19.0	17.0	11.0	10.0	4.0	7.0	23.0	19.0	20.0	30.0	24.0	30.0
8	17.0	17.0	6.0	7.0	5.0	10.0	17.0	26.0	22.0	28.0	23.0	30.0
9	16.0	20.0	7.0	8.0	7.0	14.0	14.0	25.0	23.0	28.0	25.0	27.0
10	20.0	17.0	6.0	9.0	10.0	17.0	17.0	23.0	e23.0	31.0	23.0	23.0
11	20.0	13.0	6.0	12.0	8.0	14.0	17.0	23.0	24.0	31.0	25.0	22.0
12	20.0	13.0	8.0	7.0	8.0	17.0	13.0	19.0	26.0	31.0	25.0	23.0
13	20.0	13.0	10.0	4.0	9.0	e20.0	12.0	17.0	23.0	29.0	e25.0	17.0
14	20.0	19.0	11.0	3.0	5.0	22.5	20.0	18.0	23.0	29.0	25.0	17.0
15	18.0	17.0	7.0	3.0	4.5	17.0	12.0	24.0	23.0	28.0	28.0	18.0
16	20.0	14.0	6.0	3.0	7.0	19.0	19.0	20.0	24.0	29.5	29.0	18.5
17	24.0	12.0	4.0	9.0	4.0	24.0	18.0	21.0	23.0	32.0	26.5	21.0
18	21.0	15.0	5.0	11.0	4.0	15.0	18.0	22.0	25.0	32.5	29.0	22.0
19	19.0	11.0	10.0	10.5	5.0	14.0	26.0	23.0	29.0	30.0	27.0	23.0
20	19.0	7.0	10.0	9.0	7.5	14.0	25.0	e24.0	29.5	29.0	27.0	24.0
21	21.0	10.0	10.5	5.0	9.0	11.0	27.0	25.0	29.0	29.0	30.0	e24.0
22	21.0	6.0	12.0	e6.0	10.0	14.0	22.0	28.0	29.0	27.0	31.0	23.0
23	17.0	8.0	10.0	11.0	9.0	18.0	22.0	29.0	28.0	27.0	33.0	19.0
24	19.0	10.0	7.0	13.0	11.5	21.0	27.0	29.0	27.0	29.0	32.0	17.0
25	20.0	12.0	6.0	12.0	10.0	19.0	27.0	30.0	27.0	29.0	32.0	20.0
26	18.0	10.0	12.0	11.0	12.0	20.0	28.0	25.0	30.0	28.0	31.0	21.0
27	22.0	8.0	10.5	8.0	10.0	23.0	26.0	21.0	30.0	29.0	32.0	21.0
28	15.0	10.0	5.0	8.0	10.0	24.0	26.0	21.0	29.5	29.0	31.0	21.0
29	14.0	10.5	4.0	8.0	---	25.0	19.0	23.0	30.0	27.0	31.5	22.0
30	14.0	10.0	9.0	12.0	---	20.0	18.0	27.0	31.0	28.0	32.0	20.0
31	15.0	---	8.0	15.0	---	22.0	---	27.0	---	31.0	30.0	---
MEAN	19.0	13.0	8.5	9.0	7.0	16.5	20.5	23.0	25.5	29.5	28.5	23.5

e Estimated

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.

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 10,880 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.--22 years, 315 ft³/s (228,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,620 ft³/s June 4, 1987 (gage height, 24.36 ft); minimum, 24 ft³/s Feb. 18, 1978, Feb. 4, 1989 result of freeze-up.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,280 ft³/s June 8 at 1600 hours (gage height, 18.34 ft); minimum, 24 ft³/s Feb. 4, result of freeze-up.

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	195	149	54	50	56	84	56	89	252	290	269	160
2	173	126	54	49	45	82	58	104	316	269	257	165
3	161	105	54	49	38	79	59	319	594	253	663	157
4	155	97	54	50	24	78	54	711	1440	243	439	174
5	148	90	54	49	25	72	49	1370	2070	235	489	199
6	143	81	56	50	28	79	49	1900	1570	246	358	218
7	140	87	58	133	41	136	46	1290	2190	262	482	212
8	136	88	54	150	38	149	46	443	4140	288	782	205
9	135	84	54	138	35	166	44	230	3880	264	1190	210
10	131	83	56	148	33	150	41	163	1970	285	573	214
11	130	73	80	134	32	112	41	131	835	272	313	565
12	125	80	170	129	32	91	39	131	1010	275	204	1150
13	122	113	88	118	32	80	39	429	1650	279	167	1740
14	144	76	81	129	55	76	47	359	2510	322	183	2980
15	198	82	68	147	716	70	59	259	2360	535	352	2850
16	179	76	58	153	741	66	49	322	1790	332	168	3020
17	177	67	56	139	756	64	47	1670	992	303	175	3350
18	162	63	55	142	1770	67	49	2580	638	268	229	2960
19	120	62	53	124	1460	67	85	2980	537	320	186	1300
20	110	65	52	99	707	80	107	2580	503	290	137	936
21	119	63	53	93	319	71	104	1530	487	288	114	915
22	113	62	54	90	198	82	63	560	487	280	107	1040
23	125	62	55	93	146	76	61	409	464	269	102	1120
24	131	61	52	71	121	65	63	349	432	266	100	1110
25	142	60	50	53	107	59	65	327	405	267	127	1050
26	155	60	48	46	98	58	73	307	385	265	158	1270
27	202	58	49	41	94	58	82	286	362	326	146	1540
28	144	56	54	59	88	59	80	286	342	287	146	1690
29	119	56	54	163	---	69	85	263	310	291	158	1660
30	111	54	50	80	---	61	97	233	300	271	166	1480
31	134	---	50	64	---	54	---	237	---	264	156	---
TOTAL	4479	2339	1878	3033	7835	2560	1837	22847	35221	8905	9096	35640
MEAN	144	78.0	60.6	97.8	280	82.6	61.2	737	1174	287	293	1188
MAX	202	149	170	163	1770	166	107	2980	4140	535	1190	3350
MIN	110	54	48	41	24	54	39	89	252	235	100	157
AC-FT	8880	4640	3730	6020	15540	5080	3640	45320	69860	17660	18040	70690

CAL YR 1988	TOTAL	61010	MEAN	167	MAX	2610	MIN	48	AC-FT	121000
WTR YR 1989	TOTAL	135670	MEAN	372	MAX	4140	MIN	24	AC-FT	269100

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-ffeet)
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, 120,600 acre-ft Sept. 14 (elevation, 1,047.2 ft); minimum, 61,140 acre-ft May 1-3 (elevation, 1,036.8 ft).

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

1,036.0	57,700	1,042.0	87,700	1,046.0	112,500
1,038.0	66,500	1,044.0	99,700	1,048.0	126,000
1,040.0	76,500				

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 08:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72860	69380	66500	65150	63350	66500	65600	61140	107300	106000	101000	102200
2	72860	69380	66500	65150	63350	66500	65600	61140	106600	106000	101000	101000
3	72340	69380	66500	65150	63350	67460	65600	61140	107300	105400	101000	101000
4	72340	69380	66500	65150	63350	66980	65150	61570	110600	105400	102600	101000
5	72340	68900	66500	64700	63350	66980	65150	63800	111200	104700	102600	101000
6	72340	68900	66050	64700	62900	66980	65150	63800	110600	104700	101000	101000
7	72340	68900	66050	65150	62900	66980	65150	64250	109900	104700	103500	101000
8	72340	68420	66050	64700	62900	66980	64700	64700	109900	104700	104700	101000
9	72340	68420	65600	64250	62900	67460	65150	64700	109200	104700	104700	100300
10	72340	68420	66050	64700	62900	67460	64700	64250	109900	104100	104100	100300
11	72340	68420	66050	64700	62450	66980	64250	64250	109900	104100	104100	100300
12	71820	68420	66050	64250	62450	67460	64250	64250	109900	103500	104100	102200
13	72340	67940	65600	64250	62450	66500	63800	64250	109900	103500	103500	109200
14	71820	67940	65600	64250	62450	66500	63800	64250	110600	103500	103500	120600
15	71820	68420	65600	64250	63800	66050	63800	63800	110600	103500	104100	116500
16	71820	67940	65600	63800	63800	66500	63800	81450	110600	102800	103500	115200
17	70340	67940	65600	64250	64700	66500	63350	118000	109900	102800	103500	111800
18	70340	67940	65600	63800	64700	66050	63350	112500	109900	102800	103500	110600
19	70340	67940	65600	63800	67460	66050	62900	111800	108000	102200	102800	109900
20	70340	67940	65600	63800	67460	66500	63350	109900	108000	102800	102800	109900
21	70340	66980	65600	63800	67460	66050	62900	109200	108000	102800	103500	109200
22	70340	66980	65600	63350	67460	66050	62900	108600	108000	102800	103500	109200
23	70340	66980	65600	63350	67460	66050	62900	108600	108000	102800	103500	109900
24	70340	66980	65600	63350	66500	66500	62900	108600	107300	102200	102800	109200
25	69860	66980	65600	63800	66980	66050	62900	108600	107300	102200	102200	107300
26	69860	66980	65150	63800	66980	66050	61570	107300	107300	102200	102800	107300
27	69860	66980	65150	63350	66500	65600	61570	108000	106600	102200	102800	107300
28	69860	66980	65150	63350	66500	65600	61570	108000	106600	102200	102800	107300
29	69380	66980	65150	63350	---	65600	61570	108600	106000	102200	102200	107300
30	69380	66500	65150	63350	---	65600	61570	108600	106000	102200	102200	106600
31	69380	---	65150	63350	---	65600	---	108600	---	101000	102200	---
MAX	72860	69380	66500	65150	67460	67460	65600	118000	111200	106000	104700	120600
MIN	69380	66500	65150	63350	62450	65600	61570	61140	106000	101000	101000	100300
(†)	1038.6	1038.0	1037.7	1037.3	1038.0	1037.8	1036.9	1045.4	1045.0	1044.2	1044.4	1045.1
(Φ)	-3480	-2880	-1350	-1800	+3150	-900	-4030	+47030	-2600	-5000	+1200	+4400
(††)	1330	1190	885	1030	953	1290	1430	1310	1040	1220	258	620

CAL YR 1988 MAX 93600 MIN 65150 (Φ) -23730 (††) 14750
WTR YR 1989 MAX 120600 MIN 61140 (Φ) +33740 (††) 12560

(†) 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); 33 years (water years 1946-55, 1967-89) regulated, 48.4 ft³/s (35,070 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, 20,100 ft³/s May 16 at 1745 hours (gage height, 27.03 ft); no flow for several 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	8.4	e.07	e.02	e.06	3.5	.88	.03	.01	1.2	.26	.10	.27
2	4.0	e.06	e.02	e.06	2.4	.77	.03	.03	.71	.23	.15	.25
3	3.1	e.06	e.02	e.06	2.1	.54	.03	.06	58	.22	.16	.24
4	2.7	e.06	e.01	e.06	1.9	.36	.03	35	307	.22	.13	.22
5	2.3	e.05	e.01	e.06	1.7	.32	.02	533	745	.25	.10	.21
6	2.1	e.05	e.01	e.06	1.3	.35	.02	482	630	.26	.10	.17
7	1.7	e.05	e.01	e.05	.81	.25	.02	43	593	.26	304	.17
8	1.1	e.05	e.00	e.05	.39	.58	.02	6.8	811	.28	781	.17
9	.81	e.05	e.00	e.05	.23	1.7	.01	1.5	553	.28	96	.13
10	.52	e.05	e.00	e.05	.17	1.5	.01	.55	248	.24	8.7	.13
11	.35	e.04	e.00	e.05	.11	.97	.02	.33	737	.24	3.3	142
12	.33	e.06	e.01	e.05	.07	1.1	.02	.34	1140	.25	2.3	503
13	e.24	e.06	e.01	e.05	.07	1.1	.02	.37	1230	.24	1.7	800
14	e.19	e.06	e.00	.05	.11	.55	.02	.30	1330	.37	.72	2770
15	e.15	e.05	e1.8	.05	69	.47	.03	.27	952	.40	.64	4890
16	e.15	e.05	e2.0	.05	58	.40	.02	7110	351	.42	.49	4300
17	e.13	e.05	e1.5	.05	182	.43	.02	5660	138	.31	13	2530
18	e.09	e.05	e.88	.05	530	.28	.02	3080	87	.25	4.8	1470
19	e.09	e.05	e.31	.05	81	.22	.02	2010	62	.21	1.3	724
20	e.07	e.04	e.09	.05	13	.09	.02	1160	45	.23	.61	237
21	e.07	e.04	e.07	.04	6.1	.07	.02	412	32	.31	.43	117
22	e.07	e.04	e.07	.04	3.5	.06	.01	147	19	.27	.35	82
23	e.07	e.04	e.06	.04	2.0	.08	.01	87	10	.24	.32	78
24	e.07	e.04	e.06	.04	1.6	.07	.01	61	4.1	.22	.30	43
25	e.06	e.03	e.06	.04	1.2	.06	.01	45	1.5	.18	.31	13
26	e.06	e.03	e.06	.04	1.0	.06	.01	30	1.1	.18	.31	5.4
27	e.06	e.03	e.06	.04	.96	.05	.01	27	.66	.16	.34	3.6
28	e.05	e.02	e.06	.06	.91	.05	.01	34	.50	.12	.30	2.2
29	e.05	e.02	e.06	.19	---	.04	.01	15	.35	.10	.28	1.6
30	e.05	e.02	e.06	8.4	---	.03	.0	7.1	.29	.10	.28	1.2
31	e.07	---	e.06	6.0	---	.02	---	2.4	---	.10	.26	---
TOTAL	29.20	1.37	7.38	15.99	965.13	13.45	0.53	20991.06	10088.41	7.40	1222.78	18714.96
MEAN	.94	.046	.24	.52	34.5	.43	.018	677	336	.24	39.4	624
MAX	8.4	.07	2.0	8.4	530	1.7	.03	7110	1330	.42	781	4890
MIN	.05	.02	.00	.04	.07	.02	.00	.01	.29	.10	.10	.13
AC-FT	58	2.7	15	32	1910	27	1.1	41640	20010	15	2430	37120

CAL YR 1988	TOTAL	987.71	MEAN	2.70	MAX	175	MIN	.00	AC-FT	1960
WTR YR 1989	TOTAL	52057.66	MEAN	143	MAX	7110	MIN	.00	AC-FT	103300

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, 279,200 acre-ft June 10, 1985 (gage height, 927.43 ft); minimum since first appreciable storage, 4,640 acre-ft Aug. 31 to Sept. 4, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 275,000 acre-ft Sept. 18 (gage height, 927.18 ft); minimum, 185,300 acre-ft May 2 (gage height, 921.11 ft).

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

920.0	171,300	926.0	255,700
922.0	197,000	926.0	255,700
924.0	225,200	928.0	288,900

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	204600	198800	193700	192000	190900	193600	192100	186100	259900	260500	250400	245500
2	204000	198800	193600	192000	189000	193700	192100	185500	261300	259700	251400	244300
3	203900	198500	193300	191800	189600	193800	192200	187100	262000	259900	251000	244100
4	203500	198200	193000	191400	189400	194000	191800	189200	263400	259400	250500	244000
5	203200	197700	193200	191800	188700	194300	191700	190400	265700	259100	250200	243800
6	203200	197500	192500	191700	189000	194500	190900	191800	267900	258900	249600	243200
7	202600	197000	191800	190500	188800	194300	190900	192100	271800	258300	250200	242600
8	202800	197300	192600	190900	188200	194300	190500	192900	272700	258300	251600	242100
9	202600	196900	193000	191000	188600	194500	190000	192200	271500	257800	252200	241400
10	202600	196600	193000	190700	188600	194500	189600	192500	271000	257100	251800	240600
11	202100	197100	193700	189700	188300	194500	189600	191600	270200	257000	251900	243200
12	202100	197300	193700	190000	188400	193700	189600	192000	270800	256700	251800	244300
13	201800	197100	193800	190700	188200	194300	189700	191700	272200	256200	251100	255900
14	201400	197000	192900	190400	189400	193400	189700	192000	272800	256800	251400	262300
15	201500	196100	192900	190300	189700	193200	189700	191200	273000	256700	251300	267200
16	201500	195900	193200	190000	190400	193200	189900	210200	270800	256500	250800	271300
17	201100	195700	193000	190400	192200	193000	189600	232700	268700	256000	251100	274000
18	200300	195500	193300	190300	193400	193300	189500	245800	267500	254600	251100	275000
19	200300	195500	193400	190000	194300	193400	189700	254400	266600	255400	251100	273300
20	200200	195300	193000	190000	194300	193200	189900	259100	265600	255100	250400	270800
21	200200	195300	192800	189700	194500	193000	188700	261900	264400	254600	249900	268400
22	200300	194600	192800	190000	194000	192900	188400	261900	263700	254100	249400	266400
23	199600	194700	192900	192400	193800	192000	188700	261900	263400	253900	249100	264400
24	199500	195000	192400	192100	194300	192900	188400	262100	263100	253500	248800	264100
25	198800	194300	192000	191400	194500	192200	188300	260200	262400	253000	248200	263400
26	199200	194100	192600	191200	194100	192000	187300	260200	262400	252500	248000	263400
27	198500	194100	192200	192100	194000	192100	187500	262300	261500	252200	247500	262800
28	198500	194000	192000	192200	194000	193400	187400	262300	261300	252200	247100	262600
29	198100	193700	192000	192000	---	193300	187100	261500	261000	251600	246100	262400
30	198600	193800	192400	191700	---	192400	187000	260700	260800	251400	246000	262300
31	198600	---	191700	192100	---	192400	---	260300	---	251000	247100	---
MAX	204600	198800	193800	192400	194500	194500	192200	262300	273000	260500	252200	275000
MIN	198100	193700	191700	189700	188200	192000	187000	185500	259900	251000	246000	240600
(†)	922.12	921.76	921.60	921.63	921.77	921.65	921.24	926.29	926.32	925.70	925.45	926.41
(Φ)	-6200	-4800	-2100	+400	+1900	-1600	-5400	+73300	+500	-9800	-3900	+15200
(††)	393	81	452	299	157	242	409	371	867	1400	2030	1360

CAL YR 1988 MAX 247900 MIN 191700 (Φ) -56900 (††) 8300
WTR YR 1989 MAX 275000 MIN 185500 (Φ) +57500 (††) 8060

(†) Gage height, in feet, at end of month.
(Φ) Change in contents, in acre-feet.
(††) Diversions, in acre-feet, for municipal use by the city of Wichita Falls.

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 82Z 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 except those for period computed from observer readings and for period affected by ice, which are fair. Flow largely regulated by Lake Arrowhead 39 mi upstream (capacity 262,100 acre-ft). The city of Wichita Falls diverted 12,560 acre-ft from Lake Kickapoo and 8,060 acre-ft from Lake Arrowhead for municipal uses, and returned 10,880 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 467 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); 23 years (water years 1967-89) regulated, 50.5 ft³/s (36,590 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,630 ft³/s May 1, 1966 (gage height, 18.28 ft, at former site); * maximum gage height, 23.95 ft May 24, 1982, at present site; 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, 2,490 ft³/s June 8 at 0430 hours (gage height, 22.25 ft); 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	.00	.07	.00	.00	e2.9	.00	.00	59	6.4	.92	.00
2	.00	.00	.00	.00	.00	e1.3	.00	.00	17	5.1	.00	15
3	.00	.00	.00	.00	.00	e.75	.00	.00	9.0	4.2	.00	18
4	.00	.00	.00	.00	.00	e.45	.00	.00	93	3.2	.00	19
5	.00	.00	.00	.00	e.00	e.40	.00	.00	199	2.1	.00	20
6	.00	.00	.00	.00	e.00	e.38	.00	.00	391	.00	.00	20
7	.00	.00	.00	.00	e.00	e.38	.00	.00	1470	.00	.00	11
8	.00	.00	.00	.00	e.00	e3.2	.00	.00	2380	.00	.00	4.4
9	.00	.00	.00	.00	e.00	e7.2	.00	.00	2310	.00	.00	.53
10	.00	.00	.00	.00	e.00	e13	.00	.00	2280	.00	.00	3.6
11	.00	.00	.00	.00	e.00	e5.2	.00	.00	2430	.00	.98	49
12	.00	.00	.00	.00	e.00	e4.0	.00	.00	2250	.00	2.0	11
13	.00	.00	.00	.00	e.00	e2.0	.00	.00	2210	.00	2.0	345
14	.00	.00	.00	.00	e.00	e.45	.00	.00	2360	.00	1.7	681
15	.00	.00	.00	.00	e.00	.16	.00	.00	2400	.00	1.2	910
16	.00	.00	.00	.00	e16	.00	.00	141	2360	.00	.0	803
17	.00	.00	.00	.00	e56	.00	.00	82	2240	.00	.00	1220
18	.00	7.2	.00	.00	e150	.00	.00	38	1990	.00	.00	1700
19	.00	11	.00	.00	e122	.00	.00	12	1290	3.5	.00	2010
20	.00	12	.00	.00	e58	.00	.00	7.3	599	.00	.00	2120
21	.00	15	.00	.00	e24	.00	.00	4.3	409	.00	.00	2100
22	.00	15	.00	.00	e15	.00	.00	26	316	.00	.00	1920
23	.00	15	.00	.00	e10	.00	.00	56	161	.00	.00	1160
24	.00	16	.00	.00	e6.8	.00	1.5	52	88	.00	.00	439
25	.00	17	.00	.00	e4.1	.00	5.3	158	61	.00	.00	341
26	.00	17	.00	.00	e4.1	.00	3.5	71	39	1.9	.00	219
27	.00	15	.00	.00	e4.0	.00	.00	20	27	14	.00	131
28	.00	5.6	.00	.00	e4.0	.00	.00	12	19	13	.00	88
29	.00	1.4	.00	.00	---	.00	.00	122	12	13	.00	63
30	.00	.51	.00	.00	---	.00	.00	171	8.2	13	.00	47
31	.00	---	.00	.00	---	.00	---	120	---	11	.00	---
TOTAL	0.00	147.71	0.07	0.00	474.00	41.77	10.30	1092.60	30477.2	90.40	8.80	16468.53
MEAN	.00	4.92	.002	.00	16.9	1.35	.34	35.2	1016	2.92	.28	549
MAX	.00	17	.07	.00	150	13	5.3	171	2430	14	2.0	2120
MIN	.00	.00	.00	.00	.00	.00	.00	.00	8.2	.00	.00	.00
AC-FT	.0	293	.1	.0	940	83	20	2170	60450	179	17	32670

CAL YR 1988 TOTAL 1312.71 MEAN 3.59 MAX 401 MIN .00 AC-FT 2600
WTR YR 1989 TOTAL 48811.38 MEAN 134 MAX 2430 MIN .00 AC-FT 96820

e Estimated.

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.--No estimated daily discharges. Records good. There are no known diversions upstream from station.

AVERAGE DISCHARGE.--25 years (water years 1965-89), 29.2 ft³/s (2.23 in/yr), 21,160 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)
May 16	2200	*16,960	*29.05	June 8	0600	5,660	25.55
May 18	1600	3,370	24.00	June 15	0750	1,100	19.75
June 5	1320	3,900	24.40				

Minimum discharge, no flow for a few 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	.15	.21	.04	.07	.12	.04	.35	.01	1.8	3.0	.18	.01
2	.11	.18	.03	.07	.11	.05	.35	.01	.73	2.6	.17	.01
3	.07	.15	.03	.07	.08	.05	.29	.66	.48	2.1	.17	.01
4	.05	.12	.03	.07	.07	.06	.26	130	302	1.8	.16	.03
5	.04	.08	.02	.07	.07	.08	.25	41	2240	1.6	.14	.02
6	.01	.05	.02	.07	.07	.09	.23	43	1400	1.3	.14	.01
7	.01	.04	.02	.08	.07	.08	.15	27	1520	1.1	.35	.00
8	.01	.04	.02	.08	.06	.13	.12	3.9	4000	.99	.29	.00
9	.01	.04	.03	.07	.04	14	.11	.84	1360	.77	3.1	.01
10	.01	.04	.04	.07	.04	54	.09	.31	212	.68	2.5	.02
11	.01	.05	.14	.07	.05	32	.07	.14	343	.60	1.4	.63
12	.01	.17	.11	.06	.05	12	.08	.15	302	.60	.70	.80
13	.00	.07	.08	.06	.07	5.9	.10	.15	490	.52	.45	93
14	.00	.06	.07	.07	.09	3.6	.13	.05	740	.62	.37	332
15	.01	.06	.06	.07	.46	2.2	.11	.04	941	.63	.36	234
16	.01	.06	.04	.07	.65	1.9	.14	3510	146	.58	.28	45
17	.01	.05	.04	.08	51	1.4	.18	5640	51	.47	.24	15
18	.01	.06	.04	.07	168	1.5	.24	2430	30	.39	.27	7.6
19	.01	.16	.03	.08	106	1.3	.26	1560	21	.40	2.8	4.4
20	.02	.06	.03	.07	13	1.1	.24	321	16	.32	1.6	2.8
21	.03	.05	.04	.07	2.0	.87	.22	38	12	.30	.72	1.7
22	.03	.06	.04	.07	.69	.78	.17	16	10	.30	.49	.99
23	.04	.06	.05	.06	.34	.68	.14	7.6	8.6	.29	.36	.72
24	.04	.06	.05	.07	.21	.63	.16	4.1	7.2	.28	.20	.58
25	.04	.06	.05	.09	.20	.60	.16	2.1	6.2	.26	.13	.53
26	1.3	.06	.06	.11	.18	.57	.15	1.1	5.4	.25	.10	.45
27	1.7	.05	.07	.12	.11	.54	.09	78	4.7	.23	.06	.39
28	.43	.04	.06	.47	.06	.57	.09	81	4.3	.22	.05	.36
29	.18	.04	.06	.47	---	.61	.11	87	3.8	.21	.04	.32
30	.21	.04	.06	.26	---	.54	.06	19	3.4	.20	.03	.27
31	.21	---	.06	.15	---	.42	---	5.8	---	.19	.02	---
TOTAL	4.77	2.27	1.52	3.36	343.89	138.29	5.10	14047.96	14182.61	23.80	17.87	741.66
MEAN	.15	.076	.049	.11	12.3	4.46	.17	453	473	.77	.58	24.7
MAX	1.7	.21	.14	.47	168	54	.35	5640	4000	3.0	3.1	332
MIN	.00	.04	.02	.06	.04	.04	.06	.01	.48	.19	.02	.00
AC-FT	9.5	4.5	3.0	6.7	682	274	10	27860	28130	47	35	1470
CFSM	.00	.00	.00	.00	.07	.03	.00	2.55	2.66	.00	.00	.14
IN.	.00	.00	.00	.00	.07	.03	.00	2.94	2.96	.00	.00	.15

CAL YR 1988	TOTAL	421.76	MEAN	1.15	MAX	70	MIN	.00	AC-FT	837	CFSM	.01	IN.	.09
WTR YR 1989	TOTAL	29513.10	MEAN	80.9	MAX	5640	MIN	.00	AC-FT	58540	CFSM	.45	IN.	6.17

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.--51 years (water years 1939-89), 2,319 ft³/s (1,680,000 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)
June 6	1415	28,700	16.53	June 15	0800	*65,400	*20.22
June 9	1110	54,600	20.03	Sept. 14	2400	37,900	17.35

Minimum discharge, 309 ft³/s May 2.

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	2430	606	616	522	665	690	2520	315	2570	4690	773	902
2	1720	645	603	521	e480	837	1890	324	2610	4520	750	935
3	1380	625	596	514	e400	844	1830	371	3090	4400	743	1070
4	1230	618	580	500	e370	703	1310	392	7630	4310	911	998
5	1110	581	565	490	e360	527	1110	730	19200	4050	1050	768
6	1040	572	571	488	e340	418	899	1100	27500	3970	916	754
7	986	566	575	469	e340	476	738	1830	22500	3720	952	984
8	892	558	540	446	e350	626	650	1720	37500	3650	907	1180
9	860	551	572	498	375	1010	581	1000	50800	3340	1240	889
10	832	537	558	518	428	1360	541	823	34400	2070	2940	925
11	836	564	588	529	467	1440	499	692	22500	1290	4010	2340
12	816	557	668	495	538	961	499	623	18300	1190	2720	2330
13	794	582	815	436	500	678	488	628	26400	1130	1930	12300
14	771	677	828	457	493	576	502	805	50600	1170	1490	33600
15	754	623	778	454	1220	503	495	1670	62600	1410	1280	33500
16	768	630	748	470	2370	483	468	4890	52900	1920	1320	17900
17	751	599	714	488	2620	445	443	9480	42600	2050	1100	12300
18	715	597	689	504	4510	394	438	14700	24200	1380	928	11100
19	668	597	665	497	5450	383	412	17300	17300	1180	878	9840
20	610	598	631	483	3710	381	388	16000	14600	1070	862	6720
21	576	592	607	438	2200	349	423	10600	11200	990	889	5690
22	565	596	589	425	1480	365	409	8800	10000	943	755	5360
23	556	614	578	417	1370	420	388	5500	8110	889	696	5160
24	545	619	578	415	1250	592	357	4450	6970	855	705	4400
25	555	637	560	420	1120	617	339	3780	7160	821	691	3310
26	572	628	551	381	879	615	332	3300	6920	821	657	2960
27	565	633	540	352	775	611	337	3070	6530	830	660	2630
28	577	646	512	413	718	585	335	2820	5990	846	745	2520
29	573	650	510	456	---	612	325	2690	5650	952	762	2630
30	572	631	524	614	---	2340	314	2670	5110	872	906	2570
31	608	---	528	744	---	4050	---	2610	---	813	933	---
TOTAL	26227	18129	18977	14854	35778	24891	20260	125683	613440	62142	36099	188565
MEAN	846	604	612	479	1278	803	675	4054	20450	2005	1164	6285
MAX	2430	677	828	744	5450	4050	2520	17300	62600	4690	4010	33600
MIN	545	537	510	352	340	349	314	315	2570	813	657	754
AC-FT	52020	35960	37640	29460	70970	49370	40190	249300	1217000	123300	71600	374000

CAL YR 1988 TOTAL 652274 MEAN 1782 MAX 31900 MIN 278 AC-FT 1294000
WTR YR 1989 TOTAL 1185045 MEAN 3247 MAX 62600 MIN 314 AC-FT 2351000

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.
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, 9,120 microsiemens Dec. 19; minimum daily, 720 microsiemens June 9.
WATER TEMPERATURE: Maximum daily, 30.0°C June 28, July 19, 24, Aug. 1; minimum daily, 0.0°C on several days during February and March.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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 WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
NOV 30...	0915	653	4210	8.00	8.0	830	600	200	81
JAN 24...	1120	411	6770	8.00	9.5	1300	1200	330	120
MAR 14...	1510	576	5040	8.30	20.5	830	730	200	81
MAY 18...	1510	15400	4720	8.10	21.5	580	480	160	45
JUN 08...	1445	36600	1370	8.10	23.0	290	200	85	20
AUG 09...	1215	1320	3510	8.50	26.0	620	530	150	59

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
NOV 30...	600	9	5.8	236	600	940	0.40	6.8	2580
JAN 24...	990	12	8.2	164	1100	1700	0.30	2.5	4350
MAR 14...	870	14	7.5	102	700	1300	0.30	0.70	3220
MAY 18...	680	13	8.1	105	480		0.40	9.7	1870
JUN 08...	200	5	6.9	95	190	320	0.20	8.7	888
AUG 09...	530	10	6.9	92	550	820	0.40	4.0	2180

07315500 RED RIVER NEAR TERRAL, OK--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	26227	4670	2830	200000	1100	79000	600	42500	860
NOV.	1988	18129	5100	3100	152000	1200	60500	650	31900	930
DEC.	1988	18977	7040	4400	225000	1900	95100	870	44500	1200
JAN.	1989	14854	6540	4050	163000	1700	67500	820	32800	1100
FEB.	1989	35778	3380	2050	198000	810	78100	430	42000	620
MAR.	1989	24891	4540	2750	185000	1100	73000	580	39200	840
APR.	1989	20260	4630	2810	154000	1100	61000	590	32500	850
MAY	1989	125683	3070	1820	619000	690	233600	400	136700	590
JUNE	1989	613440	1530	894	1481000	320	527900	210	342800	310
JULY	1989	62142	2960	1760	296000	660	111100	390	65500	580
AUG.	1989	36099	4390	2660	259000	1000	101700	570	55100	810
SEPT	1989	188565	1920	1130	574000	410	209400	260	130600	380
TOTAL		1185045	**	**	4505000	**	1698000	**	996000	**
WTD.AVG.		3247	2370	1410	**	530	**	310	**	460

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3240	e5190	7340	6400	4540	6840	2450	6470	4630	2690	4290	5020
2	3680	e5170	7170	6540	e5000	5480	2850	6520	4250	2380	4450	4470
3	3920	5160	6940	6370	e5500	5030	4130	5690	3720	2230	e4500	e4000
4	4230	5600	e6850	6290	e6500	e5180	3870	5390	e1200	e2200	4550	3550
5	4390	5230	6570	6390	e6600	e5330	4660	5520	1090	2150	4730	4030
6	4570	5240	6570	6450	e6700	e5480	5080	2930	1250	2080	3520	4230
7	4680	5020	6510	6710	e6800	e5630	5050	2930	2570	2040	4030	4460
8	4740	5280	e6540	e6740	6870	e5780	5010	2400	1560	2040	3990	5690
9	4770	5360	6570	6760	7830	5930	5070	3180	720	2100	3760	4020
10	4790	5320	5680	6450	7750	3220	5180	4390	e750	2560	3490	3530
11	4800	5220	5910	6610	6790	3040	5090	5330	780	3870	2860	2810
12	4800	4910	5760	6980	e6900	3540	5380	e5560	870	4280	3220	1560
13	4880	5090	5500	6930	7310	4280	e5100	5790	840	4580	e4000	960
14	5020	5360	5690	6660	e6500	4840	5070	5980	1370	4510	4640	1080
15	e5020	4560	5930	e6630	3740	5330	5110	3990	1820	4120	4790	1660
16	e5030	5080	6500	6600	3440	5500	5380	2530	2110	3620	e4500	1420
17	5030	5190	7460	6510	2170	5840	5580	4010	1550	4010	3890	e1610
18	5130	4780	8650	6520	1420	5950	5880	2750	1440	2750	4100	1810
19	5420	e5000	9120	6460	1180	e5920	5720	1340	1610	3790	4380	2160
20	5340	5220	8640	6520	1550	5880	5710	3810	1770	4060	e4710	1910
21	5370	5070	8580	6530	2200	e5900	e5710	2450	1870	4540	5210	1840
22	5480	4520	8670	6550	3320	6160	5950	3000	2040	4390	7140	2000
23	e5450	4420	8100	6720	3850	6000	6240	2650	2130	4600	6650	2090
24	e5420	e4620	7910	6870	4930	4340	6370	2660	2250	4830	6100	e2600
25	e5390	4840	7380	6850	5640	4250	6540	2860	2170	4350	e6070	3170
26	e5360	5100	7590	6750	7230	4070	6420	3050	2180	e4400	6040	3360
27	e5330	5230	7200	6680	7380	3980	6260	3470	2260	4470	6000	3640
28	e5300	5050	7360	6380	7040	3960	6380	e3900	2330	4470	5850	4430
29	e5280	5330	e7000	e6300	---	4100	6440	4380	2340	4500	5910	4540
30	e5250	5760	6670	6210	---	4850	6490	4310	2350	4570	6360	4500
31	e5220	---	6700	6090	---	3140	---	4430	---	4080	5500	---
MEAN	4910	5100	7070	6560	5240	4990	5340	3990	1930	3590	4810	3070

e Estimated

07315500 RED RIVER NEAR TERRAL, OK--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	e20.0	12.0	12.0	13.0	9.0	15.0	18.0	26.0	28.0	30.0	26.0
2	19.0	e20.0	15.0	12.0	e3.0	10.0	17.0	18.0	24.0	23.0	27.0	26.0
3	21.0	21.0	14.0	11.0	e1.0	13.0	18.0	18.0	23.0	27.0	e27.0	e25.0
4	21.0	21.0	e12.0	11.0	e.0	e6.0	17.0	19.0	e23.0	e27.0	26.0	25.0
5	20.0	15.0	10.0	13.0	e.0	e.0	15.0	e18.0	22.0	27.0	28.0	26.0
6	18.0	16.0	8.0	15.0	e.0	e.0	21.0	18.0	23.0	28.0	27.0	27.0
7	19.0	23.0	13.0	14.0	e1.0	e.0	18.0	20.0	23.0	28.0	26.0	27.0
8	18.0	20.0	e10.0	e11.0	4.0	e1.0	18.0	22.0	23.0	28.0	23.0	25.0
9	18.0	20.0	6.0	8.0	6.0	7.0	13.0	24.0	24.0	27.0	24.0	26.0
10	18.0	20.0	9.0	9.0	5.0	15.0	12.0	21.0	e24.0	27.0	25.0	23.0
11	18.0	15.0	8.0	15.0	7.0	12.0	13.0	20.0	24.0	27.0	24.0	25.0
12	19.0	14.0	12.0	9.0	e7.0	19.0	13.0	e18.0	25.0	28.0	24.0	24.0
13	18.0	19.0	8.0	7.0	7.0	16.0	e13.0	18.0	25.0	28.0	e24.0	19.0
14	17.0	19.0	11.0	8.0	e6.0	17.0	15.0	21.0	23.0	28.0	24.0	19.0
15	e18.0	22.0	8.0	e7.0	6.0	17.0	15.0	20.0	23.0	28.0	24.0	17.0
16	e20.0	13.0	7.0	5.0	5.0	13.0	17.0	22.0	24.0	29.0	e24.0	17.0
17	22.0	14.0	7.0	10.0	5.0	21.0	18.0	19.0	24.0	29.0	26.0	e18.0
18	22.0	15.0	12.0	13.0	5.0	19.0	18.0	20.0	25.0	27.0	27.0	21.0
19	17.0	e13.0	11.0	14.0	7.0	e17.0	17.0	22.0	26.0	30.0	26.0	23.0
20	17.0	10.0	12.0	10.0	7.0	15.0	20.0	25.0	26.0	27.0	e26.0	24.0
21	18.0	10.0	12.0	8.0	7.0	e15.0	e21.0	25.0	26.0	26.0	27.0	23.0
22	20.0	10.0	12.0	8.0	10.0	14.0	26.0	25.0	27.0	26.0	25.0	20.0
23	e20.0	11.0	13.0	17.0	9.0	12.0	21.0	26.0	27.0	26.0	26.0	20.0
24	e20.0	e13.0	10.0	14.0	9.0	15.0	22.0	26.0	23.0	30.0	28.0	e19.0
25	e20.0	16.0	8.0	15.0	11.0	15.0	25.0	27.0	27.0	27.0	e28.0	18.0
26	e20.0	15.0	15.0	9.0	e10.0	26.0	27.0	27.0	26.0	e27.0	28.0	19.0
27	e20.0	12.0	13.0	9.0	10.0	20.0	25.0	23.0	27.0	27.0	29.0	20.0
28	e20.0	16.0	6.0	10.0	8.0	17.0	25.0	e23.0	30.0	28.0	29.0	21.0
29	e20.0	10.0	e8.0	e12.0	---	19.0	20.0	24.0	28.0	28.0	28.0	20.0
30	e20.0	12.0	10.0	18.0	---	19.0	19.0	25.0	28.0	29.0	27.0	24.0
31	e20.0	---	10.0	11.0	---	18.0	---	25.0	---	26.0	26.0	---
MEAN	19.5	16.0	10.5	11.0	6.0	13.5	18.5	22.0	25.0	27.5	26.0	22.0

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, 17,740 acre-ft Sept. 26, 1980 (elevation, 709.67 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 26,290 acre-ft May 16 at 1000 hours (elevation, 717.61 ft); minimum, 20,610 acre-ft Nov. 19 (elevation, 712.58 ft).

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

712.0	20,010	715.0	23,210	717.0	25,550
713.0	21,040	716.0	24,360	718.0	26,770
714.0	22,110				

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21080	20770	20660	20820	21870	23020	23360	22930	23030	23020	22820	22660
2	21080	20760	20650	20820	21890	23020	23270	22910	23020	23020	22820	22640
3	21060	20760	20650	20820	21870	23000	23210	22970	23000	23020	22810	22710
4	21050	20750	20640	20820	21860	23020	23130	23110	24750	23000	22780	22700
5	21020	20730	20630	20820	21890	23090	23110	23180	24030	22990	22760	22680
6	20990	20700	20620	20810	21890	23060	23090	23130	23660	22970	22750	22660
7	20970	20700	20650	20810	21890	23040	23070	23110	24610	22970	22740	22640
8	20970	20690	20650	20790	21890	23140	23040	23090	24130	22970	22730	22600
9	20960	20680	20650	20780	21890	23770	23020	23040	23760	22950	22700	22560
10	20940	20670	20670	20780	21900	23770	22980	23020	23570	22920	22690	22560
11	20930	20660	20710	20770	21910	23600	22980	23010	23440	22900	22680	22700
12	20900	20680	20740	20760	21910	23450	22970	23040	23930	22900	22670	22700
13	20890	20680	20740	20760	21920	23340	22990	23040	25050	22880	22660	23600
14	20860	20670	20740	20760	21920	23240	23020	23060	24330	22970	22690	23370
15	20850	20670	20720	20760	22150	23190	23030	23020	23880	22990	22690	23240
16	20830	20650	20710	20760	22340	23150	23020	25400	23620	22990	22900	23150
17	20830	20640	20710	20760	23800	23140	23010	25880	23460	22970	22960	23090
18	20810	20630	20720	20760	23700	23090	23010	24630	23380	22950	22960	23040
19	20790	20690	20710	20760	23530	23080	23010	24010	23310	22950	22930	23010
20	20780	20660	20710	20730	23410	23030	23010	23700	23240	22910	22910	22980
21	20780	20650	20700	20730	23290	23030	23020	23510	23200	22890	22890	22970
22	20790	20640	20760	20730	23200	23030	23010	23380	23150	22880	22870	22950
23	20770	20630	20740	20730	23150	23030	23000	23290	23140	22870	22870	22920
24	20740	20630	20740	20750	23120	23020	22980	23230	23120	22850	22840	22900
25	20730	20730	20730	21200	23100	23020	22970	23180	23100	22820	22820	22880
26	20780	20720	20730	21250	23090	23020	22970	23110	23080	22850	22800	22870
27	20740	20700	20800	21310	23060	23070	22970	23180	23070	22870	22780	22860
28	20730	20690	20800	21740	23040	23520	22980	23150	23060	22870	22760	22850
29	20730	20680	20800	21800	---	23800	22960	23100	23030	22870	22750	22810
30	20750	20670	20800	21850	---	23620	22930	23080	23020	22850	22730	22800
31	20760	---	20820	21900	---	23450	---	23060	---	22840	22690	---
MAX	21080	20770	20820	21900	23800	23800	23360	25880	25050	23020	22960	23600
MIN	20730	20630	20620	20730	21860	23000	22930	22910	23000	22820	22660	22560
(†)	712.73	712.64	712.79	713.80	714.85	715.21	714.75	714.86	714.83	714.66	714.53	714.63
(ϕ)	-320	-90	+150	+1080	+1140	+410	-520	+130	-40	-180	-150	+110

CAL YR 1988 MAX 23270 MIN 20620 (ϕ) -2240
WTR YR 1989 MAX 25880 MIN 20620 (ϕ) +1720

(†) 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.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1936 to current year. Monthly discharge only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 627.91 ft 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 fair. Flow slightly regulated by Lake Kemp (station, 07312000), since 1943 by Lake Altus (capacity, 72,500 acre-ft, in Oklahoma), since 1946 by Lake Kickapoo (station 07314000), since 1967 by Lake Arrowhead (station 07314800), and since 1967 by Moss Lake (station 07315950). U.S. Army Corps of Engineers satellite telemeter at station.

COOPERATION.--Gage-height record and 9 discharge measurements provided by U.S. Army Corps of Engineers, records computed by U.S. Geological Survey.

AVERAGE DISCHARGE.--53 years, 3,006 ft³/s (2,178,000 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)
May 19	1630	38,700	18.29	June 16	1200	69,800	22.98
June 10	0900	*76,100	*23.88	Sept. 16	0100	45,800	19.48

Minimum daily discharge, 367 ft³/s May 2.

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	2540	693	483	471	611	1130	3000	370	2060	6410	999	711
2	2720	640	479	474	744	1040	3910	367	1900	5810	939	766
3	2500	651	469	474	738	987	2830	404	1950	5580	919	763
4	1890	611	463	459	585	1090	2270	552	8150	5150	887	816
5	1580	603	457	457	e400	e1000	2130	888	20300	4890	852	886
6	1400	587	450	450	e400	e1000	1720	1280	39200	4610	843	873
7	1260	573	452	440	e430	1020	1490	1430	38800	4360	1100	740
8	1170	553	452	428	444	758	1270	1670	43800	4380	970	652
9	1100	534	456	428	470	1430	1070	2020	65900	4020	983	703
10	1040	526	468	428	479	2840	920	1950	72900	3710	941	922
11	998	517	579	440	477	e4800	826	1340	46200	3140	1080	1120
12	1020	535	627	454	455	4960	757	1070	34500	2240	2150	4630
13	e1030	521	582	461	473	3660	709	1000	36100	1770	3240	8060
14	1040	510	608	485	530	1990	715	914	48400	1670	2570	22800
15	e1000	501	616	481	766	1320	742	948	61200	1640	2050	43600
16	e950	519	627	464	1660	1050	705	5420	69000	1620	1670	41700
17	e900	547	624	459	4670	919	649	11100	64700	1670	1540	20900
18	e870	539	604	467	8210	801	606	25900	49800	2000	1410	11700
19	e850	593	573	480	9140	731	569	32300	31300	2050	1250	9860
20	e800	553	562	484	9740	683	538	37900	20100	1910	1070	8720
21	786	543	534	474	8010	600	505	24600	14500	1570	959	7880
22	712	525	547	463	4620	575	477	8210	11400	1380	903	e6200
23	e690	501	532	460	2910	760	443	10500	9860	1260	908	e5700
24	e660	477	525	452	2220	635	433	7010	8920	1170	846	e5000
25	e630	505	510	684	1950	577	419	6110	8240	1110	776	e4500
26	605	522	503	806	1710	690	400	4810	7890	1060	737	e4000
27	574	583	511	542	1500	808	387	4080	e7300	1090	713	e3600
28	581	522	522	820	1260	1620	380	3640	e7000	1110	672	e3200
29	599	495	483	648	---	2330	371	3040	6840	1030	643	e3000
30	665	486	466	578	---	2660	373	2580	6710	986	653	e2800
31	713	---	467	625	---	1710	---	2270	---	1020	684	---
TOTAL	33873	16465	16231	15736	65602	46174	31614	205673	844920	81416	35957	226802
MEAN	1093	549	524	508	2343	1489	1054	6635	28160	2626	1160	7560
MAX	2720	693	627	820	9740	4960	3910	37900	72900	6410	3240	43600
MIN	574	477	450	428	400	575	371	367	1900	986	643	652
AC-FT	67190	32660	32190	31210	130100	91590	62710	408000	1676000	161500	71320	449900

CAL YR 1988 TOTAL 896360 MEAN 2449 MAX 32900 MIN 247 AC-FT 1778000
WTR YR 1989 TOTAL 1620463 MEAN 4440 MAX 72900 MIN 367 AC-FT 3214000

e Estimated.

07316000 RED RIVER NEAR GAINESVILLE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: May 1944 to April 1946, October 1952 to September 1964, October 1966 to August 1989 (discontinued). Chemical and biochemical analyses: January 1968 to September 1986. Pesticide analyses: April 1968 to September 1982. Sediment analyses: January 1978 to September 1986.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: May 1944 to April 1946, October 1952 to September 1964, October 1966 to September 1989.
WATER TEMPERATURE: October 1952 to September 1963, October 1966 to September 1989.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 11,100 microsiemens July 16, 1972, and June 19, 1984; minimum daily, 176 microsiemens Nov. 4, 1958.
WATER TEMPERATURE: Maximum daily, 35.0°C on several days during summer months; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 6,830 microsiemens Dec. 24; minimum daily, 286 microsiemens May 17.
WATER TEMPERATURE: Maximum daily, 33.5°C Aug. 24; minimum daily, 0.5°C Feb. 6.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
NOV									
01...	1630	703	4750	8.20	21.0	790	190	77	720
DEC									
21...	0815	548	5720	8.50	8.0	1000	250	91	870
FEB									
01...	1115	550	5000	8.20	14.5	970	240	89	760
MAR									
22...	1000	587	4350	8.10	7.5	770	180	77	690
MAY									
10...	0915	1980	2360	7.80	20.0	410	110	34	300
JUN									
28...	0935	7250	2120	8.20	26.5	490	130	41	250
AUG									
16...	1730	1860	4210	8.00	27.0	660	180	50	650

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
NOV								
01...	11	7.2	117	670	1100	0.30	3.3	2840
DEC								
21...	12	6.6	135	830	1300	0.40	9.0	3440
FEB								
01...	11	7.3	167	700	1300	0.40	1.6	3200
MAR								
22...	11	6.8	167	620	1100	0.30	3.6	2780
MAY								
10...	6	6.3	95	260	530	0.30	6.2	1300
JUN								
28...	5	6.6	162	350	360	0.40	9.7	1240
AUG								
16...	11	8.5	107	550	1000	0.40	9.0	2510

07316000 RED RIVER NEAR GAINESVILLE, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	33873	3870	2320	212000	940	86400	470	42600	720
NOV.	1988	16465	4610	2780	124000	1100	50800	560	24700	850
DEC.	1988	16231	4990	3030	133000	1300	55000	600	26400	910
JAN.	1989	15736	4580	2790	118000	1200	49000	550	23500	830
FEB.	1989	65602	1720	1010	179000	400	70900	210	36500	330
MAR.	1989	46174	2470	1460	182000	580	72500	300	36900	470
APR.	1989	31614	3170	1880	160000	760	64300	380	32300	600
MAY	1989	205673	1810	1060	588000	420	231600	220	119900	350
JUNE	1989	844920	1240	719	1640000	280	638000	150	336400	240
JULY	1989	81416	2660	1570	345000	630	137500	320	69900	510
AUG.	1989	35957	4100	2460	239000	1000	97400	490	47800	760
SEPT	1989	226802	1580	926	567000	360	222800	190	115600	310
TOTAL		1620463	**	**	4489000	**	1776000	**	913000	**
WTD.AVG.		4440	1750	1030	**	410	**	210	**	340

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2340	4760	4540	5550	2840	2960	2420	1060	3400	2350	4100	5560
2	2340	4790	4770	5610	3320	2990	3430	2200	3590	2370	4150	5560
3	3100	4870	5000	5770	3800	3070	2260	3750	3600	2390	4020	5850
4	3070	4870	5210	5790	4280	3140	2370	4490	888	2480	4060	5670
5	3290	4800	5240	5730	4760	3220	3710	3210	959	2300	3910	4450
6	3870	4840	5660	5600	5240	3290	3610	3340	826	2320	3970	4410
7	3800	4900	5600	5410	3340	3370	3310	2660	1000	2250	4070	3810
8	3730	4900	5150	5460	3660	3410	3620	3500	1430	2160	4230	3400
9	3980	4950	5300	5390	3920	2640	4120	3740	937	2020	4560	3500
10	4080	5060	4690	5320	3960	2190	4010	2260	686	2060	3720	3970
11	4210	4910	4010	5490	4110	2140	3930	2570	679	2070	3780	4230
12	4350	4760	4270	5620	2420	1850	4020	3070	677	2130	3890	3080
13	4340	4910	4160	5710	4350	1470	3920	2860	679	2310	3500	954
14	4390	5090	4510	5570	2370	1850	3290	3320	580	2480	3450	757
15	4440	4990	4680	5560	633	2210	3720	3780	1550	3420	3240	1070
16	4480	5210	4660	5530	3310	2920	3680	844	1770	3590	4050	1420
17	4610	5080	4740	5890	1150	3540	3680	286	1770	3890	4210	1320
18	4590	5150	4810	5820	1120	3130	3710	1340	1460	3850	4080	1220
19	4700	2810	4910	5890	1310	3680	3600	1220	1390	3650	4350	1360
20	4760	2500	2970	5890	1090	3850	3640	1480	1440	3510	4020	1770
21	4700	4630	3460	5780	950	4060	3580	2090	1560	2930	3690	1890
22	4700	4630	4120	5890	1150	4230	3490	2510	1680	2880	3770	1930
23	4780	4660	3840	5750	1560	4300	3320	2620	1770	3220	4130	1760
24	4880	4510	6830	5690	2050	4240	3140	2580	1960	3380	4420	1810
25	4900	4620	6790	2840	2610	4100	2600	2500	2030	3850	4670	1920
26	4890	4120	6670	1070	3070	4300	2120	2400	2100	3820	4790	2130
27	4940	4090	6370	1870	3810	4470	1820	1920	2120	3800	5780	2670
28	4950	3920	5880	1880	4160	887	1250	2450	2130	3730	5910	3010
29	4770	4380	5850	551	---	701	1200	2670	2190	3780	5720	3430
30	4850	4540	5760	2780	---	2000	1290	2960	2250	4080	5580	3480
31	4580	---	5590	3650	---	2910	---	3270	---	4160	5490	---
MEAN	4240	4610	5030	4850	2870	3000	3130	2550	1640	3010	4300	2910

07316000 RED RIVER NEAR GAINESVILLE, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

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

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.--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, 5,991,300 acre-ft June 5, 1957 (elevation, 643.18 ft); minimum since power pool was first filled, 1,565,100 acre-ft Sept. 16, 1964; minimum elevation, 599.96 ft Mar. 1, 2, 1957.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 4,185,000 acre-ft June 19 (elevation, 631.56 ft); minimum, 2,320,000 acre-ft Feb. 9 (elevation, 612.97 ft).

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

610	2,105,000	622	3,117,000
614	2,399,000	627	3,649,000
617	2,643,000	632	4,240,000

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
2400-HR VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2539000	2482000	2387000	2377000	2409000	2569000	2558000	2441000	2765000	3481000	2665000	2490000
2	2544000	2476000	2384000	2377000	2421000	2564000	2563000	2442000	2749000	3419000	2650000	2489000
3	2546000	2473000	2383000	2376000	2407000	2569000	2560000	2442000	2733000	3349000	2633000	2486000
4	2546000	2470000	2381000	2373000	2386000	2566000	2559000	2428000	2825000	3281000	2616000	2486000
5	2542000	2465000	2375000	2376000	2367000	2550000	2553000	2453000	2878000	3209000	2608000	2485000
6	2540000	2456000	2370000	2374000	2348000	2532000	2550000	2452000	2954000	3137000	2601000	2483000
7	2539000	2453000	2371000	2374000	2328000	2521000	2540000	2450000	3136000	3078000	2599000	2481000
8	2539000	2447000	2367000	2373000	2324000	2521000	2532000	2453000	3260000	3037000	2592000	2477000
9	2537000	2446000	2362000	2370000	2321000	2529000	2525000	2458000	3414000	3012000	2586000	2480000
10	2535000	2441000	2365000	2368000	2322000	2541000	2513000	2462000	3570000	2983000	2580000	2476000
11	2532000	2433000	2366000	2374000	2326000	2558000	2504000	2465000	3646000	2954000	2574000	2489000
12	2526000	2438000	2366000	2367000	2331000	2568000	2501000	2466000	3667000	2925000	2569000	2492000
13	2521000	2434000	2365000	2361000	2334000	2575000	2500000	2473000	3759000	2897000	2568000	2537000
14	2517000	2428000	2367000	2356000	2335000	2580000	2492000	2475000	3853000	2955000	2571000	2570000
15	2514000	2439000	2365000	2357000	2357000	2571000	2490000	2477000	3946000	2943000	2571000	2634000
16	2513000	2429000	2364000	2352000	2383000	2561000	2489000	2551000	4050000	2923000	2570000	2671000
17	2507000	2421000	2364000	2349000	2438000	2554000	2486000	2662000	4139000	2899000	2567000	2758000
18	2502000	2421000	2363000	2348000	2478000	2550000	2478000	2749000	4185000	2882000	2565000	2774000
19	2493000	2435000	2363000	2344000	2509000	2546000	2474000	2805000	4173000	2867000	2560000	2780000
20	2491000	2428000	2367000	2343000	2542000	2542000	2467000	2844000	4141000	2843000	2556000	2782000
21	2487000	2423000	2365000	2339000	2565000	2529000	2466000	2875000	4099000	2825000	2551000	2783000
22	2482000	2417000	2372000	2336000	2577000	2517000	2463000	2895000	4047000	2812000	2546000	2778000
23	2485000	2412000	2375000	2336000	2577000	2502000	2460000	2895000	3990000	2801000	2541000	2766000
24	2484000	2410000	2377000	2336000	2578000	2498000	2456000	2884000	3932000	2788000	2534000	2756000
25	2486000	2414000	2377000	2359000	2579000	2499000	2453000	2870000	3870000	2773000	2528000	2744000
26	2489000	2413000	2379000	2366000	2580000	2497000	2449000	2849000	3807000	2760000	2523000	2733000
27	2492000	2409000	2390000	2364000	2576000	2497000	2447000	2844000	3747000	2744000	2519000	2719000
28	2487000	2400000	2383000	2397000	2573000	2524000	2443000	2831000	3680000	2730000	2513000	2703000
29	2487000	2399000	2380000	2405000	---	2547000	2439000	2813000	3612000	2714000	2509000	2688000
30	2490000	2393000	2377000	2408000	---	2564000	2441000	2795000	3549000	2699000	2502000	2674000
31	2486000	---	2377000	2409000	---	2565000	---	2781000	---	2690000	2498000	---
MAX	2546000	2482000	2390000	2409000	2580000	2580000	2563000	2895000	4185000	3481000	2665000	2783000
MIN	2482000	2393000	2362000	2336000	2321000	2497000	2439000	2428000	2733000	2690000	2498000	2476000
(†)	615.11	613.93	613.72	614.13	616.19	616.09	614.54	618.52	626.10	617.52	615.27	617.35
(ϕ)	-40000	-93000	-16000	+32000	+164000	-8000	-124000	+340000	+768000	-859000	-192000	+176000

CAL YR 1988 MAX 2986000 MIN 2251000 (ϕ) -622000
WTR YR 1989 MAX 4185000 MIN 2321000 (ϕ) +148000

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

07331600 RED RIVER AT DENISON DAM NEAR DENISON, TX

LOCATION.--Lat 33°49'08", long 96°33'47", Grayson County, Hydrologic Unit 11140101, on right bank 1,800 ft downstream from Denison Dam powerhouse, 0.4 mi upstream from Shawnee Creek (spillway flow return), 4.5 mi north of Denison, and at mile 725.5.

DRAINAGE AREA.--39,720 mi², of which 5,936 mi² is probably noncontributing. At site used prior to October 1961, drainage area was 39,777 mi², of which 5,936 mi² probably was noncontributing.

WATER DISCHARGE RECORDS

PERIOD OF RECORD.--October 1923 to current year. Monthly discharge only for some periods, published in WSP 1311. Prior to October 1934, published as "near Denison, TX", and October 1934 to September 1961, published as "near Colbert, OK". Gage-height records collected at various sites in this vicinity 1892-93, 1906-28, 1931-49 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 807: 1935 (M). WSP 1211: Drainage area. WSP 1241: 1924-29, 1932-33, 1934 (M), 1935.

GAGE.--Water-stage recorder. Datum of gage is 500.00 ft above National Geodetic Vertical Datum of 1929. Oct. 9, 1923, to Sept. 24, 1934, nonrecording gage, and July 29, 1942, to Sept. 30, 1961, water-stage recorder, at county road bridge 2.5 mi downstream. Prior to Oct. 1, 1931, at datum 6.85 ft higher; Oct. 1, 1931, to Sept 24, 1934, at datum 7.07 ft higher; and July 29, 1942, to Sept. 30, 1961, at datum 2.64 ft lower; Sept. 25, 1934, to July 28, 1942, water-stage recorder at railway bridge 1.9 mi downstream at datum 7.36 ft higher.

REMARKS.--Records good. Flow regulated since October 1943 by Lake Texoma (station 07331500).

COOPERATION.--Gage-height record and 3 discharge measurements provided by U.S. Army Corps of Engineers; records computed by U.S. Geological Survey.

AVERAGE DISCHARGE.--20 years (water years 1924-43) prior to regulation by Lake Texoma, 5,684 ft³/s (4,118,000 acre-ft/yr); 45 years (water years 1945-89) since regulation by Lake Texoma, 4,782 ft³/s (3,465,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 201,000 ft³/s May 21, 1935 (gage height, 31.8 ft, at site and datum then in use); maximum gage height, 32.0 ft Apr. 25, 1942 (at site and datum used in 1943); minimum daily discharge, 12 ft³/s Jan. 10, 1944.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 26, 1908, reached a stage of 45.5 ft (at site and datum used July 29, 1942 to Sept. 30, 1961); from record of National Weather Service.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 39,700 ft³/s June 22 (gage height, 15.73 ft); minimum daily, 40 ft³/s Feb. 11, 12.

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	315	2830	2870	1290	e1530	e3880	6270	426	10100	39000	9770	3550
2	253	2790	2870	1270	e1920	e3850	6530	326	10500	39000	9750	2780
3	2940	2840	1340	1300	e4780	e3780	4400	440	10500	38900	9770	2810
4	2700	2810	1540	1290	e9200	e6800	6040	990	5450	38900	9830	2790
5	2670	2770	2970	1280	e9250	e9060	6800	1820	2290	38900	5440	2800
6	2600	2800	2920	1280	e9290	e9380	6470	3370	5550	38800	4740	2800
7	2580	2810	2890	1120	e9290	e6470	6490	3400	5660	34700	5530	2780
8	2450	2470	2860	1390	e2660	e3820	3560	2380	8200	26000	4320	2810
9	2560	2430	2230	1340	e1200	e3790	6500	150	10100	18000	4340	2780
10	2190	2430	1650	1320	e420	e3780	6470	88	17200	18000	4320	2800
11	2470	2420	1710	1280	e40	e3770	6490	102	28600	18000	4320	2800
12	2560	2030	1420	2820	e40	e3760	3160	1480	34100	18000	4330	3000
13	2560	2010	1290	3040	e410	e3770	3780	1400	22700	17100	4310	4440
14	2560	2860	1250	2410	e800	e3760	6120	1530	12000	15800	4320	6670
15	2550	1610	1280	1370	e1170	e6400	3080	2510	21900	15300	4450	7710
16	2530	2050	1290	2440	e800	6400	1120	3570	31900	15200	4300	10800
17	4180	3090	503	2450	e790	e6410	2020	5630	34400	15200	4310	10800
18	2970	2860	695	2460	e1550	e3020	3370	345	36400	15200	4320	10600
19	2910	2060	1350	2470	e1540	e3570	1770	5400	39300	15300	4300	10600
20	2900	1940	103	1360	e1530	e6410	3490	10500	39200	14400	4300	10500
21	2900	2800	1260	2520	e1540	e6440	1260	10500	39200	11500	4300	10500
22	2910	2800	100	1360	e3390	e6470	1120	10500	39300	9750	4320	10400
23	214	2820	102	1380	e3800	6470	1090	13300	39200	9740	4310	10400
24	85	1340	98	1870	e3770	3700	1600	16400	39200	9700	4300	10400
25	80	1250	99	2550	e3770	1740	1350	16000	39200	9710	4290	10400
26	93	2670	102	3540	e3770	3380	1610	15000	39100	9740	3570	10500
27	2520	2720	642	2490	e4150	5850	1010	12400	39100	9720	3500	10500
28	2880	2870	2960	e1150	3770	3330	1430	12400	39100	9700	3510	10500
29	2890	2870	2930	e1150	---	3630	943	12400	39000	9710	3530	10500
30	2790	2870	2480	e1520	---	5690	56	11500	39000	9730	3570	10400
31	2880	---	1410	e1520	---	5620	---	10500	---	9780	3590	---
TOTAL	69690	74920	47214	56030	86170	154200	105399	186757	777450	598480	153860	211120
MEAN	2248	2497	1523	1807	3077	4974	3513	6024	25910	19310	4963	7037
MAX	4180	3090	2970	3540	9290	9380	6800	16400	39300	39000	9830	10800
MIN	80	1250	98	1120	40	1740	56	88	2290	9700	3500	2780
AC-FT	138200	148600	93650	111100	170900	305900	209100	370400	1542000	1187000	305200	418800

CAL YR 1988 TOTAL 1824456 MEAN 4985 MAX 20600 MIN 80 AC-FT 3619000
WTR YR 1989 TOTAL 2521290 MEAN 6908 MAX 39300 MIN 40 AC-FT 5001000

e Estimated.

07331600 RED RIVER AT DENISON DAM NEAR DENISON, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: May 1944 to August 1989 (discontinued). Chemical and biochemical analyses: October 1974 to September 1986. Sediment analyses: October 1974 to September 1986.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: May 1944 to September 1989.
WATER TEMPERATURE: October 1945 to September 1989.

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, 3,520 microsiemens Aug. 14, 1944; minimum daily, 656 microsiemens Oct. 16, 1945.
WATER TEMPERATURE (1945-69): Maximum daily, 31.0°C July 17, 1969; minimum daily, 3.0°C Feb. 2-4, 7, 1966.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,880 microsiemens on several days during February and March; minimum daily, 1,200 microsiemens Sept. 1.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
NOV									
01...	1355	2850	1720	8.40	21.0	400	90	42	200
DEC									
20...	1530	103	1840	8.50	12.0	390	91	40	210
FEB									
01...	0900	1530	1830	7.00	9.5	420	100	41	210
MAR									
21...	1620	6430	1860	8.20	9.0	430	100	43	210
MAY									
09...	1740	150	1680	8.40	18.5	400	95	39	190
JUN									
27...	1719	39100	1380	--	25.0	320	82	28	150
AUG									
15...	1435	4370	1180	--	25.0	280	74	23	130

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
NOV								
01...	4	5.2	117	310	310	0.30	5.9	1030
DEC								
20...	5	5.3	106	300	320	0.30	5.1	1040
FEB								
01...	4	5.2	118	330	330	0.30	6.2	1090
MAR								
21...	4	5.0	126	320	350	0.30	5.9	1110
MAY								
09...	4	4.8	120	290	290	0.30	4.6	986
JUN								
27...	4	4.7	116	210	240	0.30	6.7	791
AUG								
15...	3	5.4	112	180	200	0.30	8.3	688

07331600 RED RIVER AT DENISON DAM NEAR DENISON, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	69690	1720	998	188000	340	64300	230	43900	370
NOV.	1988	74920	1770	1030	208000	350	71700	240	48600	370
DEC.	1988	47214	1790	1040	132000	360	45800	240	30900	380
JAN.	1989	56030	1830	1060	161000	370	56100	250	37600	380
FEB.	1989	86170	1860	1080	251000	380	88100	250	58800	390
MAR.	1989	154200	1850	1070	447000	380	156300	250	104600	380
APR.	1989	105399	1760	1020	290000	350	100000	240	67900	370
MAY	1989	186757	1690	975	492000	330	167200	230	115000	360
JUNE	1989	777450	1580	912	1914000	300	639600	210	447500	350
JULY	1989	598480	1340	768	1241000	250	396900	180	290200	310
AUG.	1989	153860	1350	774	322000	250	103100	180	75200	310
SEPT	1989	211120	1270	726	414000	230	130500	170	96700	290
TOTAL		2521290	**	**	6059000	**	2019000	**	1417000	**
WTD.AVG.		6908	1540	890	**	300	**	210	**	340

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1730	1750	1790	1800	1840	1850	1800	1730	1690	1400	1250	1200
2	1690	1750	1780	1800	1840	1860	1810	1730	1690	1400	1280	1220
3	1640	1760	1780	1800	1850	1870	1810	1720	1700	1390	1270	1240
4	1630	1770	1780	1780	1850	1870	1800	1730	1700	1380	1280	1270
5	1660	1770	1780	1800	1860	1870	1770	1720	1710	1370	1250	1290
6	1700	1770	1780	1810	1860	1870	1770	1720	1700	1360	1230	1270
7	1720	1770	1780	1810	1860	1880	1790	1730	1700	1370	1220	1280
8	1740	1770	1790	1810	1860	1870	1780	1730	1690	1350	1440	1290
9	1700	1770	1780	1820	1870	1870	1750	1730	1690	1320	1450	1310
10	1760	1770	1790	1820	1880	1860	1740	1730	1690	1320	1430	1320
11	1720	1770	1800	1820	1880	1860	1740	1720	1680	1330	1440	1330
12	1740	1770	1800	1830	1880	1860	1730	1720	1680	1360	1430	1340
13	1720	1770	1800	1820	1880	1860	1730	1710	1660	1280	1430	1230
14	1740	1770	1790	1820	1870	1870	1730	1700	1670	1300	1420	1230
15	1740	1770	1790	1830	1860	1860	1740	1700	1650	1300	1430	1230
16	1740	1770	1790	1830	1860	1850	1750	1690	1660	1300	1430	1240
17	1740	1770	1800	1830	1880	1850	1750	1690	1660	1310	1420	1240
18	1740	1780	1800	1830	1880	1850	1730	1700	1620	1350	1420	1240
19	1740	1790	1800	1840	1870	1860	1730	1690	1600	1250	1400	1240
20	1740	1780	1800	1850	1870	1860	1740	1690	1590	1270	1400	1230
21	1740	1770	1800	1850	1870	1850	1740	1690	1580	1280	1390	1250
22	1740	1780	1800	1850	1870	1850	1740	1690	1600	1290	1400	1300
23	1740	1770	1790	1850	1870	1840	1740	1690	1570	1290	1380	1290
24	1740	1770	1790	1870	1870	1830	1740	1690	1550	1300	1390	1290
25	1740	1780	1790	1860	1870	1830	1730	1680	1530	1290	1380	1280
26	1740	1780	1800	1860	1870	1820	1730	1680	1520	1260	1370	1280
27	1750	1780	1800	1860	1870	1820	1720	1680	1410	1280	1360	1280
28	1740	1780	1790	1860	1870	1810	1730	1670	1450	1300	1350	1280
29	1740	1780	1800	1850	---	1800	1730	1670	1450	1290	1370	1290
30	1750	1790	1800	1850	---	1800	1730	1670	1420	1280	1330	1300
31	1750	---	1800	1860	---	1800	---	1670	---	1270	1220	---
MEAN	1730	1770	1790	1830	1870	1850	1750	1700	1620	1320	1360	1270

07331600 RED RIVER AT DENISON DAM NEAR DENISON, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.0	20.0	14.5	---	10.0	8.5	---	25.0	27.0	---	27.0	27.0
2	---	20.0	15.5	---	---	8.5	---	25.0	---	25.0	27.0	---
3	23.0	20.5	---	12.0	---	8.5	---	25.0	---	25.0	26.0	---
4	22.0	20.0	---	12.0	---	---	---	25.0	27.0	25.0	26.0	---
5	---	19.0	15.0	12.0	---	---	22.0	---	27.0	26.0	---	25.0
6	23.0	---	15.0	12.0	8.0	8.5	21.5	---	27.0	27.0	---	28.0
7	---	---	15.0	---	7.5	7.5	---	25.5	26.0	---	28.0	27.5
8	---	18.5	15.0	11.0	7.5	7.0	---	---	26.0	---	23.0	27.5
9	---	18.5	---	---	7.5	7.0	22.5	25.5	---	---	25.0	---
10	---	18.5	---	11.0	7.5	7.0	22.0	25.5	---	25.0	25.0	---
11	22.5	---	---	10.0	---	---	22.5	25.5	28.0	28.0	24.0	26.0
12	22.5	---	14.0	9.5	---	---	22.5	---	23.0	27.5	---	26.0
13	22.5	---	13.5	9.5	8.0	7.5	26.0	---	25.0	27.5	---	28.0
14	22.5	---	14.0	---	8.0	7.5	---	25.5	25.0	---	24.0	27.0
15	---	19.5	13.5	---	8.0	8.0	---	25.5	24.0	---	24.5	27.0
16	---	18.0	---	---	8.0	8.5	23.8	25.0	---	26.0	24.0	---
17	22.5	17.0	---	10.0	8.0	10.0	24.1	26.0	---	26.0	24.0	---
18	22.0	18.0	---	10.0	---	---	24.0	---	24.0	28.0	24.0	26.0
19	22.0	19.5	12.0	9.5	---	---	25.0	---	24.5	27.0	---	25.5
20	22.0	---	12.0	10.0	---	10.5	25.0	---	24.0	27.0	---	25.5
21	22.0	17.0	12.0	---	8.0	8.0	---	26.0	24.0	---	24.5	25.5
22	---	16.0	12.0	---	8.0	10.0	---	26.0	24.0	---	24.5	25.5
23	---	17.0	12.0	10.5	8.0	11.0	24.0	27.0	---	25.9	24.5	---
24	22.0	---	---	10.5	7.5	11.0	24.0	27.0	---	25.6	24.5	---
25	22.0	---	---	10.5	---	---	24.0	27.0	24.5	25.5	24.0	24.0
26	22.0	---	---	10.5	---	---	24.0	---	24.5	25.3	---	24.0
27	21.0	---	12.0	10.5	8.5	10.0	25.0	---	24.5	25.3	---	24.0
28	21.0	15.3	11.0	---	9.0	10.5	---	26.0	24.5	---	25.0	24.0
29	---	15.0	10.5	---	---	11.5	---	26.0	24.0	---	25.0	24.0
30	---	14.7	10.5	10.0	---	11.5	25.0	26.5	---	24.0	25.0	---
31	20.0	---	---	10.0	---	12.0	---	26.0	---	24.0	26.0	---
MEAN	22.0	18.0	13.0	10.5	8.0	9.0	23.5	26.0	25.0	26.0	25.0	26.0

07335390 PAT MAYSE LAKE NEAR CHICOTA, TX

LOCATION.--Lat 33°51'10", long 93°32'38", 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, 174,400 acre-ft June 9 (elevation, 458.53 ft); minimum, 110,000 acre-ft Oct. 26, 27 (elevation, 448.49 ft).

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

448.0	107,300	454.0	143,200	457.0	163,400
450.0	118,600	455.0	149,800	458.0	170,600
452.0	130,600	456.0	156,500	459.0	177,800

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	112700	110700	111400	111500	116200	134200	142000	128400	139000	140900	132400	126200
2	112700	110800	111400	111600	116500	133800	141300	128000	138300	140200	132100	125900
3	112500	110900	111400	111600	116200	133400	140100	128100	137800	139300	131700	126200
4	112400	110800	111400	111400	116200	133200	138900	128800	153800	138300	131300	126100
5	112000	110500	111400	111700	116200	133100	138000	131000	163700	137800	131000	125900
6	111900	110400	111400	111600	116200	132700	137400	131100	163600	137000	130500	125800
7	111800	110500	111100	111500	116200	132500	136500	130800	167600	136100	130200	125700
8	111800	110300	111000	111400	116100	133200	135900	130600	173000	135700	129900	125500
9	111600	110400	111000	111400	116100	133900	135200	130200	174100	134900	129600	125300
10	111500	110200	111100	111300	116100	133900	134600	130000	172700	134200	129300	125000
11	111400	110300	111100	111300	116100	133700	134100	129700	171000	133700	129100	126000
12	111300	110600	111200	111400	116200	133400	133500	129300	169500	133000	128800	125700
13	111100	110500	111200	111400	116400	133100	133200	129100	168700	132700	128600	127300
14	111000	110500	111100	111300	116800	132600	133100	129000	168800	132500	128300	129100
15	110900	110400	111000	111300	118600	132300	132900	128700	168300	137100	128300	129400
16	110900	110300	110900	111300	121500	132000	132400	130400	166500	137100	128100	129200
17	110800	110200	110900	111200	128300	131800	132200	142200	164700	136400	128200	129100
18	110600	110200	110900	111100	138800	131300	131800	150100	162900	136300	128600	128700
19	110500	110700	110900	111100	140200	130800	131500	150600	161400	139200	129100	128400
20	110400	110600	110800	111000	139800	131000	131200	149100	158900	138600	128900	128100
21	110400	110500	110600	111100	139300	130800	131000	147600	157100	137800	128800	127900
22	110300	110500	110900	110900	138400	130700	130700	148800	155300	136900	128500	127500
23	110300	110500	110800	110900	137700	130400	130400	148900	153600	136400	128200	127000
24	110200	110500	110700	110900	137100	130200	130000	147800	151800	136200	128000	126900
25	110100	110500	110600	111800	136400	130000	129700	146200	150100	135600	127800	126700
26	110100	110600	110800	112400	135800	130500	129500	144500	148200	134900	127500	126400
27	110100	111200	111300	113100	135200	131700	129200	143800	146500	134700	127300	126200
28	110100	111300	111400	113800	134800	136400	128800	143500	144900	134400	127200	126100
29	110200	111400	111500	115200	---	143600	128800	142400	143400	133900	126800	126100
30	110600	111400	111500	115800	---	144000	128600	141300	142000	133500	126700	126100
31	110600	---	111600	116400	---	143000	---	140000	---	133000	126500	---
MAX	112700	111400	111600	116400	140200	144000	142000	150600	174100	140900	132400	129400
MIN	110100	110200	110600	110900	116100	130000	128600	128000	137800	132500	126500	125000
(†)	448.60	448.75	448.78	449.62	452.68	453.97	451.67	453.55	453.82	452.39	451.33	451.26
(ϕ)	-2400	+800	+200	+4800	+18400	+8200	-14400	+11400	+2000	-9000	-6500	-400

CAL YR 1988 MAX 143700 MIN 110100 (ϕ) -33600
WTR YR 1989 MAX 174100 MIN 110100 (ϕ) +13100

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

07335500 RED RIVER AT ARTHUR CITY, TX

LOCATION.--Lat 33°52'32", long 95°30'08", 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 poor. Flow regulated since October 1943 by Lake Texoma (station 07331500), 92.8 mi upstream from station.

COOPERATION.--Gage-height record and 8 discharge measurements provided by U.S. Army Corps of Engineers; records computed by U.S. Geological Survey.

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); 45 years (water years 1945-89) since regulation by Lake Texoma, 8,352 ft³/s (6,051,000 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, 71,600 ft³/s June 14 (gage height, 18.82 ft); minimum daily, 398 ft³/s Oct. 4.

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	413	3580	3680	4100	11300	7240	23900	4360	16100	54500	9960	4340
2	413	3940	3640	3520	7960	6540	20900	3250	14900	53900	9940	4300
3	408	3730	3530	2430	5730	6100	20300	2640	14500	54500	9970	4420
4	398	3390	3490	2100	5630	5910	18200	3500	24200	54200	9890	4610
5	411	3260	3340	2060	7760	6000	13800	7700	54000	53500	9840	4970
6	1700	3230	1870	2050	10900	8740	11700	10800	51400	53400	8390	5510
7	2480	3120	2290	1990	11300	10300	10700	7760	34900	53500	6530	4620
8	2600	3200	3300	1900	11300	11700	9970	6380	46400	50700	5960	4040
9	2620	3250	3370	1680	9820	10900	9340	5910	58800	39800	6260	3800
10	2620	3210	3400	1700	5490	13200	9000	4920	50300	25300	5440	3710
11	2560	2870	3430	2050	3820	17100	8790	3700	39600	21800	5340	3950
12	2580	2870	2540	1830	2420	16200	8670	2500	50000	21000	5280	4910
13	2370	3100	2570	1830	1960	14700	8500	2220	63600	20700	5230	6470
14	2540	3180	3260	1890	1910	14200	6550	2240	67300	20500	5180	11900
15	2630	2940	2440	3350	6350	12700	6450	3280	49700	24800	5180	15600
16	2650	2800	2040	3190	16200	9320	7970	4020	44300	30700	5160	15400
17	2660	3080	1960	2630	24700	8970	6220	33800	54100	23500	5360	15100
18	2650	2530	1910	2300	38400	8400	4790	62800	62000	18900	5710	13700
19	2910	3090	1640	2860	32700	7580	5920	41000	60700	28900	6400	12100
20	3830	3670	1130	2960	20600	5330	7780	29300	58900	22500	7160	11300
21	3220	3480	1260	2940	16500	5180	5990	29300	56800	19500	7780	11000
22	3150	3180	1620	2450	14700	7160	5960	30200	56000	15100	6980	10800
23	3150	3100	986	2380	12800	7370	4910	32600	55500	12100	6020	10600
24	3140	3520	1430	2220	11200	7380	4670	29900	55400	12200	5620	10400
25	2990	3520	874	1890	8970	7190	4580	33300	55500	11200	5420	10400
26	1290	3830	711	5830	7950	4930	5230	32100	55500	10600	5320	10400
27	731	2910	711	12300	7520	4720	5050	29700	55300	10500	5220	10400
28	672	2640	976	14500	7440	12800	5110	29000	55400	10400	4820	10400
29	668	3590	1140	13800	---	43100	4570	26000	55100	10200	4480	10400
30	2420	3580	1820	19200	---	38600	4830	20900	54700	10200	4400	10400
31	3510	---	4070	15100	---	28800	---	18700	---	10100	4350	---
TOTAL	66384	97390	70428	141030	323330	368360	270350	553780	1470900	858700	198590	259950
MEAN	2141	3246	2272	4549	11550	11880	9012	17860	49030	27700	6406	8665
MAX	3830	3940	4070	19200	38400	43100	23900	62800	67300	54500	9970	15600
MIN	398	2530	711	1680	1910	4720	4570	2220	14500	10100	4350	3710
AC-FT	131700	193200	139700	279700	641300	730600	536200	1098000	2918000	1703000	393900	515600

CAL YR 1988 TOTAL 2432871 MEAN 6647 MAX 23000 MIN 397 AC-FT 4826000
WTR YR 1989 TOTAL 4679192 MEAN 12820 MAX 67300 MIN 398 AC-FT 9281000

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.--21 years (water years 1969-89), 12,770 ft³/s (9,252,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 189,000 ft³/s Dec. 11, 1971 (gage height, 31.55 ft), from graph based on gage readings; 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, 71,700 ft³/s May 18 at 1200 hours (gage height, 25.65 ft); minimum daily, 1,010 ft³/s Oct. 7.

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	1050	e3870	5070	6600	21700	18200	47000	6200	20200	40900	9950	4630
2	1040	3470	4290	7270	19600	13900	42000	6300	17600	40900	10700	4530
3	1030	3420	4030	6840	18700	12300	39100	6440	15000	41400	11500	4590
4	1030	3670	3780	5220	16000	9300	37900	6970	17000	41100	11600	5610
5	1020	3430	3630	2840	14800	11100	33600	12400	30500	40500	11600	5750
6	1020	e3270	3530	2290	15600	12200	25800	16600	48500	40100	11600	4990
7	1010	e3100	2910	2150	18500	13100	21000	20100	45600	40100	10400	5570
8	1880	e2810	2370	2050	19100	15400	16600	17400	40900	40400	8990	5370
9	2560	e2630	3200	1950	17100	19200	13400	13200	43000	38700	8070	4530
10	2690	e2430	3450	1910	12900	19700	12200	11000	48600	33200	8330	4090
11	2720	3060	3540	2550	7980	21100	11500	9430	42200	28200	7420	3920
12	2660	e2440	3650	3160	5270	23900	10000	7740	35100	26200	6900	3980
13	2630	e2630	3520	3280	4030	24000	8970	5880	39700	25200	6560	4630
14	2550	e2230	3700	3410	3810	22100	8890	4040	50100	23000	6450	6590
15	2510	e2350	4300	3430	5850	22200	7660	3610	50400	22200	5950	11500
16	2630	e2460	4260	3950	12800	23000	6780	6430	40300	25800	5630	18400
17	2630	e2560	3520	4480	27000	17000	7530	17500	38600	27500	6340	21400
18	2700	e2770	2800	4010	49800	11200	7380	51200	41600	26400	7450	20700
19	2670	e2580	2610	3520	61000	9300	5890	59800	42600	24100	6920	19900
20	2710	e2790	2500	3620	54800	8400	6330	42800	42300	26700	7220	17800
21	3290	e2900	2000	3770	40800	6400	9670	32100	42600	25000	7740	15600
22	3500	e3100	1580	3780	35300	5390	9670	30200	42900	22500	8530	12200
23	3240	e3250	1900	3660	34800	6610	7960	31100	42300	19000	8270	11500
24	3150	e3300	1750	3210	32500	7430	7300	33600	42200	16300	6980	11200
25	3130	e3410	1950	3340	29800	7560	6760	35200	42000	14000	6180	11100
26	3330	e3110	2000	4010	26500	7720	6280	37500	41600	11500	5840	11000
27	e3250	e3030	1740	7360	24300	10100	5650	35000	41600	10500	5680	10900
28	e3280	5320	1800	15500	21900	7750	5940	30600	41500	10300	5550	11000
29	e3300	5640	2400	21200	---	28800	7150	30000	41100	10200	5390	11200
30	e3810	7020	5020	20300	---	57600	7760	27100	41200	10000	4880	11500
31	e4230	---	5780	22800	---	54700	---	23300	---	9960	4700	---
TOTAL	78250	98050	98580	183460	652240	526660	443670	670740	1168800	811860	239320	295680
MEAN	2524	3268	3180	5918	23290	16990	14790	21640	38960	26190	7720	9856
MAX	4230	7020	5780	22800	61000	57600	47000	59800	50400	41400	11600	21400
MIN	1010	2230	1580	1910	3810	5390	5650	3610	15000	9960	4700	3920
AC-FT	155200	194500	195500	363900	1294000	1045000	880000	1330000	2318000	1610000	474700	586500

CAL YR 1988 TOTAL 3486800 MEAN 9527 MAX 49100 MIN 1010 AC-FT 1916000
WTR YR 1989 TOTAL 5267310 MEAN 14430 MAX 61000 MIN 1010 AC-FT 10450000

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 relationship between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,140 microsiemens July 13, 1980; minimum daily, 114 microsiemens Oct. 31, 1984.
WATER TEMPERATURE: 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, 1,690 microsiemens Oct. 21, 22; minimum daily, 195 microsiemens Feb. 2.
WATER TEMPERATURE: Maximum daily, 30.0°C Aug. 29-31; minimum daily, 4.0°C Feb. 8, Mar. 7, 8.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT 26...	1350	3390	1600	8.30	17.0	10.3	108	2.5	380	87	39
DEC 13...	1445	3480	1460	8.00	7.0	12.2	102	0.9	370	88	36
JAN 31...	1445	23100	430	7.60	10.0	9.9	89	0.6	110	32	8.1
MAR 22...	1200	5080	1250	8.00	10.0	10.7	95	1.7	290	74	26
MAY 09...	1345	13400	458	7.80	23.5	8.6	103	1.9	130	36	9.7
JUN 20...	1515	43200	1290	7.90	26.0	6.9	87	0.9	290	75	26
AUG 15...	1630	5920	1000	--	--	--	--	--	--	--	--

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)
OCT 26...	190	4	5.9	107	270	280	0.30	4.4	941	--	<0.010
DEC 13...	170	4	4.3	146	240	250	0.30	5.8	882	0.180	0.020
JAN 31...	39	2	3.2	66	60	56	0.20	5.3	244	0.270	0.030
MAR 22...	130	3	4.1	123	190	190	0.20	5.8	694	--	0.010
MAY 09...	40	2	3.3	79	59	51	0.10	5.6	252	0.180	0.020
JUN 20...	130	3	4.8	103	200	210	0.30	6.1	714	0.190	0.010
AUG 15...	--	--	--	--	--	--	--	--	--	--	--

DATE	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-PHOROUS TOTAL (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)
OCT 26...	<0.100	0.020	0.88	0.90	0.100	--	--	--	--	--
DEC 13...	0.200	0.070	0.53	0.60	0.050	57	536	49	1	160
JAN 31...	0.300	0.090	1.1	1.2	0.290	504	31400	91	<1	69
MAR 22...	<0.100	0.020	0.38	0.40	0.040	136	1870	84	--	--
MAY 09...	0.200	0.040	0.46	0.50	0.060	115	4170	99	--	--
JUN 20...	0.200	0.050	0.65	0.70	0.040	244	28500	95	--	--
AUG 15...	--	--	--	--	--	53	847	88	--	--

07336820 RED RIVER NEAR DE KALB, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 26...	--	--	--	--	--	--	--	--	--	--
DEC 13...	2	1	2	12	<5	23	<0.1	<1	<1.0	14
JAN 31...	1	<1	6	110	<5	8	<0.1	<1	1.0	13
MAR 22...	--	--	--	--	--	--	--	--	--	--
MAY 09...	--	--	--	--	--	--	--	--	--	--
JUN 20...	--	--	--	--	--	--	--	--	--	--
AUG 15...	--	--	--	--	--	--	--	--	--	--

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	78250	1440	821	174000	270	56200	190	40500	310
NOV.	1988	98050	1310	746	198000	230	62100	170	45400	290
DEC.	1988	98580	999	567	151000	170	45100	130	33800	240
JAN.	1989	183460	730	413	205000	110	55600	88	43800	190
FEB.	1989	652240	414	234	412000	60	105700	49	85900	110
MAR.	1989	526660	663	375	534000	100	143700	80	113700	170
APR.	1989	443670	760	431	516000	120	146500	94	112800	190
MAY	1989	670740	530	300	542000	77	140200	63	113400	140
JUNE	1989	1168800	984	559	1764000	170	522900	120	393600	240
JULY	1989	811860	1070	608	1333000	180	392000	140	296200	260
AUG.	1989	239320	1010	574	371000	170	107000	130	81600	250
SEPT	1989	295680	869	493	394000	140	112400	110	86200	220
TOTAL		5267310	**	**	6592000	**	1889000	**	1447000	**
WTD.AVG.		14430	817	464	**	130	**	100	**	200

07336820 RED RIVER NEAR DE KALB, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	989	1200	842	789	298	556	320	1090	972	1240	1200	1080
2	993	1540	1230	785	195	620	351	393	1110	1240	1210	1080
3	993	1640	1400	780	325	684	381	308	1060	1230	1100	1080
4	962	1540	1400	777	451	688	413	391	951	1180	1090	1030
5	971	1640	1430	1140	580	728	481	309	843	1260	1090	933
6	945	1630	1230	1140	708	798	581	388	598	1220	1060	915
7	949	1620	1410	1140	838	809	766	347	345	1210	1060	976
8	953	1530	1250	1140	974	1110	856	307	246	1210	1000	834
9	1340	1540	1250	1140	1010	1140	1040	565	379	1180	918	769
10	1630	1660	1250	1140	1230	1060	1230	566	426	1150	916	790
11	1630	1640	1100	1160	1190	779	1310	736	473	984	963	973
12	1630	1640	1070	1040	1140	637	1230	805	519	986	971	1040
13	1610	1650	1500	1050	1140	495	1460	712	929	990	988	1100
14	1620	1270	1070	1050	1060	485	1210	708	1090	949	987	1050
15	1620	1260	1500	1040	850	506	1310	683	1110	948	992	782
16	1610	1280	1090	1040	385	472	1300	523	724	950	1070	201
17	1630	1120	1100	1040	335	496	1300	364	898	948	991	335
18	1660	1260	990	1040	299	501	1440	491	1070	752	916	501
19	1660	1280	960	1040	282	620	1470	314	1250	764	963	705
20	1650	1150	770	639	226	1380	1200	288	1270	899	995	796
21	1690	1100	873	664	216	1260	1120	262	1380	800	1030	844
22	1690	1160	1070	567	216	1140	1050	236	1360	864	956	1060
23	1670	1320	280	475	231	1010	1090	413	1350	865	803	1070
24	1660	1320	521	487	236	891	1120	591	1350	865	760	1100
25	1660	1320	600	485	300	766	1040	562	1350	864	892	1140
26	1210	1340	762	659	364	863	1020	695	1360	1050	933	1240
27	1220	1320	1100	660	428	960	1050	802	1340	1090	974	1210
28	1210	842	297	660	492	971	1020	863	1330	1150	1010	1210
29	1230	932	297	660	---	710	1100	924	1310	1140	1060	1230
30	1220	849	300	505	---	449	1090	812	1250	1180	1080	1230
31	1220	---	281	496	---	291	---	776	---	1220	1080	---
MEAN	1380	1350	975	853	571	770	1010	556	988	1040	1000	943

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.0	12.0	8.0	7.0	10.0	---	---	22.0	25.0	---	28.0	29.0
2	---	14.0	8.0	---	10.0	---	---	21.0	25.0	---	28.0	---
3	21.0	14.0	9.0	---	---	---	17.0	20.0	26.0	25.0	28.0	---
4	20.0	15.0	---	7.0	---	10.0	18.0	20.0	---	---	28.0	29.0
5	20.0	15.0	8.0	8.0	---	---	16.0	20.0	24.0	26.0	28.0	27.0
6	20.0	---	8.0	10.0	---	---	16.0	20.0	23.0	27.0	28.0	---
7	19.0	15.0	9.0	---	---	4.0	17.0	---	23.0	27.0	28.0	28.0
8	---	15.0	9.0	---	4.0	4.0	17.0	20.0	23.0	27.0	26.0	28.0
9	---	15.0	8.0	10.0	5.0	5.0	---	20.0	23.0	---	26.0	28.0
10	17.0	15.0	---	10.0	5.0	7.0	16.0	20.0	---	28.0	26.0	---
11	17.0	15.0	---	10.0	---	8.0	12.0	21.0	---	28.0	25.0	26.0
12	16.0	---	6.0	10.0	---	---	13.0	21.0	25.0	28.0	---	26.0
13	16.0	---	6.0	10.0	---	11.0	15.0	---	25.0	27.0	---	26.0
14	16.0	14.0	9.0	---	---	13.0	15.0	22.0	24.0	27.0	26.0	21.0
15	16.0	13.0	9.0	---	---	13.0	16.0	22.0	24.0	---	25.0	21.0
16	---	13.0	7.0	10.0	---	12.0	---	22.0	23.0	---	26.0	---
17	20.0	13.0	8.0	11.0	---	14.0	18.0	21.0	---	27.0	---	---
18	20.0	13.0	---	11.0	---	---	19.0	21.0	---	27.0	25.0	21.0
19	20.0	13.0	11.0	12.0	6.0	---	19.0	21.0	25.0	27.0	27.0	22.0
20	15.0	---	12.0	12.0	7.0	14.0	19.0	22.0	25.0	27.0	---	23.0
21	16.0	---	12.0	12.0	6.0	---	19.0	---	26.0	27.0	27.0	23.0
22	---	8.0	9.0	---	6.0	---	19.0	24.0	26.0	27.0	28.0	24.0
23	---	7.0	9.0	11.0	5.0	---	---	---	26.0	---	29.0	---
24	17.0	---	---	11.0	6.0	---	21.0	24.0	---	27.0	29.0	---
25	17.0	---	---	11.0	---	---	22.0	24.0	---	27.0	29.0	---
26	16.0	---	6.0	10.0	---	---	22.0	25.0	26.0	26.0	---	---
27	16.0	---	6.0	10.0	---	15.0	22.0	24.0	25.0	27.0	---	---
28	16.0	9.0	6.0	---	---	15.0	22.0	---	25.0	28.0	---	---
29	---	8.0	5.0	---	---	17.0	21.0	24.0	26.0	28.0	30.0	---
30	---	8.0	7.0	---	---	16.0	---	25.0	25.0	---	30.0	---
31	12.0	---	8.0	10.0	---	16.0	---	25.0	---	28.0	30.0	---
MEAN	17.5	12.5	8.0	10.0	6.5	11.5	18.0	22.0	24.5	27.0	27.5	25.0

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 at downstream side of southbound bridge on U.S. Highway 71 at Index, 2.2 mi south of Ogden, 20.6 mi upstream from Little River, and at mile 485.3.

DRAINAGE AREA.--48,030 mi², of which 5,936 mi² is probably noncontributing.

PERIOD OF RECORD.--July 1936 to current year. Gage-height records collected at same site since 1917 are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 246.87 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 12, 1939, nonrecording gage, and Dec. 12, 1939, to July 19, 1979, water-stage recorder, at site 500 ft downstream at present datum.

REMARKS.--No estimated daily discharges. Water-discharge records good. Some regulation since Oct. 31, 1943, by Lake Texoma (Texas), 241 mi upstream, capacity, 5,392,900 acre-ft, since Sept. 28, 1967, by Pat Mayse Lake (Texas), capacity, 352,700 acre-ft, and since Jan. 18, 1974, by Hugo Lake (Oklahoma) capacity, 966,700 acre-ft. Satellite telemeter at station.

AVERAGE DISCHARGE.--53 years, 12,130 ft³/s, 8,788,000 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, 70,400 ft³/s May 20 (gage height, 18.62 ft); minimum daily, 1,010 ft³/s Oct. 8.

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	1140	1650	7160	7030	24800	25000	46100	5570	28200	49200	11200	5530
2	1180	1910	6540	7570	23300	21800	40400	4940	24200	48300	11500	5320
3	1130	2890	5130	8090	22600	18800	36800	4310	21100	50100	12100	5180
4	1090	3370	4530	8120	22400	16900	35800	4950	19200	50100	12700	5120
5	1070	3500	4130	7350	19400	18800	35400	7310	25700	49300	12700	5560
6	1050	3610	3850	5120	17100	21300	31700	12100	43300	48400	12700	6170
7	1040	3430	3750	3480	17200	19500	25700	15200	57100	48300	13000	5960
8	1010	3220	3930	2950	19700	17600	21200	15300	60300	49800	13000	5690
9	1030	3130	3370	2750	20800	18500	17200	13500	57000	48800	10800	6060
10	1670	3110	3210	2610	19200	19900	14100	10200	55000	46200	9180	5550
11	2260	3090	3740	2510	15600	20400	12600	8210	55200	40500	8890	4970
12	2450	3300	4060	2600	10800	21300	11700	7080	47400	35300	8360	4650
13	2500	3440	4170	3640	8060	23300	10600	6050	40900	33400	7570	4550
14	2520	3380	4080	4960	8150	23400	9360	4850	46300	32300	7030	4830
15	2520	3220	3860	5840	8780	21700	8930	3390	55900	30500	6850	5870
16	2490	3180	4060	5760	14400	21500	8110	3610	55400	30600	6690	9870
17	2490	3300	4430	5350	24700	22200	6830	9970	45600	33900	7970	18200
18	2570	3300	4130	5580	41200	17900	6770	35700	44100	35800	14200	22500
19	2630	4570	3440	5360	54000	13100	8800	62400	47600	35200	12300	22400
20	2680	8950	2940	4690	58400	11200	7010	66900	49000	32100	10100	21500
21	2690	11800	2780	4220	50500	10300	5460	49900	48600	33300	8590	19400
22	2750	9820	2630	4240	40000	8710	7010	38600	48700	32000	8430	17300
23	3140	6810	2340	4260	36900	7260	8470	36500	49300	29500	8880	14000
24	3390	5000	2120	4180	36000	7580	7160	37700	48900	26000	9150	12800
25	3300	4050	2300	3970	33700	8480	6230	40300	48800	22200	8160	12400
26	3270	9380	2180	4010	31400	8750	5520	40400	48400	18800	7110	12200
27	3290	17000	2420	4690	28800	8870	5070	40800	48100	15100	6600	12100
28	3350	17200	3320	6650	27100	10600	4360	39500	47700	13100	6330	12000
29	2680	12100	3640	15900	---	16700	4290	37000	47200	12300	6220	11900
30	2070	8030	3480	23700	---	40900	4510	36400	47800	11800	6480	12000
31	1830	---	4690	23700	---	52800	---	32700	---	11400	6160	---
TOTAL	68280	170740	116410	200880	734990	575050	453190	731340	1362000	1053600	290950	311580
MEAN	2203	5691	3755	6480	26250	18550	15110	23590	45400	33990	9385	10390
MAX	3390	17200	7160	23700	58400	52800	46100	66900	60300	50100	14200	22500
MIN	1010	1650	2120	2510	8060	7260	4290	3390	19200	11400	6160	4550
AC-FT	135400	338700	230900	398400	1458000	1141000	898900	1451000	2702000	2090000	577100	618000

CAL YR 1988 TOTAL 3629410 MEAN 9916 MAX 50000 MIN 1010 AC-FT 7199000
WTR YR 1989 TOTAL 6069010 MEAN 16630 MAX 66900 MIN 1010 AC-FT 12040000

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 fair. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--10 years (water years 1980-89), 156 ft³/s (11.21 in/yr), 113,000 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)
Feb. 16	0400	3,430	18.36	June 5	0700	12,500	25.83
Feb. 18	1100	5,250	a21.85	June 8	0215	7,980	23.83
Mar. 29	1500	3,680	19.07	June 14	1700	3,270	17.89
May 17	1900	10,300	24.90	July 15	1700	*14,000	*26.39

a From graph.

Minimum daily discharge, 1.2 ft³/s Oct. 2.

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	2.4	76	5.6	90	58	21	58	3.5	5.1	3.7	2.6	1.6
2	1.3	20	3.5	61	33	19	31	3.5	4.9	3.2	2.7	1.5
3	1.3	7.0	2.5	29	302	18	19	5.2	5.3	6.6	2.5	1.5
4	1.2	3.6	2.0	14	169	18	16	5.4	2510	6.6	2.1	1.6
5	1.4	2.2	2.5	9.5	48	27	14	163	9320	4.1	2.1	1.6
6	1.3	1.7	3.2	6.8	23	52	9.6	51	1020	4.1	3.4	1.7
7	1.2	1.5	4.7	5.6	11	393	8.3	12	1290	8.5	23	1.8
8	1.3	1.4	5.4	5.4	9.5	884	7.6	7.2	4550	23	55	1.7
9	1.3	1.4	5.8	4.3	94	562	6.4	5.1	921	15	14	1.7
10	1.2	1.4	89	3.2	98	204	5.8	3.3	139	3.4	7.9	1.6
11	1.2	2.1	656	2.5	104	104	5.6	2.4	79	2.1	5.7	4.5
12	1.2	799	516	2.8	150	64	5.5	2.0	459	2.0	4.1	3.4
13	1.2	573	135	56	942	42	5.7	72	1040	1.7	3.2	96
14	1.2	69	61	402	346	29	11	19	2880	608	3.3	37
15	1.3	33	26	175	834	20	13	12	1490	8200	2.2	11
16	1.2	434	12	67	2800	15	9.0	2440	150	3990	2.0	7.4
17	1.4	116	7.8	26	3110	13	7.6	7080	61	210	3.8	4.8
18	1.5	31	5.5	12	4750	11	6.6	6120	34	48	10	3.1
19	1.4	443	4.1	7.9	1220	9.9	7.1	978	20	376	4.2	2.4
20	1.3	973	3.2	5.6	261	9.4	7.2	106	13	52	2.6	2.0
21	1.3	139	2.3	4.2	268	13	6.0	49	9.8	14	1.8	1.9
22	1.2	42	12	3.2	143	25	4.9	25	7.8	10	2.0	1.7
23	1.2	15	115	2.5	79	16	4.2	16	6.4	7.4	1.5	1.8
24	1.3	8.7	88	2.2	53	14	4.4	11	6.1	6.2	1.6	1.5
25	1.3	114	34	1280	40	12	3.7	9.0	4.5	5.2	1.8	1.5
26	21	1560	13	2080	35	11	3.5	7.4	3.8	4.5	2.5	1.5
27	3.6	206	298	684	29	356	3.3	6.7	3.5	4.1	1.7	1.5
28	22	55	1010	212	25	985	3.3	6.3	3.1	3.6	1.7	1.5
29	8.3	18	159	1650	---	3000	2.5	5.2	2.9	3.1	1.6	1.6
30	153	8.6	60	335	---	948	2.2	5.3	2.9	3.9	1.5	1.7
31	91	---	49	103	---	135	---	5.4	---	2.6	1.6	---
TOTAL	332.0	5755.6	3391.1	7341.7	16034.5	8030.3	292.0	17236.9	26042.1	13632.6	175.7	204.1
MEAN	10.7	192	109	237	573	259	9.73	556	868	440	5.67	6.80
MAX	153	1560	1010	2080	4750	3000	58	7080	9320	8200	55	96
MIN	1.2	1.4	2.0	2.2	9.5	9.4	2.2	2.0	2.9	1.7	1.5	1.5
AC-FT	659	11420	6730	14560	31800	15930	579	34190	51650	27040	349	405
CFSM	.06	1.02	.58	1.25	3.03	1.37	.05	2.94	4.59	2.33	.03	.04
IN.	.07	1.13	.67	1.45	3.16	1.58	.06	3.39	5.13	2.68	.03	.04

CAL YR 1988 TOTAL 40390.77 MEAN 110 MAX 6380 MIN .94 AC-FT 80120 CFSM .58 IN. 7.95
WTR YR 1989 TOTAL 98468.6 MEAN 270 MAX 9320 MIN 1.2 AC-FT 195300 CFSM 1.43 IN. 19.38

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 1988 TO SEPTEMBER 1989

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)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT												
21...	1030	1.2	924	8.30	17.5	20	23	7.3	77	1.7	63	21
DEC												
14...	1400	60	278	7.80	9.0	100	52	11.2	98	1.6	95	33
FEB												
01...	1400	57	330	7.80	12.5	80	56	10.1	96	2.5	110	37
MAR												
21...	1800	16	590	7.80	12.0	29	19	10.7	100	1.9	170	57
MAY												
09...	2000	5.1	642	8.10	23.0	70	15	6.8	81	4.6	140	46
JUN												
21...	1700	9.2	542	8.20	32.5	30	9.6	12.4	173	3.3	190	65

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 WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)
OCT											
21...	2.6	170	9	17	234	78	61	0.40	7.5	498	45
DEC											
14...	3.0	20	0.9	3.2	86	29	11	0.20	11	162	64
FEB											
01...	3.5	23	1	3.5	121	25	11	0.20	10	186	73
MAR											
21...	6.2	58	2	5.1	197	69	30	0.30	5.7	350	36
MAY											
09...	5.6	76	3	4.9	156	88	39	0.30	5.6	359	41
JUN											
21...	6.1	48	2	4.9	196	52	25	0.40	13	332	17

DATE	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, 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-PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)
OCT											
21...	<1	--	13.9	0.120	14.0	0.030	1.8	1.8	4.50	8.8	--
DEC											
14...	3	61	2.36	0.040	2.40	0.070	0.93	1.0	0.330	12	6
FEB											
01...	14	59	0.770	0.030	0.800	0.050	0.75	0.80	0.370	10	--
MAR											
21...	10	26	3.28	0.020	3.30	0.040	0.76	0.80	0.830	8.0	2
MAY											
09...	4	37	4.65	0.050	4.70	0.030	1.5	1.5	1.10	10	--
JUN											
21...	2	15	1.68	0.020	1.70	0.030	0.47	0.50	0.510	8.6	4

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)
OCT											
21...	--	--	--	--	--	--	--	--	--	--	--
DEC											
14...	42	<1	1	<1	99	<5	4	<0.1	<1	<1.0	14
FEB											
01...	--	--	--	--	--	--	--	--	--	--	--
MAR											
21...	67	<1	<1	12	21	<5	25	0.1	<1	<1.0	44
MAY											
09...	--	--	--	--	--	--	--	--	--	--	--
JUN											
21...	76	2	<1	4	12	1	10	<0.1	<1	<1.0	11

RED RIVER BASIN

07342480 MIDDLE SULPHUR RIVER AT COMMERCE, TX

LOCATION.--Lat 33°15'59", long 95°54'55", 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 1988 TO SEPTEMBER 1989

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)	CALCIUM DIS-SOLVED (MG/L AS CA)
DEC												
14...	1600	7.8	212	7.50	8.5	110	37	11.3	98	2.0	83	29
FEB												
01...	1000	10	290	7.50	11.0	100	44	9.5	88	1.8	110	38
MAR												
21...	1600	1.0	464	7.50	11.0	30	7.9	11.1	101	1.7	200	72
MAY												
09...	1600	0.03	540	8.00	22.5	65	12	6.6	78	1.9	210	73
JUN												
20...	1600	1.1	332	7.30	25.5	75	12	7.9	98	1.0	160	56

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)
DEC											
14...	2.6	11	0.5	3.5	71	26	7.3	0.20	12	134	18
FEB											
01...	3.1	15	0.6	3.5	95	33	7.9	0.20	12	170	56
MAR											
21...	5.5	23	0.7	3.6	184	46	12	0.20	7.4	280	26
MAY											
09...	5.7	30	0.9	4.6	196	55	14	0.30	8.1	308	18
JUN											
20...	4.1	14	0.5	4.0	148	27	9.6	0.20	15	219	26

DATE	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)
DEC											
14...	<1	--	0.360	0.040	0.400	0.090	0.91	1.0	0.220	12	7
FEB											
01...	8	48	--	0.030	<0.100	0.080	0.92	1.0	0.210	8.6	--
MAR											
21...	9	17	--	0.010	<0.100	0.020	0.48	0.50	0.050	9.8	3
MAY											
09...	<1	--	2.07	0.230	2.30	0.070	1.1	1.2	0.110	10	--
JUN											
20...	11	15	--	0.010	<0.100	0.040	0.56	0.60	0.140	11	4

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)
DEC											
14...	41	<1	2	3	150	<5	2	<0.1	<1	<1.0	3
FEB											
01...	--	--	--	--	--	--	--	--	--	--	--
MAR											
21...	88	<1	<1	3	16	<5	1	<0.1	<1	1.0	5
MAY											
09...	--	--	--	--	--	--	--	--	--	--	--
JUN											
20...	75	2	<1	2	65	1	9	0.1	<1	<1.0	5

07342500 SOUTH SULPHUR RIVER NEAR COOPER, TX

LOCATION.--Lat 33°21'23 , long 95°35'41, Delta County, Hydrologic Unit 11140301, on levee on left bank 110 ft downstream from bridge on State Highways 19 and 154, 1.0 mi downstream from Big Creek, 1.0 mi upstream from Brushy Creek, 4.5 mi downstream from Doctors Creek, and 5.6 mi southeast of Cooper.

DRAINAGE AREA.--527 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1942 to current year. Monthly discharge only for some periods, published in WSP 1311.

GAGE.--Water-stage recorder. Datum of gage is 371.91 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 15, 1985, at site 360 ft to right and 90 ft upstream at same datum. Oct. 1, 1970, at datum 3.00 ft higher. May 9, 1942, to Nov. 8, 1949, nonrecording gage, and Nov. 9, 1949, to May 13, 1955, water-stage recorder at site 1,060 ft to right of present gage. Gage-height telemeter at station.

REMARKS.--No estimated daily discharges. Records good. There are numerous small diversions upstream from station. Low flow is sustained by sewage effluent released upstream. Construction of Cooper Dam, upstream from station, was begun during the 1988 water year.

AVERAGE DISCHARGE.--47 years (water years 1943-89), 412 ft³/s (10.62 in/yr), 298,500 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. 18	1930	8,040	20.86	July 16	1830	*11,400	*21.75
May 18	1600	10,900	21.63				

Minimum discharge, no flow Aug. 30, 31, Sept. 1, 6, 9, 12, 20-22, 25.

CORRECTIONS.--The previously published table for water year 1986 was incorrect. The following table is the corrected table for water year 1986.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	212	511	5.6	2.0	4.9	3.1	44	2.4	28	.83	1.5
2	.00	69	816	5.8	2.0	4.1	3.1	28	46	166	.69	1.8
3	.32	28	336	5.8	767	3.3	3.6	22	520	940	.65	1.6
4	.51	17	109	6.3	2760	4.0	1580	9.5	924	743	1.2	1.0
5	.67	11	69	7.1	3450	4.6	2520	6.5	2200	338	5.3	27
6	.77	5.8	52	6.3	4020	4.1	5800	4.0	2050	112	4.9	674
7	1.0	2.6	42	4.0	5340	3.1	7130	3.4	2560	45	8.1	631
8	1.1	1.1	34	5.2	4530	4.1	2930	2.6	1760	32	4.5	422
9	.83	.42	28	4.4	1440	4.8	463	2.2	1290	25	.75	126
10	.59	.22	577	3.8	452	4.8	118	3.4	355	20	.65	48
11	.58	105	5360	3.1	326	4.2	50	75	1300	16	.67	29
12	.58	986	7760	3.0	124	6.8	34	207	3470	13	.74	19
13	.37	764	5000	2.4	74	11	65	87	5600	9.9	1.5	14
14	.40	145	2530	2.4	51	14	55	33	3070	7.4	1.8	10
15	.40	608	447	2.4	43	15	27	26	366	5.8	2.0	7.7
16	.36	1610	143	2.4	37	13	18	16	89	4.9	2.0	6.4
17	.38	3030	79	2.4	33	9.8	15	416	53	3.7	1.7	5.6
18	.84	4320	46	2.4	31	7.9	13	1990	640	3.2	1.6	4.5
19	23	4280	32	2.4	25	7.4	54	2400	341	3.0	1.0	3.5
20	294	2550	23	2.8	21	7.4	1190	2720	140	2.3	.84	3.1
21	331	673	20	3.1	17	8.9	1720	679	55	2.2	.93	3.1
22	74	153	16	3.1	13	10	1080	124	33	2.1	.80	3.4
23	28	67	15	3.1	9.5	8.3	260	46	26	2.4	.68	3.1
24	19	41	12	3.1	7.5	6.3	83	27	22	2.2	.57	2.4
25	14	511	11	3.1	6.6	5.2	46	19	34	1.7	.52	2.4
26	10	530	9.2	2.9	6.3	4.5	33	14	136	1.8	.53	1.9
27	7.2	1830	7.9	2.6	6.1	4.1	24	12	70	4.2	.60	1.6
28	5.4	3950	7.1	2.4	5.8	3.4	282	9.3	34	4.6	.95	1.5
29	64	4690	7.1	2.2	---	3.5	270	6.7	30	3.1	.98	1.4
30	627	1950	6.8	2.0	---	3.6	94	4.8	58	1.4	.78	1.3
31	500	---	6.3	2.0	---	2.9	---	2.9	---	1.3	1.5	---
TOTAL	2006.30	33140.14	24112.4	109.6	23599.8	199.0	25963.8	9040.3	27274.4	2545.2	50.26	2058.8
MEAN	64.7	1105	778	3.54	843	6.42	865	292	909	82.1	1.62	68.6
MAX	627	4690	7760	7.1	5340	15	7130	2720	5600	940	8.1	674
MIN	.00	.22	6.3	2.0	2.0	2.9	3.1	2.2	2.4	1.3	.52	1.0
AC-FT	3980	65730	47830	217	46810	395	51500	17930	54100	5050	100	4080
CFSM	.12	2.10	1.48	.01	1.60	.01	1.64	.55	1.73	.16	.00	.13
IN.	.14	2.34	1.70	.01	1.67	.01	1.83	.64	1.93	.18	.00	.15

CAL YR 1985 TOTAL 184830.02 MEAN 506 MAX 10800 MIN .00 AC-FT 366600 CFSM .96 IN. 13.05
WTR YR 1986 TOTAL 150100.00 MEAN 411 MAX 7760 MIN .00 AC-FT 297700 CFSM .78 IN. 10.60

07342500 SOUTH SULPHUR RIVER NEAR COOPER, TX--Continued

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	8.7	312	98	224	398	55	1220	8.1	15	12	7.3	.00
2	9.5	135	70	210	201	49	290	11	131	12	6.7	.01
3	12	68	57	148	458	44	143	14	168	13	6.4	.59
4	13	44	48	102	485	49	85	15	949	17	5.2	.79
5	10	31	41	86	295	157	60	125	3180	17	4.4	.38
6	6.9	21	35	69	120	162	46	397	6470	18	3.4	.00
7	4.4	18	31	59	111	548	37	113	5060	19	14	.06
8	2.2	14	28	53	91	1520	29	48	4060	21	338	.07
9	1.7	13	36	47	82	1700	25	31	4530	35	147	.00
10	2.7	10	101	44	136	1190	23	18	4240	61	43	3.4
11	3.4	7.8	955	39	161	452	20	10	1840	34	27	2.4
12	4.0	750	1200	37	222	231	18	6.1	392	24	19	.00
13	3.7	1640	739	122	1160	138	16	11	1430	17	14	1.1
14	3.9	1630	299	751	1500	102	18	124	3290	97	11	192
15	4.1	457	156	861	1340	81	21	62	4780	2650	9.2	231
16	3.4	555	99	389	2960	61	31	1380	4240	8780	19	49
17	2.6	655	74	194	5260	49	32	4530	2040	6740	10	26
18	2.1	261	59	120	7300	43	26	9810	367	3730	11	17
19	1.0	508	50	87	6550	38	24	7770	113	2070	49	6.3
20	2.1	1640	44	71	4550	33	30	4980	61	926	105	.00
21	1.3	1970	40	60	2500	30	25	3050	44	319	26	.00
22	2.1	878	41	51	818	32	21	659	36	106	38	.00
23	2.8	217	315	45	336	39	21	241	29	79	13	1.9
24	2.7	96	368	41	185	46	19	122	24	40	14	1.3
25	3.3	140	202	749	119	38	16	73	20	30	4.0	.00
26	150	2730	103	2670	91	33	15	43	17	28	1.7	19
27	187	3910	76	4050	76	33	16	64	16	21	.79	2.0
28	135	2260	706	4050	65	523	14	62	15	16	.48	.27
29	392	466	1230	2570	---	1910	9.2	29	13	14	.27	.20
30	1080	179	491	1850	---	3020	7.1	31	12	12	.00	.02
31	580	---	202	1230	---	3440	---	20	---	9.1	.00	---
TOTAL	2637.6	21615.8	7994	21079	37570	15846	2357.3	33857.2	47582	25967.1	947.84	554.79
MEAN	85.1	721	258	680	1342	511	78.6	1092	1586	838	30.6	18.5
MAX	1080	3910	1230	4050	7300	3440	1220	9810	6470	8780	338	231
MIN	1.0	7.8	28	37	65	30	7.1	6.1	12	9.1	.00	.00
AC-FT	5230	42870	15860	41810	74520	31430	4680	67160	94380	51510	1880	1100
CFSM	.16	1.37	.49	1.29	2.55	.97	.15	2.07	3.01	1.59	.06	.04
IN.	.19	1.53	.56	1.49	2.65	1.12	.17	2.39	3.36	1.83	.07	.04

CAL YR 1988 TOTAL 97561.65 MEAN 267 MAX 8140 MIN .00 AC-FT 193500 CFSM .51 IN. 6.89
WTR YR 1989 TOTAL 218008.63 MEAN 597 MAX 9810 MIN .00 AC-FT 432400 CFSM 1.13 IN. 15.39

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.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,710 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.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 748 microsiemens May 4; minimum daily, 101 microsiemens July 17.
WATER TEMPERATURE: Maximum daily, 28.0°C Aug. 25; minimum daily, 0.0°C Feb. 6, 7.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	CALCIUM DISSOLVED (MG/L AS CA)
OCT 27...	1700	134	300	7.40	18.0	120	500	7.1	77	5.4	70	24
DEC 12...	1230	147	268	7.50	7.0	100	59	10.5	87	1.7	95	33
JAN 27...	1415	4310	159	7.50	9.0	29	290	11.0	96	3.0	62	21
MAR 21...	1430	38	570	8.00	10.5	36	18	10.4	94	2.4	180	62
MAY 11...	1030	11	384	7.90	20.0	170	32	6.7	74	2.5	120	41
JUN 19...	1230	108	265	7.60	23.0	90	82	6.2	73	2.6	100	35

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L)
OCT 27...	2.5	32	2	4.4	69	30	19	0.30	8.5	162	1170
DEC 12...	3.1	18	0.8	3.2	98	26	12	0.20	11	165	92
JAN 27...	2.2	10	0.6	3.6	59	19	6.0	0.20	9.3	107	194
MAR 21...	7.0	36	1	3.6	185	46	32	0.20	7.3	305	42
MAY 11...	4.7	27	1	4.2	131	32	13	0.30	8.5	209	87
JUN 19...	3.3	15	0.6	4.0	113	14	11	0.30	13	163	142

DATE	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)	PHOSPHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DISSOLVED (UG/L AS AS)
OCT 27...	76	1090	2.92	0.080	3.00	0.050	1.9	1.9	0.390	30	--
DEC 12...	5	87	1.26	0.040	1.30	0.060	0.84	0.90	0.210	12	6
JAN 27...	34	160	0.120	0.080	0.200	0.120	0.78	0.90	0.340	15	3
MAR 21...	8	34	0.180	0.020	0.200	0.020	0.38	0.40	0.100	10	--
MAY 11...	<1	--	1.29	0.110	1.40	0.090	0.81	0.90	0.180	11	--
JUN 19...	20	122	0.180	0.020	0.200	0.060	0.54	0.60	0.170	13	--

07342500 SOUTH SULPHUR RIVER NEAR COOPER, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
OCT 27...	--	--	--	--	--	--	--	--	--	--	--
DEC 12...	52	1	5	4	100	<5	11	<0.1	<1	<1.0	12
JAN 27...	33	2	<1	4	99	<5	10	0.2	<1	<1.0	15
MAR 21...	--	--	--	--	--	--	--	--	--	--	--
MAY 11...	--	--	--	--	--	--	--	--	--	--	--
JUN 19...	--	--	--	--	--	--	--	--	--	--	--

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	2637.6	194	114	814	7.1	50	15	109	72
NOV.	1988	21615.8	154	91	5320	5.1	299	12	696	58
DEC.	1988	7994	251	148	3190	9.7	208	20	434	91
JAN.	1989	21079	210	124	7050	7.8	444	17	950	77
FEB.	1989	37570	194	114	11600	6.9	702	15	1540	72
MAR.	1989	15846	265	155	6650	11	456	21	917	95
APR.	1989	2357.3	346	202	1280	16	103	29	185	120
MAY	1989	33857.2	174	102	9350	6.2	570	14	1250	64
JUNE	1989	47582	183	108	13900	6.4	817	14	1840	69
JULY	1989	25967.1	139	82	5760	4.7	329	11	757	52
AUG.	1989	947.84	279	163	417	12	31	23	59	98
SEPT	1989	554.79	340	199	298	15	22	28	42	120
TOTAL		218008.63	**	**	65600	**	4030	**	8780	**
WTD.AVG.		597	189	111	**	6.8	**	15	**	70

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	303	230	210	285	213	433	252	721	356	530	419	---
2	354	239	236	316	264	463	283	727	360	547	428	492
3	353	256	258	330	200	484	328	713	302	541	444	489
4	394	260	278	350	190	516	348	748	257	570	438	504
5	329	273	276	370	301	503	385	722	173	566	442	483
6	324	282	309	386	316	402	413	612	145	579	452	---
7	325	287	309	406	329	281	448	324	169	586	446	502
8	328	296	327	432	340	235	469	324	187	626	165	522
9	332	308	332	436	351	214	501	360	165	647	221	---
10	335	322	434	447	369	207	528	373	169	628	376	545
11	341	322	260	453	405	243	532	366	188	320	498	524
12	343	250	226	458	412	277	542	367	202	476	412	---
13	350	130	229	512	285	316	570	360	263	504	389	545
14	350	142	253	350	258	351	578	415	189	558	403	425
15	352	161	274	228	272	370	594	424	186	238	427	296
16	354	204	291	263	233	380	595	361	197	112	459	263
17	359	197	307	298	188	405	609	144	214	101	519	280
18	366	197	322	310	168	422	620	137	232	135	556	270
19	370	206	335	323	140	446	652	145	263	134	588	269
20	360	164	355	339	154	635	677	172	293	174	261	---
21	361	155	379	360	186	554	712	178	322	191	270	---
22	365	172	381	375	224	637	713	207	348	210	277	---
23	369	187	314	382	259	577	714	249	367	219	266	325
24	377	208	292	395	304	573	585	282	401	244	308	281
25	386	230	268	343	326	600	631	298	420	272	284	---
26	337	131	304	145	355	608	657	320	439	291	346	306
27	156	120	293	166	378	612	681	329	458	312	375	330
28	191	138	250	177	414	500	695	266	480	324	394	351
29	294	157	200	199	---	279	705	308	501	348	412	350
30	136	179	238	211	---	235	719	317	517	377	---	380
31	180	---	252	211	---	234	---	332	---	403	---	---
MEAN	325	213	290	331	280	419	558	374	292	379	389	397

07342500 SOUTH SULPHUR RIVER NEAR COOPER, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

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

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.--Records good except those below 2.0 ft³/s and those for estimated daily discharges, which are poor. 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.--40 years, 244 ft³/s (12.01 in/yr), 176,800 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)
Feb. 17	1800	32,800	a25.00	June 4	1030	*68,100	a*34.06
Mar. 28	1530	20,800	19.40	July 15	0830	22,800	20.41
May 17	1245	37,200	26.86				

a From graph.

Minimum discharge, no flow for several 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	.48	73	4.7	154	86	54	270	29	110	17	11	1.1
2	.13	20	2.2	74	65	47	233	82	181	19	37	.99
3	.00	9.6	1.2	54	495	47	209	85	51	38	19	1.4
4	.00	4.6	.76	39	99	66	175	150	31600	46	13	1.1
5	.00	2.0	.47	26	67	92	132	610	2330	23	9.6	1.8
6	.00	.34	.34	31	51	135	108	255	297	14	7.9	.99
7	.00	.21	1.3	30	49	814	98	112	7150	17	135	.64
8	.00	.11	2.7	18	75	1480	91	60	2980	31	36	.61
9	.00	.09	54	13	182	1030	79	45	443	56	17	1.0
10	.00	.09	128	10	151	447	68	36	152	24	12	3.3
11	.00	.02	912	12	157	201	63	30	84	15	9.4	5.2
12	.00	494	290	16	179	118	63	27	68	11	7.9	10
13	.00	168	116	137	709	83	66	38	4290	10	6.7	2030
14	.00	34	61	239	333	67	96	43	3110	1420	6.1	254
15	.00	91	33	136	2500	51	131	41	470	7970	14	35
16	.00	382	17	68	4130	35	98	6800	84	478	12	18
17	.00	54	10	43	16300	31	75	14600	59	83	18	13
18	.00	26	6.3	31	5860	30	64	1350	46	39	31	9.6
19	.00	734	4.9	24	612	31	84	320	43	977	82	7.3
20	.00	520	4.7	20	550	30	92	149	37	82	18	6.1
21	.00	88	3.7	15	489	40	69	97	30	30	11	5.2
22	.01	30	11	11	197	58	54	1060	23	19	7.6	3.8
23	.03	14	245	9.9	119	42	45	238	20	871	6.0	3.0
24	.03	7.6	69	9.6	93	29	39	85	17	150	4.6	2.2
25	.07	626	28	35	81	24	35	52	15	37	3.6	2.0
26	227	1240	14	2520	75	233	34	33	13	106	3.0	1.9
27	68	185	1340	318	70	867	33	576	12	306	2.3	1.8
28	167	49	585	574	65	6540	31	351	10	32	2.0	1.6
29	116	18	128	958	---	3000	34	91	9.9	18	1.7	1.8
30	339	9.3	71	250	---	733	28	48	12	14	1.3	2.3
31	367	---	94	134	---	379	---	29	---	12	1.2	---
TOTAL	1284.75	4879.96	4239.27	6009.5	33839	16834	2697	27522	53746.9	12965	546.9	2426.73
MEAN	41.4	163	137	194	1209	543	89.9	888	1792	418	17.6	80.9
MAX	367	1240	1340	2520	16300	6540	270	14600	31600	7970	135	2030
MIN	.00	.02	.34	9.6	49	24	28	27	9.9	10	1.2	.61
AC-FT	2550	9680	8410	11920	67120	33390	5350	54590	106600	25720	1080	4810
CFSM	.15	.59	.50	.70	4.38	1.97	.33	3.22	6.49	1.52	.06	.29
IN.	.17	.66	.57	.81	4.56	2.27	.36	3.71	7.24	1.75	.07	.33

CAL YR 1988 TOTAL 42404.79 MEAN 116 MAX 4170 MIN .00 AC-FT 84110 CFSM .42 IN. 5.72
WTR YR 1989 TOTAL 166991.01 MEAN 458 MAX 31600 MIN .00 AC-FT 331200 CFSM 1.66 IN. 22.51

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, 1,420 microsiemens Oct. 25; minimum daily, 229 microsiemens July 19.
WATER TEMPERATURE: Maximum daily, 33.0°C June 20; minimum daily, 0.0°C Feb. 9.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT										
27...	1315	53	326	--	17.5	8.9	95	110	37	3.5
DEC										
12...	1405	238	399	--	6.0	12.2	98	140	49	4.4
JAN										
30...	1515	225	470	8.00	10.0	11.2	101	170	61	5.1
FEB										
28...	0800	66	789	--	--	--	--	260	91	8.8
MAR										
21...	1130	38	800	--	11.0	--	--	260	87	9.2
MAY										
08...	1530	57	603	--	28.0	--	--	210	71	7.4
JUN										
19...	1445	7.7	576	--	31.0	4.4	60	210	72	7.1

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT									
27...	21	0.9	3.8	62	62	13	0.40	5.3	183
DEC									
12...	24	0.9	2.7	108	61	11	0.30	8.5	226
JAN									
30...	28	0.9	2.9	144	69	12	0.30	8.2	273
FEB									
28...	56	2	2.5	180	160	33	0.30	8.3	468
MAR									
21...	65	2	2.8	166	170	40	0.30	3.0	477
MAY									
08...	50	2	3.5	128	130	25	0.40	4.0	368
JUN									
19...	48	1	3.5	162	110	23	0.40	10	371

07343000 NORTH SULPHUR RIVER NEAR COOPER, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	1284.75	486	296	1030	25	88	100	362	160
NOV.	1988	4879.96	357	213	2810	15	192	69	915	120
DEC.	1988	4239.27	416	251	2870	19	216	84	966	140
JAN.	1989	6009.5	428	258	4190	20	318	87	1420	140
FEB.	1989	33839	323	193	17600	13	1190	62	5710	110
MAR.	1989	16834	368	220	10000	16	710	73	3300	120
APR.	1989	2697	784	485	3530	48	352	180	1330	250
MAY	1989	27522	325	194	14400	13	990	63	4700	110
JUNE	1989	53746.9	339	202	29400	13	1960	65	9480	110
JULY	1989	12965	285	170	5950	11	386	54	1900	97
AUG.	1989	546.9	544	330	487	27	40	120	170	180
SEPT	1989	2426.73	383	230	1500	16	107	76	496	130
TOTAL		166991.01	**	**	93800	**	6540	**	30700	**
WTD.AVG.		458	347	208	**	15	**	68	**	120

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	959	367	645	645	470	741	597	1060	590	889	635	856
2	1060	472	717	594	491	791	661	1060	530	898	516	907
3	---	576	790	637	400	814	682	1030	400	818	464	889
4	---	629	847	680	600	800	680	876	322	700	511	922
5	---	699	891	736	650	666	680	565	301	726	617	946
6	---	729	946	767	698	640	700	588	398	796	669	985
7	---	769	984	758	720	520	725	607	350	784	600	1000
8	---	815	1000	764	745	331	750	622	274	574	427	1010
9	---	816	957	788	657	298	781	656	400	843	450	1040
10	---	854	845	829	556	384	806	664	489	593	515	1020
11	---	868	360	853	576	475	842	703	520	472	560	1070
12	---	450	384	884	613	561	865	740	578	476	622	1000
13	---	392	477	685	511	621	890	784	450	510	680	350
14	---	430	583	581	530	657	890	815	317	450	738	482
15	---	508	637	615	426	681	858	831	404	241	781	508
16	---	350	709	622	330	698	889	328	500	295	778	579
17	---	363	764	658	271	736	856	251	554	373	786	609
18	---	424	841	692	251	748	880	321	577	448	558	620
19	---	300	898	704	375	763	886	439	624	229	393	601
20	---	319	952	734	470	800	868	524	611	404	381	595
21	---	384	980	764	483	774	903	600	699	498	429	613
22	1190	449	950	800	517	738	898	450	716	573	464	628
23	1340	520	511	833	598	777	922	370	751	243	498	628
24	1380	583	521	853	657	801	961	519	774	324	545	668
25	1420	450	590	820	705	824	988	591	811	413	588	706
26	986	290	676	326	738	700	1010	652	818	452	660	728
27	367	324	350	388	767	335	1040	588	837	249	686	746
28	433	405	324	493	789	300	1050	344	870	367	723	790
29	472	501	447	347	---	342	1060	431	886	457	766	815
30	364	586	511	443	---	393	1060	496	898	524	797	866
31	340	---	592	530	---	506	---	545	---	586	888	---
MEAN	859	521	699	672	557	620	856	615	575	523	604	773

07343000 NORTH SULPHUR RIVER NEAR COOPER, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

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

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 discharge. Records good. The River Crest Stream Electric Generating Plant diverts water for cooling purposes 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 control runoff from 23.4 mi² in the Auds and Depot Creek drainage basins. Gage-height telemeter at station.

AVERAGE DISCHARGE.--33 years, 1,403 ft³/s (13.96 in/yr), 1,016,000 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)
Feb. 18	1900	33,400	25.35	June 9	0100	39,000	25.75
May 18	1630	38,000	25.68	July 20	1130	21,500	24.44
June 5	1930	*40,100	*25.82				

Minimum daily discharge, 1.6 ft³/s Oct. 15-16.

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	5.0	1160	507	497	2750	227	7010	28	331	87	84	19
2	5.6	573	239	490	970	253	3640	26	637	88	79	17
3	5.6	265	142	395	1360	262	869	25	551	104	114	15
4	5.0	138	96	281	2130	408	678	39	2110	150	110	13
5	4.3	81	74	197	1200	1940	363	466	27400	117	101	12
6	3.8	55	59	153	623	1910	223	1200	26100	96	103	11
7	3.4	37	52	123	323	1670	167	821	13600	80	98	9.9
8	3.1	26	52	100	259	3790	163	363	25600	73	203	9.1
9	3.1	19	70	80	265	6220	156	174	31900	67	366	8.4
10	2.9	14	178	67	338	4960	141	106	15400	84	316	8.2
11	2.6	11	1160	57	349	2680	129	74	10900	91	179	7.8
12	2.3	183	2570	54	437	1040	115	56	7070	81	127	7.8
13	2.0	1800	2310	222	1750	597	104	47	2510	67	103	88
14	1.7	2280	1390	1150	3870	430	95	42	8840	59	87	2340
15	1.6	2150	615	1960	4890	339	93	57	11600	2710	75	1050
16	1.6	1320	361	1640	12200	279	95	822	9120	14100	68	591
17	1.7	1070	239	779	15900	234	95	16900	8260	13200	71	281
18	1.7	1020	170	404	26400	206	93	33100	5080	14400	76	149
19	1.7	1800	126	243	24800	183	89	26500	1190	16200	91	95
20	2.8	9480	98	165	17200	165	83	21300	397	19600	133	70
21	3.0	8750	79	118	14500	156	78	18000	256	11400	162	55
22	3.3	4890	73	96	10400	154	69	13000	209	4750	113	45
23	3.6	2700	207	77	3930	158	63	10200	178	1560	86	39
24	4.1	850	761	64	1130	143	59	4030	150	2010	78	36
25	3.6	434	645	83	596	132	57	921	135	835	67	35
26	6.2	5750	380	2980	430	127	51	463	125	347	55	33
27	70	12600	208	9830	342	917	47	538	120	502	46	32
28	271	9150	1720	7590	282	1240	41	5280	114	531	38	34
29	262	6140	1520	9540	---	11100	32	4680	104	219	31	39
30	624	2010	1680	9320	---	13700	32	1620	96	133	25	41
31	1440	---	889	5170	---	9890	---	695	---	101	22	---
TOTAL	2752.3	76756	18670	53925	149624	65510	14930	161573	210083	103842	3307	5191.2
MEAN	88.8	2559	602	1740	5344	2113	498	5212	7003	3350	107	173
MAX	1440	12600	2570	9830	26400	13700	7010	33100	31900	19600	366	2340
MIN	1.6	11	52	54	259	127	32	25	96	59	22	7.8
AC-FT	5460	152200	37030	107000	296800	129900	29610	320500	416700	206000	6560	10300
CFSM	.07	1.87	.44	1.27	3.91	1.55	.36	3.82	5.13	2.45	.08	.13
IN.	.08	2.09	.51	1.47	4.08	1.79	.41	4.40	5.73	2.83	.09	.14

CAL YR 1988 TOTAL 230930.3 MEAN 631 MAX 12600 MIN 1.3 AC-FT 458100 CFSM .46 IN. 6.29
WTR YR 1989 TOTAL 866163.5 MEAN 2373 MAX 33100 MIN 1.6 AC-FT 1718000 CFSM 1.74 IN. 23.61

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: 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, 822 microsiemens Apr. 29; minimum daily, 65 microsiemens Jan. 15.
WATER TEMPERATURE: Maximum daily, 31.0°C Aug. 25, 29, Sept. 1; minimum daily, 2.0°C Feb. 7.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT												
25...	1430	3.0	409	7.90	15.0	7.0	71	1.1	150	52	4.5	25
DEC												
15...	0830	600	260	7.70	7.0	10.9	90	2.0	100	35	3.3	16
FEB												
01...	1600	2490	230	7.60	11.0	10.1	93	2.1	94	33	2.8	12
MAR												
23...	1500	157	500	7.90	14.0	11.2	109	2.0	180	65	5.5	30
MAY												
10...	1445	97	458	7.80	20.5	6.6	74	3.1	140	47	4.7	36
JUN												
21...	1300	252	347	7.80	26.0	5.6	70	1.7	130	44	3.7	19
AUG												
16...	1345	67	--	--	--	--	--	--	--	--	--	--

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	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											
25...	0.9	4.0	135	48	15	0.30	6.0	236	--	<0.010	<0.100
DEC											
15...	0.7	3.5	86	31	11	0.20	10	162	0.600	0.400	1.00
FEB											
01...	0.5	3.5	85	30	7.2	0.20	9.7	150	0.160	0.040	0.200
MAR											
23...	1	3.6	149	65	21	0.20	5.5	285	--	0.020	<0.100
MAY											
10...	1	4.0	135	55	18	0.30	7.0	253	1.94	0.160	2.10
JUN											
21...	0.7	4.0	123	30	12	0.30	12	199	--	0.020	<0.100
AUG											
16...	--	--	--	--	--	--	--	--	--	--	--

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)	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)
OCT											
25...	0.050	0.55	0.60	0.050	--	--	--	--	--	--	--
DEC											
15...	0.060	0.84	0.90	0.210	4	48	3	<1	6	120	<5
FEB											
01...	0.060	0.84	0.90	0.280	4	55	1	<1	4	130	<5
MAR											
23...	0.030	0.37	0.40	0.060	--	--	--	--	--	--	--
MAY											
10...	0.120	0.68	0.80	0.130	--	--	--	--	--	--	--
JUN											
21...	0.060	0.44	0.50	0.110	--	--	--	--	--	--	--
AUG											
16...	--	--	--	--	--	--	--	--	--	--	--

07343200 SULPHUR RIVER NEAR TALCO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	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)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG)	PCN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG)
OCT 25...	--	--	--	--	--	--	--	--	--	--	--
DEC 15...	13	--	<1	<1.0	24	--	--	--	--	--	--
FEB 01...	12	<0.1	<1	<1.0	8	--	--	--	--	--	--
MAR 23...	--	--	--	--	--	--	--	--	--	--	--
MAY 10...	--	--	--	--	--	--	--	--	--	--	--
JUN 21...	--	--	--	--	--	--	--	--	--	--	--
AUG 16...	--	--	--	--	--	<1	<1.0	<0.1	1.0	8.0	8.1

DATE	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ENDOSULFAN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG)	MIREX, TOTAL IN BOTTOM MATERIAL (UG/KG)	PERTHANE IN BOTTOM MATERIAL (UG/KG)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG)
OCT 25...	--	--	--	--	--	--	--	--	--	--	--
DEC 15...	--	--	--	--	--	--	--	--	--	--	--
FEB 01...	--	--	--	--	--	--	--	--	--	--	--
MAR 23...	--	--	--	--	--	--	--	--	--	--	--
MAY 10...	--	--	--	--	--	--	--	--	--	--	--
JUN 21...	--	--	--	--	--	--	--	--	--	--	--
AUG 16...	0.6	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.00	<10

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	2752.3	271	159	1180	8.8	66	28	211	100
NOV.	1988	76756	173	100	20800	4.7	964	16	3340	65
DEC.	1988	18670	322	189	9540	11	574	36	1800	120
JAN.	1989	53925	170	99	14400	4.7	687	16	2350	64
FEB.	1989	149624	219	127	51500	6.5	2610	22	8720	82
MAR.	1989	65510	306	180	31800	11	1890	34	5940	110
APR.	1989	14930	333	196	7900	12	504	38	1540	120
MAY	1989	161573	205	119	52100	6.0	2600	20	8730	77
JUNE	1989	210083	213	124	70300	6.1	3480	21	11700	80
JULY	1989	103842	248	146	40900	8.6	2410	27	7590	92
AUG.	1989	3307	440	261	2330	19	169	56	496	160
SEPT	1989	5191.2	324	191	2670	11	161	36	502	120
TOTAL		866163.5	**	**	305000	**	16100	**	53000	**
WTD.AVG.		2373	224	131	**	6.9	**	23	**	84

07343200 SULPHUR RIVER NEAR TALCO, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	340	284	205	200	247	469	280	755	277	401	310	498
2	341	273	210	192	250	492	282	760	322	405	320	501
3	341	307	224	191	275	430	331	637	365	414	325	505
4	339	291	245	220	294	432	314	590	273	410	350	510
5	335	288	267	207	298	375	355	398	221	438	375	513
6	340	294	300	212	300	325	400	662	203	498	407	518
7	344	303	330	217	332	287	525	401	210	513	362	520
8	351	312	332	227	340	300	495	360	215	578	345	529
9	357	317	327	233	397	277	484	467	176	590	512	535
10	365	328	328	273	444	254	467	450	185	600	600	544
11	371	334	289	296	495	247	470	412	200	605	441	553
12	373	184	275	298	524	286	486	411	222	618	331	552
13	379	177	252	220	342	322	498	414	265	635	306	517
14	387	172	253	190	325	343	513	425	276	645	311	279
15	392	174	273	65	300	368	503	438	227	615	313	333
16	401	197	285	106	260	390	319	320	214	495	317	329
17	407	264	292	96	210	413	578	198	214	303	315	407
18	409	265	302	66	197	419	616	209	242	149	327	375
19	412	225	317	105	181	428	667	169	293	177	331	371
20	390	152	326	156	166	442	719	168	316	160	367	371
21	435	157	334	194	200	448	779	181	346	155	491	377
22	423	164	340	193	215	468	795	206	373	190	632	379
23	413	175	350	147	245	492	805	250	385	245	712	379
24	407	195	365	150	267	529	795	262	369	257	670	375
25	411	202	377	108	303	603	785	292	368	267	593	377
26	414	255	400	227	372	631	798	313	382	275	546	365
27	399	139	402	285	410	600	801	317	380	283	514	350
28	375	146	410	188	443	550	814	229	379	382	504	334
29	350	157	397	130	---	375	822	195	382	327	494	309
30	274	199	396	127	---	225	810	224	390	299	491	292
31	224	---	398	105	---	280	---	253	---	302	499	---
MEAN	371	231	316	181	308	403	577	367	289	395	433	427

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

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

07343500 WHITE OAK CREEK NEAR TALCO, TX

LOCATION.--Lat 33°19'20", long 95°05'33", Titus County, Hydrologic Unit 11140300, near center of main channel at downstream side of bridge on U.S. Highway 271, 0.8 mi downstream from Lewis Creek, 2.4 mi upstream from Ripley Creek, 2.7 mi south of Talco, and 38.4 mi upstream from mouth.

DRAINAGE AREA.--494 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1949 to current year.

REVISED RECORDS.--WSP 1711: Elevation of historical maximum.

GAGE.--Water-stage recorder. Datum of gage is 286.45 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--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.--39 years (water years 1951-89), 451 ft³/s (12.40 in/yr), 326,700 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)
Nov. 21	1830	10,700	18.08	Feb. 19	0200	10,300	18.03
Nov. 28	0530	10,600	18.07	May 18	2400	*17,600	*18.67

Minimum discharge, 0.32 ft³/s Oct. 17-18.

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	.61	438	2750	372	1620	228	3810	36	111	71	79	11
2	.67	387	1570	344	1680	205	3130	32	81	69	78	10
3	.64	241	530	307	1580	181	2010	29	67	77	75	9.6
4	5.9	152	287	264	1410	271	803	29	198	83	66	9.5
5	8.7	69	225	215	1210	1250	319	129	1000	105	59	8.4
6	4.3	34	188	180	802	1780	412	239	1470	101	54	7.6
7	2.1	19	167	156	508	2050	469	371	1980	96	51	7.0
8	1.4	13	284	164	302	1920	301	386	4970	85	47	6.8
9	1.1	10	396	169	248	1690	170	204	6870	65	60	6.6
10	.78	10	421	136	236	1110	129	97	5790	65	51	6.4
11	.56	10	775	110	224	778	109	66	4970	70	39	6.2
12	.47	285	1000	96	216	506	93	55	3650	63	36	5.8
13	.45	789	1100	259	466	332	83	82	2660	56	33	8.2
14	.42	824	954	1090	792	268	83	235	2060	51	31	10
15	.37	835	888	1500	1010	231	151	296	1690	107	30	20
16	.38	1050	563	1570	2200	204	365	473	1770	513	48	52
17	.35	1280	304	1320	4390	179	385	2080	1960	924	52	64
18	.35	1210	228	987	8460	155	232	11000	2200	1030	82	34
19	.42	1870	190	462	9160	139	174	14900	1950	1320	300	21
20	.95	4940	164	262	6590	128	158	8490	1150	1760	406	15
21	1.0	8880	146	199	4660	122	104	5370	319	2140	373	11
22	.88	7990	139	159	3470	125	83	3690	168	1730	142	9.3
23	.81	4830	273	133	2280	192	73	2410	133	1240	57	8.6
24	.72	3330	454	117	1300	278	65	1290	113	1060	39	7.9
25	.82	2080	497	130	570	203	57	374	99	686	32	7.0
26	110	2940	446	233	336	141	53	189	88	350	26	6.1
27	84	7570	290	342	273	199	50	289	87	356	22	5.3
28	19	9550	230	577	249	354	46	901	89	377	19	4.6
29	34	6150	246	997	---	1100	42	809	80	231	16	4.3
30	177	4100	328	1400	---	2400	39	484	74	135	14	4.3
31	381	---	381	1580	---	5090	---	195	---	97	12	---
TOTAL	840.15	71886	16414	15830	56242	23809	13998	55230	47847	15113	2429	387.5
MEAN	27.1	2396	529	511	2009	768	467	1782	1595	488	78.4	12.9
MAX	381	9550	2750	1580	9160	5090	3810	14900	6870	2140	406	64
MIN	.35	10	139	96	216	122	39	29	67	51	12	4.3
AC-FT	1670	142600	32560	31400	111600	47230	27770	109500	94900	29980	4820	769
CFSM	.05	4.85	1.07	1.03	4.07	1.55	.94	3.61	3.23	.99	.16	.03
IN.	.06	5.41	1.24	1.19	4.24	1.79	1.05	4.16	3.60	1.14	.18	.03

CAL YR 1988 TOTAL 152735.70 MEAN 417 MAX 9550 MIN .00 AC-FT 303000 CFSM .84 IN. 11.50
WTR YR 1989 TOTAL 320025.65 MEAN 877 MAX 14900 MIN .35 AC-FT 634800 CFSM 1.77 IN. 24.10

07343500 WHITE OAK CREEK NEAR TALCO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1967 to June 1989 (discontinued). Chemical and biochemical analyses: November 1982 to September 1985.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1967 to September 1989.
WATER TEMPERATURE: October 1967 to September 1989.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,220 micromhos June 15, 1972; minimum daily, 33 micromhos May 16, 1969.
WATER TEMPERATURE: Maximum daily, 37.0°C July 18, Aug. 3, 15, 1975, and Aug. 7, 1986; minimum daily, 0.0°C on several days during January 1968, 1970, 1978, and 1984.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 581 microsiemens Oct. 5; minimum daily, 43 microsiemens Nov. 27.
WATER TEMPERATURE: Maximum daily, 32.0°C Sept. 1; minimum daily, 2.0°C Feb. 7.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT									
25...	1100	0.73	533	16.5	--	--	90	21	9.0
DEC									
14...	1100	935	103	9.5	--	--	31	7.6	2.9
FEB									
01...	1145	1600	110	12.0	9.2	87	30	7.6	2.7
MAR									
22...	1130	187	270	13.0	10.4	99	71	17	7.0
MAY									
10...	1045	99	235	20.5	--	--	58	14	5.5
JUN									
21...	0845	335	152	25.0	2.2	27	47	12	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 WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT									
25...	70	3	9.7	105	74	54	0.50	2.5	304
DEC									
14...	6.8	0.5	4.6	23	16	8.2	0.10	8.0	68
FEB									
01...	7.0	0.6	4.7	25	18	8.0	0.10	7.4	70
MAR									
22...	23	1	5.1	38	50	23	0.10	8.1	156
MAY									
10...	17	1	6.9	43	35	16	0.20	8.3	129
JUN									
21...	9.5	0.6	5.9	41	18	10	0.20	10	94

07343500 WHITE OAK CREEK NEAR TALCO, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	840.15	159	95	215	13	30	28	63	40
NOV.	1988	71886	56	34	6560	4.0	768	11	2050	15
DEC.	1988	16414	132	79	3490	10	457	24	1050	34
JAN.	1989	15830	253	149	6390	22	949	43	1830	62
FEB.	1989	56242	87	52	7960	6.4	971	16	2460	23
MAR.	1989	23809	140	84	5390	11	708	25	1620	36
APR.	1989	13998	147	88	3310	12	442	26	991	37
MAY	1989	55230	72	44	6490	5.4	798	13	2000	19
JUNE	1989	47847	85	51	6580	6.2	804	16	2030	22
JULY	1989	15113	110	66	2700	8.4	341	20	823	28
AUG.	1989	2429	201	119	783	17	109	35	231	50
SEPT	1989	387.5	387	226	236	37	39	62	65	91
TOTAL		320025.65	**	**	50100	**	6420	**	15200	**
WTD.AVG.		877	97	58	**	7.4	**	18	**	25

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	560	73	69	260	100	214	95	364	165	245	175	309
2	520	83	82	322	80	239	105	375	189	250	178	309
3	497	107	104	372	70	251	119	380	203	240	180	315
4	496	118	120	384	80	253	146	280	210	235	190	325
5	581	128	133	404	95	220	185	178	88	230	211	335
6	577	138	282	402	115	140	220	309	100	220	218	344
7	561	150	290	403	134	101	200	308	75	225	231	352
8	549	162	300	415	155	109	190	194	55	230	243	364
9	545	177	249	433	166	115	195	217	57	240	259	370
10	558	189	181	451	190	116	219	217	63	250	252	374
11	559	120	149	460	196	119	238	219	75	265	313	382
12	559	75	113	400	218	132	260	229	83	275	295	392
13	560	78	100	260	168	159	277	233	89	280	258	386
14	558	82	100	118	125	173	285	105	108	290	271	385
15	551	75	103	342	105	189	289	203	124	200	289	388
16	546	72	117	225	90	199	260	182	110	150	297	394
17	548	82	130	241	80	210	230	62	103	120	272	410
18	549	100	144	216	72	218	249	47	102	99	261	463
19	553	80	158	226	75	227	250	48	108	90	265	460
20	541	60	167	312	69	242	222	58	127	87	141	382
21	547	48	175	228	75	252	253	71	154	80	135	372
22	544	44	176	380	85	265	271	84	169	85	156	351
23	546	51	178	261	115	282	290	105	178	90	168	356
24	548	61	175	413	126	287	310	130	185	101	188	369
25	550	72	160	428	136	308	324	163	191	115	210	386
26	185	60	150	290	161	304	332	176	201	125	221	384
27	226	43	180	197	180	273	337	181	211	128	243	369
28	260	49	220	191	197	220	349	113	223	144	260	357
29	197	55	240	238	---	150	355	109	235	135	274	345
30	140	61	220	153	---	118	356	122	245	147	285	348
31	102	---	220	222	---	100	---	152	---	160	294	---
MEAN	478	90	167	311	123	200	247	181	141	178	233	369

07343500 WHITE OAK CREEK NEAR TALCO, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

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

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, 1,144,000 acre-ft June 18 at 1000 hours (elevation, 243.31 ft); minimum, 191,000 acre-ft Jan. 13 (elevation, 222.07 ft).

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

222.0	189,300	233.0	562,100	240.0	929,400
226.0	298,800	236.0	706,200	242.0	1,055,000
230.0	437,300	238.0	813,200	244.0	1,192,000

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	222100	217200	434500	246200	226500	586100	367200	287200	853900	998100	673300	314200
2	221800	218200	446200	242100	228100	580200	373500	283900	844200	990500	658400	310700
3	221300	220500	457200	236400	233400	568800	379900	287200	832800	973600	639800	307200
4	220800	223100	464400	228600	236100	563400	400800	296000	828300	955000	621600	304400
5	220300	224700	466800	225500	243200	556700	412200	306900	817700	936100	603200	301600
6	219000	224200	464400	219700	246000	549700	421200	313500	805400	920300	590700	300000
7	218400	223900	469600	213600	243200	543900	424600	322200	818200	906000	576100	299100
8	217900	223600	466000	204600	239900	537000	423500	330300	845900	889400	557200	297900
9	217700	223900	459200	202300	236100	528700	419300	336300	883500	871800	540000	295700
10	217200	224200	449300	197900	238800	519700	412600	341900	925800	853300	522700	295100
11	216400	223900	436900	194100	238300	511200	397900	344600	976100	835100	502800	294200
12	215900	236700	425000	191700	236700	502800	381000	346600	1032000	815400	485800	292300
13	215400	239600	410400	192900	236100	496100	365100	348000	1084000	802100	469200	293900
14	214900	241800	396100	196700	233200	487900	358200	350000	1117000	780200	452800	291700
15	214600	246500	380200	200900	231300	479300	346000	349400	1135000	763400	436900	290500
16	214400	245400	369700	205100	232400	469200	332600	353100	1141000	748500	427300	290200
17	213800	245700	355500	210600	232400	458000	327400	379900	1142000	734700	416300	291100
18	213300	251500	342600	216600	241600	442300	324100	411900	1141000	721200	406700	291400
19	213100	263500	328700	223900	253200	426100	320900	444200	1139000	708800	399700	291400
20	213600	264700	313500	229700	280000	410000	315100	478900	1137000	698000	393900	290200
21	213600	272300	298200	235600	327100	393500	310700	544800	1134000	685800	388800	289300
22	213600	280000	293900	239900	393500	374900	306600	632600	1129000	681800	379900	287800
23	213600	283600	286900	243200	458400	358200	300700	716500	1122000	688400	370400	284200
24	213300	286000	278200	244300	511700	340600	297000	780700	1109000	705200	358600	283000
25	212800	291100	269600	245400	546600	323200	293300	827200	1093000	718600	351700	282400
26	212600	323500	263200	244300	569700	307200	290500	855600	1074000	726400	344600	280300
27	213300	365500	261200	241600	582400	296300	288700	870700	1055000	728500	337300	278800
28	212800	399000	256600	241300	587900	317100	287200	878300	1042000	725300	331000	277900
29	212600	414800	254600	241000	---	341300	288400	877700	1024000	718100	327100	277600
30	215100	424600	252100	234000	---	352700	286300	871800	1010000	705700	320900	276400
31	216600	---	250700	230200	---	359600	---	863100	---	689400	317100	---
MAX	222100	424600	469600	246200	587900	586100	424600	878300	1142000	998100	673300	314200
MIN	212600	217200	250700	191700	226500	296300	286300	283900	805400	681800	317100	276400
(†)	223.11	229.67	224.38	223.63	233.57	227.87	225.60	238.88	241.30	235.67	226.59	225.27
(ϕ)	-6300	+208000	-173900	-20500	+357700	-228300	-73300	+576800	+146900	-320600	-372300	-40700

CAL YR 1988 MAX 1046000 MIN 195300 (ϕ) -686000
WTR YR 1989 MAX 1142000 MIN 191700 (ϕ) +53500

(†) 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.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,100 ft³/s June 16 to July 5, 1981; maximum gage height, 32.57 ft June 15, 1981; no flow June 25, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 94,000 ft³/s Apr. 4, 1945; maximum stage, 47.23 ft Apr. 14, 1945; no flow on various occasions.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 212.22 ft at 2315 hours Dec. 7; minimum, 187.34 ft Oct. 12, 15-18.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	187.49	187.39	211.85	210.21	209.49	211.54	208.61	189.71	211.79	211.79	211.65	198.02
2	187.49	187.40	211.94	210.21	209.80	211.56	208.41	188.83	211.80	211.76	211.62	197.49
3	187.46	187.40	211.99	210.15	210.03	211.56	210.06	188.52	211.79	211.75	211.68	197.34
4	187.46	187.40	211.99	210.12	209.80	211.59	210.52	192.47	211.79	211.71	211.54	197.26
5	187.46	187.39	212.02	209.21	209.85	211.59	211.23	197.42	211.78	211.68	211.50	195.36
6	187.38	187.39	212.05	208.76	210.61	211.55	211.34	197.73	211.77	211.65	211.60	194.35
7	187.38	187.40	212.00	208.52	211.36	211.50	211.35	196.30	211.93	211.63	211.47	192.45
8	187.38	187.40	212.16	208.30	211.43	211.51	211.36	194.72	211.94	211.62	211.41	191.60
9	187.35	187.40	212.11	206.65	211.43	211.50	211.32	193.57	211.94	211.59	211.43	191.40
10	187.36	187.41	212.08	205.60	210.30	211.72	211.29	192.97	211.98	211.56	211.39	190.27
11	187.36	187.43	212.04	204.88	210.01	211.71	211.47	192.72	212.02	211.52	211.36	190.37
12	187.36	188.45	211.98	202.60	209.93	211.70	211.47	192.61	211.81	211.49	211.32	191.32
13	187.36	188.48	211.94	201.58	209.98	211.69	211.45	192.70	211.66	211.51	211.27	191.40
14	187.35	191.47	211.92	201.80	210.12	211.66	210.54	192.95	211.71	211.71	211.25	191.37
15	187.34	194.28	211.86	201.46	210.01	211.61	210.34	192.87	211.73	211.75	210.85	191.37
16	187.36	194.60	211.81	200.83	210.02	211.00	210.25	194.54	211.75	211.73	210.26	191.40
17	187.34	197.07	211.78	199.04	211.31	211.80	208.87	199.54	211.77	211.70	210.07	191.40
18	187.37	199.37	211.76	196.17	211.48	211.72	208.50	202.39	211.80	211.69	209.47	193.16
19	187.37	199.53	211.76	193.38	211.53	211.67	208.51	201.84	211.82	211.70	209.14	193.50
20	187.39	199.47	211.71	192.12	211.69	211.63	208.18	200.33	211.85	211.65	208.95	193.56
21	187.36	200.64	211.63	192.50	211.67	211.56	206.94	198.89	211.86	211.64	208.86	193.56
22	187.38	203.12	210.74	192.70	211.66	211.40	206.12	197.52	211.86	211.63	208.77	193.54
23	187.39	205.00	209.71	193.59	211.64	211.46	205.58	198.89	211.86	211.65	208.67	193.52
24	187.36	205.62	209.26	196.42	211.59	211.43	204.04	201.64	211.86	211.68	208.57	193.52
25	187.37	205.93	209.04	198.62	211.69	211.38	202.93	204.45	211.85	211.70	207.72	193.47
26	187.39	207.50	208.92	201.60	211.59	211.31	200.24	207.34	211.84	211.72	207.05	193.45
27	187.38	207.65	208.85	204.82	211.52	210.40	196.96	210.49	211.82	211.72	206.57	191.94
28	187.39	209.26	208.82	205.73	211.53	209.77	194.02	211.58	211.80	211.71	205.26	191.45
29	187.39	211.27	208.74	206.13	---	210.13	192.85	211.73	211.79	211.69	204.28	191.36
30	187.41	211.77	209.83	208.65	---	209.41	189.57	211.78	211.82	211.67	202.58	191.33
31	187.39	---	210.18	209.28	---	208.91	---	211.80	---	211.64	199.68	---
MAX	187.49	211.77	212.16	210.21	211.69	211.80	211.47	211.80	212.02	211.79	211.68	198.02
MIN	187.34	187.39	208.74	192.12	209.49	208.91	189.57	188.52	211.66	211.49	199.68	190.27
(†)	187.39	211.77	210.18	209.28	211.53	208.91	189.57	211.80	211.82	211.64	199.68	191.33

CAL YR 1988 MAX -- MIN --
WTR YR 1989 MAX 212.16 MIN 187.34

(†) 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 affected slightly by Lake Franklin located 1.4 mi upstream on Glade Branch. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--15 years (water years (1975-89), 21.5 ft³/s (10.73 in/yr), 15,580 acre-ft/yr.
Revisions.--Revised figures for the water years 1985-88 superseding those published in error in the water-data reports are given herein:
11 years (water years 1975-85), 20.4 ft³/s (10.18 in/yr), 14,780 acre-ft/yr.
12 years (water years 1975-86), 20.3 ft³/s (10.14 in/yr), 14,710 acre-ft/yr.
13 years (water years 1975-87), 19.6 ft³/s (9.79 in/yr), 14,200 acre-ft/yr.
14 years (water years 1975-88), 20.0 ft³/s (9.99 in/yr), 14,490 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)
Nov. 19	2145	1,000	10.71	Mar. 29	2000	3,130	11.92
Nov. 26	0345	*6,290	*12.91	May 5	0900	1,180	10.87
Feb. 16	2345	1,000	10.70	May 17	1600	5,830	12.80
Feb. 17	2315	1,070	10.77	June 8	0345	1,310	10.96
Mar. 4	2400	1,000	10.70	July 14	2345	1,120	10.81

Minimum daily discharge, 0.39 ft³/s Oct. 6.

REVISIONS.--Revised figures of discharge for water years 1985-1988, superseding those published in corresponding annual water data reports are given herein.

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
			Water Year 1985				
Nov. 27	0300	983	10.76	Apr. 23	0130	1,040	10.80
Dec. 18	1330	900	10.69	May 21	1430	1,780	11.26
Feb. 23	1415	*3,130	*11.92	June 18	1215	910	10.70
Minimum discharge, no flow Oct. 1-5, and Aug. 5 to Sept. 28.							
			Water Year 1986				
Dec. 11	0830	*5,390	*12.69	Apr. 5	1115	1,140	10.88
Feb. 3	1815	2,610	11.66				
Minimum discharge, no flow Aug. 20-26 and 31.							
			Water Year 1987				
Feb. 28	1015	910	10.61	Mar. 17	1545	*1,330	*10.97
Minimum discharge, no flow for many days.							
			Water Year 1988				
Dec. 26	1630	*2,430	*11.57	Mar. 8	1545	1,000	10.70
Feb. 18	2145	972	10.67	July 12	1800	993	10.69
Minimum discharge, no flow Sept. 2, 10.							

07344482 BIG CYPRESS CREEK NEAR WINNSBORO, TX--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	65	8.5	15	7.9	28	19	114	3.8	.68	e.20	.00
2	.00	140	7.3	12	8.5	21	14	22	3.4	.49	e.08	.00
3	.00	15	6.3	11	8.1	18	11	13	3.0	.53	e.04	.00
4	.00	7.8	6.1	9.5	11	20	10	9.6	2.7	.61	e.01	.00
5	.00	5.7	34	8.6	35	15	7.7	8.3	2.4	.67	e.00	.00
6	.03	4.7	33	8.4	66	11	6.6	7.1	8.2	.55	e.00	.00
7	6.4	4.5	13	8.0	75	10	6.2	6.1	5.0	.54	e.00	.00
8	2.9	4.3	9.6	7.7	35	9.7	6.0	5.3	3.4	.63	e.00	.00
9	2.1	4.6	8.4	7.9	25	9.1	6.0	4.7	2.8	.81	e.00	.00
10	2.1	3.9	7.5	10	20	9.3	5.8	4.3	2.5	.68	e.00	.00
11	2.7	3.5	7.8	8.5	17	10	5.8	3.8	2.5	.87	e.00	.00
12	8.5	3.5	7.9	7.4	12	7.6	5.7	3.5	2.1	.73	e.00	.00
13	3.7	3.7	239	7.5	10	7.5	5.8	5.1	1.8	.92	e.00	.00
14	3.6	4.0	167	7.6	9.0	101	6.0	32	1.8	.93	e.00	.00
15	4.2	4.0	58	7.3	8.3	31	5.9	14	1.9	.90	e.00	.00
16	2.5	3.6	197	31	8.3	16	5.4	6.4	1.9	1.0	e.00	.00
17	1.7	3.6	65	33	7.5	13	5.5	4.6	1.9	e2.4	e.00	.00
18	1.9	5.6	718	16	7.5	11	5.7	3.9	429	e2.2	e.00	.00
19	2.8	5.2	126	12	7.4	9.4	5.6	3.3	53	e.52	e.00	.00
20	32	4.2	40	8.8	7.9	278	5.6	86	5.5	e.70	e.00	.00
21	19	3.8	27	7.5	8.0	463	6.6	809	2.9	e5.0	e.00	.00
22	3.7	3.6	18	7.7	265	64	273	190	1.9	e37	e.00	.00
23	6.3	3.6	14	8.1	1310	24	467	23	1.5	e12	e.00	.00
24	104	3.7	13	8.4	281	16	27	12	1.3	e3.6	e.00	.00
25	484	6.3	11	8.1	43	12	14	8.4	1.1	e1.0	e.00	.00
26	79	121	9.9	7.5	24	11	11	6.6	.90	e.40	e.00	.00
27	14	563	9.8	8.6	17	62	11	31	.69	e.32	.00	.00
28	384	50	11	10	14	27	99	33	.56	e.30	e.00	.00
29	87	17	10	9.0	---	16	78	11	.49	e.28	.00	.64
30	85	11	12	8.6	---	71	43	7.5	.54	e.22	.00	1.3
31	13	---	14	8.2	---	62	---	4.6	---	e.26	.00	---
TOTAL	1356.13	1079.4	1909.1	328.9	2348.4	1463.6	1178.9	1493.1	550.48	77.74	0.33	1.94
MEAN	43.7	36.0	61.6	10.6	83.9	47.2	39.3	48.2	18.3	2.51	.011	.065
MAX	484	563	718	33	1310	463	467	809	429	37	.20	1.3
MIN	.00	3.5	6.1	7.3	7.4	7.5	5.4	3.3	.49	.22	.00	.00
AC-FT	2690	2140	3790	652	4660	2900	2340	2960	1090	154	.7	3.8
CFSM	1.61	1.32	2.26	.39	3.08	1.74	1.44	1.77	.67	.09	.00	.00
IN.	1.85	1.48	2.61	.45	3.21	2.00	1.61	2.04	.75	.11	.00	.00

CAL YR 1984 TOTAL 6785.93 MEAN 18.5 MAX 787 MIN .00 AC-FT 13460 CFSM .68 IN. 9.28
WTR YR 1985 TOTAL 11788.02 MEAN 32.3 MAX 1310 MIN .00 AC-FT 23380 CFSM 1.19 IN. 16.12

e Estimated.

07344482 BIG CYPRESS CREEK NEAR WINNSBORO, TX--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.83	2.5	11	4.9	6.3	5.7	5.6	19	8.1	4.2	.20	.01
2	.70	2.1	7.5	4.9	5.7	6.4	5.9	26	28	4.5	.13	.15
3	.70	2.3	5.2	4.6	764	6.7	6.0	8.1	19	5.8	.02	.34
4	.67	2.5	4.8	4.7	603	6.7	7.0	5.2	9.0	4.3	.06	.44
5	.55	2.7	4.5	4.4	103	6.9	567	4.6	7.4	3.7	.18	.86
6	.55	3.2	4.3	4.6	343	5.9	48	4.6	5.4	2.9	.37	1.1
7	.64	3.1	4.2	4.4	43	6.2	19	4.9	10	2.5	.35	.81
8	.64	3.3	3.9	4.2	21	5.9	9.9	5.1	40	2.7	.23	.50
9	.61	4.0	4.3	4.2	59	6.9	6.0	6.5	13	2.8	.29	.45
10	.71	4.0	4.9	4.4	43	5.8	4.2	9.0	7.8	2.8	.36	.53
11	.88	6.8	1650	4.6	20	5.8	4.0	11	227	2.7	.31	.65
12	1.1	5.7	176	4.5	14	12	6.3	6.7	32	2.5	.23	.55
13	1.2	3.9	79	4.5	12	7.6	5.5	4.4	14	1.7	.21	.50
14	1.6	4.1	19	4.7	12	6.1	4.4	3.4	10	1.6	.16	.49
15	1.8	7.1	12	4.6	11	6.3	2.7	3.4	8.5	1.5	.31	.54
16	1.5	4.6	8.5	5.0	11	6.0	2.4	2.9	16	1.4	.37	.57
17	1.5	21	7.3	6.0	9.8	5.8	3.6	111	66	1.4	.31	.62
18	23	9.2	6.4	5.6	8.9	6.5	4.6	134	14	1.2	.15	.68
19	27	5.2	5.8	5.2	7.9	5.7	15	19	9.2	.92	.03	.73
20	2.6	5.5	5.4	5.0	7.5	5.2	32	9.4	8.1	.83	.00	.72
21	1.0	3.5	5.1	5.2	7.7	5.4	8.4	6.8	8.1	.85	.00	.75
22	1.1	3.3	5.3	3.8	6.2	6.0	5.0	5.2	8.8	1.1	.00	.88
23	1.7	3.9	5.2	3.9	6.6	6.0	3.7	4.5	7.6	1.1	.00	.97
24	2.3	5.1	4.8	4.7	5.8	6.0	3.2	4.3	6.0	1.2	.00	1.0
25	2.8	6.7	4.1	4.8	6.0	6.0	3.1	5.1	6.2	.99	.00	1.0
26	3.2	7.3	4.6	4.9	6.2	5.6	3.9	6.0	5.0	.87	.0	1.0
27	3.3	211	4.4	4.7	5.9	5.6	8.3	5.5	5.0	.72	.08	.94
28	4.9	43	4.9	5.8	5.1	6.2	12	6.1	4.5	.59	.11	.93
29	5.4	8.4	4.8	5.2	---	6.2	7.0	6.1	4.2	.56	.12	1.0
30	6.8	6.0	5.5	5.3	---	5.8	7.1	5.6	4.5	.30	.06	1.1
31	4.5	---	5.2	5.9	---	5.8	---	6.1	---	.15	.00	---
TOTAL	105.78	401.0	2077.9	149.2	2154.6	194.7	820.8	459.5	612.4	60.38	4.64	20.81
MEAN	3.41	13.4	67.0	4.81	76.9	6.28	27.4	14.8	20.4	1.95	.15	.69
MAX	27	211	1650	6.0	764	12	567	134	227	5.8	.37	1.1
MIN	.55	2.1	3.9	3.8	5.1	5.2	2.4	2.9	4.2	.15	.00	.01
AC-FT	210	795	4120	296	4270	386	1630	911	1210	120	9.2	41
CFSM	.13	.49	2.46	.18	2.83	.23	1.01	.54	.75	.07	.01	.03
IN.	.14	.55	2.84	.20	2.95	.27	1.12	.63	.84	.08	.01	.03

CAL YR 1985 TOTAL 10028.07 MEAN 27.5 MAX 1650 MIN .00 AC-FT 19890 CFSM 1.01 IN. 13.71
WTR YR 1986 TOTAL 7061.71 MEAN 19.3 MAX 1650 MIN .00 AC-FT 14010 CFSM .71 IN. 9.66

07344482 BIG CYPRESS CREEK NEAR WINNSBORO, TX--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	4.6	11	3.6	4.7	61	5.6	2.3	2.7	17	.00	.25
2	1.2	4.9	11	3.9	6.1	22	4.7	2.6	e2.9	3.9	.00	.23
3	1.3	5.3	12	5.4	4.9	16	4.4	3.0	e2.5	4.5	.00	.28
4	1.2	6.7	12	5.7	4.1	13	4.3	4.2	e2.1	2.3	.00	.29
5	1.6	6.6	13	5.0	3.6	11	4.2	3.4	e1.8	1.2	.00	.29
6	2.1	6.3	14	4.9	3.6	9.6	4.1	3.1	e1.5	.65	.00	.30
7	2.0	6.7	15	4.2	3.7	8.7	3.9	e2.8	e1.2	.43	.00	.34
8	1.9	7.5	18	4.3	3.4	8.3	3.9	e2.3	e1.1	.40	.00	.40
9	2.0	7.9	39	80	3.0	7.7	3.8	e1.9	e1.0	.40	.00	.38
10	1.9	8.8	15	32	3.1	6.7	3.7	e1.6	5.0	.40	.00	.46
11	2.0	10	13	12	3.2	6.5	3.5	e1.4	4.2	.35	.00	.58
12	3.6	8.9	13	8.1	2.9	6.2	3.7	e1.1	12	.28	.00	.62
13	2.3	9.1	13	6.6	3.1	6.1	3.9	e.79	12	.07	.01	.75
14	1.8	9.0	14	6.4	3.2	7.1	3.7	e.70	3.5	.00	.04	.95
15	1.6	9.6	22	5.7	19	6.2	3.5	e1.3	3.8	.00	.05	1.1
16	1.9	11	20	5.4	12	6.0	3.3	4.2	7.9	.0	.09	1.6
17	2.0	11	15	5.7	6.6	688	3.5	e2.6	e2.9	.04	.15	.84
18	2.0	12	30	94	4.6	185	3.5	e2.8	e1.7	.05	.15	3.0
19	2.1	13	20	28	3.9	20	3.2	e2.4	e1.2	.0	.10	2.5
20	2.3	14	13	13	211	12	3.0	e1.9	2.8	.00	.02	.62
21	2.5	13	8.4	9.2	75	8.8	2.7	e1.5	e2.2	.00	.00	.25
22	2.8	21	3.5	7.6	21	7.2	2.8	e1.2	e1.3	.00	.00	.05
23	4.3	15	15	6.7	14	8.0	2.7	e.98	1.1	.96	.00	.00
24	4.2	14	12	6.2	135	8.1	2.6	e.79	1.4	1.7	.00	.01
25	3.1	30	5.8	5.2	54	5.5	2.6	e.76	1.1	.86	.00	.01
26	2.9	14	3.8	4.8	214	4.8	2.6	e.73	.77	.17	.0	.01
27	2.9	9.5	3.1	4.7	162	4.9	2.5	e.67	.67	.00	.03	.06
28	3.1	8.7	2.8	4.3	453	4.8	2.4	e.64	.48	.00	.04	.39
29	3.4	8.6	2.7	5.0	---	6.0	2.3	3.1	.37	.00	.00	1.6
30	3.7	9.3	2.5	3.6	---	7.9	2.4	e1.8	2.4	.00	.19	.86
31	4.2	---	2.7	3.4	---	6.1	---	e1.1	---	.00	.25	---
TOTAL	75.0	316.0	395.3	394.6	1437.7	1179.2	103.0	59.66	85.59	35.66	1.12	19.02
MEAN	2.42	10.5	12.8	12.7	51.3	38.0	3.43	1.92	2.85	1.15	.036	.63
MAX	4.3	30	39	94	453	688	5.6	4.2	12	17	.25	3.0
MIN	1.1	4.6	2.5	3.4	2.9	4.8	2.3	.64	.37	.00	.00	.00
AC-FT	149	627	784	783	2850	2340	204	118	170	71	2.2	38
CFSM	.09	.39	.47	.47	1.89	1.40	.13	.07	.10	.04	.00	.02
IN.	.10	.43	.54	.54	1.97	1.61	.14	.08	.12	.05	.00	.03

CAL YR 1986	TOTAL	5263.33	MEAN	14.4	MAX	764	MIN	.00	AC-FT	10440	CFSM	.53	IN.	7.20
WTR YR 1987	TOTAL	4101.85	MEAN	11.2	MAX	688	MIN	.00	AC-FT	8140	CFSM	.41	IN.	5.61

e Estimated.

07344482 BIG CYPRESS CREEK NEAR WINNSBORO, TX--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.43	2.7	5.5	15	7.5	9.0	23	3.7	2.6	4.7	.16	.05
2	.46	2.8	5.5	12	8.7	54	129	2.9	2.9	3.9	.16	.00
3	.34	3.1	5.5	11	7.8	222	31	2.6	2.8	3.2	.11	.19
4	.18	3.4	5.0	10	7.4	33	17	1.6	4.6	3.5	.09	.35
5	.30	3.6	5.7	8.7	6.9	19	14	1.5	3.6	6.8	.14	.15
6	.33	3.6	17	11	6.4	14	12	e1.3	3.0	5.9	.11	.06
7	.29	3.9	37	18	6.6	12	11	e1.6	3.0	4.9	.10	.05
8	.41	5.0	13	14	6.9	409	10	2.7	3.2	7.1	.07	.10
9	.71	34	7.7	9.7	6.7	79	9.8	2.0	3.0	7.1	.04	.02
10	.75	37	5.6	10	6.7	30	9.9	1.4	1.9	6.2	.01	.00
11	.74	5.4	5.7	13	7.4	21	10	1.2	1.2	5.6	.06	.02
12	.78	3.3	5.4	114	7.7	21	11	1.2	1.1	375	.34	.17
13	.87	3.1	26	90	7.7	16	11	1.2	1.3	58	.26	.21
14	1.0	3.0	109	35	7.7	13	10	1.1	1.4	4.7	.28	.30
15	1.2	4.9	26	26	6.6	12	10	1.1	1.9	1.7	.26	.35
16	1.3	25	12	34	6.5	12	9.4	.97	2.1	.97	.22	.37
17	1.4	21	7.8	70	20	23	35	.94	3.4	.54	.29	.49
18	1.9	6.1	7.1	36	719	76	165	.94	4.6	.40	.30	.80
19	3.9	4.5	57	59	439	28	18	e.83	4.3	.24	.46	1.2
20	2.5	4.0	94	31	52	18	9.6	e.76	4.0	.23	.42	.79
21	1.9	4.2	24	16	29	14	7.0	e.73	3.6	.20	.46	.76
22	2.1	5.6	14	12	21	12	5.1	e.70	3.5	.12	.19	1.2
23	2.4	7.2	11	11	13	12	3.9	e.67	4.2	.09	.23	1.2
24	3.8	8.4	14	9.1	12	12	3.3	.67	4.8	.12	.17	1.1
25	4.1	45	880	8.0	11	76	3.0	.73	4.6	.09	.10	.79
26	21	20	1820	7.6	11	28	3.0	.73	5.5	.07	.08	.75
27	4.0	12	515	7.5	11	15	2.3	.98	6.5	.03	.05	.66
28	1.9	13	60	7.7	10	12	e1.9	1.2	6.1	.01	.08	.75
29	2.2	8.0	34	7.7	9.4	51	2.6	1.4	6.1	.02	.07	.88
30	2.5	6.1	24	7.6	---	61	4.9	2.7	5.8	.04	.17	2.5
31	2.6	---	20	7.8	---	24	---	3.1	---	.11	.10	---
TOTAL	68.29	308.9	3873.5	729.4	1472.6	1438.0	592.7	45.15	106.6	501.58	5.58	16.26
MEAN	2.20	10.3	125	23.5	50.8	46.4	19.8	1.46	3.55	16.2	.18	.54
MAX	21	45	1820	114	719	409	165	3.7	6.5	375	.46	2.5
MIN	.18	2.7	5.0	7.5	6.4	9.0	1.9	.67	1.1	.01	.01	.00
AC-FT	135	613	7680	1450	2920	2850	1180	90	211	995	11	32
CFSM	.08	.38	4.59	.87	1.87	1.71	.73	.05	.13	.59	.01	.02
IN.	.09	.42	5.30	1.00	2.01	1.97	.81	.06	.15	.69	.01	.02

CAL YR 1987 TOTAL 7566.24 MEAN 20.7 MAX 1820 MIN .00 AC-FT 15010 CFSM .76 IN. 10.35
WTR YR 1988 TOTAL 9158.56 MEAN 25.0 MAX 1820 MIN .00 AC-FT 18170 CFSM .92 IN. 12.53

e Estimated.

07344482 BIG CYPRESS CREEK NEAR WINNSBORO, TX--Continued

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	2.9	.81	5.6	23	12	10	31	3.6	4.3	6.7	2.2	1.3
2	2.4	.95	5.5	13	8.5	9.7	20	3.6	4.3	4.9	3.0	1.2
3	1.1	1.4	5.7	9.9	9.1	10	16	4.4	4.3	6.7	2.3	1.1
4	.59	1.0	6.1	7.6	7.9	190	13	5.3	6.6	4.2	2.1	1.1
5	.50	.90	6.6	7.2	6.6	314	9.8	571	15	2.8	2.0	1.0
6	.39	1.1	7.1	7.0	5.9	44	9.0	48	7.2	2.3	1.9	1.0
7	.42	2.4	59	6.7	5.7	34	7.8	18	109	2.4	1.8	1.1
8	.46	.99	74	5.0	6.6	21	7.9	8.4	660	2.3	1.7	1.1
9	.96	1.4	22	4.3	6.6	15	7.0	6.3	38	2.2	1.5	2.0
10	1.2	3.1	18	4.4	6.4	12	6.2	5.8	14	2.0	1.4	6.8
11	1.3	2.9	67	4.7	6.3	11	6.3	5.2	9.4	1.9	1.4	4.3
12	1.3	11	26	7.4	7.5	9.9	6.5	5.9	8.7	1.8	1.4	3.1
13	1.3	6.4	14	33	16	9.0	7.8	15	10	1.8	1.4	6.1
14	1.5	2.1	10	84	40	9.1	87	10	37	237	1.7	5.0
15	1.9	5.0	7.9	30	74	7.1	48	7.5	17	276	3.9	2.0
16	1.9	27	6.5	14	757	6.7	19	157	e7.5	24	2.2	1.6
17	2.1	2.0	5.9	9.9	740	7.4	12	2100	e4.4	8.4	9.2	1.3
18	2.2	2.6	6.2	8.3	477	6.8	8.3	483	e3.3	5.1	9.0	1.2
19	2.1	269	6.7	7.4	61	6.8	7.3	49	e3.1	25	2.4	1.1
20	2.0	190	7.1	6.6	50	7.6	7.1	25	e3.0	12	1.6	1.0
21	2.7	11	6.2	5.3	43	54	6.7	28	2.8	4.9	1.4	.97
22	3.3	4.6	8.4	5.1	23	48	6.0	15	2.5	3.2	1.3	.95
23	3.8	3.5	17	5.2	15	17	5.3	10	2.2	2.8	1.3	.94
24	3.1	3.5	11	5.5	13	11	4.9	7.6	2.0	2.6	1.2	.87
25	3.7	39	6.8	20	12	9.1	4.5	6.8	2.1	2.6	1.3	.84
26	12	1900	6.5	30	12	50	4.1	5.1	2.4	2.7	1.3	.86
27	4.7	106	8.8	13	13	79	3.9	4.5	2.8	3.1	1.3	.87
28	5.9	19	17	27	12	265	3.5	4.4	2.4	2.6	1.3	.88
29	6.0	9.4	11	144	---	1380	3.2	4.4	3.7	2.5	1.2	1.1
30	15	6.5	12	35	---	573	3.2	4.4	6.8	2.6	1.5	1.3
31	3.9	---	31	18	---	58	---	4.3	---	2.2	1.5	---
TOTAL	92.62	2634.55	502.6	601.5	2447.1	3285.2	382.3	3626.5	995.8	661.3	68.7	53.98
MEAN	2.99	87.8	16.2	19.4	87.4	106	12.7	117	33.2	21.3	2.22	1.80
MAX	15	1900	74	144	757	1380	87	2100	660	276	9.2	6.8
MIN	.39	.81	5.5	4.3	5.7	6.7	3.2	3.6	2.0	1.8	1.2	.84
AC-FT	184	5230	997	1190	4850	6520	758	7190	1980	1310	136	107
CFSM	.11	3.23	.60	.71	3.21	3.90	.47	4.30	1.22	.78	.08	.07
IN.	.13	3.60	.69	.82	3.35	4.49	.52	4.96	1.36	.90	.09	.07

CAL YR 1988 TOTAL 8137.64 MEAN 22.2 MAX 1900 MIN .00 AC-FT 16140 CFSM .82 IN. 11.13
WTR YR 1989 TOTAL 15352.15 MEAN 42.1 MAX 2100 MIN .39 AC-FT 30450 CFSM 1.55 IN. 21.00

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.

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, 84,270 acre-ft May 18 at 0400 hours (elevation, 381.13 ft); minimum, 67,850 acre-ft Oct. 23-26 (elevation, 376.50 ft).

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

376.0	66,240	380.0	79,980
378.0	72,850	382.0	87,700

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68770	68500	76080	73850	74580	74650	78470	73500	74300	73570	73190	72340
2	68770	68540	75670	73850	74400	74610	77810	73330	74160	73710	73160	72270
3	68770	68540	75380	73880	74300	74540	77200	73370	74060	73710	73160	72140
4	68700	68540	75070	73810	74260	75100	76870	73400	74260	73710	73160	72140
5	68600	68410	74820	73850	74020	75560	76130	75170	74440	73710	73090	72100
6	68570	68410	74650	73850	73950	75560	75740	75210	74230	73670	72990	72030
7	68470	68470	74960	73710	73880	75380	75350	75070	76280	73640	72990	72000
8	68440	68470	75000	73670	73780	75210	75070	74890	77090	73640	72920	71930
9	68410	68440	75000	73640	73780	75030	74750	74680	76970	73640	72890	71930
10	68370	68410	74960	73500	73780	74930	74510	74440	76380	73640	72850	71930
11	68340	68410	74960	73540	73710	74680	74400	74260	75980	73540	72820	71930
12	68240	68670	74890	73710	73810	74540	74230	74190	75740	73500	72780	71930
13	68180	68670	74720	73920	73950	74510	74370	74260	75450	73430	72720	71970
14	68140	68670	74650	73990	74060	74400	74890	74230	75450	73430	72720	71970
15	68080	69090	74440	74020	74820	74260	74930	74090	75240	73850	72720	71970
16	68080	69030	74300	74020	76720	74060	74860	75310	75000	73880	72720	71930
17	68080	69030	74160	74020	78180	74060	74750	84040	74750	73850	72720	71900
18	68080	69460	74060	74020	78690	73990	74540	83270	74610	73810	72720	71900
19	67980	70550	73950	74020	78140	73920	74470	81400	74470	73850	72720	71900
20	67980	70820	73950	73950	77630	73920	74400	79900	74300	73780	72720	71900
21	67950	70850	73920	73920	77090	74230	74300	78800	74190	73640	72720	71830
22	67920	70850	73950	73850	76720	74300	74160	77960	73990	73540	72720	71830
23	67850	70850	73880	73850	76130	74300	74060	77200	73920	73430	72720	71690
24	67850	70920	73850	73920	75770	74300	73920	76870	73810	73430	72720	71630
25	67850	74230	73740	73990	75520	74260	73880	76130	73710	73430	72680	71560
26	68010	79530	73710	74060	75310	74680	73810	75700	73610	73370	72610	71520
27	68010	78870	73850	74020	75100	74860	73740	75380	73540	73370	72580	71460
28	68210	77960	73810	74230	74680	76230	73670	75100	73470	73370	72510	71420
29	68270	77230	73740	74580	---	80500	73610	74890	73500	73370	72440	71420
30	68500	76820	73780	74610	---	80910	73500	74650	73570	73260	72410	71390
31	68500	---	73850	74580	---	79570	---	74470	---	73230	72340	---
MAX	68770	79530	76080	74610	78690	80910	78470	84040	77090	73880	73190	72340
MIN	67850	68410	73710	73500	73710	73920	73500	73330	73470	73230	72340	71390
(†)	376.70	379.07	378.29	378.50	378.53	379.89	378.19	378.47	378.21	378.11	377.85	377.57
(ϕ)	-230	+8320	-2970	+730	+100	+4890	-6070	+970	-900	-340	-890	-950

CAL YR 1988 MAX 79530 MIN 67850 (ϕ) -3890
WTR YR 1989 MAX 84040 MIN 67850 (ϕ) +2660

(†) 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.

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.--11 years (water years 1979-89), 15.3 ft³/s (8.88 in/yr), 11,080 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,520 ft³/s, revised, Dec. 2, 1982 (gage height, 14.39 ft) superseding figures published in TX-83-1 through TX-88-1; 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)
May 17	1515	*3,330	*13.77	No other peak greater than base discharge.			

Minimum discharge, 0.24 ft³/s Oct. 7-9.

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	1.6	5.3	5.4	14	11	13	27	3.6	5.9	22	3.4	2.9
2	.99	2.9	4.9	11	9.0	13	22	3.1	5.7	13	6.0	2.9
3	.82	2.4	4.8	14	9.7	13	20	3.6	5.9	25	4.8	3.1
4	.42	1.9	4.7	8.4	9.4	57	16	6.9	165	12	3.7	3.0
5	.33	1.7	4.6	7.7	7.8	130	11	161	114	9.2	3.4	2.0
6	.30	1.3	4.5	8.4	7.4	46	11	50	30	6.2	2.8	1.9
7	.29	1.2	15	6.6	7.0	22	11	13	97	8.4	2.5	3.4
8	.24	1.2	64	5.3	7.1	18	11	11	357	18	2.7	3.8
9	.57	1.3	17	5.2	7.2	16	11	11	77	10	2.7	4.0
10	.64	1.3	14	5.6	7.3	15	10	8.5	27	6.8	2.3	21
11	.50	1.5	28	5.7	7.4	14	9.5	7.3	20	4.3	2.2	4.8
12	.44	1.6	15	6.3	9.2	13	9.4	6.2	25	4.3	2.2	8.5
13	.34	2.7	11	17	36	13	11	14	28	5.5	2.2	2.9
14	.34	2.2	9.6	17	177	12	79	12	41	19	2.2	2.2
15	.39	1.8	8.4	14	68	11	52	9.0	28	54	2.4	2.6
16	.46	2.7	7.2	9.6	175	10	22	51	18	18	2.9	2.3
17	.56	2.5	6.8	7.5	204	10	18	871	13	10	2.6	2.5
18	.71	2.2	6.6	7.1	185	10	14	225	10	6.6	3.4	2.7
19	.95	15	6.6	6.7	65	10	12	68	8.9	14	3.7	2.9
20	1.0	32	6.3	6.7	41	10	12	28	10	14	3.8	2.8
21	1.1	7.8	6.1	6.6	34	13	9.4	28	5.3	7.2	3.3	2.9
22	1.3	4.1	6.3	6.4	22	18	8.4	22	5.1	5.5	2.9	2.9
23	1.6	3.3	11	6.3	18	13	7.5	16	4.8	4.1	3.1	2.9
24	1.6	2.8	8.8	6.2	16	11	6.7	14	4.8	5.8	3.7	2.8
25	1.6	2.7	6.0	25	15	10	6.1	12	4.8	5.8	3.4	2.8
26	15	80	5.8	35	15	19	6.0	9.9	7.6	4.9	3.3	2.7
27	13	64	7.9	15	15	46	5.8	8.4	5.3	7.7	3.2	2.3
28	7.4	12	16	12	15	79	5.1	8.5	7.2	6.6	2.9	2.1
29	8.8	7.9	9.7	42	---	219	4.9	7.9	6.2	4.9	2.8	1.9
30	31	6.2	10	19	---	209	4.0	7.1	27	4.1	2.8	1.6
31	12	---	19	13	---	48	---	6.4	---	3.6	2.8	---
TOTAL	106.29	275.5	351.0	370.3	1200.5	1141	452.8	1703.4	1164.5	340.5	96.1	107.1
MEAN	3.43	9.18	11.3	11.9	42.9	36.8	15.1	54.9	38.8	11.0	3.10	3.57
MAX	31	80	64	42	204	219	79	871	357	54	6.0	21
MIN	.24	1.2	4.5	5.2	7.0	10	4.0	3.1	4.8	3.6	2.2	1.6
AC-FT	211	546	696	734	2380	2260	898	3380	2310	675	191	212
CFSM	.15	.39	.48	.51	1.83	1.57	.65	2.35	1.66	.47	.13	.15
IN.	.17	.44	.56	.59	1.91	1.81	.72	2.71	1.85	.54	.15	.17

CAL YR 1988 TOTAL 3547.95 MEAN 9.69 MAX 178 MIN .00 AC-FT 7040 CFSM .41 IN. 5.64
WTR YR 1989 TOTAL 7308.99 MEAN 20.0 MAX 871 MIN .24 AC-FT 14500 CFSM .86 IN. 11.62

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, 219,500 acre-ft June 9 at 0800 hours (elevation, 338.08 ft); minimum, 179,300 acre-ft Oct. 25 (elevation, 333.73 ft).

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

333.0	173,000	336.0	199,400	338.0	218,100
334.0	181,600	337.0	208,600	339.0	227,800
335.0	190,400				

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	182700	182300	198200	209800	213700	213700	214000	212200	213500	214400	212000	204300
2	182700	182200	198600	209900	214000	213600	213900	211100	213200	214200	211900	203700
3	182100	182200	199000	210300	213500	213100	213600	210500	212500	214400	212000	203700
4	182000	182300	199300	210500	213300	213300	213500	211000	213200	214400	e211700	203300
5	181700	182000	182000	210300	213300	211700	213700	213200	214100	213800	211400	202800
6	181500	181800	199600	210600	213100	213300	213700	213700	214400	213900	210900	202500
7	181300	181900	202300	210700	213000	209100	213700	213600	213800	213800	211200	202500
8	181300	181700	202900	210700	212800	209200	213700	213300	211600	214200	210500	202200
9	181200	181900	204100	210500	212800	209400	213700	213100	219500	214200	209500	202400
10	181100	181500	204400	210700	212800	209500	213600	212800	214100	214200	209100	202400
11	180900	181500	205100	210700	212900	209500	213600	212600	212900	214100	208700	202200
12	180700	182300	205700	211400	213400	209800	213600	212000	212800	214100	208400	202100
13	180600	182100	206100	211900	213900	209800	213400	213100	213400	214300	189800	202100
14	180400	182100	206100	212100	212700	209900	214500	212800	213900	214100	207500	201700
15	180300	183300	206300	212100	213800	209700	214400	212400	213500	214800	207400	201500
16	180200	182900	206400	212200	213800	209900	213900	212200	213300	214800	207600	201200
17	180100	182700	206700	212300	213500	210100	213900	215100	213100	214300	207800	201100
18	179900	183800	206700	212500	212300	210300	213700	217900	213200	213800	207500	200800
19	179900	184900	206600	212500	212700	210500	214000	212400	213100	213900	207400	200700
20	179800	184700	206900	212300	212800	210700	213900	213900	213000	213900	207100	200600
21	179700	184600	206900	212300	212800	210600	213700	213500	213100	213800	207000	200300
22	179600	184500	207100	212300	213200	211900	213300	214200	213200	213800	206700	200200
23	179500	184500	207500	212400	213400	212100	213200	214700	213100	213300	206500	199900
24	179400	184400	207800	212500	213600	212200	212800	215200	213100	213300	206200	199700
25	179300	186500	207700	213600	213900	212400	212800	213900	213000	213200	206100	199500
26	181000	193500	207700	213500	213900	212600	212600	214100	213200	213100	205600	199300
27	181000	195900	207900	213300	213900	214100	212600	213800	213000	213200	205600	199000
28	181400	196700	208600	213800	214000	214200	212400	214000	213100	213000	205100	199000
29	181900	196900	208700	214000	---	212600	212600	213800	213000	212900	204800	199000
30	182300	197600	208800	214000	---	215600	212500	213800	213700	212000	204600	199000
31	182300	---	209600	213900	---	214200	---	213600	---	212200	204400	---
MAX	182700	197600	209600	214000	214000	215600	214500	217900	219500	214800	212000	204300
MIN	179300	181500	182000	209800	212300	209100	212400	210500	211600	212000	189800	199000
(†)	334.08	335.80	337.11	337.56	337.57	337.59	337.41	337.53	337.54	337.38	336.54	335.95
(ϕ)	+100	+15300	+12000	+4300	+100	+200	-1700	+1100	+100	-1500	-7800	-5400

e Estimated

CAL YR 1988 MAX 212500 MIN 179300 (ϕ) +2000
WTR YR 1989 MAX 219500 MIN 179300 (ϕ) +16800

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

07344500 BIG CYPRESS CREEK NEAR PITTSBURG, TX

LOCATION.--Lat 33°01'15", long 94°52'55", Camp-Titus County line, Hydrologic Unit 11140305, near center of stream at downstream side of bridge on State Highway 11, 0.5 mi upstream from Louisiana & Arkansas Railway Co. bridge, 1.4 mi upstream from Williamson Creek, 5.2 mi east of Pittsburg, 19.2 mi downstream from Lake Bob Sandlin, and 110.0 mi upstream from mouth.

DRAINAGE AREA.--366 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1943 to January 1963 (published as Cypress Creek near Pittsburg), October 1967 to September 1989 (converted to partial-record station effective Oct. 1, 1989). Gage-height records collected at this site 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.--No estimated daily discharges. Records good except those for Sept. 16-30, which are fair. 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 the 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.

AVERAGE DISCHARGE.--24 years (water years 1944-62, 1968-72), prior to combined regulation by Lake Cypress Springs and Monticello Reservoir, 327 ft³/s (12.13 in/yr), 236,900 acre-ft/yr; 17 years (water years 1973-89) regulated, 255 ft³/s (184,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58,500 ft³/s Mar. 30, 1945 (gage height, 28.3 ft, from floodmark, and adjusted to present site on basis of record for flood of Apr. 27, 1958), from rating curve extended above 20,000 ft³/s; no flow Aug. 20 to Oct 3, 1954, July 19 to Nov. 4, 1956.
Maximum stage since at least 1895, that of Mar. 30, 1945.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in January 1938 reached a stage of about 25 ft, present site, adjusted as explained above, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 25,300 ft³/s May 18 at 0600 hours (gage height, 22.39 ft); minimum daily, 3.0 ft³/s Oct. 20.

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	10	25	52	344	430	286	1530	241	95	50	10	11
2	13	15	32	178	310	268	953	221	113	96	10	9.9
3	7.9	11	24	88	378	254	812	151	95	179	13	8.6
4	6.0	8.5	20	64	444	322	743	106	96	278	14	7.5
5	4.9	7.5	17	52	336	2530	581	310	112	214	15	6.5
6	4.3	6.4	16	45	163	3000	361	722	168	91	13	5.4
7	4.6	5.9	27	40	127	1230	240	754	261	29	11	5.0
8	4.7	5.2	333	36	123	638	180	426	4870	22	9.7	5.6
9	4.8	5.1	702	28	121	306	114	222	3630	20	8.3	6.3
10	4.7	5.1	559	26	85	212	102	191	1690	17	8.9	7.6
11	4.6	5.5	240	23	43	184	97	182	1120	15	8.4	8.2
12	4.5	14	359	23	39	161	96	150	806	14	8.4	6.9
13	4.4	75	303	109	91	142	94	130	515	13	8.3	5.9
14	4.6	81	98	278	552	132	207	295	371	14	8.3	8.5
15	4.6	25	57	383	3280	130	548	317	604	14	7.8	13
16	4.7	49	44	372	3370	89	801	278	618	79	9.0	7.9
17	4.5	83	35	191	4450	41	686	4360	309	167	37	7.0
18	4.1	35	27	73	6780	34	362	21200	130	137	42	6.1
19	3.6	150	25	51	4750	31	271	7250	104	57	29	5.6
20	3.0	768	25	76	1910	29	327	2000	73	18	14	6.0
21	3.4	815	25	104	1070	47	298	876	29	13	11	6.3
22	5.0	316	24	66	1200	231	225	1000	21	12	9.0	6.1
23	5.1	48	32	30	774	205	203	685	19	15	7.5	5.7
24	4.7	28	66	26	461	71	153	359	17	13	8.1	6.2
25	4.5	22	41	190	343	47	99	326	16	28	8.1	6.1
26	8.5	350	28	623	304	45	94	485	19	18	7.9	5.3
27	40	2780	31	838	283	263	89	352	27	19	7.8	4.7
28	28	1550	276	586	282	749	88	214	28	40	7.5	5.1
29	14	749	419	529	---	4070	85	199	31	22	7.1	6.0
30	15	168	252	746	---	5030	116	143	43	15	7.4	6.2
31	21	---	286	676	---	2870	---	100	---	13	13	---
TOTAL	256.7	8206.2	4475	6894	32499	23647	10555	44245	16030	1732	379.5	206.2
MEAN	8.28	274	144	222	1161	763	352	1427	534	55.9	12.2	6.87
MAX	40	2780	702	838	6780	5030	1530	21200	4870	278	42	13
MIN	3.0	5.1	16	23	39	29	85	100	16	12	7.1	4.7
AC-FT	509	16280	8880	13670	64460	46900	20940	87760	31800	3440	753	409

CAL YR 1988 TOTAL 66501.6 MEAN 182 MAX 4390 MIN 3.0 AC-FT 131900
WTR YR 1989 TOTAL 149125.6 MEAN 409 MAX 21200 MIN 3.0 AC-FT 295800

07344500 BIG CYPRESS CREEK NEAR PITTSBURG, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: March 1965 to August 1989 (discontinued). Chemical and biochemical analyses: January 1983 to September 1985.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1968 to September 1989.
WATER TEMPERATURE: October 1968 to September 1989.

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, 989 microsiemens Aug. 29, 1987; minimum daily, 48 microsiemens Nov. 27, 1988.
WATER TEMPERATURE: Maximum daily, 32.0°C Aug. 20, 1969; minimum daily, 0.0°C on several days during winter months of 1982-84.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 765 microsiemens Oct. 20; minimum daily, 48 microsiemens Nov.27.
WATER TEMPERATURE: Maximum daily, 28.0°C Aug. 21; minimum daily, 3.0°C Feb. 4.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT										
03...	1415	7.7	603	--	19.0	--	--	65	15	6.7
DEC										
02...	0845	34	240	--	7.0	8.8	72	51	12	5.2
JAN										
09...	1430	27	340	--	7.5	8.2	69	70	16	7.2
FEB										
27...	1800	290	210	--	10.0	--	--	51	11	5.8
APR										
17...	1615	665	189	7.30	20.0	7.4	82	47	9.9	5.4
JUN										
12...	1550	826	166	--	25.0	5.9	72	44	9.7	4.9
AUG										
07...	1530	11	543	--	26.0	--	--	74	17	7.6

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT									
03...	77	4	15	25	53	120	0.10	8.2	310
DEC									
02...	21	1	6.0	25	38	26	0.10	9.8	133
JAN									
09...	29	2	5.9	27	50	38	0.10	14	176
FEB									
27...	18	1	4.7	27	32	24	0.20	3.5	115
APR									
17...	15	1	4.5	23	28	21	0.20	2.9	101
JUN									
12...	13	0.8	4.8	26	24	17	0.20	2.8	92
AUG									
07...	47	2	14	54	47	65	0.20	10	240

07344500 BIG CYPRESS CREEK NEAR PITTSBURG, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	256.7	545	290	201	85	59	52	36	77
NOV.	1988	8206.2	96	55	1210	10	226	16	359	26
DEC.	1988	4475	184	103	1250	21	252	29	349	47
JAN.	1989	6894	195	109	2040	22	412	31	569	49
FEB.	1989	32499	150	84	7410	16	1430	25	2150	40
MAR.	1989	23647	142	80	5110	15	983	23	1490	38
APR.	1989	10555	193	108	3090	22	620	31	870	49
MAY	1989	44245	124	70	8380	13	1570	21	2490	34
JUNE	1989	16030	127	71	3090	14	588	21	906	34
JULY	1989	1732	235	131	613	28	132	35	163	56
AUG.	1989	379.5	365	200	205	49	50	46	47	72
SEPT	1989	206.2	516	277	154	78	43	54	30	81
TOTAL		149125.6	**	**	32800	**	6360	**	9450	**
WTD.AVG.		409	144	81	**	16	**	23	**	38

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	733	324	205	177	193	223	166	261	215	318	285	399
2	549	378	238	188	205	210	181	197	178	269	289	404
3	596	395	258	204	172	213	189	200	199	187	309	428
4	627	404	271	228	206	218	191	216	246	191	300	462
5	659	399	290	249	210	173	199	163	200	184	415	519
6	654	378	301	268	214	149	206	147	251	182	571	521
7	636	363	316	299	219	159	206	149	184	219	509	505
8	606	386	204	303	234	179	202	181	85	243	421	506
9	646	405	133	314	231	199	232	190	91	267	401	480
10	672	410	138	349	235	206	231	194	114	277	379	553
11	658	418	175	366	255	217	222	198	157	321	399	636
12	594	427	162	359	301	217	225	199	169	366	411	702
13	528	308	155	288	287	222	224	207	174	385	406	668
14	537	251	197	222	318	219	183	212	188	407	440	611
15	574	226	227	208	134	238	205	187	179	414	426	566
16	623	267	256	187	145	235	186	189	180	360	436	551
17	679	222	276	197	104	239	190	101	184	207	229	562
18	717	213	287	220	137	280	198	100	199	185	247	543
19	753	172	307	266	132	311	210	122	198	205	330	474
20	765	85	308	293	155	315	194	149	195	248	409	427
21	764	88	370	237	166	324	203	169	209	293	443	403
22	731	113	376	243	183	273	201	181	242	318	422	419
23	722	184	305	254	191	237	201	189	256	336	373	497
24	711	215	345	286	195	242	214	197	286	367	361	543
25	737	258	341	272	203	265	218	191	311	232	369	533
26	682	170	353	187	207	282	221	192	347	263	386	518
27	519	48	325	160	207	219	220	198	427	325	375	511
28	408	86	212	182	211	179	222	200	436	482	405	516
29	419	117	174	174	---	111	225	220	533	397	439	504
30	365	162	182	177	---	84	222	194	336	286	476	539
31	277	---	180	170	---	123	---	215	---	282	481	---
MEAN	617	262	254	243	202	218	206	184	232	291	392	517

07344500 BIG CYPRESS CREEK NEAR PITTSBURG, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.0	13.0	9.0	8.0	13.0	10.0	15.0	20.0	24.0	24.0	26.0	27.0
2	20.0	13.0	10.0	8.0	13.0	10.0	17.0	18.0	24.0	---	26.0	27.0
3	20.0	16.0	10.0	11.0	7.0	11.0	18.0	17.0	24.0	---	26.0	27.0
4	19.0	18.0	9.0	10.0	3.0	11.0	20.0	17.0	24.0	---	26.0	27.0
5	18.0	16.0	9.0	11.0	---	6.0	17.0	18.0	23.0	---	26.0	26.0
6	17.0	15.0	9.0	12.0	4.0	4.0	16.0	20.0	23.0	---	27.0	26.0
7	17.0	15.0	10.0	13.0	4.0	4.0	17.0	19.0	23.0	---	26.0	26.0
8	17.0	15.0	11.0	10.0	6.0	7.0	18.0	20.0	21.0	---	25.0	26.0
9	17.0	17.0	10.0	9.0	6.0	7.0	16.0	21.0	21.0	26.0	22.0	27.0
10	17.0	17.0	10.0	8.0	6.0	8.0	14.0	19.0	23.0	25.0	21.0	25.0
11	17.0	15.0	9.0	9.0	7.0	10.0	13.0	19.0	24.0	26.0	21.0	25.0
12	17.0	15.0	8.0	11.0	10.0	13.0	13.0	18.0	25.0	26.0	22.0	24.0
13	16.0	15.0	8.0	9.0	13.0	14.0	14.0	19.0	24.0	26.0	22.0	25.0
14	16.0	15.0	10.0	7.0	13.0	15.0	14.0	19.0	23.0	26.0	24.0	22.0
15	17.0	17.0	10.0	7.0	13.0	16.0	14.0	20.0	22.0	25.0	23.0	20.0
16	17.0	15.0	9.0	8.0	11.0	14.0	16.0	20.0	21.0	25.0	23.0	18.0
17	19.0	14.0	8.0	8.0	9.0	15.0	18.0	20.0	22.0	26.0	22.0	19.0
18	20.0	14.0	7.0	9.0	8.0	17.0	19.0	20.0	23.0	25.0	23.0	21.0
19	19.0	15.0	7.0	10.0	8.0	15.0	---	21.0	24.0	26.0	24.0	19.0
20	18.0	14.0	10.0	11.0	9.0	15.0	18.0	22.0	24.0	25.0	25.0	20.0
21	17.0	11.0	10.0	9.0	9.0	14.0	17.0	22.0	24.0	24.0	28.0	20.0
22	17.0	9.0	13.0	9.0	8.0	9.0	18.0	23.0	25.0	24.0	25.0	20.0
23	18.0	9.0	11.0	8.0	7.0	11.0	19.0	24.0	25.0	24.0	26.0	20.0
24	17.0	8.0	12.0	10.0	6.0	12.0	20.0	24.0	25.0	24.0	27.0	16.0
25	17.0	11.0	10.0	13.0	8.0	14.0	22.0	24.0	26.0	23.0	27.0	15.0
26	17.0	14.0	11.0	14.0	11.0	17.0	21.0	25.0	25.0	25.0	27.0	15.0
27	17.0	14.0	14.0	12.0	11.0	17.0	21.0	24.0	25.0	24.0	27.0	18.0
28	17.0	11.0	10.0	12.0	9.0	19.0	21.0	24.0	24.0	25.0	27.0	17.0
29	16.0	10.0	8.0	12.0	---	17.0	21.0	23.0	24.0	25.0	27.0	17.0
30	16.0	10.0	8.0	11.0	---	17.0	20.0	24.0	24.0	26.0	26.0	17.0
31	14.0	---	8.0	10.0	---	15.0	---	24.0	---	26.0	26.0	---
MEAN	17.5	13.5	9.5	10.0	8.5	12.5	17.5	21.0	23.5	25.0	25.0	21.5

07345500 ELLISON CREEK RESERVOIR NEAR LONE STAR, TX

LOCATION.--Lat 32°55'16", long 94°43'17", Morris County, Hydrologic Unit 11140305, at pumphouse of Lone Star Steel Co., on left bank 1,700 ft upstream from Ellison Creek Dam on Ellison Creek, 0.6 mi upstream from Big Cypress Creek, and 1.4 mi southwest of Lone Star.

DRAINAGE AREA.--37.0 mi².

PERIOD OF RECORD.--January 1943 to September 1962 (published as "near Daingerfield"), January 1974 to September 1989 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Sept. 22, 1943, staff gage at site just upstream from dam at datum 200 ft lower.

REMARKS.--The reservoir is formed by a rolled earthfill dam 4,000 ft long, with an uncontrolled concrete spillway 300 ft long at the left end of dam. Deliberate impoundment began Jan. 14, 1943, and the dam was completed in April 1943. Another spillway is cut through natural ground near the right end of dam. In addition, there is a relief dam approximately 125 ft long, located near the reservoir pumphouse, that can be breached if the other spillways are unable to release sufficient floodwater. There is a 36-inch-diameter conduit through the dam that is used for pumping water from Big Cypress Creek into the reservoir and can also be used to discharge water from the reservoir into Big Cypress Creek. The dam is owned by Lone Star Steel Co. The company diverts water from the lake for cooling purposes and returns most of the water to the lake. Area capacity curves are based on a survey made in 1942. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	280.1	-
Design flood	275.1	36,600
Crest of spillway	273.1	33,000
Crest of concrete spillway	268.1	24,700
Lowest gated outlet (invert)	235.1	196

COOPERATION.--Capacity table and area-capacity curves were provided by Lone Star Steel Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 31,240 acre-ft Apr. 26, 1958 (elevation, 272.11 ft); minimum since lake first filled in May 1944, 15,760 acre-ft Dec. 24, 1975 (elevation, 261.28 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 27,380 acre-ft May 18 (elevation, 269.85 ft); minimum, 21,130 acre-ft Oct. 25 (elevation, 265.69 ft).

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

265.0	20,230	269.0	26,020
267.0	22,970	270.0	27,620

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21470	21900	23720	25200	24000	24380	25120	23160	23760	23720	24180	23480
2	21430	21890	23730	25060	24090	24290	25040	23090	23730	23990	24170	23420
3	21390	21890	23780	24920	24360	24230	24980	23060	23720	24120	24110	23370
4	21390	21880	23790	24830	24410	24440	24860	23100	23700	24180	24060	23310
5	21390	21850	23780	24750	24410	24610	24760	24110	23870	24200	24030	23240
6	21370	21850	23760	24690	24410	24610	24670	24300	23870	24200	24020	23150
7	21360	21820	24140	24660	24390	24580	24580	24380	24780	24210	24020	23060
8	21360	21810	24500	24590	24390	24520	24520	24440	25120	24230	23960	22950
9	21360	21790	24610	24520	24350	24440	24410	24470	24840	24230	23870	22910
10	21350	21790	24750	24420	24330	24360	24320	24410	24700	24230	23810	22910
11	21320	21750	24800	24320	24330	24290	24210	24360	24620	24200	23750	22850
12	21280	22070	24750	24350	24490	24230	24090	24350	24580	24150	23720	22760
13	21260	22180	24690	24380	24750	24150	24110	24470	24690	24140	23690	22670
14	21220	22180	24640	24500	24890	24090	24270	24420	24700	24120	23670	22550
15	21230	22310	24550	24500	24920	24000	24290	24380	24610	24150	23660	22460
16	21260	22320	24490	24440	25010	23910	24230	24810	24520	24170	24060	22410
17	21230	22310	24440	24350	25230	23840	24180	27360	24420	24150	24230	22370
18	21230	22460	24360	24260	25340	23810	24180	25930	24350	24110	24230	22310
19	21200	22700	24290	24150	25180	23730	24330	25260	24260	24110	24230	22250
20	21220	22790	24240	24060	25120	23690	24260	25000	24170	24060	24230	22200
21	21200	22790	24170	24000	25010	23790	24150	24830	24030	24000	24210	22160
22	21180	22800	24180	23940	24870	23760	24080	24720	23880	23990	24180	22110
23	21180	22790	24170	23870	24780	23700	23990	24610	23780	23960	24140	22070
24	21150	22800	24170	23810	24700	23610	23880	24470	23720	24000	24060	22040
25	21150	22910	24150	23880	24660	23550	23750	24350	23660	24020	24000	22030
26	21570	23480	24140	23910	24610	23550	23330	24230	23600	24140	23960	22020
27	21570	23700	24520	23880	24580	23540	23220	24090	23570	24170	23900	21990
28	21690	23720	24900	23940	24470	24020	23180	23970	23520	24170	23820	21970
29	21790	23730	24870	24000	---	25990	23150	23820	23570	24170	23760	21970
30	21890	23720	25170	24030	---	25680	23190	23750	23640	24170	23670	22000
31	21920	---	25350	24000	---	25310	---	23750	---	24170	23580	---
MAX	21920	23730	25350	25200	25340	25990	25120	27360	25120	24230	24230	23480
MIN	21150	21750	23720	23810	24000	23540	23150	23060	23520	23720	23580	21970
(†)	266.27	267.50	268.57	267.69	268.00	268.54	267.15	267.52	267.45	267.80	267.41	266.33
(ϕ)	+450	+1800	+1630	-1350	+470	+840	-2120	+560	-110	+530	-590	-1580

CAL YR 1988 MAX 25520 MIN 21150 (ϕ) +290
WTR YR 1989 MAX 27360 MIN 21150 (ϕ) +530

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

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, 430,200 acre-ft May 25 at 0800 hours (elevation, 236.52 ft); minimum, 212,300 acre-ft Oct. 25 (elevation, 226.11 ft).

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

226.0	210,400	232.0	324,800	235.0	392,700
228.0	245,600	233.0	346,500	236.0	417,100
230.0	283,700	234.0	369,100	237.0	442,500

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	220500	221200	241400	269200	263300	275200	350300	296100	399400	302000	291300	286900
2	220200	221000	243400	270000	266600	271200	358800	291300	393900	298700	293300	286700
3	219300	221000	244500	270000	269100	267500	363900	288900	389800	296100	292500	289200
4	218600	221400	244900	268100	271600	268100	368400	287100	384300	294100	291700	288100
5	217900	221400	244900	266800	273900	267100	371000	288700	380800	293100	290900	286500
6	217600	221000	245000	265000	274900	264300	372800	287100	376800	291900	291100	285900
7	217400	220300	247800	263900	273900	264800	373800	285300	372600	290000	290300	285500
8	217200	220000	247800	261600	271900	267300	375200	284100	370100	289200	289200	285300
9	216900	219600	248500	260100	270200	266900	374500	285500	370100	288900	288700	286300
10	216500	219800	252100	259400	267900	265000	374200	284300	377300	288500	288100	287100
11	216400	219500	252800	259400	266400	263100	372400	282900	378900	288300	287500	286500
12	216200	221400	254800	260500	266600	260300	369800	282700	379400	288300	286900	285900
13	215500	221000	256700	263300	266400	258000	368200	280300	385300	288700	286700	285300
14	215200	220700	258400	262900	266200	257300	364500	279200	380300	289200	286300	285100
15	214800	222100	259700	262800	264500	257100	360200	277800	377300	289600	286100	284500
16	214500	222200	260900	263500	262000	256700	355200	282700	373300	289200	288500	283900
17	214300	222200	261200	264500	265000	257100	351900	293700	368900	289000	288100	283500
18	214200	225900	261200	265400	269600	257800	349000	327800	365500	288900	288100	282900
19	214000	226800	261100	265200	280900	257500	346500	381700	361600	289200	288300	282500
20	213600	226600	261800	263900	293100	259500	343000	409000	356600	289200	288300	281900
21	213300	226400	262000	262000	297300	260500	339200	418900	350500	289200	288300	281300
22	213000	226200	262200	260500	298100	260500	334500	424400	345900	289000	288300	280500
23	213000	227300	262200	259000	295300	260900	329900	428200	340300	288700	288300	279000
24	212800	228000	262400	258200	292900	261100	325400	429700	336200	288700	289600	276600
25	212600	228900	262000	258000	290700	260900	320900	429900	331000	288900	288700	275600
26	217600	232600	261600	258000	287300	261200	316100	428400	326700	289600	288300	274500
27	217200	233300	265200	257300	284300	260500	310900	424400	321600	289600	288100	272700
28	219300	233300	265000	261400	279700	284900	306300	419400	317400	289600	287700	271400
29	220700	235300	265000	260500	---	305900	302200	414200	312100	289200	287500	269800
30	221700	238300	267100	261100	---	321200	299500	409200	307800	289200	287300	268500
31	221400	---	268900	261600	---	339700	---	404100	---	291700	286900	---
MAX	221700	238300	268900	270000	298100	339700	375200	429900	399400	302000	293300	289200
MIN	212600	219500	241400	257300	262000	256700	299500	277800	307800	288300	286100	268500
(†)	226.64	227.60	229.24	228.86	229.80	232.69	230.79	235.47	231.19	230.40	230.16	229.22
(ϕ)	+1400	+16900	+30600	-7300	+18100	+60000	-40200	+104600	-96300	-16100	-4800	-18400

CAL YR 1988 MAX 493600 MIN 212600 (ϕ) -222500
WTR YR 1989 MAX 429900 MIN 212600 (ϕ) +48500

(†) 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.--No estimated daily discharges. Records good. Flow regulated by Lake O' the Pines (station 07345900) 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); 12 years (water years-1959, 1980-89) regulated, 626 ft³/s (453,500 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, 2,960 ft³/s Apr. 17 at 0730 hours (gage height, 19.57 ft); minimum daily, 1.9 ft³/s Dec. 3.

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	26	31	2.2	1070	546	2700	19	2240	2780	2760	14	7.6
2	26	18	2.0	1080	557	2700	11	2010	2770	2340	13	7.6
3	26	5.2	1.9	1300	811	2400	11	1780	2760	1830	108	8.3
4	26	4.4	2.3	1590	702	1970	10	1750	2760	1410	231	8.1
5	26	3.6	2.5	1630	596	1920	10	1780	2780	1300	179	8.0
6	26	3.7	2.5	1480	559	1900	18	1770	2690	1270	177	8.1
7	27	3.6	2.7	1200	803	1890	138	1750	2750	990	174	8.2
8	26	3.6	2.9	1140	1290	2160	335	1540	2780	481	175	8.2
9	26	3.9	2.8	859	1610	2510	335	1290	2740	159	173	8.5
10	26	3.7	3.1	409	1560	2440	481	1250	2740	31	175	8.4
11	26	3.3	2.9	246	1260	2170	942	1230	2750	28	123	8.5
12	26	3.4	2.6	239	1210	2140	1600	1220	2750	27	14	23
13	25	3.4	2.6	241	1210	1740	2340	1230	2770	26	13	48
14	25	3.2	2.5	250	1470	1050	2700	1230	2850	25	13	40
15	24	4.5	2.4	249	2020	622	2720	962	2790	25	13	35
16	24	4.1	54	243	2480	408	2720	673	2760	24	19	35
17	25	3.9	108	240	2510	240	2810	739	2750	24	6.3	37
18	24	4.9	107	364	2540	171	2800	794	2740	23	6.3	105
19	23	3.9	107	742	2550	169	2690	565	2740	22	6.0	166
20	23	3.0	108	1020	2580	171	2670	210	2730	24	5.6	222
21	23	2.8	147	1060	2670	174	2670	45	2730	24	5.6	275
22	23	2.6	179	1070	2750	223	2660	40	2730	24	5.9	391
23	22	2.4	179	851	2740	282	2660	115	2730	24	6.0	568
24	22	2.2	178	583	2740	395	2650	473	2730	24	6.0	584
25	18	2.1	178	542	2740	552	2640	930	2720	24	6.5	587
26	26	5.6	178	533	2740	566	2640	1640	2720	24	7.1	588
27	28	2.3	179	530	2730	579	2640	2420	2740	18	7.5	589
28	30	2.2	276	534	2730	732	2460	2770	2750	11	7.3	590
29	28	2.1	432	567	---	1770	2260	2800	2740	10	7.4	592
30	28	2.1	587	570	---	668	2270	2790	2740	10	7.3	593
31	29	---	1000	551	---	171	---	2790	---	15	7.7	---
TOTAL	783	144.7	4034.9	22983	50704	37583	50910	42826	82510	13027	1712.5	6157.5
MEAN	25.3	4.82	130	741	1811	1212	1697	1381	2750	420	55.2	205
MAX	30	31	1000	1630	2750	2700	2810	2800	2850	2760	231	593
MIN	18	2.1	1.9	239	546	169	10	40	2690	10	5.6	7.6
AC-FT	1550	287	8000	45590	100600	74550	101000	84950	163700	25840	3400	12210

CAL YR 1988 TOTAL 245313.6 MEAN 670 MAX 2960 MIN 1.9 AC-FT 486600
WTR YR 1989 TOTAL 313375.6 MEAN 859 MAX 2850 MIN 1.9 AC-FT 621600

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 estimated daily discharges, which are poor. No known regulation or diversion in vicinity of the gage. Gage-height telemeter at station.

AVERAGE DISCHARGE.--21 years (water years 1969-89), 330 ft³/s (12.28 in/yr), 239,100 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. 29	0300	*9,630	a*18.74	May 20	1600	5,860	17.26

a From graph based on gage readings.

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	e33	350	e1040	e437	576	5010	281	208	265	132	44
2	.01	e40	416	e878	833	499	3630	223	206	317	119	33
3	.00	e54	557	e764	e1830	456	2460	181	205	395	119	27
4	.00	e61	663	e685	e1720	429	1750	183	199	406	115	35
5	.00	e64	624	e620	e1420	433	1320	425	268	430	103	35
6	.00	e67	490	e563	e1200	471	1010	653	276	551	95	29
7	.00	e69	366	e513	e1040	519	808	714	240	698	90	24
8	.00	e68	274	e476	e902	595	666	829	379	868	85	21
9	.00	e65	253	e446	e790	657	542	951	522	768	84	18
10	.00	e62	292	e424	e720	692	451	965	821	642	76	17
11	.00	e58	360	e400	e653	722	399	954	1800	530	69	17
12	.00	e87	459	379	e581	691	366	836	1920	437	83	15
13	.00	e95	548	382	e598	605	335	707	1580	391	108	14
14	.00	e90	641	e407	e599	508	341	569	1540	354	108	12
15	.00	e87	728	e494	e566	432	383	466	1260	302	89	11
16	.00	e98	735	e472	e532	379	407	474	947	247	72	13
17	.00	e146	669	e421	e542	344	438	802	781	202	61	14
18	.00	e221	570	e391	e684	324	511	1440	721	170	54	14
19	.00	e213	477	e370	e747	320	572	3400	661	159	53	13
20	.00	e163	406	e351	e692	321	576	5640	589	159	106	14
21	.00	e147	349	e332	e719	326	554	4890	508	159	129	13
22	.00	e138	292	e313	e765	336	506	3210	423	160	102	11
23	.00	e139	250	e295	e794	342	453	2030	336	158	e65	8.2
24	.00	e155	225	e281	e809	350	395	1420	252	146	e43	5.1
25	.00	e220	209	e269	e800	387	359	1050	192	142	e34	4.2
26	10	e346	217	e260	e757	437	332	799	156	135	e30	6.2
27	18	e381	415	e273	690	484	300	622	155	135	e28	4.0
28	23	e361	e689	e342	617	4330	255	469	203	138	e27	3.0
29	e32	e351	e795	e508	---	8350	214	366	222	137	31	2.8
30	e74	349	e932	e601	---	6300	300	291	222	151	71	2.9
31	e46	---	e1160	e502	---	6020	---	235	---	150	40	---
TOTAL	203.01	4428	15411	14452	23037	37635	25643	36075	17792	9902	2421	480.4
MEAN	6.55	148	497	466	823	1214	855	1164	593	319	78.1	16.0
MAX	74	381	1160	1040	1830	8350	5010	5640	1920	868	132	44
MIN	.00	33	209	260	437	320	214	181	155	135	27	2.8
AC-FT	403	8780	30570	28670	45690	74650	50860	71550	35290	19640	4800	953
CFSM	.02	.40	1.36	1.28	2.25	3.33	2.34	3.19	1.62	.88	.21	.04
IN.	.02	.45	1.57	1.47	2.35	3.84	2.61	3.68	1.81	1.01	.25	.05

CAL YR 1988 TOTAL 99241.52 MEAN 271 MAX 2660 MIN .00 AC-FT 196800 CFSM .74 IN. 10.11
WTR YR 1989 TOTAL 187479.41 MEAN 514 MAX 8350 MIN .00 AC-FT 371900 CFSM 1.41 IN. 19.11

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.--26 years (water years 1964-89), 263 ft³/s (9.33 in/yr), 190,500 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)
Mar. 29	0830	3,760	12.13	May 19	0200	*14,100	*16.28
Mar. 31	2300	2,250	11.02				

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	40	102	384	e300	392	2190	236	68	61	36	.00
2	.00	42	59	416	e650	e350	1970	127	66	62	30	.00
3	.00	33	42	422	e1500	e320	1630	90	91	100	26	.00
4	.00	22	34	442	e1300	e280	1300	89	103	153	21	.00
5	.00	12	31	479	e1200	e260	991	204	93	149	19	.00
6	.00	5.9	28	454	e1000	e300	752	429	93	128	16	.0
7	.00	4.4	27	371	e900	e350	541	434	96	124	15	.0
8	.00	3.2	36	247	e800	401	379	383	194	176	16	.00
9	.00	2.3	74	166	e700	459	248	401	232	84	14	.01
10	.00	2.1	121	132	e620	504	178	427	225	78	11	.02
11	.00	1.7	167	115	e550	514	145	396	244	82	8.4	.02
12	.00	1.5	195	106	e620	486	124	326	295	78	6.9	.04
13	.00	1.3	188	122	e700	e350	111	235	348	60	5.9	.06
14	.00	1.1	171	155	e660	e300	219	173	612	52	5.3	3.2
15	.00	9.7	157	215	e620	e240	394	137	816	121	5.2	3.8
16	.00	34	132	249	e580	e220	418	264	679	155	9.3	1.9
17	.00	30	107	260	e550	176	409	1210	466	161	40	.96
18	.00	23	87	259	613	155	456	7320	394	182	17	.42
19	.00	29	73	244	709	138	533	12800	321	187	7.6	.20
20	.00	98	62	e240	774	130	545	7490	184	107	1.7	.10
21	.00	146	56	e230	1080	139	478	3570	104	61	.54	.09
22	.00	136	54	e220	e800	211	392	2180	73	48	.19	.06
23	.00	124	54	e210	e700	241	354	1640	57	40	.07	.02
24	.00	99	58	e200	e600	241	319	1280	47	43	.0	.00
25	.00	57	59	e190	e500	247	231	971	41	36	.00	.00
26	.00	67	65	e180	e450	250	150	714	36	42	.00	.00
27	.00	112	73	e180	e480	271	115	482	37	56	.00	.00
28	.00	112	115	e260	e500	439	96	277	41	53	.00	.00
29	.00	126	209	e360	---	3210	83	151	46	64	.00	.00
30	.0	133	258	e500	---	2440	183	102	51	72	.00	.01
31	4.8	---	320	e400	---	2130	---	81	---	47	.00	---
TOTAL	4.80	1508.2	3214	8408	20456	16144	15934	44619	6153	2862	312.10	10.91
MEAN	.15	50.3	104	271	731	521	531	1439	205	92.3	10.1	.36
MAX	4.8	146	320	500	1500	3210	2190	12800	816	187	40	3.8
MIN	.00	1.1	27	106	300	130	83	81	36	36	.00	.00
AC-FT	9.5	2990	6370	16680	40570	32020	31610	88500	12200	5680	619	22
CFSM	.00	.13	.27	.71	1.91	1.36	1.39	3.76	.54	.24	.03	.00
IN.	.00	.15	.31	.82	1.99	1.57	1.55	4.33	.60	.28	.03	.00

CAL YR 1988 TOTAL 72862.82 MEAN 199 MAX 2000 MIN .00 AC-FT 144500 CFSM .52 IN. 7.08
WTR YR 1989 TOTAL 119626.01 MEAN 328 MAX 12800 MIN .00 AC-FT 237300 CFSM .86 IN. 11.62

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 good except those for estimated daily discharges, which are fair. No known diversion 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.--43 years (water years 1947-89), 511 ft³/s (10.28 in/yr), 370,200 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, 20,500 ft³/s Mar. 29 at 2300 hours (gage height, 19.41 ft); minimum, 0.82 ft³/s Oct. 6.

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	4.0	21	209	e403	718	1320	7330	1300	638	731	114	13
2	3.7	13	174	e387	683	1190	4910	1300	484	846	115	12
3	2.1	21	153	e378	2030	1060	3540	1090	389	831	120	13
4	1.3	32	143	e386	3010	946	2870	959	253	762	126	13
5	.88	37	128	e396	2450	857	2540	931	385	708	121	13
6	.82	39	105	e413	2160	779	2270	1020	464	609	108	12
7	.84	40	87	e429	1940	690	1950	926	451	533	89	11
8	1.1	40	84	e443	1690	628	1650	823	1330	479	73	11
9	1.5	38	85	e453	1520	620	1420	771	1620	516	61	11
10	2.0	37	83	e462	1350	620	1200	810	1320	449	55	14
11	2.4	37	100	467	1160	601	1010	716	1090	426	52	34
12	2.7	30	116	458	1020	581	852	638	868	393	48	53
13	3.0	48	142	473	1050	582	694	645	656	297	40	44
14	3.1	31	165	529	1050	624	627	690	737	227	34	33
15	3.4	29	179	634	1040	679	641	709	1230	306	31	25
16	3.9	32	184	584	963	722	591	884	1400	284	28	21
17	4.3	37	185	536	965	729	554	2580	1340	264	27	19
18	4.8	52	183	514	1170	688	559	4020	1230	282	51	23
19	5.1	216	177	492	1360	609	644	4880	1080	287	186	25
20	5.3	197	168	469	1300	526	688	5060	929	272	268	22
21	5.7	139	155	444	1250	465	693	9690	764	253	250	20
22	6.1	109	136	414	1210	510	712	9160	608	244	143	19
23	6.3	104	127	395	1160	476	708	6690	494	226	81	18
24	6.7	112	118	372	1120	445	705	5260	383	190	54	16
25	6.9	121	110	335	1110	432	678	3850	268	160	41	13
26	17	247	106	296	1200	439	624	2710	195	134	33	12
27	24	507	119	268	1340	512	556	1980	193	138	27	12
28	14	454	332	253	1390	691	498	1540	362	131	23	12
29	20	315	e415	399	---	15700	436	1270	407	123	20	12
30	27	252	e438	727	---	18600	841	1040	505	126	18	13
31	60	---	e429	840	---	12200	---	843	---	123	15	---
TOTAL	249.94	3387	5335	14049	38409	65521	42991	74785	22073	11350	2452	569
MEAN	8.06	113	172	453	1372	2114	1433	2412	736	366	79.1	19.0
MAX	60	507	438	840	3010	18600	7330	9690	1620	846	268	53
MIN	.82	13	83	253	683	432	436	638	193	123	15	11
AC-FT	496	6720	10580	27870	76180	130000	85270	148300	43780	22510	4860	1130
CFSM	.01	.17	.25	.67	2.03	3.13	2.12	3.57	1.09	.54	.12	.03
IN.	.01	.19	.29	.77	2.12	3.61	2.37	4.12	1.22	.63	.14	.03

CAL YR 1988 TOTAL 135863.35 MEAN 371 MAX 6360 MIN .35 AC-FT 269500 CFSM .55 IN. 7.49
WTR YR 1989 TOTAL 281170.94 MEAN 770 MAX 18600 MIN .82 AC-FT 557700 CFSM 1.14 IN. 15.50

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 current year.
WATER TEMPERATURE: October 1967 to current year.

INSTRUMENTATION.--Beginning June 1981, specific conductance and water temperature are 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): 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, 327 microsiemens June 4, 27; minimum, 20 microsiemens Mar. 29, 30.
WATER TEMPERATURE; Maximum, 28.0°C Sept. 1, 2.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT 04...	1445	1.2	171	7.10	18.5	4.0	43	1.3	36	8.0
NOV 29...	1450	307	90	6.20	9.5	8.4	74	1.7	19	4.4
JAN 11...	1400	487	128	6.20	8.0	9.6	82	0.6	27	6.2
MAR 02...	1000	1280	120	6.20	10.5	8.8	79	1.2	27	6.5
APR 19...	1730	695	117	6.80	20.0	6.0	66	1.8	26	6.3
JUN 14...	1600	792	87	6.80	23.0	5.4	64	0.2	20	5.0
AUG 10...	1415	54	147	6.80	23.0	6.0	70	0.9	140	45

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 WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 04...	3.8	19	1	3.4	37	18	17	0.10	8.8	100
NOV 29...	1.9	10	1	4.2	4	25	12	0.10	12	72
JAN 11...	2.7	12	1	4.4	6	30	16	0.10	18	93
MAR 02...	2.6	11	0.9	3.4	5	28	16	0.10	16	87
APR 19...	2.5	12	1	3.3	15	17	18	0.10	16	84
JUN 14...	1.8	7.8	0.8	2.6	13	10	11	0.10	14	60
AUG 10...	6.9	52	2	5.3	18	51	70	0.20	9.1	250

DATE	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, AMMONIA + 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)	CADMIUM DIS-SOLVED (UG/L AS CD)
OCT 04...	--	<0.010	<0.100	0.030	0.47	0.50	0.040	--	--	--
NOV 29...	--	0.020	<0.100	0.010	0.39	0.40	0.080	--	--	--
JAN 11...	--	0.010	<0.100	0.040	0.56	0.60	0.050	<1	67	3
MAR 02...	--	<0.010	<0.100	0.040	0.66	0.70	0.050	--	--	--
APR 19...	--	0.010	<0.100	0.080	0.92	1.0	0.150	--	--	--
JUN 14...	0.180	0.020	0.200	0.050	0.75	0.80	0.080	--	--	--
AUG 10...	--	<0.010	0.200	0.030	0.47	0.50	0.090	3	71	<1

07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	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)
OCT 04...	--	--	--	--	--	--	--	--	--
NOV 29...	--	--	--	--	--	--	--	--	--
JAN 11...	<1	2	250	<5	78	<0.1	<1	<1.0	46
MAR 02...	--	--	--	--	--	--	--	--	--
APR 19...	--	--	--	--	--	--	--	--	--
JUN 14...	--	--	--	--	--	--	--	--	--
AUG 10...	1	4	97	1	5	<0.1	<1	<1.0	10

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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. 1988	249.94	157	100	68	26	17	18	12	29
NOV. 1988	3387	132	85	778	21	192	16	147	25
DEC. 1988	5335	148	95	1370	24	344	18	254	28
JAN. 1989	14049	145	93	3540	23	885	17	659	27
FEB. 1989	38409	98	65	6710	15	1550	13	1330	20
MAR. 1989	65521	61	40	7080	9.1	1610	8.0	1420	13
APR. 1989	42991	87	57	6600	13	1540	11	1300	18
MAY 1989	74785	121	77	15600	20	3990	14	2860	22
JUNE 1989	22073	157	98	5870	27	1600	17	1010	27
JULY 1989	11350	161	102	3130	26	807	19	570	30
AUG. 1989	2452	121	78	516	19	127	15	98	23
SEPT 1989	569	148	95	146	24	37	18	27	28
TOTAL	281170.94	**	**	51400	**	12700	**	9700	**
WTD.AVG.	770	105	68	**	17	**	13	**	20

07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	181	176	179	119	104	114	149	121	135	174	138	159
2	182	180	181	123	119	122	153	149	151	168	134	150
3	186	182	184	141	123	129	158	150	154	133	126	129
4	191	176	185	204	143	172	158	145	153	130	126	128
5	195	191	193	194	155	174	144	136	139	131	130	131
6	197	195	196	192	147	169	138	136	137	130	126	128
7	197	194	196	155	143	146	141	138	140	126	121	123
8	195	194	194	174	156	169	146	140	142	122	121	121
9	195	192	193	173	166	169	150	142	145	126	121	123
10	193	191	192	198	168	178	146	144	145	131	126	128
11	192	190	191	243	199	223	150	145	147	---	---	138
12	191	186	188	245	242	243	145	141	142	167	164	166
13	187	183	185	245	222	235	147	142	145	166	160	163
14	184	182	183	231	168	201	190	143	166	164	136	154
15	183	180	181	167	159	163	188	169	175	144	136	141
16	182	179	180	172	157	164	175	169	173	144	139	141
17	180	178	179	161	156	159	169	157	162	157	144	153
18	179	176	178	162	146	155	159	156	157	158	156	157
19	178	177	178	172	75	119	158	155	157	159	157	158
20	180	177	179	144	126	133	156	154	155	157	154	156
21	182	179	180	128	124	126	156	154	155	159	155	157
22	184	181	182	134	128	132	158	156	157	165	158	162
23	185	182	184	161	133	139	161	157	159	169	165	168
24	186	184	185	194	165	180	161	159	160	172	170	171
25	187	185	186	192	174	186	165	160	163	173	170	171
26	189	170	180	180	88	142	165	164	165	172	170	171
27	206	170	189	110	86	101	166	147	162	172	170	171
28	168	147	159	111	104	107	149	102	117	174	172	173
29	148	143	145	114	105	108	143	120	132	172	121	148
30	160	147	152	120	113	116	143	140	141	127	112	121
31	156	78	107	---	---	---	142	137	140	119	110	115
MONTH	206	78	179	245	75	156	190	102	151	174	110	148
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	121	118	119	112	110	111	43	35	39	---	---	225
2	126	120	124	118	112	115	48	43	46	191	170	207
3	117	56	75	126	118	121	57	48	52	216	192	204
4	74	65	70	130	126	129	69	57	63	255	218	236
5	75	74	74	131	130	130	77	69	74	263	237	254
6	76	74	75	132	130	131	84	77	80	239	224	232
7	88	77	82	132	130	132	92	84	88	223	207	214
8	92	88	91	131	127	128	100	93	97	218	207	209
9	98	92	95	130	128	129	107	101	104	247	219	235
10	106	98	102	129	127	128	116	107	111	247	234	238
11	113	107	110	128	126	127	121	114	117	253	246	250
12	117	113	115	127	124	126	126	121	124	257	254	256
13	117	111	113	124	121	123	130	127	128	257	247	252
14	114	110	112	122	121	122	130	121	126	256	249	252
15	113	110	112	125	122	123	120	118	119	260	254	256
16	113	111	112	130	125	127	118	116	116	264	142	238
17	115	114	115	136	130	133	118	115	116	121	93	101
18	115	103	109	141	136	138	122	118	120	106	76	89
19	104	102	103	145	141	143	120	113	116	76	66	69
20	106	103	105	147	145	146	---	---	116	92	71	82
21	108	105	106	148	143	146	---	---	117	88	61	77
22	110	108	109	142	131	135	---	---	117	64	55	58
23	112	110	111	136	133	135	---	---	126	81	65	74
24	113	111	112	135	133	134	---	---	143	98	83	88
25	114	112	113	140	132	135	---	---	160	119	99	107
26	115	112	114	142	134	139	---	---	172	145	119	132
27	112	109	110	133	128	130	---	---	181	181	146	163
28	111	109	110	130	119	128	---	---	194	214	183	198
29	---	---	---	112	20	41	---	---	215	235	215	225
30	---	---	---	41	20	27	---	---	219	256	236	246
31	---	---	---	35	25	31	---	---	---	280	257	267
MONTH	126	56	103	148	20	121	130	35	120	280	55	185

07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	299	280	289	257	173	198	172	141	150	169	158	163
2	320	292	305	177	158	169	172	144	157	172	169	170
3	321	296	304	182	149	153	173	145	164	176	172	173
4	327	307	321	165	158	161	145	113	131	180	176	178
5	319	194	254	174	137	162	113	101	105	183	180	181
6	311	211	232	150	127	136	126	105	116	185	182	183
7	255	139	227	167	152	160	122	117	120	184	180	182
8	123	33	69	189	159	172	127	118	121	182	178	181
9	100	55	71	192	153	183	135	128	130	186	180	182
10	116	75	87	151	137	145	141	136	138	185	176	180
11	126	86	99	184	152	169	153	142	146	188	144	178
12	191	115	143	184	172	179	159	154	156	179	139	169
13	179	153	162	176	170	172	162	157	160	137	103	122
14	162	104	138	192	175	183	161	157	159	130	101	112
15	---	---	74	201	193	198	162	156	157	139	120	133
16	---	---	70	197	116	142	182	163	171	118	103	110
17	---	---	110	151	140	146	194	182	189	154	120	138
18	157	150	153	157	143	151	205	194	197	158	145	152
19	181	159	169	196	141	156	243	43	152	147	136	141
20	199	183	192	217	184	203	40	31	34	139	124	131
21	206	197	200	187	149	166	80	41	59	131	125	128
22	276	206	215	149	117	134	119	82	101	135	129	131
23	254	222	230	116	102	106	142	120	133	143	136	139
24	247	233	239	111	100	105	165	143	146	148	143	145
25	274	247	254	128	109	119	150	148	149	150	140	145
26	318	262	280	134	125	130	150	147	149	146	136	140
27	327	277	293	141	134	138	152	148	150	143	135	139
28	320	283	293	136	120	127	158	152	156	140	137	139
29	306	203	260	137	133	135	160	157	159	141	138	139
30	261	195	212	134	127	130	162	157	159	142	140	141
31	---	---	---	180	133	161	164	156	160	---	---	---
MONTH	327	33	198	257	100	154	243	31	141	188	101	151

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	9.0	7.5	8.5
15	---	---	---	---	---	---	---	---	---	8.0	7.5	8.0
16	---	---	---	---	---	---	---	---	---	8.5	7.5	8.0
17	---	---	---	---	---	---	---	---	---	8.0	7.5	8.0
18	---	---	---	---	---	---	---	---	---	9.5	8.0	9.0
19	---	---	---	---	---	---	---	---	---	10.5	9.5	10.0
20	---	---	---	---	---	---	---	---	---	11.0	10.5	10.5
21	---	---	---	---	---	---	---	---	---	10.5	9.0	9.5
22	---	---	---	---	---	---	---	---	---	9.0	8.0	8.5
23	---	---	---	---	---	---	---	---	---	9.0	8.0	8.5
24	---	---	---	---	---	---	---	---	---	11.0	9.0	10.0
25	---	---	---	---	---	---	---	---	---	13.0	11.0	12.0
26	---	---	---	---	---	---	---	---	---	13.5	13.0	13.5
27	---	---	---	---	---	---	---	---	---	13.5	13.0	13.0
28	---	---	---	---	---	---	---	---	---	13.0	12.5	13.0
29	---	---	---	---	---	---	---	---	---	13.5	13.0	13.5
30	---	---	---	---	---	---	---	---	---	13.5	13.0	13.0
31	---	---	---	---	---	---	---	---	---	13.5	12.5	13.0
MONTH	---	---	---	---	---	---	---	---	---	13.5	7.5	10.5

07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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

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.--24 years (water years 1966-89), 42.8 ft³/s (12.11 in/yr), 31,010 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. 28	1230	*6,750	*12.80, from graph	May 18	0600	4,330	11.88

Minimum discharge, no flow Oct. 1-25.

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	19	25	206	60	115	e209	50	23	167	13	e5.7
2	.00	17	23	155	52	88	e169	46	29	149	17	e4.5
3	.00	16	22	79	110	78	e144	31	32	153	35	e3.7
4	.00	17	22	60	54	93	e126	61	31	95	23	e3.3
5	.00	16	21	50	45	122	e110	244	68	49	16	e3.1
6	.00	16	20	51	43	97	e96	354	99	38	14	e3.1
7	.00	16	22	47	39	e84	e90	168	82	80	41	e3.1
8	.00	16	85	41	66	e152	e85	70	374	127	41	e3.0
9	.00	15	228	37	73	e205	e79	69	369	124	21	e2.9
10	.00	15	139	34	70	e175	e75	123	136	53	15	e2.8
11	.00	17	80	34	69	e140	e70	96	67	36	13	e2.7
12	.00	24	84	37	67	e122	e67	52	52	28	11	e2.6
13	.00	61	55	71	91	e119	e67	78	86	30	9.4	e2.6
14	.00	78	41	127	205	e123	e104	146	169	43	8.3	e2.5
15	.00	28	34	169	318	e146	e110	117	169	38	8.1	e2.4
16	.00	34	30	96	359	e129	e68	104	99	82	8.2	e2.4
17	.00	53	27	71	250	e109	e64	561	57	60	11	e2.3
18	.00	29	26	59	201	e95	e126	2460	43	34	15	e2.2
19	.00	47	25	55	243	e84	139	507	36	28	13	e2.2
20	.00	89	25	51	304	e83	133	246	30	25	9.7	e2.1
21	.00	60	25	46	249	e140	90	146	26	21	7.9	e2.0
22	.00	38	25	42	209	e136	70	104	24	18	6.5	e1.9
23	.00	24	32	41	144	e82	50	80	23	16	5.8	e1.9
24	.00	22	38	40	104	e79	44	65	21	19	5.1	e1.8
25	.00	22	30	40	93	e124	40	51	20	32	4.5	e1.8
26	3.3	36	25	51	90	e98	37	39	25	26	4.3	e1.7
27	14	130	27	63	89	e256	34	32	38	23	4.4	e1.7
28	14	130	79	49	94	e3690	32	45	63	21	4.5	e1.6
29	16	35	60	56	---	e1160	32	42	50	18	5.3	e1.5
30	17	31	65	96	---	e338	39	31	74	16	7.7	e1.5
31	20	---	186	82	---	e288	---	26	---	14	e8.0	---
TOTAL	84.30	1151	1626	2136	3791	8750	2599	6244	2415	1663	406.7	76.6
MEAN	2.72	38.4	52.5	68.9	135	282	86.6	201	80.5	53.6	13.1	2.55
MAX	20	130	228	206	359	3690	209	2460	374	167	41	5.7
MIN	.00	15	20	34	39	78	32	26	20	14	4.3	1.5
AC-FT	167	2280	3230	4240	7520	17360	5160	12380	4790	3300	807	152
CFSM	.06	.80	1.09	1.44	2.82	5.88	1.80	4.20	1.68	1.12	.27	.05
IN.	.07	.89	1.26	1.66	2.94	6.78	2.01	4.84	1.87	1.29	.32	.06

CAL YR 1988 TOTAL 11791.81 MEAN 32.2 MAX 442 MIN .00 AC-FT 23390 CFSM .67 IN. 9.14
WTR YR 1989 TOTAL 30942.60 MEAN 84.8 MAX 3690 MIN .00 AC-FT 61370 CFSM 1.77 IN. 23.98

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.--30 years (water years 1960-89), 62.0 ft³/s (10.84 in/yr), 44,920 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 1977-89.

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)
May 17	1845	4,620	16.61	July 15	1445	*15,000	*18.43
June 8	0530	3,950	16.42				

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	.20	.00	e1.1	e11	10	4.5	14	2.2	4.7	.69	.99	.24
2	.05	.00	2.2	8.4	7.9	3.9	8.3	2.4	4.1	.65	.89	.18
3	.00	.00	2.4	5.6	53	4.0	6.0	12	5.8	.87	.77	.10
4	.00	.00	e1.5	4.2	28	5.5	4.2	8.0	522	.51	.68	.07
5	.00	.00	e1.2	5.8	e8.8	6.9	3.1	84	1060	.33	.53	.03
6	.00	.00	e1.1	5.5	e4.6	12	2.5	27	35	.22	7.0	.01
7	.00	.00	e.98	4.5	e2.6	161	2.1	8.5	379	.17	74	.00
8	.00	.00	e.89	3.6	e1.7	328	1.8	4.2	2920	.14	4.9	.15
9	.00	.00	e.81	2.6	e1.4	133	1.7	2.7	197	.15	1.9	.42
10	.00	e1.5	e9.7	2.9	e1.2	45	1.5	1.4	31	.18	1.0	.36
11	.00	e2.8	e4.0	3.5	e1.2	21	1.4	.56	20	.12	.62	1.5
12	.00	e2.3	e65	4.1	e1.2	11	1.5	.60	240	.09	.40	.47
13	.00	e2.0	29	14	e5.8	7.2	5.8	9.3	1060	.08	.34	12
14	.00	e1.6	14	89	e64	5.0	16	1.6	2190	.19	.23	4.9
15	.00	e2.3	e9.5	37	e19	3.5	6.1	12	209	6130	.18	1.8
16	.00	e3.8	6.4	15	e7.8	2.7	4.0	1230	49	1920	.14	.92
17	.00	e5.5	e5.3	9.9	e56	2.5	4.5	3190	20	57	27	.36
18	.00	e88	e4.5	7.9	1200	2.1	5.7	2170	9.7	16	53	.22
19	.00	e197	e3.9	e6.4	160	1.8	18	94	6.0	16	13	.16
20	.00	e74	e3.4	e5.2	72	1.6	7.5	20	e3.6	6.5	3.3	.19
21	.00	e24	e2.8	e4.1	73	4.5	5.2	9.1	2.2	5.1	.81	.19
22	.00	e10	9.8	e3.4	29	3.5	5.3	5.5	1.6	4.0	.35	.16
23	.00	e5.6	28	e3.0	15	2.8	5.2	4.3	1.2	3.1	.26	.10
24	.00	e3.2	20	e2.6	9.4	2.5	4.4	3.3	.89	2.7	.18	.09
25	.00	e2.4	e6.8	e691	7.3	1.9	3.4	2.8	.72	2.5	.14	.07
26	.00	e1.6	e4.0	e1140	6.4	1.6	3.4	2.3	.66	2.5	.10	.05
27	.00	e1.3	162	e55	5.9	1.7	3.2	2.3	.60	2.3	.08	.01
28	.00	e1.2	e196	e16	5.4	630	2.6	3.5	.55	2.0	.05	.00
29	.00	e1.1	e67	e12	---	1550	2.1	4.1	.52	1.8	.13	.00
30	.00	e.97	e31	e9.5	---	185	1.8	3.9	.38	1.5	.19	.00
31	.00	---	e19	e7.3	---	32	---	4.6	---	1.1	.31	---
TOTAL	0.25	432.17	713.28	2190.0	1857.6	3177.7	152.3	6926.16	8975.22	8178.49	193.47	24.75
MEAN	.008	14.4	23.0	70.6	66.3	103	5.08	223	299	264	6.24	.82
MAX	.20	197	196	1140	1200	1550	18	3190	2920	6130	74	12
MIN	.00	.00	.81	2.6	1.2	1.6	1.4	.56	.38	.08	.05	.00
AC-FT	.5	857	1410	4340	3680	6300	302	13740	17800	16220	384	49
CFSM	.00	.19	.30	.91	.85	1.32	.07	2.88	3.85	3.40	.08	.01
IN.	.00	.21	.34	1.05	.89	1.52	.07	3.32	4.30	3.92	.09	.01

CAL YR 1988 TOTAL 8003.84 MEAN 21.9 MAX 1580 MIN .00 AC-FT 15880 CFSM .28 IN. 3.83
WTR YR 1989 TOTAL 32821.39 MEAN 89.9 MAX 6130 MIN .00 AC-FT 65100 CFSM 1.16 IN. 15.71

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.--30 years (water years 1960-89), 79.3 ft³/s (13.68 in/yr), 57,450 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)
Feb. 17	2115	5,520	16.93	June 14	0115	12,800	17.78
May 17	1500	*19,000	a*18.48				

a From floodmark.

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	.00	.15	30	20	2.4	16	e.10	e.01	.19	.00	.00
2	.00	.00	.06	13	10	1.9	7.8	e.08	e.01	.18	.00	.00
3	.00	.00	.04	6.8	e5.9	1.8	5.7	e.08	e.01	.17	.00	.00
4	.00	.00	.03	3.4	e3.3	2.1	3.2	.42	e480	.14	.00	.00
5	.00	.00	.02	1.9	e2.3	3.1	1.6	149	1040	.18	.00	.00
6	.00	.00	.03	1.1	e2.1	3.4	.77	64	143	.18	4.7	.00
7	.00	.00	.06	1.2	e2.1	19	.61	9.0	144	96	246	.00
8	.00	.00	.03	.80	3.0	21	.56	2.7	572	185	e70	.00
9	.00	.00	.03	.59	4.3	12	.49	e1.8	78	e27	e31	.00
10	.00	.00	.15	.54	7.3	6.6	.49	e1.2	25	e12	e14	.00
11	.00	.00	20	.98	6.1	3.8	.60	e.73	17	e4.5	e1.9	.00
12	.00	.51	19	1.2	5.2	2.5	.48	e.42	346	e1.5	e.16	.00
13	.00	3.5	7.1	8.0	89	1.7	1.9	e.22	1450	e.55	e.05	89
14	.00	.10	2.8	16	46	1.2	252	e.21	5650	e.28	e.04	124
15	.00	6.0	.89	18	188	.88	75	1.4	594	495	e.03	21
16	.00	52	.30	6.6	1380	.65	25	245	e71	910	e.03	6.2
17	.00	4.0	.13	2.6	2290	.47	8.9	10700	e22	82	e12	1.6
18	.00	.26	.08	1.3	2190	.37	4.1	e1220	e7.4	e12	e5.7	.58
19	.00	158	.06	.84	242	.36	11	e146	e1.4	4.3	e1.8	.33
20	.00	231	.10	.56	81	.32	6.6	e31	e.52	1.5	e.39	.19
21	.00	16	.10	1.0	60	3.1	2.1	e7.5	e.45	.47	e.13	.15
22	.00	2.5	.30	.93	26	23	.99	e.65	e.42	.10	e.11	.12
23	.00	.50	33	.95	12	6.8	e.73	e.11	e.36	.02	e.10	.07
24	.00	.18	12	.94	7.3	2.5	e.55	e.04	e.33	.0	.09	.04
25	.00	9.5	2.6	524	5.1	1.4	e.33	e.04	e.28	.00	.05	.02
26	.00	326	.81	1500	4.3	.83	e.19	e.03	.24	.0	.03	.02
27	.00	39	264	332	3.4	.96	e.14	e.03	.21	.00	.02	.01
28	.00	7.7	365	268	3.0	541	e.12	e.02	.18	.00	.01	.01
29	.00	2.0	39	615	---	1790	e.12	e.02	.16	.01	.00	.01
30	.00	.42	17	85	---	367	e.11	e.02	.18	.0	.00	.01
31	.00	---	23	35	---	41	---	e.01	---	.00	.00	---
TOTAL	0.00	859.17	807.87	3478.23	6698.7	2863.14	428.18	12581.83	10644.16	1833.27	388.34	243.36
MEAN	.00	28.6	26.1	112	239	92.4	14.3	406	355	59.1	12.5	8.11
MAX	.00	326	365	1500	2290	1790	252	10700	5650	910	246	124
MIN	.00	.00	.02	.54	2.1	.32	.11	.01	.01	.00	.00	.00
AC-FT	.0	1700	1600	6900	13290	5680	849	24960	21110	3640	770	483
CFSM	.00	.36	.33	1.43	3.04	1.17	.18	5.16	4.51	.75	.16	.10
IN.	.00	.41	.38	1.64	3.17	1.35	.20	5.95	5.03	.87	.18	.12

CAL YR 1988	TOTAL	7176.39	MEAN	19.6	MAX	1760	MIN	.00	AC-FT	14230	CFSM	.25	IN.	3.39
WTR YR 1989	TOTAL	40826.25	MEAN	112	MAX	10700	MIN	.00	AC-FT	80980	CFSM	1.42	IN.	19.30

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, 1,029,000 acre-ft May 19 at 2000 hours (elevation, 439.99 ft); minimum, 794,800 acre-ft Nov. 12 (elevation, 433.41 ft).

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

433.0	781,200	437.0	918,200	439.0	991,200
435.0	848,200	438.0	954,300	440.0	1,029,000

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	831200	806100	844800	848200	885600	949600	958000	938400	958000	950700	938800	921100
2	829200	804400	844100	848200	890600	947500	956200	939100	956200	948500	938400	920300
3	827200	803700	843800	848500	886300	947100	959100	936200	957300	947500	937700	919300
4	826200	804700	843800	847200	885300	952500	955400	938800	956500	946000	936600	918500
5	823500	803400	842400	846500	884900	948200	952500	939500	959100	944600	936200	917500
6	822500	800800	841700	847200	883500	944900	951400	944600	956200	943500	935500	916400
7	821400	800800	843800	847200	883100	944900	949600	945600	963200	944200	939500	915000
8	820800	799400	844500	846800	882400	946000	947100	944600	972000	943500	937300	914300
9	819700	800400	842800	845100	881400	945600	947500	942800	980900	940900	936600	913600
10	818700	797500	844100	844100	881400	944900	943800	944200	978300	939900	935500	916000
11	818100	795100	845100	844100	881700	943800	942400	942400	971700	938800	934800	916400
12	815700	797500	846100	845100	882400	942400	942000	941300	974600	937700	933300	916800
13	814000	798400	846100	845100	885600	941700	945600	939900	989800	937300	932600	922900
14	813000	797800	845800	845100	886700	942400	948200	941700	1013000	938100	931900	922900
15	812300	806400	846100	845100	896900	939900	948500	941700	1016000	925800	931200	920700
16	811700	806100	844800	845800	911100	939100	947100	940900	1007000	966900	930100	919600
17	810400	804400	844100	843800	939900	939900	947100	945600	997700	969800	931900	918500
18	810700	805400	843400	843800	964300	938100	946700	976500	991200	967600	932300	917800
19	808000	820100	840700	843800	970200	938100	946700	1026000	985700	965800	931500	916800
20	807700	821100	842800	843100	969100	939100	946400	1015000	980900	961300	931200	916000
21	806700	821800	842100	841700	967200	937000	945600	1007000	976800	958400	929400	915300
22	805100	821100	843100	841400	964300	936600	944200	998800	972000	955100	928600	916400
23	805400	819700	842400	841400	959500	935200	942800	992000	969500	953600	928300	913600
24	803700	819100	843400	842100	958000	935500	942400	986800	965800	951400	927600	910700
25	802700	835300	842100	852300	956200	935500	942000	982800	962800	950000	926800	909700
26	804100	847500	841700	863800	954700	935200	941300	978000	959900	948500	926500	908300
27	803400	849900	844500	872100	953200	937700	940900	972400	958000	947100	925400	907200
28	805400	846100	846100	877900	951400	947800	940600	968700	955400	945600	924300	906100
29	807400	847200	847500	883100	---	959500	938800	964700	951100	944200	921400	906100
30	808000	845800	847500	884900	---	963200	940600	962100	951800	943100	922900	905100
31	807400	---	847800	885300	---	959100	---	960200	---	942000	921800	---
MAX	831200	849900	847800	885300	970200	963200	959100	1026000	1016000	969800	939500	922900
MIN	802700	795100	840700	841400	881400	935200	938800	936200	951100	925800	921400	905100
(†)	433.79	434.93	434.99	436.07	437.92	438.13	437.62	438.16	437.93	437.66	437.10	436.63
(ϕ)	-22800	+38400	+2000	+37500	+66100	+7700	-18500	+19600	-8400	-9800	-20200	-16700

CAL YR 1988 MAX 908300 MIN 795100 (ϕ) -116900
WTR YR 1989 MAX 1026000 MIN 795100 (ϕ) +74900

(†) 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.--No estimated daily discharges. Records fair except those below 1.0 ft³/s, which are poor. Flow is regulated by Lake Tawakoni (see station 08017400) 750 ft upstream. Several observations of water temperatures were obtained during the year.

AVERAGE DISCHARGE.--19 years, 394 ft³/s (285,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,600 ft³/s Dec. 11, 1971 (gage height, 18.5 ft, from graph based on gage readings); no flow most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since construction of Iron Bridge Dam in 1960, about 21,000 ft³/s May 1, 1966, from theoretical rating curve of flow over dam 750 ft upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,800 ft³/s May 18 at 2230 hours (gage height, 16.82 ft), minimum daily, 0.04 ft³/s on Aug. 16.

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	.45	.17	.40	.26	1.9	665	1410	204	1480	666	202	.13
2	.40	.17	.40	.29	24	583	1100	162	1130	566	138	2.1
3	.40	.17	.40	.32	113	512	991	144	956	490	115	.12
4	.46	2.9	.40	.32	26	1210	1160	155	999	454	85	.10
5	.48	1.2	.42	.32	8.8	1720	980	447	1160	409	61	.08
6	.48	.15	.85	.32	14	1100	778	482	1350	314	69	.12
7	.44	.13	.79	.40	4.0	578	665	377	1360	284	142	.33
8	.40	.12	1.0	.47	2.9	405	631	289	2150	270	168	.12
9	.40	9.7	.81	.58	3.7	419	569	266	3310	228	71	.12
10	.73	.14	.78	.48	1.5	398	620	340	3690	181	45	11
11	.50	.13	.75	.52	1.6	356	336	185	3330	146	29	15
12	.48	.12	.68	4.6	1.6	309	218	151	3020	120	17	7.9
13	.48	.10	.68	.75	1.6	266	234	189	3240	99	3.3	39
14	.57	.10	.68	.60	1.9	225	573	194	5010	102	2.1	186
15	.53	.26	.68	.65	6.2	354	621	182	6790	133	.15	105
16	.48	.26	.78	.68	432	187	503	488	6590	342	.04	8.6
17	.48	.06	.80	.68	375	145	443	4330	5840	1790	6.3	.17
18	.47	.06	.80	.68	866	178	425	10200	5190	2370	1.5	.17
19	.40	4.0	.85	.80	2100	128	461	11500	4650	2260	1.2	.21
20	.40	60	.94	1.3	2700	172	419	10200	4080	2070	.86	.26
21	.40	.08	.94	.58	2650	658	370	8590	3620	1580	.10	.31
22	.40	.06	.85	.59	2410	138	321	7350	3170	1130	.08	62
23	.37	.06	.21	.68	1880	72	264	6470	2720	905	.17	139
24	.32	.05	.21	.68	1330	54	227	5660	2330	777	.11	12
25	.32	13	.21	3.2	1070	50	210	4960	1980	652	.09	11
26	.50	673	.21	187	950	51	196	4410	1630	530	.22	11
27	.21	215	4.8	12	884	53	180	3890	1270	458	.23	1.7
28	.59	1.2	.63	7.4	762	123	167	3300	1050	394	.13	.42
29	.31	.33	.11	131	---	398	169	2750	913	317	.18	.75
30	.33	.45	.22	6.2	---	1160	199	2250	753	249	.12	1.4
31	.25	---	.29	1.1	---	1880	---	1840	---	215	.13	---
TOTAL	13.43	983.17	22.57	365.45	18621.7	14547	15440	91955	84761	20501	1159.01	616.11
MEAN	.43	32.8	.73	11.8	665	469	515	2966	2825	661	37.4	20.5
MAX	.73	673	4.8	187	2700	1880	1410	11500	6790	2370	202	186
MIN	.21	.05	.11	.26	1.5	50	167	144	753	99	.04	.08
AC-FT	27	1950	45	725	36940	28850	30630	182400	168100	40660	2300	1220

CAL YR 1988	TOTAL	31124.92	MEAN	85.0	MAX	1210	MIN	.00	AC-FT	61740
WTR YR 1989	TOTAL	248985.44	MEAN	682	MAX	11500	MIN	.04	AC-FT	493900

08018500 SABINE RIVER NEAR MINEOLA, TX

LOCATION.--Lat 32°36'49", long 95°29'08", Wood County, Hydrologic Unit 12010001, on left bank at downstream side of highway embankment 3 ft downstream from left end of bridge on U.S. Highway 69, 3.5 mi south of Mineola, 4.5 mi upstream from Missouri Pacific Railway Lines bridge, 16.2 mi upstream from Lake Fork Creek, and at mile 461.1.

DRAINAGE AREA.--1,357 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1939 to September 1959, October 1967 to current year. Gage-height records collected at this site since July 1946 are contained in reports published by the National Weather Service.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 304.16 ft above National Geodetic Vertical Datum of 1929. May 12, 1939, to Dec. 11, 1955, at site 55 ft upstream from downstream side of bridge; Dec. 12, 1955, to Dec. 12, 1959, at downstream side of bridge; Oct. 1, 1967, to Sept. 12, 1968, nonrecording gage at downstream side of bridge; Sept. 13, 1968, to Oct. 23, 1974, water-stage recorder at downstream side of bridge; Oct. 24, 1974, to Oct. 16, 1975, at site on right bank 75 ft downstream from bridge. All gages at present datum.

REMARKS.--No estimated daily discharges. Records good. Since October 1960, flow partly regulated by Lake Tawakoni (see station 08017400), capacity 936,200 acre-ft, 53 mi upstream, and since September 1962, by Lake Holbrook (capacity, 7,990 acre-ft), located on Keys Creek, a tributary to the Sabine River 8.0 mi upstream. Flow may be slightly affected at times by discharge from a 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); 22 years (water years 1968-89) regulated, 847 ft³/s (613,700 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, 32,200 ft³/s May 19 at 0730 hours (gage height, 20.24 ft); minimum daily, 1.8 ft³/s Oct. 16-18.

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	15	94	1500	506	974	1250	1670	205	3240	1560	366	8.2
2	17	68	658	317	561	1060	1540	273	2800	1270	310	6.7
3	13	47	190	210	249	884	1440	302	2460	1020	272	6.3
4	7.3	34	65	157	291	792	1360	314	2200	799	209	6.9
5	5.1	21	42	118	430	1120	1310	405	2010	670	155	5.6
6	3.7	16	34	95	325	1540	1280	760	1850	598	124	5.1
7	3.0	15	32	79	185	1850	1250	1140	1660	532	97	4.9
8	2.6	15	59	67	124	2050	1150	1290	1590	452	80	4.4
9	2.5	12	66	61	103	2110	970	1120	1600	422	122	4.0
10	2.5	14	80	54	95	1820	776	728	1630	387	215	3.7
11	2.3	12	181	50	89	1250	664	451	1660	322	153	4.2
12	2.1	12	348	48	94	829	602	371	1750	251	95	5.6
13	2.1	17	439	88	136	583	499	365	1940	197	61	7.7
14	2.0	15	396	134	206	458	510	390	2340	160	43	12
15	1.9	14	259	226	302	386	960	415	2520	134	34	28
16	1.8	17	160	300	657	344	1370	973	2730	125	26	159
17	1.8	18	108	250	1410	365	1540	5180	3050	164	21	164
18	1.8	20	76	178	2460	307	1460	28000	3570	429	17	90
19	1.9	46	57	129	3690	234	1190	31500	4910	760	15	38
20	2.0	105	48	99	5100	228	872	24800	5570	1070	14	20
21	2.1	378	43	77	4750	227	676	17300	5280	1300	12	14
22	2.2	500	39	60	3740	314	581	12700	4790	1500	13	11
23	2.6	312	38	50	3110	531	496	10400	4260	1620	13	8.7
24	2.9	141	41	45	2560	395	413	8660	3770	1650	11	6.7
25	2.9	70	66	66	2310	215	341	7520	3440	1570	10	34
26	39	173	77	166	2110	158	292	6640	3010	1360	8.7	100
27	58	866	75	344	1830	155	259	5890	2620	1070	7.5	46
28	136	1190	85	688	1520	298	233	5160	2370	815	6.6	22
29	113	1610	84	787	---	1190	211	4540	2120	649	6.3	15
30	101	1900	126	888	---	1600	195	3980	1850	541	6.4	12
31	98	---	428	1070	---	1730	---	3590	---	451	7.7	---
TOTAL	649.1	7752	5900	7407	39411	26273	26110	185362	84590	23848	2531.2	853.7
MEAN	20.9	258	190	239	1408	848	870	5979	2820	769	81.7	28.5
MAX	136	1900	1500	1070	5100	2110	1670	31500	5570	1650	366	164
MIN	1.8	12	32	45	89	155	195	205	1590	125	6.3	3.7
AC-FT	1290	15380	11700	14690	78170	52110	51790	367700	167800	47300	5020	1690

CAL YR 1988	TOTAL	110351.50	MEAN	302	MAX	4080	MIN	.33	AC-FT	218900
WTR YR 1989	TOTAL	410687.0	MEAN	1125	MAX	31500	MIN	1.8	AC-FT	814600

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, 70 microsiemens Dec. 12, 1971.
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, 2,920 microsiemens Oct. 28; minimum daily, 81 microsiemens May 19.
WATER TEMPERATURE: Maximum daily, 29.0°C July 17; minimum daily, 1.0°C Feb. 7.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
NOV 28...	1800	1450	140	6.70	13.5	6.0	58	--	36
JAN 13...	1400	93	570	7.50	9.0	9.2	79	1.1	92
FEB 27...	1800	1940	225	7.60	9.0	--	--	1.7	70
APR 17...	1800	1750	214	7.20	13.0	8.2	79	2.2	64
JUN 09...	1900	1610	277	7.60	23.5	6.1	72	2.1	75
AUG 14...	1600	41	282	7.30	24.5	7.6	92	2.1	86

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 WH TOT FET 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 28...	9.8	2.8	13	0.9	4.8	17	29	18	0.10
JAN 13...	23	8.3	78	4	5.1	24	67	130	0.10
FEB 27...	22	3.6	16	0.8	3.6	63	25	15	0.20
APR 17...	18	4.6	16	0.9	4.2	41	30	20	0.20
JUN 09...	24	3.6	24	1	4.1	67	20	26	0.20
AUG 14...	28	4.0	20	0.9	3.8	84	22	19	0.20

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, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
NOV 28...	6.1	94	0.170	0.030	0.200	0.160	0.84	1.0	0.190
JAN 13...	14	340	0.180	0.020	0.200	0.100	0.80	0.90	0.070
FEB 27...	2.8	126	--	<0.010	0.100	0.020	0.68	0.70	0.070
APR 17...	6.2	124	0.180	0.020	0.200	0.110	1.2	1.3	0.120
JUN 09...	3.6	146	0.170	0.030	0.200	0.080	0.52	0.60	0.080
AUG 14...	4.3	152	--	0.010	<0.100	0.020	0.58	0.60	0.100

08018500 SABINE RIVER NEAR MINEOLA, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	649.1	1630	885	1550	420	744	79	138	150
NOV.	1988	7752	287	160	3340	58	1210	24	512	47
DEC.	1988	5900	445	248	3940	88	1400	39	616	75
JAN.	1989	7407	460	256	5110	91	1810	40	801	78
FEB.	1989	39411	214	120	12700	39	4200	20	2160	39
MAR.	1989	26273	288	161	11400	54	3800	27	1920	53
APR.	1989	26110	263	147	10300	49	3420	25	1750	48
MAY	1989	185362	138	77	38700	25	12500	13	6730	26
JUNE	1989	84590	223	125	28500	41	9320	21	4890	42
JULY	1989	23848	257	143	9220	48	3060	24	1560	47
AUG.	1989	2531.2	247	138	943	45	310	24	161	46
SEPT	1989	853.7	473	263	607	92	213	42	96	81
TOTAL		410687.0	**	**	126000	**	42000	**	21300	**
WTD.AVG.		1125	204	114	**	38	**	19	**	37

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	435	618	214	249	168	276	278	277	234	239	224	467
2	432	1470	214	326	300	283	245	328	235	255	225	466
3	427	335	233	403	393	282	238	266	232	251	220	468
4	401	2870	311	480	392	285	232	369	235	247	230	472
5	383	1620	378	557	370	292	233	251	286	236	236	473
6	386	1830	474	635	348	259	238	319	265	227	241	475
7	392	1680	475	556	343	254	227	252	250	236	251	480
8	399	1480	388	605	425	211	248	214	220	241	254	489
9	421	851	353	840	514	210	265	223	256	259	255	495
10	427	987	684	1020	619	223	265	231	259	276	227	497
11	426	692	1010	880	796	267	284	188	227	248	236	497
12	394	516	817	871	697	286	273	265	212	246	251	490
13	364	339	623	668	597	322	255	240	207	250	258	452
14	352	685	429	464	665	324	262	297	198	266	303	510
15	341	913	368	260	555	329	536	446	264	273	304	621
16	331	889	408	656	550	362	269	294	264	315	319	825
17	335	825	415	586	403	333	225	142	264	482	344	369
18	332	523	440	489	229	358	239	105	214	272	344	355
19	326	491	481	488	162	418	244	81	196	237	348	418
20	318	595	487	514	148	478	253	84	197	202	362	431
21	310	540	448	565	129	422	259	89	202	206	378	451
22	303	268	429	697	144	397	255	141	207	215	390	460
23	297	235	616	762	189	351	270	177	210	210	414	475
24	292	318	801	738	208	344	280	190	213	207	425	505
25	275	317	918	739	216	481	278	201	216	560	429	532
26	227	321	1240	744	218	480	279	207	218	255	439	319
27	388	732	814	678	224	466	290	211	217	250	449	305
28	2920	120	1390	948	256	572	287	214	214	235	454	295
29	1780	107	644	279	---	416	306	219	215	224	469	286
30	2370	89	641	255	---	260	302	225	222	221	458	301
31	1490	---	445	213	---	291	---	229	---	224	466	---
MEAN	589	775	567	586	366	340	270	225	228	260	329	456

08018500 SABINE RIVER NEAR MINEOLA, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.0	18.0	10.0	---	12.0	11.0	17.0	23.0	26.0	25.0	28.0	27.0
2	---	15.0	10.0	---	13.0	10.0	19.0	23.0	26.0	26.0	28.0	28.0
3	---	---	10.0	---	10.0	11.0	19.0	22.0	25.0	25.0	27.0	28.0
4	20.0	---	11.0	---	8.0	11.0	20.0	22.0	25.0	27.0	27.0	27.0
5	19.0	18.0	8.0	---	---	11.0	18.0	19.0	25.0	27.0	27.0	26.0
6	16.0	15.0	7.0	12.0	3.0	5.0	18.0	19.0	24.0	27.0	28.0	26.0
7	16.0	15.0	10.0	18.0	1.0	4.0	17.0	20.0	25.0	27.0	---	26.0
8	16.0	15.0	11.0	14.0	3.0	5.0	18.0	21.0	26.0	27.0	25.0	26.0
9	17.0	18.0	10.0	10.0	4.0	6.0	18.0	23.0	23.0	28.0	26.0	27.0
10	16.0	17.0	9.0	12.0	8.0	9.0	16.0	21.0	24.0	28.0	25.0	26.0
11	16.0	15.0	9.0	11.0	7.0	12.0	16.0	20.0	26.0	28.0	27.0	25.0
12	15.0	---	10.0	11.0	12.0	7.0	15.0	21.0	25.0	28.0	25.0	25.0
13	15.0	14.0	11.0	10.0	12.0	15.0	16.0	20.0	25.0	28.0	27.0	25.0
14	15.0	15.0	12.0	9.0	12.0	15.0	15.0	19.0	24.0	28.0	27.0	24.0
15	---	18.0	10.0	7.0	9.0	15.0	14.0	21.0	23.0	27.0	25.0	23.0
16	17.0	15.0	10.0	8.0	12.0	14.0	15.0	20.0	22.0	28.0	24.0	22.0
17	18.0	12.0	8.0	8.0	11.0	15.0	18.0	21.0	23.0	29.0	24.0	26.0
18	18.0	14.0	7.0	9.0	9.0	16.0	19.0	20.0	23.0	28.0	25.0	26.0
19	20.0	16.0	7.0	11.0	11.0	17.0	20.0	22.0	25.0	28.0	26.0	26.0
20	20.0	13.0	12.0	11.0	9.0	17.0	20.0	23.0	26.0	26.0	27.0	25.0
21	18.0	11.0	11.0	9.0	10.0	16.0	19.0	19.0	26.0	26.0	27.0	25.0
22	18.0	11.0	12.0	7.0	9.0	12.0	21.0	25.0	27.0	26.0	28.0	25.0
23	20.0	11.0	11.0	---	8.0	10.0	21.0	25.0	27.0	26.0	28.0	25.0
24	15.0	14.0	12.0	11.0	9.0	12.0	22.0	25.0	---	26.0	28.0	25.0
25	15.0	15.0	10.0	12.0	11.0	14.0	22.0	25.0	26.0	26.0	28.0	24.0
26	18.0	15.0	10.0	13.0	10.0	16.0	23.0	26.0	26.0	26.0	28.0	24.0
27	18.0	15.0	8.0	15.0	11.0	17.0	24.0	27.0	26.0	26.0	28.0	24.0
28	18.0	15.0	11.0	12.0	10.0	17.0	28.0	26.0	25.0	25.0	28.0	24.0
29	18.0	14.0	10.0	12.0	---	18.0	25.0	26.0	26.0	27.0	28.0	25.0
30	18.0	12.0	10.0	11.0	---	18.0	25.0	26.0	25.0	27.0	27.0	27.0
31	---	---	11.0	12.0	---	17.0	---	26.0	---	28.0	27.0	---
MEAN	17.5	14.5	10.0	11.0	9.0	12.5	19.5	22.5	25.0	27.0	27.0	25.5

08018730 BURKE CREEK NEAR YANTIS, TX

LOCATION.--Lat 32°59'26", long 95°37'18", Hopkins County, Hydrologic Unit 12010003, at downstream side of highway embankment, 7 ft to left of left end of main bridge on Farm Road 1567, 100 ft upstream from Cane Branch, 1.2 mi upstream from Brushy Branch, and 5.0 mi northwest of Yantis.

DRAINAGE AREA.--33.1 mi².

PERIOD OF RECORD.--October 1978 to Sept. 30, 1989 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 400.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. There are no known diversions or return effluents in the basin above gage. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--11 years, 23.8 ft³/s (9.76 in/yr), 17,240 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,730 ft³/s June 8, 1989 (gage height, 12.19 ft); maximum gage height, 12.21 ft Dec. 18, 1984; no flow most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1943, 17.5 ft June 6, 1943, from information by State Department of Highways and Public Transportation.

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)
Nov. 15	2130	1,160	9.47	May 17	1600	2,940	10.91
Nov. 19	2130	5,050	11.93	June 8	0030	*5,730	*12.19
Nov. 26	0400	4,210	11.56	July 19	1500	2,240	10.45
Feb. 18	0130	1,230	9.49				

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	8.8	8.9	28	25	14	33	6.6	2.9	5.1	3.1	1.9
2	.00	8.7	8.6	17	21	13	26	7.4	2.8	4.5	3.6	1.9
3	.00	8.7	8.5	15	63	14	24	7.8	2.8	5.2	3.6	1.7
4	.00	8.7	8.4	12	28	52	19	12	60	4.0	3.3	1.7
5	.00	8.6	8.4	12	16	171	15	173	38	3.4	3.1	1.6
6	.00	8.4	8.3	34	12	64	14	29	6.8	3.1	3.1	1.5
7	.00	8.3	24	19	11	80	13	10	587	62	3.0	1.4
8	.00	8.2	60	11	19	67	13	7.0	1670	6.8	3.1	1.3
9	.00	8.1	24	8.1	20	43	13	6.0	39	17	3.2	1.3
10	.00	8.0	25	7.7	17	32	11	5.7	9.7	4.7	3.2	1.7
11	.00	8.0	116	7.6	17	26	10	5.0	6.0	4.1	3.0	2.4
12	.00	237	54	10	21	23	11	4.5	126	3.6	3.0	2.8
13	.00	36	26	74	52	21	12	8.3	79	3.5	2.9	30
14	.00	9.6	18	106	41	20	e80	7.5	397	170	2.8	18
15	.00	320	14	47	64	18	e40	5.8	49	496	2.9	2.9
16	.00	307	10	25	728	13	e25	192	10	133	2.9	2.2
17	.00	13	9.5	17	413	14	e20	1830	5.8	10	3.0	2.1
18	.00	17	9.2	14	610	16	15	580	4.5	5.4	3.6	2.1
19	.00	921	9.3	12	76	16	e50	42	4.0	990	3.6	2.0
20	.00	830	9.5	11	65	18	24	17	3.5	232	3.3	2.0
21	.00	25	9.4	9.0	59	102	13	13	3.2	10	3.0	1.9
22	.00	12	11	8.0	32	75	9.9	8.4	3.0	5.3	2.7	1.8
23	.00	9.4	57	7.9	20	38	8.2	7.2	3.0	205	2.5	1.8
24	.00	8.5	25	7.9	16	30	7.5	6.3	2.9	206	2.4	1.7
25	.00	65	13	24	16	25	7.0	5.3	2.8	10	2.4	1.6
26	2.5	2040	11	142	17	24	6.5	4.4	2.8	6.6	2.3	1.5
27	3.6	130	14	60	18	29	6.3	4.0	3.2	70	2.2	1.4
28	28	18	46	135	17	160	5.8	3.8	3.3	9.0	2.1	1.4
29	10	11	22	417	---	340	5.4	3.7	5.0	4.8	2.0	1.4
30	9.1	9.5	16	56	---	379	5.1	3.3	4.7	3.5	2.0	1.4
31	8.9	---	28	34	---	50	---	3.0	---	3.2	2.0	---
TOTAL	62.10	5111.5	712.0	1388.2	2514	1987	542.7	3019.0	3137.7	2696.8	88.9	98.4
MEAN	2.00	170	23.0	44.8	89.8	64.1	18.1	97.4	105	87.0	2.87	3.28
MAX	28	2040	116	417	728	379	80	1830	1670	990	3.6	30
MIN	.00	8.0	8.3	7.6	11	13	5.1	3.0	2.8	3.1	2.0	1.3
AC-FT	123	10140	1410	2750	4990	3940	1080	5990	6220	5350	176	195
CFSM	.06	5.15	.69	1.35	2.71	1.94	.55	2.94	3.16	2.63	.09	.10
IN.	.07	5.74	.80	1.56	2.83	2.23	.61	3.39	3.53	3.03	.10	.11

CAL YR 1988 TOTAL 9845.36 MEAN 26.9 MAX 2040 MIN .00 AC-FT 19530 CFSM .81 IN. 11.06
WTR YR 1989 TOTAL 21358.30 MEAN 58.5 MAX 2040 MIN .00 AC-FT 42360 CFSM 1.77 IN. 24.00

e Estimated.

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, 719,000 acre-ft May 17, 1989 (elevation, 404.52 ft); minimum observed, 46,140 acre-ft Dec. 11-14, 1979 (elevation, 361.10 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 719,000 acre-ft May 17 at 2400 hours (elevation 404.52 ft); minimum, 626,300 acre-ft Oct. 26 (elevation, 401.16).

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

401.0	622,100	404.0	703,900
402.0	648,500	405.0	732,900
403.0	675,800		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	636000	640000	659000	652000	662000	651000	670000	669000	668000	671000	677000	665000
2	636000	640000	656000	652000	664000	651000	670000	668000	666000	672000	675000	665000
3	635000	639000	653000	652000	663000	652000	669000	669000	667000	672000	675000	664000
4	634000	639000	651000	651000	661000	658000	668000	670000	670000	671000	675000	664000
5	634000	639000	650000	651000	659000	663000	665000	677000	670000	671000	674000	663000
6	633000	638000	650000	650000	657000	662000	664000	676000	665000	671000	673000	662000
7	633000	638000	653000	650000	655000	663000	663000	673000	675000	671000	673000	662000
8	632000	637000	654000	649000	654000	664000	663000	672000	673000	671000	672000	661000
9	632000	638000	654000	649000	652000	664000	662000	670000	669000	671000	672000	665000
10	632000	637000	656000	648000	651000	664000	660000	668000	662000	670000	672000	665000
11	631000	636000	659000	648000	651000	663000	659000	667000	660000	670000	672000	666000
12	631000	638000	660000	650000	651000	663000	659000	668000	662000	670000	672000	665000
13	630000	639000	659000	651000	652000	662000	662000	669000	667000	670000	670000	668000
14	629000	640000	658000	653000	652000	662000	666000	669000	672000	672000	670000	667000
15	629000	643000	655000	655000	656000	661000	666000	669000	674000	677000	670000	667000
16	629000	646000	652000	655000	668000	661000	666000	680000	674000	679000	670000	666000
17	629000	647000	650000	654000	674000	660000	667000	719000	674000	679000	670000	666000
18	628000	651000	649000	655000	675000	660000	668000	703000	674000	678000	670000	665000
19	628000	665000	649000	655000	669000	659000	670000	691000	674000	681000	670000	665000
20	628000	670000	649000	655000	661000	661000	670000	685000	673000	689000	669000	664000
21	628000	668000	649000	655000	657000	659000	670000	681000	673000	689000	669000	664000
22	628000	664000	651000	655000	655000	660000	670000	679000	672000	686000	669000	664000
23	627000	661000	651000	655000	652000	659000	670000	677000	672000	686000	668000	663000
24	628000	656000	651000	655000	651000	658000	670000	673000	672000	681000	668000	661000
25	627000	669000	651000	657000	651000	658000	669000	671000	672000	678000	668000	661000
26	631000	698000	651000	659000	651000	658000	669000	669000	672000	678000	667000	660000
27	633000	687000	653000	659000	651000	657000	669000	669000	671000	678000	667000	660000
28	635000	673000	652000	662000	651000	663000	669000	669000	671000	678000	667000	659000
29	638000	668000	652000	666000	---	669000	669000	668000	671000	678000	666000	660000
30	639000	663000	653000	665000	---	677000	668000	668000	671000	677000	666000	659000
31	640000	---	653000	664000	---	673000	---	668000	---	677000	666000	---
MAX	640000	698000	660000	666000	675000	677000	670000	719000	675000	689000	677000	668000
MIN	627000	636000	649000	648000	651000	651000	659000	667000	660000	670000	666000	659000
(†)	401.68	402.52	402.15	402.55	402.09	402.91	402.73	402.71	402.83	403.03	402.63	402.39
(ϕ)	+3600	+23000	-10000	+11,000	-13000	+22000	-5000	0	+3000	+6000	-11000	-7000

CAL YR 1988 MAX 698000 MIN 627000 (ϕ) -27000
WTR YR 1989 MAX 719000 MIN 627000 (ϕ) +22600

(†) 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.

WATER-DISCHARGE RECORDS

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.

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.--Records good. Since May 1962, flow from 31.0 mi² is 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 station, began in 1975. Deliberate impoundment began June 29, 1979, and dam was completed in January 1980. Lake Fork Reservoir controls runoff from 490 mi². 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); 10 years (water years 1980-89) regulated, 286 ft³/s (207,200 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, 24,200 ft³/s May 18 at 0900 hours (gage height, 21.75 ft); minimum daily, 9.8 ft³/s Sept. 22.

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	13	28	2640	383	945	179	1160	37	22	17	17	12
2	12	18	2320	362	915	93	1310	38	21	18	17	12
3	11	15	1820	346	908	82	1310	38	23	19	16	12
4	10	14	1560	323	909	223	1310	47	55	19	16	12
5	10	16	1480	307	896	473	1310	330	183	18	16	12
6	11	20	770	301	886	443	1260	1000	636	18	16	12
7	11	20	152	295	877	310	832	1230	1230	18	16	12
8	11	21	153	289	873	495	543	1280	3500	16	17	11
9	11	22	101	288	864	542	494	1280	9870	16	16	12
10	11	22	66	264	710	528	478	1240	5660	15	15	37
11	11	23	122	78	422	514	431	582	4160	14	14	22
12	12	24	150	34	320	503	137	104	1420	14	14	16
13	12	25	455	57	329	495	62	95	340	14	14	13
14	13	25	614	85	472	491	460	84	245	16	14	13
15	13	25	943	91	506	486	510	71	156	71	14	13
16	13	26	1310	65	701	483	304	662	75	37	14	12
17	14	27	1400	52	4560	478	172	9330	48	25	14	11
18	13	27	1040	45	7780	474	123	23600	37	20	14	10
19	14	40	633	40	7340	476	405	16300	32	19	14	10
20	14	447	194	37	6970	475	367	7920	28	71	14	10
21	14	1330	42	35	6150	479	206	4750	26	617	14	9.9
22	15	2290	33	31	2790	497	132	2450	28	1120	13	9.8
23	15	2420	44	30	2050	491	93	1670	24	1430	13	10
24	15	2450	46	29	1590	482	73	1510	21	1560	13	10
25	16	2390	38	81	885	477	61	1480	20	1560	13	11
26	19	3070	34	350	544	474	53	1450	20	867	13	11
27	19	10900	32	539	479	503	48	1000	19	133	13	11
28	42	11500	40	602	433	627	44	198	18	26	13	11
29	58	5670	43	809	---	1240	41	43	18	21	13	11
30	47	3640	48	1000	---	1520	38	29	18	19	16	11
31	46	---	285	980	---	1240	---	25	---	18	13	---
TOTAL	546	46545	18608	8228	53104	16273	13767	79873	27953	7846	449	379.7
MEAN	17.6	1551	600	265	1897	525	459	2577	932	253	14.5	12.7
MAX	58	11500	2640	1000	7780	1520	1310	23600	9870	1560	17	37
MIN	10	14	32	29	320	82	38	25	18	14	13	9.8
AC-FT	1080	92320	36910	16320	105300	32280	27310	158400	55440	15560	891	753

CAL YR 1988 TOTAL 132511.1 MEAN 362 MAX 11500 MIN 9.2 AC-FT 262800
WTR YR 1989 TOTAL 273571.7 MEAN 750 MAX 23600 MIN 9.8 AC-FT 542600

08019000 LAKE FORK CREEK NEAR QUITMAN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: December 1961 to August 1989 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1967 to September 1989.
WATER TEMPERATURE: December 1967 to September 1989.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,800 microsiemens Oct. 5, 1972; minimum daily, 37 microsiemens Dec. 11, 1971.
WATER TEMPERATURE: Maximum daily, 38.0°C Sept. 6, 1987; minimum daily, 0.0°C Dec. 23-27, 1983.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 559 microsiemens May 3; minimum daily, 154 microsiemens May 19.
WATER TEMPERATURE: Maximum daily, 30.5°C Sept. 1, 4, 5; minimum daily, 6.5°C Feb. 7, 18-20.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
NOV								
30...	1412	3680	212	--	51	12	5.2	19
JAN								
11...	1145	63	290	11.0	70	17	6.7	27
MAR								
01...	1320	166	348	13.0	76	18	7.5	33
APR								
19...	1331	474	259	19.0	54	13	5.3	24
AUG								
09...	1318	16	256	26.0	58	14	5.6	24

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
NOV								
30...	1	6.2	30	--	--	--	6.9	--
JAN								
11...	1	5.6	48	35	39	0.20	7.5	167
MAR								
01...	2	5.3	30	48	54	0.20	11	195
APR								
19...	1	3.8	13	41	38	0.10	11	144
AUG								
09...	1	6.0	49	23	28	0.20	4.6	135

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	546	295	164	242	46	68	36	53	64
NOV.	1988	46545	193	108	13600	28	3540	25	3100	43
DEC.	1988	18608	216	121	6070	32	1620	27	1370	48
JAN.	1989	8228	286	159	3540	45	990	35	779	62
FEB.	1989	53104	224	125	18000	33	4790	28	4050	50
MAR.	1989	16273	248	138	6070	38	1650	31	1360	54
APR.	1989	13767	264	147	5470	41	1510	33	1210	58
MAY	1989	79873	173	97	20900	25	5390	22	4780	39
JUNE	1989	27953	189	106	7970	28	2080	24	1810	42
JULY	1989	7846	182	102	2160	27	563	23	491	41
AUG.	1989	449	250	140	169	38	46	31	38	55
SEPT	1989	379.7	290	161	165	45	46	35	36	63
TOTAL		273571.7	**	**	84300	**	22300	**	19100	**
WTD.AVG.		750	204	114	**	30	**	26	**	45

08019000 LAKE FORK CREEK NEAR QUITMAN, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	270	354	191	350	216	360	224	558	386	347	277	233
2	280	336	191	348	232	428	270	558	397	346	266	253
3	290	317	194	300	225	467	207	559	220	347	259	232
4	299	294	208	270	230	320	241	496	264	346	259	232
5	276	272	194	218	227	322	243	347	218	324	252	231
6	264	273	250	220	229	317	241	267	264	323	286	231
7	258	283	276	213	230	350	215	197	236	323	286	225
8	255	257	320	211	242	242	209	193	189	315	285	407
9	254	246	368	211	207	229	206	185	175	315	254	410
10	253	247	368	215	220	229	198	185	161	315	253	409
11	252	255	366	315	227	221	205	232	174	314	255	411
12	250	262	213	431	227	229	319	293	240	308	237	355
13	251	263	213	430	343	221	415	401	240	296	238	355
14	259	251	211	400	343	223	396	402	399	291	237	346
15	253	256	240	403	180	220	395	159	398	489	240	344
16	253	258	203	403	238	213	335	160	313	516	246	250
17	255	267	203	402	234	220	347	156	312	307	246	249
18	256	267	203	407	211	214	364	165	323	305	282	248
19	255	218	203	416	212	217	359	154	322	300	248	243
20	268	217	315	413	185	212	346	174	323	322	247	244
21	251	218	316	418	263	233	317	179	333	166	247	243
22	261	192	357	424	268	232	342	198	310	168	248	228
23	249	189	407	425	198	233	365	212	311	162	234	229
24	252	188	460	428	236	226	413	178	314	167	235	228
25	239	197	450	415	203	230	414	205	313	162	234	228
26	239	188	443	320	243	263	442	195	313	190	228	231
27	261	196	442	272	243	262	442	191	328	242	227	231
28	362	189	444	225	245	275	463	254	334	292	227	230
29	361	193	476	330	---	282	478	300	339	292	222	231
30	361	190	477	225	---	234	478	351	339	294	221	235
31	360	---	400	332	---	234	---	378	---	293	239	---
MEAN	272	244	310	335	234	263	330	274	293	296	249	274

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

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

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 the flood-detention pool at 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.--50 years, 179 ft³/s (129,700 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)
Apr. 1	0800	3,030	15.30	May 19	1500	*6,680	*18.30

Minimum daily discharge, 12 ft³/s Oct. 20.

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	24	99	158	206	229	185	2820	73	120	74	63	25
2	26	91	179	237	236	163	1780	73	116	76	54	22
3	24	87	189	241	261	152	1040	73	108	85	45	19
4	21	78	171	208	258	152	735	82	105	92	41	25
5	19	66	135	176	221	200	554	107	138	99	36	23
6	18	52	110	147	186	246	417	131	158	90	32	20
7	18	39	93	130	155	278	323	150	309	82	33	18
8	15	32	99	119	140	330	251	174	871	81	35	16
9	16	28	116	109	127	460	204	218	826	81	31	18
10	16	29	126	102	119	399	171	255	617	84	26	18
11	15	26	146	96	115	304	145	251	899	89	24	26
12	16	26	172	94	118	239	130	198	901	83	22	36
13	15	37	194	106	134	201	120	172	664	73	23	33
14	14	53	187	125	137	178	187	156	683	76	26	31
15	14	56	172	136	143	164	226	144	541	183	29	34
16	15	49	163	139	153	154	249	194	410	174	36	35
17	14	44	146	145	192	143	323	641	343	151	37	42
18	13	46	125	143	335	133	412	3800	319	165	35	38
19	14	92	110	138	793	127	373	6240	264	196	33	29
20	12	130	98	127	1270	123	302	4540	191	175	34	24
21	14	149	90	119	1390	130	232	1380	144	133	35	21
22	16	162	85	111	1080	161	200	1380	109	108	31	17
23	14	149	85	104	815	154	187	1020	88	108	27	15
24	13	135	87	99	629	148	174	744	76	102	25	15
25	16	115	89	108	491	146	146	559	77	90	23	16
26	21	100	88	118	381	147	123	433	78	77	23	17
27	49	138	105	136	291	154	105	330	75	72	21	16
28	72	170	160	181	226	157	91	233	74	78	17	15
29	83	174	168	214	---	324	80	181	74	81	18	15
30	90	151	184	237	---	617	75	149	73	74	25	17
31	98	---	191	238	---	1600	---	125	---	70	32	---
TOTAL	825	2603	4221	4589	10625	8069	12175	24206	9451	3202	972	696
MEAN	26.6	86.8	136	148	379	260	406	781	315	103	31.4	23.2
MAX	98	174	194	241	1390	1600	2820	6240	901	196	63	42
MIN	12	26	85	94	115	123	75	73	73	70	17	15
AC-FT	1640	5160	8370	9100	21070	16000	24150	48010	18750	6350	1930	1380

CAL YR 1988 TOTAL 51305 MEAN 140 MAX 1240 MIN 11 AC-FT 101800
WTR YR 1989 TOTAL 81634 MEAN 224 MAX 6240 MIN 12 AC-FT 161900

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 fair. Flow partially regulated by Lake Tawakoni (station 08017400), capacity 936,200 acre-ft, by Lake Fork Creek Reservoir (station 08018800), capacity 675,800 acre-ft, and by five tributary reservoirs with a total combined capacity of 42,370 acre-ft. There are many diversions above station for oil field operations and municipal supply. Several observations of water temperature were obtained during the year. A rain gage and gage-height telemeter are located at station.

AVERAGE DISCHARGE.--28 years (water years 1933-60) prior to regulation by Lake Tawakoni, 2,012 ft³/s (1,458,000 acre-ft/yr); 29 years (water years 1961-89) regulated, 1,671 ft³/s (1,211,000 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, 52,300 ft³/s May 22 at 1800 hours (gage height, 37.88 ft); minimum daily, 30 ft³/s Oct. 19.

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	32	349	3980	1410	2320	6460	6390	e362	12700	3160	797	80
2	38	347	4760	1670	2460	6140	6640	e440	11200	2650	e604	95
3	47	314	5350	1770	3230	5720	6700	e498	9680	2250	e503	89
4	51	271	5720	1600	3440	5160	6510	e599	8500	1830	e438	80
5	50	220	5910	1370	3280	4380	6080	e768	7620	1430	e389	74
6	53	174	5850	1210	2810	3550	5570	1130	6800	1120	e348	72
7	52	142	5510	1080	2400	2900	5040	1520	6120	938	296	64
8	48	119	4920	971	2120	2590	4460	1630	5800	845	279	60
9	43	104	4070	888	1910	2540	3850	1800	5470	799	301	57
10	39	100	3090	822	1750	2620	3300	2030	5100	755	279	56
11	36	91	2110	800	1650	2720	e2730	2200	4710	686	246	63
12	35	96	1420	793	1630	2780	e2020	2190	4790	603	281	69
13	35	106	1240	793	1670	2710	e1350	2050	5260	536	269	73
14	34	115	1230	800	1650	2390	e1270	1780	6090	605	224	83
15	33	143	1250	858	1550	1870	e1510	1370	6760	835	233	95
16	33	154	1310	895	1520	1430	e1680	1720	7110	742	260	90
17	32	147	1330	925	1740	1220	e2000	4500	7150	546	224	88
18	31	169	1340	926	2410	1140	e2250	7700	6890	466	172	108
19	30	240	1410	847	2990	1100	e2460	9800	6420	478	154	194
20	31	383	1500	744	3520	1050	2460	19000	5800	619	141	187
21	32	535	1560	650	4190	1020	2290	41700	5170	817	130	145
22	32	650	1470	586	4840	1130	2030	51000	4700	967	120	112
23	33	889	1130	544	5360	1200	1650	e50400	4530	1180	109	88
24	35	1190	728	511	5840	1260	e1270	e42800	4570	1490	98	73
25	32	1370	536	521	6320	1300	e992	e36900	4630	1800	93	62
26	36	1560	471	666	6640	1230	e762	e31800	4610	2070	90	57
27	41	1780	527	838	6700	1150	e642	e26900	4520	2220	84	54
28	80	2130	941	1050	6600	1270	e489	e22900	4330	2270	79	52
29	146	2540	1180	1400	---	3800	e430	e19300	4040	2240	74	90
30	254	3150	1150	1860	---	5490	e342	e16300	3620	1950	70	101
31	332	---	1170	2150	---	6120	---	e14300	---	1270	70	---
TOTAL	1836	19578	74163	31948	92540	85440	85167	417387	184690	40167	7455	2611
MEAN	59.2	653	2392	1031	3305	2756	2839	13460	6156	1296	240	87.0
MAX	332	3150	5910	2150	6700	6460	6700	51000	12700	3160	797	194
MIN	30	91	471	511	1520	1020	342	362	3620	466	70	52
AC-FT	3640	38830	147100	63370	183600	169500	168900	827900	366300	79670	14790	5180

CAL YR 1988 TOTAL 478903 MEAN 1308 MAX 16800 MIN 29 AC-FT 949900
WTR YR 1989 TOTAL 1042982 MEAN 2857 MAX 51000 MIN 30 AC-FT 2069000

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, 31.50 ft May 24, 1989; minimum daily discharge, 0.50 ft³/s Sept. 4, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 31.50 ft May 24 at 0300 hours; minimum daily discharge, 19 ft³/s Oct. 19.

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	24	373	---	---	---	---	---	---	---	---	---	70
2	24	390	---	---	---	---	---	---	---	---	---	75
3	24	384	---	---	---	---	---	---	---	---	---	86
4	28	341	---	---	---	---	---	---	---	---	---	91
5	40	292	---	---	---	---	---	---	---	---	456	84
6	40	245	---	---	---	---	---	---	---	---	403	78
7	40	218	---	---	---	---	---	---	---	---	345	67
8	43	192	---	---	---	---	---	---	---	---	299	54
9	45	162	---	---	---	---	---	---	---	---	283	49
10	45	145	---	---	---	---	---	---	---	---	304	81
11	36	147	---	---	---	---	---	---	---	---	268	78
12	27	149	---	---	---	---	---	---	---	---	243	82
13	25	149	---	---	---	---	---	---	---	---	279	72
14	27	149	---	---	---	---	---	---	---	---	251	64
15	24	152	---	---	---	---	---	---	---	---	225	76
16	24	200	---	---	---	---	---	---	---	---	252	90
17	28	213	---	---	---	---	---	---	---	---	269	91
18	28	211	---	---	---	---	---	---	---	---	220	91
19	19	240	---	---	---	---	---	---	---	499	190	114
20	25	365	---	---	---	---	---	---	---	---	170	185
21	27	489	---	---	---	---	---	---	---	---	156	178
22	28	---	---	---	---	---	---	---	---	---	139	141
23	28	---	---	---	---	---	---	---	---	---	130	110
24	28	---	---	490	---	---	---	---	---	---	117	88
25	30	---	---	469	---	---	---	---	---	---	108	65
26	33	---	472	---	---	---	---	---	---	---	101	52
27	45	---	446	---	---	---	---	---	---	---	95	44
28	47	---	---	---	---	---	---	---	---	---	91	33
29	104	---	---	---	---	---	---	---	---	---	82	35
30	190	---	---	---	---	---	---	---	---	---	79	77
31	300	---	---	---	---	---	---	---	---	---	75	---
TOTAL	1476	---	---	---	---	---	---	---	---	---	---	2501
MEAN	47.6	---	---	---	---	---	---	---	---	---	---	83.4
MAX	300	---	---	---	---	---	---	---	---	---	---	185
MIN	19	---	---	---	---	---	---	---	---	---	---	33
AC-FT	2930	---	---	---	---	---	---	---	---	---	---	4960

CAL YR 1988	TOTAL	--	MEAN	--	MAX	--	MIN	--	AC-FT	--		
WTR YR 1989	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 good. 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); 29 years (water years 1961-89) regulated, 2,271 ft³/s (1,645,000 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, 41,300 ft³/s Mar. 30 at 1530 hours (gage height, 37.87 ft); minimum daily, 24 ft³/s Oct. 20, 21 and 24.

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	47	378	2300	2260	5130	7160	25300	2330	16800	10700	2220	159
2	99	398	2770	1910	3930	7620	19800	1750	15800	12000	1620	143
3	81	399	3260	1730	5570	7990	16700	1260	14900	9850	1280	129
4	65	399	3770	1810	9400	8200	14500	1110	14400	7570	1070	128
5	57	357	4180	1710	9990	8280	13100	2480	14700	5330	877	137
6	56	307	4560	1540	9240	8410	11700	4710	16000	4180	732	134
7	50	250	4860	1370	7690	8360	10200	4170	15200	3640	695	138
8	48	200	5180	1230	5740	7610	8920	2930	17900	3780	697	132
9	53	170	5430	1100	4160	6360	7790	2390	19000	3380	591	119
10	53	143	5290	1020	3160	4930	6800	2380	16100	2200	500	161
11	50	133	5120	950	2590	4000	5890	2510	14100	1760	474	272
12	46	149	4170	922	2280	3690	4860	2530	13000	1510	439	222
13	45	239	2490	1420	2600	3650	3740	2760	11600	1300	388	188
14	37	307	1590	2040	3420	3590	3120	3520	10500	1260	390	205
15	33	222	1320	2680	4120	3410	3470	4020	11500	1880	395	187
16	36	223	1230	2220	4180	2910	3440	4020	11700	2480	361	151
17	31	482	1230	1550	4290	2210	3090	8270	11500	1960	511	141
18	29	373	1230	1350	4540	1790	2970	11800	10800	1490	917	138
19	26	506	1230	1280	5480	1580	3130	12700	10000	1170	617	132
20	24	789	1250	1200	5660	1480	3650	12700	9330	1020	461	127
21	24	639	1360	1090	5430	1460	3720	12400	8710	959	372	174
22	25	566	1460	969	5460	1680	3410	12100	8150	1050	317	215
23	25	569	1430	874	5480	1860	3030	11800	7570	1220	276	181
24	24	620	1310	813	5590	1770	2540	12300	6950	1420	247	155
25	25	793	1050	781	5810	1710	2040	13200	6340	1750	216	132
26	139	1840	773	763	6080	1710	1660	15500	5910	2110	203	114
27	350	3760	625	785	6430	2110	1400	20900	5970	2500	179	100
28	343	3810	990	885	6790	2420	1200	22800	7010	2780	166	93
29	345	2370	1550	1860	---	15100	1060	21900	7890	2860	159	88
30	269	2040	1620	4840	---	39000	1350	20100	7970	2840	151	85
31	266	---	2100	6130	---	34400	---	18300	---	2700	154	---
TOTAL	2801	23431	76728	51082	150240	206450	193580	271640	347300	100649	17675	4480
MEAN	90.4	781	2475	1648	5366	6660	6453	8763	11580	3247	570	149
MAX	350	3810	5430	6130	9990	39000	25300	22800	19000	12000	2220	272
MIN	24	133	625	763	2280	1460	1060	1110	5910	959	151	85
AC-FT	5560	46480	152200	101300	298000	409500	384000	538800	688900	199600	35060	8890

CAL YR 1988 TOTAL 636664 MEAN 1740 MAX 11900 MIN 24 AC-FT 1263000
WTR YR 1989 TOTAL 1446056 MEAN 3962 MAX 39000 MIN 24 AC-FT 2868000

08022040 SABINE RIVER NEAR BECKVILLE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: February 1952 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: March 1968 to June 1981.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: February 1952 to current year.
WATER TEMPERATURE: February 1952 to current year.

REMARKS.--Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request. Formerly published as 08022000 Sabine River near Tatum.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,040 microsiemens Jan. 13, 1966; minimum daily, 53 microsiemens Mar. 31, 1979, Mar. 30, 1989.
WATER TEMPERATURE: Maximum daily, 38.0°C July 8, 1969; minimum daily, 0.0°C on several days during December 1983.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,290 microsiemens Nov. 11; minimum daily, 53 microsiemens Mar. 30.
WATER TEMPERATURE: Maximum daily, 32.5°C Aug.26; minimum daily, 4.0°C Feb. 6, 7.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	CALCIUM DIS-SOLVED (MG/L AS CA)
NOV 29...	1700	2150	240	7.20	12.0	9.4	87	2.1	46	12
JAN 11...	1700	950	300	7.50	10.0	9.5	85	0.8	57	15
MAR 01...	1600	7220	169	7.20	9.5	--	--	1.1	42	11
APR 18...	1900	2970	224	7.00	18.5	8.1	87	2.2	47	13
JUN 07...	1900	14600	178	7.30	23.5	2.8	34	1.8	61	18
AUG 16...	1600	353	356	7.10	26.5	8.4	105	1.6	71	21

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 WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
NOV 29...	3.9	26	2	5.4	41	25	32	0.10	6.8	136
JAN 11...	4.8	40	2	4.2	47	34	49	0.20	13	189
MAR 01...	3.6	15	1	4.6	28	24	17	0.10	7.0	99
APR 18...	3.6	19	1	3.0	33	20	26	0.10	9.7	114
JUN 07...	3.8	14	0.8	4.5	60	11	14	0.20	6.3	108
AUG 16...	4.5	36	2	3.7	62	27	44	0.20	9.7	184

DATE	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-PHOROUS TOTAL (MG/L AS P)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)
NOV 29...	0.170	0.030	0.200	0.100	0.70	0.80	0.210	--	--	--
JAN 11...	0.360	0.040	0.400	0.180	1.0	1.2	0.180	<1	62	<1
MAR 01...	--	<0.010	<0.100	0.040	0.76	0.80	0.090	--	--	--
APR 18...	0.170	0.030	0.200	0.180	0.82	1.0	0.090	--	--	--
JUN 07...	0.170	0.030	0.200	0.090	0.61	0.70	0.100	--	--	--
AUG 16...	0.180	0.020	0.200	0.030	1.7	1.7	0.100	<1	71	<1

08022040 SABINE RIVER NEAR BECKVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	CHROMIUM, 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)	MANGANESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELENIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 29...	--	--	--	--	--	--	--	--	--
JAN 11...	1	5	350	<5	100	<0.1	<1	<1.0	23
MAR 01...	--	--	--	--	--	--	--	--	--
APR 18...	--	--	--	--	--	--	--	--	--
JUN 07...	--	--	--	--	--	--	--	--	--
AUG 16...	2	2	140	<1	63	<0.1	<1	<1.0	17

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCTANCE (MICRO-SIEMENS)	DIS-SOLVED SOLIDS (MG/L)	DIS-SOLVED SOLIDS (TONS)	DIS-SOLVED CHLORIDE (MG/L)	DIS-SOLVED CHLORIDE (TONS)	DIS-SOLVED SULFATE (MG/L)	DIS-SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1988	2801	663	364	2750	120	922	51	383	88
NOV.	1988	23431	376	208	13200	65	4090	32	2000	58
DEC.	1988	76728	242	135	28000	38	7870	22	4650	44
JAN.	1989	51082	308	172	23700	50	6850	28	3830	54
FEB.	1989	150240	209	117	47600	32	13200	20	8000	39
MAR.	1989	206450	178	100	55600	28	15300	17	9370	33
APR.	1989	193580	166	93	48700	25	13300	16	8290	32
MAY	1989	271640	130	73	53700	20	14400	13	9270	25
JUNE	1989	347300	175	98	92000	27	25000	17	15700	33
JULY	1989	100649	226	126	34300	35	9520	21	5760	42
AUG.	1989	17675	273	153	7280	43	2070	25	1200	49
SEPT	1989	4480	597	329	3980	110	1290	48	575	85
TOTAL		1446056	**	**	411000	**	114000	**	69100	**
WTD.AVG.		3962	188	105	**	29	**	18	**	35

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	625	464	227	249	208	180	82	245	139	192	232	457
2	597	423	262	290	287	180	91	177	158	207	235	484
3	603	372	202	317	162	198	113	249	169	216	257	508
4	738	362	196	289	150	197	131	287	184	197	255	496
5	788	370	183	338	95	204	148	274	191	224	247	521
6	1000	408	190	333	165	218	166	159	194	216	261	531
7	886	436	192	333	193	229	180	172	195	229	269	567
8	780	425	198	370	207	236	187	198	170	235	291	636
9	796	518	207	358	236	238	194	220	136	196	291	670
10	890	1120	217	342	270	299	200	194	167	226	284	556
11	1090	1290	216	351	276	277	224	329	176	244	281	844
12	1150	1110	181	362	278	273	219	250	184	260	304	663
13	1050	838	255	329	262	258	229	226	185	271	343	691
14	920	948	263	324	240	247	245	238	183	276	332	722
15	777	1190	285	281	243	251	251	217	132	266	324	559
16	730	1110	309	222	250	274	254	210	139	261	339	526
17	670	598	314	289	228	288	217	158	142	205	336	460
18	599	693	413	281	248	306	208	89	152	248	207	536
19	580	477	500	308	241	312	215	98	157	212	222	508
20	571	587	367	320	341	325	304	95	163	280	210	505
21	566	421	321	342	282	329	256	95	178	260	270	649
22	576	518	315	360	221	332	225	91	199	282	303	671
23	581	491	302	648	210	302	229	87	215	294	290	676
24	582	452	293	495	202	324	239	86	215	289	312	688
25	591	395	301	442	191	291	252	115	212	283	326	579
26	493	369	331	445	192	303	257	103	209	239	394	561
27	517	230	362	435	183	300	269	115	209	220	404	530
28	597	221	393	432	182	287	282	132	222	220	409	527
29	700	247	309	384	---	158	290	132	215	209	406	530
30	674	237	343	191	---	53	308	127	213	280	429	537
31	540	---	223	229	---	115	---	130	---	266	439	---
MEAN	718	577	280	345	223	251	215	171	180	242	307	580

08022040 SABINE RIVER NEAR BECKVILLE, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

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

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, 118,000 acre-ft Mar. 29 at 0900 hours (elevation, 313.00 ft); minimum daily, 54,380 acre-ft Oct. 25 (elevation, 300.87 ft).

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

300.0	50,960	306.0	77,500	312.0	111,500
303.0	63,360	309.0	93,520	313.0	118,000

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57570	56080	59970	69030	84790	80390	77350	77000	76950	77300	76500	74570
2	57440	56040	59930	69270	83570	80650	77750	77000	77050	77100	76600	74380
3	57230	56040	59880	69360	82570	80910	77950	77000	77150	76900	76750	74230
4	57070	55880	59880	69450	81690	81120	77450	77000	77250	76900	76850	74090
5	56900	55670	59840	69590	80700	81480	77200	76950	77400	76850	77000	73890
6	56740	55590	59840	69690	79780	81640	77250	76950	77450	76850	77150	73650
7	56570	55550	60270	69590	78810	81740	77450	76950	77900	76800	77300	73450
8	56490	55510	60830	69690	77900	81840	77450	77050	77550	76800	77450	73310
9	56370	55510	61090	69830	77000	81950	75850	77150	76550	76800	77350	73160
10	56240	55390	61780	69830	77050	82050	74920	77250	76750	76800	77200	72970
11	56040	55300	62480	70440	77950	82210	74920	77300	77050	76750	77050	72780
12	55920	55590	62920	71630	78860	82310	74770	77450	77050	76850	76850	72630
13	55790	55550	63010	72680	79780	82360	75070	77550	77650	76900	76650	72490
14	55630	55630	63010	73550	80760	82420	76500	77650	77550	76850	76500	72440
15	55510	55590	62920	74430	81690	82360	76800	77750	77050	76800	76300	72340
16	55390	55430	62960	75360	81640	82360	76750	77850	76900	76750	76200	72250
17	55300	55390	62920	76300	81270	82520	76750	77950	76600	76700	75760	72200
18	55140	55790	62960	76650	81060	82520	77900	77900	76550	76650	75260	72150
19	55020	55790	62960	76750	80700	82470	77550	77750	76700	76600	75020	72100
20	54860	55670	63010	76900	80390	82420	77450	77600	76700	76500	74480	72010
21	54820	55670	63270	77050	80090	82780	77000	77500	76700	76450	73990	71910
22	54740	55630	63400	77150	79980	82830	76800	77400	76550	76450	73500	71870
23	54540	55590	63490	77250	79980	82260	76700	77250	76550	76450	73160	71820
24	54460	55550	63360	77400	79930	81640	76550	77150	76500	76400	72870	71720
25	54380	56280	63320	77500	79930	81010	76550	77000	76900	76400	72150	71630
26	55060	58740	63400	78460	79930	81060	76550	76950	77400	76400	71670	71530
27	55060	59800	63940	79930	79880	80650	76450	76950	77900	76450	70960	71440
28	55830	60010	64110	81380	80030	89110	75950	76950	77850	76450	71670	71390
29	55880	60010	64830	82830	---	101600	76350	76950	77800	76450	74180	71340
30	56120	60010	67280	84310	---	85960	76850	76950	77550	76450	74870	71250
31	56080	---	68660	85590	---	76900	---	76950	---	76500	74720	---
MAX	57570	60010	68660	85590	84790	101600	77950	77950	77900	77300	77450	74570
MIN	54380	55300	59840	69030	77000	76900	74770	76950	76500	76400	70960	71250
(†)	301.29	302.23	304.17	307.56	306.54	305.88	305.87	305.89	306.01	305.80	305.44	304.72
(ϕ)	-1490	+3930	+8650	+16930	-5560	-3130	-50	+100	+600	-1050	-1780	-3470

CAL YR 1988 MAX 84580 MIN 54380 (ϕ) -10410
WTR YR 1989 MAX 101600 MIN 54380 (ϕ) +13680

(†) 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.--15 years (water years 1975-89), 89.7 ft³/s (64,990 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, 8,250 ft³/s Mar. 29 at 2200 hours (gage height, 19.52 ft); minimum daily, 5.0 ft³/s Oct. 17.

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	5.9	11	10	57	e1500	24	e744	13	11	237	11	8.1
2	6.6	8.4	9.3	28	e950	27	e245	9.4	13	48	11	7.8
3	6.5	7.5	8.6	21	e800	25	e110	8.2	11	709	12	7.7
4	6.1	7.4	8.3	18	e1900	23	e79	8.2	12	302	10	8.0
5	5.9	7.3	8.3	16	e1500	26	e60	26	3780	32	9.0	8.2
6	6.0	6.4	8.5	15	e950	26	e44	15	2350	23	8.1	7.7
7	6.3	7.2	8.8	14	e600	20	e31	9.4	701	50	16	7.7
8	5.4	7.4	39	13	e440	18	e26	6.9	2260	99	14	8.8
9	5.4	7.4	24	13	e330	16	e21	6.8	1340	460	10	8.1
10	5.6	7.8	25	13	e250	15	e17	6.9	728	41	9.1	18
11	5.3	8.1	81	13	174	15	e13	6.7	e135	18	8.9	13
12	5.5	15	31	23	e150	15	13	6.6	e64	16	8.8	e14
13	5.2	22	19	122	174	15	12	17	e107	15	8.8	e9.6
14	5.1	12	15	141	231	13	98	28	e1020	20	8.8	e9.0
15	5.2	9.9	13	75	103	13	254	34	2090	29	8.9	e8.8
16	5.1	11	12	31	290	11	181	944	600	20	9.6	e8.7
17	5.0	10	11	24	1680	12	192	2810	612	32	36	e8.5
18	5.2	14	11	19	e2000	12	60	1980	264	18	17	e8.4
19	5.8	35	11	18	1290	11	18	e1070	25	15	11	e8.2
20	5.9	19	11	16	648	12	232	1200	13	14	8.6	e8.2
21	6.0	13	29	15	457	20	111	96	11	13	9.4	e8.1
22	6.0	11	22	15	e270	36	244	15	9.6	12	11	7.8
23	6.5	9.9	17	14	149	86	142	38	9.5	12	9.3	7.5
24	6.2	9.2	14	15	29	328	16	293	9.7	12	8.6	7.5
25	6.2	9.2	11	16	24	411	11	50	10	15	8.5	7.5
26	171	382	9.7	17	23	433	10	21	56	31	8.2	8.0
27	92	180	27	18	22	865	9.7	8.3	512	28	8.4	7.5
28	38	30	e154	18	21	1070	9.0	6.7	1360	17	7.9	7.7
29	27	15	e63	237	---	5720	8.5	6.5	596	14	8.4	7.9
30	12	12	e149	328	---	e3790	20	6.7	1040	13	8.1	8.1
31	14	---	207	103	---	e1540	---	6.9	---	12	8.1	---
TOTAL	497.9	905.1	1067.5	1486	16955	14648	3031.2	8754.2	19749.8	2377	332.5	264.1
MEAN	16.1	30.2	34.4	47.9	606	473	101	282	658	76.7	10.7	8.80
MAX	171	382	207	328	2000	5720	744	2810	3780	709	36	18
MIN	5.0	6.4	8.3	13	21	11	8.5	6.5	9.5	12	7.9	7.5
AC-FT	988	1800	2120	2950	33630	29050	6010	17360	39170	4710	660	524

CAL YR 1988 TOTAL 27672.6 MEAN 75.6 MAX 2080 MIN 1.3 AC-FT 54890
WTR YR 1989 TOTAL 70068.3 MEAN 192 MAX 5720 MIN 5.0 AC-FT 139000

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 (1968-89), 32.50 ft Apr. 20, 1969; 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, 33.38 ft Apr. 3 at 1100 to 1300 hours; minimum recorded, 18.18 ft Nov. 5, but may have been lower on Nov. 26.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.93	18.60	---	20.77	24.55	23.00	30.33	23.33	28.47	28.26	24.61	22.68
2	18.99	18.79	---	20.83	24.56	23.25	33.22	23.56	28.62	29.42	24.48	22.55
3	18.88	18.75	---	20.58	24.23	23.45	33.12	23.44	28.58	30.95	24.34	22.53
4	18.85	18.47	---	20.61	24.03	23.18	32.15	23.62	28.37	30.46	24.27	22.45
5	18.80	18.52	---	20.69	23.87	23.14	30.91	23.47	28.80	29.55	24.15	22.46
6	18.82	18.44	---	20.56	23.78	23.15	29.74	23.67	29.55	28.36	24.13	22.39
7	18.74	18.47	---	20.43	23.87	23.22	28.67	23.88	30.74	27.27	24.00	22.30
8	18.80	18.48	---	20.27	23.90	23.22	27.74	24.14	31.92	26.40	23.91	22.32
9	18.71	18.70	---	20.46	23.79	23.18	27.04	23.81	31.83	25.89	23.86	22.24
10	18.78	18.45	---	20.51	23.49	23.11	26.38	23.68	31.26	25.64	23.78	22.23
11	18.67	18.55	---	20.69	23.00	22.89	26.00	23.68	30.71	25.20	23.72	22.21
12	18.68	---	---	20.91	22.60	22.64	25.60	23.64	30.15	24.75	23.69	22.13
13	18.69	18.56	---	22.16	22.37	22.55	25.20	23.92	29.49	24.60	23.69	22.08
14	18.72	---	19.99	23.16	22.27	22.53	24.92	24.04	28.94	24.63	23.60	21.94
15	18.70	---	19.65	23.40	22.25	22.17	24.69	24.28	28.19	24.63	23.61	21.95
16	18.66	---	19.74	23.37	22.48	22.23	24.76	25.65	27.52	24.72	23.57	21.94
17	18.71	---	19.72	23.22	22.78	22.32	24.58	27.08	27.08	24.70	23.49	21.89
18	18.58	---	19.80	22.90	22.97	21.96	24.38	28.97	26.72	24.63	23.57	21.77
19	18.56	---	19.97	22.67	23.22	22.00	24.65	29.16	26.55	24.45	23.44	21.73
20	18.53	---	19.76	22.50	23.51	22.09	24.05	29.23	26.40	24.42	23.39	21.65
21	18.46	---	19.75	22.36	23.63	21.79	24.02	28.88	26.35	24.40	23.29	21.58
22	18.60	---	19.82	22.23	23.53	22.00	24.06	28.42	26.11	24.38	23.26	21.41
23	18.32	---	20.09	22.13	23.57	22.04	23.92	27.41	25.84	24.35	23.24	21.29
24	18.44	---	19.90	21.97	23.47	22.13	23.71	27.56	25.57	24.35	23.16	21.36
25	18.43	---	19.94	21.87	23.33	22.12	23.60	27.23	25.32	24.30	23.07	21.32
26	18.52	---	20.13	21.57	23.18	22.73	23.49	26.87	25.24	24.41	22.95	21.26
27	18.61	---	19.80	21.68	22.88	23.30	23.55	26.62	26.02	24.38	22.95	21.23
28	18.54	---	20.06	21.60	22.91	23.50	23.46	26.55	26.69	24.46	23.05	21.14
29	18.65	---	20.33	21.48	---	24.03	23.42	26.66	27.20	24.46	22.80	21.05
30	18.57	---	20.45	23.99	---	24.43	23.34	27.20	27.67	24.43	22.84	21.03
31	18.57	---	20.59	24.47	---	25.27	---	27.96	---	24.41	22.82	---
MAX	18.99	---	---	24.47	24.56	25.27	33.22	29.23	31.92	30.95	24.61	22.68
MIN	18.32	---	---	20.27	22.25	21.79	23.34	23.33	25.24	24.30	22.80	21.03

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, 4,840,000 acre-ft May 18 at 2000 hours (elevation, 173.95 ft); minimum, 3,458,000 acre-ft Nov. 26 (elevation, 165.90 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	170.0	4,123,000	174.0	4,849,000

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3560000	3516000	3527000	3754000	4043000	4055000	4238000	4315000	4550000	4766000	4437000	4158000
2	3585000	3495000	3529000	3759000	4080000	4055000	4301000	4280000	4564000	4728000	4437000	4158000
3	3583000	3502000	3535000	3778000	4092000	4050000	4333000	4294000	4575000	4694000	4444000	4154000
4	3572000	3519000	3547000	3767000	4086000	4089000	4431000	4271000	4596000	4668000	4426000	4140000
5	3566000	3515000	3547000	3772000	4086000	4086000	4467000	4315000	4623000	4634000	4426000	4116000
6	3560000	3502000	3552000	3778000	4086000	4072000	4482000	4324000	4586000	4623000	4426000	4106000
7	3555000	3498000	3546000	3803000	4055000	4041000	4502000	4324000	4586000	4564000	4429000	4089000
8	3546000	3501000	3585000	3801000	4041000	4031000	4535000	4297000	4636000	4561000	4413000	4075000
9	3554000	3484000	3577000	3803000	4035000	4035000	4531000	4333000	4629000	4550000	4404000	4063000
10	3543000	3504000	3602000	3795000	4002000	4038000	4535000	4333000	4605000	4520000	4386000	4098000
11	3546000	3489000	3628000	3806000	3997000	4038000	4507000	4326000	4568000	4520000	4381000	4087000
12	3535000	3501000	3623000	3933000	3990000	4028000	4504000	4329000	4572000	4513000	4365000	4075000
13	3524000	3502000	3634000	3968000	3953000	4021000	4509000	4333000	4568000	4509000	4360000	4098000
14	3512000	3496000	3652000	4038000	3945000	4036000	4504000	4336000	4614000	4498000	4360000	4072000
15	3516000	3481000	3679000	4103000	3982000	4057000	4476000	4340000	4614000	4491000	4336000	4052000
16	3509000	3504000	3665000	4123000	3987000	4052000	4431000	4440000	4586000	4498000	4326000	4035000
17	3499000	3489000	3665000	4137000	3989000	4041000	4426000	4586000	4531000	4483000	4315000	4028000
18	3506000	3485000	3654000	4140000	3982000	4055000	4422000	4832000	4559000	4493000	4297000	4019000
19	3506000	3515000	3647000	4144000	3985000	4043000	4404000	4736000	4553000	4498000	4285000	4007000
20	3504000	3519000	3665000	4140000	4041000	4038000	4378000	4660000	4546000	4500000	4285000	4001000
21	3506000	3504000	3673000	4109000	4104000	4086000	4351000	4581000	4513000	4478000	4283000	3987000
22	3489000	3501000	3679000	4089000	4158000	4063000	4310000	4586000	4513000	4474000	4269000	4001000
23	4002000	3496000	3686000	4063000	4108000	4050000	4283000	4586000	4504000	4478000	4259000	3984000
24	3490000	3484000	3697000	4041000	4089000	4041000	4271000	4546000	4494000	4471000	4252000	3967000
25	3489000	3467000	3695000	4014000	4072000	4035000	4266000	4540000	4485000	4467000	4233000	3950000
26	3507000	3504000	3678000	4018000	4060000	4089000	4280000	4550000	4494000	4474000	4231000	3933000
27	3498000	3519000	3766000	3984000	4075000	4120000	4280000	4568000	4592000	4472000	4227000	3917000
28	3519000	3502000	3726000	3953000	4055000	4144000	4290000	4553000	4685000	4458000	4196000	3904000
29	3507000	3523000	3722000	3970000	---	4236000	4297000	4544000	4726000	4447000	4200000	3899000
30	3518000	3526000	3742000	3995000	---	4297000	4315000	4522000	4709000	4455000	4189000	3884000
31	3523000	---	3750000	4021000	---	4259000	---	4531000	---	4447000	4175000	---
MAX	4002000	3526000	3766000	4144000	4158000	4297000	4535000	4832000	4726000	4766000	4444000	4158000
MIN	3489000	3467000	3527000	3754000	3945000	4021000	4238000	4271000	4485000	4447000	4175000	3884000
(†)	166.32	166.34	167.76	169.40	169.60	170.78	171.10	172.30	173.26	171.84	170.30	168.58
(ϕ)	-46000	+3000	+224000	+271000	+34000	+204000	+56000	+216000	+178000	-262000	-272000	-291000

CAL YR 1988 MAX 4266000 MIN 3467000 (ϕ) -183000
WTR YR 1989 MAX 4832000 MIN 3467000 (ϕ) +315000

(†) 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. Taintor gate releases, low-flow sluiceway releases, bypass gate releases, and turbine leakages are based on discharge measurements and operation logs.

AVERAGE DISCHARGE.--18 years, 5,463 ft³/s (3,958,000 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, 114,000 ft³/s May 19; minimum daily, 174 ft³/s on 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	2090	873	927	204	14600	14900	14100	204	14300	69700	4830	4800
2	204	815	786	859	14500	14800	14200	204	14300	85800	4980	4370
3	922	691	1450	824	14900	14800	14000	1850	14300	73000	4750	204
4	889	1470	204	832	14300	15000	13700	2190	14200	60400	4900	4530
5	842	174	859	801	14500	15200	13600	632	20100	52600	5310	4690
6	1060	174	895	890	14600	15000	13700	204	28300	44800	204	4680
7	1520	899	914	1400	14600	15300	13600	204	33100	39800	5260	4620
8	174	882	825	204	14400	15000	14300	2630	36300	26900	5160	4660
9	174	880	757	933	14600	7580	14100	2610	38700	16400	5190	4580
10	806	853	1390	930	14800	4890	13900	2940	38800	15200	4890	174
11	1040	824	204	795	14700	5330	13800	2430	38900	14000	4890	4320
12	929	1590	919	875	14800	5310	14100	2650	32500	12600	4620	4720
13	895	174	828	2840	14700	5040	13900	204	28000	4550	204	4560
14	1470	920	802	2610	14500	5000	13900	204	27000	4560	4980	4640
15	174	775	846	4170	7360	4910	13900	2580	27400	4870	4830	4740
16	174	806	999	5260	5820	591	14000	2560	27200	204	4770	4650
17	879	914	1560	8290	14400	5020	14200	7620	23300	5000	4930	174
18	812	174	204	9600	14900	5520	14200	53300	17100	4550	5010	4610
19	756	1960	893	9340	5030	4450	14200	114000	14200	204	4860	4230
20	810	174	922	10200	204	5270	14000	84400	14500	3810	204	3540
21	1440	855	821	14600	204	5050	14300	51900	14900	4670	4860	4340
22	174	804	855	14500	2440	4760	14000	30600	14900	5070	4580	4620
23	174	905	683	14700	10200	4750	14100	21800	15000	204	5120	4720
24	861	204	1480	14600	14600	4900	14000	21100	14900	4610	4760	174
25	746	1120	204	14700	14600	5050	5190	17500	13900	4610	5130	4700
26	949	1530	952	14700	14700	366	204	15200	6590	4590	4950	4710
27	1150	204	829	14800	14700	2800	204	15200	15100	5150	204	5060
28	1220	892	898	14600	14800	4840	204	15200	30800	4840	5220	4700
29	174	914	622	14700	---	11900	204	14600	52700	4640	4780	4160
30	174	881	907	14800	---	15000	204	14300	67500	204	4880	4700
31	971	---	1240	15100	---	13700	---	14300	---	5040	4900	---
TOTAL	24653	24331	26675	223657	338458	252027	342010	515316	748790	582576	134156	119376
MEAN	795	811	860	7215	12090	8130	11400	16620	24960	18790	4328	3979
MAX	2090	1960	1560	15100	14900	15300	14300	114000	67500	85800	5310	5060
MIN	174	174	204	204	204	366	204	204	6590	204	204	174
AC-FT	48900	48260	52910	443600	671300	499900	678400	1022000	1485000	1156000	266100	236800

CAL YR 1988 TOTAL 1379902 MEAN 3770 MAX 15400 MIN 144 AC-FT 2737000
WTR YR 1989 TOTAL 3332025 MEAN 9129 MAX 114000 MIN 174 AC-FT 6609000

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.

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); 23 years (water years 1967-89) regulated, 5,304 ft³/s (3,843,000 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, 116,000 ft³/s May 20 at 1500 hours (gage height, 47.45 ft); minimum daily, 224 ft³/s Oct. 16.

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	1610	901	834	1600	16700	16000	16800	831	e15400	77000	5180	5570
2	1120	844	839	889	15900	16500	16100	802	e15300	90500	4870	4830
3	495	799	936	1550	15700	17200	15900	1400	15200	103000	5400	2120
4	867	916	1210	881	15500	17100	15600	2970	15000	e85000	4950	2840
5	924	1010	510	1260	15200	16500	15400	2750	17300	68800	4860	4500
6	878	254	846	1240	15300	16300	15400	1180	24900	58500	2700	4740
7	976	397	925	1300	15300	16200	15200	995	30000	46900	2100	4800
8	1020	877	1040	1500	15200	15800	15300	1750	33900	39900	4810	5040
9	227	876	1120	592	15100	13700	15500	3900	36300	28800	5550	4350
10	429	796	1670	1370	15400	6190	15300	2720	37200	21700	4850	2840
11	679	898	1130	1580	15400	4590	15000	3640	37700	17300	4330	3110
12	964	1100	1070	3590	15500	6180	15300	3600	37200	15500	5120	4690
13	847	1050	1110	e6000	15500	6080	15100	2080	33400	7420	2420	4810
14	1020	509	1080	e5500	15400	6260	15300	805	31100	5640	2370	4850
15	887	894	1190	e7000	10800	5750	15400	1660	30100	6180	4570	4790
16	224	826	939	e9000	6300	4650	15300	3560	29300	3200	4740	4770
17	397	823	1270	e10000	13100	2780	15500	5790	27700	3570	5260	2590
18	787	701	1430	e12000	15700	6310	15400	24400	22700	5100	4600	2560
19	785	745	517	e12000	11300	5730	15400	59000	17100	2750	4590	4460
20	701	1370	975	11300	2250	6100	15300	111000	15600	2150	2700	4010
21	1050	484	1030	15600	4550	7520	15400	101000	15900	4250	2330	4890
22	820	989	865	15600	4800	8450	15300	62800	16100	5850	5080	4310
23	225	585	1110	15600	7440	7580	15400	38800	16200	2900	4260	4740
24	497	860	938	15600	15200	6260	15300	31000	16100	2980	4670	2480
25	748	631	1500	15600	15700	6450	11200	25000	15900	4590	4840	2740
26	835	1280	580	15600	15900	3860	1840	18900	7790	5210	4880	4290
27	1040	1020	1060	15700	15900	3800	970	16900	18000	4900	2940	5520
28	1150	556	2660	15700	15900	8100	918	16500	30500	5410	2820	4900
29	858	868	1790	15900	---	12700	897	e15800	40800	4610	4820	4210
30	286	1040	1430	17000	---	19100	849	e15200	59700	3450	4490	5010
31	424	---	1240	17400	---	17800	---	e15100	---	3070	4570	---
TOTAL	23770	24899	34844	265452	371940	307540	387574	591833	759390	736130	131670	125360
MEAN	767	830	1124	8563	13280	9921	12920	19090	25310	23750	4247	4179
MAX	1610	1370	2660	17400	16700	19100	16800	111000	59700	103000	5550	5570
MIN	224	254	510	592	2250	2780	849	802	7790	2150	2100	2120
AC-FT	47150	49390	69110	526500	737700	610000	768800	1174000	1506000	1460000	261200	248700

CAL YR 1988 TOTAL 1497697 MEAN 4092 MAX 17700 MIN 224 AC-FT 2971000
WTR YR 1989 TOTAL 3760402 MEAN 10300 MAX 111000 MIN 224 AC-FT 7459000

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 good except those for estimated daily discharges, which are 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); 23 years (water years 1967-89) regulated, 6,380 ft³/s (4,622,000 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, 98,200 ft³/s July 4 at about 0900 hours (gage height, 37.90 ft, from floodmark); minimum daily (estimated), 600 ft³/s Nov. 7.

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	1910	e800	1300	3350	18600	16100	20500	1850	e16000	e78000	5020	5500
2	2210	e1200	1200	3030	18100	16500	19000	1760	e16000	e89000	6990	6080
3	1690	1100	1180	2230	17100	18100	17400	1610	e16500	e96000	6730	5420
4	994	e1000	1230	2390	16700	18500	16600	2810	e16500	e98000	6700	2600
5	1320	e1100	1520	1880	16200	18200	16100	5540	e15500	e94000	6290	3980
6	1340	e1200	828	1870	15900	18000	15700	5220	18600	e87000	6160	5200
7	1310	e600	1080	1780	15900	17500	15500	3000	e24000	e78000	3470	5500
8	1460	e800	1030	1890	15800	16800	15200	2160	e28000	e68000	4030	5570
9	1410	e1100	1670	1880	15700	16300	15400	2980	31100	e55000	5840	5690
10	685	e1100	1840	1400	15600	10800	15500	4260	33800	e42000	6290	5300
11	742	e1000	2590	2140	15800	7130	15200	3650	36100	e32000	5970	3140
12	1090	e1100	2670	5790	15800	6320	15000	3990	37600	25800	5570	4440
13	1290	e1200	2260	8210	15900	6840	15100	3940	37900	18300	5810	5570
14	1230	e1200	2100	10700	15800	6730	15100	2430	36200	11000	2950	5610
15	1420	e900	1820	12900	15300	6750	15400	1450	34300	8660	3920	5600
16	1340	e1100	1830	12800	10200	6400	15500	2530	32500	8840	5760	5520
17	665	1140	1790	11800	8600	4080	15400	4990	30900	5140	5920	5420
18	688	1170	2050	12300	14500	4850	15400	19300	29300	5730	6140	2800
19	1120	1110	1890	14800	15900	6710	15300	41600	24900	7000	5820	3760
20	1130	1130	1220	15100	9260	6190	15300	53900	19500	4440	5820	4960
21	1090	1670	1480	16400	8740	8310	15100	79200	17300	4220	3250	4460
22	1390	885	1510	17700	10100	11400	15100	e90000	17100	6140	3960	5070
23	1290	1250	1970	16900	9190	12400	15100	80700	17100	7390	5660	4900
24	631	1080	2790	16600	14200	10600	15100	60900	17100	4490	5460	5130
25	691	1150	2500	16400	17700	8660	14900	41500	16900	4570	5760	2580
26	1100	749	2200	16400	16800	7980	8610	30200	15000	6030	5860	3760
27	e1100	1620	1470	16400	16400	7250	2740	e24000	15400	6970	5770	4840
28	e1300	1470	3600	16500	16200	9280	1940	e20000	31700	6880	3200	5670
29	e1400	833	5420	16600	---	12000	2310	e18000	44400	6800	4150	5230
30	e1100	1180	3960	17700	---	19900	2170	17200	e63000	6550	5480	4680
31	e700	---	3230	18400	---	21800	---	e16000	---	4310	5420	---
TOTAL	36836	32937	63228	314240	411990	358380	412670	646670	790200	976260	165170	143980
MEAN	1188	1098	2040	10140	14710	11560	13760	20860	26340	31490	5328	4799
MAX	2210	1670	5420	18400	18600	21800	20500	90000	63000	98000	6990	6080
MIN	631	600	828	1400	8600	4080	1940	1450	15000	4220	2950	2580
AC-FT	73060	65330	125400	623300	817200	710800	818500	1283000	1567000	1936000	327600	285600

CAL YR 1988 TOTAL 1803201 MEAN 4927 MAX 19500 MIN 600 AC-FT 3577000
WTR YR 1989 TOTAL 4352561 MEAN 11920 MAX 98000 MIN 600 AC-FT 8633000

e Estimated.

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, and July 14, 26, 1980; minimum daily, 4.0°C Feb. 2, 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT							
05...	1540	1250	148	25.0	30	18	17
10...	1750	665	199	25.0	40	35	22
18...	1335	590	225	26.0	60	35	24
27...	1815	1390	176	26.0	40	27	21
NOV							
03...	1153	1110	201	22.0	70	34	22
07...	1335	372	196	22.0	50	32	22
18...	0955	1150	170	23.0	40	24	19
22...	1130	758	171	18.0	30	24	19
DEC							
02...	1220	1100	171	15.0	30	22	20
09...	1200	1580	170	15.0	50	25	20
13...	1105	2090	324	13.0	200	64	36
20...	0940	1110	294	15.0	80	51	31
28...	1325	3920	132	18.0	80	21	15
JAN							
04...	1420	2440	146	18.0	100	25	17
12...	1125	5700	107	18.0	140	19	12
17...	1315	12300	62	13.0	140	18	8.1
26...	1440	16400	149	16.0	40	17	19
31...	1645	18400	138	16.0	50	19	16
FEB							
08...	1420	15900	153	12.0	30	20	19
16...	1105	9910	149	15.0	50	20	18
21...	1255	9530	74	17.0	240	21	8.7
MAR							
01...	1735	16100	153	14.0	40	19	19
10...	1755	8050	142	15.0	50	18	17
15...	1015	7070	155	17.0	50	20	19
23...	1800	12000	110	15.0	120	15	13
30...	1720	21400	111	18.0	120	20	14
APR							
04...	1201	16600	151	18.0	60	18	19
12...	1850	15000	155	18.0	50	18	19
18...	1910	15400	158	20.0	40	19	20
25...	1100	15000	167	22.0	40	19	21
MAY							
05...	1125	2380	214	25.0	140	28	23
10...	1120	4350	189	24.0	70	23	24
16...	1140	1930	189	27.0	80	22	21
24...	1745	55300	165	25.0	80	19	21
30...	2000	16800	164	27.0	60	18	20
JUN							
06...	1920	20400	163	28.0	60	19	20
13...	0750	38100	157	27.0	70	17	19
20...	1935	18300	151	29.0	60	15	18
28...	1735	34000	78	25.0	140	9.0	9.7
JUL							
04...	1450	97800	112	27.0	120	13	12
12...	1955	23400	122	29.0	70	13	12
20...	1840	3280	127	30.0	70	14	12
29...	1940	7170	120	30.0	70	13	12
AUG							
01...	1555	6690	116	29.0	70	12	12
09...	1910	6550	115	30.0	60	12	13
17...	1920	6230	114	30.0	60	12	13
22...	1820	5720	115	31.0	60	11	12
30...	1655	6220	113	31.0	50	12	13
SEP							
06...	1850	5530	117	31.0	70	12	13
14...	1910	5710	127	28.0	70	13	14
19...	1830	5040	121	28.0	70	12	13
26...	1610	4990	118	--	70	11	12

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.--37 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)
Mar. 30	0500	1,990	15.29	June 27	2200	5,030	16.41
May 18	1800	*6,090	*16.87	July 6	0300	1,190	14.30

Minimum discharge, 30 ft³/s on 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	38	44	38	64	82	84	169	62	58	2370	83	53
2	42	43	37	61	73	217	131	55	59	2090	110	51
3	53	39	37	58	69	314	117	52	64	1670	113	49
4	49	38	37	56	67	170	107	92	61	1200	89	47
5	35	37	37	53	66	119	99	757	57	520	74	46
6	31	35	37	52	66	108	91	468	59	918	68	45
7	31	34	38	52	67	89	81	126	55	1000	65	79
8	30	34	59	53	65	80	79	78	64	590	65	94
9	30	35	142	59	65	75	154	66	161	256	65	73
10	30	35	154	58	70	71	126	60	101	240	59	85
11	31	35	181	81	64	68	93	56	68	185	57	136
12	31	35	214	202	63	66	80	52	65	152	56	119
13	30	35	104	329	66	65	80	50	58	137	55	104
14	30	42	70	434	68	64	99	54	102	130	59	77
15	30	42	62	304	64	62	140	57	198	139	58	69
16	30	43	71	142	66	61	119	98	127	122	98	63
17	30	42	80	99	86	60	84	791	71	108	107	58
18	30	43	59	187	91	59	73	3350	59	98	69	56
19	30	40	55	403	74	58	75	2730	54	91	67	53
20	30	47	53	281	98	73	73	839	50	92	112	52
21	30	62	59	198	876	219	66	270	48	88	70	50
22	30	44	62	116	504	712	60	179	47	80	64	49
23	31	40	167	92	165	571	58	132	48	79	63	49
24	30	38	164	83	107	214	56	112	51	83	64	49
25	30	38	95	79	92	125	55	98	71	86	67	49
26	35	40	66	76	86	117	53	86	72	125	71	49
27	59	45	66	79	82	776	52	79	1280	170	66	49
28	84	48	156	101	80	491	53	73	3620	131	57	49
29	72	41	100	82	---	842	110	68	2520	91	54	49
30	60	38	72	93	---	1530	81	64	2870	80	53	52
31	44	---	65	115	---	435	---	61	---	86	54	---
TOTAL	1176	1212	2637	4142	3422	7995	2714	11115	12218	13207	2212	1903
MEAN	37.9	40.4	85.1	134	122	258	90.5	359	407	426	71.4	63.4
MAX	84	62	214	434	876	1530	169	3350	3620	2370	113	136
MIN	30	34	37	52	63	58	52	50	47	79	53	45
AC-FT	2330	2400	5230	8220	6790	15860	5380	22050	24230	26200	4390	3770
CFSM	.30	.32	.66	1.04	.95	2.01	.71	2.80	3.18	3.33	.56	.50
IN.	.34	.35	.77	1.20	.99	2.32	.79	3.23	3.55	3.84	.64	.55

CAL YR 1988 TOTAL 38550 MEAN 105 MAX 1100 MIN 30 AC-FT 76460 CFSM .82 IN. 11.20
WTR YR 1989 TOTAL 63953 MEAN 175 MAX 3620 MIN 30 AC-FT 126900 CFSM 1.37 IN. 18.59

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); 23 years (water years 1967-89) regulated, 7,777 ft³/s (5,634,000 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, 109,000 ft³/s July 6 at 2400 hours (gage height, 29.15 ft); minimum daily, 828 ft³/s Oct. 26.

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	1730	1430	1080	6180	17800	15500	15700	4260	18200	83400	7570	5020
2	1880	1090	1200	5530	18000	16700	18600	3680	17500	90700	6940	5250
3	2040	1100	1260	5000	17800	17300	21100	3310	16800	96400	6560	5460
4	2050	1280	1220	3870	17600	17300	21300	3180	16200	103000	6910	5640
5	1450	1270	1190	3320	17500	17000	19600	3710	15700	106000	7090	5150
6	1300	1210	1380	2880	17200	17800	17900	5440	15600	108000	6990	3920
7	1360	1350	1190	2530	16800	17800	17000	6660	15500	108000	6790	4310
8	1340	1190	1080	2320	16400	18000	16400	6790	16000	104000	6300	4900
9	1360	882	1220	2310	16200	17900	15800	5690	18200	95400	e5600	5280
10	1530	934	1450	2480	15900	17700	15300	4270	21200	82700	e5300	5500
11	1210	1150	1900	2190	15700	17300	14800	4330	25600	65900	5300	5580
12	925	1200	2320	2710	15700	16400	14700	4250	29900	51800	5640	5310
13	1020	1220	2790	4970	15700	13900	14800	4170	32200	37800	e5900	4390
14	1180	1240	2750	7430	15700	10800	15100	4160	34900	27800	e5800	4720
15	1260	1460	2550	9220	15800	8830	15300	3740	37600	20900	5360	5280
16	1260	1280	2240	10000	15800	7770	15100	2610	37500	16500	4240	5610
17	1400	1120	2000	11300	15800	7170	15100	2640	36100	13700	4460	5710
18	1110	1220	1930	13400	15400	6480	14900	7150	33800	11600	5030	5680
19	837	1230	1980	15600	14100	5400	15000	16900	31300	9730	5410	5150
20	955	1230	2090	16800	13200	5890	15400	35900	28400	8190	5630	3860
21	1110	1090	1680	17300	13500	7210	15700	60900	25000	7280	5640	4250
22	1120	1380	1610	17900	13700	8800	15700	64400	21900	6280	5430	4630
23	1160	1300	1720	18200	13100	10900	15600	72600	19500	5450	4360	4790
24	1360	1130	2130	18300	12600	12900	15500	86100	18200	5660	4510	4940
25	1100	1230	2990	18000	12500	14300	15400	87200	19300	6180	5090	5030
26	828	1200	3160	17700	12600	14900	15400	76000	19300	6010	5360	4590
27	930	1100	2920	17300	13400	15600	15200	58000	23400	5660	5550	3560
28	1130	1170	2990	16900	14600	15100	13800	40900	29900	6120	5670	4170
29	1330	1490	4170	16600	---	14400	9220	29200	42000	6820	5510	4840
30	1550	1240	5920	16900	---	14100	5720	23200	70600	7330	4410	5300
31	1690	---	6620	17100	---	14500	---	19700	---	7540	4520	---
TOTAL	40505	36416	70730	322240	430100	415650	466140	751040	787300	1311850	174870	147820
MEAN	1307	1214	2282	10390	15360	13410	15540	24230	26240	42320	5641	4927
MAX	2050	1490	6620	18300	18000	18000	21300	87200	70600	108000	7570	5710
MIN	828	882	1080	2190	12500	5400	5720	2610	15500	5450	4240	3560
AC-FT	80340	72230	140300	639200	853100	824400	924600	1490000	1562000	2602000	346900	293200

CAL YR 1988 TOTAL 2054840 MEAN 5614 MAX 21800 MIN 828 AC-FT 4076000
WTR YR 1989 TOTAL 4954661 MEAN 13570 MAX 108000 MIN 828 AC-FT 9828000

e Estimated.

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 equation developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 779 microsiemens Aug. 31, 1966; minimum, 27 microsiemens Feb. 16, 1984.
WATER TEMPERATURE (1947-1988): Maximum, 36.0°C Aug. 14, 1962; minimum, 1.0°C Jan. 28, 1948.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum recorded (more than 40 percent estimated record), 337 microsiemens Nov. 4; minimum recorded, 28 microsiemens July 1.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
OCT 25...	0925	1130	165	7.40	22.0	11	7.8	89	0.7	44	80
MAR 21...	1005	7020	138	6.80	16.5	20	9.0	91	1.0	580	350
JUL 11...	1310	64600	104	6.60	26.0	17	5.8	71	1.5	28	440
AUG 15...	1038	5500	108	6.90	27.5	15	6.8	85	1.1	92	950

DATE	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT 25...	30	7.6	2.7	22	2	2.9	23	24	20	0.10	10
MAR 21...	30	7.5	2.7	16	1	2.6	20	18	17	0.10	8.0
JUL 11...	25	6.3	2.1	8.9	0.8	2.5	20	11	11	0.10	4.6
AUG 15...	24	6.1	2.2	11	1	2.7	21	11	12	0.10	6.2

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	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-PHOROUS TOTAL (MG/L AS P)	PHOS-PHOROUS DIS-SOLVED (MG/L AS P)
OCT 25...	108	102	0.090	0.010	0.100	<0.010	<0.010	--	0.40	0.030	0.030
MAR 21...	91	85	--	<0.010	0.120	0.020	0.030	0.58	0.60	0.050	0.020
JUL 11...	76	58	--	<0.010	<0.100	0.030	0.040	0.87	0.90	0.050	0.020
AUG 15...	64	64	--	<0.010	<0.100	0.020	0.020	0.48	0.50	0.040	<0.010

DATE	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	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)
OCT 25...	0.010	0.03	8	24	95	30	<1	42	<0.5	<1	<1
MAR 21...	<0.010	--	32	607	98	110	<1	50	<0.5	<1	2
JUL 11...	0.020	0.06	15	2620	97	60	1	51	<0.5	<1	<1
AUG 15...	0.020	0.06	22	327	98	10	<1	41	<0.5	<1	<1

08030500 SABINE RIVER NEAR RULIFF, TX--Continued
(Radiochemical and national stream-quality accounting network)

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
OCT 25...	<3	4	170	<5	<4	23	0.2	<10	2	<1	1.0
MAR 21...	<3	3	180	<5	<4	53	<0.1	<10	1	<1	<1.0
JUL 11...	<3	2	280	<1	<4	56	<0.1	<10	1	<1	<1.0
AUG 15...	<3	1	110	<1	<4	22	<0.1	<10	2	<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)
OCT 25...	100	<6	10	<0.4	0.5	3.5	<0.4	3.0	<0.4	0.06	0.01
MAR 21...	98	<6	10	--	--	--	--	--	--	--	--
JUL 11...	80	<6	11	--	--	--	--	--	--	--	--
AUG 15...	85	<6	<3	<0.4	1.4	4.3	1.4	3.4	1.1	0.29	0.29

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	40505	167	100	10900	21	2350	20	2210	28
NOV.	1988	36416	192	111	10900	24	2390	23	2250	28
DEC.	1988	70730	153	91	17400	20	3750	19	3540	25
JAN.	1989	322240	106	66	57700	14	12100	13	11400	22
FEB.	1989	430100	135	83	96400	18	20400	17	19300	26
MAR.	1989	415650	122	76	84900	16	17900	15	16900	24
APR.	1989	466140	141	86	108000	18	23100	17	21800	26
MAY	1989	751040	105	65	132000	14	27800	13	26300	21
JUNE	1989	787300	134	82	174000	17	37000	16	35000	24
JULY	1989	1311850	76	49	173000	10	35800	9.6	34000	17
AUG.	1989	174870	107	67	31700	14	6620	13	6280	22
SEPT	1989	147820	114	72	28600	15	5980	14	5670	24
TOTAL		4954661	**	**	926000	**	195000	**	185000	**
WTD.AVG.		13570	112	69	**	15	**	14	**	22

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 1988 TO SEPTEMBER 1989
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	143	248	147	78	128	141	88	125	163	28	103	108
2	142	216	160	88	130	141	90	107	170	33	100	110
3	142	270	149	92	134	139	108	100	175	42	104	115
4	141	337	148	88	132	138	113	130	168	57	98	109
5	140	222	155	105	136	135	123	137	159	69	102	109
6	143	160	185	123	140	132	132	119	155	75	105	112
7	144	184	150	130	141	133	139	71	155	89	110	115
8	144	173	130	135	143	135	140	80	150	89	108	112
9	150	161	145	140	140	136	142	116	154	90	103	117
10	188	164	200	144	145	140	145	157	148	88	105	110
11	158	176	161	135	147	141	148	149	153	92	111	109
12	160	200	131	135	147	135	148	158	150	97	107	112
13	166	225	155	112	148	132	150	160	151	102	110	113
14	173	265	178	68	155	140	149	158	149	106	103	115
15	188	300	189	60	150	144	149	156	147	109	107	109
16	175	200	209	79	150	143	152	146	146	109	110	114
17	165	140	240	65	145	144	150	154	144	110	105	119
18	170	175	280	77	140	146	149	100	142	107	107	121
19	168	151	269	80	145	145	151	44	139	112	109	112
20	181	151	262	91	143	138	153	32	140	109	105	112
21	192	152	225	85	145	137	156	35	144	111	107	115
22	185	156	203	86	135	120	159	54	141	111	107	119
23	165	170	245	100	110	101	160	84	145	115	109	119
24	178	160	194	111	67	90	165	114	150	117	112	111
25	168	149	136	120	83	88	163	128	160	120	115	116
26	160	190	98	125	116	92	160	129	289	115	109	116
27	163	160	110	132	124	100	160	135	130	110	111	119
28	173	140	112	133	134	90	153	140	68	109	105	123
29	157	168	101	136	---	67	145	144	60	104	107	118
30	200	150	90	136	---	80	135	150	33	106	108	120
31	275	---	69	135	---	79	---	156	---	100	111	---
MEAN	168	190	169	107	134	123	142	118	146	95	107	114

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.5	18.0	14.0	---	15.5	13.0	19.0	---	---	25.0	---	31.0
2	26.0	17.0	---	14.0	---	12.0	---	22.0	---	26.0	---	---
3	24.0	---	12.5	---	---	14.0	---	---	---	25.0	---	---
4	---	20.5	14.0	15.0	11.5	16.0	20.0	---	---	25.0	29.0	---
5	24.0	20.0	12.0	---	10.0	---	19.0	22.0	26.0	26.0	29.0	---
6	23.0	---	---	17.0	---	9.0	18.0	---	---	---	---	---
7	23.0	20.0	---	---	8.0	9.0	17.0	---	---	26.0	---	---
8	---	---	---	17.0	8.0	10.0	---	23.0	---	26.0	29.0	---
9	---	22.0	12.0	---	---	12.0	---	18.0	25.0	---	28.0	---
10	23.0	22.5	---	13.5	---	13.0	---	19.0	---	---	---	---
11	---	22.0	11.5	14.0	10.0	15.0	15.0	23.0	---	26.0	28.0	---
12	22.0	---	11.0	15.5	12.0	15.0	15.0	23.0	---	27.0	---	---
13	21.0	---	11.0	14.5	13.0	---	---	---	21.0	27.0	---	---
14	21.0	---	12.5	14.0	---	---	16.0	---	25.0	27.0	---	---
15	21.0	---	---	---	15.0	19.0	18.0	24.0	---	27.0	27.5	---
16	---	---	11.0	12.0	---	18.0	---	20.0	---	---	---	---
17	23.0	---	---	11.0	14.0	19.0	18.0	20.0	---	---	---	27.0
18	23.0	---	---	11.5	---	---	19.0	---	---	29.0	---	26.0
19	25.0	21.0	10.0	12.0	13.0	19.0	19.0	25.0	25.0	---	---	30.0
20	25.0	---	13.0	11.0	---	16.0	19.0	22.0	27.0	29.0	---	30.0
21	---	18.0	---	11.5	13.0	16.5	19.0	23.0	26.0	29.0	---	---
22	24.0	16.0	15.0	12.0	13.0	---	20.0	24.0	26.0	29.0	---	27.0
23	22.0	15.5	15.0	11.5	---	13.0	---	24.0	---	---	---	---
24	---	---	17.0	12.5	12.0	13.0	---	24.0	---	28.0	---	---
25	22.0	17.0	16.5	14.0	11.0	---	21.0	24.0	26.0	---	---	27.0
26	22.0	---	16.0	---	14.0	---	---	25.0	25.0	---	---	23.0
27	21.0	---	---	14.5	14.0	---	---	25.0	25.0	---	---	---
28	22.0	---	15.0	14.5	13.0	20.0	23.0	---	25.0	28.0	---	24.0
29	21.0	15.0	14.0	15.5	---	20.0	---	25.0	---	28.0	30.0	27.0
30	---	15.0	14.0	14.5	---	20.0	23.0	25.0	24.0	---	30.0	24.0
31	---	---	13.5	14.5	---	20.0	---	---	---	---	---	---
MEAN	23.0	18.5	13.5	13.5	12.0	15.5	19.0	23.0	25.0	27.0	29.0	27.0

08031200 KICKAPOO CREEK NEAR BROWNSBORO, TX

LOCATION.--Lat 32°18'34", long 95°36'19", Henderson County, Hydrologic Unit 12020001, on left bank at bridge on Farm Road 314, 1.0 mi northeast of Brownsboro, and 11.5 mi upstream from mouth.

DRAINAGE AREA.--232 mi².

PERIOD OF RECORD.--April 1962 to September 1989 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 358.62 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records fair. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--27 years (water years 1963-89), 136 ft³/s (7.96 in/yr), 98,530 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,800 ft³/s Apr. 27, 1966 (gage height, 14.79 ft); maximum gage height, 15.34 ft May 11, 1968; no flow for many days.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1935, 16.4 ft in 1936 or 1937, 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)
May 18	1600	*12,000	*14.89	No other peak greater than base discharge.			

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	1.5	70	58	125	80	703	52	14	13	3.8	4.6
2	.00	8.0	51	62	120	73	596	39	10	14	3.2	3.8
3	.00	14	41	89	134	69	449	66	8.5	15	2.6	3.0
4	.00	11	34	106	128	90	310	120	7.1	14	1.9	2.6
5	.00	7.7	28	95	97	136	155	346	40	12	1.3	2.1
6	.00	7.4	25	62	70	149	74	529	247	9.1	.88	1.7
7	.00	7.9	24	45	55	168	50	421	236	6.5	2.7	1.3
8	.00	8.7	40	35	49	208	38	660	252	4.8	23	1.1
9	.00	18	72	30	45	244	30	685	246	3.6	49	.77
10	.00	21	74	26	41	241	26	519	159	2.7	44	.59
11	.00	25	93	23	40	159	23	344	106	2.1	37	.46
12	.00	31	124	21	42	94	21	142	66	1.7	26	.28
13	.00	32	122	23	58	73	19	87	53	2.6	18	.25
14	.00	32	114	28	73	64	59	119	430	4.0	13	.24
15	.00	34	97	43	78	56	170	175	552	5.6	11	.19
16	.00	41	66	63	90	51	204	548	439	6.8	9.0	.16
17	.00	55	48	71	143	47	220	4970	365	7.4	7.8	.11
18	.00	55	37	67	293	43	258	11000	366	8.5	8.1	.07
19	.00	67	30	54	405	41	272	7620	343	7.1	11	.05
20	.00	74	27	40	600	41	172	2820	205	6.3	13	.02
21	.00	69	24	31	745	52	69	1210	66	6.3	13	.0
22	.00	62	23	26	640	99	41	704	30	6.6	15	.00
23	.00	64	23	23	514	160	29	501	19	6.7	15	.00
24	.00	61	23	21	422	172	23	383	14	6.9	14	.00
25	.00	47	23	31	339	173	18	295	10	7.9	12	.00
26	3.1	44	24	55	224	126	15	197	8.2	8.1	11	.00
27	.18	47	29	84	128	83	12	106	8.0	8.1	9.6	.00
28	1.1	79	33	90	92	98	12	58	8.9	7.9	7.9	.00
29	.55	95	40	108	---	336	10	36	10	7.0	6.6	.00
30	1.0	92	48	114	---	454	53	25	11	5.8	6.3	.00
31	1.6	---	58	115	---	486	---	19	---	4.5	5.8	---
TOTAL	7.53	1211.2	1565	1739	5790	4366	4131	34796	4329.7	222.6	402.48	23.39
MEAN	.24	40.4	50.5	56.1	207	141	138	1122	144	7.18	13.0	.78
MAX	3.1	95	124	115	745	486	703	11000	552	15	49	4.6
MIN	.00	1.5	23	21	40	41	10	19	7.1	1.7	.88	.00
AC-FT	15	2400	3100	3450	11480	8660	8190	69020	8590	442	798	46
CFSM	.00	.17	.22	.24	.89	.61	.59	4.84	.62	.03	.06	.00
IN.	.00	.19	.25	.28	.93	.70	.66	5.58	.69	.04	.06	.00

CAL YR 1988	TOTAL	39348.97	MEAN	108	MAX	1230	MIN	.00	AC-FT	78050	CFSM	.46	IN.	6.31
WTR YR 1989	TOTAL	58583.90	MEAN	161	MAX	11000	MIN	.00	AC-FT	116200	CFSM	.69	IN.	9.39

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 emergency 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, 531,100 acre-ft May 19 at 1100 hours (elevation, 349.31 ft); minimum, 341,600 acre-ft Oct. 26 (elevation, 342.09 ft).

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

342.0	339,500	347.0	464,900
344.0	386,700	350.0	551,700

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	354300	353400	361900	384500	403800	422200	431100	419900	428800	416000	402000	391700
2	354500	352200	361700	384800	410300	421200	432200	418800	427200	415700	401800	391500
3	353400	352400	361900	386000	412100	420900	431600	419400	424600	415500	401800	391200
4	352700	353800	362100	387200	412600	425100	431400	421200	425900	415200	401300	391000
5	352000	353100	361900	388000	413600	423800	428500	424800	425900	414400	401000	390200
6	351300	351700	361700	387500	412600	421200	426700	427200	424300	414400	400800	389500
7	350600	352200	363300	390200	411300	420700	423000	427700	425400	413900	402300	389000
8	350400	351500	364500	391200	412300	420400	424800	426400	423800	413400	402300	388200
9	350400	351700	364500	390700	411000	419900	422800	428800	422800	412600	401500	387500
10	349400	351300	367200	389000	410300	419600	420700	426200	422500	411500	401300	387200
11	349700	350100	368600	390200	410500	419400	419400	425100	420200	411500	401000	387200
12	348300	352200	368100	393000	410500	418100	418800	424800	420900	411000	400300	386700
13	347400	351500	368600	392700	412800	417500	419600	425400	424800	411000	400800	387500
14	345700	351000	369800	392000	412600	418800	423300	425100	430100	410500	400300	385500
15	346000	353600	370300	395200	412600	418600	423000	426200	431600	410500	399500	384000
16	345500	352400	369800	394500	413100	417800	421500	443600	431400	410000	399000	383600
17	345300	351300	369300	393500	415200	417000	423000	490100	429800	408500	398700	383100
18	345500	354100	368900	394700	419100	417500	422200	528700	428800	408800	397700	382600
19	344800	356800	368400	391200	423300	416800	423300	526900	427700	408800	397500	382100
20	345000	357100	367900	391500	426700	419400	423000	510800	426200	408000	397200	381400
21	344400	357300	367900	390500	426200	418600	422000	492300	423800	407800	396700	381200
22	342500	357300	368600	390200	428000	418600	420200	480000	422800	406800	396500	380900
23	343700	356800	368600	390500	424800	418300	419400	468800	422000	406800	396000	379700
24	342700	485600	369800	391700	424300	417300	418800	458400	420900	406000	395500	378500
25	342000	356400	368900	393500	423500	418100	418300	451900	419900	406000	395200	377800
26	347800	362400	368100	395500	423300	418300	417300	447100	419600	405800	394700	377100
27	347100	363300	378000	395500	422800	417800	416800	443000	419400	405300	394500	376600
28	352400	361200	378000	400500	422200	422800	416200	437900	418100	405000	394000	376100
29	353100	362800	378500	399200	---	428000	416200	432900	416500	404300	393700	375900
30	354100	361700	380700	400000	---	436100	418300	430900	416000	404000	393000	375400
31	353800	---	383100	400300	---	434800	---	429300	---	404300	392200	---
MAX	354500	485600	383100	400500	428000	436100	432200	528700	431600	416000	402300	391700
MIN	342000	350100	361700	384500	403800	416800	416200	418800	416000	404000	392200	375400
(†)	342.62	342.96	343.85	344.54	345.40	345.88	345.25	345.67	345.16	344.70	344.22	343.53
(ϕ)	+400	+7900	+21400	+17200	+21900	+12600	-16500	+11000	-13300	-11700	-12100	-16800

CAL YR 1988 MAX 485600 MIN 342000 (ϕ) -72100
WTR YR 1989 MAX 528700 MIN 342000 (ϕ) +22000

(†) 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); 28 years (water years 1962-89) regulated, 639 ft³/s (463,000 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, 23,400 ft³/s May 19, 20, time unknown (gage height, 19.12 ft); minimum daily, 60 ft³/s Aug. 28.

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	104	129	161	454	316	920	1630	553	1740	593	86	91
2	114	125	143	356	257	875	1810	641	1510	517	96	93
3	119	121	137	276	463	830	1800	673	1350	471	94	92
4	115	122	132	210	789	773	1710	748	1230	448	88	92
5	107	119	128	170	888	823	1600	887	1580	436	83	92
6	106	116	126	157	887	921	1540	1070	1880	386	81	92
7	105	115	126	149	811	927	1430	1140	1680	340	79	94
8	104	115	148	137	703	848	1240	1200	1480	331	84	94
9	103	115	199	140	623	739	1070	1210	1300	309	87	93
10	103	116	208	130	567	666	963	1140	1140	279	79	93
11	102	119	299	123	508	623	865	1110	999	248	73	94
12	101	120	320	127	488	588	715	1050	878	211	71	94
13	101	119	276	204	552	555	580	987	815	191	70	86
14	100	119	236	290	622	527	581	999	1350	181	68	79
15	99	120	202	338	687	509	795	1020	1780	178	70	95
16	101	127	182	279	697	546	904	1070	1970	165	76	100
17	101	140	140	214	716	508	911	1830	1990	152	74	100
18	102	134	123	176	768	450	854	11000	1860	132	70	101
19	102	156	121	162	877	455	813	22000	1710	117	68	101
20	101	320	124	159	944	436	820	22000	1540	132	66	100
21	102	303	125	169	987	458	815	17000	1380	145	65	99
22	104	217	123	152	1030	648	762	12300	1210	114	64	88
23	104	176	120	136	1070	661	674	9880	1050	97	64	87
24	103	157	119	132	1100	609	574	7730	924	97	63	93
25	103	152	114	131	1070	540	517	6310	821	97	62	92
26	109	157	109	131	1020	498	480	5000	741	91	62	91
27	119	257	113	166	973	505	435	4110	822	99	61	91
28	128	262	222	181	940	534	398	3450	842	104	60	91
29	171	253	330	268	---	1000	373	2860	790	96	69	91
30	152	210	415	411	---	1260	404	2410	699	92	92	91
31	136	---	539	401	---	1380	---	2030	---	88	92	---
TOTAL	3421	4811	5860	6529	21353	21612	28063	145408	39061	6937	2317	2790
MEAN	110	160	189	211	763	697	935	4691	1302	224	74.7	93.0
MAX	171	320	539	454	1100	1380	1810	22000	1990	593	96	101
MIN	99	115	109	123	257	436	373	553	699	88	60	79
AC-FT	6790	9540	11620	12950	42350	42870	55660	288400	77480	13760	4600	5530

CAL YR 1988 TOTAL 184467 MEAN 504 MAX 5750 MIN 96 AC-FT 365900
WTR YR 1989 TOTAL 288162 MEAN 789 MAX 22000 MIN 60 AC-FT 571600

e Estimated

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. Beginning 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: Maximum, 1,190 microsiemens Aug. 29, 1976; minimum 77 microsiemens July 28, 1979.
WATER TEMPERATURE: Maximum, 36.0°C July 16, 1985; minimum, 0.5°C Dec. 22, 1983, Jan. 20, 22, 1984.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 288 microsiemens Dec. 28; minimum, 93 microsiemens May 18.
WATER TEMPERATURE: Maximum, 32.0°C July 30, Aug. 6; minimum, 4.5°C Feb. 5-7.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
NOV 16...	0956	126	179	6.90	18.5	7.4	79	1.0	38
JAN 04...	1648	199	179	6.50	13.0	10.4	99	1.0	37
MAR 01...	1623	916	172	6.80	10.5	10.6	96	1.0	37
APR 20...	0945	819	176	6.80	18.5	7.9	85	1.5	40
JUN 06...	1916	1830	127	6.90	25.5	6.2	77	1.9	31
JUL 25...	1919	95	179	6.80	27.0	9.2	116	1.8	40

DATE	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
NOV 16...	22	8.5	4.1	16	1	4.3	16	25	24
JAN 04...	21	7.9	4.1	17	1	4.4	16	21	28
MAR 01...	19	8.7	3.8	18	1	4.1	18	26	26
APR 20...	20	10	3.6	16	1	3.6	20	22	23
JUN 06...	15	7.2	3.2	11	0.9	5.9	16	14	18
JUL 25...	15	8.8	4.3	17	1	3.6	25	15	26

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, 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, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
NOV 16...	0.20	11	103	<0.010	0.200	0.030	0.57	0.60	0.050
JAN 04...	0.10	16	108	<0.010	<0.100	0.040	0.46	0.50	0.040
MAR 01...	0.20	8.6	106	<0.010	0.100	0.040	0.36	0.40	0.030
APR 20...	0.10	5.0	95	0.010	<0.100	0.030	0.57	0.60	0.050
JUN 06...	0.10	6.3	75	0.010	<0.100	0.080	0.12	0.20	0.060
JUL 25...	0.20	8.8	99	<0.010	<0.100	<0.010	--	0.70	0.050

08032000 NECHES RIVER NEAR NECHES, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	3421	180	107	987	28	256	25	227	33
NOV.	1988	4811	175	104	1340	27	345	24	313	32
DEC.	1988	5860	163	96	1520	24	381	23	367	30
JAN.	1989	6529	180	107	1890	28	490	25	432	33
FEB.	1989	21353	168	99	5710	25	1440	24	1360	31
MAR.	1989	21612	168	99	5800	25	1470	24	1380	31
APR.	1989	28063	165	97	7380	24	1850	23	1780	31
MAY	1989	145408	158	93	36500	23	9060	23	8940	30
JUNE	1989	39061	145	85	8940	20	2160	22	2280	28
JULY	1989	6937	164	97	1810	24	454	23	437	31
AUG.	1989	2317	162	96	598	24	149	23	145	30
SEPT	1989	2790	146	85	644	21	155	22	164	28
TOTAL		288162	**	**	73100	**	18200	**	17800	**
WTD.AVG.		789	160	94	**	23	**	23	**	30

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	167	197	188	191	168	158	164	182	155	164
2	---	---	166	189	187	188	160	157	159	163	149	154
3	---	---	168	188	186	187	168	156	162	178	163	173
4	---	---	169	187	185	186	170	166	167	185	178	181
5	---	---	174	186	184	185	167	166	166	185	178	182
6	---	---	173	186	184	185	167	166	166	217	186	200
7	---	---	177	186	184	185	167	156	162	203	193	199
8	---	---	174	185	184	184	184	155	158	202	191	196
9	---	---	174	186	184	185	251	175	203	190	174	181
10	---	---	171	185	183	185	176	151	161	188	177	180
11	---	---	176	185	183	184	212	152	184	188	185	187
12	183	182	183	186	183	184	164	148	157	203	184	192
13	183	182	182	185	182	184	152	145	149	265	188	214
14	182	181	182	185	184	185	157	152	155	214	182	197
15	183	182	183	186	182	185	159	155	157	181	163	169
16	184	183	183	186	165	174	161	157	159	176	162	166
17	184	183	184	176	170	174	160	157	158	174	168	172
18	185	184	184	175	172	174	162	158	160	183	174	179
19	185	184	184	197	168	181	162	157	159	188	183	185
20	185	184	184	222	145	179	162	159	160	210	188	201
21	185	184	184	157	143	151	176	161	168	198	172	184
22	185	183	184	165	151	160	174	163	166	181	173	177
23	185	184	184	168	165	167	180	160	164	193	181	186
24	185	183	184	169	167	168	191	166	176	188	184	186
25	185	184	184	170	168	169	172	162	167	194	186	191
26	186	179	183	175	167	168	167	159	162	195	186	191
27	181	179	180	237	165	190	168	159	162	202	178	188
28	182	174	178	164	152	157	288	161	202	179	173	176
29	179	174	176	162	156	159	170	144	153	268	171	203
30	207	179	191	166	161	165	156	134	145	190	159	176
31	216	197	209	---	---	---	184	141	158	173	154	163
MONTH	216	174	180	237	143	177	288	134	164	268	149	184

08032000 NECHES RIVER NEAR NECHES, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	179	174	176	192	164	173	155	153	154	181	155	163
2	191	175	179	192	191	191	161	154	157	186	156	169
3	206	153	179	193	190	192	162	159	161	181	154	163
4	155	145	149	193	166	186	163	160	161	169	162	164
5	151	145	148	185	163	175	164	162	163	178	148	162
6	173	146	159	184	163	167	165	161	163	156	148	153
7	177	172	175	167	162	165	168	163	165	154	150	152
8	188	175	181	169	166	167	170	165	167	162	153	156
9	179	165	175	171	168	169	172	169	170	165	161	163
10	167	164	166	169	167	168	174	169	171	162	161	162
11	167	165	166	---	---	174	180	170	173	164	161	163
12	186	165	173	---	---	174	179	175	176	165	163	164
13	201	180	188	---	---	170	178	172	175	168	163	165
14	186	179	181	---	---	168	207	171	180	186	166	170
15	179	177	178	---	---	171	191	155	165	185	162	165
16	179	177	177	---	---	164	161	158	159	180	147	170
17	178	176	178	---	---	165	166	161	164	159	131	141
18	188	164	177	---	---	168	170	166	167	131	93	113
19	175	158	164	---	---	168	171	167	169	162	132	147
20	174	157	162	---	---	170	178	156	168	168	162	166
21	177	163	165	---	---	167	182	156	164	169	167	168
22	164	162	163	---	---	165	184	156	169	168	166	167
23	163	161	162	---	---	163	184	162	165	167	163	165
24	164	161	162	---	---	162	185	162	164	166	163	164
25	166	163	164	---	---	166	166	162	163	166	165	166
26	166	164	165	---	---	166	186	163	164	166	163	164
27	167	164	166	---	---	168	168	164	166	163	161	162
28	166	164	165	---	---	168	167	166	167	162	161	162
29	---	---	---	---	---	165	169	167	168	169	160	161
30	---	---	---	---	---	151	248	167	182	160	158	159
31	---	---	---	---	---	150	---	---	---	161	158	158
MONTH	206	145	169	193	162	169	248	153	167	186	93	160
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	159	157	158	165	158	161	170	167	168	149	146	147
2	162	154	158	158	152	156	169	160	165	149	146	148
3	157	151	153	183	155	161	174	161	167	149	146	147
4	155	153	154	173	155	161	173	169	171	149	146	147
5	179	124	147	156	154	155	170	168	169	148	146	147
6	132	122	125	163	155	158	170	167	169	147	146	147
7	139	133	136	162	158	160	168	166	167	147	145	146
8	147	139	143	160	155	158	167	159	163	148	144	146
9	153	148	151	171	157	165	162	158	160	148	146	147
10	154	152	153	169	163	165	164	161	162	148	146	147
11	157	153	155	169	163	166	166	163	164	147	144	146
12	159	156	157	172	166	169	165	163	164	147	145	146
13	170	150	160	173	170	171	166	163	164	149	145	147
14	152	99	123	175	169	171	165	162	163	149	145	147
15	122	111	116	171	167	170	165	158	162	145	143	144
16	133	121	126	172	167	169	163	160	162	145	144	145
17	138	133	135	172	168	170	162	160	161	153	144	145
18	143	138	141	186	170	178	162	160	161	146	145	145
19	145	144	144	180	174	176	162	160	161	146	144	145
20	147	145	146	174	161	170	164	161	162	146	143	145
21	154	147	149	164	157	161	164	162	162	146	144	145
22	156	149	152	172	158	167	164	161	162	148	145	146
23	159	150	154	177	170	174	163	161	162	148	147	148
24	158	150	152	175	170	172	163	161	162	148	146	147
25	157	151	153	180	172	176	163	161	162	146	145	145
26	159	152	155	177	173	175	162	160	161	146	145	145
27	195	151	166	174	170	172	161	159	160	146	144	145
28	151	146	148	176	169	172	161	158	159	146	144	145
29	154	149	152	173	169	170	160	151	157	146	144	145
30	171	150	158	171	167	169	151	146	148	146	144	145
31	---	---	---	170	167	169	148	145	147	---	---	---
MONTH	195	99	147	186	152	167	174	145	162	153	143	146

08032000 NECHES RIVER NEAR NECHES, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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

08032000 NECHES RIVER NEAR NECHES, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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

08033300 PINEY CREEK NEAR GROVETON, TX

LOCATION.--Lat 31°08'25", long 95°05'11", Trinity County, Hydrologic Unit 12020002, on left bank at downstream side of bridge on State Highway 94, 6.3 mi northeast of Groveton, and 7.3 mi upstream from Caney Creek.

DRAINAGE AREA.--79.0 mi².

PERIOD OF RECORD.--October 1961 to September 1989 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 251.40 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No diversions above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--28 years, 39.5 ft³/s (6.79 in/yr), 28,620 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,480 ft³/s Apr. 20, 1979 (gage height, 15.70 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1921, 17 ft in May 1942, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 30	2100	1,920	13.33	June 28	1500	740	12.00
Mar. 29	1800	1,010	12.35	July 1	1000	*3,820	*14.37
May 18	2400	767	12.07				

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	.00	e.00	e.00	690	3.0	218	1.2	1.2	3020	2.2	.07
2	.00	.00	e.00	e.00	166	4.0	38	.84	1.2	1220	80	.07
3	.00	.00	e.00	e.00	48	5.6	23	1.8	1.2	1210	114	.07
4	.00	.00	e.00	e.00	39	5.3	17	2.4	.97	940	18	.07
5	.00	.00	e.00	e.00	24	4.8	13	12	1.3	473	6.1	.06
6	.00	.00	e.00	e.00	18	4.0	11	48	1.2	103	2.8	.06
7	.00	.00	e.00	e.00	13	3.3	9.4	89	9.1	108	1.7	.06
8	.00	.00	e.00	e.00	10	2.9	7.3	30	87	467	1.3	.06
9	.00	.00	e.00	e.00	8.7	2.5	6.1	11	46	520	1.3	.06
10	.00	.00	e.00	e.00	7.5	2.3	5.1	6.0	11	185	.81	.05
11	.00	.00	e.00	e.00	6.6	2.1	4.2	3.8	5.2	37	.72	.05
12	.00	.00	e.00	1.4	6.2	1.9	3.9	2.7	3.9	23	.62	.05
13	.00	.00	e.00	107	6.0	1.8	3.6	2.0	3.1	15	.47	.09
14	.00	.00	e.00	340	5.7	1.7	3.7	2.0	251	11	.35	.12
15	.00	.00	e.00	192	5.3	1.6	4.1	18	144	8.4	.27	.06
16	.00	e.00	e.00	63	4.9	1.5	3.5	48	136	6.7	.23	.05
17	.00	e.00	e.00	21	8.4	1.4	3.1	110	54	5.4	.21	.05
18	.00	e.00	e.00	9.9	18	1.4	2.7	669	17	4.6	.17	.05
19	.00	e.00	e.00	5.7	21	1.4	2.5	704	8.5	3.8	.14	.04
20	.00	e.00	e.00	12	15	1.3	2.3	280	5.3	3.1	.14	.03
21	.00	e.00	e.00	26	14	1.7	2.2	40	3.6	2.7	.12	.03
22	.00	e.00	e.00	7.6	13	2.9	1.7	20	2.7	2.3	.11	.03
23	.00	e.00	e.00	3.9	8.4	2.9	1.6	13	2.2	2.0	.10	.02
24	.00	e.00	e.00	2.4	6.0	2.2	1.3	8.6	1.8	84	.09	.02
25	.00	e.00	e.00	1.7	4.9	1.8	1.3	6.2	1.5	19	.09	.02
26	.00	e.00	e.00	57	4.2	1.8	1.2	4.6	1.3	7.2	.09	.02
27	.00	e.00	e.00	224	3.9	5.1	1.1	3.7	246	9.4	.09	.02
28	.00	e.00	e.00	92	3.5	8.9	.93	3.0	717	5.3	.08	.02
29	.00	e.00	e.00	351	---	656	2.5	2.4	431	15	.08	.02
30	.00	e.00	e.00	1030	---	819	1.7	1.9	1510	13	.07	.02
31	.00	---	e.00	1220	---	513	---	1.6	---	3.6	.07	---
TOTAL	0.00	0.00	0.00	3767.60	1179.2	2069.1	397.03	2146.74	3705.27	8527.5	232.52	1.44
MEAN	.00	.00	.00	122	42.1	66.7	13.2	69.2	124	275	7.50	.048
MAX	.00	.00	.00	1220	690	819	218	704	1510	3020	114	.12
MIN	.00	.00	.00	.00	3.5	1.3	.93	.84	.97	2.0	.07	.02
AC-FT	.0	.0	.0	7470	2340	4100	788	4260	7350	16910	461	2.9
CFSM	.00	.00	.00	1.54	.53	.84	.17	.88	1.56	3.48	.09	.00
IN.	.00	.00	.00	1.77	.56	.97	.19	1.01	1.74	4.02	.11	.00

CAL YR 1988 TOTAL 1374.13 MEAN 3.75 MAX 321 MIN .00 AC-FT 2730 CFSM .05 IN. .65
WTR YR 1989 TOTAL 22026.40 MEAN 60.3 MAX 3020 MIN .00 AC-FT 43690 CFSM .76 IN. 10.37

e Estimated.

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. 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 2,425 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); 28 years (water years 1962-89) regulated, 2,030 ft³/s (1,471,000 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, 42,000 ft³/s July 2 at 1000 hours (gage height, 33.20 ft); minimum daily, 90 ft³/s Oct. 25.

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	115	188	325	456	6810	2210	3930	e1350	11300	37000	734	139
2	122	227	409	460	5750	3100	3880	1220	11500	41600	631	132
3	128	263	428	476	4930	3390	4470	1110	11300	39500	617	127
4	119	288	401	525	4790	2990	6220	1160	10600	35900	862	121
5	106	280	363	601	4700	2580	9710	1760	9740	31500	1010	116
6	101	257	333	672	4820	2330	12200	1770	8800	27000	875	113
7	99	228	309	720	4930	2200	12900	1660	7810	23100	706	116
8	99	199	299	747	4980	2120	12400	1660	7180	20600	831	125
9	102	177	286	741	4930	2070	11400	1710	6980	18400	646	136
10	109	162	287	695	4670	2010	10100	1750	6770	16100	538	148
11	114	149	596	624	4310	1940	8650	1820	6320	13400	420	239
12	115	142	620	866	3980	1850	7140	1900	5520	10700	360	317
13	114	139	686	3010	3700	1760	5780	1940	4790	8210	323	321
14	110	137	777	5090	3490	1690	4780	1980	5340	5350	294	460
15	107	136	796	4990	3240	1630	4160	2050	5630	3230	281	518
16	104	129	780	4320	3080	1590	3760	2750	5160	2320	278	349
17	104	157	774	3220	3920	1520	e3380	e5110	4790	1780	287	260
18	100	173	741	3490	3140	1450	3040	e10800	4710	1400	256	217
19	99	183	676	4320	2600	1360	2770	16300	4700	1150	249	197
20	98	199	610	3790	2960	1300	2550	20300	4580	994	235	191
21	96	201	541	2840	5470	1480	2390	20300	4320	882	221	183
22	95	202	480	2290	4860	2030	2210	18600	3940	800	210	169
23	92	209	621	1880	3680	2000	e2040	16500	3450	712	205	155
24	91	253	489	1530	3090	1830	e1890	14000	3070	708	197	147
25	90	291	404	1280	2850	1690	e1770	11400	2930	776	192	143
26	96	297	382	1150	2680	2290	e1660	9230	2870	883	184	140
27	106	310	408	1780	2550	5060	e1540	7150	8050	949	173	139
28	115	332	1090	2200	2380	4080	e1470	5600	16700	1050	163	135
29	125	324	889	3570	---	4350	e1440	5980	21400	1060	157	133
30	131	299	566	7160	---	4730	e1400	8240	27700	1020	160	131
31	153	---	469	7430	---	4480	---	10300	---	873	144	---
TOTAL	3355	6531	16835	72923	113290	75110	151030	207400	237950	348947	12439	5817
MEAN	108	218	543	2352	4046	2423	5034	6690	7932	11260	401	194
MAX	153	332	1090	7430	6810	5060	12900	20300	27700	41600	1010	518
MIN	90	129	286	456	2380	1300	1400	1110	2870	708	144	113
AC-FT	6650	12950	33390	144600	224700	149000	299600	411400	472000	692100	24670	11540

CAL YR 1988 TOTAL 421405 MEAN 1151 MAX 5770 MIN 90 AC-FT 835900
WTR YR 1989 TOTAL 1251627 MEAN 3429 MAX 41600 MIN 90 AC-FT 2483000

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 1988 TO SEPTEMBER 1989

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)	CALCIUM DISSOLVED (MG/L AS CA)
OCT 26...	1425	104	218	7.50	21.0	8.5	96	1.0	35	7.4
FEB 01...	1335	6800	113	6.00	14.0	8.2	80	2.3	25	6.5
MAR 23...	0928	2020	206	7.00	13.5	9.2	88	1.8	44	11
MAY 10...	1420	1750	194	6.60	24.0	7.2	86	1.4	42	9.5
JUN 27...	1045	7730	87	6.70	24.0	7.4	89	2.2	21	5.8
AUG 17...	0930	293	242	7.30	26.5	6.5	81	1.2	45	11

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
OCT 26...	3.9	27	2	4.3	24	29	33	0.10	0.62	120
FEB 01...	2.2	12	1	3.2	9	33	11	0.10	11	84
MAR 23...	4.0	21	1	2.9	21	34	26	0.10	13	125
MAY 10...	4.4	19	1	3.4	21	27	23	0.10	13	112
JUN 27...	1.7	8.8	0.8	2.3	13	8.5	11	0.10	9.6	56
AUG 17...	4.3	27	2	3.4	36	21	33	0.10	17	139

DATE	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)	PHOSPHOROUS TOTAL (MG/L AS P)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM DISSOLVED (UG/L AS CD)
OCT 26...	--	0.010	<0.100	<0.010	--	0.60	0.050	<1	56	<1
FEB 01...	--	0.030	<0.100	0.090	0.91	1.0	0.080	--	--	--
MAR 23...	--	0.020	<0.100	0.050	0.75	0.80	0.080	--	--	--
MAY 10...	0.180	0.020	0.200	0.050	0.65	0.70	0.100	--	--	--
JUN 27...	--	0.020	<0.100	0.030	7.9	7.9	0.060	--	--	--
AUG 17...	0.190	0.010	0.200	0.030	0.57	0.60	0.080	<1	55	<1

DATE	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)
OCT 26...	<1	1	20	<5	10	0.6	<1	<1.0	10
FEB 01...	--	--	--	--	--	--	--	--	--
MAR 23...	--	--	--	--	--	--	--	--	--
MAY 10...	--	--	--	--	--	--	--	--	--
JUN 27...	--	--	--	--	--	--	--	--	--
AUG 17...	<1	1	250	<1	110	0.2	<1	<1.0	14

08033900 EAST FORK ANGELINA RIVER NEAR CUSHING, TX

LOCATION.--Lat 31°51'36", long 94°49'23", Rusk County, Hydrologic Unit 12020004, near left bank at downstream side of bridge on Farm Road 225, 0.1 mi downstream from Everett Branch, 0.9 mi upstream from Reagan Branch, 3.5 mi north of Cushing, and 8 mi upstream from Angelina River.

DRAINAGE AREA.--158 mi².

PERIOD OF RECORD.--January 1964 to September 1989 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 275.29 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. No known diversion above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--25 years, 119 ft³/s, (10.23 in/yr) 86,220 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,800 ft³/s Aug. 11, 1988 (gage height, 14.24 ft), from rating curve extended above 5,800 ft³/s on basis of area-velocity study; minimum, 0.7 ft³/s Aug. 14, 1964.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,350 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 30	1600	3,230	10.90	May 16	2400	11,300	12.58
Mar. 29	1300	*12,000	*12.60	July 2	1000	1,620	10.37

Minimum daily discharge, 11.0 ft³/s Oct. 15, 16.

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	20	37	44	123	640	206	523	68	59	663	42	23
2	39	34	39	89	398	271	282	68	66	1400	62	21
3	33	29	36	74	304	256	208	67	228	805	76	20
4	23	27	34	66	403	197	181	88	179	559	53	19
5	17	24	33	59	321	173	157	150	170	405	42	19
6	15	21	32	60	215	163	140	170	242	333	37	17
7	14	20	32	63	172	146	131	104	233	372	35	32
8	14	20	67	78	159	131	125	72	159	206	39	37
9	14	20	123	80	151	119	119	64	121	140	36	26
10	14	30	96	76	139	112	111	61	91	117	32	61
11	14	37	221	68	133	108	105	57	84	98	30	101
12	13	31	221	87	166	103	104	52	80	87	29	50
13	12	34	147	377	264	100	101	57	81	80	27	37
14	12	39	88	562	263	98	119	119	231	79	26	35
15	11	33	71	653	205	93	165	141	292	78	27	37
16	11	45	62	505	296	88	135	1630	237	72	31	32
17	12	59	56	225	398	88	111	4710	128	65	30	30
18	12	39	52	136	486	87	100	2170	89	59	29	28
19	12	38	50	122	428	86	141	1210	77	55	27	26
20	13	80	50	110	315	85	128	640	68	59	26	25
21	13	71	55	97	237	89	102	366	61	57	25	24
22	13	45	59	88	188	112	90	171	57	50	23	23
23	13	36	59	83	151	103	83	133	61	47	22	22
24	12	33	59	81	134	88	76	116	68	46	22	22
25	13	32	60	82	127	83	72	103	62	47	22	22
26	36	106	52	115	125	157	69	91	58	55	22	22
27	75	245	51	268	124	433	66	82	136	94	21	22
28	57	218	91	229	120	762	64	77	377	84	20	21
29	148	110	118	318	---	8870	62	70	485	57	19	22
30	80	56	86	2020	---	2060	61	65	460	52	30	24
31	41	---	116	1270	---	786	---	61	---	51	29	---
TOTAL	826	1649	2360	8264	7062	16253	3931	13033	4740	6372	991	900
MEAN	26.6	55.0	76.1	267	252	524	131	420	158	206	32.0	30.0
MAX	148	245	221	2020	640	8870	523	4710	485	1400	76	101
MIN	11	20	32	59	120	83	61	52	57	46	19	17
AC-FT	1640	3270	4680	16390	14010	32240	7800	25850	9400	12640	1970	1790
CFSM	.17	.35	.48	1.69	1.60	3.32	.83	2.66	1.00	1.30	.20	.19
IN.	.19	.39	.56	1.95	1.66	3.83	.93	3.07	1.12	1.50	.23	.21

CAL YR 1988 TOTAL 32208.1 MEAN 88.0 MAX 5900 MIN 6.3 AC-FT 63880 CFSM .56 IN. 7.58
WTR YR 1989 TOTAL 66381. MEAN 182 MAX 8870 MIN 11 AC-FT 131700 CFSM 1.15 IN. 15.63

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.--Records good except those for estimated daily discharges, which are poor. No large diversion 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. U.S. Army Corps of Engineers telemeter for rainfall and stage at station.

AVERAGE DISCHARGE.--31 years (water years 1943, 1960-89), 798 ft³/s (578,200 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. 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 information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 42,500 ft³/s Mar. 31 at 0800 hours (gage height, 23.20 ft); minimum daily, 49 ft³/s Oct. 2.

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	50	268	838	725	3550	1150	33000	461	713	1190	212	80
2	49	224	870	824	4950	1080	20100	426	518	1230	203	85
3	51	182	774	934	5390	1080	e9600	464	475	1250	202	81
4	61	179	552	1020	4920	1090	e4600	561	558	1320	211	74
5	73	182	393	1070	4590	1120	e3400	708	606	1500	239	71
6	76	192	331	1050	4790	1140	e2500	801	625	1630	221	69
7	74	187	277	990	5000	1110	e2000	862	999	1640	185	69
8	70	167	246	923	4790	1090	e1800	962	1740	1540	173	70
9	66	147	305	837	4110	1030	e1700	1050	2240	1420	171	94
10	63	135	427	699	3530	937	e1600	1100	2380	1300	223	214
11	61	143	591	573	3000	e820	e1500	1090	2270	1130	251	269
12	61	146	736	503	2550	e730	e1400	1010	2040	894	213	250
13	61	142	826	659	2150	e650	e1300	919	1850	657	187	253
14	61	137	882	999	1780	e600	e1600	811	1860	518	188	228
15	61	134	921	1220	1610	575	e1800	735	1900	486	183	193
16	61	128	924	1430	1820	601	e1700	822	2330	455	162	184
17	61	135	837	1660	1960	626	e1600	1290	3450	378	151	179
18	59	134	690	1900	2150	629	e1400	4210	4280	321	148	144
19	59	149	590	2060	2400	618	e1400	9920	4370	289	141	113
20	59	175	543	2030	2710	607	1420	10300	3810	265	134	100
21	59	182	505	1810	2900	592	1490	9660	3190	243	130	92
22	58	220	464	1550	2900	572	1580	8820	2680	222	126	87
23	56	255	440	1290	2730	638	1600	7620	2240	211	119	83
24	56	232	449	1060	2450	701	1500	6370	1790	199	110	80
25	57	200	457	851	2150	684	1280	5180	1330	190	104	78
26	62	202	417	696	1840	628	994	3960	940	208	99	75
27	75	333	342	713	1570	667	825	3170	777	213	94	72
28	91	499	346	740	1300	746	771	2560	900	214	90	70
29	111	678	409	977	---	5240	708	1990	967	265	87	71
30	140	772	501	2060	---	26100	572	1450	1050	319	84	71
31	217	---	618	2440	---	41600	---	1030	---	261	81	---
TOTAL	2219	6859	17501	36293	85590	95451	106740	90312	54878	21958	4922	3599
MEAN	71.6	229	565	1171	3057	3079	3558	2913	1829	708	159	120
MAX	217	772	924	2440	5390	41600	33000	10300	4370	1640	251	269
MIN	49	128	246	503	1300	572	572	426	475	190	81	69
AC-FT	4400	13600	34710	71990	169800	189300	211700	179100	108900	43550	9760	7140

CAL YR 1988 TOTAL 213721 MEAN 584 MAX 9580 MIN 34 AC-FT 423900
WTR YR 1989 TOTAL 526322 MEAN 1442 MAX 41600 MIN 49 AC-FT 1044000

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 emergency 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, 48,610 acre-ft Mar. 29 at 2200 hours (elevation, 283.76 ft); minimum, 34,600 acre-ft Oct. 23 (elevation, 275.20 ft).

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

275.0	34,220	279.0	42,320
277.0	38,140	280.0	44,500

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35620	35120	34800	35140	40790	42410	44790	41580	41600	46460	41510	40480
2	35530	35080	34760	35160	40940	42490	44040	41560	41580	45350	41710	40450
3	35470	35080	34740	35180	41300	42540	43630	41660	41540	44600	41660	40430
4	35410	35050	34720	35140	41470	42470	43320	41660	41510	44060	41620	40390
5	35350	34970	34700	35200	41580	42520	43020	41850	41560	43690	41540	40350
6	35280	34950	34720	35160	41620	42340	42800	41850	41540	43390	41510	40350
7	35260	34970	34820	35160	41620	42320	42560	41770	41470	43240	41580	40330
8	35260	34950	34740	35160	41710	42210	42470	41680	41470	43040	41510	40240
9	35240	34950	34830	35180	41710	42210	42320	41730	41410	42780	41470	40200
10	35180	34950	35030	35160	41730	42150	42150	41660	41370	42580	41410	41810
11	35140	34930	34990	35160	41680	42090	42090	41600	41340	42450	41340	41830
12	35060	35050	34990	35390	41790	42040	42040	41560	41430	42280	41300	41770
13	35010	34990	34970	35720	41900	42070	42000	41620	41490	42190	41260	41660
14	34950	34990	34970	35890	41960	42040	42070	41580	41710	42130	41240	41660
15	34890	34990	34930	35950	42210	41980	42070	41580	41730	42000	41180	41540
16	34870	35030	34930	36010	43100	41940	42000	42020	41660	41940	41150	41470
17	34830	34990	34890	35990	43210	41900	41960	43060	41600	41870	41130	41410
18	34800	34990	34850	36020	43210	41900	41960	43980	41560	41770	41090	41370
19	34800	34990	34890	36100	43170	41870	42210	43720	41540	41790	41050	41320
20	34780	34990	34930	36010	43060	41810	42150	43340	41470	41730	41030	41280
21	34720	34970	34910	36010	42910	41870	42090	43060	41390	41640	40980	41220
22	34620	34950	34930	36010	42730	41850	41980	42780	41370	41560	40940	41130
23	34780	34890	34930	36010	42600	41790	41940	42580	41340	41710	40900	41030
24	34720	34890	34910	36020	42520	41790	41920	42360	41320	41710	40860	40980
25	34890	34890	34890	36060	42320	41750	41830	42190	41280	41680	40810	40940
26	35300	34950	34910	36340	42280	41940	41810	42040	41490	41710	40770	40880
27	35300	34890	34990	36460	42240	42320	41790	41980	42410	41710	40730	40810
28	35180	34890	35030	36640	42240	42540	41730	41900	43430	41680	40710	40810
29	35180	34850	35010	38080	---	48610	41680	41770	43580	41600	40620	40790
30	35180	34830	35120	40260	---	47810	41620	41730	44170	41560	40580	40710
31	35140	---	35140	40600	---	46130	---	41620	---	41510	40520	---
MAX	35620	35120	35140	40600	43210	48610	44790	43980	44170	46460	41710	41830
MIN	34620	34830	34700	35140	40790	41750	41620	41560	41280	41510	40520	40200
(†)	275.48	275.32	275.48	278.19	278.96	280.50	278.67	278.67	279.85	278.62	278.15	278.24
(⊕)	-480	-310	+310	+5460	+1640	+3890	-4510	0	+2550	-2660	-990	+190
(††)	278	145	137	162	139	150	177	192	182	231	311	327

CAL YR 1988 MAX 42780 MIN 34620 (⊕) -6180 (††) 4001
WTR YR 1989 MAX 48610 MIN 34620 (⊕) +5090 (††) 2431

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

08037050 BAYOU LANANA AT NACOGDOCHES, TX

LOCATION.--Lat 31°36'58", long 94°38'28", Nacogdoches County, Hydrologic Unit 12020005, on right bank at downstream side of bridge on Farm Road 1878 in Nacogdoches and 14.5 mi 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.--23 years (water years 1964-86, 1989), 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)
Jan. 29	Unknown	2,620	15.93	May 18	0145	*4,510	*17.88
Mar. 26	1615	2,010	15.15	July 1	Unknown	1,470	13.63
Mar. 29	1045	3,840	17.39				

Minimum discharge, 0.08 ft³/s Oct. 6-11.

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	.45	1.0	1.9	11	54	77	75	6.3	12	e985	e4.4	.57
2	3.4	1.0	1.9	9.9	43	84	62	6.0	79	e287	e7.0	.44
3	.21	.94	1.9	8.5	59	49	53	10	29	e231	e4.2	.41
4	.12	.86	1.9	6.2	47	37	45	24	9.7	e150	e3.8	.38
5	.12	.86	1.9	5.6	39	31	37	47	31	e110	e3.3	.36
6	.14	.86	1.9	4.9	35	27	34	43	11	e90	e3.1	1.0
7	.08	.86	2.5	5.2	31	24	31	12	9.2	e110	e2.8	.75
8	.08	.86	22	5.2	31	21	28	8.4	9.0	e60	e5.0	.41
9	.08	.95	4.3	5.6	29	19	25	7.0	5.8	e25	e3.1	.27
10	.08	4.6	25	3.6	27	18	23	6.5	4.6	e17	e2.8	82
11	.09	1.2	13	3.5	25	17	21	5.9	11	e14	e2.5	5.2
12	.11	29	5.1	89	44	16	21	4.7	21	e12	e2.3	2.7
13	.11	9.7	2.9	138	58	15	21	4.1	10	e11	e2.1	28
14	.11	3.7	1.9	115	57	15	42	4.8	144	e10	e2.0	14
15	.11	2.9	1.4	46	47	13	29	50	71	e9.5	6.0	3.7
16	.11	6.7	1.4	27	182	13	23	348	21	e9.0	3.2	3.0
17	.11	2.9	1.5	20	119	13	20	346	13	e8.5	2.4	4.9
18	.11	2.2	1.5	17	103	13	18	1280	9.7	e8.0	2.1	4.6
19	.11	5.4	1.5	20	63	12	25	86	7.7	e7.5	1.8	3.9
20	.32	3.5	1.9	20	58	12	18	e50	6.1	e7.1	1.8	3.4
21	.18	2.8	2.2	13	54	18	15	e30	5.0	e6.7	1.5	3.5
22	.14	2.2	2.2	11	35	15	13	e20	6.0	e6.3	1.3	2.4
23	.14	2.1	2.5	11	28	12	12	16	6.5	e6.0	1.3	1.1
24	.12	2.1	3.7	10	25	11	11	14	4.4	e5.6	1.4	1.1
25	1.2	2.1	3.1	10	24	11	10	11	4.1	e6.2	1.3	1.1
26	10	11	3.1	51	24	366	9.4	10	19	e7.0	1.3	1.0
27	2.1	4.8	35	74	23	335	8.5	9.7	434	e10	.99	.95
28	25	3.0	32	39	25	73	8.1	9.2	320	e8.0	.83	.84
29	6.3	2.7	15	e700	---	1400	7.6	8.0	172	e6.5	.75	.87
30	2.1	2.3	15	e400	---	203	6.7	5.6	353	e5.4	.75	1.1
31	1.1	---	11	82	---	102	---	4.8	---	e4.8	.72	---
TOTAL	54.43	115.09	222.1	1962.2	1389	3072	752.3	2488.0	1838.8	2234.1	77.84	173.95
MEAN	1.76	3.84	7.16	63.3	49.6	99.1	25.1	80.3	61.3	72.1	2.51	5.80
MAX	25	29	35	700	182	1400	75	1280	434	985	7.0	82
MIN	.08	.86	1.4	3.5	23	11	6.7	4.1	4.1	4.8	.72	.27
AC-FT	108	228	441	3890	2760	6090	1490	4930	3650	4430	154	345
CFSM	.06	.12	.23	2.02	1.58	3.17	.80	2.56	1.96	2.30	.08	.19
IN.	.06	.14	.26	2.33	1.65	3.65	.89	2.96	2.19	2.66	.09	.21

CAL YR 1988	TOTAL	--	MEAN	--	MAX	--	MIN	--	AC-FT	--	CFSM	--	IN.	--
WTR YR 1989	TOTAL	14379.81	MEAN	39.4	MAX	1400	MIN	.08	AC-FT	28520	CFSM	1.26	IN.	17.09

e Estimated.

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, 3,742,000 acre-ft July 13 at 0800 hours (elevation, 171.16 ft); minimum, 1,611,000 acre-ft Jan. 10 (elevation, 151.07 ft).

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

151.0	1,605,000	161.0	2,525,000	168.0	3,329,000
155.0	1,941,000	164.0	2,853,000	170.0	3,586,000
158.0	2,221,000	166.0	3,085,000	172.0	3,857,000

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1966000	1807000	1660000	1633000	1991000	2352000	2599000	2872000	3215000	3510000	3179000	2853000
2	1968000	1801000	1657000	1633000	2016000	2370000	2655000	2861000	3211000	3565000	3164000	2850000
3	1964000	1797000	1652000	1633000	2043000	2380000	2721000	2861000	3206000	3611000	3135000	2845000
4	1959000	1788000	1648000	1629000	2055000	2404000	2785000	2853000	3206000	3636000	3108000	2839000
5	1947000	1782000	1644000	1626000	2069000	2410000	2831000	2857000	3193000	3662000	3085000	2830000
6	1941000	1777000	1640000	1622000	2082000	2410000	2859000	2857000	3191000	3679000	3066000	2828000
7	1934000	1772000	1637000	1622000	2087000	2409000	2886000	2857000	3233000	3698000	3053000	2821000
8	1923000	1768000	1640000	1622000	2098000	2408000	2919000	2848000	3267000	3711000	3033000	2816000
9	1919000	1760000	1638000	1619000	2108000	2412000	2934000	2853000	3255000	3722000	3009000	2813000
10	1915000	1756000	1642000	1619000	2118000	2416000	2944000	2849000	3246000	3729000	2995000	2823000
11	1908000	1751000	1646000	1618000	2132000	2420000	2944000	2844000	3229000	3736000	2985000	2819000
12	1902000	1746000	1642000	1645000	2140000	2423000	2941000	2837000	3213000	3740000	2973000	2814000
13	1894000	1741000	1635000	1693000	2155000	2425000	2941000	2847000	3200000	3730000	2965000	2814000
14	1886000	1736000	1633000	1728000	2169000	2431000	2944000	2847000	3224000	3711000	2956000	2815000
15	1879000	1729000	1634000	1748000	2187000	2438000	2944000	2847000	3224000	3690000	2950000	2810000
16	1873000	1725000	1631000	1760000	2199000	2438000	2934000	2880000	3209000	3663000	2937000	2803000
17	1869000	1718000	1629000	1767000	2217000	2432000	2933000	2960000	3193000	3623000	2930000	2796000
18	1864000	1712000	1626000	1792000	2227000	2440000	2929000	3068000	3184000	3578000	2930000	2791000
19	1860000	1716000	1626000	1807000	2234000	2440000	2928000	3102000	3172000	3553000	2921000	2785000
20	1853000	1712000	1625000	1822000	2265000	2443000	2919000	3126000	3153000	3527000	2918000	2778000
21	1848000	1707000	1625000	1825000	2289000	2451000	2912000	3145000	3132000	3492000	2912000	2775000
22	1841000	1699000	1624000	1832000	2294000	2451000	2905000	3162000	3117000	3460000	2912000	2783000
23	1836000	1693000	1632000	1838000	2299000	2447000	2902000	3186000	3098000	3431000	2904000	2769000
24	1829000	1687000	1633000	1846000	2307000	2447000	2897000	3208000	3095000	3406000	2897000	2757000
25	1827000	1681000	1630000	1852000	2316000	2451000	2889000	3228000	3077000	3381000	2891000	2748000
26	1825000	1683000	1626000	1866000	2327000	2472000	2884000	3242000	3061000	3352000	2889000	2742000
27	1820000	1680000	1640000	1874000	2339000	2498000	2878000	3251000	3173000	3326000	2883000	2737000
28	1819000	1676000	1638000	1882000	2344000	2514000	2878000	3251000	3226000	3294000	2874000	2731000
29	1813000	1673000	1632000	1924000	---	2551000	2878000	3240000	3298000	3267000	2874000	2728000
30	1810000	1673000	1635000	1947000	---	2585000	2875000	3228000	3377000	3234000	2867000	2722000
31	1808000	---	1633000	1970000	---	2588000	---	3215000	---	3206000	2861000	---
MAX	1968000	1807000	1660000	1970000	2344000	2588000	2944000	3251000	3377000	3740000	3179000	2853000
MIN	1808000	1673000	1624000	1618000	1991000	2352000	2599000	2837000	3061000	3206000	2861000	2722000
(†)	153.47	151.85	151.35	155.32	159.25	161.60	164.20	167.08	168.38	167.00	164.07	162.83
(ϕ)	-169000	-135000	-40000	+337000	+374000	+244000	+287000	+340000	+162000	-171000	-345000	-139000

CAL YR 1988 MAX 3005000 MIN 1624000 (ϕ) -1114000
WTR YR 1989 MAX 3740000 MIN 1618000 (ϕ) +745000

(†) 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, 109,800 acre-ft July 2 at 1100 hours (elevation, 84.07 ft); minimum, 69,130 acre-ft Jan. 5 (elevation, 80.95 ft).

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

81.0	69,680	83.0	94,250	84.0	108,700
82.0	81,280	83.5	101,300	84.5	116,500

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	86550	83750	76480	71560	89280	87970	76130	85270	87580	109800	90340	89020
2	86420	82380	76360	70110	86680	87580	74960	81770	87970	102900	86420	89150
3	85020	82760	77780	71560	83880	84130	72900	81770	85140	95210	81400	89150
4	84130	84130	74500	71000	81890	82880	75890	79210	77540	86680	79690	89150
5	82630	83130	75430	70440	83380	78490	76830	85400	72570	88230	79210	89680
6	82760	81640	76830	72230	85520	77300	78020	78970	74960	86550	79690	89280
7	81640	83630	77070	71220	85910	79450	79940	72680	76710	85910	78850	89810
8	82140	82010	79690	73020	87450	81150	82630	71440	77540	82140	78850	89540
9	81890	83250	80060	73020	89150	81400	84260	73360	78250	80420	80180	88620
10	82140	83880	83130	73820	89540	81400	81280	74730	78730	85650	83380	90070
11	81890	82630	84510	78850	89020	81150	79210	79690	80060	88230	80660	90340
12	80180	82140	86290	80910	87450	80790	78610	85910	80790	85020	81890	89810
13	80420	80420	86290	88100	85650	80060	77420	85910	79090	80420	81150	89410
14	80660	80910	85780	94660	83630	79690	73590	85910	84760	79690	80420	89280
15	79210	80660	86160	96180	84000	81150	72570	89280	80180	76600	82140	88360
16	80060	81030	85650	93020	85910	81030	76600	90340	77540	72000	86160	87060
17	79570	79690	84130	90070	86420	85140	79330	89810	81030	70560	87580	86680
18	79210	79210	83630	92080	84640	86930	80420	93020	85270	75780	86680	85650
19	79690	80910	81400	93700	82260	86420	77420	88760	88490	84380	85020	84640
20	80060	80300	79810	91140	85140	89280	79940	86160	91810	88100	81890	83500
21	80540	79210	77660	88360	90070	92080	80420	87190	90200	87580	82140	82760
22	81150	78970	76360	87710	87190	90200	82510	90340	87970	86290	83000	82760
23	81770	76010	77420	88620	82010	86420	82880	92480	85270	84890	83130	81890
24	82010	78250	75310	90340	82380	81150	86040	91940	82630	84640	85400	81030
25	82140	76950	72680	91670	84380	79810	90340	88100	79210	86680	86160	80540
26	83250	77540	70330	92750	85650	86160	91140	85650	77780	88760	87190	80300
27	84000	78250	71560	93020	87710	94940	90070	81030	95770	90340	88100	80060
28	85140	77300	73130	93840	87710	87710	89410	78610	100300	91400	87970	80420
29	84380	77900	76010	94940	---	85270	89810	80180	101000	91940	88890	80540
30	83500	76480	76360	95490	---	84640	88360	81890	102300	92750	88620	80910
31	84380	---	73470	91810	---	80180	---	83130	---	92210	88760	---
MAX	86550	84130	86290	96180	90070	94940	91140	93020	102300	109800	90340	90340
MIN	79210	76010	70330	70110	81890	77300	72570	71440	72570	70560	78850	80060
(†)	82.25	81.60	81.34	82.82	82.51	81.91	82.56	82.15	83.57	82.85	82.59	81.97
(ϕ)	-3070	-7900	-3010	+18340	-4100	-7530	+8180	-5230	+19170	-10090	-3450	-7850

CAL YR 1988 MAX 94250 MIN 70330 (ϕ) -17000
WTR YR 1989 MAX 109800 MIN 70110 (ϕ) -6540

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

08040500 NECHES RIVER AT TOWN BLUFF, TX

LOCATION.--Lat 30°47'36", long 94°10'28", Jasper-Tyler County line, Hydrologic Unit 12020003, on left bank 0.3 mi downstream from Town Bluff Dam, 0.5 mi northeast of Town Bluff, 2.5 mi upstream from Walnut Run, 8 mi downstream from Wolf Creek, and at mile 113.4.

DRAINAGE AREA.--7,573 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. Prior to May 21, 1953, water-stage recorder, and May 21, 1953, to Dec. 3, 1954, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Records good. Flow is regulated by B.A. Steinhagen Lake (station 08040000) 0.3 mi upstream and by Sam Rayburn Reservoir (station 08039300) 37.9 mi upstream. Some diversions upstream from station. 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 1965-89) regulated, 4,897 ft³/s (3,548,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 90,900 ft³/s May 21, 22, 1953 (elevation, 82.85 ft); 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, 49,200 ft³/s July 2 at 2100 hours (elevation, 78.49 ft), minimum daily, 1,360 ft³/s Mar. 19, 20.

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	3080	2810	2860	2850	8960	2740	8450	6090	17200	29600	17500	2290
2	3090	2800	2860	2840	8020	4450	7440	5790	17500	46500	17500	2270
3	3090	2800	2860	2830	7490	6450	7010	5130	17700	46600	17200	2270
4	3090	2800	2860	2810	6430	5560	6580	5140	17600	43000	16500	2260
5	3090	2790	2860	2810	4980	5300	7800	5480	17500	38000	15600	2240
6	3030	2790	2860	2820	4600	3910	10700	5970	17200	34100	15000	2220
7	2810	2800	2860	2820	4600	2540	10900	5510	17200	31300	13900	2220
8	2800	2810	2870	2810	4610	2500	10900	4330	17200	28900	11800	2290
9	2800	2800	2880	2820	4610	2490	11000	4110	16900	26600	10200	2510
10	2790	2800	2900	2840	4860	2480	11500	4000	16300	22500	9160	2550
11	2790	2800	2920	2850	5190	2470	12100	3040	15800	18800	7430	2560
12	2790	2830	2940	2870	5200	2470	12100	2560	14900	17900	5450	2540
13	2790	2830	2940	2930	5200	2470	12100	2550	15100	17600	5100	2520
14	2790	2850	2930	3760	5190	2400	12000	2550	15400	17500	5070	2510
15	2790	2880	2910	5640	4700	2130	9840	2730	15300	17400	4520	2520
16	2790	2870	2900	6400	4000	2110	7560	4310	15000	17200	3830	2510
17	2790	2870	2900	5640	4730	2110	7470	8950	13700	17100	3810	2500
18	2800	2870	2900	4560	5530	2110	7760	15100	12200	17000	3800	2490
19	2790	2880	2900	5160	4540	2030	7900	20900	12400	17200	3660	2490
20	2790	2880	2880	6320	4120	1360	7310	18900	13200	17400	3470	2470
21	2790	2880	2870	5740	5440	4110	6860	17100	14600	17500	3020	2340
22	2790	2880	2860	3660	8090	8020	6010	16800	16600	17500	2330	2190
23	2790	2880	2930	2450	7440	9040	4920	16800	16700	17400	2030	2170
24	2790	2880	2940	1530	4290	6710	4860	16800	16600	17200	2010	2160
25	2790	2880	2890	1440	2930	3460	5140	16500	16600	16600	2010	2150
26	2790	2880	2860	1720	2800	2390	5690	15500	16500	16700	1990	2130
27	2800	2870	2850	2550	2760	5470	6420	15400	17700	16700	1980	1960
28	2810	2870	2830	2570	2750	10200	6710	14600	21700	16700	2050	1800
29	2810	2880	2840	3620	---	10500	6450	13800	22800	16700	2300	1900
30	2810	2880	2850	6510	---	9650	6140	14500	24400	16700	2300	2060
31	2810	---	2850	9530	---	9070	---	16400	---	17000	2300	---
TOTAL	88360	85340	89360	115700	144060	138700	247620	307340	499500	708900	214820	69090
MEAN	2850	2845	2883	3732	5145	4474	8254	9914	16650	22870	6930	2303
MAX	3090	2880	2940	9530	8960	10500	12100	20900	24400	46600	17500	2560
MIN	2790	2790	2830	1440	2750	1360	4860	2550	12200	16600	1980	1800
AC-FT	175300	169300	177200	229500	285700	275100	491200	609600	990800	1406000	426100	137000

CAL YR 1988 TOTAL 1568030 MEAN 4284 MAX 12500 MIN 2160 AC-FT 3110000
WTR YR 1989 TOTAL 2708790 MEAN 7421 MAX 46600 MIN 1360 AC-FT 5373000

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: January 1981 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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 WH WAT TOT FLD MG/L AS CACO3
OCT 25...	1418	2790	162	7.20	22.0	8.4	96	0.8	34	13
FEB 01...	1025	9160	128	6.70	15.0	9.4	93	1.7	27	16
MAR 30...	0945	9720	126	6.60	20.0	8.4	93	1.7	30	13
MAY 10...	1040	4170	166	6.70	24.0	8.6	101	1.2	33	14
JUN 28...	1012	21700	134	7.30	24.0	7.8	93	0.9	30	9
AUG 15...	1556	4080	136	7.00	28.0	8.2	105	1.3	28	8

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT 25...	7.9	3.5	19	1	2.8	21	25	21	0.10	9.1
FEB 01...	7.3	2.2	13	1	2.8	11	28	14	0.10	12
MAR 30...	8.1	2.3	13	1	2.4	17	23	14	0.10	9.9
MAY 10...	7.9	3.2	17	1	2.7	19	20	21	0.10	9.5
JUN 28...	7.7	2.6	13	1	2.5	21	15	15	0.10	8.0
AUG 15...	6.7	2.7	15	1	2.6	20	17	16	0.10	9.1

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)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)
OCT 25...	101	--	<0.010	<0.100	<0.010	--	0.40	0.020	1	38
FEB 01...	86	--	0.030	<0.100	0.070	0.63	0.70	0.070	--	--
MAR 30...	83	--	0.020	<0.100	0.060	0.44	0.50	0.040	--	--
MAY 10...	93	--	0.020	<0.100	0.030	0.57	0.60	0.060	--	--
JUN 28...	76	0.090	0.010	0.100	0.020	0.38	0.40	0.030	--	--
AUG 15...	81	--	0.010	<0.100	0.020	0.48	0.50	0.050	<1	42

DATE	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 25...	<1	1	2	46	<5	6	1.7	<1	<1.0	6
FEB 01...	--	--	--	--	--	--	--	--	--	--
MAR 30...	--	--	--	--	--	--	--	--	--	--
MAY 10...	--	--	--	--	--	--	--	--	--	--
JUN 28...	--	--	--	--	--	--	--	--	--	--
AUG 15...	<1	<1	1	110	<1	20	<0.1	<1	<1.0	<3

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.--No estimated daily discharges. Records good. Flow regulated by B.A. Steinhagen Lake (station 08040000) 58.1 mi upstream, capacity 124,700 acre-ft, and by Sam Rayburn Reservoir (station 08039300), 95.7 mi upstream, capacity 4,442,000 acre-ft. 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); 25 years (water years 1965-89) regulated, 5,500 ft³/s (3,985,000 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, 47,900 ft³/s July 6 at 0400 (gage height, 20.79 ft); minimum daily, 1,730 ft³/s Jan. 27.

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	3160	2730	2780	2830	6700	2960	11600	5950	15100	30100	17700	2890
2	3190	2730	2770	2810	8510	3200	11100	5780	16000	30200	18000	2870
3	3170	2720	2780	2800	9010	4060	9960	5680	17300	31300	18300	2850
4	3130	2720	2770	2780	8950	5660	8790	5460	18200	37700	18500	2840
5	3110	2720	2770	2760	8310	6070	7940	5360	18500	45700	18400	2820
6	3100	2710	2770	2760	6980	5890	7510	5510	18600	47400	17900	2810
7	3070	2710	2780	2760	5620	5110	8570	5680	18500	44800	17400	2790
8	2890	2710	2840	2750	4990	3580	9970	5730	18200	40600	16700	2770
9	2790	2720	2900	2750	4830	2860	11000	5040	18100	36900	15200	2770
10	2790	2720	2900	2750	4740	2670	11500	4360	18200	33700	13300	2900
11	2770	2730	2990	2820	4790	2600	11800	4040	18000	30900	11300	3010
12	2760	2730	2990	2880	5060	2570	12300	3490	17600	27700	9430	3030
13	2740	2780	2980	2980	5200	2550	13000	2790	17000	24300	e7000	3010
14	2730	2780	2940	3110	5250	2530	13600	2580	17000	21800	5690	2980
15	2730	2760	2900	3550	5270	2500	14000	2520	16900	20100	5280	2960
16	2730	2780	2880	4720	5200	2300	13700	2570	16500	19200	5020	2940
17	2730	2790	2860	5790	4650	2180	12000	3520	16400	18700	4600	2920
18	2730	2790	2840	6280	4490	2150	8910	8360	16100	18400	4330	2910
19	2730	2780	2820	6050	5110	2170	7840	15800	15300	18100	4210	2890
20	2730	2790	2810	5890	5100	2220	7590	21200	14100	17900	4130	2870
21	2730	2780	2840	6380	4770	1850	7410	e23200	13500	18000	4000	2850
22	2730	2780	2830	6710	4950	3390	7010	e23400	13700	18100	3840	2800
23	2740	2770	2870	5550	6490	6290	6410	22200	14600	18100	3380	2660
24	2740	2770	2970	3780	7710	8370	5510	20600	15900	18200	3050	2590
25	2730	2780	3010	2290	6800	9030	4920	19300	17000	18400	2890	2560
26	2730	2780	2930	1760	4550	6980	4780	18500	17800	18900	2800	2550
27	2740	2780	2850	1730	3420	4280	5000	17900	23300	18600	2750	2530
28	2750	2770	2890	2270	3080	4360	5410	17300	26100	18100	2720	2450
29	2760	2770	2870	2530	---	7360	5850	16700	28000	18300	2710	2250
30	2750	2780	2850	3080	---	9830	6060	16000	29100	18000	2830	2230
31	2730	---	2850	4730	---	11300	---	15300	---	17800	2890	---
TOTAL	87910	82660	88830	112630	160530	138870	271040	331820	540600	796000	266250	83300
MEAN	2836	2755	2865	3633	5733	4480	9035	10700	18020	25680	8589	2777
MAX	3190	2790	3010	6710	9010	11300	14000	23400	29100	47400	18500	3030
MIN	2730	2710	2770	1730	3080	1850	4780	2520	13500	17800	2710	2230
AC-FT	174400	164000	176200	223400	318400	275400	537600	658200	1072000	1579000	528100	165200

CAL YR 1988 TOTAL 1669080 MEAN 4560 MAX 13200 MIN 2400 AC-FT 3311000
WTR YR 1989 TOTAL 2960440 MEAN 8111 MAX 47400 MIN 1730 AC-FT 5872000

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 relationship between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 422 microsiemens Jan. 25, 1957; minimum daily, 23 microsiemens Sept. 19, 1963.
WATER TEMPERATURE: Maximum daily, 34.0°C June 29, 1953; minimum daily, 3.0°C Jan. 30, 31, 1948, Jan. 31, 1949, and Jan. 24, 1963.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 215 microsiemens May 8; minimum daily, 45 microsiemens July 7.
WATER TEMPERATURE: Maximum daily, 32.0°C on many days during August and September; minimum daily, 9.0°C on many days during February and March.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
OCT 24...	1320	2740	162	7.50	24.0	27	8.2	97	1.0	K12	240	34
JAN 30...	1123	2990	125	6.70	15.0	52	9.8	96	1.2	36	180	27
MAR 20...	1415	2290	176	6.80	20.0	27	8.8	96	1.2	56	160	40
MAY 08...	1225	5800	158	6.40	24.0	3.2	7.8	92	1.1	20	88	31
JUL 12...	1015	28000	70	6.50	27.0	1.8	4.7	58	1.4	48	490	23
AUG 14...	1145	5700	136	6.90	28.0	26	5.8	73	1.4	20	210	29

DATE	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET 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)
OCT 24...	12	7.5	3.6	18	1	2.9	22	24	21	0.10	9.4	103
JAN 30...	13	7.0	2.3	13	1	2.9	14	27	14	0.10	11	103
MAR 20...	22	9.7	3.7	18	1	2.9	18	29	22	0.10	14	119
MAY 08...	11	7.6	3.0	17	1	2.5	20	20	19	0.10	8.7	97
JUL 12...	5	6.4	1.7	5.4	0.5	2.6	18	5.0	6.9	0.10	9.5	77
AUG 14...	9	6.9	2.8	13	1	2.7	20	18	15	0.10	9.3	93

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-PHOROUS TOTAL (MG/L AS P)	PHOS-PHOROUS DIS-SOLVED (MG/L AS P)	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	SEDI-MENT, SUS-PENDED (MG/L)
OCT 24...	100	<0.010	<0.100	<0.010	<0.010	--	0.40	0.030	0.020	<0.010	--	15
JAN 30...	86	<0.010	<0.100	0.070	0.030	0.73	0.80	0.070	0.040	0.030	0.09	34
MAR 20...	111	<0.010	<0.100	0.020	0.030	0.68	0.70	0.060	0.020	0.010	0.03	25
MAY 08...	90	<0.010	<0.100	0.020	0.020	0.48	0.50	0.050	0.010	<0.010	--	31
JUL 12...	50	<0.010	0.280	0.100	0.060	1.4	1.5	0.070	0.030	0.030	0.09	13
AUG 14...	80	<0.010	<0.100	0.030	0.030	0.47	0.50	0.090	<0.010	0.010	0.03	26

08041000 NECHES RIVER AT EVADALE, TX--Continued
(National stream-quality accounting network)

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
OCT 24...	111	97	50	<1	42	<0.5	1	<1	<3	8	78
JAN 30...	274	95	--	--	--	--	--	--	--	--	--
MAR 20...	155	98	60	<1	51	<0.5	<1	<1	<3	3	340
MAY 08...	485	89	--	--	--	--	--	--	--	--	--
JUL 12...	983	96	70	2	49	<0.5	<1	<1	<3	4	380
AUG 14...	400	96	40	<1	42	<0.5	<1	1	<3	3	230

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)
OCT 24...	<5	5	5	<0.1	<10	<1	<1	<1.0	95	<6	19
JAN 30...	--	--	--	--	--	--	--	--	--	--	--
MAR 20...	<5	7	44	<0.1	<10	1	<1	<1.0	100	<6	13
MAY 08...	--	--	--	--	--	--	--	--	--	--	--
JUL 12...	1	<4	66	<0.1	<10	3	<1	<1.0	61	<6	23
AUG 14...	<1	5	83	<0.1	<10	2	<1	<1.0	84	<6	8

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	87910	166	99	23600	22	5170	23	5480	33
NOV.	1988	82660	173	102	22700	23	5080	24	5250	33
DEC.	1988	88830	167	100	23900	22	5250	23	5550	33
JAN.	1989	112630	150	92	27900	19	5870	22	6590	30
FEB.	1989	160530	135	85	36900	17	7410	20	8840	28
MAR.	1989	138870	158	95	35700	21	7700	22	8340	31
APR.	1989	271040	143	88	64300	18	13400	21	15200	29
MAY	1989	331820	122	76	68500	15	13800	18	16400	25
JUNE	1989	540600	157	95	138000	21	29900	22	32200	31
JULY	1989	796000	93	60	130000	11	24500	15	31800	20
AUG.	1989	266250	150	92	66100	19	13800	22	15600	30
SEPT	1989	83300	146	90	20300	19	4180	21	4810	30
TOTAL		2960440	**	**	658000	**	136000	**	156000	**
WTD.AVG.		8111	133	82	**	17	**	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 1988 TO SEPTEMBER 1989
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	161	165	171	161	166	110	150	195	173	72	172	150
2	162	168	170	161	158	107	150	186	167	60	149	154
3	166	168	170	160	135	135	125	175	199	53	147	151
4	164	172	172	164	120	164	123	173	190	48	146	152
5	167	169	173	166	116	161	178	175	180	46	149	146
6	165	193	173	165	124	162	156	161	170	46	144	145
7	166	167	172	168	124	149	158	196	165	45	140	147
8	167	170	171	166	140	149	112	215	167	54	141	146
9	166	170	172	161	133	166	112	180	163	57	141	155
10	165	167	173	162	129	164	108	164	167	86	152	147
11	165	169	164	175	133	163	98	204	166	66	149	139
12	164	182	166	172	122	175	94	163	162	61	150	140
13	172	170	166	163	125	160	97	164	157	86	149	137
14	167	171	166	164	125	165	117	169	150	86	142	140
15	170	171	167	170	128	167	149	176	165	87	158	139
16	165	169	166	166	128	172	157	192	204	122	162	139
17	177	170	167	168	129	170	148	198	170	128	148	142
18	164	171	167	130	133	108	146	165	192	134	137	143
19	165	171	165	133	143	171	155	126	155	145	138	140
20	169	171	164	129	143	158	155	79	148	142	164	149
21	166	191	165	127	144	108	166	74	162	138	163	149
22	165	188	164	129	145	108	166	71	170	140	199	145
23	166	169	161	131	137	177	166	68	168	155	147	147
24	169	171	174	130	147	171	179	102	168	139	138	146
25	167	172	167	135	144	177	186	89	193	150	162	146
26	169	173	163	162	144	206	187	90	132	168	155	146
27	168	174	164	161	137	168	190	97	131	137	165	148
28	167	172	166	138	135	183	174	133	125	161	154	148
29	164	171	163	139	---	149	214	164	97	154	154	147
30	168	173	160	142	---	158	209	126	86	178	147	147
31	165	---	160	163	---	133	---	151	---	185	157	---
MEAN	166	173	167	154	135	155	151	149	161	107	152	146

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.0	20.0	18.0	14.0	14.0	9.0	12.0	21.0	25.0	20.0	31.0	32.0
2	26.0	20.0	18.0	14.0	14.0	9.0	14.0	21.0	25.0	26.0	31.0	32.0
3	25.0	20.0	18.0	14.0	12.0	9.0	14.0	21.0	25.0	26.0	31.0	32.0
4	25.0	20.0	16.0	14.0	12.0	9.0	14.0	21.0	25.0	26.0	31.0	32.0
5	25.0	20.0	16.0	14.0	12.0	9.0	14.0	21.0	25.0	26.0	31.0	32.0
6	25.0	20.0	16.0	14.0	10.0	9.0	14.0	21.0	26.0	26.0	31.0	32.0
7	25.0	20.0	15.0	14.0	10.0	9.0	14.0	23.0	26.0	26.0	31.0	32.0
8	25.0	20.0	15.0	14.0	9.0	9.0	14.0	23.0	26.0	26.0	31.0	32.0
9	23.0	20.0	15.0	14.0	9.0	9.0	14.0	23.0	26.0	26.0	31.0	32.0
10	23.0	20.0	14.0	12.0	9.0	9.0	15.0	23.0	26.0	26.0	31.0	32.0
11	22.0	20.0	14.0	14.0	9.0	9.0	15.0	23.0	26.0	27.0	31.0	32.0
12	23.0	20.0	14.0	14.0	9.0	9.0	15.0	23.0	26.0	27.0	31.0	32.0
13	22.0	20.0	14.0	14.0	9.0	10.0	15.0	23.0	26.0	28.0	31.0	32.0
14	22.0	20.0	14.0	12.0	9.0	10.0	15.0	25.0	26.0	28.0	31.0	32.0
15	22.0	20.0	14.0	12.0	9.0	10.0	14.0	25.0	26.0	28.0	31.0	32.0
16	22.0	19.0	14.0	12.0	9.0	10.0	15.0	25.0	26.0	29.0	31.0	32.0
17	22.0	19.0	14.0	12.0	9.0	10.0	15.0	---	26.0	29.0	31.0	32.0
18	22.0	19.0	14.0	12.0	9.0	12.0	15.0	---	26.0	30.0	31.0	30.0
19	22.0	19.0	14.0	12.0	9.0	10.0	15.0	23.0	26.0	30.0	31.0	32.0
20	22.0	18.0	14.0	12.0	9.0	12.0	15.0	23.0	26.0	30.0	31.0	32.0
21	22.0	18.0	14.0	12.0	9.0	12.0	15.0	23.0	26.0	30.0	31.0	31.0
22	22.0	18.0	14.0	12.0	9.0	12.0	15.0	23.0	26.0	30.0	31.0	29.0
23	22.0	18.0	14.0	12.0	9.0	12.0	17.0	23.0	26.0	30.0	31.0	30.0
24	22.0	18.0	14.0	12.0	9.0	12.0	18.0	24.0	26.0	30.0	31.0	28.0
25	22.0	18.0	14.0	12.0	9.0	12.0	20.0	25.0	26.0	30.0	31.0	28.0
26	22.0	18.0	14.0	12.0	9.0	12.0	20.0	25.0	26.0	30.0	31.0	25.0
27	22.0	18.0	14.0	12.0	9.0	12.0	20.0	25.0	26.0	30.0	31.0	25.0
28	22.0	18.0	14.0	12.0	9.0	12.0	20.0	25.0	26.0	30.0	31.0	25.0
29	22.0	18.0	14.0	12.0	---	14.0	21.0	25.0	26.0	31.0	31.0	25.0
30	20.0	18.0	14.0	12.0	---	14.0	20.0	25.0	26.0	31.0	31.0	25.0
31	20.0	---	14.0	14.0	---	14.0	---	25.0	---	31.0	32.0	---
MEAN	23.0	19.0	14.5	13.0	9.5	10.5	16.0	23.5	26.0	28.0	31.0	30.5

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. Small diversions above station. Several measurements of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--53 years, 859 ft³/s (13.57 in/yr), 622,300 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, 38,400 ft³/s May 20 at 0200 hours (gage height, 24.90 ft); minimum, 51 ft³/s Oct. 1, 2.

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	51	77	83	423	1220	469	4530	266	382	32200	545	146
2	58	77	81	347	1450	483	3680	259	357	34400	581	142
3	70	76	78	302	1870	561	2720	241	346	28400	583	139
4	90	76	76	276	2160	712	1810	247	495	16700	485	136
5	105	74	74	252	1640	847	1080	335	653	9450	421	132
6	107	71	73	238	984	863	777	640	618	5950	358	126
7	102	68	79	228	712	811	654	811	472	4410	307	123
8	87	66	94	228	627	634	572	807	416	3390	290	121
9	75	64	111	228	573	501	516	650	385	2720	266	122
10	70	61	133	226	533	444	488	450	469	2350	240	121
11	66	58	205	224	508	409	494	346	536	1980	231	125
12	64	57	301	236	491	385	503	295	588	1540	212	168
13	62	56	426	314	475	365	468	265	791	1250	200	194
14	60	56	478	487	464	348	450	279	982	1020	191	183
15	60	57	415	644	469	335	649	318	1030	775	182	191
16	59	62	307	872	473	323	865	334	1220	649	177	197
17	57	62	246	1010	482	311	820	524	1570	576	173	176
18	56	62	218	1010	557	299	687	7110	1910	518	194	159
19	55	63	204	1150	678	290	553	31500	1880	466	206	149
20	54	65	192	1490	745	291	466	37000	1020	421	195	140
21	54	66	185	1640	759	337	414	25900	557	383	183	132
22	54	67	178	1920	816	722	383	e11800	447	357	176	126
23	54	71	176	2220	958	1270	361	5960	398	340	171	119
24	54	89	193	1980	1070	1650	331	3740	386	317	165	114
25	54	95	386	1370	976	1890	304	2320	394	299	163	110
26	54	90	493	865	889	1900	283	1300	418	317	164	106
27	54	82	419	753	705	1530	265	811	2590	426	168	104
28	55	78	328	737	522	1260	253	641	5850	574	171	101
29	57	78	282	853	---	1660	244	543	10200	598	167	100
30	60	82	281	989	---	2470	239	474	22500	557	161	99
31	69	---	390	1020	---	4070	---	424	---	515	153	---
TOTAL	2027	2106	7185	24532	23806	28440	25859	136590	59860	153848	7879	4101
MEAN	65.4	70.2	232	791	850	917	862	4406	1995	4963	254	137
MAX	107	95	493	2220	2160	4070	4530	37000	22500	34400	583	197
MIN	51	56	73	224	464	290	239	241	346	299	153	99
AC-FT	4020	4180	14250	48660	47220	56410	51290	270900	118700	305200	15630	8130
CFSM	.08	.08	.27	.92	.99	1.07	1.00	5.12	2.32	5.77	.30	.16
IN.	.09	.09	.31	1.06	1.03	1.23	1.12	5.91	2.59	6.65	.34	.18

CAL YR 1988 TOTAL 175754 MEAN 480 MAX 3540 MIN 51 AC-FT 348600 CFSM .56 IN. 7.60
WTR YR 1989 TOTAL 476233 MEAN 1305 MAX 37000 MIN 51 AC-FT 944600 CFSM 1.52 IN. 20.60

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.

WATER-DISCHARGE RECORDS

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

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

REMARKS.--Records good except those for estimated daily discharges, which are poor. Low flow for period March through September is affected by small diversions and return flow from irrigated fields. Gage height telemeter at station.

AVERAGE DISCHARGE.--22 years, 488 ft³/s (353,600 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, 22,100 ft³/s May 21 at 2400 hours (elevation, 33.70 ft); minimum daily, 1.2 ft³/s Nov. 13.

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	24	1.5	e4.5	57	70	4.1	153	38	852	15600	289	37
2	35	1.5	e4.0	26	48	11	153	30	797	16300	252	31
3	29	1.5	e3.5	24	30	18	161	34	926	15200	237	26
4	12	1.4	e3.2	15	22	19	151	111	908	11800	219	21
5	7.9	1.4	e3.0	10	18	48	117	167	759	8320	177	18
6	5.0	1.3	e4.0	8.8	15	50	77	194	514	5870	139	17
7	3.7	1.3	e6.0	6.8	12	54	48	151	287	4520	110	15
8	3.3	1.4	e10	5.5	11	55	31	126	181	3610	110	15
9	2.8	1.4	e20	5.3	9.4	42	e21	103	141	3070	92	16
10	2.7	1.5	e30	6.4	8.0	29	e16	84	121	2750	73	14
11	2.4	1.5	e25	12	6.9	20	e20	70	109	2530	62	16
12	2.1	1.3	e18	33	6.4	15	e20	54	99	2200	49	18
13	2.0	1.2	11	17	6.0	12	e15	45	80	1900	46	15
14	1.8	1.8	9.4	27	5.7	12	30	68	243	1610	41	19
15	1.8	2.0	9.7	27	12	8.0	63	81	462	1280	42	19
16	1.8	3.3	8.7	16	15	7.5	50	104	435	921	51	19
17	1.8	e3.0	6.0	13	15	6.7	42	90	342	543	64	15
18	1.6	e2.5	4.9	43	11	5.6	28	788	244	292	68	12
19	1.6	e3.0	4.1	155	8.7	5.1	23	3870	189	192	71	13
20	1.6	e3.5	3.8	232	7.2	13	49	12800	156	155	71	11
21	1.6	e3.0	5.3	218	6.9	42	60	20600	129	127	57	7.4
22	1.5	e4.0	6.7	159	6.3	234	63	21500	107	104	52	6.2
23	1.6	e5.0	21	113	5.2	231	56	16900	92	92	42	7.4
24	1.8	e4.5	29	88	6.2	163	58	10800	92	85	51	8.7
25	1.6	e4.0	30	68	4.9	168	49	6890	107	79	63	8.3
26	1.5	e3.5	29	55	3.9	168	45	4640	345	273	78	7.9
27	1.6	e3.2	20	44	3.5	158	34	3430	3930	790	79	7.6
28	1.6	e3.0	15	34	3.2	132	28	2630	10500	624	63	8.2
29	1.6	e3.0	11	40	---	530	28	2050	12800	462	48	8.0
30	1.5	e4.0	7.9	127	---	439	30	1620	14300	391	39	7.4
31	1.5	---	53	94	---	222	---	1190	---	340	40	---
TOTAL	161.3	74.5	416.7	1779.8	377.4	2922.0	1719	111258	50247	102030	2875	444.1
MEAN	5.20	2.48	13.4	57.4	13.5	94.3	57.3	3589	1675	3291	92.7	14.8
MAX	35	5.0	53	232	70	530	161	21500	14300	16300	289	37
MIN	1.5	1.2	3.0	5.3	3.2	4.1	15	30	80	79	39	6.2
AC-FT	320	148	827	3530	749	5800	3410	220700	99660	202400	5700	881

CAL YR 1988 TOTAL 51327.8 MEAN 140 MAX 1130 MIN 1.2 AC-FT 101800
WTR YR 1989 TOTAL 274304.8 MEAN 752 MAX 21500 MIN 1.2 AC-FT 544100

e Estimated

08041700 PINE ISLAND BAYOU NEAR SOUR LAKE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: February 1968 to June 1989 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: February 1968 to September 1989.
WATER TEMPERATURE: February 1968 to September 1989.

INSTRUMENTATION.--From August 1981 to September 1989 specific conductance and water temperatures were continuously recorded 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: Maximum daily, 11,600 microsiemens Mar. 23, 1968; minimum daily, 18 microsiemens May 19, 20, 22, 23, 1989.
WATER TEMPERATURE (1968-88): Maximum daily, 37.0°C Sept. 15, 1972; minimum daily, 2.0°C Jan. 11, 1973.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 717 microsiemens Mar. 4; minimum, 18 microsiemens May 19, 20, 22, 23.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
DEC								
13...	0900	10	298	9.0	66	20	3.9	27
MAR								
13...	1200	12	501	20.0	73	23	3.7	66
APR								
14...	1020	28	197	16.0	42	13	2.4	22
JUN								
30...	1420	15200	45	25.0	17	5.2	0.93	3.9

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
DEC								
13...	1	4.9	33	28	44	0.10	8.2	156
MAR								
13...	3	3.6	34	20	120	0.10	3.5	260
APR								
14...	1	2.1	25	17	28	0.10	8.7	108
JUN								
30...	0.4	1.1	15	<1.0	3.6	0.10	5.1	--

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	161.3	248	137	60	46	20	15	6.4	48
NOV.	1988	74.5	415	224	45	85	17	20	4.0	70
DEC.	1988	416.7	372	202	227	75	85	19	21	64
JAN.	1989	1779.8	235	130	624	44	210	14	68	45
FEB.	1989	377.4	328	179	183	64	66	18	18	59
MAR.	1989	2922.0	254	139	1100	49	388	14	111	47
APR.	1989	1719	200	111	515	36	168	13	58	40
MAY	1989	111258	40	23	6770	6.6	1970	2.9	868	9
JUNE	1989	50247	58	33	4440	9.7	1310	4.2	563	13
JULY	1989	102030	69	39	10700	12	3170	4.9	1360	15
AUG.	1989	2875	179	99	772	32	247	12	89	36
SEPT	1989	444.1	229	126	152	42	51	14	16	44
TOTAL		274304.8	**	**	25600	**	7710	**	3180	**
WTD.AVG.		752	62	35	**	10	**	4.3	**	13

08041700 PINE ISLAND BAYOU NEAR SOUR LAKE, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	253	198	224	306	286	296	366	298	323	225	147	203
2	253	164	199	294	283	290	327	288	306	240	224	232
3	233	195	213	293	283	289	341	298	318	265	222	244
4	260	234	247	292	283	289	363	325	345	312	267	295
5	270	260	264	282	269	275	373	340	360	334	312	322
6	273	265	269	272	258	266	373	323	350	335	320	327
7	269	264	266	273	260	266	351	326	341	362	335	344
8	276	265	269	330	273	294	351	263	311	378	364	370
9	288	275	279	381	333	355	312	260	291	390	378	385
10	299	289	294	415	382	397	296	260	283	386	348	363
11	304	296	300	431	417	422	297	292	294	362	169	326
12	306	295	301	457	424	439	297	295	296	269	175	219
13	316	300	307	423	365	386	324	293	302	282	259	275
14	320	302	313	429	384	401	455	327	380	275	211	234
15	325	309	318	475	432	452	631	464	567	255	214	235
16	333	317	325	515	477	497	635	627	632	288	238	258
17	335	319	330	520	504	513	635	584	617	346	293	324
18	336	323	332	516	504	509	649	525	584	350	74	271
19	336	322	331	537	517	524	622	541	577	209	99	163
20	336	329	334	535	499	513	595	547	573	345	107	180
21	335	328	332	509	477	494	583	461	544	360	198	248
22	341	329	336	486	465	478	502	462	490	310	209	252
23	339	315	329	484	447	467	497	305	389	447	318	387
24	327	304	315	467	437	450	403	303	363	327	213	251
25	318	304	311	440	429	436	434	400	413	302	218	266
26	366	317	339	439	392	427	597	409	518	297	256	278
27	368	357	363	395	340	370	516	404	432	259	252	255
28	360	323	350	339	313	328	406	393	398	276	259	266
29	349	325	337	323	296	310	400	391	395	293	183	263
30	324	315	319	370	320	346	404	396	400	188	104	143
31	314	307	310	---	---	---	400	104	227	257	153	193
MONTH	368	164	302	537	258	393	649	104	407	447	74	270
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	280	240	255	478	455	464	219	206	216	207	193	200
2	261	243	251	484	465	471	203	185	193	223	195	207
3	287	243	258	501	465	491	181	150	159	232	116	207
4	312	281	296	717	503	589	192	155	176	232	119	189
5	335	296	312	644	491	569	168	154	158	181	154	165
6	326	296	312	559	528	536	169	155	162	199	160	175
7	336	326	329	535	511	525	180	168	174	198	175	182
8	356	338	346	511	488	499	209	181	190	188	177	181
9	369	350	357	511	493	504	---	---	200	210	178	189
10	393	370	382	567	491	525	---	---	215	328	212	261
11	427	394	408	565	538	554	---	---	215	390	331	369
12	444	425	434	538	499	520	---	---	220	364	316	339
13	480	426	451	505	492	500	---	---	220	314	274	294
14	565	484	525	492	432	457	---	---	215	273	201	225
15	487	294	374	472	425	449	206	189	200	258	214	227
16	374	287	319	---	---	457	263	206	242	267	185	216
17	449	376	414	---	---	465	268	257	263	188	181	185
18	462	443	451	---	---	485	264	241	254	181	63	111
19	466	424	444	---	---	495	269	197	254	65	18	48
20	423	392	410	---	---	465	296	200	235	85	18	37
21	417	357	375	394	174	341	333	246	283	29	22	25
22	443	359	399	190	152	175	411	212	302	29	18	22
23	467	448	461	229	174	196	208	178	190	37	18	25
24	469	366	421	505	233	279	194	163	174	53	41	49
25	408	364	382	553	244	333	175	162	164	53	49	50
26	434	409	416	404	284	360	203	173	186	61	53	56
27	454	431	440	278	214	236	201	192	197	67	61	63
28	461	443	451	260	216	238	226	196	208	75	67	70
29	---	---	---	251	80	123	204	199	202	83	75	79
30	---	---	---	211	129	159	233	190	201	97	83	90
31	---	---	---	234	217	225	---	---	---	110	97	104
MONTH	565	240	381	717	80	409	411	150	209	390	18	150

08041700 PINE ISLAND BAYOU NEAR SOUR LAKE, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	128	113	118	45	41	43	167	160	162	178	170	173
2	128	113	121	60	45	52	188	167	175	183	177	180
3	110	84	94	60	56	59	207	187	196	189	182	187
4	92	88	89	67	60	63	200	185	193	192	186	189
5	111	93	101	67	67	67	228	188	214	196	187	191
6	129	111	118	71	67	69	217	189	197	200	189	194
7	144	129	137	78	71	75	194	188	191	207	196	201
8	152	144	148	85	78	81	188	179	183	207	200	203
9	152	152	152	89	85	87	189	180	183	228	205	215
10	156	152	152	93	89	90	203	184	192	294	230	271
11	163	152	159	93	89	91	183	177	180	258	219	235
12	156	152	156	100	93	96	186	177	182	269	219	236
13	161	156	158	112	100	106	179	169	174	393	259	287
14	161	105	131	122	112	116	170	160	166	434	363	407
15	150	101	128	134	122	126	168	155	164	356	239	296
16	127	101	113	149	134	140	166	153	161	244	221	229
17	119	98	104	160	149	154	172	152	163	259	237	251
18	143	123	136	164	160	162	167	156	161	249	224	232
19	143	139	141	164	164	164	165	156	159	339	253	305
20	147	139	143	170	164	166	164	155	158	337	310	322
21	162	143	154	174	167	169	160	157	158	---	---	335
22	176	162	168	174	170	171	164	159	161	---	---	350
23	177	166	172	170	167	168	169	163	167	---	---	370
24	173	166	168	170	167	167	171	164	168	235	222	227
25	177	140	166	178	170	175	181	160	172	222	176	207
26	155	81	126	189	89	153	188	167	180	170	99	136
27	136	44	73	145	93	118	169	159	163	202	95	118
28	45	37	38	149	134	140	171	169	170	214	205	211
29	48	37	41	152	137	139	171	167	169	213	102	148
30	48	45	47	170	152	162	173	167	170	106	102	104
31	---	---	---	174	160	165	176	170	172	---	---	---
MONTH	177	37	125	189	41	120	228	152	174	434	95	234

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	26.5	23.0	24.5	19.5	17.0	18.0	12.0	8.5	10.0	16.0	12.5	14.0
2	26.5	22.0	24.0	19.0	16.0	17.5	12.0	7.5	10.0	20.5	13.5	17.0
3	24.5	21.0	22.5	20.5	17.5	19.0	13.0	8.5	10.5	---	---	---
4	23.5	20.0	21.0	23.0	19.5	21.0	13.5	8.5	11.0	---	---	---
5	21.5	19.5	20.5	20.5	17.5	19.0	12.0	9.0	10.5	---	---	---
6	21.5	19.0	20.0	18.5	15.5	16.5	12.0	7.0	9.5	---	---	---
7	21.0	17.5	19.0	19.5	16.0	17.5	15.5	11.5	13.0	---	---	---
8	21.0	18.0	19.5	22.0	19.0	20.0	14.5	13.5	14.0	---	---	---
9	22.5	18.0	20.0	22.5	20.5	21.5	14.5	11.5	13.0	---	---	---
10	23.5	19.5	21.0	23.5	21.5	22.0	11.5	10.0	10.5	---	---	---
11	22.5	17.5	20.0	22.5	20.5	21.5	10.5	10.0	10.0	---	---	---
12	22.5	18.0	19.5	23.5	21.0	22.0	10.5	9.0	10.0	---	---	---
13	21.5	16.5	18.0	22.0	18.5	20.5	---	---	---	---	---	---
14	20.5	15.5	17.5	23.0	21.0	22.0	---	---	---	---	---	---
15	21.0	16.0	18.5	23.0	22.0	22.5	---	---	---	---	---	---
16	23.0	17.5	20.0	22.5	19.0	21.5	---	---	---	---	---	---
17	24.0	19.0	21.0	19.0	16.0	17.5	---	---	---	---	---	---
18	25.0	20.0	22.0	19.5	16.5	18.0	---	---	---	---	---	---
19	25.0	20.5	22.5	22.0	19.5	20.5	---	---	---	14.0	13.0	13.5
20	24.5	21.5	22.5	19.0	15.5	17.0	---	---	---	15.0	13.5	14.0
21	25.0	21.5	23.0	15.5	13.5	14.5	---	---	---	13.0	11.0	12.0
22	24.0	19.5	21.0	14.5	12.5	13.5	---	---	---	12.0	10.0	11.0
23	24.0	20.0	21.5	13.0	10.5	12.0	---	---	---	11.5	9.5	10.5
24	24.0	20.0	21.5	13.0	10.5	11.5	---	---	---	14.0	11.0	12.0
25	22.5	18.5	20.5	16.5	13.0	14.5	---	---	---	16.5	13.0	14.5
26	22.5	20.5	21.0	19.5	16.5	18.0	---	---	---	17.0	15.5	16.0
27	22.5	20.0	21.0	17.5	14.5	16.0	---	---	---	17.0	16.0	16.5
28	23.5	21.5	22.0	14.5	11.0	13.0	---	---	---	19.5	15.5	17.0
29	22.0	21.0	21.5	13.0	9.5	11.5	---	---	---	18.0	17.5	17.5
30	21.5	20.0	20.5	13.0	11.0	12.0	---	---	---	18.0	15.0	16.5
31	20.5	18.5	19.5	---	---	---	15.5	12.0	13.5	18.0	14.5	16.0
MONTH	26.5	15.5	21.0	23.5	9.5	17.5	15.5	7.0	11.0	20.5	9.5	14.5

08041700 PINE ISLAND BAYOU NEAR SOUR LAKE, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	19.5	16.5	18.0	16.0	14.5	15.0	21.0	19.0	20.0	26.5	21.5	23.5
2	21.0	19.0	20.0	16.0	13.5	14.5	20.5	19.5	20.0	26.5	22.0	24.0
3	21.0	12.0	17.0	18.0	16.0	17.0	21.5	20.0	20.5	26.0	19.5	22.5
4	11.5	7.5	9.0	19.0	16.0	18.5	22.5	21.0	21.5	22.0	19.5	21.0
5	7.5	6.0	6.5	16.0	11.5	13.5	22.0	20.0	21.0	23.5	17.5	21.5
6	6.0	4.5	5.5	11.5	9.5	10.0	21.5	19.0	20.5	24.0	21.0	22.5
7	4.5	3.5	4.0	10.5	8.0	9.5	21.0	19.0	20.0	23.5	22.0	22.5
8	6.0	3.5	5.0	11.0	8.0	9.5	22.0	20.0	21.0	25.0	20.0	22.5
9	8.0	5.5	7.0	12.5	9.0	11.0	---	---	---	24.5	21.0	23.5
10	9.0	7.0	8.0	14.5	11.0	12.5	---	---	---	24.5	21.0	24.0
11	10.5	9.0	10.0	16.5	13.0	14.5	---	---	---	24.0	22.0	23.0
12	14.5	10.5	12.5	19.0	15.5	17.0	---	---	---	22.0	19.0	21.0
13	17.5	14.5	16.0	20.0	18.0	19.0	---	---	---	26.0	20.5	23.0
14	20.0	17.5	18.5	22.0	19.0	20.5	---	---	---	---	---	---
15	22.0	20.0	21.0	22.5	20.5	21.5	20.5	16.5	18.0	---	---	---
16	22.0	18.0	20.0	22.5	20.0	21.5	21.5	17.5	19.0	---	---	---
17	18.0	15.0	16.0	24.0	20.5	22.0	23.0	19.0	21.0	---	---	---
18	14.5	12.5	13.5	24.5	21.0	22.5	25.5	21.0	23.0	---	---	---
19	13.5	12.0	12.5	23.0	20.5	22.0	26.5	23.0	24.5	22.0	21.0	21.0
20	17.0	13.5	15.5	22.0	20.5	21.0	26.0	21.0	23.5	22.0	21.0	21.5
21	18.0	16.0	17.0	20.5	12.0	17.5	24.0	20.5	22.5	24.5	21.5	23.0
22	15.5	13.0	14.5	12.0	10.5	11.0	24.0	21.0	22.5	25.0	24.5	24.5
23	13.5	10.5	12.0	15.5	10.0	12.0	26.5	21.0	23.0	27.0	25.0	26.0
24	10.5	9.0	10.0	16.5	13.0	14.5	26.0	20.5	23.5	28.0	26.5	27.5
25	12.5	10.0	11.5	16.5	15.0	15.5	28.0	22.5	25.0	28.5	27.5	28.0
26	15.5	12.0	13.5	17.5	16.0	16.5	28.5	23.0	25.5	29.0	28.5	28.5
27	18.0	14.5	16.5	20.5	17.5	19.0	27.0	23.5	25.5	29.5	28.5	29.0
28	17.0	16.0	16.5	21.0	20.0	20.5	26.5	24.0	25.5	29.0	27.5	28.5
29	---	---	---	23.0	19.0	21.0	27.5	23.5	25.5	29.0	28.0	28.5
30	---	---	---	23.0	20.0	21.5	27.5	22.5	24.5	29.0	28.5	28.5
31	---	---	---	22.5	20.0	21.0	---	---	---	29.5	28.0	29.0
MONTH	22.0	3.5	13.0	24.5	8.0	17.0	28.5	16.5	22.5	29.5	17.5	24.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	29.0	29.0	29.0	---	---	---	---	---	---	30.0	28.0	29.5
2	29.0	28.0	28.5	---	---	---	---	---	---	---	---	---
3	29.0	28.0	28.5	---	---	---	---	---	---	---	---	---
4	30.0	29.0	29.5	---	---	---	---	---	---	---	---	---
5	30.0	28.5	29.5	---	---	---	---	---	---	---	---	---
6	30.0	29.0	29.5	---	---	---	---	---	---	---	---	---
7	30.5	30.0	30.0	---	---	---	---	---	---	---	---	---
8	30.5	29.5	30.0	---	---	---	---	---	---	---	---	---
9	31.0	27.5	30.0	---	---	---	---	---	---	---	---	---
10	31.5	29.5	30.5	---	---	---	---	---	---	---	---	---
11	32.0	30.0	31.0	---	---	---	---	---	---	---	---	---
12	33.0	31.0	32.0	---	---	---	---	---	---	---	---	---
13	33.0	31.5	32.0	---	---	---	---	---	---	---	---	---
14	32.5	27.5	29.0	---	---	---	---	---	---	---	---	---
15	28.5	27.0	27.5	---	---	---	---	---	---	---	---	---
16	28.0	27.0	28.0	---	---	---	---	---	---	---	---	---
17	29.0	27.5	28.0	---	---	---	---	---	---	---	---	---
18	30.5	28.5	29.0	---	---	---	---	---	---	---	---	---
19	32.0	30.0	30.5	---	---	---	30.0	27.0	28.5	---	---	---
20	33.0	31.5	32.0	---	---	---	30.5	27.5	28.5	---	---	---
21	33.5	31.5	33.0	---	---	---	30.5	27.5	29.0	---	---	---
22	33.5	31.0	32.0	---	---	---	30.0	27.5	28.5	---	---	---
23	33.5	31.5	32.0	---	---	---	29.0	26.5	27.5	---	---	---
24	---	---	---	---	---	---	28.5	27.5	28.0	---	---	---
25	31.5	30.5	31.0	---	---	---	29.0	26.5	27.5	---	---	---
26	---	---	---	---	---	---	29.5	27.0	28.0	---	---	---
27	---	---	---	---	---	---	29.5	27.5	28.5	---	---	---
28	---	---	---	---	---	---	30.0	27.5	29.0	---	---	---
29	---	---	---	---	---	---	30.0	28.5	29.0	---	---	---
30	---	---	---	---	---	---	29.0	27.5	28.5	---	---	---
31	---	---	---	---	---	---	29.5	27.5	28.5	---	---	---
MONTH	33.5	27.0	30.0	---	---	---	30.5	26.5	28.5	30.0	28.0	29.5

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.--Records good. Prior to October 1984 records were computed using fall as a factor. Low flow is regulated by drainage from ricefields and operation of saltwater gates and barge locks. An unknown amount of water is diverted above and below gage for rice irrigation.

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, 10.14 ft June 27 at 2100 to 2300 hours and June 29 at 1600 to 1900 hours; minimum gage height, 5.11 ft Mar. 10.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.52	6.20	5.76	6.70	6.62	5.88	6.30	6.35	6.30	---	---	6.40
2	6.69	6.16	5.63	6.47	6.46	6.06	6.32	6.35	6.49	---	---	6.38
3	6.34	6.15	5.58	6.28	6.37	6.19	6.34	6.53	6.37	---	---	6.14
4	6.39	6.16	5.51	6.21	6.39	6.31	6.36	6.65	6.49	---	---	6.20
5	6.40	6.16	5.40	6.29	6.39	6.32	6.35	6.57	6.43	---	---	6.32
6	6.44	6.05	5.57	6.35	6.40	5.88	6.31	6.55	6.28	---	---	6.40
7	6.43	5.97	5.60	6.35	6.40	5.40	6.25	6.33	6.28	---	---	6.40
8	6.42	5.92	5.65	6.39	6.42	5.37	6.20	6.35	6.30	---	---	---
9	6.42	5.88	5.68	6.67	6.40	5.30	6.15	6.36	6.28	---	---	---
10	6.42	5.89	5.72	6.46	6.40	5.37	6.09	6.36	6.17	---	---	---
11	6.05	5.97	5.90	6.47	6.36	5.40	5.95	6.32	6.12	---	---	---
12	6.07	6.00	5.96	6.57	6.38	5.60	5.85	---	6.17	---	---	---
13	6.07	6.10	5.97	6.53	6.40	5.74	5.86	---	6.20	---	---	---
14	6.10	6.09	5.95	6.18	6.40	5.75	6.15	---	6.45	---	---	---
15	6.16	6.08	5.90	6.29	6.25	5.89	6.19	---	6.34	---	---	---
16	6.24	6.13	5.92	6.37	6.26	5.89	6.20	6.42	6.36	---	6.22	---
17	6.25	6.10	5.86	6.39	5.90	5.86	6.20	6.47	6.16	---	6.40	---
18	6.28	6.05	5.76	6.71	5.95	5.84	6.19	8.05	6.24	---	6.42	---
19	6.24	6.09	5.73	6.97	6.00	5.83	6.19	8.32	6.25	---	6.43	---
20	6.23	6.12	5.73	7.05	6.12	5.86	6.19	8.22	6.25	---	6.43	---
21	6.23	6.02	5.75	6.79	6.18	6.07	6.16	7.59	6.23	---	6.14	---
22	6.22	5.93	5.83	6.70	6.17	6.46	6.12	7.46	6.22	---	6.27	---
23	6.33	5.92	6.25	6.77	6.03	6.43	6.09	7.06	6.49	---	6.35	---
24	6.38	5.90	6.38	6.40	5.88	6.13	6.09	6.83	6.91	---	6.45	---
25	6.39	5.88	6.44	6.50	5.85	6.18	6.09	6.63	7.34	---	---	---
26	6.49	5.93	6.44	6.30	5.85	6.24	6.09	6.53	8.50	---	---	---
27	6.34	5.98	6.51	6.37	5.84	6.31	6.05	6.49	10.14	---	---	---
28	6.39	5.93	6.83	6.44	5.89	6.32	6.02	6.43	10.13	---	6.42	---
29	6.32	5.88	6.43	6.48	---	6.70	6.05	6.22	10.14	---	6.45	---
30	6.30	5.81	6.32	6.76	---	6.70	6.31	6.11	---	---	6.49	---
31	6.25	---	6.53	6.87	---	6.48	---	6.18	---	---	6.49	---
MAX	6.69	6.20	6.83	7.05	6.62	6.70	6.36	---	---	---	---	---

CAL YR 1988 MAX --
WTR YR 1989 MAX --

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 good. Prior to October 1984, records were computed using fall as a factor. Low flow is regulated by drainage from ricefields and operation of saltwater gates and barge locks. An unknown amount of water is diverted above and below gage for 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, 10.60 ft June 27 at 2000 to 2200 hours; minimum gage height, 5.05 ft Mar. 10.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.53	6.18	5.71	6.68	6.47	---	6.48	6.36	6.48	10.04	---	6.40
2	6.65	6.14	5.60	6.51	6.46	---	6.48	6.37	6.60	9.62	---	6.38
3	6.30	6.19	5.54	6.31	6.41	---	6.48	6.56	6.44	8.80	---	6.09
4	6.35	6.23	5.50	6.25	---	---	6.49	6.70	6.54	8.14	---	6.16
5	6.39	6.19	5.39	6.36	---	---	6.44	6.56	6.38	7.80	---	6.28
6	6.40	6.04	5.61	6.38	---	---	6.42	6.53	6.33	7.61	---	6.38
7	6.40	5.96	5.57	6.39	---	---	6.41	6.37	6.33	7.46	---	6.40
8	6.39	5.94	5.64	6.39	---	---	6.38	6.42	6.34	7.28	---	6.47
9	6.40	5.89	5.65	6.69	---	---	6.36	6.47	6.24	7.27	---	6.48
10	6.40	5.91	5.78	6.47	---	---	6.24	6.44	6.10	7.45	---	6.29
11	6.00	5.96	5.91	6.53	---	---	6.18	6.36	6.17	7.51	---	6.49
12	6.03	6.04	5.96	6.66	---	---	6.14	6.30	6.25	7.10	---	6.45
13	6.02	6.07	5.95	6.52	---	5.89	6.09	6.37	6.25	6.89	---	6.60
14	6.06	6.07	5.95	6.18	---	5.85	6.17	6.47	6.50	6.64	---	6.59
15	6.13	6.17	5.90	6.32	---	5.91	6.21	6.43	6.33	---	---	6.34
16	6.18	6.14	5.81	6.37	---	5.90	6.23	6.46	6.36	---	---	6.32
17	6.22	6.07	5.73	6.40	---	5.87	6.24	6.55	6.19	---	---	6.16
18	6.22	6.13	5.73	6.83	---	5.87	6.24	8.62	6.29	---	6.45	6.22
19	6.19	6.20	5.75	6.90	---	5.86	6.23	8.62	6.30	---	6.45	6.23
20	6.23	6.14	5.75	6.98	---	5.93	6.22	7.92	6.28	---	6.46	6.26
21	6.19	6.02	5.81	6.42	---	6.13	6.18	7.52	6.25	---	6.17	6.28
22	6.19	5.91	5.86	6.21	---	6.49	6.15	6.87	6.24	---	6.29	6.27
23	6.33	5.86	6.34	6.75	---	6.37	6.16	6.64	6.54	---	6.39	6.22
24	6.33	5.81	6.43	6.42	---	6.16	6.17	6.51	6.90	---	6.48	6.02
25	6.38	5.94	6.44	6.48	---	6.21	6.16	6.49	7.25	---	6.25	5.95
26	6.42	6.02	6.45	6.32	---	6.29	6.15	6.51	7.92	---	6.43	6.00
27	6.29	5.98	6.89	6.37	---	6.38	6.10	6.51	10.60	---	6.47	6.05
28	6.32	5.90	6.95	6.47	---	6.41	6.07	6.31	10.58	---	6.45	6.08
29	6.30	5.81	6.45	6.51	---	6.61	6.12	6.03	9.75	---	6.47	6.12
30	6.26	5.79	6.35	6.50	---	6.59	6.33	6.22	10.09	---	6.50	6.15
31	6.23	---	6.65	6.53	---	6.50	---	6.30	---	---	6.49	---
MAX	6.65	6.23	6.95	6.98	---	---	6.49	8.62	10.60	---	---	6.60

CAL YR 1988 MAX --
WTR YR 1989 MAX --

08042800 WEST FORK TRINITY RIVER NEAR JACKSBORO, TX

LOCATION.--Lat 33°17'36", long 98°04'43", Jack County, Hydrologic Unit 12030101, near left bank 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 dewtention capacity of 19,780 acre-ft. Gage-height telemeter at station via data-collection platform installed April 1987.

AVERAGE DISCHARGE.--33 years (water years 1957-89), 107 ft³/s (2.13 in/yr), 77,520 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)
May 6	0140	1,630	17.63	June 5	1430	6,640	22.72
May 10	0935	1,750	18.11	June 7	1930	6,430	22.63
May 17	unknown	*33,300	*31.52	June 13	2330	5,460	22.08
May 28	1200	3,930	20.60	Sept. 16	2200	1,390	16.36
May 30	0600	2,680	19.47				

Minimum discharge, no flow for several 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	.62	.00	.13	.27	.23	3.8	1.0	.00	597	85	32	.32
2	.54	.00	.11	.23	e.19	3.0	.99	.00	303	81	33	.32
3	.39	.00	.08	.19	e.16	3.0	.80	.00	280	80	33	.32
4	3.2	.00	.06	.14	e.15	e3.2	.54	261	924	77	31	.27
5	3.5	.00	.04	.12	e.15	e3.5	.36	1220	5250	73	30	.21
6	2.9	.00	.04	.08	e.15	e3.8	.25	1430	4600	71	29	.18
7	2.0	.00	.07	.06	.14	e4.2	.19	1260	5090	69	374	.16
8	1.4	.00	.12	.05	.12	16	.17	1330	4530	66	916	.16
9	.99	.00	.17	.05	.09	130	.14	1270	3430	54	925	.13
10	.67	.00	.66	.04	.08	137	.11	1700	2200	47	953	.13
11	.47	.00	1.4	.04	.07	51	.08	1470	2050	45	436	3.7
12	.33	.00	.90	.03	.07	19	.05	651	1870	43	71	37
13	.22	.00	.64	.02	.07	12	.06	136	3710	42	46	434
14	.17	8.6	6.7	.02	.07	7.7	.30	72	4810	49	36	841
15	.12	56	23	.02	2.0	5.2	.27	55	4100	49	43	955
16	.08	20	7.9	.02	2.6	3.4	.21	e3080	2500	45	67	1290
17	.05	6.2	4.6	.01	310	2.4	.14	e29100	1590	42	31	1310
18	.03	4.1	3.4	.01	619	1.8	.11	e27700	774	39	23	820
19	.02	3.6	2.5	.01	714	1.3	.09	e10300	268	38	e17	72
20	.01	2.5	1.9	.01	625	1.1	.03	3070	230	37	e9.4	19
21	.00	1.6	1.3	.00	317	1.1	e.03	1830	207	36	e5.7	10
22	.00	1.2	1.0	.00	66	.90	e.02	985	189	36	e4.2	6.0
23	.00	.87	.83	.00	23	.67	e.01	228	177	39	e3.0	4.0
24	.00	.67	.69	.00	14	.53	e.00	168	173	42	e2.0	3.4
25	.00	.55	.48	.00	9.8	.44	e.00	139	167	35	e1.3	2.7
26	.00	.48	.41	.00	7.4	.38	.00	104	162	35	.97	2.1
27	.00	.35	.41	.00	6.0	.30	.00	536	155	35	.65	1.8
28	.00	.26	.41	.90	4.8	1.0	.00	2740	136	34	.50	1.5
29	.00	.20	.38	.74	---	1.1	.00	2130	110	34	.42	1.3
30	.00	.14	.36	.35	---	.67	.00	2450	95	33	.43	1.2
31	.00	---	.34	.32	---	.40	---	1510	---	32	.37	---
TOTAL	17.71	107.32	61.03	3.73	2722.34	419.89	5.95	96925.00	50677	1523	4154.94	5817.90
MEAN	.57	3.58	1.97	.12	97.2	13.5	.20	3127	1689	49.1	134	194
MAX	3.5	56	23	.90	714	137	1.0	29100	5250	85	953	1310
MIN	.00	.00	.04	.00	.07	.30	.00	.00	95	32	.37	.13
AC-FT	35	213	121	7.4	5400	833	12	192300	100500	3020	8240	11540
CFSM	.00	.01	.00	.00	.14	.02	.00	4.58	2.47	.07	.20	.28
IN.	.00	.01	.00	.00	.15	.02	.00	5.28	2.76	.08	.23	.32

CAL YR 1988 TOTAL 3702.05 MEAN 10.1 MAX 419 MIN .00 AC-FT 7340 CFSM .01 IN. .20
WTR YR 1989 TOTAL 162435.81 MEAN 445 MAX 29100 MIN .00 AC-FT 322200 CFSM .65 IN. 8.85

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.--New capacity table was provided by Tarrant County Water Control and Improvement District No. 1 on Aug. 25, 1989. It was used for the entire 1989 water year and designated No. 5-C.

EXTREMES FOR PERIOD OF RECORD.--Prior to Jan. 12, 1988, once-daily reading of nonrecording gage at 0700 hours; maximum contents observed, 424,700 acre-ft May 15, 1982 (elevation, 838.84 ft); minimum contents observed since first appreciable storage in 1935, 7,170 acre-ft Oct. 12-16, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 422,300 acre-ft June 8 at 1700 hrs (elevation, 839.55 ft); minimum, 207,600 acre-ft Jan. 23 (elevation, 820.62 ft).

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

820.0	202,200	829.0	291,000	838.0	401,200
823.0	229,500	832.0	325,300	841.0	442,600
826.0	259,000	835.0	362,000		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	246200	227500	215400	209200	209400	226400	230900	229000	375800	375800	373300	372500
2	245900	227100	215100	209100	209400	226400	231300	228800	374800	375800	372800	372200
3	245300	226800	215000	209100	208800	227000	231200	229500	374700	375800	372700	371900
4	244400	226000	214700	209000	208600	226600	230800	233900	390700	375800	372700	371600
5	243600	225300	214400	209000	208400	226800	230700	247900	392900	376000	372600	371300
6	242900	224600	214000	209100	208400	226800	230700	251800	397000	376000	372500	370800
7	242200	224200	214000	208800	208500	226900	230700	265700	419300	375700	374800	370400
8	241500	223600	213700	208500	208400	227100	230300	269400	420800	375800	376100	369900
9	241000	223200	213500	208400	208400	228000	229800	272200	412500	375700	377800	369300
10	240400	222600	213700	208400	208400	228800	229400	274600	404300	375400	378700	368800
11	239500	221900	213700	208400	208500	229400	229400	277600	395400	375400	379400	369800
12	238800	222200	213600	208200	208500	229600	229200	279900	393300	375400	378600	369300
13	238000	221800	213400	208100	208500	229800	229600	280300	411800	375000	377700	371900
14	237200	221600	213200	208100	208400	229900	229700	280600	416500	376100	376400	373100
15	236600	220900	212600	208000	209500	229600	229900	281000	416800	376600	377000	374800
16	236100	220400	212400	208000	210400	229700	230000	290600	413600	376700	376700	377100
17	235500	219800	212300	208000	218900	230000	230100	322700	406400	376500	376500	379200
18	234800	219500	212100	208200	221500	229600	230300	379500	398000	376200	376500	380000
19	234000	219500	212000	208100	223100	229600	230100	408600	390300	375900	376200	378600
20	233400	219200	211600	207900	224800	229400	230200	409000	383200	375500	375800	377300
21	232900	218900	211500	207800	225600	229200	230300	398000	376900	375300	375400	376400
22	232400	218400	211500	207700	225800	229200	230000	390000	374500	375200	375200	374800
23	231700	218200	211300	207800	226000	229200	230000	383500	371700	374700	375200	373400
24	231100	217900	211000	207900	226100	229500	229800	378200	371700	374500	374800	373300
25	230800	217600	210600	208300	226400	229600	229700	376400	371700	374000	374400	373100
26	230400	217200	210800	208200	226600	229700	229800	375100	371700	373800	374200	372900
27	230200	216800	210400	208300	226300	229900	229600	380400	371700	373800	373900	372800
28	229300	216200	209700	209200	226300	231000	229600	380800	371700	374000	373600	372600
29	228700	216000	209200	209300	---	231300	229200	379500	375700	373800	373500	372500
30	228000	215700	208900	209400	---	231000	229100	378700	375600	373800	373000	372500
31	227800	---	209100	209700	---	231000	---	378300	---	373700	372800	---
MAX	246200	227500	215400	209700	226600	231300	231300	409000	420800	376700	379400	380000
MIN	227800	215700	208900	207700	208400	226400	229100	228800	371700	373700	372500	368800
(†)	822.82	821.52	820.78	820.85	822.66	823.16	822.96	836.27	836.06	835.91	835.84	835.82
(ϕ)	-30700	-12100	-6600	+600	+16600	+4700	-1900	+149200	-2700	-1900	-900	-300

CAL YR 1988 MAX 315800 MIN 208900 (ϕ) -106200
WTR YR 1989 MAX 420800 MIN 207700 (ϕ) +114000

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

08043100 WEST FORK TRINITY RIVER AT BRIDGEPORT, TX

LOCATION.--Lat 33°12'07", long 97°48'09", Wise County, Hydrologic Unit 12030101, on left bank at downstream side of embankment near left end of bridge on U.S. Highway 380, 1.5 mi upstream from Village Creek, 1.8 mi upstream from Ramsey Creek, 2.6 mi west of City Hall in Bridgeport, and 2.9 mi downstream from Bridgeport Dam.

DRAINAGE AREA.--1,113 mi².

PERIOD OF RECORD.--September 1984 to September 1989 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 725.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow is regulated by Bridgeport Reservoir located 2.9 mi upstream and has a capacity of 902,000 acre-ft, 515,000 acre-ft is for temporary storage.

AVERAGE DISCHARGE.--5 years (water year 1985-89), 171 ft³/s (123,900 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,460 ft³/s May 21, 1989 (gage height 32.27 ft); no flow in 1985, 1988, and 1989.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,460 ft³/s May 21 at 1615 hours (gage height 32.27 ft); no flow Apr. 7.

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	4.6	241	106	e20	e7.0	2.9	3.0	3.4	2050	31	20	4.1
2	32	242	105	e5.0	e5.0	3.0	3.1	3.6	881	30	20	4.1
3	240	231	105	e4.0	e4.0	3.1	3.0	7.0	363	29	20	4.1
4	243	218	106	e3.5	e3.5	3.1	2.8	17	843	28	21	4.1
5	245	226	105	e3.0	e3.0	3.4	2.8	9.6	1530	28	19	4.1
6	247	229	105	e2.5	e3.5	3.6	2.0	2.4	3390	27	19	4.1
7	248	229	108	e2.5	e2.8	3.7	3.6	11	4490	27	23	4.1
8	249	229	106	e2.5	e3.0	4.5	2.7	1.8	5280	27	19	26
9	249	209	106	e2.5	e3.0	4.3	2.4	2.5	5410	26	20	88
10	251	188	108	e2.5	e3.0	3.9	2.3	2.6	5410	26	222	88
11	254	190	108	e3.0	e3.0	3.7	2.4	2.5	5400	26	593	92
12	258	197	106	e3.0	e3.1	3.5	2.5	3.0	5230	25	589	88
13	260	194	105	e3.0	e3.1	3.6	2.9	3.4	5010	25	590	53
14	265	194	103	e3.0	e3.1	3.6	3.3	3.3	5000	35	593	4.7
15	270	197	104	e3.0	e9.1	3.4	2.6	3.2	5000	26	304	4.2
16	271	201	102	e3.0	4.3	3.4	2.6	30	5020	24	89	4.4
17	254	198	102	e3.0	79	3.4	2.6	130	5200	24	88	187
18	240	196	102	e3.0	7.0	3.4	2.5	1030	5200	23	88	660
19	243	195	102	e3.0	3.4	3.5	2.5	5140	4890	23	88	931
20	246	195	103	e3.0	5.0	3.5	2.5	5400	3620	23	87	672
21	247	193	103	e2.5	5.9	3.5	2.6	5420	2300	23	87	543
22	248	192	103	e2.5	5.6	3.6	2.7	5190	964	23	49	547
23	253	192	e103	e2.5	5.4	3.7	2.4	4370	926	23	12	230
24	250	192	e103	e2.5	5.1	2.1	2.4	3070	940	18	37	2.2
25	241	190	e103	e10	4.9	.07	3.4	1180	400	21	6.2	1.8
26	247	191	e103	e25	5.1	.03	3.3	551	58	19	5.8	1.7
27	245	158	e103	e15	2.9	.06	3.3	275	44	23	5.4	1.5
28	247	102	e190	e100	2.9	8.4	3.5	1830	38	21	5.0	1.5
29	245	103	e200	e200	---	3.2	3.4	2980	33	20	4.6	1.4
30	243	105	e200	e60	---	2.6	3.3	2570	32	20	4.1	1.4
31	243	---	e70	e20	---	2.8	---	2090	---	20	4.0	---
TOTAL	7278.6	5817	3478	518.0	195.7	100.56	84.4	41332.3	84952	764	3732.1	4258.5
MEAN	235	194	112	16.7	6.99	3.24	2.81	1333	2832	24.6	120	142
MAX	271	242	200	200	79	8.4	3.6	5420	5410	35	593	931
MIN	4.6	102	70	2.5	2.8	.03	2.0	1.8	32	18	4.0	1.4
AC-FT	14440	11540	6900	1030	388	199	167	81980	168500	1520	7400	8450

CAL YR 1988 TOTAL 38568.76 MEAN 105 MAX 359 MIN .00 AC-FT 76500
WTR YR 1989 TOTAL 152511.16 MEAN 418 MAX 5420 MIN .03 AC-FT 302500

e Estimated.

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, streamflow 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.--53 years, 74.8 ft³/s (54,190 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, 15,300 ft³/s May 16 at 2345 hours (gage height, 14.49 ft); 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	.00	.13	3.9	11	38	31	3.8	580	83	5.5	.24
2	.00	.00	.02	3.8	8.0	36	28	4.0	e480	78	5.0	.19
3	.00	.00	.01	3.5	7.1	37	25	286	e425	75	4.7	.13
4	.00	.00	.01	3.2	9.6	37	22	394	e608	69	4.8	.11
5	.00	.00	.01	2.7	6.0	40	17	281	1630	65	3.5	.06
6	.00	.00	.03	2.7	5.6	56	16	102	1450	60	2.6	.02
7	.00	.00	.14	3.0	5.8	44	16	56	2550	57	3.3	.01
8	.00	.00	.32	3.0	5.8	51	15	97	4430	55	2.7	.0
9	.00	.00	1.5	2.7	6.0	142	14	49	2350	53	2.3	.00
10	.00	.00	2.9	2.4	6.3	171	12	27	1540	49	2.8	.00
11	.00	.00	36	2.4	6.7	e110	11	18	1920	44	2.3	.34
12	.00	.00	41	2.8	6.9	e81	11	15	2150	41	1.6	.79
13	.00	.00	16	3.0	6.9	e64	12	19	4580	38	1.4	52
14	.00	.00	7.5	3.0	6.8	e54	22	21	3850	60	1.5	99
15	.00	.00	4.2	3.1	41	e49	26	16	1970	89	1.9	39
16	.00	.00	2.5	3.2	79	45	18	1850	1340	57	2.0	11
17	.00	.00	2.0	3.4	641	42	15	10500	1110	44	1.9	4.3
18	.00	.00	1.7	3.4	1580	e39	13	5160	959	39	15	1.9
19	.00	.00	1.8	3.5	1040	e37	12	3300	799	33	6.8	1.0
20	.00	30	1.8	3.6	206	35	11	2120	624	28	2.2	.71
21	.00	31	1.6	3.2	107	e32	9.6	1590	513	24	1.5	.53
22	.00	5.7	3.0	3.0	73	31	9.4	e1310	411	21	1.2	1.3
23	.00	1.6	32	3.0	59	30	8.4	e1160	328	19	.76	.51
24	.00	.57	9.8	3.0	52	25	7.6	e1060	230	16	.48	.19
25	.00	.25	5.0	4.7	48	21	7.0	e983	142	13	.46	.20
26	.00	3.8	3.1	15	47	21	6.5	e933	126	13	.82	.27
27	.00	6.6	3.7	13	44	20	6.0	e887	112	12	.14	.18
28	.00	2.6	8.6	72	41	48	5.9	e1110	102	12	3.7	.05
29	.00	.93	6.2	69	---	133	5.3	e1350	94	11	1.8	.56
30	.00	.30	4.5	30	---	63	4.3	e955	88	9.0	.56	.20
31	.00	---	4.2	14	---	39	---	722	---	7.2	.35	---
TOTAL	0.00	83.35	201.27	292.2	4156.5	1671	417.0	36378.8	37491	1274.2	85.57	214.79
MEAN	.00	2.78	6.49	9.43	148	53.9	13.9	1174	1250	41.1	2.76	7.16
MAX	.00	31	41	72	1580	171	31	10500	4580	89	15	99
MIN	.00	.00	.01	2.4	5.6	20	4.3	3.8	88	7.2	.14	.00
AC-FT	.0	165	399	580	8240	3310	827	72160	74360	2530	170	426

CAL YR 1988 TOTAL 3489.67 MEAN 9.53 MAX 303 MIN .00 AC-FT 6920
WTR YR 1989 TOTAL 82265.68 MEAN 225 MAX 10500 MIN .00 AC-FT 163200

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.--No estimated daily discharges. Records good. During the current year, sustained flows at this site were the result of releases of water for downstream supply from Bridgeport Reservoir 25 mi upstream from this station (drainage area, 1,111 mi²). 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.--42 years, 243 ft³/s (176,100 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, 16,800 ft³/s May 18 at 0400 hours and June 14 at 0600 hours; maximum gage height, 20.30 ft at 0600 hours June 14; minimum daily, 4.7 ft³/s Oct. 2.

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	5.1	237	116	30	34	55	62	18	2710	219	32	18
2	4.7	236	115	18	30	51	55	21	2490	204	30	14
3	57	236	115	16	25	50	53	214	1790	201	30	14
4	243	216	114	15	22	51	48	671	3930	181	27	13
5	261	210	113	14	20	54	41	971	4760	163	24	13
6	262	212	112	14	21	54	36	1070	2970	147	27	13
7	263	212	115	13	18	58	34	652	5720	132	184	13
8	265	209	119	13	20	86	33	489	8990	124	137	13
9	266	212	122	12	17	215	33	267	10800	121	43	18
10	265	186	130	11	17	297	31	144	10500	112	30	106
11	266	172	182	11	17	339	27	99	10400	100	251	132
12	268	193	177	11	18	195	29	72	11000	89	487	155
13	270	188	149	12	18	118	30	54	13600	82	497	233
14	273	178	127	12	19	85	46	54	15400	87	503	338
15	273	177	121	12	94	68	49	45	10000	228	508	161
16	272	178	118	12	199	58	43	223	7250	191	265	62
17	274	179	115	12	732	54	35	4790	6570	110	143	37
18	251	179	113	12	1220	53	32	13000	6460	87	136	248
19	239	182	113	12	1530	50	30	6800	6610	74	143	567
20	240	187	113	12	1190	49	28	6390	6260	61	133	653
21	241	204	113	12	442	48	30	7940	4910	56	127	583
22	241	192	115	11	207	46	26	9400	3230	51	125	516
23	241	183	133	11	133	45	24	8320	2010	57	82	489
24	241	180	135	11	100	45	23	6540	1530	52	30	192
25	240	251	119	24	83	43	22	5120	1350	45	46	40
26	258	397	115	69	73	40	22	3280	724	38	31	29
27	258	222	118	41	66	40	21	2220	409	38	20	25
28	242	170	213	173	61	220	20	2070	302	36	18	22
29	243	123	265	356	---	233	20	2100	261	36	18	21
30	239	119	265	104	---	218	19	2430	238	35	18	20
31	238	---	190	47	---	91	---	2720	---	38	16	---
TOTAL	7199.8	6020	4280	1133	6426	3109	1002	88184	163174	3195	4161	4758
MEAN	232	201	138	36.5	229	100	33.4	2845	5439	103	134	159
MAX	274	397	265	356	1530	339	62	13000	15400	228	508	653
MIN	4.7	119	112	11	17	40	19	18	238	35	16	13
AC-FT	14280	11940	8490	2250	12750	6170	1990	174900	323700	6340	8250	9440

CAL YR 1988 TOTAL 47793.3 MEAN 131 MAX 762 MIN 4.1 AC-FT 94800
WTR YR 1989 TOTAL 292641.8 MEAN 802 MAX 15400 MIN 4.7 AC-FT 580500

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, 214,200 acre-ft June 14 at 1630 hrs (elevation, 652.81 ft); minimum, 156,900 acre-ft Oct. 6 (elevation, 646.60 ft).

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

646.0	152,100	649.0	177,500	652.0	206,000
647.0	160,200	650.0	186,700	653.0	216,100
648.0	168,700	651.0	196,200		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	158500	159400	162100	164400	166700	179000	176200	176800	180600	179100	172400	169600
2	157800	159400	162100	164300	167400	178700	177000	176000	180700	180000	171800	169300
3	157200	159600	162100	164200	167200	179100	177200	177200	178700	179000	171300	168800
4	157100	159700	162100	163900	166900	179700	177100	180200	186100	178100	171000	168300
5	157100	159600	162000	163800	166800	178600	177000	184200	184900	178100	170700	168100
6	157100	159400	162000	163400	166700	177700	177000	178900	180700	177900	171300	167600
7	157300	159600	162500	163400	166500	177800	177000	177700	189000	177800	171500	167400
8	157300	159600	162900	163100	166700	178000	176900	178000	185800	177700	171400	167200
9	157500	159900	162700	162700	166500	178500	177000	177900	187900	177400	171000	167200
10	157500	159900	163200	162500	166400	178900	176500	177700	191300	176900	170600	167000
11	157700	159800	163400	162300	166400	179400	176400	177400	190300	176700	170400	167000
12	157700	160200	163400	162500	166500	179700	176400	177500	192000	176500	170800	166800
13	157700	160200	163400	162300	166500	179700	177300	177300	206500	176500	171400	168400
14	157800	160300	163800	162100	166400	179900	177200	177200	212500	176700	172000	168400
15	158000	160800	163800	162100	167800	179700	177300	176900	205300	176700	172700	168400
16	158100	160500	163500	161700	169200	179600	177200	184400	194700	176800	173300	168300
17	158100	160200	163500	161600	175600	179300	177500	183500	187400	176100	173500	168200
18	158600	160400	163300	161600	177500	179600	177700	183200	181900	176100	173500	167800
19	158400	161000	163400	161500	178600	179300	177700	178200	179000	176100	173200	168300
20	158600	160800	163400	161400	179700	179600	177700	179100	178000	175700	173200	169200
21	158600	160800	163300	161200	179500	179000	177400	179900	178000	175200	173000	169900
22	158600	160800	163700	160800	178600	178700	177100	184300	178000	175000	172600	170400
23	158800	160800	163600	160800	178100	178400	177200	187700	177300	174600	172300	170500
24	158800	160800	163600	160800	178400	178100	177100	187200	177500	174300	172200	170500
25	158800	161500	163500	162500	178700	178100	177000	184300	178000	174100	172000	170200
26	159200	162300	163500	162700	179000	178200	177000	181000	177800	174000	171700	169800
27	159400	162500	163900	162700	179000	178300	177000	178800	178000	173800	171400	169600
28	159200	162100	163800	165100	179100	180100	177000	177000	178400	173500	171100	169500
29	159300	162300	163900	166000	---	177500	177000	175800	178700	173300	170700	169200
30	159400	162200	164000	166500	---	178000	176800	176800	178900	172900	170300	168900
31	159500	---	164600	166500	---	177100	---	179200	---	172600	170000	---
MAX	159500	162500	164600	166500	179700	180100	177700	187700	212500	180000	173500	170500
MIN	157100	159400	162000	160800	166400	177100	176200	175800	177300	172600	170000	166800
(†)	646.91	647.24	647.52	647.74	649.18	648.96	648.92	649.19	649.16	648.45	648.15	648.02
(ϕ)	-10700	+2700	+2400	+1900	+12600	-2000	-300	+2400	-300	-6300	-2600	-1100

CAL YR 1988 MAX 190800 MIN 157100 (ϕ) -27500
WTR YR 1989 MAX 212500 MIN 157100 (ϕ) -1300

(†) 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, 53,900 acre-ft Oct. 15, 1981, at 0800 hours (elevation, 598.23 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, 52,120 acre-ft June 13 at 2200 hours (elevation, 597.82 ft); minimum, 29,510 acre-ft Oct. 25 (elevation, 591.65 ft).

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

591.0	27,600	594.0	37,070	598.0	52,890
592.0	30,540	596.0	44,520		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29870	30390	30070	31140	32900	36930	37790	35480	40530	36900	35210	32770
2	29860	30440	30040	31230	33150	36970	37500	35300	40820	36770	35010	32550
3	29890	30600	30070	31200	32650	37000	37290	35640	42100	37500	34700	32300
4	29890	30630	30040	31200	32550	37370	37040	40550	44140	37900	34640	32140
5	29800	30570	30050	31290	32360	37680	36900	43960	44400	37970	34500	31860
6	29780	30570	30020	31260	32240	37680	36810	42390	44400	37500	35060	31700
7	29780	30630	30130	31320	32080	37320	36800	40430	47370	37140	35210	31540
8	29750	30600	30300	31290	31980	37140	36660	39080	47290	36970	35170	31480
9	29780	30710	30190	31320	31860	36970	36590	38580	47250	36850	35080	31540
10	29780	30570	30420	31420	31830	36970	36430	38110	47860	36770	35040	31640
11	29750	30420	30420	31540	31890	36930	36360	37650	48680	36630	35040	32110
12	29720	30540	30420	31860	32110	37000	36330	37250	50140	36600	34970	32240
13	29690	e30480	30450	31860	32170	37000	37270	37350	51940	36560	34940	32650
14	29660	e30450	30480	31860	32240	37070	37500	37290	51170	36530	34870	32330
15	29660	30620	30480	31860	32650	36970	37300	37210	50440	36500	34840	32270
16	29690	30350	30420	31860	32990	36970	37180	40890	49320	36600	35010	32240
17	29630	e30270	30480	31860	35420	36970	37110	49360	47450	36600	35040	32170
18	29630	30250	30480	31830	36540	37000	37070	49020	46480	36530	35010	32080
19	29570	30480	30540	31860	37830	37000	36960	48390	45700	36430	34910	32050
20	29600	30260	30570	31730	38290	37030	36830	45250	44560	36390	34810	32080
21	29570	30250	30570	31700	38770	37110	36770	45170	43520	36220	34700	32200
22	29540	30220	30760	31700	38970	37290	36530	45290	43020	36060	34600	32200
23	29540	30220	30790	31700	38140	37210	36500	45380	42200	35920	34470	32270
24	29540	30190	30760	31670	37590	37180	36310	45420	40700	35840	34260	32360
25	29540	30280	30760	32490	37320	37040	36220	45380	39630	35680	34100	32460
26	29830	30300	30850	32430	37210	36970	36060	44890	39300	35620	33960	32460
27	e30070	30250	30980	32390	37000	37180	35890	43100	38990	35510	33720	32430
28	e30100	e30180	30950	33090	36970	43510	35720	41750	37920	35510	33530	32430
29	e30130	30160	30950	33180	---	41680	35600	41170	37320	35500	33370	32430
30	e30160	30040	31040	33120	---	39120	35490	40670	37040	35450	33180	32430
31	e30360	---	31140	33060	---	38550	---	40350	---	35380	32960	---
MAX	30360	30710	31140	33180	38970	43510	37790	49360	51940	37970	35210	32770
MIN	29540	30040	30020	31140	31830	36930	35490	35300	37040	35380	32960	31480
(†)	591.94	591.83	592.19	592.80	593.97	594.41	593.53	594.91	593.99	593.50	592.77	592.60
(ϕ)	+730	-320	+1100	+1920	+3910	+1580	-3060	+4860	-3310	-1660	-2420	-530

CAL YR 1988 MAX 37610 MIN 29390 (ϕ) -6790
WTR YR 1989 MAX 51940 MIN 29540 (ϕ) +2800

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

e Estimated

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.

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, 206,000 acre-ft June 15, 1989 (elevation, 716.62 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, 206,000 acre-ft June 15 at 0200 hours (elevation, 716.62 ft); minimum daily, 59,970 acre-ft Jan. 24 (elevation, 685.68 ft).

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

685.0	57,930	700.0	113,000	712.0	176,700
690.0	73,890	704.0	132,200	715.0	195,400
695.0	92,060	708.0	153,400	717.0	208,600

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62970	61570	60310	60340	61850	68820	89240	89930	164300	150200	88860	88670
2	62880	61540	60280	60340	61850	68890	89770	89700	161400	144900	88940	88550
3	62780	61480	60250	60310	61820	69020	90190	90190	160100	140600	88900	88440
4	62690	61410	60220	60280	61790	69150	90460	98710	164800	136100	88820	88360
5	62600	61320	60190	60280	61760	69180	90800	106200	167000	130700	88740	88210
6	62500	61260	60160	60280	61720	69220	91030	109400	168100	125000	88630	88020
7	62440	61200	60130	60220	61690	69320	91220	111500	170900	119400	89890	87800
8	62380	61170	60100	60220	61660	69410	91070	112800	174700	113800	90000	87540
9	62350	61100	60070	60190	61630	69540	90880	113100	175800	108300	90000	87320
10	62320	61040	60280	60160	61630	69640	90760	112200	176300	103500	89960	87170
11	62220	61010	60280	60160	61630	69710	90610	111000	179400	99640	89930	87730
12	62160	60980	60280	60160	61720	69780	90460	108600	188000	97160	89850	87730
13	62100	60890	60280	60130	61760	69810	91680	106100	200800	96070	89850	88140
14	61970	60890	60250	60130	61760	69910	93040	104100	205900	95320	89770	88170
15	61940	60860	60220	60100	62000	69910	93320	104400	202000	94690	89770	88140
16	61880	60800	60190	60100	62410	69940	93440	118600	197000	94020	89740	88100
17	61790	60770	60160	60100	65400	70040	93520	142400	192700	93240	89700	88060
18	61690	60740	60130	60100	66930	70040	93520	153300	189400	92420	89740	88020
19	61630	60770	60100	60070	67510	70100	93360	157100	186600	92870	89700	87910
20	61570	60710	60100	60040	67840	70100	93080	159700	184200	91490	89660	87760
21	61540	60680	60070	60010	68070	70270	92810	161700	182200	91110	89620	87620
22	61510	60650	60250	60010	68170	70300	92490	163200	180500	90760	89540	87390
23	61410	60580	60250	59980	68300	70330	92100	164500	179200	90420	89510	87130
24	61350	60560	60220	59970	68360	70360	91760	165700	178000	90080	89470	86980
25	61320	60520	60190	60430	68500	70430	91380	166500	177000	89660	89350	86830
26	61540	60560	60250	60520	68590	70460	91070	167100	174900	89320	89240	86680
27	61510	60520	60400	60650	68660	70600	90730	167700	171700	89120	89160	86500
28	61480	60500	60370	61440	68760	83720	90420	168100	167200	89090	89090	86350
29	61600	60460	60370	61760	---	86720	90040	168200	161500	89090	88970	86200
30	61600	60400	60340	61820	---	87880	89700	167900	155900	89050	88900	86090
31	61600	---	60340	61850	---	88710	---	166500	---	88940	88780	---
MAX	62970	61570	60400	61850	68760	88710	93520	168200	205900	150200	90000	88670
MIN	61320	60400	60070	59970	61630	68820	89240	89700	155900	88940	88630	86090
(†)	686.21	685.82	685.80	686.29	688.46	694.12	694.38	710.30	708.44	694.18	694.14	693.42
(ϕ)	-1370	-1200	-60	+1510	+6910	+19950	+990	+76800	-10600	-66960	-160	-2690

CAL YR 1988 MAX 76490 MIN 60070 (ϕ) -16080
WTR YR 1989 MAX 205900 MIN 59970 (ϕ) +23120

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

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.

PERIOD OF RECORD.--July 1947 to current year.
Water-quality records.--Chemical and biochemical analyses: October 1980 to September 1982.

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); 37 years (water years 1953-89) regulated, unadjusted, 71.8 ft³/s (52,020 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, 5,440 ft³/s June 15, 1989 (gage height, 13.22 ft).
Maximum stage since at least 1922, that of May 17, 1949.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,440 ft³/s June 15 at 0015 hours (gage height, 13.22 ft); minimum daily, 2.3 ft³/s Apr. 4.

REVISIONS.--Revised daily discharges, in feet cubed per second, for August and September 1988, are given below. These figures supersede those published in the report, Water Resources Data for Texas, Water Year 1988, Volume 1.

AUG 1	--	AUG 9	54	AUG 17	66	AUG 25	57
2	--	10	75	18	57	26	57
3	--	11	75	19	58	27	57
4	--	12	75	20	59	28	57
5	--	13	78	21	55	29	42
6	--	14	79	22	57	30	20
7	--	15	76	23	57	31	21
8	23	16	77	24	57		
SEPT 1	21	SEPT 9	19	SEPT 17	20	SEPT 25	18
2	20	10	20	18	21	26	16
3	20	11	20	19	21	27	17
4	20	12	21	20	20	28	18
5	19	13	21	21	20	29	24
6	20	14	21	22	19	30	25
7	20	15	21	23	18		
8	20	16	20	24	17		

MONTH	TOTAL	MEAN	MAX	MIN	AC-FT
AUG 1988	1612	52.0	79	20	3200
SEPT 1988	597	19.9	25	16	1180
WTR YR 1988	8343.3	22.8	102	1.9	16550

08047000 CLEAR FORK TRINITY RIVER NEAR BENBROOK, TX--Continued

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	25	5.3	6.5	6.8	7.2	7.2	3.8	223	1150	2850	17	18
2	25	5.7	6.7	7.2	7.7	7.7	4.0	228	1500	2830	18	18
3	25	6.0	6.8	6.7	7.6	7.4	3.6	173	761	2190	18	19
4	24	5.5	7.2	6.2	7.5	8.2	2.3	97	29	2120	17	18
5	22	6.1	7.1	6.8	7.2	6.8	2.4	53	9.3	2620	17	31
6	17	6.1	6.9	7.2	7.1	7.8	2.6	24	17	2730	18	57
7	12	5.4	6.9	7.1	7.1	7.6	51	28	55	2710	36	63
8	10	5.8	6.4	7.2	7.2	7.4	132	22	318	2690	18	63
9	10	5.9	6.3	7.1	7.0	7.5	132	369	530	2670	17	65
10	10	5.9	7.8	6.8	6.7	7.7	133	999	583	2270	16	65
11	9.6	5.5	6.6	6.7	6.5	7.9	133	1070	783	1770	16	51
12	7.9	6.2	6.5	7.0	7.0	7.6	134	1390	1740	1210	17	22
13	8.3	6.2	6.1	7.3	7.0	6.8	148	1610	3270	625	18	31
14	8.3	6.6	6.1	6.2	6.8	9.0	140	1230	5180	451	17	20
15	7.9	7.2	6.5	6.3	12	7.7	137	39	5060	439	18	17
16	7.5	7.9	6.2	6.5	14	8.1	137	111	4050	435	18	16
17	7.2	7.5	6.5	6.8	47	8.4	137	84	3230	431	18	16
18	7.2	7.5	7.4	6.3	11	9.5	137	26	2530	428	18	18
19	7.2	8.7	7.8	6.6	9.8	9.7	194	24	2030	274	17	45
20	7.2	7.9	6.8	7.2	8.6	9.7	253	23	1670	182	17	63
21	7.6	7.2	6.2	7.4	7.9	10	253	23	1410	181	17	54
22	7.5	6.8	7.9	7.6	7.4	10	253	22	1180	181	18	54
23	7.4	6.5	7.3	7.8	7.5	10	256	22	1010	180	18	53
24	7.0	6.6	7.4	7.8	7.5	9.2	255	23	889	178	17	53
25	6.6	6.9	7.2	37	7.5	9.0	255	24	789	178	17	54
26	7.9	7.3	7.4	15	7.9	10	237	24	1180	176	18	55
27	6.2	6.9	10	8.9	8.3	10	223	27	1610	113	19	55
28	6.1	6.9	7.0	31	7.1	108	223	41	2240	15	17	56
29	7.3	6.9	6.5	8.9	---	18	223	59	2890	15	17	57
30	5.9	6.9	6.7	7.3	---	12	223	298	2870	14	17	57
31	5.6	---	7.0	7.2	---	8.2	---	732	---	16	18	---
TOTAL	333.4	197.8	215.7	281.9	263.1	374.1	4417.7	9118	50563.3	33172	559	1264
MEAN	10.8	6.59	6.96	9.09	9.40	12.1	147	294	1685	1070	18.0	42.1
MAX	25	8.7	10	37	47	108	256	1610	5180	2850	36	65
MIN	5.6	5.3	6.1	6.2	6.5	6.8	2.3	22	9.3	14	16	16
AC-FT	661	392	428	559	522	742	8760	18090	100300	65800	1110	2510

CAL YR 1988	TOTAL	6561.3	MEAN	17.9	MAX	86	MIN	1.9	AC-FT	13010
WTR YR 1989	TOTAL	100760.0	MEAN	276	MAX	5180	MIN	2.3	AC-FT	199900

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); 37 years (water years 1953-89) regulated, unadjusted, 105 ft³/s (76,070 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, 11,400 ft³/s May 17 at 0815 hours (gage height, 14.11 ft); minimum daily, 3.3 ft³/s Nov. 10.

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	35	13	7.7	13	26	39	85	252	1280	3250	30	18
2	31	10	8.1	12	28	40	67	220	1560	3560	52	18
3	26	9.5	7.0	13	37	40	59	586	1050	2860	43	19
4	23	8.2	7.1	12	27	52	51	2580	906	2500	37	21
5	21	7.3	8.5	13	21	43	44	2110	168	2980	31	21
6	21	5.9	8.6	15	20	53	43	196	81	3110	28	52
7	14	5.9	14	16	19	54	54	580	1050	3110	669	45
8	12	6.0	14	12	17	57	156	175	623	3100	110	31
9	11	3.4	20	13	16	55	151	308	757	3070	70	30
10	9.6	3.3	86	12	16	45	138	968	869	2740	51	32
11	9.5	5.2	40	11	17	45	129	1070	1590	2200	50	364
12	8.0	12	17	19	24	45	130	1400	3810	1630	41	71
13	5.0	10	12	27	33	38	513	1680	5990	886	38	391
14	5.6	7.7	10	24	20	36	520	1480	6450	603	38	83
15	6.7	14	9.3	12	165	37	215	94	5660	605	48	54
16	5.8	12	9.2	11	267	34	186	2310	4610	596	37	36
17	7.0	8.5	7.7	9.4	1550	35	167	3580	3640	568	44	33
18	4.8	6.8	8.7	9.5	294	32	159	431	2920	555	42	30
19	3.6	55	10	9.5	145	34	182	225	2390	446	37	39
20	3.4	22	9.3	9.5	112	34	238	166	2000	230	32	50
21	3.9	11	6.4	9.5	80	77	245	128	1700	230	28	25
22	5.0	8.6	122	9.0	59	45	250	98	1470	223	27	23
23	6.1	6.5	34	8.9	51	38	251	84	1300	222	27	20
24	5.0	7.9	17	7.6	51	32	237	82	1170	222	25	18
25	4.0	11	11	620	51	34	230	67	1070	222	23	18
26	149	15	11	161	51	30	224	60	1420	228	23	20
27	29	8.7	96	42	51	29	207	52	1970	219	22	20
28	14	6.6	34	525	44	3470	221	54	2520	46	21	23
29	42	8.3	15	86	---	657	236	74	3290	37	19	21
30	24	7.5	12	40	---	223	215	260	3260	33	18	19
31	27	---	22	31	---	126	---	839	---	30	18	---
TOTAL	572.0	316.8	694.6	1812.9	3292	5609	5603	22209	66574	40311	1779	1645
MEAN	18.5	10.6	22.4	58.5	118	181	187	716	2219	1300	57.4	54.8
MAX	149	55	122	620	1550	3470	520	3580	6450	3560	669	391
MIN	3.4	3.3	6.4	7.6	16	29	43	52	81	30	18	18
AC-FT	1130	628	1380	3600	6530	11130	11110	44050	132000	79960	3530	3260

CAL YR 1988 TOTAL 10430.5 MEAN 28.5 MAX 850 MIN 3.3 AC-FT 20690
WTR YR 1989 TOTAL 150418.3 MEAN 412 MAX 6450 MIN 3.3 AC-FT 298400

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.--69 years, 379 ft³/s (274,600 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, 26,600 ft³/s June 14 at 0230 hours (gage height, 8.09 ft); minimum daily, 11 ft³/s Oct. 19-21, 25.

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	70	32	18	33	39	62	743	380	3670	3490	40	27
2	51	25	19	26	49	61	424	310	4180	3990	90	28
3	39	23	19	25	76	61	285	1020	4660	3640	80	29
4	35	22	20	24	49	164	192	4050	6980	3160	58	30
5	34	19	21	23	36	338	126	8230	7030	3670	45	29
6	33	16	21	24	34	440	98	5790	6970	3610	97	52
7	30	15	40	24	92	353	79	4280	10400	3470	821	77
8	25	15	46	22	92	212	207	1940	11300	3400	177	39
9	22	14	61	22	32	140	212	1200	11300	3340	115	36
10	21	12	211	24	32	83	204	1580	12500	2960	74	39
11	21	12	114	24	31	62	206	1430	14400	2310	69	572
12	20	22	37	56	48	61	208	1640	18000	1670	59	142
13	17	24	29	67	79	58	877	1950	21700	810	51	683
14	16	19	25	52	41	60	913	1820	24600	539	50	96
15	16	20	23	31	345	69	486	305	23200	534	78	53
16	17	25	22	25	459	54	367	3690	21300	521	61	39
17	19	20	21	23	2570	49	297	13500	17900	510	96	36
18	17	18	21	23	448	56	275	13500	14700	498	94	34
19	11	127	23	23	251	61	288	12900	13000	416	62	33
20	11	48	22	22	595	97	346	9900	11100	258	48	50
21	11	27	21	21	863	228	340	7980	9540	252	43	33
22	13	21	93	21	1130	138	333	7950	7530	252	40	29
23	13	18	57	22	972	149	328	8110	6540	250	39	26
24	12	18	36	20	451	115	324	8090	4750	243	38	24
25	11	26	25	912	234	86	327	8100	3230	243	35	24
26	295	35	23	393	151	63	320	7960	3000	253	34	25
27	70	25	200	90	122	53	300	6700	3430	243	35	24
28	34	18	77	1130	73	7370	381	4660	3130	78	32	26
29	77	18	33	175	---	6440	383	3450	3710	51	30	25
30	50	18	27	83	---	2830	307	3090	3560	46	30	25
31	49	---	41	50	---	1210	---	3060	---	41	29	---
TOTAL	1160	752	1446	3510	9394	21223	10176	158565	307310	44748	2650	2385
MEAN	37.4	25.1	46.6	113	335	685	339	5115	10240	1443	85.5	79.5
MAX	295	127	211	1130	2570	7370	913	13500	24600	3990	821	683
MIN	11	12	18	20	31	49	79	305	3000	41	29	24
AC-FT	2300	1490	2870	6960	18630	42100	20180	314500	609500	88760	5260	4730

CAL YR 1988 TOTAL 19608 MEAN 53.6 MAX 1790 MIN 11 AC-FT 38890
WTR YR 1989 TOTAL 563319 MEAN 1543 MAX 24600 MIN 11 AC-FT 1117000

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.--13 years, 450 ft³/s (326,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,700 ft³/s Oct. 13, 1981 (gage height, 36.26 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, 23,800 ft³/s June 13 at 1030 hours (gage height, 35.26 ft); minimum daily, 1.4 ft³/s Oct. 25.

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	111	39	13	53	75	108	938	516	3630	3430	35	14
2	68	22	14	32	78	106	525	375	4230	3700	64	14
3	46	15	14	27	146	108	344	1870	4810	4450	80	14
4	34	11	14	24	107	202	239	4720	6680	3080	54	15
5	30	8.5	16	23	66	419	152	9710	6640	3560	41	16
6	26	7.9	27	24	57	562	119	6310	6510	3520	59	20
7	24	7.4	64	23	55	432	102	4850	9610	3380	1220	59
8	18	6.6	67	22	53	271	203	2360	9960	3300	210	32
9	15	7.1	102	22	50	198	229	1480	9500	3240	104	23
10	12	7.1	312	22	50	128	223	1880	10200	2980	67	23
11	8.8	5.6	306	24	41	103	218	1690	13700	2380	55	929
12	8.1	36	79	93	70	101	220	1800	18400	1880	52	168
13	7.6	22	44	154	127	99	1150	2130	21600	987	44	1180
14	6.3	16	32	106	76	110	1500	2080	22800	632	39	195
15	5.6	42	24	54	594	114	602	419	21500	626	59	112
16	5.2	46	23	35	958	99	438	4130	19900	590	64	75
17	3.5	21	21	29	4290	89	346	16500	16500	576	66	63
18	5.0	14	18	26	941	100	311	14300	12300	555	94	57
19	5.0	187	19	26	370	103	304	12300	10000	452	59	52
20	4.1	129	21	24	724	107	385	9470	8950	252	46	78
21	3.9	38	17	24	1010	357	374	7530	8050	247	36	60
22	2.1	24	151	22	1310	214	362	7320	6830	239	30	45
23	1.9	16	147	22	1150	205	355	7370	6070	238	29	43
24	1.9	12	59	22	579	174	349	7380	4870	243	27	40
25	1.4	9.7	35	1020	322	132	345	7370	3310	237	23	37
26	335	66	24	1250	223	103	346	7300	3060	295	22	37
27	106	42	351	170	192	89	318	6480	3470	314	20	52
28	43	22	211	2220	134	8530	419	4950	3170	115	20	58
29	199	13	62	360	---	6840	523	3510	3700	61	18	41
30	103	13	40	166	---	3440	391	3190	3500	55	18	34
31	74	---	63	100	---	1480	---	3120	---	47	15	---
TOTAL	1314.4	905.9	2390	6219	13848	25123	12330	164410	283450	45661	2770	3586
MEAN	42.4	30.2	77.1	201	495	810	411	5304	9448	1473	89.4	120
MAX	335	187	351	2220	4290	8530	1500	16500	22800	4450	1220	1180
MIN	1.4	5.6	13	22	41	89	102	375	3060	47	15	14
AC-FT	2610	1800	4740	12340	27470	49830	24460	326100	562200	90570	5490	7110

CAL YR 1988	TOTAL	26307.7	MEAN	71.9	MAX	2840	MIN	1.4	AC-FT	52180
WTR YR 1989	TOTAL	562007.3	MEAN	1540	MAX	22800	MIN	1.4	AC-FT	1115000

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.--Beginning 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 and 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, 652 microsiemens Mar. 4; minimum, 154 microsiemens Oct. 29.
pH: Maximum, 8.8 units July 15, Sept. 18, 19; minimum, 7.2 units May 3, 4.
WATER TEMPERATURE: Maximum, 34.0°C Sept. 3; minimum, 3.5°C Mar. 6.
DISSOLVED OXYGEN: Maximum, 14.6 mg/L Sept. 18; minimum, 1.5 mg/L Sept. 12.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
NOV 04...	1215	15	450	7.80	21.5	9.3	109	--	160
FEB 10...	1415	50	567	8.00	9.0	11.1	96	1.6	200
APR 10...	1335	223	518	8.30	15.5	13.4	134	2.7	210
JUN 02...	0920	3410	345	8.20	25.0	7.9	97	2.3	130
AUG 01...	1440	35	458	8.10	30.5	6.6	90	3.8	180
SEP 12...	1300	136	366	7.70	25.5	5.7	70	3.5	140

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 WH TOT FET 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 04...	53	5.9	28	1	4.9	135	39	30	0.30
FEB 10...	71	6.2	32	1	6.3	162	60	35	0.30
APR 10...	74	6.9	27	0.8	4.3	171	53	34	0.30
JUN 02...	43	6.0	17	0.6	4.9	123	19	20	0.20
AUG 01...	60	6.6	27	0.9	5.1	153	36	27	0.30
SEP 12...	48	4.6	19	0.7	4.2	120	31	20	0.20

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
NOV 04...	4.8	247	0.380	0.020	0.400	0.080	0.52	0.60	0.070
FEB 10...	6.6	315	0.970	0.030	1.00	0.270	0.73	1.0	0.100
APR 10...	3.2	305	0.290	0.010	0.300	0.010	0.59	0.60	0.070
JUN 02...	7.2	191	0.160	0.040	0.200	0.080	0.82	0.90	0.080
AUG 01...	10	264	0.290	0.010	0.300	<0.010	--	2.4	0.060
SEP 12...	7.6	207	0.370	0.030	0.400	0.050	0.75	0.80	0.090

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	1314.4	387	221	784	25	89	37	132	140
NOV.	1988	905.9	459	262	642	33	81	46	112	160
DEC.	1988	2390	460	263	1700	33	215	46	296	160
JAN.	1989	6219	327	186	3130	20	341	31	522	120
FEB.	1989	13848	409	234	8740	28	1060	40	1500	150
MAR.	1989	25123	340	194	13200	21	1450	32	2200	130
APR.	1989	12330	436	249	8290	31	1020	43	1430	160
MAY	1989	164410	359	205	90900	22	9810	34	15100	140
JUNE	1989	283450	301	171	131000	16	12600	28	21200	120
JULY	1989	45661	341	194	23900	20	2490	32	3950	130
AUG.	1989	2770	423	242	1810	29	216	41	310	150
SEPT	1989	3586	362	206	2000	23	220	35	335	140
TOTAL		562007.3	**	**	286000	**	29600	**	47100	**
WTD.AVG.		1540	331	189	**	20	**	31	**	130

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	332	284	311	396	376	384	542	530	537	506	474	485
2	438	332	384	426	398	413	546	538	542	504	484	493
3	354	342	346	444	426	434	562	544	551	530	500	507
4	354	340	347	458	446	452	554	544	549	532	496	512
5	354	336	346	468	454	460	568	546	551	514	498	505
6	358	334	346	480	456	460	638	538	562	530	512	520
7	370	350	360	476	462	467	548	442	500	520	506	513
8	380	370	376	500	476	485	560	498	519	530	510	518
9	394	380	389	504	488	494	538	474	495	534	518	526
10	408	392	400	524	492	500	508	280	422	526	512	520
11	420	406	411	506	498	503	452	414	429	536	522	526
12	424	412	419	540	440	488	504	456	481	538	356	486
13	432	418	424	604	472	531	534	506	518	542	438	464
14	436	422	428	498	460	470	536	530	533	500	470	487
15	444	432	437	494	276	452	548	538	541	528	502	518
16	460	444	454	492	376	440	560	546	553	542	528	536
17	472	458	463	510	496	500	546	536	541	554	540	544
18	482	464	471	512	498	504	580	534	542	564	550	554
19	488	468	475	522	236	428	554	540	547	574	556	564
20	496	470	483	454	442	448	556	544	551	578	566	572
21	504	480	493	468	452	458	552	536	545	590	566	576
22	520	502	508	488	464	473	556	228	461	604	574	588
23	536	504	516	496	488	491	470	448	460	604	578	591
24	512	490	499	510	498	505	556	472	514	598	576	589
25	520	494	502	530	512	522	534	518	523	596	276	470
26	520	234	421	540	326	475	538	524	530	---	---	195
27	442	370	418	548	502	514	540	266	434	---	---	234
28	456	436	446	506	490	497	428	358	387	444	198	271
29	464	154	361	522	508	515	456	386	425	300	252	278
30	406	366	378	534	522	528	504	456	479	360	304	333
31	392	358	381	---	---	---	524	490	506	398	346	374
MONTH	536	154	419	604	236	476	638	228	507	604	198	479

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	448	396	422	620	614	617	---	---	449	430	350	399
2	522	434	465	628	620	624	480	462	473	436	396	419
3	524	424	463	632	622	627	518	480	506	436	212	363
4	490	452	463	652	592	627	530	516	525	408	178	273
5	508	468	490	586	526	556	558	532	550	378	242	331
6	564	508	539	516	478	489	582	548	572	---	---	387
7	562	538	548	502	478	492	582	564	573	---	---	406
8	560	542	551	534	504	514	584	562	571	---	---	405
9	600	548	561	546	528	540	606	570	591	444	398	426
10	578	560	568	---	---	551	588	470	529	424	374	409
11	596	574	583	---	---	556	484	452	472	---	---	404
12	616	524	581	---	---	567	468	450	460	---	---	381
13	582	520	545	---	---	572	464	288	410	---	---	378
14	610	564	595	620	558	590	368	312	336	392	378	385
15	610	340	484	582	548	569	406	330	362	454	394	434
16	480	328	406	586	548	574	440	412	432	464	172	307
17	364	230	284	586	554	576	452	440	444	394	186	283
18	402	286	350	602	560	590	478	452	466	398	368	382
19	464	406	441	606	590	601	482	466	474	380	374	377
20	554	396	463	598	562	585	470	452	461	390	372	381
21	504	470	485	572	454	532	452	432	444	392	378	388
22	468	456	462	506	472	493	440	428	435	394	386	390
23	476	458	464	494	486	490	440	430	436	392	370	384
24	578	468	506	488	476	483	434	422	429	372	360	367
25	536	510	521	498	472	486	436	424	430	364	354	358
26	566	538	552	498	470	488	440	430	434	358	350	355
27	598	566	581	532	496	513	436	432	434	358	348	355
28	620	582	600	---	---	238	444	318	428	360	344	352
29	---	---	---	---	---	294	424	378	402	---	---	348
30	---	---	---	---	---	377	454	400	431	---	---	346
31	---	---	---	---	---	412	---	---	---	---	---	344
MONTH	620	230	499	652	454	523	606	288	465	464	172	372
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	346	330	339	308	298	304	477	456	463	530	511	519
2	348	332	341	306	236	299	517	472	483	542	520	529
3	354	340	346	328	244	303	469	462	465	577	527	547
4	354	254	310	336	320	330	483	456	467	577	543	556
5	342	330	338	338	332	335	485	467	474	559	538	548
6	---	---	329	346	336	341	---	---	501	574	547	560
7	---	---	320	358	340	347	---	---	425	563	533	546
8	324	314	319	350	340	343	---	---	369	550	534	542
9	318	312	315	356	344	349	378	356	363	568	548	557
10	316	300	312	350	344	346	359	341	350	580	565	573
11	328	264	294	352	344	348	362	353	357	574	255	400
12	310	176	267	360	350	355	387	353	361	397	363	377
13	306	232	282	378	362	372	397	363	381	402	156	291
14	302	284	294	412	380	395	414	392	400	330	292	314
15	306	290	299	430	396	408	456	406	419	380	318	332
16	302	294	298	400	388	394	413	374	391	352	330	338
17	300	294	297	392	386	390	431	377	409	354	342	348
18	298	290	294	392	386	389	425	409	418	352	336	347
19	296	292	294	410	378	387	441	425	434	352	340	346
20	302	290	297	408	394	400	449	435	441	364	330	348
21	296	292	293	414	392	406	490	445	462	376	328	350
22	298	292	295	420	404	411	476	456	469	426	374	384
23	296	292	294	426	404	417	484	472	480	460	414	435
24	300	294	298	422	410	418	486	466	478	414	394	404
25	316	302	306	424	408	417	484	466	473	440	412	421
26	320	308	313	454	374	419	559	466	495	444	418	431
27	310	304	307	446	400	413	537	471	505	424	412	420
28	312	300	308	454	412	437	485	465	476	420	396	407
29	306	296	302	466	448	456	498	476	489	460	420	433
30	306	298	302	462	432	445	509	489	500	466	454	461
31	---	---	---	460	444	449	520	497	509	---	---	---
MONTH	354	176	307	466	236	381	559	341	442	580	156	435

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.7	7.5	7.6	7.7	7.5	7.6	8.0	7.7	7.9	7.7	7.6	7.6
2	7.7	7.5	7.6	7.7	7.6	7.6	7.9	7.7	7.8	7.7	7.6	7.7
3	7.8	7.5	7.6	7.8	7.6	7.7	7.9	7.7	7.8	7.8	7.6	7.7
4	7.8	7.6	7.7	7.9	7.6	7.7	8.0	7.7	7.8	7.8	7.6	7.7
5	7.9	7.6	7.7	8.0	7.7	7.8	8.0	7.7	7.8	7.7	7.6	7.6
6	7.9	7.6	7.8	8.0	7.8	7.9	8.1	7.6	7.8	7.6	7.4	7.5
7	8.0	7.7	7.8	8.0	7.7	7.8	7.8	7.5	7.7	7.8	7.4	7.5
8	8.0	7.6	7.8	8.0	7.8	7.9	7.8	7.5	7.6	7.8	7.4	7.7
9	8.0	7.6	7.7	8.0	7.7	7.8	8.0	7.7	7.8	7.9	7.6	7.7
10	8.0	7.6	7.8	8.0	7.8	7.9	8.0	7.5	7.7	8.1	7.7	7.9
11	8.0	7.6	7.8	8.0	7.8	7.9	7.7	7.6	7.6	8.2	7.7	7.9
12	8.0	7.6	7.8	7.9	7.7	7.8	7.8	7.6	7.7	8.0	7.7	7.8
13	8.0	7.6	7.8	7.9	7.6	7.7	7.8	7.6	7.7	8.0	7.8	7.9
14	8.0	7.7	7.8	8.1	7.7	7.9	7.8	7.7	7.8	8.1	7.8	7.9
15	8.0	7.7	7.9	8.1	7.5	7.8	7.9	7.7	7.8	8.0	7.8	7.9
16	8.0	7.8	7.9	7.9	7.7	7.8	7.9	7.7	7.8	8.0	7.9	7.9
17	8.1	7.7	7.9	8.0	7.8	7.9	8.0	7.8	7.9	8.0	7.8	7.9
18	8.1	7.7	7.9	8.0	7.8	7.9	7.9	7.7	7.8	8.1	7.8	7.9
19	8.0	7.7	7.8	7.8	7.6	7.7	8.0	7.7	7.8	8.0	7.6	7.8
20	8.0	7.7	7.8	7.9	7.8	7.8	8.0	7.7	7.8	8.1	7.6	7.8
21	8.0	7.7	7.8	7.9	7.7	7.7	8.0	7.7	7.8	8.2	7.9	8.0
22	8.0	7.7	7.8	7.8	7.7	7.8	7.8	7.6	7.7	8.2	7.9	8.0
23	8.0	7.7	7.8	7.9	7.7	7.8	7.9	7.7	7.9	8.3	7.9	8.0
24	8.0	7.8	7.9	7.9	7.8	7.9	7.9	7.7	7.8	8.2	7.8	8.0
25	8.0	7.7	7.8	7.9	7.8	7.8	8.0	7.8	7.9	8.2	7.5	7.7
26	8.1	7.6	7.8	7.8	7.7	7.7	8.0	7.7	7.8	---	---	---
27	7.8	7.7	7.7	7.8	7.7	7.8	7.9	7.7	7.8	---	---	---
28	7.8	7.6	7.7	8.1	7.8	7.9	7.8	7.7	7.7	8.2	7.3	7.8
29	8.2	7.6	7.7	8.1	7.8	7.9	7.8	7.6	7.7	7.8	7.7	7.7
30	7.6	7.6	7.6	8.1	7.8	7.9	7.8	7.6	7.6	7.7	7.6	7.7
31	7.7	7.6	7.6	---	---	---	7.6	7.5	7.6	7.6	7.5	7.6
MONTH	8.2	7.5	7.8	8.1	7.5	7.8	8.1	7.5	7.8	8.3	7.3	7.8
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.7	7.6	7.6	8.1	8.0	8.0	---	---	---	7.9	7.7	7.8
2	7.9	7.7	7.7	8.1	8.0	8.1	8.1	8.1	8.1	8.0	7.7	7.9
3	7.9	7.8	7.8	8.2	7.9	8.1	8.1	8.0	8.1	8.0	7.2	7.6
4	7.9	7.8	7.8	8.3	8.0	8.1	8.2	8.0	8.1	7.9	7.2	7.5
5	7.8	7.7	7.8	8.2	8.1	8.2	8.3	8.0	8.1	---	---	---
6	7.8	7.7	7.8	8.3	8.1	8.2	8.4	8.1	8.2	---	---	---
7	8.1	7.7	7.8	8.3	8.2	8.2	8.3	7.9	8.1	---	---	---
8	8.2	8.0	8.1	8.3	8.1	8.2	8.3	7.9	8.1	---	---	---
9	8.5	8.2	8.3	8.3	8.0	8.1	8.3	8.0	8.1	7.9	7.8	7.9
10	8.6	7.9	8.1	---	---	---	8.6	8.1	8.3	7.8	7.6	7.7
11	8.0	7.9	7.9	---	---	---	8.6	8.2	8.4	7.7	7.4	7.6
12	7.9	7.8	7.8	---	---	---	8.5	8.2	8.4	---	---	---
13	8.0	7.8	7.8	---	---	---	8.3	7.7	8.0	---	---	---
14	7.9	7.8	7.8	8.2	7.8	8.0	7.9	7.6	7.8	7.8	7.6	7.7
15	8.0	7.8	7.9	8.3	7.8	8.1	8.0	7.8	7.9	8.1	7.5	7.8
16	7.9	7.6	7.8	8.2	7.8	8.0	8.1	7.9	8.0	8.1	7.7	8.0
17	7.9	7.5	7.7	8.1	7.8	8.0	8.2	8.0	8.1	8.0	7.5	7.8
18	7.9	7.7	7.8	8.2	7.8	7.9	8.3	8.0	8.1	8.0	7.9	8.0
19	7.9	7.8	7.9	8.1	7.8	8.0	8.4	8.0	8.2	8.0	7.9	8.0
20	8.0	7.8	7.9	8.3	7.8	8.0	8.4	8.1	8.3	8.1	8.0	8.0
21	8.2	8.0	8.1	8.3	8.0	8.2	8.4	8.0	8.2	8.1	8.0	8.1
22	8.2	8.1	8.1	8.2	8.0	8.1	8.4	8.0	8.2	---	---	---
23	---	---	---	8.3	7.9	8.1	8.4	8.0	8.2	---	---	---
24	---	---	---	8.3	7.9	8.1	8.4	8.1	8.2	8.2	8.1	8.1
25	8.1	7.9	8.1	8.3	7.9	8.1	8.4	8.1	8.2	8.1	8.1	8.1
26	8.1	8.1	8.1	8.3	7.8	8.0	8.3	8.0	8.2	8.2	8.1	8.1
27	8.2	8.1	8.1	8.2	7.8	8.0	8.3	8.0	8.2	8.1	8.0	8.1
28	8.1	8.0	8.1	---	---	---	8.3	7.8	8.1	---	---	---
29	---	---	---	---	---	---	7.9	7.5	7.8	---	---	---
30	---	---	---	---	---	---	8.0	7.7	7.9	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	8.6	7.5	7.9	8.3	7.8	8.1	8.6	7.5	8.1	8.2	7.2	7.9

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.1	8.0	8.1	7.9	7.9	7.9	8.0	7.6	7.8	8.1	7.6	7.8
2	8.1	8.0	8.0	8.0	7.9	7.9	7.9	7.7	7.8	8.1	7.6	7.8
3	8.1	7.9	8.0	8.0	7.7	7.9	8.4	7.7	8.0	8.0	7.6	7.8
4	8.1	7.6	7.9	8.0	7.9	7.9	8.4	7.8	8.0	8.1	7.6	7.8
5	---	---	---	8.0	7.9	8.0	8.3	7.7	7.9	8.0	7.6	7.8
6	---	---	---	7.9	7.9	7.9	---	---	---	8.0	7.6	7.8
7	---	---	---	---	---	---	---	---	---	8.2	7.6	7.8
8	8.2	8.0	8.1	---	---	---	---	---	---	8.2	7.7	7.9
9	8.1	8.0	8.0	---	---	---	7.9	7.5	7.6	8.0	7.6	7.8
10	8.2	8.0	8.1	---	---	---	8.0	7.6	7.8	8.0	7.6	7.8
11	8.1	8.0	8.1	---	---	---	8.2	7.5	7.9	7.9	7.5	7.7
12	8.1	7.9	8.0	8.1	7.9	8.0	8.4	7.7	8.0	8.0	7.4	7.7
13	8.0	7.9	7.9	8.0	8.0	8.0	8.3	7.6	7.9	8.2	7.8	7.9
14	8.0	7.9	8.0	8.1	7.9	8.0	8.0	7.5	7.7	7.9	7.8	7.8
15	8.4	8.0	8.1	8.8	7.9	8.1	8.3	7.7	7.9	7.9	7.8	7.8
16	8.0	7.9	8.0	8.2	8.0	8.1	8.3	7.7	8.0	8.0	7.8	7.8
17	8.1	8.0	8.0	8.2	8.0	8.1	8.0	7.7	7.8	8.6	7.8	8.1
18	8.1	8.0	8.1	8.2	8.0	8.1	8.3	7.7	7.9	8.8	8.0	8.4
19	8.2	8.0	8.1	8.3	7.8	8.1	8.3	7.6	7.9	8.8	8.0	8.4
20	8.2	8.0	8.1	8.4	8.0	8.2	8.3	7.6	7.9	8.7	8.0	8.3
21	8.2	8.1	8.1	8.6	8.1	8.4	8.2	7.6	7.8	8.5	8.0	8.3
22	8.2	8.1	8.2	8.7	8.3	8.5	8.2	7.6	7.8	8.6	7.9	8.2
23	8.3	8.2	8.2	---	---	---	8.1	7.6	7.8	8.7	8.0	8.3
24	8.3	8.2	8.2	---	---	---	8.1	7.6	7.8	8.7	8.1	8.4
25	8.3	8.2	8.2	8.5	7.9	8.2	8.2	7.6	7.8	8.5	8.1	8.3
26	8.3	8.0	8.2	8.3	7.5	8.0	8.1	7.6	7.8	8.4	8.0	8.2
27	8.1	8.0	8.1	8.2	7.5	7.9	8.1	7.6	7.8	8.4	8.0	8.3
28	8.0	7.9	8.0	8.3	7.7	8.0	8.2	7.6	7.8	8.5	8.0	8.2
29	7.9	7.9	7.9	8.3	7.7	7.9	8.2	7.6	7.9	8.5	8.0	8.2
30	7.9	7.9	7.9	8.4	7.6	7.9	8.1	7.6	7.8	8.5	8.0	8.2
31	---	---	---	8.2	7.5	7.8	8.2	7.6	7.8	---	---	---
MONTH	8.4	7.6	8.1	8.8	7.5	8.0	8.4	7.5	7.9	8.8	7.4	8.0

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	23.5	21.0	22.0	20.0	16.5	18.0	13.5	9.5	11.5	15.5	13.0	14.5
2	23.0	20.5	22.0	20.5	18.0	19.0	14.0	10.0	12.0	17.0	15.0	16.0
3	23.0	21.0	22.0	22.5	18.0	20.0	14.5	10.5	12.5	18.5	15.5	16.5
4	23.5	21.0	22.0	22.5	19.0	20.5	14.5	11.5	12.5	17.5	14.5	16.0
5	24.0	21.0	22.0	20.5	17.0	19.0	14.0	10.5	12.0	21.0	16.0	18.0
6	23.5	21.0	22.0	19.5	16.0	17.5	13.5	10.5	12.5	23.5	18.0	21.5
7	23.5	20.5	22.0	20.5	16.0	18.0	15.5	13.0	14.0	24.0	16.5	21.5
8	23.0	20.5	21.5	21.0	16.5	18.5	15.0	9.5	12.5	20.0	11.0	14.0
9	22.5	20.0	21.0	23.0	18.5	20.5	11.0	8.5	9.5	11.0	9.5	10.5
10	23.5	18.5	20.5	21.5	18.0	19.5	11.0	10.0	10.5	12.0	9.0	10.0
11	23.0	19.0	20.5	18.5	17.0	18.0	11.0	10.5	10.5	14.0	10.0	12.0
12	22.5	18.5	20.5	20.0	18.0	19.0	12.5	10.0	11.0	13.5	8.5	11.0
13	22.5	18.0	20.0	20.0	17.0	18.0	13.5	10.5	12.0	8.0	7.5	7.5
14	23.0	18.5	20.5	21.5	17.5	19.5	14.5	11.5	12.5	10.0	7.0	8.5
15	24.5	19.5	21.5	24.0	20.0	21.5	13.0	10.0	12.0	10.5	8.0	9.5
16	26.0	20.5	23.0	19.5	14.5	17.5	10.5	8.0	9.0	11.5	9.0	10.0
17	26.5	22.0	24.0	16.5	13.0	14.5	11.0	7.5	9.0	12.0	8.5	10.0
18	26.5	22.5	24.0	16.0	14.5	15.0	12.0	8.0	10.0	13.5	10.0	11.5
19	23.0	21.0	22.0	16.5	14.0	15.5	12.5	10.0	11.5	13.5	12.0	12.5
20	24.5	20.0	22.0	14.0	12.5	13.5	14.5	12.5	13.5	12.5	10.0	11.5
21	23.5	20.0	21.5	14.0	12.0	13.0	14.5	12.0	13.0	11.5	8.0	9.5
22	24.5	19.0	21.5	14.5	11.0	12.5	18.0	13.5	15.5	11.5	8.0	9.5
23	23.5	20.5	22.0	15.5	11.0	13.0	14.5	11.5	13.0	12.0	9.5	10.5
24	23.0	18.5	20.5	16.5	12.0	14.0	13.5	12.0	12.5	15.0	11.0	13.0
25	24.0	19.0	21.0	18.5	16.0	17.5	12.5	11.0	12.0	20.5	14.5	17.0
26	22.0	18.0	20.0	19.0	16.5	17.5	16.0	12.0	14.5	19.5	14.0	17.5
27	21.5	19.0	20.0	16.5	13.0	15.5	17.0	13.0	15.0	20.5	14.5	18.5
28	22.0	18.5	20.0	13.5	11.0	12.5	13.5	12.0	12.5	20.5	11.5	14.5
29	19.0	16.5	17.5	13.5	10.0	11.5	12.0	10.5	11.5	14.0	12.0	13.0
30	19.0	18.0	18.5	13.5	10.0	11.5	14.5	11.0	13.0	16.5	12.0	14.0
31	18.0	17.0	17.5	---	---	---	17.0	14.0	15.0	18.0	13.0	15.5
MONTH	26.5	16.5	21.0	24.0	10.0	16.5	18.0	7.5	12.0	24.0	7.0	13.5

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	19.0	16.0	17.5	13.0	9.5	11.0	19.5	17.0	18.0	27.5	22.5	25.0
2	17.0	9.0	13.5	12.5	11.0	11.5	24.0	17.0	19.5	24.0	20.5	22.5
3	9.0	7.5	8.5	14.5	11.5	13.0	25.5	20.5	22.5	---	---	---
4	7.0	5.5	6.5	14.5	6.0	9.0	24.0	21.5	22.5	---	---	---
5	8.5	6.5	7.5	6.5	5.0	6.0	21.5	19.0	20.5	---	---	---
6	10.0	6.0	8.0	6.5	3.5	5.0	23.0	17.0	20.0	---	---	---
7	11.5	4.0	8.0	10.0	4.5	6.5	23.5	19.0	21.5	---	---	---
8	6.5	4.0	5.0	11.5	6.0	8.5	23.0	19.5	21.5	24.5	22.0	23.0
9	7.5	5.0	6.0	13.0	7.5	10.0	20.0	17.5	18.5	27.0	22.5	24.0
10	9.5	6.0	7.5	15.5	9.5	12.0	18.0	15.0	16.5	---	---	---
11	11.5	8.5	10.0	---	---	---	18.5	13.0	15.5	---	---	---
12	12.0	11.0	11.5	---	---	---	16.0	14.0	15.0	---	---	---
13	12.5	11.0	12.0	---	---	---	17.5	14.0	15.0	---	---	---
14	11.5	9.5	10.5	21.5	16.5	19.0	18.0	13.0	15.5	---	---	---
15	10.0	9.0	9.5	20.0	15.0	17.0	18.5	13.0	15.0	---	---	---
16	13.0	8.5	10.0	18.5	14.0	16.0	21.0	15.5	18.0	25.5	20.5	23.5
17	13.5	7.5	10.0	22.0	17.0	19.5	22.5	18.0	19.5	26.0	22.5	24.5
18	11.5	7.5	9.0	21.5	16.0	18.0	23.5	20.0	21.5	22.5	22.0	22.5
19	8.5	7.5	8.0	17.5	15.5	16.5	24.5	20.0	22.0	24.0	22.5	23.0
20	10.5	8.0	9.0	21.0	17.0	19.0	24.5	20.5	22.0	24.5	23.5	24.0
21	10.0	8.5	9.0	20.0	9.5	14.0	25.0	19.5	22.0	25.5	24.0	24.5
22	12.5	8.5	10.0	16.5	11.0	12.5	24.5	20.5	22.5	27.0	25.0	25.5
23	13.5	9.5	11.5	17.5	11.5	14.0	25.0	20.5	22.5	26.0	25.5	26.0
24	15.5	10.0	11.5	18.5	13.0	15.0	25.0	20.5	22.5	26.5	25.0	25.5
25	12.5	9.5	10.5	18.5	15.0	17.0	25.5	21.5	23.0	27.0	25.5	26.0
26	15.0	9.5	12.0	18.5	17.0	18.0	26.0	22.0	24.0	27.5	26.0	26.5
27	13.0	10.0	11.0	20.5	18.0	19.0	25.0	22.0	23.5	27.5	26.0	26.5
28	10.5	9.5	10.0	---	---	---	27.5	22.5	24.5	---	---	---
29	---	---	---	---	---	---	28.0	23.5	25.5	---	---	---
30	---	---	---	---	---	---	27.5	22.0	24.5	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	19.0	4.0	9.5	22.0	3.5	13.5	28.0	13.0	20.5	27.5	20.5	24.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	26.5	25.0	25.5	27.0	24.0	25.5	31.0	28.5	30.0	33.5	29.0	30.5
2	26.5	25.0	25.5	27.5	24.5	26.0	28.5	27.0	28.0	33.0	29.5	31.0
3	27.5	24.5	26.0	27.0	25.0	26.0	29.5	26.0	28.0	34.0	29.5	31.5
4	---	---	---	27.5	24.5	26.0	30.5	27.0	29.0	33.5	29.0	31.0
5	---	---	---	27.5	25.5	26.5	31.5	28.0	30.0	33.0	29.5	31.0
6	---	---	---	27.5	25.0	26.5	---	---	---	32.5	29.0	30.0
7	---	---	---	31.0	25.5	28.0	---	---	---	31.0	28.5	30.0
8	26.0	25.0	25.5	32.0	27.0	29.0	---	---	---	30.5	28.5	29.5
9	25.5	25.0	25.5	32.5	26.5	29.5	28.5	24.0	26.0	29.5	27.5	28.5
10	26.0	25.0	25.5	29.0	25.5	27.5	28.5	25.0	26.0	28.5	26.5	27.5
11	26.0	24.5	25.5	28.0	25.5	27.0	27.0	24.5	25.5	30.0	23.0	27.0
12	26.0	22.5	24.5	29.0	25.5	27.0	28.5	25.0	26.5	29.5	25.0	27.5
13	25.5	23.5	24.5	28.0	26.5	27.0	28.5	26.5	27.5	27.5	23.0	25.0
14	25.0	24.0	24.5	28.5	26.5	27.5	28.5	25.5	26.5	23.5	21.0	22.5
15	24.5	24.0	24.5	33.0	27.5	30.0	28.5	24.5	26.5	25.0	20.5	22.5
16	25.0	24.0	24.5	32.5	27.5	29.5	29.0	26.0	28.0	25.5	22.0	24.0
17	25.0	24.0	24.5	32.5	27.5	29.5	29.0	27.0	28.0	26.0	23.5	25.0
18	25.5	24.5	25.0	33.5	28.5	31.0	31.0	26.5	28.5	26.5	24.5	25.5
19	26.5	25.0	25.5	33.0	28.5	30.5	30.5	28.0	29.5	27.0	25.0	25.5
20	27.0	25.5	26.0	30.5	26.5	28.5	30.5	28.0	29.5	27.5	24.5	26.0
21	27.5	26.0	26.5	31.0	26.0	28.0	31.5	28.5	30.0	27.0	24.5	26.0
22	27.5	26.0	27.0	31.0	26.5	28.5	32.0	29.5	30.0	26.5	23.5	25.5
23	27.5	26.5	27.0	30.5	26.5	28.0	32.0	29.5	30.5	23.5	19.5	22.0
24	28.0	26.5	27.0	30.5	25.5	28.0	32.5	30.5	31.0	21.5	19.5	20.0
25	28.5	26.0	27.5	30.5	26.0	28.0	32.0	29.5	30.5	22.0	19.5	20.5
26	28.5	26.5	27.5	29.0	26.0	27.0	32.5	29.5	30.5	22.5	19.5	21.0
27	27.5	25.0	26.5	30.5	25.5	27.5	32.5	30.0	31.0	23.5	21.0	22.0
28	26.5	25.0	25.5	31.0	26.0	28.5	33.0	30.5	31.5	23.5	21.0	22.5
29	26.0	24.0	25.0	30.5	28.0	29.5	33.0	30.0	31.0	24.0	22.0	23.0
30	26.0	24.0	25.0	31.5	28.5	30.5	33.0	30.0	31.0	25.5	22.5	24.0
31	---	---	---	31.5	29.5	30.5	33.5	29.5	31.0	---	---	---
MONTH	28.5	22.5	25.5	33.5	24.0	28.0	33.5	24.0	29.0	34.0	19.5	26.0

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.7	6.7	7.0	7.7	6.9	7.2	13.0	9.6	11.1	7.5	5.8	6.7
2	8.2	6.4	7.0	7.9	6.7	7.4	12.4	9.8	10.8	7.9	6.3	7.3
3	8.5	7.2	7.6	8.5	6.6	7.4	12.2	8.7	10.3	8.0	5.8	6.9
4	8.8	7.2	8.2	9.6	6.5	7.8	12.6	8.8	10.5	7.7	5.5	6.5
5	9.5	7.4	8.5	10.0	6.8	8.2	12.8	9.3	10.8	7.4	4.7	6.0
6	9.8	7.8	9.0	11.0	7.6	9.0	13.7	7.3	10.6	5.1	2.8	4.2
7	10.6	8.0	9.3	11.7	8.0	9.7	9.6	6.5	8.2	7.8	3.3	4.7
8	10.9	7.8	9.2	12.1	8.4	10.0	9.1	5.5	7.0	8.2	2.4	6.2
9	11.1	7.3	8.9	12.6	8.2	9.8	11.8	8.4	9.7	10.8	6.6	8.6
10	11.6	7.8	9.4	12.1	8.5	9.9	11.5	8.8	9.5	12.3	8.7	10.6
11	11.9	8.0	9.6	11.3	8.6	9.7	9.5	9.1	9.3	12.6	8.7	10.7
12	11.7	7.7	9.4	9.7	7.0	8.7	10.2	8.8	9.4	10.7	8.7	9.4
13	11.9	7.9	9.8	7.2	4.7	6.1	10.3	9.0	9.5	10.7	9.1	9.9
14	11.4	8.2	9.7	12.6	7.5	10.0	10.4	8.9	9.7	11.5	9.4	10.5
15	11.4	8.4	9.7	11.2	6.2	8.6	10.5	8.8	9.6	11.1	9.2	10.3
16	11.1	8.0	9.2	9.9	7.2	8.8	11.4	9.0	10.3	11.3	10.2	10.8
17	11.1	7.4	8.8	12.7	9.7	11.1	13.2	10.3	11.6	12.0	9.8	11.0
18	10.7	7.2	8.6	12.7	9.3	10.9	13.4	10.3	11.6	12.0	9.2	10.6
19	9.5	7.1	8.0	9.2	7.9	8.7	12.7	9.5	10.9	11.8	7.1	9.4
20	11.1	7.3	8.6	11.8	9.5	10.6	10.5	7.5	9.3	11.5	7.3	9.4
21	11.0	7.0	8.4	---	---	---	12.2	7.5	9.5	13.9	9.6	11.4
22	11.1	7.4	8.8	---	---	---	9.7	6.1	7.8	14.4	10.1	11.8
23	10.8	7.5	8.7	---	---	---	9.7	7.0	8.8	14.4	10.0	11.7
24	11.1	7.5	9.0	---	---	---	10.0	7.3	8.6	13.2	8.3	10.7
25	11.4	8.1	9.2	---	---	---	10.5	8.9	9.7	---	---	---
26	8.5	6.3	7.8	---	---	---	10.6	7.9	9.4	---	---	---
27	7.7	6.4	7.0	---	---	---	8.2	7.3	7.8	---	---	---
28	7.5	6.3	6.8	---	---	---	8.4	8.0	8.2	---	---	---
29	8.8	6.5	7.3	12.5	9.3	10.8	9.2	7.0	8.1	9.0	8.0	8.4
30	7.1	6.5	6.7	13.1	10.1	11.3	9.0	6.1	7.3	8.3	7.4	8.0
31	7.7	6.8	7.1	---	---	---	6.6	5.3	5.9	7.6	6.6	7.2
MONTH	11.9	6.3	8.5	13.1	4.7	9.2	13.7	5.3	9.4	14.4	2.4	8.8
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	6.7	5.9	6.4	11.1	9.8	10.5	---	---	---	---	---	---
2	7.7	6.0	6.5	11.2	9.2	10.3	10.1	8.9	9.6	---	---	---
3	8.6	7.6	7.9	10.8	9.2	10.1	9.5	7.9	8.6	---	---	---
4	8.7	8.2	8.5	11.7	8.7	10.1	9.8	6.5	8.2	---	---	---
5	8.3	7.3	7.8	12.2	10.5	11.4	12.5	7.7	9.9	---	---	---
6	8.3	6.8	7.5	13.1	11.5	12.4	---	---	---	---	---	---
7	11.9	6.1	8.5	12.5	11.1	12.1	---	---	---	---	---	---
8	11.9	11.3	11.4	12.8	11.0	11.7	---	---	---	---	---	---
9	11.3	11.0	11.1	13.1	10.6	11.7	---	---	---	7.6	7.1	7.4
10	11.4	10.9	11.1	---	---	---	---	---	---	---	---	---
11	11.0	10.2	10.5	---	---	---	13.7	8.9	11.1	---	---	---
12	10.6	8.8	9.6	---	---	---	12.6	9.1	10.7	---	---	---
13	9.7	8.4	9.1	---	---	---	10.6	9.1	9.8	---	---	---
14	9.7	8.9	9.3	12.9	7.8	10.5	10.2	9.7	10.0	---	---	---
15	10.1	9.8	9.9	12.2	7.3	10.0	10.0	9.1	9.7	---	---	---
16	---	---	---	11.9	7.7	10.0	10.0	8.7	9.3	---	---	---
17	---	---	---	11.2	7.6	9.8	10.5	8.2	9.2	---	---	---
18	11.4	7.9	10.2	10.3	6.9	8.5	10.9	8.0	9.3	---	---	---
19	11.0	10.7	10.8	10.2	7.2	8.9	12.3	7.7	9.7	8.5	8.2	8.3
20	10.9	10.3	10.6	10.1	7.5	9.2	12.3	8.0	9.9	8.3	8.1	8.2
21	11.3	10.6	11.0	10.8	8.3	9.4	11.8	8.3	9.8	8.3	7.9	8.2
22	---	---	---	11.8	9.4	10.3	11.6	8.3	9.8	---	---	---
23	---	---	---	12.4	8.9	10.4	11.9	8.4	9.9	---	---	---
24	---	---	---	12.1	8.8	10.3	12.3	8.7	10.2	8.3	8.1	8.2
25	11.6	9.5	10.4	11.7	7.7	9.7	12.3	8.6	10.1	8.2	7.9	8.1
26	10.9	9.8	10.4	11.4	7.3	9.1	12.2	8.5	10.1	8.1	7.8	8.0
27	10.7	9.5	10.0	10.2	7.5	9.4	12.1	8.6	10.1	8.1	7.7	7.9
28	11.1	9.8	10.4	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	11.9	5.9	9.5	13.1	6.9	10.3	13.7	6.5	9.8	8.5	7.1	8.0

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.4	7.8	8.0	8.2	7.8	8.0	7.8	5.0	6.6	10.6	6.7	8.2
2	8.2	7.7	7.9	8.0	7.5	7.8	7.7	4.9	6.1	9.7	7.0	8.1
3	8.1	7.6	7.8	---	---	---	10.9	5.1	7.5	9.3	6.4	8.0
4	---	---	---	8.3	7.6	7.9	12.5	5.1	8.3	10.0	6.1	7.8
5	---	---	---	8.3	7.8	8.0	12.2	4.9	8.4	8.7	6.5	7.7
6	---	---	---	8.2	7.6	7.9	---	---	---	8.8	6.9	7.7
7	---	---	---	---	---	---	---	---	---	9.3	4.5	6.9
8	---	---	---	---	---	---	---	---	---	9.3	4.7	7.0
9	8.0	7.8	7.9	---	---	---	8.6	5.7	6.9	8.5	5.3	7.0
10	8.1	7.8	7.9	---	---	---	9.4	6.4	7.9	8.8	5.3	7.1
11	8.1	7.6	7.9	---	---	---	11.4	6.5	8.8	8.2	2.1	5.6
12	8.0	7.7	7.9	8.0	6.8	7.6	13.5	7.0	9.9	6.8	1.5	4.3
13	7.9	7.5	7.8	7.6	6.7	7.1	11.7	7.0	9.4	7.9	4.6	6.4
14	8.1	7.8	8.0	6.7	5.7	6.5	8.9	5.9	7.4	7.7	6.4	7.1
15	8.5	8.0	8.2	6.3	4.5	5.3	10.7	6.4	8.2	8.0	6.7	7.3
16	8.4	8.2	8.4	7.5	4.9	6.5	10.5	5.6	7.8	8.6	6.7	7.5
17	8.5	8.2	8.4	7.4	4.7	6.4	7.9	5.5	7.0	12.1	7.2	9.3
18	8.5	8.2	8.4	6.1	4.4	5.3	11.6	5.2	8.0	14.6	7.9	11.1
19	8.4	8.2	8.3	9.2	3.5	6.3	11.7	5.5	8.3	14.5	8.3	11.6
20	8.3	7.9	8.2	10.3	6.6	8.3	11.3	5.1	8.1	12.1	7.2	9.8
21	8.1	7.7	8.0	12.3	6.6	9.1	10.8	5.1	7.9	10.5	6.7	8.7
22	8.1	7.7	7.9	12.5	6.6	9.2	10.2	5.3	7.8	11.4	6.7	8.9
23	8.1	7.7	8.0	11.2	6.3	8.6	10.0	5.6	7.8	12.0	7.2	9.6
24	8.0	7.5	7.8	11.3	6.4	8.6	10.0	5.5	7.7	13.2	8.3	11.2
25	8.0	7.3	7.7	11.3	6.5	8.6	10.3	5.7	8.0	11.7	8.7	10.6
26	7.9	7.3	7.6	9.3	4.7	7.5	10.4	5.6	8.1	10.9	8.4	9.8
27	7.9	7.5	7.7	9.0	4.6	6.9	10.2	6.3	8.4	11.1	8.4	10.2
28	7.9	7.7	7.8	10.9	5.7	7.9	10.5	6.1	8.3	11.5	7.1	9.3
29	8.2	7.9	8.0	11.6	5.7	8.2	10.5	6.3	8.4	11.6	7.9	9.9
30	8.2	7.9	8.1	12.5	6.0	9.0	9.7	6.6	8.0	12.3	8.3	10.2
31	---	---	---	9.6	4.8	7.4	10.7	6.6	8.2	---	---	---
MONTH	8.5	7.3	8.0	12.5	3.5	7.6	13.5	4.9	8.0	14.6	1.5	8.5

08048980 VILLAGE CREEK NEAR KENNEDALE, TX

LOCATION.--Lat 32° 38' 18", long 97° 14' 31", Tarrant County, Hydrologic Unit 12030102, at center of channel on downstream side of bridge on Everman-Kennedale Road, 1.5 mi downstream from Elm Branch, and 3.0 mi upstream from bridge on Interstate Highway 20.

PERIOD OF RECORD.--Chemical and biochemical analyses: July 1986 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1986 to current year.
pH: July 1986 to current year.
WATER TEMPERATURE: July 1986 to current year.
DISSOLVED OXYGEN: July 1986 to current year.

INSTRUMENTATION.--Beginning July 1986, a four-parameter water-quality monitor continuously recorded specific conductance, pH, water temperature, and dissolved oxygen at this station.

REMARKS.--Due to an undefined stage-discharge relationship, daily values for the 1989 water year are not being published at this time.

EXTREMES FOR THE PERIOD OF RECORD.--
SPECIFIC CONDUCTANCE (1986-88): Maximum, 912 microsiemens Feb. 20, 1988; minimum, 107 microsiemens Nov. 19, 1986.
pH (1986-88): Maximum, 8.6 units Mar. 14, 1987; minimum, 6.8 units June 14, 1988.
WATER TEMPERATURE (1986-88): Maximum, 31.0°C Oct. 1, 1986; minimum, 2.5°C Feb. 11, 1988.
DISSOLVED OXYGEN (1986-88): Maximum, 16.0 mg/L Mar. 2, 7, 1988; minimum, 0.5 mg/L Aug. 24, Sept. 15, 16, 22, 24, 1988.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
NOV 07...	1335	104	252	7.60	19.5	8.6	96	--	77
FEB 14...	1430	46	282	8.00	8.0	12.4	106	0.9	84
MAY 25...	1530	45	845	7.90	22.5	10.4	124	1.6	300
JUN 21...	1320	42	824	8.00	27.0	8.2	105	1.4	300
JUL 31...	1515	12	780	7.90	30.5	6.6	90	1.0	280
SEP 13...	0945	85	309	7.80	24.5	7.1	87	2.2	94

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 WH TOT FET 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 07...	23	4.8	18	0.9	4.8	59	26	21	0.20
FEB 14...	26	4.6	21	1	4.9	72	33	19	0.20
MAY 25...	100	12	58	1	5.4	240	120	57	0.30
JUN 21...	100	13	56	1	4.9	236	110	53	0.40
JUL 31...	89	14	56	1	2.9	221	100	45	0.40
SEP 13...	29	5.2	23	1	4.4	85	30	21	0.20

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...	3.8	137	0.240	0.060	0.300	0.090	0.81	0.90	0.060
FEB 14...	4.5	156	--	<0.010	0.300	0.030	--	<0.20	0.070
MAY 25...	12	509	0.780	0.020	0.800	0.020	0.78	0.80	0.050
JUN 21...	13	492	0.580	0.020	0.600	0.030	0.67	0.70	0.030
JUL 31...	12	452	--	<0.010	<0.100	<0.010	--	1.3	0.030
SEP 13...	6.5	170	0.350	0.050	0.400	0.030	0.47	0.50	0.060

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, 72,500 acre-ft May 17 at 2000 hours (elevation, 562.42 ft); minimum, 23,260 acre-ft Oct. 1 (elevation, 541.11 ft.)

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

540.0	21,620	552.0	44,460	560.0	65,220
544.0	28,030	556.0	54,270	564.0	77,520
548.0	35,720				

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24080	25710	27200	27200	27530	29920	33090	30030	38860	37760	32550	27700
2	23620	25820	27290	27220	27580	29860	32940	29950	38590	37950	32510	27370
3	23840	25890	27370	27180	27580	29770	32740	31010	38520	38030	32450	27030
4	23990	25940	27390	27080	27550	29650	32570	37400	40250	37910	32240	26700
5	24010	25940	27460	27040	27430	29610	32350	40290	40270	37890	32000	26390
6	24100	25970	27530	27040	27290	29550	32120	40320	40130	37820	31730	26120
7	24210	25990	27620	26980	27230	29480	31890	40450	41750	37780	32450	25820
8	24340	26000	27750	26910	27100	29380	31620	40290	41470	37650	32630	25530
9	24380	26150	27870	26800	27040	29310	31350	40090	41020	37530	32570	25280
10	24400	26170	28180	26730	26910	29180	31160	39930	40720	37360	32530	25050
11	24400	26150	28410	26660	26820	29040	30950	39720	41700	37260	32410	25380
12	24450	26020	28510	26700	26750	28930	30750	39570	46770	37050	32300	25380
13	24480	25840	28510	26720	26730	28910	31420	39500	47740	36950	32200	25890
14	24530	25670	28410	26730	26700	28710	31980	39440	47130	36910	32080	25940
15	24480	25610	28230	26630	26870	28630	32000	39250	44120	36990	31890	25940
16	24380	25530	28120	26560	27300	28600	32020	46470	42610	36950	31770	25940
17	24430	25670	27980	26510	30500	28560	32690	71410	41750	36820	31600	25860
18	24450	25720	27820	26470	30820	28400	32590	63110	41200	36700	31450	25760
19	24460	26170	27740	26460	30820	28400	32450	54900	40820	36340	31240	25690
20	24480	26200	27630	26330	30710	28310	32180	47420	40430	35950	31090	25640
21	24570	26220	27510	26280	30620	28290	31930	43920	40110	35580	30820	25560
22	24620	26270	27580	26220	30540	28230	31730	42380	39870	35260	30600	25380
23	24630	26490	27600	26150	30520	27460	31490	41520	39610	34910	30330	25210
24	24630	26510	27510	26100	30470	27370	31180	40970	39400	34630	30030	25180
25	24700	26580	27410	26420	30310	27300	31030	40570	39140	34330	29750	25100
26	24850	26850	27300	26440	30260	27250	30750	40290	38890	34140	29480	25000
27	24910	26920	27390	26440	30140	27200	30580	40040	38630	33960	29180	24880
28	25060	27030	27320	27700	30030	32800	30370	39800	38400	33760	28910	24800
29	25340	27080	27250	27770	---	33330	30180	39570	38160	33470	28600	24650
30	25490	27110	27270	27720	---	33360	30030	39310	37990	33150	28340	24590
31	25620	---	27250	27670	---	33270	---	39060	---	32800	28030	---
MAX	25620	27110	28510	27770	30820	33360	33090	71410	47740	38030	32630	27700
MIN	23620	25530	27200	26100	26700	27200	30030	29950	37990	32800	28030	24590
(†)	542.59	543.47	543.55	543.79	545.09	546.78	545.09	549.59	549.09	546.54	544.00	541.96
(ϕ)	+2360	+1490	+140	+420	+2360	+3240	-3240	+9030	-1070	-5190	-4770	-3440

CAL YR 1988 MAX 31220 MIN 19310 (ϕ) +2500
WTR YR 1989 MAX 71410 MIN 23620 (ϕ) -1330

(†) 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 1988 TO SEPTEMBER 1989

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)
JAN									
24...	1038	1.00	324	8.10	12.0	0.90	9.4	88	110
24...	1040	10.0	324	8.10	11.5	--	9.3	86	--
24...	1042	20.0	324	8.10	11.5	--	9.3	86	--
24...	1044	30.0	324	8.10	11.5	--	9.3	86	--
24...	1046	38.0	324	8.00	11.0	--	9.1	83	110
MAY									
09...	1005	1.00	295	8.60	24.0	0.70	8.3	100	100
09...	1008	10.0	297	8.40	23.5	--	7.4	89	--
09...	1012	20.0	296	8.30	23.0	--	7.0	83	--
09...	1018	30.0	291	8.00	22.5	--	5.3	62	--
09...	1025	35.0	287	7.80	22.0	--	4.4	51	--
09...	1030	40.0	285	7.60	22.0	--	3.3	38	--
09...	1035	46.0	317	7.30	20.0	--	0	0	110
AUG									
11...	0858	1.00	285	8.00	27.5	1.00	5.0	64	110
11...	0900	10.0	286	8.00	27.5	--	4.8	61	--
11...	0903	20.0	285	8.00	27.5	--	5.2	67	--
11...	0906	30.0	289	7.70	27.0	--	2.9	37	--
11...	0910	41.0	297	7.30	24.0	--	0	0	110

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 WH TOT FET FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
JAN								
24...	35	4.9	21	0.9	5.1	94	30	23
24...	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--
24...	35	4.9	21	0.9	5.2	95	32	23
MAY								
09...	35	4.1	18	0.8	4.7	94	26	16
09...	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--
09...	38	4.3	18	0.7	4.7	108	23	16
AUG								
11...	38	3.7	13	0.5	4.8	103	20	9.8
11...	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--
11...	39	3.5	10	0.4	4.9	130	7.0	8.1

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHOROUS TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JAN								
24...	0.20	1.2	177	<0.100	0.70	0.020	15	5
24...	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--
24...	--	1.4	180	<0.100	0.90	0.020	35	15
MAY								
09...	0.20	2.0	162	<0.100	0.70	0.040	15	6
09...	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--
09...	--	--	--	0.100	1.1	0.050	40	30
09...	--	--	--	--	--	--	--	--
09...	--	--	--	0.200	0.70	0.070	40	210
09...	--	5.1	175	0.100	0.70	0.070	65	1000
AUG								
11...	0.20	4.6	156	<0.100	0.60	0.010	6	15
11...	--	--	--	--	--	--	--	--
11...	--	--	--	<0.100	0.50	0.020	10	50
11...	--	--	--	<0.100	0.80	0.030	20	160
11...	--	14	169	<0.100	2.1	0.330	1500	2900

08049200 LAKE ARLINGTON AT ARLINGTON, TX--Continued

324320097121101 - LAKE ARLINGTON SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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							
24...	1058	1.00	326	8.20	12.0	9.5	89
24...	1100	10.0	326	8.10	11.5	9.4	87
24...	1102	25.0	326	8.10	11.5	9.1	84
MAY							
09...	1044	1.00	295	8.60	24.0	8.0	97
09...	1046	10.0	296	8.40	23.5	7.1	85
09...	1048	20.0	297	8.30	23.0	7.0	83
09...	1050	33.0	294	8.20	23.0	6.2	74
AUG							
11...	0925	1.00	284	8.10	27.5	5.5	70
11...	0927	10.0	284	8.00	27.5	5.2	67
11...	0929	20.0	285	8.00	27.5	5.2	67
11...	0931	30.0	292	7.60	27.0	1.5	19
11...	0933	37.0	291	7.40	25.5	0	0

324253097121801 - LAKE ARLINGTON SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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							
24...	1110	1.00	325	8.20	12.5	9.4	89
24...	1112	10.0	325	8.20	11.5	9.3	86
24...	1114	20.0	325	8.20	11.0	9.4	86
24...	1116	29.0	325	8.10	11.0	9.4	86
MAY							
09...	1102	1.00	296	8.60	24.5	8.5	104
09...	1104	10.0	297	8.40	23.5	7.1	85
09...	1106	20.0	295	8.20	23.0	6.4	76
09...	1108	30.0	277	7.70	21.5	3.0	35
09...	1110	39.0	276	7.70	21.5	2.2	25
AUG							
11...	0941	1.00	284	8.30	27.5	6.3	81
11...	0943	10.0	284	8.20	27.5	5.9	76
11...	0945	20.0	284	8.10	27.5	5.7	73
11...	0947	30.0	291	7.60	27.0	2.0	25
11...	0950	38.0	367	7.40	25.0	0	0

324301097123301 - LAKE ARLINGTON SITE BL

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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							
24...	1120	1.00	326	8.20	12.5	9.4	89
24...	1122	10.0	326	8.10	11.5	9.2	85
24...	1124	25.0	324	8.10	11.5	9.2	85
MAY							
09...	1115	1.00	296	8.60	24.5	8.3	101
09...	1117	10.0	297	8.40	23.5	6.9	83
09...	1120	20.0	293	8.20	23.0	5.9	70
09...	1122	31.0	289	8.10	22.5	5.2	61
AUG							
11...	0955	1.00	284	8.40	27.5	6.4	82
11...	0957	10.0	284	8.40	27.5	6.2	79
11...	0959	20.0	284	8.30	27.5	6.2	79
11...	1002	26.0	284	8.30	27.5	6.0	77

08049200 LAKE ARLINGTON AT ARLINGTON, TX--Continued

324257097130301 - LAKE ARLINGTON SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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							
24...	1132	1.00	329	8.10	17.0	8.9	93
24...	1134	10.0	329	8.10	17.0	9.0	94
24...	1136	15.0	329	8.10	16.5	9.0	93
MAY							
09...	1132	1.00	296	8.20	29.5	6.3	84
09...	1134	10.0	297	8.10	27.5	6.1	79
09...	1136	22.0	285	7.90	24.0	3.8	46
AUG							
11...	1013	1.00	284	8.40	27.5	6.7	86
11...	1015	10.0	284	8.40	27.5	6.7	86
11...	1017	17.0	284	8.40	27.5	6.7	86

324228097130301 - LAKE ARLINGTON SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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							
24...	1147	1.00	326	8.10	14.5	9.0	89
24...	1149	14.0	324	8.10	12.0	9.1	85
MAY							
09...	1143	1.00	296	8.30	26.5	6.8	86
09...	1145	10.0	295	8.40	24.0	7.0	85
09...	1150	20.0	295	8.30	24.0	6.6	80
AUG							
11...	1028	1.00	284	8.40	27.5	6.5	83
11...	1030	10.0	284	8.30	27.5	6.1	78
11...	1032	16.0	284	8.30	27.5	5.9	76

324143097132201 - LAKE ARLINGTON SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
JAN												
24...	1202	1.00	321	8.30	11.5	0.60	9.9	92	110	35	4.9	21
24...	1204	10.0	321	8.30	11.0	--	9.7	89	--	--	--	--
24...	1206	19.0	321	8.20	11.0	--	9.5	87	100	34	4.8	21
MAY												
09...	1157	1.00	289	8.50	24.0	0.40	7.6	92	100	35	4.0	17
09...	1200	10.0	288	8.00	23.0	--	5.7	68	--	--	--	--
09...	1203	15.0	286	8.10	23.0	--	5.8	69	--	--	--	--
09...	1213	24.0	271	7.60	22.0	--	1.9	22	100	34	3.6	15
AUG												
11...	1043	1.00	283	8.80	27.5	0.70	7.6	97	110	37	3.6	13
11...	1046	10.0	284	8.60	27.5	--	7.1	91	--	--	--	--
11...	1051	21.0	293	8.20	27.0	--	5.3	67	110	36	3.7	15

08049200 LAKE ARLINGTON AT ARLINGTON, TX--Continued

324143097132201 - LAKE ARLINGTON SITE EC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
JAN												
24...	0.9	5.1	95	30	22	1.2	176	<0.100	0.60	0.040	9	<1
24...	--	--	--	--	--	--	--	--	--	--	--	--
24...	0.9	4.9	96	30	21	1.6	175	<0.100	0.70	0.020	10	2
MAY												
09...	0.7	4.7	93	25	15	3.2	160	0.100	1.2	0.060	14	4
09...	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	0.100	0.60	0.050	40	30
09...	0.7	4.7	94	21	12	4.6	151	0.200	0.90	0.090	25	71
AUG												
11...	0.5	4.9	102	32	10	4.2	166	<0.100	0.50	0.020	5	4
11...	--	--	--	--	--	--	--	<0.100	0.60	0.020	10	10
11...	0.6	5.0	102	22	12	4.9	160	<0.100	1.2	0.050	8	44

324133097130601 - LAKE ARLINGTON SITE EL

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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							
24...	1212	1.00	321	8.30	11.5	9.9	92
24...	1214	10.0	321	8.30	11.0	9.8	90
MAY							
09...	1225	1.00	296	8.20	24.0	6.5	79
09...	1228	14.0	283	8.00	23.5	5.0	60
AUG							
11...	1100	1.00	283	8.80	27.5	7.8	100
11...	1102	10.0	284	8.70	27.5	7.0	90
11...	1104	15.0	285	8.70	27.5	6.3	81

324041097134601 - LAKE ARLINGTON SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
JAN												
24...	1232	1.00	309	8.40	11.5	0.50	9.9	92	100	34	4.8	21
24...	1234	8.00	309	8.30	11.5	--	9.8	91	110	36	5.1	22
MAY												
09...	1245	1.00	298	8.50	24.5	0.30	8.0	98	110	37	4.2	17
09...	1248	5.00	300	8.40	24.5	--	6.9	84	--	--	--	--
09...	1251	10.0	293	7.80	23.0	--	4.3	51	--	--	--	--
09...	1255	15.0	362	7.50	22.5	--	2.0	24	140	46	4.9	20
AUG												
11...	1120	1.00	285	8.80	27.0	0.50	8.2	104	110	37	3.7	14
11...	1122	12.0	296	8.40	26.0	--	5.9	74	110	36	3.8	17

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
JAN												
24...	0.9	5.0	92	29	21	1.6	172	<0.100	1.0	0.030	8	2
24...	0.9	5.1	91	31	22	1.3	177	<0.100	0.90	0.030	16	3
MAY												
09...	0.7	4.7	97	26	15	4.0	166	0.100	1.2	0.070	15	6
09...	--	--	--	--	--	--	--	0.100	0.70	0.060	20	10
09...	--	--	--	--	--	--	--	0.200	1.0	0.060	60	60
09...	0.7	5.3	118	31	15	10	203	0.500	1.3	0.130	54	220
AUG												
11...	0.6	4.8	103	22	11	4.5	159	<0.100	0.60	0.040	5	2
11...	0.7	5.1	99	24	12	5.4	163	0.100	0.90	0.060	15	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.--64 years (water years 1926-89), 582 ft³/s (421,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 62,000 ft³/s May 17, 1949 (gage-height, 28.00 ft, site and datum then in use), from rating curve extended above 36,000 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, 43,300 ft³/s June 14 at 2130 hours (gage height, 33.16 ft); minimum daily 137 ft³/s Oct. 17.

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	678	236	170	246	340	296	1520	736	3240	3880	240	207
2	594	192	170	214	459	279	1020	702	3850	3890	463	190
3	307	172	162	212	556	275	765	2870	4540	5770	441	193
4	229	165	167	199	428	279	643	4500	5220	3980	310	278
5	204	152	170	185	314	469	544	11300	8480	3930	251	207
6	199	150	165	192	279	663	457	12100	7820	4110	275	172
7	184	150	197	184	283	782	428	8960	9560	3890	985	e200
8	178	150	238	184	283	566	486	4620	15600	3740	1790	e188
9	173	147	278	182	264	431	471	1980	16100	3640	e832	e202
10	173	151	464	183	250	355	454	1710	12800	3550	e605	e220
11	169	148	925	186	234	299	438	1740	12800	2880	e508	943
12	161	183	422	282	255	278	436	1560	18700	2380	e338	1440
13	156	202	251	395	354	274	813	1940	32800	1950	e267	1800
14	155	175	209	386	320	275	3680	1990	37100	e1550	e245	1560
15	148	289	197	283	575	274	1290	1330	33600	e1190	253	456
16	149	307	187	222	1540	274	809	3530	27700	e926	264	325
17	137	189	180	197	5350	265	656	21900	20800	836	1030	257
18	154	166	183	196	7050	259	582	27100	e13900	802	1220	235
19	150	614	180	191	1300	259	543	24900	11500	740	407	223
20	148	608	183	191	957	266	554	22500	10500	625	289	202
21	148	267	181	183	1170	467	572	19100	9380	470	251	215
22	140	211	294	184	1380	645	555	12400	8170	451	238	191
23	144	195	445	180	1500	426	538	9600	6960	438	232	178
24	146	192	327	184	1070	388	529	8730	6060	441	219	171
25	148	171	220	295	677	317	514	8360	5150	444	215	164
26	179	281	178	3090	508	303	510	8160	3570	451	212	167
27	528	243	333	660	429	294	486	7910	2600	621	210	172
28	247	203	805	2620	374	5510	472	6600	3350	484	213	194
29	314	185	437	3100	---	10700	965	4410	3900	307	216	206
30	450	171	245	630	---	9110	769	3330	4010	251	209	173
31	264	---	233	440	---	3030	---	3180	---	240	215	---
TOTAL	7154	6665	8796	16076	28499	38308	22499	249748	359760	58857	13443	11329
MEAN	231	222	284	519	1018	1236	750	8056	11990	1899	434	378
MAX	678	614	925	3100	7050	10700	3680	27100	37100	5770	1790	1800
MIN	137	147	162	180	234	259	428	702	2600	240	209	164
AC-FT	14190	13220	17450	31890	56530	75980	44630	495400	713600	116700	26660	22470

CAL YR 1988 TOTAL 100846 MEAN 276 MAX 4280 MIN 137 AC-FT 200000
WTR YR 1989 TOTAL 821134 MEAN 2250 MAX 37100 MIN 137 AC-FT 1629000

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.--Beginning 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, and 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 several years.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 956 microsiemens Oct. 24; minimum, 124 microsiemens May 16.
pH: Maximum, 8.4 units June 3, July 20; minimum, 7.3 units Jan. 25, 26.
WATER TEMPERATURE: Maximum, 34.5°C May 31, June 1, 2; minimum, 6.5°C Feb. 5, 6.
DISSOLVED OXYGEN: Maximum, 10.9 mg/L Mar. 7; minimum, 3.9 mg/L July 28.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
NOV 07...	1045	154	828	7.60	20.5	7.0	80	--	160
FEB 13...	1545	350	778	7.50	16.5	9.4	99	2.5	180
APR 07...	1300	420	762	7.70	20.5	8.2	94	2.3	230
JUN 21...	1015	9400	311	7.90	26.5	5.5	70	2.2	120
AUG 04...	1450	280	765	7.80	28.5	6.4	84	3.6	210
SEP 13...	1405	1980	339	7.50	24.5	6.6	79	4.8	110

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 WH TOT FET 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 07...	50	7.7	100	3	10	130	83	97	1.0
FEB 13...	59	7.5	86	3	8.9	154	88	78	0.70
APR 07...	78	8.3	67	2	7.6	193	86	67	0.60
JUN 21...	40	4.8	13	0.5	5.0	110	16	16	0.20
AUG 04...	69	9.1	63	2	9.0	168	82	59	0.60
SEP 13...	36	3.7	27	1	4.7	88	37	26	0.40

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, 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-PHOROUS TOTAL (MG/L AS P)
NOV 07...	9.6	436	7.28	0.020	7.30	0.070	2.0	2.1	3.30
FEB 13...	8.5	429	5.67	0.030	5.70	0.210	1.8	2.0	2.60
APR 07...	7.9	438	2.31	0.090	2.40	0.330	0.77	1.1	0.870
JUN 21...	8.4	169	0.280	0.020	0.300	0.030	0.67	0.70	0.070
AUG 04...	11	403	2.17	0.030	2.20	0.090	1.0	1.1	0.900
SEP 13...	6.3	194	1.27	0.030	1.30	0.060	0.74	0.80	0.380

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	7154	669	376	7260	64	1230	73	1400	160
NOV.	1988	6665	703	394	7100	67	1200	77	1380	170
DEC.	1988	8796	682	383	9090	65	1540	74	1760	170
JAN.	1989	16076	504	282	12200	48	2080	50	2170	140
FEB.	1989	28499	488	273	21000	46	3580	47	3620	140
MAR.	1989	38308	434	242	25100	41	4280	41	4270	130
APR.	1989	22499	617	345	21000	59	3560	64	3870	160
MAY	1989	249748	334	186	126000	32	21600	28	18900	120
JUNE	1989	359760	242	135	131000	23	22500	19	18600	90
JULY	1989	58857	503	281	44600	48	7620	48	7600	150
AUG.	1989	13443	552	309	11200	53	1910	55	2000	160
SEPT	1989	11329	566	317	9700	54	1650	58	1770	150
TOTAL		821134	**	**	425000	**	72800	**	67300	**
WTD.AVG.		2250	343	191	**	33	**	30	**	110

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	438	326	374	666	610	638	854	812	830	750	716	734
2	570	392	470	716	662	674	872	856	865	728	666	699
3	562	412	475	754	722	741	896	860	872	724	682	705
4	666	556	596	778	736	765	906	858	892	766	730	743
5	734	672	691	822	770	798	872	824	853	808	772	791
6	800	758	774	830	788	814	850	818	828	850	812	832
7	800	730	762	830	788	808	886	846	872	870	834	853
8	798	700	770	810	764	793	906	844	860	854	820	840
9	788	758	775	836	768	802	890	774	816	854	798	837
10	796	752	777	862	834	853	800	450	676	804	774	792
11	820	760	793	850	822	837	604	378	512	824	784	808
12	810	772	796	838	690	796	590	426	518	824	486	746
13	836	814	826	810	722	780	718	586	621	808	634	732
14	850	820	836	802	698	737	782	714	729	714	620	666
15	846	826	838	776	374	671	836	782	810	706	572	634
16	876	838	856	752	596	686	858	834	843	736	650	680
17	858	816	827	742	620	680	854	810	835	784	690	725
18	886	774	808	898	746	769	842	818	834	838	728	799
19	848	776	818	890	290	670	844	788	820	824	776	799
20	874	822	850	552	400	477	802	774	789	816	792	802
21	886	848	869	600	450	513	844	792	823	808	784	801
22	890	840	852	794	606	647	848	520	762	808	792	798
23	932	890	911	808	774	792	792	624	708	824	760	809
24	956	878	927	830	790	811	678	580	628	784	752	771
25	942	782	854	830	770	817	706	588	628	808	328	755
26	798	708	771	776	664	738	716	672	698	612	298	376
27	846	490	664	724	558	658	710	470	636	486	336	425
28	662	510	580	696	668	686	614	428	519	524	242	376
29	732	404	629	754	702	734	576	406	474	384	244	304
30	714	534	596	816	762	797	738	570	637	524	384	480
31	598	442	518	---	---	---	744	662	696	628	494	563
MONTH	956	326	738	898	290	733	906	378	738	870	242	699

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	698	604	651	818	786	801	520	494	507	620	572	590
2	714	352	634	848	798	823	578	522	555	642	594	612
3	660	518	598	850	820	838	628	576	604	628	254	474
4	626	540	594	846	818	834	682	624	649	324	150	278
5	674	604	640	832	752	802	716	674	690	208	156	186
6	690	658	674	744	648	696	734	706	716	344	212	279
7	706	674	693	650	590	626	784	736	758	396	348	372
8	754	706	722	654	596	622	790	688	759	450	396	425
9	760	728	748	718	624	663	736	682	700	494	452	473
10	824	770	798	726	668	700	776	744	754	520	496	510
11	846	816	827	792	720	749	798	756	768	522	506	514
12	830	770	811	822	762	794	808	736	770	506	504	506
13	824	738	793	820	754	789	784	604	731	504	484	496
14	738	698	715	812	768	797	624	374	463	484	472	479
15	752	564	666	856	788	809	492	388	454	488	472	476
16	604	426	490	864	818	844	558	498	545	564	124	386
17	458	272	344	902	804	815	618	562	607	206	126	175
18	410	272	308	908	824	891	690	630	676	312	196	243
19	562	412	498	840	778	805	740	700	716	342	318	332
20	624	558	600	840	756	793	746	706	721	346	342	345
21	638	562	593	800	662	741	740	680	707	352	342	344
22	600	548	581	734	592	663	722	674	695	376	352	364
23	580	528	559	724	592	665	728	666	691	410	376	395
24	648	548	571	768	724	751	704	652	674	410	402	406
25	688	626	659	736	686	716	684	654	663	404	392	399
26	716	640	690	754	704	729	718	668	686	392	386	390
27	748	680	717	750	660	712	706	668	681	396	386	391
28	782	716	747	738	192	355	728	680	700	404	394	399
29	---	---	---	344	188	246	736	590	685	438	404	428
30	---	---	---	390	348	369	642	592	625	444	438	441
31	---	---	---	486	394	437	---	---	---	450	444	445
MONTH	846	272	640	908	188	706	808	374	665	642	124	405
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	498	446	463	---	---	565	756	722	739	---	---	746
2	540	490	505	---	---	589	764	346	647	---	---	766
3	548	372	447	---	---	525	774	580	711	---	---	782
4	390	296	358	506	390	437	---	---	731	---	---	780
5	358	284	323	584	400	480	---	---	657	---	---	755
6	372	358	364	712	358	569	---	---	593	---	---	750
7	362	222	297	398	300	345	---	---	373	---	---	744
8	314	230	274	554	362	442	---	---	384	---	---	740
9	340	316	326	---	---	465	---	---	446	---	---	756
10	348	330	335	---	---	394	---	---	523	---	---	749
11	346	254	322	418	388	403	---	---	586	---	---	747
12	---	---	179	444	410	428	---	---	631	512	366	414
13	---	---	106	490	412	453	---	---	650	442	206	358
14	---	---	124	604	470	530	648	644	646	402	292	342
15	---	---	150	670	530	601	---	---	644	542	404	470
16	---	---	177	742	674	700	---	---	643	604	548	570
17	---	---	198	738	650	687	---	---	516	638	592	611
18	---	---	222	648	594	623	---	---	368	702	656	677
19	---	---	243	624	564	594	576	414	505	720	656	692
20	---	---	271	594	558	568	642	578	598	---	---	714
21	---	---	295	640	590	614	666	642	655	---	---	736
22	---	---	318	652	618	640	676	656	666	---	---	742
23	332	322	326	644	610	632	744	674	716	---	---	744
24	346	326	333	638	596	618	768	744	760	---	---	738
25	---	---	369	642	598	625	784	758	774	---	---	742
26	---	---	390	646	618	635	782	764	772	---	---	730
27	---	---	372	648	580	629	794	778	784	---	---	736
28	---	---	385	620	562	596	798	782	790	---	---	740
29	---	---	465	660	610	632	---	---	764	---	---	754
30	---	---	544	712	664	695	---	---	744	---	---	770
31	---	---	---	758	714	741	---	---	732	---	---	---
MONTH	548	222	316	758	300	563	798	346	637	720	206	686

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.7	7.6	7.6	7.6	7.5	7.5	7.7	7.6	7.6	7.5	7.5	7.5
2	7.7	7.5	7.6	7.6	7.5	7.6	7.6	7.6	7.6	7.7	7.5	7.5
3	7.7	7.6	7.6	7.6	7.6	7.6	7.7	7.6	7.6	7.7	7.5	7.6
4	7.6	7.6	7.6	7.7	7.6	7.6	7.8	7.6	7.8	7.6	7.4	7.5
5	7.7	7.6	7.6	7.6	7.5	7.6	7.6	7.6	7.6	7.6	7.4	7.5
6	7.8	7.7	7.8	7.6	7.5	7.6	7.7	7.6	7.6	7.6	7.4	7.5
7	7.8	7.7	7.7	7.6	7.5	7.6	7.8	7.6	7.7	7.7	7.5	7.5
8	7.8	7.6	7.7	7.5	7.5	7.5	8.0	7.5	7.7	7.6	7.5	7.5
9	7.7	7.6	7.7	7.5	7.4	7.4	7.9	7.7	7.8	7.7	7.5	7.6
10	7.7	7.6	7.7	7.5	7.4	7.4	7.7	7.6	7.7	7.7	7.6	7.6
11	7.9	7.6	7.7	7.6	7.5	7.5	7.9	7.6	7.7	7.6	7.4	7.5
12	7.8	7.6	7.7	7.6	7.5	7.5	7.8	7.7	7.7	7.6	7.5	7.5
13	7.7	7.6	7.7	7.6	7.4	7.5	7.7	7.6	7.7	7.7	7.5	7.6
14	7.8	7.6	7.7	7.6	7.5	7.6	7.7	7.6	7.7	7.8	7.5	7.7
15	7.8	7.7	7.7	7.6	7.5	7.5	7.7	7.6	7.6	7.5	7.5	7.5
16	7.8	7.6	7.7	7.5	7.4	7.5	7.8	7.6	7.7	7.7	7.5	7.5
17	7.8	7.6	7.7	7.6	7.5	7.6	7.8	7.6	7.7	7.8	7.4	7.5
18	7.8	7.6	7.7	8.0	7.6	7.6	7.8	7.6	7.7	7.5	7.4	7.5
19	7.7	7.5	7.6	8.3	7.5	7.9	7.7	7.5	7.6	7.5	7.4	7.4
20	7.8	7.7	7.8	7.7	7.5	7.6	7.6	7.5	7.6	7.6	7.4	7.5
21	8.0	7.8	7.9	7.7	7.6	7.6	7.6	7.5	7.5	7.6	7.5	7.5
22	7.9	7.7	7.8	8.2	7.6	7.6	7.7	7.5	7.5	7.7	7.5	7.5
23	8.0	7.8	7.9	8.2	7.6	7.9	7.6	7.5	7.5	7.6	7.4	7.5
24	8.1	7.8	8.0	7.6	7.6	7.6	7.7	7.6	7.6	7.5	7.4	7.5
25	7.8	7.6	7.7	7.7	7.6	7.6	7.7	7.6	7.6	7.7	7.3	7.4
26	7.6	7.5	7.5	7.6	7.5	7.6	7.6	7.6	7.6	7.8	7.3	7.6
27	7.6	7.4	7.5	7.6	7.5	7.5	7.7	7.5	7.6	7.6	7.5	7.5
28	7.6	7.5	7.6	7.8	7.6	7.6	7.7	7.4	7.5	7.8	7.5	7.6
29	7.6	7.5	7.6	7.8	7.6	7.6	7.8	7.6	7.7	7.8	7.6	7.7
30	7.6	7.5	7.6	7.7	7.6	7.6	7.7	7.5	7.6	7.5	7.5	7.5
31	7.6	7.6	7.6	---	---	---	7.7	7.5	7.5	7.5	7.5	7.5
MONTH	8.1	7.4	7.7	8.3	7.4	7.6	8.0	7.4	7.6	7.8	7.3	7.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.5	7.5	7.5	7.7	7.6	7.7	8.0	8.0	8.0	8.2	8.1	8.1
2	7.7	7.5	7.5	7.7	7.6	7.7	8.0	8.0	8.0	8.2	8.1	8.2
3	7.6	7.5	7.5	7.7	7.6	7.7	8.0	8.0	8.0	8.2	7.8	8.1
4	7.6	7.6	7.6	7.7	7.6	7.7	8.0	8.0	8.0	8.1	7.8	8.0
5	7.6	7.6	7.6	7.8	7.7	7.7	8.0	8.0	8.0	8.0	7.9	8.0
6	7.6	7.5	7.6	7.9	7.8	7.8	8.0	8.0	8.0	7.9	7.8	7.9
7	7.6	7.5	7.6	7.9	7.7	7.8	8.0	7.8	7.9	7.9	7.9	7.9
8	7.6	7.5	7.5	7.9	7.7	7.8	8.0	8.0	8.0	8.2	7.6	7.9
9	7.6	7.5	7.5	7.8	7.6	7.7	8.0	7.9	7.9	8.3	8.2	8.2
10	7.6	7.5	7.6	7.7	7.6	7.6	8.0	8.0	8.0	8.3	8.3	8.3
11	7.5	7.5	7.5	7.6	7.6	7.6	8.1	8.0	8.1	8.3	8.3	8.3
12	7.6	7.5	7.5	7.6	7.5	7.6	8.1	8.0	8.1	8.3	8.3	8.3
13	7.5	7.4	7.5	7.6	7.5	7.6	8.2	8.0	8.1	8.3	8.3	8.3
14	7.5	7.5	7.5	7.6	7.5	7.5	8.2	7.8	8.0	8.3	8.3	8.3
15	7.6	7.5	7.5	7.6	7.4	7.5	8.0	7.9	8.0	8.3	8.3	8.3
16	7.9	7.6	7.7	7.7	7.5	7.6	8.0	8.0	8.0	8.3	7.6	8.0
17	8.0	7.7	7.8	8.0	7.6	7.6	8.1	8.0	8.0	8.2	7.8	8.0
18	8.1	7.8	8.0	8.0	7.7	8.0	8.1	8.0	8.1	7.8	7.7	7.8
19	7.8	7.7	7.7	7.7	7.6	7.6	8.1	8.0	8.1	7.8	7.7	7.7
20	7.8	7.7	7.7	7.8	7.6	7.6	8.2	8.1	8.1	7.8	7.8	7.8
21	7.9	7.7	7.7	7.7	7.5	7.6	8.2	8.2	8.2	7.8	7.7	7.8
22	7.9	7.8	7.9	7.7	7.5	7.7	8.2	8.2	8.2	7.8	7.8	7.8
23	8.0	7.9	7.9	7.7	7.6	7.7	8.2	8.2	8.2	7.9	7.8	7.8
24	7.9	7.8	7.9	7.9	7.8	7.9	8.2	8.1	8.2	7.8	7.8	7.8
25	7.9	7.7	7.8	7.8	7.7	7.7	8.2	8.2	8.2	7.9	7.8	7.8
26	7.8	7.6	7.7	7.7	7.7	7.7	8.2	8.2	8.2	7.9	7.8	7.9
27	7.8	7.6	7.7	7.7	7.6	7.7	8.2	8.1	8.2	7.9	7.8	7.9
28	7.7	7.6	7.7	7.9	7.6	7.8	8.2	8.1	8.2	7.8	7.8	7.8
29	---	---	---	7.9	7.7	7.8	8.2	8.1	8.2	8.1	7.8	8.0
30	---	---	---	7.8	7.7	7.8	8.2	8.1	8.1	8.2	8.2	8.2
31	---	---	---	8.0	7.7	7.9	---	---	---	8.2	8.2	8.2
MONTH	8.1	7.4	7.7	8.0	7.4	7.7	8.2	7.8	8.1	8.3	7.6	8.0

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	23.0	21.5	22.0	21.0	19.0	20.0	18.0	15.0	16.0	15.5	14.5	15.0
2	23.5	22.0	23.0	21.0	19.5	20.0	18.0	15.5	16.5	16.5	15.5	16.0
3	24.0	21.5	22.5	22.0	20.5	21.5	18.0	16.5	17.5	17.0	16.0	16.5
4	24.5	22.5	23.0	22.5	21.5	22.0	18.0	17.0	17.5	16.5	15.5	16.0
5	24.0	22.5	23.5	22.0	21.0	21.5	17.5	16.5	17.0	17.5	16.0	16.5
6	24.0	22.5	23.5	21.5	19.5	20.5	---	---	---	18.0	16.5	17.0
7	24.0	23.0	23.5	21.5	19.5	20.5	---	---	---	18.5	17.0	18.0
8	23.5	22.5	23.0	21.5	20.0	21.0	---	---	---	17.0	14.5	16.0
9	24.5	23.0	23.5	23.0	21.5	22.0	15.5	14.5	15.0	15.0	13.5	14.5
10	24.5	22.0	23.0	22.5	21.0	22.0	14.5	12.0	13.5	15.0	13.5	14.0
11	24.5	22.0	23.0	21.0	20.5	20.5	13.5	10.5	12.0	15.5	14.5	15.0
12	24.0	21.5	22.5	21.5	20.5	21.0	13.0	11.0	12.0	16.0	8.5	14.0
13	24.0	21.5	22.5	21.0	20.0	20.5	14.5	12.5	13.5	13.0	10.5	12.0
14	24.5	21.5	22.5	21.5	20.0	21.0	15.5	14.0	15.0	11.5	10.0	11.0
15	25.0	22.5	23.5	23.0	21.5	22.0	15.5	14.5	15.0	12.0	10.0	11.5
16	26.0	23.5	24.5	21.0	18.5	20.5	14.5	13.5	14.0	12.0	11.5	12.0
17	26.5	24.5	25.0	18.5	17.0	18.0	15.0	13.0	14.0	13.5	12.0	12.5
18	26.5	24.5	25.5	19.5	18.0	18.5	17.5	13.5	14.5	15.5	13.5	14.5
19	25.0	23.0	24.5	19.0	15.0	18.0	18.0	14.0	15.0	15.5	15.0	15.5
20	25.0	23.0	23.5	17.0	15.0	15.5	17.5	16.0	17.0	15.5	13.5	15.0
21	24.5	23.5	24.0	15.0	13.5	14.5	18.0	16.0	16.5	15.5	12.5	13.5
22	24.5	22.5	23.5	16.0	14.5	15.0	18.0	16.0	17.0	16.0	12.0	13.5
23	25.5	23.5	24.0	17.5	15.0	16.0	17.0	15.0	16.0	16.0	13.0	14.0
24	24.5	22.0	23.0	18.0	16.5	17.5	15.5	13.5	14.5	17.0	14.0	15.5
25	25.0	22.0	23.0	20.0	18.5	19.5	15.0	13.5	14.5	17.5	14.5	17.0
26	23.5	21.5	22.5	20.0	18.5	19.5	17.5	15.0	16.0	16.0	13.5	14.5
27	23.5	21.0	22.0	19.5	16.5	17.5	17.5	14.0	16.0	13.5	13.0	13.5
28	21.5	20.5	21.0	16.5	15.0	16.0	15.0	11.5	13.5	13.5	11.0	12.0
29	21.0	18.5	20.5	18.0	15.0	16.0	12.0	11.0	11.5	12.0	11.0	11.5
30	21.0	19.5	20.0	17.5	15.5	16.0	14.0	12.0	12.5	13.5	11.0	12.0
31	19.5	18.0	19.0	---	---	---	14.5	13.5	14.0	14.5	12.0	13.5
MONTH	26.5	18.0	23.0	23.0	13.5	19.0	18.0	10.5	15.0	18.5	8.5	14.0

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	16.0	13.5	15.0	15.0	13.5	14.5	22.5	20.5	21.5	29.5	28.5	29.0
2	15.5	8.0	13.0	15.5	14.0	15.0	24.5	22.5	23.0	28.5	28.0	28.5
3	10.0	8.0	9.0	17.0	15.0	16.0	26.0	24.0	25.0	28.5	20.0	25.5
4	8.0	7.0	7.5	16.5	11.5	14.0	25.5	24.0	24.5	27.0	20.0	23.5
5	7.5	6.5	7.0	11.5	9.0	10.0	24.0	23.0	23.5	21.0	19.5	20.0
6	8.0	6.5	7.5	9.0	7.0	8.0	25.0	23.0	24.0	22.5	20.5	21.5
7	10.0	8.0	8.5	9.0	7.0	8.0	26.0	24.0	25.0	23.0	22.5	22.5
8	11.0	8.5	10.0	11.0	8.0	9.5	26.0	25.0	26.0	30.0	22.5	25.5
9	11.0	9.5	10.5	13.5	10.0	12.0	25.0	23.5	24.0	30.5	30.0	30.0
10	12.5	10.5	11.5	15.5	11.5	13.5	23.5	22.0	22.5	30.0	28.5	29.0
11	13.5	12.0	13.0	17.0	13.5	15.5	22.5	21.0	22.0	29.5	28.5	29.0
12	14.0	13.5	14.0	18.5	15.5	17.0	23.0	22.0	22.5	29.5	28.5	29.5
13	16.0	14.5	15.5	19.5	17.0	18.0	23.0	22.0	22.5	29.5	28.5	29.0
14	15.0	13.5	14.0	20.5	18.0	19.0	22.0	17.5	20.5	31.0	29.5	30.0
15	13.5	11.5	12.5	19.0	17.5	18.5	23.5	21.5	22.5	32.5	31.0	31.5
16	12.0	9.5	10.5	18.0	16.5	17.5	25.5	23.5	24.0	32.5	21.0	25.5
17	10.0	8.5	9.0	20.5	17.5	19.0	26.5	25.0	25.5	21.5	20.5	21.0
18	10.0	8.5	9.0	19.5	18.0	19.0	27.0	26.5	26.5	23.0	21.0	22.0
19	10.5	9.0	9.5	18.0	17.0	17.5	27.0	26.0	26.5	24.5	23.0	23.5
20	12.5	10.5	11.5	20.5	17.5	19.0	27.5	25.5	26.5	25.0	24.0	24.5
21	12.5	11.5	11.5	18.5	12.5	15.5	28.5	26.5	27.5	25.5	24.5	25.0
22	11.5	10.0	11.0	15.0	13.5	14.0	29.0	27.5	28.0	25.5	25.0	25.5
23	10.5	9.5	10.0	16.5	12.5	14.5	29.0	28.0	28.5	26.0	25.5	25.5
24	11.0	9.5	10.0	18.0	15.0	17.0	29.0	28.0	28.5	26.5	26.0	26.0
25	13.0	10.0	11.5	18.5	17.5	18.0	29.5	28.5	29.0	26.5	26.0	26.5
26	16.0	12.5	14.0	19.5	18.5	19.0	30.5	29.0	29.5	27.5	26.5	27.0
27	15.0	14.0	14.5	20.5	19.0	19.5	30.0	29.0	29.5	27.0	27.0	27.0
28	14.5	13.0	14.0	20.0	17.5	18.5	31.0	29.5	30.0	27.0	27.0	27.0
29	---	---	---	18.0	17.5	17.5	30.5	29.0	29.5	33.5	27.0	30.5
30	---	---	---	18.5	17.5	18.0	29.5	28.5	29.0	34.0	33.0	33.5
31	---	---	---	21.0	18.5	20.5	---	---	---	34.5	32.5	33.5
MONTH	16.0	6.5	11.0	21.0	7.0	16.0	31.0	17.5	25.5	34.5	19.5	26.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	34.5	33.5	34.0	---	---	---	30.5	29.5	30.0	---	---	---
2	34.5	32.5	33.5	---	---	---	29.5	27.0	28.5	---	---	---
3	34.0	27.0	29.5	---	---	---	31.0	27.5	29.0	---	---	---
4	27.5	24.5	26.0	---	---	---	---	---	---	---	---	---
5	26.5	24.5	25.5	---	---	---	---	---	---	---	---	---
6	27.0	26.5	26.5	---	---	---	---	---	---	---	---	---
7	27.0	24.0	25.5	---	---	---	---	---	---	---	---	---
8	25.5	24.0	24.5	---	---	---	---	---	---	---	---	---
9	26.0	25.0	25.5	---	---	---	---	---	---	---	---	---
10	26.0	25.5	26.0	---	---	---	---	---	---	---	---	---
11	26.5	25.5	26.0	---	---	---	---	---	---	---	---	---
12	26.5	25.0	26.0	---	---	---	---	---	---	26.5	24.5	25.5
13	25.5	24.0	25.0	---	---	---	---	---	---	26.5	23.0	24.5
14	25.0	24.0	24.5	---	---	---	29.5	27.0	28.0	23.5	23.0	23.0
15	25.0	24.5	24.5	---	---	---	---	---	---	24.5	22.0	23.5
16	25.0	24.0	24.5	---	---	---	---	---	---	25.5	23.0	24.5
17	25.5	24.5	25.0	---	---	---	---	---	---	26.5	24.0	25.5
18	27.5	25.0	26.0	---	---	---	---	---	---	27.0	25.5	26.0
19	---	---	---	---	---	---	29.5	27.0	28.0	27.0	25.5	26.5
20	---	---	---	---	---	---	30.0	28.0	29.0	---	---	---
21	---	---	---	29.5	27.5	28.5	30.5	29.0	29.5	---	---	---
22	---	---	---	29.0	27.5	28.5	30.5	29.5	30.0	---	---	---
23	27.5	27.0	27.0	29.0	27.5	28.5	31.0	29.5	30.5	---	---	---
24	27.5	27.0	27.5	29.5	27.5	28.5	31.5	30.0	30.5	---	---	---
25	---	---	---	29.5	27.5	28.5	31.5	29.5	30.5	---	---	---
26	---	---	---	29.0	28.0	28.5	31.0	30.0	30.5	---	---	---
27	---	---	---	29.0	27.5	28.0	31.5	30.0	30.5	---	---	---
28	---	---	---	29.5	27.5	28.5	31.5	30.0	31.0	---	---	---
29	---	---	---	30.5	28.5	29.5	---	---	---	---	---	---
30	---	---	---	31.0	29.5	30.0	---	---	---	---	---	---
31	---	---	---	31.0	30.0	30.5	---	---	---	---	---	---
MONTH	34.5	24.0	26.5	31.0	27.5	29.0	31.5	27.0	29.5	27.0	22.0	25.0

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	8.0	6.5	7.1	7.3	7.0	7.2	---	---	---	8.5	8.2	8.3
2	7.8	7.2	7.4	7.3	6.9	7.1	---	---	---	---	---	---
3	7.7	7.3	7.5	6.9	6.6	6.8	---	---	---	---	---	---
4	7.6	7.4	7.5	6.6	6.4	6.4	---	---	---	---	---	---
5	7.6	7.4	7.5	---	---	---	---	---	---	---	---	---
6	7.6	7.4	7.5	---	---	---	---	---	---	---	---	---
7	7.8	7.3	7.6	---	---	---	---	---	---	---	---	---
8	7.7	7.5	7.5	---	---	---	---	---	---	---	---	---
9	7.8	7.4	7.6	---	---	---	9.8	8.7	9.3	---	---	---
10	8.2	7.6	7.9	---	---	---	10.4	9.0	9.6	---	---	---
11	8.2	7.6	7.9	---	---	---	9.8	9.3	9.6	---	---	---
12	8.4	7.5	7.9	7.6	7.0	7.3	9.9	9.6	9.8	10.0	7.1	7.8
13	---	---	---	7.7	7.0	7.3	9.8	9.1	9.6	8.9	7.8	8.3
14	---	---	---	8.2	7.4	7.9	---	---	---	9.2	8.5	8.9
15	---	---	---	---	---	---	---	---	---	8.9	8.3	8.5
16	---	---	---	---	---	---	---	---	---	8.8	8.3	8.5
17	---	---	---	9.0	8.3	8.7	---	---	---	8.5	8.1	8.3
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	8.5	4.6	6.9	---	---	---	---	---	---
20	---	---	---	9.0	4.6	7.3	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	8.3	7.4	7.8	---	---	---
24	---	---	---	---	---	---	8.5	7.6	8.1	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	7.6	6.6	6.8	---	---	---	---	---	---	---	---	---
27	7.0	5.6	6.3	---	---	---	---	---	---	---	---	---
28	6.9	5.8	6.6	---	---	---	9.0	8.4	8.8	---	---	---
29	7.8	6.7	7.0	---	---	---	9.3	8.9	9.1	---	---	---
30	7.2	6.7	7.0	---	---	---	9.3	8.7	9.1	---	---	---
31	7.4	7.2	7.3	---	---	---	8.8	8.4	8.7	---	---	---
MONTH	8.4	5.6	7.3	9.0	4.6	7.3	10.4	7.4	9.0	10.0	7.1	8.4
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	9.0	8.6	8.8	9.4	8.9	9.2	7.5	7.3	7.4
2	---	---	---	8.7	8.5	8.6	8.9	8.4	8.7	7.5	7.3	7.4
3	---	---	---	8.5	8.2	8.3	8.5	8.1	8.3	8.2	7.4	7.7
4	---	---	---	8.9	8.0	8.4	8.5	8.1	8.4	8.6	7.3	7.9
5	---	---	---	9.9	8.8	9.4	8.8	8.5	8.6	8.0	6.7	7.4
6	---	---	---	10.8	10.0	10.5	8.7	8.3	8.5	7.0	6.7	6.8
7	---	---	---	10.9	10.5	10.7	8.5	7.5	8.0	7.4	7.0	7.3
8	---	---	---	10.7	10.0	10.4	7.7	7.5	7.5	7.5	5.8	7.0
9	---	---	---	10.3	9.3	9.9	8.1	7.8	8.0	7.1	6.9	6.9
10	---	---	---	9.7	9.0	9.4	8.6	8.2	8.5	7.4	7.1	7.3
11	---	---	---	9.3	8.7	9.0	8.8	8.4	8.6	7.4	7.2	7.3
12	---	---	---	8.9	8.3	8.6	8.5	8.3	8.4	7.4	7.3	7.3
13	---	---	---	8.9	8.1	8.5	8.6	8.3	8.4	7.4	7.3	7.4
14	8.5	8.1	8.4	9.3	7.9	8.4	9.1	8.4	8.7	7.4	7.2	7.3
15	9.4	8.3	8.8	8.6	7.3	8.0	8.4	8.1	8.3	7.3	7.0	7.1
16	10.0	9.1	9.6	9.0	7.6	8.3	8.1	7.8	8.0	8.4	5.8	7.3
17	10.7	10.0	10.4	9.2	8.1	8.6	7.8	7.6	7.7	8.4	6.1	7.4
18	10.8	9.9	10.5	8.3	7.5	7.9	7.8	7.5	7.6	6.5	6.2	6.3
19	10.0	9.5	9.7	8.4	7.2	7.8	7.9	7.7	7.8	6.8	6.0	6.5
20	9.6	9.1	9.3	8.8	7.8	8.3	8.0	7.6	7.8	6.9	6.7	6.8
21	9.5	9.0	9.3	10.0	8.2	9.0	7.8	7.5	7.6	---	---	---
22	10.3	9.7	9.8	9.7	9.2	9.4	7.6	7.4	7.5	---	---	---
23	10.3	10.0	10.2	9.7	9.2	9.5	7.5	7.3	7.4	---	---	---
24	10.3	9.9	10.1	9.8	9.1	9.4	7.5	7.3	7.4	8.6	8.4	8.5
25	10.3	9.3	9.8	9.6	8.8	9.1	7.4	7.2	7.3	8.6	8.3	8.4
26	9.5	8.6	9.1	9.3	8.5	8.8	7.3	7.1	7.2	8.4	8.2	8.3
27	8.9	8.4	8.7	8.8	8.3	8.6	7.2	7.1	7.2	8.5	8.3	8.4
28	8.9	8.5	8.8	9.4	7.9	8.5	7.2	7.0	7.1	8.4	8.0	8.2
29	---	---	---	8.2	7.9	8.0	7.3	7.1	7.2	8.4	7.8	8.1
30	---	---	---	8.6	8.3	8.5	7.4	7.2	7.3	8.0	7.8	7.9
31	---	---	---	9.3	8.2	9.1	---	---	---	8.3	7.9	8.0
MONTH	10.8	8.1	9.5	10.9	7.2	8.9	9.4	7.0	7.9	8.6	5.8	7.5

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	---	---	---	6.4	5.5	5.9	---	---	---
2	---	---	---	---	---	---	6.3	5.4	6.0	---	---	---
3	---	---	---	---	---	---	9.6	5.8	6.9	---	---	---
4	7.7	7.0	7.4	---	---	---	---	---	---	---	---	---
5	7.7	7.4	7.6	---	---	---	---	---	---	---	---	---
6	7.6	7.4	7.5	---	---	---	---	---	---	---	---	---
7	7.6	7.3	7.5	---	---	---	---	---	---	---	---	---
8	7.1	6.3	6.6	---	---	---	---	---	---	---	---	---
9	6.8	6.4	6.6	---	---	---	---	---	---	---	---	---
10	7.1	6.9	7.0	---	---	---	---	---	---	---	---	---
11	7.2	6.9	7.0	---	---	---	---	---	---	---	---	---
12	7.1	6.4	6.8	---	---	---	---	---	---	---	---	---
13	6.3	5.4	5.8	---	---	---	---	---	---	---	---	---
14	6.3	5.5	5.8	---	---	---	---	---	---	---	---	---
15	5.9	5.5	5.7	---	---	---	---	---	---	---	---	---
16	6.0	5.9	5.9	---	---	---	---	---	---	---	---	---
17	6.1	5.9	6.0	---	---	---	---	---	---	---	---	---
18	6.0	5.6	5.8	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	5.7	5.2	5.5	---	---	---
20	---	---	---	---	---	---	6.0	5.5	5.7	---	---	---
21	---	---	---	9.5	6.2	7.6	6.0	5.5	5.7	---	---	---
22	---	---	---	8.1	6.7	7.3	6.0	5.5	5.7	---	---	---
23	6.3	6.0	6.1	6.9	6.2	6.6	5.7	5.3	5.5	---	---	---
24	6.4	6.0	6.2	7.2	5.9	6.5	7.6	5.1	5.5	---	---	---
25	---	---	---	9.9	6.1	7.7	7.6	5.1	5.5	---	---	---
26	---	---	---	9.0	6.2	7.4	5.6	4.9	5.2	---	---	---
27	---	---	---	7.3	5.5	6.5	5.5	5.1	5.3	---	---	---
28	---	---	---	6.5	3.9	5.7	7.3	4.8	5.3	---	---	---
29	---	---	---	6.8	5.3	6.0	---	---	---	---	---	---
30	---	---	---	6.6	5.7	5.9	---	---	---	---	---	---
31	---	---	---	5.8	5.4	5.5	---	---	---	---	---	---
MONTH	7.7	5.4	6.5	9.9	3.9	6.6	9.6	4.8	5.7	---	---	---

08049580 MOUNTAIN CREEK NEAR VENUS, TX
(Crest-stage 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 (converted to partial-record station).

GAGE.--Water-stage recorder. Datum of gage is 580.49 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair including those estimated except those below 10 ft³/s, 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 1986 WATER YEAR.--Maximum discharge during period November 1985 to September 1986, 2,540 ft³/s Apr. 19 at 1945 hours (gage height, 10.63 ft); no flow for many days.

EXTREMES FOR 1987 WATER YEAR.--Maximum discharge, 1,400 ft³/s May 29 at 0200 hours (gage height, 8.96 ft); no flow for many days.

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)
Jan. 1, 1988	--	551	7.02	May 17, 1989	--	10,100	15.04

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.00	.00	.00	.01	.03	.01	.14	2.9	308	.16	.00	.00
2	e.00	.00	.00	.01	.03	.02	.14	2.3	106	.13	.00	87
3	e.00	.00	.00	.01	32	.02	.11	1.5	e150	.10	.00	31
4	e.00	.00	.00	.01	27	.03	.21	1.4	e20	.10	.00	5.2
5	e.00	.00	.00	.01	326	.05	.50	.88	e439	.07	.00	.07
6	e.00	.00	.00	.01	129	.06	.18	.88	e55	.03	.00	12
7	e.00	.00	.00	.01	17	.06	.08	.88	e37	.02	.00	9.9
8	e.00	.00	.00	.01	7.1	.07	.06	4.3	e29	.01	.00	.97
9	e.00	.00	.00	.01	4.1	.08	.05	90	e19	.01	.00	.06
10	e.00	.00	5.1	.01	8.7	.08	.11	472	e12	.01	.00	.02
11	e.00	.00	12	.01	3.2	.10	.17	37	251	.01	.00	.01
12	e.00	.00	12	.01	.66	.26	.17	15	34	.0	.00	.01
13	e.00	.00	.18	.02	.19	.18	.14	4.1	14	.0	.00	.0
14	e.00	.00	.02	.02	.15	.13	.11	1.1	6.1	.0	.00	.0
15	e.00	.00	.01	.02	.10	.15	.05	.52	5.9	.00	.00	.0
16	e.00	.00	.01	.03	.10	.18	.02	.52	4.7	.00	.00	.00
17	e.00	.00	.01	.03	.10	.23	.01	673	15	.00	.00	.00
18	e40	.00	.01	.03	.08	.29	.01	54	31	.00	.00	.00
19	e150	.00	.01	.03	.08	.18	675	21	14	.00	.00	.00
20	e8.0	.00	.01	.06	.06	.11	59	9.0	7.6	.00	.00	.00
21	e2.0	.00	.01	.06	.03	.13	16	4.3	5.9	.00	.00	.00
22	.31	.00	.01	.04	.02	.25	9.5	3.7	4.2	.00	.00	.00
23	.04	.00	.01	.06	.02	.43	4.0	2.3	4.1	.00	.00	.00
24	.02	.00	.01	.06	.02	.35	.68	2.4	3.0	.00	.00	.00
25	.01	.00	.01	.08	.03	.18	.17	2.3	3.0	.00	.00	.00
26	.01	.00	.01	.06	.03	.18	.14	2.5	2.7	.00	.00	.00
27	.00	5.7	.01	.14	.02	.20	.71	2.5	2.4	.00	.00	.00
28	.00	.01	.01	.14	.01	.18	1.5	2.5	1.4	.00	.00	.00
29	.00	.01	.01	.10	---	.18	1.5	2.5	.83	.00	.00	.00
30	.00	.00	.01	.04	---	.18	1.7	2.5	.41	.00	.00	.00
31	.00	---	.01	.03	---	.17	---	2.6	---	.00	.00	---
TOTAL	200.39	5.72	29.47	1.17	555.86	4.72	772.16	1422.38	1586.24	0.65	0.00	146.24
MEAN	6.46	.19	.95	.038	19.9	.15	25.7	45.9	52.9	.021	.00	4.87
MAX	150	5.7	12	.14	326	.43	675	673	439	.16	.00	87
MIN	.00	.00	.00	.01	.01	.01	.01	.52	.41	.00	.00	.00
AC-FT	397	11	58	2.3	1100	9.4	1530	2820	3150	1.3	.0	290
CFSM	.25	.01	.04	.00	.78	.01	1.01	1.80	2.07	.00	.00	.19
IN.	.29	.01	.04	.00	.81	.01	1.13	2.08	2.31	.00	.00	.21

CAL YR 1985 TOTAL -- MEAN -- MAX -- MIN -- AC-FT -- CFSM -- IN. --
WTR YR 1986 TOTAL 4725.00 MEAN 12.9 MAX 675 MIN .00 AC-FT 9370 CFSM .51 IN. 6.89

e Estimated.

08049580 MOUNTAIN CREEK NEAR VENUS, TX--Continued
(Crest-stage partial-record station)

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.05	.15	1.5	25	.08	.02	12	.01	.00	.00
2	.00	.00	.03	.84	1.4	6.4	.05	.01	7.2	.04	.00	.00
3	.00	.00	.04	.94	.52	1.3	.04	.01	9.4	.12	.00	.00
4	.00	.00	.04	.66	.52	.39	.03	1.9	32	.07	.00	.00
5	.00	.00	.05	1.5	.34	.14	.02	4.0	16	.04	.00	.00
6	.00	.00	.06	.89	2.1	.22	.03	4.2	12	.01	.00	.00
7	.00	.00	.07	.88	7.2	.35	.04	3.5	8.7	.01	.00	.00
8	.00	.00	.08	1.2	7.8	.52	.05	3.8	e4.2	.01	.00	.00
9	.00	.00	.08	18	6.6	.52	.06	19	e57	.0	.00	.00
10	.00	.00	.08	22	5.0	.52	.06	11	64	.0	.00	.00
11	.00	.00	.08	12	4.2	.50	.07	6.3	172	.0	.00	.00
12	.00	.00	.22	7.0	3.6	.43	.07	3.7	460	.00	.00	.00
13	.00	.00	.37	6.6	3.5	1.3	.03	2.7	265	.00	.00	.00
14	.00	.00	2.4	4.5	3.6	2.5	.02	1.7	59	.00	.00	.00
15	.00	.00	35	4.6	10	2.5	.05	6.4	14	.00	.00	.00
16	.00	.00	27	5.0	15	3.1	.03	16	2.8	.00	.00	.00
17	.00	.00	14	8.2	11	41	.02	16	.18	.00	.00	.00
18	.00	.00	126	86	8.6	17	.34	16	18	.00	.00	.00
19	.00	.00	36	20	7.0	3.2	.18	15	5.5	.00	.00	.00
20	.00	.00	15	5.3	206	1.1	.14	15	.11	.00	.00	.00
21	.00	.00	5.7	2.5	35	.52	.11	14	.05	.00	.00	.00
22	.00	.00	1.4	.87	11	.52	.12	12	.04	.00	.00	.00
23	.00	.00	14	.13	3.1	.48	.08	9.4	.90	.00	.00	.00
24	.02	.00	17	.09	27	.14	.06	160	.70	.00	.00	.00
25	.02	23	9.2	.12	27	.24	.05	37	.27	.00	.00	.00
26	.01	13	3.8	.15	223	.36	.04	16	.13	.00	.00	.00
27	.0	1.4	.53	.21	49	.33	.04	5.9	.09	.00	.00	.00
28	.0	.11	.28	.60	179	.31	.03	128	.06	.00	.00	.00
29	.0	.08	.11	.88	---	.43	.02	518	.03	.00	.00	.00
30	.0	.07	.12	.65	---	.34	.02	43	.02	.00	.00	.00
31	.00	---	.15	.94	---	.13	---	20	---	.00	.00	---
TOTAL	0.05	37.66	308.94	213.40	859.58	111.79	1.98	1109.54	1221.38	0.31	0.00	0.00
MEAN	.002	1.26	9.97	6.88	30.7	3.61	.066	35.8	40.7	.010	.00	.00
MAX	.02	23	126	86	223	41	.34	518	460	.12	.00	.00
MIN	.00	.00	.03	.09	.34	.13	.02	.01	.02	.00	.00	.00
AC-FT	.1	75	613	423	1700	222	3.9	2200	2420	.6	.0	.0
CFSM	.00	.05	.39	.27	1.20	.14	.00	1.40	1.60	.00	.00	.00
IN.	.00	.05	.45	.31	1.25	.16	.00	1.62	1.78	.00	.00	.00

CAL YR 1986 TOTAL 4836.07 MEAN 13.2 MAX 675 MIN .00 AC-FT 9590 CFSM .52 IN. 7.05
WTR YR 1987 TOTAL 3864.63 MEAN 10.6 MAX 518 MIN .00 AC-FT 7670 CFSM .42 IN. 5.64

e Estimated.

08049580 MOUNTAIN CREEK NEAR VENUS, TX--Continued
(Crest-stage partial-record station)

LOCATION.--Lat 32°29'27", long 97°07'22", Johnson County, Hydrologic Unit 12030102, on right bank 20 ft from Farm Road and at right end of bridge on Farm Road 157, 3 mi upstream from Grassy Creek, 3.2 mi upstream from Reece Branch, 3.6 mi downstream from abandoned Missouri Pacific Railroad bridge, and 3.9 mi north of intersection of U.S. Highway 67, and Farm Road 157 in Venus.

PERIOD OF RECORD.--Chemical and biochemical analyses: December 1985 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	CALCIUM DIS-SOLVED (MG/L AS CA)
MAR												
03...	0945	0.33	642	7.80	11.5	47	13	10.8	102	2.8	270	97
APR												
12...	1245	0.36	951	8.10	17.5	55	1.9	11.0	116	1.7	390	140
JUN												
21...	1228	0.27	1320	8.10	26.5	30	2.0	12.0	152	1.6	590	210

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 WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)
MAR											
03...	6.4	29	0.8	4.7	137	170	18	0.40	13	421	16
APR											
12...	10	50	1	6.1	167	280	31	0.40	14	632	<1
JUN											
21...	15	70	1	5.1	230	410	64	0.60	18	931	6

DATE	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)
MAR											
03...	4	12	0.680	0.020	0.700	0.030	0.27	0.30	0.090	6.3	1
APR											
12...	<1	--	0.260	0.040	0.300	0.160	1.1	1.3	0.060	11	2
JUN											
21...	<1	--	0.190	0.010	0.200	0.060	0.64	0.70	0.030	6.1	1

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)
MAR											
03...	59	2	2	4	27	<5	19	<0.1	1	3.0	<3
APR											
12...	97	<1	2	6	24	<5	48	<0.1	1	<1.0	13
JUN											
21...	100	4	<1	2	7	<1	20	<0.1	1	<1.0	<3

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. Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--29 years, 15.5 ft³/s (3.35 in/yr), 11,230 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, 1976-89.

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. 17	1530	968	13.99	May 17	1230	*22,800	a*33.77
Mar. 28	1000	1370	16.00	June 12	1200	717	12.43
May 4	1145	3810	22.86	June 13	2100	2,130	19.02

a From floodmark.

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	1.3	.00	.00	.03	.42	.37	2.5	3.5	2.7	.60	.28	.06
2	1.9	.00	.00	.03	26	.35	1.8	3.8	2.4	1.8	.33	.03
3	.37	.00	.00	.03	27	.35	1.4	54	2.2	11	.42	.03
4	.03	.00	.00	.02	2.0	.42	.99	1510	19	.97	.43	.01
5	.00	.00	.00	.02	.67	.48	.71	793	7.9	.62	.40	.0
6	.00	.00	.00	.03	.42	1.1	.66	60	3.1	.50	.35	.00
7	.00	.00	.00	.03	.51	1.1	.61	40	130	.46	9.7	.00
8	.00	.00	.00	.03	.36	.84	.60	29	e72	.43	16	.00
9	.00	.00	.00	.03	.35	.58	.51	18	8.2	.43	.46	.00
10	.00	.00	3.8	.03	.38	.47	.69	14	3.7	.41	.21	.00
11	.00	.00	1.8	.03	.35	.44	.49	12	32	.42	.12	5.8
12	.00	.00	.30	.03	.42	.43	.43	11	387	.40	.10	.34
13	.00	.00	.04	.05	.81	.43	46	10	1170	.33	.09	31
14	.00	.00	.02	.04	.52	.44	83	11	1260	.41	.10	.47
15	.00	.00	.02	.03	9.3	.44	9.3	10	133	1.2	3.8	.04
16	.00	.00	.21	.02	25	.43	2.5	624	61	.36	2.4	.03
17	.00	.00	.03	.02	520	.43	1.5	7900	28	.38	.65	.02
18	.00	.00	.02	.02	137	.41	1.2	354	9.1	.38	.46	.02
19	.00	23	.01	.03	9.2	.40	.95	81	2.9	.37	.19	.02
20	.00	.70	.01	.03	2.0	.40	.70	53	2.1	.35	.13	.02
21	.00	.04	.01	.02	1.0	7.3	.66	39	2.0	.35	.09	.01
22	.00	.0	2.5	.02	.68	1.5	.62	21	1.4	.35	.07	.01
23	.00	.00	.60	.02	.50	.75	.60	13	1.2	.38	.07	.01
24	.00	.00	.07	.02	.44	.61	.59	10	1.0	.38	.07	.01
25	.00	.00	.02	.27	.43	.55	.60	8.4	.89	.39	.07	.01
26	.00	.00	.02	1.0	.41	.58	.52	7.1	.81	.47	.07	.01
27	.00	.00	3.1	.47	.39	.59	.57	5.5	.75	.49	.07	.01
28	.00	.00	.89	126	.41	724	.52	4.6	.70	.42	.07	.01
29	.00	.00	.11	20	---	97	.47	3.9	.66	.44	.07	.01
30	.00	.00	.04	1.1	---	21	.46	3.4	.63	.37	.07	.01
31	.00	---	.03	.55	---	5.4	---	2.7	---	.28	.07	---
TOTAL	3.60	23.74	13.65	150.05	766.97	869.59	162.15	11709.9	3346.34	26.14	37.41	37.99
MEAN	.12	.79	.44	4.84	27.4	28.1	5.40	378	112	.84	1.21	1.27
MAX	1.9	23	3.8	126	520	724	83	7900	1260	11	16	31
MIN	.00	.00	.00	.02	.35	.35	.43	2.7	.63	.28	.07	.00
AC-FT	7.1	47	27	298	1520	1720	322	23230	6640	52	74	75
CFSM	.00	.01	.01	.08	.44	.45	.09	6.01	1.78	.01	.02	.02
IN.	.00	.01	.01	.09	.45	.52	.10	6.94	1.98	.02	.02	.02

CAL YR 1988 TOTAL 421.72 MEAN 1.15 MAX 76 MIN .00 AC-FT 836 CFSM .02 IN. .25
WTR YR 1989 TOTAL 17147.53 MEAN 47.0 MAX 7900 MIN .00 AC-FT 34010 CFSM .75 IN. 10.16

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 1988 TO SEPTEMBER 1989

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)	CALCIUM DIS-SOLVED (MG/L AS CA)
JAN												
17...	1000	0.02	977	7.70	5.0	11	4.4	6.0	47	0.9	360	120
MAR												
03...	1150	0.35	1270	8.00	13.5	16	3.4	10.0	99	1.9	490	160
APR												
11...	1045	0.46	1550	8.10	11.0	20	12	9.4	86	1.7	630	200
JUN												
21...	1120	1.4	1360	8.00	26.0	15	4.1	7.4	93	0.6	580	190
AUG												
02...	1030	0.33	1800	7.60	25.0	20	3.1	3.0	37	3.6	740	230

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 WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)
JAN											
17...	15	59	1	5.8	191	240	50	0.30	12	617	3
MAR											
03...	23	76	1	5.4	205	340	85	0.40	12	825	8
APR											
11...	31	100	2	6.1	249	440	130	0.40	10	1070	2
JUN											
21...	26	73	1	6.0	285	330	95	0.50	17	909	10
AUG											
02...	39	110	2	5.0	312	450	140	0.50	17	1180	10

DATE	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)
JAN											
17...	<1	--	--	0.010	<0.100	0.060	0.54	0.60	0.070	5.7	<1
MAR											
03...	6	2	--	<0.010	<0.100	0.040	0.36	0.40	0.040	5.2	--
APR											
11...	2	0	--	<0.010	<0.100	0.070	0.53	0.60	0.150	5.6	1
JUN											
21...	<1	--	0.270	0.030	0.300	0.090	0.41	0.50	0.030	4.8	<1
AUG											
02...	5	5	--	<0.010	<0.100	0.040	0.16	0.20	0.030	6.1	--

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											
17...	61	<1	1	1	34	<5	99	<0.1	<1	<1.0	7
MAR											
03...	--	--	--	--	--	--	--	--	--	--	--
APR											
11...	120	<1	3	5	14	<5	150	<0.1	<1	<1.0	17
JUN											
21...	120	5	1	3	12	1	210	<0.1	1	<1.0	4
AUG											
02...	--	--	--	--	--	--	--	--	--	--	--

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, 234,400 acre-ft June 25, 1989 (elevation, 529.00 ft); minimum since initial filling began, 1,595 acre-ft Jan. 24, 1986 (elevation, 467.65 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 234,400 acre-ft June 25 at 1600 hours (elevation, 529.00 ft); minimum, 75,270 acre-ft Jan. 25 (elevation, 505.13 ft).

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

505.0	75,270	517.0	141,800	525.0	200,200
510.0	100,100	520.0	162,300	527.0	216,800
514.0	122,900	523.0	184,500	529.0	234,400

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	81140	79250	78040	76690	80290	93550	105000	105600	204000	216200	177400	176000
2	81050	79200	78040	76640	80380	93960	105000	105600	203400	213300	177500	175900
3	80950	79160	77990	76600	80620	93960	105000	106500	202700	211600	177300	175700
4	80860	79060	77940	76600	80620	94010	104900	119000	201900	210900	177200	175600
5	80760	78920	77660	76550	80570	93910	104900	127000	201900	208500	177000	175400
6	80670	78830	77380	76550	80520	93910	104700	127400	201900	205500	176800	175300
7	80570	78780	77290	76460	80480	93860	104700	127800	205000	201500	178400	175100
8	80480	78690	77200	76460	80430	93860	104600	128000	205400	197800	178500	175000
9	80380	78640	77150	76420	80380	93860	104300	128000	205400	194000	178300	174800
10	80290	78600	77290	76420	80380	93860	104300	128200	205500	191000	178200	174800
11	80190	78600	77290	76370	80340	93860	104200	128200	205900	188500	178100	175400
12	80100	78550	77290	76320	80520	93800	104100	128300	209900	186000	177900	175400
13	80050	78500	77200	76280	80480	93800	105100	128500	223200	183900	177800	176000
14	79960	78450	77110	76280	80570	93750	106200	128500	233000	183400	177700	175900
15	79910	78410	77010	76230	80860	93700	106400	128700	233500	182900	177800	175700
16	79820	78360	76920	76180	81520	93750	106400	135000	233700	182300	177700	175600
17	79720	78270	76880	76180	89820	93750	106500	204300	233800	181800	178100	175400
18	79630	78270	76780	76180	92520	93750	106500	205900	234000	181300	178100	175300
19	79630	78600	76740	76140	92930	93750	106400	206200	234000	180900	177900	175100
20	79530	78550	76690	76090	93190	93750	106400	206400	234000	180400	177600	175000
21	79530	78500	76640	76050	93340	93960	106300	206500	234000	180000	177600	174900
22	79440	78450	76830	76000	93340	93960	106200	206800	234000	179600	177400	174700
23	79390	78360	76780	75960	93500	93860	106100	206900	233500	179100	177300	174300
24	79250	78320	76740	75910	93550	93800	106000	207000	233300	178700	177200	174100
25	79250	78410	76690	76090	93550	93800	106000	207100	232800	178400	177000	173900
26	79200	78450	76640	76230	93600	93960	105900	207100	231300	178200	176900	173800
27	79200	78360	76740	76370	93600	93960	105900	207200	229500	178100	176800	173600
28	79200	78270	76740	79020	93600	102700	105900	207400	227300	177900	176600	173400
29	79300	78220	76690	80100	---	104400	105800	206600	224600	177800	176500	173300
30	79300	78180	76640	80190	---	104600	105700	206200	222000	177700	176300	173300
31	79300	---	76690	80290	---	104900	---	205100	---	177600	176100	---
MAX	81140	79250	78040	80290	93600	104900	106500	207400	234000	216200	178500	176000
MIN	79200	78180	76640	75910	80290	93550	104100	105600	201900	177600	176100	173300
(†)	505.87	505.63	505.31	506.08	508.77	510.88	511.04	525.60	527.60	522.09	521.90	521.52
(ϕ)	-1750	-1120	-1490	+3600	+13310	+11300	+800	+99400	+16900	-44400	-1500	-2800

CAL YR 1988 MAX 97890 MIN 76640 (ϕ) -17680
WTR YR 1989 MAX 234000 MIN 75910 (ϕ) +92250

(†) 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 1988 TO SEPTEMBER 1989

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							
28...	1049	1.00	628	8.30	8.5	10.5	91
28...	1051	10.0	628	8.30	8.0	10.5	90
28...	1053	22.0	631	8.30	8.0	10.4	89
MAY							
11...	0953	1.00	575	8.10	21.5	6.7	76
11...	0955	10.0	576	8.10	21.5	6.7	76
11...	0957	20.0	576	8.10	21.5	6.7	76
11...	0959	33.0	576	8.10	21.5	6.8	77
AUG							
10...	0918	1.00	436	8.00	26.5	5.4	68
10...	0921	10.0	435	8.00	26.5	5.5	69
10...	0923	20.0	435	8.00	26.5	5.5	69
10...	0926	30.0	437	7.90	26.5	5.1	64
10...	0928	40.0	437	7.90	26.5	4.6	58
10...	0930	46.0	440	7.90	26.5	4.4	55

323819096584801 - JOE POOL LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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											
28...	1022	1.00	630	8.30	8.0	0.85	10.5	90	K10	K17	210
28...	1023	1.40	--	--	--	--	--	--	--	--	--
28...	1024	10.0	630	8.30	8.0	--	10.5	90	--	--	--
28...	1026	20.0	632	8.30	8.0	--	10.4	89	--	--	--
28...	1028	30.0	632	8.20	8.0	--	10.4	89	--	--	--
28...	1030	40.0	632	8.20	8.0	--	10.3	88	--	--	200
MAY											
11...	0927	1.00	564	8.10	21.5	0.50	6.7	76	25	280	180
11...	0928	1.00	--	--	--	--	--	--	--	--	--
11...	0930	10.0	565	8.10	21.5	--	6.7	76	--	--	--
11...	0933	20.0	565	8.10	21.5	--	6.6	75	--	--	--
11...	0936	30.0	574	8.10	21.5	--	6.8	77	--	--	--
11...	0940	40.0	576	8.10	21.5	--	6.7	76	--	--	--
11...	0944	45.0	574	8.00	21.0	--	6.7	76	--	--	180
AUG											
10...	0847	1.00	433	8.10	27.0	1.00	6.3	80	K1	K3	150
10...	0849	10.0	433	8.00	27.0	--	6.1	77	--	--	--
10...	0852	20.0	434	7.80	26.5	--	4.8	60	--	--	--
10...	0855	30.0	435	7.80	26.5	--	4.5	57	--	--	--
10...	0858	40.0	436	7.70	26.5	--	4.2	53	--	--	--
10...	0902	51.0	448	7.40	25.5	--	0	0	--	--	150

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX--Continued

323819096584801 - JOE POOL LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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 WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
FEB										
28...	69	8.0	51	2	9.7	128	160	28	0.50	3.7
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	68	7.8	51	2	9.8	131	150	26	--	3.8
MAY										
11...	62	6.7	41	1	9.1	115	130	22	0.40	2.9
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	62	6.7	43	1	9.1	112	140	22	--	3.0
AUG										
10...	53	4.8	27	1	7.8	115	84	13	0.30	3.4
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	54	4.8	26	0.9	7.5	133	77	13	--	5.7

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										
28...	407	0.380	0.020	0.400	0.040	0.46	0.50	0.020	10	2
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	0.380	0.020	0.400	0.040	0.36	0.40	0.020	20	<10
28...	--	--	--	--	--	--	--	--	--	--
28...	395	0.380	0.020	0.400	0.070	0.43	0.50	0.040	22	8
MAY										
11...	343	0.470	0.030	0.500	0.060	0.54	0.60	0.040	9	6
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	0.470	0.030	0.500	0.060	0.14	0.20	0.030	30	<10
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	353	0.470	0.030	0.500	0.050	0.15	0.20	0.030	25	7
AUG										
10...	262	--	<0.010	<0.100	0.030	0.67	0.70	<0.010	4	9
10...	--	--	<0.010	<0.100	0.030	0.37	0.40	<0.010	10	20
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	<0.010	<0.100	0.100	0.50	0.60	0.020	20	240
10...	270	--	<0.010	<0.100	0.580	0.32	0.90	0.050	66	1700

323731097013901 - JOE POOL LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
FEB										
28...	1252	1.00	624	8.30	8.5	0.61	10.4	90	K12	K19
28...	1253	1.00	--	--	--	--	--	--	--	--
28...	1254	10.0	624	8.30	8.5	--	10.4	90	--	--
28...	1256	20.0	624	8.30	8.5	--	10.4	90	--	--
28...	1258	30.0	624	8.30	8.5	--	10.3	89	--	--
MAY										
11...	1240	1.00	554	8.20	23.0	0.60	7.1	83	56	K36
11...	1241	1.00	--	--	--	--	--	--	--	--
11...	1243	10.0	557	8.20	22.5	--	6.8	79	--	--
11...	1245	20.0	555	8.20	22.5	--	6.8	79	--	--
11...	1250	30.0	555	8.20	22.5	--	6.7	78	--	--
11...	1252	40.0	555	8.10	22.0	--	6.4	74	--	--
11...	1257	48.0	576	7.50	19.5	--	0	0	--	--
AUG										
10...	1127	1.00	431	8.10	27.5	0.80	6.1	78	K3	K2
10...	1129	10.0	432	8.10	27.5	--	5.8	74	--	--
10...	1132	20.0	434	8.00	27.5	--	5.6	72	--	--
10...	1135	30.0	431	8.10	27.0	--	5.8	74	--	--
10...	1140	40.0	432	8.00	27.0	--	5.4	69	--	--
10...	1147	50.0	432	8.00	27.0	--	5.0	63	--	--

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX--Continued

323731097013901 - JOE POOL LAKE SITE BC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	HARDNESS TOTAL (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)
FEB										
28...	200	66	7.8	51	2	10	129	160	27	3.7
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	200	66	7.7	51	2	9.2	130	160	32	3.8
MAY										
11...	180	62	6.7	40	1	8.5	113	130	21	2.9
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	170	61	4.7	46	2	16	123	130	23	11
AUG										
10...	160	54	4.9	27	0.9	7.5	116	81	13	3.4
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	150	54	4.8	27	0.9	7.8	113	85	13	3.5

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)	PHOSPHOROUS TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
FEB										
28...	403	0.380	0.020	0.400	0.040	0.46	0.50	0.030	13	3
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	408	0.380	0.020	0.400	0.060	0.54	0.60	0.050	22	6
MAY										
11...	339	0.470	0.030	0.500	0.050	0.35	0.40	0.030	12	8
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	0.470	0.030	0.500	0.050	0.45	0.50	0.030	20	80
11...	366	0.370	0.030	0.400	0.220	0.68	0.90	0.060	38	120
AUG										
10...	260	--	0.020	<0.100	0.030	0.67	0.70	<0.010	5	6
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	263	--	0.030	<0.100	0.080	0.52	0.60	0.020	11	89

323645097002001 - JOE POOL LAKE SITE CR

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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							
28...	1112	1.00	618	8.40	9.0	11.0	96
28...	1114	10.0	622	8.30	8.5	10.5	91
28...	1116	20.0	624	8.30	8.5	10.5	91
MAY							
11...	1042	1.00	562	8.20	22.0	7.3	84
11...	1044	10.0	562	8.20	22.0	7.2	83
11...	1046	24.0	574	8.20	22.0	6.9	79
AUG							
10...	1003	1.00	435	8.00	27.0	5.8	74
10...	1005	10.0	435	8.00	26.5	5.6	70
10...	1007	20.0	436	8.00	26.5	5.4	68
10...	1009	30.0	436	8.00	26.5	5.5	69
10...	1012	40.0	435	8.00	26.5	5.7	72

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX--Continued

323646097005101 - JOE POOL LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
FEB									
28...	1102	1.00	624	8.30	8.5	0.70	10.6	92	0.370
28...	1104	10.0	622	8.30	8.5	--	10.5	91	--
28...	1106	20.0	622	8.30	8.5	--	10.5	91	--
28...	1108	30.0	631	8.30	8.5	--	10.5	91	0.380
MAY									
11...	1020	1.00	583	8.20	21.5	0.60	7.2	82	0.470
11...	1022	10.0	587	8.20	21.5	--	7.2	82	--
11...	1024	20.0	582	8.20	21.5	--	7.2	82	--
11...	1026	30.0	583	8.20	21.5	--	7.1	81	--
11...	1028	38.0	583	8.20	21.5	--	6.9	79	0.470
AUG									
10...	0942	1.00	438	8.10	27.0	1.00	6.2	79	--
10...	0944	10.0	438	8.10	27.0	--	6.1	77	--
10...	0947	20.0	438	8.00	26.5	--	5.6	70	--
10...	0949	30.0	438	7.90	26.5	--	5.4	68	--
10...	0951	40.0	439	7.70	26.5	--	4.0	50	--
10...	0955	53.0	444	7.70	26.5	--	3.2	40	--

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)
FEB								
28...	0.030	0.400	0.040	0.46	0.50	0.040	10	<10
28...	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--
28...	0.020	0.400	0.050	0.35	0.40	0.020	20	<10
MAY								
11...	0.030	0.500	0.050	0.45	0.50	0.020	10	10
11...	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--
11...	0.030	0.500	0.050	0.35	0.40	0.020	20	<10
AUG								
10...	<0.010	<0.100	0.050	0.35	0.40	<0.010	30	<10
10...	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--
10...	<0.010	<0.100	0.070	0.43	0.50	<0.010	20	<10
10...	--	--	--	--	--	--	--	--
10...	0.030	<0.100	0.110	0.39	0.50	0.020	30	60

323503097012201 - JOE POOL LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
FEB									
28...	1136	1.00	550	8.10	9.5	0.15	9.3	82	1.03
28...	1138	10.0	560	8.20	9.0	--	9.6	84	--
28...	1140	15.0	560	8.10	9.0	--	9.2	80	1.01
MAY									
11...	1106	1.00	477	7.80	22.0	0.30	5.6	64	0.650
11...	1108	10.0	474	7.80	21.5	--	5.7	65	0.650
11...	1112	20.0	414	7.50	20.5	--	0.4	4	0.630
11...	1116	26.0	405	7.50	20.0	--	0.2	2	0.430
AUG									
10...	1032	1.00	434	8.20	27.0	1.00	6.7	85	--
10...	1034	10.0	434	8.20	27.0	--	6.7	85	--
10...	1036	20.0	445	7.60	26.0	--	2.9	36	--
10...	1039	29.0	430	7.50	25.5	--	0	0	0.370

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX--Continued

323503097012201 - JOE POOL LAKE SITE DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
FEB								
28...	0.070	1.10	0.160	0.54	0.70	0.120	20	<10
28...	--	--	--	--	--	--	--	--
28...	0.090	1.10	0.150	1.0	1.2	0.140	30	<10
MAY								
11...	0.050	0.700	0.080	0.52	0.60	0.040	10	20
11...	0.050	0.700	0.090	0.61	0.70	0.040	30	40
11...	0.070	0.700	0.260	1.0	1.3	0.080	40	80
11...	0.070	0.500	0.320	0.88	1.2	0.070	40	120
AUG								
10...	<0.010	<0.100	0.030	0.77	0.80	<0.010	10	<10
10...	--	--	--	--	--	--	--	--
10...	<0.010	<0.100	0.040	0.46	0.50	0.010	20	40
10...	0.030	0.400	0.060	0.84	0.90	0.030	40	230

323329097024101 - JOE POOL LAKE SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
FEB										
28...	1157	1.00	700	8.10	10.0	0.12	8.9	80	250	1200
28...	1158	0.20	--	--	--	--	--	--	--	--
28...	1159	12.0	706	8.10	10.0	--	8.6	77	--	--
MAY										
11...	1146	1.00	571	7.50	23.5	0.20	3.1	37	500	870
11...	1147	1.00	--	--	--	--	--	--	--	--
11...	1150	7.00	588	7.40	23.0	--	1.7	20	--	--
AUG										
10...	1053	1.00	441	8.40	27.0	1.00	8.7	110	K5	K3
10...	1056	10.0	450	8.00	26.5	--	6.4	81	--	--
10...	1100	20.0	413	7.40	25.0	--	0	0	--	--

DATE	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)
FEB										
28...	170	60	5.2	66	2	25	123	150	52	7.2
28...	--	--	--	--	--	--	--	--	--	--
28...	170	60	5.4	68	2	21	123	150	52	7.2
MAY										
11...	170	60	4.3	39	1	13	126	120	17	12
11...	--	--	--	--	--	--	--	--	--	--
11...	190	65	6.9	42	1	8.8	123	140	20	5.6
AUG										
10...	160	56	4.9	27	0.9	8.1	125	84	13	4.3
10...	--	--	--	--	--	--	--	--	--	--
10...	140	51	3.5	21	0.8	7.9	116	73	10	8.3

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										
28...	439	1.19	0.110	1.30	0.120	0.98	1.1	0.260	34	11
28...	--	--	--	--	--	--	--	--	--	--
28...	437	1.19	0.110	1.30	0.110	1.3	1.4	0.180	56	12
MAY										
11...	341	0.170	0.030	0.200	0.040	0.96	1.0	0.050	40	80
11...	--	--	--	--	--	--	--	--	--	--
11...	362	0.170	0.030	0.200	0.080	0.72	0.80	0.060	13	420
AUG										
10...	272	--	<0.010	<0.100	0.030	0.57	0.60	0.020	7	3
10...	--	--	0.030	<0.100	0.020	0.68	0.70	0.010	20	30
10...	244	0.850	0.050	0.900	0.100	0.70	0.80	0.040	58	170

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX--Continued

Joe Pool Lake AC (323819096584801)

Phytoplankton Analyses September 1988 to October 1989

Date	2-28-89
Time	1023
TOTAL CELLS/mL	7,357
NUMBER OF SPECIES	13
DEPTH COLLECTED (ft.)	1.4

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella ocellata	1,823
Order Pennales	
Diploneis sp.	67
CHLOROPHYTA (Green algae)	
Ankistrodesmus nannoselene	202
Crucigenia quadrata	67
Nephrocytium sp.	67
Selenastrum minutum	135
CYANOPHYTA (Blue-green algae)	
Aphanocapsa delicatissima	1,621
Chroococcus dispersus	608
Chroococcus limneticus	405
Chroococcus varius	1,080
Dactylococcopsis fascicularis	810
Synechococcus lineare var. *spirale*	270
Synechococcus sp.	202

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX--Continued

Joe Pool Lake BC (323731097013901)

Phytoplankton Analyses September 1988 to October 1989

Date	2-28-89
Time	1253
TOTAL CELLS/mL	10,062
NUMBER OF SPECIES	20
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella ocellata	3,592
Melosira sp.	91
Order Pennales	
Cymbella sp.	215
Navicula sp.	215
CHLOROPHYTA (Green algae)	
Ankistrodesmus falcatus var. *mirabilis*	61
Ankistrodesmus nannoselene	430
Chlamydomonas sp. 1	61
Chlorococcum sp.?	122
Scenedesmus quadricauda	552
Scenedesmus sp.	245
Selenastrum minutum	307
Tetraedron minimum	122
Tetraedron muticum	61
CYANOPHYTA (Blue-green algae)	
Chroococcus dispersus	859
Chroococcus varius	1,289
Dactylococcopsis fascicularis	1,228
Dactylococcopsis smithii	122
Synechococcus lineare var. *spirale*	184
Synechococcus sp.	245
EUGLENOPHYTA (Euglenoids)	
Trachelomonas sp.	61

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX--Continued

Joe Pool Lake EC (323329097024101)

Phytoplankton Analyses September 1988 to October 1989

Date	2-28-89
Time	1158
TOTAL CELLS/mL	14,857
NUMBER OF SPECIES	13
DEPTH COLLECTED (ft.)	0.2

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella ocellata	6,548
Cyclotella stelligera	630
Stephanodiscus sp.	252
Order Pennales	
Navicula sp.	900
Nitzschia longissima var. *reversa*	675
Nitzschia sp.	450
CHLOROPHYTA (Green algae)	
Ankistrodesmus nannoselene	675
Chlamydomonas sp.	1,351
Chodatella subsalsa	338
Nephrocytium sp.	675
CYANOPHYTA (Blue-green algae)	
Dactylococcopsis fascicularis	675
EUGLENOPHYTA (Euglenoids)	
Phacus sp.	1,013
CRYPTOPHYTA (Cryptomonads)	
Rhodomonas minuta	675

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX--Continued

Joe Pool Lake AC (323819096584801)

Phytoplankton Analyses September 1988 to October 1989

Date	5-11-89
Time	0928
TOTAL CELLS/mL	13,843
NUMBER OF SPECIES	28
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella meneghiniana	254
Cyclotella ocellata	153
Cyclotella pseudostelligera	51
Melosira italica	51
Stephanodiscus astrea	432
Stephanodiscus vestibulus	2,164
CHLOROPHYTA (Green algae)	
Ankistrodesmus falcatus var. *mirabilis*	405
Ankistrodesmus nannoselene	608
Chlamydomonas sp. 1	135
Chlorococcum sp.	270
Franceia ovalis	68
Gloeocystis sp.	202
Nephrocytium sp.	473
Oocystis sp.	135
Pandorina morum	540
Scenedesmus bijuga	405
Selenastrum minutum	473
Tetrastrum staurogeniaeforme	270
CHRYSOPHYTA (Golden-brown algae)	
Kephyrion sp.	68
CYANOPHYTA (Blue-green algae)	
Aphanocapsa delicatissima	1,013
Chroococcus dispersus	473
Chroococcus limneticus	608
Chroococcus varius	675
Dactylococcopsis fascicularis	68
Oscillatoria subtilissima	1,891
Spirulina laxissima	270
Synechococcus sp.	878
CRYPTOPHYTA (Cryptomonads)	
Cryptomonas erosa	810

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX--Continued

Joe Pool Lake BC (323731097013901)

Phytoplankton Analyses September 1988 to October 1989

Date	5-11-89
Time	1241
TOTAL CELLS/mL	3,310
NUMBER OF SPECIES	17
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella meneghiniana	48
Cyclotella ocellata	48
Stephanodiscus astrea	115
Stephanodiscus vestibulus	733
CHLOROPHYTA (Green algae)	
Ankistrodesmus nannoselene	68
Chlamydomonas sp.	68
Chodatella sp.	68
Crucigenia tetrapedia	270
Selenastrum minutum	202
Tetraedron muticum	68
CHRYSOPHYTA (Golden-brown algae)	
Chrysochromulina parva	68
CYANOPHYTA (Blue-green algae)	
Aphanocapsa delicatissima	608
Chroococcus dispersus	135
Chroococcus limneticus	270
Synechococcus sp.	473
CRYPTOPHYTA (Cryptomonads)	
Cryptomonas erosa	68

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX--Continued

Joe Pool Lake EC (323329097024101)

Phytoplankton Analyses September 1988 to October 1989

Date	5-11-89
Time	1147
TOTAL CELLS/mL	4,860
NUMBER OF SPECIES	17
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella meneghiniana	238
Cyclotella ocellata	143
Melosira italica	32
Stephanodiscus astrea	24
Stephanodiscus vestibule	103
Order Pennales	
Gomphonema sp.	40
Navicula radiosa	80
Navicula sp.	40
Nitzschia sp.	40
CHLOROPHYTA (Green algae)	
Ankistrodesmus falcatus var. *mirabilis*	135
Scenedesmus quadricauda	270
Selenastrum minutum	68
CYANOPHYTA (Blue-green algae)	
Aphanocapsa delicatissima	1,216
Chroococcus varius	270
Oscillatoria subtilissima	1,283
Synechococcus sp.	810
CRYPTOPHYTA (Cryptomonads)	
Cryptomonas erosa	68

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX--Continued

Joe Pool Lake AC (323819096584801)

Phytoplankton Analyses September 1988 to October 1989

Date	8-10-89
Time	0847
TOTAL CELLS/mL	112,978
NUMBER OF SPECIES	34
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (diatoms)	
Order Centrales	
Stephanodiscus astraea	816
Stephanodiscus vestibulus	1,633
Order Pennales	
Achnanthes minutissima	33
Amphora sp.	33
Navicula sp.	33
Nitzschia acicularis	163
Nitzschia kutzinginia	196
Synedra acus	98
Synedra delicatissima	261
CHLOROPHYTA (green algae)	
Ankistrodesmus falcatus var. *mirabilis*	272
Chlamydomonas sp.	272
Chlorococcum humicola	272
Crucigenia tetrapedia	1,089
Elakatothrix viridis	544
Kirchneriella lunaris	544
Nephrocytium agardhianum	1,089
Nephrocytium limneticum	2,995
Selenastrum minutum	272
Tetraedron minimum	544
Tetraedron sp.	272
Treubaria setigerum	272
CYANOPHYTA (blue-green algae)	
Aphanocapsa delicatissima	25,591
Aphanothece nidulans	2,178
Aphanothece saxicola	6,534
Chroococcus dispersus	3,811
Chroococcus multicoloratus	4,356
Dactylococcopsis fascicularis	1,089
Oscillatoria angustissima	11,162
Oscillatoria geminata	1,633
Oscillatoria subtilissima	10,618
Raphidiopsis curvata	31,853
Synechococcus sp.	1,906
CRYPTOPHYTA (cryptomonads)	
Chroomonas sp.	272
Rhodomonas minuta	272

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX--Continued

Joe Pool Lake BC (323731097013901)

Phytoplankton Analyses September 1988 to October 1989

Date	8-10-89
Time	1128
TOTAL CELLS/mL	95,207
NUMBER OF SPECIES	37
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (diatoms)	
Order Centrales	
Cyclotella stelligera	357
Melosira lirata	357
Stephanodiscus astraea	803
Stephanodiscus hantzschii	178
Stephanodiscus vestibulus	1,338
Order Pennales	
Achnanthes minutissima	370
Gomphonema sp.	28
Nitzschia acicularis	228
Nitzschia kutzinginia	85
Nitzschia palea	28
Synedra acus	85
Synedra delicatissima	342
CHLOROPHYTA (green algae)	
Chlamydomonas sp.	233
Chlorococcum humicola	233
Chlorogonium sp.	233
Elakatothrix viridis	467
Gomphosphaeria sp.	3,267
Kirchneriella lunaris	933
Mesotaenium sp.	467
Nephrocytium limneticum	3,967
Tetraedron muticum	233
CYANOPHYTA (blue-green algae)	
Aphanocapsa delicatissima	14,468
Aphanocapsa elachista var. *conferta*	2,567
Aphanothece saxicola	5,600
Chroococcus dispersus	10,501
Chroococcus limneticus	467
Chroococcus multicoloratus	8,634
Dactylococcopsis acicularis	233
Dactylococcopsis fascicularis	467
Oscillatoria angustissima	6,301
Oscillatoria geminata	1,867
Oscillatoria subtilissima	7,701
Raphidiopsis curvata	17,035
Synechococcus lineare	1,867
Synechococcus sp.	2,567
CRYPTOPHYTA (cryptomonads)	
Chroomonas sp.	467
Rhodomonas minuta	233

08049800 JOE POOL LAKE NEAR DUNCANVILLE, TX--Continued

Joe Pool Lake EC (323329097024101)

Phytoplankton Analyses September 1988 to October 1989

Date	8-10-89
Time	1054
TOTAL CELLS/mL	68,767
NUMBER OF SPECIES	44
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (diatoms)	
Order Centrales	
Cyclotella sp.	109
Stephanodiscus dubius	109
Stephanodiscus sp.	109
Order Pennales	
Achnanthes minutissima	143
Nitzschia acicularis	214
Nitzschia palea	71
Nitzschia sp.	71
Synedra acus	214
Synedra delicatissima	143
Synedra filiformis var *exilis*	286
CHLOROPHYTA (green algae)	
Ankistrodesmus falcatus	327
Ankistrodesmus nannoselene	163
Chlamydomonas sp.	327
Chlorococcum humicola	653
Chodatella subsalsa	163
Dictyosphaerium pulchellum	490
Elakatothrix viridis	327
Gomphosphaeria lacustria	1,307
Kirchneriella contorta	1,633
Kirchneriella lunaris	1,307
Nephrocytium limneticum	2,940
Scenedesmus dimorphus	653
Schroederia setigera	163
Selenastrum minutum	490
Tetraedron minimum	163
Tetraedron muticum	490
Treubaria setigerum	163
CYANOPHYTA (blue-green algae)	
Aphanocapsa delicatissima	14,865
Aphanothece nidulans	3,757
Chroococcus dispersus	327
Chroococcus limneticus	1,960
Chroococcus multicoloratus	3,104
Dactylococcopsis acicularis	327
Dactylococcopsis fascicularis	980
Merismopedia sp.	2,614
Oscillatoria angustissima	1,307
Oscillatoria subtilissima	1,797
Raphidiopsis curvata	16,988
Synechococcus lineare	5,064
Synechococcus sp.	1,143
CRYPTOPHYTA (cryptomonads)	
Chroomonas sp.	653
Rhodomonas minuta	327
EUGLENOPHYTA	
Euglena sp.	163
Trachelomonas volvocina	163

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 current year.

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

REMARKS.--Elevation records good except those for Oct. 14 to Nov. 3 and July 29 to Aug. 21, 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, 463.70 ft May 17 at 0500 hours; minimum, 456.14 ft Sept. 11.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	457.97	456.56	456.69	457.36	456.79	456.65	456.86	457.56	461.37	462.31	456.72	456.22
2	457.90	456.54	456.69	457.48	457.31	456.65	456.76	457.55	461.40	462.37	456.82	456.21
3	457.89	456.54	456.68	457.09	457.10	457.32	456.75	457.76	458.60	458.95	456.80	456.21
4	457.88	456.54	456.67	456.88	457.02	457.44	456.73	461.60	457.37	461.28	456.73	456.20
5	457.88	456.52	459.75	457.37	457.01	457.43	456.72	458.55	456.87	461.99	456.66	456.19
6	457.44	456.52	458.31	457.10	457.00	457.45	456.71	457.24	456.86	462.46	456.57	456.18
7	457.13	456.51	457.60	456.89	456.98	457.45	456.71	456.92	459.46	462.45	456.75	456.17
8	456.99	456.50	457.55	456.81	456.77	457.43	456.71	456.84	457.60	462.44	456.59	456.16
9	456.93	456.49	457.53	457.37	456.73	457.11	456.71	456.81	456.96	462.43	456.57	456.15
10	456.92	456.48	457.63	457.10	456.72	456.84	456.74	456.76	456.94	461.66	456.54	456.15
11	456.91	456.47	457.56	456.92	456.70	456.75	456.74	456.73	457.02	461.66	456.52	456.15
12	456.90	456.46	457.53	457.41	456.74	456.68	456.73	456.72	458.81	461.65	456.51	456.16
13	456.89	456.46	457.53	457.12	456.75	456.65	457.98	456.81	460.47	460.96	456.49	456.80
14	456.87	456.46	457.52	456.92	456.73	456.64	457.36	456.80	458.50	459.81	456.44	456.67
15	456.85	456.47	457.53	456.82	457.37	456.61	457.03	456.78	457.31	459.76	456.42	456.60
16	456.84	456.47	457.53	457.35	457.61	456.58	456.93	460.43	457.22	459.75	456.40	456.55
17	456.82	456.46	457.53	457.09	458.68	456.59	456.92	459.25	457.15	459.02	456.77	456.52
18	456.81	456.46	457.54	456.90	457.71	456.59	457.40	457.70	457.09	458.96	456.50	456.48
19	456.78	456.73	457.56	457.41	457.13	456.60	457.55	457.35	457.07	458.96	456.38	456.45
20	456.76	456.71	457.56	457.11	456.96	456.60	457.56	457.30	457.05	458.95	456.35	456.44
21	456.75	456.70	457.57	456.90	456.85	456.86	457.55	457.25	457.04	458.95	456.33	456.43
22	456.73	456.70	457.64	456.81	456.77	456.82	457.56	457.19	457.02	458.95	456.32	456.42
23	456.72	456.70	457.58	457.38	456.72	456.78	457.55	457.13	457.00	458.94	456.32	456.41
24	456.70	456.69	457.58	457.10	456.68	456.75	457.56	457.07	456.98	458.94	456.32	456.40
25	456.69	456.74	457.58	457.24	456.67	456.73	457.56	457.02	456.97	458.94	456.31	456.36
26	456.66	456.75	457.60	457.51	456.67	456.73	457.56	456.97	462.30	457.29	456.29	457.25
27	456.64	456.71	457.73	457.27	456.66	456.73	457.55	456.93	462.33	457.11	456.27	457.02
28	456.63	456.70	457.60	458.04	456.66	457.87	457.55	456.92	462.33	457.05	456.25	457.52
29	456.61	456.70	457.58	457.12	---	457.61	457.55	459.63	462.33	457.01	456.25	457.00
30	456.60	456.70	457.11	456.92	---	457.15	457.55	460.55	462.32	456.94	456.24	456.79
31	456.58	---	456.92	456.85	---	456.95	---	460.56	---	456.84	456.22	---
MAX	457.97	456.75	459.75	458.04	458.68	457.87	457.98	461.60	462.33	462.46	456.82	457.52
MIN	456.58	456.46	456.67	456.81	456.66	456.58	456.71	456.72	456.86	456.84	456.22	456.15
(†)	456.58	456.70	456.92	456.85	456.66	456.95	457.55	460.56	462.32	456.84	456.22	456.79

CAL YR 1988 MAX 459.75 MIN 456.46
WTR YR 1989 MAX 462.46 MIN 456.15

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

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, nonrecording 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, 28,360 acre-ft May 17 at 0845 hours (elevation, 458.80 ft); minimum, 20,020 acre-ft Nov. 17-19 (elevation, 455.90 ft).

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

455.0	17,890	458.0	25,720
456.0	20,260	459.0	29,020
457.0	22,840		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21290	20620	20470	22560	23040	23300	23360	22900	23650	22810	22740	21990
2	21290	20650	20470	22560	23650	23470	23360	23040	23530	23420	23040	21910
3	21270	20620	20440	22560	24020	23420	23300	23420	23270	22690	22980	21830
4	21240	20470	20390	22580	24080	23420	23160	24280	22560	22840	22900	21810
5	21240	20410	20440	22580	24050	23470	23160	23190	22610	23270	22810	21730
6	21210	20360	20700	22760	24050	23440	23070	23010	22710	23440	22760	21650
7	21140	20340	20750	22530	23160	23530	23130	23240	23500	22870	22710	21580
8	21160	20290	20700	22500	23070	23590	22900	23300	22870	23240	22660	21520
9	21160	20260	20800	22500	23100	23130	22760	23190	22980	22690	22630	21420
10	21140	20210	21160	22530	23160	23160	22760	23190	23130	22660	22560	21370
11	21090	20170	21320	22530	23160	23240	22760	23160	23650	23420	22530	21810
12	21060	20170	21470	22500	23270	23300	22710	23130	21110	23210	22500	21830
13	20980	20120	21580	22580	23240	23210	23620	23160	21470	22790	22450	22580
14	20960	20120	21450	22630	23330	23070	23100	23160	22190	23240	22430	22580
15	20900	20170	21420	22560	23590	23010	23130	23160	22350	22560	22430	22560
16	20880	20070	21470	22580	23300	23040	23210	23270	22450	22980	22400	22560
17	20880	20020	21470	22660	23040	23130	23190	22450	22450	22870	22980	22500
18	20700	20020	21580	22610	23010	22960	23210	22690	22480	22980	22900	22450
19	20670	20470	21630	22610	23210	22980	23210	22710	22500	23130	22960	22430
20	20650	20440	21600	22580	23240	22790	23270	22740	22500	22710	22870	22350
21	20600	20440	21600	22580	23240	23100	23270	22810	22450	22400	22810	22320
22	20620	20440	21860	22580	23190	23130	23270	22760	22380	22560	22760	22220
23	20520	20440	21940	22660	23240	23160	23270	22790	22350	22710	22710	22040
24	20490	20440	21910	22610	23210	23160	23210	22740	22300	22870	22660	21990
25	20490	20490	21960	22900	23240	23130	23210	22630	22250	23040	22560	21940
26	20470	20540	22070	23190	23270	23100	23190	22560	22450	23190	22500	21910
27	20520	20490	22320	23330	23210	23100	23190	22530	22760	23190	22430	21890
28	20520	20470	22380	25030	23270	22840	23240	22500	23190	23130	22350	21890
29	20600	20440	22430	24280	---	23330	23270	22480	23240	23070	22220	21830
30	20600	20410	22500	23210	---	23300	23240	22960	23040	22980	22170	21830
31	20600	---	22530	23160	---	23330	---	23650	---	22870	22090	---
MAX	21290	20650	22530	25030	24080	23590	23620	24280	23650	23440	23040	22580
MIN	20470	20020	20390	22500	23010	22790	22710	22450	21110	22400	22090	21370
(†)	456.13	456.06	456.88	457.11	457.15	457.17	457.14	457.28	457.07	457.01	456.71	456.61
(ϕ)	-690	-190	+2120	+630	+110	+60	-90	+410	-610	-170	-780	-260

CAL YR 1988 MAX 22530 MIN 8420 (ϕ) -130
WTR YR 1989 MAX 25030 MIN 20020 (ϕ) +540

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

08050100 MOUNTAIN CREEK AT GRAND PRAIRIE, TX

LOCATION.--Lat 32°44'52", long 96°55'33", Dallas County, Hydrologic Unit 12030102, on right bank at downstream side of downstream bridge on Jefferson Street, 1,000 ft upstream from bridge on U.S. Highway 80, 1.2 mi upstream from Texas and Pacific Railroad Co. bridge, 1.5 mi downstream from Mountain Creek Lake Dam, and 4.4 mi east of Grand Prairie.

DRAINAGE AREA.--298 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 404.31 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 19, 1984, at datum 3.0 ft higher.

REMARKS.--Records fair except those for estimated daily discharges and those less than 1.0 ft³/s, which are poor. Flow is regulated by Mountain Creek Lake (station 08050050), 1.5 mi upstream. Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--29 years, 94.0 ft³/s (68,100 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, 24,700 ft³/s May 17 at about 1100 hours (discharge calculated from lake release information from Mountain Creek Lake (gage height is unknown); maximum gage-height observed was 24.33 ft May 17 after releases from Mountain Creek Lake had been reduced to about one-half of the maximum releases; minimum daily, 0.01 ft³/s Oct. 19.

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	1.3	.35	.88	1.1	1.3	.83	3.5	e184	320	1270	1.2	.37
2	.97	.31	.95	.92	7.0	.74	4.8	e3.2	531	1170	2.3	.35
3	.48	.29	.83	.83	7.1	1.3	2.7	e708	728	2040	2.4	.38
4	.32	14	.83	.67	2.6	1.4	1.9	e835	e1100	263	1.4	.37
5	.22	1.8	.72	.83	2.1	1.6	1.4	e5160	e3.0	404	1.0	.38
6	.18	.89	.72	1.2	1.7	1.7	1.5	e204	e1.0	820	.85	.40
7	.14	.63	.72	1.4	362	1.9	1.5	e5.0	e2530	1560	188	.39
8	.18	.41	.82	1.0	33	1.2	1.6	e4.0	e886	e1650	118	.41
9	.20	.39	.94	1.1	1.2	175	1.2	3.5	e3.0	e2170	1.8	.44
10	.18	.17	1.8	1.1	.74	2.7	1.2	2.5	e2.0	e1160	1.1	.50
11	.13	.20	2.4	1.1	.62	1.1	1.4	2.2	e1.0	e301	.88	1.3
12	.11	.39	1.3	.75	.71	.86	1.3	1.9	e2940	856	.64	1.2
13	.11	.46	1.2	.75	.95	1.0	4.5	2.2	e3620	893	.39	3.3
14	.08	.51	1.2	.83	.86	1.3	529	2.3	e1260	291	.62	2.5
15	.08	.84	1.2	.83	2.6	.82	4.5	1.6	e3.0	515	.77	1.5
16	.08	1.2	.95	.61	379	.65	2.8	2850	e2.0	3.1	.89	1.1
17	.05	.89	1.1	.53	2130	1.0	2.4	e11000	e1.5	139	184	.88
18	.05	.86	1.1	.53	933	1.4	1.6	e227	e1.2	5.6	109	.60
19	.01	1.4	1.1	.53	6.3	.76	1.2	e3.0	e1.0	1.2	2.2	.53
20	.02	1.4	1.5	.47	4.2	1.2	1.1	e2.0	e.90	122	1.3	.56
21	.04	1.1	1.5	.44	2.9	2.9	1.1	e1.6	e.80	191	.90	.55
22	.09	1.1	2.4	.44	2.1	2.4	.87	e1.2	e.80	1.4	.66	.53
23	.14	1.1	1.9	.35	1.8	1.3	1.3	e1.0	e.80	.66	.88	.53
24	.22	.97	1.2	.32	1.8	1.0	1.7	e1.0	e.80	.62	.51	.62
25	.15	.96	.83	.98	1.6	1.1	1.2	e.80	e.80	5.5	.38	.91
26	.07	1.4	.62	3.6	1.7	1.1	.98	e.80	e.80	2.9	.36	.98
27	.15	.78	1.6	1.6	1.1	1.7	.86	e.80	855	1.8	.28	.87
28	.15	.95	2.7	e1.1	.95	2210	.82	e.80	938	1.6	.23	.68
29	.35	1.1	1.8	e556	---	e195	.72	7.9	1050	1.5	.28	.72
30	.34	.82	1.3	503	---	e4.6	.72	1.9	1270	1.4	.30	.72
31	.31	---	1.2	25	---	4.0	---	1.4	---	1.2	.39	---
TOTAL	6.90	37.67	39.31	1109.91	3890.93	2623.56	581.37	21220.60	18052.40	15843.48	623.91	24.57
MEAN	.22	1.26	1.27	35.8	139	84.6	19.4	685	602	511	20.1	.82
MAX	1.3	14	2.7	556	2130	2210	529	11000	3620	2170	188	3.3
MIN	.01	.17	.62	.32	.62	.65	.72	.80	.80	.62	.23	.35
AC-FT	14	75	78	2200	7720	5200	1150	42090	35810	31430	1240	49

CAL YR 1988	TOTAL	1585.34	MEAN	4.33	MAX	440	MIN	.00	AC-FT	3140
WTR YR 1989	TOTAL	64054.61	MEAN	175	MAX	11000	MIN	.01	AC-FT	127100

e Estimated.

08050400 ELM FORK TRINITY RIVER AT GAINESVILLE, TX

LOCATION.--Lat 33°27'27", 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.--No estimated daily discharges. Records good. Several observations of water temperature were made during the year. Gage-height telemeter at station.

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, from information by an employee of the Gainesville Department of Public Works.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 24,000 ft³/s May 16 at 0800 hours (gage height, 25.33 ft) from rating curve extended above 20,000 ft³/s on basis of velocity-area study; minimum discharge, 0.26 ft³/s Nov. 4.

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	1.5	.60	2.2	13	44	59	104	20	119	52	9.6	.68
2	1.2	.50	2.1	14	32	55	82	21	126	44	11	.62
3	.94	.45	1.7	12	23	53	67	701	313	59	11	.69
4	1.0	.36	1.8	9.2	16	56	56	218	4090	46	9.8	.71
5	.84	.35	1.7	6.5	11	60	46	229	774	37	8.0	.69
6	.65	.43	1.8	5.8	8.1	61	41	115	387	32	6.2	.64
7	.54	.43	2.9	5.3	9.5	61	38	66	2050	29	21	.49
8	.55	.46	2.8	4.3	9.2	216	36	46	1390	28	16	.43
9	.62	.56	5.8	4.2	9.1	757	33	37	522	21	12	.42
10	.61	1.2	11	3.8	9.0	706	28	30	322	18	8.2	.45
11	.72	1.4	105	3.9	8.9	334	25	27	225	16	7.2	15
12	1.1	9.2	58	4.3	8.9	194	25	33	1290	15	6.6	3.6
13	1.2	1.8	22	4.5	9.7	140	26	50	3690	15	5.5	992
14	.64	.88	12	4.4	10	106	37	39	1200	278	10	368
15	.59	2.3	8.4	4.2	247	78	37	32	760	61	8.3	145
16	.57	2.5	6.1	4.2	188	65	32	10200	501	27	8.6	71
17	.44	1.5	5.0	4.2	3760	60	28	5400	367	19	24	40
18	.37	1.0	4.4	4.1	1160	54	25	1750	283	16	10	25
19	.56	222	4.6	4.1	644	46	24	1260	242	13	5.9	19
20	.65	34	4.2	4.0	341	45	22	1050	197	11	4.7	13
21	.63	5.2	4.0	4.0	221	43	21	960	158	11	4.0	10
22	.59	2.4	8.2	4.0	162	38	20	858	126	11	3.1	7.9
23	.58	1.6	21	4.1	130	34	20	696	102	12	2.5	5.7
24	.48	1.3	11	4.2	112	33	19	445	93	15	2.0	4.5
25	.43	71	6.8	107	99	32	18	328	86	14	1.8	3.8
26	.62	181	5.5	392	89	32	18	256	85	14	1.6	3.2
27	.45	15	24	90	76	32	17	383	78	16	1.4	3.1
28	.40	4.7	100	797	67	726	18	222	72	15	1.2	3.0
29	.45	3.1	19	263	---	603	17	173	67	14	1.1	3.2
30	1.1	2.7	13	87	---	354	16	150	63	12	.96	2.9
31	1.4	---	12	59	---	154	---	132	---	11	.84	---
TOTAL	22.42	569.92	488.0	1931.3	7504.4	5287	996	25927	19778	982	224.10	1744.72
MEAN	.72	19.0	15.7	62.3	268	171	33.2	836	659	31.7	7.23	58.2
MAX	1.5	222	105	797	3760	757	104	10200	4090	278	24	992
MIN	.37	.35	1.7	3.8	8.1	32	16	20	63	11	.84	.42
AC-FT	44	1130	968	3830	14880	10490	1980	51430	39230	1950	445	3460

CAL YR 1988	TOTAL	9843.99	MEAN	26.9	MAX	465	MIN	.00	AC-FT	19530
WTR YR 1989	TOTAL	65454.86	MEAN	179	MAX	10200	MIN	.35	AC-FT	129800

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 September 1989.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	CALCIUM DIS-SOLVED (MG/L AS CA)
NOV												
02...	1345	2.7	910	8.00	15.5	24	6.0	9.0	93	--	100	35
DEC												
21...	1445	6.3	900	8.10	11.0	25	5.5	11.2	103	2.0	180	65
FEB												
02...	1100	37	677	8.00	9.5	24	17	10.4	93	1.7	220	80
MAR												
22...	1645	38	704	8.30	13.0	15	3.5	12.8	124	2.5	240	88
MAY												
10...	1600	34	656	8.20	22.0	55	15	9.5	111	3.8	220	80
AUG												
16...	1515	9.5	802	8.00	26.0	20	11	9.6	122	2.1	200	71

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 WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)
NOV											
02...	4.1	160	7	7.9	294	57	50	0.30	10	501	17
DEC											
21...	5.1	130	4	6.6	266	56	83	0.40	12	518	12
FEB											
02...	5.3	61	2	4.8	184	50	86	0.30	9.3	407	33
MAR											
22...	5.9	58	2	3.3	208	52	74	0.20	2.1	408	17
MAY											
10...	5.2	49	1	3.7	210	42	54	0.20	8.9	369	30
AUG											
16...	5.6	93	3	4.2	253	56	60	0.30	12	454	30

DATE	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, 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, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)
NOV											
02...	<1	--	8.84	0.060	8.90	0.340	1.4	1.7	3.90	7.3	--
DEC											
21...	<1	--	5.28	0.020	5.30	0.040	0.96	1.0	3.10	5.4	2
FEB											
02...	12	21	1.47	0.030	1.50	0.060	0.74	0.80	0.500	6.3	--
MAR											
22...	7	10	0.980	0.020	1.00	0.020	0.38	0.40	0.390	5.6	1
MAY											
10...	14	16	1.58	0.020	1.60	0.020	0.58	0.60	0.450	8.1	--
AUG											
16...	9	21	3.97	0.030	4.00	0.030	4.6	4.6	1.50	2.8	1

DATE	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV											
02...	--	--	--	--	--	--	--	--	--	--	--
DEC											
21...	57	<1	4	6	16	<5	24	<0.1	<1	<1.0	15
FEB											
02...	--	--	--	--	--	--	--	--	--	--	--
MAR											
22...	87	<1	<1	2	11	<5	6	<0.1	1	<1.0	6
MAY											
10...	--	--	--	--	--	--	--	--	--	--	--
AUG											
16...	77	<1	2	7	7	<1	7	0.2	1	1.0	7

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.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,900 ft³/s May 16, 1989 (gage height, 14.23 ft); 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.--Maximum discharge, 6,900 ft³/s May 16 at 1230 hours (gage height 14.23 ft); 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	.15	2.1	e1.0	1.9	9.0	4.9	20	e3.7	3.7	1.7	.53	.0
2	.12	.60	e.74	1.9	23	4.7	14	e3.4	3.5	7.5	.53	.0
3	.07	.45	e.57	1.8	15	4.9	e9.6	e3.4	3.6	22	.52	.0
4	.04	.26	e.51	1.6	6.9	5.7	e8.9	e3.4	2170	3.3	.52	.0
5	.0	.22	e.49	1.6	5.5	7.0	e8.3	e3.4	494	2.2	.51	.0
6	.00	.15	e.43	1.6	5.4	6.7	e7.7	e3.4	23	1.9	.46	.0
7	.00	.07	e.66	1.6	4.9	16	e7.3	e3.4	463	1.7	.43	.0
8	.00	.02	e2.1	1.5	4.9	145	e6.8	e3.4	717	1.6	.35	.0
9	.00	e.01	e2.9	1.5	4.7	198	e6.3	e3.4	32	1.5	.36	.0
10	.00	e.01	e4.9	1.5	4.8	55	e5.8	e3.4	15	1.5	.35	.0
11	.00	.01	e22	1.6	5.1	23	e5.2	3.4	11	1.2	.35	1.5
12	.00	4.2	e12	1.6	5.0	13	e4.5	3.5	39	1.1	.33	1.1
13	.00	e.08	e6.4	1.5	5.3	8.8	4.0	3.4	878	1.0	.28	157
14	.00	e.03	e4.4	1.7	5.7	7.1	6.8	6.0	839	485	.27	6.5
15	.00	e.14	e3.4	1.8	172	5.9	6.5	6.0	50	572	.26	.80
16	.00	e.18	e2.8	1.8	83	4.9	5.1	1530	11	13	.24	.40
17	.00	e.09	e2.4	1.6	766	4.8	4.5	2260	6.4	6.6	.26	.21
18	.00	e.07	e2.0	1.6	514	4.6	4.3	1150	4.5	3.9	.23	.14
19	.00	e19	e1.9	1.6	40	4.0	4.4	61	3.7	2.7	.20	.11
20	.00	e2.7	e1.8	1.7	28	4.3	4.4	20	3.1	1.9	.18	.09
21	e.00	e.74	e1.8	1.7	21	4.3	3.9	9.4	2.6	1.3	.15	.08
22	.00	e.42	11	1.7	11	4.0	4.0	7.2	2.4	1.2	.13	.07
23	e.00	e.30	17	1.7	7.9	3.9	3.9	6.2	2.1	.99	.11	.05
24	.00	e.44	3.8	1.6	7.1	3.9	3.7	5.4	2.0	.96	.09	.03
25	.00	e2.2	2.5	44	6.4	3.9	3.7	4.6	1.9	.92	.04	.0
26	e.01	e23	2.2	342	6.2	4.0	3.5	3.9	1.7	.80	.0	.00
27	.46	e3.8	2.2	32	5.8	3.9	3.5	58	1.7	.76	.0	.00
28	e.08	e2.4	3.0	531	5.2	491	3.8	21	1.7	.76	.0	.00
29	e.13	e1.9	2.2	418	---	764	3.8	7.5	1.6	.70	.0	.00
30	7.9	e1.4	1.8	25	---	458	3.8	5.0	1.6	.63	.0	.00
31	12	---	1.6	13	---	31	---	4.1	---	.56	.0	---
TOTAL	20.96	66.99	122.50	1444.7	1778.8	2300.2	182.0	5209.9	5789.8	1142.88	7.68	168.08
MEAN	.68	2.23	3.95	46.6	63.5	74.2	6.07	168	193	36.9	.25	5.60
MAX	12	23	22	531	766	764	20	2260	2170	572	.53	157
MIN	.00	.01	.43	1.5	4.7	3.9	3.5	3.4	1.6	.56	.00	.00
AC-FT	42	133	243	2870	3530	4560	361	10330	11480	2270	15	333
CFSM	.02	.06	.10	1.20	1.64	1.91	.16	4.33	4.97	.95	.01	.14
IN.	.02	.06	.12	1.39	1.71	2.21	.17	5.00	5.55	1.10	.01	.16

CAL YR 1988 TOTAL 1572.19 MEAN 4.30 MAX 117 MIN .00 AC-FT 3120 CFSM .11 IN. 1.51
WTR YR 1989 TOTAL 18234.49 MEAN 50.0 MAX 2260 MIN .00 AC-FT 36170 CFSM 1.29 IN. 17.48

e Estimated

08050815 JORDON 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 (Jordon Creek), and 1.5 mi southwest of Collinsville.

DRAINAGE AREA.--179 mi.²

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1988 to September 1989.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	CALCIUM DIS-SOLVED (MG/L AS CA)
DEC												
22...	1100	0.17	980	8.00	13.0	60	13	8.2	79	2.3	93	29
FEB												
02...	1400	0.36	519	7.90	6.0	65	26	10.2	83	3.2	110	34
MAR												
23...	1145	0.50	733	8.10	10.5	50	21	12.2	111	2.0	150	46
MAY												
11...	1240	0.22	626	8.00	18.0	110	25	8.0	85	3.7	130	39
JUN												
27...	1455	0.34	571	8.20	25.0	27	5.6	6.8	84	1.9	140	44

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 WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)
DEC											
22...	5.1	180	8	6.8	338	58	71	0.40	9.3	562	24
FEB											
02...	6.4	77	3	5.7	176	46	43	0.30	8.3	326	27
MAR											
23...	9.0	110	4	5.1	238	64	58	0.30	4.8	440	43
MAY											
11...	7.6	82	3	5.5	212	37	44	0.30	9.4	352	33
JUN											
27...	8.1	66	2	6.2	198	37	34	0.30	9.6	324	7

DATE	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, 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-PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)
DEC											
22...	1	23	0.460	0.040	0.500	0.090	1.1	1.2	2.20	13	2
FEB											
02...	7	20	0.830	0.070	0.900	0.440	1.1	1.5	1.00	7.5	--
MAR											
23...	13	30	1.23	0.070	1.30	0.020	0.78	0.80	0.790	7.5	2
MAY											
11...	<1	--	0.270	0.030	0.300	0.030	0.77	0.80	1.20	9.6	--
JUN											
27...	<1	--	0.990	0.010	1.00	0.020	3.2	3.2	0.820	6.9	--

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)
DEC											
22...	31	1	1	5	84	<5	31	0.2	<1	<1.0	19
FEB											
02...	--	--	--	--	--	--	--	--	--	--	--
MAR											
23...	45	1	<1	2	17	<5	85	<0.1	<1	<1.0	3
MAY											
11...	--	--	--	--	--	--	--	--	--	--	--
JUN											
27...	--	--	--	--	--	--	--	--	--	--	--

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, 687,700 acre-ft July 16, 1989 (elevation, 628.46 ft); minimum since initial filling began, 990 acre-ft July 1, 1987 (elevation, 551.00 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 687,700 acre-ft July 16 at 0600 hours (elevation, 628.46 ft); minimum, 129,100 acre-ft Nov. 11, 12 (elevation, 592.57 ft).

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

592.0	124,600	608.0	293,400	622.0	533,300
596.0	158,200	612.0	351,600	625.0	601,500
600.0	197,100	616.0	417,100	627.0	650,300
604.0	242,000	619.0	471,500	629.0	702,000

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	132800	130300	135100	143500	186800	272900	331700	332800	498400	675300	685200	672500
2	132600	130200	135100	143500	187700	272700	332500	332500	498800	678900	684100	672200
3	132500	130100	135100	143600	188100	272900	332900	336200	502100	678900	683400	671700
4	132300	130000	135100	143600	188300	273800	332900	337400	567300	678400	683100	671200
5	132100	129900	135000	143600	188300	274300	332800	340300	580200	678200	682600	670700
6	132000	129800	135000	143600	188200	274300	332600	341000	582000	677600	682600	670200
7	131800	129700	135200	143600	188200	274600	332800	341000	598900	677600	682600	669400
8	131600	129600	135600	143600	188300	276900	332800	341000	611000	677400	681800	668400
9	131600	129500	135600	143500	188200	282500	332600	341300	613700	676900	681000	668600
10	131500	129400	136500	143400	188300	286100	332200	341000	616300	676400	680800	668100
11	131300	129400	138900	143400	188500	287600	331900	340700	617500	675800	680200	670400
12	131200	129700	140400	143700	188600	288500	332300	341300	623600	675600	679700	670200
13	131100	129900	140600	143700	188900	288900	332300	342000	659700	675600	679200	679200
14	130900	130000	140900	143700	188900	289600	332600	342000	671700	684100	680000	679700
15	130700	130000	141000	143600	194900	289700	332800	342100	675100	687300	680000	679500
16	130500	130000	140900	143600	201400	289700	332800	400200	675800	687500	679700	678900
17	130500	129900	140800	143500	239200	290000	332900	453400	676100	687300	679500	678900
18	130400	129900	140700	143600	263500	290100	332900	479400	676600	687000	678900	678400
19	130400	130700	140600	143600	267300	290300	332900	483500	676900	686200	678400	677900
20	130400	131300	140800	143500	269200	290700	332800	486500	677100	685400	678400	677600
21	130300	131400	140800	143400	270300	290700	332800	488200	676900	685200	677600	677400
22	130100	131500	141200	143300	271200	290600	332500	490600	676600	684700	677100	677100
23	130000	131400	141600	143300	271300	290400	332200	492200	676400	684100	676900	675600
24	129800	131400	141600	143400	271700	290400	332300	492800	676400	687300	676600	674800
25	129800	132000	141500	148000	272000	290600	332300	493700	676100	687300	675800	674300
26	129700	134400	141500	156500	272200	290700	332300	494900	676900	687000	675600	673800
27	129700	135200	142400	160400	272600	290800	332300	496500	676600	686500	675100	673000
28	129600	135100	142900	175300	272900	307700	332500	497600	676400	686200	674800	672700
29	129600	135200	143100	183200	---	323500	332600	497600	676100	685700	674000	672500
30	130000	135200	143300	185800	---	330700	332500	497400	676100	685200	673800	672200
31	130200	---	143400	186400	---	331700	---	498000	---	685200	673000	---
MAX	132800	135200	143400	186400	272900	331700	332900	498000	677100	687500	685200	679700
MIN	129600	129400	135000	143300	186800	272700	331700	332500	498400	675300	673000	668100
(†)	592.71	593.33	594.31	598.95	606.46	610.69	610.74	620.33	628.01	628.36	627.89	627.86
(ϕ)	-2600	+5000	+8200	+43000	+86500	+58800	+800	+165500	+178100	+9100	-12200	-800

CAL YR 1988 MAX 143400 MIN 101000 (ϕ) +42400
WTR YR 1989 MAX 687500 MIN 129400 (ϕ) +539400

(†) 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 to September 1989.

332138097024101 - LAKE RAY ROBERTS SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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											
01...	0920	--	412	8.10	9.0	--	10.6	94	--	--	150
MAY											
31...	1000	--	435	8.00	23.0	--	7.0	83	--	--	140
AUG											
23...	0957	1.00	288	7.80	27.5	1.80	6.4	83	<1	<1	110
23...	0959	10.0	288	7.80	27.5	--	6.0	77	--	--	--
23...	1003	15.0	288	7.80	27.5	--	5.9	76	--	--	--
23...	1005	20.0	287	7.30	27.0	--	2.1	27	--	--	--
23...	1013	30.0	288	7.30	26.5	--	1.5	19	--	--	--
23...	1015	40.0	287	7.20	26.0	--	0	0	--	--	--
23...	1018	50.0	273	7.00	23.5	--	0	0	--	--	--
23...	1022	60.0	286	7.10	22.5	--	0	0	--	--	--
23...	1027	70.0	295	7.20	22.0	--	0	0	--	--	--
23...	1032	80.0	346	7.30	20.0	--	0	0	--	--	--
23...	1036	93.0	370	7.20	19.0	--	0	0	--	--	130

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 WH TOT FET FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
FEB										
01...	50	5.3	28	1	4.7	171	23	30	0.20	2.6
MAY										
31...	48	5.6	32	1	4.3	141	34	31	0.20	7.2
AUG										
23...	38	3.4	15	0.6	4.8	125	11	16	0.20	3.3
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	46	4.2	19	0.7	4.6	151	6.0	19	0.20	11

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)	PHOSPHOROUS TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
FEB										
01...	246	--	--	--	--	--	--	--	19	2
MAY										
31...	247	0.450	0.050	0.500	0.110	0.69	0.80	0.040	26	130
AUG										
23...	167	--	<0.010	<0.100	0.010	0.59	0.60	0.010	8	11
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	<0.010	<0.100	0.030	0.67	0.70	0.020	20	40
23...	--	--	0.010	<0.100	0.080	0.52	0.60	0.020	50	130
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	205	--	<0.010	<0.100	1.50	0.60	2.1	0.350	1300	2700

08051100 Ray Roberts Lake near Pilot Point, TX--Continued

332200097010001 - LAKE RAY ROBERTS SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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							
23...	1849	1.00	287	8.20	29.0	8.4	111
23...	1851	10.0	287	8.10	27.5	8.1	104
23...	1853	20.0	288	7.70	27.0	5.5	70
23...	1855	30.0	289	7.40	26.5	2.9	37
23...	1857	40.0	287	7.20	25.5	0	0
23...	1859	50.0	272	7.10	23.5	0	0
23...	1902	60.0	284	7.20	22.5	0	0
23...	1904	70.0	292	7.20	22.5	0	0

332301097050601 - LAKE RAY ROBERTS SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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							
23...	1552	1.00	302	8.10	30.0	7.3	98
23...	1554	10.0	300	8.00	28.0	6.8	88
23...	1556	20.0	299	7.50	27.5	3.8	49
23...	1558	30.0	297	7.40	27.0	2.3	29
23...	1600	40.0	294	7.20	25.5	0	0
23...	1602	50.0	297	7.00	24.0	0	0
23...	1604	60.0	310	7.00	23.5	0	0
23...	1606	73.0	--	--	--	--	--

332353097020101 - LAKE RAY ROBERTS SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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							
23...	1140	1.00	288	7.90	28.5	6.7	88
23...	1142	10.0	288	7.80	27.5	6.3	81
23...	1145	25.0	287	7.70	27.5	5.6	72
23...	1147	20.0	287	7.70	27.5	5.9	76
23...	1149	30.0	284	7.20	26.5	0	0
23...	1152	40.0	283	7.10	25.5	0	0
23...	1155	50.0	275	7.00	23.5	0	0
23...	1158	60.0	284	7.00	23.0	0	0

332459097063001 - LAKE RAY ROBERTS SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
AUG										
23...	1706	1.00	306	8.40	30.5	1.50	8.6	117	K1	<1
23...	1708	10.0	305	8.10	28.5	--	7.4	97	--	--
23...	1710	20.0	305	7.80	28.0	--	5.9	77	--	--
23...	1712	25.0	311	7.60	28.0	--	3.9	51	--	--
23...	1714	30.0	336	7.20	27.5	--	0	0	--	--
23...	1716	40.0	406	7.10	26.5	--	0	0	--	--
23...	1720	53.0	335	7.10	24.0	--	0	0	--	--

08051100 Ray Roberts Lake near Pilot Point, TX--Continued

332459097063001 - LAKE RAY ROBERTS SITE DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET 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)
AUG										
23...	120	41	3.6	15	0.6	4.8	118	11	16	0.20
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	120	43	3.7	14	0.6	4.7	138	4.0	15	0.20

DATE	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)	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)
AUG										
23...	3.4	166	<0.010	<0.100	0.010	0.69	0.70	0.020	13	17
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	<0.010	<0.100	0.010	0.49	0.50	0.020	40	110
23...	--	--	<0.010	<0.100	0.260	0.44	0.70	0.030	280	510
23...	--	--	--	--	--	--	--	--	--	--
23...	9.5	182	<0.010	<0.100	1.70	0.60	2.3	0.320	2700	2000

332509096595301 - LAKE RAY ROBERTS SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
AUG										
23...	1342	1.00	287	8.00	31.5	1.90	6.9	95	<1	<1
23...	1344	10.0	285	8.00	29.0	--	7.1	94	--	--
23...	1346	20.0	286	7.50	28.5	--	4.9	64	--	--
23...	1348	25.0	285	7.20	27.5	--	1.3	17	--	--
23...	1350	30.0	281	7.00	27.5	--	0	0	--	--
23...	1353	40.0	299	6.70	26.0	--	0	0	--	--
23...	1358	50.0	296	6.50	24.5	--	0	0	--	--
23...	1402	60.0	292	6.60	23.5	--	0	0	--	--
23...	1406	67.0	294	6.60	23.5	--	0	0	--	--

DATE	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET 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)
AUG										
23...	100	36	3.5	15	0.6	4.7	107	11	16	0.20
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	100	34	4.0	12	0.5	5.2	121	2.0	14	0.20

08051100 Ray Roberts Lake near Pilot Point, TX--Continued

332509096595301 - LAKE RAY ROBERTS SITE EC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	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)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHOROUS TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
AUG										
23...	3.2	154	<0.010	<0.100	<0.010	--	0.70	0.010	17	14
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	<0.010	<0.100	0.020	0.58	0.60	0.020	30	40
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	<0.010	<0.100	0.050	0.35	0.40	0.020	430	340
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	10	160	<0.010	<0.100	2.50	0.60	3.1	0.490	4200	1500

332758097063301 - LAKE RAY ROBERTS SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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							
23...	1803	1.00	313	8.20	30.5	7.7	105
23...	1805	10.0	317	7.90	29.0	6.0	79
23...	1807	15.0	315	7.70	29.0	4.5	60
23...	1809	20.0	336	7.40	29.0	0	0

332800096565401 - LAKE RAY ROBERTS SITE HC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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							
23...	1458	1.00	285	8.10	31.0	7.6	104
23...	1500	10.0	284	8.00	29.0	7.2	95
23...	1502	20.0	286	7.30	28.0	2.8	36
23...	1504	25.0	283	7.00	27.5	0	0
23...	1506	30.0	283	6.80	27.0	0	0
23...	1508	40.0	301	6.60	26.0	0	0
23...	1510	50.0	292	6.50	25.0	0	0
23...	1512	60.0	294	6.50	24.0	0	0
23...	1515	68.0	294	6.60	24.5	0	0

08051100 Ray Roberts Lake near Pilot Point, TX--Continued

Ray Roberts Lake AC (332138097124101)

Phytoplankton Analyses September 1988 to October 1989

Date	8-23-89
Time	0958
TOTAL CELLS/mL	50,836
NUMBER OF SPECIES	36
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (diatoms)	
Order Centrales	
Cyclotella stelligera	551
Melosira granulata	31
Stephanodiscus sp.	31
Order Pennales	
Fragilaria vaucheriae	72
Nitzschia acicularis	72
Nitzschia gracilis	36
Nitzschia sp.	72
Synedra acus	108
Synedra sp.	252
CHLOROPHYTA (green algae)	
Ankistrodesmus falcatus	204
Chlamydomonas sp.	408
Chlorococcum humicola	408
Dysmorphococcus variabilis	204
Golenkinia radiata	204
Phacotus lenticularis	204
Scenedesmus dimorphus	204
CHRYSOPHYTA	
Kephyrion sp.	204
Ophiocytium capitatum var. *longispinum*	204
CYANOPHYTA (blue-green algae)	
Aphanocapsa delicatissima	1,633
Aphanocapsa elachista var. *conferta*	2,042
Aphanothece sp.	5,309
Chroococcus dispersus	1,429
Chroococcus limneticus	1,633
Chroococcus multicoloratus	3,267
Microcystis sp.	20,214
Oscillatoria geminata	1,225
Oscillatoria limnetica	4,696
Phormidium mucicola	612
Raphidiopsis curvata	204
Spirulina subsalsa	408
Synechococcus lineare	1,429
Synechococcus sp.	1,225
CRYPTOPHYTA (cryptomonads)	
Cryptomonas sp.	204
Rhodomonas minuta	1,429
EUGLENOPHYTA	
Phacus orbicularis	204
Trachelomonas volvocina	204

08051100 Ray Roberts Lake near Pilot Point, TX--Continued

Ray Roberts Lake DC (322459097063001)

Phytoplankton Analyses September 1988 to October 1989

Date	8-23-89
Time	1707
TOTAL CELLS/mL	37,404
NUMBER OF SPECIES	24
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (diatoms)	
Order Centrales	
Cyclotella stelligera	178
Melosira distans var *alpigena*	149
Order Pennales	
Nitzschia acicularis	14
Nitzschia subtilis	27
Nitzschia sp.	14
Synedra acus	54
Synedra sp.	54
CHLOROPHYTA (green algae)	
Ankistrodesmus falcatus	163
Gloeothece linearis	817
Mesotaenium sp.	163
Scenedesmus quadricauda	327
Selenastrum minutum	163
CYANOPHYTA (blue-green algae)	
Chroococcus dispersus	653
Chroococcus limneticus	980
Dactylococcopsis fascicularis	163
Microcystis sp.	23,032
Oscillatoria angustissima	2,450
Oscillatoria geminata	4,084
Oscillatoria limnetica	1,633
Phormidium muciola	327
Raphidiopsis curvata	980
Spirulina laxa	163
Synechococcus lineare	653
Synechococcus sp.	163

08051100 Ray Roberts Lake near Pilot Point, TX--Continued

Ray Roberts Lake EC (322509096595301)

Phytoplankton Analyses September 1988 to October 1989

Date	8-23-89
Time	1343
TOTAL CELLS/mL	43,190
NUMBER OF SPECIES	39
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (diatoms)	
Order Centrales	
Cyclotella stelligera	1,426
Melosira distans var *alpigena*	214
Melosira granulata	285
Stephanodiscus sp.	71
Order Pennales	
Diatoma vulgare var *breve*	40
Fragilaria vaucheriae	81
Nitzschia acicularis	40
Nitzschia subtilis	81
Nitzschia sp.	161
Synedra acus	202
Synedra sp.	121
CHLOROPHYTA (green algae)	
Ankistrodesmus convolutus	181
Chlamydomonas sp.	363
Chlorococcum humicola	363
Gloeocystis sp.	1,452
Kirchneriella obesa	726
Mesotaenium sp.	363
Pediastrum duplex	726
Scenedesmus abundans var. *brevicauda*	363
Scenedesmus bijuga	726
Selenastrum minutum	181
Tetraedron muticum	181
CHRYSOPHYTA	
Kephyrion sp.	181
CYANOPHYTA (blue-green algae)	
Aphanocapsa delicatissima	5,082
Aphanothece saxicola	2,722
Chroococcus dispersus	907
Chroococcus limneticus	1,996
Chroococcus multicoloratus	2,541
Dactylococcopsis acicularis	181
Dactylococcopsis fascicularis	1,452
Microcystis sp.	11,979
Oscillatoria geminata	907
Oscillatoria limnetica	1,633
Pharmidium mucicola	363
Raphidiopsis curvata	363
Synechococcus lineare	2,722
Synechococcus sp.	1,452
CRYPTOPHYTA (cryptomonads)	
Cryptomonas sp.	181
Rhodomonas minuta	181

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.

WATER-DISCHARGE RECORDS

DRAINAGE AREA.--692 mi².

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.--Records poor including those estimated. Flow is regulated by Ray Roberts Lake (station 08051100) 1,600 ft upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,290 ft³/s Oct. 21, 1985 (gage height, 15.75 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, 204 ft³/s June 13 at 0815 hours (gage height, 6.01 ft, from graph used to eliminate backwater effects), maximum gage height, 8.16 ft June 4 at 1130 hrs during backwater; minimum, no flow Feb. 22-23 and Mar. 6.

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	.07	2.1	.56	.12	.07	.01	.28	1.4	.51	e.41	1.2	.60
2	.07	2.2	.51	.12	.07	.01	.12	.95	1.2	e.40	1.6	.51
3	.04	2.7	.51	.09	.20	.05	.09	2.9	2.9	e.37	1.4	.67
4	.03	2.9	.41	.07	.26	.05	.02	2.8	e12	e.26	.90	.61
5	.06	2.6	.38	.04	.26	.05	.01	3.6	e3.4	e.23	.49	.27
6	.07	2.9	.38	.02	.26	.00	.03	2.5	1.7	e.35	.35	.26
7	.04	3.2	.81	.05	.26	.02	.16	1.8	e4.3	e.45	1.3	.26
8	.03	3.4	.97	.05	.26	.12	.30	1.3	e2.1	e.47	.59	.31
9	.03	3.7	1.3	.12	.22	.12	.33	1.5	e.97	.42	.38	.38
10	.03	3.9	1.8	.28	.21	.02	.38	1.7	e3.9	3.7	.38	.38
11	.01	2.7	2.6	.37	.22	.01	.38	2.1	e1.3	3.6	.38	1.7
12	.02	2.9	1.8	.09	.18	.01	.38	2.7	e.22	3.3	.38	.81
13	.04	2.3	.79	.09	.18	.01	.51	4.3	47	2.7	.38	3.1
14	.03	2.0	.68	.07	.30	.01	.69	2.7	e1.8	3.5	.56	.38
15	.04	1.6	.32	.05	8.9	.01	.62	1.9	e.95	2.9	2.0	.18
16	.04	.96	.18	.03	4.6	.04	.51	5.5	e.84	1.5	2.2	.16
17	.02	.90	.18	.03	45	.10	.51	e5.6	e.77	1.6	1.6	.12
18	.01	.97	.16	.03	31	.09	.51	e3.1	e.77	1.6	1.6	.07
19	.03	2.3	.15	.04	1.0	.07	.51	e1.7	e.75	1.7	1.6	.07
20	.05	1.6	.18	.04	.32	.08	.51	1.3	e.74	2.3	1.6	.07
21	.06	1.6	.17	.01	.01	.04	.48	.75	e.67	3.1	.55	.07
22	.08	1.5	.27	.01	.00	.09	.38	.30	e.59	2.2	.18	.03
23	.10	1.3	.08	.01	.0	.24	.43	.26	e.57	e1.0	.15	.01
24	.06	1.3	.02	.01	.01	.38	.18	.22	e.57	e.38	.25	.04
25	.02	1.7	.08	3.4	.04	.32	.18	.12	e.59	e.07	.68	.10
26	.23	3.5	.16	7.3	.07	.24	.18	.19	e.66	.51	.68	.29
27	.69	1.4	.91	1.7	.07	.21	.28	.32	e.68	.51	.68	.38
28	1.1	.74	.73	34	.04	17	.37	.38	e.65	.51	.68	.41
29	1.4	.68	.20	3.2	---	4.6	.26	.38	e.54	.51	.68	.43
30	1.8	.68	.18	.61	---	3.6	.32	.38	e.47	.64	.68	.51
31	2.1	---	.12	.27	---	.65	---	.38	---	.95	.68	---
TOTAL	8.40	62.23	17.59	52.32	94.01	28.25	9.91	55.03	94.11	42.14	26.78	13.18
MEAN	.27	2.07	.57	1.69	3.36	.91	.33	1.78	3.14	1.36	.86	.44
MAX	2.1	3.9	2.6	34	45	17	.69	5.6	47	3.7	2.2	3.1
MIN	.01	.68	.02	.01	.00	.00	.01	.12	.22	.07	.15	.01
AC-FT	17	123	35	104	186	56	20	109	187	84	53	26

CAL YR 1988	TOTAL	309.82	MEAN	.85	MAX 11	MIN .00	AC-FT	615
WTR YR 1989	TOTAL	503.95	MEAN	1.38	MAX 47	MIN .00	AC-FT	1000

e Estimated.

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 1988 TO SEPTEMBER 1989

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)	CALCIUM DIS-SOLVED (MG/L AS CA)
NOV												
03...	1200	2.8	424	8.30	19.0	17	16	8.8	98	--	140	47
FEB												
01...	0915	0.42	428	8.10	10.0	13	47	10.4	94	1.1	150	51
MAY												
31...	1020	0.38	434	8.00	23.5	20	75	7.0	83	3.4	140	48
JUN												
26...	1230	0.10	533	8.10	32.0	17	9.7	10.4	145	4.7	150	51
AUG												
17...	1200	1.5	287	7.70	20.5	65	15	9.1	103	2.3	110	38

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 WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)
NOV											
03...	5.5	26	1	5.2	136	23	31	0.20	4.0	223	27
FEB											
01...	6.0	30	1	4.9	150	34	28	0.20	2.9	247	49
MAY											
31...	5.4	33	1	4.3	141	32	30	0.20	7.1	245	83
JUN											
26...	6.7	58	2	3.6	126	58	55	0.20	12	320	18
AUG											
17...	3.8	15	0.6	5.0	121	3.0	15	0.20	9.9	162	40

DATE	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)
NOV											
03...	<1	--	0.390	0.010	0.400	0.030	0.67	0.70	0.030	5.7	--
FEB											
01...	7	42	0.370	0.030	0.400	0.060	0.64	0.70	0.050	5.8	<1
MAY											
31...	14	69	0.690	0.010	0.700	0.160	0.64	0.80	0.040	6.5	1
JUN											
26...	<1	--	0.190	0.010	0.200	0.010	0.39	0.40	0.050	5.4	--
AUG											
17...	13	27	0.080	0.020	0.100	1.20	1.8	3.0	0.520	--	--

DATE	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV											
03...	--	--	--	--	--	--	--	--	--	--	--
FEB											
01...	48	<1	<1	1	17	<5	9	<0.1	<1	<1.0	4
MAY											
31...	42	<1	1	2	22	<1	120	<0.1	<1	<1.0	19
JUN											
26...	--	--	--	--	--	--	--	--	--	--	--
AUG											
17...	--	--	--	--	--	--	--	--	--	--	--

08051500 CLEAR CREEK NEAR SANGER, TX

LOCATION.--Lat 33°20'10", long 97°10'45", Denton County, Hydrologic Unit 12030103, at the downstream side near right end of bridge on county road 1,350 ft downstream from Duck Creek, 1.1 mi upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, and 1.8 mi south of Sanger.

DRAINAGE AREA.--295 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1949 to current year.

REVISED RECORDS.--WSP 1512: 1950, 1955. WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 582.23 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Apr. 18, 1975, water-stage recorder at datum 5.00 ft higher. Apr. 18, 1975 to June 9, 1988, at site 950 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharge, which are poor. During October 1988, flow was affected by temporary roads built across the channel by construction crews. There are no appreciable diversions above station. Flow is affected at times by discharge from the flood-detention pools of 51 floodwater-retarding structures with a combined detention capacity of 38,850 acre-ft. 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); 9 years (water years 1981-89) after completion of floodwater-retarding structures, 149 ft³/s (108,000 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, 11,300 ft³/s May 17 at 1830 hrs (gage height, 28.32 ft); peaks above base discontinued this year because of regulation; minimum discharge, 0.02 ft³/s Oct. 18.

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	4.3	6.0	14	26	160	98	567	31	e594	90	27	6.6
2	2.6	4.4	12	25	143	93	378	34	e1100	101	25	6.1
3	1.5	2.9	11	23	112	93	242	198	e4260	127	25	5.8
4	.95	1.6	9.3	21	79	98	166	259	e1250	114	25	5.3
5	.61	1.3	6.7	20	54	106	121	335	e859	98	23	5.1
6	.40	.86	6.4	19	52	102	99	212	796	79	21	5.0
7	.24	.61	7.1	19	53	109	87	108	3700	73	22	4.4
8	.26	.39	9.3	21	55	246	84	88	2810	72	24	4.0
9	.36	.38	13	21	55	903	74	70	1590	72	26	4.0
10	.54	.50	21	21	55	939	64	53	1550	70	22	3.5
11	.59	.51	153	19	54	476	59	43	1150	67	20	7.6
12	.52	2.4	141	17	54	270	58	38	2010	61	19	38
13	.29	13	68	17	49	179	60	49	5730	59	19	953
14	e.08	13	45	17	49	132	84	72	2550	273	18	621
15	e.07	7.3	35	17	346	98	96	55	1750	368	18	329
16	e.06	4.7	27	17	524	90	81	4190	1430	177	29	174
17	e.04	4.0	23	16	3820	78	66	8190	1200	111	28	99
18	e.03	3.8	20	17	2260	72	61	4660	913	88	26	59
19	e.09	4.3	24	17	1410	65	56	2180	728	67	25	43
20	e.12	28	18	16	1240	58	51	1810	636	55	22	35
21	e.12	20	16	15	1040	59	48	1620	561	48	18	27
22	e.10	12	22	15	627	57	45	1430	423	44	15	22
23	e.10	8.2	40	15	327	56	42	1290	323	40	13	20
24	e.06	6.6	38	15	204	56	39	1160	277	37	11	17
25	e.05	30	27	219	144	55	38	1050	224	37	10	14
26	e.15	177	24	399	128	54	37	e943	200	37	9.2	14
27	e.07	65	21	189	106	55	39	e1030	176	37	9.3	14
28	e.08	35	52	1180	106	1390	38	e861	157	37	8.9	14
29	e.10	24	40	829	---	2060	33	e780	136	36	8.8	13
30	2.6	18	30	343	---	1410	31	e671	118	32	8.1	13
31	4.7	---	27	219	---	918	---	e624	---	29	7.3	---
TOTAL	21.78	495.75	1000.8	3824	13306	10475	2944	34134	39201	2636	582.6	2576.4
MEAN	.70	16.5	32.3	123	475	338	98.1	1101	1307	85.0	18.8	85.9
MAX	4.7	177	153	1180	3820	2060	567	8190	5730	368	29	953
MIN	.03	.38	6.4	15	49	54	31	31	118	29	7.3	3.5
AC-FT	43	983	1990	7580	26390	20780	5840	67700	77760	5230	1160	5110

CAL YR 1988 TOTAL 9469.08 MEAN 25.9 MAX 255 MIN .00 AC-FT 18780
WTR YR 1989 TOTAL 111197.33 MEAN 305 MAX 8190 MIN .03 AC-FT 220600

e Estimated

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 1988 TO SEPTEMBER 1989

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)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT												
31...	1330	4.2	935	8.10	14.0	50	18	9.0	88	--	270	87
DEC												
22...	1515	20	552	8.00	12.0	20	34	9.9	93	1.4	230	78
JAN												
30...	1315	336	315	8.00	9.5	55	77	10.9	96	2.0	140	50
MAR												
20...	1215	56	627	8.20	17.5	9	3.8	9.5	102	0.9	260	92
MAY												
08...	1300	94	486	8.20	22.0	140	37	8.0	94	1.4	200	71
AUG												
14...	1500	18	820	8.00	24.0	25	13	6.8	82	1.5	270	84

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 WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)
OCT											
31...	14	80	2	4.4	175	50	170	0.20	6.8	517	34
DEC											
22...	9.4	31	0.9	2.8	195	43	36	0.20	10	327	72
JAN											
30...	3.2	14	0.5	3.4	121	25	12	0.20	8.8	189	126
MAR											
20...	7.9	34	0.9	2.3	220	41	48	0.20	7.5	365	30
MAY											
08...	5.9	21	0.6	3.2	191	28	21	0.20	9.0	274	73
AUG											
14...	14	60	2	2.1	192	60	110	0.30	14	460	31

DATE	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, 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-PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)
OCT											
31...	<1	--	0.770	0.030	0.800	0.040	0.76	0.80	0.050	5.8	--
DEC											
22...	8	64	0.290	0.010	0.300	0.050	0.35	0.40	0.010	7.9	1
JAN											
30...	28	98	0.470	0.030	0.500	0.060	0.94	1.0	0.150	7.1	--
MAR											
20...	12	18	0.080	0.020	0.100	0.030	0.27	0.30	0.010	3.5	1
MAY											
08...	<1	--	0.460	0.040	0.500	0.040	0.56	0.60	0.040	6.9	--
AUG											
14...	7	24	0.190	0.010	0.200	0.040	3.0	3.0	0.050	5.2	<1

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)
OCT											
31...	--	--	--	--	--	--	--	--	--	--	--
DEC											
22...	85	<1	<1	7	8	<5	26	<0.1	<1	<1.0	11
JAN											
30...	--	--	--	--	--	--	--	--	--	--	--
MAR											
20...	110	<1	1	2	13	<5	14	0.1	<1	<1.0	44
MAY											
08...	--	--	--	--	--	--	--	--	--	--	--
AUG											
14...	110	<1	2	7	21	3	40	0.1	<1	<1.0	21

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 station. Several observations of water temperature were obtained during the year.

AVERAGE DISCHARGE.--30 years (water year 1957-76, 1980-1989), 78.3 ft³/s (33,620 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)
Feb. 17	2300	2,270	15.87	June 3	about 0200	6,000	17.10
Mar. 28	1715	3,230	16.34	June 12	about 2015	1,360	15.01
May 15	about 0615	*9,150	a*17.46				

a From peak mark in well.

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	.00	6.5	6.7	46	13	232	7.5	3.9	1.9	8.2	.00
2	.00	.00	4.8	5.6	18	10	160	7.8	11	54	6.5	.00
3	.00	.00	3.6	5.0	12	9.1	116	21	e392	65	5.3	.00
4	.00	.00	2.9	3.4	7.0	8.3	60	14	e1150	25	3.6	.00
5	.00	.00	2.8	2.7	5.3	7.6	30	104	e597	12	2.6	.00
6	.00	.00	2.6	2.3	5.0	6.7	24	36	e509	7.1	2.6	.00
7	.00	.00	2.8	2.0	4.6	6.5	19	14	e596	3.8	2.2	.00
8	.00	.00	3.6	1.7	4.2	9.1	16	11	e549	1.0	1.1	.00
9	.00	.00	3.8	1.7	3.6	9.4	13	9.3	e502	.45	.76	.00
10	.00	.00	3.9	1.5	3.0	8.7	12	8.1	e466	.30	.41	5.5
11	.00	.00	17	1.4	2.7	7.6	11	6.8	e443	.19	.27	6.3
12	.00	.0	41	1.5	2.4	6.9	10	9.0	e866	.12	.19	e244
13	.00	1.8	25	1.6	2.3	6.3	10	8.3	e695	.08	.14	e173
14	.00	3.0	14	1.6	2.6	5.5	11	7.1	438	34	.27	e25
15	.00	4.9	10	1.4	335	5.0	11	3260	345	e488	1.2	11
16	.00	5.7	8.1	1.2	492	4.6	11	e1280	275	e179	1.8	7.4
17	.00	4.8	6.5	1.1	1310	4.1	10	e846	214	e148	2.1	5.2
18	.00	4.7	5.2	1.0	1030	3.8	9.9	e574	167	107	2.0	3.9
19	.00	5.9	3.9	.97	382	3.6	9.5	e301	131	34	1.7	2.9
20	.00	7.1	3.0	.92	331	3.5	8.7	e169	92	21	1.3	2.6
21	.00	10	2.4	.77	296	3.3	8.1	e106	57	13	.90	2.4
22	.00	8.8	2.4	.77	224	3.1	7.4	e61	29	8.5	.44	2.2
23	.00	6.9	2.4	.78	140	2.8	6.9	e29	16	6.0	.25	2.1
24	.00	5.3	2.2	.83	95	2.5	6.3	18	11	187	.16	1.7
25	.00	4.4	2.1	1.8	50	2.3	6.8	13	8.5	134	.11	1.3
26	.00	5.0	2.2	105	31	2.2	7.1	10	7.3	104	.08	.91
27	.00	12	4.4	78	22	2.1	6.7	8.7	5.8	81	.06	.52
28	.00	12	11	266	16	1650	6.3	7.6	3.9	54	.04	.34
29	.00	9.4	11	540	---	734	6.2	6.3	2.6	32	.02	.23
30	.00	7.9	8.3	218	---	356	6.5	5.4	2.2	18	.0	.19
31	.00	---	7.5	123	---	304	---	4.6	---	11	.00	---
TOTAL	0.00	119.60	226.9	1380.24	4872.7	3201.6	852.4	6963.5	8585.2	1830.44	46.30	498.69
MEAN	.00	3.99	7.32	44.5	174	103	28.4	225	286	59.0	1.49	16.6
MAX	.00	12	41	540	1310	1650	232	3260	1150	488	8.2	244
MIN	.00	.00	2.1	.77	2.3	2.1	6.2	4.6	2.2	.08	.00	.00
AC-FT	.0	237	450	2740	9660	6350	1690	13810	17030	3630	92	989

CAL YR 1988 TOTAL 1484.63 MEAN 4.06 MAX 254 MIN .00 AC-FT 2940
WTR YR 1989 TOTAL 28577.57 MEAN 78.3 MAX 3260 MIN .00 AC-FT 56680

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, freezing point 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 1988 TO SEPTEMBER 1989

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)	CALCIUM DIS-SOLVED (MG/L AS CA)
DEC												
20...	1030	3.1	340	8.00	8.0	90	140	--	--	2.2	110	40
JAN												
31...	1330	133	280	7.00	9.5	220	310	11.4	99	3.1	110	37
MAR												
21...	1100	4.1	400	8.50	7.5	80	66	9.2	78	5.5	150	55
MAY												
09...	1330	8.7	430	7.90	25.0	330	160	7.0	86	5.5	150	55
JUN												
27...	1115	6.2	229	7.70	26.0	100	170	6.6	83	3.6	96	34
AUG												
15...	1200	1.1	329	7.80	25.0	30	56	6.6	81	1.5	130	48

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 WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)
DEC											
20...	3.0	24	1	4.8	102	48	7.6	0.30	8.2	197	156
JAN											
31...	3.1	15	0.6	4.7	77	52	6.7	0.30	7.6	173	406
MAR											
21...	3.9	28	1	4.5	136	72	9.2	0.30	0.47	255	105
MAY											
09...	3.8	23	0.8	5.1	112	61	6.4	0.40	7.9	230	267
JUN											
27...	2.7	9.4	0.4	5.2	89	21	10	0.30	11	147	223
AUG											
15...	3.4	13	0.5	4.6	118	36	4.7	0.40	4.0	185	93

DATE	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, 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-PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)
DEC											
20...	22	134	1.73	0.070	1.80	0.170	0.93	1.1	0.410	12	3
JAN											
31...	48	358	0.800	0.100	0.900	0.310	1.9	2.2	0.450	15	--
MAR											
21...	16	89	0.160	0.040	0.200	0.030	0.57	0.60	0.130	10	2
MAY											
09...	27	240	4.77	0.530	5.30	0.150	1.0	1.2	0.170	12	--
JUN											
27...	61	162	0.260	0.040	0.300	0.040	2.9	2.9	0.190	12	--
AUG											
15...	17	76	--	<0.010	<0.100	<0.010	--	0.50	<0.010	6.9	<1

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)
DEC											
20...	36	<1	1	3	64	<5	12	0.3	<1	2.0	48
JAN											
31...	--	--	--	--	--	--	--	--	--	--	--
MAR											
21...	39	<1	2	3	31	<5	3	<0.1	<1	<1.0	<3
MAY											
09...	--	--	--	--	--	--	--	--	--	--	--
JUN											
27...	--	--	--	--	--	--	--	--	--	--	--
AUG											
15...	43	<1	1	3	22	<1	10	<0.1	<1	<1.0	<3

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 dwonstream 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 1988 TO SEPTEMBER 1989

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)	CALCIUM DIS-SOLVED (MG/L AS CA)
JAN												
31...	1600	4.1	226	7.00	10.0	170	100	11.6	105	2.3	73	20
MAR												
21...	1345	0.45	786	7.70	10.5	45	6.9	8.6	78	2.1	310	77
MAY												
09...	1040	0.53	660	7.90	22.0	170	30	3.6	42	4.2	220	60

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 WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)
JAN											
31...	5.5	15	0.8	5.0	41	53	10	0.20	8.9	142	40
MAR											
21...	28	51	1	6.3	98	270	36	0.40	2.9	531	19
MAY											
09...	17	41	1	7.6	102	160	31	0.40	8.4	387	40

DATE	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, 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, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)
JAN											
31...	20	20	0.340	0.060	0.400	0.160	1.3	1.5	0.320	9.4	--
MAR											
21...	6	13	--	0.010	<0.100	0.020	0.58	0.60	0.050	9.5	1
MAY											
09...	<1	--	0.300	0.100	0.400	0.370	0.63	1.0	0.110	11	--

DATE	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN											
31...	--	--	--	--	--	--	--	--	--	--	--
MAR											
21...	86	<1	<1	2	69	<5	150	<0.1	<1	<1.0	18
MAY											
09...	--	--	--	--	--	--	--	--	--	--	--

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, 1,168,000 acre-ft Nov. 1, 1981 (elevation, 536.46 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, 994,000 acre-ft June 22 (elevation, 532.31 ft); minimum, 308,200 acre-ft Jan. 24, 25 (elevation, 507.45 ft).

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

507.0	300,900	519.0	556,600	529.0	868,900
510.0	351,900	522.0	641,000	531.0	943,100
513.0	412,400	525.0	732,900	532.0	981,800
516.0	481,200	527.0	798,400	533.0	1,021,000

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	325200	315500	311200	313500	347700	451800	538500	543100	665200	939300	706900	643700
2	324900	315200	311000	313500	349900	451800	541500	542600	668800	937800	699400	643400
3	324400	315000	311000	313200	349700	452100	543300	545100	675200	934300	692600	642500
4	324000	314700	310900	312800	349500	453900	543300	548800	739900	930200	685900	641900
5	323700	314300	310700	312800	349300	454100	543300	553100	758900	923000	680100	641300
6	323200	313700	310700	312700	349200	454100	543300	554200	761500	912900	676100	640400
7	322900	313300	311700	312500	349000	454100	543300	554200	811800	904000	672500	638900
8	322500	313000	312400	312400	349300	454400	543300	554400	840600	894100	667900	637400
9	322200	312700	312400	312000	349200	456500	542800	555000	846600	883800	664300	638600
10	321800	312500	313200	311500	349000	458500	542300	554200	854800	873600	660400	637700
11	321500	312400	313700	311400	349300	460200	542300	553700	867400	864200	658000	643700
12	321000	313000	314000	312400	349900	461300	542100	553700	889300	854800	656200	643100
13	320300	312700	313800	312200	350600	462300	544100	554200	953000	845900	655300	652300
14	319700	312400	314500	312200	350600	464100	544600	554200	977500	839500	654700	653200
15	319300	313700	314300	312000	356600	464100	544900	554200	982500	837000	654400	652600
16	319200	313000	314000	311900	365400	463900	544600	566800	985300	827800	654400	652000
17	318800	312200	313700	311700	399700	463900	544600	610100	989600	817700	654400	651100
18	318700	312200	313200	311900	426200	464600	545400	636600	991600	809100	653800	650200
19	318300	312800	313000	311900	433300	464600	545100	644800	992800	800100	652900	649600
20	318000	312500	313000	311500	439500	466300	544900	650500	993600	790000	652300	648700
21	317700	312400	312800	311200	443100	466000	544900	652300	993600	780900	651700	647800
22	317200	312000	313500	310200	446300	465800	544400	657400	994000	772300	651100	647500
23	317000	311500	313200	309100	447200	465600	544100	659800	993200	764100	650500	645400
24	316500	311500	312800	308900	448600	465300	543600	659800	991200	757600	649300	643900
25	316300	311700	312500	313300	449500	465300	543600	662500	988400	750800	649000	643100
26	316300	312400	312500	318200	450900	465800	543300	665200	983300	744700	648400	642200
27	316200	312200	313800	319500	451400	466300	543300	665500	976700	738300	647800	640400
28	316000	311900	313500	333700	451600	510200	543300	665200	968100	732000	646600	639800
29	315800	311700	313300	342200	---	526300	543900	664600	958800	725600	646000	639500
30	315800	311500	313300	345400	---	535200	543900	665200	949600	719000	645100	638900
31	315700	---	313500	346500	---	538200	---	664900	---	712800	644200	---
MAX	325200	315500	314500	346500	451600	538200	545400	665500	994000	939300	706900	653200
MIN	315700	311500	310700	308900	347700	451800	538500	542600	665200	712800	644200	637400
(†)	507.90	507.65	507.77	509.70	514.74	518.29	518.51	522.80	531.17	524.36	522.11	521.93
(ϕ)	-9700	-4200	+2000	+33000	+105100	+86600	+5700	+121000	+284700	-236800	-68600	-5300

CAL YR 1988 MAX 456500 MIN 310700 (ϕ) -138100
WTR YR 1989 MAX 994000 MIN 308900 (ϕ) +313500

(†) 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 1988 TO SEPTEMBER 1989

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...	1122	1.00	384	8.40	10.5	0.80	10.4	95	88	50	120
31...	1123	1.00	--	--	--	--	--	--	--	--	--
31...	1124	10.0	384	8.40	10.0	--	10.2	92	--	--	--
31...	1126	20.0	384	8.30	10.0	--	9.8	88	--	--	--
31...	1128	30.0	384	8.20	10.0	--	9.5	86	--	--	--
31...	1130	40.0	384	8.20	10.0	--	9.5	86	--	--	--
31...	1132	53.0	384	8.20	10.0	--	9.5	86	--	--	120
MAY											
30...	0958	1.00	363	8.20	24.0	0.80	7.2	86	<1	<1	120
30...	0959	1.00	--	--	--	--	--	--	--	--	--
30...	1000	10.0	363	8.20	24.0	--	7.1	85	--	--	--
30...	1002	20.0	363	8.10	24.0	--	7.0	84	--	--	--
30...	1004	30.0	363	8.00	24.0	--	6.3	76	--	--	--
30...	1006	40.0	363	7.70	23.0	--	5.0	59	--	--	--
30...	1008	50.0	365	7.50	22.0	--	3.5	40	--	--	--
30...	1010	60.0	371	7.40	21.0	--	1.9	22	--	--	--
30...	1012	66.0	371	7.30	20.5	--	0.5	6	--	--	130
AUG											
24...	0826	1.00	317	7.70	27.0	1.50	5.0	64	<1	<1	110
24...	0828	10.0	317	7.70	27.0	--	4.9	63	--	--	--
24...	0830	20.0	316	7.60	27.0	--	4.8	61	--	--	--
24...	0832	30.0	316	7.60	26.5	--	4.7	60	--	--	--
24...	0834	40.0	316	7.50	26.5	--	4.0	51	--	--	--
24...	0836	50.0	318	7.30	26.0	--	1.3	16	--	--	--
24...	0839	65.0	357	7.00	24.0	--	0	0	--	--	130

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 WH TOT FET FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
JAN										
31...	41	4.8	28	1	4.6	113	42	25	0.30	3.5
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	41	5.0	30	1	4.7	111	42	25	--	4.0
MAY										
30...	43	4.1	24	0.9	4.2	118	38	18	0.30	1.0
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	45	4.2	24	0.9	4.2	115	38	19	--	5.6
AUG										
24...	40	3.5	17	0.7	4.4	110	26	13	0.20	4.1
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	46	3.9	18	0.7	4.4	144	10	13	--	11

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330419096575401 - LEWISVILLE LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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...	217	0.280	0.020	0.300	0.020	0.58	0.60	0.040	<10	<10
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	0.280	0.020	0.300	0.060	0.34	0.40	0.040	20	<10
31...	--	--	--	--	--	--	--	--	--	--
31...	218	0.270	0.030	0.300	0.070	0.43	0.50	0.040	<10	<10
MAY										
30...	203	0.480	0.020	0.500	0.030	0.57	0.60	0.030	8	<1
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	0.580	0.020	0.600	0.030	0.37	0.40	0.030	20	<10
30...	--	--	--	--	--	--	--	--	--	--
30...	--	0.680	0.020	0.700	0.030	0.57	0.60	0.050	10	20
30...	--	--	--	--	--	--	--	--	--	--
30...	209	0.660	0.040	0.700	0.050	--	<0.60	0.050	10	140
AUG										
24...	174	--	<0.010	<0.100	0.010	0.69	0.70	0.020	10	23
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	<0.010	0.100	0.110	0.29	0.40	0.050	30	250
24...	196	--	<0.010	<0.100	1.70	0.50	2.2	0.540	550	2600

330410096584501 - LEWISVILLE LAKE SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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...	1152	1.00	384	8.40	10.0	10.2	92
31...	1154	10.0	384	8.30	10.0	10.0	90
31...	1156	20.0	364	8.30	10.0	9.8	88
31...	1158	26.0	364	8.20	10.0	9.5	86
MAY							
30...	1036	1.00	366	8.20	24.5	7.1	86
30...	1038	10.0	366	8.20	24.0	7.0	84
30...	1040	20.0	366	8.00	24.0	6.3	76
30...	1042	30.0	366	7.80	23.5	5.6	67
30...	1044	41.0	368	7.70	23.0	4.6	54
AUG							
24...	0850	1.00	316	7.80	27.0	5.8	74
24...	0852	10.0	316	7.80	27.0	5.5	70
24...	0854	20.0	315	7.70	27.0	5.1	65
24...	0856	30.0	315	7.70	27.0	4.9	63
24...	0858	40.0	316	7.50	26.5	3.3	42
24...	0900	50.0	318	7.40	26.5	1.2	15
24...	0902	56.0	319	7.40	26.5	0.6	8

330450096560501 - LEWISVILLE LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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...	1207	1.00	389	8.40	11.5	10.5	98
31...	1209	10.0	389	8.40	11.0	9.8	90
31...	1211	24.0	384	8.50	11.0	9.8	90
MAY							
30...	1052	1.00	374	8.20	25.0	7.1	87
30...	1054	10.0	374	8.20	25.0	7.1	87
30...	1056	20.0	371	8.20	24.5	7.1	86
30...	1058	30.0	369	8.20	24.5	7.1	86
30...	1100	39.0	369	8.10	24.5	5.9	72
AUG							
24...	0909	1.00	342	8.30	28.0	7.6	99
24...	0911	10.0	343	8.20	28.0	7.2	94
24...	0913	20.0	321	7.70	27.0	4.7	60
24...	0915	30.0	316	7.60	27.0	4.1	52
24...	0917	36.0	330	7.50	26.5	1.5	19

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330606097025601 - LEWISVILLE LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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...	1528	1.00	294	7.90	12.0	8.0	75
31...	1530	10.0	290	7.90	11.5	7.9	74
31...	1532	18.0	278	7.80	11.5	7.6	71
MAY							
30...	1312	1.00	348	8.10	25.0	7.1	87
30...	1314	10.0	348	8.10	24.5	7.1	86
30...	1316	20.0	346	8.10	24.5	7.1	86
30...	1318	32.0	343	8.00	24.0	7.1	85
AUG							
24...	1136	1.00	312	8.50	30.0	8.2	111
24...	1138	15.0	321	7.60	28.5	2.6	34
24...	1140	10.0	318	8.00	29.0	5.3	70
24...	1142	20.0	322	7.50	28.5	0	--
24...	1144	30.0	329	7.60	28.5	0	0

330755096572001 - LEWISVILLE LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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...	1232	1.00	365	8.30	10.5	0.20	9.3	85	0.550
31...	1234	10.0	363	8.30	10.5	--	9.1	83	0.560
31...	1236	20.0	302	8.00	10.0	--	7.4	67	0.820
31...	1238	28.0	241	8.00	10.5	--	6.6	60	0.450
MAY									
30...	1128	1.00	364	8.20	25.0	0.50	6.7	82	0.460
30...	1130	10.0	364	8.20	25.5	--	6.7	83	--
30...	1132	20.0	364	8.20	25.5	--	6.7	83	--
30...	1134	30.0	364	8.20	25.0	--	6.7	82	--
30...	1136	42.0	369	8.10	25.0	--	6.6	81	0.570
AUG									
24...	0939	1.00	313	8.40	28.5	1.10	7.4	97	--
24...	0941	10.0	314	8.30	28.5	--	7.2	95	--
24...	0945	20.0	314	8.20	28.5	--	7.2	95	--
24...	0947	30.0	322	7.40	28.0	--	0.8	10	--
24...	0949	41.0	325	7.50	27.5	--	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)	PHOSPHOROUS TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JAN								
31...	0.050	0.600	0.080	0.82	0.90	0.100	30	<10
31...	0.040	0.600	0.080	0.82	0.90	0.110	80	<10
31...	0.080	0.900	0.230	1.2	1.4	0.370	140	10
31...	0.050	0.500	0.080	0.92	1.0	0.100	70	<10
MAY								
30...	0.040	0.500	0.040	0.46	0.50	0.040	20	<10
30...	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--
30...	0.030	0.600	0.050	0.45	0.50	0.040	10	10
AUG								
24...	<0.010	<0.100	<0.010	--	0.50	0.020	<10	10
24...	--	--	--	--	--	--	--	--
24...	<0.010	<0.100	<0.010	--	0.70	0.040	10	20
24...	<0.010	<0.100	0.030	0.67	0.70	0.050	20	100
24...	0.010	<0.100	0.150	0.45	0.60	0.030	30	280

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330959096565301 - LEWISVILLE LAKE SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
JAN										
31...	1312	1.00	266	7.90	10.5	0.10	7.6	69	5600	K10000
31...	1314	10.0	258	7.90	10.5	--	7.4	67	--	--
31...	1316	18.0	238	7.90	10.5	--	6.7	61	--	--
MAY										
30...	1154	1.00	340	8.00	26.0	0.20	6.0	75	K6	K37
30...	1156	10.0	340	8.00	26.0	--	6.0	75	--	--
30...	1158	20.0	340	8.00	26.0	--	6.0	75	--	--
30...	1200	26.0	340	8.00	26.5	--	5.9	74	--	--
AUG										
24...	1002	1.00	310	8.50	28.5	1.00	8.0	105	<2	K24
24...	1005	10.0	312	8.40	29.5	--	7.3	98	--	--
24...	1008	20.0	320	7.70	29.0	--	3.5	46	--	--
24...	1012	31.0	325	7.60	28.5	--	0	0	--	--

DATE	HARDNESS TOTAL (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)
JAN										
31...	95	33	3.1	14	0.6	4.5	74	46	8.9	8.6
31...	--	--	--	--	--	--	--	--	--	--
31...	85	29	3.0	12	0.6	4.7	73	35	5.4	8.6
MAY										
30...	120	43	3.6	18	0.7	4.2	107	36	13	2.6
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	120	43	3.7	18	0.7	4.4	110	37	13	2.5
AUG										
24...	110	40	3.5	16	0.7	4.5	108	26	12	4.0
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	120	42	3.7	16	0.6	4.8	115	27	12	4.7

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...	163	0.990	0.110	1.10	0.320	0.78	1.1	0.430	350	12
31...	--	--	--	--	--	--	--	--	--	--
31...	142	1.00	0.100	1.10	0.250	1.5	1.7	0.410	190	10
MAY										
30...	185	0.780	0.120	0.900	0.040	0.66	0.70	0.060	19	3
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	188	0.800	0.100	0.900	0.040	0.66	0.70	0.060	14	26
AUG										
24...	171	--	<0.010	<0.100	<0.010	--	0.30	0.020	8	5
24...	--	--	<0.010	<0.100	<0.010	--	0.60	0.030	10	20
24...	--	--	<0.010	<0.100	0.020	0.38	0.40	0.030	<10	30
24...	179	--	0.020	<0.100	0.150	0.95	1.1	0.180	31	230

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330722096592201 - LEWISVILLE LAKE SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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...	1404	1.00	409	8.40	11.0	0.60	10.0	92	0.370
31...	1406	10.0	409	8.40	11.0	--	9.9	91	0.370
31...	1408	24.0	392	8.30	10.5	--	9.7	88	0.370
MAY									
30...	1222	1.00	347	8.10	25.0	0.50	6.6	81	0.370
30...	1224	10.0	351	8.10	25.0	--	6.7	82	--
30...	1226	20.0	359	8.20	24.5	--	6.9	84	--
30...	1228	30.0	359	8.20	25.0	--	6.9	84	--
30...	1230	41.0	362	8.20	24.5	--	6.6	80	0.470
AUG									
24...	1028	1.00	311	8.70	29.5	1.30	8.2	110	--
24...	1030	10.0	320	8.40	28.5	--	7.5	98	--
24...	1033	20.0	322	8.30	28.0	--	7.3	95	--
24...	1036	30.0	323	8.40	28.0	--	7.4	96	--
24...	1039	40.0	324	8.30	28.0	--	6.9	90	--
24...	1044	45.0	326	7.80	27.5	--	4.2	54	--

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...	0.030	0.400	0.030	0.67	0.70	0.100	10	<10
31...	0.030	0.400	0.030	0.77	0.80	0.100	30	<10
31...	0.030	0.400	0.030	0.77	0.80	0.080	10	<10
MAY								
30...	0.030	0.400	0.040	0.36	0.40	0.130	30	<10
30...	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--
30...	0.030	0.500	0.040	--	<0.60	0.060	30	<10
AUG								
24...	<0.010	<0.100	<0.010	--	0.40	0.030	10	<10
24...	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--
24...	<0.010	<0.100	<0.010	--	0.40	0.060	10	10
24...	0.010	<0.100	0.030	0.47	0.50	0.080	10	40

330944097003601 - LEWISVILLE LAKE SITE GC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
JAN										
31...	1430	1.00	294	8.00	11.5	0.10	8.1	76	3600	K10000
31...	1431	1.00	--	--	--	--	--	--	--	--
31...	1432	7.00	294	7.90	11.5	--	8.0	75	--	--
MAY										
30...	1242	1.10	328	8.10	25.5	--	6.7	83	K20	K36
30...	1243	1.00	--	--	--	--	--	--	--	--
30...	1244	10.0	328	8.10	25.0	--	6.6	81	--	--
30...	1246	23.0	328	8.10	25.0	--	6.6	81	--	--
AUG										
24...	1100	1.00	338	8.40	30.0	0.50	7.1	96	<2	<2
24...	1103	10.0	343	8.10	29.5	--	5.3	71	--	--
24...	1106	19.0	347	7.70	29.5	--	1.6	21	--	--

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330944097003601 - LEWISVILLE LAKE SITE GC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)
JAN										
31...	110	37	3.4	16	0.7	4.2	100	29	13	7.8
31...	--	--	--	--	--	--	--	--	--	--
31...	110	39	3.9	20	0.8	4.2	97	30	13	8.0
MAY										
30...	130	46	3.7	15	0.6	4.0	123	20	13	6.2
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	130	45	3.7	15	0.6	3.9	123	20	13	5.9
AUG										
24...	130	46	3.8	16	0.6	4.6	133	18	14	6.4
24...	--	--	--	--	--	--	--	--	--	--
24...	130	47	4.0	15	0.6	4.7	133	18	14	7.4

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-PHOROUS TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
JAN										
31...	171	0.550	0.050	0.600	0.130	0.87	1.0	0.390	160	25
31...	--	--	--	--	--	--	--	--	--	--
31...	177	0.640	0.060	0.700	0.120	0.88	1.0	0.450	640	220
MAY										
30...	182	0.460	0.040	0.500	0.030	0.57	0.60	0.160	31	4
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	180	0.470	0.030	0.500	0.030	0.57	0.60	0.160	21	7
AUG										
24...	189	--	<0.010	<0.100	<0.010	--	0.40	0.100	5	6
24...	--	--	<0.010	<0.100	0.010	0.39	0.40	0.110	10	40
24...	190	--	0.010	<0.100	0.070	0.33	0.40	0.190	10	170

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

Lewisville Lake AC (330419096575401)

Phytoplankton Analyses September 1988 to October 1989

Date	1-31-89
Time	1123
TOTAL CELLS/mL	18,789
NUMBER OF SPECIES	37
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella kutzingiana	174
Melosira distans var. *alpigena*	369
Melosira granulata var. *angustissima*	43
Stephanodiscus astrea var. *minutula*	2,517
Stephanodiscus hantzschii	152
Stephanodiscus sp.	65
Order Pennales	
Achnanthes minutissima	51
Navicula cryptocephala	31
Navicula sp.	31
Nitzschia acicularis	51
Nitzschia dissipata	20
Nitzschia palea	10
Nitzschia recta	20
Synedra ulna	10
CHLOROPHYTA (Green algae)	
Ankistrodesmus convolutus	675
Ankistrodesmus falcatus var. *mirabilis*	112
Ankistrodesmus nannoselene	563
Chlamydomonas sp.	56
Chlorococcum sp.	675
Chodatella subsalsa	338
Dictyosphaerium pulchellum	225
Franceia ovalis	56
Kirchneriella lunaris	1,688
Mesotaenium tenuissima	1,350
Nephrocytium sp.	338
Scenedesmus abundans	225
Scenedesmus quadricauda	506
Selenastrum minutum	675
Tetraedron muticum	56
Tetrastrum staurogeniaeforme	675
CYANOPHYTA (Blue-green algae)	
Aphanocapsa elachista var. *conferta*	2,363
Aphanothece sp.	844
Chroococcus multicoloratus	1,238
Chroococcus sp.	56
Dactylococcopsis	112
Gloeothece linearis	338
Synechococcus sp.	2,025
CRYPTOPHYTA (Cryptomonads)	
Cryptomonas erosa	56

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

Lewisville Lake GC (330944097003601)

Phytoplankton Analyses September 1988 to October 1989

Date	1-31-89
Time	1431
TOTAL CELLS/mL	16,884
NUMBER OF SPECIES	24
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella sp.	225
Melosira granulata var. *angustissima*	676
Stephanodiscus hantzschii	450
Order Pennales	
Achnanthes minutissima	81
Navicula cryptocephala	81
Navicula decussis	81
Navicula halophila f. tenuirostris ?	81
Navicula sp. 1	243
Navicula sp. 2	162
Nitzschia palea	567
Nitzschia romana	243
Nitzschia sp.	405
Synedra sp.	81
CHLOROPHYTA (Green algae)	
Chlamydomonas sp.	1,351
Chlorococcum sp.	1,688
Kirchneriella lunaris	1,688
Tetraedron minimum	338
Tetraedron muticum	338
CYANOPHYTA (Blue-green algae)	
Aphanocapsa delicatissima	2,701
Chroococcus dispersus	2,026
Chroococcus limneticus	1,351
Oscillatoria sp.	1,351
EUGLENOPHYTA (Euglenoids)	
Trachelomonas sp.	338
CRYPTOPHYTA (Cryptomonads)	
Rhodomonas minuta	338

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

Lewisville Lake AC (330419096575401)

Phytoplankton Analyses September 1988 to October 1989

Date	5-30-89
Time	0959
TOTAL CELLS/mL	8,835
NUMBER OF SPECIES	30
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella kutzingiana	12
Stephanodiscus astrea	621
Stephanodiscus hantzschii	25
Stephanodiscus vestibulis	1,255
Order Pennales	
Achnanthes lanceolata var. *dubia*	50
Achnanthes minutissima	50
Cymbella microcephala	50
Cymbella sp.	50
Fragilaria crotonensis	50
Fragilaria vaucheriae	50
Gomphonema gracile	50
Navicula sp.	100
CHLOROPHYTA (Green algae)	
Chlamydomonas sp.	56
Chlorococcum humicola	281
Kirchneriella contorta	563
Scenedesmus bijuga var. *alternans*	225
Scenedesmus quadricauda	338
Schroederia judayi	56
Selenastrum minutum	113
Tetraedron heteracanthum ?	450
Tetrastrum staurogeniaeforme	450
CYANOPHYTA (Blue-green algae)	
Chroococcus dispersus	1,519
Chroococcus multicoloratus	844
Dactylococcopsis fascicularis	338
Gloethece linearis	113
Merismopedia tenuissima	225
Spirulina sp.	113
Synechococcus sp.	225
CRYPTOPHYTA (Cryptomonads)	
Cryptomonas sp.	113
Rhodomonas minuta	450

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

Lewisville Lake GC (330944097003601)

Phytoplankton Analyses September 1988 to October 1989

Date	5-30-89
Time	1243
TOTAL CELLS/mL	4,626
NUMBER OF SPECIES	28
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella atomus	10
Cyclotella kutzingiana	29
Melosira distans var. *alpigena*	14
Stephanodiscus astrea	58
Stephanodiscus hantzschii	24
Stephanodiscus vestibulus	384
Order Pennales	
Gomphonema parvulum	52
CHLOROPHYTA (Green algae)	
Ankistrodesmus falcatus	52
Ankistrodesmus falcatus var. *tumidus*	52
Chlorococcum humicola	104
Elakatothrix viridis	104
Kirchneriella contorta	208
Oocystis sp.	312
Pediastrum duplex var. *clathratum*	208
Scenedesmus quadricauda	208
Selenastrum minutum	156
Tetraedron minimum	156
Tetraedron muticum	52
Tetrastrum staurogeniaeforme	416
CYANOPHYTA (Blue-green algae)	
Anabaena sp.	208
Chroococcus dispersus	364
Chroococcus limneticus	156
Chroococcus minutus	
Chroococcus multicoloratus	104
Merismopedia tenuissima	831
Synechococcus sp.	156
EUGLENOPHYTA (Euglenoids)	
Trachelomonas sp. 1	52
CRYPTOPHYTA (Cryptomonads)	
Cryptomonas sp.	52
Rhodomonas minuta	104

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

Lewisville Lake AC (330419096575401)

Phytoplankton Analyses September 1988 to October 1989

Date	8-24-89
Time	0827
TOTAL CELLS/mL	13,392
NUMBER OF SPECIES	37
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (diatoms)	
Order Centrales	
Cyclotella stelligera	207
Melosira distans var *alpigena*	243
Melosira granulata var *angustissima*	146
Stephanodiscus astraea	122
Stephanodiscus hantzschii	24
Stephanodiscus vestibulus	401
Order Pennales	
Cymbella sp.	7
Navicula gibbosa	50
Nitzschia acicularis	7
Nitzschia kutzinginia	21
Nitzschia palea	7
Synedra acus	35
Synedra delicatissima	7
Synedra filiformis var *exilis*	28
CHLOROPHYTA (green algae)	
Chlorococcum humicola	163
Mesotaenium sp.	82
Nephrocytium limneticum	82
Schroederia setigera	82
Selenastrum minutum	82
Tetraedron minimum	82
Tetraedron muticum	82
CYANOPHYTA (blue-green algae)	
Anabaena sp.	327
Anabaenaopsis elenkinni	1,061
Aphanocapsa delicatissima	1,225
Aphanocapsa elachista var. *conferta*	653
Chroococcus dispersus	327
Chroococcus limneticus	653
Chroococcus multicoloratus	817
Merismopedia tenuissima	2,614
Merismopedia sp.	327
Oscillatoria angustissima	408
Oscillatoria geminata	653
Oscillatoria limnetica	653
Raphidiopsis curvata	653
Synechococcus lineare	408
Synechococcus sp.	490
Synechocystis sp.	163

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

Lewisville Lake GC (330944097003601)

Phytoplankton Analyses September 1988 to October 1989

Date	8-24-89
Time	1101
TOTAL CELLS/mL	103,991
NUMBER OF SPECIES	42
DEPTH COLLECTED (ft.)	1.0

Organisms	Cells/mL
BACILLARIOPHYTA (diatoms)	
Order Centrales	
Cyclotella stelligera	933
Melosira distans var *alpigena*	2,398
Stephanodiscus astraea	666
Stephanodiscus hantzschii	133
Stephanodiscus vestibulus	2,132
Order Pennales	
Navicula gibbosa	374
Nitzschia acicularis	102
Nitzschia kutzinginia	34
Nitzschia palea	204
Nitzschia sp.	102
CHLOROPHYTA (green algae)	
Ankistrodesmus convolutus	544
Ankistrodesmus nannoselene	544
Chlorococcum humicola	544
Chodatella quadriseta	272
Chodatella sp.	272
Crucigenia tetrapedia	5,173
Elakatothrix viridis	544
Kirchneriella contorta	1,633
Nephrocytium limneticum	1,361
Pediastrum duplex	544
Pteromonas sp.	272
Scenedesmus incrassatulus	544
Scenedesmus quadricauda	1,633
Tetraedron muticum	272
CYANOPHYTA (blue-green algae)	
Anabaena sp.	3,267
Aphanocapsa delicatissima	26,408
Aphanocapsa elachista var. *conferta*	1,633
Aphanothece nidulans	4,356
Aphanothece saxicola	6,806
Chroococcus dispersus	7,078
Chroococcus limneticus	2,178
Chroococcus multicoloratus	4,084
Marsoniella elegans	817
Oscillatoria angustissima	2,178
Oscillatoria geminata	2,450
Oscillatoria limnetica	7,351
Raphidiopsis curvata	544
Synechococcus lineare	10,345
Synechococcus sp.	2,178
CRYPTOPHYTA (cryptomonads)	
Chroomonas sp.	272
EUGLENOPHYTA	
Euglena sp.	272
Trachelomonas sp.	544

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 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.--Records fair except those for estimated daily discharges, which are poor. Flow regulated by Lewisville Lake (see station 08052800) 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); 35 years (water years 1955-89) regulated, 650 ft³/s (470,900 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, 15,000 ft³/s (gage height, 27.83 ft) Nov. 2, 1981.

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, 5,880 ft³/s July 3 at 0630 hours (gage height, 23.04 ft); minimum daily, 9.0 ft³/s Feb. 27-28.

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	60	64	58	91	132	e9.5	16	e9.7	60	5200	3210	41
2	60	63	58	91	94	e10	15	e9.9	91	5330	3210	39
3	60	64	59	90	65	e10	15	35	194	e3080	3210	39
4	60	62	58	95	63	e10	e13	e25	1000	e2300	3210	38
5	60	62	58	117	72	e10	e12	76	200	e3850	e2880	38
6	60	63	57	110	96	e10	e12	e15	36	4780	e2480	72
7	60	63	67	99	81	e10	e11	e13	1340	5330	e2190	114
8	60	63	61	97	62	e10	e11	e12	914	5450	e1810	114
9	60	62	60	97	e35	e10	e11	e11	85	5430	e1620	88
10	60	60	63	97	e25	e10	e10	e11	40	5410	e1600	31
11	60	58	64	87	e26	e10	e10	e11	65	5390	e1330	64
12	60	109	61	58	e20	e10	e10	e11	328	5350	e912	33
13	61	e58	73	54	e16	e10	41	e11	975	5320	e750	107
14	61	e57	118	54	e13	e10	49	11	e880	5240	e480	187
15	62	63	110	54	26	e10	18	12	e100	5340	e202	233
16	62	62	109	54	69	e10	16	134	e43	5270	127	231
17	63	57	110	53	425	e10	14	2090	e62	5210	131	228
18	63	58	112	53	99	e10	e12	222	e144	5180	119	235
19	63	59	112	61	e15	e10	e12	29	e215	5150	118	278
20	63	61	113	120	e11	e10	e11	19	e258	5140	117	190
21	62	61	114	232	e11	23	e11	16	e284	5040	112	192
22	63	60	117	369	e11	e15	e10	16	e293	e4060	107	189
23	63	58	115	392	e10	e12	e10	15	e531	e4110	106	190
24	65	58	112	381	e10	e11	e10	15	e1290	e3770	105	188
25	64	58	112	391	e10	e10	e9.9	16	e2050	3570	110	171
26	63	58	111	191	e10	e10	e9.9	16	e2580	3500	151	152
27	63	59	123	28	e9.0	e11	e9.9	15	e3220	3240	149	155
28	63	58	116	233	e9.0	958	e9.8	18	e4150	3200	148	80
29	63	58	102	111	---	147	e9.8	19	4630	3200	147	16
30	63	59	90	121	---	36	e9.7	21	4830	3200	94	14
31	64	---	91	207	---	18	---	36	---	3200	43	---
TOTAL	1914	1855	2784	4288	1525.0	1450.5	419.0	2970.6	30888	138840	30978	3747
MEAN	61.7	61.8	89.8	138	54.5	46.8	14.0	95.8	1030	4479	999	125
MAX	65	109	123	392	425	958	49	2090	4830	5450	3210	278
MIN	60	57	57	28	9.0	9.5	9.7	9.7	36	2300	43	14
AC-FT	3800	3680	5520	8510	3020	2880	831	5890	61270	275400	61440	7430

CAL YR 1988 TOTAL 60946 MEAN 167 MAX 595 MIN 57 AC-FT 120900
WTR YR 1989 TOTAL 221659.1 MEAN 607 MAX 5450 MIN 9.0 AC-FT 439700

e Estimated.

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: Maximum, 33.5°C July 16, Aug. 18, 1988, Sept. 14, 15, 1989; minimum, 0.0°C Jan. 31 and Feb. 9, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,050 microsiemens Feb. 5, 8; minimum daily, 208 microsiemens May 17.
WATER TEMPERATURE: Maximum daily, 33.5°C Sept. 14, 15; minimum daily, 8.5°C Feb. 10,

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	CALCIUM DISSOLVED (MG/L AS CA)
NOV 04...	1130	60	433	8.10	19.0	--	--	8.8	97	--	120	39
JAN 31...	1620	177	434	8.10	11.5	9	18	11.0	103	1.0	130	44
MAR 24...	1400	0.24	985	7.70	--	--	--	9.6	--	3.6	240	82
MAY 30...	1645	21	890	7.60	27.5	10	6.6	7.8	100	1.1	220	76
AUG 24...	1345	103	358	7.70	27.5	10	20	6.6	85	1.9	130	44

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L)
NOV 04...	4.9	38	2	5.5	107	53	30	0.40	4.4	239	--
JAN 31...	5.3	35	1	5.2	120	53	29	0.30	3.5	247	35
MAR 24...	9.3	110	3	9.7	146	180	88	0.90	8.8	576	--
MAY 30...	7.9	100	3	9.2	177	140	83	0.80	10	537	8
AUG 24...	3.8	22	0.9	4.7	116	33	16	0.30	5.5	199	35

DATE	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)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DISSOLVED (UG/L AS AS)
NOV 04...	--	--	0.710	0.190	0.900	1.10	1.8	2.9	0.710	--	--
JAN 31...	5	30	1.26	0.040	1.30	0.090	0.81	0.90	0.460	6.1	1
MAR 24...	--	--	7.76	0.140	7.90	0.470	1.7	2.2	5.10	--	--
MAY 30...	<1	--	9.45	0.350	9.80	1.70	1.5	3.2	<0.010	10	2
AUG 24...	7	28	0.750	0.050	0.800	0.210	0.89	1.1	0.360	6.0	6

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)
NOV 04...	--	--	--	--	--	--	--	--	--	--	--
JAN 31...	44	<1	<1	2	13	<5	7	<0.1	<1	2.0	7
MAR 24...	--	--	--	--	--	--	--	--	--	--	--
MAY 30...	32	<1	1	4	11	<1	90	<0.1	<1	<1.0	23
AUG 24...	49	<1	1	1	9	<1	230	0.1	<1	3.0	5

08053000 ELM FORK TRINITY RIVER NEAR LEWISVILLE, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	1914	382	212	1100	26	132	39	202	130
NOV.	1988	1855	445	247	1240	33	167	52	262	140
DEC.	1988	2784	447	248	1860	33	251	52	394	140
JAN.	1989	4288	432	240	2780	32	366	49	569	140
FEB.	1989	1525.0	933	511	2110	130	528	220	913	110
MAR.	1989	1450.5	1030	566	2220	150	580	260	1010	100
APR.	1989	419.0	1020	557	630	140	163	250	282	110
MAY	1989	2970.6	371	205	1650	34	269	55	438	99
JUNE	1989	30888	370	206	17100	27	2230	42	3470	120
JULY	1989	138840	319	177	66500	19	7120	28	10500	120
AUG.	1989	30978	373	207	17300	25	2110	38	3220	130
SEPT	1989	3747	368	205	2070	24	246	37	374	130
TOTAL		221659.1	**	**	117000	**	14200	**	21600	**
WTD.AVG.		607	351	195	**	24	**	36	**	120

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	403	382	495	444	444	1000	1040	911	928	305	318	596
2	368	366	491	443	445	1000	1040	913	925	319	319	627
3	380	399	491	444	750	1000	1040	914	926	316	317	598
4	366	383	494	444	950	1010	1040	911	925	320	318	358
5	366	393	494	443	1050	1000	1040	910	930	321	318	359
6	365	384	493	444	1040	1000	1040	911	925	319	317	358
7	387	384	487	443	1040	1000	1040	915	500	319	435	359
8	386	389	490	443	1050	1000	1040	914	487	315	436	359
9	384	444	488	445	1040	1000	1010	910	476	320	436	358
10	408	433	487	447	1040	1000	1010	944	486	318	436	359
11	385	408	487	442	1040	1000	1010	950	484	319	437	357
12	368	430	487	443	1040	1000	1010	975	482	319	437	359
13	364	472	430	441	1040	1000	1010	975	478	320	437	359
14	380	471	430	440	1040	1000	1010	950	481	316	437	358
15	398	474	430	417	1040	1010	1010	950	480	320	437	357
16	386	471	430	421	1040	1000	1010	486	481	318	437	356
17	389	471	431	418	1040	1000	1010	208	486	315	437	356
18	407	471	430	418	1010	1000	1010	500	313	320	438	357
19	394	473	430	415	1020	1000	1010	969	313	320	438	364
20	388	471	430	419	1020	1000	1010	968	314	319	437	364
21	405	472	432	417	1010	1000	1010	970	313	320	438	363
22	387	484	430	416	1010	1000	1010	969	313	321	597	364
23	379	483	430	419	1020	1020	1010	969	314	320	597	365
24	370	485	434	417	1020	1020	1010	970	314	320	597	364
25	370	483	435	442	1020	1030	1010	968	313	320	598	363
26	373	483	434	447	1020	1030	1010	971	312	320	597	363
27	369	484	435	444	1010	1040	1010	970	314	321	595	363
28	380	485	433	443	1020	1040	996	968	314	320	595	366
29	390	484	433	440	---	1040	997	920	312	320	595	364
30	373	483	433	441	---	1040	997	920	304	320	595	363
31	373	---	433	441	---	1040	---	925	---	324	595	---
MEAN	382	446	454	435	975	1010	1020	890	498	319	465	385

08053000 ELM FORK TRINITY RIVER NEAR LEWISVILLE, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.5	20.0	16.5	15.5	15.5	15.0	23.0	25.0	26.5	29.5	30.5	32.0
2	26.0	20.0	11.5	16.0	14.5	15.5	23.5	26.0	26.5	29.5	30.5	31.5
3	26.0	19.5	17.0	15.5	---	16.0	23.5	25.5	27.0	29.0	31.0	32.0
4	25.5	19.5	17.0	15.0	---	14.0	23.0	27.0	27.0	30.0	31.0	31.5
5	25.5	20.0	16.5	15.5	10.0	14.0	23.5	25.0	26.5	30.5	31.0	32.0
6	26.0	19.5	16.5	15.0	9.5	14.5	24.0	27.0	26.5	30.0	30.5	32.0
7	26.0	20.0	16.5	16.0	9.0	15.0	24.0	24.0	26.0	30.5	30.0	32.5
8	26.5	20.0	16.0	16.0	9.5	16.0	24.5	25.0	26.0	30.5	31.0	32.5
9	25.5	19.5	16.0	15.5	9.0	16.0	24.5	25.0	25.5	30.5	31.5	32.5
10	25.5	19.0	15.5	15.0	8.5	17.0	24.0	24.0	26.0	30.5	31.0	32.0
11	25.5	18.5	15.5	15.5	9.0	17.5	24.5	24.0	26.5	31.0	31.0	32.5
12	25.0	18.0	16.0	15.0	9.5	17.5	24.0	25.0	27.0	31.0	31.5	33.0
13	25.5	---	15.5	15.5	10.0	18.0	23.5	26.0	26.5	30.5	31.0	33.0
14	25.5	---	15.0	15.0	10.5	18.0	23.5	22.0	26.5	31.0	31.5	33.5
15	25.5	---	15.0	15.5	10.5	18.5	24.0	22.0	26.5	31.5	31.0	33.5
16	24.5	---	15.5	15.0	10.0	18.5	24.5	20.0	27.0	31.5	31.5	33.0
17	26.5	---	15.5	15.0	10.5	18.5	24.5	22.0	27.0	31.5	32.0	32.0
18	24.0	---	15.0	15.5	11.0	19.5	24.0	24.0	27.0	30.0	31.5	32.0
19	24.0	---	15.5	15.0	11.0	20.0	23.5	25.5	27.5	30.0	32.0	31.5
20	23.5	17.5	15.0	15.0	11.5	20.0	23.0	25.5	28.0	29.5	31.5	31.5
21	23.5	17.0	14.5	16.0	12.0	20.5	23.5	26.0	28.5	29.5	31.5	31.0
22	24.0	17.5	15.0	15.0	11.5	20.5	24.0	26.0	28.5	30.0	31.0	31.5
23	24.5	17.5	15.0	15.0	12.0	21.0	23.5	26.0	29.0	30.0	31.5	31.0
24	22.5	17.0	15.5	15.5	12.5	21.5	24.0	26.5	29.0	30.5	32.0	31.0
25	22.0	17.5	15.0	15.5	13.0	22.0	23.5	27.0	29.0	30.0	31.5	30.5
26	21.5	17.5	14.5	15.0	13.5	22.0	24.0	27.0	29.5	30.5	31.0	31.0
27	21.5	17.0	14.5	15.0	14.0	22.0	24.5	27.5	28.5	30.0	32.0	31.5
28	21.0	17.5	15.0	16.0	14.5	22.5	24.0	26.5	28.5	30.5	31.5	31.0
29	20.5	17.5	14.5	16.0	---	22.0	23.5	26.0	29.0	30.5	31.5	31.5
30	20.5	17.6	15.0	16.5	---	22.5	24.0	27.0	29.0	29.5	32.0	31.5
31	20.5	---	14.0	16.0	---	23.0	---	27.0	---	30.0	32.0	---
MEAN	24.0	18.5	15.5	15.5	11.0	18.5	24.0	25.0	27.5	30.5	31.5	32.0

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 discharge. Records good. Several small diversions above station. Flow is affected at times by discharge from the flood-detention pools of 84 floodwater-retarding structures with a combined detention capacity of 52,750 acre-ft. 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); 9 years (water years 1981-89) after completion of floodwater-retarding structures, 158 ft³/s (114,500 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, 15,200 ft³/s June 7 at 0815 hours (gage height, 16.57 ft); no flow from Oct. 1 to Nov. 25.

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	.00	9.2	12	31	63	308	30	81	88	25	9.1
2	.00	.00	9.2	12	26	59	215	29	68	79	24	8.9
3	.00	.00	9.2	12	42	58	165	259	105	88	24	8.7
4	.00	.00	9.2	11	20	61	128	179	4490	82	24	8.5
5	.00	.00	9.6	11	19	64	99	375	2710	68	24	8.5
6	.00	.00	10	11	18	57	82	160	999	58	21	8.5
7	.00	.00	12	8.0	18	91	71	104	7090	55	20	8.4
8	.00	.00	21	7.5	19	169	62	73	6750	55	20	8.2
9	.00	.00	24	7.8	20	522	56	58	4130	54	20	8.2
10	.00	.00	26	7.8	18	515	50	48	2290	50	19	8.2
11	.00	.00	37	8.0	19	313	47	41	2660	46	18	12
12	.00	.00	41	9.0	19	191	45	38	2730	44	18	27
13	.00	.00	25	11	20	141	47	38	5640	41	18	139
14	.00	.00	17	14	20	112	69	46	5300	42	16	257
15	.00	.00	13	16	211	92	78	45	2530	127	17	78
16	.00	.00	11	16	258	72	69	655	1550	88	18	38
17	.00	.00	10	16	2290	66	59	5140	1120	59	19	26
18	.00	.00	10	16	2240	63	53	7740	842	47	19	19
19	.00	.00	10	16	866	57	50	3120	652	40	18	16
20	.00	.00	13	16	550	56	46	2020	533	36	17	13
21	.00	.00	12	16	370	55	43	1660	453	33	15	12
22	.00	.00	8.9	17	256	52	42	1330	381	32	14	11
23	.00	.00	13	17	173	50	40	1030	311	31	13	10
24	.00	.00	33	17	130	49	38	713	232	30	13	9.2
25	.00	.00	17	89	103	48	36	513	190	30	13	8.5
26	.00	76	13	138	91	47	35	377	163	30	12	8.1
27	.00	29	12	36	81	48	34	240	137	30	11	7.7
28	.00	14	11	474	70	2390	33	206	115	30	11	7.3
29	.00	9.6	21	238	---	963	32	171	103	29	10	7.0
30	.00	9.2	16	66	---	862	31	131	100	28	10	6.6
31	.00	---	12	40	---	460	---	101	---	26	9.6	---
TOTAL	0.00	137.80	495.3	1386.1	7998	7846	2163	26670	54455	1576	530.6	797.6
MEAN	.00	4.59	16.0	44.7	286	253	72.1	860	1815	50.8	17.1	26.6
MAX	.00	76	41	474	2290	2390	308	7740	7090	127	25	257
MIN	.00	.00	8.9	7.5	18	47	31	29	68	26	9.6	6.6
AC-FT	.00	273	982	2750	15860	15560	4290	52900	108000	3130	1050	1580

CAL YR 1988 TOTAL 6774.11 MEAN 18.5 MAX 162 MIN .00 AC-FT 13440
WTR YR 1989 TOTAL 104055.40 MEAN 285 MAX 7740 MIN .00 AC-FT 206400

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, 456,100 acre-ft June 15 at 0300 hours (elevation, 562.35 ft); minimum, 139,000 acre-ft Dec. 7 (elevation, 528.77 ft).

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

528.0	134,300	543.0	245,200	555.0	365,800
532.0	160,000	546.0	272,700	558.0	400,700
536.0	188,500	549.0	302,000	561.0	438,300
540.0	219,600	552.0	333,000	563.0	464,900

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	149700	142400	140400	139800	150100	187600	216200	178200	258300	403300	284400	183700
2	149500	142200	140100	139900	150800	187300	216200	177900	254600	400800	280500	182800
3	149300	142200	139900	139800	150600	187000	215900	182900	251800	397500	276500	181800
4	149000	141900	139700	139700	150600	187300	214000	186000	274300	394700	272600	181000
5	148600	141700	139400	139700	150500	186900	212400	188800	284000	390300	268700	179900
6	148200	141600	139200	139700	150500	186400	210200	189000	287000	386000	265600	178900
7	148000	141400	139400	139700	150500	186200	207000	189200	336900	382100	262200	178200
8	147700	141300	139700	139600	150500	186400	204700	189000	359300	378300	258100	177300
9	147500	141300	139600	139500	150500	187800	203100	188800	370700	374100	254300	176800
10	147300	141200	139800	139400	150500	189000	200800	188400	376600	370000	250400	175900
11	147000	141200	139900	139400	150500	189500	197800	187900	386300	366100	246700	176800
12	146600	141400	139800	139600	150600	189600	195500	187300	400800	362300	242900	176200
13	146200	141200	139700	139600	150800	189600	192500	187100	438100	358300	239100	177700
14	145900	141200	139700	139600	150900	189600	189500	186800	455700	355200	235400	177800
15	145700	141200	139700	139600	152800	189300	187300	186300	453200	351400	231600	177800
16	145400	141200	139600	139500	155400	188900	185500	193500	448900	347500	228100	177800
17	145100	141100	139600	139400	172700	188800	184400	221600	445400	343400	224400	177800
18	144800	141100	139400	139400	181900	188500	183500	241200	442500	339400	220800	177600
19	144600	141400	139400	139400	184800	188100	183100	250000	439600	335900	217200	177600
20	144400	141200	139400	139400	186800	187800	182700	255400	438300	331700	213400	177400
21	144200	141100	139400	139300	187800	187300	182300	259200	436900	327500	210000	177300
22	143800	141000	139600	139200	188300	186400	182100	262200	435700	323400	206800	177100
23	143600	140900	139600	139200	188500	185800	181600	264000	434000	319400	203600	176700
24	143200	140900	139500	139100	188600	185400	181200	265200	431100	315500	200500	176400
25	143000	140900	139400	140800	188500	185100	180800	265800	428800	311700	197500	176300
26	142800	141100	139400	142300	188400	184800	180400	266300	425100	307900	194900	176000
27	142600	141000	139900	142300	188200	184500	179900	266000	420800	304000	192300	175900
28	142600	140900	139900	148000	187900	208700	179700	265300	416400	300100	189500	175500
29	142500	140900	139800	149900	---	213000	179200	264400	411900	296200	187100	174900
30	142400	140800	139800	150300	---	215600	178800	263100	407700	292300	185600	174000
31	142400	---	139900	150100	---	216100	---	260700	---	288400	184600	---
MAX	149700	142400	140400	150300	188600	216100	216200	266300	455700	403300	284400	183700
MIN	142400	140800	139200	139100	150100	184500	178800	177900	251800	288400	184600	174000
(†)	529.32	529.06	528.91	530.52	535.92	539.57	534.68	544.72	558.58	547.63	535.48	534.01
(ϕ)	-7300	-1600	-900	+10200	+37800	+28200	-37300	+81900	+147000	-119300	-103800	-10600

CAL YR 1988 MAX 176600 MIN 139200 (ϕ) -25600
WTR YR 1989 MAX 455700 MIN 139100 (ϕ) +24300

(†) 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). Much of flow 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. 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); 37 years (water years 1953-89) regulated, unadjusted, 171 ft³/s (123,900 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, 4,950 ft³/s June 15 at 0900 hours (gage height, 24.00 ft); minimum daily, 0.82 ft³/s Feb. 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	35	9.9	120	10	95	264	400	252	1700	2190	1930	422
2	54	15	164	10	2.6	264	397	253	2150	2230	1930	370
3	53	23	81	9.9	2.1	266	445	253	2070	2140	1930	378
4	61	46	78	11	1.2	263	943	171	1600	1300	1920	371
5	71	50	102	11	1.4	264	1460	264	113	2130	1910	403
6	76	21	101	11	1.3	264	1740	185	92	2150	1910	393
7	83	17	65	12	1.2	264	1720	266	1870	2040	1910	299
8	86	7.8	28	12	1.1	265	1720	264	1800	2030	1910	296
9	89	12	59	12	.82	267	1710	262	1370	2040	1890	294
10	69	20	35	12	15	268	1700	261	1060	2030	1880	293
11	69	25	29	12	42	269	1580	261	787	2030	1870	279
12	98	31	52	16	43	271	1250	261	374	2020	1860	218
13	87	27	83	14	32	272	958	260	395	2020	1860	209
14	57	38	10	13	14	272	743	258	3180	2020	1850	89
15	70	50	9.4	11	41	272	725	258	4830	2020	1840	76
16	90	53	10	11	57	272	720	560	4020	2010	1840	47
17	98	51	11	11	254	274	634	1260	3040	2000	1830	44
18	99	53	11	11	65	276	384	71	2390	1990	1820	43
19	81	57	11	12	36	276	309	67	1920	1990	1810	43
20	64	37	11	12	32	352	269	110	1480	1980	1800	51
21	89	39	12	12	31	451	242	175	1180	1980	1740	51
22	101	39	16	13	73	447	206	172	966	1980	1540	55
23	101	40	12	13	129	397	222	168	1030	1980	1520	46
24	102	40	13	35	182	263	258	183	1450	1970	1520	45
25	102	42	13	209	261	263	256	199	1660	1970	1450	45
26	85	46	13	189	262	263	256	197	1740	1960	1260	44
27	43	46	24	155	262	263	256	335	2190	1960	1250	36
28	32	46	13	259	262	508	257	463	2200	1950	1240	97
29	5.8	47	9.8	28	---	66	255	464	2200	1940	1180	253
30	6.8	52	9.7	68	---	149	254	688	2190	1940	693	334
31	10	---	10	162	---	408	---	1170	---	1930	457	---
TOTAL	2167.6	1080.7	1215.9	1376.9	2199.72	8933	22269	10011	53047	61920	51350	5624
MEAN	69.9	36.0	39.2	44.4	78.6	288	742	323	1768	1997	1656	187
MAX	102	57	164	259	262	508	1740	1260	4830	2230	1930	422
MIN	5.8	7.8	9.4	9.9	.82	66	206	67	92	1300	457	36
AC-FT	4300	2140	2410	2730	4360	17720	44170	19860	105200	122800	101900	11160

CAL YR 1988 TOTAL 13250.48 MEAN 36.2 MAX 164 MIN .28 AC-FT 26280
WTR YR 1989 TOTAL 221194.82 MEAN 606 MAX 4830 MIN .82 AC-FT 438700

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 (revised).--Water-stage recorder and concrete control. Datum of gage is 431.40 ft National Geodetic Vertical Datum of 1929. Prior to November 1923, nonrecording gage at site 15.5 mi downstream at different datum. Nov. 1, 1923, to Nov. 13, 1934, nonrecording gage, and Nov. 14, 1934, to July 6, 1938, water-stage recorder at present site and datum. July 7, 1938, to Apr. 14, 1939, nonrecording gage at site 9.3 mi downstream at datum 22.94 ft lower. Apr. 15, 1939, to Sept. 30, 1955, water-stage recorder at site 8.5 mi downstream at datum 22.94 ft lower. Oct. 1, 1955, to Sept. 30, 1987, water-stage recorder at present site and at datum 2.00 ft higher.

REMARKS.--No estimated daily discharge. Records good. Flow is 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. diverts 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); 35 years (water years 1955-89) regulated, unadjusted, 744 ft³/s (539,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD (revised).--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, 8,720 ft³/s May 17 at 0900 hours (gage height, 9.73 ft); no flow Dec. 3-4.

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	45	105	77	3.6	189	271	330	125	1380	6730	5290	118
2	67	96	172	7.8	69	270	299	124	1840	6850	5310	125
3	43	92	40	3.8	50	274	275	419	2650	7220	5320	190
4	36	96	.00	4.2	25	290	626	161	4500	4570	5250	140
5	41	166	29	24	26	293	1300	878	1310	5210	5140	171
6	48	142	36	40	45	301	1590	142	195	6290	4760	258
7	84	128	79	31	34	307	1600	184	5090	6610	4450	197
8	88	119	44	54	27	296	1620	145	3970	6750	4030	151
9	98	104	99	66	29	289	1640	149	482	6750	3640	195
10	90	78	59	34	18	280	1630	124	184	6730	3600	86
11	64	77	64	62	35	277	1570	92	323	6730	3280	432
12	101	100	17	118	62	268	1260	85	1570	6680	2420	149
13	107	85	24	41	71	267	1100	122	3800	6640	2100	762
14	68	87	32	37	46	266	989	135	5030	6660	1950	183
15	41	100	16	35	261	222	729	141	5480	6740	1680	217
16	71	50	18	32	593	166	687	1320	4980	6680	1670	164
17	93	64	19	28	2500	140	645	7380	3850	6640	1870	123
18	108	79	20	32	828	139	333	1330	2950	6600	1790	127
19	129	136	17	43	95	154	210	159	2320	6580	1750	165
20	61	49	21	93	47	184	122	39	1750	6560	1720	89
21	56	37	14	119	45	513	112	159	1350	6540	1640	133
22	95	81	21	196	47	428	107	115	1060	6350	1470	133
23	126	86	11	204	115	368	112	75	1140	6080	1400	155
24	191	81	7.1	210	142	188	149	87	2350	6020	1380	135
25	225	82	11	499	259	141	149	100	3720	5700	1340	119
26	209	103	7.9	722	272	149	116	75	4030	5570	1220	99
27	169	94	46	94	275	172	85	130	5420	5350	1160	102
28	156	86	21	1300	272	3780	95	366	5910	5250	1160	54
29	134	85	6.0	440	---	908	116	344	6380	5280	1140	117
30	112	80	8.2	87	---	98	107	423	6570	5300	722	202
31	120	---	5.3	240	---	300	---	906	---	5270	209	---
TOTAL	3076	2768	1041.50	4900.4	6477	11999	19703	16034	91584	192930	79861	5291
MEAN	99.2	92.3	33.6	158	231	387	657	517	3053	6224	2576	176
MAX	225	166	172	1300	2500	3780	1640	7380	6570	7220	5320	762
MIN	36	37	.00	3.6	18	98	85	39	184	4570	209	54
AC-FT	6100	5490	2070	9720	12850	23800	39080	31800	181700	382700	158400	10490

CAL YR 1988	TOTAL	41418.50	MEAN	113	MAX	801	MIN	.00	AC-FT 82150
WTR YR 1989	TOTAL	435664.90	MEAN	1194	MAX	7380	MIN	.00	AC-FT 864100

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.--Records good. Flow is slightly affected by eight small on-channel dams above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--34 years (water years 1952-80, 1986-89) 8.82 ft³/s (6,390 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)
Jan. 28	1630	1,610	4.92	June 7	0800	3,020	6.56
Mar. 28	1045	2,440	5.92	June 13	0645	2,340	5.81
May 3	0745	2,030	5.45	July 2	2115	3,600	7.14
May 5	0130	2,550	6.05	July 15	0300	2,750	6.27
May 16	2230	3,430	6.98	Aug. 6	1645	3,180	6.73
May 17	0700	*4,800	a*8.17	Sept. 13	0700	1,950	5.35
June 2	2200	2,100	5.53				

a From floodmark in well.

Minimum discharge, no flow Mar. 2.

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	44	2.8	2.2	2.7	4.6	2.9	5.7	13	4.3	3.0	2.6	2.3
2	9.7	2.3	1.8	2.6	11	.94	5.2	52	107	242	4.9	1.3
3	4.0	2.3	1.3	2.5	90	2.8	4.8	148	32	25	4.6	4.9
4	3.2	1.9	1.6	2.2	7.1	10	4.4	12	169	5.9	2.2	1.6
5	2.8	1.4	1.9	2.6	5.2	5.1	4.2	162	9.3	4.5	1.9	1.2
6	2.3	1.3	1.9	2.5	4.4	19	4.2	5.9	6.6	3.9	174	1.0
7	2.7	2.0	5.5	2.3	4.9	9.0	5.1	7.0	290	43	63	.97
8	13	1.1	2.2	1.9	6.3	6.4	4.3	4.6	16	8.6	6.1	.95
9	4.1	1.7	1.8	2.1	4.2	5.2	3.4	4.0	9.4	4.0	4.6	.89
10	2.9	1.4	42	2.2	3.9	4.6	3.7	3.3	39	3.5	3.5	.86
11	2.4	1.6	11	2.3	3.6	4.1	3.6	2.9	24	3.6	3.0	63
12	2.2	51	3.9	18	15	4.0	3.7	8.6	116	3.3	2.5	3.5
13	2.5	2.2	3.2	8.2	7.0	4.2	128	3.8	504	4.9	2.6	128
14	3.0	1.9	3.0	11	4.2	4.3	33	2.8	60	4.1	2.4	3.6
15	2.5	42	2.1	3.0	30	3.4	7.8	2.8	15	129	8.8	1.8
16	2.6	4.1	2.0	2.8	47	3.7	6.1	353	10	4.9	3.6	1.5
17	2.4	1.9	2.1	2.7	217	3.9	5.3	532	8.4	3.9	23	1.5
18	2.0	3.2	2.1	2.7	22	3.9	4.8	17	6.9	3.2	4.1	1.3
19	1.6	30	2.6	2.2	10	3.3	4.9	9.9	6.2	3.0	2.8	1.0
20	2.5	3.3	2.3	2.4	8.5	4.2	3.9	7.9	5.6	2.2	2.2	.94
21	2.3	2.2	2.1	1.8	5.9	37	4.0	6.9	5.2	2.0	2.0	.94
22	2.2	2.0	29	1.9	4.9	5.3	4.0	6.1	4.7	2.3	1.4	.93
23	2.7	2.0	3.7	2.1	4.5	4.6	3.3	4.8	4.5	3.4	2.0	1.3
24	1.7	2.0	2.3	2.2	4.4	4.4	3.2	4.8	3.7	2.3	3.7	1.1
25	2.0	24	1.9	8.2	4.1	4.6	3.0	4.1	6.9	21	4.0	1.3
26	13	6.3	2.3	91	3.9	14	2.9	3.6	6.3	7.7	2.7	.97
27	4.1	2.3	15	3.9	3.8	4.9	2.8	3.3	3.1	3.8	1.4	.74
28	39	2.2	4.9	228	3.9	324	2.7	3.1	3.0	2.6	1.5	.60
29	59	3.0	2.5	14	---	47	3.3	3.1	2.4	2.3	1.5	1.1
30	4.2	2.0	2.6	6.3	---	9.5	2.5	2.6	3.4	2.1	1.4	1.2
31	9.8	---	10	5.0	---	6.6	---	2.3	---	2.1	4.0	---
TOTAL	252.4	207.4	172.8	443.3	541.3	566.84	277.8	1397.2	1481.9	557.1	348.0	232.29
MEAN	8.14	6.91	5.57	14.3	19.3	18.3	9.26	45.1	49.4	18.0	11.2	7.74
MAX	59	51	42	228	217	324	128	532	504	242	174	128
MIN	1.6	1.1	1.3	1.8	3.6	.94	2.5	2.3	2.4	2.0	1.4	.60
AC-FT	501	411	343	879	1070	1120	551	2770	2940	1110	690	461

CAL YR 1988	TOTAL	3024.55	MEAN	8.26	MAX	587	MIN	.00	AC-FT	6000
WTR YR 1989	TOTAL	6478.33	MEAN	17.7	MAX	5.32	MIN	.60	AC-FT	12850

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.--No estimated daily discharges. Records good. 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 the station. For additional information on diversions and effluent returns upstream from 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.--86 years, 1,553 ft³/s (1,125,000 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, 58,700 ft³/s May 17 at 1930 hours (gage height, 43.31 ft); minimum daily, 318 ft³/s Dec. 2.

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	1650	469	320	409	655	643	3650	1130	4540	11300	4900	521
2	1120	426	318	375	860	615	1930	1060	5650	11700	5000	470
3	639	395	347	370	1820	618	1280	4000	8150	14800	5410	468
4	486	390	320	356	830	666	1080	6370	10900	13600	5120	459
5	441	383	332	346	551	789	1480	16400	14400	10300	4920	469
6	428	375	331	344	487	1030	1810	16900	12000	10000	5270	469
7	413	375	371	329	638	1220	2000	13700	13500	10900	6390	487
8	417	375	504	325	805	1030	2040	9160	22800	11500	6700	491
9	423	370	487	323	466	999	1990	4850	21100	12100	4630	487
10	407	360	844	326	453	837	1980	2910	16500	11800	3790	497
11	400	364	1770	328	437	687	1960	2430	14800	11000	3560	1490
12	392	540	1060	423	491	650	1810	2160	16800	10200	3200	2530
13	388	495	492	680	638	641	2080	2310	26200	9850	2620	2970
14	376	409	406	613	558	636	6390	2510	42100	8660	2370	3840
15	377	581	383	449	873	630	4030	2230	37800	9280	2210	1180
16	373	826	350	376	3180	581	1920	6220	29800	8170	2130	629
17	381	461	336	359	7990	567	1470	37500	26000	7580	2850	552
18	379	398	338	344	13600	523	1220	43000	22600	7370	4470	477
19	373	811	341	338	6750	515	922	28100	19300	7080	2530	458
20	372	1210	350	340	2850	533	799	21000	16800	6890	2170	408
21	366	491	336	334	1600	1050	783	18100	15000	7030	2050	409
22	362	354	569	344	1490	1380	750	15900	13100	6570	1950	395
23	366	348	755	358	1620	938	734	12900	10900	6320	1760	357
24	365	340	554	371	1390	802	717	10800	9120	6060	1690	377
25	366	365	374	472	954	654	707	9760	7840	5850	1640	373
26	401	452	333	4140	846	633	707	9140	6930	5710	1570	369
27	595	412	542	2410	753	631	694	8700	7390	5610	1450	356
28	615	348	1290	3580	715	7540	667	7910	9390	5360	1400	354
29	709	340	822	7630	---	16300	1000	5920	9720	5070	1400	359
30	690	325	427	2950	---	14000	1020	4220	10900	4940	1270	358
31	525	---	429	1300	---	7650	---	3870	---	4900	786	---
TOTAL	15595	13788	16431	31642	54300	65988	49620	331160	482030	267500	97206	23059
MEAN	503	460	530	1021	1939	2129	1654	10680	16070	8629	3136	769
MAX	1650	1210	1770	7630	13600	16300	6390	43000	42100	14800	6700	3840
MIN	362	325	318	323	437	515	667	1060	4540	4900	786	354
AC-FT	30930	27350	32590	62760	107700	130900	98420	656900	956100	530600	192800	45740

CAL YR 1988 TOTAL 199911 MEAN 546 MAX 7120 MIN 277 AC-FT 396500
WTR YR 1989 TOTAL 1448319 MEAN 3968 MAX 43000 MIN 318 AC-FT 2873000

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.--Beginning 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 micorsiemens Feb. 12, 1988; minimum, 93 microsiemens Oct. 20, 1984.
pH: Maximum, 8.6 units Oct. 20, 1984; minimum, 6.8 units on 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, 1,010 microsiemens Nov. 1; minimum, 128 microsiemens May 16.
pH: Maximum, 8.3 units on several days during May, July, and August; minimum, 7.1 units Sept. 24, 25, 28-30.
WATER TEMPERATURE: Maximum, 32.0°C Sept. 2-4; minimum, 5.0°C Feb. 7, 8.
DISSOLVED OXYGEN: Maximum, 13.7 mg/L Feb. 8; minimum, 2.5 mg/L May 21.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
NOV 10...	1235	364	797	7.70	21.5	7.3	84	--	150
FEB 16...	1315	3700	539	8.00	9.5	11.6	101	4.1	150
APR 06...	1525	1820	522	8.00	18.0	8.8	93	2.9	170
JUN 19...	1800	18500	324	7.90	27.0	5.6	71	2.2	120
AUG 04...	1215	5120	354	7.60	26.5	7.6	95	1.2	120
SEP 14...	1525	3440	311	7.70	21.5	6.1	69	4.2	110

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 WH TOT FET 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 10...	49	7.2	100	4	11	120	86	86	1.1
FEB 16...	51	5.3	45	2	5.9	110	85	33	0.50
APR 06...	56	6.8	41	1	5.8	128	61	44	0.40
JUN 19...	42	4.8	14	0.5	4.9	115	20	15	0.30
AUG 04...	43	4.1	22	0.9	4.9	116	33	18	0.30
SEP 14...	38	3.4	21	0.9	4.3	92	35	17	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 10...	7.5	420	12.0	0.020	12.0	0.080	2.3	2.4	5.30
FEB 16...	4.9	297	1.24	0.060	1.30	0.200	1.3	1.5	0.730
APR 06...	6.0	298	1.95	0.050	2.00	0.150	0.65	0.80	0.640
JUN 19...	8.1	178	0.380	0.020	0.400	0.050	0.25	0.30	0.100
AUG 04...	6.7	202	0.670	0.030	0.700	0.070	0.13	0.20	0.220
SEP 14...	6.1	180	0.950	0.050	1.00	0.080	0.72	0.80	0.270

08057055 TRINITY RIVER AT CEDAR CREST BOULEVARD, DALLAS, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	665	590	630	775	724	751	585	491	523	651	575	606
2	725	401	657	788	765	778	598	555	577	644	380	592
3	570	344	452	799	754	775	640	599	619	578	304	425
4	621	570	597	788	741	763	661	638	648	415	304	350
5	691	628	675	840	745	783	641	534	588	341	144	285
6	734	684	713	859	729	787	534	485	517	355	270	302
7	735	660	723	720	648	675	500	481	491	408	358	385
8	751	659	704	654	625	639	525	484	503	450	410	427
9	788	740	761	690	639	673	508	465	481	531	450	489
10	814	770	795	735	630	694	504	471	487	580	534	556
11	834	814	822	751	710	734	498	475	488	578	525	549
12	975	754	879	764	730	751	525	485	503	565	529	550
13	778	730	758	784	748	764	538	369	485	565	511	538
14	775	750	766	765	734	751	455	358	397	519	501	508
15	748	544	688	780	751	762	488	370	417	595	491	515
16	564	450	523	821	775	802	530	495	516	598	128	397
17	475	339	404	829	795	813	571	530	543	330	210	260
18	395	310	341	861	835	850	634	564	602	283	230	248
19	478	344	404	---	---	959	699	638	670	368	288	330
20	634	485	559	---	---	848	735	685	713	385	365	378
21	635	590	618	---	---	736	761	711	735	389	384	385
22	668	620	638	654	608	628	751	708	727	411	390	398
23	619	590	599	681	625	647	755	681	720	429	410	421
24	649	584	613	755	671	684	734	674	705	431	421	428
25	694	644	663	741	691	724	701	674	691	425	418	423
26	691	671	681	771	630	726	725	690	709	419	410	414
27	765	698	720	755	709	728	731	688	717	415	410	413
28	734	701	723	739	245	436	874	695	730	428	414	422
29	---	---	---	365	278	305	740	615	710	450	428	438
30	---	---	---	408	345	384	645	545	586	461	445	456
31	---	---	---	499	409	444	---	---	---	461	449	453
MONTH	975	310	647	861	245	703	874	358	593	651	128	430
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	478	395	430	---	---	345	355	344	351	774	635	705
2	414	311	393	---	---	326	380	344	352	809	755	783
3	394	341	372	---	---	320	399	328	351	798	774	783
4	395	320	362	---	---	324	360	348	351	781	761	773
5	358	314	331	---	---	331	349	340	345	770	754	764
6	410	349	373	---	---	344	345	231	319	758	734	746
7	389	279	332	---	---	360	355	288	335	760	695	733
8	330	261	276	---	---	369	395	319	347	755	704	735
9	380	281	313	---	---	371	348	334	341	779	758	765
10	361	334	347	---	---	375	361	348	355	769	730	752
11	419	350	361	---	---	374	369	350	361	735	254	558
12	394	320	342	---	---	374	385	365	379	484	360	412
13	325	284	306	---	---	373	404	384	392	444	225	346
14	---	---	290	---	---	374	395	381	388	358	311	328
15	---	---	276	---	---	368	414	384	402	458	354	416
16	---	---	264	---	---	356	415	404	408	584	470	541
17	---	---	264	---	---	360	418	291	390	645	581	620
18	---	---	279	---	---	368	408	314	341	698	610	666
19	---	---	300	---	---	372	371	341	362	730	668	702
20	---	---	314	---	---	369	391	374	384	751	724	738
21	---	---	318	---	---	360	401	381	391	770	734	752
22	---	---	328	---	---	358	411	390	402	768	751	757
23	---	---	335	---	---	365	419	408	413	769	721	751
24	---	---	341	---	---	368	431	411	420	760	704	744
25	---	---	355	---	---	364	438	421	429	765	734	749
26	---	---	360	---	---	361	445	421	432	765	710	743
27	---	---	359	365	351	359	450	430	439	764	734	749
28	---	---	351	361	351	358	451	430	440	778	730	751
29	---	---	347	355	345	351	455	424	441	794	774	783
30	---	---	348	351	338	346	479	431	451	800	771	786
31	---	---	---	351	341	346	635	478	542	---	---	---
MONTH	478	261	332	365	338	358	635	231	389	809	225	681

08057055 TRINITY RIVER AT CEDAR CREST BOULEVARD, DALLAS, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.8	7.6	7.7	---	---	---	---	---	---	---	---	---
2	7.6	7.5	7.6	---	---	---	---	---	---	---	---	---
3	7.6	7.5	7.6	---	---	---	7.9	7.8	7.9	---	---	---
4	7.6	7.5	7.6	---	---	---	8.0	7.8	7.9	---	---	---
5	7.7	7.5	7.6	---	---	---	8.2	7.9	8.0	---	---	---
6	7.8	7.7	7.8	---	---	---	8.1	8.0	8.0	---	---	---
7	7.7	7.5	7.7	---	---	---	8.1	8.0	8.0	---	---	---
8	7.7	7.2	7.6	---	---	---	8.1	8.0	8.1	---	---	---
9	7.7	7.5	7.6	---	---	---	8.2	8.1	8.1	---	---	---
10	7.9	7.4	7.8	---	---	---	8.2	8.1	8.2	---	---	---
11	8.2	7.5	8.0	---	---	---	8.1	8.1	8.1	---	---	---
12	8.2	8.1	8.2	8.0	7.8	7.9	8.1	8.0	8.1	---	---	---
13	8.1	8.0	8.0	8.0	7.8	7.9	8.1	8.0	8.1	---	---	---
14	8.0	7.9	8.0	7.9	7.8	7.9	8.1	8.0	8.1	---	---	---
15	8.1	8.0	8.0	8.0	7.8	7.9	8.1	8.0	8.0	---	---	---
16	8.1	8.0	8.0	7.8	7.6	7.7	8.1	8.0	8.0	---	---	---
17	8.1	8.0	8.0	---	---	---	8.0	7.9	8.0	---	---	---
18	8.0	8.0	8.0	---	---	---	---	---	---	---	---	---
19	8.0	7.7	7.9	---	---	---	---	---	---	7.7	7.5	7.6
20	---	---	---	---	---	---	---	---	---	7.7	7.5	7.6
21	---	---	---	---	---	---	---	---	---	7.7	7.6	7.6
22	---	---	---	---	---	---	7.7	7.3	7.6	7.7	7.6	7.7
23	---	---	---	---	---	---	7.7	7.5	7.6	7.8	7.7	7.7
24	---	---	---	---	---	---	7.5	7.4	7.5	7.8	7.5	7.7
25	---	---	---	---	---	---	---	---	---	7.8	7.4	7.5
26	---	---	---	---	---	---	---	---	---	7.8	7.6	7.7
27	---	---	---	---	---	---	---	---	---	8.0	7.9	7.9
28	---	---	---	---	---	---	---	---	---	8.1	7.7	7.9
29	---	---	---	---	---	---	---	---	---	8.1	8.0	8.1
30	---	---	---	---	---	---	---	---	---	8.1	7.9	8.0
31	---	---	---	---	---	---	---	---	---	8.2	7.8	8.0
MONTH	8.2	7.2	7.8	8.0	7.6	7.9	8.2	7.3	8.0	8.2	7.4	7.8
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.8	7.7	7.8	7.6	7.5	7.6	---	---	---	7.8	7.6	7.7
2	8.1	7.7	7.8	7.6	7.5	7.6	---	---	---	7.8	7.7	7.7
3	8.1	7.9	8.0	7.7	7.5	7.6	---	---	---	7.9	7.7	7.8
4	7.9	7.9	7.9	7.7	7.6	7.7	---	---	---	7.9	7.8	7.8
5	8.0	7.9	7.9	7.8	7.7	7.7	---	---	---	8.3	7.6	7.9
6	7.9	7.8	7.9	8.0	7.8	7.9	---	---	---	7.9	7.7	7.8
7	8.1	7.8	7.8	---	---	---	---	---	---	7.8	7.7	7.7
8	8.1	7.7	7.9	---	---	---	---	---	---	7.8	7.7	7.7
9	7.7	7.6	7.7	---	---	---	---	---	---	7.7	7.6	7.7
10	7.6	7.5	7.6	---	---	---	---	---	---	7.7	7.6	7.7
11	7.7	7.5	7.6	---	---	---	---	---	---	7.8	7.7	7.8
12	7.6	7.5	7.5	---	---	---	---	---	---	7.8	7.7	7.7
13	---	---	---	---	---	---	---	---	---	7.8	7.7	7.7
14	---	---	---	7.8	7.6	7.7	---	---	---	---	---	---
15	---	---	---	7.8	7.4	7.7	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	8.0	7.8	7.9	---	---	---	---	---	---	---	---	---
18	8.0	7.8	7.9	---	---	---	---	---	---	---	---	---
19	7.8	7.7	7.7	---	---	---	---	---	---	---	---	---
20	7.7	7.6	7.7	---	---	---	---	---	---	7.7	7.5	7.6
21	7.7	7.5	7.7	---	---	---	7.9	7.7	7.8	7.6	7.3	7.4
22	7.8	7.6	7.7	---	---	---	7.8	7.5	7.6	7.5	7.3	7.4
23	7.9	7.7	7.8	---	---	---	7.5	7.4	7.4	7.6	7.3	7.6
24	7.9	7.7	7.8	---	---	---	7.8	7.5	7.6	7.8	7.5	7.7
25	7.8	7.6	7.8	8.0	7.8	7.9	7.8	7.8	7.8	7.9	7.8	7.8
26	7.7	7.6	7.7	7.9	7.6	7.8	7.8	7.7	7.8	7.9	7.8	7.8
27	7.6	7.6	7.6	7.8	7.6	7.6	7.8	7.8	7.8	7.9	7.7	7.8
28	7.6	7.5	7.6	8.0	7.5	7.8	7.8	7.7	7.8	7.8	7.7	7.8
29	---	---	---	7.8	7.5	7.7	7.8	7.7	7.8	7.8	7.8	7.8
30	---	---	---	7.7	7.4	7.7	7.8	7.6	7.7	7.9	7.6	7.7
31	---	---	---	7.7	7.5	7.6	---	---	---	7.6	7.5	7.5
MONTH	8.1	7.5	7.8	8.0	7.4	7.7	7.9	7.4	7.7	8.3	7.3	7.7

08057055 TRINITY RIVER AT CEDAR CREST BOULEVARD, DALLAS, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.8	7.6	7.7	---	---	---	---	---	---	---	---	---
2	7.6	7.5	7.6	---	---	---	---	---	---	---	---	---
3	7.6	7.5	7.6	---	---	---	7.9	7.8	7.9	---	---	---
4	7.6	7.5	7.6	---	---	---	8.0	7.8	7.9	---	---	---
5	7.7	7.5	7.6	---	---	---	8.2	7.9	8.0	---	---	---
6	7.8	7.7	7.8	---	---	---	8.1	8.0	8.0	---	---	---
7	7.7	7.5	7.7	---	---	---	8.1	8.0	8.0	---	---	---
8	7.7	7.2	7.6	---	---	---	8.1	8.0	8.1	---	---	---
9	7.7	7.5	7.6	---	---	---	8.2	8.1	8.1	---	---	---
10	7.9	7.4	7.8	---	---	---	8.2	8.1	8.2	---	---	---
11	8.2	7.5	8.0	---	---	---	8.1	8.1	8.1	---	---	---
12	8.2	8.1	8.2	8.0	7.8	7.9	8.1	8.0	8.1	---	---	---
13	8.1	8.0	8.0	8.0	7.8	7.9	8.1	8.0	8.1	---	---	---
14	8.0	7.9	8.0	7.9	7.8	7.9	8.1	8.0	8.1	---	---	---
15	8.1	8.0	8.0	8.0	7.8	7.9	8.1	8.0	8.0	---	---	---
16	8.1	8.0	8.0	7.8	7.6	7.7	8.1	8.0	8.0	---	---	---
17	8.1	8.0	8.0	---	---	---	8.0	7.9	8.0	---	---	---
18	8.0	8.0	8.0	---	---	---	---	---	---	---	---	---
19	8.0	7.7	7.9	---	---	---	---	---	---	7.7	7.5	7.6
20	---	---	---	---	---	---	---	---	---	7.7	7.5	7.6
21	---	---	---	---	---	---	---	---	---	7.7	7.6	7.6
22	---	---	---	---	---	---	7.7	7.3	7.6	7.7	7.6	7.7
23	---	---	---	---	---	---	7.7	7.5	7.6	7.8	7.7	7.7
24	---	---	---	---	---	---	7.5	7.4	7.5	7.8	7.5	7.7
25	---	---	---	---	---	---	---	---	---	7.8	7.4	7.5
26	---	---	---	---	---	---	---	---	---	7.8	7.6	7.7
27	---	---	---	---	---	---	---	---	---	8.0	7.9	7.9
28	---	---	---	---	---	---	---	---	---	8.1	7.7	7.9
29	---	---	---	---	---	---	---	---	---	8.1	8.0	8.1
30	---	---	---	---	---	---	---	---	---	8.1	7.9	8.0
31	---	---	---	---	---	---	---	---	---	8.2	7.8	8.0
MONTH	8.2	7.2	7.8	8.0	7.6	7.9	8.2	7.3	8.0	8.2	7.4	7.8
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.8	7.7	7.8	7.6	7.5	7.6	---	---	---	7.8	7.6	7.7
2	8.1	7.7	7.8	7.6	7.5	7.6	---	---	---	7.8	7.7	7.7
3	8.1	7.9	8.0	7.7	7.5	7.6	---	---	---	7.9	7.7	7.8
4	7.9	7.9	7.9	7.7	7.6	7.7	---	---	---	7.9	7.8	7.8
5	8.0	7.9	7.9	7.8	7.7	7.7	---	---	---	8.3	7.6	7.9
6	7.9	7.8	7.9	8.0	7.8	7.9	---	---	---	7.9	7.7	7.8
7	8.1	7.8	7.8	---	---	---	---	---	---	7.8	7.7	7.7
8	8.1	7.7	7.9	---	---	---	---	---	---	7.8	7.7	7.7
9	7.7	7.6	7.7	---	---	---	---	---	---	7.7	7.6	7.7
10	7.6	7.5	7.6	---	---	---	---	---	---	7.7	7.6	7.7
11	7.7	7.5	7.6	---	---	---	---	---	---	7.8	7.7	7.8
12	7.6	7.5	7.5	---	---	---	---	---	---	7.8	7.7	7.7
13	---	---	---	---	---	---	---	---	---	7.8	7.7	7.7
14	---	---	---	7.8	7.6	7.7	---	---	---	---	---	---
15	---	---	---	7.8	7.4	7.7	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	8.0	7.8	7.9	---	---	---	---	---	---	---	---	---
18	8.0	7.8	7.9	---	---	---	---	---	---	---	---	---
19	7.8	7.7	7.7	---	---	---	---	---	---	---	---	---
20	7.7	7.6	7.7	---	---	---	---	---	---	7.7	7.5	7.6
21	7.7	7.5	7.7	---	---	---	7.9	7.7	7.8	7.6	7.3	7.4
22	7.8	7.6	7.7	---	---	---	7.8	7.5	7.6	7.5	7.3	7.4
23	7.9	7.7	7.8	---	---	---	7.5	7.4	7.4	7.6	7.3	7.6
24	7.9	7.7	7.8	---	---	---	7.8	7.5	7.6	7.8	7.5	7.7
25	7.8	7.6	7.8	8.0	7.8	7.9	7.8	7.8	7.8	7.9	7.8	7.8
26	7.7	7.6	7.7	7.9	7.6	7.8	7.8	7.7	7.8	7.9	7.8	7.8
27	7.6	7.6	7.6	7.8	7.6	7.6	7.8	7.8	7.8	7.9	7.7	7.8
28	7.6	7.5	7.6	8.0	7.5	7.8	7.8	7.7	7.8	7.8	7.7	7.8
29	---	---	---	7.8	7.5	7.7	7.8	7.7	7.8	7.8	7.8	7.8
30	---	---	---	7.7	7.4	7.7	7.8	7.6	7.7	7.9	7.6	7.7
31	---	---	---	7.7	7.5	7.6	---	---	---	7.6	7.5	7.5
MONTH	8.1	7.5	7.8	8.0	7.4	7.7	7.9	7.4	7.7	8.3	7.3	7.7

08057055 TRINITY RIVER AT CEDAR CREST BOULEVARD, DALLAS, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.8	7.5	7.6	---	---	---	8.3	8.2	8.2	8.0	7.7	7.9
2	8.0	7.8	7.9	---	---	---	8.3	8.2	8.3	7.8	7.7	7.8
3	7.9	7.8	7.9	---	---	---	7.9	7.5	7.6	8.1	7.9	8.0
4	7.9	7.8	7.8	---	---	---	7.9	7.6	7.8	8.0	7.8	7.9
5	7.8	7.7	7.7	---	---	---	8.0	7.9	7.9	7.8	7.7	7.8
6	7.8	7.7	7.8	---	---	---	8.1	7.8	8.0	7.9	7.5	7.8
7	7.8	7.7	7.8	---	---	---	8.1	7.8	7.9	7.8	7.6	7.7
8	7.9	7.8	7.8	---	---	---	8.1	7.8	8.0	7.7	7.4	7.6
9	7.8	7.7	7.8	---	---	---	8.1	8.0	8.0	7.7	7.4	7.6
10	7.9	7.7	7.8	---	---	---	8.1	7.9	8.0	7.7	7.5	7.6
11	7.8	7.7	7.8	---	---	---	---	---	---	7.9	7.6	7.7
12	7.8	7.7	7.8	---	---	---	---	---	---	7.9	7.6	7.8
13	7.8	7.7	7.8	---	---	---	---	---	---	8.0	7.6	7.8
14	---	---	---	---	---	---	---	---	---	7.9	7.7	7.8
15	---	---	---	---	---	---	---	---	---	7.7	7.7	7.7
16	---	---	---	---	---	---	7.9	7.8	7.8	7.7	7.6	7.6
17	---	---	---	---	---	---	7.9	7.7	7.9	7.6	7.4	7.5
18	---	---	---	---	---	---	7.8	7.6	7.7	7.5	7.4	7.4
19	---	---	---	---	---	---	7.9	7.6	7.7	7.4	7.3	7.4
20	---	---	---	---	---	---	8.0	7.9	8.0	7.4	7.3	7.3
21	---	---	---	---	---	---	8.0	7.9	8.0	7.5	7.2	7.3
22	---	---	---	---	---	---	8.0	8.0	8.0	7.6	7.4	7.5
23	---	---	---	---	---	---	8.0	8.0	8.0	7.6	7.3	7.5
24	---	---	---	---	---	---	8.0	8.0	8.0	7.4	7.1	7.2
25	---	---	---	---	---	---	8.0	8.0	8.0	7.3	7.1	7.2
26	---	---	---	---	---	---	8.1	7.9	8.0	7.4	7.2	7.3
27	---	---	---	---	---	---	8.1	7.9	8.0	7.4	7.2	7.4
28	---	---	---	8.3	7.9	8.1	8.1	8.0	8.0	7.4	7.1	7.2
29	---	---	---	8.3	8.1	8.2	8.0	7.7	7.9	7.2	7.1	7.1
30	---	---	---	8.3	8.2	8.2	8.0	7.5	7.8	7.5	7.1	7.2
31	---	---	---	8.3	8.2	8.2	8.0	7.9	7.9	---	---	---
MONTH	8.0	7.5	7.8	8.3	7.9	8.2	8.3	7.5	7.9	8.1	7.1	7.6

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	22.5	21.0	21.5	20.5	18.5	19.5	17.0	14.5	15.5	14.5	9.0	12.5
2	22.5	20.0	21.5	21.0	19.5	20.5	17.5	15.0	16.0	16.5	9.0	12.5
3	23.5	22.0	22.5	22.5	20.0	21.0	17.0	15.5	16.5	17.5	14.0	16.5
4	24.0	22.0	23.0	22.5	21.0	21.5	17.0	15.5	16.0	16.0	13.0	15.5
5	24.0	22.5	23.0	21.5	20.0	21.0	17.0	14.5	16.0	17.5	15.5	16.5
6	23.5	21.5	22.5	21.0	19.0	20.0	17.5	15.5	16.5	17.5	15.5	17.0
7	24.0	22.5	23.0	22.0	19.0	20.5	17.5	16.0	16.5	18.5	17.0	17.5
8	23.0	22.0	22.5	22.0	19.5	20.5	17.0	14.0	15.0	16.5	14.0	15.5
9	23.5	22.0	22.5	23.0	21.0	22.0	14.0	13.0	14.0	15.0	13.5	14.0
10	24.0	21.5	22.5	22.5	20.5	21.5	13.5	11.5	12.5	14.5	11.0	13.5
11	24.0	22.0	23.0	20.5	19.5	20.0	12.0	11.0	11.5	14.5	11.0	12.5
12	23.5	21.0	22.5	21.0	19.0	20.0	12.0	10.5	11.0	15.0	11.0	13.0
13	23.0	21.0	22.0	20.0	18.5	19.5	14.0	12.0	13.0	13.0	9.5	10.5
14	23.5	21.0	22.0	22.0	19.5	20.5	14.5	13.5	14.0	11.5	10.0	11.0
15	24.5	21.5	23.0	22.5	20.5	21.5	15.0	13.0	14.5	12.5	9.5	11.5
16	25.5	22.5	24.0	20.5	18.0	19.0	14.0	12.5	13.0	13.0	10.5	11.5
17	26.0	24.0	25.0	18.5	17.0	18.0	14.5	12.5	13.5	14.0	12.0	13.0
18	26.0	24.0	25.0	18.5	17.5	18.0	14.5	12.5	13.5	16.0	13.5	14.5
19	24.5	23.0	23.5	19.0	14.5	17.5	15.5	13.0	14.5	16.0	15.0	16.0
20	24.5	22.0	23.0	15.5	14.5	15.0	17.0	15.5	16.0	16.0	14.0	15.5
21	24.0	22.5	23.5	15.5	14.0	15.0	17.0	14.5	16.0	15.0	13.0	14.0
22	24.0	22.0	23.0	16.0	14.5	15.0	17.5	15.5	17.0	14.5	13.0	14.0
23	24.0	22.5	23.5	17.0	15.0	16.0	15.5	14.5	15.0	15.0	13.0	14.0
24	23.5	21.0	22.5	17.5	15.5	16.5	15.5	13.0	15.0	16.5	14.0	15.5
25	24.0	21.5	23.0	20.0	17.5	19.0	14.5	11.5	13.5	17.5	15.5	16.5
26	23.5	22.0	22.5	20.0	18.0	19.0	16.5	14.0	15.5	16.0	13.0	14.0
27	23.0	21.5	22.0	18.0	16.5	17.5	17.0	12.5	16.0	13.0	12.0	12.5
28	23.0	20.0	21.0	16.5	15.0	16.0	13.0	11.5	12.0	12.5	10.5	11.5
29	20.0	18.0	19.0	16.5	14.5	15.5	12.0	10.5	11.0	10.5	9.5	10.5
30	20.0	19.0	19.5	16.5	15.0	15.5	13.0	11.0	12.0	13.0	6.0	11.0
31	19.5	18.5	19.0	---	---	---	14.5	11.0	13.0	14.5	11.0	12.5
MONTH	26.0	18.0	22.5	23.0	14.0	18.5	17.5	10.5	14.5	18.5	6.0	13.5

08057055 TRINITY RIVER AT CEDAR CREST BOULEVARD, DALLAS, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.2	6.0	6.4	7.2	7.0	7.1	---	---	---	8.7	8.3	8.6
2	7.2	6.4	6.9	7.1	6.8	7.0	---	---	---	8.5	8.3	8.5
3	7.0	6.6	6.9	6.9	6.7	6.9	---	---	---	8.6	6.9	8.1
4	7.2	6.8	7.1	6.7	6.2	6.6	---	---	---	8.8	7.1	8.3
5	7.2	7.0	7.1	7.0	6.1	6.7	---	---	---	8.6	8.2	8.5
6	7.2	7.2	7.2	7.1	6.6	6.9	---	---	---	8.5	8.1	8.2
7	7.4	7.0	7.2	7.1	6.8	7.0	8.4	7.5	8.1	8.1	7.4	7.8
8	7.2	6.8	7.1	7.2	7.0	7.0	8.5	8.1	8.3	8.2	7.8	8.0
9	7.2	6.6	6.9	7.1	6.6	6.9	9.4	8.4	8.7	8.7	8.1	8.5
10	7.4	7.0	7.2	7.4	6.6	7.1	9.4	8.6	9.1	8.9	7.8	8.6
11	7.6	7.0	7.3	7.4	7.0	7.2	9.4	9.1	9.2	---	---	---
12	7.8	7.2	7.5	7.2	5.6	6.7	9.3	9.0	9.2	---	---	---
13	8.0	7.4	7.6	7.0	6.6	6.8	9.3	9.0	9.2	---	---	---
14	7.8	7.4	7.6	7.0	6.7	6.9	9.0	8.7	8.8	---	---	---
15	7.8	7.2	7.5	6.9	5.8	6.6	8.7	8.3	8.5	---	---	---
16	7.6	7.2	7.4	6.6	5.6	6.0	8.9	8.4	8.7	---	---	---
17	---	---	---	7.0	6.7	6.8	8.8	8.7	8.8	---	---	---
18	7.2	6.8	7.0	6.7	5.7	6.4	8.9	8.5	8.8	---	---	---
19	7.2	6.8	7.0	7.3	6.2	6.7	8.8	8.6	8.7	8.6	8.1	8.4
20	7.5	7.0	7.2	---	---	---	8.5	8.0	8.2	8.8	8.0	8.4
21	7.4	6.9	7.1	---	---	---	8.1	7.7	8.0	9.2	8.7	8.9
22	7.4	6.9	7.2	---	---	---	7.8	7.0	7.5	9.5	9.0	9.2
23	7.1	6.9	7.0	---	---	---	7.6	7.0	7.3	9.7	9.4	9.5
24	7.3	6.9	7.1	---	---	---	8.2	7.4	7.8	9.5	8.9	9.2
25	7.3	7.0	7.1	---	---	---	8.3	8.0	8.1	9.2	7.9	8.6
26	6.9	6.2	6.5	---	---	---	8.3	7.9	8.1	9.1	6.8	8.0
27	6.8	6.2	6.5	---	---	---	8.6	7.5	7.8	9.2	8.0	8.7
28	6.6	4.8	5.6	---	---	---	8.8	8.3	8.6	10.8	9.3	10.0
29	7.5	6.0	6.7	---	---	---	9.1	8.8	9.0	9.9	9.2	9.5
30	6.7	6.5	6.6	---	---	---	9.2	8.9	9.0	10.1	9.5	9.8
31	7.1	6.7	6.9	---	---	---	9.0	8.5	8.7	10.3	9.1	9.8
MONTH	8.0	4.8	7.0	7.4	5.6	6.8	9.4	7.0	8.5	10.8	6.8	8.7
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	9.7	9.4	9.6	10.1	9.8	9.9	---	---	---	---	---	---
2	11.8	9.2	9.6	9.9	9.6	9.7	---	---	---	---	---	---
3	12.3	11.2	11.9	9.6	9.0	9.3	---	---	---	---	---	---
4	12.2	11.6	11.9	10.0	9.1	9.4	---	---	---	---	---	---
5	12.1	11.9	12.0	---	---	---	---	---	---	---	---	---
6	12.1	11.9	12.0	---	---	---	---	---	---	---	---	---
7	13.6	11.7	11.9	---	---	---	8.5	8.2	8.4	---	---	---
8	13.7	11.7	12.7	---	---	---	8.4	7.9	8.2	---	---	---
9	11.5	11.2	11.4	---	---	---	8.6	8.4	8.5	---	---	---
10	11.4	11.0	11.2	---	---	---	9.1	7.5	8.4	---	---	---
11	---	---	---	---	---	---	9.1	8.8	9.0	---	---	---
12	---	---	---	---	---	---	8.5	5.8	7.2	---	---	---
13	---	---	---	---	---	---	9.1	8.3	8.6	7.1	5.7	6.6
14	---	---	---	9.2	8.3	8.8	8.9	7.6	8.2	---	---	---
15	---	---	---	9.3	8.4	8.9	8.1	6.3	7.8	---	---	---
16	---	---	---	8.9	8.4	8.6	---	---	---	---	---	---
17	12.5	11.8	12.1	9.0	7.9	8.5	---	---	---	---	---	---
18	11.6	11.4	11.5	---	---	---	---	---	---	---	---	---
19	11.4	10.9	11.1	---	---	---	---	---	---	---	---	---
20	11.1	10.6	10.8	---	---	---	8.0	6.8	7.4	4.4	3.7	4.0
21	10.7	10.3	10.5	10.6	8.9	9.7	8.1	7.4	7.7	4.4	2.5	3.8
22	11.1	10.4	10.8	10.1	9.6	10.0	8.1	7.2	7.6	4.5	3.8	4.3
23	11.6	11.0	11.4	9.8	9.6	9.8	---	---	---	5.2	4.5	4.8
24	11.4	11.1	11.3	9.8	9.0	9.3	---	---	---	5.7	5.0	5.4
25	11.1	10.7	10.9	9.1	8.2	8.7	---	---	---	5.8	5.4	5.7
26	10.7	10.1	10.3	8.7	7.6	8.4	---	---	---	5.8	4.0	5.1
27	10.0	9.6	9.8	8.7	7.6	8.2	---	---	---	5.9	5.4	5.8
28	10.1	9.8	9.9	---	---	---	---	---	---	5.8	4.3	5.4
29	---	---	---	---	---	---	---	---	---	5.4	5.2	5.3
30	---	---	---	---	---	---	---	---	---	5.8	5.3	5.5
31	---	---	---	---	---	---	---	---	---	6.0	5.5	5.8
MONTH	13.7	9.2	11.1	10.6	7.6	9.1	9.1	5.8	8.1	7.1	2.5	5.2

08057055 TRINITY RIVER AT CEDAR CREST BOULEVARD, DALLAS, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	6.3	5.9	6.1	---	---	---	7.5	7.3	7.5	5.9	5.5	5.7
2	6.4	5.9	6.2	---	---	---	7.4	7.0	7.3	6.1	5.4	5.8
3	6.4	5.8	6.2	---	---	---	7.2	6.9	7.1	6.4	5.2	5.8
4	6.8	5.2	6.0	---	---	---	7.7	7.1	7.4	6.2	5.5	5.8
5	5.4	5.0	5.2	---	---	---	7.7	7.4	7.5	6.7	5.5	6.1
6	6.0	4.4	5.6	---	---	---	7.7	6.5	7.4	7.1	6.0	6.6
7	---	---	---	---	---	---	6.8	6.3	6.6	6.9	6.2	6.6
8	---	---	---	---	---	---	7.0	5.4	6.2	6.9	5.7	6.4
9	---	---	---	---	---	---	7.6	7.0	7.3	6.7	6.2	6.5
10	---	---	---	---	---	---	7.7	7.5	7.5	6.6	6.0	6.3
11	---	---	---	---	---	---	7.8	7.5	7.6	6.6	4.3	5.6
12	---	---	---	---	---	---	7.8	7.6	7.6	6.3	2.8	4.7
13	---	---	---	---	---	---	7.6	7.4	7.5	7.2	4.8	6.0
14	---	---	---	---	---	---	7.4	7.4	7.4	6.4	5.9	6.1
15	---	---	---	---	---	---	7.4	7.3	7.4	6.9	6.2	6.5
16	---	---	---	---	---	---	7.4	7.2	7.3	6.9	6.7	6.8
17	---	---	---	---	---	---	7.4	6.1	7.0	6.8	6.7	6.7
18	---	---	---	---	---	---	6.7	5.8	6.2	6.8	6.7	6.8
19	---	---	---	---	---	---	7.2	6.3	6.9	6.8	6.7	6.7
20	---	---	---	---	---	---	7.5	7.1	7.3	6.9	6.7	6.8
21	---	---	---	---	---	---	7.6	7.2	7.4	6.8	6.7	6.8
22	---	---	---	---	---	---	7.7	7.2	7.4	7.0	6.7	6.9
23	---	---	---	---	---	---	7.5	7.1	7.3	7.4	6.8	7.1
24	---	---	---	---	---	---	7.4	7.0	7.2	7.4	7.1	7.2
25	---	---	---	---	---	---	7.4	7.0	7.2	7.3	7.0	7.2
26	---	---	---	---	---	---	7.4	7.1	7.2	7.5	7.0	7.3
27	---	---	---	7.7	7.6	7.6	7.5	7.0	7.2	7.6	7.1	7.3
28	---	---	---	7.7	7.6	7.6	7.4	6.9	7.0	7.5	7.0	7.2
29	---	---	---	7.7	7.5	7.6	7.4	6.8	7.0	7.1	6.8	7.0
30	---	---	---	7.7	7.5	7.6	7.0	6.5	6.8	7.2	6.7	7.0
31	---	---	---	7.6	7.5	7.6	6.5	5.7	6.2	---	---	---
MONTH	6.8	4.4	5.9	7.7	7.5	7.6	7.8	5.4	7.2	7.6	2.8	6.5

08057055 TRINITY RIVER AT CEDAR CREST BOULEVARD, DALLAS, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	6.3	5.9	6.1	---	---	---	7.5	7.3	7.5	5.9	5.5	5.7
2	6.4	5.9	6.2	---	---	---	7.4	7.0	7.3	6.1	5.4	5.8
3	6.4	5.8	6.2	---	---	---	7.2	6.9	7.1	6.4	5.2	5.8
4	6.8	5.2	6.0	---	---	---	7.7	7.1	7.4	6.2	5.5	5.8
5	5.4	5.0	5.2	---	---	---	7.7	7.4	7.5	6.7	5.5	6.1
6	6.0	4.4	5.6	---	---	---	7.7	6.5	7.4	7.1	6.0	6.6
7	---	---	---	---	---	---	6.8	6.3	6.6	6.9	6.2	6.6
8	---	---	---	---	---	---	7.0	5.4	6.2	6.9	5.7	6.4
9	---	---	---	---	---	---	7.6	7.0	7.3	6.7	6.2	6.5
10	---	---	---	---	---	---	7.7	7.5	7.5	6.6	6.0	6.3
11	---	---	---	---	---	---	7.8	7.5	7.6	6.6	4.3	5.6
12	---	---	---	---	---	---	7.8	7.6	7.6	6.3	2.8	4.7
13	---	---	---	---	---	---	7.6	7.4	7.5	7.2	4.8	6.0
14	---	---	---	---	---	---	7.4	7.4	7.4	6.4	5.9	6.1
15	---	---	---	---	---	---	7.4	7.3	7.4	6.9	6.2	6.5
16	---	---	---	---	---	---	7.4	7.2	7.3	6.9	6.7	6.8
17	---	---	---	---	---	---	7.4	6.1	7.0	6.8	6.7	6.7
18	---	---	---	---	---	---	6.7	5.8	6.2	6.8	6.7	6.8
19	---	---	---	---	---	---	7.2	6.3	6.9	6.8	6.7	6.7
20	---	---	---	---	---	---	7.5	7.1	7.3	6.9	6.7	6.8
21	---	---	---	---	---	---	7.6	7.2	7.4	6.8	6.7	6.8
22	---	---	---	---	---	---	7.7	7.2	7.4	7.0	6.7	6.9
23	---	---	---	---	---	---	7.5	7.1	7.3	7.4	6.8	7.1
24	---	---	---	---	---	---	7.4	7.0	7.2	7.4	7.1	7.2
25	---	---	---	---	---	---	7.4	7.0	7.2	7.3	7.0	7.2
26	---	---	---	---	---	---	7.4	7.1	7.2	7.5	7.0	7.3
27	---	---	---	7.7	7.6	7.6	7.5	7.0	7.2	7.6	7.1	7.3
28	---	---	---	7.7	7.6	7.6	7.4	6.9	7.0	7.5	7.0	7.2
29	---	---	---	7.7	7.5	7.6	7.4	6.8	7.0	7.1	6.8	7.0
30	---	---	---	7.7	7.5	7.6	7.0	6.5	6.8	7.2	6.7	7.0
31	---	---	---	7.6	7.5	7.6	6.5	5.7	6.2	---	---	---
MONTH	6.8	4.4	5.9	7.7	7.5	7.6	7.8	5.4	7.2	7.6	2.8	6.5

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.--24 years (water years 1962-80, 85-89), 64.6 ft³/s (13.21 in/yr), 46,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,100 ft³/s Sept. 21, 1964 (elevation, 490.43 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 Sept. 21, 1964.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base discharge of 2,900 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 28	1245	5,320	484.50	June 4	0900	16,100	487.74
Feb. 2	1930	3,330	483.05	June 7	0900	21,000	488.50
Feb. 17	1245	4,010	483.66	June 13	2000	19,700	488.27
Mar. 28	0945	16,800	488.05	July 2	2300	6,510	484.78
May 5	0130	4,820	484.21	July 15	0245	4,160	483.45
May 16	2315	20,200	488.67	Sept 11	1000	5,560	484.31
May 17	0730	*28,600	*489.68	Sept 13	0845	13,000	486.69

Minimum daily discharge, 5.2 ft³/s Aug. 29.

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	72	23	16	27	48	45	66	41	e6.50	34	13	6.3
2	58	16	16	23	428	42	55	25	e221	691	86	5.7
3	32	15	16	23	137	43	49	376	377	534	69	6.0
4	28	14	15	20	69	105	39	110	4660	80	24	6.6
5	24	12	14	19	56	e222	33	656	188	63	15	6.1
6	17	12	14	19	57	e128	31	48	e140	52	107	5.3
7	16	12	89	19	58	e79	27	77	6670	286	263	6.7
8	51	14	34	17	55	e55	22	32	357	102	54	5.4
9	35	14	61	17	49	e52	21	24	191	58	31	5.7
10	22	12	172	16	45	e50	19	19	161	46	24	8.3
11	19	10	116	15	43	e49	16	16	164	38	21	685
12	16	182	45	76	114	e46	17	16	890	35	19	49
13	14	31	32	71	79	e44	396	31	7120	68	17	1650
14	15	19	27	47	58	e42	161	17	1530	50	16	75
15	7.4	133	22	24	216	e40	47	14	243	540	51	43
16	14	75	24	20	374	e37	36	1880	e183	59	24	35
17	12	24	19	19	1750	e36	30	10300	e137	43	78	30
18	11	22	17	19	245	e35	24	e82	e107	34	35	26
19	13	137	19	19	130	e33	21	e37	e91	28	19	19
20	13	52	18	17	113	e31	18	e29	e78	23	14	18
21	15	25	16	17	93	e63	15	e25	e68	20	12	16
22	12	20	158	20	78	e31	13	e21	57	18	9.2	15
23	15	19	45	19	69	e30	12	e18	e53	16	11	13
24	13	18	19	15	63	34	11	e14	e52	28	8.1	12
25	11	74	17	220	59	32	9.1	e12	e52	42	8.0	15
26	63	81	16	249	56	60	8.3	e11	e51	60	8.3	12
27	21	28	165	63	54	38	8.3	e9.4	49	38	6.3	9.0
28	20	21	72	1170	49	5030	8.3	e8.3	38	25	6.0	11
29	83	18	33	122	---	306	10	e7.3	34	20	5.2	10
30	28	18	29	70	---	121	8.2	e7.0	36	15	6.0	13
31	66	---	57	55	---	83	---	e7.0	---	13	7.4	---
TOTAL	836.4	1151	1413	2547	4645	7042	1231.2	13970.0	24004.50	3159	1067.5	2818.1
MEAN	27.0	38.4	45.6	82.2	166	227	41.0	451	800	102	34.4	93.9
MAX	83	182	172	1170	1750	5030	396	10300	7120	691	263	1650
MIN	7.4	10	14	15	43	30	8.2	7.0	6.5	13	5.2	5.3
AC-FT	1660	2280	2800	5050	9210	13970	2440	27710	47610	6270	2120	5590
CFSM	.41	.58	.69	1.24	2.50	3.42	.62	6.79	12.1	1.53	.52	1.41
IN.	.47	.64	.79	1.43	2.60	3.95	.69	7.83	13.45	1.77	.60	1.58

CAL YR 1988 TOTAL 18919.6 MEAN 51.7 MAX 3320 MIN 3.5 AC-FT 37530 CFSM .78 IN. 10.60
WTR YR 1989 TOTAL 63884.70 MEAN 175 MAX 10300 MIN 5.2 AC-FT 126700 CFSM 2.64 IN. 35.79

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.--No estimated daily discharges. Records good, except those for July 1 to Sept. 15, 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 with the Fort Worth-Dallas metroplex divert water for municipal use and return it to the river as sewage effluents above this station. Low flows are sustained by sewage effluents.

AVERAGE DISCHARGE.--32 years (water years 1958-89), 1,896 ft³/s (1,374,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65,700 ft³/s May 27, 1957 (gage height, 32.02 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, 63,800 ft³/s May 18 at 0900 hours (gage height, 31.66 ft); minimum daily, 511 ft³/s Oct. 23.

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	2660	744	563	740	1080	943	6520	1330	4210	10900	4270	782
2	1740	656	558	669	1020	904	2830	1310	5070	11600	4520	681
3	1120	593	586	659	2420	904	1670	3630	7580	15200	5210	660
4	766	564	561	633	1590	984	1400	6860	9930	16000	5040	647
5	673	552	551	593	1010	1140	1640	12600	15100	13300	4810	672
6	635	537	576	582	871	1340	1950	18700	14500	11200	4910	680
7	604	546	598	574	893	1550	2140	17400	14000	10900	6400	694
8	618	535	824	571	1250	1430	2190	12500	22100	11800	7090	650
9	621	535	818	570	810	1250	2140	7320	23900	12400	5330	740
10	597	520	1050	567	747	1180	2110	4050	19600	12700	3920	717
11	589	518	2060	560	728	975	2080	2560	16500	12300	3590	1530
12	566	732	1620	665	787	919	1980	2300	16200	11300	3300	3010
13	561	918	884	1080	1060	885	2040	2380	22900	10600	2710	3200
14	514	666	726	1040	995	882	6080	2620	44800	9860	2430	4990
15	525	766	675	806	1170	883	5630	2460	47600	10000	2310	2120
16	513	1450	631	684	3390	787	2530	5020	39300	9970	2230	1120
17	520	855	584	609	6630	757	1780	27100	31700	8810	2620	907
18	533	625	571	595	13700	693	1530	61500	26600	8010	4640	835
19	523	1030	577	586	12300	676	1220	51300	22700	7340	2830	797
20	526	1820	567	576	5790	686	1040	30600	19400	6240	2280	745
21	532	992	606	583	2390	1240	997	22600	17100	6930	2150	711
22	515	663	761	554	1860	1690	951	18800	15200	6650	2060	713
23	511	607	1270	580	1940	1190	937	16500	13000	6340	1890	661
24	518	575	993	604	1750	1020	954	13600	10600	6090	1810	672
25	525	600	677	654	1320	822	952	11600	9280	5800	1780	637
26	577	905	575	3590	1180	808	946	10200	7930	5640	1710	632
27	819	827	746	3360	1090	829	925	9560	7170	5510	1610	577
28	1050	650	1680	3140	1040	4930	887	8890	8540	6450	1560	558
29	999	604	1330	7500	---	15600	1090	7140	9250	4970	1570	569
30	1200	572	784	4800	---	17300	1250	4660	9980	4420	1490	590
31	892	---	777	1960	---	12800	---	3770	---	4280	1110	---
TOTAL	23542	22157	25779	40684	70811	77997	60389	400860	531740	283510	99180	32497
MEAN	759	739	832	1312	2529	2516	2013	12930	17720	9145	3199	1083
MAX	2660	1820	2060	7500	13700	17300	6520	61500	47600	16000	7090	4990
MIN	511	518	551	554	728	676	887	1310	4210	4280	1110	558
AC-FT	46700	43950	51130	80700	140500	154700	119800	795100	1055000	562300	196700	64460

CAL YR 1988 TOTAL 310239 MEAN 848 MAX 7640 MIN 500 AC-FT 615400
WTR YR 1989 TOTAL 1669146 MEAN 4573 MAX 61500 MIN 511 AC-FT 3311000

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.--Beginning 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, 12.6 mg/L Feb. 8, 1989; minimum, 0.0 mg/L on many days during spring and summer of 1977-81.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 810 microsiemens Jan. 12; minimum, 216 microsiemens Mar. 28.
pH: Maximum, 7.9 units Jan. 28, Mar. 28, May 12, 13; minimum, 7.0 units on several days in October and September.
WATER TEMPERATURE: Maximum, 32.0°C Sept. 4, 8; minimum, 7.0°C Feb. 8.
DISSOLVED OXYGEN: Maximum, 12.6 mg/L Feb. 8; minimum, 4.9 Oct. 28, Sept. 11.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
NOV 09...	1425	535	748	7.20	23.0	6.5	77	--	140
FEB 15...	1325	925	688	7.50	14.0	8.3	81	3.1	170
APR 05...	1530	1730	612	7.60	20.0	8.5	93	2.6	190
JUN 19...	1500	22200	333	7.80	26.0	5.8	72	2.4	130
AUG 03...	1550	5200	348	7.70	26.5	7.2	91	1.8	120
SEP 15...	1320	2300	416	7.40	22.0	6.1	70	3.2	130

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 WH TOT FET 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 09...	46	6.1	92	3	11	108	82	80	1.2
FEB 15...	60	5.6	67	2	9.3	125	90	60	0.90
APR 05...	66	6.7	49	2	7.4	143	88	45	0.50
JUN 19...	43	4.8	15	0.6	5.0	115	23	17	0.30
AUG 03...	42	3.9	23	0.9	5.1	107	33	18	0.30
SEP 15...	47	3.4	30	1	6.5	102	50	26	0.50

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...	8.2	391	9.11	0.090	9.20	0.440	3.8	4.2	4.80
FEB 15...	7.1	375	6.82	0.080	6.90	0.220	1.4	1.6	2.70
APR 05...	7.1	355	3.91	0.090	4.00	0.260	0.44	0.70	1.40
JUN 19...	8.2	185	0.460	0.040	0.500	0.070	0.43	0.50	0.140
AUG 03...	6.5	196	0.970	0.030	1.00	0.040	0.56	0.60	0.330
SEP 15...	7.1	232	2.37	0.030	2.40	0.100	0.70	0.80	0.790

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	23542	613	351	22300	50	3200	79	5010	160
NOV.	1988	22157	622	356	21300	51	3040	80	4770	160
DEC.	1988	25779	618	354	24700	50	3510	79	5510	160
JAN.	1989	40684	525	301	33100	41	4540	66	7260	150
FEB.	1989	70811	486	280	53500	37	7030	60	11500	150
MAR.	1989	77997	482	277	58300	37	7740	60	12600	150
APR.	1989	60389	539	309	50400	42	6810	67	11000	160
MAY	1989	400860	339	196	212000	23	24500	39	42700	130
JUNE	1989	531740	320	185	266000	21	29800	37	52800	120
JULY	1989	283510	354	204	156000	24	18000	41	31500	130
AUG.	1989	99180	382	220	59000	26	6990	45	12000	140
SEPT	1989	32497	558	320	28100	45	3920	71	6220	150
TOTAL		1669146	**	**	985000	**	119000	**	203000	**
WTD.AVG.		4573	379	219	**	26	**	45	**	130

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	424	346	378	600	546	563	738	708	721	652	632	644
2	450	374	409	662	604	643	756	730	743	690	636	660
3	522	458	495	710	664	680	784	734	763	698	668	683
4	616	520	561	---	---	697	728	694	705	728	684	701
5	660	616	637	---	---	707	752	698	721	758	716	736
6	710	666	691	---	---	717	752	712	733	770	740	755
7	752	706	731	---	---	726	750	696	727	786	748	766
8	780	690	745	---	---	735	738	650	695	790	768	777
9	710	678	698	---	---	742	696	652	668	798	752	769
10	702	670	686	742	712	730	710	504	624	794	770	783
11	734	690	711	770	718	747	534	428	494	794	752	771
12	740	710	725	796	590	731	502	450	473	810	562	742
13	742	706	722	602	504	563	610	496	557	730	558	633
14	756	724	744	662	606	636	652	610	631	674	616	637
15	786	736	760	726	406	650	686	650	672	650	610	633
16	808	728	754	556	432	495	732	672	697	668	612	630
17	770	706	742	636	546	587	756	730	743	726	676	695
18	768	720	743	690	624	654	742	714	729	744	692	723
19	772	728	750	696	450	600	750	708	717	774	726	751
20	754	714	739	508	366	452	754	638	714	762	728	746
21	776	730	750	570	440	502	760	720	736	760	720	741
22	760	704	737	606	568	585	748	480	673	790	752	769
23	758	708	730	680	588	653	678	532	582	764	736	750
24	748	690	724	706	670	693	636	590	608	780	740	752
25	758	708	730	716	550	694	650	602	623	774	466	743
26	780	724	748	624	522	576	616	588	602	630	348	444
27	770	720	736	642	598	625	652	580	616	476	368	417
28	764	462	559	660	630	642	586	456	512	512	236	385
29	572	404	513	700	642	686	522	490	502	384	302	335
30	588	416	506	712	688	702	592	504	548	500	352	396
31	572	534	549	---	---	---	618	576	601	594	548	576
MONTH	808	346	668	796	366	647	784	428	649	810	236	663

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	632	580	601	718	692	707	514	436	468	---	---	581
2	688	512	639	740	720	729	---	---	577	---	---	562
3	586	356	432	738	714	725	---	---	655	---	---	463
4	566	484	528	732	668	711	---	---	668	374	292	323
5	624	566	598	716	662	683	666	582	634	---	---	285
6	624	614	617	788	708	741	578	542	564	---	---	295
7	626	618	621	758	630	671	538	524	532	---	---	373
8	684	634	654	634	596	610	554	522	536	---	---	408
9	700	668	680	654	612	636	---	---	517	---	---	460
10	730	694	711	702	614	654	---	---	518	---	---	520
11	758	712	736	706	680	694	---	---	518	---	---	515
12	766	664	735	714	694	703	---	---	531	---	---	515
13	702	642	664	728	702	711	---	---	518	---	---	518
14	690	654	676	724	698	711	446	356	395	---	---	475
15	696	516	649	724	704	714	---	---	417	---	---	482
16	566	450	527	762	712	736	---	---	516	---	---	381
17	448	320	390	766	746	755	---	---	543	---	---	260
18	386	330	359	786	758	768	---	---	602	---	---	244
19	400	332	361	780	754	766	---	---	670	---	---	302
20	544	404	464	774	754	762	---	---	705	---	---	333
21	---	---	605	766	536	653	---	---	721	---	---	351
22	---	---	661	636	572	605	---	---	698	---	---	362
23	---	---	599	606	586	598	---	---	663	---	---	383
24	---	---	613	674	608	640	---	---	653	---	---	396
25	---	---	652	714	670	692	---	---	635	---	---	392
26	668	644	660	732	638	698	---	---	652	---	---	383
27	684	652	672	702	674	686	---	---	661	---	---	384
28	706	666	684	694	216	448	---	---	673	---	---	394
29	---	---	---	366	304	325	---	---	664	---	---	408
30	---	---	---	398	318	362	---	---	568	---	---	421
31	---	---	---	432	400	413	---	---	---	---	---	416
MONTH	766	320	600	788	216	655	666	356	589	374	292	406
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	374	350	344	347	354	344	349	673	571	626
2	---	---	342	350	318	346	355	346	350	727	682	707
3	---	---	325	341	310	327	397	340	359	745	678	721
4	---	---	344	342	328	333	364	356	360	745	691	716
5	---	---	333	362	342	351	361	355	358	726	692	708
6	---	---	356	356	348	354	358	277	344	730	707	715
7	---	---	359	364	351	357	363	259	335	743	702	721
8	---	---	282	362	354	358	400	333	358	756	698	720
9	---	---	276	367	358	363	361	342	352	751	636	730
10	338	310	324	372	352	363	371	356	364	773	664	733
11	347	339	343	365	360	362	377	364	370	735	419	589
12	346	314	331	372	361	366	396	371	385	497	389	437
13	322	261	305	372	365	369	411	392	400	441	248	358
14	285	262	277	375	362	370	409	395	400	363	333	346
15	298	283	289	371	335	360	430	395	412	473	366	417
16	318	299	309	362	353	357	437	414	425	587	474	525
17	321	316	318	369	361	365	455	318	417	638	586	606
18	327	317	322	385	326	355	430	330	365	662	606	631
19	329	327	327	368	344	358	426	353	380	686	623	654
20	332	328	330	348	334	343	431	387	403	720	688	704
21	335	331	333	365	337	347	440	397	410	736	701	722
22	343	335	339	350	338	344	434	407	421	737	720	727
23	354	344	349	357	344	348	445	425	435	725	691	707
24	361	351	354	354	348	351	452	429	441	712	672	694
25	366	361	363	357	345	350	460	438	450	710	689	698
26	375	360	365	362	351	355	464	439	452	719	690	705
27	393	350	364	369	354	361	472	445	459	740	692	723
28	351	341	347	366	354	361	469	443	458	742	721	733
29	353	346	350	356	348	352	473	447	461	769	729	753
30	350	344	347	351	345	348	473	436	458	765	746	757
31	---	---	---	352	340	347	572	471	508	---	---	---
MONTH	393	261	333	385	310	354	572	259	401	773	248	653

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.6	7.3	7.5	7.2	7.1	7.1	7.3	7.1	7.2	7.3	7.2	7.3
2	7.5	7.3	7.4	7.2	7.1	7.1	7.3	7.1	7.2	7.3	7.2	7.2
3	7.4	7.2	7.3	7.2	7.1	7.1	7.4	7.2	7.2	7.2	7.1	7.2
4	7.3	7.2	7.2	---	---	---	7.3	7.2	7.2	7.3	7.1	7.2
5	7.3	7.1	7.2	---	---	---	7.3	7.1	7.2	7.2	7.1	7.1
6	7.4	7.1	7.2	---	---	---	7.3	7.1	7.2	7.2	7.1	7.2
7	7.3	7.1	7.2	---	---	---	7.3	7.2	7.2	7.2	7.1	7.1
8	7.3	7.1	7.2	---	---	---	7.4	7.2	7.3	7.3	7.1	7.2
9	7.2	7.1	7.2	---	---	---	7.4	7.3	7.3	7.2	7.1	7.1
10	7.3	7.1	7.2	7.2	7.1	7.1	7.7	7.4	7.4	7.2	7.1	7.1
11	7.3	7.1	7.2	7.3	7.2	7.2	7.5	7.4	7.5	7.3	7.1	7.2
12	7.3	7.1	7.1	7.4	7.2	7.3	7.6	7.4	7.5	7.4	7.1	7.2
13	7.3	7.1	7.1	7.5	7.3	7.4	7.4	7.3	7.4	7.5	7.3	7.4
14	7.3	7.1	7.2	7.3	7.2	7.3	7.4	7.2	7.3	7.5	7.4	7.4
15	7.3	7.1	7.2	7.6	7.2	7.3	7.4	7.3	7.3	7.4	7.3	7.4
16	7.6	7.1	7.2	7.5	7.4	7.4	7.4	7.2	7.3	7.4	7.2	7.3
17	7.3	7.0	7.1	7.4	7.3	7.3	7.3	7.2	7.3	7.3	7.2	7.2
18	7.3	7.1	7.2	7.4	7.3	7.3	7.4	7.2	7.3	7.3	7.2	7.2
19	7.2	7.1	7.2	7.5	7.3	7.4	7.4	7.2	7.2	7.3	7.1	7.2
20	7.1	7.0	7.1	7.6	7.5	7.5	7.3	7.1	7.2	7.4	7.1	7.2
21	7.1	7.0	7.1	7.5	7.3	7.4	7.4	7.1	7.1	7.3	7.2	7.3
22	7.2	7.0	7.1	7.4	7.2	7.3	7.3	7.1	7.2	7.3	7.2	7.3
23	7.2	7.0	7.1	7.4	7.2	7.3	7.4	7.3	7.3	7.3	7.2	7.2
24	7.1	7.0	7.0	7.4	7.2	7.3	7.4	7.2	7.3	7.3	7.2	7.2
25	7.2	7.0	7.1	7.4	7.3	7.3	7.4	7.2	7.3	7.4	7.2	7.2
26	7.2	7.0	7.1	7.5	7.3	7.4	7.3	7.1	7.2	7.6	7.3	7.5
27	7.3	7.0	7.2	7.5	7.4	7.4	7.4	7.1	7.2	7.6	7.4	7.5
28	7.3	7.1	7.2	7.4	7.2	7.3	7.4	7.3	7.4	7.9	7.4	7.5
29	7.3	7.0	7.2	7.3	7.2	7.3	7.4	7.3	7.4	7.7	7.6	7.7
30	7.4	7.2	7.3	7.4	7.2	7.3	7.3	7.2	7.2	7.7	7.5	7.6
31	7.3	7.1	7.2	---	---	---	7.4	7.2	7.3	7.6	7.3	7.4
MONTH	7.6	7.0	7.2	7.6	7.1	7.3	7.7	7.1	7.3	7.9	7.1	7.3
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.4	7.2	7.3	7.5	7.3	7.4	7.6	7.5	7.5	---	---	---
2	7.3	7.1	7.2	7.5	7.3	7.4	---	---	---	---	---	---
3	7.4	7.3	7.3	7.5	7.3	7.4	---	---	---	---	---	---
4	7.3	7.2	7.3	7.7	7.3	7.5	---	---	---	7.8	7.5	7.7
5	7.4	7.2	7.3	7.6	7.5	7.6	7.4	7.3	7.4	7.7	7.6	7.6
6	7.5	7.3	7.4	7.7	7.6	7.6	7.4	7.3	7.4	7.6	7.4	7.6
7	7.6	7.5	7.6	7.7	7.6	7.6	7.4	7.3	7.4	---	---	---
8	7.6	7.2	7.4	7.6	7.5	7.6	7.4	7.4	7.4	---	---	---
9	7.2	7.1	7.2	7.6	7.4	7.5	---	---	---	---	---	---
10	7.3	7.1	7.2	7.7	7.4	7.6	---	---	---	---	---	---
11	7.3	7.2	7.2	7.6	7.4	7.5	---	---	---	7.8	7.7	7.8
12	7.4	7.2	7.2	7.5	7.4	7.4	---	---	---	7.9	7.8	7.8
13	7.3	7.3	7.3	7.5	7.4	7.4	---	---	---	7.9	7.8	7.9
14	7.3	7.2	7.3	7.5	7.3	7.4	---	---	---	---	---	---
15	7.6	7.1	7.3	7.4	7.3	7.4	---	---	---	---	---	---
16	7.7	7.5	7.6	7.4	7.3	7.4	---	---	---	---	---	---
17	7.8	7.7	7.7	7.4	7.3	7.3	---	---	---	---	---	---
18	7.8	7.7	7.7	7.4	7.3	7.4	---	---	---	---	---	---
19	7.8	7.7	7.7	7.4	7.3	7.4	---	---	---	---	---	---
20	7.7	7.6	7.7	7.4	7.3	7.3	---	---	---	---	---	---
21	---	---	---	7.7	7.4	7.5	---	---	---	---	---	---
22	---	---	---	7.6	7.4	7.5	---	---	---	---	---	---
23	---	---	---	7.7	7.4	7.5	---	---	---	---	---	---
24	---	---	---	7.5	7.4	7.4	---	---	---	---	---	---
25	---	---	---	7.5	7.4	7.4	---	---	---	---	---	---
26	7.5	7.4	7.4	7.6	7.4	7.4	---	---	---	---	---	---
27	7.5	7.4	7.4	7.5	7.4	7.4	---	---	---	---	---	---
28	7.5	7.4	7.5	7.9	7.4	7.6	---	---	---	---	---	---
29	---	---	---	7.6	7.6	7.6	---	---	---	---	---	---
30	---	---	---	7.6	7.5	7.6	---	---	---	---	---	---
31	---	---	---	7.6	7.6	7.6	---	---	---	---	---	---
MONTH	7.8	7.1	7.4	7.9	7.3	7.5	7.6	7.3	7.4	7.9	7.4	7.7

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	---	---	---	7.8	7.7	7.7	7.3	7.2	7.3
2	---	---	---	---	---	---	7.8	7.7	7.7	7.4	7.2	7.2
3	---	---	---	---	---	---	7.7	7.6	7.7	7.4	7.2	7.3
4	---	---	---	---	---	---	7.7	7.7	7.7	7.4	7.2	7.3
5	---	---	---	---	---	---	7.8	7.7	7.8	7.3	7.2	7.3
6	---	---	---	---	---	---	7.8	7.7	7.8	7.3	7.2	7.2
7	---	---	---	---	---	---	7.8	7.6	7.7	7.3	7.1	7.2
8	---	---	---	7.6	7.6	7.6	7.7	7.6	7.7	7.6	7.1	7.3
9	---	---	---	7.7	7.6	7.7	7.7	7.7	7.7	7.3	7.2	7.2
10	7.5	7.5	7.5	7.8	7.7	7.7	7.7	7.6	7.7	7.4	7.2	7.3
11	7.5	7.5	7.5	7.7	7.6	7.6	7.7	7.6	7.6	7.4	7.2	7.3
12	7.5	7.5	7.5	7.7	7.6	7.6	7.6	7.5	7.6	7.5	7.4	7.4
13	7.5	7.4	7.5	7.7	7.6	7.7	7.5	7.4	7.5	7.6	7.3	7.5
14	---	---	---	---	---	---	7.5	7.3	7.4	7.6	7.4	7.5
15	---	---	---	---	---	---	7.4	7.3	7.4	7.4	7.3	7.4
16	---	---	---	---	---	---	7.6	7.3	7.4	7.3	7.2	7.3
17	---	---	---	---	---	---	7.6	7.5	7.5	7.3	7.2	7.2
18	---	---	---	---	---	---	7.5	7.4	7.4	7.3	7.1	7.2
19	---	---	---	---	---	---	7.5	7.4	7.4	7.4	7.1	7.2
20	7.7	7.7	7.7	---	---	---	7.5	7.4	7.5	7.3	7.1	7.2
21	7.7	7.6	7.7	---	---	---	7.5	7.4	7.4	7.1	7.0	7.0
22	7.8	7.6	7.7	7.8	7.7	7.7	7.4	7.3	7.4	7.1	7.0	7.0
23	---	---	---	7.8	7.7	7.7	7.5	7.3	7.4	7.2	7.0	7.1
24	---	---	---	7.8	7.7	7.7	7.4	7.3	7.4	7.4	7.1	7.2
25	---	---	---	7.7	7.7	7.7	7.5	7.3	7.4	7.3	7.1	7.1
26	---	---	---	7.8	7.7	7.8	7.6	7.4	7.5	7.2	7.0	7.1
27	---	---	---	7.8	7.7	7.7	7.7	7.5	7.6	7.3	7.1	7.2
28	---	---	---	7.8	7.7	7.8	7.7	7.5	7.6	7.2	7.0	7.1
29	---	---	---	7.8	7.7	7.7	7.7	7.6	7.6	7.2	7.0	7.1
30	---	---	---	7.8	7.7	7.8	7.6	7.5	7.6	7.2	7.0	7.1
31	---	---	---	7.8	7.7	7.8	7.5	7.3	7.4	---	---	---
MONTH	7.8	7.4	7.6	7.8	7.6	7.7	7.8	7.3	7.6	7.6	7.0	7.2

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	23.0	22.0	22.5	23.5	20.5	22.0	18.0	16.0	17.0	16.0	14.5	15.0
2	23.0	21.0	22.5	24.5	23.0	23.5	18.5	16.5	17.5	17.5	15.5	16.5
3	24.5	22.5	23.5	25.5	23.5	24.5	19.0	17.0	18.0	18.0	17.0	17.5
4	25.0	23.0	24.0	---	---	---	18.0	16.5	17.5	17.5	16.0	17.0
5	25.0	23.5	24.5	---	---	---	18.0	16.5	17.5	18.0	16.5	17.5
6	24.5	23.0	24.0	---	---	---	18.5	17.0	17.5	18.5	17.0	18.0
7	25.0	23.5	24.0	---	---	---	18.5	17.5	18.0	19.0	18.5	18.5
8	24.5	23.5	24.0	---	---	---	18.5	15.0	17.0	18.5	15.5	16.5
9	24.5	23.0	23.5	---	---	---	15.5	14.0	15.0	15.5	14.5	15.0
10	24.5	22.5	23.5	24.0	22.5	23.0	15.0	12.5	14.0	16.0	14.5	15.0
11	24.5	23.0	24.0	23.0	21.5	22.0	13.0	11.5	12.5	17.5	15.5	16.5
12	24.0	22.5	23.5	22.5	20.5	22.0	12.5	11.5	12.0	17.5	12.5	16.0
13	24.5	22.5	23.5	20.5	19.0	20.0	14.5	13.0	13.5	13.0	11.0	12.0
14	24.0	22.5	23.5	22.5	20.5	21.5	16.5	14.5	15.5	12.5	11.5	12.0
15	24.5	23.0	24.0	23.5	21.0	23.0	16.0	14.5	15.5	13.5	11.5	12.5
16	25.5	23.5	25.0	21.0	18.5	19.5	15.0	13.5	14.0	14.5	12.5	13.5
17	26.0	25.0	25.5	19.0	18.0	18.5	15.5	13.5	14.5	15.5	13.5	14.5
18	26.5	25.0	26.0	20.0	18.5	19.0	16.0	14.0	15.0	17.0	15.0	16.0
19	26.0	24.5	25.0	20.0	17.0	18.5	16.5	14.5	15.5	17.5	16.5	17.0
20	25.0	23.5	24.5	16.5	15.0	15.5	19.5	16.5	17.5	17.0	15.5	16.5
21	25.0	24.0	24.5	16.5	14.5	15.5	18.0	16.5	17.5	15.5	14.0	15.0
22	25.0	23.5	24.0	17.5	15.5	16.5	18.5	17.0	18.0	15.5	14.0	15.0
23	25.0	24.0	24.5	18.0	16.0	17.0	17.5	14.5	15.5	16.0	14.5	15.0
24	24.0	22.5	23.5	19.0	17.0	17.5	16.0	15.0	15.5	17.5	15.5	16.5
25	24.5	23.0	23.5	20.5	18.5	19.5	15.5	14.0	15.0	18.5	16.5	18.0
26	24.5	23.0	24.0	20.0	19.0	19.5	17.5	15.5	16.0	17.5	14.0	15.0
27	23.5	22.5	23.0	18.5	17.5	18.0	18.0	15.5	17.0	14.0	13.0	13.5
28	23.5	21.5	22.5	17.5	16.0	16.5	15.5	12.5	13.5	13.5	12.0	13.0
29	21.5	19.5	20.5	17.5	16.0	16.5	12.5	12.0	12.5	12.5	11.5	11.5
30	21.0	19.5	20.5	17.5	16.0	17.0	14.5	13.0	13.5	13.5	11.0	12.0
31	21.5	20.5	21.0	---	---	---	15.5	13.5	14.5	15.0	13.0	14.0
MONTH	26.5	19.5	23.5	25.5	14.5	19.5	19.5	11.5	15.5	19.0	11.0	15.0

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	6.1	5.6	5.9	6.4	5.9	6.2	8.0	7.2	7.6	8.9	8.2	8.5
2	6.6	6.0	6.3	6.1	5.7	5.9	8.1	7.5	7.7	8.6	8.3	8.4
3	6.4	6.1	6.2	6.1	5.5	5.8	8.4	7.3	7.7	8.3	7.8	8.1
4	6.4	6.0	6.2	---	---	---	8.4	7.6	8.0	8.3	7.8	8.1
5	6.4	6.1	6.3	---	---	---	8.4	7.6	8.0	8.1	7.5	7.9
6	6.6	6.3	6.4	---	---	---	8.1	7.7	7.8	8.1	7.5	7.7
7	6.8	6.3	6.5	---	---	---	8.0	7.4	7.7	7.6	7.1	7.3
8	6.8	6.1	6.5	---	---	---	8.1	7.0	7.7	7.7	6.9	7.3
9	6.5	5.7	6.1	---	---	---	8.5	8.2	8.3	8.2	7.4	7.7
10	6.7	6.3	6.5	6.5	6.0	6.2	9.7	8.3	8.8	8.2	7.7	7.9
11	6.6	6.4	6.5	6.5	5.9	6.2	9.6	9.0	9.3	8.1	7.6	7.8
12	6.7	6.4	6.5	7.0	6.0	6.3	9.6	8.9	9.3	8.4	7.3	7.6
13	6.7	6.3	6.5	7.0	6.0	6.7	9.4	8.8	9.0	9.1	7.8	8.5
14	6.8	6.4	6.6	6.8	6.2	6.5	8.8	8.3	8.5	9.0	8.4	8.7
15	6.8	6.4	6.5	6.5	5.5	6.1	8.7	8.2	8.4	9.0	8.3	8.7
16	6.6	6.4	6.5	6.8	5.6	6.1	9.0	8.5	8.7	9.1	8.3	8.7
17	6.6	6.1	6.4	6.7	6.2	6.4	8.9	8.4	8.6	8.7	7.9	8.3
18	6.5	5.9	6.2	7.1	6.3	6.6	9.0	8.4	8.7	8.5	7.8	8.2
19	6.7	5.8	6.2	7.5	6.0	6.5	8.9	8.3	8.6	8.1	7.5	7.9
20	6.6	6.1	6.3	7.4	6.4	7.1	8.2	7.7	8.1	8.4	7.4	7.9
21	6.6	6.0	6.3	7.7	7.2	7.4	8.2	7.5	7.8	8.9	8.3	8.5
22	6.7	6.0	6.2	7.8	7.1	7.3	8.2	6.7	7.5	9.0	8.4	8.6
23	6.6	6.0	6.2	7.5	7.0	7.3	8.2	7.1	7.8	9.1	8.4	8.7
24	6.7	6.2	6.4	7.6	7.0	7.3	8.4	7.7	8.0	8.8	8.1	8.6
25	6.6	6.1	6.4	7.4	6.7	7.0	8.7	8.0	8.4	8.4	7.6	8.1
26	6.3	5.6	6.0	7.4	6.2	6.7	8.4	8.1	8.3	8.5	7.1	7.9
27	6.6	5.5	5.9	7.4	6.9	7.1	8.4	7.7	7.9	9.1	8.2	8.7
28	6.2	4.9	5.5	7.6	7.3	7.5	9.2	7.8	8.7	10.6	9.0	9.7
29	7.3	5.2	6.2	8.2	7.4	7.6	9.3	8.8	9.0	10.1	9.3	9.6
30	6.9	6.4	6.6	7.7	7.2	7.5	9.1	8.7	8.8	9.7	9.3	9.4
31	6.8	6.2	6.5	---	---	---	8.7	8.5	8.6	9.7	8.4	9.1
MONTH	7.3	4.9	6.3	8.2	5.5	6.7	9.7	6.7	8.3	10.6	6.9	8.3
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	8.6	8.3	8.5	8.6	8.3	8.5	7.4	6.0	6.6	---	---	---
2	9.3	8.4	8.7	8.5	8.1	8.3	---	---	---	---	---	---
3	11.8	9.9	11.3	8.3	7.7	8.1	---	---	---	---	---	---
4	11.0	10.3	10.7	8.9	7.8	8.3	---	---	---	---	---	---
5	10.9	7.9	10.3	9.7	9.0	9.4	---	---	---	---	---	---
6	8.7	7.7	8.1	10.0	9.7	9.8	---	---	---	---	---	---
7	8.6	7.3	8.1	10.1	9.8	10.0	---	---	---	---	---	---
8	12.6	7.7	10.6	10.1	9.7	9.9	---	---	---	---	---	---
9	10.1	9.6	9.8	9.9	9.4	9.6	---	---	---	---	---	---
10	9.8	9.2	9.4	10.0	8.8	9.4	---	---	---	---	---	---
11	---	---	---	9.0	8.4	8.7	---	---	---	---	---	---
12	---	---	---	9.0	8.3	8.6	---	---	---	---	---	---
13	---	---	---	8.7	8.4	8.5	---	---	---	---	---	---
14	---	---	---	8.6	8.3	8.5	---	---	---	---	---	---
15	---	---	---	9.1	8.3	8.6	---	---	---	---	---	---
16	9.9	8.7	9.4	---	---	---	---	---	---	---	---	---
17	10.3	9.6	10.0	---	---	---	---	---	---	---	---	---
18	9.6	8.0	8.9	---	---	---	---	---	---	---	---	---
19	8.1	7.4	7.7	---	---	---	---	---	---	---	---	---
20	7.7	7.3	7.5	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	10.1	9.2	9.6	---	---	---	---	---	---
23	---	---	---	9.1	8.7	8.9	---	---	---	---	---	---
24	---	---	---	8.9	8.5	8.7	---	---	---	---	---	---
25	---	---	---	8.5	7.9	8.3	---	---	---	---	---	---
26	8.6	8.3	8.5	8.3	7.3	8.0	---	---	---	---	---	---
27	8.4	8.1	8.3	8.5	7.6	8.0	---	---	---	---	---	---
28	8.6	8.3	8.5	8.7	7.1	8.0	---	---	---	---	---	---
29	---	---	---	7.0	5.7	6.1	---	---	---	---	---	---
30	---	---	---	6.5	5.8	6.1	---	---	---	---	---	---
31	---	---	---	6.6	6.0	6.4	---	---	---	---	---	---
MONTH	12.6	7.3	9.1	10.1	5.7	8.5	7.4	6.0	6.6	---	---	---

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	7.3	6.9	7.1	7.5	7.4	7.5	5.8	5.5	5.7
2	---	---	---	7.2	6.8	7.0	7.5	7.3	7.4	5.8	5.4	5.6
3	---	---	---	6.9	5.6	6.2	7.4	7.0	7.1	6.3	5.7	6.0
4	---	---	---	6.1	5.3	5.6	7.1	7.0	7.0	6.4	6.0	6.2
5	---	---	---	6.9	5.9	6.3	7.2	7.0	7.1	6.7	6.1	6.4
6	---	---	---	7.4	6.7	7.0	7.2	6.0	7.0	7.2	6.3	6.7
7	---	---	---	7.2	6.8	7.0	6.4	6.1	6.2	7.3	6.6	7.0
8	---	---	---	7.2	6.7	6.9	6.5	5.4	5.9	8.1	6.8	7.4
9	---	---	---	7.2	6.6	6.9	7.1	6.5	6.7	7.9	7.6	7.8
10	5.7	5.1	5.3	7.3	6.7	6.9	7.1	6.9	7.0	8.2	7.3	7.7
11	5.8	5.7	5.7	7.2	6.7	6.9	7.1	7.0	7.1	8.1	4.9	7.0
12	5.7	5.6	5.7	7.3	6.6	6.9	7.1	7.0	7.1	7.7	5.1	6.6
13	5.6	5.4	5.6	7.2	6.6	6.9	7.0	6.9	6.9	7.1	5.7	6.4
14	5.6	5.1	5.3	7.0	6.6	6.8	6.9	6.8	6.9	6.6	5.8	6.2
15	5.3	5.0	5.1	6.8	6.2	6.5	6.9	6.7	6.8	6.6	6.0	6.3
16	5.4	5.3	5.3	6.9	6.2	6.5	7.2	6.7	6.9	6.4	6.3	6.3
17	5.8	5.4	5.6	7.3	6.6	6.9	7.2	6.1	6.9	6.3	6.2	6.3
18	5.8	5.7	5.7	7.4	6.9	7.2	6.6	5.7	6.1	6.3	6.1	6.3
19	5.7	5.6	5.7	7.6	7.2	7.4	6.9	6.1	6.6	6.4	6.2	6.3
20	5.8	5.6	5.7	7.6	7.3	7.4	7.1	6.9	7.0	6.4	6.2	6.3
21	5.8	5.6	5.7	7.6	7.3	7.4	7.1	6.9	7.0	6.5	6.2	6.3
22	5.9	5.7	5.8	7.5	7.2	7.4	7.2	6.9	7.1	6.4	6.1	6.2
23	5.9	5.7	5.8	7.5	7.2	7.3	7.1	6.9	7.0	6.9	6.3	6.6
24	6.3	5.8	6.0	7.3	7.1	7.2	7.0	6.8	6.9	7.0	6.7	6.9
25	6.4	6.0	6.2	7.4	7.2	7.3	7.0	6.8	6.9	7.0	6.7	6.9
26	6.7	6.4	6.5	7.4	7.2	7.3	7.0	6.8	6.9	7.1	6.7	6.9
27	7.1	6.6	6.9	7.5	7.3	7.4	7.0	6.7	6.9	7.1	6.7	6.9
28	7.1	6.9	7.0	7.5	7.3	7.4	7.0	6.8	6.9	7.1	6.8	6.9
29	7.1	7.0	7.1	7.5	7.3	7.4	7.0	6.6	6.8	6.9	6.6	6.8
30	7.2	6.9	7.1	7.6	7.4	7.5	6.9	6.6	6.7	6.8	6.4	6.6
31	---	---	---	7.6	7.5	7.5	6.7	5.8	6.2	---	---	---
MONTH	7.2	5.0	5.9	7.6	5.3	7.0	7.5	5.4	6.9	8.2	4.9	6.6

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.--Records good. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--10 years (water years 1976-80, 1985-89), 7.32 ft³/s (5,300 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)
Mar. 28	1145	1,230	19.95	June 13	2015	1,720	21.74
May 5	0215	2,950	24.89	July 15	0515	1,350	20.48
May 17	0800	*5,660	*29.21				

Minimum discharge, no flow Oct. 6-8 and Sept. 8.

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	6.6	2.6	.52	2.0	1.4	1.2	1.1	.41	.55	.48	1.1	.16
2	14	1.8	.59	.75	1.6	1.1	1.7	14	1.6	73	1.3	.07
3	.70	2.5	.81	.53	4.5	2.6	2.0	71	100	74	1.5	.02
4	.11	2.6	1.1	.34	3.5	5.2	1.4	2.7	101	3.3	1.5	.03
5	.01	2.4	1.3	.66	1.2	4.7	1.2	394	6.1	2.2	1.4	.06
6	.00	2.2	1.4	.47	.92	2.7	1.2	4.1	2.3	1.9	1.5	.04
7	.00	2.2	1.6	.39	1.2	4.0	1.3	2.1	202	2.4	20	.01
8	.00	2.2	1.9	.19	2.4	2.3	1.4	2.0	17	1.5	7.2	.00
9	.75	2.6	2.5	.20	1.9	2.1	.98	1.7	2.3	.82	2.7	.92
10	1.7	2.5	21	.20	1.4	2.2	.04	.81	1.1	1.2	1.8	.52
11	1.4	2.3	12	.26	1.2	2.6	.34	.44	4.5	1.8	1.4	42
12	.44	2.4	2.8	1.8	9.7	3.0	.69	.85	34	1.8	1.1	2.0
13	.14	2.2	1.5	4.5	7.6	3.2	53	4.3	460	1.3	.89	96
14	.08	2.3	.84	6.4	3.3	3.3	59	1.5	104	1.4	.89	1.2
15	.06	26	.55	1.5	70	2.9	1.9	.40	6.1	196	.98	.12
16	.05	8.6	.38	.63	70	2.6	.84	574	4.0	4.3	.86	.13
17	.05	1.6	.43	.49	335	3.0	.65	1150	2.7	2.5	7.9	.11
18	.06	1.8	.64	.50	32	5.4	.61	10	1.9	2.5	4.0	.11
19	.07	71	1.6	.51	8.9	5.9	.65	1.3	2.4	1.8	1.9	.11
20	.13	5.8	2.5	.36	6.4	7.5	.51	.33	2.1	1.5	1.4	.10
21	.18	2.1	2.7	.26	5.3	22	.48	.15	1.8	1.3	1.2	.09
22	.21	1.3	23	.29	2.3	6.1	.52	.23	2.2	1.2	1.6	.08
23	.21	1.1	6.0	.37	1.9	3.5	.61	.48	2.3	.85	.90	.09
24	.23	1.4	2.1	.63	1.6	3.3	.82	.46	1.5	.99	.71	.16
25	.18	8.3	1.1	5.9	1.6	4.2	.82	.91	.38	1.1	.98	.21
26	.67	12	.70	105	1.7	5.2	.78	1.1	.16	1.2	1.1	.36
27	.74	2.2	48	4.8	1.5	6.4	.73	1.1	.16	1.9	.42	.24
28	36	.94	6.0	101	1.3	226	.84	1.1	.28	2.4	.50	.18
29	16	1.5	1.4	9.7	---	36	2.6	.61	.48	1.9	1.6	.17
30	4.4	1.1	.72	2.9	---	4.9	.33	.62	.61	1.4	.94	.18
31	3.2	---	7.2	1.7	---	1.7	---	.49	---	1.3	.38	---
TOTAL	88.37	179.54	154.88	255.23	581.32	386.8	139.04	2243.19	1065.52	391.24	71.65	145.47
MEAN	2.85	5.98	5.00	8.23	20.8	12.5	4.63	72.4	35.5	12.6	2.31	4.85
MAX	36	71	48	105	335	226	59	1150	460	196	20	96
MIN	.00	.94	.38	.19	.92	1.1	.04	.15	.16	.48	.38	.00
AC-FT	175	356	307	506	1150	767	276	4450	2110	776	142	289

CAL YR 1988 TOTAL 1107.36 MEAN 3.03 MAX 88 MIN .00 AC-FT 2200
WTR YR 1989 TOTAL 5702.25 MEAN 15.6 MAX 1150 MIN .00 AC-FT 11310

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.--14 years regulated, 95.3 ft³/s (69,040 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, 7,600 ft³/s Mar. 28 at 1545 hours (gage height, 19.53 ft); 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	35	19	15	187	141	751	23	69	42	20	e.20
2	.00	22	17	15	134	128	579	22	54	39	21	e.00
3	.00	18	15	12	115	119	462	51	60	50	29	e.00
4	.00	16	14	8.1	89	109	373	48	3520	40	21	e.00
5	.00	14	13	5.4	77	114	272	487	2590	32	17	e.00
6	.00	11	11	4.8	71	104	228	165	1060	29	14	e.00
7	.00	8.9	12	4.2	70	133	202	90	1570	27	13	e.00
8	.00	7.7	12	1.4	68	228	181	66	2380	26	13	e.00
9	.00	6.1	16	.08	66	223	153	44	859	26	12	e.00
10	.00	4.7	22	.01	64	165	131	32	612	23	9.8	e.00
11	.00	3.8	102	.01	65	132	110	26	478	21	8.8	e.00
12	.00	16	144	.01	63	114	96	24	727	19	8.1	1.3
13	.00	100	37	.40	68	101	90	40	2080	20	7.2	7.1
14	.00	25	22	3.9	72	96	106	41	2370	261	6.8	19
15	.00	31	11	4.5	349	85	89	32	847	486	7.7	14
16	.00	21	2.8	1.9	861	74	74	1040	545	159	8.2	14
17	.00	13	.08	.16	2360	70	61	4650	366	99	8.8	12
18	.00	9.2	.01	.05	2440	69	55	2210	294	70	8.1	11
19	.00	9.2	.00	.02	1070	67	50	1030	261	59	6.9	9.3
20	.00	34	.01	.00	921	76	43	748	218	42	5.7	8.5
21	.00	38	.00	.00	707	70	40	554	189	34	4.7	7.5
22	.00	17	.00	.00	500	70	37	420	165	29	3.7	6.5
23	.00	12	2.9	.00	407	65	34	340	149	59	3.1	5.5
24	.00	11	9.0	.00	345	61	32	290	138	130	2.6	5.1
25	.00	9.9	2.1	144	288	59	29	239	129	82	2.4	5.0
26	.00	38	.27	602	244	149	27	202	116	61	3.3	5.2
27	.00	124	.54	277	202	261	25	175	90	52	4.4	5.0
28	8.2	58	15	711	162	4150	23	150	71	43	2.7	4.0
29	30	34	28	1190	---	2410	27	116	54	35	1.6	e3.5
30	75	24	14	417	---	1250	28	94	46	26	.80	e3.0
31	68	---	12	259	---	963	---	82	---	21	e.50	---
TOTAL	181.20	771.5	553.71	3676.94	12065	11856	4408	13531	22107	2142	275.90	146.70
MEAN	5.85	25.7	17.9	119	431	382	147	436	737	69.1	8.90	4.89
MAX	75	124	144	1190	2440	4150	751	4650	3520	486	29	19
MIN	.00	3.8	.00	.00	63	59	23	22	46	19	.50	.00
AC-FT	359	1530	1100	7290	23930	23520	8740	26840	43850	4250	547	291

CAL YR 1988 TOTAL 10598.64 MEAN 29.0 MAX 471 MIN .00 AC-FT 21020
WTR YR 1989 TOTAL 71714.95 MEAN 196 MAX 4650 MIN .00 AC-FT 142200

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.--Records poor. At end of year, flow from 47.4 mi² above this station 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. Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--14 years regulated, 51.5 ft³/s (37,310 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, 2,970 ft³/s Mar. 28 at 1600 hours (gage height, 27.24 ft); 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	e.00	e.00	e.00	16	134	106	548	21	44	e30	8.6	1.4
2	e.00	e.00	e.00	15	114	97	456	19	40	e30	7.6	1.4
3	e.00	e.00	e.00	13	113	86	366	20	39	e40	9.3	.97
4	e.00	e.00	e.00	12	91	84	315	27	1220	e30	9.2	.81
5	e.00	e.00	e.00	11	68	95	258	81	1080	e20	6.4	.55
6	e.00	e.00	e.00	10	60	84	213	55	626	e18	5.1	.50
7	e.00	e.00	e.00	9.8	56	94	177	33	732	e17	5.0	.70
8	e.00	e.00	e.00	8.6	56	162	144	24	992	e16	5.5	1.1
9	e.00	e.00	e.00	7.5	56	202	120	21	518	e15	5.7	.84
10	e.00	e.00	e.00	6.9	56	149	106	18	427	e14	4.4	.39
11	e.00	e.00	e31	6.9	58	116	92	16	363	e12	4.1	.82
12	e.00	e.00	e78	7.2	57	98	84	15	420	e10	3.8	1.8
13	e.00	e.00	46	8.4	69	85	76	24	801	e10	3.8	18
14	e.00	e.00	28	11	79	77	92	25	932	99	3.2	14
15	e.00	e.00	14	12	172	66	81	21	418	146	4.2	3.7
16	e.00	e.00	9.1	11	383	57	70	708	316	77	5.1	1.8
17	e.00	e.00	5.2	9.5	e1030	57	63	1940	227	54	5.1	1.1
18	e.00	e.00	3.4	9.0	1520	55	61	1180	184	45	6.4	.90
19	e.00	e.00	4.2	8.7	756	56	55	687	162	46	4.7	.71
20	e.00	e.00	5.8	8.0	635	66	48	551	139	40	3.7	.73
21	e.00	e.00	7.9	7.4	452	58	44	483	e130	29	2.5	.68
22	e.00	e.00	8.0	6.6	332	57	39	417	e115	23	1.9	.51
23	e.00	e.00	14	6.6	273	52	35	371	e100	21	1.8	.22
24	e.00	e.00	15	6.6	239	48	32	290	e95	21	1.8	.12
25	e.00	e.00	11	43	183	46	30	216	e80	21	1.5	.06
26	e.00	e.00	9.7	344	150	99	27	163	e70	18	3.2	.07
27	e.00	e.00	9.2	173	129	243	23	132	e55	23	2.8	.55
28	e.00	e.00	17	379	115	1900	22	126	e45	18	1.9	.68
29	e.00	e.00	21	474	---	1460	22	109	e40	14	1.1	.76
30	e.00	e.00	15	233	---	807	22	79	e35	12	1.3	1.2
31	e.00	---	15	178	---	638	---	54	---	12	1.7	---
TOTAL	0.00	0.00	367.50	2052.7	7436	7300	3721	7926	10445	981	132.4	57.07
MEAN	.00	.00	11.9	66.2	266	235	124	256	348	31.6	4.27	1.90
MAX	.00	.00	78	474	1520	1900	548	1940	1220	146	9.3	18
MIN	.00	.00	.00	6.6	56	46	22	15	35	10	1.1	.06
AC-FT	.0	.0	729	4070	14750	14480	7380	15720	20720	1950	263	113

CAL YR 1988 TOTAL 8054.62 MEAN 22.0 MAX 409 MIN .00 AC-FT 15980
WTR YR 1989 TOTAL 40418.67 MEAN 111 MAX 1940 MIN .00 AC-FT 80170

e Estimated.

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, 751,600 acre-ft June 14, 1989 (elevation, 503.62 ft); minimum since lake first filled in 1957, 80,150 acre-ft Apr. 17, 1976 (elevation, 465.96 ft).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 751,600 acre-ft June 14 at 0700 hours (elevation, 503.62 ft); minimum, 326,400 acre-ft Jan. 23 (elevation, 485.28 ft).

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

485.0	321,500	492.0	456,500	500.0	649,400
486.0	339,200	494.0	500,600	502.0	704,700
488.0	376,200	496.0	547,400	503.0	733,500
490.0	415,200	498.0	597,000	504.0	762,900

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	352500	337500	331600	330800	354400	462400	562000	515800	638400	703900	662400	547900
2	352000	337100	331200	330800	358400	462400	568200	512300	636800	701900	657500	543100
3	351400	336700	330800	330500	360500	462400	570900	510500	640000	701100	652900	538600
4	350500	336400	330500	330300	360800	464400	569700	513500	682500	700800	648600	533600
5	350000	335700	330100	330100	361000	465400	568700	513700	709900	699600	644300	528900
6	349000	335100	329800	330100	360800	465000	567400	514400	717900	697100	640300	523900
7	348300	334800	330300	330100	360800	464800	565700	513700	737600	694300	638700	518800
8	347900	334000	330500	329800	361400	465900	564200	513700	742000	692300	636300	513700
9	347400	333700	330000	329600	361200	467000	561500	513700	736100	689500	632900	510200
10	346800	333300	330300	329400	361400	467400	559100	510700	731500	685600	628600	505400
11	346100	333300	331000	329200	361900	467600	555400	507300	730300	681100	624700	504700
12	345400	334200	331000	329600	363400	467200	552500	503600	732900	676700	620500	503800
13	344500	334200	331200	329400	364700	466300	551500	500900	751400	673900	616100	506600
14	343800	333900	331600	328700	365100	465900	552300	497700	745800	672600	612200	504700
15	342900	335300	331600	329100	367700	463900	552800	494500	736100	707300	607800	500400
16	342300	335100	331000	328700	376200	462600	553000	511200	730900	711900	603700	495000
17	341600	334600	330500	328200	399400	462400	551300	593500	726500	712400	600300	489800
18	341600	334600	330100	328200	426500	461300	548400	619700	723100	712200	596300	485400
19	341000	335700	329600	328000	438100	460500	546000	629700	720200	709600	591700	479800
20	340500	335500	330000	327800	446200	460900	543100	637100	721900	706200	587900	476100
21	340000	334900	329600	327500	450900	460500	540700	641100	723100	703000	583400	473000
22	339200	334600	330700	327000	454100	460700	537400	645100	722500	700200	579300	469800
23	338700	333900	330300	326800	455800	460000	534800	647500	721300	697700	575400	466300
24	338000	333500	330300	326600	457300	458800	532200	648100	722500	693700	570900	463100
25	337600	333700	329800	328500	459000	458300	529300	650500	724500	689800	568200	461100
26	337300	333700	329600	330700	460500	459200	526700	651600	723100	686400	567400	459800
27	338200	333300	331200	332100	461600	464100	524200	652400	719600	682800	566700	458800
28	337800	332600	331000	338700	462000	504100	521800	650800	716700	678100	565200	458100
29	337600	332400	330800	346500	---	538100	519300	648100	712200	673700	562500	457500
30	338000	332100	330700	351200	---	552500	516900	645100	708200	670600	557600	457000
31	337800	---	331000	352700	---	557600	---	641600	---	666500	552800	---
MAX	352500	337500	331600	352700	462000	557600	570900	652400	751400	712400	662400	547900
MIN	337300	332100	329600	326600	354400	458300	516900	494500	636800	666500	552800	457000
(†)	485.91	485.59	485.53	486.73	492.24	496.41	494.70	499.70	502.11	500.62	496.21	492.01
(ϕ)	-15100	-5700	-1100	+21700	+109300	+95600	-40700	+124700	+66600	-41700	-113700	-95800

CAL YR 1988 MAX 463900 MIN 329600 (ϕ) -103300
WTR YR 1989 MAX 751400 MIN 326600 (ϕ) +104100

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

08061000 EAST FORK TRINITY RIVER NEAR LAVON, TX

LOCATION.--Lat 33°01'25", long 96°28'31", Collin County, Hydrologic Unit 12030106, on left bank at downstream side of St. Louis Southwestern Railway Lines bridge, 150 ft upstream from bridge on State Highway 78, 3,550 ft downstream from Lavon Dam, 2.5 mi west of Lavon, and 54.9 mi upstream from mouth.

DRAINAGE AREA.--773 mi².

PERIOD OF RECORD.--October 1953 to September 1989 (discontinued).
Water-quality record.--Chemical and biochemical analyses: October 1980 to September 1982.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder, concrete control, and crest-stage gage. Datum of gage is 429.58 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1969, at site 150 ft downstream at same datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Flow regulated by Lavon Lake (station 08060500), 0.67 mi upstream.

AVERAGE DISCHARGE.--36 years, 339 ft³/s (245,600 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,000 ft³/s May 26, 27, 1957, from records of released flow from Lavon Lake furnished by U.S. Army Corps of Engineers; maximum gage height, 19.55 ft June 14, 1989; no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1894, 22.3 ft in 1913 and in April 1942, from information by St. Louis Southwestern Railway Lines and local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16,100 ft³/s June 14 at 0430 (gage height, 19.55 ft); no flow Feb. 6.

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	.43	1.5	2.4	2.0	.07	e.30	.06	e1330	2140	2110	1990	1950
2	.24	1.2	2.9	.95	2.1	e.30	.03	e1540	1610	2070	1980	1940
3	.16	1.1	2.4	.76	.83	e.25	652	e1900	475	916	2060	1880
4	.20	1.3	2.5	.76	.04	e.26	1250	e1850	50	e50	2150	1920
5	.41	2.1	3.5	.49	.01	e.30	1480	e1500	.70	539	2140	1920
6	.38	1.7	3.6	.42	.0	e.50	1660	e550	.15	1020	2130	1900
7	.33	2.4	3.2	.81	e.04	e200	1660	e1.5	1600	1320	901	1910
8	.42	2.4	2.5	1.3	e.04	e410	1660	e.75	7800	1320	604	1970
9	.40	2.4	1.5	1.2	e.04	e410	1680	e.50	8240	1320	1570	2010
10	.22	2.1	2.1	1.5	e.03	e410	1430	e490	5480	1690	1680	1970
11	.22	2.4	3.0	1.1	e.04	e410	1940	e1070	3120	2010	1840	e2350
12	.31	3.8	2.2	1.7	e.03	e420	2270	2160	3090	1970	1830	e1200
13	.74	2.7	2.0	1.7	e1.6	e550	1510	2150	6330	1970	1800	e950
14	.49	2.4	2.0	1.6	e1.5	e960	3.1	2140	14500	1950	1790	e475
15	.59	4.5	1.9	.98	e1.5	e1100	.52	2140	7980	883	1780	e350
16	.66	2.5	1.9	.34	e1.2	e1100	.12	1020	4230	e500	1780	e1800
17	.50	1.8	2.1	.45	e2.5	e500	1290	109	2660	e50	1780	e2450
18	.42	1.8	2.4	1.4	e2.3	e412	2300	.99	2630	547	1770	e2480
19	.65	4.2	1.8	1.5	e1.7	e412	1790	.10	1780	1600	1750	e2480
20	1.6	1.7	1.6	1.9	e1.5	e412	1480	.06	.08	1520	1740	e2300
21	1.5	1.3	2.3	1.7	e1.1	e412	1530	.46	1.6	1120	1730	e1700
22	1.1	1.3	5.4	1.5	e.75	e413	1510	.74	3.0	1370	1710	e1100
23	.24	1.3	4.8	1.2	e.60	445	1460	.32	3.1	1720	1690	e1100
24	.37	1.4	2.9	.19	e.50	439	1450	.21	3.5	1700	1690	e1050
25	.50	1.5	2.8	.24	e.40	436	1520	.04	9.2	1700	789	e825
26	.91	2.0	1.9	2.3	e.40	436	1470	.22	1340	1700	e115	e625
27	1.2	2.1	3.4	.23	e.35	436	1490	.13	2180	1830	e3.8	e115
28	1.5	2.3	2.8	17	e.35	243	1490	506	2120	2060	515	e90
29	.86	2.2	2.1	2.0	---	8.5	e1580	1100	2130	2060	1300	e25
30	.89	2.1	2.0	.34	---	1.1	e1580	1860	2090	2040	1960	e5.0
31	1.9	---	2.3	10	---	.12	---	2180	---	2010	1960	---
TOTAL	20.34	63.5	80.2	59.56	21.52	10977.63	39135.83	25601.02	83596.33	44665	48527.8	42840.0
MEAN	.66	2.12	2.59	1.92	.77	354	1305	826	2787	1441	1565	1428
MAX	1.9	4.5	5.4	17	2.5	1100	2300	2180	14500	2110	2150	2480
MIN	.16	1.1	1.5	.19	.00	.12	.03	.04	.08	50	3.8	5.0
AC-FT	40	126	159	118	43	21770	77630	50780	165800	88590	96250	84970

CAL YR 1988 TOTAL 13345.32 MEAN 36.5 MAX 552 MIN .01 AC-FT 26470
WTR YR 1989 TOTAL 295588.73 MEAN 810 MAX 14500 MIN .00 AC-FT 586300

e Estimated.

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 fair except those for estimated daily discharges, which are poor. There are no known diversions above station. The North Texas Municipal Water District returns sewage effluent into a tributary above this station. Several observations of water temperature were made during the year. Rain gage and gage-height telemeter at station.

AVERAGE DISCHARGE.--21 years (water years 1969-89), 101 ft³/s (73,170 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)
Mar. 28	1330	14,100	[illegible]	June 4	1300	6,260	24.26
May 17	1030	*31,900	*29.62				

Minimum daily discharge, 14 ft³/s Sept. 2, 30.

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	59	33	25	54	108	85	234	109	89	103	35	e17
2	58	27	27	50	481	88	210	64	147	e100	86	e14
3	41	26	24	50	312	89	189	243	1480	243	96	e16
4	37	25	25	47	129	102	162	157	4170	96	38	e19
5	34	22	27	47	114	100	138	972	e640	77	33	e20
6	32	22	24	47	110	123	130	115	e161	e66	197	e22
7	32	24	119	45	112	183	124	96	e140	e59	e100	e28
8	44	22	41	42	110	161	119	85	e142	e57	52	e31
9	45	22	68	44	104	123	107	70	406	e55	45	e25
10	35	24	147	42	101	117	103	64	343	53	40	e22
11	31	24	137	42	100	117	99	60	e212	42	37	e23
12	28	247	61	80	160	112	98	61	e149	40	36	e591
13	24	46	45	79	165	107	351	292	e138	167	33	e191
14	24	30	42	73	122	102	349	e188	1580	e88	33	e29
15	27	126	40	52	325	91	141	e123	396	e78	36	e25
16	27	181	43	48	712	84	120	1290	e220	e73	44	e18
17	27	30	43	46	2730	86	111	14200	e185	e70	52	e16
18	26	26	43	48	963	84	102	e378	e123	66	37	e16
19	26	106	43	47	255	79	97	e135	e108	63	30	e15
20	26	68	41	46	203	81	92	e126	e103	52	26	e15
21	26	34	40	45	154	234	89	e107	e97	46	24	e15
22	27	29	165	45	122	111	86	e95	97	45	22	e15
23	27	27	68	45	108	88	82	e88	94	92	23	e15
24	27	27	47	44	103	77	80	e85	90	58	97	e15
25	24	30	41	184	99	73	77	e88	84	47	49	e15
26	34	123	40	491	97	80	75	e87	e149	54	27	e20
27	34	38	151	74	94	80	73	e88	e185	54	22	e18
28	32	30	93	1360	87	5370	75	e88	e104	43	22	e18
29	49	26	57	326	---	1050	119	e90	e105	40	19	e16
30	39	24	54	141	---	382	71	90	e104	37	20	e14
31	60	---	79	119	---	273	---	91	---	35	35	---
TOTAL	1062	1519	1900	3903	8280	9932	3903	19825	12041	2199	1446	1314
MEAN	34.3	50.6	61.3	126	296	320	130	640	401	70.9	46.6	43.8
MAX	60	247	165	1360	2730	5370	351	14200	4170	243	197	591
MIN	24	22	24	42	87	73	71	60	84	35	19	14
AC-FT	2110	3010	3770	7740	16420	19700	7740	39320	23880	4360	2870	2610

CAL YR 1988	TOTAL	24309	MEAN	66.4	MAX	1940	MIN	14	AC-FT	48220
WTR YR 1989	TOTAL	67324	MEAN	184	MAX	14200	MIN	14	AC-FT	133500

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, 517,000 acre-ft May 17, 1989 (elevation, 436.67 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, 517,000 acre-ft May 17 at 0800 hours (elevation, 436.67 ft); minimum, 419,200 acre-ft Nov. 15 (elevation, 432.25 ft).

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

432.0	414,000	434.0	456,500	436.0	501,400
433.0	435,000	435.0	478,600	437.0	524,700

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	435800	425700	427600	432600	449300	488100	487800	487400	490800	492700	490800	490400
2	435200	424800	427400	432600	453000	487700	489900	487100	493600	493300	489700	490400
3	434500	425000	427400	432400	453200	488400	491100	487600	496300	494700	489900	489700
4	433900	425700	427800	432200	451700	492200	491800	491100	506900	491300	490200	490300
5	432800	425300	426700	432600	451700	490400	491200	492400	497700	489000	490400	490000
6	432200	423800	426300	432000	451500	489800	491400	489000	491100	488600	491300	489400
7	432200	424200	428000	435200	450400	490600	490900	487000	497900	488800	493800	488900
8	432200	423600	428200	433300	451500	492100	491700	486800	499500	487700	489200	487700
9	431800	425000	426500	431800	450200	492900	492200	488400	496300	486700	488800	489900
10	431400	423400	428600	431600	449700	493100	489200	487400	491100	486300	488100	490400
11	431600	421900	429200	431600	449800	493300	488100	487600	488600	486100	488300	493900
12	430100	424400	428200	435000	450500	493600	491100	488800	490600	486300	488100	489800
13	429500	424200	428000	433100	452700	494000	496600	489500	507200	487000	487900	493900
14	428600	423600	429000	432400	452000	495500	495100	490600	509000	488600	488300	489300
15	428600	428200	429500	433700	456700	492100	492400	490400	499100	497200	488300	488500
16	428400	426500	428000	433100	460100	489800	488800	501900	494500	493600	488200	490200
17	427400	425900	428000	432200	476200	488500	489000	510400	492700	489500	489200	492200
18	429000	426700	427400	432800	481000	490400	490700	495600	494700	487900	489000	493200
19	427400	429700	426300	433300	482500	490000	490400	491800	495200	488300	488300	493300
20	428000	429500	428000	433100	485100	495000	489900	493800	490600	487900	488500	492500
21	427100	429200	427600	432400	485600	492600	489400	494300	488600	487400	488500	490800
22	426300	428800	429500	432200	487200	491400	488200	496300	488600	487200	487900	489400
23	426700	428200	429500	432000	485700	490200	487800	495600	488600	488300	488000	488100
24	426100	427800	429900	432600	485700	489900	488700	492900	488300	489200	487300	487000
25	426300	429500	429000	436800	486500	490000	489100	492400	488600	489900	487700	487000
26	426100	430100	429000	439200	487200	490900	489000	493300	488800	490800	487200	486300
27	425700	429700	433500	439000	488000	492000	488500	490400	489900	490400	486700	485400
28	425900	427600	432000	445700	487800	502200	489100	488600	490600	490400	486400	484700
29	426700	428400	432000	447400	---	492800	488200	488100	491300	490200	487100	484400
30	426500	427800	432000	447600	---	492300	488700	489200	492200	490200	490200	483800
31	426500	---	432600	447800	---	489700	---	489900	---	490600	490600	---
MAX	435800	430100	433500	447800	488000	502200	496600	510400	509000	497200	493800	493900
MIN	425700	421900	426300	431600	449300	487700	487800	486800	488300	486100	486400	483800
(†)	432.60	432.66	432.89	433.60	435.40	435.49	435.44	435.50	435.60	435.53	435.53	435.23
(ϕ)	-9100	+1300	+4800	+15200	+40000	+1900	-1000	+1200	+2300	-1600	0	-6800

CAL YR 1988 MAX 492000 MIN 421900 (ϕ) -15400
WTR YR 1989 MAX 510400 MIN 421900 (ϕ) +48200

(†) 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.--Records fair including estimated daily discharges. Flow is slightly regulated by several small on-channel dams. There are several small diversions above station including the irrigation of a golf course. Low flows are sustained by effluents from the city of Garland. Recording rain gage at station.

AVERAGE DISCHARGE.--31 years, 31.9 ft³/s (13.71 in/yr), 23,110 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,000 ft³/s July 27, 1962 (gage height, 20.80 ft, present datum) and May 17, 1989 (gage height, 20.84 ft); 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. 28	1500	2,960	16.59	June 7	1145	4,030	17.28
Mar. 28	1045	5,210	17.81	June 13	2100	10,100	19.18
May 17	0800	*16,000	*20.84	July 15	0545	3,120	16.72
June 3	0030	2,580	16.21				

Minimum daily discharge, 1.6 ft³/s Sept. 28-29.

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	11	7.6	6.8	12	18	13	32	16	7.9	14	8.5	2.0
2	14	6.7	6.8	10	11	13	31	12	125	97	13	2.1
3	5.9	6.2	6.6	9.3	207	13	31	163	462	230	11	1.9
4	4.7	6.4	6.8	8.9	39	37	18	65	629	12	7.0	1.7
5	4.1	6.4	7.1	10	21	20	7.1	360	51	10	6.7	2.1
6	3.9	5.4	6.2	10	21	66	5.0	16	16	9.5	6.2	2.4
7	3.5	4.6	12	10	31	77	4.9	15	1300	8.7	268	2.0
8	8.4	5.3	12	10	39	40	5.0	16	135	31	28	2.3
9	9.9	5.6	8.4	9.6	9.0	21	5.0	16	27	10	16	2.4
10	5.8	6.3	129	9.2	25	16	5.0	16	29	8.2	15	2.9
11	4.7	5.0	63	9.1	20	13	5.3	16	42	7.8	11	14
12	4.8	178	12	60	17	12	5.4	18	493	7.5	8.5	56
13	4.6	10	8.2	37	14	12	353	21	2190	19	8.5	148
14	3.3	6.2	7.5	37	11	12	207	12	490	9.8	6.0	33
15	4.2	170	7.6	18	185	9.4	e30	9.9	64	551	5.6	4.3
16	4.0	28	6.5	e15	276	8.7	e18	1090	32	13	4.8	3.6
17	2.9	11	6.1	e12	1040	9.0	e13	4120	23	10	212	3.1
18	2.8	15	7.1	e10	150	8.8	e11	86	19	9.8	16	2.7
19	2.7	186	6.8	e9.7	41	7.9	e10	24	17	8.4	5.2	2.2
20	2.5	16	6.6	e9.4	32	8.0	9.7	14	16	7.7	4.4	2.4
21	3.0	8.4	6.6	e9.0	23	135	e9.4	12	14	7.2	4.1	2.4
22	2.9	8.2	137	e8.6	20	14	e9.0	11	14	7.6	4.2	2.2
23	2.2	7.5	19	e8.2	18	9.2	e8.7	10	14	7.9	3.7	2.4
24	2.2	7.0	6.5	e7.9	16	8.5	e8.4	9.6	13	8.2	4.1	2.0
25	2.8	35	5.2	59	15	8.3	e8.2	9.0	13	37	7.7	2.2
26	29	55	5.7	261	14	8.1	e8.2	8.5	16	137	3.9	2.0
27	6.1	8.7	136	32	13	8.5	e8.1	8.2	12	32	3.5	1.7
28	9.7	7.1	27	667	13	1240	e8.0	7.9	11	9.4	3.4	1.6
29	113	8.3	8.8	48	---	144	11	7.9	11	8.0	3.0	1.6
30	10	7.7	7.6	36	---	26	e9.6	7.9	13	6.9	2.6	1.8
31	25	---	49	28	---	31	---	7.9	---	6.6	1.8	---
TOTAL	313.6	838.6	741.5	1480.9	2339.0	2049.4	895.0	6205.8	6298.9	1342.2	703.4	311.0
MEAN	10.1	28.0	23.9	47.8	83.5	66.1	29.8	200	210	43.3	22.7	10.4
MAX	113	186	137	667	1040	1240	353	4120	2190	551	268	148
MIN	2.2	4.6	5.2	7.9	9.0	7.9	4.9	7.9	7.9	6.6	1.8	1.6
AC-FT	622	1660	1470	2940	4640	4060	1780	12310	12490	2660	1400	617
CFSM	.32	.88	.76	1.51	2.64	2.09	.94	6.34	6.64	1.37	.72	.33
IN.	.37	.99	.87	1.74	2.75	2.41	1.05	7.31	7.42	1.58	.83	.37
(*)	.65	2.95	2.28	2.78	3.51	2.08	2.32	9.57	e8.3	e4.2	e1.6	e1.2

CAL YR 1988 TOTAL 10472.35 MEAN 28.6 MAX 2970 MIN .73 AC-FT 20770 CFSM .91 IN. 12.33 (*) 24.2
WTR YR 1989 TOTAL 23519.3 MEAN 64.4 MAX 4120 MIN 1.6 AC-FT 46650 CFSM 2.04 IN. 27.69 (*) 41.4

e Estimated.
(*) Rainfall, in inches.

08061700 DUCK CREEK NEAR GARLAND, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: January 1969 to September 1982. Sediment analyses: January 1979. Chemical and biochemical analyses: July 1988 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1988 to current year.
pH: July 1988 to current year.
WATER TEMPERATURE: July 1988 to current year.
DISSOLVED OXYGEN: July 1988 to current year.

INSTRUMENTATION.--Beginning July 1988, 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 insturment. 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, 722 microsiemens June 16, 1989; minimum, 23 microsiemens May 17, 1989.
pH: Maximum, 9.0 units Sept. 3, 1988, Sept. 11, 1989; minimum, 6.9 units Aug. 2, 1988.
WATER TEMPERATURE: Maximum, 33.0°C Aug. 9, 1988; minimum, 0.0°C Feb. 4-7, 1989.
DISSOLVED OXYGEN: Maximum, 15.3 mg/L Mar. 16, 1989; minimum, 0.8 mg/L June 6, 1989.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 722 microsiemens June 16; minimum, 23 microsiemens May 17.
pH: Maximum, 9.0 units Sept. 11; minimum, 7.1 units Sept. 8, 9.
WATER TEMPERATURE: Maximum, 32.5°C Sept. 4; minimum, 0.0°C Feb. 4-7.
DISSOLVED OXYGEN: Maximum, 15.3 mg/L Mar. 16; minimum, 0.8 mg/L June 6.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
DEC 20...	1605	6.6	485	8.00	11.5	10.1	94	0.8	200
FEB 15...	1645	431	325	8.00	9.5	10.5	92	5.4	130
APR 05...	1250	9.0	569	7.90	19.0	10.6	114	2.1	220
JUN 06...	1620	5.0	522	7.80	26.0	7.3	92	1.9	220
AUG 01...	1330	6.2	396	8.00	27.5	7.9	102	0.9	150
SEP 14...	0945	21	228	7.80	19.0	7.4	81	2.7	96

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 WH TOT FET 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)
DEC 20...	76	3.0	22	0.7	4.0	176	50	20	0.30
FEB 15...	47	1.9	15	0.6	4.2	102	34	14	0.20
APR 05...	82	3.5	32	0.9	3.1	167	82	35	0.40
JUN 06...	82	2.9	20	0.6	3.9	192	45	19	0.30
AUG 01...	56	2.2	21	0.7	3.4	133	34	17	0.40
SEP 14...	36	1.4	7.8	0.3	3.3	82	20	7.1	0.20

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-PHOROUS TOTAL (MG/L AS P)
DEC 20...	4.8	286	--	<0.010	0.300	0.020	0.38	0.40	0.020
FEB 15...	6.0	183	0.930	0.070	1.00	0.240	1.2	1.4	0.350
APR 05...	3.2	341	0.670	0.030	0.700	0.020	0.48	0.50	0.030
JUN 06...	10	298	1.06	0.040	1.10	0.120	0.78	0.90	0.130
AUG 01...	6.1	220	--	<0.010	0.200	0.010	0.69	0.70	0.020
SEP 14...	5.7	131	0.660	0.040	0.700	0.040	0.66	0.70	0.090

08061700 DUCK CREEK NEAR GARLAND, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	313.6	365	206	174	14	12	35	30	140
NOV.	1988	838.6	274	150	341	9.2	21	23	53	110
DEC.	1988	741.5	342	191	382	13	26	32	64	130
JAN.	1989	1480.9	291	161	645	10	42	26	105	110
FEB.	1989	2339.0	318	179	1130	13	80	31	194	120
MAR.	1989	2049.4	356	201	1110	14	78	34	191	140
APR.	1989	895.0	463	269	650	22	52	51	124	180
MAY	1989	6205.8	196	106	1780	6.0	101	16	262	77
JUNE	1989	6298.9	290	161	2740	11	183	27	453	110
JULY	1989	1342.2	288	160	578	10	37	26	93	110
AUG.	1989	703.4	282	155	295	9.7	18	24	46	110
SEPT	1989	311.0	236	129	108	7.7	6.5	20	17	93
TOTAL		23519.3	**	**	9900	**	657	**	1630	**
WTD.AVG.		64	281	156	**	10	**	26	**	110

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	441	301	271	290	---	---	362	346	318	335
2	---	---	431	319	301	308	382	372	377	392	348	366
3	---	---	442	345	319	330	389	381	386	412	394	407
4	---	---	445	365	344	354	389	380	385	438	408	425
5	---	---	447	391	365	377	415	385	398	444	428	437
6	---	---	445	400	390	394	440	417	429	448	440	443
7	---	---	447	405	399	401	465	436	447	452	434	448
8	---	---	438	414	404	407	443	410	424	464	436	452
9	---	---	425	429	414	421	455	409	426	478	456	464
10	---	---	451	441	430	434	473	213	371	478	456	465
11	---	---	454	441	435	440	244	209	225	506	472	483
12	---	---	451	441	150	302	288	246	264	514	217	437
13	---	---	454	---	---	265	344	290	317	425	303	372
14	---	---	452	---	---	285	364	346	353	301	279	289
15	---	---	453	---	---	258	401	366	385	350	303	327
16	---	---	453	---	---	230	423	398	408	389	352	369
17	---	---	452	---	---	255	430	422	424	413	391	404
18	---	---	454	---	---	250	456	432	446	452	413	434
19	---	---	451	---	---	225	482	448	464	474	450	460
20	---	---	454	---	---	265	488	484	485	488	472	483
21	---	---	453	---	---	275	488	474	484	477	459	466
22	455	450	452	---	---	295	482	176	375	495	470	485
23	455	451	454	---	---	325	258	186	224	497	481	487
24	454	450	451	---	---	335	298	260	279	500	491	494
25	455	450	454	---	---	340	350	300	324	520	240	480
26	455	285	398	---	---	245	382	352	363	255	152	208
27	398	341	378	---	---	280	408	198	289	318	261	288
28	414	319	350	---	---	295	374	286	350	317	110	230
29	354	160	298	---	---	315	370	364	367	362	241	301
30	301	294	299	---	---	330	396	372	381	451	366	408
31	304	261	280	---	---	---	398	294	331	504	453	479
MONTH	455	160	426	441	150	318	488	176	372	520	110	407

08061700 DUCK CREEK NEAR GARLAND, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	536	508	524	672	654	662	604	586	596	490	412	458
2	552	133	494	662	610	635	626	606	618	490	346	463
3	264	138	213	636	598	614	626	582	614	482	174	303
4	369	268	332	642	404	566	616	570	598	304	168	233
5	462	374	421	540	448	491	589	548	565	259	92	184
6	523	466	494	544	372	504	583	554	568	338	265	305
7	575	511	542	442	270	395	586	556	567	397	336	371
8	525	499	510	408	276	339	596	571	587	448	395	415
9	543	514	524	414	358	379	606	593	596	452	443	447
10	592	545	569	514	424	466	619	577	603	471	450	462
11	628	590	605	544	488	516	622	567	605	482	437	461
12	628	344	547	574	502	542	621	613	618	457	396	442
13	471	409	432	576	508	542	637	132	508	401	363	383
14	468	434	444	580	492	539	329	138	239	451	382	420
15	502	256	411	568	470	535	453	334	391	449	421	433
16	308	234	265	586	516	545	520	458	488	458	51	202
17	292	138	213	586	530	550	552	524	543	404	23	161
18	530	310	426	582	530	552	575	539	560	576	406	497
19	584	540	561	586	536	556	586	545	567	611	581	600
20	614	588	603	600	576	590	558	536	546	637	607	625
21	630	606	613	600	260	430	570	518	538	662	629	646
22	652	632	641	374	354	361	576	538	559	656	647	650
23	672	654	665	420	374	395	566	552	562	658	633	645
24	688	664	681	490	424	467	574	562	570	647	613	628
25	704	680	694	488	468	478	574	566	571	616	570	586
26	702	688	694	494	478	483	608	568	580	601	563	583
27	686	660	671	500	470	486	606	586	593	586	563	576
28	672	636	652	484	110	290	586	516	580	581	567	575
29	---	---	---	448	314	378	508	378	416	579	564	570
30	---	---	---	524	454	493	488	448	467	584	574	580
31	---	---	---	582	534	553	---	---	---	597	581	589
MONTH	704	133	516	672	110	495	637	132	547	662	23	468
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	596	585	590	510	448	476	410	396	402	414	406	411
2	598	118	555	536	152	457	440	332	393	416	408	413
3	201	78	132	264	148	213	360	328	344	422	416	418
4	298	74	167	330	268	301	394	356	375	444	422	431
5	510	310	395	394	332	363	424	394	410	434	426	432
6	544	521	528	400	388	394	424	410	420	438	428	433
7	546	112	300	410	394	404	416	78	227	440	426	434
8	544	232	417	420	258	374	262	202	234	440	424	431
9	608	550	586	318	258	292	308	264	285	446	440	442
10	632	590	605	356	318	335	334	298	316	440	426	431
11	574	414	473	424	358	389	338	330	333	428	138	269
12	452	156	294	452	426	438	358	332	344	244	190	220
13	396	118	235	464	454	457	368	358	363	254	92	172
14	602	182	419	512	452	492	376	360	367	274	198	239
15	706	610	650	510	138	239	390	378	384	330	276	307
16	722	690	705	346	262	307	386	376	380	358	326	339
17	710	686	699	410	348	384	404	78	289	384	360	374
18	716	678	702	412	400	406	336	260	298	394	368	383
19	702	674	688	436	410	426	370	336	355	398	384	389
20	672	632	659	440	428	432	384	372	378	400	388	395
21	642	610	625	450	440	445	386	376	381	402	386	396
22	626	584	608	450	442	447	398	386	391	406	396	402
23	620	588	602	466	450	456	406	392	399	400	390	395
24	604	576	590	476	466	471	422	406	415	398	378	387
25	610	572	597	474	218	444	402	310	342	406	390	397
26	582	506	551	288	134	244	374	348	360	422	406	413
27	566	488	515	332	276	303	386	376	379	426	422	425
28	574	554	563	356	316	338	394	386	391	424	420	422
29	576	560	569	376	354	361	404	394	400	436	420	429
30	566	514	558	406	378	395	404	398	401	438	432	435
31	---	---	---	408	402	405	416	404	410	---	---	---
MONTH	722	74	519	536	134	383	440	78	360	446	92	382

08061700 DUCK CREEK NEAR GARLAND, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	8.2	8.0	8.1	---	---	---
3	---	---	---	---	---	---	8.2	8.0	8.1	---	---	---
4	---	---	---	---	---	---	8.2	8.0	8.1	---	---	---
5	---	---	---	---	---	---	8.2	7.9	8.0	---	---	---
6	---	---	---	---	---	---	8.1	7.9	8.0	---	---	---
7	---	---	---	---	---	---	8.2	7.9	8.0	---	---	---
8	---	---	---	---	---	---	7.9	7.9	7.9	---	---	---
9	---	---	---	---	---	---	7.9	7.9	7.9	---	---	---
10	---	---	---	---	---	---	8.3	7.9	8.0	---	---	---
11	---	---	---	---	---	---	8.3	8.1	8.2	---	---	---
12	---	---	---	---	---	---	8.1	8.0	8.1	8.3	7.9	8.2
13	---	---	---	---	---	---	8.1	8.0	8.0	8.3	8.2	8.3
14	---	---	---	---	---	---	8.1	8.0	8.1	8.2	8.1	8.2
15	---	---	---	---	---	---	8.1	8.0	8.1	8.1	8.0	8.0
16	---	---	---	---	---	---	8.1	8.0	8.0	8.0	7.9	8.0
17	---	---	---	---	---	---	8.1	7.9	8.0	8.2	7.9	8.0
18	---	---	---	---	---	---	8.1	7.9	8.0	8.0	7.9	7.9
19	---	---	---	---	---	---	8.1	8.0	8.1	---	---	---
20	---	---	---	---	---	---	8.0	7.8	7.9	---	---	---
21	---	---	---	---	---	---	8.1	7.8	7.9	---	---	---
22	8.0	7.8	7.9	---	---	---	8.2	7.8	8.0	---	---	---
23	8.0	7.7	7.8	---	---	---	8.0	7.8	7.9	---	---	---
24	7.8	7.7	7.7	---	---	---	---	---	---	---	---	---
25	7.9	7.7	7.8	---	---	---	---	---	---	---	---	---
26	7.9	7.7	7.8	---	---	---	---	---	---	---	---	---
27	7.8	7.7	7.7	---	---	---	---	---	---	---	---	---
28	7.9	7.7	7.8	---	---	---	---	---	---	---	---	---
29	8.2	7.8	7.9	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	8.2	7.7	7.8	---	---	---	8.3	7.8	8.0	8.3	7.9	8.1
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	7.8	7.6	7.7
5	---	---	---	---	---	---	---	---	---	7.9	7.6	7.7
6	---	---	---	---	---	---	---	---	---	7.6	7.5	7.6
7	---	---	---	---	---	---	---	---	---	7.7	7.6	7.6
8	---	---	---	---	---	---	---	---	---	7.6	7.6	7.6
9	---	---	---	---	---	---	---	---	---	7.6	7.4	7.5
10	---	---	---	8.4	8.1	8.3	7.8	7.5	7.7	7.6	7.4	7.5
11	---	---	---	8.6	8.2	8.3	7.7	7.4	7.5	7.5	7.4	7.5
12	---	---	---	8.6	8.1	8.3	7.5	7.4	7.4	7.8	7.4	7.6
13	---	---	---	8.5	8.0	8.2	8.0	7.4	7.6	---	---	---
14	---	---	---	8.4	7.8	8.1	8.1	7.6	7.8	---	---	---
15	---	---	---	8.3	7.8	8.0	7.7	7.5	7.6	---	---	---
16	8.2	8.1	8.1	8.2	7.7	7.9	7.7	7.5	7.6	---	---	---
17	8.2	7.9	8.1	8.0	7.7	7.8	7.6	7.4	7.5	8.3	7.5	7.8
18	8.1	8.0	8.0	7.8	7.6	7.7	---	---	---	7.7	7.4	7.5
19	8.2	8.0	8.1	7.8	7.6	7.7	---	---	---	7.6	7.5	7.6
20	8.1	8.0	8.1	8.0	7.7	7.8	---	---	---	7.6	7.5	7.6
21	8.1	7.9	8.1	8.4	7.9	8.1	---	---	---	7.6	7.5	7.5
22	8.1	7.9	8.0	8.1	7.6	7.9	---	---	---	7.6	7.6	7.6
23	8.0	7.9	7.9	8.1	7.6	7.8	---	---	---	7.7	7.6	7.7
24	8.0	7.8	7.9	8.3	8.0	8.1	---	---	---	7.8	7.6	7.7
25	---	---	---	8.4	8.0	8.1	---	---	---	7.8	7.6	7.7
26	---	---	---	8.3	7.9	8.1	---	---	---	7.8	7.6	7.7
27	---	---	---	8.3	7.9	8.1	---	---	---	7.8	7.6	7.7
28	---	---	---	8.6	7.8	8.1	---	---	---	7.9	7.6	7.7
29	---	---	---	8.2	7.8	8.0	---	---	---	8.0	7.5	7.7
30	---	---	---	8.1	7.7	8.0	---	---	---	7.9	7.6	7.7
31	---	---	---	8.2	7.8	8.1	---	---	---	7.9	7.6	7.7
MONTH	8.2	7.8	8.0	8.6	7.6	8.0	8.1	7.4	7.6	8.3	7.4	7.6

08061700 DUCK CREEK NEAR GARLAND, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.8	7.5	7.6	7.7	7.5	7.6	8.1	7.7	7.9	7.8	7.6	7.7
2	8.1	7.5	7.7	8.6	7.5	7.7	8.1	7.7	7.8	7.7	7.5	7.6
3	8.3	7.5	7.9	8.8	7.5	7.8	8.0	7.7	7.9	7.7	7.5	7.6
4	8.0	7.4	7.6	7.6	7.5	7.6	8.0	7.6	7.7	7.5	7.3	7.4
5	7.6	7.3	7.5	7.8	7.5	7.7	---	---	---	7.4	7.3	7.4
6	7.8	7.2	7.6	7.9	7.6	7.7	---	---	---	7.5	7.2	7.4
7	8.1	7.6	7.9	7.8	7.5	7.7	8.0	7.7	7.9	7.5	7.2	7.3
8	7.7	7.5	7.5	7.8	7.5	7.6	7.9	7.9	7.9	7.7	7.1	7.4
9	7.7	7.5	7.6	7.6	7.5	7.5	7.9	7.7	7.8	7.7	7.1	7.3
10	7.7	7.5	7.6	7.7	7.4	7.5	---	---	---	7.8	7.7	7.7
11	7.8	7.6	7.7	7.8	7.3	7.5	---	---	---	9.0	7.7	8.1
12	8.0	7.4	7.7	7.8	7.4	7.6	---	---	---	8.0	7.5	7.8
13	7.9	7.4	7.6	7.8	7.2	7.6	---	---	---	8.8	7.5	7.9
14	7.6	7.4	7.5	7.8	7.7	7.8	---	---	---	7.9	7.7	7.8
15	7.6	7.4	7.5	8.1	7.6	7.8	---	---	---	7.9	7.7	7.8
16	7.6	7.4	7.5	7.6	7.5	7.6	---	---	---	8.0	7.7	7.9
17	7.6	7.6	7.6	7.7	7.5	7.6	---	---	---	7.9	7.8	7.9
18	7.6	7.5	7.6	7.9	7.6	7.8	8.0	7.6	7.8	---	---	---
19	7.6	7.5	7.6	8.0	7.7	7.8	8.0	7.7	7.8	---	---	---
20	7.8	7.5	7.7	8.0	7.7	7.8	8.2	7.6	7.9	---	---	---
21	7.8	7.6	7.7	7.9	7.6	7.8	8.1	7.7	7.8	---	---	---
22	7.6	7.4	7.5	---	---	---	8.0	7.5	7.8	---	---	---
23	7.6	7.3	7.5	---	---	---	8.1	7.5	7.8	8.1	7.7	7.9
24	7.8	7.5	7.7	7.8	7.6	7.7	8.0	7.6	7.8	8.0	7.7	7.9
25	7.8	7.6	7.7	---	---	---	8.1	7.9	8.0	7.9	7.6	7.8
26	7.8	7.6	7.6	8.0	7.7	7.8	7.8	7.7	7.8	7.9	7.6	7.8
27	7.7	7.5	7.6	7.8	7.7	7.8	7.9	7.7	7.8	7.9	7.7	7.8
28	7.8	7.6	7.7	7.8	7.7	7.8	7.9	7.7	7.8	7.8	7.7	7.7
29	7.8	7.6	7.7	7.8	7.6	7.7	7.9	7.5	7.7	8.1	7.7	7.9
30	7.9	7.6	7.7	7.9	7.7	7.8	7.9	7.6	7.7	8.2	7.7	7.9
31	---	---	---	7.9	7.7	7.8	7.8	7.6	7.7	---	---	---
MONTH	8.3	7.2	7.6	8.8	7.2	7.7	8.2	7.5	7.8	9.0	7.1	7.7

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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

08061700 DUCK CREEK NEAR GARLAND, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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	9.5	10.5	19.0	14.5	16.5	23.5	21.5	22.5
2	13.0	4.0	10.5	12.5	10.5	11.0	20.5	16.5	18.0	21.5	20.0	21.0
3	3.5	1.5	2.0	15.0	12.0	13.5	23.5	19.0	21.0	21.5	18.0	19.5
4	1.5	.0	.5	14.5	3.0	9.0	22.0	19.5	21.0	21.5	19.5	20.5
5	.0	.0	.0	2.5	1.0	1.5	20.5	17.5	19.0	21.5	18.5	20.0
6	.5	.0	.0	5.5	.5	2.5	20.0	16.0	18.0	23.5	20.0	21.5
7	2.5	.0	1.0	7.5	1.5	4.0	21.0	17.0	19.0	21.5	19.0	20.5
8	5.0	1.5	3.0	10.0	3.5	6.5	19.5	17.0	19.0	24.5	20.5	22.0
9	5.5	2.0	3.5	11.5	7.5	9.5	16.5	14.5	15.5	24.0	22.0	23.0
10	6.5	3.0	5.0	14.5	10.0	12.0	15.0	12.5	13.5	22.0	19.5	21.0
11	9.5	5.0	7.0	17.5	11.5	14.0	15.5	10.5	13.0	22.0	19.0	20.5
12	11.5	9.0	10.0	19.0	13.5	16.0	14.0	12.5	13.5	19.5	17.5	18.5
13	14.0	11.0	12.5	20.5	15.0	17.5	13.5	11.0	12.5	20.0	17.0	18.0
14	12.5	10.5	11.5	21.5	17.5	19.0	13.0	11.0	12.0	22.0	17.5	19.5
15	10.0	8.5	9.5	18.0	15.5	16.5	17.0	12.0	14.0	24.5	20.0	22.0
16	8.5	7.5	8.0	17.0	14.0	15.5	20.5	15.0	17.5	22.5	19.5	21.0
17	8.0	6.5	7.0	20.5	15.5	17.5	20.5	17.5	18.5	21.0	19.0	19.5
18	9.0	7.5	8.0	18.5	16.0	17.0	21.5	18.5	20.0	23.5	21.0	22.0
19	9.0	8.0	8.5	16.0	15.0	15.5	22.5	19.5	21.0	26.0	22.5	24.0
20	10.5	8.5	9.5	20.0	15.0	17.0	23.0	19.0	21.0	27.0	24.0	25.5
21	11.0	9.0	10.0	14.5	5.5	10.0	23.5	19.5	21.5	27.5	24.0	25.5
22	11.0	8.0	9.0	13.0	7.5	10.0	24.0	20.5	22.0	26.0	24.0	25.0
23	9.5	6.0	7.5	15.5	9.0	12.0	24.5	20.5	22.5	27.0	24.0	25.5
24	8.0	5.0	6.5	17.5	11.5	14.5	24.5	21.0	22.5	27.5	24.0	25.5
25	12.5	7.5	9.5	17.5	14.5	16.0	24.0	21.5	22.5	28.0	24.0	26.0
26	16.0	10.5	13.0	18.0	16.5	17.0	26.0	22.0	24.0	28.0	25.0	26.0
27	14.5	11.5	13.0	20.5	17.0	18.5	25.0	22.5	23.5	27.0	24.5	25.5
28	12.0	10.5	11.0	19.5	16.0	17.5	26.0	22.5	24.0	27.5	23.5	25.5
29	---	---	---	19.5	17.0	18.5	25.0	23.0	24.0	27.5	23.5	25.5
30	---	---	---	19.0	17.0	18.0	24.0	21.5	23.0	27.5	24.0	25.5
31	---	---	---	19.0	16.0	17.5	---	---	---	27.0	24.0	25.5
MONTH	16.0	.0	7.5	21.5	.5	13.5	26.0	10.5	19.0	28.0	17.0	22.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	27.5	24.0	26.0	28.5	25.0	26.5	27.5	26.5	27.0	32.0	27.0	29.0
2	28.0	22.5	25.5	29.0	25.0	27.0	27.0	25.0	26.0	32.0	27.5	29.5
3	26.5	22.0	24.0	26.5	24.0	25.0	29.0	26.0	27.0	32.0	27.5	29.5
4	26.5	20.5	23.0	29.0	25.0	26.5	29.5	25.5	27.5	32.5	27.5	29.5
5	24.5	22.0	23.0	29.5	26.0	27.0	30.5	26.0	28.0	31.5	27.0	29.0
6	26.0	23.5	24.5	29.5	26.0	27.5	29.5	26.5	28.0	31.0	27.0	28.5
7	23.5	21.5	23.0	27.0	25.5	26.5	27.0	24.0	25.0	30.0	27.0	28.0
8	23.5	21.5	22.5	27.5	25.0	26.0	25.0	22.0	23.5	30.5	26.5	28.0
9	24.0	22.5	23.0	30.0	26.5	28.0	25.5	21.5	23.0	28.5	26.5	27.5
10	26.5	22.5	24.0	30.0	26.5	28.0	24.0	21.5	22.5	28.0	25.5	26.5
11	26.0	23.5	25.0	28.5	26.0	27.5	26.0	22.0	24.0	26.0	22.5	24.0
12	25.0	21.5	23.5	30.0	26.0	28.0	26.5	22.0	24.0	25.5	23.0	24.0
13	24.0	21.0	22.0	28.5	26.5	27.5	27.0	22.5	24.5	24.5	20.5	22.0
14	23.5	20.5	21.5	28.5	26.0	27.5	25.0	23.5	24.0	20.5	19.0	19.5
15	22.5	20.5	21.5	27.0	24.5	25.5	26.0	23.0	24.5	20.5	17.5	19.0
16	23.0	20.5	21.5	30.5	26.5	28.0	27.0	23.5	25.0	21.5	18.0	19.5
17	25.0	20.5	22.5	30.0	27.0	28.0	25.5	24.0	24.5	23.0	19.0	21.0
18	26.5	21.5	24.0	30.0	26.5	28.0	27.5	24.5	26.0	23.5	20.0	21.5
19	28.0	23.0	25.5	30.0	27.0	28.0	28.5	25.0	26.5	23.5	20.0	22.0
20	28.5	24.5	26.5	28.5	25.5	26.5	29.5	25.5	27.5	24.0	20.5	22.5
21	28.5	25.0	27.0	27.5	24.0	25.5	30.0	26.0	27.5	24.0	21.0	22.5
22	28.5	25.5	26.5	27.5	23.5	25.5	30.0	26.5	28.0	23.0	21.0	22.0
23	27.5	25.5	26.5	25.5	24.0	25.0	30.0	26.0	28.0	21.5	18.5	20.0
24	28.5	25.0	26.5	27.5	23.0	25.0	30.0	26.0	28.5	19.0	16.0	17.5
25	28.0	25.0	26.5	27.5	24.0	25.5	30.5	28.0	29.0	18.5	15.0	17.0
26	28.5	25.5	27.0	27.0	26.0	26.5	31.0	26.5	28.5	19.5	15.5	17.5
27	27.5	25.5	26.5	27.5	25.0	26.0	31.0	27.0	29.0	20.0	16.0	18.0
28	27.0	24.0	25.5	29.0	25.0	26.5	31.5	27.0	29.0	20.5	16.5	18.0
29	27.0	24.0	25.5	29.0	25.5	27.0	31.0	27.0	29.0	20.0	17.5	19.0
30	26.5	24.0	25.0	30.5	26.0	28.0	31.0	27.0	28.5	22.0	18.5	20.0
31	---	---	---	29.5	26.5	28.0	31.5	27.0	29.0	---	---	---
MONTH	28.5	20.5	24.5	30.5	23.0	27.0	31.5	21.5	26.5	32.5	15.0	23.0

08061700 DUCK CREEK NEAR GARLAND, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	6.7	5.9	6.4	---	---	---	10.0	9.2	9.6
2	---	---	---	6.4	5.6	6.0	10.9	9.3	10.0	10.0	9.1	9.4
3	---	---	---	6.1	5.0	5.6	10.8	9.2	9.8	9.9	8.9	9.2
4	---	---	---	5.9	4.6	5.1	11.2	9.2	10.0	10.4	8.9	9.5
5	---	---	---	6.1	4.2	4.9	11.0	9.2	9.9	10.3	8.9	9.3
6	---	---	---	5.4	4.2	4.7	11.0	8.9	9.7	10.4	8.7	9.3
7	---	---	---	5.2	4.2	4.7	10.1	8.0	9.0	10.1	8.1	8.9
8	---	---	---	4.6	3.8	4.2	7.9	7.2	7.5	---	---	---
9	---	---	---	4.5	3.6	4.1	9.7	7.8	8.9	---	---	---
10	---	---	---	3.9	3.3	3.6	10.1	8.7	9.4	---	---	---
11	---	---	---	4.4	3.5	3.8	9.9	9.6	9.8	---	---	---
12	---	---	---	7.2	4.1	5.6	9.8	9.5	9.6	10.4	8.8	9.6
13	---	---	---	---	---	---	10.1	9.5	9.8	10.7	10.0	10.3
14	---	---	---	---	---	---	10.0	9.2	9.6	10.7	10.0	10.4
15	---	---	---	---	---	---	9.6	9.2	9.4	10.7	9.8	10.2
16	---	---	---	---	---	---	10.4	9.5	9.9	10.9	9.7	10.1
17	---	---	---	---	---	---	10.5	9.8	10.1	11.0	9.6	10.1
18	---	---	---	---	---	---	10.8	9.9	10.2	11.0	9.4	10.0
19	---	---	---	---	---	---	10.5	9.2	9.9	10.4	9.0	9.5
20	---	---	---	---	---	---	10.1	8.6	9.2	11.7	8.6	9.9
21	---	---	---	---	---	---	10.1	8.6	9.2	12.1	9.1	10.3
22	7.8	5.7	6.7	---	---	---	8.9	7.6	8.4	12.6	9.3	10.6
23	7.1	5.2	6.1	---	---	---	8.8	8.2	8.5	12.5	9.3	10.7
24	6.9	5.2	5.9	---	---	---	9.5	8.6	9.0	12.9	8.7	10.3
25	7.1	4.8	5.7	---	---	---	9.9	8.9	9.3	9.8	7.1	8.5
26	6.1	5.1	5.5	---	---	---	9.5	8.4	9.0	8.6	8.0	8.4
27	5.2	4.1	4.7	---	---	---	9.2	8.1	8.6	9.2	8.4	8.6
28	6.2	4.0	5.1	---	---	---	10.0	9.2	9.7	9.7	8.8	9.1
29	7.4	4.9	6.0	---	---	---	10.8	9.9	10.3	9.0	8.8	8.8
30	6.7	6.0	6.2	---	---	---	10.5	10.1	10.2	9.0	8.6	8.8
31	7.0	6.0	6.5	---	---	---	10.1	9.3	9.7	9.1	7.9	8.7
MONTH	7.8	4.0	5.8	7.2	3.3	4.9	11.2	7.2	9.5	12.9	7.1	9.6
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	8.4	7.8	8.1	12.0	9.6	10.5	8.4	7.5	8.0	---	---	---
2	11.5	5.8	8.4	12.5	9.4	10.6	9.0	7.0	7.9	---	---	---
3	12.0	11.5	11.9	12.6	8.9	10.1	9.8	6.4	7.9	---	---	---
4	12.3	12.0	12.2	11.4	8.3	9.8	11.8	6.2	8.3	---	---	---
5	12.2	12.0	12.2	13.1	11.4	12.3	13.4	6.7	9.1	7.7	6.7	7.3
6	12.2	11.9	12.1	---	---	---	13.3	6.7	9.2	7.1	6.7	6.9
7	12.2	11.6	12.0	---	---	---	13.1	6.5	8.9	7.2	6.2	6.9
8	11.6	10.9	11.3	---	---	---	9.8	6.0	7.7	6.8	5.7	6.2
9	11.4	10.4	11.0	---	---	---	11.8	6.8	8.9	6.0	4.3	5.5
10	11.1	10.0	10.7	12.0	10.0	10.8	12.3	7.9	9.8	7.3	5.5	6.3
11	10.7	9.3	10.1	12.8	9.4	10.8	12.6	8.5	10.1	8.7	5.1	6.8
12	10.7	8.8	9.4	14.2	8.7	10.8	11.5	8.1	9.5	7.0	5.3	6.3
13	10.4	9.0	9.5	14.9	8.0	10.7	10.8	8.1	9.2	5.8	5.0	5.4
14	9.7	9.0	9.4	14.9	7.5	10.2	10.8	9.6	10.1	6.5	5.2	5.8
15	10.6	9.7	10.3	14.8	7.4	10.2	9.9	9.1	9.6	6.4	5.0	5.5
16	10.4	9.8	10.1	15.3	8.0	10.7	---	---	---	---	---	---
17	10.7	9.5	10.0	14.8	7.7	10.4	---	---	---	---	---	---
18	9.4	8.7	9.2	11.4	7.0	8.8	---	---	---	---	---	---
19	9.4	8.6	9.0	12.1	7.6	9.4	---	---	---	6.1	3.4	4.3
20	9.1	8.6	8.9	13.3	7.8	9.9	---	---	---	7.2	6.4	6.9
21	9.3	8.9	9.1	14.5	7.9	11.3	9.9	7.1	8.1	8.2	6.8	7.4
22	9.8	9.4	9.6	12.7	10.8	11.8	9.2	6.8	7.7	8.6	7.0	7.6
23	10.6	9.7	10.1	12.0	9.2	10.9	8.8	6.4	7.2	10.0	7.1	8.2
24	11.0	10.0	10.6	12.1	8.3	10.0	8.7	6.0	7.0	10.9	7.1	8.4
25	10.6	9.2	10.0	12.1	8.0	9.6	8.4	5.8	6.7	11.2	6.9	8.5
26	9.8	8.3	9.2	11.8	7.6	9.2	7.5	5.1	6.1	11.6	6.6	8.5
27	9.7	8.3	8.9	11.8	7.3	9.0	8.3	5.0	6.2	12.0	6.6	8.5
28	11.2	9.1	9.9	8.2	6.7	7.4	8.2	4.8	6.2	12.1	6.7	8.8
29	---	---	---	7.6	5.5	6.6	5.5	1.9	3.3	12.8	6.4	8.9
30	---	---	---	7.2	5.0	6.1	6.4	2.8	4.4	13.0	6.2	8.8
31	---	---	---	8.0	7.1	7.6	---	---	---	12.2	6.1	8.5
MONTH	12.3	5.8	10.1	15.3	5.0	9.8	13.4	1.9	7.9	13.0	3.4	7.2

08061700 DUCK CREEK NEAR GARLAND, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	10.9	5.9	8.0	8.2	5.4	6.6	8.4	5.7	6.8	8.4	4.7	6.5
2	11.7	5.7	8.1	8.9	5.2	6.9	6.9	5.0	5.7	8.9	4.6	6.5
3	9.2	7.4	8.1	7.7	6.6	7.1	6.8	5.2	5.9	8.5	4.8	6.5
4	9.6	7.4	8.4	7.6	6.2	6.8	8.0	5.2	6.3	8.7	4.8	6.6
5	8.3	3.0	7.3	8.9	6.2	7.2	8.9	5.2	6.7	8.7	4.2	6.3
6	7.2	.8	5.4	9.7	6.2	7.6	8.2	5.0	6.4	8.7	4.5	6.5
7	8.1	6.6	7.4	9.3	6.2	7.4	8.0	5.5	6.9	8.4	5.0	6.5
8	7.2	2.7	5.6	8.8	5.2	6.8	7.5	6.7	7.1	8.4	5.0	6.6
9	7.2	3.4	5.6	6.9	4.5	5.4	8.6	6.7	7.5	7.2	4.9	6.1
10	7.5	6.8	7.1	8.8	4.7	6.4	8.9	7.0	7.8	7.9	4.9	6.3
11	7.4	6.7	7.1	9.3	5.1	6.8	---	---	---	---	---	---
12	8.6	4.6	7.1	10.5	5.2	7.4	---	---	---	---	---	---
13	8.5	4.9	7.3	8.0	5.5	6.3	---	---	---	---	---	---
14	8.0	3.6	6.4	6.9	5.7	6.2	---	---	---	---	---	---
15	6.2	1.4	4.0	6.9	4.4	6.4	---	---	---	7.6	7.2	7.4
16	6.5	2.6	4.0	6.6	5.9	6.3	---	---	---	7.8	7.0	7.4
17	6.8	6.5	6.6	7.7	5.8	6.6	7.8	6.0	6.4	7.8	6.8	7.2
18	7.2	6.6	6.9	8.4	5.6	6.7	6.4	5.7	6.0	8.6	6.7	7.4
19	8.3	6.1	7.1	8.8	5.3	6.7	7.2	5.7	6.2	9.5	6.7	7.6
20	8.9	5.6	7.1	9.0	5.4	7.0	8.3	5.4	6.5	10.0	6.8	8.0
21	10.0	5.6	7.3	9.3	5.7	7.3	8.7	5.0	6.6	10.4	6.6	8.2
22	9.4	5.6	7.0	9.8	5.8	7.4	9.0	5.3	6.8	10.2	6.5	8.1
23	8.4	5.7	6.9	8.8	5.8	7.2	8.6	5.2	6.7	---	---	---
24	8.6	5.9	7.0	10.0	6.1	7.8	8.6	5.2	6.6	---	---	---
25	8.4	5.7	6.8	10.0	5.4	7.2	8.6	5.3	6.5	---	---	---
26	7.7	4.8	6.2	6.0	3.8	4.8	---	---	---	---	---	---
27	7.6	4.4	5.6	6.4	5.7	6.1	---	---	---	---	---	---
28	8.1	5.3	6.5	6.9	5.3	6.0	---	---	---	---	---	---
29	8.5	5.5	6.8	8.1	5.4	6.4	---	---	---	---	---	---
30	8.8	5.9	7.0	9.0	5.4	6.8	---	---	---	9.2	6.7	8.0
31	---	---	---	9.2	5.0	6.9	8.7	4.7	6.5	---	---	---
MONTH	11.7	.8	6.7	10.5	3.8	6.7	9.0	4.7	6.6	10.4	4.2	7.0

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 good except those for estimated daily discharges, which are fair. 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, that enters the East Fork Trinity River 0.2 mi upstream from this station. Gage-height telemeter at station.

AVERAGE DISCHARGE.--16 years (water years 1974-89), 560 ft³/s (405,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,700 ft³/s May 17, 1989 (gage height, 20.96 ft) from rating extended above 18,500 ft³/s; minimum daily, 13 ft³/s Oct. 18, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 42,700 ft³/s May 17 at 1530 hours (gage height, 20.96 ft) from rating extended above 18,500 ft³/s; minimum daily, 24 ft³/s Oct. 15 and 19.

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	84	50	42	60	61	52	91	1350	1350	1240	1480	1460
2	60	37	36	42	54	49	71	1340	1150	1300	1500	1460
3	40	33	31	39	230	47	356	1420	3310	1940	1520	1460
4	36	30	32	40	76	115	810	920	4210	1630	1520	1460
5	32	31	33	38	64	170	1010	2230	8050	1270	1520	1470
6	28	29	31	35	64	82	1400	2180	3970	894	1570	1460
7	27	30	31	36	69	106	1400	875	4130	1050	1950	1460
8	27	30	45	35	74	113	1400	66	11400	1290	1660	1700
9	43	31	34	35	68	205	1410	128	11800	1300	1420	e1070
10	33	29	58	32	65	435	1430	575	11700	1280	1430	e1060
11	31	28	179	32	49	431	1400	800	5710	1290	1430	e1340
12	27	145	68	40	72	425	682	1100	7310	1290	1430	e1460
13	27	87	45	121	142	623	715	1410	12500	1290	1430	1860
14	27	37	38	100	77	1410	2130	1390	30300	1290	1410	1710
15	24	51	36	65	122	2040	1350	1430	18600	2000	1440	1320
16	27	218	29	54	426	1910	1300	3810	10100	1650	1430	1100
17	27	50	33	51	1280	628	1300	29000	4310	1610	1600	1100
18	28	41	33	45	2450	390	1290	14300	1910	1210	1560	1340
19	24	178	30	47	e1900	393	1290	5480	2100	1040	1470	1590
20	28	162	33	47	e475	410	1280	643	2300	1110	1460	1580
21	30	52	32	45	e200	609	1290	334	1110	835	1430	1610
22	27	30	64	46	e190	836	1280	205	87	857	1450	1600
23	25	39	162	47	e170	802	1270	423	71	857	1430	1410
24	28	44	48	45	e160	632	761	797	67	857	1430	625
25	29	33	41	50	e140	315	631	788	66	1060	1300	442
26	38	112	35	446	e135	52	1160	783	580	1360	e141	253
27	58	50	121	81	e155	121	1180	777	1210	1500	e62	46
28	43	39	128	416	e140	8260	1250	775	1220	1510	e52	45
29	82	26	45	456	---	10600	1340	785	1230	1500	e47	44
30	100	38	45	88	---	2250	752	794	1240	1470	72	44
31	56	---	68	70	---	1110	---	1080	---	1500	977	---
TOTAL	1196	1790	1686	2784	9108	35621	33029	77988	163091	40280	38621	34579
MEAN	38.6	59.7	54.4	89.8	325	1149	1101	2516	5436	1299	1246	1153
MAX	100	218	179	456	2450	10600	2130	29000	30300	2000	1950	1860
MIN	24	26	29	32	49	47	71	66	66	835	47	44
AC-FT	2370	3550	3340	5520	18070	70650	65510	154700	323500	79900	76600	68590

CAL YR 1988 TOTAL 21264 MEAN 58.1 MAX 900 MIN 21 AC-FT 42180
WTR YR 1989 TOTAL 439773 MEAN 1205 MAX 30300 MIN 24 AC-FT 872300

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.--Beginning 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 malfunction 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, 32.5°C Aug. 18, 1986,; 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, 789 microsiemens Oct. 23; minimum, 172 microsiemens Jan. 28.
PH: Maximum, 8.9 units Aug. 13; minimum, 7.0 units Oct. 1.
WATER TEMPERATURE: Maximum, 32.0°C Aug. 30; minimum, 2.5°C Feb. 4.
DISSOLVED OXYGEN: Maximum, 12.7 mg/l Mar. 14; minimum, 4.7 mg/l Nov. 15.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	CALCIUM DIS-SOLVED (MG/L AS CA)
NOV 14...	1040	37	550	7.40	19.0	5.6	61	2.4	140	49
JAN 09...	1050	36	652	7.50	12.5	8.9	83	2.3	170	62
APR 25...	0900	290	548	7.70	18.5	9.1	98	2.1	160	58
JUN 07...	1245	4310	331	8.00	24.5	9.4	116	2.3	130	48
AUG 03...	1315	1510	265	7.70	28.0	7.6	99	1.2	97	35
SEP 14...	1315	1700	246	7.80	25.0	8.7	106	1.9	92	33

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 WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
NOV 14...	3.4	52	2	8.9	93	57	41	0.90	9.6	278
JAN 09...	3.6	64	2	9.3	109	71	56	0.80	11	343
APR 25...	3.5	45	2	7.1	129	62	38	0.70	5.6	297
JUN 07...	2.9	22	0.8	4.6	118	33	19	0.40	2.4	203
AUG 03...	2.4	12	0.5	4.2	95	20	9.7	0.30	2.7	143
SEP 14...	2.4	12	0.5	3.7	90	20	8.3	0.30	4.2	138

DATE	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)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)
NOV 14...	10.9	0.060	11.0	0.200	2.9	3.1	6.10	--	--	--
JAN 09...	12.0	0.020	12.0	0.110	1.5	1.6	7.20	2	34	2
APR 25...	4.37	0.030	4.40	0.130	0.27	0.40	5.00	--	--	--
JUN 07...	1.18	0.020	1.20	0.040	0.56	0.60	0.510	--	--	--
AUG 03...	--	<0.010	0.100	0.100	0.50	0.60	0.140	6	31	<1
SEP 14...	0.090	0.010	0.100	0.070	0.43	0.50	0.130	--	--	--

08061750 EAST FORK TRINITY RIVER NEAR FORNEY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	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)
NOV 14...	--	--	--	--	--	--	--	--	--
JAN 09...	2	11	52	<5	20	<0.1	<1	<1.0	14
APR 25...	--	--	--	--	--	--	--	--	--
JUN 07...	--	--	--	--	--	--	--	--	--
AUG 03...	<1	9	11	<1	19	<0.1	<1	<1.0	6
SEP 14...	--	--	--	--	--	--	--	--	--

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	1196	599	328	1060	48	155	55	178	170
NOV.	1988	1790	513	285	1380	37	176	51	244	160
DEC.	1988	1686	541	299	1360	40	183	52	237	160
JAN.	1989	2784	503	279	2100	35	265	50	374	150
FEB.	1989	9108	446	249	6130	30	727	46	1120	140
MAR.	1989	35621	336	193	18500	16	1530	39	3730	110
APR.	1989	33029	342	196	17500	16	1460	39	3510	110
MAY	1989	77988	265	154	32400	11	2220	32	6760	92
JUNE	1989	163091	281	162	71500	11	5020	34	14900	97
JULY	1989	40280	271	157	17100	11	1150	33	3580	94
AUG.	1989	38621	267	155	16200	10	1090	33	3390	93
SEPT	1989	34579	257	149	14000	9.7	906	32	2940	90
TOTAL		439773	**	**	199000	**	14900	**	40900	**
WTD.AVG.		1205	291	168	**	13	**	34	**	100

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	524	353	425	606	452	530	705	634	671	570	441	508
2	574	437	479	686	596	653	711	638	677	592	568	578
3	582	475	515	720	650	683	694	650	671	604	577	594
4	665	593	612	702	647	678	708	633	670	649	593	630
5	700	639	671	729	657	699	692	609	647	657	639	647
6	700	649	675	657	607	632	687	626	660	707	645	667
7	707	654	682	635	602	617	710	662	682	717	671	689
8	714	648	683	721	629	688	704	572	625	698	647	673
9	728	525	588	759	680	721	668	625	648	699	621	653
10	625	568	577	743	676	706	688	319	616	645	625	631
11	699	616	639	748	662	707	372	282	330	749	653	689
12	710	649	681	716	212	533	556	381	461	772	609	729
13	732	669	702	523	357	459	599	562	579	602	333	470
14	698	664	682	585	514	546	647	599	615	608	421	483
15	727	673	701	688	294	630	678	615	644	612	507	563
16	718	649	685	509	202	327	686	644	662	648	598	609
17	674	636	650	579	525	559	688	646	664	686	647	660
18	727	681	702	652	584	627	696	631	659	731	665	699
19	765	710	741	545	203	428	704	628	646	688	656	674
20	787	728	761	469	235	362	748	682	709	673	648	660
21	761	697	728	586	482	521	740	694	715	692	659	674
22	754	720	744	626	492	577	716	326	660	678	648	667
23	789	720	755	698	439	626	578	304	407	666	637	652
24	728	638	690	712	638	666	599	575	585	723	673	693
25	701	657	679	700	570	624	599	583	590	776	674	723
26	744	541	699	635	368	434	618	561	575	749	221	388
27	585	529	545	549	445	507	681	260	526	652	493	560
28	684	537	620	624	549	571	463	287	376	624	172	437
29	653	239	558	658	552	608	570	466	516	466	187	337
30	524	254	411	701	452	621	628	568	589	609	463	540
31	561	413	513	---	---	---	600	404	513	646	578	608
MONTH	789	239	638	759	202	585	748	260	600	776	172	606

08061750 EAST FORK TRINITY RIVER NEAR FORNEY, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	670	625	645	707	684	695	---	---	521	329	314	319
2	721	652	683	693	687	690	---	---	617	328	315	322
3	676	289	397	702	686	691	---	---	619	359	299	326
4	547	427	477	713	467	609	346	335	340	356	321	328
5	595	554	574	512	406	449	341	321	332	320	250	297
6	649	578	615	598	446	499	331	324	328	325	319	321
7	638	589	606	595	476	539	330	325	327	438	323	361
8	663	612	630	586	437	502	332	325	328	618	457	547
9	686	631	661	588	375	490	330	324	327	684	347	602
10	718	667	683	382	375	377	328	325	327	358	330	345
11	707	606	655	386	373	379	334	325	328	343	335	338
12	708	616	692	377	364	372	438	326	353	344	326	336
13	571	433	516	378	342	357	572	329	456	349	333	338
14	619	549	592	352	330	340	328	260	300	339	331	335
15	629	316	577	337	312	328	335	327	330	335	331	333
16	379	273	322	338	312	317	335	332	334	---	---	237
17	304	182	246	365	323	345	336	332	334	---	---	200
18	402	188	310	356	344	349	336	332	334	---	---	298
19	594	407	504	356	336	346	334	327	331	---	---	264
20	635	588	606	356	334	347	333	325	328	---	---	281
21	672	628	645	474	311	349	352	331	338	---	---	300
22	689	659	676	326	316	321	345	338	341	---	---	322
23	702	667	684	329	322	324	349	339	342	---	---	343
24	707	676	697	349	325	337	480	349	396	327	323	325
25	734	696	713	---	---	522	543	334	405	326	323	325
26	736	655	688	---	---	637	344	342	343	329	322	325
27	684	658	676	---	---	335	345	338	341	328	320	322
28	694	680	688	346	306	322	339	332	334	328	320	323
29	---	---	---	327	312	315	349	325	335	322	317	319
30	---	---	---	336	324	329	446	314	367	327	318	321
31	---	---	---	556	328	406	---	---	---	325	310	318
MONTH	736	182	588	713	306	426	572	260	368	684	250	331
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	317	311	315	267	251	259	271	257	265	264	256	261
2	332	303	317	260	252	256	279	258	269	259	250	256
3	355	253	282	334	232	259	272	264	266	254	249	252
4	316	254	285	255	248	251	263	258	260	253	246	250
5	295	290	293	269	245	257	262	259	261	254	245	251
6	311	293	298	269	263	267	263	258	261	256	251	253
7	---	---	286	277	259	267	299	249	262	259	254	256
8	---	---	268	296	265	270	262	249	257	279	256	264
9	---	---	302	277	268	274	265	261	263	272	258	267
10	---	---	311	280	276	278	269	262	266	263	256	259
11	---	---	317	283	274	279	275	268	272	317	219	250
12	---	---	319	283	274	279	275	270	273	278	246	249
13	---	---	281	286	274	280	276	269	272	338	205	274
14	---	---	229	287	272	277	274	269	272	249	239	245
15	---	---	271	327	235	261	277	271	273	256	248	252
16	---	---	288	268	264	266	277	270	273	264	252	255
17	---	---	294	281	265	272	311	228	262	259	248	252
18	---	---	306	301	277	284	256	243	253	260	252	256
19	---	---	308	289	267	276	259	256	257	258	253	256
20	---	---	302	290	266	274	260	257	258	258	253	256
21	480	273	364	282	272	277	261	256	259	261	245	254
22	655	502	590	286	279	283	261	256	258	251	234	241
23	693	659	679	286	279	284	262	256	259	267	235	243
24	700	662	684	286	280	283	262	258	260	271	248	258
25	670	632	654	288	274	281	363	260	289	272	263	268
26	639	266	454	324	270	283	589	369	484	453	272	335
27	276	265	270	274	253	269	665	603	641	633	466	581
28	269	254	261	277	269	273	632	611	620	673	619	646
29	259	255	257	276	267	271	650	618	642	678	637	653
30	261	258	259	271	268	269	670	266	627	686	631	657
31	---	---	---	275	267	271	271	254	261	---	---	---
MONTH	700	253	345	334	232	272	670	228	319	686	205	308

08061750 EAST FORK TRINITY RIVER NEAR FORNEY, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.3	7.0	7.2	---	---	---	---	---	---	7.6	7.4	7.4
2	7.5	7.3	7.4	---	---	---	---	---	---	7.6	7.4	7.5
3	7.4	7.3	7.3	---	---	---	---	---	---	7.6	7.5	7.5
4	7.5	7.4	7.4	---	---	---	---	---	---	7.5	7.4	7.4
5	7.6	7.4	7.5	---	---	---	---	---	---	7.7	7.3	7.5
6	7.5	7.3	7.4	---	---	---	---	---	---	7.8	7.6	7.6
7	7.3	7.2	7.3	---	---	---	7.8	7.7	7.8	7.8	7.5	7.6
8	7.3	7.3	7.3	---	---	---	7.8	7.6	7.7	7.5	7.5	7.5
9	7.5	7.3	7.4	---	---	---	7.6	7.5	7.5	7.6	7.4	7.5
10	7.4	7.3	7.4	---	---	---	7.6	7.5	7.5	7.5	7.4	7.5
11	7.3	7.3	7.3	---	---	---	7.6	7.5	7.5	7.5	7.4	7.4
12	7.4	7.2	7.3	---	---	---	7.6	7.4	7.5	7.4	7.3	7.3
13	7.3	7.2	7.2	---	---	---	7.5	7.2	7.4	7.5	7.4	7.4
14	---	---	---	---	---	---	---	---	---	7.5	7.4	7.4
15	---	---	---	7.6	7.5	7.5	---	---	---	---	---	---
16	---	---	---	7.8	7.6	7.7	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	7.8	7.8	7.8	---	---	---
21	7.3	7.2	7.3	---	---	---	7.8	7.6	7.7	---	---	---
22	7.3	7.2	7.3	---	---	---	7.6	7.5	7.6	---	---	---
23	7.3	7.3	7.3	---	---	---	---	---	---	---	---	---
24	7.3	7.2	7.3	---	---	---	---	---	---	---	---	---
25	7.4	7.3	7.3	---	---	---	---	---	---	7.5	7.3	7.4
26	7.4	7.1	7.3	---	---	---	---	---	---	7.7	7.4	7.5
27	7.4	7.3	7.3	---	---	---	---	---	---	7.4	7.3	7.3
28	---	---	---	---	---	---	---	---	---	7.8	7.3	7.5
29	---	---	---	---	---	---	7.5	7.2	7.4	7.9	7.6	7.7
30	---	---	---	---	---	---	7.5	7.4	7.5	7.8	7.7	7.7
31	---	---	---	---	---	---	7.5	7.3	7.4	7.8	7.7	7.8
MONTH	7.6	7.0	7.3	7.8	7.5	7.6	7.8	7.2	7.6	7.9	7.3	7.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.7	7.6	7.7	---	---	---	8.0	7.9	7.9	8.1	8.0	8.1
2	7.6	7.5	7.6	---	---	---	8.0	7.8	7.9	8.1	7.8	7.9
3	7.7	7.6	7.6	---	---	---	8.2	7.8	8.0	7.9	7.7	7.8
4	7.6	7.5	7.6	8.1	7.7	7.9	8.3	8.0	8.1	7.9	7.8	7.9
5	7.6	7.5	7.5	7.8	7.6	7.7	8.8	8.3	8.6	8.3	7.9	8.0
6	7.5	7.5	7.5	7.8	7.6	7.7	8.8	8.7	8.7	8.3	8.1	8.2
7	7.5	7.4	7.5	---	---	---	8.8	8.5	8.7	8.1	7.6	7.8
8	7.4	7.4	7.4	---	---	---	8.5	8.5	8.5	7.8	7.7	7.7
9	---	---	---	---	---	---	8.5	8.3	8.4	8.3	7.7	7.8
10	---	---	---	---	---	---	8.3	8.2	8.3	8.1	7.9	8.0
11	---	---	---	---	---	---	8.2	8.1	8.2	---	---	---
12	---	---	---	---	---	---	8.1	7.7	8.0	---	---	---
13	---	---	---	---	---	---	8.3	7.7	8.1	---	---	---
14	7.8	7.7	7.7	---	---	---	8.2	8.1	8.1	---	---	---
15	7.9	7.7	7.7	---	---	---	8.2	8.1	8.1	---	---	---
16	7.9	7.8	7.8	8.4	8.0	8.3	8.1	8.0	8.1	---	---	---
17	7.9	7.8	7.8	8.1	8.0	8.1	8.1	8.0	8.0	---	---	---
18	7.8	7.6	7.7	8.2	8.0	8.1	8.1	8.0	8.0	---	---	---
19	7.7	7.6	7.6	8.2	8.0	8.1	8.3	8.0	8.2	---	---	---
20	7.6	7.6	7.6	---	---	---	8.2	8.1	8.2	---	---	---
21	---	---	---	---	---	---	8.1	8.0	8.1	---	---	---
22	---	---	---	---	---	---	8.1	8.0	8.0	---	---	---
23	---	---	---	---	---	---	8.0	7.9	8.0	---	---	---
24	---	---	---	---	---	---	8.0	7.8	7.9	7.7	7.6	7.6
25	---	---	---	---	---	---	8.5	7.7	8.2	7.7	7.5	7.6
26	---	---	---	---	---	---	8.5	8.3	8.5	7.6	7.5	7.6
27	---	---	---	---	---	---	8.4	8.2	8.3	7.6	7.5	7.6
28	---	---	---	8.5	7.7	8.1	8.3	8.2	8.2	7.7	7.5	7.6
29	---	---	---	8.7	8.5	8.6	8.2	8.0	8.1	7.6	7.4	7.5
30	---	---	---	8.8	8.4	8.6	8.3	7.8	8.0	---	---	---
31	---	---	---	8.8	8.0	8.4	---	---	---	---	---	---
MONTH	7.9	7.4	7.6	8.8	7.6	8.1	8.8	7.7	8.2	8.3	7.4	7.8

08061750 EAST FORK TRINITY RIVER NEAR FORNEY, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	8.5	8.2	8.3	8.2	7.9	8.1	7.4	7.2	7.3
2	---	---	---	8.3	7.8	8.1	8.1	7.6	7.7	7.4	7.3	7.4
3	---	---	---	8.1	7.8	8.0	7.7	7.6	7.6	7.4	7.3	7.4
4	---	---	---	8.1	7.7	7.9	7.9	7.5	7.7	7.3	7.2	7.3
5	---	---	---	8.1	7.9	8.0	8.0	7.7	7.8	---	---	---
6	---	---	---	8.0	7.8	7.9	8.2	7.7	7.9	---	---	---
7	---	---	---	7.8	7.7	7.8	8.1	7.8	8.0	---	---	---
8	8.3	8.0	8.2	7.9	7.7	7.8	8.3	8.0	8.1	---	---	---
9	8.2	8.1	8.2	7.8	7.7	7.7	8.2	8.0	8.1	---	---	---
10	8.1	8.0	8.1	7.8	7.6	7.7	8.2	7.3	8.0	---	---	---
11	8.0	8.0	8.0	7.8	7.6	7.7	8.2	8.0	8.1	---	---	---
12	8.1	7.8	7.9	7.8	7.6	7.7	8.2	8.0	8.1	---	---	---
13	8.0	7.9	7.9	8.0	7.5	7.7	8.9	7.7	8.1	---	---	---
14	8.0	7.9	8.0	7.9	7.7	7.8	8.0	7.9	7.9	7.9	7.8	7.9
15	8.1	7.6	8.0	8.1	7.7	7.8	8.1	7.9	8.0	---	---	---
16	8.2	7.9	8.0	8.0	7.8	7.9	8.0	7.9	7.9	---	---	---
17	8.1	7.8	8.0	7.7	7.5	7.6	8.0	7.9	7.9	---	---	---
18	8.0	7.9	8.0	7.7	7.4	7.6	8.1	8.0	8.0	---	---	---
19	8.0	7.8	7.9	8.2	7.6	7.8	8.2	7.9	8.0	---	---	---
20	8.1	7.7	7.9	8.3	8.0	8.1	8.1	7.9	8.0	---	---	---
21	8.0	7.9	8.0	8.1	7.9	8.0	8.2	8.0	8.1	---	---	---
22	7.9	7.7	7.8	8.2	7.8	8.0	8.4	8.0	8.2	---	---	---
23	7.8	7.7	7.8	7.9	7.7	7.8	8.5	8.0	8.2	---	---	---
24	7.9	7.8	7.8	8.0	7.7	7.8	8.5	8.0	8.2	---	---	---
25	8.0	7.7	7.8	7.9	7.7	7.8	8.2	8.0	8.1	---	---	---
26	8.3	7.7	7.9	7.9	7.5	7.7	7.9	7.5	7.7	---	---	---
27	8.4	7.9	8.2	7.8	7.6	7.7	---	---	---	---	---	---
28	8.5	8.3	8.4	8.1	7.8	7.9	---	---	---	---	---	---
29	8.5	8.2	8.4	8.1	7.9	8.0	---	---	---	7.5	7.4	7.4
30	8.4	8.2	8.3	8.0	7.8	7.9	---	---	---	7.5	7.4	7.5
31	---	---	---	8.2	7.8	7.9	7.5	7.3	7.4	---	---	---
MONTH	8.5	7.6	8.0	8.5	7.4	7.9	8.9	7.3	8.0	7.9	7.2	7.5

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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

08061750 EAST FORK TRINITY RIVER NEAR FORNEY, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	17.0	15.0	16.0	15.0	13.5	14.5	22.0	16.5	18.0	22.5	20.5	21.5
2	15.5	10.5	13.5	16.0	14.5	15.0	25.5	17.0	21.0	21.5	19.5	20.5
3	10.5	3.5	4.5	17.5	15.5	16.5	25.0	15.5	19.0	20.0	19.5	20.0
4	3.5	2.5	3.0	17.0	6.5	12.0	16.5	15.5	16.0	20.5	19.5	20.0
5	5.5	3.0	4.5	6.0	4.5	5.0	16.5	15.5	16.0	22.0	19.5	20.5
6	8.0	4.5	6.0	8.5	4.0	6.0	16.5	16.0	16.5	22.0	21.0	21.5
7	8.0	5.5	7.0	10.0	4.0	7.0	17.0	16.0	16.5	22.5	21.0	21.5
8	9.0	6.0	8.0	12.5	6.0	9.5	16.0	15.5	16.0	25.0	22.0	23.0
9	10.0	7.5	9.0	12.5	7.0	10.0	16.0	15.5	16.0	25.0	22.0	24.0
10	12.5	10.0	11.0	8.5	6.5	7.5	15.5	15.0	15.5	22.5	21.5	22.0
11	13.0	8.5	11.0	9.0	7.0	8.0	16.0	15.0	15.5	22.0	21.0	21.0
12	15.0	11.5	14.0	9.5	7.5	8.5	16.0	15.0	15.5	20.5	20.5	20.5
13	14.5	11.5	13.0	9.0	7.5	8.5	15.0	13.5	14.5	21.0	20.0	20.5
14	14.0	13.0	13.5	8.5	8.0	8.5	14.5	13.0	14.0	21.0	20.5	20.5
15	13.5	8.5	12.5	9.0	8.5	9.0	16.0	14.5	15.0	21.0	20.5	20.5
16	8.5	7.5	8.5	9.5	8.5	9.0	15.5	14.5	15.0	20.5	20.0	20.5
17	8.0	6.0	7.0	12.0	9.5	10.5	15.5	15.0	15.0	21.0	20.0	20.5
18	8.0	6.0	7.0	10.5	10.5	10.5	16.0	15.0	15.5	21.5	21.0	21.0
19	10.5	8.5	9.5	11.0	10.5	10.5	17.5	16.0	17.0	22.5	21.0	21.5
20	12.5	10.5	11.5	12.5	10.5	11.5	17.5	16.5	17.0	25.5	23.0	24.5
21	13.0	11.5	12.0	11.5	9.0	10.0	17.0	16.0	16.5	26.5	25.0	26.0
22	13.5	11.0	12.5	11.0	9.5	10.5	17.0	16.0	16.5	26.5	24.5	25.5
23	12.5	9.5	11.0	11.5	10.5	11.0	17.0	16.0	16.5	26.0	22.5	24.0
24	12.0	10.5	11.0	12.0	10.0	11.0	20.0	16.0	17.5	23.0	21.5	22.5
25	14.5	12.0	13.0	16.0	11.0	12.5	20.5	17.5	18.5	23.5	21.5	22.5
26	17.5	14.0	16.0	20.5	16.0	18.0	18.5	17.5	18.0	24.0	22.5	23.0
27	16.5	13.0	15.0	25.0	12.0	19.5	18.5	17.5	18.0	24.0	23.0	23.5
28	15.0	13.0	14.0	13.0	12.0	12.5	19.5	18.5	19.0	24.5	23.0	23.5
29	---	---	---	15.5	13.0	14.0	20.5	19.0	19.5	24.5	23.0	23.5
30	---	---	---	15.0	14.5	15.0	23.0	20.5	21.5	24.5	23.0	23.5
31	---	---	---	17.0	14.0	15.5	---	---	---	24.0	23.0	23.5
MONTH	17.5	2.5	10.5	25.0	4.0	11.0	25.5	13.0	17.0	26.5	19.5	22.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	25.0	23.5	24.5	27.5	25.5	26.0	28.5	27.5	28.0	28.0	26.5	27.5
2	25.5	24.0	25.0	26.5	25.0	26.0	28.0	27.0	27.5	29.0	27.0	28.0
3	25.0	24.0	24.5	26.5	25.0	25.5	28.0	27.5	27.5	29.0	28.0	28.5
4	24.5	24.0	24.5	28.5	26.5	27.5	28.0	27.5	27.5	29.0	28.0	28.5
5	26.0	23.5	24.5	29.0	27.5	28.0	28.0	27.5	27.5	29.0	28.0	28.5
6	25.5	25.0	25.5	29.0	27.5	28.5	28.5	27.5	28.0	28.5	28.0	28.0
7	25.0	24.0	24.5	28.0	27.0	27.5	28.0	27.0	27.5	28.0	27.5	28.0
8	25.0	24.5	24.5	28.5	27.5	27.5	27.0	26.5	27.0	28.0	27.5	28.0
9	25.0	24.5	25.0	27.5	26.5	27.0	27.5	26.5	27.0	28.5	27.0	27.5
10	25.0	24.5	24.5	27.5	26.0	27.0	27.0	26.5	26.5	29.0	28.0	28.5
11	25.0	24.5	25.0	27.5	26.5	27.0	27.0	26.5	26.5	28.0	26.0	27.5
12	25.0	24.5	24.5	27.5	26.5	27.0	27.0	26.5	26.5	28.0	27.5	27.5
13	24.5	24.5	24.5	28.0	26.5	27.5	27.0	26.5	26.5	27.0	25.0	26.0
14	25.0	24.5	24.5	27.5	27.0	27.5	26.5	26.0	26.5	25.5	25.0	25.5
15	24.5	24.5	24.5	28.5	26.0	27.5	27.0	26.0	26.5	25.5	24.5	25.0
16	25.0	24.0	24.5	29.0	28.0	28.5	26.5	26.0	26.5	25.5	24.5	25.0
17	24.5	24.0	24.0	28.0	26.5	27.5	26.0	25.5	26.0	25.5	24.5	25.0
18	25.0	23.5	24.0	28.0	26.5	27.0	26.5	26.0	26.0	25.0	23.5	24.5
19	25.5	24.0	25.0	28.5	27.0	27.5	26.5	26.0	26.5	---	---	---
20	25.5	24.5	25.0	29.0	28.0	28.5	27.0	26.0	26.5	---	---	---
21	26.5	24.5	25.5	29.0	28.0	28.5	27.0	26.0	26.5	---	---	---
22	28.0	26.0	27.0	29.0	27.5	28.5	27.0	26.0	26.5	---	---	---
23	27.5	26.0	27.0	28.0	27.5	28.0	27.5	26.5	27.0	24.0	23.0	23.5
24	28.0	25.0	27.0	28.5	27.5	28.0	27.5	26.5	27.0	23.5	22.5	23.0
25	27.0	25.0	26.5	28.0	27.5	27.5	28.0	26.5	27.0	23.5	22.0	22.5
26	27.5	24.0	25.5	28.0	27.0	27.5	30.0	27.5	28.5	24.0	22.0	23.0
27	25.5	24.5	25.0	28.0	27.0	27.5	30.5	28.0	29.0	24.0	22.0	22.5
28	26.5	25.5	26.0	28.0	27.5	27.5	31.0	28.5	29.5	24.5	21.5	23.0
29	26.5	25.5	26.0	28.0	27.5	27.5	30.5	28.5	29.5	24.5	22.0	23.5
30	26.5	25.5	26.0	28.0	27.5	27.5	32.0	28.0	29.5	25.5	23.0	24.0
31	---	---	---	28.5	27.5	28.0	28.0	27.0	27.5	---	---	---
MONTH	28.0	23.5	25.0	29.0	25.0	27.5	32.0	25.5	27.5	29.0	21.5	26.0

08061750 EAST FORK TRINITY RIVER NEAR FORNEY, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.9	7.6	7.7	8.2	7.4	7.9	---	---	---	9.2	8.5	9.0
2	8.1	7.6	7.9	7.4	7.1	7.3	---	---	---	9.3	8.2	8.6
3	8.0	7.7	7.8	7.4	6.7	7.1	---	---	---	9.1	7.7	8.2
4	8.7	7.6	7.9	7.4	6.4	6.7	---	---	---	9.4	7.9	8.5
5	9.0	7.5	8.1	8.3	6.4	7.3	---	---	---	9.2	7.8	8.3
6	8.3	7.7	7.9	8.8	7.1	7.7	---	---	---	9.2	7.6	8.2
7	7.9	7.5	7.7	8.0	6.7	7.3	7.8	6.7	7.2	9.2	7.5	8.2
8	7.9	7.4	7.6	8.4	6.6	7.3	8.5	6.6	7.8	9.4	7.9	8.6
9	9.2	7.4	8.3	7.0	6.2	6.6	8.8	8.1	8.5	11.1	8.7	9.6
10	8.5	7.7	8.2	7.3	6.0	6.6	9.3	8.2	8.5	11.1	9.4	10.1
11	8.4	7.5	7.8	7.1	6.5	6.7	9.1	8.3	8.7	9.8	8.8	9.3
12	9.3	7.7	8.4	7.5	5.7	6.8	10.2	8.2	8.9	10.3	7.9	8.6
13	8.5	7.7	8.0	6.7	6.0	6.4	8.6	8.0	8.4	11.0	10.2	10.5
14	8.3	7.6	7.9	6.6	5.5	5.9	8.1	7.4	7.8	11.1	9.9	10.8
15	8.0	7.2	7.6	6.0	4.7	5.7	7.5	7.1	7.4	10.9	9.4	10.2
16	7.7	7.0	7.2	6.3	5.0	5.6	---	---	---	10.5	9.0	9.7
17	7.5	6.7	7.1	7.5	6.3	7.1	---	---	---	10.0	8.8	9.3
18	7.5	6.7	7.0	7.2	6.2	6.7	---	---	---	10.3	8.7	9.4
19	7.4	6.6	7.0	8.2	6.6	7.2	---	---	---	8.8	8.0	8.4
20	7.5	6.9	7.1	8.0	7.8	8.0	8.3	7.3	7.9	10.2	8.0	8.9
21	7.8	6.7	7.2	8.1	7.5	7.8	8.5	7.1	7.7	10.5	8.7	9.4
22	8.4	6.9	7.4	8.5	7.3	7.8	7.9	7.1	7.5	10.1	8.4	9.2
23	7.7	6.7	7.1	8.0	6.9	7.4	8.6	7.2	7.9	10.4	8.4	9.3
24	7.7	6.7	7.1	6.9	6.5	6.7	9.0	8.0	8.4	10.0	8.1	8.9
25	7.1	6.4	6.7	6.4	5.7	6.1	9.4	8.4	8.8	8.6	7.7	8.2
26	7.1	6.0	6.4	6.7	5.6	6.2	9.3	8.0	8.6	9.0	7.7	8.4
27	7.1	5.8	6.4	7.3	6.4	6.8	9.1	7.5	8.1	9.7	9.1	9.3
28	6.9	6.1	6.4	7.6	6.8	7.2	9.6	9.1	9.4	9.7	8.9	9.3
29	8.2	6.9	7.4	7.4	6.6	6.9	10.1	9.4	9.7	9.3	8.8	9.0
30	8.2	7.6	8.0	7.2	6.3	6.9	9.3	8.6	8.9	9.1	8.7	8.9
31	8.4	7.5	7.8	---	---	---	10.0	8.5	9.1	8.8	8.3	8.6
MONTH	9.3	5.8	7.5	8.8	4.7	6.9	10.2	6.6	8.3	11.1	7.5	9.1
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	8.5	8.0	8.2	9.7	8.5	9.0	10.8	8.0	9.0	9.9	9.3	9.6
2	8.6	7.9	8.2	9.9	8.4	9.0	9.5	8.2	8.9	9.7	9.2	9.4
3	11.6	8.8	11.2	9.3	8.2	8.7	10.6	7.5	9.5	9.4	8.5	9.1
4	11.7	11.4	11.6	11.2	8.0	9.8	10.9	10.1	10.5	9.4	9.0	9.1
5	11.3	10.8	11.0	11.8	11.0	11.4	11.1	10.3	10.6	9.6	8.1	8.9
6	10.8	10.3	10.6	11.9	10.6	11.4	10.8	10.2	10.5	10.0	9.4	9.6
7	10.9	9.9	10.5	11.9	10.1	11.0	10.9	10.0	10.4	9.6	7.1	8.2
8	10.6	9.8	10.3	11.2	9.5	10.4	10.2	9.9	10.1	7.4	6.9	7.1
9	10.2	9.4	9.9	12.1	9.3	10.6	10.8	10.1	10.3	10.1	6.5	7.3
10	9.6	8.9	9.2	12.3	11.9	12.1	10.9	10.1	10.5	10.4	8.7	9.4
11	9.3	8.4	8.9	12.2	11.6	12.0	10.9	10.2	10.5	9.8	9.4	9.6
12	9.0	7.9	8.1	12.2	11.7	11.8	10.4	9.5	10.0	9.7	9.4	9.6
13	9.1	8.3	8.7	12.5	11.7	12.2	10.4	7.8	10.0	9.9	9.4	9.6
14	8.8	8.2	8.4	12.7	12.0	12.4	10.2	9.5	9.8	9.7	9.4	9.5
15	9.9	8.3	8.8	---	---	---	10.6	9.8	10.2	9.7	9.4	9.5
16	10.5	9.8	10.1	12.5	11.7	12.2	10.3	9.8	10.0	9.5	8.8	9.2
17	10.7	10.1	10.4	11.8	10.7	11.4	10.1	9.8	9.9	10.8	9.0	9.8
18	10.1	9.4	9.7	11.4	10.7	11.0	10.2	9.7	9.9	10.5	7.2	8.5
19	9.3	8.8	9.1	11.5	10.7	11.1	10.8	9.6	10.1	---	---	---
20	9.0	8.3	8.8	11.0	10.4	10.7	10.7	9.5	10.1	---	---	---
21	9.1	8.3	8.8	11.3	10.0	10.7	10.4	9.5	9.9	---	---	---
22	9.3	8.8	9.0	11.8	11.2	11.4	10.2	9.3	9.7	---	---	---
23	9.6	9.1	9.3	11.7	11.1	11.3	9.7	9.2	9.5	---	---	---
24	9.4	8.7	9.1	11.3	10.5	10.9	9.7	8.6	9.3	9.5	9.2	9.4
25	9.4	8.6	9.0	10.6	9.4	10.2	10.8	7.9	9.6	9.4	9.2	9.3
26	9.3	8.0	8.6	9.6	9.0	9.4	10.7	9.6	10.1	9.8	9.3	9.6
27	8.7	7.8	8.2	10.5	7.9	9.1	10.4	9.5	9.9	10.3	9.5	9.8
28	9.8	8.3	9.0	11.1	10.5	10.8	10.3	9.5	9.8	10.5	9.5	9.9
29	---	---	---	11.1	9.5	10.7	10.1	9.4	9.7	10.2	9.4	9.7
30	---	---	---	10.9	10.3	10.6	10.9	8.7	9.4	9.9	9.3	9.5
31	---	---	---	11.2	8.7	10.1	---	---	---	10.1	9.4	9.7
MONTH	11.7	7.8	9.4	12.7	7.9	10.8	11.1	7.5	9.9	10.8	6.5	9.2

08061750 EAST FORK TRINITY RIVER NEAR FORNEY, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	10.9	9.7	10.2	8.7	7.7	8.1	8.3	7.6	7.9	8.0	7.2	7.5
2	11.3	9.5	10.5	8.5	7.7	7.9	7.6	7.0	7.3	8.0	7.3	7.5
3	10.0	9.1	9.7	8.4	6.9	7.9	7.8	7.2	7.4	7.9	7.3	7.5
4	10.4	8.8	9.8	8.4	7.8	8.1	8.2	7.3	7.7	7.8	7.2	7.5
5	---	---	---	8.5	7.4	8.0	8.2	7.5	7.8	7.8	7.2	7.4
6	---	---	---	8.2	7.4	7.8	8.5	7.5	7.9	7.8	7.2	7.4
7	---	---	---	8.0	7.4	7.7	7.9	7.3	7.6	7.7	7.2	7.4
8	10.6	9.0	9.6	8.1	7.6	7.8	8.8	7.7	8.2	7.3	6.8	7.1
9	10.6	9.4	9.9	8.0	7.6	7.8	8.8	7.8	8.2	7.5	6.9	7.1
10	11.0	9.3	10.2	8.1	7.6	7.8	8.8	7.9	8.2	8.2	7.1	7.6
11	10.2	9.4	9.9	8.3	7.5	7.8	8.7	7.7	8.1	7.9	7.0	7.4
12	---	---	---	8.4	7.6	7.9	8.6	7.6	8.0	8.4	7.5	8.0
13	---	---	---	8.4	7.6	7.9	8.5	7.6	7.9	8.1	6.7	7.5
14	---	---	---	8.3	7.6	7.9	7.9	7.6	7.7	8.9	8.1	8.5
15	---	---	---	8.0	7.1	7.7	8.3	7.5	7.8	9.3	8.4	8.7
16	---	---	---	8.6	7.9	8.2	8.0	7.5	7.7	9.5	8.4	8.8
17	---	---	---	8.3	7.7	8.0	8.1	7.0	7.7	9.6	8.3	8.8
18	---	---	---	8.0	7.1	7.7	8.4	7.5	8.0	9.3	8.3	8.7
19	---	---	---	8.6	7.1	7.7	8.5	7.9	8.1	9.1	8.5	8.7
20	---	---	---	8.8	7.6	8.2	8.5	7.8	8.1	9.1	8.5	8.7
21	10.0	8.6	9.3	8.8	7.5	8.0	8.5	7.8	8.1	9.4	8.5	8.9
22	8.3	6.7	7.2	8.6	7.5	8.0	8.9	7.8	8.2	9.7	8.6	9.0
23	7.7	5.8	6.6	8.3	7.4	7.7	8.8	7.8	8.2	9.6	8.6	9.1
24	8.5	6.1	6.9	8.7	7.4	7.9	8.7	7.6	8.1	10.2	8.4	9.2
25	9.4	6.2	7.5	8.5	7.4	7.8	8.4	7.2	7.8	10.4	8.3	9.1
26	9.5	6.3	7.5	8.2	6.7	7.6	7.1	5.9	6.5	9.9	8.1	8.9
27	8.7	7.8	8.2	8.1	6.9	7.6	6.6	5.9	6.1	8.3	6.7	7.1
28	8.5	7.8	8.1	8.5	7.7	8.0	5.9	5.3	5.6	6.7	6.4	6.5
29	8.4	7.8	8.1	8.6	7.7	8.1	6.4	5.3	5.8	6.8	5.9	6.3
30	8.7	7.8	8.2	8.4	7.5	8.0	11.7	5.2	6.2	7.4	6.1	6.8
31	---	---	---	8.5	7.5	7.9	7.7	6.9	7.3	---	---	---
MONTH	11.3	5.8	8.7	8.8	6.7	7.9	11.7	5.2	7.6	10.4	5.9	8.0

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 1988 TO SEPTEMBER 1989

DATE	TIME	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)	CALCIUM DISSOLVED (MG/L AS CA)
NOV 14...	1450	518	7.50	19.0	5.2	57	4.7	130	46
JAN 09...	1515	688	7.50	12.5	8.2	76	4.5	150	55
APR 25...	1450	463	7.80	21.5	8.3	95	2.5	150	56
JUN 07...	1500	209	7.60	24.5	6.2	77	6.9	76	27
AUG 02...	1300	290	7.70	27.5	6.5	84	1.8	110	38
SEP 13...	1215	246	7.90	22.5	6.9	81	6.0	80	28

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
NOV 14...	3.5	47	2	8.2	116	51	40	0.90	8.3
JAN 09...	4.0	72	3	9.5	137	77	60	0.90	9.9
APR 25...	3.5	31	1	4.6	135	44	24	0.50	3.9
JUN 07...	2.2	10	0.5	3.9	77	19	6.9	0.30	6.0
AUG 02...	2.5	14	0.6	4.4	95	22	10	0.30	2.7
SEP 13...	2.4	15	0.7	3.3	74	25	10	0.30	4.6

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)
NOV 14...	274	3.60	0.300	3.90	0.920	1.6	2.5	4.40
JAN 09...	370	6.53	0.270	6.80	2.10	1.5	3.6	6.50
APR 25...	248	2.35	0.050	2.40	0.130	0.77	0.90	1.70
JUN 07...	121	0.430	0.070	0.500	0.150	0.55	0.70	0.180
AUG 02...	151	0.170	0.030	0.200	0.140	0.06	0.20	0.230
SEP 13...	133	0.450	0.050	0.500	0.060	0.74	0.80	0.210

08061970 EAST FORK TRINITY RIVER ABOVE SEAGOVILLE, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	440	241	353	564	473	521	692	540	636	622	462	529
2	518	222	362	610	522	562	703	658	685	626	541	564
3	554	465	497	701	599	653	689	660	679	703	581	609
4	554	504	529	727	666	701	673	650	661	648	601	623
5	626	568	599	719	670	697	683	650	668	748	629	657
6	676	607	651	720	671	699	672	638	660	669	641	656
7	694	643	672	695	648	666	690	620	652	782	646	673
8	700	602	681	652	620	637	703	673	688	706	665	684
9	680	592	644	717	624	659	703	598	653	690	662	681
10	692	551	609	748	684	711	653	322	583	714	675	695
11	592	567	577	746	687	713	508	303	375	686	643	666
12	647	581	615	719	645	691	468	381	417	702	518	661
13	686	631	662	526	291	392	583	479	514	690	427	559
14	707	645	676	548	458	494	621	591	602	576	420	488
15	699	660	677	676	222	533	648	618	631	545	463	502
16	684	648	670	516	226	337	683	642	664	631	553	579
17	680	642	660	555	398	458	681	643	665	651	616	631
18	678	627	644	598	521	571	683	658	670	678	639	656
19	694	615	650	611	167	399	692	661	677	698	675	687
20	726	648	678	404	248	313	690	645	664	686	663	677
21	730	686	712	517	402	443	734	680	713	678	643	662
22	723	681	701	595	518	541	729	251	638	668	641	661
23	699	656	674	663	589	617	592	354	428	668	641	654
24	684	656	674	680	520	618	601	459	504	668	640	650
25	678	646	660	662	480	630	607	580	594	671	506	610
26	690	629	648	528	368	442	680	600	617	501	192	272
27	706	580	653	491	410	451	663	200	472	440	310	371
28	600	254	440	570	493	522	449	306	376	465	188	350
29	645	345	541	630	560	586	549	460	504	376	221	279
30	598	276	410	663	623	647	623	544	574	486	384	436
31	512	429	466	---	---	---	629	484	571	553	478	520
MONTH	730	222	603	748	167	563	734	200	595	782	188	579
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	603	541	567	647	620	628	620	455	521	440	316	347
2	601	557	587	647	624	634	663	573	617	365	334	342
3	675	357	503	655	627	636	671	384	619	459	293	331
4	510	459	482	729	643	669	392	376	385	369	316	343
5	561	498	519	667	502	556	388	361	377	431	144	223
6	584	557	569	565	482	516	373	361	369	353	302	329
7	604	580	590	604	537	555	376	361	370	416	338	367
8	608	573	590	600	510	551	380	361	372	569	409	472
9	651	584	610	604	522	560	380	361	369	630	563	602
10	659	624	640	490	416	443	376	361	369	647	361	429
11	706	647	666	451	427	443	369	357	365	382	348	365
12	706	592	652	447	427	439	510	361	402	374	331	357
13	639	510	571	443	396	425	553	263	479	413	358	381
14	596	553	573	408	384	400	345	220	298	365	350	358
15	612	333	542	396	353	376	376	349	364	357	341	350
16	396	329	370	362	353	358	380	369	374	413	123	227
17	380	259	318	438	361	390	380	369	373	316	110	207
18	380	286	331	437	396	420	376	369	374	315	246	300
19	467	380	417	421	388	406	376	365	372	281	242	254
20	522	471	499	409	383	403	376	361	368	340	284	311
21	569	514	539	484	380	411	376	361	371	365	323	342
22	600	557	574	380	361	365	376	361	371	402	338	365
23	600	573	586	372	360	368	373	361	369	446	352	385
24	600	573	587	412	360	378	478	361	384	364	333	354
25	600	580	589	462	380	407	543	342	459	364	334	353
26	624	584	608	592	475	522	362	352	357	365	336	356
27	620	569	599	671	600	637	363	348	356	364	341	354
28	631	600	609	629	181	335	359	348	353	364	334	352
29	---	---	---	329	263	293	379	349	363	355	330	346
30	---	---	---	373	320	351	465	340	381	357	330	346
31	---	---	---	455	373	390	---	---	---	362	330	345
MONTH	706	259	546	729	181	460	671	220	397	647	110	348

08061970 EAST FORK TRINITY RIVER ABOVE SEAGOVILLE, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	358	330	342	319	290	307	301	277	289	297	278	288
2	527	333	351	375	287	309	333	283	300	303	277	288
3	396	177	262	335	264	289	312	289	298	294	276	285
4	357	214	282	297	282	292	299	281	293	288	274	280
5	305	284	294	319	282	294	295	280	289	286	263	278
6	333	305	317	317	306	311	294	275	286	294	267	282
7	524	197	269	321	284	306	386	246	298	294	273	285
8	288	202	266	315	290	302	278	261	268	321	273	286
9	309	290	302	324	300	310	291	274	283	323	286	302
10	312	309	311	316	299	310	289	278	284	300	279	289
11	340	311	328	316	302	309	293	280	285	439	228	276
12	468	267	323	317	297	308	296	279	286	267	242	258
13	323	160	245	320	304	312	294	272	285	350	168	247
14	291	161	263	359	307	318	291	272	281	268	233	254
15	289	277	282	609	159	259	294	279	285	284	261	274
16	296	280	288	303	275	291	296	280	287	291	264	280
17	331	298	312	310	291	302	374	269	292	288	263	279
18	344	326	336	344	299	318	305	261	274	281	263	271
19	342	319	331	341	292	318	287	272	280	279	262	272
20	330	305	319	325	290	307	289	273	283	282	271	277
21	420	310	341	318	299	309	287	278	282	282	269	277
22	458	404	429	318	294	309	290	274	283	285	267	276
23	536	437	480	320	287	308	292	274	283	288	250	271
24	543	469	525	311	287	304	294	274	287	315	280	297
25	542	480	520	312	282	296	351	276	299	314	290	303
26	537	303	470	335	290	315	478	355	409	369	275	320
27	321	304	315	341	290	302	558	463	506	514	351	431
28	319	296	310	309	280	297	662	561	604	625	451	542
29	310	290	303	308	281	295	665	630	647	650	620	638
30	311	295	303	303	278	292	670	614	651	653	615	636
31	---	---	---	302	277	292	670	273	385	---	---	---
MONTH	543	160	334	609	159	303	670	246	334	653	168	318

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.9	7.7	7.8	7.6	7.6	7.6	---	---	---	---	---	---
2	8.1	7.5	7.7	7.6	7.5	7.5	---	---	---	---	---	---
3	7.6	7.4	7.5	7.5	7.4	7.4	---	---	---	---	---	---
4	7.5	7.5	7.5	7.4	7.3	7.4	---	---	---	---	---	---
5	7.5	7.4	7.5	7.4	7.3	7.4	---	---	---	---	---	---
6	7.5	7.4	7.4	7.4	7.3	7.4	---	---	---	---	---	---
7	7.5	7.4	7.4	7.4	7.3	7.3	7.7	7.6	7.6	---	---	---
8	7.5	7.5	7.5	7.4	7.3	7.4	7.6	7.6	7.6	---	---	---
9	7.6	7.5	7.5	7.3	7.2	7.3	7.8	7.6	7.7	---	---	---
10	7.6	7.5	7.5	7.3	7.2	7.2	8.0	7.7	7.8	7.9	7.9	7.9
11	7.5	7.4	7.5	7.4	7.3	7.3	7.9	7.8	7.8	7.9	7.8	7.9
12	---	---	---	7.5	7.3	7.4	7.7	7.7	7.7	8.1	7.8	7.9
13	---	---	---	7.7	7.5	7.6	7.7	7.7	7.7	8.1	7.9	8.0
14	---	---	---	7.5	7.4	7.5	7.7	7.5	7.6	8.1	8.0	8.1
15	---	---	---	8.1	7.5	7.6	---	---	---	8.1	8.0	8.0
16	---	---	---	8.2	7.8	7.9	---	---	---	8.0	7.9	8.0
17	---	---	---	7.9	7.8	7.8	---	---	---	8.0	7.9	8.0
18	---	---	---	7.9	7.7	7.8	---	---	---	8.0	7.9	7.9
19	---	---	---	8.5	7.8	8.1	---	---	---	---	---	---
20	---	---	---	8.2	7.9	8.1	7.8	7.8	7.8	---	---	---
21	---	---	---	7.9	7.9	7.9	7.8	7.8	7.8	---	---	---
22	---	---	---	8.0	7.9	7.9	8.8	7.8	7.9	---	---	---
23	---	---	---	---	---	---	8.2	7.9	8.0	---	---	---
24	---	---	---	---	---	---	7.9	7.8	7.8	---	---	---
25	---	---	---	---	---	---	7.8	7.6	7.7	---	---	---
26	7.7	7.4	7.5	---	---	---	7.7	7.2	7.6	---	---	---
27	7.7	7.5	7.6	---	---	---	8.3	7.0	7.5	---	---	---
28	8.1	7.6	7.8	---	---	---	8.1	8.0	8.1	---	---	---
29	7.8	7.5	7.6	---	---	---	8.2	8.1	8.1	---	---	---
30	7.9	7.6	7.7	---	---	---	8.2	8.1	8.2	---	---	---
31	7.7	7.6	7.6	---	---	---	8.3	8.1	8.2	---	---	---
MONTH	8.1	7.4	7.6	8.5	7.2	7.6	8.8	7.0	7.8	8.1	7.8	8.0

08061970 EAST FORK TRINITY RIVER ABOVE SEAGOVILLE, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	7.7	7.5	7.6	7.8	7.7	7.8	8.2	7.6	7.9
2	---	---	---	7.5	7.2	7.4	7.7	7.7	7.7	7.8	7.6	7.7
3	---	---	---	7.8	7.2	7.5	8.1	7.6	7.7	7.8	7.3	7.6
4	8.2	7.9	8.0	8.1	7.8	7.9	8.2	8.1	8.1	7.9	7.4	7.6
5	7.9	7.9	7.9	8.4	8.2	8.3	8.3	8.0	8.1	8.4	7.7	8.1
6	8.0	7.9	7.9	8.2	8.1	8.1	8.2	8.0	8.2	8.0	7.9	7.9
7	8.0	7.9	7.9	8.1	8.0	8.0	8.2	7.9	8.1	8.0	7.8	8.0
8	8.0	7.9	8.0	8.0	7.8	7.9	8.1	7.9	8.0	7.8	7.7	7.8
9	8.0	7.9	8.0	7.8	7.7	7.7	8.0	7.8	7.9	7.9	7.8	7.8
10	8.0	8.0	8.0	8.0	7.9	7.9	---	---	---	8.2	7.9	8.1
11	7.9	7.6	7.8	8.1	7.9	8.0	---	---	---	8.2	8.1	8.1
12	7.9	7.5	7.6	8.1	8.0	8.1	---	---	---	8.1	8.0	8.1
13	7.8	7.6	7.7	8.1	8.0	8.0	---	---	---	8.1	7.9	8.0
14	7.7	7.7	7.7	8.1	8.1	8.1	---	---	---	8.0	7.6	7.8
15	7.9	7.7	7.8	8.3	8.0	8.1	---	---	---	8.0	7.8	7.9
16	7.9	7.8	7.8	8.4	8.2	8.3	---	---	---	8.4	7.7	8.0
17	8.1	7.9	8.0	8.2	8.1	8.1	---	---	---	8.3	7.7	8.0
18	8.0	7.8	7.8	8.1	8.0	8.0	---	---	---	7.8	7.5	7.6
19	7.9	7.8	7.8	8.1	8.0	8.1	---	---	---	7.7	7.6	7.7
20	7.9	7.9	7.9	8.1	8.0	8.0	---	---	---	7.6	7.4	7.5
21	8.0	7.9	7.9	8.1	7.9	8.0	---	---	---	7.4	7.3	7.4
22	8.0	8.0	8.0	8.3	8.0	8.1	---	---	---	7.4	7.3	7.4
23	8.0	8.0	8.0	8.3	8.0	8.2	---	---	---	7.6	7.3	7.4
24	8.0	8.0	8.0	8.2	8.0	8.1	---	---	---	7.8	7.6	7.7
25	8.0	8.0	8.0	8.1	7.6	8.0	---	---	---	7.7	7.5	7.7
26	8.0	7.9	8.0	7.6	7.4	7.5	7.7	7.4	7.6	7.7	7.3	7.5
27	7.9	7.8	7.9	7.5	7.3	7.4	7.6	7.3	7.5	7.6	7.4	7.5
28	7.8	7.7	7.7	8.1	7.4	7.8	---	---	---	7.6	7.3	7.5
29	---	---	---	7.7	7.6	7.7	---	---	---	7.6	7.4	7.5
30	---	---	---	8.0	7.6	7.8	---	---	---	7.7	7.6	7.6
31	---	---	---	8.2	7.8	8.1	---	---	---	7.9	7.6	7.7
MONTH	8.2	7.5	7.9	8.4	7.2	7.9	8.3	7.3	7.9	8.4	7.3	7.7
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.0	7.7	7.8	7.9	7.7	7.8	7.8	7.6	7.6	7.7	7.6	7.7
2	8.1	7.7	8.0	7.9	7.5	7.7	7.8	7.6	7.7	7.7	7.6	7.6
3	8.2	7.6	7.9	7.9	7.7	7.8	7.7	7.4	7.5	7.7	7.6	7.6
4	7.9	7.6	7.7	8.0	7.8	7.9	7.6	7.4	7.5	7.6	7.4	7.5
5	7.8	7.6	7.7	7.9	7.7	7.8	7.5	7.4	7.4	7.5	7.4	7.4
6	7.9	7.6	7.7	7.7	7.4	7.6	7.4	7.3	7.4	7.5	7.3	7.4
7	7.9	7.6	7.8	7.5	7.2	7.4	7.5	7.3	7.4	7.6	7.4	7.5
8	7.7	7.4	7.5	7.6	7.4	7.5	7.4	7.3	7.3	7.7	7.5	7.6
9	7.6	7.4	7.5	7.6	7.4	7.5	7.3	7.1	7.2	7.7	7.6	7.7
10	7.6	7.3	7.4	7.6	7.5	7.5	7.2	6.9	7.0	7.9	7.7	7.8
11	7.5	7.2	7.4	7.7	7.5	7.6	7.1	6.8	7.0	8.0	7.6	7.9
12	7.4	7.1	7.3	7.9	7.7	7.7	7.1	6.9	7.0	8.0	7.8	7.9
13	7.6	7.2	7.4	8.0	7.8	7.9	7.1	6.9	7.0	7.9	7.8	7.9
14	7.6	7.3	7.4	8.0	7.8	7.9	7.5	7.1	7.3	7.8	7.5	7.7
15	7.6	7.5	7.5	8.5	7.9	8.1	7.5	7.3	7.4	7.4	7.0	7.2
16	7.6	7.5	7.6	8.1	8.0	8.0	7.6	7.3	7.4	7.7	7.2	7.6
17	7.5	7.3	7.4	8.1	7.9	8.0	7.8	7.6	7.7	7.9	7.5	7.7
18	7.5	7.4	7.4	7.9	7.8	7.9	7.7	7.5	7.6	8.1	7.8	7.9
19	7.6	7.5	7.5	8.1	7.9	8.0	7.8	7.4	7.6	7.9	7.7	7.8
20	7.5	7.4	7.5	8.1	8.0	8.1	7.8	7.7	7.8	7.7	7.4	7.5
21	7.7	7.4	7.5	8.0	7.8	7.9	7.8	7.7	7.7	7.5	7.3	7.4
22	7.5	7.0	7.3	7.9	7.7	7.8	7.7	7.6	7.7	7.6	7.4	7.5
23	7.4	7.1	7.2	7.8	7.6	7.7	7.7	7.2	7.5	7.5	7.4	7.5
24	7.5	7.3	7.4	7.7	7.4	7.6	7.7	7.3	7.5	7.5	7.4	7.5
25	7.5	7.5	7.5	7.6	7.4	7.5	7.7	7.4	7.6	7.5	7.4	7.5
26	7.9	7.4	7.6	7.6	7.4	7.5	7.5	7.0	7.3	7.5	7.4	7.5
27	8.0	7.7	7.8	7.8	7.6	7.7	7.2	6.9	7.1	7.7	7.4	7.5
28	8.1	7.9	8.0	7.9	7.7	7.8	7.3	7.1	7.2	7.7	7.6	7.6
29	7.9	7.8	7.9	7.9	7.7	7.8	7.5	7.3	7.4	7.6	7.5	7.6
30	7.9	7.6	7.7	7.8	7.7	7.7	7.5	7.4	7.5	7.5	7.4	7.5
31	---	---	---	7.7	7.6	7.6	7.9	7.4	7.7	---	---	---
MONTH	8.2	7.0	7.6	8.5	7.2	7.8	7.9	6.8	7.4	8.1	7.0	7.6

08061970 EAST FORK TRINITY RIVER ABOVE SEAGOVILLE, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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

08061970 EAST FORK TRINITY RIVER ABOVE SEAGOVILLE, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	26.0	24.0	25.0	27.5	26.0	26.5	28.0	27.5	28.0	28.0	26.5	27.5
2	26.0	24.5	25.5	27.5	26.5	27.0	28.0	27.5	27.5	28.5	27.0	27.5
3	25.0	22.0	24.0	27.0	25.5	26.0	28.5	27.0	27.5	29.0	27.5	28.5
4	25.0	21.5	23.5	29.0	26.5	27.5	28.5	27.0	28.0	29.0	27.5	28.5
5	25.0	23.0	24.0	29.0	27.5	28.5	28.5	27.0	28.0	28.5	27.5	28.5
6	26.0	24.0	25.0	29.0	28.0	28.5	28.5	27.5	28.0	28.5	27.5	28.0
7	25.5	22.5	24.5	28.5	26.5	27.5	27.5	26.0	27.0	28.5	27.5	28.0
8	24.5	23.5	23.5	28.5	26.5	27.5	26.5	25.5	26.0	28.5	27.0	28.0
9	25.5	24.0	24.5	28.0	26.5	27.5	27.0	25.5	26.0	28.0	27.0	27.5
10	25.5	24.5	25.0	28.0	26.0	27.0	26.5	25.5	26.0	28.5	27.5	28.0
11	26.0	24.5	25.5	27.5	26.0	27.0	27.0	25.5	26.5	28.0	25.0	27.0
12	26.0	23.5	25.0	28.0	26.5	27.0	27.0	25.5	26.0	27.5	25.5	26.5
13	24.5	22.0	23.5	28.0	26.5	27.5	27.0	25.5	26.5	27.0	22.0	24.5
14	25.0	22.0	24.0	28.0	27.0	27.5	26.5	25.5	26.0	24.0	23.5	23.5
15	24.5	24.0	24.0	27.5	24.0	26.5	27.0	25.5	26.0	24.5	23.5	24.0
16	24.5	23.0	23.5	29.0	27.0	28.0	27.0	25.5	26.5	25.0	23.5	24.0
17	25.0	23.5	24.0	29.0	27.5	28.0	26.5	25.0	26.0	25.5	23.5	24.5
18	25.5	24.0	24.5	28.5	26.5	27.5	27.0	25.0	26.0	25.0	24.0	24.5
19	26.5	24.5	25.5	28.5	27.5	28.0	27.5	25.5	26.5	25.0	23.5	24.5
20	26.5	24.5	25.5	28.5	27.0	28.0	27.5	26.0	26.5	25.0	23.5	24.5
21	28.0	24.5	25.5	28.5	27.0	28.0	27.5	26.0	27.0	25.0	23.5	24.5
22	28.0	27.5	28.0	28.5	27.0	28.0	27.5	26.0	27.0	25.0	24.0	24.5
23	27.5	26.5	27.5	28.5	27.0	27.5	28.0	26.0	27.0	24.5	22.5	23.5
24	27.5	26.0	27.0	28.0	26.5	27.5	28.0	26.5	27.5	22.5	21.0	22.0
25	27.5	26.0	27.0	28.0	27.0	27.5	28.0	26.5	27.5	22.5	21.0	22.0
26	27.5	26.0	26.5	27.5	26.5	27.0	29.5	27.5	28.5	23.0	21.5	22.0
27	26.5	24.5	25.5	28.0	26.5	27.0	30.0	28.0	29.0	23.0	21.0	22.5
28	27.0	25.5	26.0	28.5	26.5	27.5	30.0	28.0	29.0	23.5	20.5	22.0
29	27.0	26.0	26.5	28.5	27.0	28.0	30.5	28.0	29.5	23.5	21.0	22.5
30	27.0	26.0	26.5	29.0	27.0	28.0	30.0	28.0	29.0	24.5	22.0	23.0
31	---	---	---	28.5	27.0	28.0	30.5	27.5	28.5	---	---	---
MONTH	28.0	21.5	25.0	29.0	24.0	27.5	30.5	25.0	27.0	29.0	20.5	25.0

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	10.3	9.0	9.6	8.3	7.6	7.9	---	---	---	10.0	8.9	9.3
2	10.7	8.6	9.7	7.7	6.6	7.2	---	---	---	8.7	7.5	8.3
3	8.6	7.8	8.3	6.6	5.4	6.0	---	---	---	8.1	7.3	7.6
4	7.9	7.3	7.6	5.6	5.0	5.3	---	---	---	8.2	7.3	7.6
5	7.5	7.2	7.3	6.2	4.8	5.4	---	---	---	7.7	7.1	7.4
6	7.9	6.8	7.3	6.6	5.1	5.8	---	---	---	7.5	6.9	7.2
7	7.6	6.8	7.2	6.6	5.5	6.1	7.3	6.3	6.8	7.6	6.5	7.0
8	7.6	6.5	6.9	6.7	5.7	6.1	6.6	6.1	6.3	7.7	6.8	7.2
9	8.1	6.6	7.2	6.2	5.2	5.6	9.0	6.3	7.3	8.4	7.2	7.9
10	8.2	6.8	7.4	6.1	4.8	5.3	10.8	7.8	8.8	8.1	7.4	7.7
11	8.3	7.3	7.6	5.7	4.4	5.1	10.3	9.1	9.6	7.7	6.6	7.4
12	8.0	6.6	7.1	6.4	4.9	5.6	9.2	8.4	8.8	8.6	6.4	7.0
13	8.0	6.4	7.0	5.9	4.8	5.7	8.5	7.8	8.2	9.4	7.3	8.3
14	7.7	6.7	7.2	---	---	---	7.9	7.1	7.6	9.7	8.6	9.2
15	7.1	5.9	6.5	---	---	---	7.2	6.9	7.1	9.2	8.4	8.8
16	6.6	5.3	5.8	---	---	---	7.8	6.9	7.4	8.8	8.0	8.3
17	5.9	4.8	5.2	---	---	---	8.7	7.8	8.1	8.4	7.7	7.9
18	5.8	4.3	4.9	---	---	---	8.0	6.9	7.7	7.8	7.0	7.6
19	5.1	4.1	4.6	---	---	---	8.5	6.9	7.5	7.2	6.8	7.0
20	5.6	3.9	4.7	---	---	---	9.2	8.1	8.5	7.2	6.6	6.8
21	6.3	4.4	5.2	---	---	---	9.0	7.9	8.3	7.9	6.8	7.3
22	6.1	4.5	5.2	---	---	---	12.7	7.1	8.2	8.3	7.4	7.9
23	5.9	4.4	5.0	---	---	---	9.8	8.4	8.9	8.3	7.4	7.8
24	5.8	4.3	5.0	---	---	---	9.3	8.5	8.9	7.9	7.1	7.4
25	6.9	4.9	5.7	---	---	---	9.7	8.7	9.1	7.7	6.8	7.2
26	7.4	5.0	5.6	---	---	---	8.8	7.5	8.5	8.2	7.1	7.7
27	6.3	4.9	5.7	---	---	---	11.8	7.0	9.1	8.6	7.5	8.1
28	9.0	5.7	6.8	---	---	---	11.0	10.2	10.6	9.4	8.4	8.8
29	9.8	5.6	6.9	---	---	---	10.7	10.2	10.5	8.4	7.9	8.1
30	8.6	7.5	8.1	---	---	---	10.3	9.7	10.1	8.7	8.3	8.5
31	9.2	7.5	8.2	---	---	---	11.3	9.0	9.9	8.5	8.0	8.3
MONTH	10.7	3.9	6.7	8.3	4.4	5.9	12.7	6.1	8.5	10.0	6.4	7.8

08061970 EAST FORK TRINITY RIVER ABOVE SEAGOVILLE, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	8.0	7.3	7.8	10.3	9.4	9.8	7.6	7.0	7.4	9.5	7.7	8.8
2	7.9	7.3	7.5	10.0	9.2	9.4	7.4	7.0	7.2	9.3	8.1	8.6
3	10.7	8.0	9.5	9.5	8.9	9.2	8.9	6.6	7.0	8.8	7.6	8.3
4	10.9	10.5	10.8	10.7	8.6	9.3	9.8	8.9	9.3	8.7	7.8	8.2
5	11.3	10.8	10.9	13.2	10.8	12.0	10.1	9.1	9.5	8.3	5.7	6.5
6	11.0	10.4	10.7	12.7	12.2	12.4	9.9	8.9	9.4	8.0	5.7	6.9
7	10.6	10.0	10.3	12.6	11.4	12.1	10.3	8.6	9.3	8.0	6.1	7.5
8	10.6	9.9	10.2	12.0	11.0	11.4	9.3	8.6	8.9	6.3	5.7	5.9
9	10.0	9.5	9.8	11.0	10.4	10.7	10.5	8.9	9.5	6.0	5.5	5.9
10	9.6	8.9	9.4	12.8	11.4	12.4	10.9	8.9	9.7	8.9	5.5	7.9
11	8.9	8.2	8.7	12.7	12.1	12.4	11.2	9.1	10.0	9.0	8.4	8.7
12	9.1	8.0	8.4	12.6	12.0	12.2	10.7	8.8	9.6	8.7	8.5	8.6
13	9.1	7.7	8.2	12.4	11.8	12.2	9.7	8.0	8.6	8.8	8.3	8.5
14	9.3	7.5	8.3	12.8	12.0	12.3	9.8	8.2	8.8	9.0	8.3	8.6
15	11.2	8.0	9.6	12.5	12.0	12.2	9.8	8.2	8.9	9.2	8.3	8.6
16	11.4	11.0	11.1	12.5	11.8	12.2	10.6	8.8	9.5	8.6	6.5	7.5
17	11.6	11.2	11.4	11.8	10.9	11.4	10.3	8.8	9.5	8.8	6.6	7.7
18	11.2	10.0	10.6	11.4	10.6	11.0	10.5	8.8	9.6	8.8	5.7	7.8
19	10.4	10.0	10.2	11.7	10.9	11.2	11.2	8.8	9.8	5.6	4.8	5.2
20	10.4	10.2	10.3	11.4	10.6	11.0	11.5	8.6	9.9	4.7	3.2	4.1
21	10.3	10.0	10.1	11.8	10.6	11.3	11.2	8.9	9.8	3.1	1.7	2.6
22	10.4	10.2	10.3	12.6	11.4	12.1	10.9	8.9	9.7	2.1	1.0	1.5
23	10.8	10.2	10.5	12.6	11.7	12.1	10.7	8.7	9.6	6.0	1.2	2.4
24	10.8	10.6	10.7	12.3	11.2	11.8	10.4	8.1	9.3	7.5	5.5	7.0
25	10.6	9.8	10.3	11.4	10.9	11.2	10.0	7.1	8.1	7.7	7.3	7.5
26	9.9	9.4	9.7	10.6	8.8	9.6	10.6	8.9	9.7	8.0	7.4	7.7
27	9.4	8.8	9.1	8.8	7.6	8.1	10.5	8.8	9.5	8.3	7.6	7.9
28	9.8	9.1	9.5	11.1	7.8	8.9	10.1	8.6	9.3	8.5	7.7	8.1
29	---	---	---	9.3	8.0	8.6	9.8	8.2	9.0	8.4	7.7	8.1
30	---	---	---	8.6	7.2	7.9	9.1	7.8	8.5	8.3	7.7	8.0
31	---	---	---	9.2	7.2	8.3	---	---	---	8.6	7.8	8.1
MONTH	11.6	7.3	9.8	13.2	7.2	10.9	11.5	6.6	9.1	9.5	1.0	7.1
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.9	7.8	8.2	8.4	7.2	7.7	7.2	6.3	6.7	7.1	6.2	6.6
2	9.1	7.4	8.2	8.4	7.1	7.7	6.5	5.6	6.2	7.2	6.2	6.7
3	7.1	5.2	6.2	7.5	6.4	7.0	6.5	5.5	5.9	7.1	6.2	6.6
4	7.6	5.2	6.3	8.2	7.1	7.5	6.8	5.7	6.2	7.1	6.2	6.6
5	6.4	5.4	5.8	8.1	6.6	7.3	6.8	5.8	6.2	7.1	6.2	6.5
6	6.7	5.5	6.0	6.8	6.2	6.5	6.9	5.7	6.2	6.9	6.0	6.4
7	7.3	5.4	6.2	6.9	6.4	6.6	6.0	5.7	5.9	6.9	6.0	6.4
8	5.9	5.1	5.5	7.4	6.6	6.9	6.9	5.8	6.2	6.6	5.7	6.2
9	6.9	5.5	6.2	7.4	6.4	6.9	7.1	6.3	6.6	6.3	5.6	5.9
10	7.0	5.7	6.3	7.4	6.6	7.0	7.3	6.4	6.8	6.5	5.7	6.1
11	6.6	5.5	6.0	7.4	6.6	7.0	7.4	6.3	6.7	6.5	5.7	6.1
12	6.3	5.0	5.6	7.4	6.6	7.0	7.3	6.1	6.6	7.1	5.8	6.5
13	7.5	5.1	6.2	7.3	6.4	6.9	7.1	6.3	6.6	6.9	6.0	6.5
14	8.1	6.3	7.3	6.9	6.3	6.6	6.4	6.2	6.3	7.4	6.5	6.9
15	7.8	7.0	7.4	6.7	5.6	6.1	6.9	6.0	6.5	7.9	7..	7.5
16	7.6	6.5	7.0	7.2	5.6	6.4	7.0	6.4	6.6	8.3	7.2	7.7
17	7.0	5.7	6.4	7.3	6.4	6.8	6.5	6.2	6.4	8.2	7.2	7.7
18	6.9	5.4	6.2	7.2	6.3	6.6	6.9	5.7	6.4	8.3	7.0	7.6
19	8.2	6.4	7.1	7.0	6.2	6.5	7.4	6.7	6.9	8.1	7.3	7.6
20	8.1	6.6	7.3	7.4	6.4	6.8	7.6	6.7	7.0	8.3	7.3	7.7
21	7.5	6.3	7.0	6.9	6.2	6.5	7.7	6.7	7.1	8.4	7.3	7.7
22	6.2	4.7	5.1	6.9	6.3	6.6	8.0	6.9	7.3	8.3	7.0	7.6
23	5.2	4.4	4.8	6.7	6.4	6.5	8.1	7.0	7.5	8.4	7.0	7.6
24	5.8	5.0	5.4	7.1	6.5	6.7	7.9	6.7	7.3	8.0	7.3	7.6
25	5.7	5.2	5.5	7.2	6.4	6.7	7.8	6.5	7.1	8.0	7.2	7.6
26	7.7	5.2	6.0	7.0	6.5	6.7	6.3	3.8	4.8	7.9	7.0	7.5
27	8.3	7.5	7.8	7.1	6.1	6.6	4.1	3.3	3.7	6.9	5.0	6.0
28	8.3	7.3	7.8	7.5	6.6	6.9	3.9	3.3	3.5	5.4	4.3	5.0
29	8.2	7.3	7.7	7.7	6.6	7.0	4.2	2.7	3.6	5.1	3.9	4.6
30	8.2	7.3	7.7	7.7	6.6	7.0	4.3	2.9	3.7	4.9	3.4	4.3
31	---	---	---	7.6	6.4	6.9	6.7	3.2	5.6	---	---	---
MONTH	9.1	4.4	6.5	8.4	5.6	6.8	8.1	2.7	6.1	8.4	3.4	6.7

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 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, 8.6 units Mar. 2, 1988; minimum, 6.7 units Mar. 7, 1988.
WATER TEMPERATURE: Maximum, 31.5°C Aug. 7-9, 1988; 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, 750 microsiemens Nov. 11; minimum, 129 microsiemens May 17.
pH: Maximum, 8.6 units Dec. 23, April 7, 9-11; minimum, 6.9 units Aug. 11.
WATER TEMPERATURE: Maximum, 30.0°C Aug. 29; minimum, 3.5°C Feb. 5.
DISSOLVED OXYGEN: Maximum, 13.2 mg/L Mar. 18, 22; minimum 0.0 mg/L Nov. 23.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	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)	CALCIUM DISSOLVED (MG/L AS CA)
NOV 15...	1245	552	7.30	20.0	4.5	50	5.7	140	50
JAN 10...	1330	712	7.50	12.0	7.3	68	5.6	170	60
APR 26...	1400	350	8.20	19.5	9.1	100	2.2	130	46
JUL 06...	1500	288	7.80	28.5	6.2	81	2.4	100	37
AUG 02...	1800	290	7.60	28.0	6.8	88	1.7	100	38
SEP 14...	1530	253	7.80	22.0	7.0	81	2.3	97	35

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
NOV 15...	3.6	55	2	8.8	122	57	47	0.90	9.2
JAN 10...	4.1	69	2	9.3	140	75	66	0.90	9.7
APR 26...	3.0	21	0.8	4.7	115	35	16	0.40	6.3
JUL 06...	2.5	15	0.6	4.1	100	22	10	0.30	2.5
AUG 02...	2.4	15	0.6	4.2	100	22	10	0.30	2.8
SEP 14...	2.3	11	0.5	3.9	95	19	8.1	0.30	4.7

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)	PHOSPHOROUS TOTAL (MG/L AS P)
NOV 15...	305	4.46	0.540	5.00	0.970	1.5	2.5	4.90
JAN 10...	378	6.21	0.590	6.80	1.60	2.9	4.5	6.00
APR 26...	201	0.470	0.030	0.500	0.050	0.55	0.60	0.330
JUL 06...	153	0.370	0.030	0.400	0.150	0.45	0.60	0.370
AUG 02...	155	0.170	0.030	0.200	0.120	0.28	0.40	0.190
SEP 14...	141	0.280	0.020	0.300	0.040	0.46	0.50	0.160

08061980 EAST FORK TRINITY RIVER AT SEAGOVILLE, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	406	229	336	531	444	493	665	547	623	611	485	549
2	454	222	350	565	458	509	693	671	683	587	506	549
3	---	---	489	661	562	596	675	653	663	616	590	606
4	---	---	524	689	644	664	675	643	660	634	605	618
5	---	---	597	698	649	678	667	641	652	665	629	647
6	662	615	649	688	653	677	671	650	660	674	651	664
7	683	650	670	694	644	673	668	636	647	684	664	673
8	688	585	643	647	622	636	708	670	692	702	675	688
9	679	553	614	654	633	643	711	620	685	688	671	679
10	---	---	576	710	628	669	647	400	627	707	670	686
11	---	---	592	750	678	714	534	308	380	690	653	674
12	---	---	606	735	692	718	435	343	391	699	660	672
13	677	610	638	709	270	412	533	440	488	701	383	568
14	676	644	664	504	419	457	619	540	590	540	395	444
15	693	654	677	569	510	535	642	607	626	504	432	465
16	677	644	664	519	227	323	676	613	652	563	503	530
17	671	639	657	477	299	381	676	648	661	614	565	596
18	671	627	652	589	484	542	682	662	675	644	603	628
19	639	610	627	586	169	410	684	620	667	676	634	658
20	683	644	666	348	241	286	694	653	678	674	647	662
21	716	671	695	458	353	401	734	665	694	661	626	646
22	716	678	702	542	459	504	736	295	700	664	637	652
23	700	650	682	644	541	582	596	268	408	659	640	647
24	673	649	667	658	525	591	535	385	448	672	639	653
25	672	644	660	656	575	631	606	549	586	653	547	597
26	647	613	632	520	367	452	600	588	593	594	201	318
27	688	618	652	474	399	424	618	205	505	365	259	319
28	647	273	430	533	481	501	459	310	358	412	205	343
29	611	333	516	594	536	568	535	387	462	317	225	255
30	570	287	380	647	595	623	588	534	558	434	321	373
31	444	382	424	---	---	---	621	507	575	515	428	473
MONTH	716	222	591	750	169	543	736	205	590	707	201	566
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	556	517	535	614	586	602	533	391	452	431	321	354
2	577	542	562	631	610	619	614	541	571	344	329	335
3	618	314	491	626	609	619	657	394	615	393	317	335
4	442	366	401	696	617	632	383	368	374	349	323	335
5	466	433	445	700	467	539	369	353	365	322	196	230
6	518	473	501	477	418	444	360	352	356	331	263	307
7	542	514	526	556	476	506	360	354	358	370	331	340
8	562	536	549	563	468	513	362	356	359	483	373	411
9	587	553	566	579	462	508	359	352	356	585	481	539
10	618	595	605	528	355	396	359	352	354	600	348	432
11	640	618	627	379	366	372	355	349	353	346	334	338
12	680	597	647	375	360	367	438	353	367	399	336	371
13	651	485	578	369	335	358	572	340	458	411	332	360
14	566	500	539	342	325	333	325	266	306	334	328	331
15	609	310	554	334	330	332	358	320	341	339	329	335
16	324	254	297	334	331	333	364	358	362	335	159	237
17	309	201	261	389	334	350	365	360	363	298	129	200
18	246	194	208	390	357	381	364	361	363	304	278	298
19	355	252	301	361	350	357	364	356	361	276	257	264
20	422	358	396	364	350	359	361	353	358	289	272	281
21	477	419	447	490	344	370	362	356	358	312	289	300
22	522	482	498	463	323	349	364	358	361	336	312	322
23	532	515	524	345	341	344	364	360	361	417	325	343
24	539	517	531	370	342	348	405	360	367	334	319	327
25	563	520	540	388	359	369	515	355	439	331	320	328
26	588	553	570	526	390	456	361	349	354	332	323	329
27	593	535	569	628	533	583	354	348	351	331	323	327
28	588	552	575	632	232	386	351	343	347	333	320	328
29	---	---	---	317	298	305	358	343	350	327	320	324
30	---	---	---	343	317	328	413	340	353	327	319	323
31	---	---	---	385	343	355	---	---	---	331	316	325
MONTH	680	194	494	700	232	423	657	266	381	600	129	329

08061980 EAST FORK TRINITY RIVER AT SEAGOVILLE, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	325	318	322	296	287	290	282	276	279	334	279	301
2	330	318	322	294	286	290	291	273	280	295	283	288
3	394	220	284	347	278	296	290	282	286	286	280	282
4	300	278	285	286	278	282	284	278	281	282	278	280
5	294	279	284	291	275	278	280	276	278	281	274	279
6	306	294	300	294	289	291	281	275	278	281	276	279
7	311	251	286	299	280	291	306	266	283	283	278	280
8	289	244	268	291	282	287	274	267	269	286	280	283
9	310	288	302	302	288	292	279	273	276	297	290	294
10	312	310	311	301	291	296	278	274	276	292	280	284
11	325	312	317	302	297	299	281	274	277	310	249	273
12	332	298	319	302	298	299	280	276	277	271	253	261
13	309	193	281	302	294	299	280	274	277	281	217	252
14	282	169	229	302	294	299	279	273	276	262	236	248
15	282	265	271	353	212	265	283	276	278	273	262	266
16	295	277	288	290	259	278	309	278	285	273	268	271
17	299	288	294	294	286	289	292	266	278	272	266	270
18	311	299	306	314	294	302	296	265	273	270	261	267
19	311	305	308	314	286	302	280	273	276	265	255	259
20	305	298	302	296	281	288	280	271	276	266	263	265
21	341	302	308	295	286	290	279	274	277	266	263	264
22	412	348	386	295	288	291	282	274	278	264	256	262
23	461	406	434	294	284	290	284	276	281	257	252	254
24	490	458	479	293	285	290	288	280	285	291	255	271
25	498	474	488	291	276	286	302	284	291	291	284	287
26	578	314	473	311	276	290	415	304	356	317	277	294
27	309	301	306	304	271	280	523	412	469	458	316	385
28	306	289	301	282	276	279	605	514	557	528	457	486
29	288	284	286	285	276	279	668	613	647	631	534	595
30	289	284	286	284	274	279	671	637	650	626	597	615
31	---	---	---	283	275	280	665	278	430	---	---	---
MONTH	578	169	321	353	212	289	671	265	325	631	217	306

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.9	7.7	7.8	---	---	---	7.7	7.6	7.7	7.8	7.7	7.8
2	7.7	7.4	7.6	---	---	---	7.7	7.6	7.6	7.7	7.6	7.7
3	7.7	7.6	7.7	---	---	---	7.7	7.5	7.6	7.6	7.6	7.6
4	7.7	7.7	7.7	---	---	---	7.5	7.4	7.5	7.6	7.5	7.6
5	7.7	7.7	7.7	---	---	---	7.5	7.4	7.5	7.6	7.5	7.5
6	7.8	7.6	7.7	---	---	---	7.6	7.4	7.5	7.5	7.4	7.5
7	7.7	7.6	7.6	---	---	---	7.5	7.3	7.5	7.6	7.4	7.5
8	7.7	7.6	7.7	---	---	---	7.5	7.3	7.4	7.6	7.6	7.6
9	7.8	7.7	7.7	---	---	---	7.4	7.3	7.3	7.6	7.5	7.5
10	---	---	---	---	---	---	7.7	7.2	7.3	7.7	7.5	7.6
11	---	---	---	---	---	---	7.7	7.3	7.5	7.6	7.5	7.6
12	---	---	---	---	---	---	7.8	7.3	7.5	7.5	7.5	7.5
13	7.7	7.6	7.6	7.6	7.1	7.3	7.6	7.4	7.5	7.8	7.5	7.6
14	7.6	7.5	7.6	7.5	7.4	7.5	---	---	---	7.7	7.6	7.6
15	7.6	7.5	7.5	7.4	7.4	7.4	---	---	---	7.6	7.5	7.5
16	7.5	7.4	7.5	7.9	7.4	7.6	---	---	---	7.5	7.4	7.4
17	7.4	7.4	7.4	7.4	7.3	7.3	---	---	---	7.5	7.4	7.4
18	7.4	7.3	7.4	7.3	7.3	7.3	---	---	---	---	---	---
19	7.4	7.3	7.3	7.9	7.3	7.4	---	---	---	---	---	---
20	7.3	7.3	7.3	---	---	---	---	---	---	---	---	---
21	7.3	7.3	7.3	---	---	---	7.6	7.5	7.5	---	---	---
22	7.3	7.3	7.3	7.5	7.4	7.4	8.0	7.5	7.6	---	---	---
23	7.3	7.2	7.3	7.4	7.3	7.4	8.6	7.6	7.8	---	---	---
24	7.3	7.2	7.2	7.4	7.3	7.4	7.7	7.6	7.6	---	---	---
25	7.3	7.2	7.3	7.4	7.3	7.4	7.7	7.6	7.7	---	---	---
26	7.4	7.2	7.3	7.5	7.3	7.4	7.6	7.5	7.6	7.6	7.3	7.5
27	7.5	7.3	7.4	7.4	7.3	7.4	8.1	7.5	7.6	7.6	7.4	7.5
28	7.9	7.4	7.7	7.4	7.3	7.3	7.8	7.7	7.8	7.6	7.4	7.5
29	7.7	7.6	7.6	7.3	7.2	7.3	7.8	7.8	7.8	7.6	7.4	7.5
30	7.6	7.4	7.5	7.7	7.2	7.4	7.8	7.7	7.7	7.4	7.3	7.3
31	---	---	---	---	---	---	7.9	7.7	7.8	7.3	7.2	7.3
MONTH	7.9	7.2	7.5	7.9	7.1	7.4	8.6	7.2	7.6	7.8	7.2	7.5

08061980 EAST FORK TRINITY RIVER AT SEAGOVILLE, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.2	7.1	7.2	---	---	---	7.6	7.5	7.6	8.2	7.7	8.0
2	7.2	7.1	7.1	---	---	---	7.6	7.6	7.6	8.1	7.9	8.0
3	7.4	7.2	7.3	---	---	---	8.0	7.6	7.6	7.9	7.7	7.8
4	7.3	7.2	7.3	---	---	---	8.3	8.0	8.1	7.8	7.7	7.7
5	7.2	7.2	7.2	---	---	---	8.4	8.3	8.3	7.9	7.6	7.8
6	7.2	7.2	7.2	---	---	---	8.5	8.3	8.4	7.6	7.5	7.6
7	7.2	7.1	7.1	---	---	---	8.6	8.3	8.4	7.5	7.3	7.4
8	7.1	7.1	7.1	---	---	---	8.4	8.2	8.3	7.3	7.2	7.2
9	---	---	---	---	---	---	8.6	8.3	8.4	7.6	7.2	7.4
10	---	---	---	---	---	---	8.6	8.3	8.4	7.9	7.6	7.8
11	---	---	---	---	---	---	8.6	8.3	8.4	7.9	7.8	7.9
12	---	---	---	---	---	---	8.3	8.0	8.2	7.8	7.7	7.8
13	---	---	---	---	---	---	8.2	7.9	8.0	7.8	7.7	7.8
14	---	---	---	---	---	---	8.3	7.9	8.0	---	---	---
15	8.1	7.9	7.9	8.1	7.9	8.0	8.1	7.9	8.0	---	---	---
16	8.1	8.0	8.0	8.1	7.9	8.0	8.2	8.0	8.0	---	---	---
17	8.0	7.9	8.0	8.0	7.8	7.9	8.1	7.9	8.0	8.0	7.6	7.8
18	8.0	7.8	7.9	7.9	7.8	7.9	8.0	7.8	7.9	7.7	7.5	7.6
19	7.9	7.9	7.9	8.0	7.9	7.9	7.9	7.7	7.8	7.6	7.6	7.6
20	7.9	7.9	7.9	7.9	7.8	7.9	---	---	---	7.6	7.4	7.5
21	7.9	7.9	7.9	7.9	7.8	7.8	---	---	---	7.5	7.4	7.5
22	7.9	7.9	7.9	8.0	7.7	7.9	---	---	---	7.4	7.4	7.4
23	7.9	7.9	7.9	7.9	7.9	7.9	---	---	---	7.6	7.4	7.5
24	7.9	7.8	7.8	7.9	7.7	7.8	---	---	---	7.8	7.6	7.7
25	---	---	---	7.7	7.6	7.7	---	---	---	7.8	7.7	7.7
26	---	---	---	---	---	---	---	---	---	7.8	7.7	7.7
27	---	---	---	---	---	---	8.2	7.9	8.0	7.8	7.7	7.8
28	---	---	---	---	---	---	8.2	7.9	8.1	7.8	7.8	7.8
29	---	---	---	7.8	7.5	7.7	8.1	7.9	8.0	7.8	7.7	7.8
30	---	---	---	7.7	7.6	7.7	8.2	7.8	8.0	7.8	7.7	7.7
31	---	---	---	8.0	7.6	7.8	---	---	---	7.7	7.4	7.5
MONTH	8.1	7.1	7.6	8.1	7.5	7.8	8.6	7.5	8.1	8.2	7.2	7.7
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.5	7.4	7.5	7.9	7.8	7.9	7.7	7.6	7.6	7.8	7.6	7.7
2	7.5	7.4	7.4	7.9	7.8	7.9	7.7	7.5	7.6	7.9	7.7	7.8
3	---	---	---	7.9	7.9	7.9	7.7	7.5	7.6	8.0	7.8	7.9
4	---	---	---	8.0	7.9	7.9	7.7	7.5	7.6	8.0	7.8	7.9
5	---	---	---	8.0	7.9	7.9	7.8	7.5	7.6	8.0	7.9	7.9
6	8.0	7.7	7.8	7.9	7.8	7.9	---	---	---	8.0	7.9	7.9
7	7.8	7.7	7.8	7.9	7.9	7.9	---	---	---	8.0	7.9	7.9
8	7.9	7.7	7.8	7.9	7.9	7.9	---	---	---	8.0	7.9	7.9
9	8.1	7.8	7.9	7.9	7.9	7.9	---	---	---	7.9	7.8	7.9
10	8.0	7.8	7.9	8.0	7.9	7.9	---	---	---	8.0	7.9	7.9
11	8.0	7.7	7.8	8.0	7.9	8.0	7.1	6.9	7.0	8.0	7.8	7.9
12	7.8	7.7	7.8	8.0	8.0	8.0	7.1	7.0	7.0	7.9	7.8	7.9
13	7.9	7.7	7.8	8.0	7.9	8.0	7.2	7.0	7.1	8.0	7.8	7.9
14	8.0	7.5	7.8	8.0	7.9	8.0	7.4	7.1	7.3	8.0	7.9	7.9
15	7.7	7.5	7.6	8.0	7.8	8.0	7.5	7.3	7.4	8.0	7.9	8.0
16	7.9	7.7	7.8	---	---	---	7.9	7.3	7.6	8.0	7.9	8.0
17	7.9	7.9	7.9	---	---	---	8.1	7.6	7.8	8.1	8.0	8.0
18	7.9	7.9	7.9	---	---	---	8.1	7.5	7.8	8.1	8.0	8.0
19	8.0	7.9	7.9	---	---	---	7.9	7.5	7.8	8.0	7.9	8.0
20	8.0	8.0	8.0	8.0	7.9	8.0	8.0	7.7	7.9	8.0	7.9	7.9
21	8.0	7.7	7.9	7.9	7.8	7.8	---	---	---	8.1	7.9	8.0
22	7.8	7.7	7.8	7.9	7.8	7.9	---	---	---	8.2	8.0	8.1
23	7.8	7.8	7.8	7.9	7.8	7.9	---	---	---	8.3	8.0	8.2
24	7.8	7.8	7.8	7.9	7.8	7.9	---	---	---	8.2	7.9	8.0
25	7.8	7.8	7.8	7.9	7.6	7.8	---	---	---	8.0	7.8	7.9
26	7.9	7.8	7.9	7.7	7.6	7.7	---	---	---	8.1	8.0	8.1
27	7.9	7.9	7.9	7.6	7.5	7.6	---	---	---	---	---	---
28	7.9	7.9	7.9	7.7	7.6	7.6	---	---	---	---	---	---
29	7.9	7.9	7.9	7.7	7.6	7.6	---	---	---	---	---	---
30	7.9	7.9	7.9	7.8	7.6	7.6	7.6	7.6	7.6	---	---	---
31	---	---	---	7.7	7.5	7.6	7.9	7.6	7.7	---	---	---
MONTH	8.1	7.4	7.8	8.0	7.5	7.8	8.1	6.9	7.5	8.3	7.6	7.9

08061980 EAST FORK TRINITY RIVER AT SEAGOVILLE, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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

08061980 EAST FORK TRINITY RIVER AT SEAGOVILLE, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	25.5	24.0	24.5	27.5	26.0	26.5	28.0	27.0	27.5	28.0	26.5	27.5
2	25.5	24.5	25.0	28.0	26.5	27.0	27.5	27.0	27.5	28.0	26.5	27.5
3	25.0	22.5	24.0	27.5	26.0	26.5	28.0	26.5	27.5	28.5	27.5	28.0
4	25.0	23.0	24.0	29.0	26.5	28.0	28.5	26.5	27.5	28.5	27.5	28.0
5	25.0	23.0	24.0	29.5	27.0	28.5	28.5	26.5	27.5	28.5	27.5	28.0
6	25.5	24.0	24.5	29.0	28.0	28.5	28.0	27.0	27.5	28.5	27.0	27.5
7	25.5	24.5	25.0	28.5	27.0	27.5	27.5	25.5	26.5	28.0	27.0	27.5
8	25.0	23.5	24.0	28.5	26.5	27.5	26.0	24.5	25.5	28.0	27.0	27.5
9	25.5	24.5	25.0	28.0	27.0	27.5	26.5	24.5	25.5	27.5	27.0	27.5
10	26.0	24.5	25.5	27.5	26.0	27.0	26.0	25.0	25.5	28.0	27.0	27.5
11	26.5	25.0	25.5	27.5	26.5	27.0	26.5	25.5	26.0	27.5	25.5	26.5
12	26.5	24.0	25.0	28.0	26.5	27.0	26.5	25.0	26.0	27.0	25.0	26.0
13	25.0	22.5	24.0	27.5	26.5	27.5	27.0	25.5	26.0	27.0	23.0	25.0
14	24.0	21.5	23.0	27.5	27.0	27.0	26.5	25.5	26.0	23.0	22.5	22.5
15	24.0	23.0	23.5	27.0	25.5	26.5	26.5	25.5	26.0	23.5	22.0	23.0
16	24.5	23.0	23.5	29.0	27.0	28.0	26.5	25.5	26.0	25.0	23.0	23.5
17	25.0	23.5	24.0	29.0	27.5	28.5	26.5	25.5	25.5	25.0	23.5	24.5
18	26.0	23.5	24.5	28.0	26.5	27.5	27.0	25.0	26.0	25.0	23.5	24.5
19	26.5	24.5	25.5	28.5	27.5	28.0	27.0	25.5	26.5	25.0	23.0	24.0
20	26.5	25.0	26.0	28.0	27.0	27.5	27.5	25.5	26.5	25.0	23.0	24.0
21	27.5	24.5	26.0	28.0	27.0	27.5	27.5	26.0	26.5	24.5	23.0	24.0
22	28.5	27.5	28.0	28.0	27.0	27.5	27.5	26.0	26.5	24.5	23.5	24.0
23	28.0	27.0	27.5	28.0	27.0	27.5	27.5	25.5	26.5	24.0	22.5	23.0
24	28.0	26.5	27.5	27.5	26.5	27.0	28.0	26.0	27.0	22.5	20.5	21.5
25	27.5	26.0	27.0	27.5	27.0	27.5	27.5	26.5	27.0	22.0	21.0	21.5
26	27.0	26.0	26.5	27.5	26.5	27.0	29.0	27.5	28.0	22.5	21.5	22.0
27	26.5	24.5	25.5	27.5	26.0	27.0	29.5	27.0	28.5	22.5	21.5	22.0
28	26.5	25.5	26.0	28.0	26.5	27.5	29.5	28.0	29.0	22.5	21.0	22.0
29	26.5	26.0	26.5	28.5	26.5	27.5	30.0	28.0	29.0	22.5	21.5	22.0
30	26.5	26.0	26.0	28.5	27.0	27.5	29.5	28.0	29.0	23.5	22.0	23.0
31	---	---	---	28.0	27.0	27.5	29.5	27.5	28.0	---	---	---
MONTH	28.5	21.5	25.0	29.5	25.5	27.5	30.0	24.5	27.0	28.5	20.5	25.0

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	6.8	6.3	6.5	---	---	---	---	---	---
2	---	---	---	6.6	5.5	6.2	---	---	---	---	---	---
3	---	---	---	5.5	4.9	5.3	---	---	---	---	---	---
4	---	---	---	4.8	4.4	4.6	---	---	---	---	---	---
5	---	---	---	4.7	4.4	4.5	---	---	---	---	---	---
6	---	---	---	4.9	4.5	4.7	---	---	---	---	---	---
7	---	---	---	5.0	4.0	4.7	---	---	---	---	---	---
8	---	---	---	4.8	3.9	4.5	6.6	6.1	6.3	---	---	---
9	---	---	---	---	---	---	8.0	6.5	6.8	---	---	---
10	---	---	---	---	---	---	9.6	7.6	7.9	---	---	---
11	---	---	---	---	---	---	10.0	9.0	9.6	7.1	6.6	6.9
12	---	---	---	---	---	---	9.4	9.0	9.2	6.9	6.0	6.5
13	---	---	---	---	---	---	9.0	8.2	8.6	9.8	8.1	8.9
14	---	---	---	5.8	4.8	5.1	8.2	7.4	7.9	10.5	9.5	10.1
15	---	---	---	4.9	3.9	4.4	7.6	7.1	7.3	9.9	9.2	9.6
16	---	---	---	5.2	3.5	4.6	7.8	7.3	7.5	9.1	8.3	8.7
17	---	---	---	6.4	5.3	5.9	8.7	7.6	8.0	8.4	7.8	8.0
18	---	---	---	6.5	6.2	6.4	8.3	7.7	8.0	7.8	6.9	7.4
19	---	---	---	8.2	6.2	7.1	7.6	6.8	7.1	6.9	6.2	6.5
20	---	---	---	7.8	7.0	7.4	6.7	6.0	6.3	7.2	6.1	6.6
21	---	---	---	8.7	7.8	8.2	6.4	6.2	6.3	7.6	6.5	7.0
22	---	---	---	8.6	8.1	8.4	7.7	5.7	6.0	8.2	6.8	7.3
23	---	---	---	8.2	.0	7.0	7.9	7.2	7.5	7.3	6.8	7.0
24	---	---	---	7.8	6.3	7.3	8.0	7.1	7.5	6.6	6.0	6.3
25	---	---	---	6.8	5.8	6.2	8.0	7.6	7.8	7.2	6.0	6.5
26	---	---	---	6.9	4.6	6.0	8.0	7.0	7.5	8.4	6.8	7.7
27	---	---	---	6.2	5.4	5.8	9.7	6.4	7.4	8.9	7.6	8.3
28	---	---	---	7.0	6.2	6.5	10.0	9.0	9.6	9.6	8.8	9.2
29	6.9	5.0	5.3	7.3	6.9	7.1	10.3	9.9	10.1	9.1	8.2	8.6
30	6.8	5.9	6.4	6.9	6.2	6.5	10.0	9.4	9.7	9.1	8.7	9.0
31	7.0	6.1	6.4	---	---	---	11.1	9.2	9.7	9.0	8.5	8.8
MONTH	7.0	5.0	6.0	8.7	.0	6.0	11.1	5.7	7.9	10.5	6.0	7.9

08061980 EAST FORK TRINITY RIVER AT SEAGOVILLE, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	8.5	7.9	8.2	10.1	9.5	9.8	7.1	6.0	6.7	9.6	7.5	8.7
2	8.3	7.7	7.9	10.0	9.5	9.6	7.0	6.7	6.8	9.7	7.9	8.7
3	11.5	8.4	9.7	9.5	8.8	9.1	8.0	6.3	6.5	8.8	7.8	8.4
4	12.0	11.5	11.8	---	---	---	9.1	8.1	8.7	9.1	7.2	8.0
5	12.0	11.7	11.9	---	---	---	9.5	8.6	9.0	9.0	5.4	6.7
6	11.8	11.3	11.6	---	---	---	9.4	8.5	8.9	8.0	5.3	6.5
7	11.4	10.8	11.1	---	---	---	9.6	8.0	8.7	8.6	6.4	7.6
8	11.2	10.6	10.9	---	---	---	8.8	7.9	8.3	6.4	6.0	6.2
9	10.6	10.2	10.5	---	---	---	10.0	8.3	9.0	6.1	4.8	5.6
10	10.2	9.7	9.9	---	---	---	10.5	8.5	9.4	9.2	4.9	7.2
11	9.7	8.9	9.2	---	---	---	10.9	8.8	9.7	9.3	8.7	9.0
12	9.2	7.8	8.5	---	---	---	10.4	8.6	9.4	9.0	8.8	8.9
13	9.1	7.9	8.3	---	---	---	9.2	8.0	8.4	9.0	8.6	8.8
14	8.3	8.1	8.2	---	---	---	9.1	7.5	8.1	9.3	8.5	8.8
15	10.3	8.2	8.9	12.6	12.0	12.3	8.8	7.4	8.0	9.4	8.4	8.8
16	10.7	10.2	10.4	12.7	11.8	12.2	9.9	7.9	8.7	8.6	6.3	7.5
17	11.0	10.6	10.8	12.8	11.0	11.7	10.0	8.5	9.1	8.3	6.2	7.0
18	10.6	9.9	10.3	13.2	10.7	11.8	10.1	8.5	9.2	8.7	6.9	8.3
19	10.1	9.6	9.8	12.5	11.8	12.1	10.9	8.4	9.4	6.8	6.0	6.4
20	10.2	10.0	10.1	12.2	11.5	11.9	11.1	8.3	9.6	5.9	4.2	5.5
21	10.2	9.9	10.0	12.6	10.9	11.6	10.9	8.4	9.5	4.1	2.6	3.5
22	10.4	10.2	10.3	13.2	10.4	12.0	10.7	8.4	9.4	2.6	1.8	2.3
23	10.8	10.3	10.5	---	---	---	10.6	8.3	9.2	5.8	1.9	2.7
24	10.8	10.7	10.8	---	---	---	10.6	8.2	9.1	7.7	5.1	7.0
25	10.8	10.2	10.5	---	---	---	9.2	7.0	7.8	7.9	7.5	7.7
26	10.0	9.5	9.7	---	---	---	9.6	7.9	8.8	8.2	7.7	7.9
27	9.4	8.9	9.0	---	---	---	9.8	7.9	8.8	8.4	7.9	8.1
28	9.9	9.0	9.3	---	---	---	9.7	7.9	8.7	8.5	8.0	8.3
29	---	---	---	---	---	---	9.4	7.6	8.5	8.5	8.0	8.2
30	---	---	---	---	---	---	9.5	7.7	8.4	8.3	7.9	8.1
31	---	---	---	---	---	---	---	---	---	8.6	7.7	8.1
MONTH	12.0	7.7	9.9	13.2	8.8	11.3	11.1	6.0	8.7	9.7	1.8	7.2
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.4	7.6	8.0	7.8	6.5	7.1	6.6	5.5	6.1	---	---	---
2	8.6	7.2	7.9	7.9	6.2	7.1	6.7	5.5	5.9	---	---	---
3	---	---	---	6.9	5.6	6.2	6.4	5.3	5.7	---	---	---
4	---	---	---	8.1	5.8	6.7	6.6	5.4	5.9	---	---	---
5	---	---	---	8.1	5.8	6.7	6.6	5.4	5.9	---	---	---
6	---	---	---	6.4	5.6	6.1	6.6	5.4	5.9	---	---	---
7	---	---	---	6.4	5.8	6.0	5.8	5.0	5.4	---	---	---
8	---	---	---	7.0	6.2	6.5	6.4	5.0	5.6	---	---	---
9	6.9	4.7	5.6	7.0	6.1	6.5	6.8	5.7	6.2	---	---	---
10	7.4	4.6	5.9	7.1	6.3	6.6	6.9	5.8	6.3	---	---	---
11	6.8	4.7	5.6	7.2	6.3	6.7	7.1	5.7	6.4	---	---	---
12	5.3	4.1	4.8	7.3	6.2	6.7	7.0	6.0	6.5	---	---	---
13	5.3	4.3	4.9	7.1	6.2	6.7	7.0	5.9	6.4	6.8	6.2	6.5
14	6.8	5.0	5.7	6.7	6.0	6.4	6.3	5.9	6.1	7.2	6.5	6.8
15	6.7	5.2	6.0	6.6	5.3	5.9	6.7	5.9	6.2	8.0	7.1	7.5
16	8.3	5.6	6.7	7.0	5.2	5.9	6.7	5.9	6.2	8.2	7.2	7.7
17	7.9	5.4	6.5	7.3	5.7	6.4	6.1	5.6	5.9	8.2	7.4	7.8
18	6.7	5.1	6.0	7.3	5.8	6.5	6.0	5.0	5.6	8.2	7.3	7.7
19	7.9	4.9	6.2	7.0	5.7	6.3	6.4	5.6	6.0	8.1	7.2	7.6
20	8.0	5.1	6.4	6.9	6.1	6.5	6.4	5.7	6.0	8.1	7.0	7.5
21	7.6	5.2	6.3	6.1	5.5	5.8	6.4	5.5	5.9	8.1	7.0	7.5
22	5.0	2.9	3.6	6.1	5.6	5.9	6.4	5.5	5.9	8.2	6.7	7.4
23	3.3	2.5	2.9	6.0	5.7	5.9	6.5	5.5	5.9	8.3	6.7	7.5
24	3.7	3.1	3.3	6.3	5.9	6.1	6.4	5.2	5.8	7.7	7.1	7.4
25	3.5	3.3	3.3	6.4	5.9	6.1	6.2	5.1	5.6	7.6	7.0	7.2
26	6.3	3.2	3.8	6.5	5.9	6.2	---	---	---	7.3	6.9	7.2
27	7.4	6.2	6.7	6.6	5.6	6.1	---	---	---	6.8	5.5	6.1
28	7.7	6.4	7.0	7.0	6.0	6.4	---	---	---	5.5	4.9	5.3
29	7.5	6.4	6.9	7.1	6.0	6.5	---	---	---	5.3	5.0	5.1
30	7.7	6.5	7.0	7.2	5.9	6.5	3.6	2.6	3.2	5.0	4.3	4.8
31	---	---	---	7.1	5.8	6.4	---	---	---	---	---	---
MONTH	8.6	2.5	5.7	8.1	5.2	6.4	7.1	2.6	5.9	8.3	4.3	6.9

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. Flow largely regulated by Lavon Lake (station 08060500) since September 1953 and 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); 36 years (water years 1954-89) regulated, 607 ft³/s (439,800 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,000 ft³/s May 28, 1957 (gage height, 22.81 ft), maximum gage height, 23.58 ft May 18, 1989; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 28,400 ft³/s May 18 at 0400 hours (gage height, 23.58 ft); minimum daily, 47 ft³/s Oct. 17.

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	306	95	72	125	163	131	838	936	1280	1410	1700	1390
2	183	70	68	88	142	123	195	1380	1350	1420	1670	1620
3	84	61	61	76	252	119	175	1540	1600	1660	1690	1720
4	60	58	59	71	195	113	838	1470	2170	1980	1720	1780
5	56	55	e54	67	123	230	952	2370	3350	1880	1710	1810
6	52	55	e50	65	105	186	1270	3170	5970	1440	1710	1820
7	50	53	51	63	108	160	1420	2240	5310	1120	1820	1850
8	49	52	e56	61	121	166	1450	521	5730	1310	2080	1870
9	60	51	e51	61	118	159	1460	139	9450	1420	1930	1790
10	65	52	e51	60	106	479	1440	390	11400	1450	1720	1470
11	56	51	e201	57	97	549	1440	791	11100	1460	1700	1480
12	53	51	e145	58	88	546	1310	918	7230	1460	1680	1810
13	49	206	79	141	204	596	378	1250	7470	1460	1690	1870
14	48	82	68	153	154	1040	1790	1330	18500	1480	1690	2080
15	51	58	64	117	185	1560	2300	1320	24800	1710	1700	2160
16	51	332	60	83	1340	1840	1690	3130	19800	2380	1700	1770
17	47	120	57	71	1790	1680	1410	14500	11900	2140	1770	1500
18	50	68	55	68	3920	606	1380	25300	6570	1910	1900	1480
19	52	361	53	63	2130	520	1350	13000	3710	1430	1770	1740
20	49	541	53	62	506	515	1330	9260	2690	1450	1680	1940
21	53	118	56	60	341	596	1340	7930	2580	1200	1660	1980
22	53	74	60	62	234	1080	1330	2530	1240	1040	1650	1970
23	52	57	276	63	194	1080	1320	1230	326	1010	1640	1950
24	55	63	112	62	176	1020	1280	1400	226	1030	1630	1540
25	56	76	71	126	166	609	420	1210	198	1090	1640	602
26	55	251	63	1040	160	251	1140	1110	255	1440	813	451
27	87	136	171	804	150	138	1260	1070	1190	1610	192	135
28	148	87	378	601	139	980	1280	1060	1350	1680	147	76
29	89	77	131	1450	---	8100	1340	964	1390	1700	131	74
30	194	62	85	393	---	9310	1290	607	1400	1690	127	72
31	102	---	115	199	---	3040	---	880	---	1690	557	---
TOTAL	2415	3473	2926	6470	13407	37522	36416	104946	171535	47150	45217	43800
MEAN	77.9	116	94.4	209	479	1210	1214	3385	5718	1521	1459	1460
MAX	306	541	378	1450	3920	9310	2300	25300	24800	2380	2080	2160
MIN	47	51	50	57	88	113	175	139	198	1010	127	72
AC-FT	4790	6890	5800	12830	26590	74420	72230	208200	340200	93520	89690	86880

CAL YR 1988 TOTAL 24275 MEAN 88.0 MAX 1280 MIN 30 AC-FT 48150
WTR YR 1989 TOTAL 515277 MEAN 1412 MAX 25300 MIN 47 AC-FT 1022000

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 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. Beginning 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 malfunction 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 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, 8.7 units Mar. 11, 27, 1987; 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 mg/L on many days during 1977.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 733 microsiemens Mar. 5; minimum, 100 microsiemens May 17.
pH: Maximum, 8.2 units on several days during water year; minimum, 7.0 units Oct. 1, June 25.
WATER TEMPERATURE: Maximum, 31.0°C Aug. 30; minimum, 2.0°C Feb. 5, 6.
DISSOLVED OXYGEN: Maximum, 12.9 mg/L Feb. 5, 6, Mar. 15; minimum, 2.4 mg/L Aug. 30.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
NOV 15...	0940	59	480	7.50	19.0	5.3	58	4.3	130
JAN 10...	1020	61	645	7.60	10.0	7.3	65	7.0	180
MAY 24...	1515	1400	303	7.80	25.0	7.1	88	3.0	120
JUL 06...	1100	1430	288	7.80	28.0	6.2	80	2.5	100
AUG 03...	1115	1780	292	7.80	26.5	6.1	77	1.1	110
SEP 12...	1300	1170	256	7.70	26.0	6.4	80	2.4	94

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 WH TOT FET 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 15...	46	3.4	47	2	7.8	115	52	38	0.80
JAN 10...	63	4.7	70	2	9.2	138	76	58	0.90
MAY 24...	43	2.5	16	0.6	4.8	114	26	11	0.30
JUL 06...	37	2.5	15	0.6	4.2	101	22	10	0.30
AUG 03...	39	2.5	16	0.7	4.2	103	22	10	0.30
SEP 12...	34	2.2	12	0.5	3.8	95	19	9.1	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 15...	8.0	272	3.69	0.410	4.10	0.450	1.5	2.0	4.00
JAN 10...	9.8	374	5.96	0.540	6.50	1.40	1.5	2.9	6.20
MAY 24...	5.3	177	0.440	0.060	0.500	0.130	0.67	0.80	0.310
JUL 06...	2.7	154	0.270	0.030	0.300	0.120	0.48	0.60	0.410
AUG 03...	3.1	159	0.270	0.030	0.300	0.080	0.12	0.20	0.220
SEP 12...	4.2	142	0.270	0.030	0.300	0.040	0.66	0.70	0.180

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	2415	519	288	1880	38	245	52	339	140
NOV.	1988	3473	450	253	2380	30	281	48	453	130
DEC.	1988	2926	510	284	2240	36	284	52	413	140
JAN.	1989	6470	397	225	3930	25	441	44	770	120
FEB.	1989	13407	345	198	7170	20	733	40	1460	110
MAR.	1989	37522	365	210	21300	21	2120	43	4380	120
APR.	1989	36416	402	230	22600	24	2390	46	4550	130
MAY	1989	104946	249	147	41600	12	3400	32	9160	95
JUNE	1989	171535	291	170	78900	15	6870	37	17000	110
JULY	1989	47150	290	170	21600	15	1870	37	4680	110
AUG.	1989	45217	285	167	20400	14	1760	36	4410	110
SEPT	1989	43800	275	162	19100	14	1610	35	4170	100
TOTAL		515277	**	**	243000	**	22000	**	51800	**
WTD.AVG.		1412	300	175	**	16	**	37	**	110

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	346	217	281	558	456	495	579	534	564	597	501	557
2	401	233	321	560	491	522	617	501	571	548	475	504
3	539	375	462	611	542	572	612	584	600	593	537	565
4	516	460	484	687	611	648	621	588	608	600	578	590
5	562	509	531	709	661	686	621	598	610	634	600	610
6	604	564	588	705	664	686	632	603	621	650	625	639
7	648	593	627	703	667	689	637	616	626	657	634	646
8	663	634	647	696	649	670	662	609	628	661	651	656
9	674	590	653	648	624	636	681	661	669	679	659	668
10	651	595	630	678	627	643	684	537	617	665	658	660
11	663	555	593	713	677	689	612	318	411	682	657	667
12	573	559	568	723	689	705	403	333	371	661	636	644
13	620	571	596	711	312	493	495	398	451	680	521	629
14	665	607	636	494	368	442	594	494	533	529	407	444
15	683	635	662	538	479	502	618	586	595	559	461	504
16	672	646	660	571	241	377	635	610	618	551	463	514
17	662	636	653	392	283	343	656	637	646	621	548	581
18	657	629	643	562	392	477	666	644	652	644	602	620
19	656	619	628	578	175	454	668	647	657	672	632	646
20	671	607	633	325	178	266	672	648	663	680	666	674
21	695	639	663	404	317	370	672	636	651	669	655	663
22	706	673	691	518	402	466	705	658	687	667	633	652
23	704	670	685	582	519	539	709	272	475	662	646	653
24	682	645	662	639	589	613	460	350	404	663	643	650
25	670	649	661	666	376	590	603	463	525	665	476	547
26	669	638	652	459	331	392	603	586	595	542	210	346
27	660	622	640	485	383	409	605	225	557	351	259	307
28	672	298	517	441	384	415	460	240	345	403	208	348
29	570	339	449	507	441	465	471	344	411	286	224	247
30	634	318	458	525	479	499	547	469	512	392	294	346
31	472	330	409	---	---	---	604	528	565	462	392	425
MONTH	706	217	580	723	175	525	709	225	563	682	208	555

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	496	466	483	606	573	586	---	---	499	398	286	327
2	526	488	509	622	595	608	---	---	611	309	295	300
3	614	310	501	621	606	612	---	---	662	349	281	300
4	421	314	388	644	609	622	683	421	462	317	291	300
5	464	420	449	733	527	620	424	417	421	309	168	206
6	535	466	507	527	455	483	415	404	408	284	198	246
7	545	516	532	546	468	510	411	401	406	316	286	296
8	566	543	552	581	527	552	413	400	408	350	322	336
9	571	548	563	585	496	529	416	406	411	469	354	412
10	610	553	587	610	385	458	416	406	411	553	335	427
11	616	590	603	406	394	399	417	402	410	337	250	309
12	644	592	615	402	388	395	441	405	414	315	258	296
13	654	516	605	393	356	387	659	412	524	330	299	314
14	549	488	520	359	340	355	506	318	377	315	310	313
15	604	523	572	344	302	334	408	373	393	312	306	310
16	360	279	325	347	323	337	424	408	416	308	132	202
17	341	243	307	368	336	347	424	412	418	179	100	144
18	244	217	224	390	373	383	420	400	416	267	192	248
19	349	238	287	379	368	375	420	400	411	265	242	252
20	425	351	392	381	370	375	412	396	405	263	249	257
21	471	426	443	485	358	384	408	396	403	283	263	273
22	509	472	494	452	336	355	412	400	407	291	283	288
23	547	508	531	345	341	342	416	400	408	345	285	293
24	552	532	542	351	340	344	416	404	408	304	284	293
25	558	528	547	370	355	364	545	349	430	307	297	303
26	572	531	560	462	371	413	420	341	361	312	302	308
27	595	560	584	565	455	501	390	358	373	309	301	306
28	584	550	563	---	---	485	356	314	328	311	300	307
29	---	---	---	---	---	325	328	313	318	306	299	303
30	---	---	---	---	---	354	333	308	317	306	298	302
31	---	---	---	---	---	386	---	---	---	310	297	305
MONTH	654	217	492	733	302	436	683	308	421	553	100	293
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	305	295	301	295	287	290	283	277	281	293	279	287
2	305	298	302	294	286	290	292	279	283	291	285	287
3	377	201	274	295	279	290	295	285	290	288	279	283
4	---	---	271	292	278	288	286	280	284	282	278	279
5	---	---	271	285	276	280	281	277	279	278	273	276
6	---	---	282	293	287	290	280	276	279	280	276	278
7	---	---	279	297	283	292	---	---	284	282	279	280
8	---	---	281	290	280	285	---	---	268	285	281	283
9	310	293	300	304	288	293	---	---	272	296	283	292
10	314	310	312	299	293	296	---	---	276	292	278	284
11	320	311	313	299	295	297	---	---	276	318	249	272
12	322	314	318	298	294	296	---	---	277	281	255	263
13	312	268	298	300	292	296	---	---	277	274	225	256
14	280	207	243	305	294	297	---	---	276	264	241	251
15	286	281	283	353	221	270	---	---	277	274	264	269
16	293	284	288	283	254	272	---	---	285	275	270	273
17	302	294	297	287	284	286	---	---	281	273	268	272
18	314	302	307	305	286	293	---	---	275	272	262	269
19	316	308	314	316	297	312	---	---	272	272	263	268
20	311	305	307	300	278	287	---	---	277	273	271	272
21	319	303	307	304	289	293	---	---	275	272	269	270
22	379	324	360	313	298	305	---	---	277	271	265	269
23	405	382	394	311	299	306	---	---	280	264	256	259
24	442	411	429	304	293	299	---	---	282	291	259	273
25	451	422	441	303	290	299	---	---	287	295	289	291
26	546	435	450	319	286	298	---	---	307	306	285	294
27	407	301	316	310	281	289	---	---	385	387	309	335
28	302	290	298	288	278	285	---	---	479	468	393	427
29	289	281	287	286	281	283	---	---	573	561	468	504
30	289	283	286	283	278	281	629	613	620	620	571	608
31	---	---	---	283	274	278	652	293	477	---	---	---
MONTH	546	201	314	353	221	291	652	276	316	620	225	301

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.4	7.0	7.2	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	7.4	7.0	7.2	---	---	---	---	---	---	---	---	---
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	7.4	7.6
2	---	---	---	---	---	---	7.7	7.7	7.7	7.8	7.6	7.7
3	---	---	---	---	---	---	7.7	7.6	7.7	7.7	7.5	7.5
4	---	---	---	---	---	---	8.0	7.7	7.9	7.5	7.4	7.5
5	---	---	---	---	---	---	8.1	8.0	8.0	7.6	7.4	7.5
6	---	---	---	---	---	---	8.1	8.0	8.0	7.6	7.4	7.5
7	---	---	---	---	---	---	8.1	7.9	8.0	7.8	7.6	7.7
8	---	---	---	---	---	---	8.1	7.8	7.9	7.7	7.6	7.6
9	---	---	---	---	---	---	8.1	7.8	7.9	7.7	7.6	7.7
10	---	---	---	---	---	---	8.1	7.9	8.0	8.0	7.7	7.8
11	---	---	---	---	---	---	8.2	7.9	8.0	8.0	7.9	8.0
12	---	---	---	---	---	---	8.2	7.9	8.0	7.9	7.9	7.9
13	---	---	---	---	---	---	---	---	---	7.9	7.8	7.9
14	---	---	---	---	---	---	---	---	---	7.9	7.8	7.9
15	8.0	7.9	7.9	8.2	8.1	8.1	---	---	---	7.9	7.8	7.8
16	8.0	8.0	8.0	8.2	8.1	8.1	---	---	---	7.9	7.9	7.9
17	8.1	8.0	8.0	8.1	8.0	8.1	---	---	---	8.1	7.8	7.9
18	8.1	8.0	8.1	8.1	8.0	8.0	---	---	---	7.8	7.7	7.8
19	8.1	8.0	8.0	8.1	8.0	8.1	---	---	---	7.9	7.8	7.8
20	8.1	8.0	8.1	8.1	8.0	8.0	---	---	---	8.1	7.8	7.9
21	8.1	8.1	8.1	8.0	7.9	8.0	---	---	---	8.0	7.7	7.8
22	8.2	8.1	8.2	8.1	7.9	8.0	---	---	---	7.7	7.6	7.7
23	8.2	8.2	8.2	8.1	8.0	8.1	---	---	---	7.7	7.6	7.7
24	8.2	8.2	8.2	8.1	8.0	8.0	---	---	---	7.9	7.8	7.8
25	8.2	8.1	8.2	8.0	7.8	7.9	---	---	---	7.9	7.9	7.9
26	8.2	8.1	8.1	7.8	7.6	7.7	---	---	---	7.9	7.9	7.9
27	8.1	8.1	8.1	7.6	7.3	7.5	---	---	---	8.0	7.9	7.9
28	8.1	8.1	8.1	7.7	7.3	7.5	---	---	---	8.0	7.9	7.9
29	---	---	---	7.8	7.4	7.6	7.9	7.6	7.7	8.0	7.9	7.9
30	---	---	---	7.9	7.8	7.9	7.8	7.6	7.7	7.9	7.9	7.9
31	---	---	---	7.9	7.7	7.8	---	---	---	7.9	7.8	7.9
MONTH	8.2	7.9	8.1	8.2	7.3	7.9	8.2	7.6	7.9	8.1	7.4	7.8

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.0	7.9	7.9	8.2	8.0	8.1	8.1	7.9	8.0	7.9	7.8	7.8
2	8.1	7.9	8.0	8.1	7.9	8.0	8.1	7.9	8.0	7.8	7.7	7.8
3	8.1	7.8	7.9	7.9	7.7	7.8	8.1	7.9	8.0	7.7	7.6	7.7
4	7.9	7.7	7.8	8.2	7.8	7.9	8.0	7.5	7.7	7.7	7.6	7.6
5	7.9	7.8	7.8	8.2	7.8	8.0	7.8	7.5	7.6	7.7	7.5	7.6
6	---	---	---	8.0	7.8	7.9	7.7	7.3	7.5	7.6	7.5	7.6
7	---	---	---	7.8	7.6	7.7	---	---	---	7.7	7.6	7.6
8	---	---	---	7.6	7.5	7.6	---	---	---	7.7	7.6	7.6
9	8.1	7.8	8.0	7.7	7.5	7.6	---	---	---	7.6	7.5	7.5
10	8.1	7.8	7.9	7.7	7.5	7.6	---	---	---	7.6	7.5	7.6
11	8.2	7.8	8.0	7.9	7.6	7.8	---	---	---	7.7	7.6	7.6
12	7.9	7.7	7.8	7.9	7.8	7.8	---	---	---	7.8	7.6	7.7
13	7.8	7.6	7.6	7.8	7.7	7.7	---	---	---	7.7	7.6	7.7
14	7.6	7.5	7.6	7.8	7.7	7.7	---	---	---	7.6	7.5	7.6
15	7.7	7.5	7.6	7.8	7.7	7.8	---	---	---	7.6	7.5	7.6
16	7.9	7.5	7.7	8.0	7.6	7.8	---	---	---	7.7	7.6	7.6
17	8.0	7.5	7.7	8.1	7.7	7.9	---	---	---	7.7	7.7	7.7
18	7.8	7.5	7.7	8.0	7.8	7.9	---	---	---	7.8	7.7	7.8
19	7.8	7.5	7.6	7.9	7.8	7.8	---	---	---	7.8	7.7	7.8
20	7.9	7.5	7.7	8.1	7.9	8.0	---	---	---	7.8	7.7	7.8
21	8.0	7.5	7.7	8.0	7.7	7.8	---	---	---	7.9	7.7	7.8
22	7.8	7.5	7.6	7.9	7.7	7.8	---	---	---	8.0	7.8	7.9
23	7.5	7.3	7.4	7.9	7.8	7.8	---	---	---	8.1	7.8	7.9
24	7.4	7.1	7.3	7.9	7.8	7.9	---	---	---	8.0	7.8	7.9
25	7.5	7.0	7.2	8.0	7.9	7.9	---	---	---	7.9	7.8	7.9
26	7.6	7.3	7.4	8.0	7.8	7.9	---	---	---	8.0	7.9	8.0
27	7.9	7.7	7.8	8.0	7.8	7.9	---	---	---	7.9	7.7	7.8
28	8.1	7.9	8.0	8.1	7.9	8.0	---	---	---	7.7	7.7	7.7
29	8.1	8.0	8.1	8.1	7.9	8.0	---	---	---	7.7	7.7	7.7
30	8.1	8.0	8.1	8.1	7.9	8.0	7.6	7.4	7.5	7.7	7.7	7.7
31	---	---	---	8.1	7.9	8.0	7.8	7.3	7.6	---	---	---
MONTH	8.2	7.0	7.7	8.2	7.5	7.9	8.1	7.3	7.7	8.1	7.5	7.7

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	15.5	12.5	14.0	13.0	12.0	12.5	17.5	15.0	16.5	22.0	21.0	21.5
2	14.5	11.5	13.5	13.5	12.5	13.0	20.0	17.0	18.0	22.0	21.0	21.5
3	11.0	4.5	8.5	15.5	13.5	14.0	22.5	19.0	20.5	21.5	19.5	20.0
4	4.5	2.5	3.5	15.0	10.0	13.0	22.0	16.5	18.0	21.0	20.0	20.0
5	3.0	2.0	2.5	10.0	5.5	8.0	17.0	16.0	16.5	21.5	19.0	20.0
6	3.5	2.0	3.0	7.0	4.5	5.5	18.0	15.5	16.5	23.0	20.5	21.5
7	5.5	2.5	4.0	8.0	5.0	6.5	18.5	16.0	17.5	22.0	20.5	21.5
8	7.0	4.5	5.5	9.5	6.0	8.0	18.5	16.5	17.0	24.5	21.5	23.0
9	8.0	5.5	6.5	12.0	8.0	10.0	16.0	14.5	15.5	24.5	23.0	24.0
10	9.5	6.5	7.5	12.0	9.5	10.5	16.0	14.5	15.0	23.5	22.0	22.5
11	11.5	8.0	9.5	10.5	9.0	10.0	16.0	13.5	14.5	22.0	21.0	21.5
12	13.0	11.0	12.0	11.0	10.0	10.5	16.0	14.5	15.0	21.5	20.0	21.0
13	14.5	12.5	13.5	12.0	11.0	11.5	15.5	14.0	15.0	21.0	19.5	20.0
14	13.5	12.5	13.0	11.5	10.0	11.0	14.5	12.5	13.0	22.0	20.0	21.0
15	12.5	10.5	12.0	11.0	9.5	10.0	17.0	13.0	15.0	22.5	21.0	22.0
16	9.5	8.5	8.5	11.5	9.5	10.5	18.0	15.5	17.0	22.5	20.0	21.0
17	8.5	7.0	8.0	14.0	11.5	12.5	---	---	---	20.0	19.5	20.0
18	7.0	7.0	7.0	14.0	11.5	12.5	---	---	---	22.5	20.5	21.5
19	8.0	7.0	7.5	12.0	11.5	11.5	---	---	---	24.0	22.0	23.0
20	9.5	8.0	9.0	14.0	12.0	13.0	---	---	---	26.0	24.0	25.0
21	10.5	9.5	10.0	13.5	9.5	11.5	---	---	---	27.0	25.5	26.5
22	11.0	9.0	10.0	11.5	9.0	10.0	---	---	---	27.0	25.5	26.0
23	10.5	8.5	9.5	12.5	10.5	11.5	---	---	---	26.5	25.5	26.0
24	9.5	7.5	9.0	13.0	11.0	12.0	---	---	---	26.0	24.5	25.0
25	11.5	9.0	10.0	13.0	12.5	13.0	---	---	---	25.0	24.0	24.5
26	14.5	11.0	12.5	15.5	13.0	14.5	---	---	---	25.0	24.0	24.5
27	14.0	13.0	13.5	19.0	15.5	17.0	---	---	---	25.5	24.5	25.0
28	13.5	12.0	12.5	19.0	15.0	17.5	---	---	---	25.5	24.5	25.0
29	---	---	---	16.5	14.5	15.5	21.5	20.0	20.5	25.5	24.5	25.0
30	---	---	---	17.5	15.0	16.0	22.0	20.0	21.0	25.0	24.5	25.0
31	---	---	---	17.0	14.5	16.0	---	---	---	25.0	24.0	25.0
MONTH	15.5	2.0	9.0	19.0	4.5	12.0	22.5	12.5	17.0	27.0	19.0	23.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	26.0	24.5	25.0	27.5	26.0	26.5	28.0	27.0	27.5	28.0	27.0	27.5
2	26.0	25.0	25.5	27.5	27.0	27.5	27.5	26.5	27.0	28.5	27.0	28.0
3	26.0	23.0	25.0	27.5	25.5	26.5	28.0	26.5	27.0	28.5	27.5	28.5
4	26.0	24.0	24.5	29.0	26.5	27.5	28.5	26.5	27.5	29.0	27.5	28.5
5	26.0	23.5	24.5	29.5	27.5	28.5	28.5	27.0	28.0	28.5	27.5	28.0
6	27.0	24.5	25.5	29.0	28.0	28.5	28.5	27.0	28.0	28.5	27.0	28.0
7	26.0	24.5	25.5	28.5	27.0	27.5	---	---	---	28.5	27.5	28.0
8	25.0	23.5	24.5	28.0	26.5	27.0	---	---	---	28.0	27.0	27.5
9	26.0	24.5	25.0	28.0	27.0	27.5	---	---	---	28.0	27.0	27.5
10	26.5	25.5	26.0	28.0	26.5	27.0	---	---	---	28.0	27.0	27.5
11	27.0	25.5	26.5	27.5	26.5	27.0	---	---	---	28.0	25.5	27.0
12	27.0	25.0	26.0	28.0	26.5	27.5	---	---	---	27.0	25.0	26.0
13	26.0	24.5	25.0	28.0	26.5	27.5	---	---	---	27.0	23.0	25.0
14	25.0	23.0	24.0	27.5	27.0	27.0	---	---	---	23.0	21.5	22.0
15	25.5	24.5	25.0	27.5	25.5	26.5	---	---	---	23.0	21.5	22.5
16	---	---	---	30.0	26.5	28.0	---	---	---	24.5	22.5	23.5
17	---	---	---	29.5	27.5	28.5	---	---	---	25.0	23.5	24.0
18	---	---	---	28.5	26.5	27.5	---	---	---	25.0	23.5	24.5
19	---	---	---	28.5	27.5	28.0	---	---	---	24.5	23.0	24.0
20	---	---	---	28.0	27.0	27.5	---	---	---	24.5	23.0	24.0
21	---	---	---	28.0	27.0	27.5	---	---	---	24.5	23.0	24.0
22	28.5	26.5	27.5	28.0	27.0	27.5	---	---	---	24.0	23.0	23.5
23	28.5	27.0	27.5	28.0	27.0	27.5	---	---	---	23.5	22.0	23.0
24	28.5	26.5	27.5	27.5	26.5	27.0	---	---	---	22.0	20.0	21.0
25	27.5	26.5	27.0	27.5	27.0	27.5	---	---	---	21.5	20.5	21.0
26	27.5	26.5	27.0	27.5	26.5	27.0	---	---	---	22.0	21.0	21.5
27	27.0	25.0	25.5	28.0	26.0	27.0	---	---	---	22.5	20.5	21.5
28	26.5	25.5	26.0	28.5	26.5	27.5	---	---	---	22.5	20.0	21.5
29	26.5	26.0	26.5	29.0	27.0	28.0	---	---	---	22.0	21.0	21.5
30	26.5	26.0	26.0	29.0	27.0	28.0	31.0	28.5	30.0	23.5	21.0	22.0
31	---	---	---	28.5	27.0	28.0	30.0	28.0	29.0	---	---	---
MONTH	28.5	23.0	25.5	30.0	25.5	27.5	31.0	26.5	28.0	29.0	20.0	24.5

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	6.8	6.2	6.6	6.9	6.4	6.7	8.5	7.6	8.0	10.3	8.8	9.4
2	6.9	6.4	6.6	6.7	5.8	6.4	8.8	7.7	8.3	9.4	7.9	8.8
3	6.5	5.9	6.3	5.7	5.1	5.6	8.3	7.5	7.9	7.9	6.7	7.6
4	6.5	5.9	6.2	5.1	4.7	5.0	8.6	7.4	7.9	7.8	6.6	7.0
5	6.7	5.8	6.1	5.2	4.3	4.8	8.7	7.4	8.0	---	---	---
6	6.6	5.7	6.0	5.3	4.8	5.0	8.5	7.5	7.9	---	---	---
7	6.3	5.6	5.8	5.7	4.8	5.2	8.2	7.3	7.7	---	---	---
8	5.9	4.6	5.3	5.4	4.5	5.0	7.4	6.8	7.1	---	---	---
9	5.8	5.2	5.4	5.7	4.7	5.2	7.9	7.2	7.5	---	---	---
10	6.3	5.2	5.7	5.4	4.5	5.0	8.7	7.3	8.1	---	---	---
11	6.7	5.2	5.7	5.5	4.7	5.1	9.7	8.6	9.4	7.4	6.6	7.2
12	6.8	5.3	5.8	5.6	4.7	5.1	9.5	8.9	9.1	7.3	6.5	6.9
13	6.8	5.4	6.0	5.8	4.8	5.3	9.1	8.3	8.8	9.5	6.7	8.3
14	7.1	5.2	6.1	6.1	4.9	5.8	8.4	7.7	8.2	10.2	9.6	9.9
15	6.4	5.0	5.9	5.6	4.9	5.3	7.7	7.5	7.6	10.0	9.2	9.6
16	6.1	4.3	5.3	5.8	3.4	4.8	8.1	7.1	7.8	9.4	8.2	9.0
17	5.6	4.0	4.7	6.8	5.8	6.3	8.2	7.6	8.0	8.7	7.7	8.3
18	5.1	3.6	4.4	7.1	6.6	7.0	8.6	7.6	8.0	8.0	7.1	7.6
19	4.5	3.8	4.1	7.9	6.6	7.1	7.8	6.8	7.5	7.3	6.3	7.0
20	4.8	3.5	4.1	8.2	7.4	7.9	6.7	6.1	6.5	7.6	6.3	6.9
21	4.7	3.5	4.0	8.7	8.2	8.4	7.0	5.7	6.3	7.9	6.7	7.3
22	5.6	3.4	4.4	8.9	8.3	8.7	6.4	5.9	6.2	8.3	6.9	7.6
23	5.3	4.0	4.7	8.6	7.8	8.4	8.0	5.7	7.2	7.8	6.6	7.3
24	5.8	3.9	4.9	7.7	4.5	7.0	7.4	7.1	7.3	6.7	5.8	6.3
25	5.9	4.4	5.1	7.3	6.6	7.0	8.0	7.2	7.7	6.5	5.6	6.1
26	5.2	4.4	4.8	7.4	3.5	6.3	7.6	6.9	7.4	8.6	6.1	7.5
27	5.5	4.3	4.8	6.8	6.5	6.6	8.8	6.6	7.0	9.4	8.2	8.8
28	5.9	5.0	5.4	8.0	6.9	7.4	10.2	9.0	9.6	10.2	9.4	9.7
29	6.1	5.6	5.8	8.5	7.4	7.9	10.4	10.1	10.2	9.8	8.8	9.2
30	7.0	5.8	6.5	8.7	7.8	8.2	10.2	9.5	10.0	9.9	9.1	9.6
31	7.1	6.2	6.6	---	---	---	10.5	9.2	9.7	9.9	9.5	9.7
MONTH	7.1	3.4	5.5	8.9	3.4	6.3	10.5	5.7	8.0	10.3	5.6	8.1
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	9.4	8.9	9.2	9.5	9.1	9.3	---	---	---	8.8	7.2	8.1
2	9.2	8.9	8.9	9.4	8.9	9.3	---	---	---	8.8	7.6	8.2
3	12.2	9.3	10.3	8.9	8.3	8.8	---	---	---	8.5	7.3	7.9
4	12.7	12.2	12.4	8.8	8.2	8.6	9.4	6.5	8.6	8.3	6.9	7.5
5	12.9	12.6	12.7	12.1	8.8	10.4	9.8	9.0	9.4	---	---	---
6	12.9	12.5	12.7	12.2	11.8	12.0	9.8	8.9	9.4	---	---	---
7	12.7	11.9	12.4	11.8	11.2	11.5	10.1	8.4	9.1	---	---	---
8	12.0	11.7	11.9	11.2	10.6	10.9	9.6	8.0	8.8	---	---	---
9	11.8	11.3	11.6	10.7	9.7	10.2	11.1	8.1	9.5	---	---	---
10	11.4	10.6	11.1	---	---	---	10.9	8.8	9.7	---	---	---
11	10.7	10.0	10.5	---	---	---	---	---	---	9.0	8.4	8.8
12	9.9	8.7	9.5	---	---	---	---	---	---	8.9	8.7	8.8
13	9.6	8.6	9.0	---	---	---	---	---	---	8.9	8.6	8.7
14	9.0	8.7	8.9	---	---	---	---	---	---	9.1	8.4	8.7
15	10.0	8.8	9.0	12.9	12.3	12.5	---	---	---	9.0	8.3	8.7
16	10.6	10.3	10.4	12.4	11.8	12.1	---	---	---	8.6	6.5	7.7
17	11.1	10.6	10.8	11.6	10.8	11.3	---	---	---	7.4	6.3	6.8
18	10.6	10.0	10.3	11.9	11.1	11.5	---	---	---	8.1	7.3	7.7
19	10.1	9.7	9.8	11.9	11.5	11.7	---	---	---	7.3	6.5	6.9
20	10.2	10.1	10.1	12.0	11.2	11.5	---	---	---	7.6	6.2	6.9
21	10.2	10.1	10.2	12.0	11.0	11.7	---	---	---	6.6	3.9	4.9
22	10.4	10.2	10.3	12.0	11.1	11.6	---	---	---	3.6	2.6	3.0
23	10.6	10.5	10.5	11.6	11.1	11.5	---	---	---	4.5	2.7	3.5
24	10.9	10.6	10.7	11.5	11.0	11.2	---	---	---	7.8	5.3	6.8
25	10.6	10.2	10.5	10.9	10.4	10.6	---	---	---	8.3	7.6	8.0
26	10.1	9.4	9.8	10.5	9.0	9.7	---	---	---	8.5	8.1	8.3
27	9.4	8.9	9.2	9.2	7.8	8.6	---	---	---	8.8	8.3	8.5
28	9.2	8.9	9.1	9.9	7.3	8.1	---	---	---	9.0	8.5	8.8
29	---	---	---	8.0	7.1	7.6	8.9	7.6	8.2	8.9	8.5	8.7
30	---	---	---	8.1	7.3	7.7	8.7	7.6	8.1	8.9	8.5	8.7
31	---	---	---	8.9	6.8	7.8	---	---	---	8.9	8.4	8.7
MONTH	12.9	8.6	10.4	12.9	6.8	10.3	11.1	6.5	9.0	9.1	2.6	7.6

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	9.0	8.3	8.7	7.3	6.6	7.0	7.3	6.1	6.7	6.9	6.2	6.4
2	9.3	8.1	8.6	7.4	6.4	6.9	7.2	6.3	6.7	7.2	6.0	6.5
3	8.8	5.9	7.0	6.9	5.7	6.3	6.8	6.1	6.4	7.0	5.9	6.4
4	6.7	5.1	5.8	7.7	5.6	6.5	6.7	5.7	6.1	7.4	5.9	6.5
5	7.3	5.7	6.4	7.6	5.7	6.6	6.7	5.6	6.1	7.4	6.0	6.5
6	9.1	6.0	7.4	6.8	5.9	6.4	6.6	5.5	6.1	7.0	6.1	6.5
7	8.2	6.1	7.2	6.3	6.0	6.1	---	---	---	7.2	6.0	6.5
8	7.2	5.8	6.4	6.7	6.3	6.4	---	---	---	7.0	6.0	6.5
9	7.6	5.6	6.5	6.6	6.0	6.3	---	---	---	6.8	5.7	6.3
10	8.0	5.3	6.5	6.5	5.9	6.2	---	---	---	6.8	6.0	6.4
11	8.3	5.6	6.8	6.5	5.9	6.1	---	---	---	6.5	5.9	6.2
12	7.1	5.3	6.1	7.0	6.2	6.6	---	---	---	7.0	5.8	6.3
13	6.8	5.3	6.0	6.9	6.4	6.7	---	---	---	6.5	5.8	6.2
14	6.5	5.5	5.8	6.8	6.4	6.6	---	---	---	6.8	6.2	6.5
15	7.2	6.0	6.4	6.8	5.7	6.4	---	---	---	7.5	6.8	7.1
16	8.2	6.0	6.9	7.4	5.7	6.5	---	---	---	7.7	7.0	7.3
17	8.3	6.0	7.2	7.5	6.0	6.7	---	---	---	7.5	7.1	7.3
18	7.5	5.8	6.8	7.8	6.5	7.0	---	---	---	7.7	7.0	7.3
19	7.5	5.3	6.4	6.9	6.3	6.6	---	---	---	7.6	6.8	7.2
20	8.4	5.2	6.6	7.5	6.7	7.0	---	---	---	7.6	6.8	7.1
21	9.0	5.5	7.1	7.1	6.4	6.7	---	---	---	7.4	6.5	6.8
22	6.8	5.1	5.7	6.7	6.4	6.6	---	---	---	---	---	---
23	6.1	5.2	5.7	6.6	6.4	6.5	---	---	---	---	---	---
24	6.2	5.5	5.9	6.8	6.5	6.6	---	---	---	---	---	---
25	6.3	5.7	6.0	6.8	6.4	6.6	---	---	---	---	---	---
26	6.1	5.3	5.7	6.9	6.3	6.6	---	---	---	---	---	---
27	7.5	6.5	7.0	7.2	6.1	6.6	---	---	---	---	---	---
28	7.7	6.9	7.2	7.5	6.5	7.0	---	---	---	5.4	4.7	5.0
29	7.5	6.8	7.1	7.8	6.4	7.1	---	---	---	4.8	4.4	4.6
30	7.4	6.8	7.0	7.7	6.3	7.0	3.6	2.4	2.8	4.6	4.2	4.4
31	---	---	---	7.7	6.2	6.9	6.3	2.5	4.4	---	---	---
MONTH	9.3	5.1	6.7	7.8	5.6	6.6	7.3	2.4	5.7	7.7	4.2	6.4

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.

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.--Records fair, including those estimated. At times, flow is affected by storage in 15 upstream reservoirs having 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 with Dallas and several small cities divert considerable water for municipal use, of which about 60 percent is returned as sewage effluents that sustains low flows at this site. Flow may be effected at times by discharge from the flood-detention pools of 38 floodwater-retarding structures with a combined detention capacity of 22,680 acre-ft. These structures control runoff from 76.7 mi². Two separate gage-height telemeters at station.

AVERAGE DISCHARGE.--52 years (water years 1925, 1939-89), 6,486 ft³/s (1,949,000 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, 66,900 ft³/s May 19 at 0300 hours (gage height, 36.46 ft); minimum daily, 511 ft³/s Oct. 24.

REVISIONS.--Revised figures of discharge for the water year 1988, superseding those published in the WRD report for 1988 are given below.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	687	627	873	1660	820	866	1460	1290	1590	711	618	590
2	645	618	826	1590	818	892	2040	1200	6700	692	634	616
3	633	630	809	1470	819	3710	1830	869	7630	871	642	812
4	613	633	836	1340	803	3790	1250	808	5670	999	729	3410
5	600	629	827	1280	805	1960	1080	786	2190	1070	636	2680
6	614	619	793	1180	793	1270	1020	780	1180	1140	561	1090
7	602	629	810	1170	826	1110	966	760	938	1100	557	754
8	590	637	918	1290	825	1020	897	762	857	771	564	682
9	603	1160	859	1330	810	966	865	844	815	676	568	641
10	615	1710	838	1350	821	920	850	839	764	638	561	632
11	600	1530	910	1290	818	908	873	775	732	1010	568	620
12	581	987	897	1230	872	2180	890	746	693	2210	567	618
13	598	818	942	1280	847	1360	821	736	653	7170	572	632
14	608	750	1270	1170	819	1040	800	752	666	6990	582	743
15	592	776	1520	1030	798	961	802	751	660	2920	582	998
16	608	4450	1340	984	814	907	877	721	652	1100	592	1100
17	618	5680	1010	977	813	902	813	740	614	861	607	972
18	602	3030	902	962	2110	2560	3660	907	671	722	605	728
19	650	1520	1030	952	4420	2140	3520	795	659	684	600	1310
20	700	1360	4710	1040	3220	1330	1780	721	619	716	639	1210
21	692	1070	4690	1010	1730	1070	1120	1750	631	971	800	800
22	698	891	2030	928	1220	977	966	2470	638	755	693	668
23	678	819	1240	886	1070	926	904	1500	628	669	749	609
24	688	806	1100	867	989	904	939	1080	634	638	681	599
25	688	1540	1950	845	929	955	871	854	647	588	635	724
26	664	3450	5990	853	886	918	873	751	629	606	614	625
27	638	2240	10800	838	874	861	885	721	709	625	591	596
28	600	1480	7250	824	888	828	843	730	653	603	566	602
29	621	1150	2940	808	860	1420	800	718	652	592	558	608
30	621	946	1910	823	---	2900	1200	716	695	590	706	2050
31	633	---	1680	818	---	2040	---	748	---	614	601	---
TOTAL	19580	43185	64500	34075	33117	44591	36495	28620	41469	40302	19178	28719
MEAN	632	1439	2081	1099	1142	1438	1216	923	1382	1300	619	957
MAX	700	5680	10800	1660	4420	3790	3660	2470	7630	7170	800	3410
MIN	581	618	793	808	793	828	800	716	614	588	557	590
AC-FT	38840	85660	127900	67590	65690	88450	72390	56770	82250	79940	38040	56960

CAL YR 1987 TOTAL 1220094 MEAN 3343 MAX 14500 MIN 581 AC-FT 2420000
WTR YR 1988 TOTAL 433831 MEAN 1185 MAX 10800 MIN 557 AC-FT 860500

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

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	4290	922	683	1020	2020	1360	19200	2510	6600	11000	7120	2290
2	2710	787	664	872	1310	1230	10900	3050	7300	11500	7130	2390
3	1760	680	644	789	1970	1200	3800	3790	8500	13000	7310	2410
4	1020	624	664	762	2760	1210	2860	8270	10700	14500	7560	2430
5	775	595	619	714	1610	1490	2980	15600	12600	15800	7340	2450
6	690	561	612	670	1120	1630	3500	e17800	16200	15100	7110	2470
7	650	565	640	659	1020	1930	4010	e18800	18900	12900	7700	2480
8	623	563	697	631	1310	2040	4190	19000	22000	11900	9130	2490
9	666	559	888	638	1190	1810	4210	16600	26900	11900	9230	2450
10	655	547	902	631	941	1910	4140	11100	32000	12300	7350	2290
11	635	541	2090	626	882	1830	4130	5830	31800	12500	6120	2170
12	618	537	2580	623	864	1650	4060	4270	28800	12500	5790	4350
13	578	944	1540	999	1190	1580	3100	4360	26700	12000	5270	4870
14	557	908	945	1330	1370	1900	6670	4790	45500	11600	4670	6740
15	542	690	818	1170	1150	2350	10000	4780	61800	11300	4440	6550
16	537	1280	774	881	4020	2680	8010	6500	64600	11700	4280	3620
17	525	1480	708	763	8110	2670	4610	26200	56400	11500	4230	2520
18	542	789	669	692	15500	1730	3780	58900	44000	10800	5920	2250
19	538	994	658	680	15500	1300	3300	64200	34900	9960	6410	2360
20	528	3020	673	650	13600	1270	3020	53900	29900	9290	4650	2550
21	530	1940	657	644	8770	1350	2850	45000	26800	8940	4190	2570
22	534	998	677	639	3710	2760	2770	33900	22700	8620	4040	2570
23	513	728	1410	619	2810	2840	2680	27800	18700	8290	3910	2540
24	511	667	1440	645	2700	2300	2630	23600	15400	8150	3700	2400
25	526	766	993	747	2230	1830	1930	19300	12500	7770	3640	1520
26	532	2070	723	2390	1810	1270	2140	15600	10900	7730	3170	1250
27	631	1510	668	6150	1610	1080	2470	13000	10100	7830	2120	1000
28	1080	1040	1780	3760	1470	2520	2480	11900	9780	7840	1900	802
29	1120	832	2040	7830	---	13500	2560	11200	10100	7610	1850	777
30	1400	743	1290	8620	---	20900	3050	9580	10500	7310	1830	768
31	1200	---	916	5140	---	22300	---	7200	---	7150	1790	---
TOTAL	28016	28880	31062	52984	102547	107420	136030	568330	733580	330290	160900	78327
MEAN	904	963	1002	1709	3662	3465	4534	18330	24450	10650	5190	2611
MAX	4290	3020	2580	8620	15500	22300	19200	64200	64600	15800	9230	6740
MIN	511	537	612	619	864	1080	1930	2510	6600	7150	1790	768
AC-FT	55570	57280	61610	105100	203400	213100	269800	1127000	1455000	655100	319100	155400

CAL YR 1988 TOTAL 313982 MEAN 984 MAX 7110 MIN 497 AC-FT 622800
WTR YR 1989 TOTAL 2358366 MEAN 6461 MAX 64600 MIN 511 AC-FT 4678000

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.--Beginning 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. 24; minimum, 218 microsiemens Aug. 19.
pH: Maximum, 8.1 units Mar. 16, 17; minimum, 7.3 units on several days during October, November, and May.
WATER TEMPERATURE: Maximum, 30.5°C Aug. 28, 29; minimum, 5.0°C Feb. 6.
DISSOLVED OXYGEN: Maximum, 11.2 mg/L Feb. 6; minimum, 3.7 mg/L Sept. 12.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
NOV 17...	1000	1600	515	7.30	18.0	4.1	43	5.5	120
JAN 12...	1000	622	718	7.50	14.0	8.7	85	3.4	150
APR 14...	0945	6560	484	7.70	15.0	8.8	88	3.7	150
JUN 13...	1030	26000	365	7.60	25.0	5.5	67	2.0	130
JUL 20...	1100	9300	391	7.60	28.0	6.2	80	1.3	120
AUG 30...	0930	1810	494	7.60	29.5	6.4	84	1.2	140

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 WH TOT FET 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 17...	42	3.8	46	2	8.0	98	52	39	0.70
JAN 12...	51	5.3	84	3	11	122	88	69	0.20
APR 14...	54	4.7	35	1	5.2	124	51	33	0.40
JUN 13...	44	4.1	17	0.7	4.8	111	26	16	0.30
JUL 20...	44	3.6	21	0.8	5.1	115	30	17	0.30
AUG 30...	48	4.7	41	2	7.5	116	45	35	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 17...	6.1	256	3.86	0.140	4.00	0.230	2.0	2.2	2.20
JAN 12...	7.4	389	8.83	0.170	9.00	0.330	1.2	1.5	5.20
APR 14...	6.0	264	2.73	0.070	2.80	0.110	0.99	1.1	0.930
JUN 13...	6.4	185	0.660	0.040	0.700	0.060	0.34	0.40	0.160
JUL 20...	6.2	196	0.970	0.030	1.00	0.060	0.74	0.80	0.030
AUG 30...	8.0	259	4.72	0.080	4.80	0.060	0.84	0.90	1.90

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	28016	570	321	24300	45	3390	70	5290	150
NOV.	1988	28880	559	315	24600	42	3300	68	5280	160
DEC.	1988	31062	606	341	28600	48	4030	74	6240	160
JAN.	1989	52984	493	279	39900	36	5140	59	8460	140
FEB.	1989	102547	455	258	71500	32	8740	54	14900	140
MAR.	1989	107420	478	271	78500	34	9890	57	16500	140
APR.	1989	136030	460	261	96000	31	11500	54	19900	150
MAY	1989	568330	346	198	303000	21	31700	39	60400	120
JUNE	1989	733580	324	185	367000	19	36800	36	72300	120
JULY	1989	330290	382	218	194000	24	21000	44	39100	130
AUG.	1989	160900	349	200	86700	21	8990	40	17200	130
SEPT	1989	78327	387	220	46600	24	5070	44	9390	130
TOTAL		2358366	**	**	1361000	**	149000	**	275000	**
WTD.AVG.		6461	375	214	**	23	**	43	**	130

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	490	332	396	581	489	537	645	611	622	592	530	562
2	404	356	376	559	535	547	670	643	656	610	580	591
3	456	398	416	565	553	559	685	668	676	632	608	617
4	502	442	464	626	569	597	716	689	701	654	632	641
5	532	506	517	655	630	642	733	714	721	678	648	660
6	584	524	540	674	644	662	744	690	722	684	670	675
7	632	588	614	692	672	682	703	687	693	694	684	688
8	678	636	656	706	687	696	715	703	708	730	696	711
9	716	680	694	710	695	702	718	694	707	734	718	725
10	726	706	716	712	694	702	716	640	681	742	726	735
11	728	670	697	712	691	702	640	498	604	728	712	722
12	698	670	681	695	682	689	520	442	488	736	712	726
13	684	664	675	697	669	682	506	480	494	736	718	730
14	706	686	695	696	538	635	512	478	487	720	584	669
15	712	698	705	542	501	526	602	516	561	666	558	593
16	712	700	706	593	524	562	640	606	623	634	596	617
17	734	706	723	567	474	529	674	638	658	640	608	621
18	744	730	737	552	487	508	698	664	675	---	---	618
19	748	714	733	694	457	566	726	698	709	---	---	627
20	728	704	717	546	401	494	732	710	723	---	---	639
21	726	712	718	567	422	489	720	694	707	---	---	653
22	738	714	725	506	481	491	712	700	706	---	---	669
23	740	720	728	561	491	518	722	606	699	---	---	683
24	752	728	739	604	565	589	624	524	575	---	---	696
25	738	714	732	649	464	617	602	550	571	742	684	719
26	---	---	730	492	395	454	628	604	613	680	462	636
27	---	---	727	536	498	515	624	610	616	468	374	411
28	736	711	723	564	488	523	636	514	578	440	390	413
29	713	576	666	589	561	574	562	482	527	442	292	359
30	596	472	522	609	591	601	536	510	521	386	326	354
31	556	450	487	---	---	---	536	516	526	472	374	408
MONTH	752	332	644	712	395	586	744	442	631	742	292	618

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	560	482	539	666	652	660	445	418	425	554	485	532
2	556	532	546	682	658	671	508	447	469	490	476	483
3	646	550	587	694	672	686	577	514	547	517	462	481
4	540	412	460	706	692	700	603	535	576	427	315	386
5	542	486	517	718	702	709	564	534	548	322	253	293
6	568	538	551	714	650	678	567	505	539	328	274	304
7	612	570	596	734	656	698	509	470	489	346	318	331
8	644	594	615	734	644	689	475	451	463	376	338	353
9	664	622	645	642	618	628	480	464	471	409	380	389
10	660	624	638	630	608	617	466	447	455	444	409	424
11	678	654	664	618	574	597	464	443	451	506	455	480
12	694	676	684	620	578	608	451	439	446	527	501	512
13	704	680	692	626	610	617	522	449	481	510	459	483
14	698	634	679	612	554	582	519	346	433	501	460	479
15	658	634	642	554	498	523	416	360	379	467	441	454
16	662	452	563	500	482	491	418	376	390	462	323	421
17	486	368	445	494	470	480	446	422	435	293	235	261
18	360	296	322	632	500	570	458	442	450	285	230	248
19	346	336	340	634	626	630	468	446	457	297	278	287
20	394	350	367	642	626	631	482	456	469	318	285	296
21	488	400	436	644	632	638	492	462	478	359	320	339
22	554	498	535	670	496	607	506	472	488	387	366	377
23	614	562	587	548	508	521	512	472	491	401	381	390
24	610	578	594	542	504	522	508	472	488	417	401	408
25	590	578	584	566	520	539	586	480	527	425	392	409
26	620	590	607	656	568	606	593	485	530	410	396	403
27	652	614	637	692	660	678	511	478	494	416	396	406
28	652	642	648	708	536	662	509	481	496	416	396	407
29	---	---	---	460	302	355	512	484	495	424	406	413
30	---	---	---	363	341	353	536	498	517	434	416	422
31	---	---	---	415	362	384	---	---	---	446	430	438
MONTH	704	296	561	734	302	591	603	346	479	554	230	397
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	446	420	434	380	358	368	361	344	351	---	---	475
2	446	394	422	386	362	370	401	338	361	---	---	478
3	418	368	395	382	334	354	373	333	349	---	---	442
4	382	356	373	364	342	352	383	323	347	---	---	376
5	388	336	356	370	348	359	363	334	347	---	---	370
6	358	332	346	402	364	377	364	328	346	---	---	368
7	368	348	359	408	394	401	407	330	356	---	---	362
8	368	314	332	412	386	400	411	340	363	---	---	360
9	330	306	316	408	384	396	405	331	355	---	---	368
10	316	252	292	410	390	398	400	342	361	---	---	374
11	344	278	327	410	390	400	400	344	365	---	---	380
12	364	346	356	408	382	394	398	337	361	---	---	384
13	366	272	340	408	394	400	392	355	368	414	366	391
14	294	244	280	410	402	406	391	352	370	386	302	341
15	288	244	277	412	376	397	394	351	368	344	332	335
16	296	234	271	388	362	375	392	343	362	362	336	347
17	302	270	284	396	374	385	390	352	371	386	364	378
18	324	298	310	408	380	395	394	223	305	418	384	402
19	346	306	325	410	390	401	240	218	227	416	406	411
20	350	328	338	434	377	400	338	244	297	408	398	403
21	354	326	339	412	366	388	355	308	336	406	398	404
22	362	336	348	416	364	386	365	318	339	416	398	408
23	372	348	359	405	375	394	367	303	336	416	406	412
24	382	366	372	422	374	393	377	334	352	444	402	415
25	398	370	379	401	371	384	377	331	351	---	---	412
26	404	396	399	392	371	385	373	327	346	---	---	406
27	408	390	400	391	357	373	377	324	347	---	---	400
28	396	366	380	378	347	361	376	335	348	---	---	396
29	378	366	372	374	340	354	447	365	413	---	---	409
30	380	366	372	365	338	351	---	---	460	---	---	526
31	---	---	---	362	333	346	---	---	468	---	---	---
MONTH	446	234	348	434	333	382	447	218	356	444	302	398

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.6	7.5	7.6	7.5	7.5	7.5	7.6	7.6	7.6	7.6	7.5	7.6
2	7.7	7.6	7.6	7.6	7.5	7.5	7.6	7.6	7.6	7.6	7.5	7.5
3	7.6	7.5	7.5	7.5	7.5	7.5	7.6	7.5	7.6	7.5	7.5	7.5
4	7.6	7.5	7.5	7.5	7.4	7.5	7.6	7.5	7.5	7.5	7.5	7.5
5	7.6	7.5	7.6	7.5	7.4	7.5	7.5	7.5	7.5	7.5	7.4	7.5
6	7.6	7.5	7.5	7.6	7.5	7.5	7.6	7.5	7.5	7.5	7.4	7.4
7	7.5	7.5	7.5	7.6	7.5	7.5	7.6	7.5	7.6	7.4	7.4	7.4
8	7.5	7.5	7.5	7.6	7.5	7.5	7.6	7.5	7.6	7.5	7.4	7.4
9	7.5	7.4	7.5	7.6	7.4	7.5	7.6	7.6	7.6	7.5	7.4	7.5
10	7.6	7.5	7.5	7.5	7.4	7.5	7.7	7.6	7.6	7.5	7.4	7.5
11	7.6	7.4	7.5	7.5	7.4	7.5	7.7	7.7	7.7	7.5	7.4	7.4
12	7.5	7.4	7.5	7.5	7.4	7.4	7.7	7.6	7.7	7.5	7.4	7.5
13	7.5	7.5	7.5	7.4	7.3	7.4	7.8	7.7	7.8	7.5	7.5	7.5
14	7.5	7.5	7.5	7.4	7.3	7.4	7.8	7.7	7.8	7.6	7.5	7.5
15	7.5	7.4	7.5	7.5	7.4	7.5	7.7	7.7	7.7	7.7	7.6	7.6
16	7.5	7.4	7.4	7.5	7.3	7.4	7.7	7.7	7.7	7.7	7.6	7.6
17	7.5	7.4	7.4	7.5	7.3	7.4	7.7	7.7	7.7	7.6	7.6	7.6
18	7.5	7.4	7.4	7.6	7.5	7.6	7.7	7.7	7.7	---	---	---
19	7.4	7.3	7.4	7.7	7.6	7.6	7.7	7.7	7.7	---	---	---
20	7.5	7.3	7.4	7.7	7.5	7.6	7.7	7.6	7.6	---	---	---
21	7.4	7.4	7.4	7.7	7.5	7.6	7.6	7.6	7.6	---	---	---
22	7.4	7.3	7.4	7.7	7.6	7.6	7.6	7.5	7.5	---	---	---
23	7.4	7.3	7.3	7.7	7.6	7.7	7.6	7.4	7.5	---	---	---
24	7.4	7.3	7.4	7.7	7.6	7.6	7.5	7.4	7.5	---	---	---
25	7.4	7.3	7.4	7.7	7.5	7.6	7.6	7.6	7.6	7.6	7.5	7.6
26	---	---	---	7.8	7.5	7.6	7.6	7.6	7.6	7.6	7.4	7.5
27	---	---	---	7.6	7.5	7.5	7.6	7.5	7.6	7.6	7.5	7.6
28	7.5	7.3	7.4	7.6	7.5	7.6	7.7	7.5	7.6	7.7	7.6	7.6
29	7.5	7.3	7.4	7.7	7.6	7.7	7.6	7.5	7.6	7.8	7.6	7.7
30	7.5	7.3	7.4	7.7	7.6	7.7	7.6	7.6	7.6	7.7	7.7	7.7
31	7.5	7.4	7.4	---	---	---	7.7	7.6	7.6	7.7	7.6	7.6
MONTH	7.7	7.3	7.5	7.8	7.3	7.5	7.8	7.4	7.6	7.8	7.4	7.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.7	7.6	7.7	7.8	7.8	7.8	7.7	7.7	7.7	7.6	7.4	7.5
2	7.7	7.6	7.6	7.9	7.8	7.8	7.7	7.6	7.6	7.5	7.4	7.5
3	7.7	7.5	7.6	7.8	7.8	7.8	7.7	7.6	7.6	7.6	7.4	7.5
4	7.8	7.6	7.7	7.8	7.8	7.8	7.7	7.6	7.7	7.6	7.4	7.5
5	7.8	7.8	7.8	7.9	7.8	7.9	7.8	7.7	7.7	7.6	7.5	7.6
6	7.8	7.7	7.7	8.0	7.9	8.0	7.8	7.7	7.7	7.6	7.5	7.5
7	7.8	7.7	7.7	8.0	7.9	7.9	7.8	7.7	7.8	7.5	7.4	7.4
8	7.7	7.6	7.7	7.9	7.9	7.9	7.8	7.7	7.8	7.4	7.4	7.4
9	7.8	7.6	7.7	7.9	7.9	7.9	7.8	7.7	7.8	7.4	7.4	7.4
10	7.8	7.7	7.8	7.9	7.8	7.8	7.9	7.8	7.8	7.4	7.4	7.4
11	7.7	7.6	7.6	7.9	7.8	7.9	7.9	7.8	7.8	7.5	7.4	7.4
12	7.6	7.5	7.6	7.9	7.8	7.8	7.9	7.8	7.8	7.6	7.5	7.6
13	7.6	7.5	7.6	7.8	7.7	7.8	7.8	7.6	7.7	7.6	7.6	7.6
14	7.6	7.5	7.5	7.8	7.8	7.8	7.7	7.6	7.7	7.7	7.6	7.6
15	7.7	7.5	7.6	8.0	7.8	7.9	7.6	7.6	7.6	7.7	7.6	7.6
16	7.8	7.7	7.8	8.1	8.0	8.0	7.6	7.5	7.6	7.7	7.6	7.6
17	7.9	7.8	7.9	8.1	8.0	8.0	7.6	7.6	7.6	7.7	7.6	7.7
18	8.0	7.9	7.9	8.0	7.9	7.9	7.6	7.6	7.6	7.7	7.6	7.7
19	7.9	7.9	7.9	7.9	7.9	7.9	7.6	7.6	7.6	7.6	7.5	7.6
20	7.9	7.8	7.9	7.9	7.9	7.9	7.6	7.6	7.6	7.5	7.5	7.5
21	7.9	7.8	7.9	8.0	7.9	7.9	7.6	7.6	7.6	7.5	7.5	7.5
22	7.9	7.8	7.9	7.9	7.8	7.8	7.6	7.6	7.6	7.5	7.5	7.5
23	7.9	7.9	7.9	8.0	7.8	7.9	7.6	7.6	7.6	7.5	7.5	7.5
24	8.0	7.9	7.9	8.0	7.9	8.0	7.6	7.6	7.6	7.5	7.5	7.5
25	7.9	7.9	7.9	8.0	7.9	7.9	7.6	7.4	7.5	7.5	7.3	7.4
26	7.9	7.9	7.9	7.9	7.8	7.8	7.7	7.5	7.6	7.3	7.3	7.3
27	7.9	7.8	7.8	7.8	7.7	7.8	7.7	7.7	7.7	7.4	7.3	7.3
28	7.9	7.8	7.8	7.8	7.5	7.7	7.7	7.7	7.7	7.4	7.4	7.4
29	---	---	---	7.8	7.5	7.6	7.7	7.6	7.6	7.4	7.4	7.4
30	---	---	---	7.7	7.5	7.6	7.6	7.5	7.6	7.4	7.4	7.4
31	---	---	---	7.7	7.6	7.7	---	---	---	7.5	7.4	7.4
MONTH	8.0	7.5	7.8	8.1	7.5	7.8	7.9	7.4	7.7	7.7	7.3	7.5

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.5	7.5	7.5	7.7	7.7	7.7	7.7	7.6	7.6	---	---	---
2	7.5	7.5	7.5	7.7	7.7	7.7	7.7	7.6	7.7	7.8	7.7	7.7
3	7.6	7.4	7.5	7.7	7.6	7.7	7.7	7.6	7.6	7.8	7.7	7.7
4	7.5	7.4	7.4	7.6	7.6	7.6	7.6	7.6	7.6	7.7	7.7	7.7
5	7.5	7.4	7.4	7.7	7.6	7.6	7.7	7.6	7.6	7.7	7.7	7.7
6	7.5	7.4	7.5	7.7	7.6	7.7	7.7	7.6	7.7	7.8	7.7	7.7
7	7.5	7.5	7.5	7.7	7.7	7.7	7.7	7.5	7.6	7.8	7.7	7.7
8	7.5	7.5	7.5	7.7	7.7	7.7	7.6	7.5	7.5	7.8	7.7	7.8
9	7.5	7.5	7.5	7.7	7.7	7.7	7.6	7.5	7.6	7.8	7.7	7.8
10	7.5	7.5	7.5	7.7	7.7	7.7	7.6	7.6	7.6	7.8	7.7	7.7
11	7.6	7.5	7.6	7.7	7.7	7.7	7.7	7.6	7.6	7.8	7.7	7.7
12	7.6	7.6	7.6	7.7	7.7	7.7	7.7	7.6	7.7	7.7	7.4	7.5
13	7.7	7.6	7.6	7.7	7.6	7.7	7.7	7.6	7.7	7.6	7.5	7.5
14	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.5	7.6
15	7.6	7.6	7.6	7.6	7.5	7.5	7.6	7.6	7.6	7.7	7.6	7.6
16	---	---	---	7.5	7.5	7.5	7.7	7.6	7.6	7.7	7.7	7.7
17	---	---	---	7.5	7.5	7.5	7.7	7.6	7.6	7.8	7.7	7.7
18	---	---	---	7.5	7.5	7.5	7.6	7.5	7.6	7.8	7.7	7.7
19	---	---	---	7.6	7.5	7.5	7.6	7.5	7.5	7.8	7.7	7.7
20	---	---	---	7.7	7.5	7.6	7.6	7.6	7.6	7.8	7.7	7.8
21	---	---	---	7.7	7.6	7.7	7.7	7.6	7.6	7.8	7.7	7.8
22	7.7	7.6	7.7	7.7	7.6	7.7	7.7	7.7	7.7	7.8	7.8	7.8
23	7.6	7.6	7.6	7.7	7.6	7.6	7.7	7.7	7.7	7.8	7.8	7.8
24	7.6	7.6	7.6	7.6	7.6	7.6	7.7	7.7	7.7	7.8	7.8	7.8
25	7.6	7.6	7.6	7.6	7.6	7.6	7.7	7.7	7.7	---	---	---
26	7.6	7.6	7.6	7.6	7.6	7.6	7.7	7.7	7.7	---	---	---
27	7.6	7.6	7.6	7.6	7.6	7.6	7.7	7.6	7.7	---	---	---
28	7.7	7.6	7.6	7.6	7.6	7.6	7.7	7.7	7.7	---	---	---
29	7.7	7.7	7.7	7.6	7.6	7.6	7.8	7.7	7.7	---	---	---
30	7.7	7.7	7.7	7.6	7.6	7.6	7.8	7.7	7.7	---	---	---
31	---	---	---	7.6	7.6	7.6	---	---	---	---	---	---
MONTH	7.7	7.4	7.6	7.7	7.5	7.6	7.8	7.5	7.6	7.8	7.4	7.7

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	6.1	4.3	5.5	7.7	7.3	7.5	8.6	8.4	8.5	8.8	8.5	8.7
2	6.5	6.1	6.3	7.8	7.5	7.7	8.6	8.3	8.5	8.6	8.2	8.4
3	6.7	6.3	6.5	7.8	7.5	7.6	8.5	8.1	8.2	8.3	8.0	8.1
4	7.1	6.6	6.9	7.4	7.1	7.3	8.3	7.8	8.1	8.3	8.2	8.3
5	7.5	7.0	7.2	7.6	7.3	7.4	7.9	7.7	7.8	8.3	8.0	8.1
6	7.5	7.2	7.4	7.9	7.6	7.7	8.1	7.7	7.9	8.2	8.0	8.1
7	7.5	7.2	7.3	7.9	7.4	7.7	8.2	7.9	8.1	8.0	7.8	7.9
8	7.5	7.2	7.4	8.0	7.6	7.8	8.3	8.1	8.2	8.3	7.8	8.0
9	7.6	7.2	7.4	8.1	7.5	7.9	8.3	8.1	8.2	8.4	8.1	8.3
10	7.8	7.3	7.4	7.9	7.5	7.7	8.6	8.0	8.3	8.5	8.2	8.4
11	7.6	7.0	7.3	8.0	7.5	7.8	8.9	8.3	8.6	8.7	8.4	8.6
12	7.7	7.3	7.5	7.7	7.3	7.5	8.8	8.2	8.6	8.6	8.4	8.5
13	8.1	7.7	7.9	7.3	6.4	6.9	9.1	8.8	8.9	8.6	8.2	8.4
14	8.1	7.9	8.0	6.6	6.3	6.4	9.0	8.6	8.9	8.8	8.2	8.4
15	8.1	7.7	8.0	7.4	6.4	7.0	8.6	8.3	8.5	9.3	8.8	9.1
16	7.8	7.3	7.6	7.5	5.5	6.9	8.6	8.3	8.5	9.0	8.8	9.0
17	7.6	7.2	7.4	6.4	4.3	5.3	8.9	8.5	8.6	8.8	8.5	8.8
18	7.4	7.0	7.3	7.3	6.5	7.0	8.9	8.7	8.8	---	---	---
19	7.3	7.0	7.1	7.4	6.2	7.2	8.9	8.6	8.7	---	---	---
20	7.5	7.0	7.2	7.2	5.9	6.4	8.6	8.0	8.2	---	---	---
21	7.5	7.1	7.3	7.9	6.5	7.3	8.2	8.0	8.1	---	---	---
22	7.6	7.1	7.3	8.2	7.9	8.1	8.1	7.6	7.8	---	---	---
23	7.4	7.1	7.3	8.6	8.2	8.4	7.7	6.6	7.3	---	---	---
24	7.8	7.2	7.5	8.5	8.1	8.2	7.5	6.4	6.9	---	---	---
25	7.8	7.3	7.5	8.1	7.3	7.8	7.9	7.5	7.8	8.6	8.2	8.4
26	---	---	---	7.2	6.5	6.8	7.8	7.5	7.6	8.2	6.5	7.5
27	---	---	---	6.8	6.5	6.6	7.9	7.4	7.6	7.6	6.3	6.8
28	6.9	5.9	6.4	7.8	6.6	7.3	8.2	7.6	7.9	8.5	7.7	8.2
29	6.8	6.0	6.4	8.3	7.8	8.0	8.9	7.8	8.3	8.6	7.9	8.3
30	6.7	6.2	6.4	8.6	8.3	8.4	8.9	8.7	8.8	8.3	8.0	8.2
31	7.3	6.5	7.0	---	---	---	9.1	8.8	9.0	8.5	8.2	8.3
MONTH	8.1	4.3	7.2	8.6	4.3	7.4	9.1	6.4	8.2	9.3	6.3	8.3
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	8.6	8.4	8.5	8.5	8.3	8.4	6.1	5.8	6.0	7.1	6.3	6.7
2	8.5	8.2	8.3	8.5	8.3	8.4	6.5	5.9	6.2	7.0	6.5	6.7
3	9.0	8.5	8.8	8.4	8.1	8.2	6.8	6.5	6.6	7.1	6.1	6.9
4	10.9	9.4	10.5	8.6	8.0	8.2	7.2	6.5	6.8	6.6	5.2	6.1
5	11.1	10.9	11.0	9.1	8.6	8.9	7.6	7.2	7.4	6.2	5.6	6.0
6	11.2	11.1	11.1	10.2	9.1	9.7	7.8	7.5	7.7	5.6	5.0	5.3
7	11.1	10.9	11.0	10.2	9.9	10.1	7.9	7.8	7.8	5.1	5.0	5.0
8	10.8	10.3	10.7	10.0	9.8	9.9	7.9	7.8	7.8	5.2	5.1	5.1
9	11.0	10.2	10.5	9.7	9.4	9.5	8.1	7.9	8.0	5.2	4.8	5.1
10	11.0	10.1	10.7	9.4	8.7	9.0	8.5	8.1	8.3	5.1	4.7	4.9
11	10.1	9.5	9.8	9.0	8.7	8.9	8.7	8.4	8.6	6.7	5.1	6.0
12	9.5	8.9	9.2	8.8	8.1	8.4	8.7	8.6	8.7	7.3	6.7	7.0
13	8.9	8.3	8.6	8.1	7.7	7.9	8.6	8.4	8.5	7.6	7.3	7.4
14	8.3	8.0	8.1	8.1	7.8	8.0	8.8	8.1	8.4	7.6	7.4	7.5
15	8.6	8.2	8.4	8.6	7.9	8.2	8.2	7.8	8.0	7.5	7.2	7.4
16	9.2	8.6	8.9	8.7	8.4	8.5	7.8	7.7	7.8	7.3	6.2	7.1
17	9.8	8.8	9.5	8.7	8.1	8.3	7.9	7.8	7.8	6.5	5.9	6.2
18	9.8	9.2	9.6	8.1	7.6	7.8	7.9	7.8	7.9	5.8	5.3	5.4
19	9.2	8.9	9.0	8.1	7.8	7.9	7.9	7.8	7.8	5.3	4.8	5.1
20	8.9	8.6	8.7	8.0	7.9	8.0	8.0	7.9	7.9	4.8	4.7	4.7
21	8.8	8.5	8.6	8.5	7.9	8.2	7.9	7.7	7.8	4.6	4.4	4.6
22	9.0	8.8	8.8	8.5	7.8	8.1	7.8	7.7	7.7	4.5	4.3	4.4
23	9.3	9.0	9.1	8.8	8.5	8.6	7.8	7.7	7.7	4.4	4.3	4.3
24	9.6	9.3	9.5	8.7	8.6	8.6	7.9	7.7	7.8	4.5	4.2	4.3
25	9.6	9.3	9.5	8.6	8.2	8.4	7.9	7.3	7.6	4.7	4.2	4.5
26	9.3	8.6	9.0	8.2	7.9	8.1	8.1	6.7	7.4	5.0	4.5	4.7
27	8.6	8.2	8.4	7.9	7.6	7.8	8.2	7.7	7.9	5.3	5.0	5.2
28	8.5	8.3	8.4	7.6	6.2	7.3	8.1	7.7	7.8	5.5	5.3	5.4
29	---	---	---	6.6	5.7	6.2	7.8	7.3	7.4	5.4	5.4	5.4
30	---	---	---	6.0	5.3	5.7	7.3	6.6	7.0	5.4	5.3	5.4
31	---	---	---	5.9	5.3	5.6	---	---	---	6.0	5.4	5.7
MONTH	11.2	8.0	9.4	10.2	5.3	8.2	8.8	5.8	7.7	7.6	4.2	5.7

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	6.3	6.0	6.2	6.3	6.2	6.3	6.2	6.1	6.2	---	---	---
2	6.5	6.0	6.4	6.3	6.2	6.3	6.3	6.2	6.2	6.6	6.5	6.5
3	7.8	5.6	6.6	6.3	5.5	6.0	6.3	6.0	6.2	6.6	6.3	6.5
4	5.7	5.4	5.6	5.4	5.2	5.3	6.1	6.0	6.1	6.6	6.4	6.5
5	5.7	5.2	5.5	5.7	5.3	5.4	6.2	6.0	6.1	6.7	6.5	6.6
6	5.5	5.2	5.3	6.1	5.6	5.8	6.1	6.0	6.1	6.7	6.6	6.6
7	5.6	5.5	5.5	6.2	6.1	6.1	6.2	5.1	5.8	6.7	6.5	6.6
8	5.6	5.2	5.4	6.3	6.0	6.2	5.7	5.1	5.5	6.7	6.4	6.6
9	5.3	4.9	5.1	6.3	6.1	6.2	6.0	5.4	5.7	6.7	6.4	6.6
10	5.3	5.2	5.2	6.3	6.1	6.2	6.3	6.0	6.2	6.7	6.5	6.6
11	5.8	5.2	5.6	6.4	6.2	6.3	6.4	6.3	6.3	6.8	6.4	6.6
12	5.7	5.4	5.6	6.3	6.2	6.3	6.4	6.3	6.3	6.5	3.7	5.3
13	5.8	5.3	5.6	6.2	6.1	6.2	6.4	6.0	6.2	5.8	4.9	5.4
14	5.6	5.3	5.4	6.1	6.0	6.1	6.1	6.0	6.0	6.0	4.8	5.5
15	5.6	5.4	5.4	6.1	5.7	6.0	6.1	6.0	6.1	6.7	5.9	6.2
16	5.7	5.5	5.6	5.6	5.5	5.6	6.2	6.1	6.1	7.0	6.6	6.8
17	5.8	5.6	5.7	5.8	5.6	5.8	6.2	6.1	6.1	7.1	6.7	6.9
18	5.8	5.6	5.7	6.0	5.8	5.9	6.2	5.0	5.7	6.9	6.4	6.7
19	5.7	5.5	5.6	6.0	5.8	5.9	5.7	4.8	5.2	6.8	6.3	6.5
20	5.6	5.4	5.5	6.4	5.9	6.2	5.9	5.5	5.7	6.8	6.3	6.5
21	5.6	5.4	5.5	6.5	6.3	6.4	6.1	5.8	6.0	6.7	6.0	6.3
22	5.5	5.3	5.4	6.4	6.2	6.3	6.2	6.0	6.1	6.5	5.6	6.1
23	5.3	5.2	5.3	6.4	6.2	6.3	6.3	6.1	6.2	5.9	5.4	5.6
24	5.2	5.0	5.1	6.4	6.2	6.3	6.2	6.1	6.2	6.9	5.5	6.4
25	5.4	5.2	5.3	6.4	6.3	6.3	6.2	6.0	6.1	---	---	---
26	5.6	5.4	5.4	6.4	6.3	6.4	6.1	5.8	6.0	---	---	---
27	5.9	5.6	5.7	6.4	6.3	6.4	6.1	5.8	6.0	---	---	---
28	6.2	6.0	6.1	6.5	6.3	6.4	6.2	6.0	6.1	---	---	---
29	6.2	6.1	6.2	6.4	6.2	6.3	6.2	6.0	6.1	---	---	---
30	6.3	6.2	6.3	6.2	6.1	6.2	6.7	6.1	6.4	---	---	---
31	---	---	---	6.2	6.1	6.2	---	---	---	---	---	---
MONTH	7.8	4.9	5.6	6.5	5.2	6.1	6.7	4.8	6.0	7.1	3.7	6.3

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.

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. Record good. There are 62 floodwater-retarding structures with a combined detention capacity of 38,690 acre-ft in 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 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.--25 years, 3,719 ft³/s (2,694,000 acre-ft/yr). The figure published in the 1988 WRD report was in error; the correct figure is 3,562 ft³/s (2,581,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 89,300 ft³/s June 18, 1989 (gage height, 43.49 ft) maximum gage height, 44.10 ft on May 8, 1969; 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, 89,300 ft³/s June 18 at 1500 hours (gage height, 43.49 ft); minimum daily, 588 ft³/s Oct. 25.

REVISIONS.--Revised daily discharges, in feet cubed per second, for July, August, and September 1988, are given below. These figures supersede those published in the report Water Resources Data for Texas, Water Year 1988, Volume 1.

JULY 1	--	JULY 9	--	JULY 17	1190	JULY 25	689
2	--	10	--	18	911	26	642
3	--	11	--	19	795	27	641
4	--	12	--	20	741	28	654
5	--	13	2630	21	755	29	644
6	--	14	7110	22	964	30	626
7	--	15	7450	23	826	31	621
8	--	16	3560	24	715		
AUG 1	636	AUG 9	633	AUG 17	610	AUG 25	696
2	645	10	619	18	619	26	653
3	652	11	601	19	618	27	631
4	658	12	599	20	617	28	611
5	764	13	597	21	644	29	592
6	758	14	607	22	780	30	586
7	671	15	610	23	715	31	691
8	640	16	610	24	748		
SEPT 1	636	SEPT 9	701	SEPT 17	1060	SEPT 25	644
2	618	10	656	18	937	26	725
3	632	11	632	19	734	27	653
4	796	12	609	20	1320	28	630
5	3070	13	593	21	1150	29	647
6	2840	14	598	22	813	30	730
7	1250	15	665	23	692		
8	793	16	904	24	639		

MONTH	TOTAL	MEAN	MAX	MIN	AC-FT
JULY 1988	42481	1370	7450	621	84260
AUG 1988	20111	649	780	586	39890
SEPT 1988	27367	912	3070	593	54280
WTR YR 1988	511602	1398	13400	586	1015000

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued
(National stream-quality accounting network)

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	2400	1320	820	1070	6570	1610	12700	3140	13300	11700	7560	1680
2	4510	1010	759	1130	2600	1490	15000	2780	10400	11600	7530	2120
3	3170	855	734	1000	1590	1350	16600	3490	9140	12400	7550	2250
4	1980	752	715	895	2360	1410	14800	5860	9480	12600	7730	2270
5	1170	692	732	862	2990	2070	7690	12400	10600	12900	7940	2300
6	856	657	717	820	1850	2030	3650	13300	11800	13600	7790	2320
7	758	635	707	771	1280	2030	3830	14700	12200	14900	7630	2350
8	715	629	747	750	1160	2270	4320	15500	13800	15700	8220	2360
9	694	633	784	734	1410	2310	4510	15900	15000	15200	9180	2350
10	711	623	989	732	1350	2030	4510	16300	17000	14300	9440	2340
11	722	614	1150	731	1080	2080	4440	16300	19900	13500	8110	2170
12	696	617	2330	729	1010	1990	4400	15000	25200	13100	6440	2280
13	682	608	2800	738	993	1790	4260	10200	29400	12900	5830	4440
14	645	924	1750	1070	1290	1720	3920	6880	35600	12800	5220	5220
15	633	1010	1070	1460	1500	2020	8280	5530	36100	12800	4710	7050
16	617	773	908	1320	1740	2540	10400	8250	48800	12600	4410	6630
17	612	1260	847	1020	6530	2910	9850	20200	75400	12400	4210	3700
18	603	1580	794	877	10400	2840	5890	50000	86500	12200	4290	2420
19	612	920	750	798	11500	1890	4620	48700	76800	12100	6210	2130
20	611	1210	738	775	12200	1410	3650	61500	56900	11700	6370	2250
21	604	3030	746	754	13200	1380	3080	78000	40800	11000	4770	2420
22	601	2120	735	739	13800	1540	2890	74400	32400	10300	4150	2440
23	609	1130	774	738	10700	2930	2780	58800	28400	9610	3960	2430
24	593	805	1450	721	4600	3030	2680	40700	24600	9150	3800	2400
25	588	728	1610	762	3180	2470	2610	31600	21700	8760	3600	2200
26	603	915	1160	1280	2550	1940	1890	26800	19400	8360	3540	1440
27	610	2230	854	3570	2020	1400	2100	22900	17100	8270	2920	1170
28	693	1740	788	6570	1770	1600	2450	20300	15100	8460	1990	992
29	1100	1190	1860	5540	---	5170	2480	18100	13300	8350	1760	818
30	1220	930	2240	8340	---	10300	2600	16200	12200	8090	1700	793
31	1430	---	1520	9300	---	11600	---	14700	---	7780	1680	---
TOTAL	32048	32140	34578	56596	123223	83150	172880	748430	838320	359130	170240	77733
MEAN	1034	1071	1115	1826	4401	2682	5763	24140	27940	11580	5492	2591
MAX	4510	3030	2800	9300	13800	11600	16600	78000	86500	15700	9440	7050
MIN	588	608	707	721	993	1350	1890	2780	9140	7780	1680	793
AC-FT	63570	63750	68590	112300	244400	164900	342900	1485000	1663000	712300	337700	154200

CAL YR 1988 TOTAL 456685 MEAN 1248 MAX 11600 MIN 586 AC-FT 905800
WTR YR 1989 TOTAL 2728468 MEAN 7475 MAX 86500 MIN 588 AC-FT 5412000

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, 196 micromhos Dec. 9, 1986.
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, and July 9, 13, 1980; minimum daily, 3.0°C Feb. 7, 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, 778 microsiemens Jan. 26; minimum, 202 microsiemens May 18.
pH: Maximum, 8.1 units June 29, 30, July 1; minimum, 7.3 units on several days during April and May.
WATER TEMPERATURE: Maximum, 30.5°C Aug. 29-31, Sept. 1, 2; minimum, 3.0°C Feb. 7.
DISSOLVED OXYGEN: Maximum, 14.8 mg/L Mar. 26; minimum, 3.0 mg/L May 23, 24.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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 DISSOLVED (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...	1000	614	720	7.70	17.5	51	7.3	77	2.9	K93	K220	150
JAN												
11...	1030	740	701	7.70	12.5	38	9.5	90	2.0	K14	K43	180
APR												
13...	1000	4210	462	7.90	15.5	--	8.8	88	2.3	K68	K230	160
JUN												
14...	1030	35800	280	7.60	24.0	45	6.4	76	1.6	440	2500	100
JUL												
18...	1100	12200	349	7.80	28.0	72	6.0	78	1.0	170	790	120
AUG												
29...	1100	1760	457	7.80	30.0	100	5.7	76	0.7	K27	180	140

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 WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
NOV												
16...	49	5.7	83	3	11	115	81	77	1.3	8.5	450	441
JAN												
11...	61	5.6	74	2	10	120	87	66	1.0	8.0	438	443
APR												
13...	54	5.0	32	1	5.2	123	49	30	0.40	4.7	283	268
JUN												
14...	36	3.4	15	0.6	4.5	92	23	14	0.30	5.3	159	157
JUL												
18...	44	3.5	19	0.7	4.8	111	30	15	0.30	5.7	206	193
AUG												
29...	49	4.4	35	1	6.9	121	39	31	0.60	7.5	271	264

DATE	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-PHOROUS TOTAL (MG/L AS P)	PHOS-PHOROUS DIS-SOLVED (MG/L AS P)	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	SEDI-MENT, SUS-PENDED (MG/L)
NOV												
16...	8.89	0.210	9.10	0.930	0.930	1.6	2.5	5.00	4.90	4.30	13	56
JAN												
11...	9.92	0.080	10.0	0.170	0.150	1.9	2.1	4.20	4.10	4.20	13	31
APR												
13...	2.56	0.040	2.60	0.080	0.070	0.92	1.0	0.850	0.740	0.670	2.1	233
JUN												
14...	0.310	0.020	0.330	0.030	0.020	0.47	0.50	0.110	0.090	0.070	0.21	64
JUL												
18...	0.600	0.010	0.610	0.050	0.070	0.75	0.80	0.700	0.170	0.140	0.43	217
AUG												
29...	3.26	0.040	3.30	0.080	0.080	0.92	1.0	0.970	0.940	0.930	2.9	233

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued
(National stream-quality accounting network)

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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 16...	93	98	<10	3	38	<0.5	1	<1	<3	5	20
JAN 11...	62	95	<10	2	41	<0.5	<1	2	<3	5	18
APR 13...	2650	98	--	--	--	--	--	--	--	--	--
JUN 14...	6190	98	20	2	37	<0.5	<1	1	<3	2	25
JUL 18...	7150	92	--	--	--	--	--	--	--	--	--
AUG 29...	1110	92	10	4	52	<0.5	<1	2	<3	4	9

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 16...	<5	12	4	<0.1	10	11	<1	<1.0	410	<6	22
JAN 11...	<5	16	6	<0.1	<10	9	<1	<1.0	490	<6	22
APR 13...	--	--	--	--	--	--	--	--	--	--	--
JUN 14...	<1	4	1	0.3	<10	2	<1	<1.0	280	<6	5
JUL 18...	--	--	--	--	--	--	--	--	--	--	--
AUG 29...	<1	7	3	<0.1	10	4	<1	<1.0	400	6	9

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	32048	594	337	29200	47	4090	74	6400	150
NOV.	1988	32140	544	309	26900	40	3500	66	5760	150
DEC.	1988	34578	590	336	31300	46	4270	73	6820	160
JAN.	1989	56596	535	305	46500	40	6130	66	10000	150
FEB.	1989	123223	420	240	79800	27	9050	49	16400	130
MAR.	1989	83150	501	286	64100	36	8000	60	13600	150
APR.	1989	172880	432	247	115000	28	13000	51	23700	140
MAY	1989	748430	317	182	368000	18	35600	36	72500	110
JUNE	1989	838320	321	184	417000	18	39900	36	81900	120
JULY	1989	359130	356	204	198000	20	19800	41	39400	130
AUG.	1989	170240	347	199	91500	20	9090	39	18200	120
SEPT	1989	77733	387	222	46500	23	4910	45	9380	130
TOTAL		2728468	**	**	1514000	**	157000	**	304000	**
WTD.AVG.		7475	359	205	**	21	**	41	**	120

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued
(National stream-quality accounting network)

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	693	637	656	634	484	530	511	446	482	505	484	499
2	669	342	480	550	481	518	542	511	525	520	496	512
3	388	341	369	504	460	483	570	544	557	546	511	523
4	403	359	377	582	496	544	608	570	584	587	548	575
5	434	405	414	575	549	559	643	610	624	610	544	586
6	478	436	461	574	560	569	663	643	652	627	602	614
7	532	480	503	616	571	585	679	663	673	651	627	638
8	554	534	546	659	618	641	702	684	695	672	649	657
9	581	556	565	687	661	670	720	669	706	676	672	674
10	650	585	623	701	686	692	679	663	668	686	674	681
11	695	650	671	718	703	710	694	655	679	710	687	698
12	728	697	711	729	701	716	673	593	644	722	711	717
13	741	730	737	732	720	727	607	473	533	740	722	730
14	746	711	733	729	717	723	489	428	459	740	724	733
15	719	710	715	722	711	717	484	473	481	739	720	729
16	709	701	705	724	709	718	471	453	461	745	696	731
17	721	703	712	720	531	644	506	457	474	690	609	660
18	735	721	729	619	556	592	582	509	549	637	571	592
19	736	727	731	597	464	553	616	584	602	647	604	631
20	747	726	736	500	456	475	656	616	633	642	631	637
21	763	749	755	560	449	493	676	658	664	665	634	655
22	765	751	759	495	404	457	708	678	694	693	652	665
23	758	737	745	531	403	456	720	710	716	736	696	721
24	743	729	738	483	428	467	714	692	702	754	736	744
25	748	734	741	484	471	477	711	640	695	774	745	759
26	749	742	745	517	474	484	620	530	573	778	734	765
27	747	727	736	566	357	501	580	548	566	769	426	647
28	733	711	718	464	381	412	595	540	561	690	437	555
29	720	707	714	461	428	449	619	597	606	461	391	410
30	719	699	708	478	441	458	606	512	544	459	326	413
31	717	644	686	---	---	---	547	472	503	390	337	354
MONTH	765	341	652	732	357	567	720	428	597	778	326	629
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	410	384	394	595	573	582	354	332	341	510	438	459
2	499	412	448	599	595	597	384	356	369	478	447	466
3	577	505	523	620	599	611	412	386	399	496	445	470
4	532	502	510	625	618	622	453	414	426	480	358	458
5	613	455	553	625	545	576	556	458	509	424	283	360
6	448	385	406	596	578	585	565	513	529	323	273	296
7	496	439	470	621	598	609	532	519	527	287	267	277
8	530	499	515	622	595	605	518	471	488	318	281	301
9	593	533	555	637	606	623	473	448	459	342	318	328
10	621	595	603	644	601	624	465	449	453	379	343	360
11	651	622	634	600	592	595	467	440	451	408	380	394
12	657	622	636	600	589	593	445	433	438	433	409	420
13	663	627	647	589	574	583	455	444	448	496	435	460
14	696	663	675	598	573	587	455	447	451	486	414	455
15	705	697	700	597	570	588	481	362	436	494	484	488
16	695	601	654	577	526	551	412	357	380	487	273	393
17	602	399	522	526	493	506	408	357	386	285	223	268
18	413	337	385	499	487	493	464	410	438	238	202	231
19	334	295	308	512	489	497	474	393	448	236	228	232
20	322	313	319	622	514	559	487	473	482	250	232	238
21	341	319	331	651	554	589	494	484	488	276	255	266
22	363	341	352	577	561	566	507	489	501	291	276	280
23	452	362	396	615	564	587	524	493	506	326	292	306
24	511	455	485	599	464	506	520	508	515	356	328	343
25	544	514	537	501	483	491	515	497	505	380	358	367
26	546	532	539	491	485	487	515	502	511	401	381	390
27	545	538	541	535	487	509	559	482	514	411	401	406
28	573	546	560	547	473	514	539	437	462	410	399	404
29	---	---	---	641	426	527	441	431	436	407	390	399
30	---	---	---	490	310	348	441	430	435	407	395	401
31	---	---	---	335	329	331	---	---	---	412	387	403
MONTH	705	295	507	651	310	550	565	332	458	510	202	365

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued
(National stream-quality accounting network)

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	408	387	393	358	352	355	343	333	339	490	477	483
2	437	427	434	362	354	357	342	336	339	523	479	494
3	435	359	413	354	343	348	342	334	337	465	373	394
4	402	366	391	356	346	351	341	330	336	376	372	373
5	372	353	361	361	348	353	362	326	341	386	373	382
6	357	335	347	362	357	359	340	332	337	400	385	395
7	353	315	336	364	359	362	340	329	334	403	398	400
8	355	327	338	373	364	369	328	280	316	404	398	401
9	358	344	350	377	370	373	325	278	312	401	397	399
10	345	337	341	378	376	377	341	310	322	403	386	398
11	338	320	331	379	376	377	337	310	323	423	382	403
12	329	318	322	380	374	377	336	324	331	448	388	426
13	327	306	322	376	373	375	341	319	328	511	387	449
14	308	274	284	377	372	374	354	321	335	424	350	385
15	310	288	302	374	371	372	371	354	363	363	303	333
16	285	263	269	373	365	371	369	365	367	321	315	318
17	283	266	275	364	353	356	371	363	367	329	318	322
18	290	283	286	354	339	345	380	368	376	352	329	340
19	309	291	301	350	341	343	382	368	377	369	354	365
20	322	309	316	350	339	344	371	338	352	398	369	386
21	338	319	329	345	335	341	351	339	343	394	378	389
22	344	338	342	334	330	332	359	352	355	385	380	383
23	349	343	345	340	324	333	366	359	363	385	378	382
24	353	348	350	336	328	332	370	360	366	393	383	390
25	360	352	356	342	333	338	374	365	371	394	374	382
26	367	359	363	340	335	337	378	372	375	401	373	382
27	375	366	371	340	332	336	385	374	380	465	402	425
28	387	373	380	343	337	340	443	385	406	510	470	496
29	379	357	370	350	338	345	469	446	459	515	507	512
30	356	352	355	348	341	345	483	467	477	570	514	532
31	---	---	---	342	336	339	491	475	483	---	---	---
MONTH	437	263	342	380	324	353	491	278	362	570	303	404

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued
(National stream-quality accounting network)

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	7.7	7.7	7.7	7.9	7.7	7.8
2	---	---	---	---	---	---	7.7	7.7	7.7	7.9	7.8	7.8
3	---	---	---	---	---	---	7.7	7.6	7.6	7.9	7.7	7.8
4	---	---	---	---	---	---	7.6	7.6	7.6	7.8	7.7	7.8
5	---	---	---	---	---	---	7.6	7.6	7.6	7.7	7.5	7.6
6	---	---	---	---	---	---	7.6	7.4	7.5	7.7	7.6	7.6
7	---	---	---	---	---	---	7.5	7.4	7.5	7.7	7.6	7.6
8	---	---	---	---	---	---	7.5	7.4	7.4	7.6	7.5	7.6
9	---	---	---	---	---	---	7.8	7.6	7.7	7.6	7.5	7.6
10	---	---	---	---	---	---	7.8	7.7	7.8	7.7	7.6	7.6
11	---	---	---	---	---	---	7.8	7.8	7.8	7.8	7.7	7.7
12	---	---	---	---	---	---	7.9	7.7	7.8	7.8	7.4	7.6
13	---	---	---	---	---	---	8.0	7.8	7.9	7.7	7.5	7.6
14	---	---	---	---	---	---	8.0	7.9	7.9	7.7	7.3	7.5
15	---	---	---	---	---	---	7.9	7.6	7.7	7.8	7.3	7.6
16	---	---	---	---	---	---	7.7	7.6	7.6	7.8	7.6	7.7
17	---	---	---	---	---	---	7.6	7.5	7.6	7.6	7.4	7.5
18	---	---	---	---	---	---	7.5	7.4	7.4	7.6	7.4	7.5
19	---	---	---	---	---	---	7.5	7.3	7.4	7.6	7.4	7.4
20	---	---	---	---	---	---	7.7	7.5	7.6	7.5	7.3	7.4
21	---	---	---	---	---	---	7.8	7.7	7.8	7.4	7.4	7.4
22	---	---	---	---	---	---	7.8	7.8	7.8	7.4	7.4	7.4
23	---	---	---	---	---	---	7.8	7.8	7.8	7.4	7.3	7.4
24	---	---	---	---	---	---	7.9	7.8	7.8	7.4	7.3	7.4
25	---	---	---	---	---	---	7.9	7.8	7.9	7.7	7.4	7.6
26	---	---	---	---	---	---	7.9	7.8	7.9	7.6	7.5	7.6
27	---	---	---	---	---	---	8.0	7.9	7.9	7.7	7.6	7.6
28	---	---	---	---	---	---	7.9	7.8	7.9	7.7	7.6	7.7
29	---	---	---	---	---	---	8.0	7.8	7.9	7.7	7.7	7.7
30	---	---	---	7.8	7.7	7.7	8.0	7.8	7.9	7.8	7.7	7.7
31	---	---	---	7.7	7.7	7.7	---	---	---	7.7	7.7	7.7
MONTH	---	---	---	7.8	7.7	7.7	8.0	7.3	7.7	7.9	7.3	7.6

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.7	7.6	7.7	8.1	8.0	8.0	7.7	7.7	7.7	7.8	7.7	7.7
2	7.8	7.7	7.7	8.0	8.0	8.0	7.7	7.7	7.7	7.8	7.7	7.7
3	7.9	7.7	7.8	8.0	7.9	8.0	7.7	7.7	7.7	7.7	7.7	7.7
4	7.9	7.7	7.8	7.9	7.9	7.9	7.7	7.7	7.7	7.7	7.7	7.7
5	7.8	7.7	7.7	7.9	7.8	7.9	7.7	7.6	7.6	7.7	7.7	7.7
6	7.7	7.7	7.7	7.9	7.8	7.8	7.6	7.5	7.5	7.7	7.7	7.7
7	7.7	7.7	7.7	7.9	7.9	7.9	7.7	7.5	7.6	7.7	7.7	7.7
8	7.7	7.7	7.7	8.0	7.9	7.9	7.8	7.7	7.7	7.7	7.7	7.7
9	7.7	7.7	7.7	7.9	7.8	7.9	7.7	7.7	7.7	7.7	7.7	7.7
10	7.7	7.7	7.7	7.9	7.8	7.8	7.7	7.7	7.7	7.7	7.7	7.7
11	7.7	7.6	7.6	7.9	7.8	7.8	7.8	7.7	7.7	7.7	7.7	7.7
12	7.6	7.6	7.6	7.9	7.8	7.8	7.7	7.7	7.7	7.8	7.7	7.8
13	7.6	7.5	7.6	7.9	7.8	7.8	7.7	7.7	7.7	7.8	7.7	7.8
14	7.8	7.6	7.7	7.8	7.8	7.8	7.8	7.7	7.8	7.8	7.7	7.7
15	7.8	7.7	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.7	7.7
16	---	---	---	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.7	7.7
17	---	---	---	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.7
18	---	---	---	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.7
19	---	---	---	7.9	7.8	7.8	7.8	7.7	7.8	7.7	7.7	7.7
20	---	---	---	7.8	7.8	7.8	7.7	7.7	7.7	7.7	7.7	7.7
21	---	---	---	7.8	7.8	7.8	7.8	7.7	7.8	7.7	7.7	7.7
22	7.8	7.7	7.8	7.8	7.8	7.8	7.9	7.8	7.8	7.7	7.7	7.7
23	7.9	7.8	7.9	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.7	7.7
24	8.0	7.9	7.9	7.8	7.8	7.8	7.8	7.6	7.7	7.7	7.6	7.7
25	8.0	8.0	8.0	7.8	7.8	7.8	7.6	7.6	7.6	7.7	7.7	7.7
26	8.0	7.9	8.0	7.8	7.7	7.7	7.7	7.6	7.7	7.7	7.7	7.7
27	7.9	7.7	7.8	7.8	7.7	7.7	7.8	7.7	7.8	7.7	7.7	7.7
28	8.0	7.9	7.9	7.7	7.7	7.7	7.9	7.8	7.8	7.7	7.7	7.7
29	8.1	8.0	8.0	7.7	7.7	7.7	7.9	7.8	7.8	7.7	7.6	7.7
30	8.1	8.0	8.0	7.7	7.7	7.7	7.8	7.8	7.8	7.7	7.6	7.7
31	---	---	---	7.7	7.7	7.7	7.8	7.7	7.7	---	---	---
MONTH	8.1	7.5	7.8	8.1	7.7	7.8	7.9	7.5	7.7	7.8	7.6	7.7

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued
(National stream-quality accounting network)

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued
(National stream-quality accounting network)

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	26.5	26.5	26.5	26.5	25.5	26.0	28.5	28.0	28.0	30.5	29.0	30.0
2	26.5	26.0	26.5	27.0	26.0	26.5	27.5	27.0	27.5	30.5	29.5	30.0
3	26.5	26.0	26.0	27.0	26.5	26.5	27.5	27.0	27.5	30.0	29.0	29.5
4	26.0	24.5	25.5	27.5	27.0	27.5	28.0	27.0	27.5	30.0	29.0	29.5
5	25.0	24.5	25.0	28.5	27.5	28.0	28.0	27.0	27.5	30.0	29.0	29.5
6	24.5	24.0	24.5	29.0	28.5	28.5	28.5	27.5	28.0	29.5	28.5	29.5
7	24.5	24.0	24.0	29.0	28.0	28.5	28.0	27.5	28.0	29.5	28.5	29.0
8	24.0	23.5	24.0	28.5	28.0	28.0	27.5	26.0	27.0	29.5	28.5	29.0
9	24.0	23.5	24.0	28.0	27.0	27.5	26.0	25.5	26.0	29.0	28.0	28.5
10	24.5	24.0	24.0	28.5	28.0	28.0	26.0	25.5	25.5	28.5	28.0	28.5
11	25.0	24.0	24.5	28.5	28.0	28.0	26.5	25.5	26.0	28.0	27.5	28.0
12	25.0	24.5	25.0	28.5	28.0	28.0	26.5	25.5	26.0	28.5	27.5	28.0
13	25.0	24.5	24.5	28.5	28.0	28.0	26.5	26.0	26.5	28.0	25.5	27.5
14	28.0	23.5	25.5	28.0	27.5	28.0	26.5	26.0	26.5	25.5	24.5	25.0
15	27.5	26.5	27.0	28.0	27.5	27.5	26.5	26.0	26.5	24.5	23.0	23.5
16	27.5	26.0	27.0	28.0	27.5	28.0	27.0	26.0	26.5	23.0	22.5	22.5
17	27.5	26.5	27.0	28.5	27.5	28.0	27.0	26.5	26.5	24.0	22.5	23.0
18	28.0	26.5	27.0	28.5	28.0	28.5	27.5	26.5	27.0	24.5	23.0	24.0
19	28.0	27.0	27.5	28.5	28.0	28.0	27.0	26.5	27.0	25.0	24.0	24.5
20	29.0	27.5	28.5	28.0	27.5	28.0	27.5	26.5	27.0	25.5	24.0	25.0
21	29.5	28.0	28.5	27.5	27.0	27.5	28.5	27.5	27.5	25.5	24.5	25.0
22	29.0	28.0	28.5	27.5	27.0	27.5	28.5	27.5	28.0	25.0	24.5	25.0
23	28.5	27.5	28.0	27.5	27.0	27.0	29.0	28.0	28.5	24.5	23.0	24.0
24	28.0	27.5	27.5	27.0	26.5	27.0	29.0	28.0	28.5	23.0	22.5	23.0
25	28.0	27.5	27.5	26.5	26.5	26.5	29.5	28.0	28.5	22.5	21.5	22.0
26	27.5	27.0	27.5	26.5	26.5	26.5	29.5	28.5	29.0	22.0	21.0	21.5
27	27.0	26.0	26.5	27.0	26.5	26.5	29.5	28.5	29.0	22.0	21.0	21.5
28	26.0	25.5	26.0	27.5	26.5	27.0	30.0	28.5	29.5	22.5	20.5	21.5
29	26.5	25.5	26.0	28.0	27.0	27.5	30.5	29.5	30.0	22.5	21.5	22.0
30	26.0	25.5	26.0	28.5	27.5	28.0	30.5	29.5	30.0	23.0	22.0	22.5
31	---	---	---	28.5	28.0	28.5	30.5	29.5	30.0	---	---	---
MONTH	29.5	23.5	26.0	29.0	25.5	27.5	30.5	25.5	27.5	30.5	20.5	25.5

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.5	4.2	6.8	7.0	6.6	6.8	11.1	10.0	10.6	9.7	9.6	9.6
2	5.2	3.7	4.3	7.3	6.7	7.0	12.4	10.8	11.5	9.8	9.7	9.7
3	6.1	5.3	5.8	7.5	7.2	7.3	12.4	11.2	11.8	9.7	9.4	9.6
4	6.6	6.1	6.5	7.6	7.4	7.5	12.1	11.1	11.8	9.6	9.3	9.5
5	6.8	6.5	6.6	7.7	7.4	7.5	11.4	10.2	10.9	9.3	9.1	9.2
6	7.2	6.8	7.1	7.9	7.6	7.7	10.8	10.1	10.6	9.2	9.1	9.1
7	7.6	7.3	7.5	8.0	7.8	7.9	10.6	9.8	10.2	9.2	9.1	9.2
8	7.9	7.5	7.7	8.2	7.7	7.9	10.1	8.7	9.2	9.3	9.2	9.2
9	7.9	7.7	7.8	8.2	7.8	8.0	9.0	8.7	8.8	9.7	9.3	9.5
10	7.9	7.8	7.8	8.2	7.6	8.0	9.4	9.0	9.3	9.9	9.8	9.9
11	8.0	7.8	7.9	8.1	7.6	7.9	9.5	9.3	9.4	10.0	9.7	9.8
12	8.3	8.0	8.1	8.5	8.0	8.3	9.3	9.0	9.1	9.8	9.4	9.7
13	8.5	8.0	8.2	8.2	8.0	8.1	9.0	8.1	8.6	9.8	9.6	9.7
14	9.1	8.2	8.6	8.4	8.2	8.3	9.3	8.7	9.0	10.1	9.7	9.9
15	9.2	8.3	8.8	8.2	7.7	7.9	9.5	9.3	9.3	10.3	10.0	10.1
16	9.4	8.2	8.8	8.3	7.6	8.0	9.7	9.5	9.6	10.3	9.8	9.9
17	9.6	8.3	8.9	8.3	7.9	8.2	10.0	9.6	9.8	---	---	---
18	9.7	8.4	8.9	8.3	6.9	7.9	10.0	9.6	9.9	---	---	---
19	8.7	7.8	8.3	7.1	6.6	6.8	9.9	9.5	9.7	---	---	---
20	8.8	7.3	8.0	8.8	7.2	8.2	9.5	9.3	9.4	---	---	---
21	8.7	7.7	8.2	8.8	7.1	7.7	9.9	9.4	9.6	---	---	---
22	9.3	7.7	8.4	8.0	7.2	7.5	9.6	9.2	9.4	---	---	---
23	8.7	7.9	8.4	9.8	8.1	8.8	9.4	9.1	9.3	---	---	---
24	9.0	7.8	8.3	10.6	9.9	10.3	9.1	8.5	9.0	---	---	---
25	9.2	8.0	8.5	10.5	10.3	10.4	8.5	7.9	8.3	---	---	---
26	8.4	7.8	8.1	10.5	9.7	10.1	8.0	7.7	7.8	---	---	---
27	8.2	7.5	7.8	9.7	7.1	8.7	8.5	7.9	8.2	9.7	7.8	9.0
28	7.8	7.4	7.6	8.6	7.6	8.2	9.1	8.6	8.8	8.4	6.1	7.0
29	7.5	7.3	7.4	9.8	8.7	9.2	9.2	8.9	9.0	8.5	6.8	7.6
30	7.4	6.7	7.0	9.9	9.3	9.6	8.9	8.5	8.8	9.1	7.5	8.5
31	7.2	6.6	6.9	---	---	---	9.6	8.6	9.2	8.7	8.1	8.3
MONTH	9.7	3.7	7.7	10.6	6.6	8.2	12.4	7.7	9.5	10.3	6.1	9.2

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued
(National stream-quality accounting network)

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	9.1	8.7	8.9	12.0	11.7	11.8	5.6	5.2	5.4	9.2	8.6	8.9
2	9.1	8.7	8.9	11.8	11.4	11.6	5.7	5.4	5.5	---	---	---
3	---	---	---	11.5	10.9	11.1	5.5	5.2	5.4	---	---	---
4	---	---	---	11.4	10.9	11.1	5.3	4.8	5.0	---	---	---
5	---	---	---	12.8	11.4	12.3	6.2	5.3	5.8	---	---	---
6	---	---	---	13.3	12.8	13.1	7.0	6.2	6.7	---	---	---
7	---	---	---	13.4	12.8	13.1	7.3	7.0	7.2	---	---	---
8	---	---	---	13.6	12.9	13.3	7.4	7.2	7.3	---	---	---
9	---	---	---	13.3	12.3	13.0	7.7	7.5	7.6	---	---	---
10	---	---	---	12.4	11.7	12.2	8.3	7.7	8.0	---	---	---
11	---	---	---	11.7	10.8	11.4	8.6	8.3	8.4	---	---	---
12	---	---	---	10.8	10.0	10.5	8.8	8.5	8.7	---	---	---
13	---	---	---	10.5	10.1	10.3	9.0	8.7	8.9	6.7	4.9	5.7
14	---	---	---	10.1	9.3	9.8	9.0	8.8	8.9	7.4	7.0	7.2
15	---	---	---	9.2	7.8	8.3	8.7	7.5	8.1	7.3	7.0	7.2
16	11.2	10.5	10.8	9.0	7.9	8.4	8.2	7.6	7.8	8.3	7.1	7.6
17	12.6	10.8	11.6	10.7	9.0	10.0	8.1	7.4	7.6	8.0	7.7	7.9
18	13.1	11.8	12.5	10.7	10.0	10.4	7.7	7.4	7.5	9.1	7.4	8.1
19	13.2	11.9	12.6	11.1	9.9	10.5	8.4	7.7	7.9	8.9	6.1	7.5
20	---	---	---	11.3	10.6	10.8	7.9	7.8	7.9	5.8	5.0	5.5
21	---	---	---	12.5	11.4	11.9	8.1	7.9	8.0	4.9	4.1	4.6
22	---	---	---	13.4	12.1	13.0	8.1	7.8	7.9	4.0	3.5	3.8
23	---	---	---	13.6	11.6	12.9	8.1	7.6	7.9	3.3	3.0	3.2
24	13.7	13.0	13.3	13.5	10.9	12.2	8.3	7.3	7.9	4.0	3.0	3.4
25	13.6	13.4	13.5	13.8	12.6	13.2	8.0	7.1	7.5	4.8	3.9	4.3
26	13.7	12.8	13.3	14.8	13.6	14.2	8.5	7.6	8.0	4.8	4.2	4.5
27	12.7	12.3	12.6	13.7	11.6	12.8	8.9	8.0	8.3	4.9	4.3	4.6
28	12.3	12.0	12.2	11.6	10.6	11.1	9.3	7.6	8.5	5.3	4.6	4.9
29	---	---	---	10.4	6.6	9.3	9.8	8.6	9.1	5.6	5.0	5.3
30	---	---	---	6.6	5.1	5.5	9.8	8.8	9.3	5.8	5.4	5.6
31	---	---	---	5.5	5.4	5.4	---	---	---	6.0	5.4	5.7
MONTH	13.7	8.7	11.8	14.8	5.1	11.1	9.8	4.8	7.6	9.2	3.0	5.8
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	6.2	5.7	5.9	6.6	6.4	6.5	6.1	6.0	6.0	6.1	5.9	6.0
2	5.9	5.6	5.8	6.7	6.4	6.5	6.1	6.0	6.1	6.1	5.5	6.0
3	6.7	5.8	6.0	6.7	6.3	6.5	6.2	6.1	6.2	5.9	5.5	5.8
4	6.3	5.2	6.0	6.4	6.0	6.2	6.2	6.1	6.1	6.0	5.9	6.0
5	6.2	5.2	5.7	6.5	5.9	6.2	6.2	6.0	6.1	6.0	5.9	5.9
6	6.1	5.6	5.8	6.6	5.9	6.3	6.2	6.1	6.1	6.1	6.0	6.0
7	6.2	5.5	5.8	6.6	5.9	6.2	6.2	6.1	6.2	6.1	6.0	6.1
8	6.1	5.9	6.0	6.5	6.2	6.4	6.3	5.4	6.0	6.2	6.1	6.1
9	6.0	5.7	5.8	6.6	6.2	6.4	5.7	5.4	5.6	6.3	6.1	6.2
10	5.8	5.6	5.7	6.7	6.3	6.5	6.1	5.7	5.8	6.3	6.2	6.2
11	5.8	5.6	5.7	6.5	6.2	6.4	6.4	6.1	6.3	6.4	6.3	6.3
12	5.6	5.3	5.5	6.5	6.3	6.4	6.5	6.4	6.4	6.4	6.1	6.3
13	6.1	5.3	5.6	6.6	6.2	6.4	6.5	6.3	6.4	6.1	3.7	5.3
14	6.8	6.0	6.4	6.4	6.0	6.2	6.4	6.3	6.4	5.4	3.6	4.8
15	6.4	5.9	6.1	6.2	6.0	6.1	6.2	6.1	6.2	5.5	4.4	4.9
16	6.0	5.7	5.9	6.3	6.0	6.1	6.2	6.0	6.1	6.0	5.6	5.8
17	5.9	5.5	5.7	6.1	5.6	5.8	6.1	6.0	6.0	6.5	6.1	6.3
18	5.7	5.5	5.6	6.1	5.9	6.0	6.0	5.9	6.0	6.6	6.5	6.6
19	5.5	5.4	5.5	6.1	5.8	6.0	6.0	5.2	5.8	6.7	6.6	6.6
20	5.6	5.3	5.5	6.0	5.8	5.9	5.2	4.8	5.0	6.7	6.6	6.6
21	5.8	5.3	5.6	6.1	5.9	6.0	5.7	5.3	5.6	6.8	6.6	6.7
22	6.0	5.5	5.7	6.1	6.0	6.0	6.0	5.5	5.8	6.9	6.7	6.8
23	6.0	5.6	5.8	6.0	5.9	6.0	6.1	5.9	6.0	7.1	6.9	7.0
24	6.0	5.6	5.8	6.1	5.9	6.0	6.1	6.0	6.0	7.2	7.1	7.2
25	5.9	5.6	5.8	6.1	6.0	6.1	6.1	6.0	6.0	7.3	7.1	7.2
26	5.7	5.5	5.6	6.1	6.1	6.1	6.1	6.0	6.0	7.3	7.2	7.3
27	5.8	5.6	5.7	6.2	6.1	6.1	6.0	5.8	6.0	7.3	7.2	7.3
28	6.0	5.7	5.8	6.1	6.0	6.1	5.8	5.6	5.7	7.3	7.0	7.1
29	6.3	6.0	6.1	6.2	6.1	6.1	5.9	5.5	5.7	7.0	6.9	7.0
30	6.4	6.2	6.3	6.2	6.1	6.1	6.0	5.8	5.9	7.0	6.8	6.9
31	---	---	---	6.1	6.1	6.1	6.1	5.9	6.0	---	---	---
MONTH	6.8	5.2	5.8	6.7	5.6	6.2	6.5	4.8	6.0	7.3	3.6	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, 702,200 acre-ft May 17 at 1320 hours (elevation, 322.67 ft); minimum, 521,000 acre-ft Nov. 15 (elevation, 316.93 ft).

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

316.0	494,600	319.0	582,600	322.0	679,200
317.0	523,000	321.0	646,000	323.0	713,500

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	555200	533600	542100	548200	564100	637000	674800	676900	683200	679600	664700	643800
2	551200	532400	541800	548200	568400	636700	675000	677900	682900	678000	665200	642500
3	550300	531200	541800	548500	567500	637000	676400	675900	681300	680200	662200	642500
4	549100	532100	541800	547300	566300	645500	676300	681400	683000	679800	662200	641800
5	548200	530600	540900	547300	566600	648500	675000	680600	682600	679200	661300	640200
6	546500	529200	540300	547100	565100	649300	674600	680600	680900	681600	660600	638300
7	545600	528600	542100	548200	564400	651300	673100	679000	681000	681400	662500	637300
8	545900	528300	544100	546800	564800	652300	674500	678600	679500	680600	660600	636700
9	545000	528600	542400	545600	563500	653300	673000	682200	678800	680000	659300	637000
10	543500	527100	545300	545000	563200	653400	671800	679200	678600	678600	658600	636000
11	543000	523900	546800	545300	562600	653600	670800	678900	677800	678200	657300	637000
12	542100	526500	547100	547300	563200	653000	670300	680000	678700	677800	656300	635100
13	540300	526000	547300	546800	565100	653400	672500	679700	687700	677300	655300	636400
14	538600	525400	547300	545000	564400	653400	676800	678700	683100	677400	655700	634100
15	538300	527700	548800	546500	565700	653700	681300	678700	689500	677100	656300	632200
16	538300	526000	546800	545600	576000	652900	679200	682100	687500	676600	656700	631900
17	536800	524800	546800	545300	591700	651800	680500	689400	687500	674700	656000	630900
18	537700	525400	545600	545300	608800	653300	680900	686100	686400	673300	655000	629900
19	536200	530600	545600	545600	624100	652600	679300	690300	686800	673900	655000	629000
20	535600	530100	546200	545000	633500	656500	679200	687600	684700	672300	654000	628300
21	535000	529800	545600	544100	636400	654800	678900	687100	684000	671300	653000	627700
22	533000	529800	546500	543000	638900	654500	677900	687700	683700	670300	652700	627700
23	532700	528300	546500	543500	636700	653700	677000	688300	683700	670600	651700	625400
24	531800	528300	545900	542700	636100	653500	676500	687800	683300	670200	650700	623200
25	531500	528900	545000	544400	636500	653300	676200	689200	683000	669400	649000	622200
26	531800	538000	545600	548500	636400	653700	676200	690500	683900	669500	649000	621200
27	530600	540600	547100	551700	637900	653300	675600	691600	682100	668900	648700	620300
28	534200	540900	546200	556300	637700	662000	675500	690900	681600	668000	647400	619300
29	535300	542100	545900	560200	---	668900	675200	689700	680300	667300	646000	619000
30	535000	542400	547300	562900	---	675000	675900	689600	680000	666600	645400	618000
31	534500	---	548200	562900	---	675900	---	685700	---	667300	644100	---
MAX	555200	542400	548800	562900	638900	675900	681300	691600	689500	681600	665200	643800
MIN	530600	523900	540300	542700	562600	636700	670300	675900	677800	666600	644100	618000
(†)	317.39	317.66	317.86	318.35	320.74	321.90	321.90	322.19	322.02	321.64	320.94	320.13
(ϕ)	-17500	+7900	+5800	+14700	+74800	+38200	0	+9800	-5700	-12700	-23200	-26100

CAL YR 1988 MAX 687100 MIN 523900 (ϕ) -130000
WTR YR 1989 MAX 691600 MIN 523900 (ϕ) +66000

(†) 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 daily contents, 117,400 acre-ft June 14 (elevation, 433.74 ft); minimum daily, 43,720 acre-ft Nov. 17 (elevation, 421.70 ft).

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

421.0	40,710	427.0	70,380	432.0	103,800
423.0	49,590	429.0	82,620	433.0	111,500
425.0	59,520	431.0	96,400	434.0	119,500

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46580	44500	44720	45200	48500	59010	62800	59520	105200	83700	56790	54910
2	46480	44460	44680	45160	48680	59120	61320	59570	103400	80670	57240	54760
3	46390	44460	44630	45110	48680	59220	60160	61270	101900	78330	57090	54610
4	46260	44380	44590	45070	48680	59420	59320	65870	100000	75240	57040	54510
5	46120	44290	44590	45070	48630	59470	58860	71450	98470	72280	56890	54410
6	46030	44200	44550	45070	48590	59170	58510	72460	96770	70050	56740	54260
7	45940	44120	44500	44980	48590	58560	58250	73580	98610	69160	57340	54170
8	45940	44070	44500	44940	48590	58250	58200	74230	101600	67770	57340	54070
9	45890	43990	44460	44890	48540	58300	58150	73940	102200	66320	57290	53970
10	45800	43900	45070	44890	48540	58300	58100	73400	103100	64870	57140	54260
11	45660	43820	45430	44850	48540	58360	58050	72810	103900	63490	57090	54310
12	45570	43820	45480	44850	48590	58360	58000	72160	104400	62110	56990	54170
13	45430	43770	45520	44940	48680	58410	58610	71750	105300	61060	56890	54610
14	45390	43770	45430	44850	48770	58410	59890	71570	114900	60000	56890	54410
15	45300	43990	45340	44850	48820	58360	60210	70980	116500	59370	56790	54220
16	45250	43900	45340	44810	49690	58410	60370	73350	117100	58660	56790	54170
17	45160	43720	45300	44760	53390	58410	60050	98610	117400	58050	56680	54170
18	45110	43820	45250	44720	57650	58360	59470	106800	117100	57950	56640	53970
19	45020	44330	45250	44760	58510	58360	60580	108500	116400	57950	56580	53920
20	44980	44200	45250	44720	59060	58410	60310	110300	115200	57750	56380	53780
21	44940	44120	45200	44680	59320	58510	59840	111600	112800	57700	56330	53730
22	44850	44070	45250	44590	59170	58510	59220	113100	110200	57550	56180	53630
23	44810	44030	45390	44590	58810	58460	58560	113600	107600	57650	56080	53440
24	44720	43990	45300	44590	58710	58460	58200	113900	104900	57800	55980	53240
25	44630	44120	45250	45390	58810	58460	58250	114100	102400	57650	55880	53190
26	44720	45020	45200	45800	58860	58510	58250	113800	99790	57650	55720	53050
27	44680	44980	45160	45840	58910	58510	58200	112900	96850	57600	55620	52900
28	44630	44890	45160	47080	58910	60680	58300	112000	93510	57500	55470	52800
29	44590	44850	45160	48180	---	65200	58610	110600	89970	57390	55370	52760
30	44590	44810	45250	48400	---	65650	58510	108800	86920	57340	55270	52710
31	44550	---	45250	48450	---	64340	---	107100	---	57140	55120	---
MAX	46580	45020	45520	48450	59320	65650	62800	114100	117400	83700	57340	54910
MIN	44550	43720	44460	44590	48500	58250	58000	59520	86920	57140	55120	52710
(†)	421.89	421.95	422.05	422.75	424.88	425.91	424.80	432.43	429.64	424.53	424.13	423.64
(ϕ)	-1890	+260	+440	+3200	+10460	+5430	-5830	+48590	-20180	-29780	-2020	-2410

CAL YR 1988 MAX 69610 MIN 43720 (ϕ) -19560
WTR YR 1989 MAX 117400 MIN 43720 (ϕ) +6270

(†) 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 and those for estimated daily discharges, which are fair. Flow regulated since Mar. 15, 1963, by Navarro Mills Lake (station 08063050). Flow also 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.--29 years, 142 ft³/s (102,900 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, 3,740 ft³/s May 17 at 1415 hours (gage height, 21.50 ft); minimum daily, 0.01 ft³/s September 16-21.

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	6.6	.86	e3.4	1.5	3.7	.81	941	8.8	1010	1700	1.0	.29
2	2.2	.63	e1.4	1.3	3.7	.72	839	194	1000	1670	1.9	.27
3	1.2	.62	e1.0	1.3	4.7	.72	684	278	990	1660	1.4	.19
4	1.0	.65	e1.0	1.5	4.3	1.5	507	160	982	1620	1.1	.18
5	1.0	.55	.93	1.8	4.1	1.1	314	245	976	1590	.88	.14
6	1.2	.58	.98	1.8	3.4	127	208	15	963	1230	.70	.14
7	1.2	.57	1.1	1.7	3.1	365	143	14	1090	790	2.5	.12
8	1.2	.80	1.3	1.7	2.9	206	2.3	9.8	772	780	1.7	.12
9	1.3	1.2	1.6	1.8	2.9	1.1	.96	311	23	771	.84	.06
10	1.3	1.6	2.0	1.9	3.4	.51	1.8	598	13	763	.68	.21
11	1.3	1.6	.93	2.1	3.5	.36	2.9	583	14	757	.63	.26
12	1.3	e1.5	.67	1.9	3.6	.72	3.3	565	267	750	.60	.16
13	1.3	e1.5	.81	1.9	4.8	.78	3.9	563	981	744	.55	.15
14	1.2	e1.4	.76	2.0	4.7	.62	7.3	577	380	594	.59	.04
15	1.3	e1.4	1.0	1.7	4.6	.88	5.5	558	19	422	.73	.02
16	1.3	e1.2	1.3	1.6	6.2	1.1	4.8	736	9.2	417	.91	.01
17	1.3	e1.2	1.4	1.7	58	1.4	198	1850	7.1	302	.60	.01
18	1.3	e1.1	1.5	1.9	53	1.4	393	358	326	93	.52	.01
19	1.1	e1.0	1.4	1.9	7.6	1.5	406	49	603	7.0	.46	.01
20	1.0	e.93	1.2	1.8	4.7	2.0	396	37	708	5.8	.49	.01
21	1.2	e.93	1.5	1.9	3.6	2.7	392	33	1250	4.5	.40	.01
22	1.1	e1.4	1.7	2.2	114	2.7	390	29	1430	3.9	.33	.02
23	1.1	e10	1.8	2.1	231	2.7	390	26	1430	6.4	.31	.03
24	1.1	e4.0	1.2	2.0	162	2.7	216	20	1410	4.5	.27	.02
25	1.1	e2.2	1.3	10	2.9	3.2	3.7	9.1	1400	2.6	.22	.06
26	1.1	e1.6	1.5	9.0	1.9	2.6	2.6	217	1390	2.6	.16	.05
27	.91	e1.2	1.4	5.5	1.5	3.1	2.1	611	1510	2.2	.16	.05
28	.87	e1.0	1.4	14	1.1	19	3.0	610	1800	2.6	.10	.04
29	.86	e48	1.4	14	---	10	3.5	835	1760	1.9	.11	.04
30	.84	e17	1.6	7.1	---	207	4.6	1050	1730	1.4	.15	.05
31	.89	---	1.6	4.9	---	858	---	1020	---	1.1	.26	---
TOTAL	41.67	108.22	42.08	107.5	704.9	1828.92	6469.26	12169.7	26243.3	16699.5	21.25	2.77
MEAN	1.34	3.61	1.36	3.47	25.2	59.0	216	393	875	539	.69	.092
MAX	6.6	48	3.4	14	231	858	941	1850	1800	1700	2.5	.29
MIN	.84	.55	.67	1.3	1.1	.36	.96	8.8	7.1	1.1	.10	.01
AC-FT	83	215	83	213	1400	3630	12830	24140	52050	33120	42	5.5

CAL YR 1988	TOTAL	9617.49	MEAN	33.0	MAX	684	MIN	.00	AC-FT	19080
WTR YR 1989	TOTAL	64439.07	MEAN	177	MAX	1850	MIN	.01	AC-FT	127800

e Estimated.

08063500 RICHLAND CREEK NEAR RICHLAND, TX

LOCATION.--Lat 31°57'02", long 96°25'16", Navarro County, Hydrologic Unit 12030108, at left end of downstream bridge on Interstate Highway 45 and U.S. Highway 75, 800 ft downstream from Texas and New Orleans Railroad Co. bridge, 1.0 mi north of Richland, 3.5 mi downstream from Pin Oak Creek, and 36.7 mi upstream from mouth.

DRAINAGE AREA.--734 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1924 to February 1925 (discharge measurements and gage heights only), March 1939 to June 1989 (discontinued).

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 299.12 ft above National Geodetic Vertical Datum of 1929. Dec. 11, 1924, to Feb. 11, 1925, nonrecording gage at site 800 ft upstream. Mar. 17, 1939, to Feb. 14, 1958, water-stage recorder at site 50 ft upstream. Feb. 15, 1958, to Jan. 28, 1959, nonrecording gage at present site. June 8, 1955, Feb. 14, 1958, and since Feb. 6, 1959, supplementary water-stage recorder at overflow channel 3,900 ft to right of main channel gage. All gages at present datum.

REMARKS.--Records fair including those for estimated daily discharges. Since October 1962, flow partly regulated by Navarro Mills Lake (station 08063050) about 25 mi upstream. Flow is also affected at times by discharge from the flood-detention pools of 73 floodwater-retarding structures with a combined detention capacity of 42,060 acre-ft. These structures control runoff from 143 mi² in the Richland Creek drainage basin. Several observations of water temperature were made during the year. Gage height telemeter at station.

AVERAGE DISCHARGE.--23 years (water years 1940-62) prior to regulation by Navarro Mills Lake, 404 ft³/s (292,700 acre-ft/yr); 26 years (water years 1963-88) regulated, unadjusted, 323 ft³/s (234,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58,900 ft³/s May 12, 1948 (gage height, 24.16 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1899, 25.5 ft in December 1913 (discharge not determined), from information by Texas and New Orleans Railroad Co.

EXTREMES FOR PERIOD OCTOBER 1988 TO JUNE 1989.--Maximum discharge during the period, 33,600 ft³/s May 18 at 0730 hrs (gage height, 22.66 ft); maximum gage height at main channel, 22.70 ft May 18 at 1100 hours; no flow for several 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	1480	2.0	8.9	.11	65	25	1310	6.5	1590	---	---	---
2	270	.86	6.5	.05	41	21	1350	e131	1540	---	---	---
3	71	.29	4.7	.02	57	18	1130	1900	1500	---	---	---
4	27	.08	3.2	.03	78	108	866	2480	1480	---	---	---
5	15	.04	3.0	.03	46	393	579	3450	1500	---	---	---
6	7.9	.03	3.4	.03	26	198	326	3480	1510	---	---	---
7	4.8	.05	3.6	.03	18	324	258	1700	1520	---	---	---
8	2.7	.08	3.1	.01	14	471	158	1280	2750	---	---	---
9	1.4	.14	2.6	.00	10	220	e27	730	2700	---	---	---
10	.79	.19	5.5	.00	8.7	45	e6.8	842	1330	---	---	---
11	.46	.10	237	.16	6.3	21	e2.8	866	1180	---	---	---
12	.25	e.10	138	.0	4.9	12	e1.0	748	1170	---	---	---
13	.10	e.09	42	.0	3.8	8.2	e1.0	674	1550	---	---	---
14	.09	e.09	21	.03	3.1	4.8	e33	1120	3190	---	---	---
15	.07	e.08	18	.86	2.8	3.0	e270	1130	3870	---	---	---
16	.04	e.08	8.3	7.3	22	2.5	e62	1450	2170	---	---	---
17	.03	e.07	3.1	5.4	965	2.5	e8.6	7840	e715	---	---	---
18	.03	e.06	6.9	3.0	2880	1.4	e149	25200	e420	---	---	---
19	.0	e.05	2.8	2.1	1430	1.7	e1020	9780	e496	---	---	---
20	.00	5.4	.69	1.0	512	1.1	858	4580	e505	---	---	---
21	.00	26	.05	.51	278	e4.5	594	2660	e800	---	---	---
22	.02	19	.02	.37	176	e6.6	536	2290	e1300	---	---	---
23	.03	15	.00	.31	294	e4.4	507	2080	e1450	---	---	---
24	.03	7.3	.00	1.2	350	e3.9	491	1900	e1450	---	---	---
25	.0	3.5	.00	2.3	212	e3.5	174	1570	e1430	---	---	---
26	.01	4.0	.00	58	64	e3.2	e17	1330	e1410	---	---	---
27	.0	167	.00	135	39	e2.8	e1.7	1480	e1400	---	---	---
28	.04	72	.00	52	30	126	e.80	1510	e1550	---	---	---
29	.02	35	.06	354	---	1090	e10	1390	e1780	---	---	---
30	.61	18	.16	242	---	639	e9.5	1650	e1760	---	---	---
31	2.3	---	.17	118	---	725	---	1660	---	---	---	---
TOTAL	1884.72	376.68	522.75	983.85	7636.6	4490.1	10757.20	88907.5	47016	---	---	---
MEAN	60.8	12.6	16.9	31.7	273	145	359	2868	1567	---	---	---
MAX	1480	167	237	354	2880	1090	1350	25200	3870	---	---	---
MIN	.00	.03	.00	.00	2.8	1.1	.80	6.5	420	---	---	---
AC-FT	3740	747	1040	1950	15150	8910	21340	176300	93260	---	---	---

CAL YR 1988 TOTAL 40465.79 MEAN 111 MAX 4360 MIN .00 AC-FT 80260
WTR YR 1989 TOTAL -- MEAN -- MAX -- MIN -- AC-FT --

e Estimated.

08063500 RICHLAND CREEK NEAR RICHLAND, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1967 to December 1973. Chemical and biochemical analyses: August 1983 to June 1989 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1967 to September 1969, August 1983 to June 1989.
WATER TEMPERATURE: October 1967 to September 1969, August 1983 to June 1989.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,920 microsiemens Nov. 5, 1968; minimum daily, 98 microsiemens May 18, 1989.
WATER TEMPERATURE: Maximum daily, 34.0°C Aug. 18, 1969; minimum daily, 2.0°C Dec. 22, 1983.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	CALCIUM DIS-SOLVED (MG/L AS CA)
NOV												
16...	1410	0.08	1020	7.60	16.5	25	3.1	4.0	41	0.8	320	110
JAN												
11...	1345	0.35	810	7.50	11.5	43	11	7.2	66	2.5	260	90
FEB												
28...	1610	32	437	7.70	15.0	--	--	8.7	86	1.6	150	53
APR												
13...	1330	3.6	483	7.70	15.0	2	17	8.7	86	1.6	180	63
JUN												
15...	0800	3700	209	7.60	23.0	90	100	5.3	62	3.1	87	31

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 WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)
NOV											
16...	12	80	2	7.0	191	140	130	0.30	9.2	603	4
JAN											
11...	9.5	62	2	6.1	174	99	89	0.20	15	475	13
FEB											
28...	4.5	26	0.9	4.6	126	48	21	0.30	8.5	241	--
APR											
13...	5.2	30	1	4.4	142	57	27	0.40	4.5	277	34
JUN											
15...	2.2	6.6	0.3	5.9	82	13	5.7	0.20	17	131	210

DATE	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)
NOV											
16...	<1	--	--	<0.010	<0.100	0.070	0.53	0.60	0.060	8.4	3
JAN											
11...	<1	--	--	<0.010	<0.100	0.050	0.75	0.80	0.100	10	3
FEB											
28...	--	--	--	--	--	--	--	--	--	--	--
APR											
13...	20	14	0.970	0.030	1.00	0.020	0.68	0.70	0.050	6.2	--
JUN											
15...	22	188	0.270	0.030	0.300	0.040	0.56	0.60	0.270	14	8

DATE	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV											
16...	140	1	<1	2	64	<5	120	<0.1	5	4.0	8
JAN											
11...	100	<1	1	<1	36	<5	210	<0.1	<1	<1.0	<3
FEB											
28...	--	--	--	--	--	--	--	--	--	--	--
APR											
13...	--	--	--	--	--	--	--	--	--	--	--
JUN											
15...	49	<1	1	2	62	<1	4	<0.1	<1	<1.0	6

08063500 RICHLAND CREEK NEAR RICHLAND, TX--Continued

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	297	459	374	287	305	---	---	---
2	201	---	---	---	297	454	372	271	314	---	---	---
3	259	---	---	---	---	311	373	256	314	---	---	---
4	316	---	---	---	---	256	384	249	313	---	---	---
5	318	---	---	---	---	---	386	241	321	---	---	---
6	351	---	---	---	---	---	385	250	322	---	---	---
7	390	---	---	---	---	520	381	234	314	---	---	---
8	389	---	---	---	---	372	406	230	241	---	---	---
9	---	---	---	---	---	372	405	237	224	---	---	---
10	---	---	---	---	---	387	436	326	236	---	---	---
11	---	---	500	---	---	401	365	330	228	---	---	---
12	---	---	248	---	---	423	475	340	252	---	---	---
13	---	---	282	---	---	451	365	340	300	---	---	---
14	---	---	337	---	---	477	---	350	222	---	---	---
15	---	---	---	---	---	526	351	334	220	---	---	---
16	---	---	---	---	---	452	529	345	234	241	---	---
17	---	---	---	---	---	449	542	429	104	249	---	---
18	---	---	---	---	---	272	542	389	98	265	---	---
19	---	---	---	---	---	269	594	381	210	307	---	---
20	---	---	---	---	---	296	598	319	180	318	---	---
21	---	845	---	---	310	639	356	173	314	---	---	---
22	---	867	---	---	327	634	362	171	313	---	---	---
23	---	739	---	---	319	511	366	172	313	---	---	---
24	---	704	---	---	360	411	411	174	317	---	---	---
25	---	---	---	---	363	565	412	179	316	---	---	---
26	---	---	---	---	394	644	420	178	317	---	---	---
27	---	270	---	547	412	537	420	193	---	---	---	---
28	---	270	---	547	437	---	451	250	---	---	---	---
29	---	290	---	310	---	409	451	263	---	---	---	---
30	---	299	---	313	---	325	251	294	---	---	---	---
31	---	---	---	289	---	365	---	297	---	---	---	---
MEAN	318	535	342	401	350	473	387	240	284	---	---	---

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.0	12.0	---	---	19.0	14.0	21.0	26.0	---	---	---	---
2	21.0	---	---	---	21.0	15.0	24.0	25.0	---	---	---	---
3	23.5	---	---	---	20.0	15.0	23.0	25.0	---	---	---	---
4	23.0	---	---	10.0	22.0	15.0	24.0	25.0	---	---	---	---
5	23.5	---	---	10.0	23.0	19.0	24.0	27.0	---	---	---	---
6	24.0	---	---	9.0	19.0	20.0	24.0	26.0	---	---	---	---
7	22.0	---	---	10.0	15.0	20.0	25.0	27.0	---	---	---	---
8	20.5	---	---	12.0	13.0	20.0	25.0	27.0	---	---	---	---
9	14.5	---	---	11.0	14.0	21.0	26.0	27.0	---	---	---	---
10	15.0	---	---	11.0	15.0	20.0	27.0	26.0	---	---	---	---
11	15.0	---	---	9.0	16.0	20.0	27.0	26.0	---	---	---	---
12	17.0	---	---	10.0	19.0	21.0	27.0	26.0	---	---	---	---
13	---	---	---	9.0	---	23.0	26.0	26.0	---	---	---	---
14	---	---	---	12.0	19.0	23.0	27.0	26.0	---	---	---	---
15	16.0	---	12.0	12.0	16.0	24.0	27.0	---	---	---	---	---
16	14.5	---	14.0	11.0	16.0	23.0	27.0	---	---	---	---	---
17	15.0	---	13.0	13.0	17.0	24.0	27.0	---	---	---	---	---
18	13.0	---	14.0	14.0	19.0	20.0	26.0	---	---	---	---	---
19	---	---	16.0	16.0	21.0	21.0	27.0	---	---	---	---	---
20	---	---	17.0	7.0	18.0	22.0	27.0	---	---	---	---	---
21	---	---	13.0	---	19.0	20.0	28.0	---	---	---	---	---
22	---	---	---	---	17.0	22.0	27.0	---	---	---	---	---
23	---	---	---	7.0	19.0	22.0	27.0	---	---	---	---	---
24	---	---	---	9.0	20.0	22.0	27.0	---	---	---	---	---
25	---	---	---	10.0	17.0	21.0	26.0	---	---	---	---	---
26	---	---	---	9.0	16.0	24.0	29.0	---	---	---	---	---
27	---	---	---	11.0	11.0	25.0	27.0	---	---	---	---	---
28	---	---	---	14.0	12.0	24.0	26.0	---	---	---	---	---
29	9.5	---	---	17.0	---	23.0	26.0	---	---	---	---	---
30	9.0	---	---	20.0	---	22.0	25.0	---	---	---	---	---
31	10.5	---	---	20.0	---	23.0	---	---	---	---	---	---
MEAN	17.0	12.0	14.0	11.5	17.5	21.0	26.0	26.0	---	---	---	---

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, 103,300 acre-ft May 19, 1969 (elevation, 432.35 ft); minimum since initial filling, 39,720 acre-ft Nov. 10, 1978 (elevation, 417.21 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 88,950 acre-ft May 24 at 0800 hours (elevation, 429.91 ft): minimum, 45,260 acre-ft Nov. 15 (elevation, 418.96 ft).

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

419.0	45,390	423.0	59,680	427.0	75,900
421.0	52,290	425.0	67,520	430.0	89,370

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47510	46190	46390	46960	48500	54020	56370	53910	77520	59870	52220	51370
2	47510	46120	46360	46960	48670	53760	56070	54090	75640	58960	52260	51330
3	47440	46120	46360	46960	48710	53650	55810	55330	73310	58280	51180	51260
4	47340	46090	46320	46930	48640	53800	55400	60140	71540	57410	52150	51190
5	47240	46020	46290	46900	48570	53650	54850	65040	70180	56630	52080	51120
6	47170	45960	46260	46930	48500	53470	54340	66120	68130	55520	52040	51020
7	47100	45890	46490	46930	48470	53440	53870	66920	68250	54420	52650	50910
8	47100	45860	46460	46930	48470	53440	53650	67200	67320	54120	52580	50770
9	47030	45790	46390	46830	48430	53400	53470	66800	65640	53730	52540	50770
10	47000	45760	46690	46800	48400	53400	53440	65600	64020	53440	52470	50880
11	46930	45720	46800	46800	48360	53400	53400	64530	62570	53220	52430	50950
12	46830	45690	46760	46930	48500	53360	53360	63580	61330	53010	52400	50880
13	46690	45660	46760	46930	48640	53510	53650	62880	68460	52860	52330	51190
14	46630	45620	46760	46900	48640	53650	55000	62020	77960	52830	52330	51020
15	46590	45620	46800	46900	48990	53690	55330	61100	79770	52830	52330	50950
16	46560	45660	46760	46860	49860	53650	55520	62060	81180	52790	52330	50880
17	46530	45590	46690	46830	52400	53730	55370	77210	82210	72720	52290	50840
18	46530	45560	46660	46830	54120	53840	55110	82430	81890	52680	52290	50800
19	46490	46160	46630	46900	54710	53840	54820	84090	80610	52680	52220	50740
20	46420	46160	46690	46860	55300	54020	54490	85680	79150	52610	52150	50700
21	46390	46120	46690	46830	55520	53980	54160	86960	77700	52540	52110	50660
22	46320	46090	46800	46760	55550	53870	53980	88160	75990	52470	52080	50560
23	46290	46060	46860	46730	55400	53620	53620	88810	74340	52470	52010	50450
24	46220	46060	46830	46730	55260	53440	53330	88670	72550	52430	51970	50310
25	46160	46320	46730	47440	55180	53260	53150	88120	70750	52470	51860	50280
26	46160	46630	46660	47580	54960	53040	53220	87240	69030	52430	51830	50240
27	46120	46590	46900	47610	54740	53040	53260	85730	67200	52430	51790	50070
28	46320	46530	46900	48090	54380	53800	53290	84320	65360	52400	51720	50030
29	46320	46490	46860	48260	---	56070	53440	82650	63430	52330	51620	50030
30	46320	46460	46900	48260	---	56670	53800	81000	61640	52290	51550	50000
31	46290	---	46960	48300	---	56670	---	79280	---	52290	51480	---
MAX	47510	46630	46960	48300	55550	56670	56370	88810	82210	72720	52650	51370
MIN	46120	45560	46260	46730	48360	53040	53150	53910	61330	52290	51180	50000
(†)	419.27	419.32	419.45	419.85	421.58	422.20	421.42	428.16	423.51	421.00	420.77	420.35
(ϕ)	-1250	+170	+500	+1340	+6080	+2290	-2870	+25480	-17640	-9350	-810	-1480

CAL YR 1988 MAX 55850 MIN 45560 (ϕ) -8520
WTR YR 1989 MAX 88810 MIN 45560 (ϕ) +2490

(†) 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 those for estimated daily discharges and those 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.--26 years, 73.5 ft³/s (53,250 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, 987 ft³/s May 26 at 2015 hours (gage height, 11.77 ft); 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	.01	.03	.04	.05	.00	182	182	.08	948	625	.12	.06
2	.01	.02	.04	.04	.00	116	181	.05	940	442	.18	.07
3	e.01	.02	.03	.03	.00	67	183	.36	931	441	.15	.06
4	e.01	.02	.03	.02	.00	65	213	3.5	922	439	.13	.07
5	e.01	.0	.03	.02	.00	64	255	33	913	433	.08	.09
6	e.01	.00	.03	.01	.00	65	254	27	905	430	.07	.07
7	e.01	.00	.09	.01	.00	65	209	.49	898	347	.45	.06
8	e.01	.00	.27	.00	.00	32	110	117	891	195	.24	.10
9	e.01	.00	.16	.00	.00	.25	67	475	885	193	.12	.15
10	e.01	.00	1.1	.00	.00	.07	66	603	876	156	.06	.21
11	e.01	.00	.77	.00	.00	.06	30	600	870	109	.06	.29
12	e.01	.00	.56	.00	.00	.07	.31	597	867	99	.06	.12
13	e.01	.00	.41	.01	.00	.06	.67	596	867	77	.06	.40
14	e.01	.00	.24	.01	.00	.07	3.0	594	206	36	.06	.08
15	e.01	.03	.18	.00	.00	.07	.57	592	155	1.4	.07	.07
16	e.01	.09	.09	.00	.75	.05	.20	591	14	.98	.06	.12
17	e.01	.03	.05	.00	3.6	.06	99	365	2.8	.82	.16	.11
18	e.01	.02	.04	.00	.30	.06	175	332	409	1.0	.10	.10
19	e.01	.63	.04	.00	.0	.04	176	117	932	.99	.07	.12
20	e.01	.10	.04	.00	.00	.05	181	2.9	921	.64	.06	.13
21	e.01	.02	.03	.00	.00	.05	184	.36	913	.48	.06	.10
22	e.01	.01	.10	.00	44	44	185	.21	907	.41	.06	.10
23	e.01	.01	.07	.00	80	86	182	171	899	.44	.05	.09
24	e.01	.02	.03	.00	79	85	92	447	892	.44	.06	.10
25	e.01	.53	.02	.56	78	85	.10	670	885	.41	.11	.10
26	e.01	.74	.02	.67	145	86	.08	766	880	.38	.08	.08
27	e.02	.18	.07	.02	185	84	.09	978	871	.35	.11	.08
28	e.02	.09	.05	.74	181	85	.10	973	866	.18	.10	.09
29	e.02	.07	.02	.32	---	35	.08	969	860	.13	.08	.14
30	e.02	.05	.08	.04	---	.15	.11	961	852	.12	.05	.18
31	e.03	---	.09	.00	---	78	---	954	---	.12	.08	---
TOTAL	0.37	2.71	4.82	2.55	796.65	1325.11	3029.31	12535.95	23177.8	4031.29	3.20	3.54
MEAN	.012	.090	.16	.082	28.5	42.7	101	404	773	130	.10	.12
MAX	.03	.74	1.1	.74	185	182	255	978	948	625	.45	.40
MIN	.01	.00	.02	.00	.00	.04	.08	.05	2.8	.12	.05	.06
AC-FT	.7	5.4	9.6	5.1	1580	2630	6010	24870	45970	8000	6.3	7.0

CAL YR 1988 TOTAL 6387.61 MEAN 17.5 MAX 225 MIN .00 AC-FT 12670
WTR YR 1989 TOTAL 44913.30 MEAN 123 MAX 978 MIN .00 AC-FT 89090

e Estimated

TRINITY RIVER BASIN

08064100 Chambers Creek near Rice, Tex.

LOCATION.--Lat 32°11'54, long 96°31'12", Navarro County, Hydrologic Unit 12030109, on downstream side of highway embankment 20 ft 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. Flow from 178 mi² is affected by storage in Bardwell Lake on Waxahachie Creek. Flood releases from Bardwell Lake will sustain higher flows from time to time. In addition, flow is affected at times by discharge from the flood-detention pools of numerous floodwater-retarding structures in the drainage basin above this station.

AVERAGE DISCHARGE.--6 years (water years 1984-1989) regulated, unadjusted, 373 ft³/s (270,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 43,400 ft³/s June 6, 1986, at 2200 hours (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 next downstream station (08064500) indicates that the maximum stage since at least 1870 occurred in August 1887 and other significant floods occurred in December 1913, May 1944, and May 1958. Stages for these floods are unknown for this station and over the years a levee system has been developed along the main channel to limit crop land flooding.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 23,800 ft³/s May 18 at 1700 hours (gage height, 30.73 ft), from rating curve extended above 22,500 ft³/s; minimum, 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	.00	.14	1.7	92	293	578	393	1130	831	3.8	.96
2	.00	.00	.09	1.7	50	267	469	491	1090	563	3.9	.86
3	.00	.00	.07	1.5	37	193	413	1480	1060	574	4.2	.84
4	.00	.00	.05	1.6	36	200	373	2910	1040	584	4.1	.63
5	.00	.00	.03	1.6	23	212	384	6040	1050	559	3.7	.54
6	.00	.00	.03	1.5	18	214	362	7140	1020	541	3.4	.50
7	.00	.00	.01	1.5	14	196	333	4550	1020	496	3.9	.48
8	.00	.00	.12	1.5	11	177	258	1460	1310	293	98	.50
9	.00	.00	.19	1.4	10	92	191	1090	1290	417	133	.56
10	.00	.00	.27	1.4	9.0	82	175	1050	1100	314	23	.65
11	.00	.00	14	1.4	8.9	73	149	920	1280	219	9.2	.82
12	.00	.00	6.4	1.4	8.7	70	52	850	1350	197	6.5	.87
13	.00	.00	3.4	1.5	9.2	64	49	824	1860	174	4.7	2.1
14	.00	.00	2.3	1.9	9.3	54	1010	960	7180	117	4.5	4.0
15	.00	.00	1.8	2.4	9.4	44	999	872	9160	23	3.9	8.6
16	.00	.00	1.3	2.2	290	39	390	1120	6650	16	314	8.4
17	.00	.00	1.1	1.9	1700	34	294	5400	2900	12	240	4.6
18	.00	.00	.93	1.8	4830	31	367	16000	1600	9.7	107	2.7
19	.00	.00	.80	1.7	4660	29	715	10000	1790	8.6	43	2.1
20	.00	.00	.81	1.7	1080	30	872	6320	1540	7.3	17	1.6
21	.00	2.0	.81	1.7	576	30	473	3890	1380	6.0	9.2	1.4
22	.00	3.7	.82	1.7	373	50	388	2600	1270	5.2	6.4	1.2
23	.00	1.4	.79	1.6	336	168	348	1980	1190	4.9	4.7	1.1
24	.00	.62	.70	1.6	279	170	292	1840	1140	6.5	3.6	.94
25	.00	.36	.57	6.6	253	172	127	1780	1090	6.8	2.9	.81
26	.00	29	.64	304	265	173	117	1620	1060	5.4	2.3	.71
27	.00	12	.71	98	312	176	120	1760	1040	5.1	2.0	.75
28	.00	1.7	1.6	80	302	326	106	1630	1010	4.7	1.6	.73
29	.00	.47	1.7	1030	---	3420	112	1440	985	4.5	1.4	.66
30	.00	.24	1.5	611	---	3470	449	1280	966	4.4	1.2	.61
31	.00	---	1.4	178	---	735	---	1190	---	4.2	1.1	---
TOTAL	0.00	51.49	45.08	2347.5	15601.5	11284	10965	90880	57551	6013.3	1067.2	51.22
MEAN	.00	1.72	1.45	75.7	557	364	365	2932	1918	194	34.4	1.71
MAX	.00	29	14	1030	4830	3470	1010	16000	9160	831	314	8.6
MIN	.00	.00	.01	1.4	8.7	29	49	393	966	4.2	1.1	.48
AC-FT	.0	102	89	4660	30950	22380	21750	180300	114200	11930	2120	102

CAL YR 1988 TOTAL 27411.86 MEAN 74.9 MAX 3380 MIN .00 AC-FT 54370
WTR YR 1989 TOTAL 195857.29 MEAN 537 MAX 16000 MIN .00 AC-FT 388500

TRINITY RIVER BASIN--Continued

08064100 CHAMBERS CREEK NEAR RICE, TX

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: Maximum daily, 38.0°C Aug. 16, 1987; minimum daily, 0.0°C Feb. 7, 1989.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,510 microsiemens Nov. 21; minimum daily, 250 microsiemens May 6.
WATER TEMPERATURE: Minimum recorded, 0.0°C Feb. 7.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	CALCIUM DIS-SOLVED (MG/L AS CA)
JAN												
12...	1230	1.4	1380	7.60	10.5	22	13	8.5	77	1.4	310	110
APR												
14...	1200	1180	287	7.80	11.0	--	650	9.8	89	7.3	110	39
JUN												
13...	1200	1550	318	7.90	24.5	30	210	7.0	85	2.3	120	45
JUL												
18...	1430	9.7	636	7.80	29.0	35	26	5.6	74	1.3	210	76
AUG												
29...	1415	1.5	623	7.80	29.0	15	22	6.5	85	1.0	200	72

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 WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)
JAN											
12...	8.4	160	4	4.6	201	230	160	0.20	4.9	799	18
APR											
14...	2.4	13	0.5	3.8	80	30	9.0	0.20	8.3	154	1290
JUN											
13...	2.3	16	0.6	3.8	113	27	10	0.40	6.9	179	398
JUL											
18...	5.1	41	1	3.9	157	110	37	0.40	8.2	376	41
AUG											
29...	5.0	50	2	4.5	139	110	41	0.50	8.6	375	25

DATE	RESIDUE VOLA-TILE, SUS-PENDED (MG/L)	RESIDUE FIXED NON FILTER-ABLE (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, 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-PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)
JAN											
12...	<1	--	--	<0.010	<0.100	0.040	0.56	0.60	0.070	8.0	3
APR											
14...	97	1190	3.53	0.170	3.70	0.180	1.5	1.7	0.400	26	--
JUN											
13...	31	367	0.660	0.040	0.700	0.030	0.37	0.40	0.040	12	6
JUL											
18...	<1	--	--	<0.010	<0.100	0.020	0.68	0.70	0.060	5.0	3
AUG											
29...	<1	--	--	0.030	<0.100	0.020	0.68	0.70	0.010	5.5	2

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											
12...	81	<1	1	<1	9	<5	130	<0.1	<1	<1.0	<3
APR											
14...	--	--	--	--	--	--	--	--	--	--	--
JUN											
13...	42	<1	<1	1	18	<1	<1	0.2	<1	<1.0	6
JUL											
18...	69	<1	1	1	6	<1	7	<0.1	<1	<1.0	7
AUG											
29...	64	7	2	2	25	<1	5	<0.1	<1	2.0	18

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	0.00	*	*	0.00	*	0.00	*	0.00	*
NOV.	1988	51.49	609	362	50	72	10	120	17	140
DEC.	1988	45.08	672	396	48	51	6.2	110	13	210
JAN.	1989	2347.5	478	280	1770	25	158	68	430	170
FEB.	1989	15601.5	360	210	8850	14	593	47	1980	140
MAR.	1989	11284	336	196	5960	13	390	44	1330	130
APR.	1989	10965	422	247	7300	19	558	57	1690	150
MAY	1989	90880	312	182	44600	11	2660	40	9740	120
JUNE	1989	57551	316	184	28600	11	1680	40	6220	120
JULY	1989	6013.3	436	254	4130	20	327	60	967	160
AUG.	1989	1067.2	464	271	781	23	65	64	186	170
SEPT	1989	51.22	712	419	58	51	7.1	110	16	230
TOTAL		195857.29	**	**	102000	**	6450	**	22600	**
WTD.AVG.		537	332	193	**	12	**	43	**	130

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	637	1170	510	430	320	329	316	330	719	670
2	---	---	650	1190	566	418	370	345	320	410	741	685
3	---	---	674	1230	573	446	412	310	330	390	753	700
4	---	---	700	1200	590	420	419	305	340	380	751	720
5	---	---	712	1240	620	430	410	277	345	410	743	750
6	---	---	738	1260	660	440	409	250	342	450	740	784
7	---	---	760	1280	682	453	430	280	342	470	736	791
8	---	---	789	1300	635	448	451	330	330	540	416	800
9	---	---	809	1320	626	536	444	369	368	460	390	810
10	---	---	800	1330	624	565	450	361	340	480	591	829
11	---	---	420	1330	678	580	455	450	327	510	649	828
12	---	---	530	1320	700	590	571	530	352	520	640	856
13	---	---	575	1340	730	601	580	550	333	540	629	817
14	---	---	616	1310	753	600	388	500	300	570	655	786
15	---	---	667	1320	780	580	498	540	289	600	686	751
16	---	---	703	1300	517	567	520	450	306	590	488	578
17	---	---	785	1310	361	589	550	360	321	610	400	593
18	---	---	807	1310	337	602	426	270	320	620	469	686
19	---	---	859	1320	310	600	360	292	325	635	522	720
20	---	---	955	1320	406	597	369	316	325	644	510	750
21	---	2510	970	1340	417	596	416	320	326	660	500	774
22	---	2190	960	1360	420	570	424	318	328	678	499	761
23	---	899	980	1380	417	423	420	319	325	683	517	754
24	---	750	1010	1390	424	419	402	321	323	699	520	755
25	---	850	1060	1350	431	420	492	324	320	692	533	759
26	---	358	1120	460	439	425	489	318	320	714	553	756
27	---	388	1100	350	421	420	489	320	317	710	578	749
28	---	450	1000	546	427	380	500	325	309	705	597	747
29	---	526	1020	487	---	280	518	329	310	699	618	750
30	---	620	1100	425	---	275	420	337	315	690	643	760
31	---	---	1140	466	---	290	---	340	---	687	662	---
MEAN	---	954	827	1140	538	484	447	354	325	573	595	749

TRINITY RIVER BASIN--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	12.0	---	---	---	---	---	26.0	---	27.0	27.0
2	---	---	---	---	11.0	12.0	19.0	---	---	---	26.0	---
3	---	---	12.0	---	8.0	12.0	18.0	24.0	25.0	---	---	---
4	---	---	---	---	---	---	---	22.0	---	---	25.0	25.0
5	---	---	12.0	---	---	---	13.0	---	---	---	25.0	25.0
6	---	---	13.0	---	---	---	15.0	---	25.0	---	---	25.0
7	---	---	---	---	.0	7.0	---	---	25.0	---	26.0	22.0
8	---	---	10.0	---	8.0	10.0	13.0	---	---	---	25.0	21.0
9	---	---	10.0	10.0	2.0	7.0	15.0	---	25.0	---	27.0	20.0
10	---	---	---	---	3.0	10.0	---	---	23.0	---	25.0	20.0
11	---	---	---	12.0	10.0	---	19.0	---	25.0	---	25.0	23.0
12	---	---	---	10.0	---	---	18.0	25.0	---	---	28.0	23.0
13	---	---	8.0	9.0	---	18.0	20.0	25.0	26.0	---	28.0	---
14	---	---	10.0	9.0	12.0	19.0	21.0	25.0	27.0	28.0	---	---
15	---	---	9.0	10.0	---	---	22.0	---	26.0	---	---	24.0
16	---	---	7.0	7.0	10.0	17.0	22.0	25.0	26.0	27.0	27.0	22.0
17	---	---	8.0	7.0	9.0	16.0	---	25.0	---	27.0	28.0	21.0
18	---	---	7.0	---	8.0	19.0	22.0	26.0	26.0	28.0	29.0	---
19	---	---	8.0	---	---	---	24.0	26.0	---	26.0	27.0	19.0
20	---	---	12.0	11.0	10.0	18.0	25.0	26.0	---	26.0	28.0	19.0
21	---	12.0	---	10.0	9.0	15.0	25.0	---	25.0	---	29.0	19.0
22	---	12.0	---	---	---	---	27.0	---	27.0	30.0	29.0	20.0
23	---	14.0	---	10.0	8.0	16.0	27.0	24.0	26.0	29.0	29.0	20.0
24	---	13.0	---	12.0	8.0	13.0	---	26.0	---	---	28.0	---
25	---	---	---	---	9.0	15.0	21.0	26.0	---	31.0	28.0	---
26	---	17.0	---	---	11.0	---	21.0	27.0	---	29.0	---	---
27	---	15.0	---	---	11.0	---	---	---	---	28.0	---	---
28	---	---	---	12.0	11.0	21.0	20.0	---	---	29.0	---	---
29	---	11.0	---	11.0	---	21.0	20.0	---	---	27.0	---	---
30	---	12.0	---	11.0	---	---	---	27.0	---	30.0	---	---
31	---	---	---	12.0	---	20.0	---	27.0	---	---	28.0	---
MEAN	---	13.0	10.0	10.0	8.5	15.0	20.5	25.5	25.5	28.0	27.0	22.0

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 September 1989.

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 during period November 1988 to September 1989, 1,110,000 acre-ft July 15, 1989 (elevation, 313.44 ft); minimum contents, 233,600 Dec. 8, 1988 (elevation, 283.02 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents during period November 1988 to September 1989, 1,110,000 acre-ft July 15, 1989 (elevation, 313.44 ft); minimum contents, 233,600 Dec. 8, 1988 (elevation, 283.02 ft).

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

283.0	233,300	294.0	465,100	306.0	822,500
286.0	287,200	298.0	571,300	310.0	971,800
290.0	370,200	302.0	705,100	314.0	1,138,000

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	239000	236000	237000	246000	297000	338000	376000	867000	1080000	1100000	1090000
2	---	239000	236000	238000	243000	298000	340000	388000	871000	1080000	1100000	1090000
3	---	240000	235000	237000	246000	298000	343000	386000	875000	1090000	1100000	1090000
4	---	240000	235000	238000	246000	298000	344000	396000	879000	1090000	1100000	1090000
5	---	239000	235000	237000	246000	299000	346000	413000	883000	1100000	1100000	1090000
6	---	238000	235000	238000	247000	301000	347000	430000	886000	1100000	1100000	1080000
7	---	239000	234000	236000	247000	302000	349000	452000	895000	1100000	1100000	1080000
8	---	238000	234000	237000	246000	303000	348000	468000	901000	1110000	1100000	1080000
9	---	238000	234000	237000	247000	304000	348000	475000	909000	1110000	1100000	1080000
10	---	237000	236000	237000	247000	304000	348000	480000	913000	1110000	1100000	1080000
11	---	238000	236000	237000	247000	304000	348000	483000	916000	1110000	1100000	1080000
12	---	238000	237000	236000	249000	305000	348000	486000	919000	1110000	1100000	1080000
13	---	238000	238000	237000	248000	305000	349000	489000	933000	1110000	1100000	1080000
14	---	238000	237000	238000	248000	305000	351000	492000	952000	1110000	1100000	1080000
15	---	240000	237000	237000	248000	304000	356000	496000	975000	1110000	1100000	1080000
16	---	237000	237000	237000	251000	305000	358000	512000	998000	1110000	1100000	1080000
17	---	237000	237000	237000	255000	306000	358000	611000	1010000	1110000	1100000	1080000
18	---	237000	237000	237000	263000	305000	359000	703000	1020000	1110000	1100000	1080000
19	---	237000	237000	237000	273000	305000	361000	752000	1020000	1110000	1100000	1080000
20	---	236000	237000	236000	282000	303000	364000	786000	1030000	1110000	1100000	1080000
21	---	236000	237000	237000	289000	306000	366000	805000	1030000	1110000	1100000	1080000
22	---	236000	237000	237000	290000	306000	368000	817000	1030000	1110000	1100000	1080000
23	---	236000	237000	237000	293000	306000	369000	826000	1040000	1110000	1100000	1080000
24	---	237000	237000	237000	294000	307000	370000	834000	1040000	1110000	1100000	1070000
25	---	238000	237000	238000	294000	306000	371000	839000	1050000	1110000	1100000	1070000
26	---	237000	238000	237000	295000	307000	371000	843000	1050000	1110000	1090000	1070000
27	---	237000	236000	239000	295000	308000	371000	847000	1060000	1110000	1090000	1070000
28	---	237000	237000	240000	296000	314000	372000	853000	1060000	1100000	1090000	1070000
29	---	236000	237000	241000	---	319000	375000	857000	1060000	1100000	1090000	1070000
30	---	236000	237000	244000	---	325000	373000	860000	1070000	1100000	1090000	1070000
31	---	---	237000	247000	---	332000	---	863000	---	1100000	1090000	---
MAX	---	240000	238000	247000	296000	332000	375000	863000	1070000	1110000	1100000	1090000
MIN	---	236000	234000	236000	243000	297000	338000	376000	867000	1080000	1090000	1070000
(†)	283.23	283.16	283.24	283.80	286.45	288.24	290.12	307.14	312.43	313.18	312.90	312.42
(ϕ)	--	-1200	+1000	+10000	+49000	+36000	+41000	+490000	+207000	+30000	-10000	-20000

CAL YR 1988 MAX -- MIN -- (ϕ) --
WTR YR 1989 MAX 1110000 MIN 234000 (ϕ) --

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

08064800 CATFISH CREEK NEAR TENNESSEE COLONY, TX

LOCATION.--Lat 31°52'51", long 95°52'07", Anderson County, Hydrologic Unit 12030201, on left bank at downstream side of bridge on U.S. Highway 287, 2 mi upstream from Beaver Creek, 3.5 mi northwest of Tennessee Colony, 12 mi downstream from Coon Creek Lake, and 12 mi upstream from mouth.

DRAINAGE AREA.--207 mi².

PERIOD OF RECORD.--April 1962 to Sept. 30, 1989 (discontinued).
Water-quality records.--Chemical analyses: April 1964 to June 1965.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 234.93 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Some regulation upstream by Coon Creek Lake. There is no known diversions above station. There were several observations of water temperature made during the year.

AVERAGE DISCHARGE.--27 years, 102 ft³/s (73,900 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,550 ft³/s May 11, 1968 (gage height, 15.90 ft); minimum daily, 0.8 ft³/s Aug. 19-21, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1927, 22 ft in June 1944 as a result of dam failure at Coon Creek Lake, from information by local residents.

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)
May 18	1800	*5,240	*14.31	No other peak greater than base discharge.			

Minimum daily discharge, 7.9 ft³/s Sept. 6.

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	12	22	61	92	91	72	267	40	86	86	18	8.9
2	15	20	48	90	90	74	247	53	72	83	17	8.6
3	15	19	42	88	141	80	195	102	62	100	18	8.2
4	12	17	38	82	147	82	160	130	54	94	17	8.1
5	11	16	35	76	167	84	124	188	215	84	17	8.1
6	11	15	34	70	167	91	100	216	272	76	17	7.9
7	10	17	32	66	132	98	84	335	423	66	16	8.0
8	10	17	36	63	108	98	69	443	438	61	15	8.1
9	10	17	45	63	92	88	59	355	349	58	25	8.1
10	10	19	63	61	81	81	53	268	309	58	28	8.8
11	10	20	82	57	73	77	49	204	270	56	26	9.9
12	10	22	89	56	69	72	45	169	227	48	24	10
13	10	22	97	56	69	67	40	135	205	41	21	9.8
14	10	22	100	64	72	64	57	116	213	41	19	9.8
15	12	23	96	68	77	62	87	106	249	49	18	10
16	13	24	88	69	87	60	129	158	369	53	18	12
17	14	25	81	67	102	59	168	1910	376	52	23	13
18	15	27	75	61	132	55	171	4690	326	45	25	14
19	16	28	68	57	149	53	153	3840	270	37	21	14
20	16	35	66	41	166	55	129	2010	219	30	18	16
21	16	38	55	42	168	62	106	1160	182	27	16	18
22	17	39	53	53	162	79	93	791	156	24	15	19
23	16	31	53	52	143	99	81	592	121	21	14	20
24	16	26	53	50	125	113	73	473	95	19	13	21
25	16	25	53	54	102	103	65	396	83	19	12	22
26	17	60	54	67	88	89	51	326	75	19	11	23
27	19	63	58	77	79	82	42	254	77	27	10	24
28	22	65	64	84	74	79	37	192	82	26	10	24
29	25	75	75	87	---	119	33	153	88	26	9.5	25
30	31	77	90	86	---	160	36	127	88	23	9.4	26
31	28	---	95	90	---	202	---	104	---	20	9.1	---
TOTAL	465	926	1979	2089	3153	2659	3003	20036	6051	1469	530.0	423.3
MEAN	15.0	30.9	63.8	67.4	113	85.8	100	646	202	47.4	17.1	14.1
MAX	31	77	100	92	168	202	267	4690	438	100	28	26
MIN	10	15	32	41	69	53	33	40	54	19	9.1	7.9
AC-FT	922	1840	3930	4140	6250	5270	5960	39740	12000	2910	1050	840

CAL YR 1988 TOTAL 27041.5 MEAN 73.9 MAX 581 MIN 3.3 AC-FT 53640
WTR YR 1989 TOTAL 42783.3 MEAN 117 MAX 4690 MIN 7.9 AC-FT 84860

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 except those for estimated daily discharges, which are poor. 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); 36 years (water years 1954-89) regulated, 4,563 ft³/s (3,306,000 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, 64,300 ft³/s May 24 at 1300 hours (gage height, 45.62 ft); minimum daily, 560 ft³/s Oct. 23.

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	679	1260	e1700	2390	7180	1970	9500	2770	27300	23900	6790	1750
2	1290	1410	e1400	1650	6890	1770	10300	2900	25500	21200	6590	1710
3	2920	1210	e1200	1350	5040	1640	11200	4500	23500	19600	6460	1950
4	3230	1010	e1000	1230	3000	1500	12100	4900	20200	17300	6420	2200
5	2440	857	e850	1100	2410	1470	12800	6450	16300	15200	6460	2260
6	1600	759	745	1020	2900	2060	12400	9580	13500	13800	6600	2280
7	1070	701	763	976	2510	2270	8380	11600	12100	13100	6650	2320
8	832	667	939	908	1800	2160	4710	12600	12200	13000	6600	2350
9	739	639	885	857	1450	2180	3940	13100	12800	13200	6800	2350
10	698	634	957	835	1420	2280	3990	13500	13300	13500	7330	2380
11	673	631	1320	827	1580	2170	3990	13800	13700	13700	7800	2360
12	700	626	1460	838	1400	2000	3940	14000	14100	13700	7580	2590
13	686	640	1940	895	1280	2030	3900	14200	14600	13400	e6600	2370
14	670	620	2600	1060	1240	1870	3940	14200	16000	13000	e5600	3250
15	643	e700	2340	1100	1290	1730	3940	11700	17500	12600	4920	4230
16	612	1070	1590	1450	1570	1790	5570	9240	20100	12300	4470	5230
17	596	e1040	1180	1470	1790	2140	7640	11100	26800	12100	4190	5780
18	583	911	1020	1250	4550	2510	8570	16400	38400	11800	3990	4580
19	573	1520	944	1070	7850	2650	7280	21800	51600	11500	3930	3150
20	571	1430	871	955	9550	2290	5160	46700	60900	11300	4640	2400
21	572	1060	826	881	10200	1660	4050	58800	62500	11000	5370	2250
22	570	1980	811	845	10800	1510	3280	59200	58200	10600	4780	2370
23	560	2390	806	811	11400	1520	2910	62400	50400	9950	4080	2440
24	561	1700	803	811	11500	2170	2740	63800	43100	9170	3810	2440
25	576	1350	971	812	9020	2820	2600	60300	37200	8450	3670	2430
26	607	1250	1510	835	5110	2650	2520	53400	33300	7890	3530	2360
27	614	1250	1640	1100	3160	2270	2260	45500	30900	7510	3430	1900
28	689	1370	1690	e2100	2370	1920	1900	38700	29000	7250	3170	1370
29	728	e2000	1130	e3100	---	2580	2210	33900	27500	7210	2440	1170
30	871	e2200	1440	e4700	---	5550	2840	31000	25700	7190	1960	944
31	1240	---	2640	e6000	---	8170	---	28800	---	7030	1810	---
TOTAL	29393	34885	39971	45226	130260	73300	170560	790840	848200	382450	158470	77164
MEAN	948	1163	1289	1459	4652	2365	5685	25510	28270	12340	5112	2572
MAX	3230	2390	2640	6000	11500	8170	12800	63800	62500	23900	7800	5780
MIN	560	620	745	811	1240	1470	1900	2770	12100	7030	1810	944
AC-FT	58300	69190	79280	89710	258400	145400	338300	1569000	1682000	758600	314300	153100

CAL YR 1988 TOTAL 557232 MEAN 1522 MAX 11900 MIN 499 AC-FT 1105000
WTR YR 1989 TOTAL 2780719 MEAN 7618 MAX 63800 MIN 560 AC-FT 5516000

e Estimated.

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. No known diversions or regulation above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--27 years (water years 1963-89), 71.0 ft³/s (6.43 in/yr), 51,440 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 18	0500	*8,710	*14.77	No other peak greater than base discharge.			

Minimum discharge, 0.06 ft ³/s Oct. 23-26.

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	.11	.46	1.7	40	36	13	19	121	11	11	2.6	.15
2	.10	.42	1.6	22	25	14	16	178	10	10	2.8	.12
3	.11	.35	1.5	16	87	15	13	246	9.7	441	2.9	.11
4	.11	.29	1.5	13	113	16	12	317	9.2	495	2.7	.10
5	.10	.21	1.6	12	60	16	10	646	11	97	2.5	.10
6	.10	.14	1.8	11	31	15	10	651	14	25	2.0	.10
7	.11	.12	2.2	10	23	14	9.6	611	15	16	2.6	.08
8	.12	.11	9.7	10	20	14	8.9	207	100	12	3.2	.09
9	.14	.11	15	9.9	19	13	8.3	87	160	56	2.9	.08
10	.16	.11	16	10	17	14	8.5	53	173	23	2.3	.57
11	.16	.10	32	10	16	13	10	39	38	7.4	2.0	.76
12	.16	.09	28	10	16	11	30	30	44	4.9	2.2	.38
13	.12	.10	17	13	19	11	41	42	41	3.9	1.9	.76
14	.11	.10	12	23	19	10	29	141	98	3.5	1.6	1.7
15	.10	.11	9.4	24	17	9.9	19	71	173	3.3	1.4	1.5
16	.10	.15	8.1	17	16	9.5	e17	176	244	3.1	1.2	1.4
17	.10	.15	7.5	14	18	9.1	e16	543	84	2.7	1.1	1.3
18	.09	.55	7.2	12	34	8.8	e15	4480	23	2.4	.60	1.2
19	.09	1.9	6.6	12	63	8.9	12	1280	16	2.3	.21	1.1
20	.09	.44	6.5	11	46	9.1	11	724	13	2.2	.12	1.0
21	.08	.18	5.7	10	30	9.1	9.0	259	11	2.0	.11	.76
22	.07	.30	6.4	9.8	22	9.1	8.2	79	9.7	1.7	.11	.61
23	.07	.40	7.5	9.3	20	9.1	7.4	47	8.9	1.8	.14	.53
24	.07	.43	8.9	9.3	16	9.1	7.2	34	8.0	1.9	.12	.37
25	.06	.45	9.1	9.5	15	9.7	7.1	28	7.7	2.4	.12	.31
26	.58	1.9	10	10	14	13	7.8	23	8.2	3.2	.11	.25
27	.80	2.3	18	14	14	21	8.8	20	12	3.8	.11	.21
28	1.2	2.5	13	22	13	39	10	17	13	4.7	.11	.16
29	1.1	2.2	14	44	---	76	14	15	12	3.3	.13	.16
30	.68	2.0	10	68	---	33	21	13	11	3.1	.18	.17
31	.51	---	22	61	---	24	---	12	---	2.8	.18	---
TOTAL	7.50	18.67	311.5	566.8	839	496.4	415.8	11190	1388.4	1252.4	40.25	16.13
MEAN	.24	.62	10.0	18.3	30.0	16.0	13.9	361	46.3	40.4	1.30	.54
MAX	1.2	2.5	32	68	113	76	41	4480	244	495	3.2	1.7
MIN	.06	.09	1.5	9.3	13	8.8	7.1	12	7.7	1.7	.11	.08
AC-FT	15	37	618	1120	1660	985	825	22200	2750	2480	80	32
CFSM	.00	.00	.07	.12	.20	.11	.09	2.41	.31	.27	.01	.00
IN.	.00	.00	.08	.14	.21	.12	.10	2.78	.34	.31	.01	.00

CAL YR 1988 TOTAL 5374.93 MEAN 14.7 MAX 573 MIN .00 AC-FT 10660 CFSM .10 IN. 1.33
WTR YR 1989 TOTAL 16542.85 MEAN 45.3 MAX 4480 MIN .06 AC-FT 32810 CFSM .30 IN. 4.10

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.--25 years (water years 1965-89), 5,742 ft³/s (4,160,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78,000 ft³/s May 15, 1969 (gage height, 52.24 ft), at former site and datum; 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, 53,600 ft³/s June 24 at 1000 hours (gage height, 44.95 ft); minimum daily, 769 ft³/s Oct. 24.

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	1050	1600	1940	3150	8620	3060	12500	4970	34400	30100	8460	2110
2	1130	1660	1540	2700	9000	2800	13200	4660	32500	26900	8160	2060
3	2070	1740	1340	2240	9160	2650	13700	5860	29300	24300	7900	2040
4	3260	1560	1190	1980	6610	2510	14500	8310	25800	22200	7730	2290
5	3420	1340	1100	1830	3820	2360	15200	10200	22500	20200	7670	2490
6	2710	1160	1060	1680	3720	2390	15700	12100	19600	18100	7760	2530
7	1960	1060	1090	1600	3800	2970	14300	14600	16700	16900	7920	2570
8	1420	985	1290	1550	3250	3030	8920	16200	16500	15900	7840	2640
9	1130	934	1510	1470	2600	2940	5390	17000	15700	15300	7820	2610
10	1010	917	1540	1380	2250	2990	4840	19100	15600	15100	8270	2650
11	952	894	1940	1340	2240	3030	4840	19300	16200	15200	8960	2680
12	910	894	2080	1420	2330	2860	4810	18200	16400	15300	9360	2680
13	953	896	2160	1940	2240	2760	4780	17700	16400	15200	8700	2760
14	939	902	2650	2610	2270	2720	4890	18900	19800	14900	7180	2670
15	916	893	2940	2500	2210	2560	4970	18500	20600	14500	6020	3810
16	885	1030	2550	2080	2490	2430	5240	15700	20500	14200	5390	4850
17	842	1450	1950	2250	2720	2570	7560	15200	21500	14000	4800	6070
18	824	1340	1620	2230	3260	2930	9810	19200	24600	13800	4460	6040
19	803	1420	1480	1950	6680	3200	10200	22200	29600	13600	4240	4450
20	787	2130	1400	1710	10000	3210	8040	26200	35100	13300	4390	3140
21	792	1790	1320	1560	11700	2850	5790	31100	41400	13100	5520	2560
22	791	1630	1270	1470	12500	2510	4740	36500	48000	12800	5890	2340
23	791	2580	1260	1400	13100	2340	4180	41200	52000	12400	5080	2450
24	769	2630	1260	1360	13700	2390	3930	46500	53300	11700	4400	2490
25	780	1990	1250	1370	13200	3090	3830	50000	50500	11000	4130	2500
26	906	1490	1550	1570	9330	3590	3740	52700	45400	10400	3980	2500
27	1140	1360	2020	1840	5100	3670	3670	53100	41700	9730	3840	2380
28	1050	1440	2520	2230	3630	4690	3720	49600	38200	9200	3730	1960
29	1220	2250	2280	5630	---	20000	3580	45000	34800	8880	3340	1610
30	1150	2390	1870	11300	---	17500	4590	41300	32600	8840	2600	1440
31	1320	---	2430	9960	---	12600	---	37600	---	8730	2230	---
TOTAL	38680	44355	53400	79300	171530	131200	225160	788700	887200	465780	187770	85370
MEAN	1248	1478	1723	2558	6126	4232	7505	25440	29570	15030	6057	2846
MAX	3420	2630	2940	11300	13700	20000	15700	53100	53300	30100	9360	6070
MIN	769	893	1060	1340	2210	2340	3580	4660	15600	8730	2230	1440
AC-FT	76720	87980	105900	157300	340200	260200	446600	1564000	1760000	923900	372400	169300

CAL YR 1988 TOTAL 744780 MEAN 2035 MAX 14500 MIN 711 AC-FT 1477000
WTR YR 1989 TOTAL 3158445 MEAN 8653 MAX 53300 MIN 769 AC-FT 6265000

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: February 1964 to current year. Chemical and biochemical analyses: February 1968 to current year. Pesticide analyses: November 1971 to July 1981. Sediment records: November 1972 to September 1977.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: February 1964 to current year.
pH: March 1975 to current year.
WATER TEMPERATURE: February 1964 to September 1971, March 1975 to current year.
DISSOLVED OXYGEN: March 1975 to current year.
SUSPENDED-SEDIMENT DISCHARGE: July 1972 to September 1977.

INSTRUMENTATION.--Beginning March 1975, a four-parameter water-quality monitor continuously records specific conductance, pH, water temperature, and dissolved oxygen at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 2,370 microsiemens Sept. 22, 1964; minimum, 96 microsiemens March 29, 1989.
pH: Maximum, 9.6 units Aug. 11, 12, 1981; minimum, 5.9 units Aug. 12, 1977.
WATER TEMPERATURE (1975-89): 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, 753 microsiemens Oct. 22, Nov. 2; minimum, 96 microsiemens March 29.
pH: Maximum, 8.2 units Oct. 22, 24, 25; minimum, 6.9 units March 29, May 24.
WATER TEMPERATURE: Maximum, 32.5°C Sept. 3, 4; minimum, 7.0°C Feb. 10.
DISSOLVED OXYGEN: Maximum, 12.1 mg/L Feb. 10; minimum, 1.8 mg/L June 5.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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 WH WAT TOT FLD MG/L AS CACO3
NOV 10...	1314	917	520	7.70	21.0	8.0	90	1.3	130	29
JAN 05...	1210	1840	500	7.70	14.5	9.6	95	1.7	130	37
MAR 02...	1138	2800	516	8.10	13.0	10.4	100	1.6	170	51
APR 18...	1510	10100	382	7.50	17.5	8.6	91	4.1	130	34
JUN 05...	1304	22500	385	7.20	28.0	3.4	44	2.6	140	15
JUL 24...	1441	11700	357	7.60	28.5	6.4	83	1.3	130	18

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
NOV 10...	45	4.8	51	2	7.8	103	58	51	0.70	8.7
JAN 05...	42	5.3	46	2	8.9	90	63	49	0.40	9.7
MAR 02...	59	6.0	41	1	5.9	121	61	45	0.40	9.3
APR 18...	47	4.1	26	1	5.2	100	43	32	0.30	7.6
JUN 05...	47	4.9	22	0.9	6.1	123	26	22	0.30	8.4
JUL 24...	46	3.9	22	0.9	4.7	113	29	18	0.40	8.2

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)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)
NOV 10...	289	4.37	0.030	4.40	0.060	0.74	0.80	1.90	3	42
JAN 05...	278	4.07	0.030	4.10	0.060	0.94	1.0	1.80	--	--
MAR 02...	300	2.87	0.030	2.90	0.100	0.90	1.0	0.900	--	--
APR 18...	225	1.80	0.100	1.90	0.170	1.1	1.3	0.760	--	--
JUN 05...	210	0.530	0.070	0.600	0.050	1.7	1.8	0.310	--	--
JUL 24...	200	0.750	0.050	0.800	0.010	0.59	0.60	0.260	3	55

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued
(National stream-quality accounting network)

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 10...	2	<1	10	18	<5	16	0.2	<1	3.0	16
JAN 05...	--	--	--	--	--	--	--	--	--	--
MAR 02...	--	--	--	--	--	--	--	--	--	--
APR 18...	--	--	--	--	--	--	--	--	--	--
JUN 05...	--	--	--	--	--	--	--	--	--	--
JUL 24...	<1	1	5	420	1	35	<0.1	<1	<1.0	6

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	38680	574	327	34100	54	5620	71	7440	150
NOV.	1988	44355	589	335	40100	56	6660	73	8760	150
DEC.	1988	53400	523	300	43200	45	6530	65	9310	150
JAN.	1989	79300	424	245	52500	33	7130	52	11200	130
FEB.	1989	171530	375	218	101000	27	12500	46	21300	130
MAR.	1989	131200	410	236	83600	34	11900	51	17900	120
APR.	1989	225160	414	241	146000	31	18900	51	30900	130
MAY	1989	788700	287	169	360000	18	38300	35	74500	110
JUNE	1989	887200	326	191	458000	21	51300	40	95400	120
JULY	1989	465780	352	206	259000	24	30100	43	54100	120
AUG.	1989	187770	369	215	109000	26	13100	45	22900	130
SEPT	1989	85370	419	243	56000	32	7300	51	11900	140
TOTAL		3158445	**	**	1742000	**	209000	**	366000	**
WTD.AVG.		8653	350	204	**	25	**	43	**	120

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued
(National stream-quality accounting network)

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	587	532	548	710	655	700	541	471	505	525	443	472
2	574	537	557	753	710	723	557	414	497	498	443	468
3	628	574	592	714	702	709	449	416	436	514	467	495
4	674	501	610	714	702	705	461	449	453	486	463	471
5	673	482	607	725	678	702	491	463	476	486	467	477
6	475	363	423	678	600	657	503	490	495	471	451	460
7	394	363	374	592	522	540	501	378	477	475	467	470
8	410	395	404	576	539	556	520	389	466	486	471	481
9	412	401	406	573	518	542	534	506	520	494	482	485
10	420	398	403	533	510	517	540	426	503	533	494	511
11	452	422	438	573	533	546	502	419	452	545	533	538
12	476	452	456	604	576	594	524	499	512	557	400	530
13	501	471	485	588	576	582	539	483	507	408	349	386
14	525	499	509	596	588	591	609	540	586	349	310	322
15	566	526	547	642	592	615	615	527	573	408	325	360
16	578	561	568	---	---	650	635	582	612	451	412	435
17	624	575	591	---	---	660	590	516	568	557	455	504
18	665	625	645	---	---	700	509	472	482	616	561	592
19	700	667	682	---	---	685	483	437	464	616	604	609
20	727	701	714	---	---	670	471	435	451	620	608	614
21	747	727	738	---	---	660	482	471	477	624	616	619
22	753	732	742	650	540	591	482	471	477	616	545	592
23	730	714	720	610	536	574	473	469	470	584	541	565
24	726	706	711	593	427	491	510	472	486	570	517	537
25	722	702	710	531	470	496	565	512	538	556	522	537
26	733	714	722	486	458	469	608	565	586	565	391	492
27	733	655	701	478	427	455	645	611	632	451	386	412
28	671	620	654	495	438	468	687	648	670	497	329	434
29	718	627	684	515	426	473	643	424	512	388	308	356
30	706	667	690	491	457	472	498	416	456	332	231	287
31	694	608	665	---	---	---	533	498	520	312	256	286
MONTH	753	363	590	753	426	593	687	378	512	624	231	477
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	378	313	340	536	529	532	474	306	387	---	---	400
2	375	298	319	531	520	526	338	322	334	---	---	380
3	---	---	300	535	526	531	342	331	335	---	---	364
4	---	---	340	562	533	546	371	341	355	380	275	321
5	---	---	390	570	525	548	428	330	396	---	---	325
6	---	---	430	592	569	584	426	357	399	361	294	327
7	---	---	470	601	584	592	---	---	410	357	271	315
8	---	---	500	609	532	590	---	---	420	290	267	279
9	525	464	513	516	425	461	---	---	435	278	271	274
10	458	386	416	557	513	543	---	---	450	284	265	274
11	421	381	392	597	559	580	---	---	460	309	286	294
12	465	425	446	604	571	586	---	---	470	356	312	333
13	487	468	478	621	580	606	---	---	475	384	358	371
14	512	489	500	640	597	621	486	462	476	382	358	370
15	515	511	513	594	576	585	466	452	459	381	371	376
16	514	437	484	588	577	582	461	448	455	382	367	374
17	446	372	401	594	567	581	472	422	446	369	308	327
18	545	449	501	581	553	567	464	375	409	325	218	294
19	596	429	526	589	575	584	414	367	382	211	174	195
20	484	344	392	571	509	539	411	388	397	175	165	170
21	349	285	318	512	475	494	449	413	432	172	161	164
22	305	284	295	482	468	475	469	453	464	200	172	185
23	322	306	311	491	464	472	485	406	443	235	202	219
24	348	319	333	482	469	474	488	479	483	259	236	247
25	357	347	352	576	484	532	495	486	491	276	259	266
26	390	348	363	587	423	557	509	495	504	292	277	284
27	471	396	435	567	461	532	518	482	509	305	292	298
28	532	472	499	563	188	400	486	380	448	319	306	311
29	---	---	---	179	96	122	---	---	500	340	317	327
30	---	---	---	291	149	198	---	---	460	352	336	342
31	---	---	---	379	279	315	---	---	---	359	345	353
MONTH	596	284	413	640	96	511	518	306	436	384	161	302

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued
(National stream-quality accounting network)

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	374	360	367	363	353	357	375	365	370	429	418	423
2	376	371	374	367	361	364	371	365	369	481	431	450
3	382	375	378	365	339	352	365	360	363	495	482	490
4	381	376	379	338	318	327	361	355	358	509	495	504
5	387	377	382	320	314	317	357	353	355	515	502	508
6	392	362	378	319	312	316	358	354	356	516	504	509
7	367	331	356	319	308	315	372	354	359	533	409	469
8	326	300	315	333	317	326	385	352	365	407	399	402
9	319	308	313	339	333	335	368	362	365	411	398	405
10	323	307	314	351	341	345	364	343	354	424	406	416
11	320	302	311	355	350	352	354	314	338	425	420	423
12	322	317	320	359	354	357	377	344	355	427	420	423
13	318	310	317	363	358	360	375	350	359	422	416	419
14	305	272	283	366	362	364	374	353	364	585	383	442
15	295	280	287	367	361	364	376	368	371	453	402	424
16	312	298	306	366	361	363	377	371	374	520	439	469
17	312	304	308	367	362	365	382	375	377	463	382	412
18	307	300	304	368	362	365	394	381	388	383	333	351
19	305	296	302	368	353	362	397	388	392	348	342	345
20	303	290	297	355	350	352	396	386	390	365	348	356
21	298	284	294	357	350	353	396	385	391	373	363	367
22	301	281	295	360	355	358	394	385	391	389	372	381
23	310	283	301	364	358	361	381	365	372	407	390	401
24	318	301	311	369	359	365	370	364	366	432	406	418
25	328	308	319	377	360	367	379	366	374	427	415	420
26	334	315	326	375	361	367	390	376	381	415	407	410
27	340	329	335	370	363	367	390	381	385	413	406	410
28	343	336	340	377	369	373	393	386	389	424	407	416
29	349	343	346	373	366	370	399	393	395	435	424	428
30	353	346	351	370	364	366	409	398	404	443	435	438
31	---	---	---	372	366	368	418	408	412	---	---	---
MONTH	392	272	327	377	308	354	418	314	374	585	333	424

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.7	7.5	7.6	7.7	7.6	7.7	7.7	7.6	7.7	7.6	7.5	7.6
2	7.7	7.5	7.6	7.7	7.7	7.7	7.8	7.6	7.7	7.7	7.6	7.6
3	7.6	7.5	7.6	7.7	7.7	7.7	7.8	7.6	7.7	7.8	7.7	7.7
4	7.6	7.5	7.5	7.7	7.6	7.7	7.8	7.6	7.7	7.7	7.6	7.6
5	7.5	7.1	7.3	7.7	7.6	7.6	7.8	7.7	7.7	7.7	7.6	7.6
6	7.5	7.4	7.5	7.7	7.7	7.7	7.8	7.7	7.8	7.7	7.6	7.7
7	7.5	7.5	7.5	7.7	7.6	7.6	7.9	7.7	7.8	7.7	7.7	7.7
8	7.6	7.5	7.5	8.0	7.6	7.6	7.8	7.7	7.7	7.7	7.7	7.7
9	7.7	7.5	7.6	8.0	7.6	7.6	7.8	7.7	7.7	7.7	7.7	7.7
10	7.7	7.7	7.7	7.7	7.6	7.7	7.7	7.6	7.6	7.7	7.6	7.7
11	7.7	7.7	7.7	7.7	7.7	7.7	7.6	7.5	7.6	7.8	7.7	7.7
12	7.7	7.6	7.7	7.8	7.7	7.7	7.7	7.5	7.6	7.8	7.6	7.8
13	7.7	7.7	7.7	7.8	7.7	7.8	7.6	7.5	7.6	7.6	7.5	7.5
14	7.8	7.7	7.7	7.8	7.7	7.7	7.7	7.6	7.7	7.5	7.4	7.5
15	7.8	7.7	7.8	8.0	7.7	7.8	7.8	7.7	7.7	7.5	7.4	7.5
16	7.9	7.8	7.8	---	---	---	7.8	7.7	7.7	7.6	7.5	7.5
17	7.9	7.8	7.8	---	---	---	7.8	7.7	7.7	7.6	7.6	7.6
18	8.0	7.8	7.9	---	---	---	7.7	7.6	7.6	7.7	7.7	7.7
19	8.0	7.8	7.9	---	---	---	7.6	7.6	7.6	7.7	7.7	7.7
20	8.0	7.9	7.9	---	---	---	7.7	7.6	7.7	7.7	7.6	7.7
21	8.1	7.9	8.0	---	---	---	7.7	7.7	7.7	7.7	7.6	7.7
22	8.2	8.0	8.1	7.7	7.6	7.6	7.7	7.7	7.7	7.7	7.6	7.7
23	8.1	8.0	8.1	7.8	7.7	7.7	7.7	7.7	7.7	7.6	7.5	7.6
24	8.2	8.0	8.1	7.7	7.6	7.7	7.7	7.7	7.7	7.7	7.6	7.7
25	8.2	8.0	8.1	7.7	7.6	7.7	7.7	7.7	7.7	7.7	7.6	7.6
26	8.0	8.0	8.0	7.8	7.7	7.8	7.8	7.7	7.7	7.7	7.4	7.6
27	8.0	7.6	7.8	7.7	7.7	7.7	7.8	7.7	7.8	7.4	7.4	7.4
28	7.7	7.5	7.6	7.7	7.6	7.7	7.8	7.7	7.7	7.6	7.3	7.5
29	7.6	7.5	7.6	7.7	7.6	7.7	7.6	7.5	7.5	7.3	7.3	7.3
30	7.7	7.5	7.6	7.7	7.7	7.7	7.5	7.5	7.5	7.5	7.3	7.3
31	7.6	7.5	7.6	---	---	---	7.6	7.5	7.6	7.5	7.4	7.5
MONTH	8.2	7.1	7.7	8.0	7.6	7.7	7.9	7.5	7.7	7.8	7.3	7.6

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued
(National stream-quality accounting network)

PH (STANDARD UNITS), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.5	7.4	7.5	7.9	7.8	7.9	7.6	7.4	7.5	---	---	---
2	7.7	7.5	7.6	7.9	7.8	7.9	7.6	7.5	7.5	---	---	---
3	---	---	---	7.9	7.9	7.9	7.6	7.5	7.5	---	---	---
4	---	---	---	8.0	7.9	7.9	7.6	7.5	7.5	7.4	7.0	7.3
5	---	---	---	8.0	8.0	8.0	7.7	7.4	7.5	---	---	---
6	---	---	---	8.0	7.9	7.9	7.5	7.4	7.5	7.4	7.3	7.3
7	---	---	---	8.0	7.9	7.9	---	---	---	7.5	7.3	7.4
8	---	---	---	8.0	7.9	7.9	---	---	---	7.5	7.5	7.5
9	7.8	7.8	7.8	7.9	7.7	7.8	---	---	---	7.5	7.4	7.5
10	7.8	7.7	7.8	8.1	7.8	7.9	---	---	---	7.6	7.3	7.4
11	7.9	7.8	7.9	8.1	7.9	8.0	---	---	---	7.3	7.3	7.3
12	8.0	7.9	8.0	8.0	7.9	8.0	---	---	---	7.4	7.3	7.3
13	8.0	7.9	8.0	8.0	7.9	7.9	---	---	---	7.4	7.4	7.4
14	7.9	7.8	7.8	7.9	7.8	7.9	7.8	7.7	7.7	7.4	7.3	7.4
15	7.8	7.7	7.8	7.8	7.7	7.8	7.7	7.7	7.7	7.3	7.2	7.3
16	7.8	7.5	7.7	7.8	7.7	7.8	7.7	7.7	7.7	7.3	7.2	7.2
17	7.6	7.4	7.5	7.8	7.7	7.8	7.7	7.6	7.6	7.3	7.3	7.3
18	7.8	7.6	7.7	7.8	7.8	7.8	7.6	7.5	7.5	7.5	7.3	7.4
19	7.8	7.6	7.7	7.8	7.7	7.8	7.6	7.5	7.6	7.5	7.2	7.4
20	7.7	7.7	7.7	7.8	7.7	7.7	7.6	7.5	7.5	7.3	7.2	7.2
21	7.9	7.7	7.8	7.8	7.8	7.8	7.6	7.5	7.5	7.3	7.1	7.2
22	7.9	7.7	7.8	7.8	7.6	7.7	7.6	7.5	7.6	7.1	7.0	7.1
23	7.8	7.7	7.8	7.9	7.7	7.7	7.6	7.5	7.6	7.0	7.0	7.0
24	7.8	7.7	7.8	7.8	7.7	7.7	7.7	7.6	7.6	7.0	6.9	7.0
25	7.8	7.7	7.8	7.9	7.7	7.8	7.7	7.6	7.6	7.0	7.0	7.0
26	7.9	7.8	7.8	7.9	7.6	7.8	7.7	7.7	7.7	7.0	7.0	7.0
27	7.9	7.8	7.8	7.7	7.6	7.7	8.0	7.7	7.7	7.0	7.0	7.0
28	7.9	7.8	7.9	7.7	7.5	7.6	7.6	7.4	7.5	7.0	7.0	7.0
29	---	---	---	7.5	6.9	7.2	---	---	---	7.1	7.0	7.0
30	---	---	---	7.5	7.0	7.3	---	---	---	7.1	7.0	7.1
31	---	---	---	7.6	7.4	7.5	---	---	---	7.1	7.0	7.1
MONTH	8.0	7.4	7.8	8.1	6.9	7.8	8.0	7.4	7.6	7.6	6.9	7.2
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.1	7.1	7.1	7.4	7.3	7.3	7.5	7.4	7.4	7.5	7.5	7.5
2	7.1	7.1	7.1	7.3	7.3	7.3	7.5	7.4	7.4	7.5	7.5	7.5
3	7.1	7.1	7.1	7.3	7.2	7.3	7.5	7.4	7.4	7.5	7.5	7.5
4	7.1	7.1	7.1	7.3	7.2	7.2	7.5	7.4	7.4	7.5	7.5	7.5
5	7.1	7.0	7.1	7.2	7.2	7.2	7.5	7.4	7.5	7.6	7.5	7.6
6	7.1	7.0	7.1	7.2	7.2	7.2	7.5	7.4	7.5	7.6	7.5	7.6
7	7.2	7.1	7.2	7.2	7.2	7.2	7.5	7.4	7.5	7.6	7.6	7.6
8	7.3	7.2	7.3	7.2	7.2	7.2	7.5	7.4	7.5	7.6	7.6	7.6
9	7.3	7.3	7.3	7.3	7.2	7.3	7.6	7.5	7.5	7.6	7.6	7.6
10	7.4	7.3	7.3	7.5	7.3	7.4	7.6	7.5	7.5	7.6	7.6	7.6
11	7.4	7.3	7.3	7.5	7.5	7.5	7.6	7.4	7.5	7.6	7.6	7.6
12	7.4	7.3	7.4	7.5	7.5	7.5	7.5	7.4	7.5	7.6	7.6	7.6
13	7.4	7.3	7.4	7.5	7.5	7.5	7.5	7.4	7.5	7.6	7.6	7.6
14	7.3	7.3	7.3	7.5	7.5	7.5	7.5	7.5	7.5	7.6	7.5	7.6
15	7.3	7.3	7.3	7.6	7.5	7.5	7.5	7.4	7.5	7.7	7.6	7.7
16	7.4	7.3	7.4	7.6	7.5	7.5	7.5	7.4	7.5	7.6	7.5	7.6
17	7.4	7.3	7.4	7.5	7.5	7.5	7.5	7.4	7.5	7.5	7.4	7.4
18	7.4	7.3	7.3	7.5	7.5	7.5	7.5	7.4	7.5	7.4	7.4	7.4
19	7.3	7.3	7.3	7.5	7.5	7.5	7.5	7.4	7.5	7.5	7.4	7.5
20	7.3	7.2	7.3	7.5	7.4	7.5	7.5	7.5	7.5	7.5	7.5	7.5
21	7.3	7.2	7.2	7.5	7.4	7.5	7.5	7.5	7.5	7.5	7.5	7.5
22	7.3	7.2	7.3	7.5	7.5	7.5	7.5	7.4	7.5	7.6	7.5	7.5
23	7.3	7.2	7.3	7.5	7.5	7.5	7.4	7.4	7.4	7.6	7.6	7.6
24	7.4	7.3	7.3	7.5	7.4	7.5	7.5	7.4	7.4	7.7	7.6	7.6
25	7.3	7.3	7.3	7.5	7.3	7.4	7.5	7.4	7.5	7.7	7.6	7.7
26	7.3	7.3	7.3	7.4	7.4	7.4	7.5	7.5	7.5	7.7	7.7	7.7
27	7.4	7.3	7.3	7.4	7.4	7.4	7.5	7.5	7.5	7.7	7.7	7.7
28	7.4	7.4	7.4	7.4	7.4	7.4	7.5	7.5	7.5	7.7	7.6	7.7
29	7.4	7.4	7.4	7.4	7.4	7.4	7.5	7.5	7.5	7.6	7.6	7.6
30	7.5	7.4	7.4	7.5	7.4	7.4	7.5	7.4	7.5	7.6	7.6	7.6
31	---	---	---	7.5	7.4	7.4	7.5	7.4	7.5	---	---	---
MONTH	7.5	7.0	7.3	7.6	7.2	7.4	7.6	7.4	7.5	7.7	7.4	7.6

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued
(National stream-quality accounting network)

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued
(National stream-quality accounting network)

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.6	6.8	7.1	7.9	7.5	7.8	8.8	8.4	8.6	9.9	9.3	9.6
2	8.1	6.9	7.4	8.0	7.9	8.0	8.7	8.3	8.5	9.4	9.1	9.2
3	7.8	7.3	7.5	8.0	7.9	8.0	8.9	8.6	8.7	9.4	8.9	9.1
4	7.4	6.7	7.0	8.0	7.5	7.7	9.0	8.8	8.9	9.4	9.1	9.2
5	6.8	2.3	4.5	7.7	7.4	7.5	9.3	9.0	9.1	9.1	9.0	9.1
6	6.6	5.4	6.0	7.8	7.5	7.7	9.5	9.1	9.3	9.1	9.0	9.1
7	7.1	6.7	6.9	7.9	7.7	7.7	10.1	9.2	9.3	9.0	8.7	8.9
8	7.3	7.1	7.2	8.0	7.5	7.7	9.9	9.6	9.8	9.2	8.9	9.1
9	7.4	7.3	7.3	8.1	7.5	7.7	9.8	9.5	9.6	9.3	9.1	9.2
10	7.7	7.4	7.6	8.2	7.9	8.1	9.9	9.5	9.7	9.3	9.1	9.2
11	7.8	7.6	7.7	8.3	8.0	8.1	9.7	9.4	9.6	9.7	9.1	9.2
12	8.2	7.7	7.8	8.4	8.0	8.1	11.8	9.5	10.5	10.1	9.6	9.8
13	8.0	7.8	7.9	8.7	8.2	8.4	11.7	11.3	11.5	10.3	9.6	10.0
14	8.3	7.9	8.1	8.7	8.2	8.4	11.4	11.2	11.4	10.7	10.3	10.6
15	8.3	8.0	8.2	8.7	8.2	8.4	11.3	10.9	11.1	10.9	10.6	10.7
16	8.7	8.0	8.3	---	---	---	11.0	10.4	10.7	10.9	10.6	10.7
17	8.8	8.1	8.4	---	---	---	10.7	10.4	10.6	11.0	10.7	10.8
18	8.9	8.0	8.4	---	---	---	10.4	10.0	10.3	10.6	10.2	10.4
19	9.1	8.0	8.5	---	---	---	10.5	10.1	10.4	10.2	10.0	10.1
20	9.2	8.2	8.6	---	---	---	10.5	10.2	10.4	10.1	9.9	10.0
21	9.4	8.5	8.8	---	---	---	10.4	9.8	10.2	10.1	9.8	10.0
22	9.4	8.3	8.8	8.2	7.6	7.9	10.2	9.8	10.0	10.2	9.8	10.0
23	9.1	8.3	8.7	8.8	8.2	8.5	10.1	9.6	9.9	10.8	9.9	10.3
24	9.9	8.7	9.0	8.7	7.9	8.3	9.9	9.5	9.7	10.9	10.7	10.8
25	9.6	8.8	9.2	8.4	7.6	8.0	9.9	9.5	9.7	10.7	10.0	10.4
26	8.9	8.5	8.7	7.9	7.5	7.7	9.6	9.2	9.4	10.1	9.8	10.0
27	8.5	7.2	8.0	7.6	7.2	7.3	9.3	9.1	9.2	10.3	9.7	9.9
28	7.7	6.6	7.3	8.0	7.6	7.8	9.2	8.6	9.0	10.3	9.8	10.2
29	7.4	6.6	7.1	9.7	8.0	8.5	9.4	8.2	8.9	10.0	9.2	9.8
30	7.4	7.0	7.3	9.1	8.3	8.8	9.4	9.0	9.3	9.2	8.2	8.7
31	7.6	7.1	7.4	---	---	---	9.7	9.4	9.5	8.2	7.9	8.1
MONTH	9.9	2.3	7.8	9.7	7.2	8.0	11.8	8.2	9.8	11.0	7.9	9.7

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued
(National stream-quality accounting network)

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	8.3	7.6	8.1	9.6	9.5	9.6	5.2	4.2	4.7	---	---	---
2	7.9	7.1	7.4	9.7	9.6	9.6	5.5	4.9	5.2	---	---	---
3	---	---	---	9.6	9.4	9.5	5.7	5.1	5.4	---	---	---
4	---	---	---	10.1	9.3	9.7	5.9	5.4	5.7	6.8	6.0	6.4
5	---	---	---	10.9	10.0	10.3	8.0	5.4	7.1	---	---	---
6	---	---	---	10.3	10.2	10.2	8.9	7.3	8.0	5.9	5.6	5.8
7	---	---	---	10.3	10.1	10.2	---	---	---	5.8	5.2	5.6
8	---	---	---	10.4	10.0	10.2	---	---	---	5.6	4.8	5.1
9	11.7	11.4	11.4	10.4	10.1	10.3	---	---	---	5.5	5.1	5.4
10	12.1	11.7	11.9	11.0	10.2	10.4	---	---	---	5.8	5.4	5.8
11	12.0	11.7	11.8	10.3	9.9	10.2	---	---	---	5.5	5.4	5.4
12	11.9	11.7	11.8	10.1	9.9	10.0	---	---	---	5.7	5.4	5.5
13	11.8	11.0	11.4	10.0	9.5	9.8	---	---	---	5.8	5.6	5.7
14	10.9	10.5	10.7	9.5	8.8	9.1	7.7	7.0	7.3	5.9	5.4	5.7
15	10.6	10.3	10.4	9.1	8.1	8.6	7.1	6.5	6.9	5.4	5.0	5.2
16	10.2	9.8	10.1	8.0	6.9	7.5	7.0	6.1	6.6	5.7	4.9	5.2
17	10.0	9.6	9.8	7.5	6.9	7.3	6.5	5.6	6.0	6.1	5.8	6.0
18	10.4	10.1	10.2	7.5	6.9	7.3	5.7	4.8	5.2	6.2	5.5	5.9
19	10.1	9.1	9.6	7.5	6.8	7.1	5.4	5.2	5.3	5.7	4.5	5.3
20	9.1	8.6	8.9	8.2	6.5	7.1	5.6	5.0	5.3	4.4	3.7	4.0
21	9.1	8.7	9.0	8.8	8.2	8.6	5.5	4.9	5.3	3.9	3.2	3.5
22	9.4	8.9	9.1	9.0	7.2	8.5	5.6	5.1	5.3	3.4	3.1	3.3
23	9.4	8.9	9.1	7.3	6.2	6.7	5.6	5.1	5.4	3.5	3.2	3.3
24	9.5	9.1	9.3	6.8	6.0	6.4	5.6	5.3	5.4	3.4	2.8	3.1
25	9.1	9.0	9.1	6.3	5.8	6.0	5.7	5.4	5.5	4.0	3.1	3.5
26	9.3	8.9	9.1	6.5	5.7	6.0	5.7	5.5	5.6	4.1	3.6	3.8
27	9.3	9.1	9.2	6.4	5.7	6.1	8.0	6.8	7.0	3.8	3.2	3.5
28	9.8	9.4	9.5	6.3	5.4	5.9	7.0	6.4	6.7	3.5	2.8	3.2
29	---	---	---	5.4	4.9	5.2	---	---	---	3.6	2.9	3.3
30	---	---	---	5.7	4.8	5.1	---	---	---	3.7	3.2	3.4
31	---	---	---	5.8	4.3	5.0	---	---	---	3.6	3.1	3.4
MONTH	12.1	7.1	9.9	11.0	4.3	8.2	8.9	4.2	5.9	6.8	2.8	4.6
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	3.4	3.0	3.2	5.1	4.9	5.0	---	---	---	6.5	6.4	6.4
2	3.2	2.7	2.9	4.9	4.8	4.8	---	---	---	6.5	6.3	6.4
3	2.8	2.3	2.6	5.0	4.9	4.9	7.4	6.9	7.2	6.4	6.3	6.4
4	2.7	2.3	2.5	5.1	4.8	4.9	7.1	6.8	6.9	6.5	6.3	6.4
5	3.0	1.8	2.3	5.0	4.9	4.9	6.9	6.5	6.7	6.5	6.4	6.5
6	2.8	2.2	2.5	5.2	4.9	5.0	6.6	6.2	6.5	6.5	6.4	6.5
7	3.9	3.1	3.5	5.1	5.0	5.1	7.0	6.0	6.5	6.7	6.4	6.5
8	4.6	3.6	4.3	5.2	5.0	5.1	7.1	6.9	7.0	6.8	6.7	6.7
9	4.9	4.6	4.7	5.2	5.1	5.1	7.3	7.1	7.2	6.8	6.6	6.7
10	5.4	4.8	5.2	5.2	5.0	5.1	7.3	6.9	7.2	6.8	6.7	6.7
11	5.4	5.2	5.4	5.4	5.2	5.2	7.3	6.7	7.0	6.9	6.8	6.8
12	6.1	5.2	5.5	5.5	5.4	5.4	6.9	6.7	6.8	6.9	6.8	6.9
13	5.8	5.4	5.6	5.6	5.4	5.5	6.9	6.7	6.8	7.0	6.9	6.9
14	5.9	5.6	5.7	5.7	5.6	5.6	6.9	6.7	6.8	7.0	6.5	6.8
15	5.7	5.5	5.6	6.1	5.7	5.8	6.9	6.7	6.8	7.4	7.0	7.2
16	5.8	5.5	5.6	6.1	5.9	6.0	6.9	6.6	6.7	7.1	6.4	6.9
17	5.9	5.6	5.7	6.1	5.9	6.0	6.7	6.4	6.6	6.6	6.0	6.4
18	5.8	5.4	5.7	6.0	5.9	6.0	6.6	6.2	6.5	6.6	6.0	6.2
19	5.9	5.1	5.6	6.0	5.6	5.8	6.5	6.3	6.4	6.9	6.6	6.8
20	5.7	4.8	5.3	6.1	5.7	5.9	6.4	6.1	6.2	7.1	6.9	7.0
21	5.4	4.8	5.2	6.1	5.8	5.9	8.3	5.9	6.7	7.2	7.1	7.1
22	5.7	4.9	5.3	6.0	5.4	5.7	8.5	7.8	8.2	7.3	7.2	7.3
23	5.9	5.0	5.5	5.3	4.4	4.8	7.8	7.6	7.7	7.5	7.3	7.4
24	6.2	5.1	5.6	5.1	4.2	4.5	7.9	7.6	7.7	7.7	7.4	7.5
25	5.8	5.2	5.5	---	---	---	7.8	7.4	7.6	7.9	7.6	7.8
26	5.6	5.2	5.4	---	---	---	7.6	7.3	7.5	8.0	7.8	7.9
27	6.3	5.1	5.4	---	---	---	7.4	7.2	7.3	8.1	7.9	8.0
28	6.1	4.2	5.0	---	---	---	7.2	7.0	7.1	8.1	8.0	8.1
29	5.9	5.0	5.4	---	---	---	7.0	6.8	6.9	8.0	7.9	7.9
30	5.6	5.2	5.3	---	---	---	6.8	6.6	6.7	7.9	7.8	7.9
31	---	---	---	---	---	---	6.6	6.4	6.5	---	---	---
MONTH	6.3	1.8	4.8	6.1	4.2	5.3	8.5	5.9	7.0	8.1	6.0	7.0

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.--No estimated daily discharges. Records good. 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.

AVERAGE DISCHARGE.--22 years, 201 ft³/s (8.50 in/yr), 145,600 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)
Jan. 30	1700	4,760	18.43	Mar. 29	1500	*23,100	*23.25

Minimum discharge, no flow on 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	.00	.02	.55	1540	5.3	632	3.5	3.6	59	1.0	.07
2	.00	.00	.01	.60	327	5.1	157	58	3.2	40	4.9	.07
3	.00	.00	.01	.83	204	5.6	98	34	14	121	63	.07
4	.00	.00	.01	.85	419	8.4	74	28	105	184	136	.06
5	.00	.00	.01	.80	460	18	55	216	91	170	32	.06
6	.00	.00	.01	.75	155	12	39	437	54	65	9.0	.06
7	.00	.00	.0	.71	63	7.7	31	440	130	33	4.4	.06
8	.00	.00	.0	.53	40	6.0	26	117	49	109	2.6	.06
9	.00	.00	.0	.35	29	4.7	22	50	81	142	1.7	.06
10	.00	.00	.16	.35	22	4.5	18	193	118	42	1.2	.07
11	.00	.00	1.0	.35	18	4.3	16	407	208	19	.78	.07
12	.00	.00	8.1	.54	15	4.1	13	1070	390	11	.54	.07
13	.00	.00	2.7	20	13	3.9	12	855	458	7.5	.40	.10
14	.00	.00	1.0	205	12	3.7	12	326	374	5.5	.35	.18
15	.00	.00	.68	296	11	3.5	12	667	608	4.4	.31	.21
16	.00	.00	.43	155	10	3.2	12	942	927	4.0	.28	.24
17	.00	.00	.31	47	10	3.0	11	375	869	3.4	.24	.31
18	.00	.00	.20	19	11	2.9	10	95	127	2.9	.21	.31
19	.00	.01	.18	9.9	13	2.7	9.2	137	48	2.6	.18	.24
20	.00	.04	.18	7.2	15	2.7	8.5	184	31	2.3	.16	.21
21	.00	.04	.18	144	13	2.7	8.1	66	21	2.0	.16	.28
22	.00	.04	.18	160	14	3.7	7.6	42	15	1.6	.16	.28
23	.00	.04	.16	36	14	25	6.8	27	14	1.4	.14	.49
24	.00	.10	.13	13	10	110	6.0	19	28	1.3	.14	.59
25	.00	.10	.10	6.6	8.5	86	5.4	15	26	1.2	.12	.59
26	.00	.10	.09	14	7.4	44	4.7	11	15	1.2	.10	.54
27	.00	.10	.07	412	6.9	161	4.4	8.7	12	1.3	.10	.28
28	.00	.09	.08	599	6.0	581	5.4	7.2	11	1.3	.08	.14
29	.00	.05	.08	1210	---	13500	5.4	6.0	10	1.3	.08	.08
30	.00	.04	.12	3600	---	4970	4.4	5.0	29	1.2	.08	.04
31	.00	---	.18	3080	---	2090	---	4.1	---	1.2	.07	---
TOTAL	0.00	0.75	16.38	10040.91	3466.8	21684.7	1325.9	6845.5	4869.8	1042.6	260.48	5.89
MEAN	.00	.025	.53	324	124	700	44.2	221	162	33.6	8.40	.20
MAX	.00	.10	8.1	3600	1540	13500	632	1070	927	184	136	.59
MIN	.00	.00	.00	.35	6.0	2.7	4.4	3.5	3.2	1.2	.07	.04
AC-FT	.0	1.5	32	19920	6880	43010	2630	13580	9660	2070	517	12
CFSM	.00	.00	.00	1.01	.39	2.18	.14	.69	.51	.10	.03	.00
IN.	.00	.00	.00	1.16	.40	2.51	.15	.79	.56	.12	.03	.00

CAL YR 1988	TOTAL	7008.73	MEAN	19.1	MAX	935	MIN	.00	AC-FT	13900	CFSM	.06	IN.	.81
WTR YR 1989	TOTAL	49559.71	MEAN	136	MAX	13500	MIN	.00	AC-FT	98300	CFSM	.42	IN.	5.74

08066170 KICKAPOO CREEK NEAR ONALASKA, TX

LOCATION.--Lat 30°54'25", long 95°05'18", Polk County, Hydrologic Unit 12030202, on right bank 114 ft downstream from old bridge site, 1.2 mi downstream from Magnolia Creek, 6.2 mi upstream from Rocky Creek, 7.3 mi northeast of Onalaska, and 15.9 mi upstream from mouth.

DRAINAGE AREA.--57.0 mi².

PERIOD OF RECORD.--December 1965 to current year.
Water-quality records.--Chemical analyses: December 1963 to September 1969. Chemical and biochemical analyses: October 1969 to September 1974.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 139.85 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. No diversion above station. Low flow is sustained by sewage effluent.

AVERAGE DISCHARGE.--23 years (water years 1967-89), 41.4 ft³/s (9.86 in/yr), 29,990 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	0500	3,510	13.88	June 27	1100	2,640	12.40
May 17	2230	*7,090	*18.75	June 30	1900	6,320	17.83

Minimum discharge, 0.12 ft³/s Sept. 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	.85	.82	.85	4.8	46	3.8	39	3.1	1.1	1130	.85	.30
2	1.0	.73	.85	3.4	31	e100	26	16	1.2	161	.94	.27
3	.94	.62	.85	3.0	85	e40	18	6.0	1.1	787	1.9	.23
4	.59	.52	.85	2.6	43	e20	13	9.5	1.0	135	2.2	.20
5	.46	.50	.85	2.1	23	e10	9.3	93	.93	72	1.2	.17
6	.39	.48	.85	2.0	e18	e7.5	6.6	30	1.2	51	.85	.17
7	.37	.44	.85	1.9	e15	e6.0	5.7	9.2	1.7	372	.56	.17
8	.35	.44	1.1	1.7	e13	e5.0	5.2	5.0	4.3	218	.56	.17
9	.35	.44	1.2	1.5	e11	e4.2	4.6	3.7	3.8	56	.50	.15
10	.35	1.2	14	1.5	e10	e3.8	3.8	3.4	2.2	27	.44	.27
11	.35	2.1	59	1.5	e9.0	e3.4	3.3	12	2.5	16	.42	1.2
12	.35	1.5	13	58	e8.0	e3.1	3.0	5.1	2.2	11	.39	.85
13	.35	4.9	4.7	372	e7.5	e2.9	3.3	3.7	2.4	8.5	.39	.77
14	.35	2.8	2.8	222	e8.5	e2.7	5.3	51	489	7.5	.39	.73
15	.35	1.8	1.9	54	e7.5	e2.6	9.4	26	71	6.3	.39	.67
16	.35	1.5	1.5	24	e7.0	2.5	6.9	19	22	5.2	.37	.58
17	.35	1.5	1.3	12	e15	2.4	4.5	1110	10	4.2	.37	.47
18	.35	1.3	1.2	38	e24	2.4	3.8	1480	5.8	3.5	.37	.42
19	.35	1.1	1.1	46	e25	2.3	19	131	3.8	2.9	.35	.37
20	.35	2.4	1.1	46	e50	2.2	12	58	2.4	2.7	.32	.30
21	.35	2.8	1.1	25	e100	130	5.4	32	1.6	2.5	.30	.28
22	.35	1.6	1.2	11	e30	119	3.6	17	1.2	2.2	.27	.27
23	.35	1.2	9.4	7.2	e15	42	2.7	10	1.2	2.0	.27	.27
24	.35	1.1	8.6	5.8	e10	19	2.3	6.9	5.6	2.0	.25	.26
25	.35	.93	4.7	5.9	e7.5	11	2.0	4.6	2.1	2.0	.23	.26
26	.52	1.2	2.7	72	e6.0	54	1.8	3.1	2.0	2.1	.22	.25
27	1.0	1.1	12	126	e5.0	175	1.7	2.5	1310	2.9	.21	.25
28	.92	.91	96	40	4.1	56	1.7	1.9	298	2.9	.20	.24
29	.85	.85	16	556	---	1440	1.7	1.5	484	2.0	.20	.24
30	.85	.85	6.8	275	---	166	1.7	1.3	3190	1.5	.27	.23
31	.85	---	6.1	72	---	66	---	1.1	---	1.0	.30	---
TOTAL	15.89	39.63	274.45	2093.9	634.1	2504.8	226.3	3156.6	5925.33	3099.9	16.48	11.01
MEAN	.51	1.32	8.85	67.5	22.6	80.8	7.54	102	198	100	.53	.37
MAX	1.0	4.9	96	556	100	1440	39	1480	3190	1130	2.2	1.2
MIN	.35	.44	.85	1.5	4.1	2.2	1.7	1.1	.93	1.0	.20	.15
AC-FT	32	79	544	4150	1260	4970	449	6260	11750	6150	33	22
CFSM	.01	.02	.16	1.19	.40	1.42	.13	1.79	3.47	1.75	.01	.01
IN.	.01	.03	.18	1.37	.41	1.63	.15	2.06	3.87	2.02	.01	.01

CAL YR 1988 TOTAL 3367.04 MEAN 9.20 MAX 368 MIN .20 AC-FT 6680 CFSM .16 IN. 2.20
WTR YR 1989 TOTAL 17998.39 MEAN 49.3 MAX 3190 MIN .15 AC-FT 35700 CFSM .87 IN. 11.75

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 realeases 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, 1,961,000 acre-ft June 30, 1989 (elevation, 133.04 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, 1,961,000 acre-ft June 30 at 0900 hours (elevation, 133.04 ft); minimum, 1,345,000 acre-ft Oct. 25 (elevation, 125.22 ft).

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

125.0	1,329,000	129.0	1,627,000	133.0	1,958,000
127.0	1,474,000	131.0	1,788,000	134.0	2,046,000

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1367000	1353000	1361000	1431000	1768000	1810000	1872000	1809000	1922000	1929000	1772000	1789000
2	1368000	1352000	1361000	1438000	1793000	1805000	1834000	1807000	1926000	1891000	1784000	1793000
3	1368000	1353000	1364000	1440000	1810000	1797000	1797000	1810000	1917000	1889000	1788000	1793000
4	1366000	1356000	1365000	1439000	1819000	1798000	1788000	1810000	1906000	1851000	1788000	1793000
5	1368000	1356000	1364000	1443000	2080000	1788000	1786000	1835000	1909000	1824000	1789000	1788000
6	1371000	1356000	1361000	1441000	1818000	1784000	1795000	1840000	1884000	1803000	1793000	1788000
7	1374000	1358000	1364000	1449000	1812000	1779000	1805000	1841000	1857000	1793000	1797000	1789000
8	1372000	1356000	1374000	1448000	1808000	1783000	1823000	1841000	1832000	1793000	1798000	1789000
9	1376000	1353000	1374000	1449000	1802000	1784000	1821000	1845000	1807000	1793000	1798000	1790000
10	1375000	1356000	1394000	1446000	1797000	1785000	1813000	1854000	1801000	1793000	1798000	1795000
11	1375000	1352000	1395000	1450000	1796000	1788000	1806000	1861000	1791000	1797000	1799000	1801000
12	1363000	1358000	1395000	1463000	1790000	1791000	1803000	1864000	1788000	1800000	1803000	1798000
13	1360000	1354000	1395000	1480000	1793000	1790000	1805000	1866000	1793000	1803000	1807000	1813000
14	1356000	1353000	1402000	1492000	1791000	1792000	1805000	1874000	1824000	1805000	1809000	1809000
15	1356000	1354000	1406000	1504000	1798000	1798000	1800000	1865000	1842000	1803000	1807000	1808000
16	1356000	1356000	1407000	1506000	1794000	1796000	1797000	1861000	1853000	1803000	1803000	1808000
17	1354000	1349000	1410000	1510000	1800000	1795000	1798000	1902000	1859000	1798000	1803000	1814000
18	1355000	1353000	1408000	1522000	1799000	1801000	1805000	1880000	1865000	1797000	1801000	1820000
19	1356000	1353000	1410000	1527000	1803000	1801000	1818000	1849000	1868000	1805000	1795000	1822000
20	1354000	1353000	1412000	1529000	1820000	1815000	1824000	1829000	1874000	1800000	1793000	1821000
21	1354000	1353000	1413000	1529000	1824000	1818000	1826000	1812000	1878000	1800000	1793000	1816000
22	1348000	1352000	1418000	1527000	1832000	1814000	1819000	1807000	1892000	1798000	1796000	1811000
23	1352000	1352000	1415000	1531000	1829000	1808000	1817000	1806000	1900000	1796000	1795000	1801000
24	1348000	1354000	1417000	1531000	1834000	1802000	1813000	1808000	1906000	1798000	1796000	1794000
25	1345000	1356000	1413000	1534000	1841000	1797000	1805000	1815000	1911000	1796000	1794000	1791000
26	1352000	1364000	1412000	1545000	1840000	1810000	1803000	1830000	1915000	1793000	1793000	1790000
27	1349000	1364000	1424000	1552000	1834000	1813000	1798000	1847000	1951000	1797000	1789000	1790000
28	1354000	1357000	1421000	1562000	1819000	1822000	1801000	1863000	1947000	1795000	1788000	1788000
29	1353000	1361000	1421000	1612000	---	1891000	1802000	1882000	1947000	1792000	1791000	1791000
30	1354000	1361000	1428000	1679000	---	1927000	1804000	1899000	1959000	1789000	1790000	1788000
31	1354000	---	1430000	1730000	---	1919000	---	1911000	---	1789000	1788000	---
MAX	1376000	1364000	1430000	1730000	2080000	1927000	1872000	1911000	1959000	1929000	1809000	1822000
MIN	1345000	1349000	1361000	1431000	1768000	1779000	1786000	1806000	1788000	1789000	1772000	1788000
(†)	125.35	125.44	126.39	130.28	131.37	132.55	131.19	132.45	133.02	131.01	130.99	131.00
(ϕ)	-12000	+7000	+69000	+300000	+89000	+100000	-115000	+107000	+48000	-170000	-1000	0

CAL YR 1988 MAX 1851000 MIN 1345000 (ϕ) -419000
WTR YR 1989 MAX 2080000 MIN 1345000 (ϕ) +422000

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

08066190 LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

WATER-QUALITY RECORDS

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

303807095011101 - LIVINGSTON RES SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
FEB									
15...	1232	1.00	490	8.30	12.0	1.01	9.9	91	130
15...	1234	10.0	490	8.20	11.5	--	9.6	87	--
15...	1236	20.0	490	8.20	11.5	--	9.6	87	--
15...	1238	30.0	490	8.20	11.0	--	9.5	85	--
15...	1240	40.0	490	8.20	11.0	--	9.4	85	--
15...	1242	50.0	490	8.20	11.0	--	9.2	83	--
15...	1244	72.0	490	8.10	10.5	--	8.8	78	130
AUG									
24...	1410	1.00	310	8.80	29.5	1.02	8.1	106	120
24...	1412	10.0	315	8.30	28.5	--	5.3	68	--
24...	1414	20.0	315	8.20	28.0	--	4.5	58	--
24...	1416	25.0	315	8.00	28.0	--	4.0	51	--
24...	1418	30.0	320	7.50	27.5	--	1.5	19	--
24...	1420	40.0	320	7.40	27.5	--	0.6	8	--
24...	1422	50.0	320	7.40	27.5	--	0.4	5	--
24...	1424	60.0	320	7.30	27.0	--	0.3	4	--
24...	1426	72.0	370	7.20	25.0	--	0.3	4	140

DATE	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
FEB									
15...	17	45	5.0	45	2	6.0	116	53	46
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	23	45	4.9	41	2	6.2	110	54	46
AUG									
24...	14	43	3.6	17	0.7	4.9	108	25	15
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	0	49	4.4	17	0.7	5.2	154	11	16

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHOROUS TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
FEB								
15...	0.50	5.2	275	0.500	0.60	0.120	3	<1
15...	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--
15...	--	--	--	0.500	0.30	0.110	<10	<10
15...	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--
15...	--	5.5	269	0.500	0.70	0.130	8	7
AUG								
24...	0.30	7.3	181	<0.100	0.80	0.120	4	13
24...	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--
24...	--	--	--	<0.100	0.60	0.120	20	140
24...	--	--	--	0.100	0.50	0.140	30	1100
24...	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--
24...	--	23	221	<0.100	3.2	1.80	490	2800

08066190 LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

303821095005001 - LIVINGSTON RES SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
FEB								
15...	1300	1.00	490	8.30	12.0	1.01	9.8	90
15...	1302	10.0	490	8.20	11.5	--	9.6	87
15...	1304	20.0	490	8.20	11.5	--	9.4	86
15...	1306	30.0	490	8.20	11.5	--	9.2	84
15...	1308	41.0	490	8.20	11.5	--	9.1	83
AUG								
24...	1450	1.00	310	8.70	29.0	0.97	7.6	99
24...	1452	10.0	315	8.20	28.5	--	4.9	63
24...	1454	20.0	315	7.90	28.0	--	3.4	43
24...	1456	30.0	320	7.80	27.5	--	1.1	14
24...	1458	44.0	320	7.90	27.5	--	0.9	11

303935095055401 - LIVINGSTON RES SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
FEB								
15...	1144	1.00	490	8.20	12.0	0.91	9.6	88
15...	1146	10.0	485	8.20	11.5	--	9.6	87
15...	1148	20.0	485	8.20	11.5	--	9.4	86
15...	1150	40.0	485	8.10	10.5	--	9.2	82
15...	1152	50.0	480	8.10	10.5	--	9.1	81
15...	1154	63.0	480	8.10	10.0	--	9.1	80
AUG								
24...	1320	1.00	315	8.80	29.5	0.96	8.6	113
24...	1322	10.0	325	8.50	29.0	--	6.1	79
24...	1324	20.0	325	8.00	28.5	--	3.7	48
24...	1326	25.0	325	7.70	28.0	--	2.0	26
24...	1328	30.0	325	7.50	28.0	--	0.9	12
24...	1330	40.0	325	7.50	27.5	--	0.9	11
24...	1332	50.0	325	7.40	27.5	--	0.4	5
24...	1334	62.0	335	7.50	27.0	--	0.4	5

304144095073001 - LIVINGSTON RES SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
FEB								
15...	1116	1.00	475	8.30	11.5	0.77	9.9	90
15...	1118	10.0	475	8.20	11.0	--	9.5	85
15...	1120	20.0	475	8.20	11.0	--	9.5	85
15...	1122	40.0	470	8.10	10.5	--	9.5	84
15...	1124	50.0	455	8.10	10.0	--	9.5	83
15...	1126	63.0	455	8.10	10.0	--	9.5	83
AUG								
24...	1246	1.00	325	8.80	30.5	0.86	7.4	99
24...	1248	10.0	330	8.60	29.0	--	4.9	64
24...	1250	20.0	330	8.40	29.0	--	4.4	57
24...	1252	25.0	335	7.70	28.5	--	0.6	8
24...	1254	30.0	340	7.60	28.5	--	0.5	6
24...	1256	35.0	340	7.60	28.0	--	0.5	6
24...	1258	40.0	340	7.60	28.0	--	0.5	6
24...	1300	50.0	345	7.60	28.0	--	0.5	6
24...	1302	60.0	350	7.70	27.5	--	0.5	6

08066190 LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

304521095075501 - LIVINGSTON RES SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
FEB									
15...	1036	1.00	440	8.20	11.5	0.55	9.9	90	120
15...	1038	10.0	450	8.10	11.0	--	9.5	85	--
15...	1040	20.0	450	8.00	11.0	--	9.3	84	--
15...	1042	40.0	410	7.90	10.5	--	8.9	79	--
15...	1044	58.0	350	8.00	10.0	--	9.0	79	100
AUG									
24...	1140	1.00	310	8.70	29.5	0.77	6.4	84	120
24...	1142	10.0	315	8.60	29.0	--	5.1	66	--
24...	1144	20.0	320	8.50	29.0	--	4.5	58	--
24...	1146	30.0	325	8.30	29.0	--	3.8	49	--
24...	1148	40.0	350	7.80	28.5	--	0.9	12	--
24...	1150	56.0	340	7.80	28.5	--	0.6	8	130

DATE	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)
FEB								
15...	22	40	4.5	37	2	5.8	97	53
15...	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--
15...	18	34	3.7	26	1	5.3	82	44
AUG								
24...	13	42	3.7	17	0.7	4.9	107	28
24...	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--
24...	14	44	3.7	18	0.7	4.8	111	30

DATE	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHOROUS TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
FEB								
15...	41	6.4	246	1.00	0.80	0.290	41	3
15...	--	--	--	--	--	--	--	--
15...	--	--	--	1.00	0.80	0.270	100	<10
15...	--	--	--	--	--	--	--	--
15...	27	7.4	197	1.20	1.0	0.400	62	15
AUG								
24...	16	7.4	183	<0.100	0.90	0.160	<3	7
24...	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--
24...	--	--	--	0.100	0.80	0.180	20	130
24...	--	--	--	--	--	--	--	--
24...	18	7.5	193	0.200	1.1	0.420	26	280

304453095064901 - LIVINGSTON RES SITE DL

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
FEB								
15...	1023	1.00	470	8.20	11.5	0.79	9.8	89
15...	1025	10.0	470	8.10	11.5	--	9.7	88
15...	1027	21.0	470	8.10	11.5	--	9.7	88
AUG								
24...	1128	1.00	310	8.70	30.0	0.70	6.8	90
24...	1130	10.0	315	8.70	29.5	--	6.4	84
24...	1132	15.0	315	8.70	29.0	--	6.4	83
24...	1134	19.0	315	8.60	29.0	--	6.2	81

08066190 LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

304659095052001 - LIVINGSTON RES SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)
FEB							
15...	0950	1.00	465	7.90	12.5	0.77	9.7
15...	0952	10.0	460	7.50	12.0	--	8.8
15...	0954	20.0	445	7.30	11.5	--	8.3
15...	0956	32.0	455	6.60	11.5	--	7.4
AUG							
24...	1100	1.00	320	8.90	30.0	0.85	7.4
24...	1102	10.0	325	8.70	29.5	--	6.4
24...	1104	20.0	330	8.40	29.0	--	4.5
24...	1106	25.0	330	8.40	29.0	--	3.6
24...	1108	30.0	330	8.30	29.0	--	0.4

DATE	OXYGEN, DISSOLVED (PERCENT SATURATION)	NITROGEN, NO2+NO3 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						
15...	90	0.800	0.70	0.210	20	<10
15...	81	--	--	--	--	--
15...	76	--	--	--	--	--
15...	67	0.900	0.80	0.240	40	10
AUG						
24...	98	<0.100	1.0	0.160	20	120
24...	84	--	--	--	--	--
24...	58	--	--	--	--	--
24...	47	--	--	--	--	--
24...	5	<0.100	1.6	0.520	250	610

304843095104001 - LIVINGSTON RES SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
FEB								
15...	1342	1.00	300	7.90	13.0	0.24	8.7	82
15...	1344	10.0	300	7.90	11.5	--	8.7	79
15...	1346	20.0	300	8.00	11.0	--	8.5	77
15...	1348	40.0	300	8.00	10.5	--	8.5	76
15...	1350	50.0	300	8.00	10.0	--	8.6	76
15...	1352	60.0	300	8.10	10.0	--	8.5	75
AUG								
24...	1532	1.00	335	8.90	30.0	0.63	7.5	100
24...	1534	10.0	340	8.80	29.5	--	5.5	72
24...	1536	20.0	350	8.10	29.0	--	3.4	44
24...	1538	30.0	355	7.70	28.5	--	2.2	28
24...	1540	40.0	360	7.70	28.5	--	2.0	26
24...	1542	50.0	360	7.70	28.5	--	1.9	25
24...	1544	58.0	360	7.80	28.5	--	1.9	25

305411095144901 - LIVINGSTON RES SITE GC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
FEB									
15...	1428	1.00	325	7.80	14.5	0.23	8.0	78	100
15...	1430	10.0	320	7.80	13.0	--	8.0	75	--
15...	1432	20.0	310	7.70	12.0	--	8.0	74	--
15...	1434	30.0	270	7.80	11.0	--	8.0	72	--
15...	1436	40.0	300	7.80	10.5	--	7.9	70	--
15...	1438	51.0	315	7.80	10.0	--	7.5	66	98
AUG									
24...	1620	1.00	340	9.20	31.0	0.53	11.8	160	120
24...	1622	10.0	370	8.10	29.5	--	6.5	86	--
24...	1624	20.0	375	7.90	29.0	--	6.1	80	--
24...	1626	30.0	355	7.60	29.0	--	4.1	54	--
24...	1628	40.0	345	7.60	28.5	--	2.7	35	--
24...	1630	49.0	350	7.70	28.5	--	2.7	35	120

08066190 LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

305411095144901 - LIVINGSTON RES SITE GC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNESIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)
FEB								
15...	31	35	3.7	19	0.9	4.9	72	44
15...	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--
15...	23	33	3.8	20	0.9	4.6	75	44
AUG								
24...	8	43	3.7	24	1	4.9	115	32
24...	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--
24...	12	41	3.9	23	1	4.9	107	33

DATE	CHLORIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
FEB								
15...	20	8.1	178	1.10	1.1	0.350	34	4
15...	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--
15...	--	--	--	0.700	0.90	0.330	150	20
15...	--	--	--	--	--	--	--	--
15...	22	8.7	181	0.900	0.80	0.350	85	13
AUG								
24...	19	6.5	202	0.200	0.70	0.300	25	7
24...	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--
24...	--	--	--	1.10	0.70	0.310	110	50
24...	--	--	--	--	--	--	--	--
24...	21	7.5	199	0.700	0.90	0.340	16	240

305447095161401 - LIVINGSTON RES SITE HC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DIS-SOLVED (MG/L)
FEB							
15...	1500	1.00	225	7.80	13.0	0.21	8.5
15...	1502	10.0	230	7.60	12.0	--	8.2
15...	1504	20.0	220	7.70	11.0	--	8.0
15...	1506	30.0	225	7.70	10.5	--	7.9
15...	1508	41.0	230	7.90	10.5	--	8.1
AUG							
24...	1656	1.00	350	9.10	31.5	0.45	13.2
24...	1658	10.0	330	7.80	29.5	--	3.6
24...	1700	20.0	305	7.50	28.5	--	1.1
24...	1702	30.0	300	7.50	28.0	--	0.5
24...	1704	40.0	300	7.80	28.0	--	0.5

DATE	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
FEB						
15...	80	1.10	1.0	0.320	30	20
15...	75	--	--	--	--	--
15...	72	--	--	--	--	--
15...	70	--	--	--	--	--
15...	72	0.500	0.90	0.190	150	60
AUG						
24...	180	0.300	1.4	0.270	30	90
24...	47	--	--	--	--	--
24...	14	--	--	--	--	--
24...	6	--	--	--	--	--
24...	6	<0.100	1.4	0.420	320	920

08066190 LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

305135095193601 - LIVINGSTON RES SITE IC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
FEB								
15...	1556	1.00	325	7.80	12.0	0.25	8.7	80
15...	1558	10.0	370	7.90	9.0	--	9.3	80
15...	1600	20.0	370	7.90	9.0	--	9.4	81
15...	1602	38.0	375	7.90	9.0	--	9.6	82
AUG								
25...	1008	1.00	385	7.80	29.5	0.38	5.4	71
25...	1010	10.0	385	7.80	29.5	--	5.2	68
25...	1012	20.0	385	7.80	29.5	--	5.2	68
25...	1014	30.0	385	7.90	29.5	--	5.2	68
25...	1016	41.0	385	7.90	29.5	--	5.1	67

305135095235401 - LIVINGSTON RES SITE JC

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)
FEB									
15...	1624	1.00	435	7.80	15.5	0.23	9.0	90	76
15...	1626	10.0	430	7.80	9.0	--	9.8	84	--
15...	1628	20.0	430	7.80	9.0	--	9.7	83	--
15...	1630	39.0	430	7.90	9.0	--	9.8	84	130
AUG									
25...	1046	1.00	380	7.80	29.5	0.32	5.4	71	130
25...	1048	10.0	380	7.80	29.5	--	5.2	68	--
25...	1050	20.0	380	7.80	29.5	--	5.2	68	--
25...	1052	30.0	380	7.80	29.5	--	5.2	68	--
25...	1054	37.0	380	7.80	29.5	--	5.2	68	130

DATE	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)
FEB								
15...	20	26	2.6	17	0.9	4.3	56	37
15...	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--
15...	42	42	5.1	35	1	5.2	84	69
AUG								
25...	13	46	3.8	26	1	5.0	118	33
25...	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--
25...	19	46	3.9	26	1	5.1	112	33

DATE	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
FEB								
15...	20	11	152	1.20	0.90	0.430	100	9
15...	--	--	--	--	--	--	--	--
15...	--	--	--	1.80	0.80	0.420	40	20
15...	32	9.6	248	1.70	0.90	0.430	79	13
AUG								
25...	21	6.7	212	1.80	0.50	0.470	4	6
25...	--	--	--	--	--	--	--	--
25...	--	--	--	1.90	0.50	0.470	<10	<10
25...	--	--	--	--	--	--	--	--
25...	21	7.0	209	1.90	0.40	0.440	8	12

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.--20 years, 212 ft³/s (153,600 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 3,990 ft³/s Jan 7, 1982; maximum elevation, about 93.0 ft June 14, 1973 (backwater from Trinity River); no flow for many days.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 586 ft³/s Apr. 20; maximum elevation, 91.24 ft July 1 at 2100 hours (backwater from Trinity River); 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	e140	e.00	139	175	248	111	.00	235	.00	.00	.00	222
2	e140	e58	139	175	255	242	.00	235	.00	.00	.00	228
3	e140	e140	139	175	242	242	.00	242	.00	.00	.00	228
4	e140	e140	139	175	242	242	.00	255	.00	.00	88	235
5	e140	e140	139	180	248	242	.00	207	.00	.00	242	242
6	139	e140	131	180	248	228	.00	.00	.00	.00	235	248
7	139	e140	149	175	248	216	137	.00	.00	.00	228	248
8	139	e140	154	175	242	210	242	.00	.00	.00	222	255
9	139	e140	154	175	242	216	248	.00	.00	.00	228	255
10	139	e140	154	175	242	222	248	.00	.00	.00	228	255
11	139	e140	159	175	242	222	558	.00	.00	.00	235	262
12	139	e140	159	180	242	222	400	.00	.00	.00	235	87
13	139	e140	159	186	235	222	242	.00	.00	.00	235	62
14	139	e140	159	186	235	235	242	.00	.00	.00	235	154
15	139	e140	159	192	235	235	242	.00	.00	.00	242	144
16	139	e140	164	198	235	235	242	.00	.00	.00	242	144
17	139	139	169	198	235	235	242	.00	.00	.00	242	149
18	139	139	169	198	235	242	255	.00	.00	.00	242	56
19	139	139	169	198	242	248	255	.00	.00	.00	242	.00
20	139	139	139	204	255	248	586	.00	.00	.00	242	.00
21	139	139	169	198	269	255	509	.00	.00	.00	235	128
22	139	139	169	198	284	255	269	.00	.00	.00	228	255
23	139	139	169	198	276	255	269	.00	.00	.00	235	255
24	139	139	169	204	150	255	269	.00	.00	.00	222	248
25	140	139	175	204	38	248	269	.00	.00	.00	228	242
26	140	139	169	204	340	255	191	.00	.00	.00	222	242
27	140	139	169	210	361	262	.00	.00	.00	.00	222	242
28	140	139	175	210	210	262	137	.00	.00	.00	222	242
29	140	139	169	210	---	44	235	.00	.00	.00	222	242
30	e140	139	169	228	---	.00	235	.00	.00	.00	222	242
31	e47	---	169	235	---	.00	---	.00	---	.00	222	---
TOTAL	4228	3964.00	4913	5974	6776	6606.00	6522.00	1174.00	0.00	0.00	6343.00	5812.00
MEAN	136	132	158	193	242	213	217	37.9	.00	.00	205	194
MAX	140	140	175	235	361	262	586	255	.00	.00	242	262
MIN	47	.00	131	175	38	.00	.00	.00	.00	.00	.00	.00
AC-FT	8390	7860	9740	11850	13440	13100	12940	2330	.0	.0	12580	11530

CAL YR 1988 TOTAL 102439 .00 MEAN 280 MAX 377 MIN .00 AC-FT 203200
WTR YR 1989 TOTAL 52312 .00 MEAN 143 MAX 586 MIN .00 AC-FT 103800

e Estimated.

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

AVERAGE DISCHARGE.--26 years, 96.3 ft³/s (9.27 in/yr), 69,770 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)
Jan. 29	1900	5,480	14.89	June 30	2130	13,200	22.86
May 18	0930	*27,600	*27.27	July 3	1030	2,870	10.84
June 28	0200	e12,900	e22.70				

e Estimated.

Minimum discharge, 0.33 ft³/s Oct. 7-25.

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	.81	.76	.93	4.8	103	18	49	4.6	12	9280	6.5	2.5
2	1.3	.76	.93	4.3	65	641	35	4.4	16	1750	543	2.5
3	1.1	.76	.93	4.1	60	237	29	7.3	15	1630	272	2.5
4	.39	.74	.93	3.7	62	93	24	14	13	517	44	2.5
5	.37	.65	.93	3.3	43	61	20	132	13	e50	23	2.6
6	.37	.56	.93	3.3	35	43	16	71	19	e30	16	2.7
7	.36	.56	.98	3.4	29	32	14	22	13	e1000	13	2.8
8	.33	.56	4.9	3.4	25	26	13	12	16	e500	10	2.8
9	.33	.56	17	3.6	23	22	12	8.4	20	e150	8.5	2.8
10	.35	1.1	21	4.2	20	19	12	6.9	16	e50	7.5	3.4
11	.33	1.4	199	4.3	19	17	11	5.8	315	e30	6.7	5.7
12	.33	.94	37	94	18	16	10	5.1	50	e25	6.2	3.1
13	.33	.94	12	587	19	15	12	6.5	21	e20	5.7	8.2
14	.33	.96	6.4	839	20	15	22	91	1030	e17	5.5	13
15	.33	.96	4.7	172	19	14	29	28	628	e15	5.6	4.6
16	.33	1.1	3.6	48	18	13	18	59	54	e13	6.0	3.2
17	.33	.99	3.0	27	33	13	13	502	17	e11	5.6	2.6
18	.33	.76	2.8	181	39	12	12	15900	11	e10	5.4	2.3
19	.33	.85	2.8	447	34	12	12	1010	7.9	e9.5	5.0	2.3
20	.33	1.1	2.5	233	331	12	15	270	6.4	e9.0	4.5	2.3
21	.33	1.1	2.5	78	652	210	12	122	5.3	e8.5	4.0	2.1
22	.33	.98	3.0	36	119	512	9.2	71	4.7	e8.2	3.7	2.1
23	.33	.93	4.1	24	54	218	7.7	50	5.3	e8.0	3.6	2.1
24	.33	.93	4.5	18	35	90	6.9	38	8.5	e8.0	3.4	2.0
25	.44	.97	5.0	16	28	48	6.2	30	6.0	64	3.5	2.0
26	.98	1.2	3.8	20	25	42	5.8	24	6.2	e15	4.0	1.9
27	1.4	1.4	3.4	179	23	221	5.5	21	e6820	e16	3.8	1.9
28	1.3	1.2	16	72	21	110	5.2	18	e6350	e12	3.3	1.8
29	1.3	1.0	7.0	2060	---	991	4.8	16	e736	e10	2.9	1.8
30	.88	.93	5.3	1820	---	405	4.6	14	9830	e8.0	2.7	1.7
31	.76	---	5.0	266	---	94	---	13	---	7.2	2.5	---
TOTAL	17.39	27.65	382.86	7259.4	1972	4272	445.9	18577.0	26065.3	15281.4	1037.1	93.8
MEAN	.56	.92	12.4	234	70.4	138	14.9	599	869	493	33.5	3.13
MAX	1.4	1.4	199	2060	652	991	49	15900	9830	9280	543	13
MIN	.33	.56	.93	3.3	18	12	4.6	4.4	4.7	7.2	2.5	1.7
AC-FT	34	55	759	14400	3910	8470	884	36850	51700	30310	2060	186
CFSM	.00	.01	.09	1.66	.50	.98	.11	4.25	6.16	3.50	.24	.02
IN.	.00	.01	.10	1.92	.52	1.13	.12	4.90	6.88	4.03	.27	.02

CAL YR 1988 TOTAL 10848.30 MEAN 29.6 MAX 2210 MIN .27 AC-FT 21520 CFSM .21 IN. 2.86
WTR YR 1989 TOTAL 75431.80 MEAN 207 MAX 15900 MIN .33 AC-FT 149600 CFSM 1.47 IN. 19.90

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.--23 years (water years 1967-89), 6,980 ft³/s (5,057,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 96,200 ft³/s June 14, 1973 (gage height, 46.36 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, 85,600 ft³/s July 1 at about 1900 hours (gage height, 44.62 ft, from floodmark); minimum daily, 749 ft³/s Nov. 1.

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	835	749	774	828	1630	9560	40600	3250	35300	e83000	e8200	e1800
2	846	796	773	828	1420	8310	37700	3250	38800	e80000	e8200	e1700
3	835	799	777	823	1920	7480	31300	3270	40500	e70000	e7500	e1650
4	834	799	777	817	4190	6580	23900	3660	41700	e64000	e7000	e1600
5	834	793	777	817	5420	5860	15600	6960	43400	54600	e6500	e1600
6	834	782	770	813	6290	4160	e9500	9990	43700	e44000	e6400	1590
7	837	782	777	805	6140	2590	e6800	10500	42000	e33000	e6300	e1580
8	840	782	804	800	5620	2300	e6750	11400	39200	e25000	6290	e1580
9	840	789	827	799	5520	1800	e6750	13300	33300	e19500	6290	e1580
10	840	808	880	799	4820	1710	e6730	14200	26300	e17000	6240	e1580
11	840	817	1070	801	3740	1690	6500	15200	22100	e15500	6240	e1580
12	840	804	1010	824	3690	1680	6490	17100	19500	e15000	6240	e1580
13	843	805	889	1320	3640	1660	6780	17600	16500	e14900	6240	e1580
14	843	805	863	2020	3060	1650	6850	19200	15800	e14800	6240	e1560
15	840	805	841	1520	2670	1640	6860	21800	16300	e14800	6240	e1540
16	839	800	834	1060	2080	1640	5920	22200	15700	e14800	6240	e1520
17	834	790	832	953	2070	1640	5270	23100	16600	e14800	6230	e1500
18	837	801	828	2020	2080	1630	5240	47000	18600	e14000	6230	2260
19	837	822	831	2300	2090	1610	5240	50500	20800	e13500	6210	4160
20	834	812	834	1690	2880	1620	5200	37100	21000	e13000	5520	4380
21	834	794	834	1280	6800	2990	5250	32100	21600	e12500	4790	4470
22	834	794	819	1060	8250	6350	5940	29200	24000	e12000	4500	4700
23	834	794	825	990	8200	6580	6010	28300	26500	e12000	4480	4710
24	832	794	825	948	8440	6150	6010	27900	30100	e12000	4480	4210
25	828	794	817	934	10200	4730	6010	27900	32300	e12000	4480	2720
26	841	797	820	943	11800	3610	6010	27900	35000	e11500	4480	e1900
27	852	784	833	1160	11900	e3600	5440	27900	45200	e10000	4480	e1720
28	855	777	889	1160	11600	e4000	3900	27900	54600	e9500	3950	1670
29	856	777	866	2810	---	13300	3300	27900	48700	e9500	2950	e1630
30	852	777	845	5240	---	30700	3270	28500	64200	e9000	e2300	e1600
31	824	---	832	2440	---	39500	---	31600	---	e8500	e2100	---
TOTAL	26004	23822	25973	41602	148160	188320	297120	667680	949300	753700	173540	67250
MEAN	839	794	838	1342	5291	6075	9904	21540	31640	24310	5598	2242
MAX	856	822	1070	5240	11900	39500	40600	50500	64200	83000	8200	4710
MIN	824	749	770	799	1420	1610	3270	3250	15700	8500	2100	1500
AC-FT	51580	47250	51520	82520	293900	373500	589300	1324000	1883000	1495000	344200	133400

CAL YR 1988 TOTAL 908608 MEAN 2483 MAX 14400 MIN 500 AC-FT 1802000
WTR YR 1989 TOTAL 3362471 MEAN 9212 MAX 83000 MIN 749 AC-FT 6669000

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.--Records good except those for estimated daily discharges, which are poor. 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.--23 years (water years 1967-89), 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, 11,000 ft³/s May 18 at 1700 hours (gage height, 29.80 ft); minimum daily, 10.0 ft³/s Oct. 1.

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	10	17	20	58	e1380	62	544	24	50	4830	78	26
2	13	17	20	51	e780	67	439	23	98	2950	81	25
3	22	17	19	44	e500	79	179	28	188	1580	145	24
4	19	17	19	39	e300	127	125	30	97	1150	113	24
5	19	16	18	35	e200	149	100	42	77	690	86	23
6	17	15	18	34	e130	95	86	62	71	528	65	23
7	15	15	19	33	e100	76	71	93	68	341	56	23
8	14	15	22	31	e85	66	61	72	58	238	51	23
9	14	15	25	30	e75	60	57	45	50	213	47	24
10	14	16	37	29	e70	56	52	35	47	164	44	24
11	13	16	70	e30	e65	53	50	30	51	128	41	26
12	13	16	90	e32	e60	49	47	27	73	112	39	32
13	13	16	116	e50	e65	47	44	25	66	98	37	30
14	13	16	81	e80	e62	46	75	30	149	88	36	28
15	12	16	52	e170	e60	44	89	29	199	81	35	27
16	12	16	39	e270	e60	43	85	66	201	75	35	25
17	12	16	33	e330	e65	41	73	69	174	69	34	27
18	12	16	30	e250	e70	40	58	5280	89	63	33	26
19	12	17	28	e220	e70	39	48	5680	64	58	32	24
20	13	18	27	e420	e100	41	48	2250	52	53	33	23
21	13	19	26	e960	e150	52	47	1050	45	48	33	22
22	13	20	31	e620	e200	142	43	562	40	45	32	21
23	13	25	42	e300	e150	273	39	259	37	42	31	20
24	13	22	52	e150	e110	408	35	165	36	46	30	20
25	12	21	46	e80	e90	501	32	123	36	103	30	19
26	13	21	39	e60	e75	235	30	99	46	109	32	19
27	14	21	35	e70	67	187	29	84	813	91	31	19
28	14	21	34	e100	64	393	27	73	1290	85	29	19
29	16	20	46	e200	---	655	26	63	2320	93	28	19
30	16	19	110	e400	---	883	25	56	4110	105	28	19
31	17	---	94	e1100	---	532	---	52	---	93	27	---
TOTAL	436	532	1338	6276	5203	5541	2664	16526	10695	14369	1452	704
MEAN	14.1	17.7	43.2	202	186	179	88.8	533	356	464	46.8	23.5
MAX	22	25	116	1100	1380	883	544	5680	4110	4830	145	32
MIN	10	15	18	29	60	39	25	23	36	42	27	19
AC-FT	865	1060	2650	12450	10320	10990	5280	32780	21210	28500	2880	1400

CAL YR 1988 TOTAL 20653.5 MEAN 56.4 MAX 819 MIN 9.8 AC-FT 40970
WTR YR 1989 TOTAL 65736 MEAN 180 MAX 5680 MIN 10 AC-FT 130400

e Estimated.

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 1988 TO SEPTEMBER 1989

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 WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT									
03...	1220	24	78	21.5	16	6	4.3	1.2	8.5
NOV									
16...	1055	16	125	19.0	20	10	5.9	1.4	15
JAN									
10...	1300	29	118	14.0	22	11	6.0	1.6	13
FEB									
27...	1305	67	91	13.5	20	9	5.8	1.4	10
APR									
17...	1145	73	81	18.0	18	10	5.0	1.3	9.6
JUN									
12...	1230	72	96	25.0	20	9	5.5	1.4	14
JUL									
24...	1605	48	125	26.0	25	9	7.5	1.5	12

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT								
03...	1	1.1	10	3.7	14	<0.10	15	54
NOV								
16...	1	1.2	11	4.0	27	0.10	14	75
JAN								
10...	1	1.3	11	12	24	0.10	14	79
FEB								
27...	1	1.0	11	13	17	0.10	13	68
APR								
17...	1	0.90	8	3.3	17	0.10	12	54
JUN								
12...	1	1.1	11	3.0	21	0.10	13	66
JUL								
24...	1	1.0	16	8.6	20	0.10	13	73

08066400 BIG CREEK NEAR SHEPHERD, TX

LOCATION.--Lat 30°30'59", long 94°59'06", San Jacinto County, Hydrologic Unit 12030202, on left bank at downstream side downstream bridge on U.S. Highway 59, 1.5 mi northeast of Shepherd, and 11.6 mi upstream from mouth.

DRAINAGE AREA.--38.8 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1966 to September 1989 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 94.90 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. There is no known regulation above station.

AVERAGE DISCHARGE.--23 years, 28.9 ft³/s (10.12 in/yr), 20,940 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,000 ft³/s June 13, 1973 (gage height, 25.69 ft); minimum daily, 1.0 ft³/s Aug. 7, 1967.
Maximum stage since at least 1949, that of June 13, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1957 reached a stage of 20.3 ft (discharge about 5,500 ft³/s), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 400 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 18	unknown	*2,260	*16.19	June 20	unknown	2,180	16.03
June 27	unknown	1,300	Unknown				

Minimum discharge, 4.1 ft³/s Oct. 14, 25.

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	5.4	8.0	7.5	9.3	29	12	e40	e9.0	13	e1800	e14	e9.5
2	6.5	7.9	7.5	8.3	24	21	e30	e9.0	e12	e500	e70	e9.5
3	7.1	7.7	7.5	8.1	23	20	e23	e10	e14	e400	e60	e9.0
4	5.1	7.7	7.6	7.7	21	15	e19	e20	e12	e150	e30	e9.0
5	4.8	7.2	7.5	7.3	19	15	e17	e50	e11	e60	e20	e8.5
6	4.6	6.5	7.7	7.3	18	12	e15	e25	e11	e30	e17	e8.5
7	4.5	6.5	7.9	7.2	17	12	e14	e15	e12	e200	e15	e8.5
8	4.5	6.6	9.7	7.0	16	11	e14	e13	e11	e150	e14	e9.0
9	4.5	7.0	12	7.0	15	11	e13	e13	e10	e80	e14	e9.0
10	4.5	7.0	15	8.2	15	11	e13	e12	e10	e50	e13	e8.5
11	4.4	7.3	30	8.4	15	11	e12	e12	e20	e40	e13	9.0
12	4.3	7.5	14	12	15	10	e12	e11	14	e34	e12	e10
13	4.3	7.6	9.1	26	16	10	e13	e11	e13	30	e12	e12
14	4.3	7.3	7.9	38	15	10	e20	e40	e100	e26	e12	e12
15	4.3	7.3	7.5	19	15	9.4	e16	e20	e50	e22	e13	e11
16	4.4	7.8	7.2	13	15	9.3	e15	e30	e30	e20	e13	e11
17	4.4	8.0	7.0	11	22	8.9	14	e150	e20	e19	e13	e10
18	4.3	7.5	6.9	17	19	8.6	e13	e2000	e14	e18	e12	e9.0
19	4.5	9.3	6.9	47	17	8.4	e13	650	e10	e18	e11	e8.5
20	4.3	11	7.0	36	17	9.7	e14	e300	e9.0	e17	e11	e8.5
21	4.6	8.3	7.3	21	24	43	e13	e150	e8.5	e16	e10	e8.5
22	4.5	7.7	7.4	15	17	79	e13	e70	e8.2	e16	e10	e8.5
23	4.5	7.5	9.2	13	14	36	e12	e35	e8.0	e15	e10	e8.2
24	4.3	7.6	8.8	13	13	22	e11	27	e9.0	e15	e10	e8.2
25	4.2	7.7	7.7	12	12	18	e11	e23	e8.5	18	e10	e8.2
26	4.9	8.7	7.1	19	13	e50	e10	e20	e8.0	e17	e11	e8.0
27	6.0	9.7	8.4	32	13	e80	e10	e18	e1200	e16	e11	e8.0
28	10	8.0	15	19	12	e40	e9.5	e16	e1200	e16	e10	e8.0
29	10	7.5	12	98	---	e150	e9.5	e15	e300	e15	e10	e8.0
30	8.2	7.6	8.7	167	---	e100	e9.0	e14	e1900	e15	e10	e8.0
31	7.9	---	8.9	41	---	e60	---	e13	---	14	e10	---
TOTAL	164.1	233.0	293.9	754.8	481	913.3	448.0	3801.0	5046.2	3837	501	271.6
MEAN	5.29	7.77	9.48	24.3	17.2	29.5	14.9	123	168	124	16.2	9.05
MAX	10	11	30	167	29	150	40	2000	1900	1800	70	12
MIN	4.2	6.5	6.9	7.0	12	8.4	9.0	9.0	8.0	14	10	8.0
AC-FT	325	462	583	1500	954	1810	889	7540	10010	7610	994	539
CFSM	.14	.20	.24	.63	.44	.76	.38	3.16	4.34	3.19	.42	.23
IN.	.16	.22	.28	.72	.46	.88	.43	3.64	4.84	3.68	.48	.26

CAL YR 1988 TOTAL 4275.5 MEAN 11.7 MAX 239 MIN 4.2 AC-FT 8480 CFSM .30 IN. 4.10
WTR YR 1989 TOTAL 16744.9 MEAN 45.9 MAX 2000 MIN 4.2 AC-FT 33210 CFSM 1.18 IN. 16.05

e Estimated.

08066400 BIG CREEK NEAR SHEPHERD, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: August 1950 to July 1989 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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 WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT 03...	1445	6.5	63	20.5	13	6	2.9	1.3	7.0
NOV 16...	1235	8.0	72	18.5	15	4	3.5	1.4	7.9
JAN 10...	1530	8.4	74	12.0	15	6	3.6	1.5	8.1
FEB 27...	1530	12	80	16.5	16	6	3.9	1.5	8.7
APR 17...	1422	14	76	19.0	17	6	4.5	1.4	8.2
JUN 12...	1530	14	72	25.0	17	5	4.4	1.5	7.7
JUL 25...	0835	18	67	23.0	18	9	5.2	1.3	6.9

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 03...	0.9	1.1	7	5.0	11	<0.10	16	48
NOV 16...	0.9	1.3	11	6.4	12	0.10	16	55
JAN 10...	0.9	1.1	9	8.5	13	<0.10	16	57
FEB 27...	1	1.0	10	7.6	14	0.10	16	59
APR 17...	0.9	1.1	11	3.8	13	0.10	15	54
JUN 12...	0.8	1.1	12	4.0	12	0.10	17	55
JUL 25...	0.7	1.0	9	7.5	11	0.10	15	53

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.

REMARKS.--No estimated daily discharges. Records good. 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); 21 years (water years 1969-1989) flow regulated by Livingston Reservoir, 7,389 ft³/s (5,353,000 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, 83,500 ft³/s July 2 at 1000 hours (gage height, 40.11 ft); minimum daily, 796 ft³/s Dec. 1-6.

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	874	830	796	968	3250	12100	40800	4010	37100	75600	9100	2040
2	935	805	796	941	2290	9850	41000	3960	39700	81700	9140	1870
3	915	817	796	931	1550	9250	36500	4000	41000	74800	8710	1810
4	912	820	796	911	3110	8170	31600	4090	41400	68000	7620	1800
5	897	820	796	905	4830	7460	21400	6230	41600	60200	6960	1780
6	897	820	796	904	6360	5630	13500	10800	41700	51300	6750	1770
7	889	816	804	881	6620	3670	9430	12000	41400	42100	6690	1770
8	889	812	842	864	6040	2880	8380	12200	40600	34000	6620	1770
9	889	812	872	850	5830	2360	8160	14400	38000	25200	6580	1750
10	889	818	936	850	5660	2110	8080	15600	32400	19900	6550	1720
11	889	820	1130	863	4330	2030	7930	16100	25900	17300	6520	1740
12	884	820	1250	903	3930	1980	7620	18400	23000	16100	6500	1760
13	881	820	1110	1230	3890	1970	7820	19000	19800	15800	6490	1730
14	881	811	1050	2160	3450	1960	8080	20400	18000	15600	6470	1740
15	881	804	975	2280	3020	1920	8140	23300	18600	15400	6460	1730
16	881	812	920	1670	2240	1910	7750	24500	17900	15300	6430	1700
17	870	798	898	1460	2020	1900	6470	25200	18100	15300	6420	1680
18	866	801	897	1510	2020	1900	6270	41100	19800	15100	6410	1790
19	866	824	890	3100	2030	1880	6230	61100	22600	14700	6390	3840
20	866	852	889	2520	2160	1880	6180	45200	23500	14000	5970	4530
21	866	837	887	2420	5570	2320	6130	38300	23600	13600	5320	4630
22	866	829	905	2100	8620	6530	6670	32900	25800	12800	4920	4850
23	860	821	948	1630	9050	7880	6990	30200	28300	12700	4860	4910
24	858	820	928	1310	9010	7660	7000	29100	32200	12700	4830	4750
25	858	815	922	1190	10800	6490	6980	28600	34600	12700	4810	3370
26	869	826	915	1140	12900	4990	6960	28400	36800	12600	4800	2460
27	912	831	929	1270	13500	4990	6790	28200	41400	10700	4780	2250
28	904	815	1010	1440	13400	5440	5260	28100	52500	10100	4440	1900
29	912	806	994	1900	---	10400	4300	27900	56100	10100	3580	1820
30	912	803	978	6270	---	29200	4100	29800	60700	9880	2700	1790
31	911	---	1000	4110	---	40100	---	33700	---	9250	2500	---
TOTAL	27479	24535	28655	51481	157480	208810	352520	716790	994100	814530	186320	73050
MEAN	886	818	924	1661	5624	6736	11750	23120	33140	26280	6010	2435
MAX	935	852	1250	6270	13500	40100	41000	61100	60700	81700	9140	4910
MIN	858	798	796	850	1550	1880	4100	3960	17900	9250	2500	1680
AC-FT	54500	48670	56840	102100	312400	414200	699200	1422000	1972000	1616000	369600	144900

CAL YR 1988 TOTAL 1004830 MEAN 2745 MAX 15900 MIN 568 AC-FT 1993000
WTR YR 1989 TOTAL 3635750 MEAN 9961 MAX 81700 MIN 796 AC-FT 7212000

08066500 TRINITY RIVER AT ROMAYOR, TX--Continued
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WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1941 to November 1949, February 1950 to September 1951, October 1953 to current year. Chemical and biochemical analyses: February 1968 to current year. Pesticide analyses: February 1968 to July 1981, August 1983 to current year. Sediment records: March 1959 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1941 to September 1942, January 1944 to September 1951, October 1953 to current year.
WATER TEMPERATURE: October 1941 to September 1950, October 1953 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1954 to September 1955, October 1968 to September 1971.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE (1945-50, 1953-89): Maximum daily, 3,800 microsiemens Oct. 30, 1956; minimum daily, 103 microsiemens Nov. 9, 1946.
WATER TEMPERATURES (1953-58, 1961-89): 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, 500 microsiemens Dec. 6; minimum daily, 138 microsiemens Jan. 30.
WATER TEMPERATURE: Maximum daily, 32.5°C Sept. 2; minimum daily, 8.0°C Feb. 7.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
NOV											
14...	1110	820	471	8.50	21.0	--	8.2	9.6	107	1.8	28
JAN											
12...	0930	897	467	7.90	15.5	19	11	9.1	90	3.6	36
20...	0700	2560	253	7.50	12.0	95	82	9.7	89	3.3	3700
FEB											
13...	1117	3890	488	8.00	12.0	--	12	11.0	102	1.6	44
APR											
04...	1130	30600	442	8.30	18.0	--	6.0	9.8	104	2.6	50
MAY											
31...	1355	33600	360	7.90	26.0	--	27	9.6	117	2.1	36
JUL											
05...	1200	59900	294	8.20	27.0	--	13	7.8	98	2.3	60
AUG											
22...	0950	4920	326	7.70	28.5	--	9.1	7.6	97	2.2	80
SEP											
05...	1000	1780	335	8.00	28.5	15	4.3	8.3	106	2.8	56

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
NOV											
14...	88	140	22	46	5.0	42	2	5.7	114	46	44
JAN											
12...	130	130	26	45	4.9	42	2	6.0	107	45	47
20...	4400	--	--	--	--	--	--	--	--	--	--
FEB											
13...	64	130	19	43	4.7	43	2	6.0	108	51	46
APR											
04...	92	130	29	44	4.6	39	2	5.7	100	51	38
MAY											
31...	96	120	27	40	4.0	26	1	4.9	90	39	26
JUL											
05...	88	110	8	38	3.3	15	0.7	5.1	101	22	13
AUG											
22...	44	120	13	43	3.8	16	0.7	4.9	111	24	15
SEP											
05...	96	130	10	44	3.7	18	0.7	4.8	115	21	15

08066500 TRINITY RIVER AT ROMAYOR, TX--Continued
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WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L)	RESIDUE VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRATE DISSOLVED (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)
NOV											
14...	0.40	6.9	274	265	--	--	0.080	--	0.020	<0.010	0.100
JAN											
12...	0.40	6.6	--	261	13	<1	0.180	--	0.020	--	0.200
20...	--	--	--	--	116	50	0.170	--	0.030	--	0.200
FEB											
13...	0.50	5.6	276	267	--	--	0.490	0.510	0.010	0.020	0.500
APR											
04...	0.40	6.6	272	253	--	--	0.590	0.620	0.010	0.020	0.600
MAY											
31...	0.30	5.2	230	203	--	--	--	--	<0.010	<0.010	0.600
JUL											
05...	0.20	6.9	179	165	--	--	0.090	--	0.010	<0.010	0.100
AUG											
22...	0.30	8.3	191	183	--	--	--	--	<0.010	0.010	0.100
SEP											
05...	0.20	8.0	--	184	9	<1	--	--	<0.010	--	<0.100

DATE	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)	PHOSPHOROUS TOTAL (MG/L AS P)	PHOSPHOROUS DISSOLVED (MG/L AS P)	PHOSPHOROUS ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	SEDIMENT, SUSPENDED (MG/L)
NOV											
14...	0.110	0.020	<0.010	0.88	0.90	0.110	0.060	0.040	0.12	--	4
JAN											
12...	--	0.030	--	0.47	0.50	0.200	--	--	--	7.5	--
20...	--	0.130	--	1.2	1.3	0.150	--	--	--	13	--
FEB											
13...	0.530	0.040	<0.010	0.56	0.60	0.120	0.090	0.080	0.25	--	9
APR											
04...	0.640	0.030	0.020	0.57	0.60	0.180	0.120	0.110	0.34	--	91
MAY											
31...	0.580	<0.010	0.020	--	1.9	0.160	0.150	0.110	0.34	--	105
JUL											
05...	0.100	0.030	0.030	0.67	0.70	0.160	0.080	0.080	0.25	--	175
AUG											
22...	<0.100	0.010	0.030	0.69	0.70	0.170	0.120	0.090	0.28	--	--
SEP											
05...	--	0.010	--	0.59	0.60	0.170	--	--	--	5.8	--

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											
14...	8.9	95	<10	3	78	<0.5	<1	<1	<3	3	9
JAN											
12...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
FEB											
13...	95	92	--	--	--	--	--	--	--	--	--
APR											
04...	7520	43	10	2	55	<0.5	<1	<1	<3	3	21
MAY											
31...	9530	33	10	3	50	<0.5	3	<1	<3	9	19
JUL											
05...	28300	33	<10	3	52	<0.5	<1	<1	<3	6	21
AUG											
22...	--	--	10	4	58	<0.5	<1	<1	<3	2	8
SEP											
05...	--	--	--	--	--	--	--	--	--	--	--

08066500 TRINITY RIVER AT ROMAYOR, TX--Continued
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WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

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...	<5	10	4	<0.1	10	3	<1	<1.0	350	<6	5
JAN 12...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
FEB 13...	--	--	--	--	--	--	--	--	--	--	--
APR 04...	<5	11	1	<0.1	<10	5	<1	<1.0	320	<6	5
MAY 31...	1	9	2	<0.1	<10	3	<1	<1.0	300	<6	<3
JUL 05...	4	6	2	<0.1	<10	3	<1	<1.0	270	<6	8
AUG 22...	<1	7	2	0.2	<10	1	<1	<1.0	310	<6	8
SEP 05...	--	--	--	--	--	--	--	--	--	--	--

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1988 TO SEPTEMBER 1989

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.	1988	27479	460	260	19300	43	3160	52	3890	140
NOV.	1988	24535	477	269	17800	45	2980	55	3650	140
DEC.	1988	28655	471	266	20600	44	3410	54	4190	140
JAN.	1989	51481	329	189	26200	28	3820	34	4780	110
FEB.	1989	157480	460	260	110000	43	18200	53	22400	140
MAR.	1989	208810	429	244	137000	38	21700	48	26800	130
APR.	1989	352520	442	251	239000	40	38200	49	47100	130
MAY	1989	716790	362	208	402000	30	58300	38	72900	120
JUNE	1989	994100	318	184	494000	25	67000	32	84600	110
JULY	1989	814530	292	170	374000	22	48700	28	61900	98
AUG.	1989	186320	317	184	92400	25	12500	31	15800	110
SEPT	1989	73050	335	194	38200	27	5300	34	6670	110
TOTAL		3635750	**	**	1971000	**	283000	**	355000	**
WTD.AVG.		9961	349	201	**	29	**	36	**	110

08066500 TRINITY RIVER AT ROMAYOR, TX--Continued
(National stream-quality accounting network)

SPECIFIC CONDUCTANCE, US/CM AT 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
EQUIVALENT MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	448	471	490	465	196	479	452	407	363	289	310	331
2	449	472	490	471	249	475	448	399	356	262	309	338
3	440	471	491	475	312	439	446	395	347	263	304	336
4	447	471	494	477	436	459	445	391	343	293	300	336
5	454	472	495	480	469	463	444	390	340	292	315	336
6	455	475	500	479	479	462	446	388	320	292	312	338
7	461	475	494	482	485	452	445	391	328	292	312	337
8	464	475	488	483	478	455	446	393	319	291	313	337
9	461	475	470	485	476	463	447	397	309	295	314	336
10	462	475	483	484	480	451	448	398	314	297	315	336
11	464	474	453	482	478	448	448	397	309	299	316	336
12	462	474	418	480	477	448	445	400	322	302	318	334
13	462	476	424	453	476	447	444	401	320	306	318	332
14	462	476	439	357	477	451	438	394	310	307	318	332
15	463	477	460	284	475	454	436	397	301	308	317	323
16	462	477	475	329	470	456	437	398	302	309	318	331
17	462	478	479	366	464	458	436	383	314	309	320	334
18	463	479	482	400	463	460	439	319	318	310	320	333
19	464	478	483	208	456	458	440	262	319	310	320	336
20	465	476	484	263	454	449	436	307	317	310	320	334
21	465	469	484	275	476	449	432	348	318	311	322	334
22	465	480	485	272	454	384	430	365	320	311	323	334
23	466	482	466	344	455	404	434	377	322	311	324	334
24	468	482	475	397	462	412	430	381	326	311	324	334
25	470	484	471	425	469	424	430	383	326	311	324	335
26	469	483	477	436	477	406	431	380	324	310	324	338
27	460	485	478	437	475	379	418	378	316	309	323	344
28	456	480	461	394	472	448	421	374	276	308	326	340
29	456	480	463	372	---	339	412	368	289	307	330	341
30	463	486	468	138	---	389	410	363	274	307	329	342
31	467	---	447	191	---	437	---	358	---	307	330	---
MEAN	460	477	473	390	446	439	437	377	319	301	318	335

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
INSTANTANEOUS VALUES

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

08066500 TRINITY RIVER AT ROMAYOR, TX--Continued
(National stream-quality accounting network)

Trinity River at Romayor

Phytoplankton Analyses September 1988 to October 1989

Date	1-12-89
Time	0930
TOTAL CELLS/mL	61,399
NUMBER OF SPECIES	30
DEPTH COLLECTED (ft.)	?

Organisms	Cells/mL
CHLOROPHYTA (Green algae)	
Ankistrodesmus falcatus	1,224
Chlamydomonas sp.	153
Crucigenia tetrapedia	612
Coelastrum reticulatum	2,448
Dictyosphaerium pulchellum	765
Euastrum sp.	306
Kirchneriella lunaris	1,071
Oocystis sp.	153
Pediastrum tetras	367
Scenedesmus quadricauda	1,224
Tetraedron caudatum	46
Tetraedron triangulare	153
Tetrastrum komarekii	1,224
Tetrastrum staurogeniaeforme	1,224
unidentified green coccoids	459
CYANOPHYTA (Blue-green algae)	
Aphanocapsa elachista	11,475
Merismopedia tenuissima	34,272
Schizothrix calcicola	153
EUGLENOPHYTA (Euglenoids)	
Trachelomonas sp.	153
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella atomus	459
Cyclotella meneghiniana	765
Cyclotella pseudostelligera	306
Melosira granulata	153
Stephanodiscus sp.	459
Order Pennales	
Amphora ovalis	46
Navicula capitata	153
Navicula sp.	153
Nitzschia sp.	1,224
Opephora martyi	46
Synedra delicatissima	153

08066500 TRINITY RIVER AT ROMAYOR, TX--Continued
(National stream-quality accounting network)

Trinity River at Romayor

Phytoplankton Analyses September 1988 to October 1989

Date	1-20-89
Time	0700
TOTAL CELLS/mL	22,617
NUMBER OF SPECIES	30
DEPTH COLLECTED (ft.)	--

Organisms	Cells/mL
BACILLARIOPHYTA (Diatoms)	
Order Centrales	
Cyclotella kutzingiana	113
Melosira granulata	563
Melosira granulata var. *angustissima*	675
Stephanodiscus astrea var. *minutula*	113
Stephanodiscus sp.	901
Order Pennales	
Amphora sp.	197
Cymbella aspera	99
Cymbella minuta	99
Cymbella sp.	99
Diploneis sp.	99
Gyrosigma sp.	298
Navicula amphibola	298
Navicula cuspidata	99
Navicula decussis	197
Navicula hustedtii	397
Navicula sp.	99
Nitzschia flexa	197
Pinnularia appendiculata	197
Surirella sp.	99
Unknown pennate	894
CHLOROPHYTA (Green algae)	
Ankistrodesmus convolutus	675
Chlamydomonas sp.	1,688
Chlorococcum humicola	1,013
Chodatella subsalsa	338
Scenedesmus quadricauda	1,351
Selenastrum minutum	338
CYANOPHYTA (Blue-green algae)	
Aphanothece saxicola	7,429
Chroococcus limneticus	2,026
Chroococcus sp.	675
CRYPTOPHYTA (Cryptomonads)	
Cryptomonas sp.	1,351

08066500 TRINITY RIVER AT ROMAYOR, TX--Continued
(National stream-quality accounting network)

Trinity River at Romayor
Phytoplankton Analyses September 1988 to October 1989

Date	9-05-89
Time	1000
TOTAL CELLS/mL	81,722
NUMBER OF SPECIES	60
DEPTH COLLECTED (ft.)	--

Organisms	Cells/mL
BACILLARIOPHYTA (diatoms)	
Order Centrales	
Cyclotella meneghiniana	203
Cyclotella stelligera	38
Melosira granulata var *angustissima*	19
Melosira granulata	10
Stephanodiscus dubius	10
Stephanodiscus tenuis	48
Stephanodiscus sp.	10
Order Pennales	
Anomoeoneis sp.	73
Navicula pupula var. *rectangularis*	15
Navicula sp.	15
Nitzschia kutzinginia	44
Nitzschia palea	44
Nitzschia subtilis	44
Nitzschia sp. 1	44
Nitzschia sp. 2	29
Surirriella ovalis	15
Synedra sp.	15
CHLOROPHYTA (green algae)	
Ankistrodesmus convolutus	169
Ankistrodesmus falcatus	169
Ankistrodesmus falcatus var. *mirabilis*	169
Ankistrodesmus nannoselene	169
Chlorella ellipsoidea	675
Chlorococcum humicola	169
Chlorogonium sp.	169
Chodatella quadriseta	338
Coelastrum sp.	169
Cosmarium sp.	169
Eudorina elegans	338
Golenkinia radiata	169
Nephrocytium agardhianum	675
Phacotus lenticularis	169
Scenedesmus bijuga	169
Scenedesmus dimorphus	169
Scenedesmus hystrix	338
Scenedesmus quadricauda	506
Schroederia setigera	506
Selenastrum minutum	169
Tetraedron muticum	169
Tetraedron trigonum	169
CYANOPHYTA (blue-green algae)	
Anabaena flos-aquae	675
Anabaena sp.	1,857
Anabaenaopsis elenkinni	2,701
Aphanocapsa delicatissima	1,013
Aphanothece saxicola	2,026
Chroococcus limneticus	338
Chroococcus multicoloratus	2,195
Chroococcus pallidus	4,728
Dactylococcopsis acicularis	169
Dactylococcopsis fascicularis	844
Merismopedia punctata	6,754
Merismopedia tenuissima	4,052
Oscillatoria angustissima	10,975
Oscillatoria limnetica	8,442
Pseudanabaena catenata	22,962
Raphidiopsis curvata	3,039
Synechococcus lineare	1,351
Synechococcus sp.	338
Synechocystis sp.	169
CRYPTOPHYTA (cryptomonads)	
Chroomonas sp.	169
EUGLENOPHYTA	
Euglena sp.	338

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, that of May 12, 1942.

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, 67,000 ft³/s July 4 at 1800 hours (gage height, 29.05 ft); minimum discharge not determined (affected by tides); minimum gage height, not recorded.

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	---	---	---	---	---	10500	28900	---	33900	52500	---	---
2	---	---	---	---	---	---	31900	---	35300	55800	---	---
3	---	---	---	---	---	---	33500	---	36800	58800	---	---
4	---	---	---	---	---	---	32700	---	38300	64400	---	---
5	---	---	---	---	---	---	30000	---	39900	65000	---	---
6	---	---	---	---	---	---	23600	---	40800	62400	---	---
7	---	---	---	---	---	---	16500	---	40400	59500	---	---
8	---	---	---	---	---	---	12500	---	40700	54100	---	---
9	---	---	---	---	---	---	---	---	40300	46200	---	---
10	---	---	---	---	---	---	---	11900	38600	37600	---	---
11	---	---	---	---	---	---	---	12600	35500	31200	---	---
12	---	---	---	---	---	---	---	13600	31700	26100	---	---
13	---	---	---	---	---	---	---	15200	27500	22300	---	---
14	---	---	---	---	---	---	---	16300	24200	20000	---	---
15	---	---	---	---	---	---	---	17700	21900	18500	---	---
16	---	---	---	---	---	---	---	19700	20500	17400	---	---
17	---	---	---	---	---	---	---	21400	19200	16500	---	---
18	---	---	---	---	---	---	---	32000	18900	15800	---	---
19	---	---	---	---	---	---	---	42100	19600	15200	---	---
20	---	---	---	---	---	---	---	51900	20800	14300	---	---
21	---	---	---	---	---	---	---	53200	21200	13700	---	---
22	---	---	---	---	---	---	---	50700	21700	13100	---	---
23	---	---	---	---	---	---	---	45100	23200	12400	---	---
24	---	---	---	---	---	---	---	40500	25300	12200	---	---
25	---	---	---	---	---	---	---	38100	27700	12000	---	---
26	---	---	---	---	---	---	---	36700	30500	12100	---	---
27	---	---	---	---	---	---	---	35300	35000	11900	---	---
28	---	---	---	---	10600	---	---	34700	38300	10500	---	---
29	---	---	---	---	---	---	---	34100	43100	---	---	---
30	---	---	---	---	---	---	---	33600	48900	---	---	---
31	---	---	---	---	---	23300	---	33300	---	---	---	---
TOTAL	---	---	---	---	---	---	---	---	939700	---	---	---
MEAN	---	---	---	---	---	---	---	---	31320	---	---	---
MAX	---	---	---	---	---	---	---	---	48900	---	---	---
MIN	---	---	---	---	---	---	---	---	18900	---	---	---
AC-FT	---	---	---	---	---	---	---	---	1864000	---	---	---

CAL YR 1988	TOTAL --	MEAN --	MAX --	MIN --	AC-FT --
WTR YR 1989	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.--No estimated daily discharges. Records good. No diversion between pump plant and gage. Water is pumped from Trinity River for industrial use.

AVERAGE DISCHARGE.--8 years, 317 ft³/s (229,700 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, 534 ft³/s June 3, 4; minimum daily, 218 ft³/s Dec. 5, 12, June 27.

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	350	266	296	358	339	332	400	412	530	392	354	373
2	325	286	286	314	388	332	400	412	521	392	362	388
3	318	283	286	381	336	339	373	416	534	396	478	461
4	350	243	286	362	373	377	400	412	534	388	486	478
5	369	227	218	388	388	336	396	365	490	373	478	424
6	396	250	279	332	404	381	381	365	473	381	469	428
7	412	286	279	392	396	369	369	369	461	404	424	444
8	384	296	279	377	332	339	365	365	457	408	400	412
9	381	300	227	362	392	377	412	381	457	444	396	404
10	307	293	276	381	303	325	428	412	453	461	408	404
11	296	290	221	392	396	365	444	436	453	457	408	404
12	318	250	218	339	332	339	444	469	453	457	416	388
13	321	276	276	354	381	369	444	469	457	440	416	369
14	336	318	279	377	354	404	436	444	465	452	412	396
15	377	321	276	318	318	412	436	412	461	457	432	392
16	365	259	296	381	318	354	436	369	444	457	428	408
17	358	290	310	321	369	416	428	365	444	465	473	428
18	362	286	279	388	377	412	384	365	440	465	473	461
19	362	237	283	303	377	350	404	358	416	416	473	453
20	336	300	321	296	310	424	404	358	412	448	473	404
21	343	321	377	358	318	369	408	377	428	461	457	424
22	343	293	328	321	283	369	408	404	490	473	444	416
23	336	259	271	377	293	400	420	416	490	469	440	428
24	350	262	428	388	303	416	448	440	469	490	416	428
25	404	290	384	343	369	420	453	453	404	482	358	428
26	362	234	396	343	321	388	453	469	286	440	290	416
27	350	276	321	362	362	377	453	457	218	424	279	408
28	286	283	362	300	325	381	457	457	283	314	314	440
29	272	318	369	384	---	377	453	478	377	321	381	440
30	283	325	384	377	---	384	428	495	392	328	408	408
31	221	---	381	314	---	400	---	508	---	325	404	---
TOTAL	10573	8418	9472	10983	9757	11633	12565	12908	13192	13080	12850	12555
MEAN	341	281	306	354	348	375	419	416	440	422	415	418
MAX	412	325	428	392	404	424	457	508	534	490	486	478
MIN	221	227	218	296	283	325	365	358	218	314	279	369
AC-FT	20970	16700	18790	21780	19350	23070	24920	25600	26170	25940	25490	24900

CAL YR 1988 TOTAL 135298 MEAN 370 MAX 593 MIN 218 AC-FT 268400
WTR YR 1989 TOTAL 137986 MEAN 378 MAX 534 MIN 218 AC-FT 273700

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 for those for estimated daily discharges, which are poor. Stage discharge relationship 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 telemeter at station.

AVERAGE DISCHARGE.--18 years (water years 1972-89), 80.8 ft³/s (58,540 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)
May 19	0400	*4,100	*24.95	June 27	0900	3,480	24.08

Minimum daily 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	8.2	1.9	.10	.10	12	.38	.07	29	e29	664	13	1.8
2	19	1.2	.09	.16	11	1.2	.05	3.0	e48	295	28	1.5
3	19	1.1	.47	.21	6.0	18	.03	8.3	e29	136	19	1.1
4	15	1.1	1.6	.27	3.2	15	.01	106	e24	56	12	.58
5	4.8	.97	3.7	.42	3.3	16	.01	244	e26	29	9.5	1.4
6	.99	.81	4.4	.58	13	24	.00	e256	e15	21	13	1.1
7	.15	.71	.18	.61	14	22	.03	e10	e6.4	109	14	1.2
8	.06	.52	.13	.75	14	.67	.27	5.6	e2.8	336	8.4	1.1
9	.01	.27	.11	.70	14	.10	.31	8.2	e1.5	116	7.3	.96
10	.00	.17	.16	.66	14	.07	.12	.74	e6.4	51	7.8	1.2
11	.00	.11	.32	.33	10	.12	.09	.84	e3.1	45	13	1.5
12	.00	.08	.32	.30	7.1	.23	.18	.55	e4.5	54	9.5	1.2
13	.00	.06	.28	.29	4.8	.23	.26	1.9	e10	13	7.7	.44
14	.03	.07	.15	.25	4.2	.22	.33	e177	332	6.8	7.4	9.7
15	.12	.06	.06	.15	7.8	.16	.38	e108	234	7.3	7.5	19
16	.19	.02	.03	.11	e25	.11	.43	e13	72	9.4	8.3	3.1
17	.26	.00	.02	.09	e8.0	.06	.51	13	e45	6.7	8.0	.84
18	.40	.00	.02	.13	e3.0	.05	.49	2800	31	5.2	6.4	.51
19	.29	.00	.02	.43	e1.4	.04	.41	4030	23	5.0	7.6	3.0
20	.11	.06	.02	7.7	e.60	.04	.29	3510	23	5.7	12	5.4
21	.11	.07	.03	18	e1.0	.10	.10	2970	15	5.6	9.7	3.4
22	.00	.07	.06	4.1	e1.2	.52	.11	2480	13	4.2	4.7	2.4
23	.00	.07	.07	1.4	e1.0	.67	.07	1310	19	4.5	3.7	2.6
24	.00	.08	.05	1.3	.58	.55	.06	321	32	4.6	8.5	2.2
25	.00	.13	.01	1.2	.48	.40	.04	77	122	7.7	23	1.3
26	.02	.27	.01	1.1	.49	.31	.03	e31	1200	10	15	.77
27	.16	.30	.02	.69	.44	.26	.02	e16	3400	26	6.4	.54
28	1.2	.19	.05	.74	.32	.20	.02	e2.4	3050	39	3.3	.51
29	3.9	.15	.06	.67	---	.11	.02	e3.1	2560	40	4.2	.51
30	3.8	.15	.06	1.3	---	.13	16	e15	1730	21	4.4	.50
31	2.8	---	.09	7.0	---	.11	---	e12	---	16	3.4	---
TOTAL	80.60	10.69	12.69	51.74	181.91	102.04	20.74	18562.63	13106.7	2149.7	305.7	71.36
MEAN	2.60	.36	.41	1.67	6.50	3.29	.69	599	437	69.3	9.86	2.38
MAX	19	1.9	4.4	18	25	24	16	4030	3400	664	28	19
MIN	.00	.00	.01	.09	.32	.04	.00	.55	1.5	4.2	3.3	.44
AC-FT	160	21	25	103	361	202	41	36820	26000	4260	606	142

CAL YR 1988 TOTAL 5530.11 MEAN 15.1 MAX 714 MIN .00 AC-FT 10970
WTR YR 1989 TOTAL 34656.50 MEAN 94.9 MAX 4030 MIN .00 AC-FT 68740

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 1989

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Measurements	
					Date	Discharge (ft^3/s)
		Arkansas River basin				
07227700	Chicken Creek near Amarillo, Tex.	Lat 35°28'29", long 101°45'35", Potter County, about 1.5 mi northeast of LX Ranch headquarters and about 18 mi northeast of Amarillo.	(a)	1953-89	1-11-89 6-21-89	1.27 .67
		Red River basin				
07299750	Wanderers Creek at Odell, Tex.	Lat 34°20'50", long 99°25'15", Wilbarger County, at county road bridge and 0.25 mi northwest of Odell Post Office.	199	1949-50, 1952-89	2- 8-89 7-27-89	3.70 2.54
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	1964-89	1-10-89 6-21-89	4.07 10.1
07303300	Elm Creek near Shamrock, Tex.	Lat 35°07'21", long 100°17'07", Collingsworth County, at county road bridge, 1,500 ft downstream from Fort Worth and Denver (Burlington) Railway Company bridge, and about 6 mi southwest of Shamrock.	(a)	1947-89	1- 4-89 6-20-89	2.08 4.06
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, 1943-89	1-13-89	1.20
		Neches River basin				
08041550	Village Creek at State Highway 327 near Silsbee, Tex.	Lat 30°20'49", long 94°14'20", Hardin County, at bridge on State Highway 327, about 1.6 mi upstream from Mill Creek, and 2.7 mi west of Silsbee.	-	1979-89	10-27-88	60
08041720	Pine Island Bayou at State Highway 105 near Sour Lake, Tex.	Lat 30°08'08", long 94°16'44", Hardin-Jefferson County line, at bridge on State Highway 105, about 2.0 mi upstream from mouth of Little Pine Island Bayou, and 7.9 mi east of Sour Lake.	-	1979-89	10-27-88	1.0

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 1989

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (ft^3/s)
		Red River basin					
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† 1987-89	6-14-89	7.49	1,000
07308200	Pease River near Vernon, Tex.	Lat 34°10'44", long 99°16'40", Wilbarger County, near left bank on downstream side of bridge on U.S. Highway 283, 1.9 mi north of Vernon, and 10 mi upstream from mouth.	3,488	1959-82† 1984-89	9-12-89	12.50	5,110
		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	1986-89	5-17-89	10.03	-
		Neches River basin					
08033000	Neches River near Diboll, Tex.	Lat 31°07'58", long 94°48'35", Angelina-Polk County line, at 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.	2,724	1924-25† 1939-85† 1986-89	4- 2-89	16.05	18,000
08038000	Attoyac Bayou near Chireno, Tex.	Lat 31°30'15", long 94°18'15", Nacogdoches-San Agustine County line, at 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.	503	1924-25† 1939-54† 1956-85† 1986-89	5-19-89	19.30	7,930
08039100	Ayish Bayou near San Augustine, Tex.	Lat 31°23'46", long 94°09'03", San Augustine County, at bridge on State Highway 103, 3.0 mi upstream from Turkey Creek, and 9.5 mi south of San Augustine.	89.0	1959-85† 1986-89	5-18-89	16.59	12,400
		Trinity River basin					
08045850	Clear Fork Trinity River near Weatherford, Tex.	Lat 32°44'25", long 97°39'06", Parker County, 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 Weaterford.	121	1980-85† 1986-89	5-18-89	21.32	3,310
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 1985-89	5-17-89	11.96	-
08051190	Elm Fork Trinity River above Aubrey, Tex.	Lat 33°19'12", long 97°01'34", Denton County, attached to trees on left bank, 0.1 mi downstream from Bray Branch, 1.4 mi downstream from abandoned county road bridge, 1.6 mi upstream from bridge on Farm Road 428, and 2.6 mi northwest of Aubrey (discontinued).	-	1981-89	6-13-89	*533.63	-
08053010	Indian Creek at Hebron Parkway, Carrollton, Tex.	Lat 33°01'06", long 96°55'27", Denton County, Hydrologic Unit 12030103, on left bank at downstream side of downstream bridge on Hebron Parkway in Carrollton, 0.9 mi downstream from bridge on Farm Road 2281 (Old Denton Road) and 2.2 mi upstream from mouth (discontinued).	14.7	1987-89	5-17-89	19.06	5,660
08053030	Furneaux Creek at Josey Lane, Carrollton, Tex.	Lat 33°00'05", long 96°53'10", Denton County, Hydrologic Unit 12030103, on right bank at downstream side of downstream bridge on Josey Lane in Carrollton, 0.5 mi upstream from bridge on Frankford Road, and 1.1 mi downstream from bridge on Rosemeade Parkway (discontinued).	4.13	1987-89	6- 6-89	a11.06	5,740

* Elevation, in feet.
† Operated as a continuous-record station.
ϕ Operated as an unpublished stage-only station.
a From floodmark.

Annual maximum stage and (or) discharge during water year 1989--Continued

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (ft^3/s)
		Trinity River basin--Continued					
08053050	Furneaux Creek at Dickerson Parkway, Carrollton, Tex.	Lat 32°59'10", long 96°55'09", Dallas County, Hydrologic Unit 12030103, on left bank at downstream side of downstream bridge on Dickerson Parkway in Carrollton, 0.6 mi downstream from bridge on Farm Road 2281 (Old Denton Road), and 1.5 mi upstream from mouth (discontinued).	9.84	1987-89	6- 7-89	11.36	3,490
08053090	Hutton Branch at Broadway, Carrollton, Tex.	Lat 32°57'24", long 96°54'37", Dallas County, Hydrologic Unit 12030103, on right bank at downstream side of bridge on Broadway (Loop 310) in Carrollton, 100 ft downstream from M-K-T Railroad Co. bridge, 600 ft upstream from traffic bridges on Interstate Highway 35E, and 0.2 mi downstream from bridge on Denton Drive (discontinued).	9.14	1987-89	5-17-89	13.59	4,140
		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	1984-89	6-26-89	*7.19	-
08067525	Goose Creek at Baytown, Tex.	Lat 29°46'14", long 94°59'58", Harris County, at bridge on Baker Road in Baytown, 1.1 mi upstream from West Fork Goose Creek, and 2.0 mi upstream from East Fork Goose Creek.	b15.8	1984-89	6-26-89	*21.43	-

* Elevation, in feet.
b Revised.

Measurements of streamflow at points other than gaging stations or partial-record stations are given in the following table:

Discharge measurements made at miscellaneous sites during water year 1989

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements: Date	Measurements: Discharge (ft^3/s)
		Trinity River basin				
West Fork Trinity River	Trinity River	Lat 32°47'18", long 97°08'23", Tarrant County, Hydrologic Unit 12030102, at upstream side of bridge on Arlington Bedford Road, 1.4 mi downstream from Village Creek, and 3.2 mi northwest of intersection of Interstate Highway 30 and Farm Road 157 in Arlington.	-	1974* 1987-89	5-31-89	8,940
Elm Fork Trinity River	Trinity River	Lat 32°49'46", long 96°53'29", Dallas County, Hydrologic Unit 12030103, at Proctor Road bridge, 0.9 mi downstream from Frazier Dam on Elm Fork Trinity River, and 3.9 mi northeast of city hall in Irving.	-	1987-89	5-15-87 12-09-88 3-16-89	a738 108 73.6
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	1-04-89 1-27-89 3-31-89 5-18-89 5-19-89	666 4,850 16,200 46,200 45,000

a Not previously published.
* Although measurement was at a slightly different site location, the drainage area is comparable to prior miscellaneous measurement.

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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